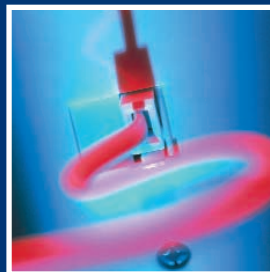
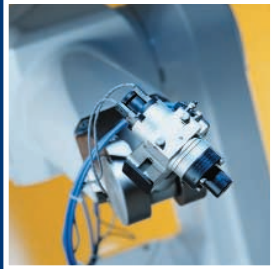


Alpha Wire Company

MASTER CATALOG



ADVANCED SOLUTIONS AND SERVICE IN WIRE, CABLE AND TUBING



www.alphawire.com

HOW TO USE THIS CATALOG

Alpha Wire's Master Catalog is a complete reference guide to the selection and specification of wire, cable and tubing products.

MAIN PRODUCT SECTIONS

Alpha Wire's product lines have been organized into major product sections, each with it's own "easy-to-use" table of contents.

YELLOW ALPHA PAGES

LOOK FOR THE PAGES THAT ARE YELLOW – for immediate access to information you need to meet your product requirements.

SPECIAL INDEXES

Within Alpha Wire's Special Indexes product can be located by **description**, **industry specification** or **part number**. Refer to any of the following indexes:

- **DESCRIPTIVE INDEX** – Page 1
- **INDUSTRY SPECIFICATIONS INDEX** – Page 4
- **ALPHA PART NUMBER INDEX** – Page 399

PRODUCT SELECTION GUIDES

A complete compilation of product finder, selection guides and cross reference information are all included.

- **HOOK-UP WIRE FINDER GUIDE** – Page 5
- **CABLE FINDER GUIDE** – Page 6
- **FIT® Preferred Heat Shrink Tubing SELECTION GUIDE** – Page 112
- **CROSS REFERENCES:**
 - Alpha Wire/Belden – Page 393
 - **XTRA•GUARD® Flexible Cables** – Pages 98 & 99
 - **FIT® Heat Shrink Tubing** – Page 145
 - **Wire Management/Liquid-Tight** – Page 164
 - **BUILDING ZONE Facilities Management Cable** – Page 250
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Alpha Wire Company

MASTER CATALOG

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Alpha Wire Company

It's all about synergy:

About integrating wire, cable and tubing products into a complete systems solution more powerful than the sum of its parts.



Welcome to

Alpha Wire Company

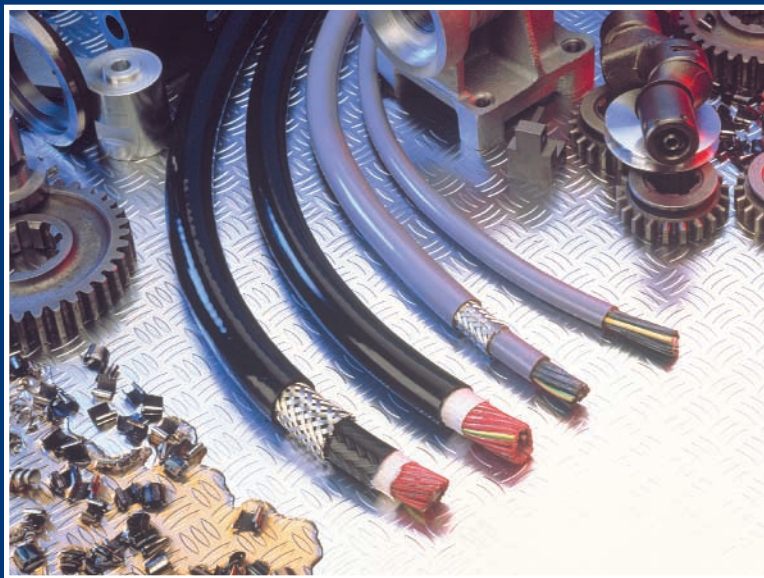
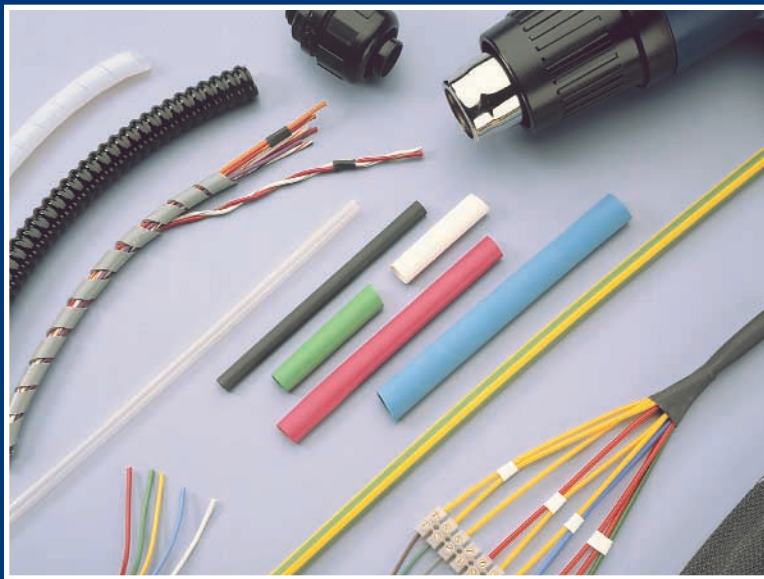
— combining the industry's most advanced solutions in wire, cable and tubing products with service excellence to bring customers more products, more technical know how, more industry vision.

Alpha Wire Company has the branded products and the expertise that today's advanced technology companies have come to rely on in their most critical applications — from the tough, durable **XTRA•GUARD® High Performance Electronic Cables** to the manufacturing-critical **Alpha Wire INDUSTRIAL SERIES** to **FIT® Preferred Heat Shrink Products**, for Computer, Telecommunication, Medical, Semiconductor Equipment Manufacturing, Industrial Automation and other application critical industries.



Simply put, Alpha Wire Company provides high performance wire, cable, and tubing products that insure superior systems reliability.

**ADVANCED SOLUTIONS AND SERVICE IN
WIRE, CABLE AND TUBING**



Alpha Wire Company

designs, develops, manufactures and distributes electronic wire, cable and tubing products for technologically advanced industries. Our single goal is to help customers find the best possible system solutions to their production and manufacturing challenges. From our leading **XTRA•GUARD® High Performance Electronic Cables** to **FIT® Preferred Heat Shrinkable Tubing** and our **Alpha Wire INDUSTRIAL SERIES Technologically Advanced Cable Systems For Automotive And Industrial Factory Automation**, **Alpha Wire Company** brings customers the right products for the right applications – anywhere in the world.

Right here, right now, **Alpha Wire Company** puts it all together, with the industry's leading brands, worldwide distribution and a commitment to customers that is second to none. The Alpha Wire Master Catalog offers twelve (12) product families encompassing over 10,000 different products to meet unique industry applications. Then Alpha Wire goes one step further: manufacturing specialty cables to meet unique applications – offering specific conductor counts, shielding options, unique jacket materials, and versatile product designs.

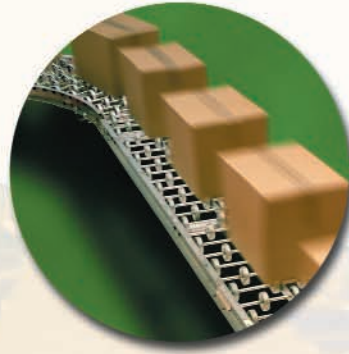


ADVANCED SOLUTIONS AND SERVICE IN WIRE, CABLE AND TUBING

Alpha Wire Company



ELECTRONIC COMPONENTS



CONVEYOR SYSTEMS



CABLE CARRIER / TRAY

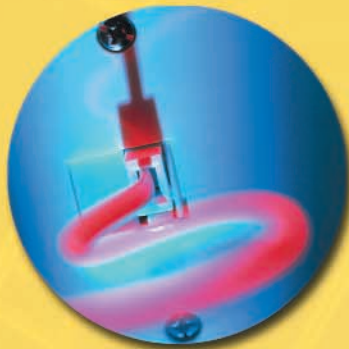


CONTROL SYSTEMS

**PRODUCTS
WITH A** *purpose*



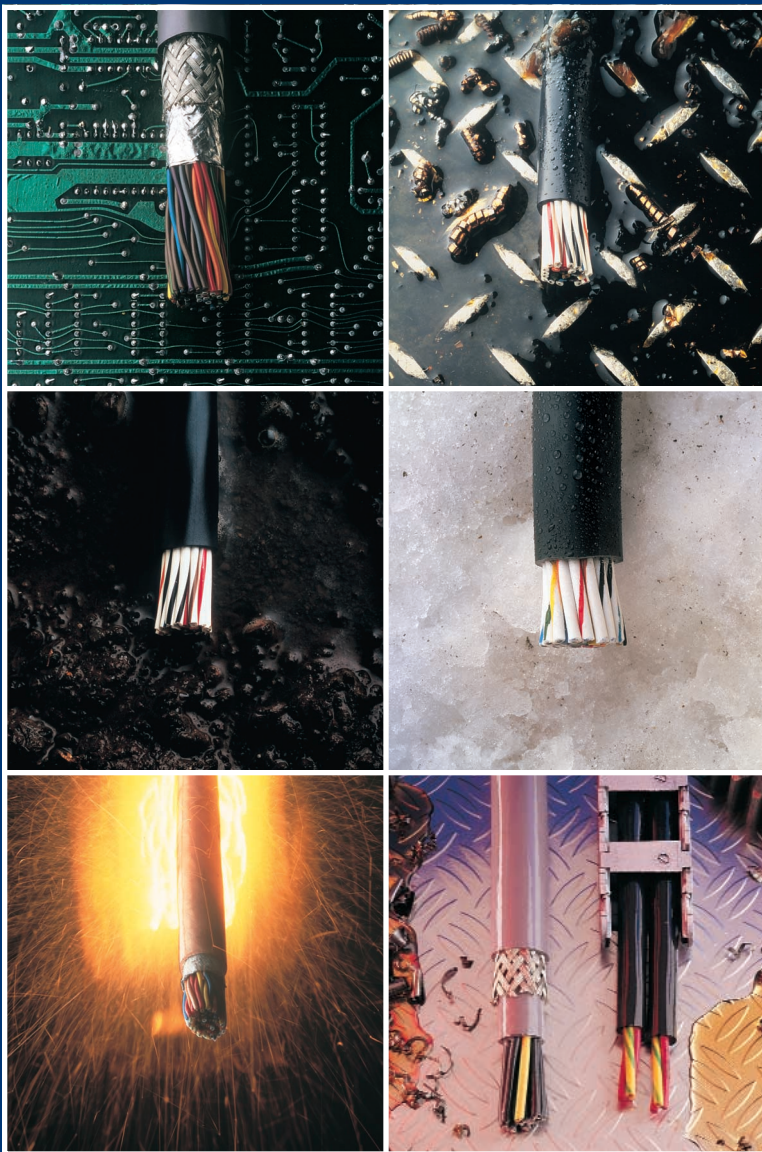
CLEAN ROOM PROCESSING



HIGH SPEED DATA COMMUNICATIONS



ROBOTICS / MATERIAL HANDLING



XTRA•GUARD®

High Performance Electronic Cables

Powerful Solutions For Critical Applications

The need for high performance electronic cables has never been greater, and Alpha Wire delivers with the **XTRA•GUARD®** brand. **XTRA•GUARD®** cables are "hazard-matched" to survive in the most demanding environments and offer the industry's broadest range of standard AWG sizes, conductor counts, shielding options and jacket color choices.

Remember, a cable is not just a cable!

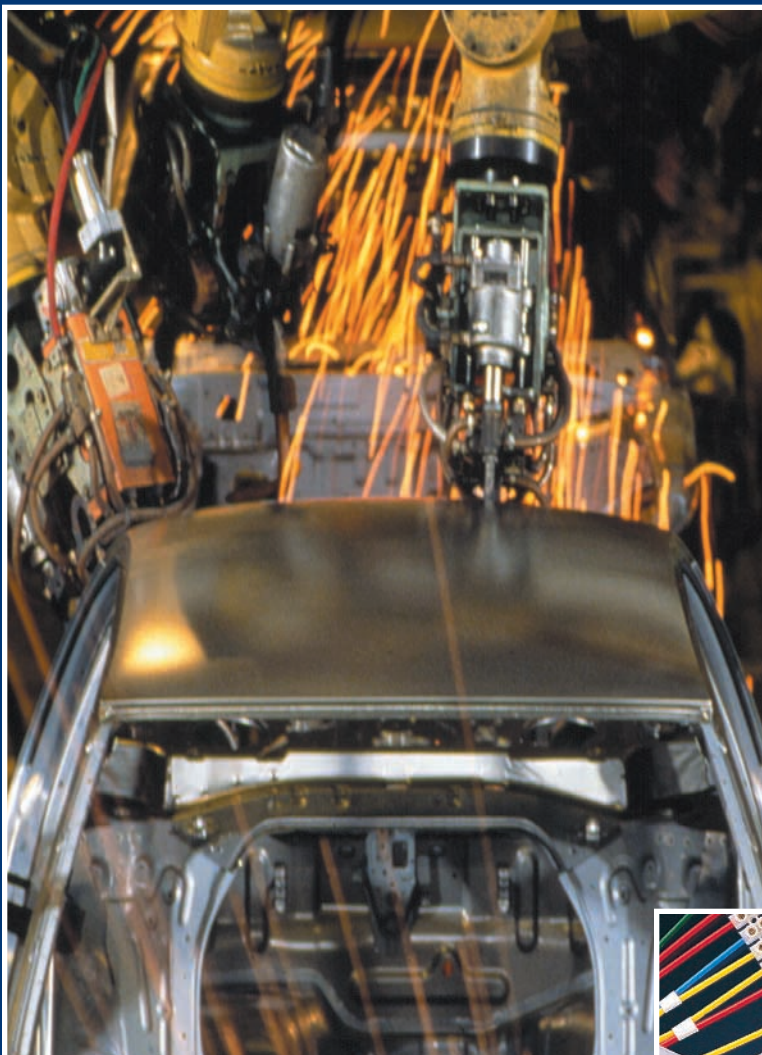
The entire **XTRA•GUARD®** product line, including **XTRA•GUARD® Flexible Cables**, has become the cable of choice, with maximum performance across a wide spectrum of applications.

Alpha Wire Company INDUSTRY-LEADING *brands*

Engineers count on **Alpha Wire Company's** industry-leading branded products for every application. From computer technology to telecommunications, from factory automation to semiconductor manufacturing – when critical systems have to work the first time, every time, engineers specify Alpha Wire branded products.

Whether it's a standard cable solution or a one-of-a-kind specialized design, Alpha Wire branded products offer decades of experience, superior construction and manufacturing excellence you can rely on.





Alpha Wire **INDUSTRIAL** SERIES

Technologically Advanced Cable Systems For Automotive And Industrial Factory Automation

Alpha Wire's commitment to "**Powerful Solutions For Critical Applications**" continues with the **Alpha Wire INDUSTRIAL** SERIES brand. The **Alpha Wire INDUSTRIAL** SERIES offers technologically advanced cable systems for automotive and industrial factory automation.

There is an **Alpha Wire INDUSTRIAL** SERIES cable product available to solve most existing and severe-duty application requirements. You'll find **Alpha Wire INDUSTRIAL** SERIES cables in automotive manufacturing systems around the world.



Simple, Comprehensive Tubing Solutions

The **FIT**® brand name is widely recognized wherever heat shrink products are used. Users prefer **FIT**® Heat Shrink Products more than any other source and ask for them by name.

FIT® Preferred Heat Shrink Products are made from premium compounds. This means **FIT**® will consistently have excellent physical characteristics while providing an elegant appearance when used alone or on OEM equipment. **FIT**® brand products offer tubing solutions for the broadest possible range of applications and environments.

FIT®, when synergistically matched with any Alpha wire and cable product, results in powerful protection against the harshest manufacturing environments.





The Right Product for the Right Application

When it has to be right, when dependability and quality are paramount, when safety and security are the primary issue, Alpha Wire has the total solution and has set the industry standard for performance, quality and reliability. And it's been that way for more than half a century. **Alpha Wire Company** has never stopped building on this foundation.

In today's high speed, digital world, **Alpha Wire Company** brings technical expertise, industry-specific solutions, a commitment to new product development and loyalty to customers.

We have a heritage of helping customers meet production and manufacturing challenges with leading edge solutions. The skills gained through this experience, combined with process knowledge gathered by our in-house research and development, enable us to help customers adapt to future technologies – whatever that future brings.

PRODUCT DESIGN AND DEVELOPMENT... **innovation** *is the key*

Innovation has taken on new meaning at **Alpha Wire Company** – with superior products for specific markets and customized systems solutions for the customers we serve. It means doing things more efficiently to achieve new goals and breakthroughs in every aspect of our business.

Innovation manifests itself in our leading edge technology, the improved ways in which we manufacture, the solutions and services we deliver, and how we work with our distributors to service our worldwide customers.

At Alpha Wire Company, innovative products and services are the result of expertise, real world knowledge, and a vision that looks beyond the limits of today's technology.





Local Roots, International Reach... Anywhere You Are

Elizabeth, NJ, USA

is home to **Alpha Wire Company's** headquarters. The company operates sales, manufacturing and distribution facilities throughout North America and the United Kingdom. In addition, to meet the wire, cable and tubing needs of customers throughout the world, Alpha Wire has over 1,500 distributor locations providing immediate product access from inventory and serving more than 50 countries. When wire, cable and tubing products are needed in any of the world's advanced technology centers, **Alpha Wire Company** is there.

Our logistical excellence and broad inventory availability provides dependable same-day shipment and next day delivery to most international destinations.

REAL TIME, REAL WORLD

customer

Alpha Wire Company recognizes that to be the very best wire, cable and tubing supplier in the industry we also have to be the #1 service supplier. To us, that means moving beyond the current industry model of reactive regional service to a model of global, proactive customer support.

Imagine a level of customer service that is superior to any the industry has ever seen. Imagine a global reach that can deliver products and expertise to the world's most important advanced technology centers. Imagine the best products linked to the best customer service.

That's what Alpha Wire Company means by total customer care – and it's not just a model for global support – it's a commitment.

support





**Contact
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Company's
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Representatives
and Technical
Personnel
for All of
Your Product
and Application
Needs!**

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with
Alpha Wire
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Alpha Wire's world class service offering incorporates the changing nature of information delivery. Alpha Wire uses many digital technologies to transform and improve relationships with it's distributors and worldwide customer base.

Alpha Wire offers electronic data interchange, fast fax order entry and confirmation as well as many web-based forms of contact and support on **www.alphawire.com**. Here are just some of the tools you'll find at **www.alphawire.com**:

- Online Master Catalog
- Product Specification Search
- Alpha Wire Part Number Search
- Competitive Part Number Search
- Interactively Linked Technical Data
- Immediate Literature Access
- Electronic Glossary of Terms

Make www.alphawire.com the first and last place you look for wire, cable and tubing – around the clock and from anywhere in the world.



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HOOK-UP WIRE FINDER GUIDE

Insulation Type	Temp. (°C)	Voltage (Volts)	Specification			Size Range		Alpha No. Series	Page No.
			MIL	UL	CSA	AWG	(MM ²)		
PVC	80, 90, 105	300		1007/1569	TR-64	30 - 16 24 - 22	(0,06 - 1,3) (0,23 - 0,38)	3047-3057 HU-KIT-20, HU-KIT-40	166 178
SR PVC	80	300		1061	AWM I A/B FTI	24 - 16	(0,23 - 1,3)	3250-3254	166
PVC	80	600	76B HW			14 - 8	(2,1 - 8,6)	1579, 1651-1655	168
PVC	80	1000	76B MW 76B MW			24 - 12 24 - 18 24 - 22	(0,23 - 3,3) (0,23 - 0,96) (0,23 - 0,38)	1550-1560 1561/24- 1565 HU-KIT-10, HU-KIT-30	167 167 178
PVC	105	600	16878E B			32 - 14	(0,05 - 2,1)	1850- 1859/19	169
	105			1015	TEW 105	24 - 10	(0,23 - 5,3)	3070-3081	169
IRRADIATED PVC	80, 105	600	16878E B	1429	AWM I A/B FTI	26 - 16	(0,14 - 1,3)	7053- 7058/19	171
	105	1000	16878E C	1430	REW (XLPVC)	24 - 12	(0,23 - 3,3)	7130-7134, 7035, 7036	171
IRRADIATED POLYOLEFIN	105, 125	600	16878E B	3265	AWM I A/B FTI	22 - 18	(0,38 - 0,96)	7012-7014	172
	105, 125	1000	16878E C	3266	CL 1252 (XLPE)	22 - 18	(0,38 - 0,96)	7024-7026	172
	105, 125	3000	16878E D	3271	CL 1251 (XLPE)	18 - 10	(0,96 - 5,3)	7044-7048	172
KYNAR*	125	Not Rated		1422, 1423		30 - 24	(0,06 - 0,23)	5951-5954	174
TEFZEL**	150	Not Rated		1516, 1523		30 - 24	(0,06 - 0,23)	1805-1808	174
TFE TEFLON**	200	250	16878E ET			32 - 22 30 - 26	(0,05 - 0,38) (0,06 - 0,14)	2840/7- 2845/19 2841/1- 2843/11	175 175
	200	600	16878E E	1213		30 - 10	(0,06 - 5,3)	5851- 5859/12	176
				1213		26 - 18	(0,14 - 0,96)	2853/1- 2857/1	176
			16878E EE	1180		24 - 8	(0,23 - 8,6)	5874- 5879/12	177

*Kynar is a trademark of T.M. Pennwalt

**Teflon & Tefzel are registered trademarks of E.I. DuPont

CABLE FINDER GUIDE

CONDUCTOR SIZES 28 AND 26 AWG

METRIC
0,09 AND 0,14mm²

6

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦ Insulation Jacket		Ratings Temp. Voltage		No. of Conductors	Alpha Series	Page Number	No. of Pairs	Alpha Series	Page Number
UNSHIELDED	Modular/Silver Satin 26 AWG	PE	PVC	60°C	150	4 - 8	1604	271			
	Flat Cable 28 AWG Gray	PVC		105°C	300	9 - 64	3580/9	334			
	Flat Cable 28 AWG Color-Coded	PVC		105°C	300	9 - 64	3583/9	335			
	Flat Cable 28 AWG Twist To Flat	PVC		105°C	150	26 - 60	3586/26	337			
OVERALL FOIL SHIELD	Jacketed Flat Cable	PVC	PVC	105°C	140	9 - 60	3590/9	339			
OVERALL COPPER BRAID SHIELD	Microphone 26 AWG	PE	PVC	60°C	300	1	1702	197			
	Communication 28 AWG	PVC	PVC	105°C	600	2 - 20	3302	192			
	Mini 28 AWG	PVC	PVC	80°C	200	2 - 4	1120	240			
OVERALL SUPRASHIELD® (Foil & Braid)	CAD/CAM 28 AWG	PVC	PVC	80°C	300	3 - 50	3463	208	2 - 25	3472C	221
	Low Cap 28 AWG	FPE	PVC	80°C	30	3 - 25	3483	209	2 - 25	3492C	225
	Low Cap 28 AWG	PE	PVC	60°C	30				2 - 31	6390	223
	Round To Flat	PVC	PVC	105°C	300	25 - 50	3585/25	338			
	XTRA•GUARD® Flexible Cable 28 AWG	SR-PVC	PVC	105°C	300				1 - 14	86401CY	95
	XTRA•GUARD® Flexible Cable 26 AWG	SR-PVC	PVC	105°C	300				1 - 14	86501CY	95
FOIL & 90% TINNED COPPER SERVE	XTRA•GUARD® Flexible Cable 28 AWG	SR-PVC	PVC	105°C	300	2 - 25	86002CY	94			
	XTRA•GUARD® Flexible Cable 26 AWG	SR-PVC	PVC	105°C	300	2 - 25	86102CY	94			

♦ABBREVIATIONS TO CONDUCTOR INSULATIONS & JACKETS

PVC = Polyvinylchloride; PE = Polyethylene; FPE = Foam Polyethylene; FPP = Foam Polypropylene; PP = Polypropylene; IRR PVC = Irradiated Polyvinylchloride;
TPE = Thermoplastic Elastomer; EPC = Ethylene Propylene Copolymer; PU = Specially Formulated Rugged Polyurethane; RUB = Synthetic Rubber;
NEO = Neoprene; FEP = Fluorinated Ethylene Copolymer (Teflon®); PA = Plenum Rated Polymer Alloy PVC; TFE = Tetrafluoroethylene; SR-PVC = Lubricated Semi-Rigid PVC
XTRA•GUARD® 1 – Extra Premium Grade PVC Jacket for Extended Cable Life
XTRA•GUARD® 2 – Industrial Strength, Extra-Rugged Polyurethane Jacket
XTRA•GUARD® 3 – Extra-Durable Outdoor Direct Burial Jacket
XTRA•GUARD® 4 – Extra Protection, High/Low Temperature TPE Jacket
XTRA•GUARD® 5 – Extra High Temperature/Chemical Resistant FEP Teflon® Jacket
XTRA•GUARD® Flexible Cables – Permanent Solutions For Critical Flexing Applications

*Teflon® is a registered trademark of E.I. DuPont



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CABLE FINDER GUIDE

CONDUCTOR SIZE 24 AWG

METRIC
0,24mm²

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of Conductors	Alpha Series	Page Number	No. of Pairs	Alpha Series	Page Number
UNSHIELDED	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 50	5012C	24	1 - 77	5261C	39
	XTRA•GUARD® 1	PVC	PVC	80°C	300	7 - 37	5201C	26			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 25	25012	44			
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45012	64			
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55012	80			
	Irradiated PVC	PVC	PVC	80°C	600	2 - 4	6622	184			
	Thermocouple	Glass	Glass	—	—	2	5766	329			
	XTRA•GUARD® Flexible Cable	TPE	PU	80°C	600	3 - 7	87003	96			
OVERALL FOIL SHIELD	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 70	5092C	29	1 - 27	5491C	40
	XTRA•GUARD® 1	PVC	PVC	80°C	300	3 - 27	5599/3C	31			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 25	25092	47	1 - 27	25491	53
	XTRA•GUARD® 3	PVC	PE	80°C	300				1 - 4	35491	61
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45092	67	1 - 27	45491	74
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55092	82	1 - 11	55491	87
	Commercial	PE	PVC	60°C	300	2	2400	187			
	Commercial	PVC	PVC	80°C	300	2 - 50	1212C	189			
	Low Capacitance	PE	PVC	80°C	300				3 - 18	6083C	217
	Commercial	PVC	PVC	80°C	300				1 - 50	5471C	213
	Low Capacitance	FPP	PVC	80°C	300				2 - 25	6202C	219
	Commercial	SR-PVC	PVC	80°C	300	3 - 50	6300/3	190			
	Plenum – Low Cap	FEP	PA	60°C	150				2 - 12½	58802	238
	Plenum – Mid Cap	FEP	PA	60°C	150				2 - 12½	58902	238
	Plenum	PA	PA	60°C	150	2 - 25	58401	236	2 - 6	57602	237
OVERALL COPPER BRAID SHIELD	Commercial	PE	PVC	60°C	3500	1	1703	197			
	Microphone	PE	PVC	60°C		4	1772	198			
	MIL W 16878	PVC	PVC	105°C	600	1 - 4	3210	193			
	Irradiated PVC	IRR PVC	PVC	105°C	600	2 - 4	7622	195			
	High Temperature	TFE	FEP	200°C	600	1 - 3	2831	203			
	High Temperature	TFE	Fiberglass	200°C	600	1 - 7	2811	204			
	High Temperature	TFE	TFE	200°C	600	1 - 6	2821	206			
	XTRA•GUARD® Flexible Cable	SR-PVC	PVC	105°C	300				1 - 14	86601CY	95
OVERALL SUPRASHIELD® (Foil & Braid)	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 50	5112C	34	1 - 51	5271C	41
	XTRA•GUARD® 1	PVC	PVC	80°C	300	5 - 48	5300C	36	5 - 37	5330C	42
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 50	25112	50	1 - 19	25271	54
	XTRA•GUARD® 3	PVC	PE	80°C	300				2	35272	62
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45112	70	1 - 19	45271	76
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55112	84	1 - 12	55271	88
	Low Capacitance	FPP	PVC	80°C	300				2 - 25	6222C	226
	Low Capacitance	FPE	PVC	80°C	30	3 - 37	6351	211			
	Low Capacitance	PE	PVC	80°C	30				2 - 25	6401	223
	Commercial	SR-PVC	PVC	80°C	300	3 - 50	6327	210	2 - 25	6362	222
	Low Capacitance	PE	PVC	80°C	30				1 - 4	6412	224
	SERIES S	TPE	PVC	90°C	600	4	S61124CY	106			
FOIL & 90% TINNED COPPER SERVE	XTRA•GUARD® Flexible Cable	SR-PVC	PVC	105°C	300	2 - 25	86202CY	94			
SPIRAL WRAPPED COPPER SHIELD	XTRA•GUARD® Flexible Cable										
	Microphone	TPE	PU	80°C	600	3 - 7	87003CY	97			
		PE	PVC	60°C	1000	1 - 2	1705	197			
INDIVIDUALLY SHIELDED PAIRS	Low Capacitance	FPE	PVC	60°C	300				2 - 25	6316	235
	Commercial	PE	PVC	80°C	30				3 - 25	6385	233
	Commercial	PE	PVC	80°C	30				3 - 18	6083C	217
	Plenum	FEP	PA	60°C	150				2 - 4	58602	239
	Low Capacitance	FPE	PVC	60°C	150				3 - 27	6073C	272

CABLE FINDER GUIDE

CONDUCTOR SIZE 22 AWG

METRIC
0,38mm²

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials◆		Ratings		No. of Conductors	Alpha Series	Page Number	No. of Pairs	Alpha Series	Page Number
		Insulation	Jacket	Temp.	Voltage						
UNSHIELDED	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 60	5002C	24	1 - 15	5021C	39
	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 37	5210/2C	26			
	XTRA•GUARD® 1	PVC	PVC	105°C	600	2 - 19	5402	27			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 25	25002	44			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 50	25192	47			
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 15	35002	56			
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45002	64			
	XTRA•GUARD® 5	FEP	FEP	200°C	300	2 - 12	55002	80	1 - 12	55021	86
	Commercial	PVC	PVC	80°C	300	2 - 60	1172C	180			
	Commercial	PVC	PVC	80°C	300	2	1793C	181			
	Irradiated PVC	PVC	PVC	105°C	600	2 - 4	6632	184			
	UL 2576	PVC	PVC	80°C	150				1 - 27	1300C	212
	UL 2576	PVC	PVC	80°C	150				2 - 19	1317C	212
	XTRA•GUARD® High-Flex Torsion	TPE	PU	80°C	600	3 - 7	87103	96			
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8701R	244	2 - 4	8801R	246
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8701P	245	2 - 4	8801P	247
OVERALL FOIL SHIELD	PLTC	PVC	PVC	105°C	300				1	561082201	321
	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 37	5580/2C	31			
	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 70	5192C	29	1 - 27	5481C	40
	XTRA•GUARD® 1	PVC	PVC	105°C	600	2 - 12	5410/2	32			
	XTRA•GUARD® 2	PVC	PU	90°C	300				1 - 19	25481	53
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 60	35192	57	1 - 5	35481	61
	XTRA•GUARD® 4	TPE	TP	125°C	300	2 - 25	45192	67	1 - 15	45481	74
	XTRA•GUARD® 5	FEP	FEP	200°C	300	2 - 12	55192	82	1 - 12	55481	87
	Commercial	PE	PVC	60°C	300	2 - 4	2401C	187			
	Commercial	PVC	PVC	80°C	300	2 - 50	1292C	189	2 - 19	5902C	214
	Commercial	PP	PVC	80°C	300	2 - 4	2464C	188			
	UL 2576	PVC	PVC	80°C	300				1 - 27	2211C	215
	Low Capacitance	FPP	PVC	80°C	300				2 - 25	6212C	219
	Commercial	PVC	PVC	90°C	300				2 - 51	6417	216
	Plenum	PA	PA	60°C	150	2 - 25	58411	236	2 - 19	58412	237
	XTRA•GUARD® High-Flex	PVC	PVC	105°C	300	2 - 25	86302CY	94	1 - 14	86701CY	95
	XTRA•GUARD® High-Flex Torsion	TPE	PU	80°C	600	3 - 7	87103CY	97			
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300	2 - 3	8718R	244	2 - 4	8807R	246
	Plenum-Rated	PVC	PVC	60°C	300	2 - 10	8718P	245	2 - 4	8807P	247
OVERALL COPPER BRAID SHIELD	Commercial	PVC	PVC	80°C	300	2	1775	194			
	Commercial	PE	PVC	60°C	300	2	1710	197			
	Commercial	PVC	PVC	80°C	300	1 - 4	1735	194			
	Commercial	PVC	PVC	80°C	300	3 - 5	1243	207			
	Commercial	PVC	PVC	80°C	300	1 - 6	2254/1	191			
	Commercial	PVC	PVC	105°C	600	1 - 4	3220	193			
	Commercial	PVC	PVC	105°C	600	5 - 8	3335	193			
	Irradiated	PVC	PVC	105°C	600	1 - 4	7631	195			
	High Temperature	TFE	FEP	200°C	600	1 - 3	2834	203			
	High Temperature	TFE	GLASS	200°C	600	2 - 6	2814/2	204			
	High Temperature	TFE	TFE	200°C	600	2 - 6	2824	206			
OVERALL COPPER SUPRASHIELD® (Foil & Braid)	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 80	5102C	34	1 - 27	5121C	41
	XTRA•GUARD® 1	PVC	PVC	80°C	300	5 - 60	5310C	36	2 - 37	5340/2C	42
	XTRA•GUARD® 1	PVC	PVC	105°C	600	4 - 12	5504	37			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 50	25102	50	1 - 15	25121	54
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 15	35102	60	1 - 9	35121	62
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45102	70	1 - 19	45121	76
	XTRA•GUARD® 5	FEP	FEP	200°C	300	2 - 12	55102	84	1 - 12	55121	88
	UL 2464	SR-PVC	PVC	80°C	300	3 - 50	6339	210	2 - 25	6373	222



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CABLE FINDER GUIDE

CONDUCTOR SIZE 22 AWG

METRIC
0,38mm²

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of	Alpha	Page	No. of	Alpha	Page
		Insulation	Jacket	Temp.	Voltage	Conductors	Series	Number	Pairs	Series	Number
INDIVIDUALLY SHIELDED PAIRS	Commercial	PP	PVC	60°C	300				3 - 27	6000C	228
	Commercial	PVC	PVC	80°C	300				2 - 27	6052C	227
	Commercial PLTC	PVC	PVC	90°C	300				2 - 51	6434	230
	Plenum	FEP	PA	60°C	150				2 - 6	58612	239
	Low Capacitance	FPE	PA	60°C	150				2	6072C	272
	Commercial	PP	PVC	105°C	400				2 - 4	2466C	234
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300				2 - 6	8813R	246
	Plenum-Rated	PVC	PVC	60°C	300				2 - 6	8813P	247
SPIRAL WRAP	Telephone	PE	PVC	80°C	200	2 - 4	1202	241			
INDIVIDUAL & OVERALL FOIL SHIELDED	Commercial	PP	PVC	105°C	400				2	1243/2C	234

♦ABBREVIATIONS TO CONDUCTOR INSULATIONS & JACKETS

PVC = Polyvinylchloride; PE = Polyethylene; FPE = Foam Polyethylene; FPP = Foam Polypropylene; PP = Polypropylene; IRR PVC = Irradiated Polyvinylchloride;
TPE = Thermoplastic Elastomer; EPC = Ethylene Propylene Copolymer; PU = Specially Formulated Rugged Polyurethane; RUB = Synthetic Rubber;
NEO = Neoprene; FEP = Fluorinated Ethylene Copolymer (Teflon®); PA = Plenum Rated Polymer Alloy PVC; TFE = Tetrafluoroethylene; SR-PVC = Lubricated Semi-Rigid PVC
XTRA•GUARD® 1 – Extra Premium Grade PVC Jacket for Extended Cable Life
XTRA•GUARD® 2 – Industrial Strength, Extra-Rugged Polyurethane Jacket
XTRA•GUARD® 3 – Extra-Durable Outdoor Direct Burial Jacket
XTRA•GUARD® 4 – Extra Protection, High/Low Temperature TPE Jacket
XTRA•GUARD® 5 – Extra High Temperature/Chemical Resistant FEP Teflon® Jacket
XTRA•GUARD® Flexible Cables – Permanent Solutions For Critical Flexing Applications

*Teflon® is a registered trademark of E.I. DuPont

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CABLE FINDER GUIDE

CONDUCTOR SIZE 20 AWG

METRIC
0,62mm²

10

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings	Voltage	No. of	Alpha	Page	No. of	Alpha	Page
		Insulation	Jacket	Temp.		Conductors	Series	Number	Pairs	Series	Number
UNSHIELDED	XTRA-GUARD® 1	PVC	PVC	80°C	300	2 - 50	5052C	24	2 - 12	5282C	39
	XTRA-GUARD® 1	PVC	PVC	80°C	300	2 - 27	5220/2C	26			
	XTRA-GUARD® 1	PVC	PVC	105°C	600	3 - 25	5413	27			
	XTRA-GUARD® 2	PVC	PU	90°C	300	2 - 70	25052	44			
	XTRA-GUARD® 3	PVC	PE	80°C	300	2 - 15	35052	56			
	XTRA-GUARD® 4	TPE	TPE	125°C	300	2 - 15	45052	64			
	XTRA-GUARD® 5	FEP	FEP	150°C	300	2 - 12	55052	80			
	Commercial	PVC	PVC	80°C	300	2 - 15	1895C	181			
	Irradiated PVC	IRR/PVC	PVC	105°C	600	2 - 4	6642	184			
	Commercial	RUB	RUB	60°C	600	2 - 15	1244	185			
	PLTC	PVC	PVC	105°C	300						
	XTRA-GUARD®										
	Standard-Flex	PVC	PVC	90°C	600	2 - 25	65002	90			
	High-Flex	PVC	PVC	90°C	600	3 - 34	85003CY	93			
	High-Flex Torsion	TPE	PU	80°C	600	3 - 7	87203	96			
	BUILDING ZONE										
OVERALL FOIL SHIELD	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8704R	244	1	5600B2001	320
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8704P	245			
	XTRA-GUARD® 1	PVC	PVC	80°C	300	2 - 50	5462C	29			
	XTRA-GUARD® 1	PVC	PVC	80°C	300	2 - 19	5560/2C	31			
	XTRA-GUARD® 1	PVC	PVC	105°C	600	3 - 12	5420/3	32			
	XTRA-GUARD® 2	PVC	PU	90°C	300	3 - 50	25462	47			
	XTRA-GUARD® 3	PVC	PE	80°C	300	2 - 25	35462	57			
	XTRA-GUARD® 4	TPE	TPE	125°C	300	2 - 40	45462	67			
	XTRA-GUARD® 5	FEP	FEP	150°C	300	2 - 12	55462	82			
	Commercial	PE	PVC	75°C	300	2 - 4	2411C	187			
	Plenum	PA	PA		150	2 - 6	58421	236			
	Plenum	PA	PA		150						
	PLTC	PVC	PVC	105°C	300						
	TC	PVC/Nylon	PVC	90°C	600						
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300	2 - 3	8720R	244			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8704P	245			
OVERALL COPPER BRAID SHIELD	Microphone	PE	PVC	60°C		1	1706	197			
	Microphone	PE	PVC	60°C		2	1712	199			
	Microphone	RUB	RUB	60°C		2	1448/20	200			
	Commercial	PVC	PVC	80°C	300	2 - 4	1741C	194			
	Commercial	PE	PVC	60°C	600	2 - 20	1712	199			
	Mil Spec	PVC/Nylon	PVC	105°C	600	1 - 4	3230	193			
	Irradiated PVC	IRR/PVC	PVC	105°C	600	1 - 4	7661	195			
	Commercial	RUB	RUB	60°C	600	2 - 12	1250	201			
	Mil Spec	TFE	FG	200°C	600	2 - 6	2817/2	204			
	Mil Spec	TFE	TFE	200°C	600	1 - 6	2827	206			
	High Temperature	TFE	FEP	200°C	600	2 - 3	2837/2	203			
	XTRA-GUARD®										
	Standard-Flex	PVC	PVC	90°C	600	3 - 25	65003CY	91			
	High-Flex	PVC	PVC	90°C	600	3 - 25	85003CY	93			
OVERALL COPPER SUPRASHIELD® (Foil & Braid)	XTRA-GUARD® 1	PVC	PVC	80°C	300	2 - 60	5152C	34	2 - 19	5292C	41
	XTRA-GUARD® 1	PVC	PVC	80°C	300	4 - 37	5320/4C	36	4 - 27	5350/4C	42
	XTRA-GUARD® 1	PVC	PVC	105°C	600	4 - 19	5514	37			
	XTRA-GUARD® 2	PVC	PU	90°C	300	2 - 50	25152	50	2 - 9	25292	54
	XTRA-GUARD® 3	PVC	PE	80°C	300	2 - 15	35152	60			
	XTRA-GUARD® 4	TPE	TPE	125°C	300	2 - 25	45152	70	1 - 15	45291	77
	XTRA-GUARD® 5	FEP	FEP	150°C	300	2 - 12	55152	84	1 - 12	55291	88



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CABLE FINDER GUIDE

CONDUCTOR SIZE 20 AWG

METRIC
0,62mm²

SHIELD TYPE					MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of	Alpha	Page	No. of	Alpha
		Insulation	Jacket	Temp.	Voltage	Conductors	Series	Number	Pairs	Series
INDIVIDUALLY SHIELDED PAIRS	Commercial	PP	PVC	75°C	300				2 - 15	6032C
	Commercial	SR-PVC	PVC	80°C	300				2	6416
	Commercial	PP	PVC	105°C	400				4	2467C
	PLTC	PVC	PVC	105°C	300				2 - 24	5620B2002
	Direct Burial	PP	PE	—	350				3 - 6	6314
	BUILDING ZONE Riser-Rated	PVC	PVC	60°C	300				2 - 6	8817R
OVERALL SPIRAL WRAP SHIELD	Commercial	PVC	PVC	80°C	300	1 - 6	2256/1	191		
	XTRA•GUARD® High-Flex Torsion	TPE	PU	80°C	600	3 - 7	87203CY	97		

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♦ABBREVIATIONS TO CONDUCTOR INSULATIONS & JACKETS

PVC = Polyvinylchloride; **PE** = Polyethylene; **FPE** = Foam Polyethylene; **FPP** = Foam Polypropylene; **PP** = Polypropylene; **IRR PVC** = Irradiated Polyvinylchloride;
TPE = Thermoplastic Elastomer; **EPC** = Ethylene Propylene Copolymer; **PU** = Specially Formulated Rugged Polyurethane; **RUB** = Synthetic Rubber;
NEO = Neoprene; **FEP** = Fluorinated Ethylene Copolymer (Teflon®); **PA** = Plenum Rated Polymer Alloy PVC; **TFE** = Tetrafluoroethylene; **SR-PVC** = Lubricated Semi-Rigid PVC
XTRA•GUARD® 1 – Extra Premium Grade PVC Jacket for Extended Cable Life
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CABLE FINDER GUIDE

CONDUCTOR SIZE 18 AWG

METRIC
0,97mm²

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SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials◆		Ratings		No. of Conductors	Alpha Series	Page Number	No. of Pairs	Alpha Series	Page Number
		Insulation	Jacket	Temp.	Voltage						
UNSHIELDED	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 60	5062C	25			
	XTRA•GUARD® 1	PVC	PVC	105°C	600	2 - 25	5422	27			
	XTRA•GUARD® 1	PVC	PVC	80°C	300				2 - 12	5032C	39
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 25	25062	45			
	XTRA•GUARD® 2	PVC	PU	105°C	600	2 - 12	25422	46			
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 15	35062	56			
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45062	65			
	XTRA•GUARD® 4	TPE	TPE	125°C	600	2 - 9	45422	66			
	XTRA•GUARD® 4	TPE	TPE	125°C	300				1 - 2	45031	73
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55062	81			
	Commercial	PVC	PVC	80°C	300	2 - 25	1897C	182			
	Commercial	PVC	PVC	80°C	300				1 - 19	1131C	212
	Irradiated PVC	IRR/PVC	PVC	80°C	600	2 - 4	6652	184			
	SVO	RUB	NEO	60°C	300	2	1931	310			
	SJO	RUB	NEO	60°C	300	2	1932	310			
	SO	RUB	NEO	60°C	600	2	1934	310			
	SJT	PVC	PVC	60°C	300	3	1952/3T	311			
	SVT	PVC	PVC	60°C	300	3	1951/3T	311			
	SJ	RUB	RUB	60°C	300	3	1952/3	311			
	SV	RUB	RUB	60°C	300	3	1951/3	311			
	SJO	RUB	NEO	60°C	300	3	1932/3	312			
	SO	RUB	NEO	60°C	600	3	1934/3	312			
	SJT	PVC	PVC	60°C	300	3	1941/3	312			
	SO	RUB	NEO	60°C	600	4	1934/4	312			
	SO	RUB	NEO	60°C	600	6 - 10	4506	313			
	PLTC	PVC	PVC	105°C	300				1	5600B1801	320
	TC	PVC/Nylon	PVC	90°C	600				1	5606B1801	323
	XTRA•GUARD®										
	Flexible Cables	PVC	PVC	90°C	600	2 - 41	65802	90			
	Flexible Cables	PVC	PVC	90°C	600	3 - 34	85803	92			
	Flexible Cables	TPE	TPE	80°C	600	3 - 7	87303	96			
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8901R	248			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8901P	249			
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8707R	244			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8707P	245			
	Riser-Rated	PVC	PVC	60°C	300				2 - 4	8804R	246
	Plenum-Rated	PVC	PVC	60°C	300				2 - 4	8804P	247
OVERALL FOIL SHIELD	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 60	5382C	30			
	XTRA•GUARD® 1	PVC	PVC	105°C	600	2 - 25	5430/2	32			
	XTRA•GUARD® 1	PVC	PVC	80°C	300				3 - 6	5373C	40
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 50	25382	48			
	XTRA•GUARD® 2	PVC	PU	105°C	600	2 - 19	25430/2	49			
	XTRA•GUARD® 2	PVC	PU	90°C	300				2 - 12	25372	53
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 25	35382	58			
	XTRA•GUARD® 3	PVC	PE	80°C	600	2 - 12	35430/2	59			
	XTRA•GUARD® 3	PVC	PE	80°C	300				2 - 6	35372	61
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 30	45382	68			
	XTRA•GUARD® 4	TPE	TPE	125°C	600	2 - 12	45430/2	69			
	XTRA•GUARD® 4	TPE	TPE	125°C	300				1 - 19	45371	75
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55382	83			
	XTRA•GUARD® 5	FEP	FEP	150°C	300				1 - 19	55371	87
	Commercial	PE	PVC	75°C	300	2 - 4	2421C	187			
	Commercial	PVC	PVC	80°C	300				1 - 19	2241C	215
	Commercial PLTC	PVC	PVC	90°C	300				2 - 15	6427	216
	Plenum	PVC	PVC	150		2 - 4	58431	236			



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CABLE FINDER GUIDE

CONDUCTOR SIZE 18 AWG

METRIC
0,97mm²

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of Conductors	Alpha Series	Page Number	No. of Pairs	Alpha Series	Page Number
OVERALL FOIL SHIELD (Continued)	SJT	PVC	PVC	60°C	300	3	1941/3F	312			
	PLTC	PVC	PVC	105°C	300				1 - 12	5610B1801	321
	TC	PVC/Nylon	PVC	90°C	600				1 - 12	5616B1801	323
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8908R	248			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8908P	249			
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8722R	244			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8727P	245			
	Riser-Rated	PVC	PVC	60°C	300				2 - 4	8810R	246
	Plenum-Rated	PVC	PVC	60°C	300				2 - 4	8810P	247
OVERALL COPPER BRAID SHIELD	Microphone	RUB	NEO	60°C		2	1448/18	200			
	Mil Spec	PVC/Nylon	PVC	105°C	600	1 - 4	3240	193			
	Irradiated PVC	IRR/PVC	PVC	105°C	600	1 - 4	7671	195			
	Mil Spec	PVC	PVC	105°C	1000	5 - 30	3405	196			
	Commercial	RUB	NEO	60°C	600	2 - 10	1450	202			
	Mil Spec	TFE	FG	200°C	600	1 - 5	2819	204			
	Mil Spec	TFE	TFE	200°C	600	2 - 4	2829/2	206			
	Commercial	PVC	PVC	80°C	300	1 - 4	1745	194			
	XTRA•GUARD® Flexible Cables	PVC	PVC	90°C	600	3 - 25	65803CY	91			
	XTRA•GUARD® Flexible Cables	PVC	PVC	90°C	600	3 - 25	85803CY	93			
	XTRA•GUARD® Flexible Cables	TPE	TPE	80°C	600	3 - 7	87303CY	97			
	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 30	5162C	35			
	XTRA•GUARD® 1	PVC	PVC	105°C	600	2 - 19	5522	37			
OVERALL COPPER SUPRASHIELD® (Foil & Braid)	XTRA•GUARD® 1	PVC	PVC	80°C	300				2 - 27	5132C	41
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 40	25162	51			
	XTRA•GUARD® 2	PVC	PU	105°C	600	2 - 9	25522	52			
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 15	35162	60			
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 30	45162	71			
	XTRA•GUARD® 4	TPE	TPE	125°C	600	2 - 12	45522	72			
	XTRA•GUARD® 4	TPE	TPE	125°C	300				1 - 15	45131	77
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55162	85			
	XTRA•GUARD® 5	FEP	FEP	150°C	300				1 - 9	55131	88
	Servo	PVC	TPE	90°C	600	4	S61118CY	106			
INDIVIDUALLY SHIELDED PAIRS	Commercial	PP	PVC	75°C	300				3 - 9	6023C	229
	Commercial	PVC	PVC	80°C	300				2 - 15	6062C	227
	Plenum	FEP	PA	60°C	150				2 - 3	58632	239
	Commercial PLTC	PVC	PVC	105°C	300				2 - 15	6442	230
	PLTC	PVC	PVC	105°C	300				2 - 36	5620B1802	322
	PLTC	PVC/Nylon	PVC	90°C	600				2 - 8	5626B1804	323
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300				2 - 6	8821R	246
	Plenum-Rated	PVC	PVC	60°C	300				2 - 3	8816P	247
OVERALL SPIRAL WRAP SHIELD	Commercial	PVC	PVC	80°C	300	1 - 4	2258/1	191			

♦ABBREVIATIONS TO CONDUCTOR INSULATIONS & JACKETS

PVC = Polyvinylchloride; PE = Polyethylene; FPE = Foam Polyethylene; FPP = Foam Polypropylene; PP = Polypropylene; IRR PVC = Irradiated Polyvinylchloride;
TPE = Thermoplastic Elastomer; EPC = Ethylene Propylene Copolymer; PU = Specially Formulated Rugged Polyurethane; RUB = Synthetic Rubber;
NEO = Neoprene; FEP = Fluorinated Ethylene Copolymer (Teflon®); PA = Plenum Rated Polymer Alloy PVC; TFE = Tetrafluoroethylene; SR-PVC = Lubricated Semi-Rigid PVC
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CABLE FINDER GUIDE

CONDUCTOR SIZE 16 AWG

METRIC
1,31mm²

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SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦ Insulation Jacket		Ratings Temp. Voltage		No. of Conductors	Alpha Series	Page Number	No. of Pairs	Alpha Series	Page Number
UNSHIELDED	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 50	5072C	25			
	XTRA•GUARD® 1	PVC	PVC	105°C	600	4 - 25	5434	28			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 25	25072	45			
	XTRA•GUARD® 2	PVC	PU	105°C	600	2 - 19	25432	46			
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 15	35072	56			
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45072	65			
	XTRA•GUARD® 4	TPE	TPE	125°C	600	2 - 9	45432	66			
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55072	81			
	Commercial	PVC	PVC	80°C	600	2 - 4	1899C	182			
	Commercial	PVC	PVC	80°C	600	4 - 25	1064	183			
	Cordage	RUB	NEO	60°C	300	2	1933	310			
	Cordage	RUB	NEO	60°C	300	3	1953/3	311			
	Cordage	RUB	NEO	60°C	600	4	1935/4	312			
	Cordage	RUB	NEO	60°C	600	5 - 37	4605	313			
	Instrumentation	PVC	PVC	105°C	300				1	5600B1601	320
	Instrumentation	PVC/Nylon	PVC	90°C	600				1	5606B1601	323
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8710R	244			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8710P	245			
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8903R	248			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8903P	249			
	XTRA•GUARD®										
	Flexible Cables	PVC	PVC	90°C	600	2 - 41	65602	90			
	Flexible Cables	PVC	PVC	90°C	600	3 - 34	85603	92			
	Flexible Cables	TPE	PU	80°C	600	3 - 7	87403	96			
	INDUSTRIAL SERIES										
	SERIES F	TPE	PVC	90°C	600	12 - 65	F16012R	104			
	SERIES M	PVC/Nylon	PVC	90°C	600	12 - 65	M16112R	105			
OVERALL FOIL SHIELD	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 40	5362C	30			
	XTRA•GUARD® 1	PVC	PVC	105°C	600	2 - 15	5440/2	33			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 50	25362	48			
	XTRA•GUARD® 2	PVC	PU	105°C	600	2 - 15	25440/2	49			
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 25	35362	58			
	XTRA•GUARD® 3	PVC	PE	80°C	600	2 - 12	35440/2	59			
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45362	68			
	XTRA•GUARD® 4	TPE	TPE	125°C	600	2 - 12	45440	69			
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55362	83			
	Commercial	PE	PVC	60°C	300	2 - 3	2433C	187			
	Plenum	PA	PA	60°C	300	2 - 4	58142	236			
	Commercial	PE	PVC	60°C	600	2 - 4	2471	220			
	Instrumentation	PVC	PVC	105°C	300				1 - 12	5610B1601	321
	Instrumentation	PVC/Nylon	PVC	90°C	600				1 - 8	5616B1601	323
	Tray Cable	PVC/Nylon	PVC	90°C	600	2 - 19	7616/2	329			
	BUILDING ZONE										
	Riser-Rated	PVC	PVC	60°C	300	2 - 3	8725R	244			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8727P	245			
	Riser-Rated	PVC	PVC	60°C	300	2 - 4	8911R	248			
	Plenum-Rated	PVC	PVC	60°C	300	2 - 4	8911P	249			
OVERALL COPPER BRAID SHIELD	Microphone	PVC	PVC	80°C	300	2 - 3	1748C	194			
	Microphone	PVC	PVC	80°C	300	2 - 3	2260	191			
	MIL W16878	PVC	PVC	105°C	600	1 - 4	3245	193			
	Irradiated PVC	IRR PVC	PVC	105°C	1000	4 - 12	3444	196			
	Microphone	RUB	NEO	60°C	600	2 - 6	1450/16	202			
	High Temp	TFE	GLASS	200°C	600	1 - 4	2820	205			
	High Temp	TFE	TFE	200°C	600	1 - 4	2826	206			
	Microphone	RUB	NEO	60°C	600	2	1448/16	200			
	XTRA•GUARD®										
	Flexible Cables	PVC	PVC	90°C	600	3 - 25	65603CY	91			
	Flexible Cables	PVC	PVC	90°C	600	3 - 25	85603CY	93			
	Flexible Cables	TPE	PU	80°C	600	3 - 7	87403CY	97			



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CABLE FINDER GUIDE

CONDUCTOR SIZE 16 AWG

METRIC
1,31mm²

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of	Alpha	Page	No. of	Alpha	Page
		Insulation	Jacket	Temp.	Voltage	Conductors	Series	Number	Pairs	Series	Number
OVERALL COPPER SUPRASHIELD® (Foil & Braid)	XTRA•GUARD® 1	PVC	PVC	80°C	300	2 - 25	5172C	35			
	XTRA•GUARD® 1	PVC	PVC	105°C	600	2 - 19	5532	38			
	XTRA•GUARD® 2	PVC	PU	90°C	300	2 - 40	25172	51			
	XTRA•GUARD® 2	PVC	PU	105°C	600	2 - 19	25532	52			
	XTRA•GUARD® 3	PVC	PE	80°C	300	2 - 15	35172	60			
	XTRA•GUARD® 4	TPE	TPE	125°C	300	2 - 25	45172	71			
	XTRA•GUARD® 4	TPE	TPE	125°C	600	2 - 12	45532	72			
	XTRA•GUARD® 5	FEP	FEP	150°C	300	2 - 12	55172	85			
	INDUSTRIAL SERIES SERIES S Servo	PVC	TPE	90°C	600	4	S61116CY	106			
INDIVIDUALLY SHIELDED PAIRS	Plenum	FEP	PA	60°C	150				2 - 3	58642	239
	Instrumentation	PVC	PVC	105°C	300				2 - 16	5620B1602	322
	Instrumentation	PVC/Nylon	PVC	90°C	600				2	5626B1602	323

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♦ABBREVIATIONS TO CONDUCTOR INSULATIONS & JACKETS

PVC = Polyvinylchloride; **PE** = Polyethylene; **FPE** = Foam Polyethylene; **FPP** = Foam Polypropylene; **PP** = Polypropylene; **IRR PVC** = Irradiated Polyvinylchloride;
TPE = Thermoplastic Elastomer; **EPC** = Ethylene Propylene Copolymer; **PU** = Specially Formulated Rugged Polyurethane; **RUB** = Synthetic Rubber;
NEO = Neoprene; **FEP** = Fluorinated Ethylene Copolymer (Teflon®); **PA** = Plenum Rated Polymer Alloy PVC; **TFE** = Tetrafluoroethylene; **SR-PVC** = Lubricated Semi-Rigid PVC
XTRA•GUARD® 1 – Extra Premium Grade PVC Jacket for Extended Cable Life
XTRA•GUARD® 2 – Industrial Strength, Extra-Rugged Polyurethane Jacket
XTRA•GUARD® 3 – Extra-Durable Outdoor Direct Burial Jacket
XTRA•GUARD® 4 – Extra Protection, High/Low Temperature TPE Jacket
XTRA•GUARD® 5 – Extra High Temperature/Chemical Resistant FEP Teflon® Jacket
XTRA•GUARD® Flexible Cables – Permanent Solutions For Critical Flexing Applications

*Teflon® is a registered trademark of E.I. DuPont

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CABLE FINDER GUIDE

CONDUCTOR SIZE 14 AND 12 AWG

METRIC
1,85 and 3,32mm²

16

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of	Alpha	Page	No. of	Alpha	Page
		Insulation	Jacket	Temp.	Voltage	Conductors	Series	Number	Pairs	Series	Number
UNSHIELDED	XTRA •GUARD® 1 – 14 AWG	PVC	PVC	105°C	600	2 - 25	5442	28			
	XTRA •GUARD® 2 – 14 AWG	PVC	PU	105°C	600	2 - 12	25442	46			
	XTRA •GUARD® 4 – 14 AWG	TPE	TPE	125°C	600	2 - 7	45442	66			
	Commercial 12 AWG	PVC	PVC	80°C	300	2 - 3	1892C	182			
	Commercial 14 AWG	PVC	PVC	80°C	600	4 - 15	1274	183			
	Commercial 12 AWG	PVC	NEO	60°C	600	2	1937	310			
	Commercial 14 AWG	PVC	NEO	60°C	600	2	1936	310			
	Commercial 14 AWG	PVC	NEO	60°C	600	3	1938/3	312			
	Commercial 12 AWG	PVC	NEO	60°C	600	3	1937/3	312			
	Commercial 14 AWG	PVC	PVC	60°C	300	3	1943/3	312			
	Commercial 12 AWG	PVC	NEO	60°C	600	4	1937/4	312			
	Commercial 14 AWG	PVC	NEO	60°C	600	4	1936/4	312			
	Commercial 12 AWG	RUB	NEO	60°C	600	5 - 12	4805	313			
	Commercial 14 AWG	RUB	NEO	60°C	600	5 - 12	4705	313			
	Tray Cable 12 AWG	PVC/Nylon	PVC	90°C	600	2 - 12	7550	314			
	Tray Cable 14 AWG	PVC/Nylon	PVC	90°C	600	3 - 30	7527	314			
	Thermocouple 14 AWG	PVC	PVC	105°C	300				1	5710	328
	BUILDING ZONE										
	Riser-Rated 14 AWG	PVC	PVC	60°C	300	2 - 4	8713R	244			
	Riser-Rated 12 AWG	PVC	PVC	60°C	300	2 - 3	8716R	244			
	Plenum-Rated 14 AWG	PVC	PVC	60°C	300	2 - 4	8713P	245			
	Plenum-Rated 12 AWG	PVC	PVC	60°C	300	2 - 3	8716P	245			
	Fire Alarm, Riser-Rated 14 AWG	PVC	PVC	60°C	300	2 - 4	8905R	248			
	Fire Alarm, Riser-Rated 12 AWG	PVC	PVC	60°C	300	2	8907R	248			
	Fire Alarm, Plenum-Rated 14 AWG	PVC	PVC	60°C	300	2 - 4	8905P	249			
	Fire Alarm, Plenum-Rated 12 AWG	PVC	PVC	60°C	300	2	8907P	249			
	XTRA •GUARD®										
	Flexible Cable 14 AWG	PVC	PVC	90°C	600	2 - 25	65402	90			
	Flexible Cable 12 AWG	PVC	PVC	90°C	600	3 - 5	65203	90			
	Flexible Cable 14 AWG	PVC	PVC	90°C	600	4 - 7	85404	92			
	Flexible Cable 12 AWG	PVC	PVC	90°C	600	4 - 7	85204	92			
	Flexible Cable 14 AWG	TPE	PU	80°C	600	3 - 7	87503	96			
	Flexible Cable 12 AWG	TPE	PU	80°C	600	3 - 7	87603	96			
OVERALL FOIL SHIELD	XTRA •GUARD® 1 – 14 AWG	PVC	PVC	105°C	600	2 - 12	5450/2	33			
	XTRA •GUARD® 2 – 14 AWG	PVC	PU	105°C	600	2 - 15	25450/2	49			
	XTRA •GUARD® 3 – 14 AWG	PVC	PE	80°C	600	2 - 12	35450/2	59			
	XTRA •GUARD® 4 – 14 AWG	TPE	TPE	125°C	600	2 - 15	45450/2	69			
	Commercial 12 AWG	PE	PVC	60°C	300	2	2444C	187			
	Commercial 14 AWG	PE	PVC	60°C	300	2	2442C	187			
	Commercial 12 AWG	PE	PVC	60°C	600	2	2473	220			
	Commercial 14 AWG	PE	PVC	60°C	600	2	2472	220			
	Commercial 14 AWG	PVC	PVC	60°C	300	3	1943/3F	312			
	Instrumentation 14 AWG	PVC	PVC	105°C	300				1	5610B1401	321
	Instrumentation 12 AWG	PVC	PVC	105°C	300				1	5610B1201	321
	Instrumentation 12 AWG	PVC/Nylon	PVC	90°C	600				1	5616B1201	323
	Instrumentation 14 AWG	PVC/Nylon	PVC	90°C	600				1	5616B1401	323
	Instrumentation 14 AWG	PVC/Nylon	PVC	90°C	600	2 - 19	7614/2	325			
	Instrumentation 14 AWG	PVC/Nylon	PVC	90°C	600				1	5646B1401	324



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CABLE FINDER GUIDE

CONDUCTOR SIZE 14 AND 12 AWG

METRIC
1,85 and 3,32mm²

SHIELD TYPE					MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of	Alpha	Page	No. of	Alpha
		Insulation	Jacket	Temp.	Voltage	Conductors	Series	Number	Pairs	Series
OVERALL FOIL SHIELD (Continued)	BUILDING ZONE									
	Riser-Rated 14 AWG	PVC	PVC	60°C	300	2 - 3	8727R	244		
	Riser-Rated 12 AWG	PVC	PVC	60°C	300	2	8729R	244		
	Plenum-Rated 14 AWG	PVC	PVC	60°C	300	2 - 3	8733P	245		
	Plenum-Rated 12 AWG	PVC	PVC	60°C	300	2 - 3	8735P	245		
	Fire Alarm, Riser-Rated 14 AWG	PVC	PVC	60°C	300	2 - 4	8913R	248		
	Fire Alarm, Plenum-Rated 12 AWG	PVC	PVC	60°C	300	2 - 4	8913P	249		
OVERALL COPPER BRAID SHIELD	Commercial 12 AWG	RUB	NEO	60°C	600	2 - 3	1410	202		
	Commercial 12 AWG	PVC	PVC	80°C	300	2 - 3	1760	194		
	Commercial 14 AWG	PVC	PVC	80°C	300	2 - 3	1750	194		
	Mil Spec 14 AWG	TFE	FG	200°C	600	1 - 3	2804	205		
	Mil Spec 12 AWG	TFE	FG	200°C	600	2 - 4	2803/2	205		
	XTRA•GUARD®									
	Flexible Cable 14 AWG	PVC	PVC	90°C	600	3 - 7	65403CY	91		
	Flexible Cable 12 AWG	PVC	PVC	90°C	600	3 - 5	65203CY	91		
	Flexible Cable 14 AWG	PVC	PVC	90°C	600	4 - 7	85404CY	93		
	Flexible Cable 12 AWG	PVC	PVC	90°C	600	4 - 7	85204CY	93		
OVERALL SUPRASHIELD® (Foil & Braid)	XTRA•GUARD® 1 – 14 AWG	PVC	PVC	105°C	600	2 - 15	5542	38		
	XTRA•GUARD® 2 – 14 AWG	PVC	PU	105°C	600	2 - 12	25542	52		
	XTRA•GUARD® 4 – 14 AWG	TPE	TPE	125°C	600	2 - 9	45542	72		
	INDUSTRIAL SERIES – SERIES S 14 AWG	PVC	TPE	90°C	600	4	S61114CY	106		
	SERIES S 12 AWG	PVC	TPE	90°C	600	4	S61112CY	106		
SPIRAL WRAPPED COPPER SHIELD	XTRA•GUARD®									
	Flexible Cable 14 AWG	TPE	PU	80°C	600	3 - 7	87503CY	97		
	Flexible Cable 12 AWG	TPE	PU	80°C	600	3 - 5	87603CY	97		

♦ABBREVIATIONS TO CONDUCTOR INSULATIONS & JACKETS

PVC = Polyvinylchloride; PE = Polyethylene; FPE = Foam Polyethylene; FPP = Foam Polypropylene; PP = Polypropylene; IRR PVC = Irradiated Polyvinylchloride;
TPE = Thermoplastic Elastomer; EPC = Ethylene Propylene Copolymer; PU = Specially Formulated Rugged Polyurethane; RUB = Synthetic Rubber;
NEO = Neoprene; FEP = Fluorinated Ethylene Copolymer (Teflon®); PA = Plenum Rated Polymer Alloy PVC; TFE = Tetrafluoroethylene; SR-PVC = Lubricated Semi-Rigid PVC
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CABLE FINDER GUIDE

CONDUCTOR SIZES 10 AND 8 AWG

METRIC
5,37 and 8,66mm²

SHIELD TYPE						MULTICONDUCTOR			MULTIPAIR		
	Cable Type	Materials♦		Ratings		No. of	Alpha	Page	No. of	Alpha	Page
		Insulation	Jacket	Temp.	Voltage	Conductors	Series	Number	Pairs	Series	Number
UNSHIELDED	XTRA•GUARD® –										
	Flexible Cable 10 AWG	PVC	PVC	90°C	600	3 - 5	65103	90			
	Flexible Cable 10 AWG	PVC	PVC	90°C	600	4 - 7	85104	92			
	Flexible Cable 10 AWG	TPE	PU	80°C	600	3 - 7	87703	96			
OVERALL COPPER BRAID SHIELD	XTRA•GUARD® –										
	Flexible Cable 10 AWG	PVC	PVC	90°C	600	3 - 5	65103CY	91			
	Flexible Cable 10 AWG	PVC	PVC	90°C	600	4 - 7	85104CY	93			
OVERALL SUPRASHIELD® (Foil & Braid)	INDUSTRIAL SERIES –										
	SERIES S 10 AWG	PVC	TPE	90°C	600	4	S61110CY	106			
	SERIES S 8 AWG	PVC	TPE	90°C	600	4	S61108CY	106			
SPIRAL WRAPPED COPPER SHIELD	XTRA•GUARD® –										
	Flexible Cable 10 AWG	TPE	PU	80°C	600	3 - 7	87703CY	97			

♦ABBREVIATIONS TO CONDUCTOR INSULATIONS & JACKETS

PVC = Polyvinylchloride; PE = Polyethylene; FPE = Foam Polyethylene; FPP = Foam Polypropylene; PP = Polypropylene; IRR PVC = Irradiated Polyvinylchloride;
TPE = Thermoplastic Elastomer; EPC = Ethylene Propylene Copolymer; PU = Specially Formulated Rugged Polyurethane; RUB = Synthetic Rubber;
NEO = Neoprene; FEP = Fluorinated Ethylene Copolymer (Teflon®); PA = Plenum Rated Polymer Alloy PVC; TFE = Tetrafluoroethylene; SR-PVC = Lubricated Semi-Rigid PVC
XTRA•GUARD® 1 – Extra Premium Grade PVC Jacket for Extended Cable Life
XTRA•GUARD® 2 – Industrial Strength, Extra-Rugged Polyurethane Jacket
XTRA•GUARD® 3 – Extra-Durable Outdoor Direct Burial Jacket
XTRA•GUARD® 4 – Extra Protection, High/Low Temperature TPE Jacket
XTRA•GUARD® 5 – Extra High Temperature/Chemical Resistant FEP Teflon® Jacket
XTRA•GUARD® Flexible Cables – Permanent Solutions For Critical Flexing Applications

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XTRA•GUARD®

HIGH PERFORMANCE ELECTRONIC CABLES

In today's world of sophisticated electronics, every application is critical! Computers efficiently monitor and control multi-million dollar production lines and processes.

The integrity of your system is only as solid as the electronic cable on which the control signals are communicated.

If the cable fails, your system is down.
Production time . . . efficiency . . . profits . . . lost.

If you think that wire and cable is just wire and cable . . . think again.

The cable you install must be capable of efficient signal transmission while it withstands the environmental abuses of heat or cold, intermittent or continuous motion, abrasion, exposure to oils or EMI/RFI interference.

Now **XTRA•GUARD® 1, 2, 4, 5** and **XTRA•GUARD® Flexible Cables** are **CE** compliant for use in the European Economic Community.
(See page 78 for more information on **CE** compliance.)

XTRA•GUARD® cables are "hazard-matched" to survive in the most demanding environments. A wide range of designs are available including our newest design . . .

XTRA•GUARD® Flexible Cables.

Remember, a cable is not just a cable.



Powerful Solutions For Critical Applications

FIT

Preferred
Heat Shrink
Products

Compliment
XTRA•GUARD®!



Alpha's **FIT®** Shrinkable Tubing products are the perfect solution to insure that the **XTRA•GUARD®** cable you select will be protected against the extremes of temperature, abrasion, cut through and the effects of oils, water and chemicals.

To make this selection process easier, a suitable **FIT®** Shrinkable Tubing product has been recommended for every **XTRA•GUARD®** cable type.

Product Type

Page Number (s)

XTRA•GUARD® 1

Extra-Premium Grade PVC Jacket For Extended Cable Life 23 - 42

XTRA•GUARD® 2

Industrial Strength, Extra-Rugged Polyurethane Jacket 43 - 54

XTRA•GUARD® 3

Extra-Durable Outdoor Direct-Burial Jacket 55 - 62

XTRA•GUARD® 4

Extra Protection, High/Low Temperature TPE Jacket 63 - 78

XTRA•GUARD® 5

Extra High-Temperature / Chemical-Resistant FEP Teflon® Jacket 79 - 88

XTRA•GUARD® Flexible Cables

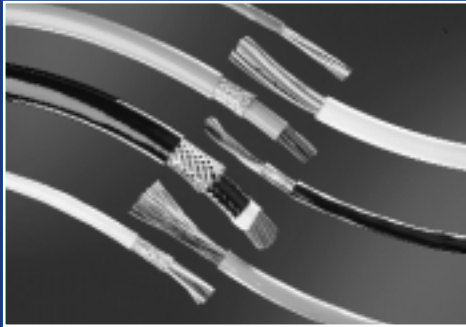
Permanent Solutions For Critical Flexible Applications 89 - 100

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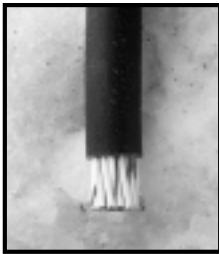


XTRA•GUARD® HIGH PERFORMANCE ELECTRONIC CABLES



POWERFUL SOLUTIONS FOR
CRITICAL APPLICATIONS

XTRA•GUARD® 4 Extra-Protection, High / Low Temperature TPE Jacket



SPECIFY AND CHOOSE XTRA•GUARD® 4 FOR:

- Unmatched Cable Performance in Both High and Low Temperature Cable Applications from -60°C to 125°C
- Three-times the Low-temperature Flexibility of PVC
- Outstanding Resistance to Oils, Fuels, Solvents and Water
- Low HCL Content for Safety
- Fully Flame-resistant Color-coded TPE (thermoplastic elastomer) Insulated Conductors and a TPE Jacket
- Passes the 210,000 BTU Flame Test (300 Volt Cables)
- Available in Both 300 Volt and 600 Volt Cable Styles
- UL Listed Type TC 600 Volt and Type PLTC 300 Volt for Cable Tray Applications
- Pennsylvania Bureau Deep Mine Safety Approved (P-MWMS-1-85) for Mine-wide Monitoring Systems
- Ultraviolet Light Stability (in all colors)
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray
- UL Recognition, UL Listing and CSA Certification

XTRA•GUARD® 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Industrial Tray/Power Limited Tray Cable Applications
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

FIT® TUBING RECOMMENDATIONS:

- FIT®-600 — Highly Flexible, Irradiated Elastomer
- FIT®-400 — Temperature / Chemical Resistant FEP Teflon®

Teflon® is a registered trademark of E.I. DuPont Co.



XTRA•GUARD® 1 Extra-Premium Grade PVC Jacket For Extended Cable Life



SPECIFY AND CHOOSE XTRA•GUARD® 1 FOR:

- A General Purpose Electronic Cable for Internal or External Wiring of OEM Equipment
- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- Fully Color-coded, Tinned Copper Conductors
- Premium Grade PVC Insulation and Jacket
- Jacket Colors: Gray and Black
- UL Recognition, UL Listing and CSA Certification
- Available in Both 300 Volt and 600 Volt Cable Styles
- Immediate Availability

XTRA•GUARD® 1 APPLICATIONS:

- EIA RS 232C Interface (Shielded 24, 22 AWG)
- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

FIT® TUBING RECOMMENDATION:

- FIT®-221 — General Purpose, Irradiated Polyolefin (indoor)
- FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (outdoor)



XTRA•GUARD® 5 Extra High-Temperature / Chemical-Resistant FEP Teflon® Jacket



SPECIFY AND CHOOSE XTRA•GUARD® 5 FOR:

- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food / Medical Grade (can be sterilized)
- FEP Teflon® Cables for Unmatched Performance at Temperatures from -80°C to 200°C
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter than Conventional Cables
- Extremely Low Friction Jacket for Ease of Cable Routing
- Excellent Ampacity Rating
- Low Dielectric Constant of 2.1
- Plenum-rated Applications
- Pennsylvania Bureau Deep Mine Safety Approved (P-MWMS-1-85) for Mine-wide Monitoring Systems
- UL Recognition, UL Listing and CSA Certification

XTRA•GUARD® 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

FIT® TUBING RECOMMENDATION:

- FIT®-650 — Chemical and Temperature Resistant Irradiated Viton®
- FIT®-400 — Temperature / Chemical Resistant FEP Teflon®

Teflon® is a registered trademark of E.I. DuPont Co. Viton® is a registered trademark of Dupont Dow Elastomers





XTRA-GUARD® 2

Industrial Strength, Extra-Rugged Polyurethane Jacket



SPECIFY AND CHOOSE XTRA-GUARD® 2 FOR:

- Now Rated to 90°C (300V) and 105°C (600V)!
- Unmatched Resistance to Oils, Fuels, Solvents and Water
- Twice the Tensile Strength of PVC
- Three-times the Tear and Abrasion Resistance of PVC
- Applications Requiring Ultraviolet Light Stability and Fungus Resistance
- Fully Color-coded PVC Insulated Tinned Copper Conductors With a Specially Formulated Extra-rugged Polyurethane Jacket
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray
- UL Recognition and CSA Certification
- Available in Both 300 Volt and 600 Volt Cable Styles

XTRA-GUARD® 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

FIT® TUBING RECOMMENDATION:

- FIT®-750 — Bonding, Adhesive Lined, Irradiated Polyolefin



XTRA-GUARD® 3

Extra-Durable Outdoor Direct-Burial Jacket



SPECIFY AND CHOOSE XTRA-GUARD® 3 FOR:

- Direct Burial Applications in Wet Earth Without the Costly Use of Conduit
- Five-times the Water Resistance of Conventional PVC
- A Specially Formulated Ethylene Propylene Copolymer Jacket for Outstanding Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability
- Available in Both 300 Volt and 600 Volt Cable Styles
- Jacket Color: Black

XTRA-GUARD® 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

FIT® TUBING RECOMMENDATION:

- FIT®-700 — Bonding, Mastic Lined, Irradiated Polyolefin

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▼ PERMANENT SOLUTIONS FOR CRITICAL FLEXING APPLICATIONS! ▼



XTRA-GUARD® *Flexible Cables*

High-Flex Mini Diameter Data Cable / High-Flex Torsion Robotic Cable



SPECIFY AND CHOOSE XTRA-GUARD® HIGH-FLEX MINI DIAMETER DATA CABLE FOR:

- Extreme Flexibility in Small Spaces
- Continual Flexible in Cable Tracks
- UL Listed, UL Recognized, CSA Certified and CE Marked
- Outstanding EMI Protection
- Jacket Meets VDE 0472, Section 803 Oil Test

MANUFACTURED
IN THE U.S.A.

SPECIFY AND CHOOSE XTRA-GUARD® HIGH-FLEX TORSION ROBOTIC CABLE FOR:

- Twisting and Random Robotic Flexing Motions
- Extreme Oil Resistance
- UL Recognized and CSA Certified, CE Marked

XTRA-GUARD® FLEXIBLE CABLE APPLICATIONS:

HIGH-FLEX MINI DIAMETER DATA CABLE

- Industrial Electronic Processing Equipment
- DataComm Connections
- Connecting Sensors and Actuators to Controllers
- Sensor and I/O Interconnects
- Automation Networking
- PLC, Microprocessor and Computer Interconnects

HIGH-FLEX TORSION ROBOTIC CABLE

- Twisting and Random Robotic Flexing Applications
- Power Supply to Welding, Painting and Articulating Robots
- Automation Networking
- Connecting Sensors and Actuators to Controllers

FIT® TUBING RECOMMENDATION:

- FIT®-FLEX — Highly Flexible, Irradiated Silicone Rubber
- FIT®-650 — Chemical and Temperature Resistant Irradiated Viton®

Viton® is a registered trademark of Dupont Dow Elastomers



XTRA-GUARD® *Flexible Cables*

Standard-Flex Control Cable / High-Flex Control Cable



SPECIFY AND CHOOSE XTRA-GUARD® STANDARD-FLEX CONTROL CABLE FOR:

- Outstanding Oil and Chemical Resistance
- UL Recognized and CSA Certified, CE Marked
- Jacket Meets VDE 0472, Section 803 Oil Test
- Ease of Installation
- NOT FOR USE IN HIGH-FLEX APPLICATIONS

MANUFACTURED
IN THE U.S.A.

SPECIFY AND CHOOSE XTRA-GUARD® HIGH-FLEX CONTROL CABLE FOR:

- Extra Flexibility and Durability for Continuous Motion
- Extended Flex Life, 13.8 Million Cycles
- Outstanding Oil and Chemical Resistance
- Jacket Meets VDE 0472, Section 803 Oil Test
- UL Recognized and CSA Certified, CE Marked

XTRA-GUARD® FLEXIBLE CABLE APPLICATIONS:

STANDARD-FLEX CONTROL CABLE

- Applications Requiring Increased Flexibility
- Machine Tools
- CNC Machine Centers
- Data Processing Equipment
- Automation Equipment
- Material Handling Equipment

HIGH-FLEX CONTROL CABLE

- Applications Requiring Continuous Flexing
- Robotics
- Installation in Cable Track
- Data Processing Equipment
- Assembly Lines
- Automation Equipment
- Material Handling Equipment

FIT® TUBING RECOMMENDATION:

- FIT®-FLEX — Highly Flexible, Irradiated Silicone Rubber
- FIT®-650 — Chemical and Temperature Resistant Irradiated Viton®

Viton® is a registered trademark of Dupont Dow Elastomers

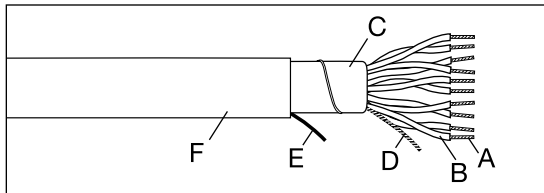


XTRA•GUARD® SHIELDING and ARMORING OPTIONS

CHOOSE ALPHA ALUMINUM POLYESTER FOIL SHIELDING FOR:

- Lightweight Shielding
- Low Cost
- Ease of Termination With Use of Stranded Tinned Copper Drain Wire
- Low Frequency Interference Applications
- 100% Coverage Over the Core of Cable Conductors

Alpha Aluminum/Polyester Foil Shielding consists of an aluminum polyester tape, foil side facing inward, with a 25% overlap and in contact with a stranded, tinned copper drain wire equal in size to insulated cable conductors.



LEGEND:

A. Conductor	D. Drain Wire
B. Insulation	E. Rip Cord
C. Aluminum/Polyester Foil	F. Jacket



CHOOSE XTRA•GUARD® FLEXIBLE CABLE BRAID SHIELDING FOR:

- EMI/RFI Resistance in Power, Control and Data Applications
- Continuous Shield Continuity in Flexing Applications
- High Physical Strength

XTRA•GUARD® Flexible Cables have specific shielding requirements resulting from the stresses of motion and flexing. Where foil shields will tear and lose continuity, **XTRA•GUARD® Flexible Cables** use a flexible, 85% coverage, tinned copper braid with a double jacket isolating the shield from the cable's inner core.



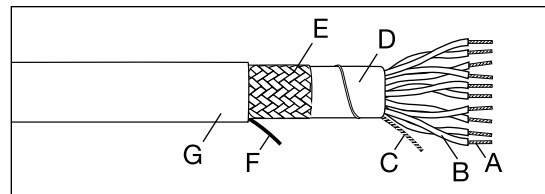
CHOOSE ALPHA-LOC® ARMORING FOR:

- Protection from Mechanical Abuse
- Increased Protection from Water Exposure
- Crush Resistance
- Protection from Chemical Attack

CHOOSE ALPHA SUPRASHIELD® (FOIL / BRAID) SHIELDING FOR:

- Ease of Termination With Use of Stranded Tinned Copper Drain Wire
- High-Frequency Interference Applications
- High Physical Strength

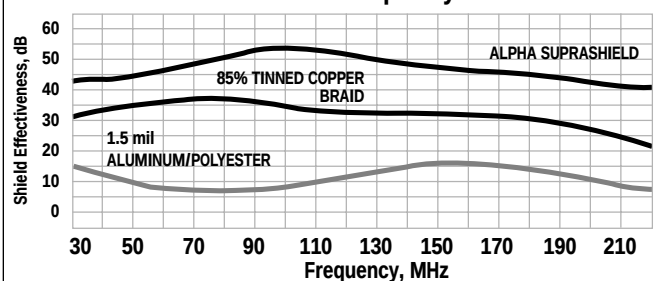
Alpha **SUPRASHIELD®** (foil/braid) Shielding System consists of a unique triple-laminate tape. An aluminum/polyester/aluminum tape is bonded in one layer with a 25% overlap and in contact with a stranded tinned copper drain wire equal in size to the insulated cable conductors. A 70% coverage tinned copper braid shield is applied overall.



LEGEND:

A. Conductor	D. Triple-Laminate Foil Shield
B. Insulation	E. Braided Shield
C. Drain Wire	F. Rip Cord
	G. Jacket

Shield Effectiveness vs. Frequency



XTRA•GUARD® 1

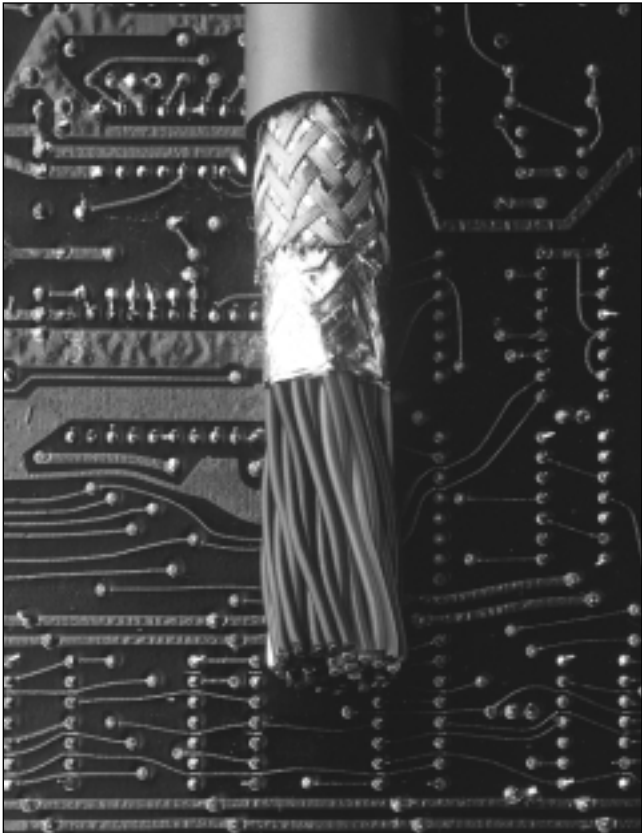
EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

23

Specify **XTRA•GUARD® 1** for general purpose electronic cable for internal or external wiring of OEM equipment. **XTRA•GUARD® 1** features unsurpassed flame and moisture resistance, fast, easy stripping of insulation and jacket, fully color-coded, tinned copper conductors and premium grade PVC insulation and jacket. **XTRA•GUARD® 1** is available in both 300 Volt and 600 Volt UL and CSA cable styles.

APPLICATIONS

- EIA RS 232C Interface (Shielded 24, 22 AWG)
- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls



FIT® TUBING RECOMMENDATION

FIT® -221 – General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)
FIT® -321 – Medium Wall, Adhesive Lined, Irradiated Polyolefin
 (See Page 121 for Product Specifications)

Product Type	Page Number (s)
Multiconductor, Unshielded 300 Volt	24 - 26
Multiconductor, Unshielded 600 Volt	27, 28
Multiconductor, Foil Shield 300 Volt	29 - 31
Multiconductor, Foil Shield 600 Volt	32, 33
Multiconductor, SUPRASHIELD® (Foil/Braid) 300 Volt	34 - 36
Multiconductor, SUPRASHIELD® (Foil/Braid) 600 Volt	37, 38
Multipair, Unshielded 300 Volt	39
Multipair, Foil Shield 300 Volt	40
Multipair, SUPRASHIELD® (Foil/Braid) 300 Volt	41, 42

XTRA•GUARD® 1

MULTICONDUCTOR, UNSHIELDED

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL TYPE CM, AWM 2464

CSA CMG FT4

300 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- -20°C to 75°C – CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart E Page 375, 20 AWG Chart D Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

Certified
Canadian Standards Association



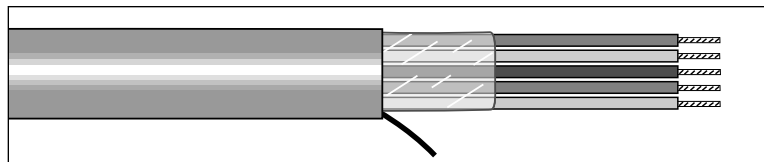
AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum
- ▲ Also available in Gray 328 ft (100m)

FIT® TUBING RECOMMENDATION

FIT®-221 – General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 – Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5012C	2	0.032	0,81	0.16	4,0
5013C	3	0.032	0,81	0.17	4,4
▲ 5014C	4	0.032	0,81	0.19	4,7
▲ 5016C	6	0.032	0,81	0.21	5,3
▲ 5018C	8	0.032	0,81	0.23	5,8
▲ 5020C	10	0.032	0,81	0.24	6,2
▲ 5020/15C	15	0.032	0,81	0.28	7,1
5020/20C	20	0.032	0,81	0.31	7,9
5020/25C	25	0.032	0,81	0.34	8,5
5020/30C	30	0.032	0,81	0.36	9,1
5020/40C	40	0.032	0,81	0.40	10,2
5020/50C	50	0.032	0,81	0.44	11,2

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5002C	2	0.032	0,81	0.17	4,3
5003C	3	0.032	0,81	0.19	4,8
5004C	4	0.032	0,81	0.20	5,2
5006C	6	0.032	0,81	0.23	5,8
5008C	8	0.032	0,81	0.25	6,4
5010C	10	0.032	0,81	0.27	6,9
5010/15C	15	0.032	0,81	0.31	7,9
5010/20C	20	0.032	0,81	0.35	8,8
5010/25C	25	0.032	0,81	0.38	9,6
5010/30C	30	0.032	0,81	0.41	10,3
5010/40C	40	0.032	0,81	0.46	11,6
5010/50C	50	0.032	0,81	0.50	12,7
5010/60C	60	0.032	0,81	0.55	13,7

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5052C	2	0.032	0,81	0.21	5,3
5053C	3	0.032	0,81	0.23	5,9
5054C	4	0.032	0,81	0.25	6,5
5056C	6	0.032	0,81	0.29	7,4
5058C	8	0.032	0,81	0.32	8,2
5060C	10	0.032	0,81	0.35	8,8
5060/15C	15	0.032	0,81	0.40	10,3
5060/20C	20	0.032	0,81	0.45	11,5
5060/25C	25	0.032	0,81	0.49	12,6
5060/30C	30	0.032	0,81	0.53	13,5
5060/40C	40	0.053	1,35	0.64	16,3
5060/50C	50	0.053	1,35	0.70	17,8

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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Europe/UK Telephone: +44 (0) 1932 772422 • Europe/UK Fax: +44 (0) 1932 772433

Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CM, AWM 2464
CSA CMG FT4
300 VOLT

XTRA•GUARD® 1

MULTICONDUCTOR, UNSHIELDED

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

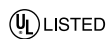
- Color Code: Chart D Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test



Underwriters Laboratories Inc. Canadian Standards Association



AVAILABILITY

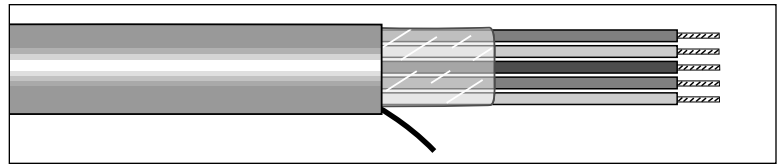
- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5062C, 5062/1C*	2	0.032	0,81	0.23	5,8
5063C, 5063/1C*	3	0.032	0,81	0.24	6,1
5064C	4	0.032	0,81	0.26	6,6
5066C	6	0.032	0,81	0.31	7,9
5068C	8	0.032	0,81	0.33	8,4
5070C	10	0.032	0,81	0.39	9,8
5070/15C	15	0.032	0,81	0.45	11,5
5070/20C	20	0.032	0,81	0.51	12,9
5070/25C	25	0.032	0,81	0.56	14,1
5070/30C	30	0.053	1,35	0.64	16,3
5070/40C	40	0.053	1,35	0.72	18,2
5070/50C	50	0.053	1,35	0.79	20,0
5070/60C	60	0.083	2,11	0.91	23,1

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5072C, 5072/1C*	2	0.032	0,81	0.26	6,5
5073C, 5073/1C*	3	0.032	0,81	0.29	7,4
5074C	4	0.032	0,81	0.32	8,1
5076C	6	0.032	0,81	0.37	9,3
5078C	8	0.032	0,81	0.41	10,4
5080C	10	0.032	0,81	0.44	11,3
5080/15C	15	0.032	0,81	0.52	13,2
5080/20C	20	0.053	1,35	0.63	15,9
5080/25C	25	0.053	1,35	0.68	17,3
5080/30C	30	0.053	1,35	0.73	18,6
5080/40C	40	0.083	2,11	0.88	22,5
5080/50C	50	0.083	2,11	0.96	24,5

*Conductors color coded per international standards: brown, blue, green/yellow

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XTRA•GUARD® 1

MULTICONDUCTOR, UNSHIELDED

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

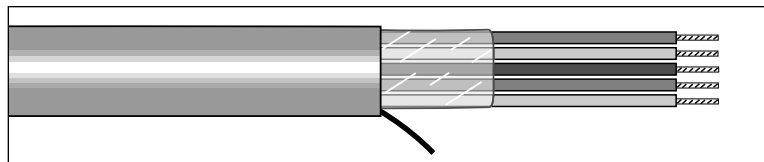
UL TYPE CM, AWM 2343

CSA CMG FT4

300 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements



XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2343
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test



Underwriters Laboratories Inc. Canadian Standards Association



AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL AWM 2501
CSA AWM I A/B II A/B FT4
600 VOLT

XTRA•GUARD® 1

MULTICONDUCTOR, UNSHIELDED

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL AWM Style 2501
- CSA AWM I A/B II A/B FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

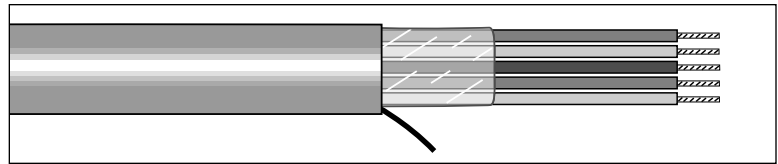


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AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum



22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5402	2	0.063	1,60	0.32	8,1
5404	4	0.063	1,60	0.38	9,7
5405	5	0.063	1,60	0.41	10,4
5409	9	0.063	1,60	0.49	12,5
5409/19	19	0.063	1,60	0.64	16,2

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5413	3	0.063	1,60	0.35	8,8
5414	4	0.063	1,60	0.40	10,1
5419	9	0.063	1,60	0.51	13,0
5419/12	12	0.063	1,60	0.56	14,3
5419/15	15	0.063	1,60	0.61	15,5
5419/19	19	0.063	1,60	0.67	16,9
5419/25	25	0.063	1,60	0.73	18,5

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5422	2	0.063	1,60	0.34	8,9
5423	3	0.063	1,60	0.37	9,4
5424	4	0.063	1,60	0.42	10,8
5425	5	0.063	1,60	0.45	11,5
5427	7	0.063	1,60	0.50	12,8
5429	9	0.063	1,60	0.55	13,9
5429/15	15	0.063	1,60	0.66	16,7
5429/19	19	0.063	1,60	0.72	18,3
5429/25	25	0.063	1,60	0.79	20,1

Additional AWG sizes on next page

FIT® TUBING RECOMMENDATION

FIT®-221 – General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 – Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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XTRA•GUARD® 1

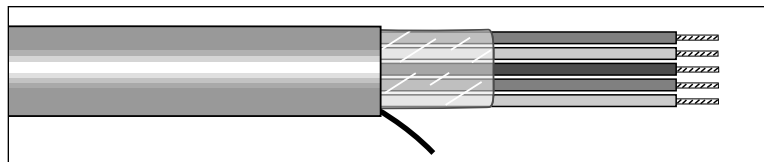
MULTICONDUCTOR, UNSHIELDED

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL AWM 2501
CSA AWM I A/B II A/B FT4
600 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition and CSA Certification
- Flexible Cable Routing Requirements



XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5434	4	0.063	1,60	0.46	11,7
5435	5	0.063	1,60	0.49	12,6
5437	7	0.063	1,60	0.55	14,0
5439	9	0.063	1,60	0.60	15,3
5439/12	12	0.063	1,60	0.67	17,0
5439/15	15	0.063	1,60	0.73	18,4
5439/19	19	0.083	2,11	0.83	21,2
5439/25	25	0.083	2,11	0.92	23,5

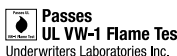
14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5442	2	0.063	1,60	0.40	10,2
5443	3	0.063	1,60	0.43	10,8
5444	4	0.063	1,60	0.48	12,3
5445	5	0.063	1,60	0.52	13,2
5447	7	0.063	1,60	0.58	14,8
5449	9	0.063	1,60	0.64	16,2
5449/12	12	0.063	1,60	0.71	18,0
5449/15	15	0.063	1,60	0.77	19,6
5449/25	25	0.083	2,11	0.98	24,9

SPECIFICATIONS

- UL AWM Style 2501
- CSA AWM I A/B II A/B FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test

 **Recognized Component**
Underwriters Laboratories Inc.

 **Passes UL VW-1 Flame Test**
Underwriters Laboratories Inc.

 **Certified**
Canadian Standards Association



AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 – General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 – Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CM, AWM 2464
CSA CMG FT4
300 VOLT

XTRA•GUARD® 1

MULTICONDUCTOR, FOIL SHIELD

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (24, 22 AWG)
- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart E Page 375,
20 AWG Chart D Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with
Stranded Tinned Copper Drain Wire Equal in Size to
Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association



AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and
1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum
- ▲ Also available in Gray 328 ft (100m)

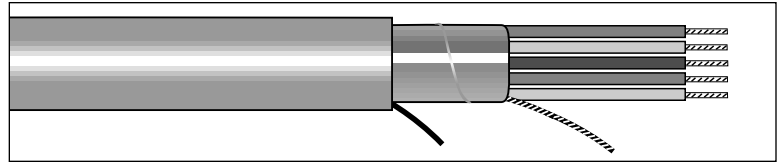
FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

Additional AWG sizes on next page

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
▲ 5092C	2	0.032	0,81	0.16	4,1
▲ 5093C	3	0.032	0,81	0.17	4,3
▲ 5094C	4	0.032	0,81	0.18	4,5
▲ 5096C	6	0.032	0,81	0.20	5,1
▲ 5098C	8	0.032	0,81	0.22	5,6
▲ 5100C	10	0.032	0,81	0.25	6,3
▲ 5100/15C	15	0.032	0,81	0.27	6,9
5100/20C	20	0.032	0,81	0.30	7,6
5100/25C	25	0.032	0,81	0.33	8,3
5100/30C	30	0.032	0,81	0.36	9,2
5100/40C	40	0.032	0,81	0.40	10,2
5100/50C	50	0.032	0,81	0.44	11,3
5100/60C	60	0.032	0,81	0.47	11,9
5100/70C	70	0.032	0,81	0.51	12,9

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5192C	2	0.032	0,81	0.18	4,6
5193C	3	0.032	0,81	0.19	4,9
5194C	4	0.032	0,81	0.20	5,1
5196C	6	0.032	0,81	0.23	5,9
5198C	8	0.032	0,81	0.25	6,4
5199/10C	10	0.032	0,81	0.28	7,0
5199/15C	15	0.032	0,81	0.31	7,9
5199/20C	20	0.032	0,81	0.34	8,6
5199/25C	25	0.032	0,81	0.38	9,7
5199/30C	30	0.032	0,81	0.40	10,2
5199/40C	40	0.032	0,81	0.45	11,5
5199/50C	50	0.032	0,81	0.49	12,5
5199/60C	60	0.032	0,81	0.53	13,5
5199/70C	70	0.053	1,35	0.62	14,0

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5462C	2	0.032	0,81	0.21	5,4
5463C	3	0.032	0,81	0.22	5,6
5464C	4	0.032	0,81	0.24	6,1
5466C	6	0.032	0,81	0.28	7,1
5468C	8	0.032	0,81	0.31	7,9
5470C	10	0.032	0,81	0.35	8,9
5470/15C	15	0.032	0,81	0.41	10,4
5470/20C	20	0.032	0,81	0.46	11,6
5470/25C	25	0.032	0,81	0.50	12,7
5470/30C	30	0.032	0,81	0.54	13,6
5470/40C	40	0.053	1,35	0.65	16,4
5470/50C	50	0.053	1,35	0.71	17,9

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XTRA•GUARD® 1

MULTICONDUCTOR, FOIL SHIELD

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

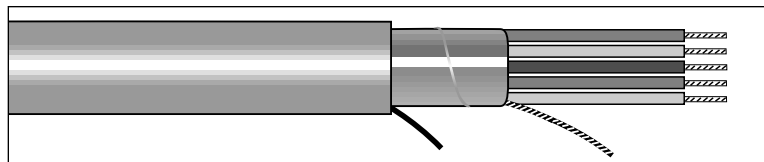
UL TYPE CM, AWM 2464

CSA CMG FT4

300 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements



XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing in with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Canadian Standards Association



AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5382C, 5382/1C*	2	0.032	0,81	0.23	5,9
5383C, 5383/1C*	3	0.032	0,81	0.24	6,1
5384C	4	0.032	0,81	0.26	6,6
5386C	6	0.032	0,81	0.31	7,9
5388C	8	0.032	0,81	0.33	8,3
5390C	10	0.032	0,81	0.39	9,9
5390/15C	15	0.032	0,81	0.45	11,5
5390/20C	20	0.032	0,81	0.51	13,0
5390/25C	25	0.053	1,35	0.56	14,2
5390/30C	30	0.053	1,35	0.64	16,4
5390/40C	40	0.053	1,35	0.72	18,3
5390/50C	50	0.053	1,35	0.79	20,1
5390/60C	60	0.083	2,11	0.91	23,2

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5362C, 5362/1C*	2	0.032	0,81	0.25	6,4
5363C, 5363/1C*	3	0.032	0,81	0.27	6,9
5364C	4	0.032	0,81	0.29	7,4
5366C	6	0.032	0,81	0.35	8,9
5368C	8	0.032	0,81	0.38	9,7
5370C	10	0.032	0,81	0.44	11,2
5370/15C	15	0.032	0,81	0.49	12,5
5370/20C	20	0.053	1,35	0.59	14,9
5370/25C	25	0.053	1,35	0.66	16,8
5370/30C	30	0.053	1,35	0.71	18,0
5370/40C	40	0.083	2,11	0.89	22,6

*Conductors color coded per international standards: brown, blue, green/yellow



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CM, AWM 2343
CSA CMG FT4
300 VOLT

XTRA•GUARD® 1

MULTICONDUCTOR, FOIL SHIELD

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (24, 22 AWG)
- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2343
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test

UL LISTED  Passes UL VW-1 Flame Test Underwriters Laboratories Inc.  Certified Canadian Standards Association 

AVAILABILITY

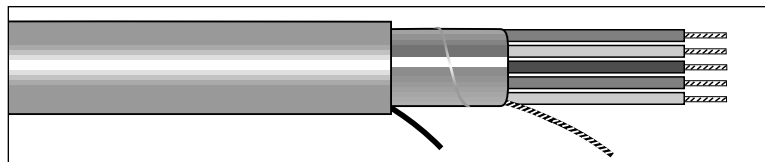
- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum
- ▲ Also available in Gray 328 ft (100m)

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5599/3C	3	0.063	1,60	0.23	5,8
▲ 5599/5C	5	0.063	1,60	0.26	6,7
5599/7C	7	0.063	1,60	0.28	7,2
5599/12C	12	0.063	1,60	0.32	8,3
5599/15C	15	0.063	1,60	0.35	8,8
5599/19C	19	0.063	1,60	0.37	9,4
5599/27C	27	0.063	1,60	0.41	10,5

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5580/2C	2	0.063	1,60	0.23	5,9
5580C	5	0.063	1,60	0.28	7,2
5581C	7	0.063	1,60	0.31	7,8
5582C	12	0.063	1,60	0.36	9,0
5583C	15	0.063	1,60	0.38	9,6
5584C	19	0.063	1,60	0.41	10,3
5586C	37	0.063	1,60	0.51	12,9

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5560/2C	2	0.063	1,60	0.25	6,3
5560C	5	0.063	1,60	0.31	7,9
5561C	7	0.063	1,60	0.34	8,6
5562C	12	0.063	1,60	0.39	10,0
5563C	15	0.063	1,60	0.42	10,7
5564C	19	0.063	1,60	0.46	11,6

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XTRA•GUARD® 1

MULTICONDUCTOR, FOIL SHIELD

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL AWM 2501
CSA AWM I A/B II A/B FT4
600 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (22 AWG)
- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL AWM Style 2501
- CSA AWM I A/B II A/B FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test

Certified
Canadian Standards Association



AVAILABILITY

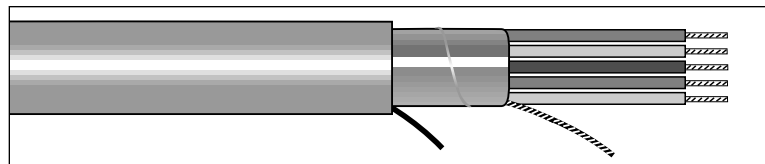
- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 – General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 – Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5410/2	2	0.063	1,60	0.32	8,2
5410/3	3	0.063	1,60	0.34	8,6
5410/4	4	0.063	1,60	0.39	9,8
5410/5	5	0.063	1,60	0.41	10,5
5410/9	9	0.063	1,60	0.50	12,6
5410/12	12	0.063	1,60	0.55	13,9

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5420/3	3	0.063	1,60	0.35	8,9
5420/4	4	0.063	1,60	0.40	10,2
5420/5	5	0.063	1,60	0.43	10,9
5420/7	7	0.063	1,60	0.47	12,1
5420/9	9	0.063	1,60	0.51	13,1
5420/12	12	0.063	1,60	0.57	14,4

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5430/2	2	0.063	1,60	0.35	9,0
5430/3	3	0.063	1,60	0.37	9,5
5430/4	4	0.063	1,60	0.43	10,9
5430/5	5	0.063	1,60	0.46	11,6
5430/7	7	0.063	1,60	0.51	12,9
5430/9	9	0.063	1,60	0.55	14,0
5430/12	12	0.063	1,60	0.61	15,5
5430/15	15	0.063	1,60	0.66	16,8
5430/19	19	0.063	1,60	0.72	18,4
5430/25	25	0.063	1,60	0.80	20,3



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UL AWM 2501
CSA AWM I A/B II A/B FT4
600 VOLT

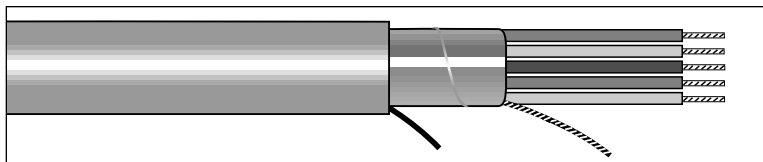
XTRA•GUARD® 1

MULTICONDUCTOR, FOIL SHIELD

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition and CSA Certification
- Flexible Cable Routing Requirements



XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5440/2	2	0.063	1,60	0.38	9,7
5440/3	3	0.063	1,60	0.40	10,2
5440/4	4	0.063	1,60	0.46	11,8
5440/5	5	0.063	1,60	0.50	12,7
5440/7	7	0.063	1,60	0.56	14,1
5440/9	9	0.063	1,60	0.61	15,4
5440/12	12	0.063	1,60	0.67	17,1
5440/15	15	0.063	1,60	0.72	18,3

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5450/2	2	0.063	1,60	0.41	10,4
5450/3	3	0.063	1,60	0.43	11,0
5450/4	4	0.063	1,60	0.49	12,4
5450/5	5	0.063	1,60	0.52	13,3
5450/7	7	0.063	1,60	0.59	14,9
5450/12	12	0.063	1,60	0.71	18,1

SPECIFICATIONS

- UL AWM Style 2501
- CSA AWM I A/B II A/B FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



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AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 – General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 – Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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Email: info@alphawire.com

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XTRA•GUARD® 1

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL TYPE CM, AWM 2464

CSA CMG FT4

300 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (24, 22 AWG)
- High Technology Applications in Controlled Environments
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart E Page 375,
20 AWG Chart D Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum
Foil with Stranded Tinned Copper Drain Wire Equal in
Size to Insulated Conductors of Cable plus 70% Overall
Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

Certified
Canadian Standards Association



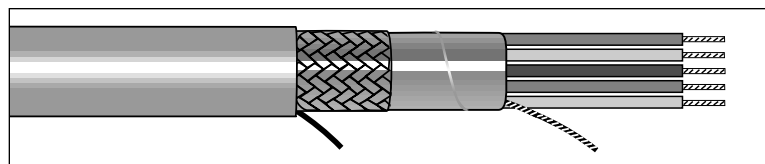
AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and
1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT® -221 — General Purpose, Irradiated Polyolefin (See Page 114 for
Product Specifications)

FIT® -321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5112C	2	0.032	0,81	0.18	4,6
5113C	3	0.032	0,81	0.19	4,8
5114C	4	0.032	0,81	0.21	5,4
5116C	6	0.032	0,81	0.23	5,9
5118C	8	0.032	0,81	0.25	6,4
5120C	10	0.032	0,81	0.27	6,9
5120/15C	15	0.032	0,81	0.30	7,6
5120/20C	20	0.032	0,81	0.33	8,4
5120/25C	25	0.032	0,81	0.36	9,2
5120/30C	30	0.032	0,81	0.38	9,7
5120/40C	40	0.032	0,81	0.43	10,9
5120/50C	50	0.032	0,81	0.46	11,7

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5102C	2	0.032	0,81	0.20	5,0
5103C	3	0.032	0,81	0.21	5,4
5104C	4	0.032	0,81	0.22	5,6
5106C	6	0.032	0,81	0.25	6,4
5108C	8	0.032	0,81	0.27	6,9
5110C	10	0.032	0,81	0.30	7,6
5110/15C	15	0.032	0,81	0.33	8,4
5110/20C	20	0.032	0,81	0.36	9,2
5110/25C	25	0.032	0,81	0.39	9,8
5110/30C	30	0.032	0,81	0.42	10,9
5110/40C	40	0.032	0,81	0.47	11,8
5110/50C	50	0.032	0,81	0.51	12,9
5110/60C	60	0.053	1,35	0.60	15,4
5110/70C	70	0.053	1,35	0.63	16,0
5110/80C	80	0.053	1,35	0.66	16,8

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5152C	2	0.032	0,81	0.23	5,9
5153C	3	0.032	0,81	0.26	6,6
5154C	4	0.032	0,81	0.28	7,1
5156C	6	0.032	0,81	0.32	8,0
5158C	8	0.032	0,81	0.35	8,8
5160C	10	0.032	0,81	0.37	9,5
5160/15C	15	0.032	0,81	0.43	10,9
5160/20C	20	0.032	0,81	0.48	12,1
5160/25C	25	0.032	0,81	0.52	13,2
5160/30C	30	0.032	0,81	0.56	14,2
5160/40C	40	0.053	1,35	0.67	17,0
5160/50C	50	0.053	1,35	0.73	18,5
5160/60C	60	0.053	1,35	0.78	19,8

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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Email: info@alphawire.com

UL TYPE CM, AWM 2464
CSA CMG FT4
300 VOLT

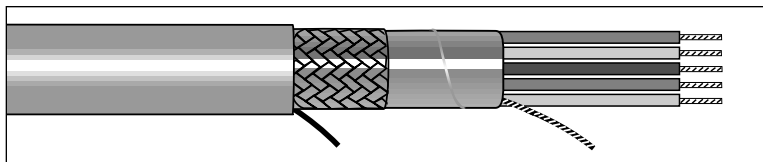
XTRA•GUARD® 1

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- **SUPRASHIELD** — Twice as Effective as Foil Shielding



XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5162C, 5162/1C*	2	0.032	0,81	0.25	6,5
5163C, 5163/1C*	3	0.032	0,81	0.28	7,2
5164C	4	0.032	0,81	0.31	7,8
5166C	6	0.032	0,81	0.35	8,9
5168C	8	0.032	0,81	0.38	9,7
5170C	10	0.032	0,81	0.41	10,5
5170/15C	15	0.032	0,81	0.48	12,1
5170/20C	20	0.032	0,81	0.53	13,5
5170/25C	25	0.053	1,35	0.62	15,8
5170/30C	30	0.053	1,35	0.67	16,9
5170/40C	40	0.053	1,35	0.74	18,9

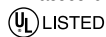
16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5172C, 5172/1C*	2	0.032	0,81	0.28	7,2
5173C, 5173/1C*	3	0.032	0,81	0.32	8,0
5174C	4	0.032	0,81	0.34	8,8
5176C	6	0.032	0,81	0.39	10,0
5178C	8	0.032	0,81	0.43	11,0
5180C	10	0.032	0,81	0.47	11,9
5180/15C	15	0.032	0,81	0.55	13,9
5180/20C	20	0.053	1,35	0.65	16,6
5180/25C	25	0.053	1,35	0.71	18,0

*Conductors color coded per international standards: brown, blue, green/yellow

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



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AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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XTRA•GUARD® 1

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL TYPE CM, AWM 2343

CSA CMG FT4

300 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (24, 22 AWG)
- High Technology Applications in Controlled Environments
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2343
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



LISTED

Passes
UL VW-1 Flame Test



Canadian Standards Association



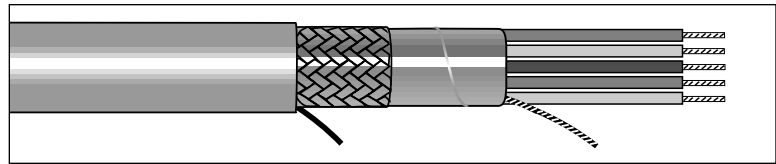
AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5300C	5	0.063	1,60	0.29	7,2
5301C	7	0.063	1,60	0.31	7,8
5302C	12	0.063	1,60	0.35	8,8
5303C	15	0.063	1,60	0.37	9,3
5304C	19	0.063	1,60	0.39	9,9
5305C	27	0.063	1,60	0.43	11,0
5306C	37	0.063	1,60	0.48	12,1
5307C	48	0.063	1,60	0.52	13,2

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5310C	5	0.063	1,60	0.31	7,8
5311C	7	0.063	1,60	0.33	8,4
5312C	12	0.063	1,60	0.38	9,6
5313C	15	0.063	1,60	0.40	10,2
5314C	19	0.063	1,60	0.43	10,9
5316C	37	0.063	1,60	0.53	13,4
5318C	60	0.063	1,60	0.63	15,9

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5320/4C	4	0.063	1,60	0.30	7,7
5320C	5	0.063	1,60	0.33	8,4
5321C	7	0.063	1,60	0.36	9,2
5322C	12	0.063	1,60	0.42	10,6
5323C	15	0.063	1,60	0.44	11,3
5324C	19	0.063	1,60	0.48	12,1
5325C	27	0.063	1,60	0.53	13,6
5326C	37	0.063	1,60	0.60	15,1

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL AWM 2501
CSA AWM I A/B II A/B FT4
600 VOLT

XTRA•GUARD® 1

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition and CSA Certification
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (22 AWG)
- High Technology Applications in Controlled Environments
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL AWM Style 2501
- CSA AWM I A/B II A/B FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test



Underwriters Laboratories Inc. Underwriters Laboratories Inc. Canadian Standards Association



AVAILABILITY

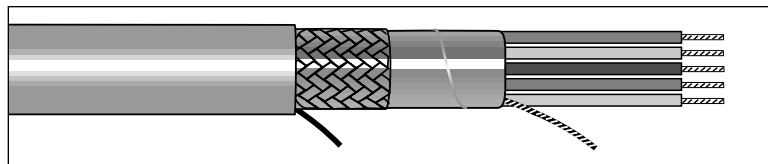
- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5504	4	0.063	1,60	0.41	10,4
5507	7	0.063	1,60	0.48	12,2
5509/12	12	0.063	1,60	0.57	14,4

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5514	4	0.063	1,60	0.42	10,7
5517	7	0.063	1,60	0.50	12,6
5519	9	0.063	1,60	0.54	13,6
5519/12	12	0.063	1,60	0.59	15,0
5519/19	19	0.063	1,60	0.69	17,6

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5522	2	0.063	1,60	0.38	9,6
5523	3	0.063	1,60	0.40	10,1
5524	4	0.063	1,60	0.45	11,4
5525	5	0.063	1,60	0.48	12,2
5527	7	0.063	1,60	0.53	13,5
5529	9	0.063	1,60	0.57	14,6
5529/12	12	0.063	1,60	0.63	16,1
5529/15	15	0.063	1,60	0.68	17,4
5529/19	19	0.083	2,11	0.79	19,9

Additional AWG sizes on next page

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XTRA•GUARD® 1

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL AWM 2501
CSA AWM I A/B II A/B FT4
600 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition and CSA Certification
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

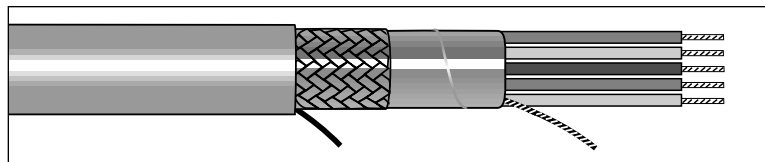
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC



16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5532	2	0.063	1,60	0.40	10,2
5533	3	0.063	1,60	0.42	10,8
5534	4	0.063	1,60	0.49	12,4
5535	5	0.063	1,60	0.52	13,2
5537	7	0.063	1,60	0.58	14,7
5539	9	0.063	1,60	0.63	16,0
5539/12	12	0.063	1,60	0.69	17,6
5539/15	15	0.083	2,11	0.79	20,0
5539/19	19	0.083	2,11	0.86	21,9

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 1 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5542	2	0.063	1,60	0.43	10,9
5543	3	0.063	1,60	0.45	11,5
5544	4	0.063	1,60	0.51	13,0
5547	7	0.063	1,60	0.61	15,5
5549	9	0.063	1,60	0.66	16,8
5549/12	12	0.083	2,11	0.77	19,6
5549/15	15	0.083	2,11	0.83	21,2

SPECIFICATIONS

- UL AWM Style 2501
- CSA AWM I A/B II A/B FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CM, AWM 2464
CSA CMG FT4
300 VOLT

XTRA•GUARD® 1

MULTIPAIR, UNSHIELDED

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

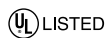
- Color Code: 24, 22 AWG Chart B Page 374,
20, 18 AWG Chart A Page 374
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test



Underwriters Laboratories Inc. Canadian Standards Association



AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and
1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum
- ▲ Also available in Gray 328 ft (100m)

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



24 AWG (0,23mm²), **7/ 32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5261C	1	0.032	0,81	0.16	4,1
5262C	2	0.032	0,81	0.20	5,1
▲ 5263C	3	0.032	0,81	0.23	5,8
5264C	4	0.032	0,81	0.25	6,4
5265C	5	0.032	0,81	0.27	6,9
5266C	6	0.032	0,81	0.29	7,3
▲ 5269C	9	0.032	0,81	0.33	8,4
5269/11C	11	0.032	0,81	0.36	9,1
▲ 5269/15C	15	0.032	0,81	0.40	10,1
5269/27C	27	0.032	0,81	0.50	12,7
5269/77C	77	0.083	2,11	0.86	21,8

22 AWG (0,35mm²), **7/ 30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5021C	1	0.032	0,81	0.17	4,3
5022C	2	0.032	0,81	0.22	5,7
5023C	3	0.032	0,81	0.25	6,5
5024C	4	0.032	0,81	0.28	7,1
5025C	5	0.032	0,81	0.30	7,7
5026C	6	0.032	0,81	0.31	7,8
5029/15C	15	0.032	0,81	0.45	11,5

20 AWG (0,56mm²), **7/ 28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5282C	2	0.032	0,81	0.30	7,5
5283C	3	0.032	0,81	0.32	8,2
5286C	6	0.032	0,81	0.42	10,6
5289C	9	0.032	0,81	0.49	12,4
5289/12C	12	0.032	0,81	0.53	13,5

18 AWG (0,81mm²), **16/ 30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5032C	2	0.032	0,81	0.33	8,4
5033C	3	0.032	0,81	0.36	9,1
5036C	6	0.032	0,81	0.47	11,9
5039C	9	0.053	1,35	0.55	13,9
5039/12C	12	0.053	1,35	0.63	16,1

XTRA•GUARD® 1

MULTIPAIR, FOIL SHIELD

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL TYPE CM, AWM 2464

CSA CMG FT4

300 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- Flexible Cable Routing Requirements

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (24, 22 AWG)
- High Technology Applications in Controlled Environments
- Medical Electronics
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart B Page 374,
20, 18 AWG Chart A Page 374
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with
Stranded Tinned Copper Drain Wire Equal in Size to
Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

CSA Certified
Canadian Standards Association



AVAILABILITY

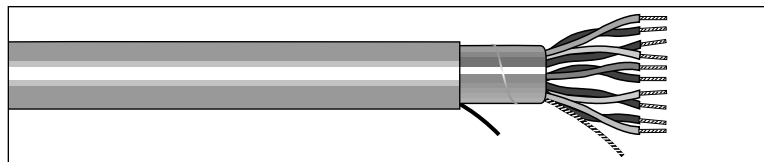
- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and
1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



24 AWG (0,23mm²), **7/ 32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5491C	1	0.032	0,81	0.16	4,1
5492C	2	0.032	0,81	0.21	5,2
5493C	3	0.032	0,81	0.23	5,9
5494C	4	0.032	0,81	0.25	6,5
5495C	5	0.032	0,81	0.27	7,0
5496C	6	0.032	0,81	0.29	7,4
5499C	9	0.032	0,81	0.34	8,5
5499/11C	11	0.032	0,81	0.36	9,2
5499/15C	15	0.032	0,81	0.40	10,3
5499/19C	19	0.032	0,81	0.44	11,2
5499/27C	27	0.032	0,81	0.50	12,8

22 AWG (0,35mm²), **7/ 30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5481C	1	0.032	0,81	0.18	4,6
5482C	2	0.032	0,81	0.23	5,8
5483C	3	0.032	0,81	0.25	6,5
5484C	4	0.032	0,81	0.27	7,0
5485C	5	0.032	0,81	0.29	7,4
5486C	6	0.032	0,81	0.32	8,0
5489C	9	0.032	0,81	0.37	9,4
5489/11C	11	0.032	0,81	0.40	10,3
5489/15C	15	0.032	0,81	0.45	11,4
5489/19C	19	0.032	0,81	0.49	12,5
5489/27C	27	0.053	1,35	0.62	15,7

20 AWG (0,56mm²), **7/ 28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5452C	2	0.032	0,81	0.31	7,7
5453C	3	0.032	0,81	0.33	8,3
5456C	6	0.032	0,81	0.43	10,7
5459C	9	0.032	0,81	0.50	12,5
5459/12C	12	0.032	0,81	0.56	13,5
5459/19C	19	0.053	1,35	0.70	17,8

18 AWG (0,81mm²), **16/ 30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5373C	3	0.032	0,81	0.36	9,2
5376C	6	0.032	0,81	0.47	12,0



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CM, AWM 2464
CSA CMG FT4
300 VOLT

XTRA•GUARD® 1

MULTIPAIR, SUPRASHIELD®

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (24, 22 AWG)
- High Technology Applications in Controlled Environments
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart B Page 374,
20, 18 AWG Chart A Page 374
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum
Foil with Stranded Tinned Copper Drain Wire Equal in
Size to Insulated Conductors of Cable plus 70% Overall
Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2464
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test

UL LISTED  Passes
UL VW-1 Flame Test  Certified
Underwriters Laboratories Inc. Canadian Standards Association



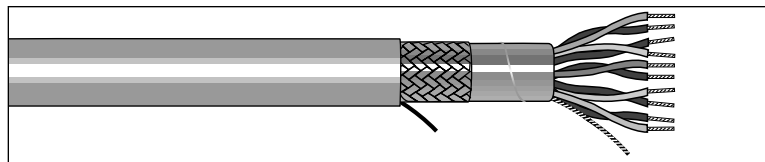
AVAILABILITY

- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and
1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT® -221 — General Purpose, Irradiated Polyolefin (See Page 114 for
Product Specifications)

FIT® -321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5271C	1	0.032	0,81	0.18	4,6
5272C	2	0.032	0,81	0.23	5,8
5273C	3	0.032	0,81	0.25	6,5
5274C	4	0.032	0,81	0.28	7,0
5275C	5	0.032	0,81	0.30	7,5
5276C	6	0.032	0,81	0.31	8,0
5279C	9	0.032	0,81	0.36	9,1
5279/11C	11	0.032	0,81	0.38	9,7
5279/15C	15	0.032	0,81	0.43	10,8
5279/19C	19	0.032	0,81	0.46	11,8
5279/27C	27	0.032	0,81	0.53	13,4
5279/51C	51	0.053	1,35	0.71	18,1

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5121C	1	0.032	0,81	0.20	5,1
5122C	2	0.032	0,81	0.25	6,3
5123C	3	0.032	0,81	0.28	7,1
5124C	4	0.032	0,81	0.31	7,8
5125C	5	0.032	0,81	0.33	8,3
5126C	6	0.032	0,81	0.35	8,9
5129C	9	0.032	0,81	0.40	10,1
5129/11C	11	0.032	0,81	0.43	10,9
5129/15C	15	0.032	0,81	0.48	12,1
5129/19C	19	0.032	0,81	0.52	13,2
5129/27C	27	0.053	1,35	0.64	16,2

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5292C	2	0.032	0,81	0.33	8,3
5293C	3	0.032	0,81	0.35	8,9
5296C	6	0.032	0,81	0.44	11,3
5299C	9	0.032	0,81	0.51	13,0
5299/19C	19	0.053	1,35	0.72	18,4

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5132C	2	0.032	0,81	0.36	9,1
5133C	3	0.032	0,81	0.39	9,8
5136C	6	0.032	0,81	0.49	12,5
5139C	9	0.053	1,35	0.62	15,6
5139/27C	27	0.083	2,11	0.98	24,9

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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XTRA•GUARD® 1

MULTIPAIR, SUPRASHIELD®

EXTRA-PREMIUM GRADE PVC JACKET FOR EXTENDED CABLE LIFE

UL TYPE CM, AWM 2343

CSA CMG FT4

300 VOLT

CHOOSE XTRA•GUARD 1 For:

- Unsurpassed Flame and Moisture Resistance
- Fast, Easy Stripping of Insulation and Jacket
- UL Recognition, UL Listing and CSA Certification
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 1 APPLICATIONS:

- EIA RS 232C Interface (24, 22 AWG)
- High Technology Applications in Controlled Environments
- Point-Of-Sale Equipment
- Computer Peripherals
- Industrial Process Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -20°C to 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart B Page 374
- Jacket Colors: Gray, Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM Style 2343
- CSA CMG FT4
- Passes UL VW-1 Flame Test
- Passes CSA FT4 Flame Test

UL LISTED  Passes UL VW-1 Flame Test  Certified Underwriters Laboratories Inc. Canadian Standards Association 

AVAILABILITY

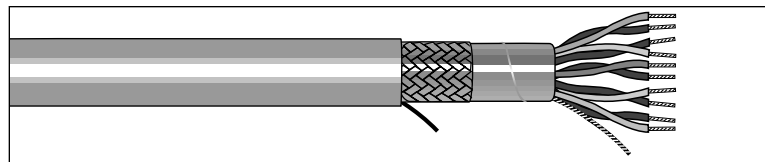
- In Stock: Gray 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order: Black, 1000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-221 — General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-321 — Medium Wall, Adhesive Lined, Irradiated Polyolefin (See Page 121 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5330C	5	0.063	1,60	0.36	9,1
5331C	7	0.063	1,60	0.39	9,9
5332C	12	0.063	1,60	0.46	11,6
5333C	15	0.063	1,60	0.49	12,4
5334C	19	0.063	1,60	0.52	13,3
5335C	27	0.063	1,60	0.59	14,9
5336C	37	0.063	1,60	0.65	16,6

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5340/2C	2	0.063	1,60	0.32	8,2
5340C	5	0.063	1,60	0.39	9,9
5341C	7	0.063	1,60	0.43	10,9
5342C	12	0.063	1,60	0.50	12,8
5344C	19	0.063	1,60	0.58	14,8
5345C	27	0.063	1,60	0.66	16,7
5346C	37	0.063	1,60	0.73	18,6

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 1 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
5350/4C	4	0.063	1,60	0.39	9,9
5350C	5	0.063	1,60	0.43	11,0
5351C	7	0.063	1,60	0.48	12,1
5351/9C	9	0.063	1,60	0.50	12,7
5353C	15	0.063	1,60	0.61	15,4
5354C	19	0.063	1,60	0.66	16,7
5355C	27	0.063	1,60	0.75	18,9



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Web Site: www.alphawire.com
Email: info@alphawire.com

XTRA•GUARD® 2

INDUSTRIAL STRENGTH, EXTRA-RUGGED POLYURETHANE JACKET

Specify **XTRA•GUARD® 2** for unmatched resistance to oils, fuels, solvents and water; two to three times the tensile, tear and abrasion resistance as compared to conventional PVC cables and in applications requiring ultraviolet light stability and fungus resistance.

XTRA•GUARD® 2 features fully color-coded PVC insulated tinned copper conductors with a specially formulated extra-rugged polyurethane jacket.

XTRA•GUARD® 2 is available in both 300 Volt and 600 Volt UL and CSA cable styles.

APPLICATIONS

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment



FIT® TUBING RECOMMENDATION

FIT®-750— Bonding Adhesive Lined, Irradiated Polyolefin
(See Page 127 for Product Specifications)

Product Type

Page Number (s)

Multiconductor, Unshielded 300 Volt	44, 45
Multiconductor, Unshielded 600 Volt	46
Multiconductor, Foil Shield 300 Volt	47, 48
Multiconductor, Foil Shield 600 Volt	49
Multiconductor, SUPRASHIELD® (Foil/Braid) 300 Volt	50, 51
Multiconductor, SUPRASHIELD® (Foil/Braid) 600 Volt	52
Multipair, Foil Shield 300 Volt	53
Multipair, SUPRASHIELD® (Foil/Braid) 300 Volt	54

XTRA•GUARD® 2

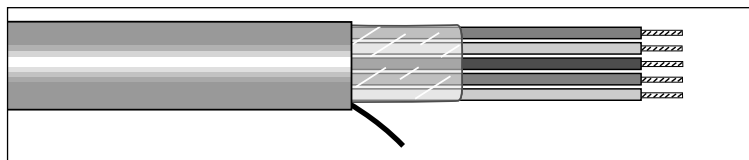
MULTICONDUCTOR, UNSHIELDED

EXTRA-RUGGED POLYURETHANE JACKET

UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

CHOOSE XTRA•GUARD 2 FOR:

- Now Rated to 90°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- Extraordinary Fungus Resistance



XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart E Page 375, 20 AWG Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association

AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25012	2	0.032	0,81	0.16	4,0
25013	3	0.032	0,81	0.17	4,4
25014	4	0.032	0,81	0.19	4,7
25016	6	0.032	0,81	0.21	5,3
25018	8	0.032	0,81	0.23	5,8
25020	10	0.032	0,81	0.24	6,2
25020/15	15	0.032	0,81	0.28	7,1
25020/20	20	0.032	0,81	0.31	7,9
25020/25	25	0.032	0,81	0.34	8,5

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25002	2	0.032	0,81	0.17	4,3
25003	3	0.032	0,81	0.19	4,8
25004	4	0.032	0,81	0.20	5,2
25006	6	0.032	0,81	0.23	5,8
25008	8	0.032	0,81	0.25	6,4
25010	10	0.032	0,81	0.27	6,9
25010/15	15	0.032	0,81	0.31	7,9
25010/20	20	0.032	0,81	0.35	8,8
25010/25	25	0.032	0,81	0.38	9,6

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25052	2	0.032	0,81	0.21	5,3
25053	3	0.032	0,81	0.23	5,9
25054	4	0.032	0,81	0.25	6,5
25056	6	0.032	0,81	0.29	7,4
25058	8	0.032	0,81	0.32	8,2
25060	10	0.032	0,81	0.35	8,8
25060/15	15	0.032	0,81	0.40	10,3
25060/20	20	0.032	0,81	0.45	11,5
25060/25	25	0.032	0,81	0.49	12,6
25060/30	30	0.032	0,81	0.53	13,5
25060/40	40	0.053	1,35	0.64	16,3
25060/50	50	0.053	1,35	0.70	17,8
25060/60	60	0.053	1,35	0.76	19,2
25060/70	70	0.053	1,35	0.80	20,4



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 2

MULTICONDUCTOR, UNSHIELDED

EXTRA-RUGGED POLYURETHANE JACKET

CHOOSE XTRA•GUARD 2 For:

- Now Rated to 90°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- Extraordinary Fungus Resistance

XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association



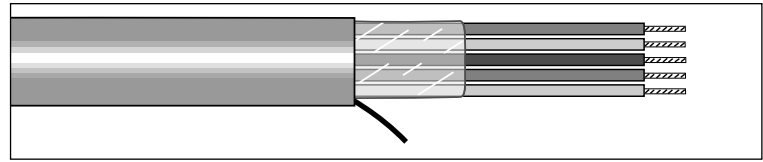
AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
▲ 25062, 25062/1*	2	0.032	0,81	0.23	5,8
25063, 25063/1*	3	0.032	0,81	0.24	6,1
▲ 25064	4	0.032	0,81	0.26	6,6
▲ 25066	6	0.032	0,81	0.31	7,9
25068	8	0.032	0,81	0.33	8,4
▲ 25070	10	0.032	0,81	0.39	9,8
▲ 25070/15	15	0.032	0,81	0.45	11,5
25070/20	20	0.032	0,81	0.51	12,9
25070/25	25	0.032	0,81	0.56	14,1

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
25072, 25072/1*	2	0.032	0,81	0.26	6,5
25073, 25073/1*	3	0.032	0,81	0.29	7,4
25074	4	0.032	0,81	0.32	8,1
25076	6	0.032	0,81	0.37	9,3
25078	8	0.032	0,81	0.41	10,4
25080	10	0.032	0,81	0.44	11,3
25080/15	15	0.032	0,81	0.52	13,2
25080/20	20	0.053	1,35	0.63	15,9
25080/25	25	0.053	1,35	0.68	17,3

*Conductors color coded per international standards: brown, blue, green/yellow.

XTRA•GUARD® 2

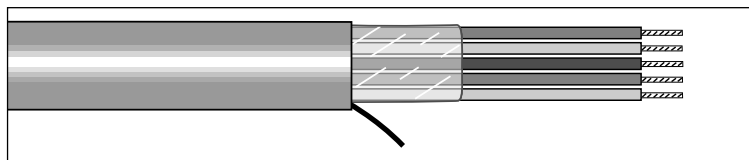
MULTICONDUCTOR, UNSHIELDED

EXTRA-RUGGED POLYURETHANE JACKET

UL AWM 20952
CSA AWM I A/B II A/B FT1
600 VOLT

CHOOSE XTRA•GUARD 2 FOR:

- Now Rated to 105°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- Extraordinary Fungus Resistance



XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25422	2	0.063	1,60	0.34	8,9
25423	3	0.063	1,60	0.37	9,4
25424	4	0.063	1,60	0.42	10,8
25427	7	0.063	1,60	0.50	12,8
25429	9	0.063	1,60	0.55	13,9
25429/12	12	0.063	1,60	0.61	15,4

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25432	2	0.063	1,60	0.37	9,5
25433	3	0.063	1,60	0.40	10,1
25434	4	0.063	1,60	0.46	11,7
25435	5	0.063	1,60	0.49	12,6
25439	9	0.063	1,60	0.60	15,3
25439/12	12	0.063	1,60	0.67	17,0
25439/19	19	0.083	2,11	0.83	21,2

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25442	2	0.063	1,60	0.40	10,2
25443	3	0.063	1,60	0.43	10,8
25444	4	0.063	1,60	0.48	12,3
25445	5	0.063	1,60	0.52	13,2
25449	9	0.063	1,60	0.64	16,2
25449/12	12	0.063	1,60	0.71	18,0

SPECIFICATIONS

- UL AWM Style 20952
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Underwriters Laboratories Inc. Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 2

MULTICONDUCTOR, FOIL SHIELD EXTRA-RUGGED POLYURETHANE JACKET

CHOOSE XTRA•GUARD 2 For:

- Now Rated to 90°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- Extraordinary Fungus Resistance

XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart E Page 375,
20 AWG Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red,
Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with
Stranded Tinned Copper Drain Wire Equal in Size to
Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



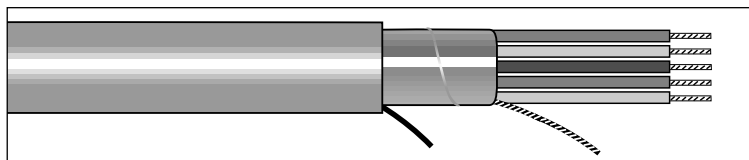
Certified
Canadian Standards Association

AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m)
put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft
(305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
▲ 25092	2	0.032	0,81	0.16	4,1
▲ 25093	3	0.032	0,81	0.17	4,3
25094	4	0.032	0,81	0.18	4,5
25096	6	0.032	0,81	0.20	5,1
▲ 25098	8	0.032	0,81	0.22	5,6
▲ 25100	10	0.032	0,81	0.25	6,3
25100/15	15	0.032	0,81	0.27	6,9
25100/20	20	0.032	0,81	0.30	7,6
25100/25	25	0.032	0,81	0.33	8,3

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25192	2	0.032	0,81	0.18	4,6
25193	3	0.032	0,81	0.19	4,9
25194	4	0.032	0,81	0.20	5,1
▲ 25196	6	0.032	0,81	0.23	5,9
25198	8	0.032	0,81	0.25	6,4
25199/10	10	0.032	0,81	0.28	7,0
25199/15	15	0.032	0,81	0.31	7,9
25199/20	20	0.032	0,81	0.34	8,6
25199/25	25	0.032	0,81	0.38	9,7
25199/30	30	0.032	0,81	0.40	10,2
25199/40	40	0.032	0,81	0.45	11,5
25199/50	50	0.032	0,81	0.49	12,5

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25462	2	0.032	0,81	0.21	5,4
25463	3	0.032	0,81	0.22	5,6
▲ 25464	4	0.032	0,81	0.24	6,1
25466	6	0.032	0,81	0.28	7,1
▲ 25468	8	0.032	0,81	0.31	7,9
25470	10	0.032	0,81	0.35	8,9
25470/15	15	0.032	0,81	0.41	10,4
25470/20	20	0.032	0,81	0.46	11,6
25470/25	25	0.032	0,81	0.50	12,7
25470/30	30	0.032	0,81	0.54	13,6
25470/40	40	0.053	1,35	0.65	16,4
25470/50	50	0.053	1,35	0.71	17,9

Additional AWG sizes on next page.

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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XTRA•GUARD® 2

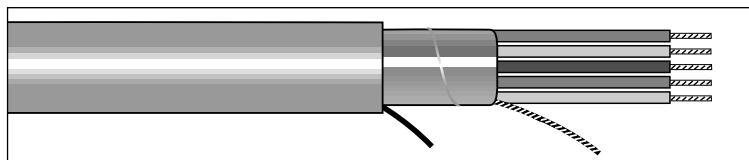
MULTICONDUCTOR, FOIL SHIELD

EXTRA-RUGGED POLYURETHANE JACKET

UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

CHOOSE XTRA•GUARD 2 FOR:

- Now Rated to 90°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- Extraordinary Fungus Resistance



XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
▲ 25382, 25382/1*	2	0.032	0,81	0.23	5,9
25383, 25383/1*	3	0.032	0,81	0.24	6,1
▲ 25384	4	0.032	0,81	0.26	6,6
25386	6	0.032	0,81	0.31	7,9
▲ 25388	8	0.032	0,81	0.33	8,3
25390	10	0.032	0,81	0.39	9,9
25390/15	15	0.032	0,81	0.45	11,5
25390/20	20	0.032	0,81	0.51	13,0
25390/25	25	0.053	1,35	0.56	14,2
25390/30	30	0.053	1,35	0.64	16,4
25390/40	40	0.053	1,35	0.72	18,3
25390/50	50	0.053	1,35	0.79	20,1

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
▲ 25362, 25362/1*	2	0.032	0,81	0.25	6,4
▲ 25363, 25363/1*	3	0.032	0,81	0.27	6,9
25364	4	0.032	0,81	0.29	7,4
25366	6	0.032	0,81	0.35	8,9
25368	8	0.032	0,81	0.38	9,7
25370	10	0.032	0,81	0.44	11,2
25370/15	15	0.032	0,81	0.49	12,5
25370/20	20	0.053	1,35	0.59	14,9
25370/25	25	0.053	1,35	0.66	16,8
25370/30	30	0.053	1,35	0.71	18,0
25370/40	40	0.083	2,11	0.89	22,6
25370/50	50	0.083	2,11	0.97	24,6

*Conductors color coded per international standards: brown, blue, green/yellow.

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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UL AWM 20952
CSA AWM I A/B II A/B FT1
600 VOLT

XTRA•GUARD® 2

MULTICONDUCTOR, FOIL SHIELD

EXTRA-RUGGED POLYURETHANE JACKET

CHOOSE XTRA•GUARD 2 For:

- Now Rated to 105°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- Extraordinary Fungus Resistance

XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20952
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



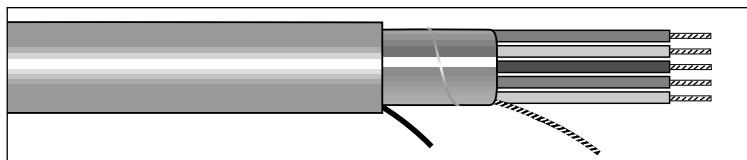
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association



18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
▲ 25430/2	2	0.063	1,60	0.35	9,0
25430/3	3	0.063	1,60	0.37	9,5
25430/4	4	0.063	1,60	0.43	10,9
25430/5	5	0.063	1,60	0.46	11,6
25430/7	7	0.063	1,60	0.51	12,9
25430/9	9	0.063	1,60	0.55	14,0
25430/12	12	0.063	1,60	0.61	15,5
25430/15	15	0.063	1,60	0.66	16,8
25430/19	19	0.063	1,60	0.72	18,4

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25440/2	2	0.063	1,60	0.38	9,7
25440/3	3	0.063	1,60	0.40	10,2
25440/4	4	0.063	1,60	0.46	11,8
25440/5	5	0.063	1,60	0.50	12,7
25440/7	7	0.063	1,60	0.56	14,1
25440/9	9	0.063	1,60	0.61	15,4
25440/12	12	0.063	1,60	0.67	17,1
25440/15	15	0.063	1,60	0.72	18,3

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25450/2	2	0.063	1,60	0.41	10,4
25450/3	3	0.063	1,60	0.43	11,0
25450/4	4	0.063	1,60	0.49	12,4
25450/5	5	0.063	1,60	0.52	13,3
25450/7	7	0.063	1,60	0.59	14,9
25450/9	9	0.063	1,60	0.64	16,3
25450/12	12	0.063	1,60	0.71	18,1
25450/15	15	0.063	1,60	0,78	19,8

AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT® -750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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 Email: info@alphawire.com

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XTRA•GUARD® 2

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-RUGGED POLYURETHANE JACKET

UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

CHOOSE XTRA•GUARD 2 FOR:

- Now Rated to 90°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart E Page 375,
20 AWG Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red,
Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum
Foil with Stranded Tinned Copper Drain Wire Equal in
Size to Insulated Conductors of Cable plus 70% Overall
Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Recognized
Component



Passes
UL VW-1 Flame Test



Certified

Underwriters Laboratories Inc. Underwriters Laboratories Inc. Canadian Standards Association

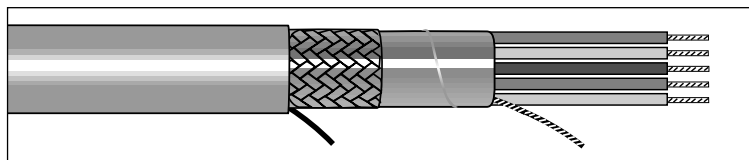
AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m)
put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft
(305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 – Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25112	2	0.032	0,81	0.18	4,6
25113	3	0.032	0,81	0.19	4,8
▲ 25114	4	0.032	0,81	0.21	5,4
25116	6	0.032	0,81	0.23	5,9
25118	8	0.032	0,81	0.25	6,4
25120	10	0.032	0,81	0.27	6,9
▲ 25120/15	15	0.032	0,81	0.30	7,6
25120/20	20	0.032	0,81	0.33	8,4
25120/25	25	0.032	0,81	0.36	9,2
25120/30	30	0.032	0,81	0.38	9,7
25120/40	40	0.032	0,81	0.43	10,9
25120/50	50	0.032	0,81	0.46	11,7

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25102	2	0.032	0,81	0.20	5,0
25103	3	0.032	0,81	0.21	5,4
25104	4	0.032	0,81	0.22	5,6
25106	6	0.032	0,81	0.25	6,4
25108	8	0.032	0,81	0.27	6,9
25110	10	0.032	0,81	0.30	7,6
25110/15	15	0.032	0,81	0.33	8,4
25110/20	20	0.032	0,81	0.36	9,2
25110/25	25	0.032	0,81	0.39	9,8
25110/30	30	0.032	0,81	0.42	10,9
25110/40	40	0.032	0,81	0.47	11,8
25110/50	50	0.032	0,81	0.51	12,9

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25152	2	0.032	0,81	0.23	5,9
▲ 25153	3	0.032	0,81	0.26	6,6
▲ 25154	4	0.032	0,81	0.28	7,1
25156	6	0.032	0,81	0.32	8,0
25158	8	0.032	0,81	0.35	8,8
25160	10	0.032	0,81	0.37	9,5
25160/15	15	0.032	0,81	0.43	10,9
25160/20	20	0.032	0,81	0.48	12,1
25160/25	25	0.032	0,81	0.52	13,2
25160/30	30	0.032	0,81	0.56	14,2
25160/40	40	0.053	1,35	0.67	17,0
25160/50	50	0.053	1,35	0.73	18,5



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 2

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-RUGGED POLYURETHANE JACKET

CHOOSE XTRA•GUARD 2 For:

- Now Rated to 90°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

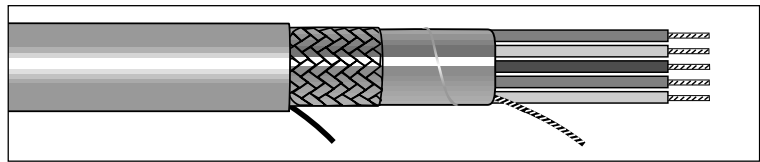
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane



18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
25162, 25162/1*	2	0.032	0,81	0.25	6,5
25163, 25163/1*	3	0.032	0,81	0.28	7,2
25164	4	0.032	0,81	0.31	7,8
25166	6	0.032	0,81	0.35	8,9
▲ 25168	8	0.032	0,81	0.38	9,7
▲ 25170	10	0.032	0,81	0.41	10,5
25170/15	15	0.032	0,81	0.48	12,1
25170/20	20	0.032	0,81	0.53	13,5
25170/25	25	0.053	1,35	0.62	15,8
25170/30	30	0.053	1,35	0.67	16,9
25170/40	40	0.053	1,35	0.74	18,9

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
25172, 25172/1*	2	0.032	0,81	0.28	7,2
25173, 25173/1*	3	0.032	0,81	0.32	8,0
25174	4	0.032	0,81	0.34	8,8
25176	6	0.032	0,81	0.39	10,0
25178	8	0.032	0,81	0.43	11,0
25180	10	0.032	0,81	0.47	11,9
25180/15	15	0.032	0,81	0.55	13,9
25180/20	20	0.053	1,35	0.65	16,6
25180/25	25	0.053	1,35	0.71	18,0
25180/30	30	0.053	1,35	0.76	19,3
25180/40	40	0.083	2,11	0.91	23,1

*Conductors color coded per international standards: brown, blue, green/yellow.

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 – Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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XTRA•GUARD® 2

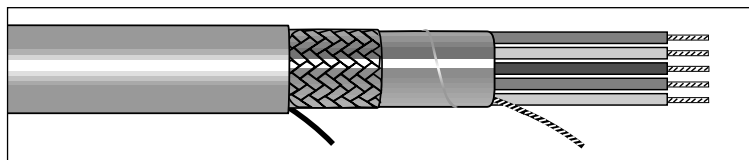
MULTICONDUCTOR, SUPRASHIELD®

EXTRA-RUGGED POLYURETHANE JACKET

UL AWM 20952
CSA AWM I A/B II A/B FT1
600 VOLT

CHOOSE XTRA•GUARD 2 FOR:

- Now Rated to 105°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** — Twice as Effective as Foil Shielding



XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20952
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Underwriters Laboratories Inc.



Underwriters Laboratories Inc.



Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
25522	2	0.063	1,60	0.38	9,6
25523	3	0.063	1,60	0.40	10,1
25524	4	0.063	1,60	0.45	11,4
25525	5	0.063	1,60	0.48	12,2
25527	7	0.063	1,60	0.53	13,5
25529	9	0.063	1,60	0.57	14,6

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
25532	2	0.063	1,60	0.40	10,2
25533	3	0.063	1,60	0.42	10,8
▲ 25534	4	0.063	1,60	0.49	12,4
25535	5	0.063	1,60	0.52	13,2
25537	7	0.063	1,60	0.58	14,7
25539	9	0.063	1,60	0.63	16,0
25539/12	12	0.063	1,60	0.69	17,6
25539/15	15	0.083	2,11	0.79	20,0
25539/19	19	0.083	2,11	0.86	21,9

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 2 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
25542	2	0.063	1,60	0.43	10,9
25543	3	0.063	1,60	0.45	11,5
▲ 25544	4	0.063	1,60	0.51	13,0
25545	5	0.063	1,60	0.55	13,9
25547	7	0.063	1,60	0.61	15,5
25549	9	0.063	1,60	0.66	16,8
25549/12	12	0.083	2,11	0.77	19,6



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UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 2

MULTIPAIR, FOIL SHIELD

EXTRA-RUGGED POLYURETHANE JACKET

CHOOSE XTRA•GUARD 2 For:

- Now Rated to 90°C!
- Unmatched Resistance to Oils, Fuels, Solvents, and Water
- Twice the Tensile Strength of PVC
- Three Times the Tear and Abrasion Resistance of PVC
- Superior Low-Temperature Flexibility to -20°C
- Ultraviolet Light Stability (jacket color black)
- Extraordinary Fungus Resistance

XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Military Ground Support Systems
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart B Page 374, 20, 18 AWG Chart A Page 374
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test



Recognized
Component



Passes
UL VW-1 Flame Test



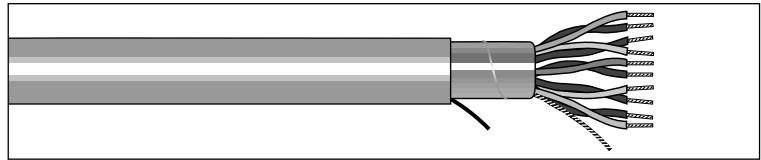
Certified
Canadian Standards Association

AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 — Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25491	1	0.032	0,81	0.16	4,1
25492	2	0.032	0,81	0.21	5,2
25493	3	0.032	0,81	0.23	5,9
25494	4	0.032	0,81	0.25	6,5
25495	5	0.032	0,81	0.27	7,0
25496	6	0.032	0,81	0.29	7,4
25499	9	0.032	0,81	0.34	8,5
25499/11	11	0.032	0,81	0.36	9,2
25499/15	15	0.032	0,81	0.40	10,3
25499/19	19	0.032	0,81	0.44	11,2
25499/27	27	0.032	0,81	0.50	12,8

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25481	1	0.032	0,81	0.18	4,6
25482	2	0.032	0,81	0.23	5,8
25483	3	0.032	0,81	0.25	6,5
25484	4	0.032	0,81	0.27	7,0
25485	5	0.032	0,81	0.29	7,4
25486	6	0.032	0,81	0.32	8,0
25489	9	0.032	0,81	0.37	9,4
25489/11	11	0.032	0,81	0.40	10,3
25489/15	15	0.032	0,81	0.45	11,4
25489/19	19	0.032	0,81	0.49	12,5

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25452	2	0.032	0,81	0.30	7,7
25453	3	0.032	0,81	0.33	8,3
25456	6	0.032	0,81	0.42	10,7
25459	9	0.032	0,81	0.49	12,5
25459/12	12	0.032	0,81	0.53	13,5
25459/15	15	0.053	1,35	0.64	16,3

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
25372	2	0.032	0,81	0.34	8,5
25373	3	0.032	0,81	0.36	9,2
25376	6	0.032	0,81	0.47	12,0
25379	9	0.053	1,35	0.55	14,0
25379/12	12	0.053	1,35	0.64	16,2

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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XTRA•GUARD® 2

MULTIPAIR, SUPRASHIELD®

EXTRA-RUGGED POLYURETHANE JACKET

UL AWM 20668
CSA AWM I A/B II A/B FT1
300 VOLT

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- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 2 APPLICATIONS:

- CNC Machine Centers
- Automotive Assembly Plant Operations
- Packaging Machinery
- Petrochemical Plant Operations
- Geophysical Exploration Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart B Page 374, 20, 18 AWG Chart A Page 374
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Specially Formulated Polyurethane

SPECIFICATIONS

- UL AWM Style 20668
- CSA AWM I A/B II A/B FT1
- Passes UL VW-1 Flame Test
- Passes CSA FT1 Flame Test

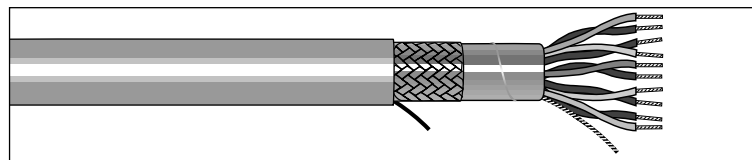
Recognized Component Underwriters Laboratories Inc. **Passes UL VW-1 Flame Test** Underwriters Laboratories Inc. **CE Certified** Canadian Standards Association

AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-750 – Bonding Adhesive Lined, Irradiated Polyolefin (See Page 127 for Product Specifications)



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
25271	1	0.032	0,81	0.18	4,6
25272	2	0.032	0,81	0.23	5,8
25273	3	0.032	0,81	0.25	6,5
25274	4	0.032	0,81	0.28	7,0
25275	5	0.032	0,81	0.30	7,5
25276	6	0.032	0,81	0.31	8,0
25279	9	0.032	0,81	0.36	9,1
25279/11	11	0.032	0,81	0.38	9,7
25279/15	15	0.032	0,81	0.43	10,8
25279/19	19	0.032	0,81	0.46	11,8

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
25121	1	0.032	0,81	0.20	5,1
25122	2	0.032	0,81	0.25	6,3
25123	3	0.032	0,81	0.28	7,1
▲ 25124	4	0.032	0,81	0.31	7,8
25125	5	0.032	0,81	0.33	8,3
25126	6	0.032	0,81	0.35	8,9
25129	9	0.032	0,81	0.40	10,1
25129/11	11	0.032	0,81	0.43	10,9
25129/15	15	0.032	0,81	0.48	12,1

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
25292	2	0.032	0,81	0.33	8,3
25293	3	0.032	0,81	0.35	8,9
25296	6	0.032	0,81	0.44	11,3
25299	9	0.032	0,81	0.51	13,0

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 2 Part No.	No. of Pairs	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
25132	2	0.032	0,81	0.36	9,1
▲ 25133	3	0.032	0,81	0.39	9,8
▲ 25136	6	0.032	0,81	0.49	12,5
▲ 25139	9	0.053	1,35	0.62	15,6
▲ 25139/12	12	0.053	1,35	0.66	16,8

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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XTRA•GUARD® 3
EXTRA-DURABLE OUTDOOR
DIRECT-BURIAL JACKET

Specify **XTRA•GUARD® 3** for direct burial applications without the costly use of conduit.

XTRA•GUARD® 3 has five times the water resistance of conventional PVC cable and has a specially formulated ethylene propylene copolymer jacket for outstanding service life and ultraviolet light stability.

XTRA•GUARD® 3 is available in both 300 Volt and 600 Volt cable ratings.



55

APPLICATIONS

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

FIT® TUBING RECOMMENDATION

FIT®-700— Bonding, Mastic Lined, Irradiated Polyolefin
(See Page 126 for Product Specifications)

Product Type	Page Number (s)
Multiconductor, Unshielded 300 Volt	56
Multiconductor, Foil Shield 300 Volt	57, 58
Multiconductor, Foil Shield 600 Volt	59
Multiconductor, SUPRASHIELD® (Foil/Braid) 300 Volt	60
Multipair, Foil Shield 300 Volt	61
Multipair, SUPRASHIELD® (Foil/Braid) 300 Volt	62

XTRA•GUARD® 3

MULTICONDUCTOR, UNSHIELDED EXTRA-DURABLE OUTDOOR DIRECT-BURIAL JACKET

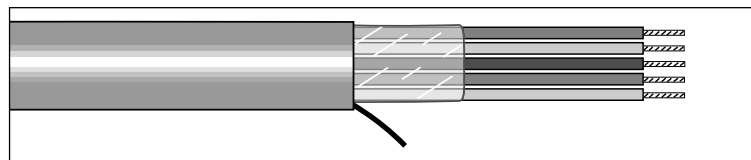
**DIRECT BURIAL
300 VOLT**

CHOOSE XTRA•GUARD 3 FOR:

- Five Times the Water Resistance of PVC Cable
- Direct Burial in Wet Earth Without Conduit
- Unsurpassed Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability

XTRA•GUARD 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls



22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35002	2	0.032	0,81	0.17	4,3
▲ 35003	3	0.032	0,81	0.19	4,8
35004	4	0.032	0,81	0.20	5,2
35006	6	0.032	0,81	0.23	5,8
35008	8	0.032	0,81	0.25	6,4
35010	10	0.032	0,81	0.27	6,9
35010/15	15	0.032	0,81	0.31	7,9

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 22 AWG Chart E Page 375,
20, 18, 16 AWG Chart D Page 375
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Ethylene-Propylene Copolymer



20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35052	2	0.032	0,81	0.21	5,3
35053	3	0.032	0,81	0.23	5,9
35054	4	0.032	0,81	0.25	6,5
35056	6	0.032	0,81	0.29	7,4
▲ 35058	8	0.032	0,81	0.32	8,2
35060	10	0.032	0,81	0.35	8,8
35060/15	15	0.032	0,81	0.40	10,3

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35062	2	0.032	0,81	0.23	5,8
35063	3	0.032	0,81	0.24	6,1
35064	4	0.032	0,81	0.26	6,6
35066	6	0.032	0,81	0.31	7,9
35068	8	0.032	0,81	0.33	8,4
35070	10	0.032	0,81	0.39	9,8
35070/15	15	0.032	0,81	0.45	11,5

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35072	2	0.032	0,81	0.26	6,5
35073	3	0.032	0,81	0.29	7,4
35074	4	0.032	0,81	0.32	8,1
35076	6	0.032	0,81	0.37	9,3
35078	8	0.032	0,81	0.41	10,4
35080	10	0.032	0,81	0.44	11,3
35080/15	15	0.032	0,81	0.52	13,2

AVAILABILITY

- ▲ In Stock: Black, 500 ft (152m) and 1000 ft (305m) put-ups
- Made-To-Order Only, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-700 — Bonding, Mastic Lined, Irradiated Polyolefin (See Page 126 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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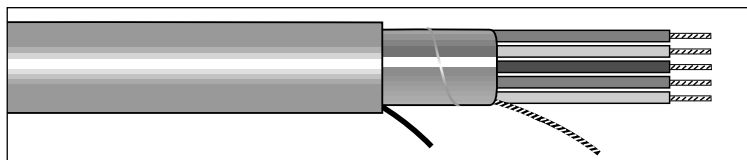
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DIRECT BURIAL 300 VOLT

MULTICONDUCTOR, FOIL SHIELD EXTRA-DURABLE OUTDOOR DIRECT-BURIAL JACKET

CHOOSE XTRA•GUARD 3 FOR:

- Five Times the Water Resistance of PVC Cable
- Direct Burial in Wet Earth Without Conduit
- Unsurpassed Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability



XTRA•GUARD 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 22 AWG Chart E Page 375,
20 AWG Chart D Page 375
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with
Stranded Tinned Copper Drain Wire Equal in Size to
Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Ethylene-Propylene Copolymer



**Suitable for
Direct Burial**

AVAILABILITY

- ▲ In Stock: Black, 500 ft (152m) and 1000 ft
(305m) put-ups
- Made-To-Order Only, 1,000 ft (305m) minimum

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35192	2	0.032	0,81	0.18	4,6
▲ 35193	3	0.032	0,81	0.19	4,9
35194	4	0.032	0,81	0.20	5,1
▲ 35196	6	0.032	0,81	0.23	5,9
35198	8	0.032	0,81	0.25	6,4
35199/10	10	0.032	0,81	0.28	7,0
35199/15	15	0.032	0,81	0.31	7,9
35199/20	20	0.032	0,81	0.34	8,6
35199/25	25	0.032	0,81	0.38	9,7
35199/30	30	0.032	0,81	0.40	10,2
35199/40	40	0.032	0,81	0.45	11,5
35199/50	50	0.032	0,81	0.49	12,5
35199/60	60	0.032	0,81	0.53	13,5

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35462	2	0.032	0,81	0.21	5,4
35463	3	0.032	0,81	0.22	5,6
35464	4	0.032	0,81	0.24	6,1
35466	6	0.032	0,81	0.28	7,1
35468	8	0.032	0,81	0.31	7,9
35470	10	0.032	0,81	0.35	8,9
35470/15	15	0.032	0,81	0.41	10,4
35470/20	20	0.032	0,81	0.46	11,6
35470/25	25	0.032	0,81	0.50	12,7

Additional AWG sizes on next page.

FIT® TUBING RECOMMENDATION

FIT®-700 — Bonding, Mastic Lined, Irradiated Polyolefin (See Page 126 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

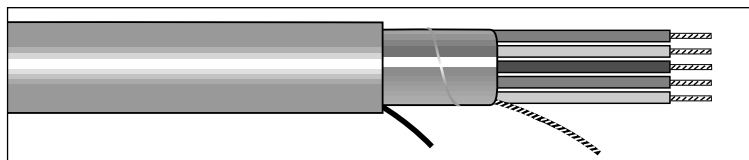
XTRA•GUARD® 3

MULTICONDUCTOR, FOIL SHIELD EXTRA-DURABLE OUTDOOR DIRECT-BURIAL JACKET

**DIRECT BURIAL
300 VOLT**

CHOOSE XTRA•GUARD 3 FOR:

- Five Times the Water Resistance of PVC Cable
- Direct Burial in Wet Earth Without Conduit
- Unsurpassed Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability



XTRA•GUARD 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Ethylene-Propylene Copolymer



**Suitable for
Direct Burial**

AVAILABILITY

- Made-To-Order Only, 1,000 ft (305m) minimum

18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35382	2	0.032	0,81	0.23	5,9
35383	3	0.032	0,81	0.24	6,1
35384	4	0.032	0,81	0.26	6,6
35386	6	0.032	0,81	0.31	7,9
35388	8	0.032	0,81	0.33	8,3
35390	10	0.032	0,81	0.39	9,9
35390/15	15	0.032	0,81	0.45	11,5
35390/20	20	0.032	0,81	0.51	13,0
35390/25	25	0.053	1,35	0.56	14,2

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35362	2	0.032	0,81	0.25	6,4
35363	3	0.032	0,81	0.27	6,9
35364	4	0.032	0,81	0.29	7,4
35366	6	0.032	0,81	0.35	8,9
35368	8	0.032	0,81	0.38	9,7
35370	10	0.032	0,81	0.44	11,2
35370/15	15	0.032	0,81	0.49	12,5
35370/20	20	0.053	1,35	0.59	14,9
35370/25	25	0.053	1,35	0.66	16,8

FIT® TUBING RECOMMENDATION

FIT®-700 — Bonding, Mastic Lined, Irradiated Polyolefin (See Page 126 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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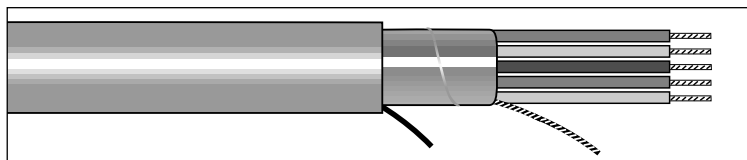
XTRA•GUARD® 3

**DIRECT BURIAL
600 VOLT**

**MULTICONDUCTOR, FOIL SHIELD
EXTRA-DURABLE OUTDOOR DIRECT-BURIAL JACKET**

CHOOSE XTRA•GUARD 3 FOR:

- Five Times the Water Resistance of PVC Cable
- Direct Burial in Wet Earth Without Conduit
- Unsurpassed Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability



XTRA•GUARD 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Ethylene-Propylene Copolymer



**Suitable for
Direct Burial**

AVAILABILITY

- Made-To-Order Only, 1,000 ft (305m) minimum

18 AWG (0,81mm²), 16 / 30 (16x0,25mm), Insulation Thickness: 0.032" (0,81mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35430/2	2	0.063	1,60	0.35	9,0
35430/3	3	0.063	1,60	0.37	9,5
35430/5	5	0.063	1,60	0.46	11,6
35430/7	7	0.063	1,60	0.51	12,9
35430/9	9	0.063	1,60	0.55	14,0
35430/12	12	0.063	1,60	0.61	15,5

16 AWG (1,23mm²), 19 / 0.0117 (19x0,29mm), Insulation Thickness: 0.032" (0,81mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35440/2	2	0.063	1,60	0.38	9,7
35440/3	3	0.063	1,60	0.40	10,2
35440/5	5	0.063	1,60	0.50	12,7
35440/7	7	0.063	1,60	0.56	14,1
35440/9	9	0.063	1,60	0.61	15,4
35440/12	12	0.063	1,60	0.67	17,1

14 AWG (2,08mm²), 41 / 30 (41x0,25mm), Insulation Thickness: 0.032" (0,81mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35450/2	2	0.063	1,60	0.41	10,4
35450/3	3	0.063	1,60	0.43	11,0
35450/5	5	0.063	1,60	0.52	13,3
35450/7	7	0.063	1,60	0.59	14,9
35450/9	9	0.063	1,60	0.64	16,3
35450/12	12	0.063	1,60	0.71	18,1

FIT® TUBING RECOMMENDATION

FIT®-700 — Bonding, Mastic Lined, Irradiated Polyolefin (See Page 126 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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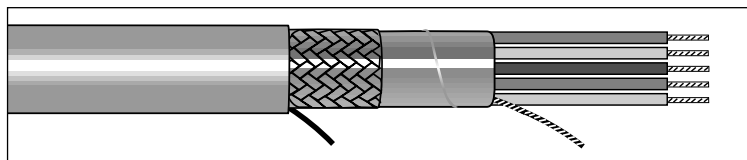
XTRA•GUARD® 3

MULTICONDUCTOR, SUPRASHIELD®
EXTRA-DURABLE OUTDOOR DIRECT-BURIAL JACKET

**DIRECT BURIAL
300 VOLT**

CHOOSE XTRA•GUARD 3 FOR:

- Five Times the Water Resistance of PVC Cable
- Direct Burial in Wet Earth Without Conduit
- Unsurpassed Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability
- **SUPRASHIELD** — Twice as Effective as Foil Shielding



XTRA•GUARD 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 22 AWG Chart E Page 375,
20, 18, 16 AWG Chart D Page 375
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum
Foil with Stranded Tinned Copper Drain Wire Equal in
Size to Insulated Conductors of Cable plus 70% Overall
Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Ethylene-Propylene Copolymer



**Suitable for
Direct Burial**

AVAILABILITY

- Made-To-Order Only, 1,000 ft (305m) minimum

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35102	2	0.032	0,81	0.20	5,0
35103	3	0.032	0,81	0.21	5,4
35104	4	0.032	0,81	0.22	5,6
35106	6	0.032	0,81	0.25	6,4
35108	8	0.032	0,81	0.27	6,9
35110	10	0.032	0,81	0.30	7,6
35110/15	15	0.032	0,81	0.33	8,4

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35152	2	0.032	0,81	0.23	5,9
35153	3	0.032	0,81	0.26	6,6
35154	4	0.032	0,81	0.28	7,1
35156	6	0.032	0,81	0.32	8,0
35158	8	0.032	0,81	0.35	8,8
35160	10	0.032	0,81	0.37	9,5
35160/15	15	0.032	0,81	0.43	10,9

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35162, 35162/1*	2	0.032	0,81	0.25	6,5
35163, 35163/1*	3	0.032	0,81	0.28	7,2
35164	4	0.032	0,81	0.31	7,8
35166	6	0.032	0,81	0.35	8,9
35168	8	0.032	0,81	0.38	9,7
35170	10	0.032	0,81	0.41	10,5
35170/15	15	0.032	0,81	0.48	12,1

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35172, 35172/1*	2	0.032	0,81	0.28	7,2
35173, 35173/1*	3	0.032	0,81	0.32	8,0
35174	4	0.032	0,81	0.34	8,8
35176	6	0.032	0,81	0.39	10,0
35178	8	0.032	0,81	0.43	11,0
35180	10	0.032	0,81	0.47	11,9
35180/15	15	0.032	0,81	0.55	13,9

*Conductors color coded per international standards: brown, blue, green/yellow.

FIT® TUBING RECOMMENDATION

FIT®-700 — Bonding, Mastic Lined, Irradiated Polyolefin (See Page 126 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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XTRA•GUARD® 3

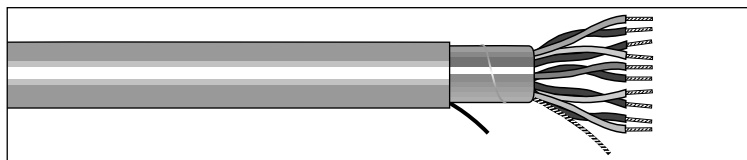
MULTIPAIR, FOIL SHIELD

EXTRA-DURABLE OUTDOOR DIRECT-BURIAL JACKET

DIRECT BURIAL 300 VOLT

CHOOSE XTRA•GUARD 3 FOR:

- Five Times the Water Resistance of PVC Cable
- Direct Burial in Wet Earth Without Conduit
- Unsurpassed Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability



XTRA•GUARD 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 24, 22 AWG Chart B Page 374,
20, 18 AWG Chart A Page 374
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- Shield: Aluminum/Polyester Foil Facing In with
Stranded Tinned Copper Drain Wire Equal in Size to
Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Ethylene-Propylene Copolymer



Suitable for
Direct Burial

24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 3 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35491	1	0.032	0,81	0.16	4,1
35492	2	0.032	0,81	0.21	5,2
35493	3	0.032	0,81	0.23	5,9
35494	4	0.032	0,81	0.25	6,5

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 3 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35481	1	0.032	0,81	0.18	4,6
35482	2	0.032	0,81	0.23	5,8
35483	3	0.032	0,81	0.25	6,5
35484	4	0.032	0,81	0.27	7,0
35485	5	0.032	0,81	0.29	7,4

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35452	2	0.032	0,81	0.30	7,7
35453	3	0.032	0,81	0.33	8,3

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.017"** (0,43mm)

XTRA•GUARD 3 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35372	2	0.032	0,81	0.34	8,5
35373	3	0.032	0,81	0.36	9,2
35376	6	0.032	0,81	0.47	12,0

AVAILABILITY

- Made-To-Order Only, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-700 — Bonding, Mastic Lined, Irradiated Polyolefin (See Page 126 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.

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XTRA•GUARD® 3

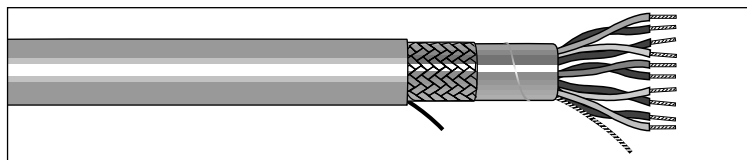
MULTIPAIR, SUPRASHIELD®

EXTRA-DURABLE OUTDOOR DIRECT-BURIAL JACKET

DIRECT BURIAL
300 VOLT

CHOOSE XTRA•GUARD 3 For:

- Five Times the Water Resistance of PVC Cable
- Direct Burial in Wet Earth Without Conduit
- Unsurpassed Service Life in Outdoor Use
- Unmatched Ultraviolet Light Stability
- **SUPRASHIELD** – Twice as Effective as Foil Shielding



XTRA•GUARD 3 APPLICATIONS:

- Inter-building Communications
- Satellite Communications Equipment
- Land Irrigation Systems
- Outdoor Security Systems
- Outdoor Scoreboards and Displays
- Pipeline Sensor Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart B Page 374
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Premium PVC
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Ethylene-Propylene Copolymer



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 3 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35272	2	0.032	0,81	0.23	5,8

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 3 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
35121	1	0.032	0,81	0.20	5,1
35122	2	0.032	0,81	0.25	6,3
35123	3	0.032	0,81	0.28	7,1
35124	4	0.032	0,81	0.31	7,8
35125	5	0.032	0,81	0.33	8,3
35126	6	0.032	0,81	0.35	8,9
35129	9	0.032	0,81	0.40	10,1

AVAILABILITY

- Made-To-Order Only, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-700 – Bonding, Mastic Lined, Irradiated Polyolefin (See Page 126 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA, SEE TECHNICAL SECTION IN THE BACK OF THIS BOOK.



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XTRA•GUARD® 4

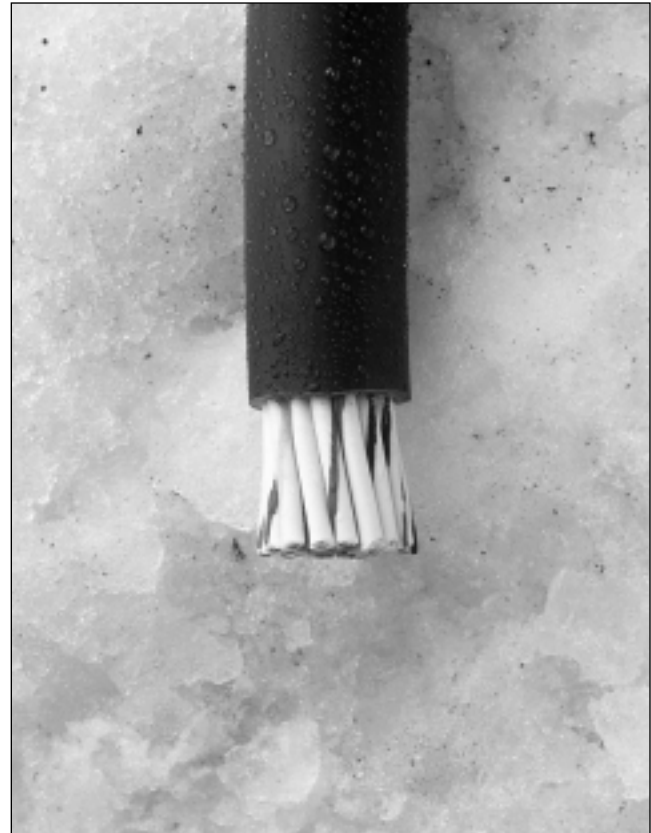
EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

NOW CSA AWM I A/B II A/B FT1 CERTIFIED!

Specify **XTRA•GUARD® 4** for unmatched cable performance in both high and low temperature cable applications from -60°C to 125°C . **XTRA•GUARD® 4** has outstanding resistance to oils, fuels, solvents, water, low HCL content for safety and passes the 210,000^{††} BTU Flame Test. **XTRA•GUARD® 4** features fully color-coded TPE (Thermoplastic Elastomer) insulated conductors and a TPE jacket in both 300 Volt and 600 Volt UL cable styles. **XTRA•GUARD® 4** is CSA Certified and UL Rated [†]Type TC 600 Volt and Type PLTC 300 Volt for cable tray applications and is Pennsylvania Bureau Deep Mine Safety Approved (P-MWMS-1-85) for mine-wide monitoring systems.

APPLICATIONS

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls



FIT® TUBING RECOMMENDATION

FIT®-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 — Temperature/Chemical Resistant FEP Teflon®
(See Page 129 for Product Specifications)

Product Type

Page Number (s)

Multiconductor, Unshielded 300 Volt	64, 65
Multiconductor, Unshielded 600 Volt	66
Multiconductor, Foil Shield 300 Volt	67, 68
Multiconductor, Foil Shield 600 Volt	69
Multiconductor, SUPRASHIELD® (Foil/Braid) 300 Volt	70, 71
Multiconductor, SUPRASHIELD® (Foil/Braid) 600 Volt	72
Multipair, Unshielded 300 Volt	73
Multipair, Foil Shield 300 Volt	74, 75
Multipair, SUPRASHIELD® (Foil/Braid) 300 Volt	76, 77

[†]If TC, PLTC required, please specify when ordering.

^{††}300 Volt construction only.

Teflon® is a registered trademark of E.I. DuPont Co.

XTRA•GUARD® 4

MULTICONDUCTOR, UNSHIELDED

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

UL TYPE PLTC

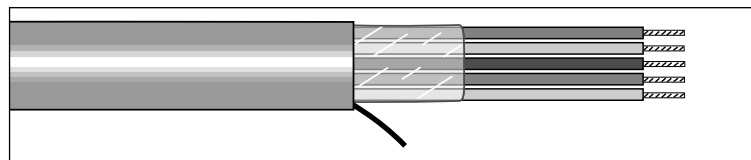
UL AWM STYLE 20237

CSA AWM I A/B II A/B FT1

300 VOLT

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)



XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

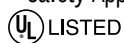
- Color Code: 24, 22 AWG Chart E Page 375, 20 AWG Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.

24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45012	2	0.032	0,81	0.18	4,5
45013	3	0.032	0,81	0.20	5,0
45014	4	0.032	0,81	0.21	5,4
45016	6	0.032	0,81	0.24	6,1
45018	8	0.032	0,81	0.26	6,7
45020	10	0.032	0,81	0.28	7,2
45020/15	15	0.032	0,81	0.33	8,3
45020/20	20	0.032	0,81	0.36	9,3
45020/25	25	0.032	0,81	0.40	10,1

24 AWG – UL AWM STYLE 20237, CSA AWM I A/B II A/B FT1 ONLY

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45002	2	0.032	0,81	0.19	4,8
45003	3	0.032	0,81	0.21	5,4
45004	4	0.032	0,81	0.23	5,9
45006	6	0.032	0,81	0.26	6,7
45008	8	0.032	0,81	0.29	7,3
45010	10	0.032	0,81	0.31	7,9
45010/15	15	0.032	0,81	0.36	9,2
▲ 45010/20	20	0.032	0,81	0.40	10,2
45010/25	25	0.032	0,81	0.44	11,2

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45052	2	0.032	0,81	0.20	5,1
45053	3	0.032	0,81	0.22	5,7
45054	4	0.032	0,81	0.24	6,2
45056	6	0.032	0,81	0.28	7,1
45058	8	0.032	0,81	0.31	7,8
45060	10	0.032	0,81	0.33	8,4
45060/15	15	0.032	0,81	0.39	9,8
45060/20	20	0.032	0,81	0.43	10,9
45060/25	25	0.032	0,81	0.47	11,9

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.**



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 4

MULTICONDUCTOR, UNSHIELDED

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

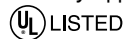
- Color Code: Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85

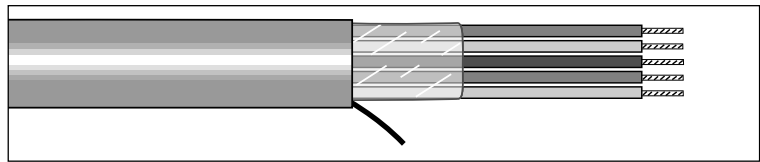


Canadian Standards Association



AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum



18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45062, 45062/1*	2	0.032	0,81	0.22	5,6
45063, 45063/1*	3	0.032	0,81	0.25	6,3
45064	4	0.032	0,81	0.27	6,9
45066	6	0.032	0,81	0.31	7,9
45068	8	0.032	0,81	0.34	8,7
45070	10	0.032	0,81	0.37	9,4
45070/15	15	0.032	0,81	0.43	11,0
45070/20	20	0.032	0,81	0.48	12,3
45070/25	25	0.032	0,81	0.53	13,5

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45072, 45072/1*	2	0.032	0,81	0.25	6,3
45073, 45073/1*	3	0.032	0,81	0.28	7,1
45074	4	0.032	0,81	0.31	7,8
45076	6	0.032	0,81	0.35	9,0
45078	8	0.032	0,81	0.39	10,0
45080	10	0.032	0,81	0.43	10,9
45080/15	15	0.032	0,81	0.50	12,7
45080/20	20	0.032	0,81	0.56	14,3
45080/25	25	0.053	1,35	0.66	16,7

*Conductors color coded per international standards: brown, blue, green/yellow

FIT® TUBING RECOMMENDATION

FIT®-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 — Temperature / Chemical Resistant FEP Teflon®
(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
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XTRA•GUARD® 4

MULTICONDUCTOR, UNSHIELDED

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

UL TYPE TC, UL AWM STYLE 20238

CSA AWM I A/B II A/B FT1

600 VOLT

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60° C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

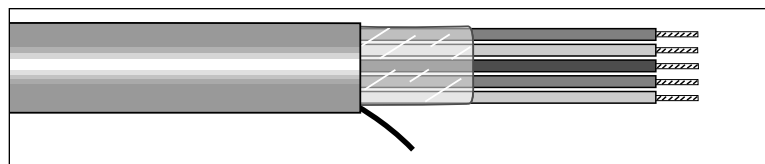
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer



18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45422	2	0.063	1,60	0.35	8,9
45423	3	0.063	1,60	0.37	9,3
45424	4	0.063	1,60	0.41	10,3
45425	5	0.063	1,60	0.44	11,1
45427	7	0.063	1,60	0.46	11,7
45429	9	0.063	1,60	0.54	13,6

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

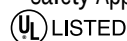
XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45432	2	0.063	1,60	0.38	9,5
45433	3	0.063	1,60	0.40	10,0
45434	4	0.063	1,60	0.44	11,2
45435	5	0.063	1,60	0.47	12,0
45437	7	0.063	1,60	0.50	12,6
45439	9	0.063	1,60	0.58	14,8

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45442	2	0.063	1,60	0.40	10,2
45443	3	0.063	1,60	0.43	10,8
45444	4	0.063	1,60	0.47	12,0
45445	5	0.063	1,60	0.51	12,9
45447	7	0.063	1,60	0.54	13,7

SPECIFICATIONS

- UL AWM Style 20238
- UL Type TC
- CSA AWM I A/B II A/B FT1
- Passes UL Vertical Tray Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association



AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature/Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.**

Teflon® is a registered trademark of E.I. DuPont Co.



Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
Europe/UK Telephone: +44 (0) 1932 772422 • Europe/UK Fax: +44 (0) 1932 772433

Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 4

MULTICONDUCTOR, FOIL SHIELD

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

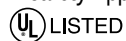
- Color Code: 24, 22 AWG Chart E Page 375, 20 AWG Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

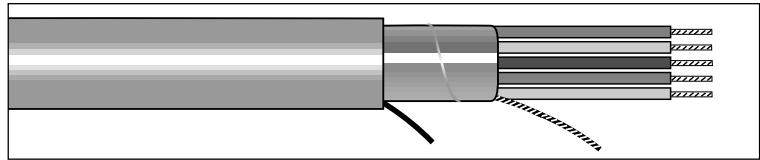
- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45092	2	0.032	0,81	0.18	4,6
45093	3	0.032	0,81	0.20	5,1
45094	4	0.032	0,81	0.22	5,5
▲ 45096	6	0.032	0,81	0.24	6,2
45098	8	0.032	0,81	0.27	6,8
45100	10	0.032	0,81	0.29	7,3
45100/15	15	0.032	0,81	0.33	8,4
45100/20	20	0.032	0,81	0.37	9,4
45100/25	25	0.032	0,81	0.40	10,2

24 AWG – UL AWM STYLE 20237, CSA AWM I A/B II A/B FT1 ONLY

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45192	2	0.032	0,81	0.19	4,9
45193	3	0.032	0,81	0.22	5,5
45194	4	0.032	0,81	0.23	6,0
45196	6	0.032	0,81	0.27	6,8
45198	8	0.032	0,81	0.29	7,4
45199/10	10	0.032	0,81	0.32	8,0
45199/15	15	0.032	0,81	0.37	9,3
45199/20	20	0.032	0,81	0.41	10,3
45199/25	25	0.032	0,81	0.44	11,3

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
▲ 45462	2	0.032	0,81	0.20	5,2
▲ 45463	3	0.032	0,81	0.23	5,8
▲ 45464	4	0.032	0,81	0.25	6,3
45466	6	0.032	0,81	0.28	7,2
▲ 45468	8	0.032	0,81	0.31	7,9
45470	10	0.032	0,81	0.34	8,5
45470/15	15	0.032	0,81	0.39	9,9
▲ 45470/20	20	0.032	0,81	0.43	11,0
45470/25	25	0.032	0,81	0.47	12,0
▲ 45470/40	40	0.053	1,35	0.62	15,6

Additional AWG sizes on next page

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon®
(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.**

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Europe/UK Telephone: +44 (0) 1932 772422 • Europe/UK Fax: +44 (0) 1932 772433



XTRA•GUARD® 4

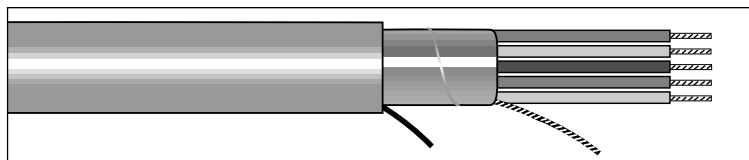
MULTICONDUCTOR, FOIL SHIELD

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)



XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

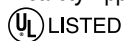
- Color Code: Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.

18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Nominal mm	Diameter Inches	mm
45382, 45382/1*	2	0.032	0,81	0.22	5,7
45383, 45383/1*	3	0.032	0,81	0.25	6,4
45384	4	0.032	0,81	0.27	7,0
45386	6	0.032	0,81	0.31	8,0
45388	8	0.032	0,81	0.35	8,8
45390	10	0.032	0,81	0.38	9,5
45390/15	15	0.032	0,81	0.44	11,1
45390/20	20	0.032	0,81	0.49	12,4
45390/25	25	0.032	0,81	0.53	13,6
45390/30	30	0.053	1,35	0.62	15,7

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
▲ 45362, 45362/1*	2	0.032	0,81	0.25	6,4
45363, 45363/1*	3	0.032	0,81	0.28	7,2
45364	4	0.032	0,81	0.31	7,9
45366	6	0.032	0,81	0.36	9,1
45368	8	0.032	0,81	0.40	10,1
45370	10	0.032	0,81	0.43	11,0
45370/15	15	0.032	0,81	0.50	12,8
45370/20	20	0.032	0,81	0.62	15,7
45370/25	25	0.053	1,35	0.66	16,8

*Conductors color coded per international standards: brown, blue, green/yellow

FIT® TUBING RECOMMENDATION

FIT®-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 — Temperature / Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE TC, UL AWM STYLE 20238
CSA AWM I A/B II A/B FT1
600 VOLT

XTRA•GUARD® 4

MULTICONDUCTOR, FOIL SHIELD

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20238
- UL Type TC
- CSA AWM I A/B II A/B FT1
- Passes UL Vertical Tray Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



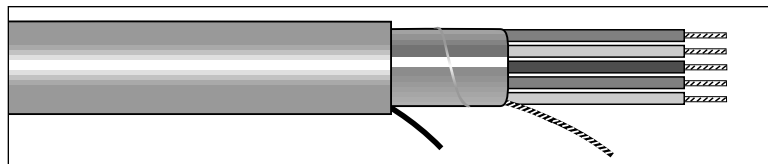
Canadian Standards Association



AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.



18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45430/2	2	0.063	1,60	0.36	9,0
45430/3	3	0.063	1,60	0.37	9,5
45430/4	4	0.063	1,60	0.41	10,5
45430/5	5	0.063	1,60	0.44	11,3
45430/7	7	0.063	1,60	0.47	11,8
45430/9	9	0.063	1,60	0.54	13,8
45430/12	12	0.063	1,60	0.60	15,5

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45440/2	2	0.063	1,60	0.38	9,7
45440/3	3	0.063	1,60	0.40	10,2
45440/5	5	0.063	1,60	0.48	12,2
45440/7	7	0.063	1,60	0.50	12,8
45440/9	9	0.063	1,60	0.59	15,0
45440/12	12	0.063	1,60	0.65	16,6

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45450/2	2	0.063	1,60	0.41	10,4
45450/3	3	0.063	1,60	0.43	11,0
45450/5	5	0.063	1,60	0.52	13,2
45450/7	7	0.063	1,60	0.55	13,9
45450/15	15	0.063	1,60	0.78	19,8

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature/Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
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XTRA•GUARD® 4

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

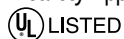
- Color Code: 24, 22 AWG Chart E Page 375, 20 AWG Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



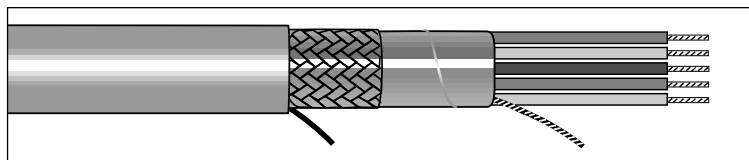
Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
45112	2	0.032	0,81	0.20	5,1
45113	3	0.032	0,81	0.22	5,6
45114	4	0.032	0,81	0.24	6,0
45116	6	0.032	0,81	0.27	6,7
45118	8	0.032	0,81	0.29	7,3
45120	10	0.032	0,81	0.31	7,9
45120/15	15	0.032	0,81	0.35	9,0
45120/20	20	0.032	0,81	0.39	9,9
45120/25	25	0.032	0,81	0.42	10,7

24 AWG – UL AWM STYLE 20237, CSA AWM I A/B II A/B FT1 ONLY

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
45102	2	0.032	0,81	0.22	5,5
45103	3	0.032	0,81	0.24	6,0
▲ 45104	4	0.032	0,81	0.26	6,5
45106	6	0.032	0,81	0.29	7,3
45108	8	0.032	0,81	0.31	8,0
45110	10	0.032	0,81	0.34	8,6
45110/15	15	0.032	0,81	0.39	9,8
45110/20	20	0.032	0,81	0.43	10,9
45110/25	25	0.032	0,81	0.47	11,8

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm
45152	2	0.032	0,81	0.23	5,7
45153	3	0.032	0,81	0.25	6,3
45154	4	0.032	0,81	0.27	6,9
▲ 45156	6	0.032	0,81	0.30	7,7
45158	8	0.032	0,81	0.33	8,4
45160	10	0.032	0,81	0.36	9,1
45160/15	15	0.032	0,81	0.41	10,4
45160/20	20	0.032	0,81	0.46	11,6
45160/25	25	0.032	0,81	0.50	12,6

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature/Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
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UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 4

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

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- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

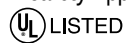
- Color Code: Chart D Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- **SUPRASHIELD**: Aluminum / Polyester / Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



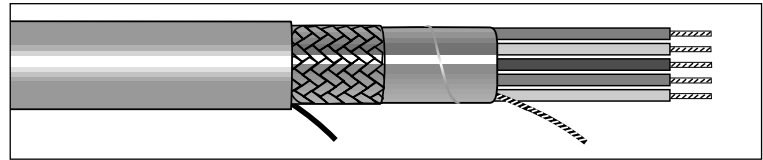
Canadian Standards Association



AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

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18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45162, 45162/1*	2	0.032	0,81	0.25	6,2
45163, 45163/1*	3	0.032	0,81	0.27	6,9
45164	4	0.032	0,81	0.30	7,5
45166	6	0.032	0,81	0.34	8,5
45168	8	0.032	0,81	0.37	9,4
45170	10	0.032	0,81	0.40	10,1
45170/15	15	0.032	0,81	0.46	11,7
45170/20	20	0.032	0,81	0.51	13,0
45170/25	25	0.032	0,81	0.56	14,1
45170/30	30	0.053	1,35	0.64	16,3

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45172, 45172/1*	2	0.032	0,81	0.27	7,0
45173, 45173/1*	3	0.032	0,81	0.31	7,8
45174	4	0.032	0,81	0.33	8,5
45176	6	0.032	0,81	0.38	9,7
45178	8	0.032	0,81	0.42	10,6
45180	10	0.032	0,81	0.45	11,5
45180/15	15	0.032	0,81	0.53	13,4
45180/20	20	0.053	1,35	0.63	16,0
45180/25	25	0.053	1,35	0.68	17,4

*Conductors color coded per international standards: brown, blue, green/yellow

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
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XTRA•GUARD® 4

MULTICONDUCTOR, SUPRASHIELD®

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

UL TYPE TC, UL AWM STYLE 20238

CSA AWM I A/B II A/B FT1

600 VOLT

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

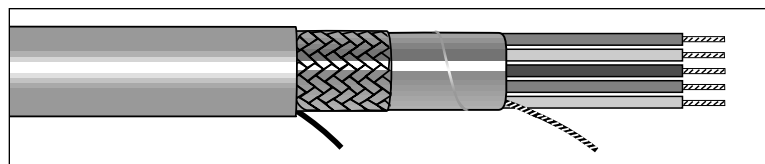
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer



18 AWG (0,81mm²), **16 / 30** (16x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45522	2	0.063	1,60	0.37	9,5
45523	3	0.063	1,60	0.39	10,0
45524	4	0.063	1,60	0.43	10,9
45525	5	0.063	1,60	0.46	11,7
45527	7	0.063	1,60	0.48	12,3
45529	9	0.063	1,60	0.56	14,2
45529/12	12	0.063	1,60	0.62	15,6

16 AWG (1,23mm²), **19 / 0.0117** (19x0,29mm), Insulation Thickness: **0.032"** (0,81mm)

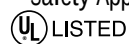
XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45532	2	0.063	1,60	0.40	10,2
45533	3	0.063	1,60	0.42	10,7
45534	4	0.063	1,60	0.46	11,8
45535	5	0.063	1,60	0.50	12,6
45537	7	0.063	1,60	0.52	13,3
45539	9	0.063	1,60	0.61	15,5
45539/12	12	0.063	1,60	0.68	17,2

14 AWG (2,08mm²), **41 / 30** (41x0,25mm), Insulation Thickness: **0.032"** (0,81mm)

XTRA•GUARD 4 Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45542	2	0.063	1,60	0.43	10,9
45543	3	0.063	1,60	0.45	11,5
45544	4	0.063	1,60	0.50	12,7
45545	5	0.063	1,60	0.54	13,7
45547	7	0.063	1,60	0.57	14,4
45549	9	0.063	1,60	0.66	16,8

SPECIFICATIONS

- UL AWM Style 20238
- UL Type TC
- CSA AWM I A/B II A/B FT1
- Passes UL Vertical Tray Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association

AVAILABILITY

- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.

FIT® TUBING RECOMMENDATION

FIT®-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 — Temperature/Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 4

MULTIPAIR, UNSHIELDED

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)



18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
▲ 45031	1	0.032	0,81	0.22	5,6
45032	2	0.032	0,81	0.25	6,3

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

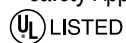
- Color Code: Chart B Page 374
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.

FIT® TUBING RECOMMENDATION

FIT®-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 — Temperature / Chemical Resistant FEP Teflon®
(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
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XTRA•GUARD® 4

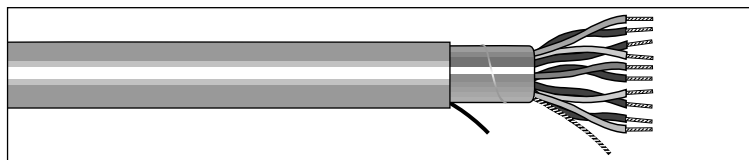
MULTIPAIR, FOIL SHIELD

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)



XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

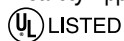
- Color Code: Chart B Page 374
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Shield: Aluminum/Polyester Foil Facing in with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.

24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45491	1	0.032	0,81	0.18	4,6
45492	2	0.032	0,81	0.24	6,0
45493	3	0.032	0,81	0.27	6,8
45494	4	0.032	0,81	0.30	7,5
45495	5	0.032	0,81	0.32	8,1
45496	6	0.032	0,81	0.34	8,7
45499	9	0.032	0,81	0.40	10,0
45499/11	11	0.032	0,81	0.43	10,8
45499/15	15	0.032	0,81	0.48	12,2
45499/27	27	0.032	0,81	0.64	16,4

24 AWG – UL AWM STYLE 20237, CSA AWM I A/B II A/B FT1 ONLY

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45481	1	0.032	0,81	0.19	4,8
45482	2	0.032	0,81	0.26	6,5
▲ 45483	3	0.032	0,81	0.29	7,5
45484	4	0.032	0,81	0.33	8,3
45485	5	0.032	0,81	0.35	8,9
45486	6	0.032	0,81	0.38	9,6
45489	9	0.032	0,81	0.44	11,1
45489/11	11	0.032	0,81	0.47	12,0
45489/15	15	0.032	0,81	0.53	13,5

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature/Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 4

MULTIPAIR, FOIL SHIELD

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Military Electronic Applications
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

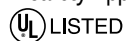
- Color Code: Chart B Page 374
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- Shield: Aluminum/Polyester Foil Facing in with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



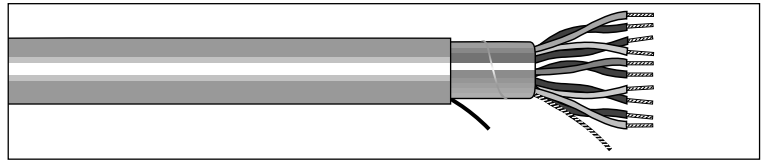
Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.



20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45451	1	0.032	0,81	0.20	5,1
45452	2	0.032	0,81	0.27	6,9
45453	3	0.032	0,81	0.31	8,0
45454	4	0.032	0,81	0.35	8,8
45455	5	0.032	0,81	0.38	9,5
45456	6	0.032	0,81	0.40	10,2
45459	9	0.032	0,81	0.47	11,9
45459/11	11	0.032	0,81	0.50	12,8
45459/15	15	0.053	1,35	0.61	15,5
45459/19	19	0.053	1,35	0.67	16,9
45459/27	27	0.053	1,35	0.76	19,4

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
▲ 45371	1	0.032	0,81	0.22	5,6
45372	2	0.032	0,81	0.30	7,7
45373	3	0.032	0,81	0.35	8,9
45374	4	0.032	0,81	0.39	9,9
45375	5	0.032	0,81	0.42	10,7
45376	6	0.032	0,81	0.45	11,5
45379	9	0.032	0,81	0.53	13,4
45379/11	11	0.053	1,35	0.61	15,5
45379/15	15	0.053	1,35	0.69	17,4
45379/19	19	0.053	1,35	0.75	19,1

FIT® TUBING RECOMMENDATION

FIT®-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 — Temperature / Chemical Resistant FEP Teflon®
(See Page 129 for Product Specifications)

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XTRA•GUARD® 4

MULTIPAIR, SUPRASHIELD®

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** — Twice as Effective as Foil Shielding

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

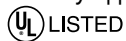
- Color Code: Chart B Page 374
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



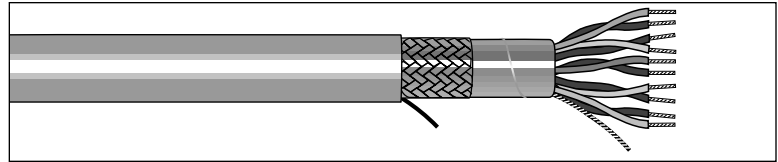
Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
45271	1	0.032	0,81	0.20	5,1
▲ 45272	2	0.032	0,81	0.26	6,6
45273	3	0.032	0,81	0.29	7,4
45274	4	0.032	0,81	0.32	8,1
45275	5	0.032	0,81	0.34	8,7
45276	6	0.032	0,81	0.36	9,2
45279	9	0.032	0,81	0.42	10,6
45279/11	11	0.032	0,81	0.45	11,4
45279/15	15	0.032	0,81	0.50	12,7
45279/19	19	0.032	0,81	0.55	13,9

24 AWG – UL AWM STYLE 20237, CSA AWM I A/B II A/B FT1 ONLY

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
▲ 45121	1	0.032	0,81	0.22	5,6
▲ 45122	2	0.032	0,81	0.28	7,1
▲ 45123	3	0.032	0,81	0.32	8,0
45124	4	0.032	0,81	0.35	8,8
▲ 45125	5	0.032	0,81	0.37	9,5
45126	6	0.032	0,81	0.40	10,1
45129	9	0.032	0,81	0.46	11,7
45129/11	11	0.032	0,81	0.49	12,5
45129/15	15	0.032	0,81	0.55	14,1
45129/19	19	0.053	1,35	0.65	16,4

FIT® TUBING RECOMMENDATION

FIT®-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 — Temperature/Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

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UL TYPE PLTC
UL AWM STYLE 20237
CSA AWM I A/B II A/B FT1
300 VOLT

XTRA•GUARD® 4

MULTIPAIR, SUPRASHIELD®

EXTRA-PROTECTION, HIGH/LOW TEMPERATURE TPE JACKET

CHOOSE XTRA•GUARD 4 FOR:

- Three Times the Low-Temperature Flexibility of Conventional PVC
- Unmatched Performance at Temperatures from -60°C to 125°C
- Resistance to Oils, Fuels, Solvents and Water
- UL Recognition, UL Listing and CSA Certification
- Unmatched Flame Resistant Insulation and Jacket
- Ultraviolet Light Stability (jacket color black)
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 4 APPLICATIONS:

- Wood, Paper, Pulp, Plant Operations
- Mining Instruments and Controls
- Mass Transit Systems
- Food and Beverage Plants
- Petrochemical Process Controls
- Arctic Pipeline Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 125°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

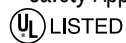
- Color Code: Chart B Page 374
- Jacket Colors: Yellow, Orange, Blue, Green, Red, Black, White and Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Thermoplastic Elastomer
- **SUPRASHIELD**: Aluminum/Polyester/Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Nylon Rip Cord for Ease of Jacket Stripping
- Jacket: Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20237
- UL Type PLTC
- CSA AWM I A/B II A/B FT1
- Passes 210,000 BTU Flame Test
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



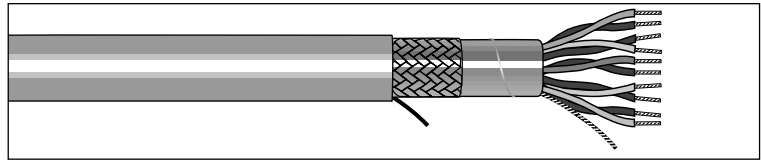
Canadian Standards Association



AVAILABILITY

- ▲ In Stock: 500 ft (152m) and 1000 ft (305m) put-ups, check for jacket color availability
- Made-To-Order: All available jacket colors, 1,000 ft (305m) minimum

Teflon® is a registered trademark of E.I. DuPont Co.



20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
45291	1	0.032	0,81	0.23	5,8
45292	2	0.032	0,81	0.29	7,5
45293	3	0.032	0,81	0.34	8,5
45294	4	0.032	0,81	0.37	9,4
45295	5	0.032	0,81	0.40	10,1
45296	6	0.032	0,81	0.42	10,8
45299	9	0.032	0,81	0.49	12,4
45299/11	11	0.032	0,81	0.53	13,4
45299/15	15	0.053	1,35	0.63	16,1

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

XTRA•GUARD 4 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
▲ 45131	1	0.032	0,81	0.25	6,4
▲ 45132	2	0.032	0,81	0.33	8,3
45133	3	0.032	0,81	0.37	9,4
45134	4	0.032	0,81	0.41	10,4
45135	5	0.032	0,81	0.44	11,3
45136	6	0.032	0,81	0.47	12,0
45139	9	0.032	0,81	0.61	15,5
45139/11	11	0.032	0,81	0.63	16,1
45139/15	15	0.032	0,81	0.71	18,0

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon®

(See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.**

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WHAT IS CE?

The CE (Conformité Européenne) mark is a European Union approval indicating that a product complies with a European Directive. A European Directive is a standard that relates to health, safety and consumer protection similar to UL or the NEC in the United States. The CE mark therefore indicates that the product is acceptable for safe use within the community. U.S. manufacturers require CE marked products and components when their end use product is going to be shipped and used in Europe.

The directive that applies to Alpha Wire products is the Low Voltage Directive (LVD) 73/23/EEC, plus amendment 93/68/EEC. The LVD and amendment are issued by the European Committee for Standardization (CEN). It basically says that all electronic products that have a voltage between 50 and 1000 volts must be safe when used properly in foreseeable conditions.

CE is self-certifying which means that if the compliant product does not meet a specific European product standard the importer must prove why the product is safe. In this case, reference can be made to another national body such as UL or NEC. If this is not possible, the manufacturer can state that the product fulfills the safety requirement on its own. All of Alpha's products meet UL standards and those standards are the proof that we refer to, should we be challenged about the safety of our products.

The CE Mark is not required to be printed on the cable jacket but only on the packaging. This is the procedure Alpha will use when marking our products. In addition, a Declaration of Conformity (DOC) is made available by request to customers requiring documentation of Alpha's compliance with CE. The DOC must originate from a union member country. Alpha will distribute the DOC from its facility in the United Kingdom.

XTRA•GUARD® 5

EXTRA HIGH-TEMPERATURE/CHEMICAL-RESISTANT FEP TEFLON® JACKET

Specify **XTRA•GUARD® 5** FEP Teflon® cables for unmatched performance at temperatures from –80°C to 200°C. **XTRA•GUARD® 5** is 100% impervious to all chemicals, acids, fuels, solvents and water and has a 20 - 30% smaller cable diameter than conventional cables and low friction jacket for ease of cable routing. **XTRA•GUARD® 5** features fully color-coded FEP Teflon® insulated conductors and is available in 300 Volt UL and CSA cable styles. **XTRA•GUARD® 5** is Pennsylvania Bureau Deep Mine Safety Approved (P-MWMS-1-85) for mine-wide monitoring systems.



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APPLICATIONS

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

Product Type

Page Number (s)

Multiconductor, Unshielded 300 Volt	80, 81
Multiconductor, Foil Shield 300 Volt	82, 83
Multiconductor, SUPRASHIELD® (Foil / Braid) 300 Volt	84, 85
Multipair, Unshielded 300 Volt	86
Multipair, Foil Shield 300 Volt	87
Multipair, SUPRASHIELD® (Foil / Braid) 300 Volt	88

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Viton® is a registered trademark of DuPont Dow Elastomers



XTRA•GUARD® 5

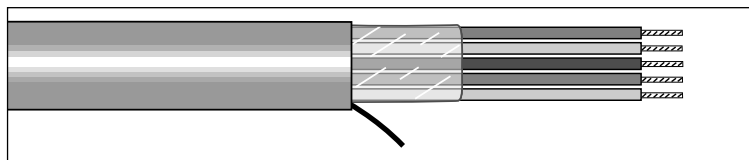
MULTICONDUCTOR, UNSHIELDED

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

CHOOSE XTRA•GUARD 5 FOR:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food / Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing



XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

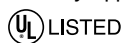
- Color Code: Chart E Page 375
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- Core Wrap: High Temperature Tape
- Jacket: FEP Teflon®

SPECIFICATIONS

- UL Type CMP
- AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association



AVAILABILITY

- Made-To-Order only, 1000 ft minimum

24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55012	2	0.025	0,64	0.15	3,8
55013	3	0.025	0,64	0.17	4,2
55014	4	0.025	0,64	0.18	4,6
55016	6	0.025	0,64	0.20	5,1
55019	9	0.025	0,64	0.23	5,8
55020/12	12	0.025	0,64	0.25	6,4

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55002	2	0.025	0,64	0.16	4,2
55003	3	0.025	0,64	0.18	4,6
55004	4	0.025	0,64	0.20	5,0
55006	6	0.025	0,64	0.22	5,7
55009	9	0.025	0,64	0.26	6,5
55010/12	12	0.025	0,64	0.28	7,2

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55052	2	0.025	0,64	0.18	4,5
55053	3	0.025	0,64	0.20	5,1
55054	4	0.025	0,64	0.22	5,5
55056	6	0.025	0,64	0.25	6,3
55059	9	0.025	0,64	0.28	7,2
55060/12	12	0.025	0,64	0.31	8,0

Teflon® is a registered trademark of E.I. DuPont

Viton® is a registered trademark of DuPont Dow Elastomers

FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

XTRA•GUARD® 5

MULTICONDUCTOR, UNSHIELDED

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

CHOOSE XTRA•GUARD 5 FOR:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food/Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing

XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- Core Wrap: High Temperature Tape
- Jacket: FEP Teflon®

SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85

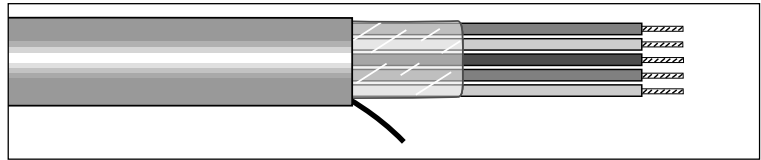


Canadian Standards Association



AVAILABILITY

- Made-To-Order only, 1000 ft minimum



18 AWG (0,90mm²), **7/26** (7x0,40mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55062	2	0.025	0,64	0.20	5,0
55063	3	0.025	0,64	0.21	5,3
55064	4	0.025	0,64	0.23	5,8
55066	6	0.025	0,64	0.26	6,6
55069	9	0.025	0,64	0.31	7,9
55070/12	12	0.025	0,64	0.35	8,9

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55072	2	0.025	0,64	0.22	5,5
55073	3	0.025	0,64	0.25	6,3
55074	4	0.025	0,64	0.27	6,9
55076	6	0.025	0,64	0.31	7,9
55079	9	0.025	0,64	0.36	9,1
55080/12	12	0.025	0,64	0.40	10,2

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Viton® is a registered trademark of DuPont Dow Elastomers

FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.

XTRA•GUARD® 5

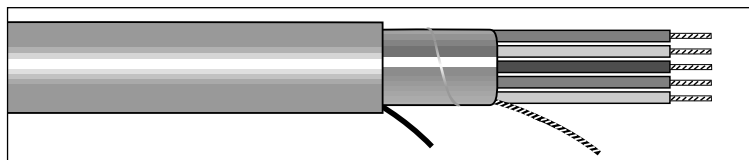
MULTICONDUCTOR, FOIL SHIELD

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

CHOOSE XTRA•GUARD 5 FOR:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food/Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing



XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart E Page 375
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Jacket: FEP Teflon®

24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55092	2	0.025	0,64	0.15	3,7
55093	3	0.025	0,64	0.16	4,1
55094	4	0.025	0,64	0.18	4,5
55096	6	0.025	0,64	0.20	5,0
55099	9	0.025	0,64	0.23	5,8
55100/12	12	0.025	0,64	0.25	6,8

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55192	2	0.025	0,64	0.16	4,1
55193	3	0.025	0,64	0.18	4,5
55194	4	0.025	0,64	0.19	4,9
55196	6	0.025	0,64	0.22	5,6
55199	9	0.025	0,64	0.25	6,4
55199/12	12	0.025	0,64	0.28	7,1

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55462	2	0.025	0,64	0.17	4,4
55463	3	0.025	0,64	0.20	5,0
55464	4	0.025	0,64	0.21	5,4
55466	6	0.025	0,64	0.24	6,2
55469	9	0.025	0,64	0.28	7,1
55470/12	12	0.025	0,64	0.31	7,9

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Viton® is a registered trademark of DuPont Dow Elastomers

SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association

AVAILABILITY

- Made-To-Order only, 1000 ft minimum

FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)
FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

XTRA·GUARD® 5

MULTICONDUCTOR, FOIL SHIELD

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

CHOOSE XTRA·GUARD 5 FOR:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food/Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing

XTRA·GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

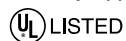
- Color Code: Chart E Page 375
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Jacket: FEP Teflon®

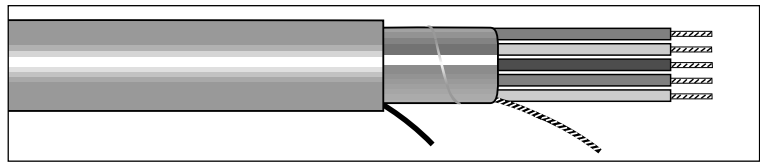
SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



AVAILABILITY

- Made-To-Order only, 1000 ft minimum



18 AWG (0,90mm²), **7/26** (7x0,40mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA·GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55382	2	0.025	0,64	0.19	4,9
55383	3	0.025	0,64	0.22	5,6
55384	4	0.025	0,64	0.24	6,1
55386	6	0.025	0,64	0.27	7,0
55389	9	0.025	0,64	0.32	8,1
55390/12	12	0.025	0,64	0.35	9,0

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA·GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55362	2	0.025	0,64	0.21	5,4
55363	3	0.025	0,64	0.24	6,2
55364	4	0.025	0,64	0.27	6,8
55366	6	0.025	0,64	0.31	7,8
55369	9	0.025	0,64	0.36	9,0
55370/12	12	0.025	0,64	0.40	10,1

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Viton® is a registered trademark of DuPont Dow Elastomers

FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.**

XTRA•GUARD® 5

MULTICONDUCTOR, SUPRASHIELD®

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

CHOOSE XTRA•GUARD 5 FOR:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food/Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

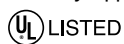
- Color Code: Chart E Page 375
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- **SUPRASHIELD**: Aluminum / Polyester / Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Jacket: FEP Teflon®

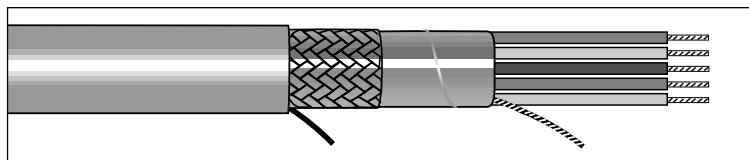
SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



AVAILABILITY

- Made-To-Order only, 1000 ft minimum



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55112	2	0.025	0,64	0.17	4,3
55113	3	0.025	0,64	0.18	4,7
55114	4	0.025	0,64	0.20	5,0
55116	6	0.025	0,64	0.22	5,6
55119	9	0.025	0,64	0.25	6,3
55120/12	12	0.025	0,64	0.27	6,9

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55102	2	0.025	0,64	0.18	4,6
55103	3	0.025	0,64	0.20	5,1
55104	4	0.025	0,64	0.22	5,5
55106	6	0.025	0,64	0.24	6,2
55109	9	0.025	0,64	0.27	7,0
55110/12	12	0.025	0,64	0.30	7,7

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55152	2	0.025	0,64	0.20	5,0
55153	3	0.025	0,64	0.22	5,5
55154	4	0.025	0,64	0.23	6,0
55156	6	0.025	0,64	0.26	6,7
55159	9	0.025	0,64	0.30	7,6
55160/12	12	0.025	0,64	0.33	8,4

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FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)
FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.



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UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

XTRA•GUARD® 5

MULTICONDUCTOR, SUPRASHIELD®

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

CHOOSE XTRA•GUARD 5 FOR:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food / Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

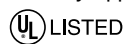
- Color Code: Chart E Page 375
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- **SUPRASHIELD**: Aluminum / Polyester / Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Jacket: FEP Teflon®

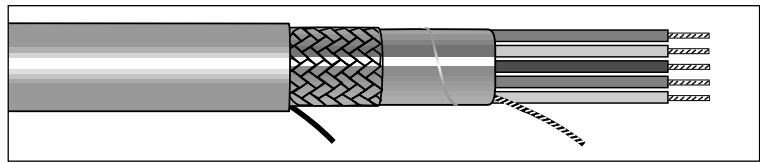
SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



AVAILABILITY

- Made-To-Order only, 1000 ft minimum



18 AWG (0,90mm²), **7/26** (7x0,40mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55162	2	0.025	0,64	0.22	5,5
55163	3	0.025	0,64	0.23	5,8
55164	4	0.025	0,64	0.26	6,6
55166	6	0.025	0,64	0.29	7,4
55169	9	0.025	0,64	0.34	8,6
55170/12	12	0.025	0,64	0.37	9,5

16 AWG (1,23mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Cond.	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55172	2	0.025	0,64	0.24	6,0
55173	3	0.025	0,64	0.26	6,7
55174	4	0.025	0,64	0.29	7,3
55176	6	0.025	0,64	0.33	8,3
55179	9	0.025	0,64	0.38	9,6
55180/12	12	0.025	0,64	0.42	10,6

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FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.

XTRA•GUARD® 5

MULTIPAIR, UNSHIELDED

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

CHOOSE XTRA•GUARD 5 For:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food / Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing



22 AWG (0,35mm²), **7 / 30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55021	1	0.025	0,64	0.16	4,1
55022	2	0.025	0,64	0.22	5,5
55023	3	0.025	0,64	0.25	6,3
55026	6	0.025	0,64	0.32	8,0
55029	9	0.025	0,64	0.37	9,3
55029/12	12	0.025	0,64	0.41	10,4

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Viton® is a registered trademark of DuPont Dow Elastomers

XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

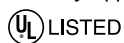
- Color Code: Chart A Page 374
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- Core Wrap: High Temperature Tape
- Jacket: FEP Teflon®

SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



Canadian Standards Association



AVAILABILITY

- Made-To-Order only, 1000 ft minimum

FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA,
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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

XTRA•GUARD® 5

MULTIPAIR, FOIL SHIELD

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

CHOOSE XTRA•GUARD 5 FOR:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food/Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing

XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- Shield: Aluminum/Polyester Foil Facing In with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable
- Jacket: FEP Teflon®

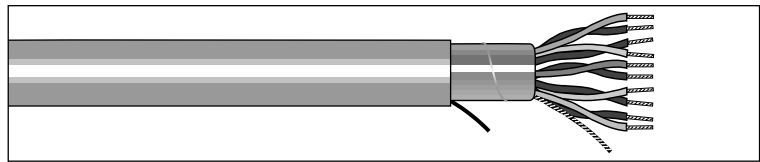
SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



AVAILABILITY

- Made-To-Order only, 1000 ft minimum



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55491	1	0.025	0,64	0.15	3,8
55492	2	0.025	0,64	0.19	4,9
55493	3	0.025	0,64	0.22	5,6
55496	6	0.025	0,64	0.28	7,0
55499	9	0.025	0,64	0.32	8,2
55499/11	11	0.025	0,64	0.35	8,8

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55481	1	0.025	0,64	0.16	4,1
55482	2	0.025	0,64	0.21	5,4
55483	3	0.025	0,64	0.24	6,2
55486	6	0.025	0,64	0.31	7,9
55489	9	0.025	0,64	0.36	9,2
55489/12	12	0.025	0,64	0.41	10,3

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55451	1	0.025	0,64	0.17	4,3
55452	2	0.025	0,64	0.22	5,6
55453	3	0.025	0,64	0.25	6,4
55455	5	0.025	0,64	0.30	7,7
55456	6	0.025	0,64	0.32	8,2
55459	9	0.025	0,64	0.38	9,5
55459/12	12	0.025	0,64	0.42	10,6

18 AWG (0,90mm²), **7/26** (7x0,40mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55371	1	0.025	0,64	0.19	4,8
55372	2	0.025	0,64	0.26	6,7
55373	3	0.025	0,64	0.31	7,8
55376	6	0.025	0,64	0.40	10,1
55379	9	0.025	0,64	0.47	11,8

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FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

**FOR COMPLETE PRODUCT PERFORMANCE DATA,
SEE TECHNICAL SECTION
IN THE BACK OF THIS BOOK.**

XTRA•GUARD® 5

MULTIPAIR, SUPRASHIELD®

EXTRA HIGH-TEMPERATURE / CHEMICAL-RESISTANT FEP TEFLON® JACKET

UL TYPE CMP
UL AWM STYLE 20229
CSA CMP FT6
300 VOLT

CHOOSE XTRA•GUARD 5 For:

- Unmatched Performance at Temperatures from -80°C to 200°C
- Suitable for Use in Class 1 Clean Rooms
- FDA Recognized as Food / Medical Grade (can be sterilized)
- 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water
- 20-30% Smaller Cable Diameter
- Extremely Low Friction Jacket for Ease of Routing
- **SUPRASHIELD** – Twice as Effective as Foil Shielding

XTRA•GUARD 5 APPLICATIONS:

- Military Electronic Applications
- Steel, Glass and Metal Foundries
- Mining Instruments and Controls
- Food and Beverage Plants
- Clean Room Environments
- Refinery Cracker Unit Controls

CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C (UL, CSA -150°C)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

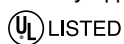
- Color Code: Chart A Page 374
- Jacket Color: Tan

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded FEP Teflon®
- **SUPRASHIELD**: Aluminum / Polyester / Aluminum Foil with Stranded Tinned Copper Drain Wire Equal in Size to Insulated Conductors of Cable plus 70% Overall Braid of Tinned Copper
- Jacket: FEP Teflon®

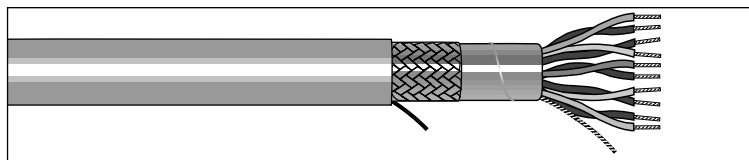
SPECIFICATIONS

- UL Type CMP
- UL AWM Style 20229
- CSA CMP FT6
- Passes 210,000 BTU Flame Test
- Passes Steiner Tunnel Test: (Low Smoke and Flame Generation)
- Pennsylvania Bureau of Deep Mine Safety Approved P-MWMS-1-85



AVAILABILITY

- Made-To-Order only, 1000 ft minimum



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55271	1	0.025	0,64	0.17	4,3
55272	2	0.025	0,64	0.21	5,4
55273	3	0.025	0,64	0.24	6,1
55276	6	0.025	0,64	0.30	7,6
55279	9	0.025	0,64	0.34	8,7
55279/12	12	0.025	0,64	0.38	9,6

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55121	1	0.025	0,64	0.18	4,6
55122	2	0.025	0,64	0.24	6,0
55123	3	0.025	0,64	0.27	6,8
55126	6	0.025	0,64	0.33	8,5
55129	9	0.025	0,64	0.39	9,8
55129/12	12	0.025	0,64	0.43	10,9

20 AWG (0,56mm²), **7/28** (7x0,32mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55291	1	0.025	0,64	0.20	5,1
55292	2	0.025	0,64	0.26	6,5
55293	3	0.025	0,64	0.29	7,4
55296	6	0.025	0,64	0.37	9,4
55299	9	0.025	0,64	0.43	10,9
55299/12	12	0.025	0,64	0.48	12,1

18 AWG (0,90mm²), **7/26** (7x0,40mm), Insulation Thickness: **0.010"** (0,25mm)

XTRA•GUARD 5 Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
55131	1	0.025	0,64	0.22	5,6
55132	2	0.025	0,64	0.29	7,3
55133	3	0.025	0,64	0.33	8,3
55136	6	0.025	0,64	0.42	10,6
55139	9	0.030	0,76	0.50	12,7

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FIT® TUBING RECOMMENDATION

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

FIT®-400 – Temperature / Chemical Resistant FEP Teflon® (See Page 129 for Product Specifications)

FOR COMPLETE PRODUCT PERFORMANCE DATA,
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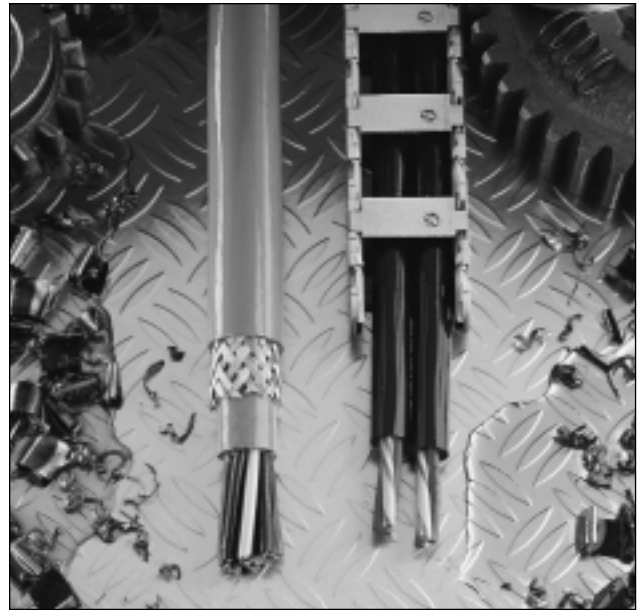
Web Site: www.alphawire.com
Email: info@alphawire.com

XTRA•GUARD® Flexible Cables

PERMANENT SOLUTIONS FOR CRITICAL FLEXING APPLICATIONS

Manufactured In The U.S.A.

Choose **XTRA•GUARD® Flexible Cables** to deliver high speed dependability along with the flexibility needed in cases of difficult and /or complex cable positioning. **XTRA•GUARD® Flexible Cables** feature unsurpassed flame and moisture resistance, outstanding oil and chemical resistance, premium grade PVC and Polyurethane jackets. **XTRA•GUARD® Flexible Cables** are UL Recognized or Listed, CSA certified, tested to MIL-C-13777G for flex life and are **CE** marked. Product performance is verified with certified test reports. Call or visit our web site at www.alphawire.com for up-to-date cable test information.

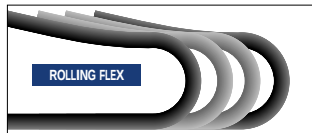


COMMON FLEXING APPLICATIONS

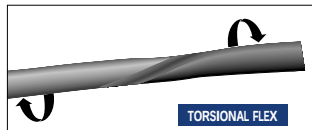
There are four common types of cable flexing movements to consider when designing and applying a high-flex cable. They are rolling flex, bending flex or "tic-toc", torsional flex and variable / random motion flex (see illustrations at right).

Different cable construction methods and materials are used depending on the cable flexing movement. For example: torsional cables will have a different lay length and cabling method than a rolling flex cable. Cable performance is evaluated using physical test data and statistical analysis to produce flex life and overall system reliability.

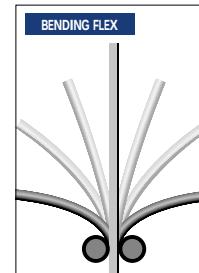
An understanding of the cables' application will allow the designer to choose the correct cable and reliably predict the products' lifetime and performance.



**For ROLLING FLEX APPLICATIONS
SPECIFY AND CHOOSE:**
XTRA•GUARD® High-Flex Control Cable
XTRA•GUARD® High-Flex Mini Diameter Data Cable

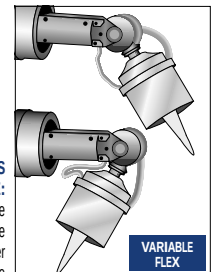


**For TORSIONAL FLEX APPLICATIONS
SPECIFY AND CHOOSE:**
XTRA•GUARD® High-Flex Torsion Robotic Cable



**For BENDING FLEX APPLICATIONS
SPECIFY AND CHOOSE:**

XTRA•GUARD® Standard-Flex Control Cable
XTRA•GUARD® High-Flex Control Cable
XTRA•GUARD® High-Flex Mini Diameter Data Cable



**For VARIABLE FLEX APPLICATIONS
SPECIFY AND CHOOSE:**

XTRA•GUARD® Standard-Flex Control Cable
XTRA•GUARD® High-Flex Control Cable
XTRA•GUARD® High-Flex Mini Diameter Data Cable

APPLICATIONS

- Applications Requiring Increased Flexibility
- Machine Tools
- CNC Machine Centers
- Data Processing Equipment
- Automation Equipment
- Material Handling Equipment
- Applications Requiring Continuous Flexing
- Robotics
- Installation in Cable Track
- Assembly Lines
- Industrial Electronic Processing Equipment
- DataComm Connections
- Connecting Sensors & Actuators to Controllers
- Sensor & I/O Interconnects
- Automation Networking
- PLC, Microprocessor & Computer Interconnects
- Twisting & Random Robotic Flexing Applications
- Power Supply to Welding, Painting & Articulating Robots

Product Type

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XTRA•GUARD® Flexible Cable Installation Instructions	100



XTRA•GUARD® Flexible Cables

STANDARD-FLEX CONTROL CABLE

OIL RESISTANT, MULTICONDUCTOR, UNSHIELDED

UL AWM STYLE 2587
CSA AWM I A/B II A/B FT1
600 VOLT

CHOOSE XTRA•GUARD STANDARD-FLEX CONTROL CABLES FOR:

- Outstanding Oil and Chemical Resistance
- UL Recognized and CSA Certified, CE Marked
- Jacket Meets VDE 0472, Section 803 Oil Test
- Ease of Installation
- NOT FOR USE IN HIGH-FLEX APPLICATIONS

XTRA•GUARD STANDARD-FLEX CABLE APPLICATIONS:

- Applications Requiring Increased Flexibility
- Machine Tools
- CNC Machine Centers
- Data Processing Equipment
- Automation Equipment
- Material Handling Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -5°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Numerically Numbered Black Conductors with One Yellow/Green Conductor on Outside Layer
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Finely Stranded Bare Copper
- Insulation: Lubricated PVC
- Fillers: Non-Wicking, Solid PVC Rod
- Jacket: Oil Resistant PVC

SPECIFICATIONS

- Bend Radius: 5X Cable Diameter
- UL AWM Style 2587
- CSA AWM I A/B II A/B FT1
- Jacket Meets VDE 0472, Section 803 Oil Test

 **Recognized Component**
Underwriters Laboratories Inc.

 **Certified**
Canadian Standards Association



AVAILABILITY

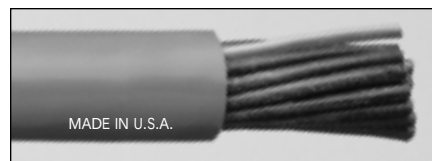
- In Stock: 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups

FIT® TUBING RECOMMENDATION

FIT® FLEX – Highly Flexible, Irradiated Silicone Rubber
(See Page 134 for Product Specifications)

FIT® -650 – Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



20 AWG (0,50mm²), **10 / 30** (10/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
65002	2	0.035	0,89	0.230	5,8
65003	3	0.035	0,89	0.240	6,1
65004	4	0.035	0,89	0.260	6,6
65005	5	0.035	0,89	0.290	7,4
65007	7	0.035	0,89	0.310	7,9
65009	9	0.040	1,00	0.410	10,4
65012	12	0.045	1,10	0.420	10,7
65018	18	0.055	1,40	0.510	13,0
65025	25	0.055	1,40	0.590	15,0

18 AWG (1,0mm²), **16 / 30** (16/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
65802	2	0.035	0,89	0.250	6,4
65803	3	0.035	0,89	0.260	6,6
65804	4	0.035	0,89	0.285	7,2
65805	5	0.035	0,89	0.310	7,9
65807	7	0.035	0,89	0.340	8,6
65809	9	0.035	0,89	0.445	11,3
65812	12	0.045	1,10	0.460	11,7
65818	18	0.050	1,30	0.550	14,0
65825	25	0.050	1,30	0.635	16,1
65834	34	0.060	1,50	0.750	19,1
65841	41	0.063	1,60	0.810	20,6

16 AWG (1,5mm²), **26 / 30** (26/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
65602	2	0.035	0,89	0.275	7,0
65603	3	0.035	0,89	0.290	7,4
65604	4	0.035	0,89	0.315	8,0
65605	5	0.035	0,89	0.350	8,9
65607	7	0.035	0,89	0.380	9,7
65609	9	0.040	1,00	0.510	13,0
65612	12	0.050	1,30	0.530	13,5
65618	18	0.050	1,30	0.620	15,7
65625	25	0.055	1,40	0.750	19,1
65641	41	0.075	1,90	0.940	23,9

14 AWG (2,5mm²), **41 / 30** (41/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
65402	2	0.045	1,10	0.325	8,3
65403	3	0.045	1,10	0.345	8,8
65404	4	0.055	1,40	0.400	10,2
65405	5	0.055	1,40	0.430	10,9
65407	7	0.055	1,40	0.470	11,9
65409	9	0.065	1,70	0.615	15,6
65412	12	0.085	2,20	0.660	16,8
65418	18	0.090	2,30	0.770	19,6
65425	25	0.110	2,80	0.945	24,0

12 AWG (4,0mm²), **65 / 30** (65/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
65203	3	0.065	1,70	0.440	11,2
65204	4	0.080	2,00	0.500	12,7
65205	5	0.085	2,20	0.550	14,0

10 AWG (6,0mm²), **105 / 30** (105/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
65103	3	0.080	2,00	0.510	13,0
65104	4	0.085	2,20	0.560	14,2
65105	5	0.090	2,30	0.620	15,7



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL AWM STYLE 2587
CSA AWM I A/B II A/B FT1
600 VOLT

XTRA•GUARD® Flexible Cables

STANDARD-FLEX CONTROL CABLE

OIL RESISTANT, MULTICONDUCTOR, SHIELDED

CHOOSE XTRA•GUARD STANDARD-FLEX CONTROL CABLES FOR:

- Outstanding Oil and Chemical Resistance
- UL Recognized and CSA Certified, CE Marked
- Jacket Meets VDE 0472, Section 803 Oil Test
- Ease of Installation
- NOT FOR USE IN HIGH-FLEX APPLICATIONS

XTRA•GUARD STANDARD-FLEX CABLE APPLICATIONS:

- Applications Requiring Increased Flexibility
- Machine Tools
- CNC Machine Centers
- Data Processing Equipment
- Automation Equipment
- Material Handling Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -5°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Numerically Numbered Black Conductors with One Yellow/Green Conductor on Outside Layer
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Finely Stranded Bare Copper
- Insulation: Lubricated PVC
- Fillers: Non-Wicking, Solid PVC Rod
- Inner Jacket: PVC
- Shield: Tinned Copper Braid (85% Coverage)
- Outer Jacket: Oil Resistant PVC

SPECIFICATIONS

- Bend Radius: 8X Cable Diameter
- UL AWM Style 2587
- CSA AWM I A/B II A/B FT1
- Jacket Meets VDE 0472, Section 803 Oil Test



AVAILABILITY

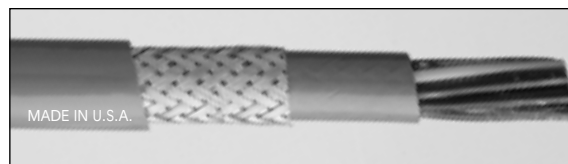
- In Stock: 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups

FIT® TUBING RECOMMENDATION

FIT® FLEX – Highly Flexible, Irradiated Silicone Rubber
(See Page 134 for Product Specifications)

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



20 AWG (0,50mm²), **10 / 30** (10/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
65003CY	3	0.035	0,89	0.320	8,1
65007CY	7	0.035	0,89	0.385	9,8
65012CY	12	0.040	1,00	0.500	12,7
65025CY	25	0.050	1,30	0.685	17,4

18 AWG (1,0mm²), **16 / 30** (16/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
65803CY	3	0.035	0,89	0.340	8,6
65804CY	4	0.035	0,89	0.360	9,1
65805CY	5	0.035	0,89	0.400	10,2
65807CY	7	0.035	0,89	0.420	10,7
65812CY	12	0.045	1,10	0.550	14,0
65818CY	18	0.053	1,40	0.640	16,3
65825CY	25	0.053	1,40	0.750	19,1

16 AWG (1,5mm²), **26 / 30** (26/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
65603CY	3	0.035	0,89	0.375	9,5
65604CY	4	0.035	0,89	0.400	10,2
65605CY	5	0.035	0,89	0.435	11,0
65607CY	7	0.035	0,89	0.465	11,8
65612CY	12	0.050	1,30	0.625	15,9
65618CY	18	0.060	1,50	0.745	18,9
65625CY	25	0.065	1,70	0.880	22,4

14 AWG (2,5mm²), **41 / 30** (41/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
65403CY	3	0.040	1,00	0.430	10,9
65404CY	4	0.045	1,10	0.470	11,9
65405CY	5	0.050	1,30	0.520	13,2
65407CY	7	0.055	1,40	0.565	14,4

12 AWG (4,0mm²), **65 / 30** (65/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
65203CY	3	0.060	1,50	0.530	13,5
65204CY	4	0.065	1,70	0.610	15,7
65205CY	5	0.070	1,80	0.665	16,9

10 AWG (6,0mm²), **105 / 30** (105/0,25mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
65103CY	3	0.070	1,80	0.615	15,6
65104CY	4	0.070	1,80	0.665	16,9
65105CY	5	0.075	1,90	0.740	18,8

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XTRA•GUARD® Flexible Cables

HIGH-FLEX CONTROL CABLE

CONTINUOUS FLEXING, OIL RESISTANT, MULTICONDUCTOR, UNSHIELDED

UL AWM STYLE 2587
CSA AWM I A/B II A/B FT1
600 VOLT

CHOOSE XTRA•GUARD HIGH-FLEX CONTROL CABLES FOR:

- Extra Flexibility and Durability for Continuous Motion
- Extended Flex Life, 13.8 Million Cycles
- Outstanding Oil and Chemical Resistance
- Jacket Meets VDE 0472, Section 803 Oil Test
- UL Recognized and CSA Certified, CE Marked

XTRA•GUARD HIGH-FLEX CONTROL CABLE APPLICATIONS:

- Applications Requiring Continuous Flexibility
- Robotics
- Installation in Cable Track
- Data Processing Equipment
- Assembly Lines
- Automation Equipment
- Material Handling Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -5°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Numerically Numbered Red Conductors with One Yellow/Green Conductor on Outside Layer
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Super Finely Stranded Bare Copper
- Insulation: Lubricated PVC
- Fillers: Non-Wicking, Solid PVC Rod
- Wrap: Non-Wicking Fabric
- Jacket: Oil Resistant PVC

SPECIFICATIONS

- Bend Radius: 8X Cable Diameter
- UL AWM Style 2587
- CSA AWM I A/B II A/B FT1
- Jacket Meets VDE 0472, Section 803 Oil Test
- Passes MIL-C-13777G Flexlife Test

 **Recognized Component**
Underwriters Laboratories Inc.

 **Certified**
Canadian Standards Association



AVAILABILITY

- In Stock: 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups

FIT® TUBING RECOMMENDATION

FIT® FLEX – Highly Flexible, Irradiated Silicone Rubber
(See Page 134 for Product Specifications)

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

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20 AWG (0,5mm²), **65 / 38** (65/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
85003	3	0.035	0,89	0.266	6,8
85004	4	0.035	0,89	0.287	7,3
85005	5	0.035	0,89	0.319	8,1
85007	7	0.040	1,00	0.368	9,3
85012	12	0.045	1,10	0.454	11,5
85018	18	0.050	1,30	0.535	13,6
85025	25	0.065	1,70	0.666	16,9
85034	34	0.065	1,70	0.733	18,6

18 AWG (1,0mm²), **105 / 38** (105/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
85803	3	0.035	0,89	0.286	7,3
85804	4	0.035	0,89	0.310	7,9
85805	5	0.035	0,89	0.337	8,6
85807	7	0.045	1,10	0.407	10,3
85812	12	0.050	1,30	0.502	12,8
85815	15	0.050	1,30	0.553	14,0
65818	18	0.065	1,70	0.583	14,8
65825	25	0.065	1,70	0.722	18,3
65834	34	0.065	1,70	0.799	20,3

16 AWG (1,5mm²), **168 / 38** (168/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
85603	3	0.035	0,89	0.325	8,3
85604	4	0.035	0,89	0.354	9,0
85605	5	0.035	0,89	0.387	9,8
85607	7	0.040	1,00	0.456	11,6
85612	12	0.045	1,10	0.567	14,4
85618	18	0.045	1,10	0.662	16,8
85625	25	0.065	1,70	0.833	21,1
85634	34	0.065	1,70	0.924	23,5

14 AWG (2,5mm²), **266 / 38** (266/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
85404	4	0.050	1,30	0.425	10,8
85407	7	0.070	1,80	0.571	14,5

12 AWG (4,0mm²), **413 / 38** (413/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
85204	4	0.070	1,80	0.521	13,2
85207	7	0.100	2,50	0.699	17,8

10 AWG (6,0mm²), **658 / 38** (658/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Inches	Nominal Diameter mm
85104	4	0.070	1,80	0.581	14,8
85107	7	0.100	2,50	0.789	20,0



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CSA AWM I A/B II A/B FT1
600 VOLT

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HIGH-FLEX CONTROL CABLE

CONTINUOUS FLEXING, OIL RESISTANT, MULTICONDUCTOR, SHIELDED

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- Extra Flexibility and Durability for Continuous Motion
- Extended Flex Life, 13.8 Million Cycles
- Outstanding Oil and Chemical Resistance
- Jacket Meets VDE 0472, Section 803 Oil Test
- UL Recognized and CSA Certified, CE Marked

XTRA•GUARD HIGH-FLEX CONTROL CABLE APPLICATIONS:

- Applications Requiring Continuous Flexing
- Robotics
- Installation in Cable Track
- Assembly Lines
- Automation Equipment
- Material Handling Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -5°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Numerically Numbered Red Conductors with One Yellow/Green Conductor on Outside Layer
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Super Finely Stranded Bare Copper
- Insulation: Lubricated PVC
- Fillers: Non-Wicking, Solid PVC Rod
- Wrap: Non-Wicking Fabric
- Inner Jacket: PVC
- Shield: Tinned Copper Braid (85% Coverage)
- Outer Jacket: Oil Resistant PVC

SPECIFICATIONS

- Bend Radius: 10X Cable Diameter
- UL AWM Style 2587
- CSA AWM I A/B II A/B FT1
- Jacket Meets VDE 0472, Section 803 Oil Test
- Passes MIL-C-13777G Flexlife Test

 **Recognized Component**
Underwriters Laboratories Inc.  **Certified**
Canadian Standards Association 

AVAILABILITY

- In Stock: 100 ft (30.5m), 500 ft (152m) and 1000 ft (305m) put-ups

FIT® TUBING RECOMMENDATION

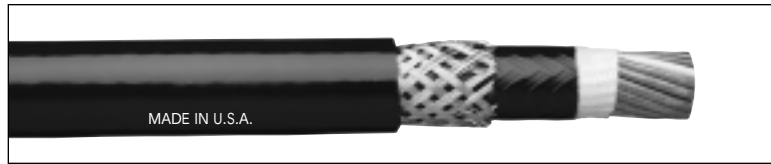
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20 AWG (0,5mm²), **65 / 38** (65/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
85003CY	3	0.035	0,89	0.353	9,0
85004CY	4	0.035	0,89	0.374	9,5
85005CY	5	0.040	1,00	0.416	10,6
85007CY	7	0.040	1,00	0.471	12,0
85010CY	10	0.040	1,00	0.551	14,0
85012CY	12	0.050	1,30	0.567	14,4
85018CY	18	0.060	1,50	0.658	16,7
85025CY	25	0.070	1,80	0.791	20,1

18 AWG (1,0mm²), **105 / 38** (105/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
85803CY	3	0.035	0,89	0.373	9,5
85804CY	4	0.040	1,00	0.407	10,3
85805CY	5	0.040	1,00	0.444	11,3
85807CY	7	0.050	1,30	0.520	13,2
85812CY	12	0.060	1,50	0.625	15,9
85818CY	18	0.060	1,50	0.708	18,0
85825CY	25	0.080	2,00	0.867	22,0

16 AWG (1,5mm²), **168 / 38** (168/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
85603CY	3	0.035	0,89	0.422	10,7
85604CY	4	0.040	1,00	0.461	11,7
85605CY	5	0.040	1,00	0.500	12,7
85607CY	7	0.060	1,50	0.599	15,2
85612CY	12	0.060	1,50	0.702	17,8
85618CY	18	0.060	1,50	0.797	20,2
85625CY	25	0.065	1,70	0.962	24,4

14 AWG (2,5mm²), **266 / 38** (266/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
85404CY	4	0.050	1,30	0.538	13,7
85407CY	7	0.065	1,70	0.676	17,2

12 AWG (4,0mm²), **413 / 38** (413/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
85204CY	4	0.075	1,90	0.646	16,4
85207CY	7	0.100	2,50	0.814	20,7

10 AWG (6,0mm²), **658 / 38** (658/0,10mm), Insulation Thickness: **0.022"** (0,56mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
85104CY	4	0.070	1,80	0.706	17,9
85107CY	7	0.100	2,50	0.934	23,7



XTRA•GUARD® Flexible Cables

HIGH-FLEX MINI DIAMETER DATA CABLE

CONTINUOUS FLEXING, OIL RESISTANT, MULTICONDUCTOR, SHIELDED

UL AWM STYLE 2661
CSA AWM I A/B II A/B FT4
UL TYPE CM, CSA TYPE CMG
300 VOLT

CHOOSE XTRA•GUARD HIGH-FLEX MINI DIAMETER MULTICONDUCTOR DATA CABLES FOR:

- Extreme Flexibility in Small Spaces
- Continual Flexing in Cable Tracks
- UL Listed, UL Recognized, CSA Certified and CE Marked
- Outstanding EMI Protection
- Jacket Meets VDE 0472, Section 803 Oil Test

XTRA•GUARD HIGH-FLEX MINI DIAMETER MULTICONDUCTOR DATA CABLE APPLICATIONS:

- Industrial Electronic Processing Equipment
- DataComm Connections
- Connecting Sensors and Actuators to Controllers
- Sensor and I/O Interconnects

CHARACTERISTICS

OPERATING TEMPERATURE:

- 5°C to 105°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

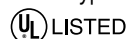
- Color Code: See Chart D Page 375
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Super Finely Stranded Tinned Copper
- Insulation: Lubricated Semi-Rigid PVC
- Drain Wire: 26 AWG, 7/34 Stranded Tinned Copper
- Shielding: Foil and 90% Tinned Copper Serve
- Jacket: Oil Resistant PVC

SPECIFICATIONS

- Bend Radius: 8X Cable Diameter
- UL Type CM
- UL AWM 2661
- CSA AWM I A/B II A/B FT4
- CSA Type CMG



Canadian Standards Association

AVAILABILITY

- In Stock: 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups

FIT® TUBING RECOMMENDATION

FIT® FLEX – Highly Flexible, Irradiated Silicone Rubber (See Page 134 for Product Specifications)

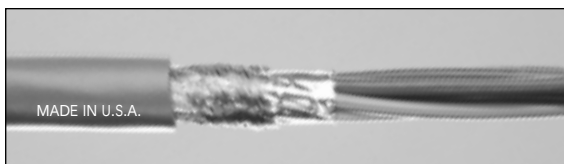
FIT® -650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



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28 AWG (0,09mm²), **7/36** (7/0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
86002CY	2	0.040	1,0	0.17	4,4
86003CY	3	0.040	1,0	0.18	4,6
86004CY	4	0.040	1,0	0.19	4,8
86005CY	5	0.040	1,0	0.20	5,1
86007CY	7	0.040	1,0	0.22	5,5
86012CY	12	0.040	1,0	0.28	7,1
86018CY	18	0.040	1,0	0.29	7,4
86025CY	25	0.040	1,0	0.32	8,1

26 AWG (0,14mm²), **7/34** (7/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
86102CY	2	0.040	1,0	0.18	4,6
86103CY	3	0.040	1,0	0.19	4,7
86104CY	4	0.040	1,0	0.20	5,0
86105CY	5	0.040	1,0	0.21	5,3
86107CY	7	0.040	1,0	0.23	5,8
86112CY	12	0.040	1,0	0.29	7,4
86118CY	18	0.040	1,0	0.30	7,5
86125CY	25	0.040	1,0	0.35	8,8

24 AWG (0,23mm²), **10/34** (10/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
86202CY	2	0.040	1,0	0.19	4,8
86203CY	3	0.040	1,0	0.20	5,0
86204CY	4	0.040	1,0	0.21	5,3
86205CY	5	0.040	1,0	0.23	5,7
86207CY	7	0.040	1,0	0.25	6,4
86212CY	12	0.040	1,0	0.32	8,1
86218CY	18	0.040	1,0	0.33	8,3
86225CY	25	0.045	1,1	0.39	10,0

22 AWG (0,38mm²), **19/34** (19/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
86302CY	2	0.040	1,0	0.20	5,2
86303CY	3	0.040	1,0	0.21	5,4
86304CY	4	0.040	1,0	0.23	5,7
86305CY	5	0.040	1,0	0.25	6,3
86307CY	7	0.040	1,0	0.27	7,0
86312CY	12	0.040	1,0	0.35	9,0
86318CY	18	0.040	1,0	0.36	9,2
86325CY	25	0.045	1,1	0.41	10,5

UL AWM STYLE 2661
CSA AWM I A/B II A/B FT4
UL TYPE CM, CSA TYPE CMG
300 VOLT

XTRA•GUARD® Flexible Cables

HIGH-FLEX MINI DIAMETER DATA CABLE
CONTINUOUS FLEXING, OIL RESISTANT, MULTIPAIR, SHIELDED

CHOOSE XTRA•GUARD HIGH-FLEX MINI DIAMETER MULTIPAIR DATA CABLES FOR:

- Extreme Flexibility in Small Spaces
- Continual Flexing in Cable Tracks
- High Speed Digital Data Transmission
- UL Listed, UL Recognized, CSA Certified and CE Marked
- Outstanding EMI Protection
- Jacket Meets VDE 0472, Section 803 Oil Test

XTRA•GUARD HIGH-FLEX MINI DIAMETER MULTIPAIR DATA CABLE APPLICATIONS:

- Industrial Electronic Processing Equipment
- DataComm Connections
- Automation Networking
- PLC, Microprocessor and Computer Interconnects
- Connecting Sensors and Actuators to Controllers

CHARACTERISTICS

OPERATING TEMPERATURE:

- 5°C to 105°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

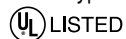
- Color Code: See Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Super Finely Stranded Tinned Copper
- Insulation: Lubricated Semi-Rigid PVC
- Drain Wire: 26 AWG, 7/34 Stranded Tinned Copper
- Shielding: Foil and 85% Tinned Copper Braid
- Jacket: Oil Resistant PVC

SPECIFICATIONS

- Bend Radius: 15X Cable Diameter
- UL Type CM
- UL AWM 2661
- CSA AWM I A/B II A/B FT4
- CSA Type CMG



Canadian Standards Association

AVAILABILITY

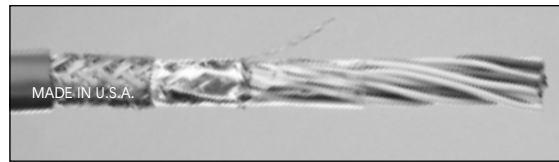
- In Stock: 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups

FIT® TUBING RECOMMENDATION

FIT® FLEX – Highly Flexible, Irradiated Silicone Rubber (See Page 134 for Product Specifications)

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



28 AWG (0,09mm²), **7 / 36** (7/0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86401CY	1	0.040	1,0	0.18	4,7
86402CY	2	0.040	1,0	0.23	5,8
86403CY	3	0.040	1,0	0.24	6,0
86404CY	4	0.040	1,0	0.25	6,4
86405CY	5	0.040	1,0	0.27	6,9
86406CY	6	0.040	1,0	0.30	7,5
86408CY	8	0.040	1,0	0.33	8,3
86410CY	10	0.045	1,1	0.38	9,7
86414CY	14	0.045	1,1	0.41	10,4

26 AWG (0,14mm²), **7 / 34** (7/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86501CY	01	0.040	1,0	0.19	4,9
86502CY	02	0.040	1,0	0.24	6,1
86503CY	03	0.040	1,0	0.25	6,4
86504CY	04	0.040	1,0	0.27	6,8
86505CY	05	0.040	1,0	0.29	7,3
86506CY	06	0.040	1,0	0.31	7,9
86508CY	08	0.040	1,0	0.35	8,8
86510CY	10	0.045	1,1	0.40	10,1
86514CY	14	0.053	1,3	0.44	11,2

24 AWG (0,23mm²), **10 / 34** (10/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86601CY	1	0.040	1,0	0.20	5,1
86602CY	2	0.040	1,0	0.26	6,6
86603CY	3	0.040	1,0	0.27	6,9
86604CY	4	0.040	1,0	0.29	7,3
86605CY	5	0.040	1,0	0.31	7,8
86606CY	6	0.040	1,0	0.34	8,6
86608CY	8	0.040	1,0	0.37	9,5
86610CY	10	0.045	1,1	0.44	11,2
86614CY	14	0.053	1,3	0.47	11,9

22 AWG (0,38mm²), **19 / 34** (19/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86701CY	1	0.040	1,0	0.21	5,4
86702CY	2	0.040	1,0	0.28	7,1
86703CY	3	0.040	1,0	0.29	7,4
86704CY	4	0.040	1,0	0.31	7,9
86705CY	5	0.040	1,0	0.34	8,5
86706CY	6	0.040	1,0	0.37	9,3
86708CY	8	0.045	1,1	0.42	10,7
86710CY	10	0.053	1,3	0.50	12,7
86714CY	14	0.053	1,3	0.51	13,0

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XTRA•GUARD® Flexible Cables

HIGH-FLEX TORSION ROBOTIC CABLE

CONTINUOUS FLEXING, OIL RESISTANT, MULTICONDUCTOR, UNSHIELDED

UL AWM STYLE 20234
CSA AWM I A/B II A/B FT1
600 VOLT

CHOOSE XTRA•GUARD HIGH-FLEX UNSHIELDED TORSION ROBOTIC CABLES FOR:

- Twisting and Random Robotic Flexing Motions
- Extreme Oil Resistance
- UL Recognized and CSA Certified, CE Marked

XTRA•GUARD HIGH-FLEX UNSHIELDED TORSION ROBOTIC CABLE APPLICATIONS:

- Twisting and Random Robotic Flexing Applications
- Power Supply to Welding, Painting and Articulating Robots
- Automation Networking
- Connecting Sensors and Actuators to Controllers

CHARACTERISTICS

OPERATING TEMPERATURE:

- -10°C to 80°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Black with White Numbers and One Green/Yellow Grounding Conductor
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Thermoplastic Elastomer
- Jacket: Oil Resistant Polyurethane

SPECIFICATIONS

- Bend Radius: 15X Cable Diameter
- Maximum Twisting: $\pm 360^\circ$ Per Meter
- UL AWM 20234
- CSA AWM I A/B II A/B FT1



Canadian Standards Association



AVAILABILITY

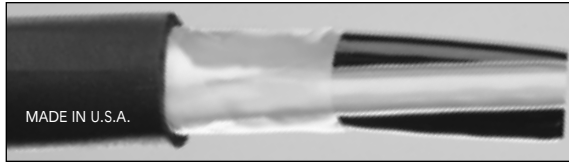
- Bulk, Cut to Length

FIT® TUBING RECOMMENDATION

FIT® FLEX – Highly Flexible, Irradiated Silicone Rubber
(See Page 134 for Product Specifications)

FIT® -650 – Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



24 AWG (0,23mm²), **7 / 32** (7/0,2mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87003	3	0.050	1,3	0.232	5,9
87004	4	0.050	1,3	0.247	6,3
87005	5	0.050	1,3	0.263	6,7
87007	7	0.050	1,3	0.293	7,4

22 AWG (0,35mm²), **19 / 34** (19/0,16mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87103	3	0.050	1,3	0.250	6,4
87104	4	0.050	1,3	0.266	6,8
87105	5	0.050	1,3	0.284	7,2
87107	7	0.050	1,3	0.319	8,1

20 AWG (0,5mm²), **19 / 32** (19/0,2mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87203	3	0.050	1,3	0.263	6,7
87204	4	0.050	1,3	0.281	7,1
87205	5	0.050	1,3	0.301	7,6
87207	7	0.050	1,3	0.338	8,6

18 AWG (0,96mm²), **19 / 30** (19/0,25mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87303	3	0.050	1,3	0.289	7,3
87304	4	0.050	1,3	0.300	7,6
87305	5	0.050	1,3	0.325	8,3
87307	7	0.050	1,3	0.366	9,3

16 AWG (1,32mm²), **19 / 0.0117** (19/0,29mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87403	3	0.050	1,3	0.300	7,6
87404	4	0.050	1,3	0.335	8,5
87405	5	0.050	1,3	0.361	9,2
87407	7	0.050	1,3	0.401	10,2

14 AWG (2,1mm²), **41 / 30** (41/0,25mm), Insulation Thickness: **0.025"** (0,64mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87503	3	0.050	1,3	0.376	9,6
87504	4	0.050	1,3	0.410	10,4
87505	5	0.050	1,3	0.456	11,6
87507	7	0.050	1,3	0.525	13,3

12 AWG (3,3mm²), **19 / 0.0185** (19/0,47mm), Insulation Thickness: **0.025"** (0,64mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87603	3	0.060	1,5	0.450	11,4
87604	4	0.060	1,5	0.487	12,4
87605	5	0.060	1,5	0.530	13,5
87607	7	0.060	1,5	0.606	15,4

10 AWG (4,74mm²), **37 / 0.0169** (37/0,43mm), Insulation Thickness: **0.025"** (0,64mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87703	3	0.060	1,5	0.503	12,8
87704	4	0.060	1,5	0.550	14,0
87705	5	0.070	1,8	0.618	15,7
87707	7	0.070	1,8	0.711	18,1



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UL AWM STYLE 20234
CSA AWM I A/B II A/B FT1
600 VOLT

XTRA·GUARD® Flexible Cables

HIGH-FLEX TORSION ROBOTIC CABLE

CONTINUOUS FLEXING, OIL RESISTANT, MULTICONDUCTOR, SHIELDED

CHOOSE XTRA·GUARD HIGH-FLEX SHIELDED TORSION ROBOTIC CABLES FOR:

- Where Shielding is Required
- Twisting and Random Robotic Flexing Motions
- Extreme Oil Resistance
- UL Recognized and CSA Certified, CE Marked

XTRA·GUARD HIGH-FLEX SHIELDED TORSION ROBOTIC CABLE APPLICATIONS:

- Twisting and Random Robotic Flexing Applications
- Power Supply to Welding, Painting and Articulating Robots
- Automation Networking
- Connecting Sensors and Actuators to Controllers

CHARACTERISTICS

OPERATING TEMPERATURE:

- -10°C to 80°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Black with White Numbers and One Green / Yellow Grounding Conductor
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Thermoplastic Elastomer
- Shielding: Tinned Copper Spiral 90% Coverage
- Jacket: Oil Resistant Polyurethane

SPECIFICATIONS

- Bend Radius: 15X Cable Diameter
- Maximum Twisting: $\pm 360^\circ$ Per Meter
- UL AWM 20234
- CSA AWM I A/B II A/B FT1



AVAILABILITY

- Bulk, Cut to Length

FIT® TUBING RECOMMENDATION

FIT® FLEX – Highly Flexible, Irradiated Silicone Rubber
(See Page 134 for Product Specifications)

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



24 AWG (0,23mm²), **7 / 32** (7/0,2mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87003CY	3	0.050	1,3	0.245	6,2
87004CY	4	0.050	1,3	0.260	6,6
87005CY	5	0.050	1,3	0.276	7,0
87007CY	7	0.050	1,3	0.306	7,8

22 AWG (0,35mm²), **19 / 34** (19/0,16mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87103CY	3	0.050	1,3	0.263	6,7
87104CY	4	0.050	1,3	0.279	7,1
87105CY	5	0.050	1,3	0.297	7,5
87107CY	7	0.050	1,3	0.332	8,4

20 AWG (0,5mm²), **19 / 32** (19/0,2mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87203CY	3	0.050	1,3	0.276	7,0
87204CY	4	0.050	1,3	0.294	7,5
87205CY	5	0.050	1,3	0.314	8,0
87207CY	7	0.050	1,3	0.351	8,9

18 AWG (0,96mm²), **19 / 30** (19/0,25mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87303CY	3	0.050	1,3	0.302	7,7
87304CY	4	0.050	1,3	0.313	8,0
87305CY	5	0.050	1,3	0.338	8,6
87307CY	7	0.050	1,3	0.379	9,6

16 AWG (1,32mm²), **19 / 0.0117** (19/0,29mm), Insulation Thickness: **0.015"** (0,4mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87403CY	3	0.050	1,3	0.313	8,0
87404CY	4	0.050	1,3	0.348	8,8
87405CY	5	0.050	1,3	0.374	9,5
87407CY	7	0.050	1,3	0.414	10,5

14 AWG (2,1mm²), **41 / 30** (41/0,25mm), Insulation Thickness: **0.025"** (0,64mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87503CY	3	0.050	1,3	0.389	9,9
87504CY	4	0.050	1,3	0.423	10,7
87505CY	5	0.050	1,3	0.489	12,4
87507CY	7	0.050	1,3	0.558	14,2

12 AWG (3,3mm²), **19 / 0.0185** (19/0,47mm), Insulation Thickness: **0.025"** (0,64mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87603CY	3	0.060	1,5	0.463	11,8
87604CY	4	0.060	1,5	0.500	12,7
87605CY	5	0.060	1,5	0.543	13,8
87607CY	7	0.060	1,5	0.619	15,7

10 AWG (4,74mm²), **37 / 0.0169** (37/0,43mm), Insulation Thickness: **0.025"** (0,64mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Nominal Diameter Inches	Nominal Diameter mm
87703CY	3	0.070	1,8	0.517	13,1
87704CY	4	0.070	1,8	0.563	14,3
87705CY	5	0.070	1,8	0.659	16,2
87707CY	7	0.070	1,8	0.725	18,4

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XTRA•GUARD® Flexible Cables

FLEXIBLE CABLE PRODUCT SPECIFICATION CROSS REFERENCE

This Cross Reference Guide represents those Alpha Wire products which are functionally equivalent.
Constructional and color code differences are not always indicated. Refer to the Alpha Wire Master Catalog for a detailed product description.

ALPHA WIRE	PAGE NO.	OLFLEX	HELUKABEL	BELDEN	LUTZE	SIEMENS	ALPHA WIRE	PAGE NO.	OLFLEX	HELUKABEL	BELDEN	LUTZE	SIEMENS
87007	96	28110					85618	92	891618	15064	7116A	100794	
87304	96	28160		7308A			85625	92	891625	15066	7117A	100795	
87403	96	28171		7328A			85634	92	891634	15068	7118A		
87404	96	28172		7329A			85803	92	891803	15038	7110A	100766	
87407	96	28174		7330A			85804	92	891804	15039	7111A	111045	
87503	96	28181		7332A			85805	92	891805	15040	7112A	100767	
87504	96	28182		7333A			85807	92	891807	15041	7113A	100768	
87603	96	28184		7336A			85812	92	891812	15043	7127A	100998	
65103	90	601003	10147	7446A	100467		85815	92	891815				
65104	90	601004	10148	7447A	100468	5DE8 682	85818	92	891818	15046	7128A	100778	
65105	90	601005	10149	7448A	100465	5DZ8 105	85825	92	891825	15048	7129A	100856	
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65607	90	601607	10098	7425A	100433	5DE8 653	65404CY	91	601404CY		7436AS	116133	5DZ8 344
65609	90	601609	10101	7426A			65405CY	91	601405CY		7437AS	116134	5DZ8 345
65612	90	601612	10103	7427A	100437	5DE8 654	65407CY	91	601407CY		7438AS	116135	5DZ8 347
65618	90	601618	10107	7428A	100440	5DE8 658	65603CY	91	601603CY		7422AS	116121	5DZ8 363
65625	90	601625	10110	7429A	100443	5DE8 655	65604CY	91	601604CY		7423AS	116123	5DZ8 364
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65825	90	601825	10078	7417A	100398	5DE8 695	65812CY	91	601812CY		7415AS	116105	5DZ8 388-2
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85604	92	891604	15057	7123A	100787		86714CY	95	602214TP	19981			
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85607	92	891607	15059	7125A	100792		86325CY	94	602225S				
85612	92	891612	15061	7115A	100793		86601CY	95	602401TP	21033			



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Web Site: www.alphawire.com
Email: info@alphawire.com

XTRA•GUARD® Flexible Cables

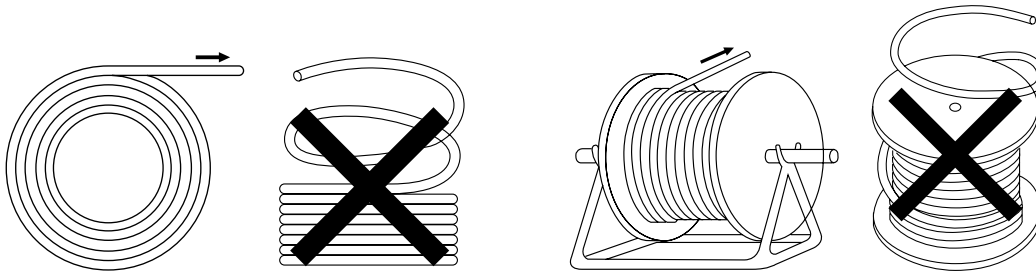
FLEXIBLE CABLE PRODUCT SPECIFICATION CROSS REFERENCE

This Cross Reference Guide represents those Alpha Wire products which are functionally equivalent.
Constructional and color code differences are not always indicated. Refer to the Alpha Wire Master Catalog for a detailed product description.

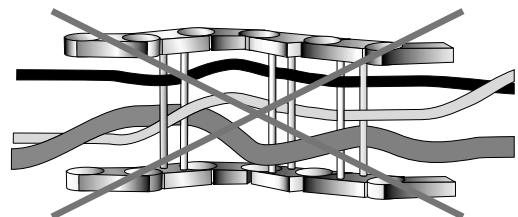
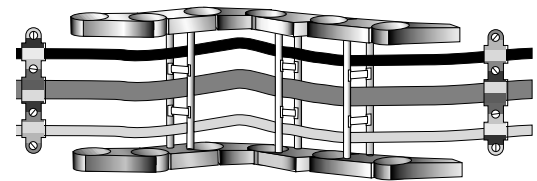
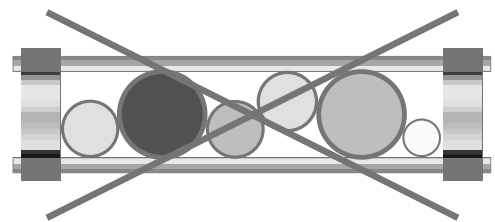
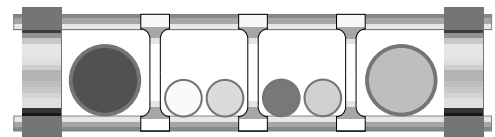
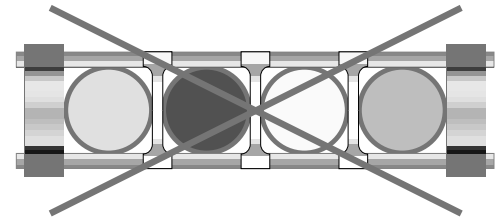
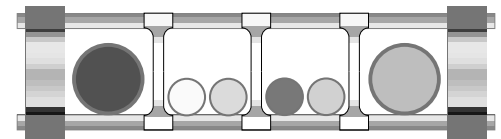
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86203CY	94	602403S	20030		110 090	5DV7 077	86401CY	95					
86603CY	95	602403TP	21035		110 619		86402CY	95					
86204CY	94	602404S	20031		110 091	5DV7 078	86403CY	95					
86604CY	95	602404TP	21036		110 620		86404CY	95					
86205CY	94	602405S	20032		110 092	5DV7 080	86405CY	95					
86605CY	95	602405TP	21037		118 195		86406CY	95					
86606CY	95	602406TP	21038		110 622		86408CY	95					
86207CY	94	602407S	20033		110 411	5DV7 081	86410CY	95					
86608CY	95	602408TP	21040		118 251		86414CY	95					
86610CY	95	602410TP	21041				86514CY	95	21011				
86212CY	94	602412S	20036		110 096	5DV7 082	87005	96					
86614CY	95	602414TP	21043				87103	96					
86218CY	94	602418S	20039		110 099	5DV7 083	87104	96					
86225CY	94	602425S			111 049		87105	96					
86501CY	95	602601TP	21001				87107	96					
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86503CY	95	602603TP	21003		110 601		87207	96			7322A		
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85007CY	93	892007CY	15934	7104AS	110775		87704CY	97			7340AS		
85010CY	93	892010CY			101351		87705CY	97			7341AS		
85012CY	93	892012CY	15935	7106AS			87707CY	97					

XTRA•GUARD® Flexible Cable INSTALLATION INSTRUCTIONS

THE FOLLOWING INSTRUCTIONS SHOULD BE FOLLOWED TO PROPERLY PREPARE FOR INSTALLATION. FAILURE TO DO SO CAN REDUCE THE LIFE OF THE CABLE CONSIDERABLY.



1. To avoid putting unwanted stress on the cable when unreeing, make sure not to pull it off a stationary spool. It must be unreeled by rolling off a moving reel to prevent twisting, bending and kinking.
2. To relieve stress in the cable from packaging and shipment, the cable should be grasped at its midpoint and vigorously shaken toward its ends.
3. The recommended bending radius must not be exceeded.
4. When installing into cable track:
 - Cable should be placed in the track flat without twists.
 - Dividers must be used to prevent cables from entangling with each other.
 - The weight of the cables should be evenly distributed in track with the heavier cables at the outside of the track.
 - Cables must be able to move freely inside the track.
 - Do not tie or fix cables to the track or each other.
 - A minimum clearance of 10% of the cable diameter should be on either side of the cables in the track.
 - Cycle the unit several times before clamping to be sure cables can move freely.



Alpha Wire INDUSTRIAL SERIES

TECHNOLOGICALLY ADVANCED CABLE SYSTEMS FOR AUTOMOTIVE AND INDUSTRIAL FACTORY AUTOMATION

Alpha Wire continues to offer “Powerful Solutions For Critical Applications” with the introduction of our new **Alpha Wire INDUSTRIAL SERIES** product line.

The **Alpha Wire INDUSTRIAL SERIES** offers technologically advanced cable systems for automotive and industrial factory automation. There is an **Alpha Wire INDUSTRIAL SERIES** cable product available to solve most existing critical and severe-duty application requirements.

All cables in the **Alpha Wire INDUSTRIAL SERIES** are UL Recognized or Listed, CSA Certified and **CE** Marked. All necessary testing has been performed to insure product performance is where you need it to be! These tests include rolling flex tests to 9 million cycles at 10X O.D. and MIL-C-13777G Tic-Toc / Twist testing where applicable. Product performance is verified with certified test reports. Call or visit our web site at www.alphawire.com for up-to-date cable test information!

All **Alpha Wire INDUSTRIAL SERIES** products are designed and manufactured in the United States by Alpha's exacting team of engineers. If you don't find the cable you require in this catalog, we'll work with you to design what you need.



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APPLICATIONS

- High Flexibility / High Bend Applications
- Factory Equipment Interconnects
- Robotics
- Machine Tools
- Automotive Assembly Equipment
- Conveyor Systems
- Control Panels
- Flex and Static Track
- Transfer Shuttles
- Automated Pick-and-Place Systems
- PLC Controlled Equipment
- C-Track or Stationary Applications
- Automated Handling Systems
- Regulation and Measurement of Motor Speeds and Positions For Use in Servo Motor Systems



Manufactured In The U.S.A.

Product Type

Page Number (s)

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Alpha Wire INDUSTRIAL SERIES

TECHNOLOGICALLY ADVANCED CABLE SYSTEMS FOR AUTOMOTIVE AND INDUSTRIAL FACTORY AUTOMATION

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SERIES F

High Performance, Flexible Automotive Control Cable

UL Type TC (600 Volt) - CSA AWM I A/B II A/B FT4 600V

For outstanding performance in severe flexing applications and/or where superior resistance to oils and chemicals is mandatory choose **SERIES F High Performance, Flexible Automotive Control Cable**. SERIES F multiconductor cable products offer maximum service life in either standard or high-flex applications. All SERIES F cables are rated for use in single axis rolling flex applications as well as limited flex applications in accordance with MIL-C-13777G. SERIES F cables are designed to match the commonly used circular and rectangular connectors.

SPECIFY AND CHOOSE Alpha Wire INDUSTRIAL SERIES - SERIES F CABLES FOR:

- Maximum Flex Life
- Improved Performance
- Reduced Cable Cost
- Oil Resistance
- Abrasion Resistance
- Jacket Durability

Alpha Wire INDUSTRIAL SERIES - SERIES F APPLICATIONS:

- High Flexibility/High Bend Applications
- Factory Equipment Interconnects
- Robotics
- Machine Tools
- Automotive Assembly Equipment
- Conveyor Systems
- Control Panels
- Flex and Static Track
- Transfer Shuttles



FIT® TUBING RECOMMENDATION:

FIT®-600 –

Highly Flexible, Irradiated Elastomer
(See Page 131 for Product Specifications)

FIT®-650 –

Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



SERIES M

High Performance, Stationary Automotive Control Cable

UL Type TC (600 Volt) - CSA AWM I A/B II A/B FT4 600V

For stationary/cable tray and minimal flexing applications and/or where superior resistance to oils and chemicals is mandatory, choose **SERIES M High Performance, Stationary Automotive Control Cable**. SERIES M multiconductor cable products offer superior performance in static applications because they are resistant to the oils/chemicals found in most manufacturing environments. SERIES M cables are also designed to match the commonly used circular and rectangular connectors.

SPECIFY AND CHOOSE Alpha Wire INDUSTRIAL SERIES - SERIES M CABLES FOR:

- Improved Cable Life
- Reduced Cable Cost
- Oil Resistance
- Abrasion Resistance
- Jacket Durability

Alpha Wire INDUSTRIAL SERIES - SERIES M APPLICATIONS:

- Factory Equipment Interconnects
- Robotics
- Machine Tools
- Stationary Track/Tray
- Automotive Assembly Equipment
- Conveyor Systems
- Control Panels



FIT® TUBING RECOMMENDATION:

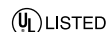
FIT®-600 –

Highly Flexible, Irradiated Elastomer
(See Page 131 for Product Specifications)

FIT®-650 –

Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers





Servo Power Cable Composite Servo Power Cable Servo Resolver & Encoder Cables

UL AWM Style 20626 - CSA AWM I A/B II A/B FT 1
600 Volt (Servo) - 300 Volt (Composite)

When high-flex designs for use in automated servo system installations are required in cable trays, c-tracks, automated handling systems, machine tools, robots, pick-and-place units, etc., choose **SERIES S Servo Power Cables**. SERIES S cables provide servo signal feedback and, in the case of the servo composite cable, signal feedback with servo power under one jacket. These cables offer exceptional performance in harsh environments typical of today's automated factory floor. The **SERIES S Resolver** and **Encoder Cables** provide superior performance in the control and measurement of servo motor systems.

SPECIFY AND CHOOSE Alpha Wire INDUSTRIAL SERIES - SERIES S SERVO AND COMPOSITE CABLES FOR:

- Power Supply for Connecting Servo System Motors to Drives, Controllers and Power Supplies (Servo)
- Power Supply and Data Cables for Connecting Servo System Motors and Electro-mechanical Devices to Drives, Controllers and Power Supplies (Composite)

SPECIFY AND CHOOSE Alpha Wire INDUSTRIAL SERIES - SERIES S RESOLVER AND ENCODER CABLES FOR:

- Stationary or Flexing Applications
- Connecting to Motor Position Sensors, Processors and Controllers

Alpha Wire INDUSTRIAL SERIES - SERIES S APPLICATIONS:

- Machine Tools
- Automated Pick-and-Place Systems
- Robots
- C-Track or Stationary Applications
- Automotive Assembly Systems
- Automated Handling Systems
- The Regulation and Measurement of Motor Speeds and Positions For Use in Servo Motor Systems



FIT® TUBING RECOMMENDATION:

FIT®-600 –

Highly Flexible, Irradiated Elastomer
(See Page 131 for Product Specifications)

FIT®-650 –

Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers

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Composite Input / Output Industrial Twinax and Control Cable

UL AWM 2464 - AWM I A/B II A/B FT1 300 Volt

The **Alpha Wire INDUSTRIAL SERIES – SERIES L** product is designed for use on PLC controlled automated equipment where data transmission and control power are combined in one cable, therefore reducing weight and cable space.

Typical applications for **SERIES L** are abundant in today's automated factory floor where high-speed data transmission is required. Installation costs are reduced and downtime is significantly reduced in such applications as machine tools, automotive assembly, robots, pick-and-pack units and conveyor systems.

SPECIFY AND CHOOSE Alpha Wire INDUSTRIAL SERIES - SERIES L CABLES FOR:

- High Speed Data Transmission and Control Power in One Cable
- Belden 9463 Blue Hose™ Twinaxial Component
- Reduces Cable Installation Labor and Eliminates Additional Cable Protection

Alpha Wire INDUSTRIAL SERIES - SERIES L APPLICATIONS:

- Machine Tools
- Automotive Assembly
- Robots
- Pick-and-Place Units
- Conveyor Systems
- PLC Controlled Equipment



FIT® TUBING RECOMMENDATION:

FIT®-221 –

General Purpose, Irradiated Polyolefin
(See Pages 114, 115 for Product Specifications)

FIT®-105 –

Irradiated PVC
(See Page 118 for Product Specifications)



SPECIALTY CABLES

Alpha Wire's team of cable designers and engineers recognize the need for custom specialty cables for today's ever-changing industrial factory automation requirements. As a world class wire and cable manufacturer, Alpha Wire has the technical ability and manufacturing capability to design and, when necessary, provide prototypes of custom specialty cables. Our materials and manufacturing techniques provide a platform for specialty products that are ideally suited for your industrial and factory automation needs.



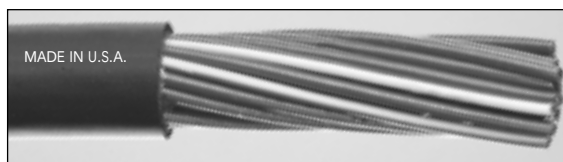
Alpha Wire INDUSTRIAL SERIES

FLEXIBLE AUTOMOTIVE CONTROL CABLE

MAXIMUM FLEXIBILITY, OIL / CHEMICAL RESISTANT, MULTICONDUCTOR, UNSHIELDED

UL TYPE TC
CSA AWM I A/B II A/B
600 VOLT FT4

SERIES F HIGH PERFORMANCE, FLEXIBLE AUTOMOTIVE CONTROL CABLE



THE ULTIMATE CABLE SOLUTION FOR SEVERE
FLEXING APPLICATIONS AND SUPERIOR
RESISTANCE TO OILS AND CHEMICALS

CHOOSE SERIES F FOR:

- Maximum Flex Life
- Improved Performance
- Reduced Cable Cost
- Oil Resistance
- Abrasion Resistance
- Jacket Durability

SERIES F APPLICATIONS:

- High Flexibility / High Bend Applications
- Factory Equipment Interconnects
- Robotics
- Machine Tools
- Automotive Assembly Equipment
- Conveyor Systems
- Control Panels
- Flex and Static Track
- Transfer Shuttles

SERIES F PRODUCT PERFORMANCE FEATURES:

Alpha Wire **INDUSTRIAL SERIES - SERIES F** Cables are

Designed and Manufactured to Perform at:

- Over 9 Million Continuous Rolling Flex Cycles at a Minimum Bend Radius of 10X OD
- Tic-Toc / Twist Test Per MIL-C-13777G

FIT® TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

RED INSULATION - AC Circuits Operating at Less Than Line Voltage

BLUE INSULATION - DC Circuits Operating at Less Than Line Voltage

16 AWG (1,32mm ²), 65 / 34 (65 x 0,16mm), Insulation Thickness: 0.015" PVC (0,4mm) / 0.004" Nylon (0,1mm)									
Red Insulation Alpha Part No.	Blue Insulation Alpha Part No.	No. of Cond.	Primary O.D. Inches mm	Jacket Thickness Inches mm	Nominal Diameter Inches mm	Connector Cross Reference Circular Rect.			
F16012R	F16012L	12	0.105 2,7	0.063 1,6	0.58 14,7	10/11 pin	10 pin		
F16017R	F16017L	17	0.105 2,7	0.063 1,6	0.67 16,9	16 pin	16 pin		
F16022R	F16022L	22	0.105 2,7	0.063 1,6	0.73 18,6	19/21 pin	18 pin		
F16025R	F16025L	25	0.105 2,7	0.063 1,6	0.81 20,6	—	24 pin		
F16033R	F16033L	33	0.105 2,7	0.083 2,1	0.89 22,6	31 pin	32 pin		
F16042R	F16042L	42	0.105 2,7	0.083 2,1	0.98 24,9	37/41 pin	40 pin		
F16049R	F16049L	49	0.105 2,7	0.083 2,1	1.08 27,4	—	46/48 pin		
F16065R	F16065L	65	0.105 2,7	0.083 2,1	1.19 30,3	58/60 pin	64 pin		

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Web Site: www.alphawire.com
Email: info@alphawire.com

CHARACTERISTICS

OPERATING TEMPERATURE:

- 5°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: For Part Numbers F16012R to F16065R, Red Insulated Conductors with Alpha Numeric Printing (Example: 1-One). Neutral Conductor White Insulation with Red Stripe. Ground Wire Green / Yellow. For Part Numbers F16012L to F16065L, Blue Insulated Conductors with Alpha Numeric Printing (Example: 1-One). Neutral Conductor White Insulation with Blue Stripe. Ground Wire Green / Yellow.
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: 16 AWG (1,50mm) 65 / 34, Stranded Bare Copper
- Insulation: Red PVC / Nylon or Blue PVC / Nylon
- Jacket: Specially-Formulated Thermoplastic Elastomer

SPECIFICATIONS

- UL Type TC (600V)
- CSA AWM I A/B II A/B 600V FT4

Certified
Canadian Standards Association



AVAILABILITY

- Bulk, Cut to Length

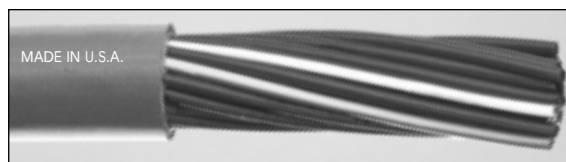
UL TYPE TC (600 VOLT)
CSA AWM I A/B II A/B
600 VOLT FT4

Alpha Wire INDUSTRIAL SERIES

STATIONARY AUTOMOTIVE CONTROL CABLE

MINIMAL FLEX, OIL / CHEMICAL RESISTANT, MULTICONDUCTOR, UNSHIELDED

SERIES M HIGH PERFORMANCE, STATIONARY AUTOMOTIVE CONTROL CABLE



THE ULTIMATE CABLE SOLUTION FOR
STATIONARY / CABLE TRAY AND SOME MINIMAL
FLEXING APPLICATIONS WITH SUPERIOR RESISTANCE
TO OILS AND CHEMICALS

CHOOSE SERIES M FOR:

- Improved Cable Life
- Reduced Cable Cost
- Oil Resistance
- Abrasion Resistance
- Jacket Durability

SERIES M APPLICATIONS:

- Factory Equipment Interconnects
- Robotics
- Machine Tools
- Stationary Track / Tray
- Automotive Assembly Equipment
- Conveyor Systems
- Control Panels

CHARACTERISTICS

OPERATING TEMPERATURE:

- -5°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: For Part Numbers M16112R to M16165R, Red Insulated Conductors with Alpha Numeric Printing (Example: 1-One). Neutral Conductor White Insulation with Red Stripe. Ground Wire Green / Yellow.
- For Part Numbers M16112L to M16165L, Blue Insulated Conductors with Alpha Numeric Printing (Example: 1-One). Neutral Conductor White Insulated with Blue Stripe. Ground Wire Green / Yellow
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: 16 AWG (1,50mm) 65 / 34, Stranded Bare Copper
- Insulation: Red or Blue PVC / Nylon
- Jacket: Specially-Formulated, Oil Resistant PVC

FIT TUBING RECOMMENDATION

FIT®-600 – Highly Flexible, Irradiated Elastomer
(See Page 131 for Product Specifications)

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton®
(See Page 132 for Product Specifications)

SPECIFICATIONS

- UL Type TC (600V)
- CSA AWM I A/B II A/B 600V FT4

 **Canadian Standards Association**



AVAILABILITY

- Bulk, Cut to Length

RED INSULATION - AC Circuits Operating at Less Than Line Voltage

BLUE INSULATION - DC Circuits Operating at Less Than Line Voltage

16 AWG (1,50mm), 65 / 34 (65 x 0,61mm), Insulation Thickness: 0.015" PVC (0,4mm) / 0.004" Nylon (0,1mm)										
Red Insulation Alpha Part No.	Blue Insulation Alpha Part No.	No. of Cond.	Primary O.D. Inches	mm	Jacket Thickness Inches	mm	Nominal Diameter Inches	mm	Connector Cross Reference Circular Rect.	
M16112R	M16112L	12	0.105	2,7	0.063	1,6	0.58	14,7	10/11 pin	10 pin
M16117R	M16117L	17	0.105	2,7	0.063	1,6	0.67	16,9	16 pin	16 pin
M16122R	M16122L	22	0.105	2,7	0.063	1,6	0.73	18,6	19/21 pin	18 pin
M16125R	M16125L	25	0.105	2,7	0.063	1,6	0.81	20,6	—	24 pin
M16133R	M16133L	33	0.105	2,7	0.083	2,1	0.89	22,6	31 pin	32 pin
M16142R	M16142L	42	0.105	2,7	0.083	2,1	0.98	24,9	37/41 pin	40 pin
M16149R	M16149L	49	0.105	2,7	0.083	2,1	1.08	27,4	—	46/48 pin
M16165R	M16165L	65	0.105	2,7	0.083	2,1	1.19	30,3	58/60 pin	64 pin

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Alpha Wire INDUSTRIAL SERIES

SERVO POWER CABLE/COMPOSITE SERVO POWER CABLE
OIL RESISTANT, FLEXIBLE MULTICONDUCTOR, SHIELDED

UL AWM STYLE 20626
CSA AWM I A/B II A/B FT1
600 VOLT

SERIES S SERVO POWER CABLE, COMPOSITE SERVO POWER CABLE



DESIGNED FOR USE IN HIGH-FLEX, AUTOMATED
SERVO SYSTEMS FOR SERVO SIGNAL FEEDBACK
AND SERVO POWER

CHOOSE SERIES S SERVO AND COMPOSITE CABLES FOR:

- Power Supply for Connecting Servo System Motors to Drives, Controllers, and Power Supplies (Servo)
- Power Supply and Data Cables for Connecting Servo System Motors, and Electro-mechanical Devices to Drives, Controllers and Power Supplies (Composite).
- For Temperature Feedback and Braking Control, Two Individually Shielded Pairs* are Added to the 3 Power and One Grounding Conductor (Composite).

SERIES S SERVO POWER, CONTROL CABLE AND FEEDBACK CABLE APPLICATIONS:

- Machine Tools
- Automated Pick-And-Place Systems
- Robots
- C-Track or Stationary Applications
- Automotive Assembly Systems
- Automated Handling Systems

FIT TUBING RECOMMENDATION

FIT-600 — Highly Flexible, Irradiated Elastomer (See Page 131 for Product Specifications)

FIT-650 — Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

SERIES S - SERVO POWER CABLE

Alpha Part No.	No. of Cond.	Conductor		Jacket Thickness		Nominal Diameter	
		AWG	Strand	Inches	mm	Inches	mm
S61124CY	4	24	7/32	0.048	1,2	0.350	8,9
S61122CY	4	22	7/30	0.048	1,2	0.365	9,3
S61120CY	4	20	10/30	0.048	1,2	0.379	9,6
S61118CY	4	18	19/30	0.053	1,3	0.426	10,8
S61116CY	4	16	26/30	0.053	1,3	0.446	11,3
S61114CY	4	14	41/30	0.053	1,3	0.484	12,3
S61112CY	4	12	65/30	0.060	1,5	0.552	14,0
S61110CY	4	10	105/30	0.065	1,7	0.616	15,6
S61108CY	4	8	133/29	0.075	1,9	0.857	21,8

SERIES S - COMPOSITE SERVO POWER CABLE

Alpha Part No.	No. of Cond.	No. of Pairs	Power Conductor		Data Conductor		Jacket Thickness		Nominal Diameter	
			AWG	Strand	AWG	Strand	Inches	mm	Inches	mm
S61220CY*	4	2	16	26/30	18	41/34	0.053	1,3	0.625	15,9
S61221CY*	4	2	14	41/30	18	41/34	0.053	1,3	0.640	16,3
S61222CY*	4	2	12	65/30	16	65/34	0.060	1,5	0.780	19,8
S61223CY*	4	2	10	105/30	16	65/34	0.065	1,7	0.810	20,6
S61224CY*	4	2	8	133/29	16	65/34	0.075	1,9	0.930	23,6

*Part Number S61224CY, Shielded Double Pair.

CHARACTERISTICS

OPERATING TEMPERATURE:

- 5°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Black with White Numbers and Green/Yellow Grounding Conductor
- Jacket Color: Orange

PRODUCT DESCRIPTION:

- Conductor: Tinned Copper
- Insulation: PVC (Conductors), Thermoplastic Polyester Elastomer (Pairs)
- Servo Shield: Overall Foil and Braid
- Composite Servo Shield: Individual Foil/Braid and Overall Foil/Braid on Pairs
- Jacket: Specially Formulated Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20626
- CSA AWM I A/B II A/B 600V FT1

Certified
Canadian Standards Association
Recognized Component
Underwriters Laboratories Inc.



AVAILABILITY

- In Stock: 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups



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UL AWM STYLE 20626

CSA AWM I A/B II A/B FT1

300 VOLT

Alpha Wire INDUSTRIAL SERIES

SERVO RESOLVER CABLE/SERVER ENCODER CABLE

RESOLVER: MULTIPAIR, SHIELDED / ENCODER: MULTICONDUCTOR, SHIELDED



SERVO RESOLVER CABLE
SERVO ENCODER CABLE
OIL RESISTANT / FLEXIBLE



FOR SUPERIOR PERFORMANCE IN THE CONTROL AND MEASUREMENT OF SERVO MOTOR SYSTEMS

CHOOSE SERIES S RESOLVER AND ENCODER CABLES FOR:

- Stationary or Flexing Applications
- Connecting to Motor Position Sensors, Processors and Controllers

SERIES S RESOLVER AND ENCODER CABLE APPLICATIONS:

- The Regulation and Measurement of Motor Speeds and Positions For Use in Servo Motor Systems

COLOR CODE CHART

Pair No.	Color	Pair No.	Color
1	Black paired with Red	4	Black paired with Blue
2	Black paired with White	5	Black paired with Brown
3	Black paired with Green	6	Black paired with Yellow

FIT[®] TUBING RECOMMENDATION

FIT[®]-600 – Highly Flexible, Irradiated Elastomer
(See Page 131 for Product Specifications)

FIT[®]-650 – Chemical and Temperature Resistant Irradiated Viton[®]
(See Page 132 for Product Specifications)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -10°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code Resolver: See Chart Below at Left.
- Color Code Encoder: Brown, Black, Gray, Blue, White, Red, Pink, Green, Yellow
- Jacket Color: Black

PRODUCT DESCRIPTION RESOLVER:

- Conductor: Tinned Copper
- Insulation: Polyolefin
- Shield: Individual Foil and Overall Tinned Copper Braid
- Jacket: Specially Formulated Thermoplastic Elastomer

PRODUCT DESCRIPTION ENCODER:

- Conductor: Bare Copper
- Insulation: Polyolefin
- Shield: Overall Tinned Copper Braid
- Jacket: Specially Formulated Thermoplastic Elastomer

SPECIFICATIONS

- UL AWM Style 20626
- CSA AWM I A/B II A/B FT1



AVAILABILITY

- In Stock: 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups

SERIES S - RESOLVER CABLE

Alpha Part No.	No. of Pairs	Conductor		Jacket Thickness		Nominal Diameter	
		AWG	Strand	Inches	mm	Inches	mm
S61403CY	3	20	41/36	0.050	1,3	0.470	11,9
S61404CY	4	20	41/36	0.050	1,3	0.525	13,3
S61406CY	6	20	41/36	0.050	1,3	0.615	15,6

SERIES S - ENCODER CABLE

Alpha Part No.	No. of Cond.	Conductor		Jacket Thickness		Nominal Diameter	
		AWG	Strand	Inches	mm	Inches	mm
S61300CY	9	20	26/34	0.033	0,8	0.370	9,3

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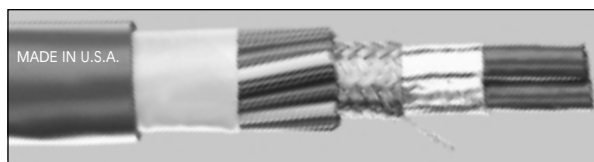


Alpha Wire INDUSTRIAL SERIES

COMPOSITE INPUT/OUTPUT INDUSTRIAL TWINAX & MULTICONDUCTOR CONTROL CABLE

UL AWM 2464
AWM I A/B II A/B FT1
300 VOLT

SERIES L COMPOSITE INPUT / OUTPUT INDUSTRIAL TWINAX AND CONTROL CABLE



OIL RESISTANT, FLEXIBLE DATA TRANSMISSION AND CONTROL POWER COMPOSITE CABLE FOR TODAY'S AUTOMATED FACTORY FLOOR

CHOOSE SERIES L For:

- High Speed Data Transmission and Control Power in One Cable
- Belden 9463 Blue Hose™ Twinaxial Component
- Reduces Cable Installation Labor and Eliminates Additional Cable Protection

SERIES L APPLICATIONS:

- Machine Tools
- Automotive Assembly
- Robots
- Pick-and-Place Units
- Conveyor Systems
- PLC Controlled Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Conforms to Automotive Industry Standards. Consult Sales Office for Specific Details
- Jacket Color: Blue

PRODUCT DESCRIPTION CONTROL CONDUCTORS:

- Conductor: 16 AWG (1,50mm) 65/34, Finely Stranded Bare Copper
- Insulation: TFFN PVC/Nylon

PRODUCT DESCRIPTION TWINAXIAL CABLES:

- 20 AWG (7/28), 0.243" Diameter, 78 Ohm

SPECIFICATIONS

- UL AWM 2464
- AWM I A/B II A/B FT1
- Twinaxial Cable: Belden 9463/Allen Bradley Part No. 1770-CD



AVAILABILITY

- Bulk, Cut to Length

FIT® TUBING RECOMMENDATION

FIT®-221 – General Purpose, Irradiated Polyolefin (See Page 114 for Product Specifications)

FIT®-105 – Irradiated PVC (See Page 118 for Product Specifications)

SERIES L - COMPOSITE INPUT / OUTPUT INDUSTRIAL TWINAX AND CONTROL CABLE

Twinaxial Cables: 20 AWG (0,56mm ²), 7/28 (7 x 0,32mm), 0.243" Nominal Diameter, 78 Ohm						
Alpha Part No.	Jacket Thickness		Nominal Diameter		No. of Industrial Twinaxial Cables	No. of Control Cable Conductors
	Inches	mm	Inches	mm		
LD61000	0.080	2,0	0.700	17,8	3	0
LE61018	0.080	2,0	0.900	22,9	2	18
LH61005	0.080	2,0	0.620	15,8	1	5
LJ61012	0.080	2,0	0.635	16,1	1	12
LK61034	0.080	2,0	1.125	28,6	2	34
LL61009	0.080	2,0	0.895	22,7	2	9
LM61026	0.080	2,0	1.115	28,3	2	26
LO61028	0.080	2,0	1.218	30,9	4	28

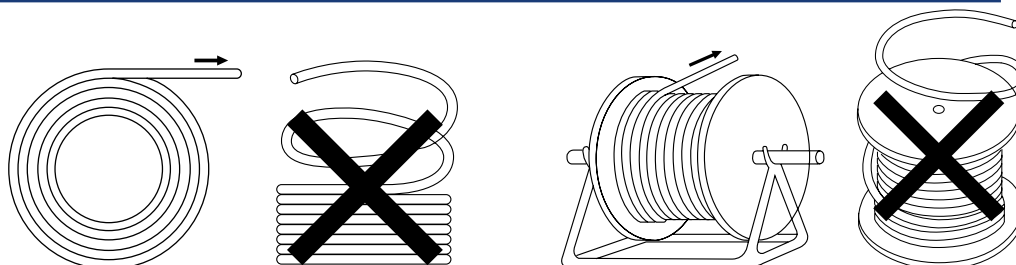


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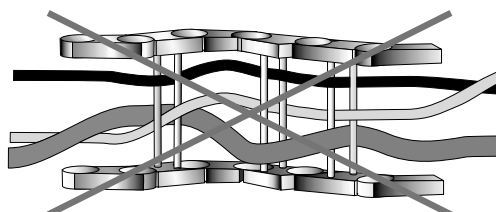
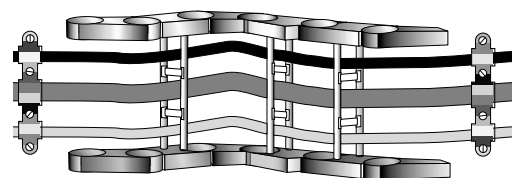
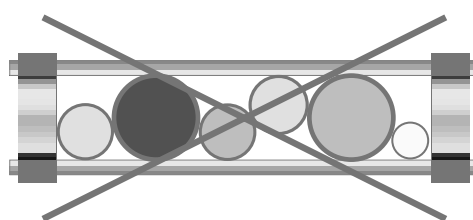
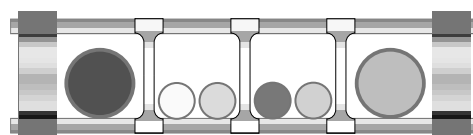
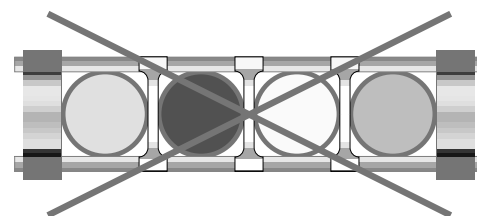
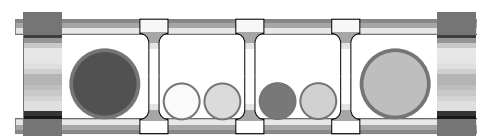
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Alpha Wire INDUSTRIAL SERIES INSTALLATION INSTRUCTIONS

THE FOLLOWING INSTRUCTIONS SHOULD BE FOLLOWED TO PROPERLY PREPARE FOR INSTALLATION. FAILURE TO DO SO CAN REDUCE THE LIFE OF THE CABLE CONSIDERABLY.



1. To avoid putting unwanted stress on the cable when unreeing, make sure not to pull it off a stationary spool. It must be unreeled by rolling off a moving reel to prevent twisting, bending and kinking.
2. To relieve stress in the cable from packaging and shipment, the cable should be grasped at its midpoint and vigorously shaken toward its ends.
3. The recommended bending radius must not be exceeded.
4. When installing into cable track:
 - Cable should be placed in the track flat without twists.
 - Dividers must be used to prevent cables from entangling with each other.
 - The weight of the cables should be evenly distributed in track with the heavier cables at the outside of the track.
 - Cables must be able to move freely inside the track.
 - Do not tie or fix cables to the track or each other.
 - A minimum clearance of 10% of the cable diameter should be on either side of the cables in the track.
 - Cycle the unit several times before clamping to be sure cables can move freely.



CABLE FLEXING MOVEMENTS

FOUR COMMON TYPES OF CABLE FLEXING MOVEMENTS

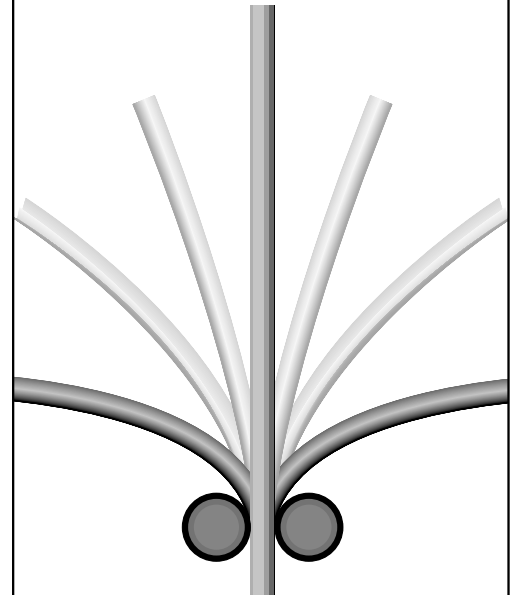


There are four common types of cable flexing movements to consider when designing and applying a high-flex cable. They are rolling flex, bending flex or “tic-toc”, torsional flex and variable/random motion flex (see illustrations below).

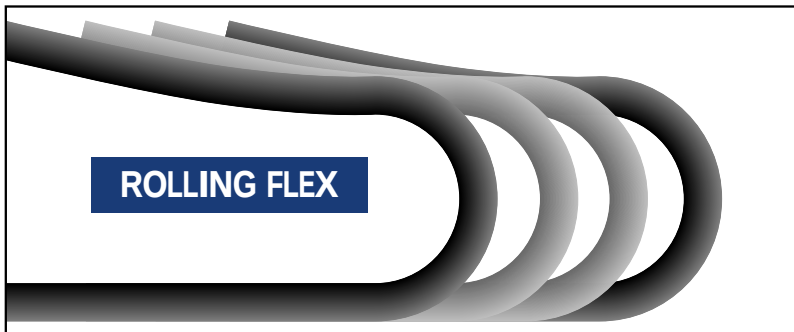
Different cable construction methods and materials are used depending on the cable flexing movement. For example: torsional cables will have a different lay length and cabling method than a rolling flex cable. Cable performance is evaluated using physical test data and statistical analysis to produce flex life and overall system reliability.

An understanding of the cables’ application will allow the designer to choose the correct cable and reliably predict the products’ life-time and performance.

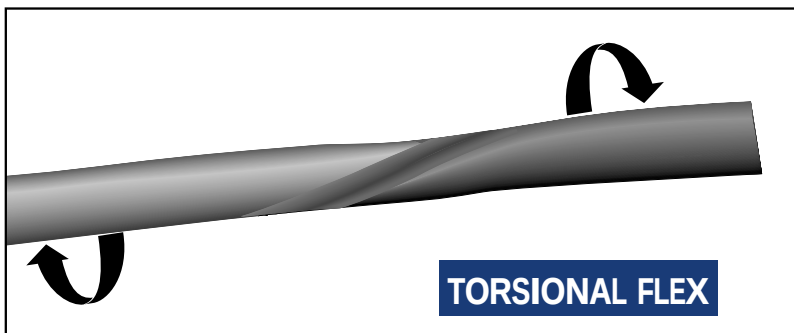
BENDING FLEX



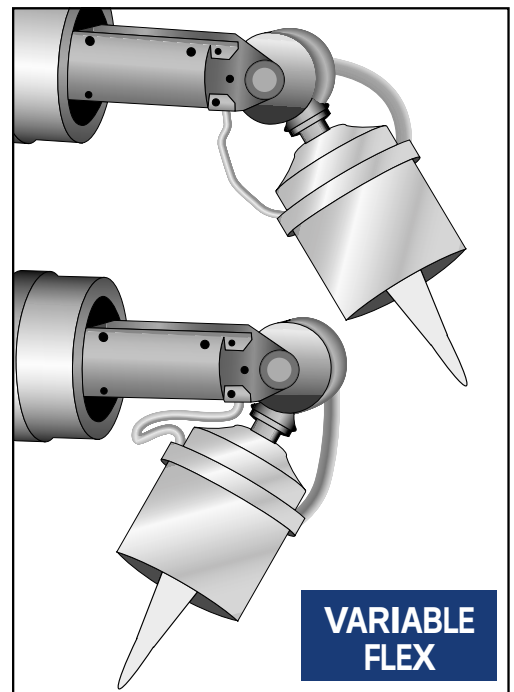
ROLLING FLEX



TORSIONAL FLEX



VARIABLE FLEX





**Preferred
Heat Shrink
Products**

FIT® Preferred Heat Shrink Products are made from premium compounds under the tightest manufacturing controls. This means **FIT®** will consistently have excellent physical characteristics such as low longitudinal shrinkage and wide temperature ranges while providing an elegant appearance when used alone or on OEM equipment.

The **FIT® Preferred Heat Shrink Product** line consists of many different tubing types each designed with unique attributes which offer tubing solutions for the broadest possible range of applications and environments.

The **FIT®** brand name is widely recognized wherever heat shrink products are used. Users prefer **FIT® Heat Shrink Products** more than any other source and ask for them by name.

The entire **FIT®** heat shrink offering has been designed to make product selection and identification as simple as possible. There's nothing easier! **FIT®** part numbers are easy to remember and clearly identify shrink ratios and sizes.

Product Type

Page Number (s)

FIT® Shrinkable Tubing

2 To 1 Shrink Ratio, Irradiated Polyolefin — FIT-221	114, 115
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FIT® Shrinkable Tubing Cross Reference	145

*Teflon® is a registered trademark of E.I. DuPont Co.
**Kynar® is a trademark of ELF Atochem, North America, Inc.
***Viton® is a registered trademark of Dupont Dow Elastomers

MARKING: Underwriters Laboratories (UL) and the Canadian Standards Association (CSA) have eliminated the surface printing requirement for both heat shrink and non-heat shrink tubing. All mandatory information, for both UL Recognized and CSA Certified tubing, will appear exclusively on the product packaging.

FIT® Preferred Heat Shrink Products

SIMPLE, COMPREHENSIVE TUBING SOLUTIONS

SELECTION GUIDE

PROTECT ~ substrates from moisture, UV light, corrosion, oxidation, dust, chemicals, abrasion, environmental conditions, solder joints and encapsulate.

INSULATE ~ wire terminations and connections, entire PC boards, from temperature and ambient conditions.

REPAIR ~ cable splices, reinsulate, cable jackets, connections, permanent or emergency quick fix.

FLEXIBILITY ~ with robotics cable, strain relief, prevent bending.

BUNDLE & HOLD ~ wire harness, cable, tubing and hose dressing on OEM equipment, breakouts, bundle in small spaces, conform to odd shapes.

SEAL ~ moisture protect, fill spaces / interstices, permanent or temporary, "pinching".

IDENTIFY & BEAUTIFY ~ circuit / ground indicator, color coding, organize, personalize / label, conceal mechanical attachments, improve physical appearance.

IRRADIATED POLYOLEFIN

FIT®-221 / FIT®-221B Pg. 114-116 MIL-DTL-23053/5C, Class 1, 2
General Purpose, Irradiated Polyolefin

FEATURES & BENEFITS:

- General purpose protection & repair
- Identification & beautifying substrates
- Insulation from environment
- Reduced longitudinal shrinkage
- Resistance to water, fungus, UV light*
- Large, economical, bulk packages (**FIT-221B**)

APPLICATIONS:

- General purpose insulation & repair
- Wire & cable harnessing & bundling
- Cable & connector protection
- Wire & tubing splicing & connecting
- **XTRA-GUARD® 1** applications
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 121°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/64" - 4 in ~ Packages: 4ft lengths, spools & cut pieces ~ Colors: Black, White, Clear**, Red, Yellow, Blue, Green

*black color only

**Not UL Recognized, CSA Certified

FIT®-221V Pg. 117 MIL-DTL-23053/5C, Class 1, 3 ~ CSA OFT Flame Test
Low Shrink Temp, Flame Retardant, Irradiated Polyolefin

FEATURES & BENEFITS:

- Lowest shrink temperature (90°C)
- Fastest recovery time
- UL VW-1 & CSA OFT flame retardancy
- Resistance to water, fungus, UV light*
- Large, economical, bulk packages
- New colors available!

APPLICATIONS:

- Where substrates are heat sensitive
- Where reduced shrink time saves costs
- Flame retardancy requirements
- Industrial applications
- Cable & connector protection
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 90°C ~ Temperature: -40°C to 125°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/64" - 2 in ~ Packages: 4ft lengths, spools & cut pieces ~ Colors: Black, White, Red, Yellow, Green, Blue

*black color only

FIT®-260 Pg. 119 NEC Article 250-57B, Exception 3
Irradiated Polyolefin Ground Identification

FEATURES & BENEFITS:

- Color coding leads as a ground circuit
- Same physical characteristics as **FIT-221**

APPLICATIONS:

- Approved for use by NFPA for 600 volt ground lead identification
- E-OEM component identification
- Wire harness identification
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 121°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -5% ~ Size: 1/8" - 1 in ~ Packages: Spools ~ Colors: Green with Yellow stripes. Each color covers a minimum of 30% surface area.

FIT®-295 Pg. 124 MIL-DTL-23053/6D, Class 1, 2
Semi-Rigid Irradiated Polyolefin

FEATURES & BENEFITS:

- 30% stronger than standard polyolefin
- 25% stiffer than standard polyolefin
- Low water absorption
- Resistance to water, fungus, UV light

APPLICATIONS:

- Strength & stiffness make it excellent for strain relief applications
- Heavy duty cable / connector protection
- Electrical cable splices
- Crimp terminals
- Solder joints

CHARACTERISTICS: Shrink Ratio: 2:1 @ 135°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/64" - 1/2" ~ Packages: 4ft lengths & cut pieces ~ Colors: Multiple

HIGH SHRINK RATIO

FIT®-321 Pg. 121 MIL-DTL-23053/4D, Class 3
Medium Wall, Adhesive Lined, Irradiated Polyolefin

FEATURES & BENEFITS:

- Expanded to a 3 to 1 shrink ratio
- Increased wall thickness for durability
- Water resistant adhesive inner lining
- Permanent bonding adhesive

APPLICATIONS:

- Connectorized cable repair
- Water resistance & encapsulation
- Environmental & outdoor protection
- **XTRA-GUARD® 1, 2 & 3** applications

CHARACTERISTICS: Shrink Ratio: 3:1 @ 125°C ~ Temperature: -55°C to 110°C ~ Longitudinal Shrinkage: -15% ~ Size: 1/8" - 1-1/2 in ~ Packages: 4ft lengths & cut pieces ~ Color: Black

FIT®-321V Pg. 120 CSA OFT Flame Test
Low Shrink Temp, Flame Retardant, Irradiated Polyolefin

FEATURES & BENEFITS:

- Expanded to a 3 to 1 shrink ratio
- Lowest shrink temperature (90°C)
- Fastest recovery time
- Reduced wall thickness
- UL VW-1 & CSA OFT flame retardancy

APPLICATIONS:

- Connectorized cable repair
- Where substrates are heat sensitive
- Delicate & intricate electronics protection
- Industrial applications
- Flame retardancy requirements
- Automated cutting machines

CHARACTERISTICS: Shrink Ratio: 3:1 @ 90°C ~ Temperature: -55°C to 125°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/32" - 1 in ~ Packages: Spools ~ Colors: Black, White

FIT®-421 Pg. 122 MIL-DTL-23053/5C, Class 1 Overexpanded
Over Expanded, Irradiated Polyolefin

FEATURES & BENEFITS:

- Over expanded to a 4 to 1 shrink ratio
- Large supplied diameter sizes
- Resistance to water, fungus, UV light
- Shrinks to 25% of its original size
- Conforms to odd shapes

APPLICATIONS:

- D-Sub connector strain relief
- RS-232 25 pin connector to cable coverage
- Covers the most irregular shapes & connectors
- PC board coverage / protection

CHARACTERISTICS: Shrink Ratio: 4:1 @ 121°C ~ Temperature: -55°C to 135°C ~ Longitudinal Shrinkage: -10% ~ Size: 1 in - 4 in ~ Packages: 4ft lengths ~ Color: Black

FIT®-621 Pg. 123
Heavy Wall, Adhesive Lined, Irradiated Polyolefin

FEATURES & BENEFITS:

- Over expanded to a 6 to 1 shrink ratio
- Shrinks to 1/6 its original size
- Heavy duty adhesive inner lining
- Low water absorption
- Excellent durability & toughness
- Resistant to oils & chemicals
- Convenient pre-cut 6 inch lengths

APPLICATIONS:

- Protection in severe environments
- Large to small connector-to-cable protection
- Underground utility splice protection
- Corrosion protection of metal parts
- Protects substrates in direct burial applications
- Heavy duty abrasion resistance

CHARACTERISTICS: Shrink Ratio: 6:1 @ 120°C ~ Temperature: -40°C to 125°C ~ Longitudinal Shrinkage: -10% ~ Size: 5/8" - 4 in ~ Packages: 6 inch lengths ~ Color: Black

DUAL WALL / ADHESIVE LINED

FIT®-300 Pg. 125

MIL-DTL-23053/4D, Class 1



Surface Irradiated / Dual Extruded Polyolefin

FEATURES & BENEFITS:

- Meltable inner wall
- Encapsulates without adhesive
- Temporary sealing without sticky residue
- Increased wall thickness for added protection
- High shrink ratios
- Excellent dielectric properties

APPLICATIONS:

- Substrates requiring filled interstices
- Digital electronics where adhesive is unacceptable
- Temporary applications requiring encapsulation

CHARACTERISTICS: Shrink Ratio: 3:1 - 6:1 (depending on size) @ 135°C ~ Temperature: -55°C to 110°C ~ Longitudinal Shrinkage: -10% ~ Size: 1/8" - 3/4" ~ Packages: 4ft lengths, cut pieces ~ Colors: Multiple

FIT®-700 Pg. 126

Bonding, Mastic Lined, Irradiated Polyolefin

FEATURES & BENEFITS:

- Bonding adhesion to most materials
- Environmental & water-tight seal
- Prevents wicking & fills interstices
- Tubing sizes match 14AWG-2000MCM sizes
- Superior strength
- High voltage
- Pre-cut 12 inch pieces

APPLICATIONS:

- High voltage splices (up to 2 kV)
- Water resistant connections
- Underground utility applications
- Direct burial
- Outdoor insulation & protection
- **XTRA•GUARD® 3** applications

CHARACTERISTICS: Shrink Ratio: 3:1 @ 121°C ~ Temperature: -55°C to 90°C ~ Longitudinal Shrinkage: -5% ~ Size: 3/4" - 4 1/2 in (14AWG-2000MCM) ~ Packages: 12 inch cut pieces ~ Color: Black

FIT®-750 Pg. 127

MIL-DTL-23053/4D, Class 2



Bonding, Adhesive Lined, Irradiated Polyolefin

FEATURES & BENEFITS:

- Bonding to substrates
- Similar to **FIT®-221** with adhesive liner
- Total encapsulation
- Reduced diameters
- Permanent water & corrosion protection
- Internal isolation of individual substrates - "pinching"

APPLICATIONS:

- Moisture protection of substrates
- Permanent sealing of substrates
- Wire isolation within a harness
- Permanent joint splice repair
- General purpose usage with adhesive
- **XTRA•GUARD® 2** applications

CHARACTERISTICS: Shrink Ratio: 2:1 @ 121°C ~ Temperature: -55°C to 110°C ~ Longitudinal Shrinkage: -5% ~ Size: 1/4" - 1 1/2 in ~ Packages: 4ft lengths ~ Color: Black

SPECIALTY MATERIALS

FIT®-105 Pg. 118

Irradiated PVC

MIL-I-23053/2C, Class 1†† ~ CSA OFT Flame Test



FEATURES & BENEFITS:

- Low shrink temperature (100°C)
- 30% stronger than standard polyolefin
- UL VW-1 & CSA OFT flame retardancy
- Low water absorption & UV resistant
- Multiple package availability

APPLICATIONS:

- Use with PVC cable
- With heat sensitive substrates
- Fast recovery time
- Wire harnesses & cable assemblies
- Flame retardant requirements
- **XTRA•GUARD® 1** applications
- Automated cutting machines (spools)

CHARACTERISTICS: Shrink Ratio: 2:1 @ 100°C ~ Temperature: -35°C to 105°C ~ Longitudinal Shrinkage: -15% ~ Size: 3/64" - 2 in ~ Packages: 4ft lengths, spools & cut pieces ~ Color: Black

††Inactive for new design, no longer used by the DOD except for replacement purposes

FIT®-350 Pg. 128

Flame Retardant Irradiated Kynar**

MIL-DTL-23053/8C ~ CSA OFT Flame Test



FEATURES & BENEFITS:

- Chemical resistance
- 3 times the tensile strength of standard polyolefin
- Excellent flame retardancy
- Excellent heat resistance
- Excellent chemical resistance

APPLICATIONS:

- High temperature environments
- Faster recovery time than Teflon*
- Exposure to chemicals
- Use with high temperature wire
- Caustic environments
- **XTRA•GUARD® 4** applications

CHARACTERISTICS: Shrink Ratio: 2:1 @ 175°C ~ Temperature: -55°C to 175°C ~ Longitudinal Shrinkage: -10% ~ Size: 3/64" - 1 in ~ Packages: 4ft lengths & cut pieces ~ Color: Transparent

SPECIALTY MATERIALS (CONTINUED)

FIT®-400 Pg. 129

MIL-DTL-23053/11C, Class 1

Temperature / Chemical Resistant FEP Teflon*

FEATURES & BENEFITS:

- Excellent chemical resistance
- Extreme temperature range of -67°C to 200°C
- Unmatched dielectric properties
- Thinnest wall thickness available
- Lower recovery temp than TFE Teflon*

APPLICATIONS:

- Fiber optic applications
- High temperature cable
- Limited space applications
- **XTRA•GUARD® 4 & 5** applications
- Digital electronics (signal sensitive equip.)
- Extremely caustic environments
- Fast recovery time
- Data & FEP Teflon* cable applications

CHARACTERISTICS: Shrink Ratio: 1.2:1 @ 176°C ~ Temperature: -67°C to 200°C ~ Longitudinal Shrinkage: -15% ~ Size: 0.034" - 0.44" (24AWG-0AWG) ~ Packages: 4ft lengths & 2ft lengths ~ Color: Natural

FIT®-500 Pg. 130

MIL-DTL-23053/12C, Class 3

Temperature / Chemical Resistant TFE Teflon*

FEATURES & BENEFITS:

- Supreme chemical resistance
- Most extreme temperature range of -67°C to 250°C
- High tensile strength
- Unmatched dielectric properties
- Extremely thin wall thickness
- Low friction coefficient

APPLICATIONS:

- Fiber optic applications
- TFE Teflon* cable applications
- Limited space applications
- Digital electronics (signal sensitive equip.)
- Extremely caustic environments

CHARACTERISTICS: Shrink Ratio: 1.5:1 @ 327°C ~ Temperature: -67°C to 250°C ~ Longitudinal Shrinkage: -20% ~ Size: 0.034" - 0.047" (30AWG-0AWG) ~ Packages: 2ft lengths ~ Color: Natural

FIT®-600 Pg. 131

MIL-DTL-23053/1C, Class 2† ~ MIL-R-46846 Type 1, Class 1†

Highly Flexible, Irradiated Elastomer



FEATURES & BENEFITS:

- Improved flexibility
- More than twice the tensile strength of silicone rubber
- Large tubing diameters
- Oil resistance & flame retardancy
- Abrasion resistance

APPLICATIONS:

- Military & commercial harnesses
- Cold temperature flexing
- Machine tool & automation equipment
- **XTRA•GUARD® 4** applications
- **XTRA•GUARD® Flexible Cable** applications

CHARACTERISTICS: Shrink Ratio: 1.75:1 @ 135°C ~ Temperature: -70°C to 121°C ~ Longitudinal Shrinkage: -10% ~ Size: 1/4" - 3in ~ Packages: Spools ~ Color: Black

†FIT-600 does not contain any polychloroprene/neoprene but meets the physical properties of MIL-DTL-23053/1C, Class 2 and MIL-R-46846 Type 1, Class 1 specifications.

FIT®-650 Pg. 132

MIL-DTL-23053/13B

Chemical and Temperature Resistant Irradiated Viton***

FEATURES & BENEFITS:

- Extreme temperatures -40°C to 200°C
- Excellent chemical resistance (water, oil, acid & fuels)
- Flexibility

APPLICATIONS:

- Chemical production applications
- Military electronics / aircraft
- In hostile environments requiring some flexibility
- **XTRA•GUARD® 5** applications
- **XTRA•GUARD® Flexible Cable** applications

CHARACTERISTICS: Shrink Ratio: 2:1 @ 175°C ~ Temperature: -40°C to 200°C ~ Longitudinal Shrinkage: -20% ~ Size: 1/8" - 1 in ~ Packages: Spools ~ Color: Black

FIT® FABRIC Pg. 133

MVSS 302 Horizontal Burn Test

Highly Flexible, Heat Shrinkable Woven Fabric Tubing



FEATURES & BENEFITS:

- Superior abrasion resistance over a wide temperature range
- Outstanding flexibility and durability
- Tight grip without additional fixing
- Ease of installation, cuts with scissors
- Resistance to harsh environments
- Soft, safe handling

APPLICATIONS:

- Mechanical abrasion protection
- Severe environment protection
- Noise and rattle protection
- Halogen free environment
- Flexing applications

CHARACTERISTICS: Shrink Ratio: Approx. 2:1 or 3:1 @ 135°C Depending on Size ~ Temperature: -40°C to 125°C ~ Longitudinal Shrinkage: Up to 20% @ 2:1 Shrink Ratio, Up to 25% @ 3:1 Shrink Ratio ~ Size: 0.47" - 2.36" ~ Packages: Spools ~ Color: Black

*Teflon® is a registered trademark of E.I. DuPont Co. **Kynar® is a trademark of ELF Atochem, North America, Inc. ***Viton® is a registered trademark of DuPont Dow Elastomers

CHOOSE **FIT**®-221 FOR:

- General Purpose Protection and Repair
- Identification and Beautifying Substrates
- Insulation from Environment
- Reduced Longitudinal Shrinkage
- Resistance to Water, Fungus, UV Light (black only)
- Use with **XTRA•GUARD**® 1

2 TO 1 SHRINK RATIO

FIT®-221 APPLICATIONS:

- General Purpose Insulation and Repair
- Wire and Cable Harnessing and Bundling
- Cable and Connector Protection
- Wire and Tubing Splicing and Connecting
- **XTRA•GUARD**® 1 Applications
- Automated Cutting Machines (spools)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 121°C

COLOR DESCRIPTION:

- 4-Foot Lengths:
 3/64 to 2 Inch — Black, White, Clear, Red, Yellow, Blue, Green
 3 and 4 Inch — Black, Clear
- 6-Inch Lengths:
 3/64 to 1 Inch — Black, White, Clear, Red, Yellow, Blue, Green
 1-1/2 to 3 Inch — Black, Clear
- 1/2 or 1 Inch Cut Pieces: Black
- Spools: See Color Availability Chart Next Page

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Secant Modulus: 2.5×10^4 max.
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10^{14} ohm-cm

SPECIFICATIONS

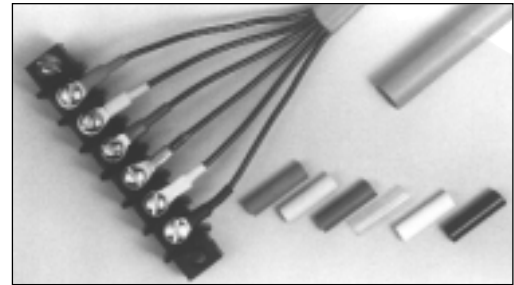
- MIL-DTL-23053/5C, Class 1, 2
- UL Standard 224 (except for Clear)
- CSA Standard 198 (except for Clear)



Underwriters Laboratories Inc.



Canadian Standards Association



Packaged Assortments

Assorted Sizes of 6" Lengths
 Each Length — Size Identified
 Assorted Colors

Alpha Part No.	Tubing Size Range	Lengths Per Box
FIT-221-MS-1	3/64" — 3/16" (5 Sizes)	6 per Size (30 Lengths)
FIT-221-MS-2	1/4" — 3/4" (4 Sizes)	4 per Size (16 Lengths)

Recommended For Use With

XTRA•GUARD® 1

**Extra-Premium Grade PVC Jacketed
 General Purpose Cables**

Alpha Part No. And Size	Minimum Supplied I.D.		Maximum Recovered I.D.		Nom. Recovered Wall Thickness		4 Ft. Lengths Total Ftg.	Standard Packages				No. Cut Pieces 1/2" or 1"
	Inches	mm	Inches	mm	Inches	mm		Tot. Ftg.	Spools Tot. Ftg.	Tot. Ftg.	No. Cut Pieces 6 Inch	
FIT-221-3/64	0.046	1,17	0.023	0,58	0.016	0,41	100	1000			40	1000
FIT-221-1/16	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	100	70	36	1000
FIT-221-3/32	0.093	2,36	0.046	1,17	0.020	0,50	100	500	100	65	32	1000
FIT-221-1/8	0.125	3,18	0.062	1,58	0.020	0,50	100	500	100	60	28	1000
FIT-221-3/16	0.187	4,75	0.093	2,36	0.020	0,50	100	500	100	50	24	1000
FIT-221-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	250	100	40	20	1000
FIT-221-3/8	0.375	9,53	0.187	4,75	0.025	0,63	100	200	50	35	16	1000
FIT-221-1/2	0.500	12,70	0.250	6,35	0.025	0,63	20	150	50	32	14	--
FIT-221-3/4	0.750	19,10	0.375	9,53	0.030	0,76	20	250	50	24	12	--
FIT-221-1	1.000	25,40	0.500	12,70	0.035	0,88	20	250	50	16	8	--
FIT-221-1-1/2	1.500	38,10	0.750	19,10	0.040	1,02	20	125	--	--	5	--
FIT-221-2	2.000	50,80	1.000	25,40	0.045	1,16	20	125	--	--	3	--
FIT-221-3	3.000	76,20	1.500	38,10	0.050	1,27	8	100	--	--	2	--
FIT-221-4	4.000	101,60	2.000	50,80	0.055	1,40	8	50	--	--	1	--

SPOOL COLOR AVAILABILITY CHART

FIT-221 Tubing Size	Put-Up	Colors
3/64"	1000'	Black, Clear
1/16"	1000'	All Colors*
	100'	Black, Clear
3/32"	70'	All Colors
	500'	All Colors
	100'	Black, Clear
	65'	All Colors
1/8"	500'	All Colors
	100'	Black, Clear
	60'	All Colors
3/16"	500'	All Colors
	100'	Black, Clear
	50'	All Colors
1/4"	250'	All Colors
	100'	Black, Clear
	40'	All Colors

FIT-221 Tubing Size	Put-Up	Colors
3/8"	200'	All Colors
	50'	Black, Clear
	35'	All Colors
1/2"	150'	All Colors
	50'	Black, Clear
	32'	All Colors
3/4"	250'	All Colors
	50'	Black, Clear
	24"	All Colors
1"	250"	All Colors
	50"	Black, Clear
	16"	All Colors
1-1/2"	125'	Black, Clear
2"	125'	Black, Clear
3"	100'	Black, Clear
4"	50'	Black, Clear

*All colors include black, white, clear, red, yellow, blue, green

**SEE PAGE 116
FOR
ECONOMICAL BULK PACKAGES!**

FIT® Preferred Heat Shrink Products

ECONOMICAL **FIT**®-221 BULK PKGS., IRRADIATED POLYOLEFIN

FIT®-221B

MIL-DTL-23053/5C,
CLASS 1, 2
UL STANDARD 224
CSA STANDARD 198

CHOOSE **FIT**®-221B For:

- General Purpose Protection and Repair
- Identification and Beautifying Substrates
- Insulation from Environment
- Reduced Longitudinal Shrinkage
- Resistance to Water, Fungus, UV Light (black only)
- Use with **XTRA**•**GUARD**® 1

FIT®-221B APPLICATIONS:

- General Purpose Insulation and Repair
- Wire and Cable Harnessing and Bundling
- Cable and Connector Protection
- Wire and Tubing Splicing and Connecting
- **XTRA**•**GUARD**® 1 Applications
- Automated Cutting Machines (spools)



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 121°C

COLOR DESCRIPTION:

- All Bulk Packages: Black, Clear

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Secant Modulus: 2.5 x 10⁴ max.
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/5C, Class 1, 2
- UL Standard 224 (except for Clear)
- CSA Standard 198 (except for Clear)

UL Recognized Component
Underwriters Laboratories Inc.

CSA Certified
Canadian Standards Association

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		NEW BULK PACKAGES			
							SPOOLS		4 FT. LENGTHS	
	Inches	mm	Inches	mm	Inches	mm	Qty. in Box	Total Spool Size	Total Ftg.	No. of Pcs.
FIT-221B-3/64	0.046	1,17	0.023	0,58	0.016	0,41	3x1000	3000	250x4	1000
FIT-221B-1/16	0.063	1,60	0.031	0,78	0.017	0,43	3x1000	3000	250x4	1000
FIT-221B-3/32	0.093	2,36	0.046	1,17	0.020	0,50	3x500	1500	250x4	1000
FIT-221B-1/8	0.125	3,18	0.062	1,58	0.020	0,50	3x500	1500	250x4	1000
FIT-221B-3/16	0.187	4,75	0.093	2,36	0.020	0,50	2x500	1000	250x4	1000
FIT-221B-1/4	0.250	6,35	0.125	3,18	0.025	0,63	2x250	500	250x4	1000
FIT-221B-3/8	0.375	9,53	0.187	4,75	0.025	0,63	2x200	400	250x4	1000
FIT-221B-1/2	0.500	12,70	0.250	6,35	0.025	0,63	2x150	300	200x4	800
FIT-221B-3/4	0.750	19,10	0.375	9,53	0.030	0,76	1x250	250	125x4	500
FIT-221B-1	1.000	25,40	0.500	12,70	0.035	0,88	1x250	250	75x4	300

2 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•**GUARD**® 1
Extra-Premium Grade PVC Jacketed
General Purpose Cables



Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
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Web Site: www.alphawire.com
Email: info@alphawire.com

MIL-DTL-23053/5C,
CLASSES 1 & 3
UL STANDARD 224
CSA STANDARD 198

FIT[®]

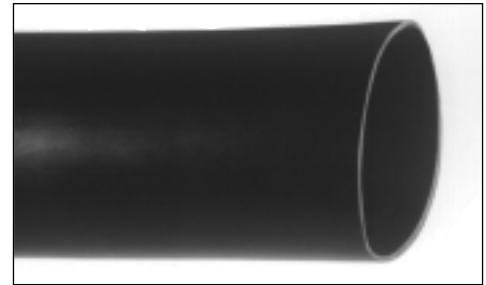
Preferred Heat Shrink Products
LOW SHRINK TEMP., FLAME RETARDANT IRRADIATED POLYOLEFIN
FIT[®]-221V

CHOOSE **FIT**[®]-221V For:

- Lowest Shrink Temperature (90°C)
- Fastest Recovery Time
- UL VW-1 & CSA OFT Flame Retardancy
- Resistance to Water, Fungus, UV Light (black only)
- Large, Economical, Bulk Packages
- Colors Available!

2 TO 1 SHRINK RATIO

**NOW IN COLORS AND
ECONOMICAL BULK
PACKAGES!**



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FIT[®]-221V APPLICATIONS:

- Where Substrates are Heat Sensitive
- Where Reduced Shrink Time Saves Costs
- Flame Retardancy Requirements
- Industrial Applications
- Cable and Connector Protection
- Automated Cutting Machines (spools)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 90°C

COLOR DESCRIPTION:

- Standard 4 Ft. Lengths and Spools: Black, White, Red, Yellow, Green, Blue
- Bulk 4 Ft. Lengths and Spools: Black Only
- 6 In. Pieces: Black Only

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Standard Packages		
	Inches	mm	Inches	mm	Inches	mm	4 Ft. Lengths Total Ftg.	Spools Total Ftg.	No. Cut Pieces 6 Inch
FIT-221V-3/64	0.046	1,17	0.023	0,58	0.016	0,41	100	1000	40
FIT-221V-1/16	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	36
FIT-221V-3/32	0.093	2,36	0.046	1,17	0.020	0,50	100	500	32
FIT-221V-1/8	0.125	3,18	0.062	1,58	0.020	0,50	100	500	28
FIT-221V-3/16	0.187	4,75	0.093	2,36	0.020	0,50	100	500	24
FIT-221V-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	250	20
FIT-221V-3/8	0.375	9,53	0.187	4,75	0.025	0,63	100	200	16
FIT-221V-1/2	0.500	12,70	0.250	6,35	0.025	0,63	20	150	14
FIT-221V-3/4	0.750	19,10	0.375	9,53	0.030	0,76	20	250	12
FIT-221V-1	1.000	25,40	0.500	12,70	0.035	0,88	20	250	8
FIT-221V-1-1/2	1.500	38,10	0.750	19,10	0.040	1,02	20	125	5
FIT-221V-2	2.000	50,80	1.000	25,40	0.045	1,14	20	125	3

Alpha Part No. and Size	BULK PACKAGES			
	SPOOLS		4 FT. LENGTHS	
	Qty. in Box Spool Size	Total Ftg.	No. of Pcs.	Total Ftg.
FIT-221V-3/64	3x1000	3000	250x4	1000
FIT-221V-1/16	3x1000	3000	250x4	1000
FIT-221V-3/32	3x500	1500	250x4	1000
FIT-221V-1/8	3x500	1500	250x4	1000
FIT-221V-3/16	2x500	1000	250x4	1000
FIT-221V-1/4	2x250	500	250x4	1000
FIT-221V-3/8	2x200	400	250x4	1000
FIT-221V-1/2	2x150	300	200x4	800
FIT-221V-3/4	1x250	250	125x4	500
FIT-221V-1	1x250	250	75x4	300

SPECIFICATIONS

- MIL-DTL-23053/5C, Classes 1 & 3
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association

Web Site: www.alphawire.com
Email: info@alphawire.com

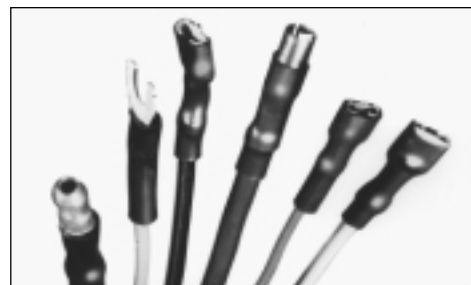
Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
Europe/UK Telephone: +44 (0) 1932 772422 • Europe/UK Fax: +44 (0) 1932 772433



CHOOSE **FIT®-105** FOR:

- Low Shrink Temperature (100°C)
- 30% Stronger than Standard Polyolefin
- UL VW-1 and CSA OFT Flame Retardancy
- Low Water Absorption and UV Resistant
- Multiple Package Availability

2 TO 1 SHRINK RATIO



FIT®-105 APPLICATIONS:

- Use with PVC Cable
- With Heat Sensitive Substrates
- Fast Recovery Time
- Wire Harnesses and Cable Assemblies
- Flame Retardant Requirements
- **XTRA•GUARD® 1** Applications
- Automated Cutting Machines (spools)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 100°C

COLOR DESCRIPTION:

- All Standard Packages: Black
(White Available in Certain Sizes)

PHYSICAL PROPERTIES:

- Tensile Strength: 2000 psi, (141 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -15%†
- Specific Gravity: 1.40
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Meets Requirements of MIL-I-631
- Fungus Resistance: No Growth (MIL-I-7444)
- Water Absorption: 0 to 1% Max. 24 Hrs. at 25°C

ELECTRICAL PROPERTIES:

- Dielectric Strength: 400V/mil (158 kV/cm)
- Volume Resistivity: 10¹¹ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Tot. Ftg.	Spools			
	Inches	mm	Inches	mm	Inches	mm		Tot. Ftg.	Tot. Ftg.	Tot. Ftg.	Tot. Ftg.
FIT-105-3/64	0.046	1,17	0.023	0,58	0.020	0,50	1000	500	100	25	
FIT-105-1/16	0.062	1,58	0.031	0,78	0.020	0,50	1000	500	100	25	
FIT-105-3/32	0.093	2,36	0.046	1,17	0.020	0,50	1000	100		25	
FIT-105-1/8	0.125	3,18	0.062	1,58	0.025	0,63	1000	100		25	
FIT-105-3/16	0.187	4,75	0.093	2,36	0.025	0,63	1000	100		25	
FIT-105-1/4	0.250	6,35	0.125	3,18	0.025	0,63	1000	100		25	
FIT-105-3/8	0.375	9,53	0.187	4,75	0.030	0,76	500	100		25	
FIT-105-1/2	0.500	12,70	0.250	6,35	0.030	0,76	250	100		25	
FIT-105-3/4	0.750	19,10	0.375	9,53	0.035	0,88	250	100		25	
FIT-105-1	1.000	25,40	0.500	12,70	0.040	1,02	250	100		25	
FIT-105-1-1/2	1.500	38,10	0.750	19,10	0.045	1,14	100	25			
FIT-105-2	2.000	50,80	1.000	25,40	0.050	1,27	100	50		25	

Packaged Assortments

Assorted Sizes of 6" Lengths
Each Length - Size Identified

Alpha Part No.	Tubing Size Range	Lengths Per Box
FIT-105-MS-1	3/64" - 1/4" (6 Sizes)	10 Lengths Per Size (60 Lengths)
FIT-105-MS-2	3/8" - 1" (4 Sizes)	10 Lengths Per Size (40 Lengths)

SPECIFICATIONS

- MIL-I-23053/2C, Class 1*
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



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Canadian Standards Association

*Military Specification Sheet MIL-I-23053/2C, is inactive for new design and is no longer used by the Department of Defense except for replacement purposes.
†Does not meet MIL-I-23053/2C requirements.

CHOOSE **FIT**[®]-260 For:

- Color Coding Leads as a Ground Circuit
- Same Physical Characteristics as **FIT**[®]-221

FIT[®]-260 APPLICATIONS:

- Approved for Use by NFPA for 600 Volt Ground Lead Identification
- E-OEM Component Identification
- Wire Harness Identification
- Automated Cutting Machines (spools)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 120°C

COLOR DESCRIPTION:

- All Standard Packages: Green with Yellow Stripe
- Each Color will Cover at Least 30% of the Surface Area

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Fungus Resistance: No Growth
- Water Absorption: 0.1% Max.
- Chemical Resistance: JP-4, Skydrol 500, Aviation Gas and Hydraulic Fuel

ELECTRICAL PROPERTIES:

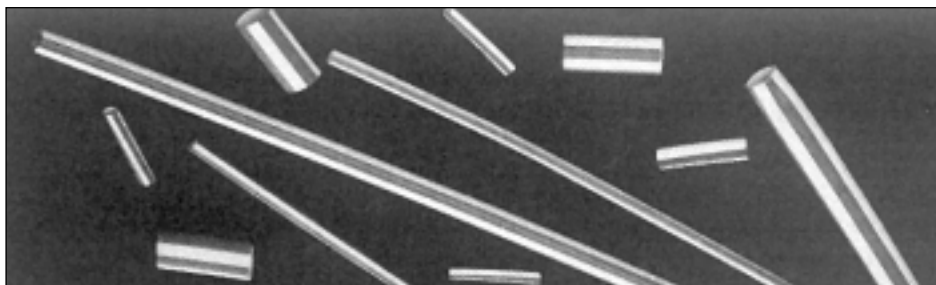
- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

SPECIFICATIONS

- UL Standard 224
- CSA Standard 198
- NEC Article 250-57B, Exception 3



Underwriters Laboratories Inc. Canadian Standards Association



Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Recovered I.D.		Nom. Rec. Wall Thickness		Std. Pkg. Spools Total Ft.
	Inches	mm	Inches	mm	Inches	mm	
FIT-260-1/8	0.118	3,00	0.059	1,50	0.020	0,51	500
FIT-260-1/4	0.236	6,00	0.118	2,99	0.025	0,64	250
FIT-260-3/8	0.315	8,00	0.158	4,01	0.025	0,64	250
FIT-260-1/2	0.472	11,98	0.236	6,00	0.025	0,64	250
FIT-260-3/4	0.748	18,99	0.355	9,02	0.030	0,76	250
FIT-260-1	1.024	26,00	0.512	14,00	0.035	0,89	100

NFPA-National Fire Protection Association

When installed in accordance with NEC Article 250-57B, Exception 3.

Grounding for equipment fastened in place or connected by permanent wiring methods (fixed)

2 TO 1 SHRINK RATIO

FIT® Preferred Heat Shrink Products

LOW SHRINK TEMP., FLAME RETARDANT IRRADIATED POLYOLEFIN

FIT®-321V

UL STANDARD 224
CSA STANDARD 198

CHOOSE **FIT**®-321V FOR:

- Expanded to a 3 to 1 Shrink Ratio
- Lowest Shrink Temperature (90°C)
- Fastest Recovery Time
- Reduced Wall Thickness
- UL VW-1 and CSA OFT Flame Retardancy



FIT®-321V APPLICATIONS:

- Connectorized Cable Repair
- Where Substrates are Heat Sensitive
- Delicate and Intricate Electronics Protection
- Industrial Applications
- Flame Retardancy Requirements
- Automated Cutting Machines

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 125°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 90°C

COLOR DESCRIPTION:

- All Standard Packages:
Black & White

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Secant Modulus: 2.5 x 10⁴ max.
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Passes Copper Stability Test
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

3 TO 1 SHRINK RATIO

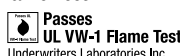
Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Expanded		Nom. Rec. Wall Thickness		Spools Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-321V-3/32	0.093	2,36	0.031	0,8	0.023	0,58	500
FIT-321V-1/8	0.125	3,18	0.042	1,1	0.023	0,58	500
FIT-321V-1/4	0.250	6,35	0.083	2,2	0.023	0,58	250
FIT-321V-3/8	0.375	9,50	0.125	3,2	0.023	0,58	200
FIT-321V-1/2	0.500	12,70	0.166	4,3	0.024	0,61	150
FIT-321V-3/4	0.750	19,10	0.250	6,4	0.024	0,61	250
FIT-321V-1 IN	1.000	25,40	0.333	8,5	0.024	0,61	250

SPECIFICATIONS

- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



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Canadian Standards Association



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Email: info@alphawire.com



Preferred Heat Shrink Products

MEDIUM WALL, ADHESIVE LINED, IRRADIATED POLYOLEFIN

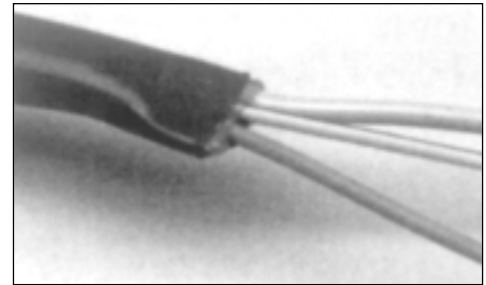
MIL-DTL-23053 / 4D, CLASS 3

FIT®-321

CHOOSE **FIT**®-321 FOR:

- Expanded to a 3 to 1 Shrink Ratio
- Increased Wall Thickness for Durability
- Water Resistant Adhesive Inner Lining
- Permanent Bonding Adhesive
- Use with **XTRA•GUARD**® 1

3 TO 1 SHRINK RATIO



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FIT®-321 APPLICATIONS:

- Connectorized Cable Repair
- Water Resistance and Encapsulation
- Environmental and Outdoor Protection
- **XTRA•GUARD**® 1, 2 & 3 Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 110°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 125°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1300 psi, (92 kg/cm²)
- Ultimate Elongation: 300%
- Longitudinal Shrinkage: -15%
- Heat Resistance: (168 Hrs. at 150°C) No Dripping, Cracking or Flowing
- Low Temperature Flexibility: (4 Hrs. at -55°C) No Cracking
- Flammability: Self-Extinguishing (Outer Jacket Only)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5% Max.

ELECTRICAL PROPERTIES:

- Dielectric Strength: 300V/mil (118 kV/cm)
- Volume Resistivity: 10¹² ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Recovered Wall Thickness				Std. Pkg. 4 Ft. Lgths. Total Ftg. 6 Inch	
					Total Wall Inches	Total Wall mm	Melttable Wall Inches	Melttable Wall mm		
FIT-321-1/8	0.120	3.05	0.040	1.02	0.040	1.02	0.020	0.50	100	28
FIT-321-1/4	0.240	6.10	0.080	2.03	0.040	1.02	0.020	0.50	100	20
FIT-321-1/2	0.470	11.90	0.160	4.06	0.070	1.75	0.030	0.76	20	14
FIT-321-1	0.940	23.90	0.320	8.13	0.100	2.54	0.040	1.02	20	8
FIT-321-1-1/2	1.570	39.90	0.510	13.00	0.100	2.54	0.040	1.02	20	5

Packaged Assortment

Assorted Sizes of 6" Lengths
Each Length - Size Identified

Alpha Part No.	Tubing Size Range	Lengths Per Box
FIT-321-MS-1	1/8" - 1" (4 Sizes)	5 Per Size (20 Lengths)

Recommended For Use With
XTRA•GUARD® 1
Extra-Premium Grade PVC Jacketed
General Purpose Cables

SPECIFICATIONS

- MIL-DTL-23053 / 4D, Class 3

FIT® Preferred Heat Shrink Products

OVER EXPANDED, IRRADIATED POLYOLEFIN

FIT®-421

**MIL-DTL-23053 / 5C,
CLASS 1 OVER EXPANDED**

CHOOSE **FIT**®-421 FOR:

- Over Expanded to a 4 to 1 Shrink Ratio
- Large Supplied Diameter Sizes
- Resistance to Water, Fungus, UV Light
- Shrinks to 25% of its Original Size
- Conforms to Odd Shapes

4 TO 1 SHRINK RATIO



FIT®-421 APPLICATIONS:

- D-Sub Connector Strain Relief
- RS-232 25 Pin Connector to Cable Coverage
- Covers the Most Irregular Shapes and Connectors
- PC Board Coverage / Protection

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-421-1	1.000	25,40	0.275	6,99	0.045	1,14	20
FIT-421-1-1/2	1.500	38,10	0.375	9,53	0.045	1,14	20
FIT-421-2	2.000	50,80	0.550	13,97	0.045	1,14	20
FIT-421-3	3.000	76,20	0.810	20,57	0.045	1,14	8
FIT-421-4	4.000	101,60	1.050	26,67	0.045	1,14	8

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 4 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V / mil (197 kV / cm)
- Volume Resistivity: 10¹⁴ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053 / 5C, Class 1
Over Expanded



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Email: info@alphawire.com

Preferred Heat Shrink Products **HEAVY WALL, ADHESIVE LINED, IRRADIATED POLYOLEFIN** **FIT®-621**

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CHOOSE **FIT®-621** FOR:

- Over Expanded to a 6 to 1 Shrink Ratio
- Shrinks to 1/6 its Original Size
- Heavy Duty Adhesive Inner Lining
- Low Water Absorption
- Excellent Durability and Toughness
- Resistant to Oils and Chemicals
- Convenient Pre-cut 6 Inch Lengths



FIT®-621 APPLICATIONS:

- Protection in Severe Environments
- Large to Small Connector-to-Cable Protection
- Underground Utility Splice Protection
- Corrosion Protection of Metal Parts
- Protects Substrates in Direct Burial Applications
- Heavy Duty Abrasion Resistance

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 90°C

SHRINKAGE RATIO:

- Approximately 6 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1200 psi, (84 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.4
- Low Temperature Flexibility:
To -55°C (No Cracking)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%
- Chemical Resistance: JP-8 Hydraulic Fluids,
Deicing Fluid, Lubricating Oil

ELECTRICAL PROPERTIES:

- Dielectric Strength: 200V/mil (79 kV/cm)
- Volume Resistivity: 10¹³ ohm cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Standard Package
	Inches	mm	Inches	mm	Inches	mm	
FIT-1-5/8	0.60	15,24	0.150	3,81	0.060	1,52	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-1-1/4	1.25	31,75	0.220	5,59	0.059	1,49	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-2	2.00	50,80	0.375	9,50	0.105	2,70	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet) 24 x 6 In. Lengths (12 Feet)
FIT-621-2-1/2	2.50	63,50	0.500	12,70	0.120	3,05	10 x 6 In. Lengths (1.5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-3	3.00	76,20	0.750	19,05	0.120	3,05	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)
FIT-621-4	4.00	101,60	0.900	22,86	0.140	3,55	10 x 6 In. Lengths (5 Feet) 3 x 6 In. Lengths (1.5 Feet)

6 TO 1 SHRINK RATIO

FIT® Preferred Heat Shrink Products

SEMI-RIGID IRRADIATED POLYOLEFIN

FIT®-295

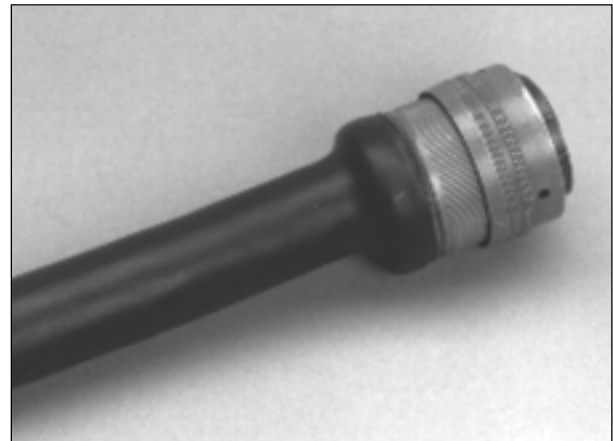
MIL-DTL-23053/6D,
CLASS 1, 2
UL STANDARD 224
CSA STANDARD 198

CHOOSE **FIT**®-295 FOR:

- 30% Stronger Than Standard Polyolefin
- 25% Stiffer Than Standard Polyolefin
- Low Water Absorption
- Resistance to Water, Fungus, UV Light

FIT®-295 APPLICATIONS:

- Strength and Stiffness Make it Excellent for Strain Relief Applications
- Heavy Duty Cable/Connector Protection
- Electrical Cable Splices
- Crimp Terminals
- Solder Joints



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 135°C

COLOR DESCRIPTION:

- 3/64 Inch: Yellow, Black, Clear
- 1/16 Inch: White, Black, Clear
- 3/32 Inch: Blue, Black, Clear
- 1/8 Inch: Red, Black, Clear
- 3/16 Inch: Green, Black, Clear
- 1/4 Inch: Slate, Black, Clear
- 3/8 Inch: Brown, Black, Clear
- 1/2 Inch: White, Black, Clear

PHYSICAL PROPERTIES:

- Tensile Strength: 2000 psi, (141 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg.	
	Inches	mm	Inches	mm	Inches	mm	4 Ft. Total Ftg.	No. Cut Pieces 6 Inch
FIT-295-3/64	0.046	1,17	0.023	0,58	0.020	0,50	100	40
FIT-295-1/16	0.063	1,60	0.032	0,81	0.020	0,50	100	36
FIT-295-3/32	0.093	2,36	0.045	1,14	0.020	0,50	100	32
FIT-295-1/8	0.125	3,18	0.063	1,60	0.020	0,50	100	28
FIT-295-3/16	0.187	4,75	0.093	2,36	0.025	0,63	100	24
FIT-295-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	20
FIT-295-3/8	0.375	9,53	0.187	4,75	0.030	0,76	100	16
FIT-295-1/2	0.500	12,70	0.250	6,35	0.030	0,76	20	14

2 TO 1 SHRINK RATIO

SPECIFICATIONS

- MIL-DTL-23053/6D, Class 1, 2
- UL Standard 224 (except for clear)
- CSA Standard 198 (black only)



Underwriters Laboratories Inc.



Canadian Standards Association



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Email: info@alphawire.com

MIL-DTL-23053/4D,
CLASS 1
UL STANDARD 224

FIT[®]

Preferred Heat Shrink Products
SURFACE IRRADIATED/DUAL EXTRUDED POLYOLEFIN
FIT[®]-300

**CHOOSE
FIT-300 FOR:**

- Melttable Inner Wall
- Encapulates Without Adhesive
- Temporary Sealing Without Sticky Residue
- Increased Wall Thickness for Added Protection
- High Shrink Ratios
- Excellent Dielectric Properties

**FIT-300
APPLICATIONS:**

- Substrates Requiring Filled Interstices
- Digital Electronics Where Adhesive is Unacceptable
- Temporary Applications Requiring Encapsulation

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 110°C

SHRINKAGE RATIO:

- Approximately 6 to 1 or 3 to 1 at 135°C Depending on Size

COLOR DESCRIPTION:

- 1/8 Inch: Brown, Black
- 3/16 Inch: Slate, Black
- 1/4 Inch: White, Black
- 3/8 Inch: Red, Black
- 1/2 Inch: Blue, Black
- 3/4 Inch: Yellow, Black
- 3/10 Inch: Blue, Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 0.99

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.1%

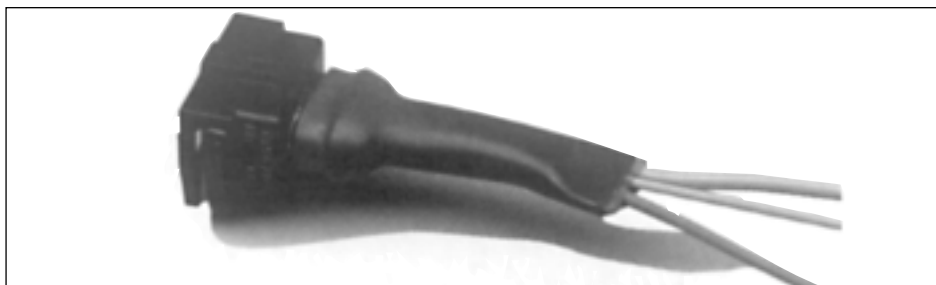
ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 10¹⁵ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/4D, Class 1
- UL Standard 224 (black only)

**Recognized
Component**
Underwriters Laboratories Inc.



Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Total Nom. Rec. Melttable Wall Thickness		Std. Pkg. 4 Ft. Lgths. Total Ftg.	No. Cut Pieces 6 Inch
	Inches	mm	Inches	mm	Inches	mm	Inches	mm		
FIT-300-1/8	0.125	3,18	0.023	0,58	0.038	0,96	0.020	0,50	100	14
FIT-300-3/16	0.187	4,75	0.060	1,52	0.043	1,09	0.025	0,63	100	12
FIT-300-1/4	0.250	6,35	0.080	2,03	0.047	1,19	0.027	0,68	100	10
FIT-300-3/8	0.375	9,53	0.135	3,43	0.050	1,27	0.030	0,76	100	8
FIT-300-1/2	0.500	12,70	0.195	4,95	0.055	1,40	0.035	0,88	20	6
FIT-300-3/4	0.750	19,10	0.313	7,95	0.065	1,65	0.040	1,02	20	4
FIT-300-3/10	0.300	7,62	0.050	1,27	0.100	2,54	0.065	1,65	100	4

6 TO 1 SHRINK RATIO

3 TO 1 SHRINK RATIO

125

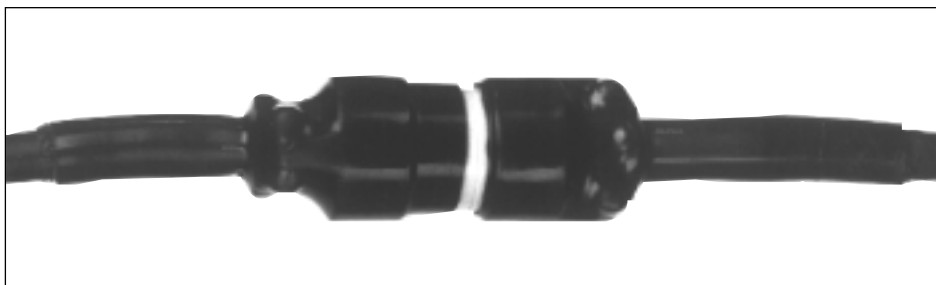
FIT® Preferred Heat Shrink Products

BONDING, MASTIC LINED, IRRADIATED POLYOLEFIN

FIT®-700

CHOOSE **FIT**®-700 For:

- Bonding Adhesion to Most Materials
- Environmental and Water-Tight Seal
- Prevents Wicking and Fills Interstices
- Tubing Sizes Match
14AWG-2000MCM Sizes
- Superior Strength
- High Voltage
- Pre-cut 12 Inch Pieces
- Use with **XTRA•GUARD**® 3



FIT®-700 APPLICATIONS:

- High Voltage Splices (up to 2 kV)
- Water Resistant Connections
- Underground Utility Applications
- Direct Burial
- Outdoor Insulation and Protection
- **XTRA•GUARD**® 3 Applications

Alpha Part No.	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. No Pieces 12 Inch
	Inches	mm	Inches	mm	Inches	mm	
FIT-700-21	0.750	10,20	0.220	5,59	0.095	1,52	6
FIT-700-22	1.100	33,02	0.375	9,57	0.105	2,66	6
FIT-700-23	1.500	38,10	0.500	12,79	0.140	3,05	6
FIT-700-24	2.000	50,80	0.750	19,10	0.155	3,05	6
FIT-700-25	3.000	72,20	1.250	30,80	0.155	3,95	6
FIT-700-26	4.500	114,30	1.750	43,50	0.155	3,95	6

3 TO 1 SHRINK RATIO

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 90°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 2250 psi, (159 kg/cm²)
- Ultimate Elongation: 350%
- Longitudinal Shrinkage: -5%
- Specific Gravity: 1.09

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.1%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 350V/mil

Recommended For Use With
XTRA•GUARD® 3
Extra-Durable Outdoor
Direct-Burial Cables



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MIL-DTL-23053/4D,
CLASS 2
UL STANDARD 224

FIT[®]

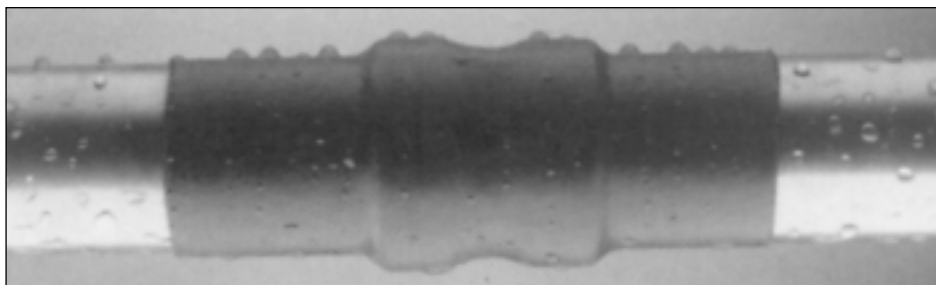
Preferred Heat Shrink Products
BONDING, ADHESIVE-LINED, IRRADIATED POLYOLEFIN
FIT[®]-750

CHOOSE **FIT**[®]-750 FOR:

- Bonding to Substrates
- Similar to **FIT**[®]-221 with Adhesive Liner
- Total Encapsulation
- Reduced Diameters
- Permanent Water and Corrosion Protection
- Internal Isolation of Individual Substrates — “Pinching”
- Use with **XTRA**•**GUARD**[®] 2

FIT[®]-750 APPLICATIONS:

- Moisture Protection of Substrates
- Permanent Sealing of Substrates
- Wire Isolation Within a Harness
- Permanent Joint Splice Repair
- General Purpose Usage with Adhesive
- **XTRA**•**GUARD**[®] 2 Applications



Alpha Part No. and Size	Minimum Supplied I.D.		Std. Nom. Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-750-1/4	0.250	6,35	0.125	3,18	0.030	0,76	100
FIT-750-3/8	0.375	9,53	0.187	4,75	0.031	0,78	100
FIT-750-1/2	0.500	12,70	0.250	6,35	0.032	0,81	20
FIT-750-3/4	0.750	19,00	0.375	9,53	0.037	0,94	20
FIT-750-1	1.000	25,40	0.500	12,70	0.039	0,99	20
FIT-750-1-1/2	1.500	38,10	0.750	19,00	0.046	1,17	20

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 110°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -10%
- Flammability: Self-Extinguishing (Outer Jacket Only)
- Nominal Recovered Adhesive Thickness:
0.005" to 0.011" (0,13mm to 0,28mm)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: Does Not Support Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 400V/mil (158 kV/cm)
- Volume Resistivity: 10¹² ohm-cm

2 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•**GUARD**[®] 2
Extra-Rugged Polyurethane
Jacketed Cables

SPECIFICATIONS

- MIL-DTL-23053/4D, Class 2
- UL Standard 224



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FIT® Preferred Heat Shrink Products

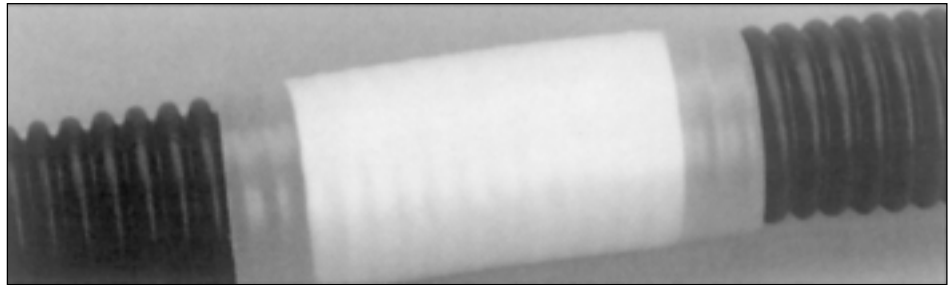
HIGHLY FLAME-RETARDANT IRRADIATED KYNAR*

FIT®-350

MIL-DTL-23053/8C
UL STANDARD 224
CSA STANDARD 198

CHOOSE **FIT**®-350 FOR:

- Chemical Resistance
- 3 Times the Tensile Strength of Standard Polyolefin
- Excellent Flame Retardancy
- Excellent Heat Resistance
- Excellent Chemical Resistance



FIT®-350 APPLICATIONS:

- High Temperature Environments
- Faster Recovery Time than Teflon**
- Exposure to Chemicals
- Use with High Temperature Wire
- Caustic Environments
- **XTRA•GUARD**® 4 Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 175°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 175°C

COLOR DESCRIPTION:

- All Standard Packages: Transparent

PHYSICAL PROPERTIES:

- Tensile Strength: 5000 psi, (352 kg/cm²)
- Ultimate Elongation: 150%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.80
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%
- Chemical Resistance: Solvents, JP4, Oxidants, Strong Acids and Bases

ELECTRICAL PROPERTIES:

- Dielectric Strength: 3/64" to 1/2" 800V/mil (315 kV/cm)
3/4" to 1" 600V/mil (236 kV/cm)
- Volume Resistivity: 2×10^{13} ohm-cm

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.	No. Cut Pieces 6 Inch
	Inches	mm	Inches	mm	Inches	mm		
FIT-350-3/64	0.046	1,17	0.023	0,58	0.010	0,25	100	32
FIT-350-1/16	0.063	1,60	0.031	0,78	0.010	0,25	100	28
FIT-350-3/32	0.093	2,36	0.046	1,17	0.010	0,25	100	24
FIT-350-1/8	0.125	3,18	0.062	1,58	0.010	0,25	100	20
FIT-350-3/16	0.187	4,75	0.093	2,36	0.010	0,25	100	16
FIT-350-1/4	0.250	6,35	0.125	3,18	0.013	0,33	100	12
FIT-350-3/8	0.375	9,53	0.187	4,75	0.013	0,33	100	8
FIT-350-1/2	0.500	12,70	0.250	6,35	0.013	0,33	20	4
FIT-350-3/4	0.750	19,10	0.375	9,53	0.017	0,43	20	2
FIT-350-1	1.000	25,40	0.500	12,70	0.019	0,48	20	1

2 TO 1 SHRINK RATIO

SPECIFICATIONS

- MIL-DTL-23053/8C
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



Underwriters Laboratories Inc. Underwriters Laboratories Inc. Canadian Standards Association

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**Teflon® is a registered trademark of E.I. DuPont Co.



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Preferred Heat Shrink Products

MIL-DTL-23053/11C,
CLASS 1

TEMPERATURE/CHEMICAL RESISTANT FEP TEFLON*

FIT®-400

CHOOSE

FIT®-400 FOR:

- Excellent Chemical Resistance
- Extreme Temperature Range of -67°C to 200°C
- Unmatched Dielectric Properties
- Thinnest Wall Thickness Available
- Lower Recovery Temp than TFE Teflon*
- Use with **XTRA**•GUARD® 4 and **XTRA**•GUARD® 5

FIT®-400

APPLICATIONS:

- Fiber Optic Applications
- High Temperature Cable
- Limited Space Applications
- **XTRA**•GUARD® 4 & 5 Applications
- Digital Electronics (Signal Sensitive Equipment)
- Extremely Caustic Environments
- Fast Recovery Time
- Data and FEP Teflon* Cable Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -67°C to 200°C

SHRINKAGE RATIO:

- Approximately 1.2 to 1 at 176°C

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Tensile Strength: 2000 psi, (141 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -15%
- Specific Gravity: 2.17
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.01%
- Chemical Resistance: All Chemicals at Room Temperature

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil (197 kV/cm)
- Volume Resistivity: 2×10^{17} ohm-cm



Alpha Part No. and Size (AWG)	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. 4 Ft. Lengths Total Ftg.	2 Ft. Lengths Total Ftg.
	Inches	mm	Inches	mm	Inches	mm		
FIT-400-24	0.031	0,79	0.027	0,68	0.008	0,20	100	—
FIT-400-22	0.036	0,91	0.032	0,81	0.008	0,20	100	—
FIT-400-20	0.045	1,14	0.039	0,99	0.008	0,20	100	—
FIT-400-18	0.060	1,52	0.049	1,25	0.008	0,20	100	—
FIT-400-16	0.075	1,90	0.061	1,55	0.009	0,22	100	—
FIT-400-14	0.092	2,33	0.072	1,83	0.009	0,22	100	—
FIT-400-12	0.115	2,92	0.089	2,26	0.009	0,22	100	—
FIT-400-10	0.141	3,58	0.114	2,90	0.010	0,25	100	—
FIT-400-9	0.158	4,01	0.124	3,15	0.010	0,25	100	—
FIT-400-8	0.180	4,57	0.143	3,63	0.010	0,25	100	—
FIT-400-7	0.197	5,00	0.158	4,01	0.011	0,27	100	—
FIT-400-6	0.225	5,72	0.180	4,57	0.011	0,27	100	—
FIT-400-5	0.248	6,29	0.198	5,03	0.011	0,27	—	100
FIT-400-4	0.290	7,36	0.226	5,74	0.011	0,27	—	100
FIT-400-3	0.310	7,87	0.249	6,33	0.011	0,27	—	100
FIT-400-2	0.365	9,27	0.280	7,11	0.012	0,30	—	100
FIT-400-1	0.400	10,20	0.311	7,90	0.012	0,30	—	100
FIT-400-0	0.440	11,22	0.349	8,87	0.012	0,30	—	100

1.2 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•GUARD® 4
Extra-Protection, High / Low
Temperature TPE Jacketed Cables and
XTRA•GUARD® 5
Extra High-Temperature /
Chemical-Resistant FEP Teflon®
Jacketed Cables

SPECIFICATIONS

- MIL-DTL-23053/11C, Class 1

*Teflon® is a registered trademark of E.I. DuPont Co.

FIT® Preferred Heat Shrink Products

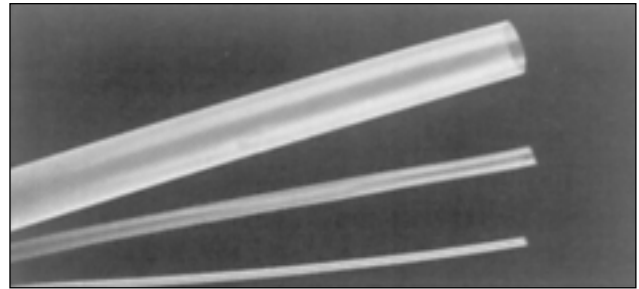
TEMPERATURE/CHEMICAL RESISTANT TFE TEFLON*

FIT®-500

MIL-DTL-23053/12C,
CLASS 3

CHOOSE **FIT**®-500 FOR:

- Supreme Chemical Resistance
- Most Extreme Temperature Range of -67°C to 250°C
- Highest Tensile Strength
- Unmatched Dielectric Properties
- Extremely Thin Wall Thickness
- Low Friction Coefficient



FIT®-500 APPLICATIONS:

- Fiber Optic Applications
- TFE Teflon* Cable Applications
- Limited Space Applications
- Digital Electronics (Signal Sensitive Equipment)
- Extremely Caustic Environments

CHARACTERISTICS

OPERATING TEMPERATURE:

- -67°C to 250°C

SHRINKAGE RATIO:

- Approximately 1.5 to 1 at 327°C

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Tensile Strength: 2500 psi, (176 kg/cm²)
- Ultimate Elongation: 200%
- Longitudinal Shrinkage: -20%
- Specific Gravity: 2.20
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.01%
- Chemical Resistance: All Chemicals at Room Temperature

ELECTRICAL PROPERTIES:

- Dielectric Strength: 800V/mil (315 kV/cm)
- Volume Resistivity: 10¹⁸ ohm-cm

Alpha Part No. and Size (AWG)	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		2 Ft. Lengths Standard Pkg. Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-500-30	0.034	0,86	0.015	0,38	0.009	0,23	100
FIT-500-28	0.038	0,97	0.018	0,46	0.009	0,23	100
FIT-500-26	0.046	1,17	0.022	0,56	0.009	0,23	100
FIT-500-24	0.050	1,27	0.027	0,69	0.010	0,25	100
FIT-500-22	0.055	1,40	0.032	0,81	0.010	0,25	100
FIT-500-20	0.060	1,52	0.039	0,99	0.012	0,30	100
FIT-500-18	0.076	1,93	0.049	1,24	0.012	0,30	100
FIT-500-16	0.093	2,36	0.061	1,55	0.012	0,30	100
FIT-500-14	0.120	3,05	0.072	1,83	0.012	0,30	100
FIT-500-12	0.150	3,81	0.089	2,26	0.012	0,30	50
FIT-500-10	0.191	4,85	0.112	2,84	0.012	0,30	50
FIT-500-8	0.240	6,10	0.141	3,58	0.015	0,38	50
FIT-500-6	0.302	7,67	0.178	4,52	0.015	0,38	20
FIT-500-4	0.370	9,40	0.224	5,69	0.015	0,38	20
FIT-500-2	0.430	8,64	0.278	7,06	0.015	0,38	20
FIT-500-0	0.470	11,90	0.347	8,81	0.015	0,38	20

1.5 TO 1 SHRINK RATIO

SPECIFICATIONS

- MIL-DTL-23053/12C, Class 3

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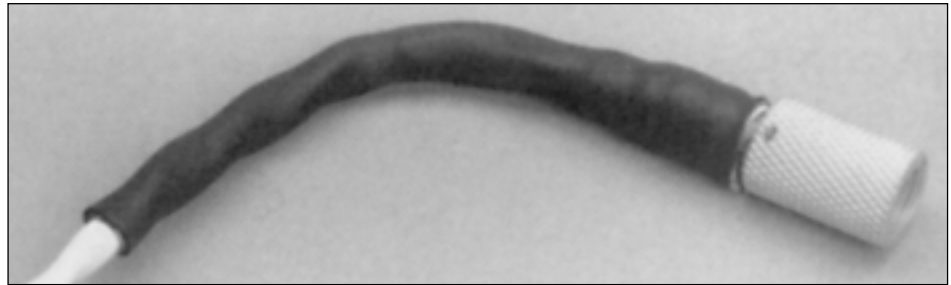
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CHOOSE

FIT®-600 FOR:

- Improved Flexibility
- More than Twice the Tensile Strength of Silicone Rubber
- Large Tubing Diameters
- Oil Resistance and Flame Retardancy
- Abrasion Resistance
- Use with **XTRA**•GUARD® 4



FIT®-600

APPLICATIONS:

- Military and Commercial Harnesses
- Cold Temperature Flexing
- Machine Tool and Automation Equipment
- **XTRA**•GUARD® 4 Applications
- **XTRA**•GUARD® Flexible Cable Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 121°C

SHRINKAGE RATIO:

- Approximately 1.75 to 1 at 135°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 225%
- Longitudinal Shrinkage: -10%
- Specific Gravity: 1.5
- Flammability: Self-Extinguishing (UL VW-1, CSA OFT)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: Inert
- Water Absorption: 1.0%
- Chemical Resistance: JP4, Aviation Gas, Hydraulic Fluids

ELECTRICAL PROPERTIES:

- Dielectric Strength: 1/4" to 1" 300V/mil (118 kV/cm)
1-1/4" to 3" 200V/mil (79 kV/cm)
- Volume Resistivity: 10¹¹ ohm-cm

SPECIFICATIONS

- MIL-DTL-23053/1C, Class 2†
- MIL-R-46846, Type 1, Class 1†
- UL Standard 224
- CSA Standard 198
- Passes UL VW-1 Flame Test
- Passes CSA OFT Flame Test



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association

† FIT-600 does not contain polychloroprene/neoprene but meets the physical properties of MIL-DTL-23053/1C, Class 2 and MIL-R-46846 Type 1, Class 1 specifications.

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Put-Up Spools Feet
	Inches	mm	Inches	mm	Inches	mm	
FIT-600-1/4	0.250	6,35	0.143	3,63	0.035	0,88	25, 150
FIT-600-3/8	0.375	9,53	0.214	5,44	0.040	1,02	25, 150
FIT-600-1/2	0.500	12,70	0.286	7,26	0.048	1,22	25, 150
FIT-600-5/8	0.625	15,90	0.357	9,07	0.052	1,32	25, 150
FIT-600-3/4	0.750	19,10	0.428	10,91	0.057	1,45	25, 100
FIT-600-7/8	0.875	22,22	0.500	12,70	0.065	1,65	25, 100
FIT-600-1	1.000	25,40	0.570	14,58	0.070	1,78	25, 100
FIT-600-1-1/4	1.250	31,75	0.714	18,13	0.087	2,21	25, 100
FIT-600-1-1/2	1.500	38,10	0.857	21,87	0.095	2,41	25, 100
FIT-600-1-3/4	1.750	44,45	1.000	25,40	0.107	2,72	25, 75
FIT-600-2	2.000	50,80	1.140	28,95	0.110	2,79	25, 75
FIT-600-3	3.000	76,20	1.710	43,43	0.125	3,18	25, 50

1.75 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•GUARD® 4
Extra-Protection, High / Low
Temperature TPE Jacketed Cables and
Oil-Resistant
XTRA•GUARD® Flexible Cables
Permanent Solutions For
Critical Flexing Applications!

FIT® Preferred Heat Shrink Products

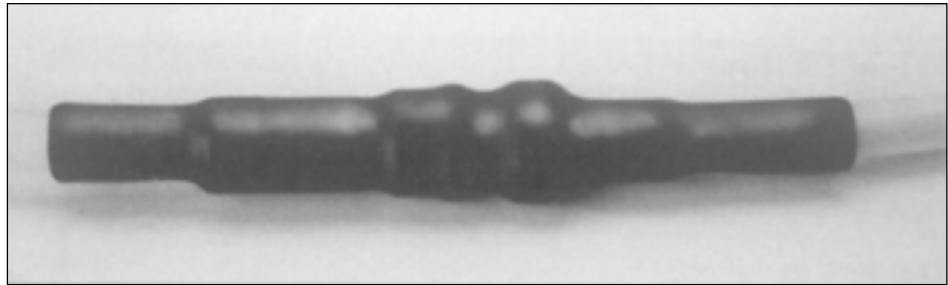
CHEMICAL AND TEMPERATURE RESISTANT IRRADIATED VITON*

FIT®-650

MIL-DTL-23053/13B

CHOOSE **FIT**®-650 For:

- Extreme Temperatures
—40°C to 200°C
- Excellent Chemical Resistance
(Water, Oil, Acid and Fuels)
- Flexibility
- Use with **XTRA•GUARD**® 5
and **XTRA•GUARD**® Flexible
Cables



FIT®-650 APPLICATIONS:

- Chemical Production Applications
- Military Electronics / Aircraft
- In Hostile Environments Requiring
Some Flexibility
- **XTRA•GUARD**® 5 Applications
- **XTRA•GUARD**® Flexible Cable
Applications

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg. Spools Total Ftg.
	Inches	mm	Inches	mm	Inches	mm	
FIT-650-1/8	0.125	3,2	0.062	1,6	0.030	0,76	100
FIT-650-3/16	0.187	4,7	0.093	2,4	0.033	0,84	100
FIT-650-1/4	0.250	6,4	0.125	3,2	0.033	0,84	100
FIT-650-3/8	0.375	9,5	0.187	4,7	0.033	0,84	100
FIT-650-1/2	0.500	12,7	0.250	6,4	0.033	0,84	100
FIT-650-3/4	0.750	19,1	0.375	9,5	0.042	1,10	100
FIT-650-1	1.000	25,4	0.500	12,7	0.049	1,20	100

CHARACTERISTICS

OPERATING TEMPERATURE:

- —40°C to 200°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 175°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1200 psi, (85 kg/cm²)
- Ultimate Elongation: 250%
- Longitudinal Shrinkage: —20%
- Specific Gravity: 2.0
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Shelf Life: 2 Years

ELECTRICAL PROPERTIES:

- Dielectric Strength: 200V/mil (79 kV/cm)
- Volume Resistivity: 10⁹ ohm-cm

2 TO 1 SHRINK RATIO

Recommended For Use With
XTRA•GUARD® 5
Extra High-Temperature /
Chemical-Resistant FEP Teflon®
Jacketed Cables and
Oil-Resistant
XTRA•GUARD® Flexible Cables
Permanent Solutions For
Critical Flexing Applications!

SPECIFICATIONS

- MIL-DTL-23053/13B

*Viton® is a registered trademark of Dupont Dow Elastomers



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Web Site: www.alphawire.com
Email: info@alphawire.com



Preferred Heat Shrink Products

HIGHLY FLEXIBLE, HEAT SHRINKABLE WOVEN FABRIC TUBING

FIT® FABRIC

CHOOSE **FIT**® FABRIC For:

- Superior Abrasion Resistance over a Wide Temperature Range
- Outstanding Flexibility and Durability
- Tight Grip without Additional Fixing
- Ease of Installation
- Resistance to Harsh Environments
- Soft, Safe Handling
- Cuts with Scissors

FIT® FABRIC APPLICATIONS:

- Mechanical Abrasion Protection
- Severe Environment Protection
- Noise and Rattle Protection
- Halogen Free Environment
- Flexing Applications



2 TO 1 SHRINK RATIO

3 TO 1 SHRINK RATIO

New!

CHARACTERISTICS

OPERATING TEMPERATURE:

- -40°C to 125°C

SHRINKAGE RATIO:

- Approximately 2 to 1 or 3 to 1 at 135°C Depending on Size

COLOR DESCRIPTION:

- All Standard Packages: Black

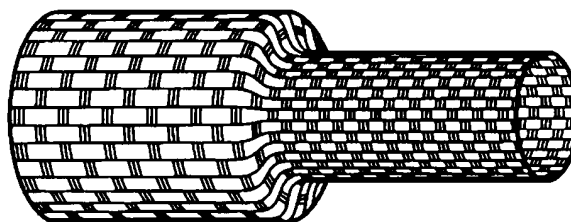
PHYSICAL PROPERTIES:

- Longitudinal Shrinkage:
Up to 20% @ 2:1 Shrink Ratio
Up to 25% @ 3:1 Shrink Ratio
- Flammability: Meets MVSS 302 Horizontal Burn Test

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Chemical Resistance: Antifreeze (50% Ethylene Glycol), Engine Oil, Mineral Hydraulic Fluid, Detergent (1% Teepol), Brake Fluid (DOT 4), Unleaded Gasoline, Diesel Fuel, Battery Acid

Alpha Part No.	Approx. Shrink Ratio	Minimum Supplied I.D.		Maximum Rec. I.D.		Non-Rec. Wall Thickness		Total Ftg.	Std. Spools Total Ftg.
		Inches	mm	Inches	mm	Inches	mm		
FIT FAB-1	2 to 1	0.47	12,0	0.24	6,0	0.039	0,99	50	200
FIT FAB-2	2 to 1	0.79	20,0	0.39	10,0	0.039	0,99	50	200
FIT FAB-3	2 to 1	1.18	30,0	0.59	15,0	0.039	0,99	50	200
FIT FAB-4	2 to 1	1.57	40,0	0.79	20,0	0.039	0,99	50	200
FIT FAB-5	2 to 1	1.97	50,0	0.98	25,0	0.039	0,99	25	100
FIT FAB-6	2 to 1	2.36	60,0	1.18	30,0	0.039	0,99	25	100
FIT FAB-7	2 to 1	2.76	70,0	1.38	35,0	0.039	0,99	25	100
FIT FAB-8	3 to 1	0.71	18,0	0.24	6,0	0.039	0,99	50	200
FIT FAB-9	3 to 1	1.18	30,0	0.39	10,0	0.039	0,99	50	200
FIT FAB-10	3 to 1	2.36	60,0	0.79	20,0	0.039	0,99	25	100



SPECIFICATIONS

- MVSS 302 Horizontal Burn Test



Underwriters Laboratories Inc.

FIT® Preferred Heat Shrink Products

HIGHLY-FLEXIBLE IRRADIATED SILICONE RUBBER

FIT® FLEX

UL STANDARD 224

CHOOSE **FIT**® FLEX For:

- Highest Flexibility Available
- Flexibility in Widest Temperature Range, -75°C to 200°C
- Scrape Abrasion Resistance
- Pliability when Substrate Requires "Give"
- Flame Retardancy
- Use with **XTRA•GUARD**® Flexible Cables



FIT® FLEX APPLICATIONS:

- Robotics Cables
- Automation Equipment Dressing
- Environments With Varied Temperatures
- **XTRA•GUARD**® Flexible Cable Applications
- Fiber Optic Cable Bundles
- Assemblies and Harnesses Requiring Flexibility

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Std. Pkg., Spools Feet
	Inches	mm	Inches	mm	Inches	mm	
FIT-FLEX-2	0.112	2,84	0.070	1,77	0.040	1,02	25, 100
FIT-FLEX-3	0.190	4,82	0.116	2,94	0.040	1,02	25, 100
FIT-FLEX-5	0.305	7,74	0.184	4,67	0.040	1,02	25, 100
FIT-FLEX-6	0.391	9,93	0.240	6,09	0.060	1,52	25, 100
FIT-FLEX-9	0.588	14,93	0.357	9,06	0.060	1,52	25, 100
FIT-FLEX-12	0.825	20,95	0.475	12,06	0.080	2,03	25, 100
FIT-FLEX-20	1.217	30,91	0.790	20,06	0.080	2,03	25, 100

CHARACTERISTICS

OPERATING TEMPERATURE:

- -75°C to 200°C

SHRINKAGE RATIO:

- Approximately 1.70 to 1 at 135°C

COLOR DESCRIPTION:

- All Standard Packages: Gray

PHYSICAL PROPERTIES:

- Tensile Strength: 600 psi, (42 kg/cm²)
- Ultimate Elongation: 250%
- Longitudinal Shrinkage: -15%
- Specific Gravity: 1.25
- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Water Absorption: 1.0%
- Shelf Life: 1 Year

ELECTRICAL PROPERTIES:

- Dielectric Strength: 200V/mil (79 kV/cm)
- Volume Resistivity: 10¹² ohm-cm

1.7 TO 1 SHRINK RATIO

Recommended For Use With
Oil-Resistant
XTRA•GUARD® Flexible Cables
Permanent Solutions For
Critical Flexing Applications!

SPECIFICATIONS

- UL Standard 224



Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



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Web Site: www.alphawire.com
Email: info@alphawire.com



FIT® MINIGUN:
UL STANDARD 499

Preferred Heat Shrink Products

GENERAL PURPOSE HEAT SHRINK KIT

FIT® MGKIT 1

CHOOSE **FIT®** MGKIT 1 FOR:

- A Convenient Kit Including Alpha's Smallest Heat Gun, **FIT®** MINIGUN Along with an Economical, Functional Variety Pack of Alpha Wire's Industry-Leading **FIT®-221** General Purpose Irradiated Polyolefin Heat Shrinkable Tubing in 6-Inch Cut Pieces and in Various Colors and Sizes
- Convenience in the Shop or in the Field
- Cost Effective Solution for Electrical and Electronics Technicians

FIT® MGKIT 1 APPLICATIONS:

- A Completely Portable and Extremely Compact System that Includes all Necessary Materials to Satisfy Strain Relief, Splicing, Connecting, Identification, Environmental Protection and Cable Repair Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- **FIT®** MINIGUN Temperature Setting: Nozzle Temperature to 1000°F (538°C)

COLOR DESCRIPTION:

- **FIT®** MINIGUN: Green
- **FIT®-221-R**: See Chart For Tubing Colors

PHYSICAL PROPERTIES:

- **FIT®** MINIGUN:
Cord Length: 6.0 Ft. (1.83m)
Net Weight: 9.2 Ounces (0.575 lbs.)
Workbench Storage Loop Included
- **FIT®-221-R**: See Chart For Tubing Sizes
For More Detailed Information on **FIT®-221** General Purpose Irradiated Polyolefin Heat Shrinkable Tubing, See Page 114 in the Alpha Wire Master Catalog or Visit www.alphawire.com

ELECTRICAL PROPERTIES:

- **FIT®** MINIGUN
Voltage: 120 Volt
Power: 360 Watts
Current: 3 Amps

SPECIFICATIONS

- UL Standard 499: (**FIT®** MINIGUN)



2 TO 1 SHRINK RATIO

New!

FIT® MGKIT 1 CONTENTS

Alpha Part No.	Content Description	Quantity
FIT MINIGUN	Compact, Lightweight, Portable Heat Gun	1
FIT-221-R	FIT-221 VARIETY PACK (See Below For Tubing Sizes and Colors)	60 6 Inch Cut Pieces

FIT® VARIETY PACK (**FIT®-221-R**) CONTENTS

FIT®-221-R Tubing Size	Number of Cut Pieces					
	Black	White	Red	Blue	Yellow	Green
1/8"	4	3	2	2	2	1
3/16"	4	3	2	2	2	1
1/4"	4	3	2	2	2	1
3/8"	3	2	1	1	1	1
1/2"	3	2	1	1	1	1

135



FIT® Preferred Heat Shrink Products

SHRINKABLE TUBING ASSORTMENTS

FIT® KITS-1, 2, 7

ALPHA **FIT**® KITS:

- For Use in Research and Development Labs,
Engineering Development and Maintenance Departments



FIT® KIT-1 CONTENTS - GENERAL PURPOSE INDOOR APPLICATIONS

Alpha Part No.	Material	Sizes (assorted colors)	No. 6 In. Lengths
FIT-105	Vinyl	9 sizes 3/64" - 3/4"	18
FIT-221	Polyolefin	9 sizes 3/64" - 3/4"	19
FIT-295	Semi-Rigid Polyolefin	8 sizes 3/64" - 1/2"	12
FIT-300	Surface Irradiated Polyolefin	5 sizes 1/8" - 1/2"	10
FIT-350	Kynar**	7 sizes 3/64" - 3/8"	14
FIT CRIMPS 1, 2, 3		22 AWG - 10 AWG	3 pcs
CAP 22, 23, 24			6 pcs

FIT® KIT-2 CONTENTS - GENERAL PURPOSE INDOOR OR OUTDOOR APPLICATIONS

Alpha Part No.	Material	Sizes (assorted colors)	No. 6 In. Lengths	1 In.
FIT-105	Vinyl	9 sizes 3/64" - 3/4"	18	—
FIT-221	Polyolefin	9 sizes 3/64" - 3/4"	19	—
FIT-295	Semi-Rigid Polyolefin	8 sizes 3/64" - 1/2"	12	—
FIT-300	Surface Irradiated Polyolefin	5 sizes 1/8" - 1/2"	10	—
FIT-350	Kynar**	7 sizes 3/64" - 3/8"	14	—
FIT CRIMPS 1, 2, 3		22 AWG - 10 AWG	3 pcs	—
CAP 22, 23, 24			6 pcs	—
FIT-321	Adhesive-Lined Polyolefin	2 sizes 1/4" - 1/2"	16	24
FIT-400	FEP Teflon*	6 sizes 12 - 24 AWG	22	—
FIT-500	TFE Teflon*	5 sizes 18 - 26 AWG	17	—
FIT-600	Elastomer	5 sizes 1/4" - 1"	8	—
FIT-700	Mastic Lined Cable Sleeves	2 sizes 21, 22	2	—
FIT-750	Adhesive Lined Cable Sleeves	1 size 3/8"	—	10

FIT® KIT-7 CONTENTS - GENERAL PURPOSE INDOOR OR OUTDOOR APPLICATIONS

Alpha Part No.	Material	Sizes (assorted colors)	No. 6 In. Lengths
FIT-105	Vinyl	7 sizes 1/6" - 1/2"	14
FIT-400	FEP Teflon*	7 sizes 24 - 12	14
FIT-221	2:1 Polyolefin	7 sizes 1/16" - 1/2"	28
FIT-750	Adhesive Lined Polyolefin	5 sizes 1/4" - 1"	10
FIT-260	Ground Lead Polyolefin	3 sizes 1/8" - 1/2"	6
FIT-300	Surface Irradiated Polyolefin	4 sizes 1/2" - 3/8"	8
FIT-321	3:1 Polyolefin	3 sizes 1/8" - 1/2"	6
FIT-350	Kynar**	7 sizes 3/64" - 1/2"	14
FIT CRIMPS	Shrink Nylon Crimps	3 sizes 1-3	12 pcs

See Page 137 For
Multi-Functional Heat Guns

See Page 138 For
FIT® FBT-1
Flameless Butane Torch

*Teflon® is a registered trademark of E.I. DuPont
**Kynar® is a registered trademark of ELF Atochem North America, Inc.



CHOOSE FIT® GUNS For:

- All Alpha **FIT®** Shrinkable Products
- Two Temperature Settings

CHARACTERISTICS

TEMPERATURE SETTINGS:

- **FIT® GUN-1:**
Low: 300°C (570°F)
High: 566°C (1050°F)
- **FIT® GUN-3:**
Low: 400°C (750°F)
High: 585°C (1090°F)

COLOR DESCRIPTION:

- **FIT® GUN-1:** Blue / Black
- **FIT® GUN-3:** Blue

PHYSICAL PROPERTIES:

- **FIT® GUN-1:**
Cord Length: 6.5 Ft. (1,98 mm)
Net Weight: 1.6 Lbs. (0,73 kg)
- **FIT® GUN-3:**
Cord Length: 6.0 Ft. (1,82 mm)
Net Weight: 1.5 Lbs. (0,68 kg)

ELECTRICAL REQUIREMENTS:

- Voltage: 120 Volt
- Power:
FIT® GUN-1: 1400 watts
FIT® GUN-3: 1200 watts
- Current:
FIT® GUN-1: 11.6 amps
FIT® GUN-3: 10.0 amps



FIT® GUN-1

DURABLE, EFFICIENT AND MULTI-FUNCTIONAL.

FIT® GUN-1 is a two-temperature heat gun that is well balanced and lightweight to minimize operator fatigue. Depending on the application, the **FIT® GUN-1** has a dual temperature setting by means of a 3-position rocker switch. The low setting is at 300°C (570°F) while the high temperature is rated at 566°C (1050°F). The body frame is manufactured of a high impact resistant plastic housing. The ceramic encapsulated heating element, brushless D.C. motor and impeller designed fan blades make this gun ideal for industrial use. Equipped with a built-in slip-resistant stand and hook reflector nozzle attachment.



FIT® GUN-3

ECONOMICAL AND MULTI-FUNCTIONAL.

FIT® GUN-3 is a two-temperature heat gun that is lightweight in design. Depending on the application, the **FIT® GUN-3** has a dual temperature setting by means of a 3-position slider switch. The low setting is at 400°C (750°F) while the high temperature is rated at 585°C (1090°F). The body frame is manufactured of a durable plastic housing. Equipped with a built-in ring stand and hanger, concentrator nozzle and hook reflector nozzle attachments.

SPECIFICATIONS

- UL Standard 499
- CSA C22.2 No. 88



Certified
Canadian Standards Association

FIT® Preferred Heat Shrink Products

POWERFUL FLAMELESS BUTANE TORCH

FIT® FBT-1

CHOOSE **FIT**® FBT-1 FOR:

- Where High Volume Flameless Heat is Required
- Portable Flameless Heat Repair
- Adjustable Temperature Control
- **FIT**® Preferred Heat Shrink Tubing Applications

FIT® FBT-1 APPLICATIONS:

- Maintenance / Repair
- Marine
- Automotive
- Aircraft

CHARACTERISTICS

OPERATING TEMPERATURE:

- Up to 750°C (1400°F)

COLOR DESCRIPTION:

- Blue

PHYSICAL PROPERTIES:

- Length: 190mm (7.5 in)
- Weight: (when gas-filled) 135 g
- Nozzle Size: I.D.: 14mm (0.55 in)
O.D.: 20mm (0.79 in)
- Operating Time (one gas filling):
Approximately 120 minutes at Mid Setting

CHEMICAL PROPERTIES:

- Butane Container Capacity: 20ml
- Refill: Standard Butane Fuel

AVAILABILITY

- One Piece Per Package



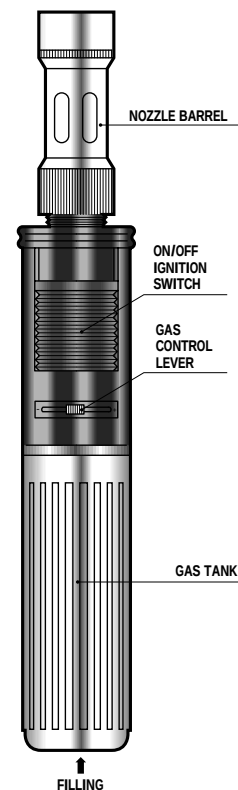
New!

THIS TOOL HAS BEEN
ESPECIALLY DESIGNED
FOR USE WITH 100%
BUTANE GAS.

ANY OTHER BUTANE-
PROPANE MIX OR
OTHER FUEL GASES
SHOULD NOT BE USED.

TO INSURE SAFE
OPERATION WHEN
USING THE
FIT® FBT-1,
PLEASE READ ALL
INSTRUCTIONS
CAREFULLY PRIOR
TO USE.

BUTANE IS NOT
INCLUDED.



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Email: info@alphawire.com

CHOOSE END CAPS FOR:

- Moisture Resistance
- Abrasion Resistance

END CAP APPLICATIONS:

- Wire Terminations
- Splice Terminations

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 135°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

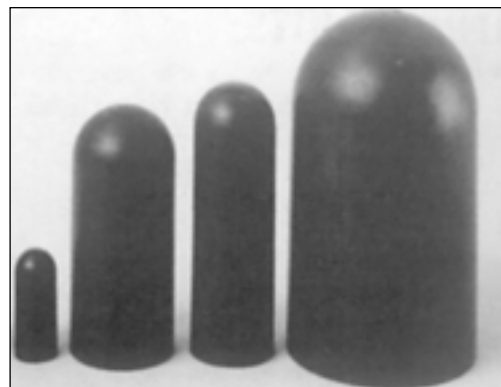
- Tensile Strength: 2500 psi, (176 kg/cm²)
- Ultimate Elongation: 300%
- Specific Gravity: 1.25
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.1%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 700V/mil (276 kV/cm)
- Volume Resistivity: 10¹⁵ ohm-cm



Alpha Part No.	Minimum Supplied I.D.		Maximum Rec. I.D.		Nom. Rec. Wall Thickness		Nominal Length		Standard Package
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
CAP-21	0.20	5,08	0.08	2,03	0.04	1,02	0.90	22,86	25 Pcs.
CAP-22	0.29	7,37	0.12	3,05	0.05	1,27	1.00	25,40	25 Pcs.
CAP-23	0.40	10,16	0.18	4,57	0.06	1,52	1.20	30,48	25 Pcs.
CAP-24	0.60	15,24	0.25	6,35	0.07	1,78	1.60	40,64	25 Pcs.
CAP-25	0.81	20,57	0.37	9,40	0.08	2,03	2.40	60,96	25 Pcs.
CAP-26	1.00	25,40	0.45	11,43	0.09	2,29	2.70	68,58	25 Pcs.
CAP-27	1.55	39,37	0.71	18,03	0.10	2,54	3.60	91,44	25 Pcs.

FIT® Preferred Heat Shrink Products

MOLDED IRRADIATED POLYOLEFIN BOOTS

FIT®-BOOTS

CHOOSE **FIT**®-BOOTS For:

- Connector Protection
- Environmental Seal

FIT®-BOOT APPLICATIONS:

- D-Subminiature Connector Protection
- Cable/Connector Strain Relief

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 135°C

SHRINKAGE TEMPERATURE:

- 121°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

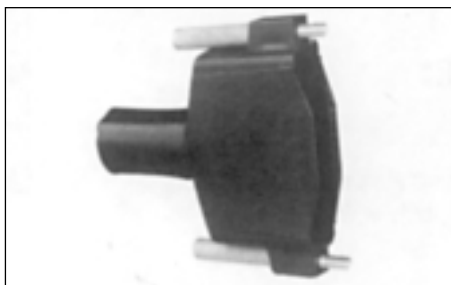
- Tensile Strength: 1500 psi, (106 kg/cm²)
- Ultimate Elongation: 200%
- Specific Gravity: 1.35
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 200V/mil (70 kV/cm)
- Volume Resistivity: 10¹⁴ ohm-cm



Alpha Part No.	Minimum Supplied I.D.		Maximum Rec. I.D.		Nominal Length Inches	Standard Package Pieces
	Inches	mm	Inches	mm		
FIT-D BOOT-9	0.42	10,7	0.15	3,8	1.20	10, 100
FIT-D BOOT-15	0.42	10,7	0.15	3,8	1.53	10, 100
FIT-D BOOT-25	0.42	10,7	0.20	5,1	2.11	10, 100
FIT-D BOOT-37	0.42	10,7	0.22	5,6	2.72	10, 100

Alpha's heat shrinkable D-subminiature **FIT**®-BOOTS are designed to provide a solution to the strain relief of a D sub connector. Strain relief is achieved by a heat shrinkable adhesive coated collar which protects cables when tensioned, and provides added sealing protection.

The boot is supplied as a single piece which snaps on to the back of the connector. There are no small parts and no tools required. Jack screws are provided to ensure easy access into each connector.

FIT®-"D" BOOTS are flame retardant to UL94V2, and are available in four sizes, with 9 to 37 pin connectors.



SIDE ENTRY CONNECTORS

Alpha Part No.	Expanded ("A")		Fits Conn. Type	Std. Cannon Pkg. Cinch	Pcs.
	Inches	mm			
FIT-BOOT-6	0.31	7,87	DE-9	1	1
FIT-BOOT-7	0.40	10,16	DA-15	1	1
FIT-BOOT-8	0.55	13,97	DB-25	1	1
FIT-BOOT-9	0.68	17,27	DC-37	1	1
FIT-BOOT-10	0.75	19,05	DD-50	1	1

END ENTRY CONNECTORS

Alpha Part No.	Expanded ("A")		Fits Conn. Type	Std. Cannon Pkg. Cinch	Pcs.
	Inches	mm			
FIT-BOOT-11	0.31	7,87	DE-9	1	1
FIT-BOOT-12	0.40	10,16	DA-15	1	1
FIT-BOOT-13	0.55	13,97	DB-25	1	1
FIT-BOOT-14	0.68	17,27	DC-37	1	1
FIT-BOOT-15	0.75	19,05	DD-50	1	1

Designed specifically for subminiature rectangular connectors manufactured by ITT-Cannon and Cinch.

FIT®-BOOTS replace metal molds and potting forms used on molded harnesses. **FIT**®-BOOTS provide a strain relief and seal out contaminants. The boots are molded of a heat shrinkable, irradiated modified polyolefin compound with excellent physical and electrical properties.

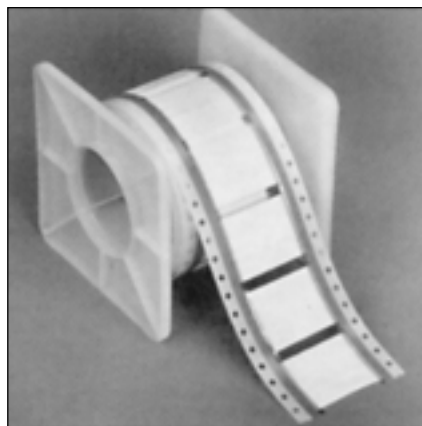


CHOOSE FIT®-PRINT For:

- Identification for Cable or Harness Assemblies
- Permanent/Smear-Resistant Marking
- Bright Yellow for High Visibility or White

FIT®-PRINT APPLICATIONS:

- Marine Electronics
- Industrial Computers
- Electrical Equipment



CHARACTERISTICS

OPERATING TEMPERATURE:

- -30°C to 105°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 125°C

COLOR DESCRIPTION:

- Yellow or White

PHYSICAL PROPERTIES:

- Tensile Strength: 1200 psi
- Ultimate Elongation: 150%
- Longitudinal Shrinkage: -20%
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 500V/mil

Alpha Part No.	Approx. Wire Gauge (AWG)		Minimum Supplied I.D.		Maximum Rec. I.D.		Rec. Wall Thickness Inches	Recom. Use Range	Non Sleeve Progression
	Min.	Max.	Inches	mm	Inches	mm			
FIT-PRINT-1/8	22	16	0.125	3,2	0.042	1,0	0.023±0.003	0.044 to 0.105	0.500
FIT-PRINT-1/4	16	8	0.250	6,4	0.083	2,1	0.023±0.003	0.091 to 0.215	0.666
FIT-PRINT-1/2	8	2	0.500	12,7	0.166	4,2	0.024±0.003	0.183 to 0.425	1.166
FIT-PRINT-1	2	400	1.000	25,4	0.333	8,4	0.025±0.003	0.366 to 0.850	2.000

PERMANENT WIRE IDENTIFICATION

Alpha's **FIT®-PRINT** Markers are designed to economically meet the wire identification needs of the electronic interconnect, industrial, computer office automation, marine and electrical markets. Made of irradiated modified polyolefin tubing with a 3:1 shrink ratio, these sleeves are designed for smear-resistant, permanent identification. The sleeves feed directly into standard typewriters or dot matrix printers. For best results, use a ribbon with a high carbon content and for write-on convenience, a standard ball point pen may also be used. Alpha's **FIT®-PRINT** Identification System can personalize and customize all cable assemblies without large inventory costs or special equipment.

SPECIFICATIONS

- UL Standard 224



AVAILABILITY

- 250 tubing pieces per package

FIT® Preferred Heat Shrink Products

FIT® WRAP SHRINKABLE POLYOLEFIN REPAIR

FIT®-RP

CHOOSE **FIT**® WRAP FOR:

- Environmental Seal
- Moisture Barrier
- Corrosion, Fungus Resistance
- 600 Volt Cable Seal

FIT® WRAP APPLICATIONS:

- Cable Jacket Repair When Cable Disconnect is Impossible



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 110°C

SHRINKAGE RATIO:

- Approximately 3 to 1 at 120°C
Depending Upon Size

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 3340 psi,
(236 kg/cm²)
- Ultimate Elongation: 620%
- Specific Gravity: 0.94
- Water Absorption: 0.1%

CHEMICAL PROPERTIES:

- Fungus Resistance: No Growth
- Chemical Resistance: Hydraulic
Fluid (MIL-H-5606C), Lubricating
Oil (MIL-L-7808G) and Diesel Fuel
- Corrosive Effect: Non Corrosive

ELECTRICAL PROPERTIES:

- Dielectric Strength: 790V/mil
(311 kV/cm)
- Volume Resistivity: 10¹⁵ ohm-cm

Alpha Part No.	Minimum Rec. Diameter Range		Maximum Rec. Diameter Range		Flat Length Inches	Standard Package Pieces
	Inches	mm	Inches	mm		
FIT -RP806R	0.25	6,35	1.20	30,48	6	1
FIT -RP808R	0.25	6,35	1.20	30,48	8	1
FIT -RP1106R	0.60	15,24	1.80	45,72	6	1
FIT -RP1108R	0.60	15,24	1.80	45,72	8	1
FIT -RP1806R	0.95	24,13	2.70	68,58	6	1
FIT -RP1808R	0.95	24,13	2.70	68,58	8	1

SPECIFICATIONS

- ASTM - D638
- ASTM - G21
- ASTM - D570



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Web Site: www.alphawire.com
Email: info@alphawire.com

CHOOSE **FIT**®-SLV FOR:

- Water Resistant Protection
- Heavy-Duty Splice Connection

FIT®-SLV APPLICATIONS:

- Shield to Ground Terminations

CHARACTERISTICS

OPERATING TEMPERATURE:

- 105°C Series — 105°C
- 125°C Series — 125°C

COLOR DESCRIPTION:

- All Standard Packages: Transparent

PHYSICAL PROPERTIES:

- Tensile Strength: Ground Lead Breakage 25 Lb. (20 AWG)
- Solder Melt Temperature:
105°C Series: 145°C
125°C Series: 180°C

ELECTRICAL PROPERTIES:

- Dielectric Strength: 2000 Volt
- Insulation Resistance:
5 x 10⁹ ohms
- Voltage Drop: 2.5 Millivolts

SPECIFICATIONS

- MIL-F-14256, Type RMA Flux (105°C Series)
- QQ-S-571, Solder (125°C Series)

BRAID SHIELD GROUNDING SYSTEM

Alpha's **FIT**® Soldering Sleeve is a one piece, shield ground termination system featuring a strong, low-cost soldered connection which is completely insulated and encapsulated. It consists of a heat-shrinkable thermoplastic sleeve containing a precisely engineered preform of fluxed solder and thermoplastic inserts at each end. When placed over a cable shield and heated, the solder melts and flows, connecting the ground lead and shield. The outer sleeve shrinks and the thermoplastic inserts melt, encapsulating the termination. The result is a perfectly soldered, strain-relieved and environmentally protected termination.

Solder preform assures exact quantity of solder and flux, producing optimum solder connections for maximum strength, lowest voltage drop. Transparent heat-shrinkable insulating sleeve allows inspection of termination, provides long-life strain relief. Melttable inserts insure complete environmental protection.

- 105°C Series: Kynar® insulating sleeve containing solder alloy preform of 51.2% Tin, 30.6% Lead, 18.2% Cadmium
- 125°C Series: Kynar® insulating sleeve containing preform of SN-63 composed of 63% Tin, 37% Lead

105°C SERIES

Alpha Part No.	E Max		Cable Dimensions F Min		L Nom.		Cable Dimensions A Min		B Min		Std. Package Pieces
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
FIT-SLV-12	0.125	3,2	0.055	1,4	0.620	15,8	0.125	3,2	0.110	2,8	25, 100
FIT-SLV-14	0.200	5,1	0.100	2,5	0.620	15,8	0.200	5,1	0.180	4,6	25, 100
FIT-SLV-16	0.300	7,6	0.160	4,0	0.750	19,1	0.300	7,6	0.280	7,1	25, 100

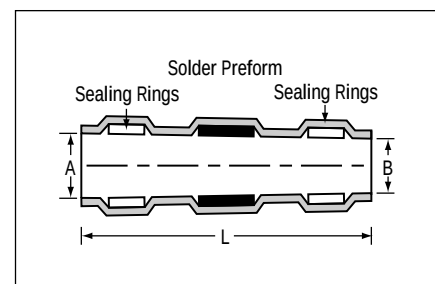
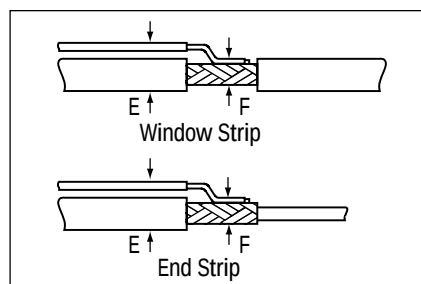
125°C SERIES

Alpha Part No.	E Max		Cable Dimensions F Min		L Nom.		Cable Dimensions A Min		B Min		Std. Package Pieces
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
FIT-SLV-22	0.125	3,2	0.055	1,4	0.620	15,8	0.125	3,2	0.110	2,8	25, 100
FIT-SLV-24	0.200	5,1	0.100	2,5	0.620	15,8	0.200	5,1	0.180	4,6	25, 100
FIT-SLV-26	0.300	7,6	0.160	4,0	0.750	19,1	0.300	7,6	0.280	7,1	25, 100

*Kynar® is a registered trademark of ELF Atochem North America, Inc.

SELECTION GUIDE

1. Measure maximum diameter (E) and minimum diameter (F) of combined cable and ground lead.
2. Find appropriate Alpha Part No. and sleeve size in the cable and sleeve dimensions chart.



FIT® Preferred Heat Shrink Products

SHRINKABLE NYLON CRIMP SPLICES

FIT® CRIMP

CHOOSE **FIT**® CRIMP FOR:

- Water and Corrosion Resistant Protection
- Strain Relief

FIT® CRIMP APPLICATIONS:

- Marine Electronics/Electrical Connections
- Appliance Manufacturing
- Mass Transit Wiring Systems
- Petroleum/Chemical Industries



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 125°C

SHRINKAGE RATIO:

- Approximately 2 to 1 at 180°C

COLOR DESCRIPTION:

- **FIT**® CRIMP 1: Red
- **FIT**® CRIMP 2: Blue
- **FIT**® CRIMP 3: Yellow

PHYSICAL PROPERTIES:

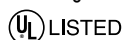
- Cut-Through Resistance:
70 Lbs. (31 kg)
- Wire Pullout:**
FIT® CRIMP 1: 25 Lbs. (11 kg)
FIT® CRIMP 2: 50 Lbs. (23 kg)
FIT® CRIMP 3: 60 Lbs. (27 kg)
- Heat Aging: 168 Hours at 160°C,
No Cracking
- Not Flame Retardant

CHEMICAL PROPERTIES:

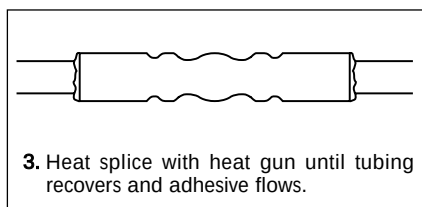
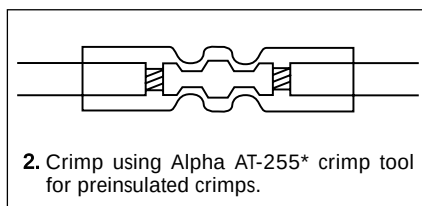
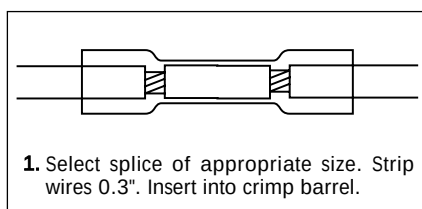
- Solvent Resistance: Isopropyl Alcohol, Trichloroethylene, Gasoline, Battery Acid, Diesel Fuel, Motor Oil, Anti-Freeze, Brake Fluid, 5% Salt Water

ELECTRICAL PROPERTIES:

- Dielectric Strength: 2500 Volts
- Insulation Resistance:
10³ megohms



Alpha Part No.	AWG Range of Barrel		Minimum Supplied I.D.		Maximum Rec. I.D.		Standard Package Pieces
	Min.	Max.	Inches	mm	Inches	mm	
FIT CRIMP 1	22	18	0.145	3,86	0.060	1,52	25, 100, 500
FIT CRIMP 2	16	14	0.180	4,57	0.080	2,03	25, 100, 500
FIT CRIMP 3	12	10	0.250	6,35	0.118	2,99	25, 100, 500



ENVIRONMENTALLY SEALED, BUTT CONNECTIONS

Alpha's heat-shrinkable pre-insulated crimp splices completely seal electrical connections from corrosion caused by water, salts and other contaminants. Unlike conventional splices, these adhesive-lined butt connectors provide a strong reinforced connection. They are lightweight and easy to install, too. Simply insert the wires. The sleeve's transparent nylon insulation lets you inspect wire location and position your crimping tool fast. Crimp the splice and then shrink and seal it with a common heat gun or other heat source. Reliable sealing plus quick and easy installation add up to protection you can count on whenever wire splices are required, including automobile and truck wiring, outdoor electrical equipment, marine equipment, telecommunications equipment, recreational equipment and household appliances.

*For details on the Alpha AT-255 Crimp Tool, see page 286

**After crimping and recovery.



Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
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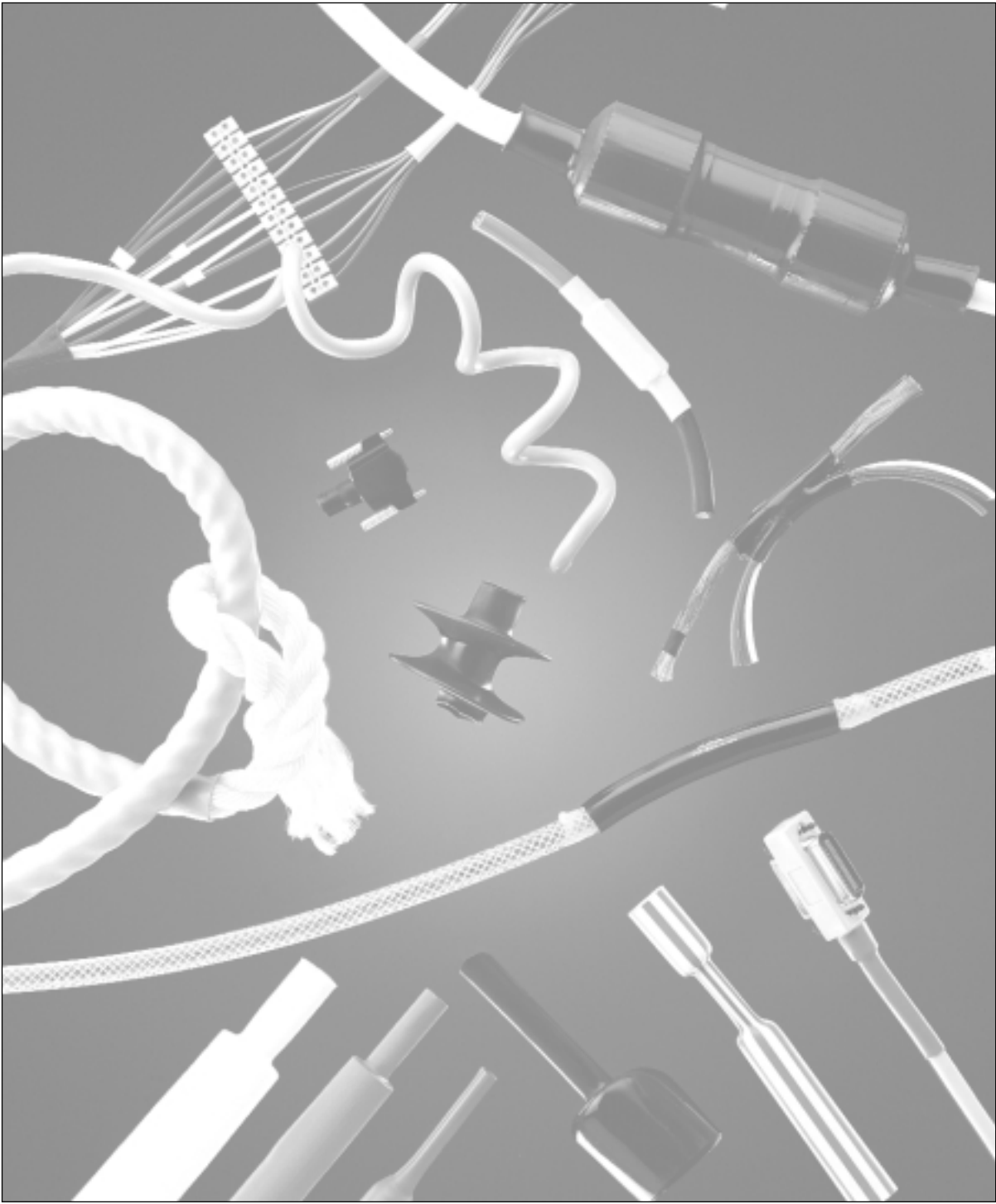
Web Site: www.alphawire.com
Email: info@alphawire.com



Preferred Heat Shrink Products

FIT[®] HEAT SHRINK TUBING CROSS REFERENCE

ALPHA WIRE	PAGE NO.	SUMITOMO	RAYCHEM	3M	CANUSA	PANDUIT	INSULTAB	MANHATTAN / COLEFLEX
FIT-221	114	B2, A2	RNF-100	FP-301	CPX-100	HSTT, HSTTM	HS-101	ST221/ST219
FIT-221B	116	B2, A2	RNF-100	FP-301	CPX-100	HSTT	HS-101	ST221/ST219
FIT-221V	117	B2	VERSAFIT 2:1	FP301VW	CPX-876	HSTTV	HS-101	STF221
FIT-105	118	V				HSTTP	HS-105	ST100
FIT-260	119		DCPT	GYS				
FIT-321V	120	W3B2(3X)	VERSAFIT 3:1		CPX-300			
FIT-321	121	W3B2	ATUM 3:1	EPS-300		HSTTA	HS-101MV3:1	ST303
FIT-421	122	W3B2(4X)	RP-4800					
FIT-621	123		HRNF					
FIT-295	124	B8	CRN	SR-350		HSTTR	HS-101SR	ST295
FIT-300	125	W5DL	SCL	MW		HSTTRA	HS-101MV	ST300
FIT-700 (21-25)	126		SST	ITCS, MDT	CFW			SPC
FIT-750	127	O2B2	TAT-125	EPS-200		HSTTVA	HS-101MV2:1	ST302
FIT-350	128	K	KYNAR	KYNAR		HSTTK	HSK-600	ST350
FIT-400	129					HSTTF		ST400
FIT-500	130							ST500
FIT-600	131	R10	NT, NTFR	NST		HSTTN	HSN-100	ST700
FIT-650	132	FE3	VITON	VTN200			HS-VTN	ST650
FIT FLEX	134		SRFR					ST675
CAP	139		101A0XX					
FIT-SLV	143		S01-XX-R/S02-XX-R					
FIT-BOOTS	140		214A0XX,234A0XX					
FIT FABRIC	133		HFT5000,HFT3000					
FIT WRAP	142				CRLS			
FIT CRIMP	144		D406	MH-18,14,106				D406-XXXX
FIT-PRINT	141		TMS-SCE					



WIRE MANAGEMENT PRODUCTS

WITH DISTINCT VALUE-ADDED ADVANTAGES

Alpha's Wire Management Products are the complete solution to the fabrication of wire, cable and harness assemblies. We offer a complete variety of non-shrink tubing, spiral wrap tubing, zipper tubing, routing and shielding products. These products allow the E-OEM or value-added cable assembler to perform the most efficient and cost effective contract manufacturing.

ALPHA WIRE OFFERS WIRE MANAGEMENT PRODUCTS WITH DISTINCT VALUE-ADDED ADVANTAGES:

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HARNESSING

Alpha offers non-shrinkable tubing, sleeving, spiral wrap tubing, zipper tubing and lacing cord for the harnessing and bundling of wire and cable assemblies of almost any size. Our unique ZIP-GRIP expandable, Velcro type enclosure sleeving allows easy re-entry and unlimited wire and cable break outs.

SHIELDING

Alpha offers flat, round and oval tinned copper shielding braid for grounding protection and shielding against EMI electromagnetic interference and radio frequency interference. Alpha's copper foil shielding tape is backed with a highly conductive, pressure-sensitive adhesive for use in a wide variety of EMI/RFI shielding applications in cable and connector assemblies.

ROUTING

Alpha's flexible, non-metallic, liquid-tight tubing and connection systems allow protection of wire, cable and fiber optics in factories, offices or underground installations. Use Alpha's routing system of products to replace rigid raceways where flexibility, re-entry, re-usability and a liquid-tight environmental seal are required.

Product Type	Page Number (s)
Multi-Purpose PVC Tubing — PVC-105	148
Teflon® Tubing — TFT-200, 250	149
PVC Coated Fiberglass Sleeving — PIF-130	150
Silicone Coated Fiberglass Sleeving — PIF-200	151
Uncoated Fiberglass Sleeving — PIF-240	152
Non-Fraying Braided Polyester Sleeving — GRP-110NF, 120NF	153
Expandable Braided Polyester Sleeving — GRP-110, 120	154
Expandable Polyester Webbed Sleeving — ZIP-GRP	155
Zipper Tubing — ZIP-41	156
Spiral Wrap Tubing — SW	157
Lacing Cord and Tape — LC	158
Tinned / Copper Braid — Flat, Oval	159
Tinned / Silver Copper Braid — Tubular	160
EMI / RFI Copper Shielding Tape — CST	161
Flexible, Liquid-Tight PVC Tubing — FNT	162
Liquid-Tight Connectors — SLC, RLC	163
Wire Management Cross Reference	164
Liquid-Tight Cross-Reference Guide	164

*Teflon is a registered trademark of E.I. DuPont

WIRE MANAGEMENT PRODUCTS

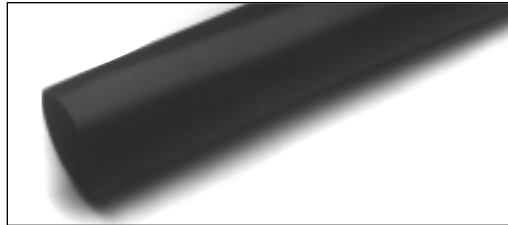
MULTI-PURPOSE PVC TUBING

PVC-105

UL STANDARD 224,
CSA STANDARD 198, MIL-I-631D

CHOOSE PVC TUBING FOR:

- Flexible Wire Protection
- Resistance to Heat, Oil, and Abrasion



In accordance with NEMA standards, may contain more than one length. PVC-105-24 to PVC-105-1 are available air spooled.

PVC TUBING APPLICATIONS:

- Wire Harnesses
- Ground Strap Protection

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

COLOR DESCRIPTION:

- Size 24 to 1-1/2 Inches:
Black, Clear
- Size 2 Inches to 2-1/2 Inches:
Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1800 psi,
(127 kg/cm²)
- Ultimate Elongation: 300%
- Specific Gravity: Clear 1.25,
Black 1.35
- Flammability: Self-Extinguishing
(UL VW-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 800V/mil
(315 kV/cm)
- Volume Resistivity: 10¹¹ ohm-cm

SPECIFICATIONS

- UL Standard 224
- CSA Standard 198
- MIL-I-631D

 **Recognized Component**
Underwriters Laboratories Inc.

 **Passes
UL VW-1 Flame Test**
Underwriters Laboratories Inc.

 **Certified**
Canadian Standards Association

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Nominal Wall Thickness		Standard Put-Up Spools (Ft.)
	Inches	mm	Inches	mm	
PVC-105-24	0.022	0,55	0.012	0,30	1000
PVC-105-22	0.027	0,68	0.012	0,30	100, 1000
PVC-105-20	0.034	0,86	0.016	0,41	1000
PVC-105-19	0.038	0,96	0.016	0,41	1000
PVC-105-18	0.042	1,07	0.016	0,41	100, 1000
PVC-105-17	0.047	1,19	0.016	0,41	100, 1000
PVC-105-16	0.053	1,35	0.016	0,41	100, 1000
PVC-105-15	0.059	1,50	0.016	0,41	100, 1000
PVC-105-14	0.066	1,68	0.016	0,41	100, 500
PVC-105-13	0.076	1,93	0.016	0,41	100, 500
PVC-105-12	0.085	2,16	0.016	0,41	500
PVC-105-11	0.095	2,41	0.016	0,41	100, 500
PVC-105-10	0.106	2,69	0.016	0,41	500
PVC-105-9	0.118	3,00	0.020	0,50	500
PVC-105-8	0.133	3,38	0.020	0,50	100, 500
PVC-105-7	0.148	3,76	0.020	0,50	100, 500
PVC-105-6	0.166	4,22	0.020	0,50	100, 500
PVC-105-5	0.186	4,72	0.020	0,50	100, 500
PVC-105-4	0.208	5,28	0.020	0,50	100, 250
PVC-105-3	0.234	5,94	0.020	0,50	100, 250
PVC-105-2	0.263	6,68	0.020	0,50	250
PVC-105-1	0.294	7,47	0.020	0,50	100, 250
PVC-105-0	0.330	8,38	0.020	0,50	100, 250
PVC-105-5/16	0.312	7,92	0.025	0,63	100, 250
PVC-105-3/8	0.375	9,52	0.025	0,63	100, 250
PVC-105-7/16	0.438	11,12	0.025	0,63	100
PVC-105-1/2A	0.500	12,70	0.025	0,63	100
PVC-105-9/16	0.562	14,27	0.030	0,76	100
PVC-105-5/8	0.625	15,87	0.030	0,76	100
PVC-105-3/4	0.750	19,05	0.035	0,88	50
PVC-105-7/8	0.875	22,22	0.035	0,88	50
PVC-105-1 IN	1.000	25,40	0.035	0,88	50
PVC-105-1-1/8	1.125	28,57	0.035	0,88	50
PVC-105-1-1/4	1.250	31,75	0.040	1,02	50
PVC-105-1-1/2	1.500	38,10	0.045	1,14	50
PVC-105-2 IN	2.000	50,80	0.060	1,52	50
PVC-105-2-1/2	2.500	63,50	0.070	1,78	50



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Web Site: www.alphawire.com
Email: info@alphawire.com

WIRE MANAGEMENT PRODUCTS

TEFLON® TUBING

TFT-200, 250

ASTM D 3295

CHOOSE TEFLON® TUBING FOR:

- Excellent Heat and Chemical Resistance
- Superior Dielectric Strength

TEFLON® TUBING APPLICATIONS:

- Wire Harnesses
- High Temperature Component Covering

CHARACTERISTICS

OPERATING TEMPERATURE:

- -65°C to 260°C

COLOR DESCRIPTION:

- All Standard Packages: Transparent

PHYSICAL PROPERTIES:

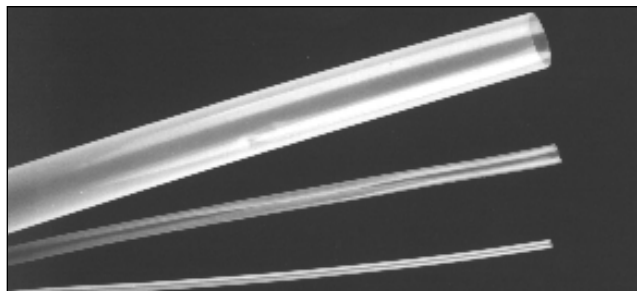
- Tensile Strength: 2500 psi (176 kg/cm²)
- Ultimate Elongation: 200%
- Specific Gravity: 2.2
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.01%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 800V/mil (315 kV/cm)
- Volume Resistivity: 10¹⁸ ohm-cm



Alpha Part No. and Size (AWG)		Nominal Inside Diameter		TFT-200 Nominal Wall Thick.		TFT-250 Nominal Wall Thick.		Standard Put-Up Spools (Ft.)
Thin Wall	Standard Wall	Inches	mm	Inches	mm	Inches	mm	
TFT-200-30	—	0.012	0,30	0.009	0,22	—	—	100, 500, 1000
TFT-200-28	—	0.015	0,38	0.009	0,22	—	—	100, 500, 1000
TFT-200-26	—	0.018	0,45	0.009	0,22	—	—	100, 500, 1000
TFT-200-24	TFT-250-24	0.022	0,55	0.010	0,25	0.012	0,30	100, 500, 1000
TFT-200-22	TFT-250-22	0.028	0,71	0.010	0,25	0.012	0,30	100, 500, 1000
TFT-200-20	TFT-250-20	0.034	0,86	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-19▲	TFT-250-19	0.038	0,96	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-18	TFT-250-18	0.042	1,07	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-17▲	TFT-250-17▲	0.047	1,19	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-16	TFT-250-16	0.053	1,35	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-15▲	TFT-250-15▲▲	0.059	1,50	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-14	TFT-250-14	0.066	1,68	0.012	0,30	0.016	0,41	100, 500
TFT-200-13	TFT-250-13▲	0.076	1,93	0.012	0,30	0.016	0,41	100, 500
TFT-200-12	TFT-250-12▲	0.085	2,16	0.012	0,30	0.016	0,41	100, 500
TFT-200-11	TFT-250-11	0.095	2,41	0.012	0,30	0.016	0,41	100, 500
TFT-200-10	TFT-250-10	0.106	2,69	0.012	0,30	0.016	0,41	100, 500
TFT-200-9	TFT-250-9	0.118	3,00	0.015	0,38	0.020	0,50	100, 500
TFT-200-8	TFT-250-8	0.133	3,38	0.015	0,38	0.020	0,50	100
TFT-200-7	TFT-250-7	0.148	3,76	0.015	0,38	0.020	0,50	100
TFT-200-6	TFT-250-6	0.166	4,22	0.015	0,38	0.020	0,50	100
TFT-200-5	TFT-250-5	0.186	4,73	0.015	0,38	0.020	0,50	100
TFT-200-4	TFT-250-4	0.208	5,28	0.015	0,38	0.020	0,50	100
TFT-200-3	TFT-250-3	0.234	5,94	0.015	0,38	0.020	0,50	100
TFT-200-2	TFT-250-2	0.263	6,68	0.015	0,38	0.020	0,50	100
TFT-200-1	TFT-250-1	0.294	7,47	0.015	0,38	0.020	0,50	100
TFT-200-0	TFT-250-0	0.330	8,38	0.015	0,38	0.020	0,50	100

▲ Not available in 500 ft. put-up

▲▲ Not available in 1000 ft. put-up

Teflon is a registered trademark of E.I. DuPont Co.

SPECIFICATIONS

- ASTM D 3295

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WIRE MANAGEMENT PRODUCTS

PVC COATED FIBERGLASS SLEEVING

PIF-130

UL STANDARD 1441

MIL-I-3190E

CHOOSE PVC COATED FIBERGLASS SLEEVING FOR:

- High Temperature, Abrasion and Oil Resistance
- Resists Fraying, Bending and Knotting



FLAME RESISTANT: PIF-130 is a woven fiberglass braid impregnated with a heat resistant, extremely tough and flexible plastic insulation. The fiberglass is treated to remove all organic matter and resist fraying. Completely compatible with all insulation and conductor types.

PVC COATED FIBERGLASS SLEEVING APPLICATIONS:

- Flexible Wire Harnessing

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 130°C
- (NEMA: 130°C, UL: 105°C)

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Low Temperature Brittleness: -40°C
- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 8000 Volt

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Standard Put-Up Spools (Ft.)
	Inches	mm	
PIF-130-20	0.034	0,86	100, 500, 1000
PIF-130-18	0.042	1,07	100, 500, 1000
PIF-130-16	0.053	1,35	100, 1000
PIF-130-14	0.066	1,68	100
PIF-130-12	0.085	2,16	100, 500
PIF-130-10	0.106	2,09	100, 500
PIF-130-8	0.133	3,38	100, 500
PIF-130-6	0.166	4,22	100, 250
PIF-130-4	0.208	5,28	100, 250
PIF-130-2	0.263	6,68	100, 250
PIF-130-0	0.330	8,38	100
PIF-130-3/8	0.375	9,52	100
PIF-130-7/16	0.438	11,12	100
PIF-130-1/2A	0.500	12,70	100
PIF-130-5/8	0.625	15,88	100
PIF-130-3/4	0.750	19,05	100
PIF-130-7/8	0.875	22,22	100
PIF-130-1 IN	1.000	25,40	100

SPECIFICATIONS

- UL Standard 1441
- MIL-I-3190E
- NEMA, VS-1

 **Recognized
Component**
Underwriters Laboratories Inc.

 **Passes
UL VW-1 Flame Test**
Underwriters Laboratories Inc.



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WIRE MANAGEMENT PRODUCTS

SILICONE COATED FIBERGLASS SLEEVING

UL STANDARD 1441
MIL-I-3190E

PIF-200

CHOOSE SILICONE COATED FIBERGLASS SLEEVING FOR:

- High Flexible Routing
- Extreme Abrasion Resistance
- Superior Electrical Properties

SILICONE COATED FIBERGLASS SLEEVING APPLICATIONS:

- High/Low Temperature Wire Harnesses
- High/Low Temperature Cable Connections
- Component Covering

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 200°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Heat Aging: 1440 Hours at 235°C Without Dielectric Change
- Hardness: Shore A34
- Flammability: Self-Extinguishing (NEMA VS-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 8000 Volts



HIGH HEAT, SUPERIOR ELECTRICAL CHARACTERISTICS: A closely woven, braided fiberglass, uniformly coated with silicone rubber. Provides low temperature flexibility — 70°C, and heat protection to 200°C. The fiberglass sleeving material is heat-set, cuts cleanly and will not fray. PIF-200 is easy to handle and extremely tough with superior physical and electrical properties. Easy to “pushback” and form over components, connections and cables.

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Standard Put-Up Spools (Ft.)
	Inches	mm	
PIF-200-24	0.024	0,61	100, 500, 1000
PIF-200-22	0.029	0,74	100, 500, 1000
PIF-200-20	0.036	0,91	100, 500, 1000
PIF-200-18	0.045	1,14	100, 500, 1000
PIF-200-17	0.050	1,27	500, 1000
PIF-200-16	0.056	1,42	100, 500, 1000
PIF-200-15	0.063	1,60	100, 1000
PIF-200-14	0.069	1,75	100, 500
PIF-200-13	0.076	1,93	100, 500
PIF-200-12	0.085	2,16	100, 500
PIF-200-11	0.097	2,46	500
PIF-200-10	0.107	2,72	100, 500
PIF-200-9	0.119	3,02	100, 500
PIF-200-8	0.136	3,45	100, 500
PIF-200-7	0.151	3,84	100, 500
PIF-200-6	0.170	4,32	25, 100
PIF-200-5	0.190	4,83	25, 100
PIF-200-4	0.208	5,28	100
PIF-200-3	0.239	6,07	25, 100
PIF-200-2	0.268	6,81	25, 100
PIF-200-1	0.294	7,47	100
PIF-200-0	0.330	8,38	100
PIF-200-3/8	0.375	9,52	25, 100
PIF-200-7/16	0.438	11,12	25, 100
PIF-200-1/2A	0.500	12,70	25, 100
PIF-200-5/8	0.625	15,88	25, 100

SPECIFICATIONS

- UL Standard 1441
- MIL-I-3190E
- NEMA, VS-1



WIRE MANAGEMENT PRODUCTS

UNCOATED FIBERGLASS SLEEVING

PIF-240

UL STANDARD 1441

CHOOSE UNCOATED FIBERGLASS SLEEVING FOR:

- Extreme Flexibility
- Extreme Heat Environments

UNCOATED FIBERGLASS SLEEVING APPLICATIONS:

- High Temperature Wire Harnesses
- High Temperature Cable Connections
- Component Covering

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 648°C (1200°F)

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

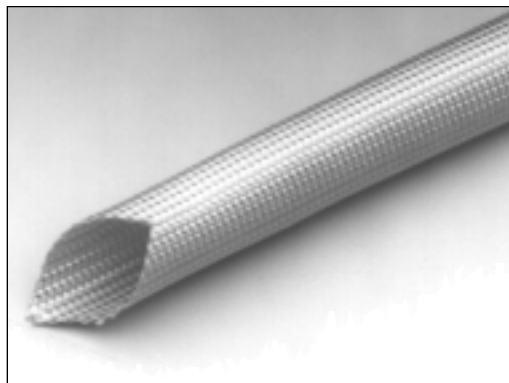
- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

SPECIFICATIONS

- UL Standard 1441
- NEMA, VS-1

 **Recognized Component**
Underwriters Laboratories Inc.

 **Passes UL VW-1 Flame Test**
Underwriters Laboratories Inc.



FLEXIBLE, ABRASION RESISTANT:

Extremely flexible, abrasion resistant sleeving, ideal for applications necessitating operation up to 648°C (1200°F).

Heat treated to remove all organic matter. Completely compatible with all insulation and conductor types.

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Standard Put-Up Spools Ft.
	Inches	mm	
PIF-240-20	0.034	0,86	100
PIF-240-18	0.042	1,07	100
PIF-240-16	0.053	1,35	100
PIF-240-15	0.059	1,50	100
PIF-240-14	0.066	1,68	100
PIF-240-12	0.085	2,16	100
PIF-240-11	0.095	2,41	100
PIF-240-10	0.106	2,69	100
PIF-240-9	0.118	3,00	100
PIF-240-8	0.133	3,38	100
PIF-240-7	0.148	3,76	100
PIF-240-6	0.166	4,22	100
PIF-240-5	0.186	4,72	100
PIF-240-4	0.208	5,28	100
PIF-240-3	0.234	5,94	100
PIF-240-2	0.263	6,68	100
PIF-240-1	0.294	7,47	100
PIF-240-0	0.330	8,38	100
PIF-240-3/8	0.375	9,52	100
PIF-240-7/16	0.438	11,12	100
PIF-240-1/2A	0.500	12,70	100
PIF-240-5/8	0.625	15,88	100
PIF-240-3/4	0.750	19,05	100
PIF-240-7/8	0.875	22,22	100
PIF-240-1 IN	1.000	25,40	100



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WIRE MANAGEMENT PRODUCTS

UL VW-1
MIL-I-631D

NON-FRAYING, EXPANDABLE BRAID SLEEVING

GRP-110NF, 120NF

CHOOSE GRP NF FOR:

- Frayless Cuts WITHOUT A HOT KNIFE!
- Frequent Expansion at Scissor Cut Ends Without Fraying!
- Lightweight, Flexible Routing
- Use with Automatic Cutting Machines
- Use with **XTRA-GUARD®** Flexible Cables

GRP NF APPLICATIONS:

- Field Installation Without Hot Knife
- Protection of Wire, Cable and Hoses
- Wire Bundling & Harnessing
- Wire Splices

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 125°C

COLOR DESCRIPTION:

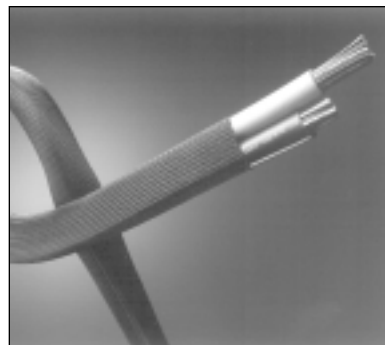
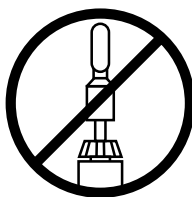
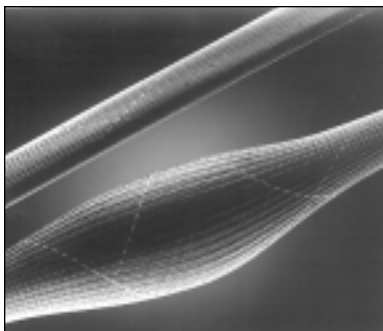
- GRP-110NF: Black
- GRP-120NF: Black with White Tracer

PHYSICAL PROPERTIES:

- Withstands Short Term Exposure to 230°C
- GRP-120NF Passes UL VW-1 Flame Test

CHEMICAL PROPERTIES:

- Not Affected by Most Chemical Environments and Common Solvents (Freon, Detergents, Soaps, Bleaches and Water)
- Fungus Resistance: No Growth



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SPECIFICATIONS

- MIL-I-631D



Alpha's GRP NF is a braided sleeving designed not to fray when cut with ordinary scissors or when repeatedly expanded and retracted. This product **DOES NOT REQUIRE A HOT KNIFE WHEN CUTTING!** Ends remain clean after installation in the field as well as on the bench. Can be used on automated cutting machines.

General Purpose Alpha Part No.	Flame Retardant Alpha Part No.	Size	Minimum Supplied I.D.		Maximum Expanded I.D.		Nominal Wall Thickness		Spools Total Ftg.
			Inches	mm	Inches	mm	Inches	mm	
GRP-110NF18	GRP-120NF18	1/8	0.093	2,36	0.250	6,35	0.027	0,69	100, 500
GRP-110NF14	GRP-120NF14	1/4	0.125	3,18	0.440	11,09	0.027	0,69	100, 500
GRP-110NF12	GRP-120NF12	1/2	0.250	6,35	0.750	19,05	0.027	0,69	100, 500
GRP-110NF34	GRP-120NF34	3/4	0.500	12,70	1.250	31,75	0.027	0,69	100, 500
GRP-110NF114	GRP-120NF114	1-1/4	0.750	19,05	1.750	44,45	0.027	0,69	50, 250
GRP-110NF112	GRP-120NF112	1-1/2	1.250	31,75	2.750	69,85	0.027	0,69	50, 250

WIRE MANAGEMENT PRODUCTS

EXPANDABLE BRAIDED POLYESTER SLEEVING

GRP-110, 120

MIL-I-631D

CHOOSE EXPANDABLE BRAIDED POLYESTER SLEEVING FOR:

- Lightweight, Flexible Routing
- High Abrasion and Cut-Through Resistance
- Rot-Free / Fungus-Proof Applications



EXPANDS AND GRIPS:

Alpha GRP is a lightweight, expandable woven polyester sleeving that offers high flexibility with high resistance to abrasion and cut-through. The open weave allows for a great range of expansion of the sleeving diameter, thus ensuring ease of installation and gripping action over a wide range of shapes and sizes. GRP sleeving is an ideal protective sleeve for wire bundles, harnesses, pneumatic hoses, hydraulic lines and highly polished or threaded machine parts.

To prevent fraying of ends, GRP-110, 120 should be cut/sealed with a hot knife.

EXPANDABLE BRAIDED POLYESTER SLEEVING APPLICATIONS:

- Cut-Resistant Covering for Wire, Cable and Hoses
- Wire Bundling and Harnessing
- Jacket for Flat Cable

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 125°C

COLOR DESCRIPTION:

- GRP-110: Black, Natural
- GRP-120: Black, White

PHYSICAL PROPERTIES:

- Withstands Short Term Exposure to 230°C
- GRP-120 Passes UL VW-1 Flame Test

CHEMICAL PROPERTIES:

- Not Affected by Most Chemical Environments and Common Solvents (Freon*, Detergents, Soaps, Bleaches and Water)
- Fungus Resistance: No Growth

General Purpose Alpha Part No. and Size	Flame Retardant Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Expanded I.D.		Nominal Wall Thickness		Standard Put-Up Spools Ft.
Inches	mm	Inches	mm	Inches	mm	Inches	mm	
GRP-110-1/8	GRP-120-1/8	0.093	2,36	0.250	6,35	0.025	0,63	100, 500
GRP-110-1/4	GRP-120-1/4	0.125	3,18	0.437	11,09	0.025	0,63	100, 500
GRP-110-1/2	GRP-120-1/2	0.250	6,35	0.750	19,05	0.025	0,63	100, 500
GRP-110-3/4	GRP-120-3/4	0.500	12,70	1.250	31,75	0.025	0,63	100, 500
GRP-110-1-1/4	GRP-120-1-1/4	0.750	19,05	1.750	44,45	0.025	0,63	50, 250
GRP-110-1-3/4	GRP-120-1-3/4	1.250	31,75	2.750	69,85	0.025	0,63	50, 250
GRP-110-2	GRP-120-2	1.500	38,10	3.500	88,90	0.025	0,63	50, 250

See Our Non-Fraying
GRP-110NF and GRP-120NF

(Page 153) ...

CAN BE CUT WITHOUT A HOT KNIFE!

SPECIFICATIONS

- MIL-I-631D



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

*Registered trademark of E.I. DuPont Co.



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WIRE MANAGEMENT PRODUCTS

EXPANDABLE POLYESTER WEBBED SLEEVING

MIL-I-631D ZIP-GRP

CHOOSE EXPANDABLE POLYESTER WEBBED SLEEVING FOR:

- Unlimited Breakouts
- Abrasion, Cut-Through Resistance
- Oil and Solvent Resistance

EXPANDABLE POLYESTER WEBBED SLEEVING APPLICATIONS:

- Cut-Resistant Covering for Wire, Cable and Hoses
- Wire Bundling and Harnessing

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 125°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

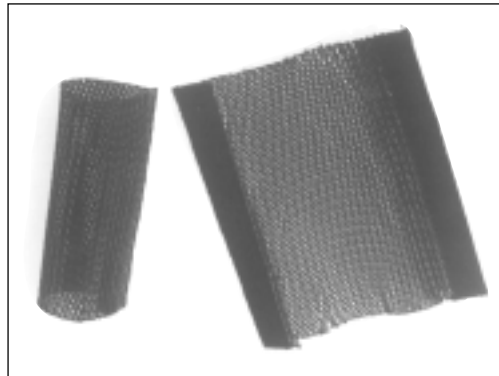
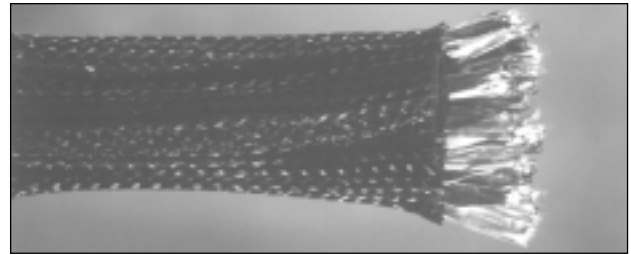
- Withstands Intermittent Exposure to 140°C
- Melt Temperature: 250°C
- Tensile Strength: 100,000 psi
- Cycle Life: Up to 10,000 Cycles

CHEMICAL PROPERTIES:

- Resistant to Most Chemicals:
Acetone, Acids, Hydrocarbons,
Trichlorethylene, Alcohol
- Fungus Resistance: No Growth

SPECIFICATIONS

- MIL-I-631D



EXPANDS, GRIPS AND HARNESSSES:

Alpha's ZIP-GRP expandable webbing offers superb flexibility and high tensile strength while providing added protection against flame, chemicals and abrasion. With its velcro-type enclosure, wires, cable assemblies and wire harnesses are always accessible and can be easily opened for any number of breakouts.

To prevent fraying of ends, ZIP-GRP should be cut/sealed with a hot knife.

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Expanded I.D.		Typical Wall Thickness		Nominal Flat Width		Standard Put-Up Spools Ft.
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
ZIP-GRP-7/8	0.750	19,1	1.000	25,4	0.025	0,635	2.500	63,5	25, 50
ZIP-GRP-1-1/2	1.000	25,4	2.000	50,8	0.025	0,635	3.750	95,3	25, 50
ZIP-GRP-2	1.500	38,1	2.125	53,9	0.025	0,635	5.000	127,0	25, 50

WIRE MANAGEMENT PRODUCTS

ZIPPER TUBING

ZIP-41

UL STANDARD 224

CHOOSE ZIPPER TUBING FOR:

- Protection Against Flame, Chemicals and Abrasion

ZIPPER TUBING APPLICATIONS:

- Wire/Cable Bundling
- Cable Jacketing Protection

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

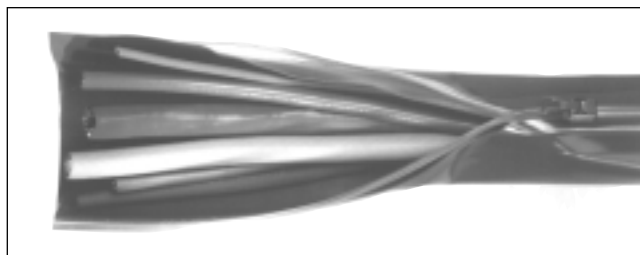
- Tensile Strength: 2500 psi, (177 kg/cm²)
- Ultimate Elongation: 300%
- Wall Thickness: 0.020" (0,51mm)
- Track Thickness: (When Closed) 0.150 Inches (3,8mm)
- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

- Fungus Resistance: No Growth

WIRE, CABLE, HARNESS PROTECTION:

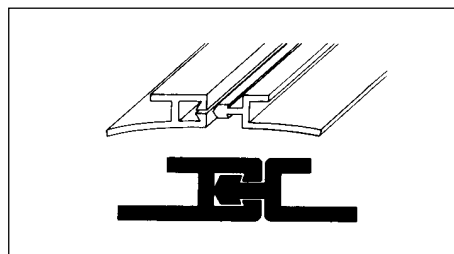
Alpha Zipper Tubing is designed to provide a professional finish to wiring installations by eliminating exposed wiring and providing added protection against flame, chemicals and abrasion. With Zipper Tubing, it's possible to isolate any group of wires or cables quickly and easily, without the bother of tape wrapping.



Zipper Tubing is manufactured from the highest quality, high temperature, stabilized PVC. The combination of flame, oil, fungus and moisture resistance, coupled with excellent abrasion resistance, makes Zipper Tubing an ideal jacketing material for use in harsh environments.

Supplied flat on a spool for ease of storage and accessibility, Alpha Zipper Tubing is an ideal jacketing material for use in the production or repair of pre-wired harness assemblies.

Each package contains two plastic sliders (AB 395).



Loc-Trac® provides an effective closure that is ideal for use where the assembly will be subjected to random flexing.

SPECIFICATIONS

- UL Standard 224
- MIL-I-631D



Recognized
Component



Passes
UL VW-1 Flame Test

Underwriters Laboratories Inc. Underwriters Laboratories Inc.

Alpha Part No. and Size	Nominal Inside Diameter		Nominal Flat Width		Standard Package Spool Lengths (Ft.)
	Inches	mm	Inches	mm	
ZIP-41-1/2	1/2	12,7	2	50,8	25, 100
ZIP-41-5/8	5/8	15,8	2-3/8	60,3	25, 100
ZIP-41-3/4	3/4	19,0	2-3/4	69,8	25, 100
ZIP-41-7/8	7/8	22,2	3-1/8	79,8	25, 100
ZIP-41-1	1	25,4	3-9/16	90,4	25, 100
ZIP-41-1-1/4	1-1/4	31,7	4-1/8	104,7	25, 100
ZIP-41-1-1/2	1-1/2	38,1	4-7/8	123,8	25, 100
ZIP-41-1-3/4	1-3/4	44,4	5-5/8	142,8	25, 100
ZIP-41-2	2	50,8	6-3/8	161,9	25, 100
ZIP-41-2-1/4	2-1/4	57,1	7-1/2	190,5	25, 100
ZIP-41-3	3	76,2	10	254,0	25, 100



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WIRE MANAGEMENT PRODUCTS

SPIRAL WRAP TUBING

SW

SPIRAL WRAP TUBING APPLICATIONS:

- Wire Harness Breakouts
- Cable Bundling

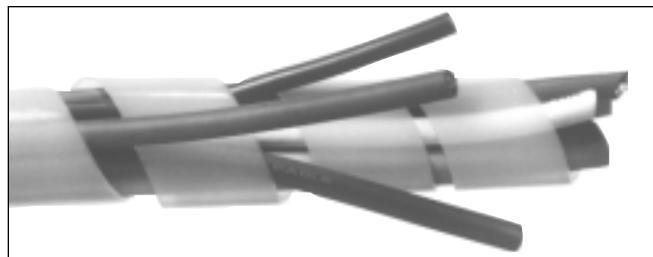
CHARACTERISTICS

OPERATING TEMPERATURE:

- Polyethylene: -20°C to 80°C
- Nylon: -40°C to 120°C
- Teflon*: -70°C to 250°C
- PVC: -20°C to 80°C

COLOR DESCRIPTION:

- SW-1 to 6, SW-20 to 25 and SW-30 to 35: Natural
- SW-10 to 14: White
- SW-40 to 45 and SW-50 to 53: Black



SPIRAL CUT FOR HARNESS BREAKOUTS:

Wire harnessing, cabling and bundling work is simplified with the use of Alpha's SW series spiral wrap tubing. SW tubing wraps tightly to the wire and cable being bundled, yet is flexible and simple to apply. All types maintain flexibility even when bent around sharp edges. Breakouts or tapoff connections may be made through the openings of the wrap. SW spiral wrap is constructed from several semi-rigid tubing materials and then cut on a continual spiral.

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Alpha Part No.	Size In.	Standard Materials	Standard Put-Up Ft.	Max. Oper. Temp.	Min. Oper. Temp.	Nom. O.D. Inches	Nominal Wall Thickness Inches	Max. Diam. Inner Wire Bundle Inches	Flammability
SW-1	1/8	CLEAR POLYETHYLENE Ideal for general indoor applications. This cost-effective material is extremely abrasion resistant and is unaffected by most solvents.	25, 100, 500	80°C (176°F)	-20°C (-4°F)	0.125	0.031	1/2	Not Flame Retardant.
SW-2	1/4		25, 100, 500			0.250	0.046	2	
SW-3	3/8		25, 100			0.375	0.052	3	
SW-4	1/2		25, 100			0.500	0.062	4	
SW-5	3/4		25, 100, 500			0.750	0.065	5	
SW-6	1		25, 100, 500			1.000	0.095	6	
SW-10	1/8	FIRE RESISTANT POLYETHYLENE A cost-effective alternative to Nylon or Teflon*. This special material is self-extinguishing.	25, 100, 500	80°C (176°F)	-20°C (-4°F)	0.125	0.031	1/2	94V-0
SW-11	1/4		25, 100, 500			0.250	0.046	2	
SW-12	3/8		25, 100			0.375	0.052	3	
SW-13	1/2		25, 100			0.500	0.062	4	
SW-14	3/4		25, 100			0.750	0.065	5	
SW-20	1/8	NYLON Highly specialized product that is tough, durable, self-extinguishing, abrasion resistant, lightweight. Operates over a wide temp. range.	25, 100, 500	120°C (176°F)	-40°C (-40°F)	0.125	0.016	1/2	94V-2
SW-21	1/4		25, 100, 500			0.250	0.025	2	
SW-22	3/8		25, 100			0.375	0.035	3	
SW-23	1/2		25, 100			0.500	0.035	4	
SW-24	3/4		25, 100			0.750	0.032	5	
SW-25	1		25, 100			1.000	0.032	6	
SW-30	1/8	TEFLON* Self extinguishing, fluorocarbon, resin material. Possesses greatest min. & max. temp. range of any spiral wrap material. Suitable for use in a number of industrial applications.	25, 100	250°C (482°F)	-70°C (-94°F)	0.125	0.030	1/2	Self Extinguishing.
SW-31	1/4		25, 100			0.250	0.030	2	
SW-32	3/8		25, 100			0.375	0.030	2-1/2	
SW-33	1/2		25, 100			0.500	0.030	3	
SW-34	3/4		25, 100			0.750	0.032	3-1/2	
SW-35	1		25, 100			1.000	0.040	4	
SW-40	1/8	ULTRAVIOLET-RESISTANT BLACK POLYETHYLENE Recommended for outdoor use. Same properties as clear polyethylene but contains extra additive for moisture resistance ultraviolet light and rain.	25, 100, 500	80°C (176°F)	-20°C (-4°F)	0.125	0.030	1/2	Not Flame Retardant.
SW-41	1/4		25, 100, 500			0.250	0.045	2	
SW-42	3/8		25, 100			0.375	0.050	3	
SW-43	1/2		25, 100			0.500	0.060	4	
SW-44	3/4		25, 100, 500			0.750	0.065	5	
SW-45	1		25, 100, 500			1.000	0.095	6	
SW-50	1/8	PVC Superior to abrasion resistance, tensile strength, thermal, mechanical & electrical properties. Self-extinguishing flexible product.	25, 100	80°C (176°F)	-20°C (-4°F)	0.125	0.032	1/2	Self Extinguishing.
SW-51	1/4		25, 100			0.250	0.045	2	
SW-52	3/8		25, 100			0.375	0.052	2-1/2	
SW-53	1/2		25, 100			0.500	0.062	3	

*Registered trademark of E.I. DuPont Co.

WIRE MANAGEMENT PRODUCTS

LACING CORD AND TAPE

LC

MIL-T-43435

CHOOSE LACING CORD AND TAPE FOR:

- High Tensile Strength
- Good Chemical Resistance
- Excellent Abrasion Resistance
- Excellent Knot Retention

LACING CORD AND TAPE APPLICATIONS:

- Bundling Military Wire Harnesses



HIGH TENSILE STRENGTH, KNOT RETENTION:

Designed to allow a wider contact area with the insulation so that it remains in place, tape is flexible and easy on the assembler's hands. Once knotted, tape resists slipping and does not increase diameter of harness. Nylon has excellent tensile strength and resists acids, abrasion, flame and fungus. Polyester has all the characteristics of Nylon, but has better resistance to acids, and no appreciable discoloration.

CHARACTERISTICS

COLOR DESCRIPTION:

- All Standard Packages: White, Black

SPECIFICATIONS

- MIL-T-43435

AVAILABILITY

- 500 yard spools

NYLON AND DACRON FLAT BRAIDED TAPE

Alpha Part No.	MIL-T-43435 Designation			Tensile Strength Lbs.	Nom. Width		Nom. Thickness		Material
	Type	Size	Finish		Inches	mm	Inches	mm	
LC-132	I	3	C (GE)	50	0.085	2,16	0.014	0,35	Nylon
LC-134	I	4	B (MW)	30	0.060	1,52	0.012	0,30	Nylon
LC-136	I	3	B (MW)	50	0.085	2,16	0.014	0,35	Nylon
LC-140	I	3	F (SR)	50	0.085	2,16	0.014	0,35	Nylon
LC-143	I	3	E (AM)	50	0.085	2,16	0.014	0,35	Nylon
LC-162	II	3	B (MW)	50	0.085	2,16	0.014	0,35	Polyester

FINISHES:

GE: A synthetic rubber-like resin formulated with a non-mercuric compound which lends the finish fungicidal properties. This finish permits easier handling and better knot retention. This finish has a melting point in excess of 190°F and will soften, but not flow, at 140°F.

MW: A micro-crystalline wax with a melting point above 130°F compounded with a fungicide which does not contain either copper or mercuric materials. Excellent knot retention, yet finish does not have too great a "waxy" feel to the user. MW is soft, pliable, easy to tie.

AM: A thermoplastic synthetic resin with a melting point above 350°F for use where a "wax free" type is specified. It is a non-dusting or flaking, dry finish with good knot tying qualities.

SR: A special continuous coating of fungistatic synthetic rubber containing no corrosive compounding ingredients. Knots tied with this finish will not slip. This finish will not flake or dust.



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WIRE MANAGEMENT PRODUCTS

QQ-W-343E
QQ-B-575B

TINNED COPPER BRAID FLAT, OVAL

CHOOSE TINNED COPPER BRAID FOR:

- Ground/Shielding Terminations

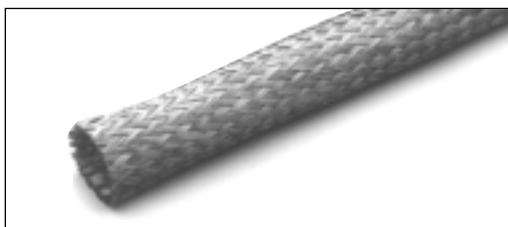
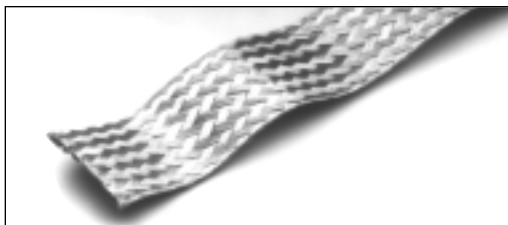
TINNED COPPER BRAID APPLICATIONS:

- Point-to-Point Ground Path
- Wire/Cable Shielding

CHARACTERISTICS

PRODUCT DESCRIPTION:

- Flat or Oval Shaped Tinned Copper Braid



SHIELDING, GROUND STRAP:

A tight weave of multi-strand, soft drawn tinned copper wire; tinned copper braid is an ideal shielding material for short-run cables providing easy radial termination. In retrofit applications, provides additional shielding efficiency. Tinned copper flat braid, used as a ground strap, provides an excellent, low-resistance ground path.

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TINNED COPPER FLAT BRAID

Alpha Part No.	Nom. Flat Width		Nom. Thickness		Braid Construction			Approx. AWG Equiv.	Nom. Circular Mil Area, CM	Approx. Current Carrying Cap. (Amps)†	Standard Package Spools Ft.
	Inches	mm	Inches	mm	AWG of Indiv. Ends	Carriers	Total No. of Indiv. Ends				
1221	0.025	0,63	0.015	0,38	36	8	8	27	200	4	100, 500, 1000
1222	1/32	0,79	0.020	0,50	36	16	16	24	400	6	100, 500, 1000
1223†	3/64	1,19	0.020	0,50	36	24	24	22	600	7	100, 500, 1000
1224	3/32	2,38	0.020	0,50	36	16	48	19	1200	11	100, 500, 1000
1229†	1/8	3,18	0.020	0,50	36	24	72	18	1800	16	100, 500, 1000
1230†	3/16	4,76	0.020	0,50	36	24	120	15	3000	25	100, 500, 1000
1231†	1/4	6,35	0.030	0,76	36	24	168	14	4200	32	100, 500, 1000
1232	3/8	9,53	0.030	0,76	36	48	288	12	7200	46	100, 500, 1000
1233/2	1/2	12,70	0.030	0,76	36	48	384	10	9600	53	100, 500, 1000
1233†	5/8	15,90	0.030	0,76	36	48	384	10	9600	53	100, 500, 1000
1234	3/4	19,10	0.040	1,02	36	48	864	7	20800	85	100, 500, 1000
1235	1	25,40	0.045	1,14	36	48	864	7	20800	85	100, 500, 1000
1239†	1-3/8	34,90	0.050	1,27	30	48	336	5	33700	100	100, 500, 1000
1240†	1-1/2	38,10	0.060	1,52	30	48	528	3	53064	150	100
1241	1-3/4	44,50	0.080	2,03	30	48	1248	2/0	125424	280	100
1242	2	50,80	0.120	3,05	30	48	1436	3/0	154368	310	100
1242/4	3	76,20	0.200	5,08	30	48	2256	4/0	225000	390	100

SPECIFICATIONS

- QQ-W-343E
- ASTM-B-33
- † Meets QQ-B-575B

TINNED COPPER OVAL BRAID

Alpha Part No.	Nom. I.D. When Rounded		Braid Construction			Approx. AWG Equiv.	Nom. Circular Mil Area, CM	Approx. Current Carrying Cap. (Amps)†	Standard Package Spools Ft.
	Inches	mm	AWG of Indiv. Ends	Carriers	Total No. of Indiv. Ends				
2132	1/16	1,59	34	16	32	19	1192	11	100, 500, 1000
2138	11/64	4,37	34	24	120	14	4770	32	100, 500, 1000
2140	3/16	4,76	34	24	144	13	5724	38	100, 500
2142	1/4	6,35	34	24	168	12	6678	41	100, 500
2144	3/8	9,53	34	24	192	11	7632	46	100, 500
2146	1/2	12,70	34	48	336	9	13356	62	100
2148	5/8	15,88	34	48	384	8	14264	64	100
2150	11/16	17,46	34	48	480	7	19080	81	100
2152	25/32	19,84	34	48	528	7	20988	85	100

†Values shown are for bare cable in free air at 30°C (86°F) and intended as a reference guide only. Actual values will depend on permissible temperature rise, permissible voltage drop and other conditions of service.

WIRE MANAGEMENT PRODUCTS

TINNED/SILVER COPPER BRAID TUBULAR

QQ-B-575B
QQ-W-343E

CHOOSE TINNED COPPER BRAID FOR:

- Ground/Shielding Terminations

TINNED COPPER BRAID APPLICATIONS:

- Point-to-Point Ground Path
- Wire/Cable Shielding

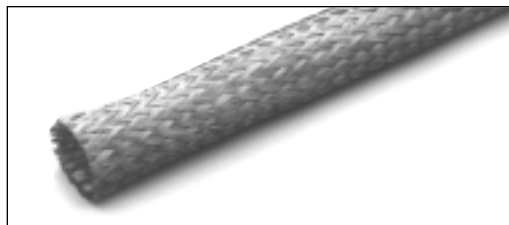
CHARACTERISTICS

PRODUCT DESCRIPTION:

- Tubular Shaped, Tinned or Silver-Plated Copper Braid

SPECIFICATIONS

- QQ-W-343E
- QQ-B-575B
- ASTM-B-33



SHIELDING, GROUND STRAP:

A tight weave of multi-strand, soft drawn tinned copper wire; tinned copper braid is an ideal shielding material for short-run cables providing easy radial termination. In retrofit applications, provides additional shielding efficiency. Tinned copper flat braid, used as a ground strap, provides an excellent, low- resistance ground path.

Alpha Part No.	Nom. I.D. When Rounded Inches mm	Braid Construction AWG of Indiv. Ends Carriers	Total No. of Indiv. Ends	Approx. AWG Equiv.	Nom. Circular Mil Area, CM	Approx. Current Carrying Cap. (Amps)†	Standard Package Spools Ft.
TINNED COPPER TUBULAR BRAID							
2160	1/32	0,79	36 24	24	22	600	7.0 100, 250
2162	1/16	1,59	36 24	48	19	1200	11.0 100, 250
2163	5/64	1,98	36 24	72	18	1800	16.0 100, 250
2164	7/64	2,78	36 24	96	16	2400	19.0 100, 250
2166	1/8	3,18	36 24	120	15	3000	25.0 100, 250
2167	5/32	3,97	36 24	240	12	6000	40.0 100, 250
2168	11/64	4,37	36 24	168	14	4200	32.0 100, 250
2170	13/64	5,16	34 24	192	11	7630	46.0 100
2171	1/4	6,35	36 24	384	10	9600	53.0 100
2171/1	9/32	7,14	30 24	120	9	12060	60.0 100
2172	3/8	9,53	36 48	384	10	9600	53.0 100
2173	7/16	11,11	30 24	240	6	24120	90.0 100
2174	1/2	12,70	36 48	528	9	13200	62.0 100
2175	9/16	14,29	30 48	480	3	48240	145.0 100
2175/1	21/32	16,67	30 48	768	1	77180	190.0 100
2176	25/32	19,84	36 48	864	7	21600	88.0 100
EXTRA LARGE TINNED COPPER TUBULAR BRAID							
2177	7/8	22,23	30 48	336	5	33700	100.0 100
2178	1	25,40	30 48	384	4	38600	120.0 100
2179	1-1/8	28,58	30 48	432	4	43330	130.0 100
2180	1-1/4	31,75	30 48	480	3	48150	145.0 100
2181	1-3/8	34,93	30 48	528	3	53000	150.0 100
2182	1-1/2	38,10	30 48	576	2	57775	165.0 100
SILVER-PLATED TUBULAR BRAID							
2191	1/16	1,59	36 24	48	19	1200	11.0 100
2193	7/64	2,78	36 24	96	16	2400	19.0 100
2194	1/8	3,18	36 24	120	15	3000	25.0 100
2195	5/32	3,97	36 24	240	12	6000	40.0 100
2196	11/64	4,37	36 24	168	14	4200	32.0 100
2197	13/64	5,16	34 24	192	11	7640	46.0 100
2198	1/4	6,35	36 24	384	10	9600	53.0 100

†Values shown are for bare cable in free air at 30°C (86°F) and intended as a reference guide only. Actual values will depend on permissible temperature rise, permissible voltage drop and other conditions of service.



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WIRE MANAGEMENT PRODUCTS

EMI/RFI COPPER SHIELDING TAPE

CST

UL STANDARD 510

MIL-STANDARD 202C, METHOD 303

CHOOSE COPPER SHIELDING TAPE FOR:

- EMI/RFI Shielding Applications
- Highly Conductive, Pressure-Sensitive Adhesive Seal
- Point-to-Point Electrical Continuity
- Low-Resistance Adhesive

COPPER SHIELDING TAPE APPLICATIONS:

- Terminating Cable Shield
- Connector Backshell Shielding

CHARACTERISTICS

PHYSICAL PROPERTIES:

- Tensile Strength: 21 Lbs./Inch
- Adhesion: 40 Oz./Inch
- Thickness: 0.003 Inch
- Flammability: Flame Retardant Per UL Standard 510

ELECTRICAL PROPERTIES:

- Electrical Resistance Through Tape: 0.003 Ohms/Inch²
- Shielding Effectiveness: 50 dB at 153 MHz

SPECIFICATIONS

- UL Standard 510
- MIL-Standard 202C, Method 303
- ASTM D-1000



CONDUCTIVE ADHESIVE, ADDED PROTECTION AGAINST EMI/RFI:

Alpha CST is a copper foil tape backed with a highly conductive pressure-sensitive adhesive for use in a wide variety of commercial EMI/RFI shielding applications. The pressure sensitive adhesive contains a uniform dispersion of unique oxidation-resistant conductive particles that produce very low resistance through the tape. This feature results in shielding performance approximately 5 dB better than other metal foil shielding tapes.

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Alpha Part No.	Width		Standard Package
	Inches	mm	
CST-5	0.5	12,7	1 Roll (36 yards)
CST-10	1.0	25,4	1 Roll (36 yards)
CST-15	1.5	38,1	1 Roll (36 yards)
CST-20	2.0	50,8	1 Roll (36 yards)

WIRE MANAGEMENT PRODUCTS

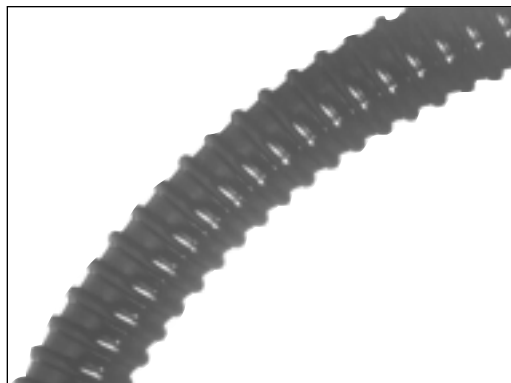
FLEXIBLE, LIQUID-TIGHT PVC TUBING

FNT

UL RECOGNIZED
CSA CERTIFIED

CHOOSE FLEXIBLE LIQUID-TIGHT PVC TUBING FOR:

- Resistance to Oil, Water, Corrosion and Ultraviolet Light
- Flexing/Vibration
- Protection from Stretching, Pulling or Tangling
- Uses Alpha Liquid-Tight Connectors SLC or RLC



ALPHA'S NEW FLEXIBLE LIQUID-TIGHT PVC TUBING:

(FNT) system of wire management products for electronic and electrical wire protection provides maximum flexibility and can be used in extremely tight quarters. Excellent for general applications where maximum flexibility is required. Ideal in areas where movement, vibration or flexing is a problem.

FLEXIBLE LIQUID-TIGHT PVC TUBING APPLICATIONS:

- Fiber Optic Cable Protection
- Wire Harness Protection
- Flexible Cable Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

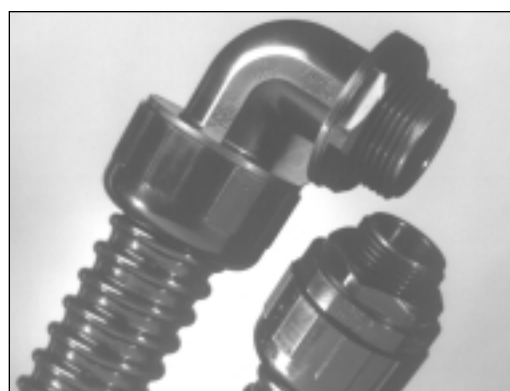
- 70°C (UL)
- -18°C to 60°C (CSA)

COLOR DESCRIPTION:

- All Standard Package: Black

CHEMICAL PROPERTIES:

- Resists Corrosion, Oil and Water
- UV Resistant



SPECIFICATIONS

- UL Recognized
- CSA Certified (except for 1/4" size)

 **Recognized Component**
Underwriters Laboratories Inc.

 **Certified**
Canadian Standards Association

Alpha Part No.	Trade Size Inches	Outside Diameter				Inside Diameter				Standard Put-Up Ft.
		Minimum Inches	Maximum mm	Minimum Inches	Maximum mm	Minimum Inches	Maximum mm	Minimum Inches	Maximum mm	
FNT-1/4	1/4	0.560	14,2	0.575	14,6	0.385	9,78	0.405	10,3	25, 100
FNT-3/8	3/8	0.690	17,5	0.710	18,0	0.484	12,3	0.504	12,8	25, 100
FNT-1/2	1/2	0.820	20,8	0.840	21,3	0.622	15,8	0.642	16,3	25, 100
FNT-3/4	3/4	1.030	26,1	1.050	26,7	0.820	20,8	0.840	21,3	25, 100
FNT-1	1	1.290	32,8	1.315	33,4	1.041	26,4	1.066	27,1	25, 100
FNT-1-1/4	1-1/4	1.630	41,4	1.660	42,2	1.380	35,1	1.410	35,8	25, 100
FNT-1-1/2	1-1/2	1.865	47,4	1.900	48,3	1.575	40,0	1.600	40,6	25, 50
FNT-2	2	2.340	59,4	2.375	60,3	2.020	51,3	2.045	51,9	25, 50



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UL LISTED
CSA CERTIFIED

CHOOSE LIQUID-TIGHT CONNECTORS FOR:

- Liquid-Tight Environmental Seal
- Oil and Solvent Resistance
- Quick Re-entry for Cable Repair or Re-routing

LIQUID-TIGHT CONNECTOR APPLICATIONS:

- Complete Conduit Connection System for Fiber Optic Cable, Wire Harnesses and Flexible Cable Products

CHARACTERISTICS

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Suitable for Both Indoor and Outdoor Use
- Flammability: UL 94V-2

CHEMICAL PROPERTIES:

- Corrosion Resistant
- Resists Solvents, Oil, Grease, Alcohol, Gasoline, Weak Acids and Salt Water

SPECIFICATIONS

- UL Listed
- CSA Certified (except for 1/4" size)



CSA Certified
Canadian Standards Association



ALPHA'S STRAIGHT (SLC) AND RIGHT-ANGLE (RLC) LIQUID-TIGHT NON-METALLIC CONNECTORS are designed to connect with Alpha's routing system products to insure liquid-tight integrity. Alpha's electrical, black PVC flexible tubing (FNT) matches black straight or right-angle connectors.



STRAIGHT CONNECTORS (SLC)				RIGHT-ANGLE CONNECTORS (RLC)			
Alpha Part No.	Trade Size Inches	Thread Size	Standard Put-Ups (Each)	Alpha Part No.	Trade Size Inches	Thread Size	Standard Put-Ups (Each)
SLC-1/4†	1/4"	—	10, 100	RLC-3/8	3/8"	1/2 NPT	10, 100
SLC-3/8	3/8"	1/2 NPT	10, 100	RLC-1/2	1/2"	1/2 NPT	10, 100
SLC-1/2	1/2"	1/2 NPT	10, 100	RLC-3/4	3/4"	3/4 NPT	10, 100
SLC-3/4	3/4"	3/4 NPT	10, 100	RLC-1	1"	1 NPT	10, 100
SLC-1	1"	1 NPT	10, 100				

†SLC-1/4 is a snap-in connector.

WIRE MANAGEMENT PRODUCTS

WIRE MANAGEMENT AND LIQUID-TIGHT CROSS REFERENCE

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ALPHA WIRE	PAGE NO.	MANHATTAN / COLEFLEX	MARKEL	THOMAS & BETTS	HUBBELL	CARLON	HEYCO
TFT-200	149	TT-250	TFE Tubing				
TFT-250	149	TS-250	TFE Tubing				
PVC-105	148	P-105	HT-105 C				
PIF-130	150	PF-130	VF				
PIF-200	151	SF-200	SR-398				
PIF-240	152	F-240	Thermoflex 1200				
SW1-5	157	SPP	SCP				
SW10-14	157	SPR					
SW20-23	157	SPN	SCN				
SW30-34	157	SPT	SCT				
SW40-44	157	SPB					
SW50-53	157		SCV				
FNT	162	150.XXX		EFC XXX	B2 XXX, P2 XXX		HF2 X
SLC	163	950.XXX, 455.XXX		APC XXX	P0 XXXG/Y, P1 XXXG/Y	LT XXX	HFC X
RLC	163	475.XXX		APC XXXX	P0 XXXG, P1 XXXG	LT XXX	HFC X



HOOK-UP WIRE

A STYLE TO SUIT ANY NEED

Alpha's commitment to quality and service starts at the beginning . . . with the manufacturing of single conductor hook-up wire, the most basic wiring component.

Used extensively for both electrical and electronic equipment, hook-up wires are required to perform in increasingly critical environments. Cost-effective production methods necessitate uniform wire handling characteristics: strippability, strand uniformity, precise dimensions, and permanent colors and markings. Industry trends such as miniaturization, plus new environmental and product liability considerations require improved insulating materials.

So Alpha offers the highest quality hook-up wires in a broader-than-ever range of insulating materials, sizes, colors and packaging to quickly and efficiently meet the new demands in the marketplace. All are available in ready-to-use form, from 100 feet to production requirements.

A STYLE TO SUIT ANY NEED

PVC Polyvinylchloride, sometimes referred to as PVC or vinyl, is the most widely used insulation for wiring electrical or electronic equipment. PVC is inherently flame-retardant and used in most normal environments and applications.

Irradiated PVC Special PVC treated with electron beam radiation to improve temperature and solder iron resistance. Used extensively in high density wiring.

Irradiated Polyolefin Special radiation cross-linked polyolefin insulation for 125°C wiring. Used as low-cost alternative to Teflon® where temperatures exceed the capabilities of PVC.

TFE Teflon® High-performance insulation with temperature range of -65° to 200°C. Teflon® is chemically inert and unaffected by solvents, making it the ideal insulation for extreme temperature or chemical environments.

It's easy to find the exact hook-up wire insulation you need - it's listed in the chart below.

This section contains a complete listing of Alpha hook-up wires, laid out by type of insulation materials. Within each type of insulation material, products are listed in the order of ascending temperature rating, and within temperature rating, ascending voltage. Simply find the product that fits your needs.

	100°C	125°C	150°C	175°C	200°C
PVC (105)					
POLYOLEFIN (125)					
KYNAR** (125)					
TEFZEL* (150)					
TFE TEFLON* (200)					

*Teflon and Tefzel are a registered trademarks of E.I. DuPont
 **Kynar is a registered trademark of ELF Atochem, North America, Inc.

Product Type	Page Number (s)
Semi Rigid PVC	166
PVC	166 - 169
PVC Ribbon Cable.	170
Irradiated PVC	171
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Bus Bar Wire	173
Test Lead Wire	173
Kynar** Wire Wrap	174
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HOOK-UP WIRE

PVC INSULATION

UL 1007/1569, CSA TR-64
80°C/105°C, 300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -40°C to 105°C — UL AWM 1569
- -40°C to 90°C — CSA TR-64
- -40°C to 80°C — UL AWM 1007

VOLTAGE RATING:

- 300 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded or Solid Tinned Copper
- Insulation: Color-Coded PVC

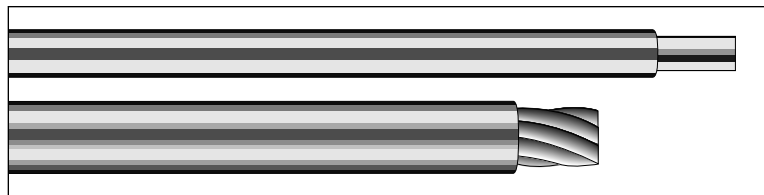
SPECIFICATIONS

- UL AWM Styles 1007 and 1569
- CSA TR-64



AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups



Alpha Part No.	Conductor		Insul. Thickness		Diameter		Stock Colors*
	AWG	Strand	Inches	mm	Inches	mm	
3047	30	7/38	0.016	0,41	0.043	1,09	1-10
3048	28	7/36	0.016	0,41	0.047	1,19	1-10
3049	26	7/34	0.016	0,41	0.051	1,30	1-10
3050	24	7/32	0.016	0,41	0.057	1,45	1-19+28,30
3051	22	7/30	0.016	0,41	0.065	1,65	1-19+28-30
3053	20	10/30	0.016	0,41	0.071	1,80	1-19+28-30
3055	18	16/30	0.016	0,41	0.080	2,03	1-19+28-30
3057	16	26/30	0.016	0,41	0.095	2,41	1-19+28-30

*See color chart below

SOLID CONDUCTOR

Alpha Part No.	Conductor		Insul. Thickness		Diameter		Stock Colors*
	AWG	Strand	Inches	mm	Inches	mm	
3050/1	24	Solid	0.016	0,41	0.057	1,45	1-10
3051/1	22	Solid	0.016	0,41	0.065	1,65	1-10
3053/1	20	Solid	0.016	0,41	0.071	1,80	1-10
3055/1	18	Solid	0.016	0,41	0.080	2,03	1-10
3057/1	16	Solid	0.016	0,41	0.095	2,41	1-10

*See color chart below

SEMI RIGID PVC INSULATION

UL 1061, CSA AWM I A/B FT1
80°C, 300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -10°C to 80°C

VOLTAGE RATING:

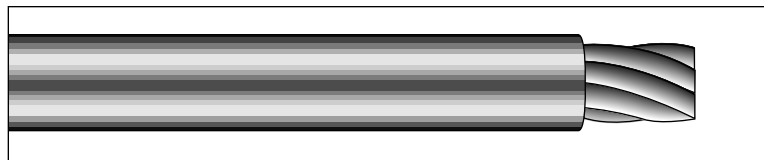
- 300 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded, Semi Rigid PVC

SPECIFICATIONS

- UL AWM Style 1061
- CSA AWM I A/B FT1



Alpha Part No.	Conductor		Insul. Thickness		Diameter		Stock Colors*
	AWG	Strand	Inches	mm	Inches	mm	
3250	24	7/32	0.009	0,23	0.042	1,07	1-10
3251	22	7/30	0.009	0,23	0.048	1,22	1-10
3252	20	7/28	0.009	0,23	0.056	1,42	1-10
3253	18	7/26	0.009	0,23	0.066	1,68	1-10
3254	16	7/24	0.009	0,23	0.078	1,98	1-10

*See color chart below

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray	11-White/Black	13-White/Green	15-White/Blue	17-White/Orange	19-White/Violet	29-Yellow/Green
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)	12-White/Red	14-White/Yellow	16-White/Brown	18-White/Gray	28-Green/Yellow	30-Pink



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HOOK-UP WIRE

PVC INSULATION

MIL-W-76B TYPE MW
80°C, 1000 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -40°C to 80°C

VOLTAGE RATING:

- 1000 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded or Solid Tinned Copper
- Insulation: Color-Coded PVC

SPECIFICATIONS

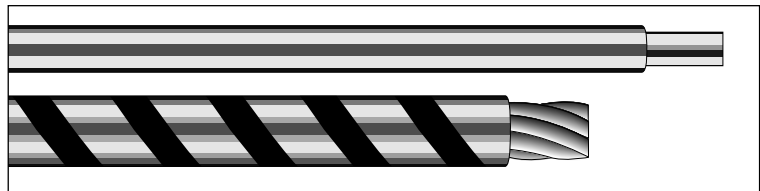
- MIL-W-76B Type MW



Passes
VW-1 Flame Test

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups



STRANDED CONDUCTOR

Alpha Part No.	Type Designation	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Colors*
1550	MW-C24(7)U	24	7/32	0.016	0,41	0.059	1,50	1-19
1551	MW-C22(7)U	22	7/30	0.016	0,41	0.064	1,63	1-19
1553	MW-C20(10)U	20	10/30	0.016	0,41	0.068	1,72	1-19
1555	MW-C18(16)U	18	16/30	0.016	0,41	0.078	1,98	1-19
1557	MW-C16(26)U	16	26/30	0.016	0,41	0.092	2,33	1-19
1559	MW-C14(41)U	14	41/30	0.016	0,41	0.101	2,56	1-10
1560	MW-C12(65)U	12	65/30	0.016	0,41	0.125	3,18	1-10

*See color chart below

SOLID CONDUCTOR

Alpha Part No.	Type Designation	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Colors*
1561/24	MW-C24(1)U	24	Solid	0.016	0,41	0.055	1,40	1-6
1561	MW-C22(1)U	22	Solid	0.016	0,41	0.060	1,52	1-6
1563	MW-C20(1)U	20	Solid	0.016	0,41	0.066	1,68	1-6
1565	MW-C18(1)U	18	Solid	0.016	0,41	0.074	1,88	1-6

*See color chart below

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray	11-White/Black	13-White/Green	15-White/Blue	17-White/Orange	19-White/Violet	29-Yellow/Green
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)	12-White/Red	14-White/Yellow	16-White/Brown	18-White/Gray	28-Green/Yellow	30-Pink

HOOK-UP WIRE

PVC INSULATION

MIL-W-76B TYPE HW
80°C, 600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 600 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC



Alpha Part No.	Type Designation	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Colors*
1579	HW-C14(41)U	14	41/30	0.045	1,14	0.163	4,14	1-3
1651	HW-C12(65)U	12	65/30	0.045	1,14	0.181	4,59	1-3
1653	HW-C10(105)U	10	105/30	0.045	1,14	0.220	5,58	1-3
1655	HW-C 8(133)U	8	133/29	0.045	1,14	0.260	6,60	1-3

*See color chart below

SPECIFICATIONS

- MIL-W-76B Type HW

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray	11-White/Black	13-White/Green	15-White/Blue	17-White/Orange	19-White/Violet	29-Yellow/Green
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)	12-White/Red	14-White/Yellow	16-White/Brown	18-White/Gray	28-Green/Yellow	30-Pink



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HOOK-UP WIRE

PVC INSULATION

MIL-W-16878E TYPE B
105°C, 600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

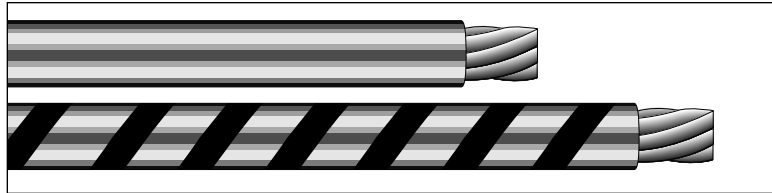
- -55°C to 105°C

VOLTAGE RATING:

- 600 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC



SPECIFICATIONS

- MIL-W-16878E Type B



AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups

Alpha Part No.	Type Designation	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Colors*
1850	B-32	32	7/40	0.010	0,25	0.028	0,71	1-6
1851†	B-30	30	7/38	0.010	0,25	0.032	0,81	1-6
1852†	B-28	28	7/36	0.010	0,25	0.034	0,86	1-10
1853†	B-26	26	7/34	0.010	0,25	0.038	0,96	1-19
1854†	B-24	24	7/32	0.010	0,25	0.043	1,09	1-19
1854/19	B-24	24	19/36	0.010	0,25	0.043	1,09	1-19
1855†	B-22	22	7/30	0.010	0,25	0.050	1,27	1-19
1855/19	B-22	22	19/34	0.010	0,25	0.050	1,27	1-19
1856†	B-20	20	7/28	0.010	0,25	0.058	1,47	1-19
1856/19	B-20	20	19/32	0.010	0,25	0.058	1,47	1-19
1857	B-18	18	7/26	0.010	0,25	0.068	1,73	1-19
1857/19	B-18	18	19/30	0.010	0,25	0.068	1,73	1-19
1858/19	B-16	16	19/29	0.010	0,25	0.077	1,96	1-19
1859/19	B-14	14	19/27	0.010	0,25	0.091	2,31	1-10

† Also meets MIL-W-76B Type LW

*See color chart below

UL 1015, CSA TEW-105
105°C, 600 VOLT

PVC INSULATION

CHARACTERISTICS

OPERATING TEMPERATURE:

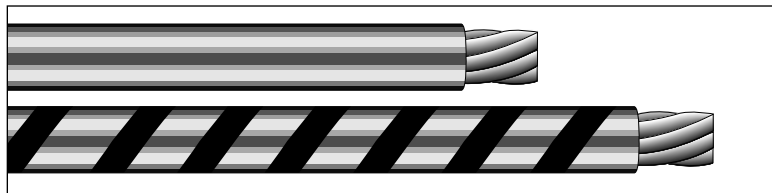
- -20°C to 105°C

VOLTAGE RATING:

- 600 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC



SPECIFICATIONS

- UL AWM Style 1015

- CSA TEW-105



Alpha Part No.	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Colors*
3070	24	7/32	0.032	0,81	0.088	2,24	1-10+28
3071	22	7/30	0.032	0,81	0.094	2,38	1-10+28,29
3073	20	10/30	0.032	0,81	0.100	2,54	1-10+28
3075	18	16/30	0.032	0,81	0.112	2,85	1-10+28,29
3077	16	26/30	0.032	0,81	0.124	3,14	1-10+28,29
3079	14	41/30	0.032	0,81	0.134	3,61	1-10+28,29
3080	12	65/30	0.032	0,81	0.162	3,93	1-4
3081	10	105/30	0.032	0,81	0.180	4,83	1-4

*See color chart below

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray	11-White/Black	13-White/Green	15-White/Blue	17-White/Orange	19-White/Violet	29-Yellow/Green
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)	12-White/Red	14-White/Yellow	16-White/Brown	18-White/Gray	28-Green/Yellow	30-Pink

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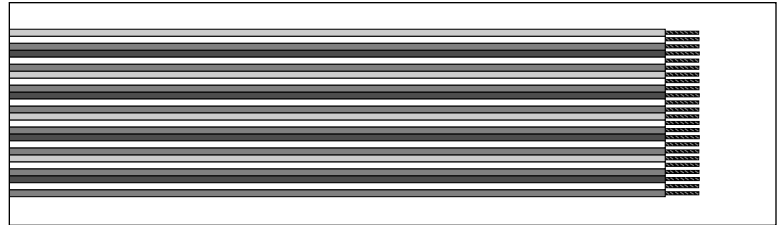
HOOK-UP WIRE

PVC RIBBON CABLE

MIL-W-16878E TYPE B: 105°C, 600 VOLT
UL 2713: 80°C, 300 VOLT
MIL-W-16878E TYPE C: 105°C, 1000 VOLT
UL 2555: 80°C, 300 VOLT

RIBBON CABLE

Ribbon cable is a term that refers to a series of individually color-coded, insulated wires in a flat cable configuration. Bonded flat ribbon cables facilitate easier routing and termination and take up less space than wire harness bundles. Ribbon cable constructions are more flexible than round wire bundles. Ribbon cable constructions can safely carry more current than round harnesses of similar wire gauges and are easy to separate and route within circuits.



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C

VOLTAGE RATING:

- Type B 600 Volt
- UL 150 Volt
- Type C 1000 Volt
- UL 300 Volt

COLOR DESCRIPTION:

- Color Code: Brown, Red, Orange, Yellow, Green, Blue, Violet, Slate, White, Black (repeat)

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC Conductors Bonded into a Flat Configuration

SPECIFICATIONS

- MIL-W-16878E Type B
- UL AWM Style 2713
- MIL-W-16878E Type C
- UL AWM Style 2555



AVAILABILITY

- 100 ft (30,5m) put-ups

MIL-W-16878E TYPE B: 105°C, 600 VOLT UL STYLE 2713: 80°C, 300 VOLT:

Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Conductors	Conductor		Diameter (Width x Thickness)	
		AWG	Strand	Inches	mm
3530	10	22	19/34	0.510 x 0.051	12,95 x 1,30
3530/7	10	22	7/30	0.510 x 0.051	12,95 x 1,30
3531	15	22	19/34	0.765 x 0.051	19,43 x 1,30
3531/7	15	22	7/30	0.765 x 0.051	19,43 x 1,30
3532	20	22	19/34	1.020 x 0.051	25,91 x 1,30
3532/7	20	22	7/30	1.020 x 0.051	25,91 x 1,30
3533	30	22	19/34	1.530 x 0.051	38,86 x 1,30
3533/7	30	22	7/30	1.530 x 0.051	38,86 x 1,30
3540	10	24	19/36	0.440 x 0.044	11,18 x 1,12
3540/7	10	24	7/32	0.440 x 0.044	11,18 x 1,12
3541	15	24	19/36	0.660 x 0.044	16,76 x 1,12
3541/7	15	24	7/32	0.660 x 0.044	16,76 x 1,12
3542	20	24	19/36	0.880 x 0.044	22,35 x 1,12
3542/7	20	24	7/32	0.880 x 0.044	22,35 x 1,12
3543	30	24	19/36	1.320 x 0.044	33,53 x 1,12
3550	10	26	7/34	0.392 x 0.039	9,96 x 0,99
3550/14	14	26	7/34	0.546 x 0.039	13,87 x 0,99
3551	15	26	7/34	0.587 x 0.039	14,91 x 0,99
3551/16	16	26	7/34	0.624 x 0.039	15,85 x 0,99
3553	30	26	7/34	1.19 x 0.039	30,23 x 0,99

MIL-W-16878E TYPE C: 105°C, 1000 VOLT UL STYLE 2555: 80°C, 300 VOLT

Insulation Thickness: **0.016"** (0,42mm)

Alpha Part No.	No. of Conductors	Conductor		Diameter (Width x Thickness)	
		AWG	Strand	Inches	mm
3505	5	22	7/30	0.320 x 0.065	8,13 x 1,65
3510	10	22	7/30	0.640 x 0.065	16,26 x 1,65
3515	15	22	7/30	0.960 x 0.065	24,38 x 1,65
3520	20	22	7/30	1.29 x 0.065	32,77 x 1,65



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MIL-W-16878E TYPE B: 105°C, 600 VOLT
UL 1429, CSA: 80°C, 150 VOLT
MIL-W-16878E TYPE C: 105°C, 1000 VOLT
UL 1430, CSA: 105°C, 300 VOLT

HOOK-UP WIRE

IRRADIATED PVC INSULATION

SOLDER IRON RESISTANT

Irradiated PVC Insulated Hook-Up Wire is exposed to controlled electron beam radiation which results in an insulation far superior to ordinary PVC.

Irradiated PVC withstands higher temperatures than ordinary PVC. Because of its ability to resist solder iron heat, it is the ideal material to use where high reliability is essential and particularly valuable in the wiring of tight, high-density systems.

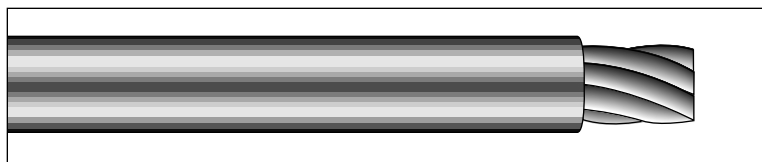
Irradiated PVC insulation is tougher than ordinary PVC resulting in greatly improved abrasion and cut-through resistance.



MIL-W-16878E TYPE B: 105°C, 600 VOLT
CSA AWM I A/B FT1: 105°C, 150 VOLT
UL 1429: 80°C, 150 VOLT

Alpha Part No.	Conductor AWG	Strand	Insul. Thickness		Diameter		Stock Colors*
			Inches	mm	Inches	mm	
7053	26	7/34	0.010	0,25	0.040	1,02	1-10
7054	24	7/32	0.010	0,25	0.045	1,14	1-10
7054/19	24	19/36	0.010	0,25	0.045	1,14	1-10
7055	22	7/30	0.010	0,25	0.051	1,30	1-10
7055/19	22	19/34	0.010	0,25	0.052	1,32	1-10
7056	20	7/28	0.010	0,25	0.059	1,50	1-10
7056/19	20	19/32	0.010	0,25	0.060	1,52	1-10
7057	18	7/26	0.010	0,25	0.070	1,78	1-10
7057/19	18	19/30	0.010	0,25	0.070	1,78	1-10
7058/19	16	19/29	0.010	0,25	0.078	1,98	1-10

*See color chart below



MIL-W-16878E TYPE C: 105°C, 1000 VOLT
UL 1430, CSA REW XLPVC: 105°C, 300 VOLT

Alpha Part No.	Conductor AWG	Strand	Insul. Thickness		Diameter		Stock Colors*
			Inches	mm	Inches	mm	
7130	24	7/32	0.016	0,41	0.056	1,42	1-10,29
7131	22	7/30	0.016	0,41	0.062	1,58	1-10
7132	20	7/28	0.016	0,41	0.070	1,78	1-10
7133	18	7/26	0.016	0,41	0.082	2,08	1-10,29
7134	16	19/29	0.016	0,41	0.092	2,34	1-10,29
7035†	14	19/27	0.016	0,41	0.107	2,72	1-10,29
7036†	12	19/25	0.016	0,41	0.124	3,15	1-10,29

† UL 3317

*See color chart below

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C – UL AWM 1430
- -55°C to 105°C – UL AWM 3317
- -55°C to 105°C – CSA AWM I A/B FT1
- -55°C to 105°C – MIL-W-16878E
- -55°C to 80°C – UL AWM 1429

VOLTAGE RATING:

- 600 Volt (MIL), 150 Volt (UL, CSA)
- 1000 Volt (MIL), 300 Volt (UL, CSA)

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded, Irradiated PVC (XLPVC)

SPECIFICATIONS

- UL AWM Style 1429
- UL AWM Style 1430
- UL AWM Style 3317
- CSA AWM I A/B FT1
- CSA REW XLPVC FT1
- MIL-W-16878E, Type B
- MIL-W-16878E, Type C



Underwriters Laboratories Inc.



Underwriters Laboratories Inc.



Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray	29-Yellow/Green
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)	

HOOK-UP WIRE

IRRADIATED POLYOLEFIN INSULATION

MIL-W-16878E:
105°C, 600, 1000, 3000 VOLT
UL, CSA:
125°C, 150, 300, 600 VOLT

FLAME RETARDANT

Alpha's irradiated polyolefin insulation provides an ideal solution to many design problems. It is especially suitable for applications where temperatures exceed the capability of PVC, which required the use of costly fluorocarbon insulations. The radiation crosslinking process also improves other environmental characteristics while retaining the excellent electrical properties of polyolefin. This material is highly flame retardant, with a UL VW-1 rating. It is non-meltable, minimizing damage from solder iron contact. There is also greater resistance to abrasion, cut-through, and chemical attack. Alpha irradiated polyolefin conforms to UL and Military standards. It is available in three different wall thickness constructions for a wide range of voltage capabilities.



MIL-W-16878E TYPE B: 105°C, 600 VOLT UL 3265, CSA AWM I A/B FT1: 125°C, 150 VOLT

Alpha Part No.	Conductor AWG	Strand	Insul. Thickness		Diameter		Stock Colors*
			Inches	mm	Inches	mm	
7012	22	19/34	0.010	0,25	0.054	1,37	1,2
7013	20	19/32	0.010	0,25	0.062	1,57	1,2
7014	18	19/30	0.010	0,25	0.072	1,83	1,2

*See color chart below

MIL-W-16878E TYPE C: 105°C, 1000 VOLT UL 3266, CSA CL 1252 XLPE: 125°C, 300 VOLT

Alpha Part No.	Conductor AWG	Strand	Insul. Thickness		Diameter		Stock Colors*
			Inches	mm	Inches	mm	
7024	22	19/34	0.015	0,38	0.061	1,54	1-3
7025	20	19/32	0.015	0,38	0.069	1,75	1-3
7026	18	19/30	0.015	0,38	0.080	2,03	1-3

*See color chart below

MIL-W-16878E TYPE D: 105°C, 3000 VOLT UL 3271, CSA CL 1251 XLPE: 125°C, 600 VOLT

Alpha Part No.	Conductor AWG	Strand	Insul. Thickness		Diameter		Stock Colors*
			Inches	mm	Inches	mm	
7044	18	16/30	0.030	0,76	0.109	2,77	1-3
7045	16	26/30	0.030	0,76	0.122	3,10	1-3
7046	14	41/30	0.030	0,76	0.135	3,42	1-3
7047	12	65/30	0.030	0,76	0.153	3,88	1-3
7048	10	105/30	0.030	0,76	0.178	4,52	1-3

*See color chart below

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C — MIL-W-16878E
- -55°C to 125°C — (UL, CSA 125°C)

VOLTAGE RATING:

- MIL-W-16878E Type B: 600 Volt
UL 3265, CSA AWM I A/B FT1: 150 Volt
- MIL-W-16878E Type C: 1000 Volt
UL 3266, CSA CL 1252 XLPE: 300 Volt
- MIL-W-16878E Type D: 3000 Volt
UL 3271, CSA CL 1251 XLPE: 600 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Radiation Crosslinked Polyolefin (XLPE)

SPECIFICATIONS

- UL AWM Style 3265
- UL AWM Style 3266
- UL AWM Style 3271
- CSA AWM I A/B FT1
- CSA CL 1252 XLPE
- CSA CL 1251 XLPE
- MIL-W-16878E, Types B, C and D

Recognized Component Passes UL VW-1 Flame Test Certified
Underwriters Laboratories Inc. Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 7012-7014, 7024-7026
1000 ft (30,5m) put-ups
- 7044-7048
100 ft (30,5m), 1000 ft (305m) put-ups

*STOCK COLOR CHART

1-White 2-Black 3-Red



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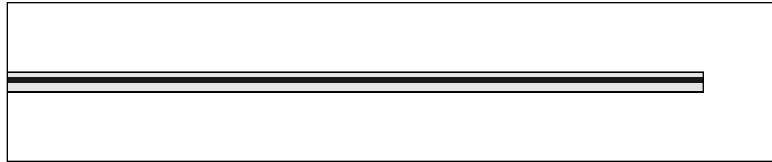
Web Site: www.alphawire.com
Email: info@alphawire.com

MIL-W-3861 TYPE S
QQ-W-343 TYPE S

CHARACTERISTICS

PRODUCT DESCRIPTION:

- Conductor: Electrolytic Soft Drawn and Annealed Solid Tin Plated Copper



SPECIFICATIONS

- MIL-W-3861 Type S (Inactive Military Specification)
- QQ-W-343 Type S

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups

Alpha Part No.	Conductor AWG	Nom. Circular MIL Area, CM	Diameter	
			Inches	mm
299/3	30	100	0.010	0,25
299/2	28	159	0.013	0,33
299/1	26	253	0.016	0,41
299	24	404	0.020	0,51
298	22	640	0.025	0,64
297	20	1020	0.032	0,81
296	18	1620	0.040	1,02
295	16	2580	0.051	1,30
286	14	4110	0.064	1,62
289	12	6530	0.081	2,06

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TEST LEAD WIRE

CHARACTERISTICS

OPERATING TEMPERATURE:

- 30°C to 90°C

VOLTAGE RATING:

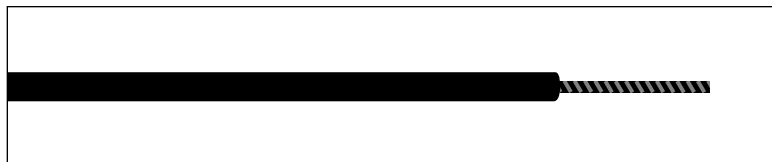
- 1500 Volt to 10,000 Volt as noted

COLOR DESCRIPTION:

- Stock Colors: Black and Red

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Rubber



Alpha Part No.	Conductor		Insul. Thickness		Diameter		Voltage Breakdown	Sugg. Working Voltage
	AWG	Strand	Inches	mm	Inches	mm		
1632	20	41/36	0.040	1,02	0.125	3,18	6,000	1500V
1635	20	41/36	0.047	1,19	0.140	3,56	12,000	3000V
1636	18	65/36	0.045	1,14	0.140	3,56	20,000	5000V
1638	18	65/36	0.090	2,29	0.230	5,84	29,000	10000V

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

HOOK-UP WIRE

KYNAR* WIRE WRAP

TEFZEL** WIRE WRAP

UL 1422, UL 1423: 105°C
UL 1516, UL 1523: 105°C

WIRE WRAP

Wire wrapping is an automatic or semi-automatic termination method generally used in large scale wiring of computer backpanels. It involves the helical wrapping of a solid conductor around a rectangular post under controlled tension. Alpha Kynar and Tefzel wire wrap wires are manufactured with silver-plated OFHC[‡] conductors. The presence of even minute amounts of oxygen in copper can reduce conductivity and cause embrittlement when the copper is subjected to physical stress. OFHC copper retains its mechanical and electrical integrity even after subject to the high forces of the wire wrapping process.

Both Kynar and Tefzel exhibit high abrasion, heat and cut-through resistance.



UL 1422, UL 1423: KYNAR WIRE WRAP, 125°C

Alpha Part No.	Conductor AWG	Insul. Thickness		Diameter		UL Style	Stock Colors*
		Inches	mm	Inches	mm		
5951	30	0.0045	0,11	0.020	0,51	1423	1-10
5952	28	0.0055	0,14	0.024	0,58	1422	1-10
5953	26	0.0055	0,14	0.027	0,68	1422	1-10
5954	24	0.0045	0,11	0.030	0,76	1423	1-10

*See color chart below

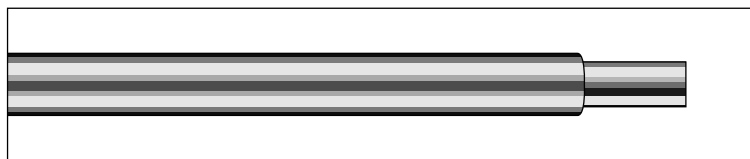
CHARACTERISTICS

OPERATING TEMPERATURE:

- Kynar Wire Wrap: -40°C to 125°C (UL 105°C)
- Tefzel Wire Wrap: -70°C to 150°C (UL 105°C)

PRODUCT DESCRIPTION:

- Conductor: Solid Silver-Plated OFHC[‡] Copper
- Insulation:
 - Color-Coded Kynar (Polyvinylidene Fluoride)
 - Color-Coded Tefzel (Ethylene-Tetrafluoroethylene Copolymer)



UL 1516, UL 1523: TEFZEL WIRE WRAP, 150°C

Alpha Part No.	Conductor AWG	Insul. Thickness		Diameter		UL Style	Stock Colors*
		Inches	mm	Inches	mm		
1805	30	0.0045	0,11	0.020	0,51	1516	1-10
1806	28	0.0055	0,14	0.024	0,58	1523	1-10
1807	26	0.0055	0,14	0.027	0,69	1523	1-10
1808	24	0.0045	0,11	0.030	0,76	1516	1-10

*See color chart below

*Kynar is a registered trademark of ELF Atochem, North America, Inc.

**Registered trademark of E.I. DuPont

[‡]OFHC-(Oxygen-Free High Conductivity) is a registered trademark of Amax, Inc.

SPECIFICATIONS

- UL AWM Style 1422
- UL AWM Style 1423
- UL AWM Style 1516
- UL AWM Style 1523



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

AVAILABILITY

- Kynar Wire Wrap:
1000 ft (305m) putups
- Tefzel Wire Wrap:
100 ft (30,5m), 1000 ft (305m) put-ups

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)



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Web Site: www.alphawire.com
Email: info@alphawire.com

HOOK-UP WIRE

TFE TEFLON® INSULATION

MIL-W-16878E (TYPE ET)†
200°C, 250 VOLT

CERTIFIED PERFORMANCE - HIGH-RELIABILITY TFE TEFLON® INSULATION

Alpha's TFE Teflon wire family includes a full range of sizes, colors, conductor types and voltage ratings for both commercial (UL styles) and high reliability military OEM products.

Alpha's TFE Teflon is rated for continuous operation in temperatures from -60°C to 200°C and retains its exceptional toughness and flexibility within this range. TFE Teflon is not degraded by chemicals which makes it ideal for use in harsh environments. Teflon is widely regarded as the ultimate high performance wire insulation material for environments characterized by extreme thermal or chemical conditions.

CHOOSE TFE TEFLON® FOR:

- Resistance To All Chemicals
- High Temperature Use Up To 200°C
- Low Coefficient of Friction
- Outstanding Electrical Properties

TFE TEFLON® APPLICATIONS:

- Military Harnessing
- Medical Electronics
- Power Supply Lead Wire
- Appliance Wiring

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 200°C

VOLTAGE RATING:

- 250 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded or Solid Silver Plated Copper
- Insulation: Color-Coded, Extruded TFE Teflon

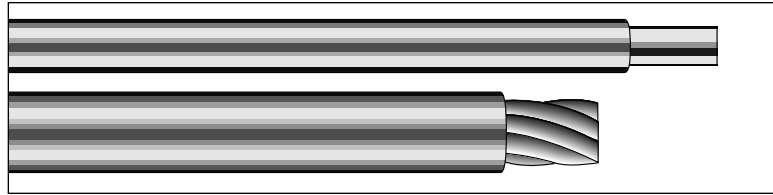
SPECIFICATIONS

- MIL-W-16878E Type ET



AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups
1000 ft put-ups may contain multiple lengths



STRANDED CONDUCTOR

Alpha Part No.	Type Designation	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Colors*
2840/7	ET-32	32	7/40	0.006	0,15	0.021	0,53	1-10
2841/7	ET-30	30	7/38	0.006	0,15	0.024	0,61	1-10
2842/7	ET-28	28	7/36	0.006	0,15	0.027	0,68	1-10
2842/19	ET-28	28	19/40	0.006	0,15	0.027	0,68	1-10
2843/7	ET-26	26	7/34	0.006	0,15	0.031	0,78	1-10
2843/19	ET-26	26	19/38	0.006	0,15	0.032	0,81	1-10
2844/7	ET-24	24	7/32	0.006	0,15	0.036	0,91	1-10
2844/19	ET-24	24	19/36	0.006	0,15	0.037	0,94	1-10
2845/7	ET-22	22	7/30	0.006	0,15	0.042	1,07	1-10
2845/19	ET-22	22	19/34	0.006	0,15	0.044	1,12	1-10

*See color chart below

SOLID CONDUCTOR

Alpha Part No.	Conductor AWG	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Colors*
2841/1	30	0.006	0,15	0.022	0,55	1-10
2842/1	28	0.006	0,15	0.025	0,63	1-10
2843/1	26	0.006	0,15	0.028	0,71	1-10

*See color chart below

†All product supplied is to the MIL-W-16878 E revision. Revision F product can be supplied upon request, subject to minimum order quantity and lead time requirements.

Teflon® is a registered trademark of E.I. DuPont

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)

HOOK-UP WIRE

TFE TEFLON® INSULATION

MIL-W-16878E (TYPE E)^{††}
UL 1213
200°C, 600 VOLT

CERTIFIED PERFORMANCE - HIGH-RELIABILITY TFE TEFLON® INSULATION

Alpha's TFE Teflon wire family includes a full range of sizes, colors, conductor types and voltage ratings for both commercial (UL styles) and high reliability military OEM products.

Alpha's TFE Teflon is rated for continuous operation in temperatures from -60°C to 200°C and retains its exceptional toughness and flexibility within this range. TFE Teflon is not degraded by chemicals which makes it ideal for use in harsh environments. Teflon is widely regarded as the ultimate high performance wire insulation material for environments characterized by extreme thermal or chemical conditions.

CHOOSE TFE TEFLON® FOR:

- Resistance To All Chemicals
- High Temperature Use Up To 200°C
- Low Coefficient of Friction
- Outstanding Electrical Properties

TFE TEFLON® APPLICATIONS:

- Military Harnessing
- Medical Electronics
- Power Supply Lead Wire
- Appliance Wiring

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 200°C (UL 105°C)

VOLTAGE RATING:

- 600 Volt (UL: Voltage Not Specified)

PRODUCT DESCRIPTION:

- Conductor: Stranded or Solid Silver-Plated Copper
- Insulation: Color-Coded, Extruded TFE Teflon

SPECIFICATIONS

- UL AWM Style 1213
- MIL-W-16878E Type E



Recognized
Component

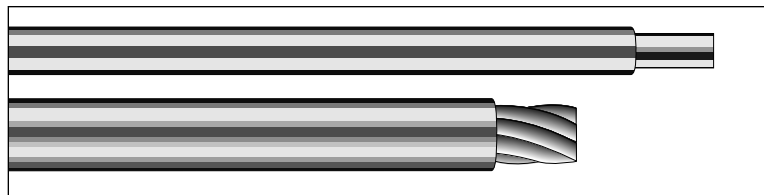


Passes
UL VW-1 Flame Test

Underwriters Laboratories Inc. Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups
1000 ft put-ups may contain multiple lengths



STRANDED CONDUCTOR

Alpha Part No.	Type Designation	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Color*
5851	E-30	30	7/38	0.010	0,25	0.032	0,81	1-10
5852	E-28	28	7/36	0.010	0,25	0.036	0,91	1-10
5853	E-26	26	7/34	0.010	0,25	0.040	1,02	1-10
5853/19	E-26	26	19/38	0.010	0,25	0.041	1,04	1-10
5854	E-24	24	19/36	0.010	0,25	0.045	1,14	1-10
5854/7	E-24	24	7/32	0.010	0,25	0.044	1,12	1-10
5855	E-22	22	19/34	0.010	0,25	0.051	1,30	1-10
5855/7	E-22	22	7/30	0.010	0,25	0.055	1,27	1-10
5856	E-20	20	19/32	0.010	0,25	0.059	1,50	1-10
5856/7	E-20	20	7/28	0.010	0,25	0.058	1,47	1-10
5857	E-18	18	19/30	0.010	0,25	0.070	1,78	1-10
5858	E-16	16	19/29	0.010	0,25	0.077	1,96	1-10
5859 [†]	E-14	14	19/27	0.012	0,30	0.094	2,39	1
5859/12 [†]	E-12	12	19/25	0.012	0,30	0.113	2,87	1
5859/10 [†]	E-10	10	37/26	0.012	0,30	0.134	3,40	1

*See color chart below

SOLID CONDUCTOR

Alpha Part No.	Conductor AWG	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Color*
2853/1	26	0.010	0,25	0.036	0,91	1-10
2854/1	24	0.010	0,25	0.040	1,02	1-10
2855/1	22	0.010	0,25	0.045	1,14	1-10
2856/1	20	0.010	0,25	0.052	1,32	1-3
2857/1	18	0.010	0,25	0.060	1,52	1-3

*See color chart below

[†]Not UL AWM Style 1213

^{††}All product supplied is to the MIL-W-16878 E revision. Revision F product can be supplied upon request, subject to minimum order quantity and lead time requirements.

Teflon® is a registered trademark of E.I. DuPont

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)



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Web Site: www.alphawire.com
Email: info@alphawire.com

MIL-W-16878E (TYPE EE)^{††}
UL 1180
200°C, 1000 VOLT

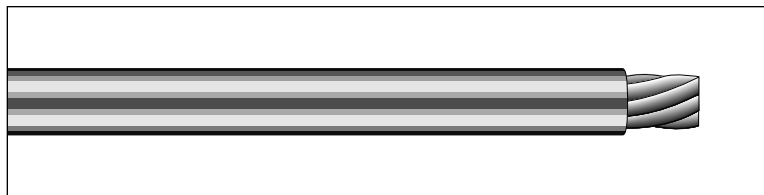
HOOK-UP WIRE

TFE TEFLON® INSULATION

CERTIFIED PERFORMANCE - HIGH-RELIABILITY TFE TEFLON® INSULATION

Alpha's TFE Teflon wire family includes a full range of sizes, colors, conductor types and voltage ratings for both commercial (UL styles) and high reliability military OEM products.

Alpha's TFE Teflon is rated for continuous operation in temperatures from -60°C to 200°C and retains its exceptional toughness and flexibility within this range. TFE Teflon is not degraded by chemicals which makes it ideal for use in harsh environments. Teflon is widely regarded as the ultimate high performance wire insulation material for environments characterized by extreme thermal or chemical conditions.



Alpha Part No.	Type Designation	Conductor AWG	Strand	Insul. Thickness Inches	mm	Diameter Inches	mm	Stock Color*
5874	EE-24	24	19/36	0.014	0,35	0.052	1,32	1-10
5875	EE-22	22	19/34	0.014	0,35	0.059	1,49	1-10
5876	EE-20	20	19/32	0.014	0,35	0.067	1,70	1-10
5877	EE-18	18	19/30	0.014	0,35	0.078	1,98	1-10
5878	EE-16	16	19/29	0.014	0,35	0.086	2,18	1
5879	EE-14	14	19/27	0.017	0,43	0.105	2,67	1
5879/12	EE-12	12	19/25	0.017	0,43	0.124	3,15	1
5879/10	EE-10	10	37/26	0.017	0,43	0.146	3,70	1
5879/8†	EE-8	8	133/29	0.020	0,50	0.206	5,23	1

*See color chart below

†Not UL AWM 1180 – AWM 1180 requires that 18AWG thru 10AWG have a temperature marker.

††All product supplied is to the MIL-W-16878 E revision. Revision F product can be supplied upon request, subject to minimum order quantity and lead time requirements.

Teflon® is a registered trademark of E.I. DuPont

CHOOSE TFE TEFLON® FOR:

- Resistance To All Chemicals
- High Temperature Use Up To 200°C
- Low Coefficient of Friction
- Outstanding Electrical Properties

TFE TEFLON® APPLICATIONS:

- Military Harnessing
- Medical Electronics
- Power Supply Lead Wire
- Appliance Wiring

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 200°C

VOLTAGE RATING:

- 1000 Volt (MIL), 300 Volt (UL)

PRODUCT DESCRIPTION:

- Conductor: Stranded Silver-Plated Copper
- Insulation: Color-Coded, Extruded TFE Teflon

SPECIFICATIONS

- UL AWM Style 1180
- MIL-W-16878E Type EE



Passes
UL VW-1 Flame Test

Underwriters Laboratories Inc. Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups
1000 ft put-ups may contain multiple lengths

*STOCK COLOR CHART

1-White	3-Red	5-Yellow	7-Brown	9-Gray
2-Black	4-Green	6-Blue	8-Orange	10-Violet (purple)

HOOK-UP WIRE

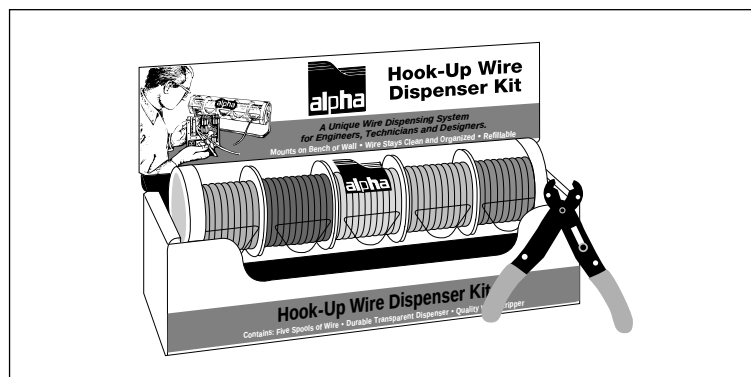
HOOK-UP WIRE KITS

UL 1007/1569
CSA TR-64
MIL-W-76B, TYPE MW

Hook-Up Wire Kits

Alpha's Hook-Up Wire Kits contain an assortment of 100 ft (30,5m) spools of hook-up wire suitable for military or UL/CSA applications. These kits have been designed for use by technicians, engineers and designers in the R & D lab or maintenance shop.

Each kit contains five spools of hook-up wire in a unique, rack-mounted, transparent dispensing tube. The tube and rack system keeps hook-up wire neat, clean and conveniently at hand.



CHOOSE HOOK-UP WIRE KITS FOR:

- Convenient, Wire Dispensing System
- Five Assorted Hook-Up Wire Colors
- Includes Cut and Strip Tool
- Uses Standard Alpha Hook-Up Wire Spools When Refills Are Required

Alpha Part No.	Contents	Quantity Ft.	m	Reorder No.
HU-KIT-10 (22 AWG)	MIL-W-76B Type MW / White	100	30,5	1551
	MIL-W-76B Type MW / Black	100	30,5	1551
	MIL-W-76B Type MW / Red	100	30,5	1551
	MIL-W-76B Type MW / Green	100	30,5	1551
	MIL-W-76B Type MW / Blue	100	30,5	1551
	Cut and Strip Tool			

CHARACTERISTICS

OPERATING TEMPERATURE:

- -40°C to 80°C (HU-KIT-10, 30)
- -40°C to 105°C (HU-KIT-20, 40)

VOLTAGE RATING:

- 1000 Volt (HU-KIT-10, 30)
- 300 Volt (HU-KIT-20, 40)

PRODUCT DESCRIPTION:

- Conductor:
Stranded Tinned Copper
- Insulation:
Color-Coded PVC
- AWG Size:
22 AWG (HU-KIT-10, 20)
24 AWG (HU-KIT-30, 40)

Alpha Part No.	Contents	Quantity Ft.	m	Reorder No.
HU-KIT-20 (22 AWG)	UL 1007/1569, CSA TR-64 / White	100	30,5	3051
	UL 1007/1569, CSA TR-64 / Black	100	30,5	3051
	UL 1007/1569, CSA TR-64 / Red	100	30,5	3051
	UL 1007/1569, CSA TR-64 / Green	100	30,5	3051
	UL 1007/1569, CSA TR-64 / Blue	100	30,5	3051
	Cut and Strip Tool			

Alpha Part No.	Contents	Quantity Ft.	m	Reorder No.
HU-KIT-30 (24 AWG)	MIL-W-76B Type MW / White	100	30,5	1550
	MIL-W-76B Type MW / Black	100	30,5	1550
	MIL-W-76B Type MW / Red	100	30,5	1550
	MIL-W-76B Type MW / Green	100	30,5	1550
	MIL-W-76B Type MW / Blue	100	30,5	1550
	Cut and Strip Tool			

SPECIFICATIONS

- UL AWM Styles 1007 and 1569
- CSA TR-64
- MIL-W-76B, Type MW

Alpha Part No.	Contents	Quantity Ft.	m	Reorder No.
HU-KIT-40 (24 AWG)	UL 1007/1569, CSA TR-64 / White	100	30,5	3050
	UL 1007/1569, CSA TR-64 / Black	100	30,5	3050
	UL 1007/1569, CSA TR-64 / Red	100	30,5	3050
	UL 1007/1569, CSA TR-64 / Green	100	30,5	3050
	UL 1007/1569, CSA TR-64 / Blue	100	30,5	3050
	Cut and Strip Tool			

 **Recognized Component**
Underwriters Laboratories Inc.

 **Passes UL VW-1 Flame Test**
Underwriters Laboratories Inc.

 **Certified**
Canadian Standards Association



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COMMUNICATION & CONTROL

BROADEST PRODUCT RANGE

Alpha utilizes its broad range of quality hook-up wires in the supply of Communications and Control Cables used for low voltage signal transmission. Considering the unique electrical, chemical and environmental properties for each specific cable type, the proper wires are selected and combined individually or in twisted pairs under a common protective sheath. Configurations range from simple unshielded multiconductor audio and control cables to individually shielded multipair computer cables with controlled impedance and capacitance.

ADVANCED CABLE DESIGN

The growing sophistication of the electronics industry continues to create a need for specially designed cables for use with computer-controlled electrical and electronic equipment. To satisfy requirements for impedance matching, lower bit error rates, lower cross-talk, longer transmission distances and high signal purity (EMI/RFI), Alpha is supplying an expanding family of Communications and Control Cables — in a full range of sizes, colors, insulations and shield types for installation in normal indoor environments.

LOGICAL SECTION LAYOUT

Alpha's extensive product selection is designed to put reliability at your fingertips and is arranged in a logical manner for your ordering convenience.

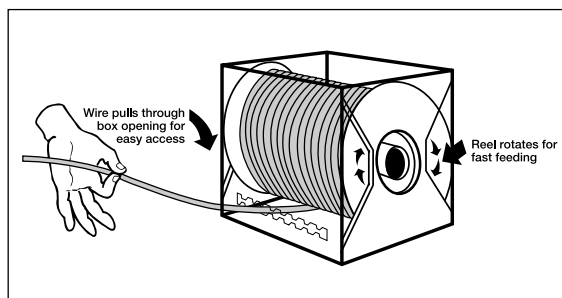
In this section, Alpha Communication and Control Cables are divided into multiconductor and multipair cables. Each category is sub-divided into unshielded and shielded constructions. The shielded products are separated by shield type.

For your convenience we sub-divided even further the plenum multiconductor and multipair cables. Fire alarm cables also categorized to make it easy to locate these special products.

AVAILABILITY

Alpha offers excellent quality, exceptional packaging and "on-the-shelf" inventory.

Alpha Communication and Control Cables are available in several categories of reels and cartons. The availability section on each page will help you to quickly identify the put-up you require. Many products are available in our Alpha **QWIK** - **REEL** configuration.



Product Type	Page Number (s)
MULTICONDUCTOR	
Multiconductor Unshielded	180-186
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Multiconductor Spiral Wrap Shield	191
Multiconductor Braid Shield	192-206
Multiconductor Braid Shield / Unshielded Combination	207
Multiconductor Foil / Braid Shield	208-211
MULTIPAIR	
Multipair Unshielded	212
Multipair Foil Shield	213-220
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Multipair Individually & Overall Foil Shield	234
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PLENUM	
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HI-FI STEREO CABLES	240
TELEPHONE, HEADSET CABLES	241

COMMUNICATION & CONTROL

MULTICONDUCTOR, UNSHIELDED

PVC/PVC

UL TYPE CM
UL AWM 2576, CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- 75°C — CM

VOLTAGE RATING:

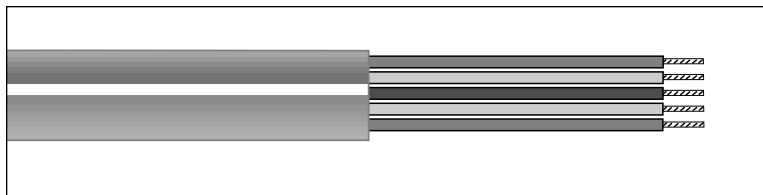
- 150 Volt — AWM
- 300 Volt — CM

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Jacket: PVC



22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1172C	2	0.032	0,81	0.16	4,1
1173C	3	0.032	0,81	0.17	4,3
1174C	4	0.032	0,81	0.19	4,8
1175C	5	0.032	0,81	0.20	5,1
1176C	6	0.032	0,81	0.21	5,3
1177C	7	0.032	0,81	0.21	5,3
1178C	8	0.032	0,81	0.22	5,6
1179C	9	0.032	0,81	0.25	6,3
1180C	10	0.032	0,81	0.26	6,6
1181C	12	0.032	0,81	0.28	7,1
1181/15C	15	0.032	0,81	0.30	7,6
1181/20C	20	0.032	0,81	0.32	8,1
1181/25C	25	0.032	0,81	0.36	9,1
1181/30C	30	0.032	0,81	0.38	9,6
1181/40C	40	0.032	0,81	0.44	11,2
1181/50C	50	0.035	0,89	0.50	12,7
1181/60C	60	0.035	0,89	0.53	13,5

SPECIFICATIONS

- UL Type CM, AWM 2576
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
Consult Alpha for Alpha Qwik-Reel® payout package availability



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COMMUNICATION & CONTROL

MULTICONDUCTOR, UNSHIELDED

PVC/PVC

UL TYPE CM,
UL AWM 2509, 2576, CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

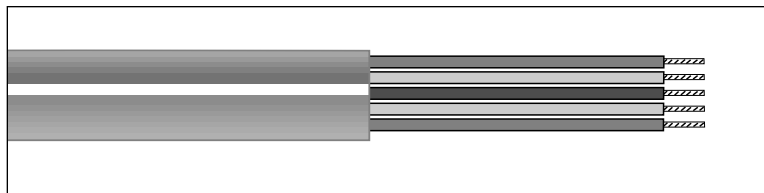
- 150 Volt – AWM 2576
- 300 Volt – CM, AWM 2509

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Jacket: PVC



150V, SOLID UL 2576 TYPE CM

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Insulation Thickness Inches	mm	Jacket Thickness Inches	mm	Diameter Inches	mm	Voltage Ratings
▲1793C	2	22	Solid	0.010	0,25	0.032	0,81	0.15	3,8	150V

300V, UL 2509 TYPE CM

20 AWG (0,51mm²), 7/28 (10x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	mm	Diameter Inches	mm
1895C	2	0.020	0,50	0.18	4,6
1896C	3	0.020	0,50	0.19	4,8
1896/4C	4	0.020	0,50	0.21	5,3
1896/5C	5	0.020	0,50	0.23	5,9
1896/6C	6	0.020	0,50	0.25	6,5
1896/7C	7	0.020	0,50	0.25	6,5
1896/8C	8	0.020	0,50	0.27	6,9
1896/9C	9	0.020	0,50	0.30	7,6
1896/10C	10	0.020	0,50	0.33	8,5
1896/12C	12	0.020	0,50	0.35	8,9
1896/15C	15	0.030	0,76	0.39	10,0

SPECIFICATIONS

- UL Type CM, AWM 2509, 2576
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 1000 ft (305m) put-ups

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CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- 75°C — CM

VOLTAGE RATING:

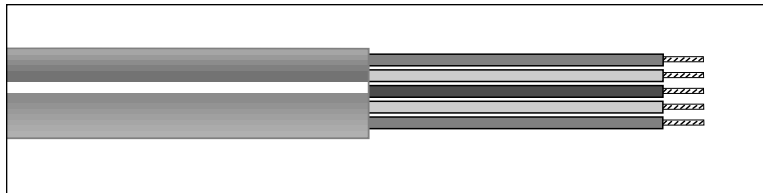
- 300 Volt — CM
- 150 Volt — CL2

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Jacket: PVC



80°C 300V - UL 2509 - NEC TYPE CM

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1897C	2	0.020	0,50	0.20	5,0
1898C	3	0.020	0,50	0.21	5,3
1898/4C	4	0.020	0,50	0.24	6,1
1898/5C	5	0.020	0,50	0.26	6,6
1898/6C	6	0.020	0,50	0.29	7,4
1898/7C	7	0.020	0,50	0.29	7,4
1898/8C	8	0.025	0,63	0.31	8,0
1898/9C	9	0.025	0,63	0.34	8,8
1898/10C	10	0.025	0,63	0.37	9,4
1898/12C	12	0.025	0,63	0.38	9,8
1898/15C	15	0.030	0,76	0.44	11,3
1898/19C	19	0.030	0,76	0.47	11,9
1898/25C	25	0.035	0,88	0.56	14,1

SPECIFICATIONS

- UL Type CM, AWM 2509 (18 & 16 AWG)
- UL Type CL2, (14 & 12 AWG)
- CSA CMG FT4 (18 & 16 AWG)
- CSA AWM I A/B, II A/B FT4 (14 & 12 AWG)
- Passes UL Vertical Tray Flame Test
- "C" Suffix Indicates CM or CL2 Rating as Applicable



AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

80°C 300V - UL 2509 - TYPE CM

16 AWG (1,31mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1899C	2	0.020	0,50	0.22	5,7
1899/3C	3	0.020	0,50	0.24	6,3
1899/4C	4	0.020	0,50	0.27	6,9

80°C 300V - UL TYPE CL2

14 AWG (2,08mm²), **41/30** (41x0,25mm), Insulation Thickness: **0.020"** (0,50mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1891C	2	0.020	0,50	0.26	6,6
1891/3C	3	0.020	0,50	0.28	7,1

80°C 300V - UL TYPE CL2

12 AWG (3,31mm²), **65/30** (65x0,25mm), Insulation Thickness: **0.020"** (0,50mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1892C	2	0.020	0,50	0.30	7,6
1892/3C	3	0.020	0,50	0.32	8,1

COMMUNICATION & CONTROL

MULTICONDUCTOR, UNSHIELDED

PVC/PVC

UL AWM 2463
600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

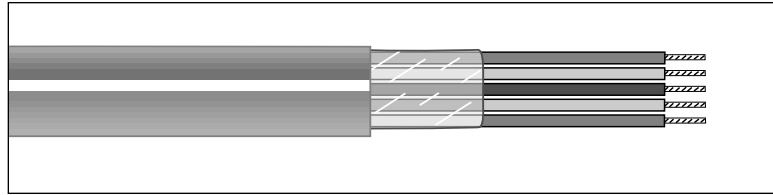
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart F Page 376
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Wrap: Clear Polyester
- Insulation: Color-Coded PVC
- Jacket: PVC



16 AWG (1,31mm²), **19/0.0117** (19x0,29mm), Insulation Thickness: **0.031"** (0,79mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1064	4	0.045	1,14	0.40	10,2
1065	5	0.045	1,14	0.44	11,3
1067	7	0.045	1,14	0.48	12,2
1069	9	0.060	1,52	0.59	15,0
1072	12	0.060	1,52	0.65	16,5
1075	15	0.060	1,52	0.73	18,5
1079	19	0.065	1,65	0.78	19,8
1085	25	0.080	2,03	0.93	23,6

SPECIFICATIONS

- UL AWM 2463



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc. Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m),
1000 ft (305m) put-ups
- ▲ 1000 ft (305m)

14 AWG (2,08mm²), **19/0.0147** (19x0,37mm), Insulation Thickness: **0.047"** (1,19mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1274	4	0.045	1,14	0.49	12,4
1275	5	0.060	1,52	0.57	14,5
1277	7	0.060	1,52	0.62	15,7
1279	9	0.065	1,65	0.74	18,8
1282	12	0.080	2,03	0.86	21,8
▲1285	15	0.080	2,03	0.95	24,1

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COMMUNICATION&CONTROL

MULTICONDUCTOR, UNSHIELDED

IRRADIATED PVC / PVC

UL AWM 2576

MIL-W-16878 TYPE B

600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C (UL: 80°C)

VOLTAGE RATING:

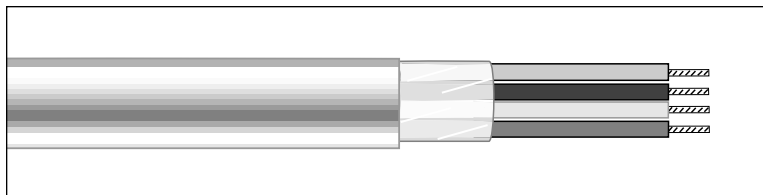
- 600 Volt (UL: 150 Volt)

COLOR DESCRIPTION:

- Color Code: 1-White, 2-Black, 3-Red, 4-Green
- Jacket Color: White

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Wrap: Clear Polyester
- Insulation: Color-Coded Irradiated PVC
- Jacket: PVC



Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Conductor		Jacket Thickness		Diameter	
		AWG	Strand	Inches	mm	Inches	mm
6622	2	24	7/32	0.030	0,76	0.15	3,8
6623	3	24	7/32	0.030	0,76	0.16	4,1
6624	4	24	7/32	0.030	0,76	0.17	4,3
6632	2	22	7/30	0.030	0,76	0.16	4,1
6633	3	22	7/30	0.030	0,76	0.17	4,3
6634	4	22	7/30	0.030	0,76	0.18	4,6
6642	2	20	7/28	0.030	0,76	0.18	4,6
6643	3	20	7/28	0.030	0,76	0.19	4,8
6644	4	20	7/28	0.030	0,76	0.20	5,1
6652	2	18	7/26	0.030	0,76	0.20	5,1
6653	3	18	7/26	0.030	0,76	0.21	5,4
6654	4	18	7/26	0.030	0,76	0.22	5,6

SPECIFICATIONS

- UL AWM 2576
- MIL-W-16878 Type B



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AVAILABILITY

- 100 ft (30,5m), 500 ft (152m),
1000 ft (305m) put-ups



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COMMUNICATION & CONTROL

MULTICONDUCTOR, UNSHIELDED

RUBBER

600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

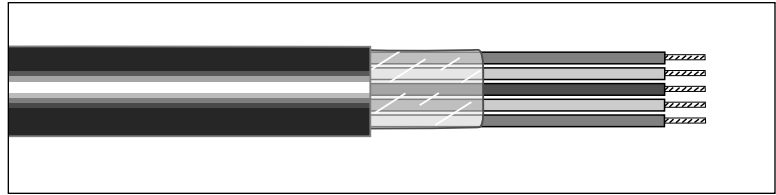
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart H Page 376
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Rubber
- Wrap: Clear Polyester
- Jacket: Rubber



20 AWG (0,51mm²), **26/34** (26x0,16mm), Insulation Thickness: **0.020"** (0,50mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1244	2	0.035	0,89	0.23	5,8
1245	3	0.035	0,89	0.24	6,1
1246	4	0.035	0,89	0.26	6,6
1247/6	6	0.035	0,89	0.31	7,9
1247/10	10	0.035	0,89	0.37	9,4
1247/12	12	0.035	0,89	0.39	9,9
1247/15	15	0.035	0,89	0.43	10,9

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m),
1000 ft (305m) put-ups

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COMMUNICATION & CONTROL

MULTICONDUCTOR, UNSHIELDED

PVC/PVC COMBINATION GAUGES

UL TYPE CM
CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C
- 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart I Page 376
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation:
 - PVC (22 AWG 0.009" 0,23mm)
 - PVC (18 AWG 0.016" 0,41mm)
- Wrap: Clear Polyester
- Nylon Rip Cord
- Jacket: PVC

COMBINATION GAUGES

Alpha Part No.	No. of Cond.	Conductor		Insulation Thickness		Jacket Thickness		Diameter	
		Size	Strand	Inches	mm	Inches	mm	Inches	mm
1826C	6	4-22	7/30	0.010	0,25	0.025	0,63	0.22	5,7
		2-18	16/30	0.018	0,45				
1827C	7	5-22	7/30	0.010	0,25	0.028	0,71	0.25	6,3
		2-18	16/30	0.018	0,45				
1828C	8	6-22	7/30	0.010	0,25	0.028	0,71	0.25	6,3
		2-18	16/30	0.018	0,45				

SPECIFICATIONS

- UL Type CM
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test

  
Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 1000 ft (305m) put-ups only



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CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C – AWM
- 75°C – CM

VOLTAGE RATING:

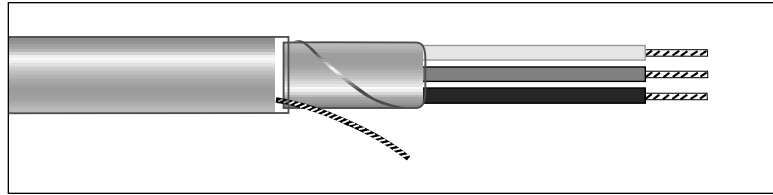
- 300 Volt
- 150 Volt – CL2

COLOR DESCRIPTION:

- Color Code: 1-Black, 2-Red, 3-Natural, 4-Green
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Polyethylene (PE)
- Shield: Aluminum/Polyester, Foil Facing Outward
- Drain Wire: Stranded Tinned Copper
- Jacket: PVC



Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm	Drain Wire AWG	Strand	Color Code
2400C	2	24	7/32	0.020	0,50	0.16	4,0	24	7/32	1,3
▲2401C	2	22	7/30	0.020	0,50	0.17	4,3	22	7/30	1,3
2402C	2	22	7/30	0.020	0,50	0.17	4,3	22	7/30	1,2
▲2403C	3	22	7/30	0.020	0,50	0.18	4,7	22	7/30	1,2,3
▲2404C	4	22	7/30	0.020	0,50	0.20	5,1	22	7/30	1,2,3,4
▲2411C	2	20	7/28	0.020	0,50	0.18	4,7	20	10/30	1,3
2412C	2	20	7/28	0.020	0,50	0.18	4,7	20	10/30	1,2
▲2413C	3	20	7/28	0.020	0,50	0.20	5,2	20	10/30	1,2,3
▲2414C	4	20	7/28	0.020	0,50	0.22	5,7	20	10/30	1,2,3,4
▲2421C	2	18	16/30	0.020	0,50	0.21	5,3	20	10/30	1,3
2422C	2	18	16/30	0.020	0,50	0.21	5,3	20	10/30	1,2
▲2423C	3	18	16/30	0.020	0,50	0.23	5,8	20	10/30	1,2,3
▲2424C	4	18	16/30	0.020	0,50	0.25	6,4	20	10/30	1,2,3,4
2432C	2	16	19/0.0117	0.020	0,50	0.24	6,2	18	16/30	1,2
2433C	3	16	19/0.0117	0.020	0,50	0.26	6,6	18	16/30	1,2,3

SPECIFICATIONS

- UL Type CM, AWM 2092, 2093, 2094 (24 thru 16 AWG only)
- UL Type CL2, (14 & 12 AWG)
- CSA AWM II A, FT4 (14 & 12 AWG)
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- "C" Suffix Indicates CM or CL2 Rating as Applicable

Insulation Thickness: **0.020"** (0,50mm)

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm	Drain Wire AWG	Strand	Color Code
2442C	2	14	41/30	0.030	0,76	0.31	7,8	16	26/30	1,3
2444C	2	12	65/30	0.030	0,76	0.34	8,6	14	41/30	1,3

UL LISTED  Passes UL VW-1 Flame Test  Certified
Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

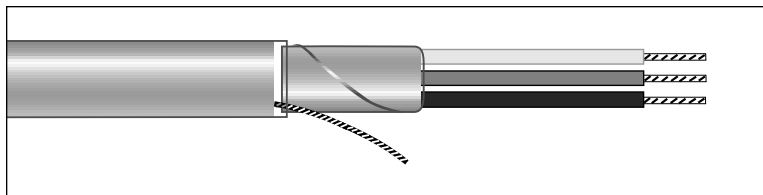
- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m), 1000 ft (305m) boxed, 500 ft (152m) boxed put-ups
- Consult Alpha for Alpha Qwik-Reel® payout package availability
- ▲ Also available 328 ft (100m)

COMMUNICATION & CONTROL

MULTICONDUCTOR, FOIL SHIELD

PP, PE, PVC/PVC

UL TYPE CM
CSA CMG FT4
300 VOLT



Alpha Part No.	No. of Cond.	Conductor		Insulation Thickness			Jacket Thickness		Diameter		Color Code
		AWG	Strand	Material	Inches	mm	Inches	mm	Inches	mm	
▲ 2464C	4	22	7/30	PP	0.008	0,20	0.020	0,51	0.16	4,1	2,3-shield 1,4-unshield
▲▲ 1243/3C	3	20	7/28	PE	0.014	0,35	0.029	0,73	0.21	5,3	2,3-shield 1-unshield
2465C	4	20	7/28	PVC	0.015	0,38	0.030	0,76	0.23	5,9	2,3-shield 1,4-unshield
▲▲▲ 2460C	2	22	Solid	PP	0.008	0,20	0.018	0,45	0.13	3,4	2,3-shield
▲ 2461C	2	22	7/30	PP	0.008	0,20	0.020	0,50	0.13	3,4	2,3-shield

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

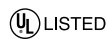
- Color Code: 1-White, 2-Black, 3-Red, 4-Green
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC, Polypropylene (PP) or Polyethylene (PE)
- Shield: Aluminum/Polyester, Foil Facing Outward
- Drain Wire: Stranded Tinned Copper
- Jacket: PVC

SPECIFICATIONS

- UL Type CM
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- "C" Suffix Indicates CM Rating



Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 100 ft (30,5m), 500 ft (152m), 1000 ft (305m)
1000 ft (305m) boxed put-ups
- ▲▲ 1000 ft (305m)
- ▲▲▲ 100 ft (30,5m), 500 ft (152m), 1000 ft (305m),
500 ft (152m) boxed put-ups



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UL TYPE CM
UL AWM 2576, CSA CMG FT4
300 VOLT

COMMUNICATION & CONTROL

MULTICONDUCTOR, FOIL SHIELD

PVC/PVC

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

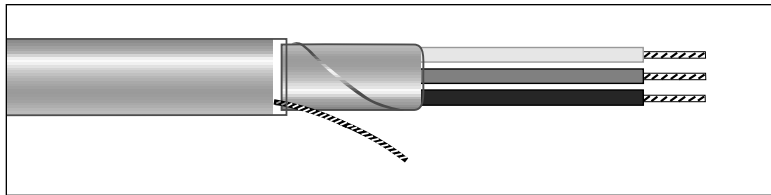
- 300 Volt – CM
- 150 Volt – AWM

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum/Polyester, Foil Facing Outward
- Drain Wire:
 - 24 AWG, 7/32 Tinned Copper (24 AWG Conductors)
 - 22 AWG, 7/30 Tinned Copper (22 AWG Conductors)
- Jacket: PVC



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1212C	2	0.032	0,81	0.16	3,9
1213C	3	0.032	0,81	0.17	4,2
1214C	4	0.032	0,81	0.18	4,7
1215C	5	0.032	0,81	0.18	4,7
1216C	6	0.032	0,81	0.20	5,1
1217C	7	0.032	0,81	0.20	5,1
1218C	8	0.032	0,81	0.21	5,4
1219C	9	0.032	0,81	0.22	5,6
1219/10C	10	0.032	0,81	0.23	5,9
1219/12C	12	0.032	0,81	0.27	6,9
1219/15C	15	0.032	0,81	0.28	7,1
1219/20C	20	0.032	0,81	0.30	7,7
1219/25C	25	0.032	0,81	0.33	8,4
1219/37C	37	0.032	0,81	0.39	10,0
1219/40C	40	0.032	0,81	0.41	10,3
1219/50C	50	0.032	0,81	0.45	11,3

SPECIFICATIONS

- UL Type CM, AWM 2576
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- Consult Alpha for Alpha Qwik-Reel® payout package availability

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1292C	2	0.032	0,81	0.17	4,2
1293C	3	0.032	0,81	0.18	4,6
1294C	4	0.032	0,81	0.19	4,9
1295C	5	0.032	0,81	0.20	5,1
1296C	6	0.032	0,81	0.22	5,4
1297C	7	0.032	0,81	0.22	5,4
1298C	8	0.032	0,81	0.23	5,7
1299C	9	0.032	0,81	0.25	6,3
1299/10C	10	0.032	0,81	0.27	6,9
1299/12C	12	0.032	0,81	0.28	7,1
1299/15C	15	0.032	0,81	0.30	7,6
1299/20C	20	0.032	0,81	0.33	8,4
1299/25C	25	0.032	0,81	0.37	9,4
1299/30C	30	0.032	0,81	0.39	9,9
1299/37C	37	0.032	0,81	0.43	10,8
1299/40C	40	0.032	0,81	0.44	11,2
1299/50C	50	0.035	0,89	0.48	12,2

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COMMUNICATION & CONTROL

MULTICONDUCTOR, FOIL SHIELD

SR-PVC/PVC

UL TYPE CM
UL AWM 2464, CSA CMG FT4
300 VOLT

APPLICATIONS

- EIA RS-232C Interface
- CAD/CAM Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

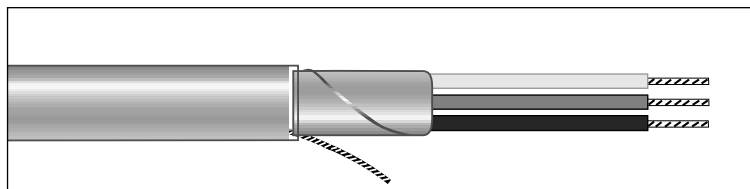
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart F Page 376, except 6300/3, 6300/4, 6300/8, 6300/10, 6305 and 6306:
1-Black, 2-White, 3-Red, 4-Green, 5-Brown, 6-Blue, 7-Orange, 8-Yellow, 9-Purple, 10-Gray
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Aluminum/Polyester, Foil Facing Out
- Drain Wire: 24, 7/32 Tinned Copper
- Insulation: Color-Coded SR-PVC
- Jacket: PVC

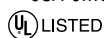


24 AWG (0,23mm²), **7/32** (7x0,20mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter		Nominal Capacitance			
						CDR to CDR		CDR to CDR+Shield	
		Inches	mm	Inches	mm	PF/FT	PF/M	PF/FT	PF/M
6300/3	3	0.032	0,81	0.162	4,1	33	108	65	213
6300/4	4	0.032	0,81	0.184	4,7	33	108	65	213
6305	5	0.032	0,81	0.189	4,8	33	108	65	213
6306	6	0.032	0,81	0.209	5,3	33	108	65	213
6300/8	8	0.032	0,81	0.224	5,7	33	108	65	213
6300/10	10	0.032	0,81	0.244	6,2	30	98	55	180
6307	15	0.032	0,81	0.284	7,2	30	98	55	180
6308	20	0.032	0,81	0.314	7,9	30	98	55	180
6309	25	0.032	0,81	0.339	8,6	30	98	55	180
6310	30	0.032	0,81	0.380	9,6	30	98	55	180
6311	40	0.032	0,81	0.430	10,9	30	98	55	180
6312	50	0.032	0,81	0.490	12,4	30	98	55	180

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2464
- CSA CMG FT4



AVAILABILITY

- 1000 ft (305m), 500 ft (152m), 100 ft (30,5m) put-ups



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COMMUNICATION & CONTROL

MULTICONDUCTOR, SPIRAL SHIELD

PVC/PVC

UL AWM 1108, 2095
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

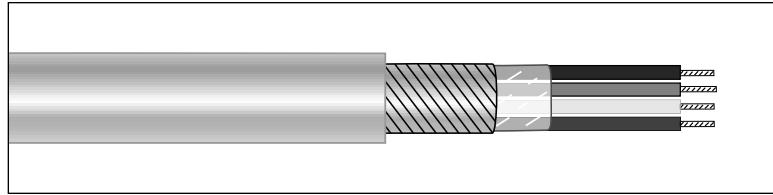
- 300 Volt (22 thru 16 AWG)
- 450 Volt (14 AWG)

COLOR DESCRIPTION:

- Color Code: 1-Black, 2-Red, 3-White, 4-Green, 5-Yellow, 6-Blue
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Wrap: Clear Polyester (Multiconductor Only)
- Shield: Spiral-Wrapped Bare Copper (95% Coverage)
- Jacket: PVC



SPIRAL SHIELD 80°C 300V, 450V UL 1108 , 2095

Alpha Part No.	No. of Cond.	Conductor		Insulation Thickness		Jacket Thickness		Diameter	
		Size	Strand	Inches	mm	Inches	mm	Inches	mm
2254/1†	1	22	7/30	0.016	0,41	0.020	0,50	0.12	3,0
2254	2	22	7/30	0.016	0,41	0.020	0,50	0.17	4,3
2254/3	3	22	7/30	0.016	0,41	0.020	0,50	0.19	4,8
2254/4	4	22	7/30	0.016	0,41	0.020	0,50	0.20	5,0
2254/6	6	22	7/30	0.016	0,41	0.020	0,50	0.23	5,8
2256/1†	1	20	10/30	0.016	0,41	0.020	0,50	0.13	3,3
2256	2	20	10/30	0.016	0,41	0.020	0,50	0.19	4,8
2256/3	3	20	10/30	0.016	0,41	0.020	0,50	0.21	5,3
2256/4	4	20	10/30	0.016	0,41	0.020	0,50	0.22	5,7
2256/6	6	20	10/30	0.016	0,41	0.020	0,50	0.26	6,7
2258/1†	1	18	16/30	0.016	0,41	0.020	0,50	0.14	3,6
2258	2	18	16/30	0.016	0,41	0.020	0,50	0.21	5,3
2258/3	3	18	16/30	0.016	0,41	0.020	0,50	0.23	5,8
2258/4	4	18	16/30	0.016	0,41	0.020	0,50	0.25	6,4
2260	2	16	26/30	0.016	0,41	0.020	0,50	0.24	6,1
2260/3	3	16	26/30	0.016	0,50	0.020	0,50	0.26	6,6

SPECIFICATIONS

- AWM 1108, 2095
- † UL 1108 — Single Conductor 22 thru 16 AWG Only
- UL 2095 — Multiconductor 22 thru 16 AWG Only



AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

PVC/PVC

MIL-W-16878D TYPE B

600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart F Page 376
- Jacket Color: Gray

PRODUCT DESCRIPTION:

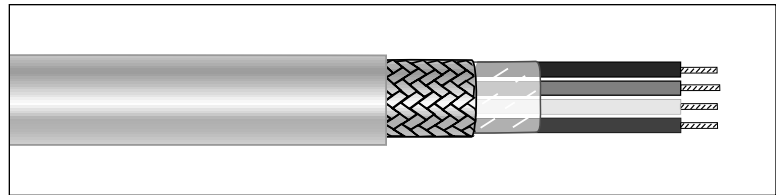
- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Wrap: Clear Polyester
- Shield: Braided Tinned Copper (90% Coverage)
- Jacket: PVC

SPECIFICATIONS

- MIL-W-16878D Type B

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups



28 AWG (0,09mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)
PVC TYPE B

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
3302	2	0.012	0,30	0.12	3,1
3303	3	0.012	0,30	0.13	3,3
3304	4	0.012	0,30	0.14	3,5
3306	6	0.015	0,38	0.17	4,3
3308	8	0.015	0,38	0.17	4,4
3310	10	0.018	0,45	0.21	5,3
3312	12	0.018	0,45	0.21	5,4
3315	15	0.020	0,50	0.23	5,8
3320	20	0.022	0,55	0.26	6,6

COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

PVC /PVC

MIL-W-16878D TYPE B/N
600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Part # 3335, 3336, 3337, see Chart F Page 376, Part # 3200 thru 3248: 1-White, 2-Black, 3-Red, 4-Green
- Jacket Color: Gray

PRODUCT DESCRIPTION:

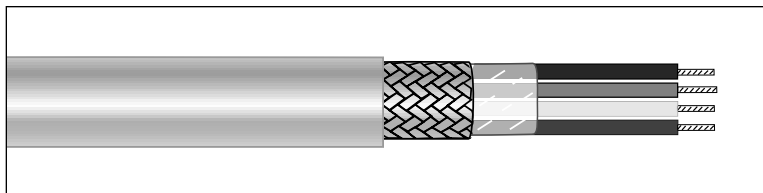
- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC (Nylon)
- Wrap: Clear Polyester (Multiconductor Only)
- Shield: Braided Tinned Copper (90% Coverage)
- Jacket: PVC

SPECIFICATIONS

- MIL-W-16878D Type B/N

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 100 ft (30,5m), 1000 ft (305m) put-ups



Insulation Thickness: **0.010"** (0,25mm) **PVC, 0.003"** (0,08mm)

NYLON - TYPE B/N

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm
3200	1	26	7/34	0.010	0,25	0.09	2,3
3201	2	26	7/34	0.014	0,35	0.14	3,6
3202	3	26	7/34	0.014	0,35	0.15	3,8
3203	4	26	7/34	0.016	0,41	0.16	4,1
3210	1	24	19/36	0.010	0,25	0.09	2,3
3211	2	24	19/36	0.016	0,41	0.15	3,8
3212	3	24	19/36	0.016	0,41	0.16	4,0
3213	4	24	19/36	0.017	0,43	0.18	4,6
3220	1	22	19/34	0.010	0,25	0.11	2,8
3221	2	22	19/34	0.016	0,41	0.18	4,6
3222	3	22	19/34	0.017	0,43	0.18	4,6
3223	4	22	19/34	0.019	0,48	0.20	5,1
3230	1	20	19/32	0.010	0,25	0.11	2,8
3231	2	20	19/32	0.019	0,48	0.19	4,8
3232	3	20	19/32	0.019	0,48	0.21	5,3
3233	4	20	19/32	0.021	0,53	0.23	5,9
3240	1	18	19/30	0.012	0,30	0.13	3,3
3241	2	18	19/30	0.021	0,53	0.22	5,6
3242	3	18	19/30	0.022	0,55	0.23	5,8
3243	4	18	19/30	0.023	0,58	0.26	6,6
3245	1	16	19/29	0.016	0,41	0.14	3,6
3246	2	16	19/29	0.023	0,58	0.24	6,1
3247	3	16	19/29	0.023	0,58	0.25	6,4
3248	4	16	19/29	0.025	0,63	0.28	7,1

Insulation Thickness: **0.010"** (0,25mm) **PVC, 0.003"** (0,08mm)

NYLON - TYPE B/N

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm
▲3335	5	22	19/34	0.020	0,50	0.22	5,6
▲3336	6	22	19/34	0.020	0,50	0.23	5,9
▲3337	8	22	19/34	0.025	0,63	0.25	6,5

COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

PVC/PVC

UL TYPE CM
AWM 1108, 2095, CSA CMG FT4
300 VOLT & 450 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

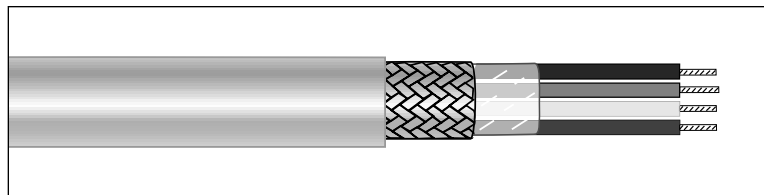
- 300 Volt – CM
- 450 Volt (14 & 12 AWG)

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded or Solid Tinned Copper
- Insulation: Color-Coded PVC
- Wrap: Clear Polyester (Multiconductor Only)
- Shield: Braided Bare Copper
- Jacket: PVC



80°C 300V - UL 1108, UL 2095 - TYPE CM

Insulation Thickness: **0.016"** (0,41mm) PVC

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm
1735♦	1	22	7/30	0.020	0,50	0.12	3,1
1736C	2	22	7/30	0.020	0,50	0.18	4,6
1737C	3	22	7/30	0.020	0,50	0.20	5,0
1738C	4	22	7/30	0.020	0,50	0.21	5,3
1741C	2	20	7/28	0.020	0,50	0.20	5,0
1742C	3	20	7/28	0.020	0,50	0.22	5,5
1743C	4	20	7/28	0.020	0,50	0.23	5,8
1745♦	1	18	16/30	0.020	0,50	0.14	3,6
1746C	2	18	16/30	0.020	0,50	0.23	5,8
1747C	3	18	16/30	0.020	0,50	0.24	6,1
1747/4C	4	18	16/30	0.020	0,50	0.25	6,4
1748C	2	16	19/0.0117	0.020	0,50	0.25	6,4
1749C	3	16	19/0.0117	0.020	0,50	0.25	6,4

SPECIFICATIONS

- UL Type CM, AWM 1108, 2095
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- † With a 22 AWG Solid Tinned Copper Drain Wire Under Braid Shield

†† Not UL Recognized

- ♦ UL 1108 – Single Conductor, UL 2095 – Multiconductor
- "C" Suffix Indicates CM Rating

UL LISTED  Passes UL VW-1 Flame Test  Certified
Underwriters Laboratories Inc. Canadian Standards Association

80°C 300V - UL 2095 - TYPE CM

Insulation Thickness: **0.020"** (0,50mm) PVC

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm
▲1775C†	2	22	Solid	0.020	0,50	0.17	4,4

80°C 450V ††

Insulation Thickness: **0.020"** (0,50mm) PVC

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm
1750	2	14	41/30	0.020	0,50	0.29	7,4
1751	3	14	41/30	0.020	0,50	0.29	7,4
1760	2	12	65/30	0.020	0,50	0.33	8,4
1761	3	12	65/30	0.020	0,50	0.34	8,6

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 500 ft (152m), 1000 ft (305m) put-ups



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COMMUNICATION & CONTROL

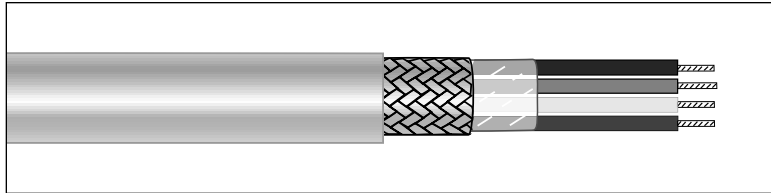
MULTICONDUCTOR, BRAID SHIELD

MIL-W-16878D TYPE B
600 VOLT

IRRADIATED PVC/PVC

APPLICATIONS

- Ideal for Crowded Circuit Boards Where Terminals Must be Soldered
- Irradiation Process Helps Prevent Shrinkback, Melting or Charring When Used in Production Line Soldering



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: 1-White, 2-Black, 3-Red, 4-Green
- Jacket Color: White

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Irradiated PVC
- Wrap: Clear Polyester
- Shield: Braided Tinned Copper
- Jacket: PVC

Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
7622	2	24	7/32	0.025	0,63	0.16	4,1
7623	3	24	7/32	0.025	0,63	0.17	4,3
7624	4	24	7/32	0.025	0,63	0.18	4,6
7631	1	22	7/30	0.025	0,63	0.13	3,3
7632	2	22	7/30	0.025	0,63	0.18	4,6
7633	3	22	7/30	0.025	0,63	0.19	4,8
7634	4	22	7/30	0.025	0,63	0.20	5,1
7661	1	20	7/28	0.025	0,63	0.14	3,6
7662	2	20	7/28	0.025	0,63	0.19	4,8
7663	3	20	7/28	0.025	0,63	0.20	5,1
7664	4	20	7/28	0.025	0,63	0.22	5,6
7671	1	18	7/26	0.025	0,63	0.15	3,8
7672	2	18	7/26	0.025	0,63	0.21	5,3
7673	3	18	7/26	0.025	0,63	0.22	5,6
7674	4	18	7/26	0.025	0,63	0.24	6,1

SPECIFICATIONS

- MIL-W-16878D Type B

AVAILABILITY

- 1000 ft (305m) put-ups

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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

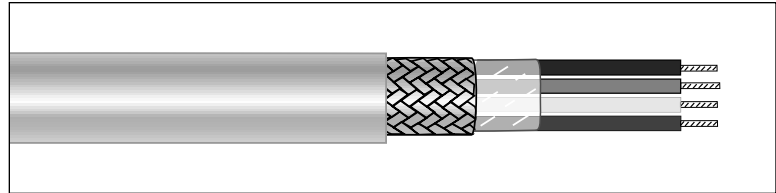
PVC/PVC

MIL-16878D TYPE C

1000 VOLT

APPLICATIONS

- Electronic Equipment Interconnecting
- Instrumentation and Control
- Remote Control of Sensitive Recording Instruments
- Telemetry Data



CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 105°C

VOLTAGE RATING:

- 1000 Volt

COLOR DESCRIPTION:

- Color Code: Chart F Page 376
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Wrap: Clear Polyester
- Shield: Braided Tinned Copper (90% Coverage)
- Jacket: PVC

18 AWG (0,96mm²), **19/30** (19x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
3405	5	0.025	0,63	0.30	7,6
3408	8	0.030	0,76	0.35	8,8
3410	10	0.035	0,88	0.40	10,2
3412	12	0.035	0,88	0.43	10,9
3415	15	0.040	1,02	0.47	11,9
3420	20	0.045	1,14	0.53	13,4
3430	30	0.055	1,40	0.65	16,5

16 AWG (1,23mm²), **19/29** (19x0,29mm), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
3444	4	0.031	0,78	0.32	8,2
▲ 3446	6	0.034	0,86	0.36	9,3
3450	10	0.044	1,12	0.47	11,9
3452	12	0.048	1,22	0.51	12,9

SPECIFICATIONS

- MIL-W-16878D Type C

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups
- ▲ 100 ft (30,5m), 500 ft (152m), 1000 ft (305m)



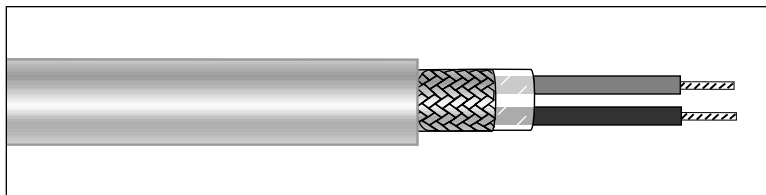
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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

PE/PVC MICROPHONE CABLES



Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Insulation Thickness Inches	mm	Jacket Thickness Inches	mm	Diameter Inches	mm	Type of Shield	Voltage Rating	◆Nominal Cap. pf / ft.
1702	1	26	7/34	0.016	0,41	0.020	0,50	0.11	2,8	Spiral	1000	38
1703	1	24	10/34	0.020	0,50	0.030	0,76	0.15	3,7	Braid	3500	35
1705	1	24	10/34	0.016	0,41	0.020	0,50	0.11	2,8	Spiral	1000	45
1706	1	20	26/34	0.030	0,76	0.030	0,76	0.18	4,5	Braid	4000	36
1709	2	24	10/34	0.016	0,41	0.030	0,76	0.19	4,8	Spiral	1000	38
1710	2	22	19/34	0.025	0,63	0.025	0,63	0.23	5,8	Braid	1000	31
1712	2	20	26/34	0.015	0,38	0.030	0,76	0.24	6,0	Braid	600	45

◆Between one conductor and remaining conductors (if any) connected to shield.

APPLICATIONS

- 1702-1706: All High Performance Microphones
- 1709-1712: All Low Impedance Microphones

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

COLOR DESCRIPTION:

- Color Code: 1-White, 2-Black
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper (1702 has Three Strands of Tinned Copper and Four Strands of Tinned Copperweld)
- Insulation: Polyethylene (PE)
- Wrap: Clear Polyester (Multiconductor Only)
- Shield: Braided Tinned Copper or Spiral Wrapped Tinned Copper (90% Coverage*)
- Jacket: PVC

AVAILABILITY

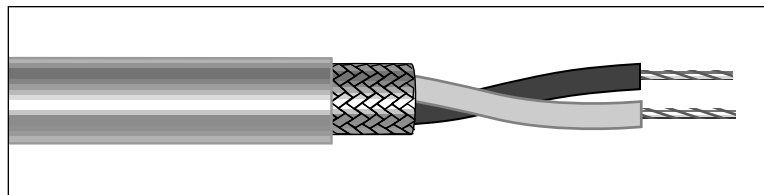
- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

*P/N 1712 85% Coverage

COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

PE/PVC



Alpha Part No.	No. of Cond.	Conductor AWG	Conductor Strand	Insulation Thickness Inches	Insulation Thickness mm	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm	Type of Shield	Nominal Imp (Ω)	Nominal Cap pf/ft.
▲ 1771	2	23	60/40	0.020	0,51	0.040	1,02	0.237	6,0	Braid	88	33
▲▲ 1772	4	24	40/40	0.014	0,36	0.044	1,18	0.237	6,0	Braid	44	57

◆ Between one conductor and remaining conductors (if any) connected to shield.

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

COLOR DESCRIPTION:

- Color Code: Part # 1771 = 1-White, 2-Blue
Part # 1772 = 2 Conductors Blue, 2 Conductors White
- Jacket Colors: 1771 - Black, Red
1772 - Black, Brown, Slate, Yellow

PRODUCT DESCRIPTION:

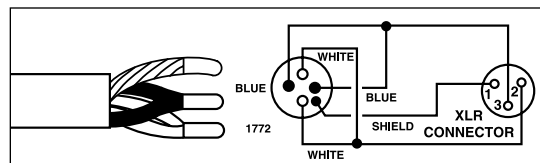
- Conductor: Bare Copper
- Insulation: Polyethylene
- Shield: Tinned Copper Braid (95% Coverage)
- Jacket: PVC

AVAILABILITY

- ▲ 1771 Black: 100 ft (30,5m), 1000 ft (305m) put-ups
- ▲▲ 1772 Brown, Slate: 100 ft (30,5m), 1000 ft (305m) put-ups

STAR QUAD

To obtain the full benefit of STAR QUAD noise rejection wire properly to the XLR connector (or terminal block); See diagram.



Full noise rejection depends upon proper pairing of the conductors. Connect both blue leads together and insert in the "low" pin of the XLR (3), insert white leads in the "high" pin (2); the shield goes to pin (1).

Designed for microphones but excellent for line-level signals (i.e. mixer to power amps). STAR QUAD configuration and high density braid shield reduce hum, buzz and noise to less than 10% that of conventional 2-conductor microphone cables.

Handling noise is reduced by the cotton filler while maintaining super flexibility by using large numbers of thin wire strands and a PVC jacket that remains pliant at extremely low temperatures. (Brittle point is -56°F .) Excellent frequency response preserved due to low capacitance Polyethylene insulation.



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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

600 VOLT

PE/PVC

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

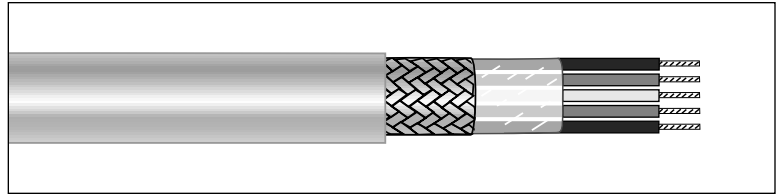
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart H Page 376
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Polyethylene (PE)
- Wrap: Clear Polyester
- Shield: Braided Tinned Copper (85% Coverage)
- Jacket: PVC



20 AWG (0,52mm²), **26/34** (26x0,16mm,) Insulation Thickness: **0.015"** (0,38mm), **PE**

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1712	2	0.030	0,76	0.24	6,0
1713	3	0.035	0,88	0.25	6,3
1715	4	0.035	0,88	0.26	6,6
1716	5	0.035	0,88	0.27	6,9
1717	6	0.035	0,88	0.30	7,6
1719	8	0.035	0,88	0.33	8,3
1721	10	0.035	0,88	0.37	9,5
1723	12	0.035	0,88	0.38	9,6
1726	15	0.035	0,88	0.41	10,4
1728	20	0.035	0,88	0.45	11,5

AVAILABILITY

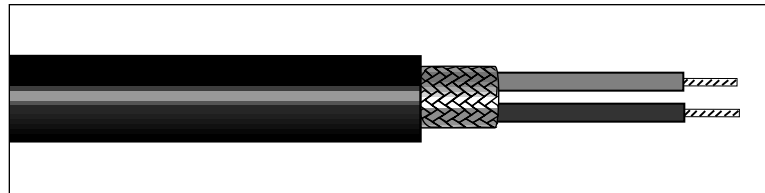
- 100 ft (30,5m), 500 ft (152m),
1000 ft (305m) put-ups

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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

RUBBER/NEOPRENE MICROPHONE CABLES



Alpha Part No.	No. of Cond.	Conductor		Insulation Thickness		Jacket Thickness		Diameter		Type of Jacket	◆Nominal Cap. pf / ft.
		AWG	Strand	Inches	mm	Inches	mm	Inches	mm		
1448/20	2	20	26/34	0.020	0,50	0.040	1,02	0.26	6,6	Rubber	68
1448/18	2	18	41/34	0.020	0,50	0.035	0,88	0.29	7,4	Neoprene	78
1448/16	2	16	65/34	0.025	0,63	0.035	0,88	0.34	8,5	Neoprene	82

◆Between one conductor and remaining conductors (if any) connected to shield.

APPLICATIONS

- All Low Impedance Microphones

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

COLOR DESCRIPTION:

- Color Code: 1-White, 2-Black
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Rubber
- Wrap: Overall Cotton
- Shield: Braided Tinned Copper (85% Coverage)
- Jacket: Rubber or Neoprene

AVAILABILITY

- 1000 ft (305m) put-ups



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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

RUBBER

600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

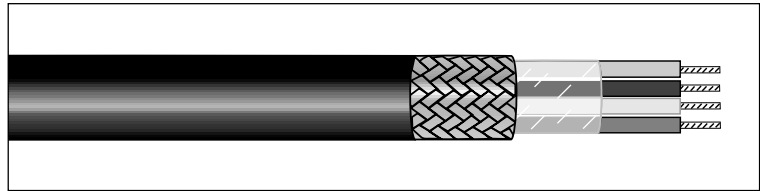
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart H Page 376
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Rubber
- Wrap: Clear Polyester
- Shield: Braided Tinned Copper (85% Coverage)
- Jacket: Rubber



20 AWG (0,52mm²), **26/34** (26x0,16mm,) Insulation Thickness: **0.020"** (0,51mm)

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	mm	Diameter Inches	mm
1250	2	20	26/34	0.045	1,14	0.28	7,1
1251	3	20	26/34	0.045	1,14	0.29	7,4
1252	4	20	26/34	0.045	1,14	0.31	7,9
1254	6	20	26/34	0.045	1,14	0.36	9,2
1255	7	20	26/34	0.045	1,14	0.36	9,2
1255/8	8	20	26/34	0.045	1,14	0.39	9,9
1255/10	10	20	26/34	0.045	1,14	0.43	10,9
1255/12	12	20	26/34	0.065	1,65	0.48	12,1

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AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

RUBBER / NEOPRENE

600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

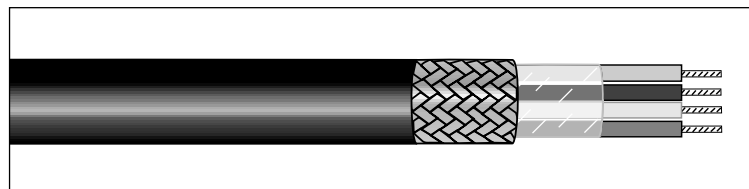
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart H Page 376
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Rubber
- Wrap: Clear Polyester
- Shield: Braided Tinned Copper (85% Coverage)
- Jacket: Neoprene



18 AWG (0,82mm²), **41 / 34** (41x0,16mm), Insulation Thickness: **0.020"** (0,50mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1450	2	0.045	1,14	0.31	7,9
1451	3	0.045	1,14	0.32	8,2
1452	4	0.045	1,14	0.34	8,6
1454	6	0.045	1,14	0.37	9,4
1456	8	0.045	1,14	0.42	10,7
1458	10	0.045	1,14	0.46	11,7

16 AWG (1,31mm²), **65 / 34** (65x0,16mm), Insulation Thickness: **0.025"** (0,63mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1450/16	2	0.045	1,14	0.34	8,6
1451/16	3	0.045	1,14	0.36	9,2
1452/16	4	0.045	1,14	0.39	9,9
1454/16	6	0.045	1,14	0.45	11,4

12 AWG (3,29mm²), **65 / 30** (65x0,25mm), Insulation Thickness: **0.030"** (0,76mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1410	2	0.045	1,14	0.44	11,2
1411	3	0.045	1,14	0.47	11,8

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m),
1000 ft (305m) put-ups



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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

TFE / FEP TEFLON★

MIL-W-16878E TYPE E
600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -65°C to 200°C

VOLTAGE RATING:

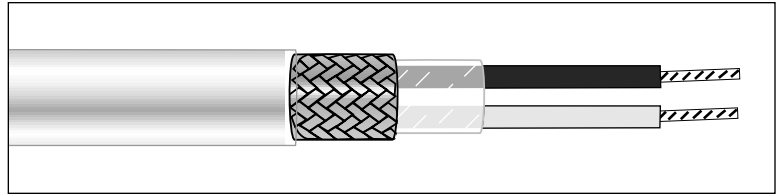
- 600 Volt

COLOR DESCRIPTION:

- Color Code: See Chart Below
- Jacket Color: White

PRODUCT DESCRIPTION:

- Conductor: Stranded Silver-Plated Copper
- Insulation: Color-Coded TFE Teflon★
- Wrap: Clear Polyester (Multiconductor Only)
- Shield: Braided Silver-Plated Copper (90% Coverage)
- Jacket: FEP Teflon★



Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
2831	1	24	19/36	0.010	0,25	0.09	2,2
2831/2	2	24	19/36	0.010	0,25	0.13	3,3
2831/3	3	24	19/36	0.010	0,25	0.14	3,4
2834	1	22	19/34	0.010	0,25	0.09	2,3
2834/2	2	22	19/34	0.010	0,25	0.15	3,8
2834/3	3	22	19/34	0.010	0,25	0.16	4,0
2837/2	2	20	19/32	0.010	0,25	0.17	4,3
2837/3	3	20	19/32	0.010	0,25	0.18	4,5

SPECIFICATIONS

- MIL-W-16878E Type E



AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups;
1000 ft put-ups may contain multiple lengths

COLOR CODE CHART

Cond. 1 - White Cond. 2 - Black Cond. 3 - Red

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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

TFE TEFLON★ / FIBERGLASS

MIL-W-16878E TYPE E

600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -65°C to 200°C

VOLTAGE RATING:

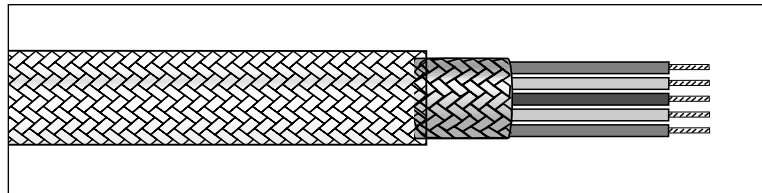
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart G Page 376

PRODUCT DESCRIPTION:

- Conductor: Stranded Silver-Plated Copper
- Insulation: Color-Coded TFE Teflon★
- Shield: Braided Silver-Plated Copper (90% Coverage)
- Jacket: Teflon★ Impregnated Fiberglass



24 AWG (0,24mm²), 19 / 36 (19x0,13mm)

Alpha Part No.	No. of Cond.	Insulation Thickness		Diameter	
		Inches	mm	Inches	mm
2811	1	0.010	0,25	0.08	2,1
2811/2	2	0.010	0,25	0.13	3,2
2811/3	3	0.010	0,25	0.14	3,4
2811/4	4	0.010	0,25	0.15	3,7
2811/5	5	0.010	0,25	0.16	4,0
2811/7	7	0.010	0,25	0.17	4,4

22 AWG (0,38mm²), 19 / 34 (19x0,16mm)

Alpha Part No.	No. of Cond.	Insulation Thickness		Diameter	
		Inches	mm	Inches	mm
2814/2	2	0.010	0,25	0.14	3,5
2814/4	4	0.010	0,25	0.16	4,1
2814/6	6	0.010	0,25	0.19	4,8

20 AWG (0,62mm²), 19 / 32 (19x0,20mm)

Alpha Part No.	No. of Cond.	Insulation Thickness		Diameter	
		Inches	mm	Inches	mm
2817/2	2	0.010	0,25	0.16	4,0
2817/3	3	0.010	0,25	0.17	4,2
2817/4	4	0.010	0,25	0.18	4,6
2817/5	5	0.010	0,25	0.20	5,0
2817/6	6	0.010	0,25	0.21	5,4

18 AWG (0,96mm²), 19 / 30 (19x0,25mm)

Alpha Part No.	No. of Cond.	Insulation Thickness		Diameter	
		Inches	mm	Inches	mm
2819	1	0.010	0,25	0.11	2,7
2819/2	2	0.010	0,25	0.18	4,5
2819/3	3	0.010	0,25	0.19	4,7
2819/4	4	0.010	0,25	0.21	5,2
2819/5	5	0.010	0,25	0.23	5,7

SPECIFICATIONS

- MIL-W-16878E Type E



AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups;
1000 ft put-ups may contain multiple lengths

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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

TFE TEFLON★ / FIBERGLASS

MIL-W-16878E TYPE E
600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -65°C to 200°C

VOLTAGE RATING:

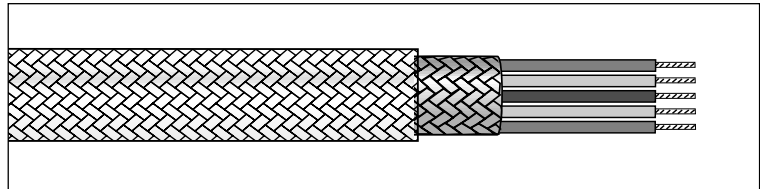
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart G Page 376

PRODUCT DESCRIPTION:

- Conductor: Stranded Silver-Plated Copper
- Insulation: Color-Coded TFE Teflon★
- Shield: Braided Silver-Plated Copper (90% Coverage)
- Jacket: Teflon★ Impregnated Fiberglass



16 AWG (1,23mm²), 19 / 29 (19x0,29mm)

Alpha Part No.	No. of Cond.	Insulation Thickness		Diameter	
		Inches	mm	Inches	mm
2820	1	0.010	0,25	0.12	3,0
2820/2	2	0.010	0,25	0.20	5,0
2820/3	3	0.010	0,25	0.21	5,2
2820/4	4	0.010	0,25	0.22	5,7

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SPECIFICATIONS

- MIL-W-16878E Type E



Passes
VW-1 Flame Test

AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups;
1000 ft put-ups may contain multiple lengths

14 AWG (1,94mm²), 19 / 27 (19x0,36mm)

Alpha Part No.	No. of Cond.	Insulation Thickness		Diameter	
		Inches	mm	Inches	mm
2804	1	0.010	0,25	0.13	3,3
2804/2	2	0.010	0,25	0.23	5,7
2804/3	3	0.010	0,25	0.24	6,2

12 AWG (3,08mm²), 19 / 25 (19x0,46mm)

Alpha Part No.	No. of Cond.	Insulation Thickness		Diameter	
		Inches	mm	Inches	mm
2803/2	2	0.010	0,25	0.27	6,8
2803/4	4	0.010	0,25	0.31	7,9

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COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD

TFE/TFE TAPE

MIL-W-16878E TYPE E

600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -65°C to 200°C

VOLTAGE RATING:

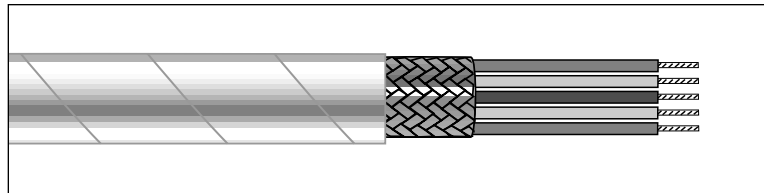
- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart G Page 376
- Jacket Color: White

PRODUCT DESCRIPTION:

- Conductor: Stranded Silver-Plated Copper
- Insulation: Color-Coded TFE Teflon★
- Shield: Braided Silver-Plated Copper (90% Coverage)
- Jacket: Sintered Wrapped Teflon★ Tape



24 AWG (0,24mm²), 19/36 (19x0,13mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
2821	1	0.010	0,25	0.10	2,4
2821/2	2	0.010	0,25	0.14	3,5
2821/3	3	0.010	0,25	0.15	3,7
2821/4	4	0.010	0,25	0.16	4,0
2821/5	5	0.010	0,25	0.17	4,3
2821/6	6	0.010	0,25	0.18	4,7

SPECIFICATIONS

- MIL-W-16878E Type E



AVAILABILITY

- 100 ft (30,5m), 1000 ft (305m) put-ups;
1000 ft put-ups may contain multiple lengths

22 AWG (0,38mm²), 19/34 (19x0,16mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
2824	1	0.010	0,25	0.10	2,6
2824/2	2	0.010	0,25	0.15	3,8
2824/3	3	0.010	0,25	0.16	4,0
2824/4	4	0.010	0,25	0.17	4,4
2824/5	5	0.010	0,25	0.19	4,8
2824/6	6	0.010	0,25	0.20	5,1

20 AWG (0,62mm²), 19/32 (19x0,20mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
2827	1	0.010	0,25	0.11	2,8
2827/2	2	0.010	0,25	0.17	4,3
2827/3	3	0.010	0,25	0.18	4,5
2827/4	4	0.010	0,25	0.19	4,9
2827/5	5	0.010	0,25	0.21	5,3
2827/6	6	0.010	0,25	0.23	5,7

18 AWG (0,96mm²), 19/30 (19x0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
2829/2	2	0.010	0,25	0.19	4,8
2829/3	3	0.010	0,25	0.20	5,0
2829/4	4	0.010	0,25	0.22	5,5

16 AWG (1,23mm²), 19/29 (19x0,29mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
2826	1	0.010	0,25	0.13	3,3
2826/2	2	0.010	0,25	0.21	5,3
2826/3	3	0.010	0,25	0.22	5,5
2826/4	4	0.010	0,25	0.24	6,0

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UL TYPE CM
UL AWM 2785
CSA CMG FT4
300 VOLT

COMMUNICATION & CONTROL

MULTICONDUCTOR, BRAID SHIELD/UNSHIELDED COMBINATION

PVC/PVC

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 75°C
- 60°C – CM

VOLTAGE RATING:

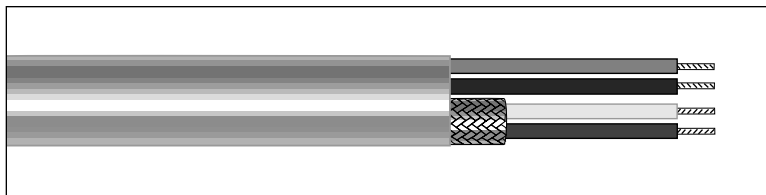
- 300 Volt

COLOR DESCRIPTION:

- Color Code: 1-White, 2-Black, 3-Red
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Shield: Braided Tinned Copper
- Jacket: PVC



BRAID SHIELD 80°C 300V

22 AWG (0,35mm²), **7/30** (7x0,25mm)

Alpha Part No.	No. of Cond.	Insulation Thickness Material	Inches	mm	Jacket Thickness Inches	mm	Diameter Inches	mm	Color Code
1243	3	PVC	0.016	0,41	0.020	0,50	0.20	5,0	1-shield 2,3-unshield
1243/4	4	PVC	0.016	0,41	0.020	0,50	0.18 0.28	4,5 7,2	1,2-shield 2,3-unshield
1243/5	5	PVC	0.016	0,41	0.020	0,50	0.20 0.30	5,0 7,6	1,2,3-shield 2,3-unshield

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2785
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

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COMMUNICATION & CONTROL

MULTICONDUCTOR, FOIL/BRAID SHIELD

CAD/CAM CABLES PVC/PVC

UL TYPE CL2
UL AWM 2464, CSA CMG FT4
300 VOLT

APPLICATIONS

- Computer Interconnects
- EIA RS-232
- CAD/CAM Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -75°C — CL2

VOLTAGE RATING:

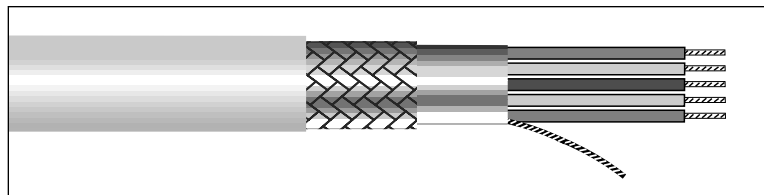
- 300 Volt — AWM
- 150 Volt — CL2

COLOR DESCRIPTION:

- Color Code: Chart D Page 375
- Jacket Color: Chrome Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Semi-rigid PVC
- Shield: Aluminum/Polyester/Aluminum Plus Overall Braid of Tinned Copper (65% Coverage)
- Drain Wire: 28 AWG, 7/36 Tinned Copper
- Jacket: PVC



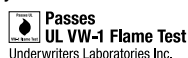
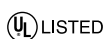
SR-PVC MULTICONDUCTOR, FOIL/BRAID NEC TYPE CL2

28 AWG (0,089mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Conductors	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
3463†	3	0.035	0,89	0.16	4,1
▲3464C	4	0.035	0,89	0.17	4,5
3465C	5	0.035	0,89	0.18	4,7
3466C	6	0.035	0,89	0.19	5,0
3467C	7	0.035	0,89	0.19	5,0
3468C	8	0.035	0,89	0.21	5,3
3469C	9	0.035	0,89	0.22	5,5
3470C	10	0.035	0,89	0.23	5,9
3470/15C	15	0.035	0,89	0.26	6,6
▲3470/25C	25	0.035	0,89	0.30	7,7
▲3470/37C	37	0.035	0,89	0.34	8,7
3470/50C	50	0.035	0,89	0.40	10,1

SPECIFICATIONS

- UL Type CL2, AWM 2464
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- † AWM Only



Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 100 ft (152m), 1000 ft (305m) put-ups
- ▲▲ 1000 ft (305m) put-ups



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UL TYPE CL2
UL AWM 2919
CSA CMG FT4
150 VOLT

COMMUNICATION & CONTROL

MULTICONDUCTOR, FOIL/BRAID SHIELD, LOW CAPACITANCE CAD/CAM CABLES

(EIA RS-232, EIA RS-423, EIA RS-485) FPP /PVC

APPLICATIONS

- Computer Interconnects
- EIA RS-232, EIA RS-423, EIA RS-485
- CAD/CAM Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- -75°C – CL2

VOLTAGE RATING:

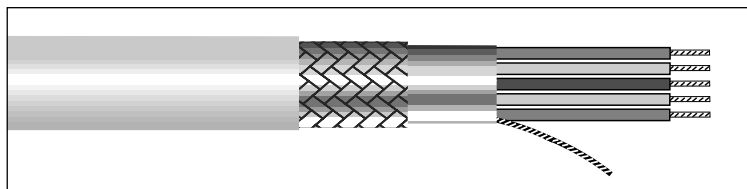
- 300 Volt – AWM
- 150 Volt – CL2

COLOR DESCRIPTION:

- Color Code: 3 Cond.: Chart D Page 375
25 Cond.: Chart F Page 376
- Jacket Color: Chrome Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Cellular (Foam) Polypropylene
- Shield: Aluminum/Polyester/Aluminum Plus Overall Braid of Tinned Copper (65% Coverage)
- Drain Wire: 28 AWG, 7/36 Tinned Copper
- Jacket: PVC



CELLULAR (FOAM) POLYPROPYLENE MULTICONDUCTOR - FOIL & BRAID NEC TYPE CL2

28 AWG (0,089mm²), 7/36 (7x0,13mm), Insulation Thickness: **0.013"** (0,33mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
3483†	3	0.035	0,89	0.19	4,9
3484C	4	0.035	0,89	0.20	5,1
3488C	8	0.035	0,89	0.23	5,9
3489C	9	0.035	0,89	0.25	6,4
3490/25C	25	0.035	0,89	0.35	8,9

SPECIFICATIONS

- UL Type CL2, AWM 2919
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- Capacitance: 12pF/ft (39,4 pF/m)

† AWM Only



Passes
UL VW-1 Flame Test

Underwriters Laboratories Inc.



Canadian Standards Association

AVAILABILITY

- 1000 ft (305m) put-ups

COMMUNICATION & CONTROL

MULTICONDUCTOR, FOIL/BRAID SHIELD

SR-PVC/PVC

UL TYPE CM
UL AWM STYLE 2464, CSA CMG FT4
300 VOLT

APPLICATIONS

- EIA RS-232C Interface
- CAD/CAM Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

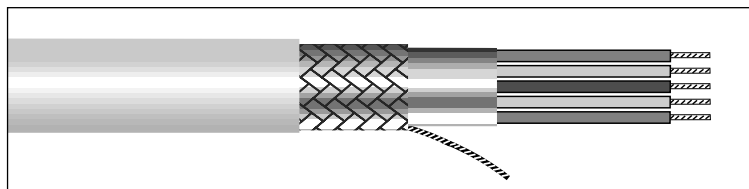
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Items Marked with *: Chart F Page 376.
All Other Part No's: See Color Code Chart Below
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Semi-Rigid PVC
- Shield: Aluminum/Polyester, Foil Facing Out Plus Overall Braid of Tinned Copper (65% Coverage)
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Jacket: PVC



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR		CDR to CDR+Shield	
						PF/FT	PF/M	PF/FT	PF/M
6327	3	0.032	0,81	0.190	4,8	35	115	65	213
6328	4	0.032	0,81	0.200	5,0	35	115	65	213
6329	5	0.032	0,81	0.215	5,4	35	115	65	213
6330	6	0.032	0,81	0.225	5,8	30	98.4	55	180
6331	7	0.032	0,81	0.228	5,8	30	98.4	55	180
6332	8	0.032	0,81	0.240	6,1	30	98.4	55	180
6333	9	0.032	0,81	0.254	6,4	30	98.4	55	180
6334	10	0.032	0,81	0.270	6,8	30	98.4	55	180
6335*	15	0.032	0,81	0.300	7,6	30	98.4	55	180
6336*	25	0.032	0,81	0.372	9,4	30	98.4	55	180
6337*	37	0.032	0,81	0.412	10,4	30	98.4	55	180
6338*	50	0.032	0,81	0.486	12,4	30	98.4	55	180

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR		CDR to CDR+Shield	
						PF/FT	PF/M	PF/FT	PF/M
6339	3	0.032	0,81	0.203	5,1	37	121	67	220
6340	4	0.032	0,81	0.215	5,4	37	121	67	220
6341	5	0.032	0,81	0.231	5,8	37	121	67	220
6342	6	0.032	0,81	0.245	6,2	35	115	63	207
6343	7	0.032	0,81	0.245	6,2	35	115	63	207
6344	8	0.032	0,81	0.260	6,6	35	115	63	207
6345	9	0.032	0,81	0.280	7,1	35	115	63	207
6346	10	0.032	0,81	0.300	7,6	35	115	63	207
6347*	15	0.032	0,81	0.340	8,6	35	115	63	207
6348*	25	0.032	0,81	0.410	10,4	35	115	63	207
6349*	37	0.032	0,81	0.460	11,6	35	115	63	207
6350*	50	0.032	0,81	0.555	14,1	35	115	63	207

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2464
- CSA CMG FT4



AVAILABILITY

- 1000 ft (305m), 500 ft (152m),
100 ft (30,5m) put-ups

COLOR CODE CHART

Cond. No.	Color	Cond. No.	Color
1	Black	6	Blue
2	White	7	Orange
3	Red	8	Yellow
4	Green	9	Violet
5	Brown	10	Gray



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UL TYPE CM

UL AWM STYLE 2919, CSA CMH FT1
300 VOLT

COMMUNICATION & CONTROL

MULTICONDUCTOR, FOIL/BRAID SHIELD
FOAM POLYETHYLENE INSULATED / PVC JACKETED, LOW CAPACITANCE CABLE

APPLICATIONS

- EIA RS-232C Interface
- EIA RS-423 Interface
- CAD/CAM Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

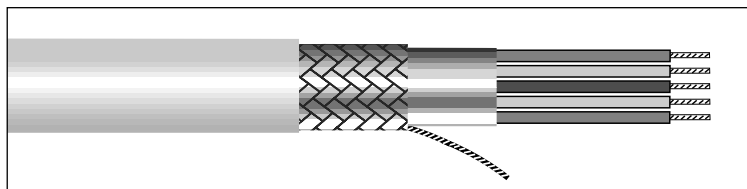
- 300 Volt – CM
- 30 Volt – AWM

COLOR DESCRIPTION:

- Color Code: Items Marked with *: Chart F Page 376.
All Other Part No's: See Color Code Chart Below
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Foam Polyethylene
- Shield: Aluminum/Polyester, Foil Facing Out Plus
Overall Braid of Tinned Copper (65% Coverage)
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Jacket: PVC

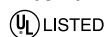


24 AWG (0,23mm²), **7/32** (7x0,20mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR PF/FT	PF/M	CDR to CDR+Shield PF/FT	PF/M
6351	3	0.035	0,89	0.215	5,4	12	39.4	22	72.2
6352	4	0.035	0,89	0.230	5,8	12	39.4	22	72.2
6353	5	0.035	0,89	0.246	6,2	12	39.4	22	72.2
6354	6	0.035	0,89	0.265	6,7	12	39.4	22	72.2
6355	7	0.035	0,89	0.265	6,7	12	39.4	22	72.2
6356	8	0.035	0,89	0.280	7,1	12	39.4	22	72.2
6357	9	0.035	0,89	0.300	7,6	12	39.4	22	72.2
6358	10	0.035	0,89	0.306	7,8	12	39.4	22	72.2
6359*	15	0.035	0,89	0.350	8,9	12	39.4	22	72.2
6360*	25	0.035	0,89	0.445	11,3	12	39.4	22	72.2
6361*	37	0.035	0,89	0.515	13,1	12	39.4	22	72.2

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2919
- CSA CMH FT1



AVAILABILITY

- 1000 ft (305m), 500 ft (152m), 100 ft (30,5m) put-ups

COLOR CODE CHART

Cond. No.	Color	Cond. No.	Color
1	Black	6	Blue
2	White	7	Orange
3	Red	8	Yellow
4	Green	9	Violet
5	Brown	10	Gray

COMMUNICATION & CONTROL

MULTIPAIR, UNSHIELDED PVC/PVC

UL TYPE CM
AWM 2464, 2576, CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

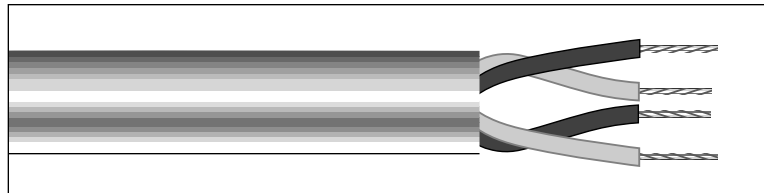
- 300 Volt – CM, AWM 2464
- 150 Volt – AWM 2576

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Jacket: PVC



80°C 150V - UL 2576 - TYPE CM

22 AWG (0,32mm²) Solid, Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1300C	1	0.032	0,81	0.15	3,9
1302C	2	0.032	0,81	0.21	5,4
1304C	3	0.032	0,81	0.22	5,7
1305C	4	0.032	0,81	0.24	6,2
1306C	5	0.032	0,81	0.26	6,7
1307C	6	0.032	0,81	0.29	7,3
1308/11C	11	0.032	0,81	0.36	9,1
1309C	13	0.032	0,81	0.38	9,6
1310C	16	0.032	0,81	0.41	10,5
1313C	27	0.040	1,02	0.54	13,6

SPECIFICATIONS

- UL Type CM, AWM 2576, 2464
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Underwriters Laboratories Inc. Canadian Standards Association

80°C 150V - UL 2576 - TYPE CM

22 AWG (0,36mm²) 7/30 (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1317C	2	0.032	0,81	0.22	5,8
1318C	3	0.032	0,81	0.24	6,1
1319C	4	0.032	0,81	0.26	6,7
1320C	5	0.032	0,81	0.29	7,2
1322C	6	0.035	0,88	0.32	8,0
1323C	9	0.035	0,88	0.37	9,3
▲1324C	11	0.035	0,88	0.40	10,1
1325C	12	0.035	0,88	0.41	10,4
1327C	15	0.040	1,02	0.45	11,5
1327/19C	19	0.040	1,02	0.49	12,5

AVAILABILITY

- 1000 ft (305m) put-ups
- ▲ 500 ft (152m), 1000 ft (305m) put-ups
- ▲▲ 100 ft (152m), 500 ft (152m),
1000 ft (305m) put-ups

80°C 300V - UL 2464 - TYPE CM

18 AWG (0,81mm²) 16/30 (16x0,25mm) Insulation Thickness: **0.016"** (0,40mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
▲▲1131C	1	0.032	0,81	0.22	5,6
▲▲1132C	2	0.035	0,88	0.33	8,4
▲▲1133C	3	0.037	0,94	0.36	9,0
1134C	4	0.040	1,02	0.39	10,0
1135C	5	0.045	1,14	0.44	11,2
1136C	6	0.045	1,14	0.48	12,2
1138C	8	0.050	1,27	0.53	13,5
1139C	9	0.055	1,40	0.58	14,8
1145C	15	0.060	1,52	0.71	18,1
1149C	19	0.070	1,78	0.79	20,1



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CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

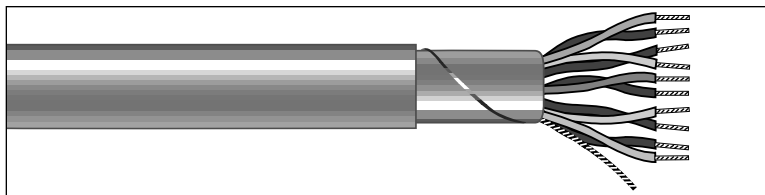
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart K Page 377
*Chart C Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum / Polyester, Foil Facing In
- Drain Wire: Stranded Tinned Copper
- Jacket: PVC



80°C 300V PVC - UL 2464 - TYPE CM

24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Drain Wire	
		Inches	mm	Inches	mm	AWG	Strand
5471C	1	0.032	0,81	0.16	4,1	24	7/32
5472C	2	0.032	0,81	0.21	5,3	24	7/32
5473C	3	0.032	0,81	0.23	5,8	24	7/32
5474C	4	0.032	0,81	0.24	6,1	24	7/32
5475C	5	0.035	0,89	0.27	6,9	24	7/32
5476C	6	0.035	0,89	0.30	7,6	24	7/32
5477C	7	0.035	0,89	0.30	7,6	24	7/32
5478C	8	0.035	0,89	0.32	8,1	24	7/32
5479C	9	0.037	0,94	0.34	8,6	24	7/32
5480C	10	0.040	1,02	0.38	9,6	24	7/32
5480/15C	15	0.040	1,02	0.42	10,8	24	7/32
5480/19C	19	0.040	1,02	0.45	11,4	24	7/32
5480/25C	25	0.045	1,14	0.53	13,4	24	7/32
5480/50C*	50	0.053	1,35	0.70	17,8	24	7/32

See page 214 for 22 AWG product.

SPECIFICATIONS

- UL Type CM, AWM 2464
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

COMMUNICATION & CONTROL

MULTIPAIR, FOIL SHIELD

PVC/PVC

UL TYPE CM
UL AWM 2464, CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

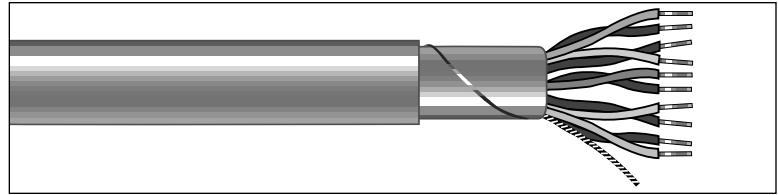
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart K Page 377
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Solid Tinned Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum/Polyester, Foil Facing In
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Jacket: PVC



22 AWG (0,32mm²), Solid, Insulation Thickness: **0.013"** (0,33mm)

UL 2464 - NEC TYPE CM

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
5902C	2	0.032	0,81	0.22	5,6
5905C	4	0.032	0,81	0.26	6,7
5906C	6	0.035	0,89	0.32	8,1
5909C	9	0.037	0,94	0.37	9,4
5909/15C	15	0.040	1,02	0.43	11,1
5909/19C	19	0.040	1,02	0.47	12,0

SPECIFICATIONS

- UL Type CM, AWM 2464
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

CSA Certified
Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups



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CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

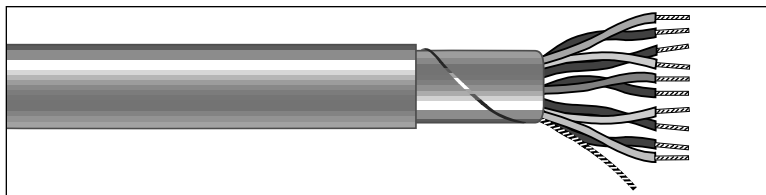
- 300 Volt – CM, AWM 2464
- 150 Volt – 2576

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum / Polyester, Foil Facing Out
- Drain Wire: Stranded Tinned Copper
- Jacket: PVC



80°C 150V PVC - UL 2576 - NEC TYPE CM

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Drain Wire	
		Inches	mm	Inches	mm	AWG	Strand
2211C	1	0.032	0,81	0.16	4,2	22	7/30
2212C	2	0.032	0,81	0.23	5,8	22	7/30
2213C	3	0.032	0,81	0.24	6,1	22	7/30
2214C	4	0.032	0,81	0.26	6,6	22	7/30
2215C	5	0.032	0,81	0.29	7,3	22	7/30
2216C	6	0.032	0,81	0.32	8,1	22	7/30
2219C	9	0.035	0,89	0.37	9,4	22	7/30
2219/12C	12	0.035	0,89	0.41	10,4	22	7/30
2219/15C	15	0.035	0,89	0.45	11,4	22	7/30
2219/19C	19	0.040	1,02	0.49	12,4	22	7/30
2219/23C	23	0.040	1,02	0.54	13,7	22	7/30
2219/27C	27	0.040	1,02	0.59	15,0	22	7/30

80°C 300V PVC - UL 2464 - NEC TYPE CM

18 AWG (0,81mm²), **16/30** (16x0,25mm), Insulation Thickness: **0.016"** (0,40mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Drain Wire	
		Inches	mm	Inches	mm	AWG	Strand
2241C	1	0.032	0,81	0.22	5,6	20	10/30
2242C	2	0.035	0,89	0.34	8,6	20	10/30
2243C	3	0.037	0,94	0.36	9,1	20	10/30
2244C	4	0.040	1,02	0.40	10,2	20	10/30
2245C	5	0.045	1,14	0.45	11,1	20	10/30
2246C	6	0.045	1,14	0.49	12,3	20	10/30
2248C	8	0.050	1,27	0.54	13,7	20	10/30
2249C	9	0.055	1,40	0.59	14,9	20	10/30
2249/12C	12	0.055	1,40	0.66	16,7	20	10/30
2249/19C	19	0.070	1,78	0.80	20,2	20	10/30

SPECIFICATIONS

- UL Type CM, AWM 2576, 2464
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- Consult Alpha for Alpha Qwik-Reel® payout package availability

COMMUNICATION & CONTROL

MULTIPAIR, FOIL SHIELD

PVC/PVC POWER-LIMITED TRAY CABLE

UL TYPE CM/PLTC, CSA CMG FT4
300 VOLT

APPLICATIONS

- Instrumentation Systems
- Power-Limited Tray Cable

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

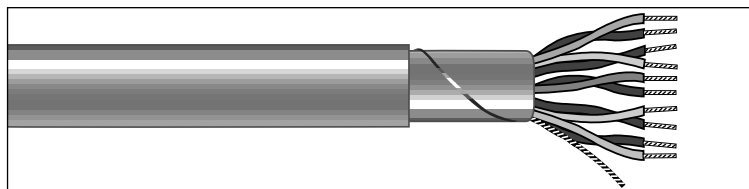
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Black and Red Pairs, Numbered
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Overall Aluminum/Polyester Foil
- Drain Wire: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Jacket: PVC



22 AWG (0,35mm²), 7/30 (7x0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
6417	2	0.043	1,09	0.310	7,8
6418	3	0.043	1,09	0.326	8,2
6419	4	0.043	1,09	0.353	8,9
6420	6	0.053	1,35	0.425	10,8
6421	9	0.053	1,35	0.488	12,4
6422	11	0.053	1,35	0.536	13,6
6423	15	0.053	1,35	0.594	15,0
6424	19	0.063	1,60	0.631	16,0
6425	27	0.063	1,60	0.741	18,8
6426	51	0.063	1,60	0.950	24,1

18 AWG (0,96mm²), 19/30 (19x0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
6427	2	0.043	1,0	0.377	9,5
6428	3	0.053	1,3	0.420	10,6
6429	4	0.053	1,3	0.458	11,6
6430	6	0.053	1,3	0.509	12,9
6431	9	0.053	1,3	0.591	15,1
6432	11	0.063	1,6	0.682	17,3
6433	15	0.063	1,6	0.755	19,1

SPECIFICATIONS

- UL Type CM/PLTC
- CSA CMG FT4



AVAILABILITY

- 1000 ft (305m), 500 ft (152m) put-ups



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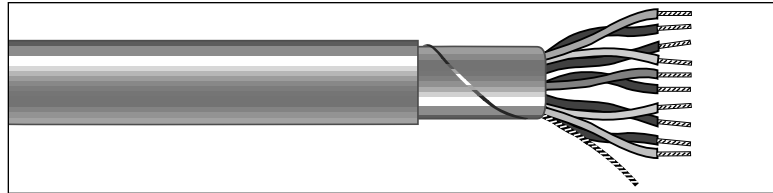
UL TYPE CM

UL AWM 2919, CSA CMG FT4

300 VOLT

APPLICATIONS

- Precision Audio, Pulse or RF Signal Transmission Where Low Distortion and High Speed Data Rates are Required
- External Interconnection of Computer or Electronic Point-of-Sale Equipment in Areas Where Medium to High Levels of Noise Interference are Anticipated



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

- 300 Volt – CM
- 30 Volt – AWM

COLOR DESCRIPTION:

- Color Code: Chart M Page 377
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: 24 AWG, 7/32 Tinned Copper
Conductors Paired
Staggered Pair Lay Scheme
- Insulation: Color-Coded High Density Polyethylene
- Shield: Overall Aluminum/Polyester/Aluminum
- Drain Wire: 22 AWG, 7/32 Tinned Copper to Facilitate Ground Termination (Between Core and Shield)
- Jacket: PVC

24 AWG (0,23mm²) PE/PVC UL 2919 - TYPE CM LOW CAPACITANCE, EXTENDED DISTANCE

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
6083C	3	0.035	0,89	0.24	5,6
6084C	4	0.035	0,89	0.26	6,5
6087C	7	0.035	0,89	0.31	7,9
▲ 6089C	9	0.035	0,89	0.34	8,7
▲ 6089/18C	18	0.035	0,89	0.45	11,5

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SPECIFICATIONS

- UL Type CM, AWM 2919
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- Capacitance: 14.7pF/ft (48,2 pFm) Cdr to Cdr

UL LISTED  Passes UL VW-1 Flame Test Underwriters Laboratories Inc.  Certified Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 500 ft (152m), 1000 ft (305m) put-ups

COMMUNICATION & CONTROL

MULTIPAIR, FOIL SHIELD LOW CAP. CABLE PE/PVC

UL TYPE CM
UL AWM STYLE 2919, CSA CMH FT1
300 VOLT

APPLICATIONS

- EIA RS-232C Interface

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

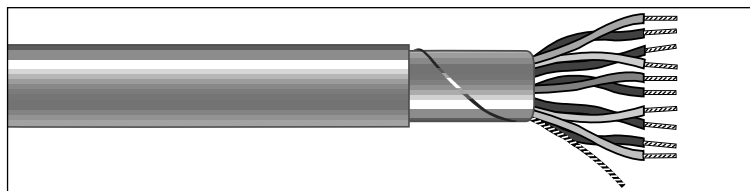
- 300 Volt — CM

COLOR DESCRIPTION:

- Color Code: Chart M Page 377
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: 24 AWG, 7/32 Tinned Copper
- Shield: Overall Aluminum/Polyester, Foil Facing Out
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Insulation: Color-Coded Polyethylene
- Jacket: PVC



Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR PF/FT	CDR PF/M	CDR+Shield PF/FT	CDR+Shield PF/M
6301	6	0.035	0,89	0.342	8,6	15.5	50.8	27.5	90.2
6304	12 ¹ / ₂	0.035	0,89	0.445	11,3	15.5	50.8	27.5	90.2

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2919
- CSA CMH FT1



AVAILABILITY

- 1000 ft (305m), 500 ft (152m), 100 ft (30,5m) put-ups



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UL TYPE CM
UL AWM 2919
CSA CMG FT4
300 VOLT

COMMUNICATION & CONTROL

MULTIPAIR, FOIL SHIELD, LOW CAP., CAD/CAM CABLES

(EIA RS-232, EIA RS-422) FPP/PVC

APPLICATIONS

- Computer Interconnects
- EIA RS-232, EIA RS-422
- CAD/CAM Systems
- External Interconnection of Computer or Electronic Point-of-Sale Equipment in Areas Where High Levels of Noise Interference Are Anticipated
- Extended Distance

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- -75°C – CM

VOLTAGE RATING:

- 300 Volt – AWM
- 30 Volt – CM

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Chrome Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Cellular (Foam) Polypropylene
- Shield: Aluminum/Polyester, Foil Facing Out
- Drain Wire: 6202C-6210/25C: 24 AWG, 7/32 Tinned Copper; 6212C-6220C/25: 22 AWG, 7/30 Tinned Copper
- Jacket: PVC

SPECIFICATIONS

- UL Type CM, AWM 2919
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Certified
Canadian Standards Association

AVAILABILITY

- 500 ft (152m), 1000 ft (305m)

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CELLULAR (FOAM) POLYPROPYLENE MULTIPAIR FOIL SHIELD NEC TYPE CM

24 AWG (0,023mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Pairs	Jacket Thickness Inches (mm)	Diameter Inches (mm)	Capacitance				Vp %	Zo@1MHz Ohms, Nom.
				cdr. to cdr. pF / ft (pF / m)	cdr. to (cdr. + Shield) pF / ft (pF / m)	cdr. to (cdr. + Shield) pF / ft (pF / m)	cdr. to (cdr. + Shield) pF / ft (pF / m)		
6202C	2	0.035 (0,89)	0.25 (6,3)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6203C	3	0.035 (0,89)	0.26 (6,6)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6204C	4 1/2	0.035 (0,89)	0.29 (7,3)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6205C	5	0.035 (0,89)	0.31 (7,8)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6206C	6	0.035 (0,89)	0.34 (8,6)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6207C	7	0.035 (0,89)	0.35 (8,8)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6208C	8	0.035 (0,89)	0.36 (9,1)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6209C	9	0.035 (0,89)	0.39 (9,9)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6210C	10	0.035 (0,89)	0.42 (10,6)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6210/12C	12 1/2	0.035 (0,89)	0.43 (10,9)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6210/15C	15	0.035 (0,89)	0.48 (12,2)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6210/18C	18 1/2	0.050 (1,27)	0.53 (13,5)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6210/25C	25	0.050 (1,27)	0.57 (14,5)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100

22 AWG (0,032mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.020"** (0,51mm)

Alpha Part No.	No. of Pairs	Jacket Thickness Inches (mm)	Diameter Inches (mm)	Capacitance				Vp %	Zo@1MHz Ohms, Nom.
				cdr. to cdr. pF / ft (pF / m)	cdr. to (cdr. + Shield) pF / ft (pF / m)	cdr. to (cdr. + Shield) pF / ft (pF / m)	cdr. to (cdr. + Shield) pF / ft (pF / m)		
6212C	2	0.035 (0,89)	0.29 (7,4)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6213C	3	0.035 (0,89)	0.31 (7,9)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6216C	6	0.035 (0,89)	0.39 (9,9)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6217C	7	0.035 (0,89)	0.40 (10,2)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6218C	8	0.035 (0,89)	0.42 (10,7)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6220C	10	0.035 (0,89)	0.48 (12,2)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6220/12C	12 1/2	0.050 (1,27)	0.53 (13,5)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6220/15C	15	0.050 (1,27)	0.57 (14,5)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6220/18C	18 1/2	0.050 (1,27)	0.60 (15,2)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100
6220/25C	25	0.050 (1,27)	0.70 (17,8)	12.5 (41,0)	22.0 (72,2)	22.0 (72,2)	22.0 (72,2)	78	100

COMMUNICATION & CONTROL

MULTIPAIR FOIL SHIELD DATA CABLES

PE/PVC

UL 2106
600 VOLT

APPLICATIONS

- Audio, Pulse or RF Signal Transmission
- Computer or Electronic Peripheral Interconnectors
Where High Levels of Noise Interference Are Anticipated
- Banking Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

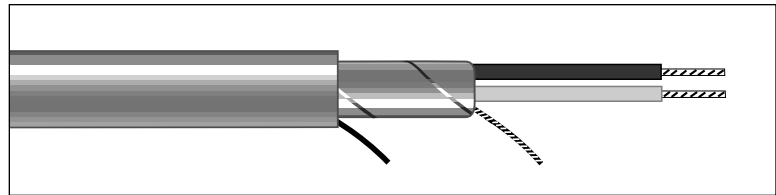
- 600 Volt (Part No. 2471, 2472, 2473)
- 400 Volt (Part No. 2468)

COLOR DESCRIPTION:

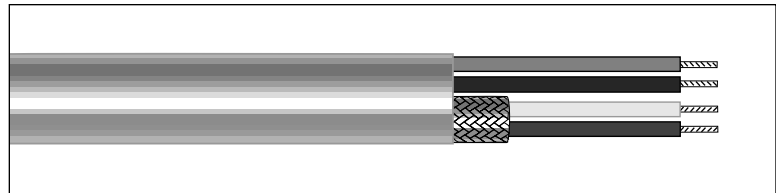
- Color Code: Black, Clear (2471, 2472, 2473)
Red/Black, Green/White (2468)
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
Part No. 2468 Has Three Strands Tinned Copper,
4 Strands Copper Covered Steel and One Pair Individually
Shielded With Aluminum Polyester
- Insulation: Color-Coded High Density Polyethylene (PE)
- Shield: Aluminum/Polyester
- Drain Wire: Stranded Tinned Copper Each Pair
- Jacket: PVC



ALPHA PART NOS. 2471, 2472, 2473



ALPHA PART NO. 2468

TYPICAL ELECTRICAL CHARACTERISTICS

Alpha Part No.	Capacitance				Z ₀ @ 1 MHz, Ohms
	Cdr. To Cdr. pF / ft	Cdr. pFm	Cdr. To Cdr. & Shield pF / ft	Cdr. & Shield pFm	
2471	21	69	40	131	73
2472	24	79	47	154	64
2473	25	82	50	164	62

SPECIFICATIONS

- UL AWM 2106 (Part Nos. 2471, 2472, 2473)

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

SINGLE PAIR

Alpha Part No.	AWG	mm ²	Conductor Strand	mm	Insulation Thickness		Jacket Thickness		Diameter	
					Inches	mm	Inches	mm	Inches	mm
2471	16	1,23	19/29	19 x 0,29	0.032	0,81	0.032	0,81	0.30	7,7
2472	14	1,94	19/27	19 x 0,36	0.032	0,81	0.035	0,89	0.34	8,6
2473	12	3,08	19/25	19 x 0,45	0.037	0,94	0.040	1,02	0.40	10,1

TWO PAIR COMPOSITE CABLE - ONE PAIR SHIELDED, ONE PAIR UNSHIELDED

Alpha Part No.	AWG	mm ²	Conductor Strand	mm	Mat'l Type	Insulation Thickness		Jacket Thickness		Diameter		Voltage Rating
						Inches	mm	Inches	mm	Inches	mm	
2468	25	0,18	7/33	7 x 0,18	PE	0.013	0,33	0.020	0,50	0.16	4,1	400†



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UL TYPE CL2
UL AWM 2464
CSA CMG FT4
300 VOLT

COMMUNICATION & CONTROL

MULTIPAIR, FOIL/BRAID SHIELD, CAD/CAM CABLES

PVC/PVC

APPLICATIONS

- Computer Interconnects
- EIA RS-232
- CAD/CAM Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- -75°C – CL2

VOLTAGE RATING:

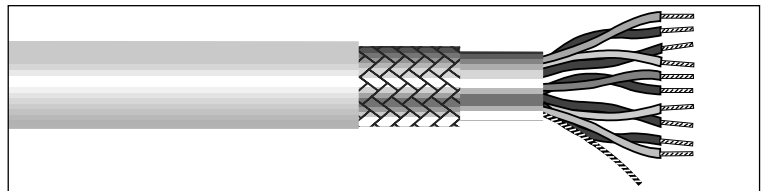
- 300 Volt – AWM
- 150 Volt – CL2

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Chrome Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Semi-rigid PVC
- Shield: Aluminum/Polyester/Aluminum Plus
Overall Braid of Tinned Copper (65% Coverage)
- Drain Wire: 28 AWG, 7/36 Tinned Copper
- Jacket: PVC



MULTIPAIR, FOIL/BRAID NEC TYPE CL2

28 AWG (0,089mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
▲ 3472C	2	0.035	0,89	0.21	5,3
▲ 3474C	4	0.035	0,89	0.25	6,3
▲▲ 3475C	5	0.035	0,89	0.26	6,6
▲ 3476C	6	0.035	0,89	0.27	6,8
▲ 3477C	7	0.035	0,89	0.27	6,8
3480C	10	0.035	0,89	0.33	8,3
3480/12C	12 1/2	0.035	0,89	0.34	8,6
3480/18C	18	0.035	0,89	0.38	9,7
3480/25C	25	0.035	0,89	0.45	11,5

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SPECIFICATIONS

- UL Type CL2, AWM 2464
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Passes
UL VW-1 Flame Test



Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 1000 ft (305m) put-ups
- ▲▲ 100 ft (30,5m) and 1000 ft (305m) put-ups

COMMUNICATION & CONTROL

MULTIPAIR, FOIL/BRAID SHIELD

SR-PVC/PVC

UL TYPE CM
UL AWM STYLE 2464, CSA CMG FT4
300 VOLT

APPLICATIONS

- EIA RS-232C Interface
- CAD/CAM Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- 75°C — CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Part No. 6362 to Part No. 6372, Chart M Page 377;
Part No. 6373 to Part No. 6384, Chart A Page 374
(Except 6376 and 6379 — See Color Code Chart Below)
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Semi-Rigid PVC
- Shield: Aluminum/Polyester, Foil Facing Out Plus Overall Braid of Tinned Copper (65% Coverage)
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Jacket: PVC

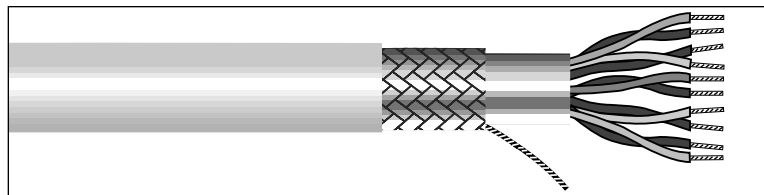
SPECIFICATIONS

- UL Type CM
- UL AWM Style 2464
- CSA CMG FT4



AVAILABILITY

- 1000 ft (305m), 500 ft (152m),
100 ft (30,5m) put-ups



24 AWG (0,23mm²), **7/32** (7x0,20mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
						CDR to CDR		CDR to CDR+Shield	
		Inches	mm	Inches	mm	PF/FT	PF/M	PF/FT	PF/M
6362	2	0.032	0,81	0.235	6,4	30	98	50	164
6363	3	0.032	0,81	0.245	6,7	30	98	50	164
6364	4	0.032	0,81	0.265	7,4	30	98	50	164
6365	5	0.032	0,81	0.285	7,5	30	98	50	164
6366	6	0.032	0,81	0.305	7,9	30	98	50	164
6367	7	0.032	0,81	0.305	8,2	30	98	50	164
6368	10	0.032	0,81	0.385	9,8	30	98	50	164
6369	12 1/2	0.032	0,81	0.415	10,3	30	98	50	164
6370	15	0.032	0,81	0.425	11,3	30	98	50	164
6371	18	0.032	0,81	0.450	12,2	30	98	50	164
6372	25	0.032	0,81	0.520	13,4	30	98	50	164

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
						CDR to CDR		CDR to CDR+Shield	
		Inches	mm	Inches	mm	PF/FT	PF/M	PF/FT	PF/M
6373	2	0.032	0,81	0.260	6,6	40	131	72	236
6374	3	0.032	0,81	0.265	7,5	35	115	63	227
6375	4	0.032	0,81	0.290	8,1	35	115	63	227
6376	5	0.032	0,81	0.322	8,2	35	115	63	207
6377	6	0.032	0,81	0.335	8,9	35	115	63	207
6378	7	0.032	0,81	0.355	8,9	35	115	63	207
6379	8	0.032	0,81	0.360	9,7	35	115	63	207
6380	10	0.032	0,81	0.420	11,1	35	115	63	207
6381	12 1/2	0.032	0,81	0.430	11,5	35	115	63	207
6382	15	0.032	0,81	0.472	12,7	35	115	63	207
6383	18	0.032	0,81	0.490	13,6	35	115	63	207
6384	25	0.032	0,81	0.610	15,7	35	115	63	207

COLOR CODE CHART

Pair No.	Color	Pair No.	Color
1	Black, Red	5	Black, Yellow
2	Black, White	6	Black, Brown
3	Black, Green	7	Black, Orange
4	Black, Blue	8	Red, White



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UL LISTED TYPE CL2, CM
UL AWM STYLE 2960, 2919, CSA CMH FT1
300 VOLT

COMM. & CONTROL

MULTIPAIR, FOIL/BRAID SHIELD

PE/PVC, LOW CAPACITANCE CABLE

APPLICATIONS

- EIA RS-232C Interface
- CAD/CAM Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C — AWM 2960
- 75°C — CM
- 80°C — AWM 2919

VOLTAGE RATING:

- 300 Volt — CM
- 30 Volt — AWM

COLOR DESCRIPTION:

- Color Code: Part No. 6390 to Part No. 6400
See Chart Below;
Part No. 6401 to Part No. 6411, Chart M Page 377
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Polyethylene
- Shield: Aluminum/Polyester, Foil Facing Out Plus Overall Braid of Tinned Copper (65%)
- Drain Wire: 28 AWG, 7/36 Tinned Copper — Part No. 6390 to Part No. 6400; 24 AWG, 7/32 Tinned Copper — Part No. 6401 to Part No. 6411
- Jacket: PVC

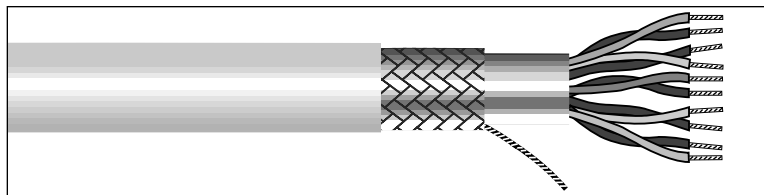
SPECIFICATIONS

- UL Listed Type CL2, CM
- UL AWM Style 2960, 2919
- CSA CMH FT1



AVAILABILITY

- 1000 ft (305m), 500 ft (152m),
100 ft (30,5m) put-ups



28 AWG (0,089mm²), 7/36 (7x0,13mm)

Alpha Part No.	No. of Pairs	Jacket		Diameter		Nominal Capacitance			
		Thickness Inches	mm	Inches	mm	CDR to CDR		CDR to CDR+Shield	
						PF/FT	PF/M	PF/FT	PF/M
6390	2	0.035	0,89	0.214	5,4	15.5	50.9	27.5	90.2
6391	3	0.035	0,89	0.222	5,6	15.5	50.9	27.5	90.2
6392	4	0.035	0,89	0.237	6,0	15.5	50.9	27.5	90.2
6393	5	0.035	0,89	0.240	6,1	15.5	50.9	27.5	90.2
6394	7	0.035	0,89	0.256	6,5	15.5	50.9	27.5	90.2
6395	9	0.035	0,89	0.290	7,3	15.5	50.9	27.5	90.2
6396	12	0.035	0,89	0.319	8,1	15.5	50.9	27.5	90.2
6397	13	0.035	0,89	0.336	8,5	15.5	50.9	27.5	90.2
6398	18	0.035	0,89	0.365	9,2	15.5	50.9	27.5	90.2
6399	25	0.035	0,89	0.429	10,9	15.5	50.9	27.5	90.2
6400	31	0.035	0,89	0.462	11,7	15.5	50.9	27.5	90.2

24 AWG (0,23mm²), 7/32 (7x0,20mm)

Alpha Part No.	No. of Pairs	Jacket		Diameter		Nominal Capacitance			
		Thickness Inches	mm	Inches	mm	CDR to CDR		CDR to CDR+Shield	
						PF/FT	PF/M	PF/FT	PF/M
6401	2	0.035	0,89	0.291	7,3	15.5	59.1	27.5	90.2
6402	3	0.035	0,89	0.305	7,7	15.5	59.1	27.5	90.2
6403	4	0.035	0,89	0.330	8,3	15.5	59.1	27.5	90.2
6404	5	0.035	0,89	0.338	8,5	15.5	59.1	27.5	90.2
6405	6	0.035	0,89	0.364	9,2	15.5	59.1	27.5	90.2
6406	7	0.035	0,89	0.364	9,2	15.5	59.1	27.5	90.2
6407	9	0.035	0,89	0.419	10,6	15.5	59.1	27.5	90.2
6408	10	0.035	0,89	0.451	11,4	15.5	59.1	27.5	90.2
6409	12	0.035	0,89	0.464	11,7	15.5	59.1	27.5	90.2
6410	18	0.045	1,14	0.567	14,4	15.5	59.1	27.5	90.2
6411	25	0.045	1,14	0.670	17,0	15.5	59.1	27.5	90.2

COLOR CODE CHART

No. Pairs	Color Code	No. Pairs	Color Code	No. Pairs	Color Code	No. Pairs	Color Code	No. Pairs	Color Code	No. Pairs	Color Code
1	Black, Red	7	Black, Orange	12	Red, Brown	17	Green, Brown	22	White, Orange	27	Brown, Orange
2	Black, White	8	Red, White	13	Red, Orange	18	Green, Orange	23	Blue, Yellow	28	Orange, Yellow
3	Black, Green	9	Red, Green	14	Green, White	19	White, Blue	24	Blue, Brown	29	Purple, Orange
4	Black, Blue	10	Red, Blue	15	Green, Blue	20	White, Yellow	25	Blue Orange	30	Purple, Red
5	Black, Yellow	11	Red, Yellow	16	Green, Yellow	21	White, Brown	26	Brown, Yellow	31	Purple, White
6	Black, Brown										

COMMUNICATION & CONTROL

MULTIPAIR, FOIL/BRAID SHIELD

PE/PVC, LOW CAPACITANCE CABLE

UL TYPE CM
CSA CMH FT1
UL AWM STYLE 2919
300 VOLT

APPLICATIONS

- EIA RS-485 Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

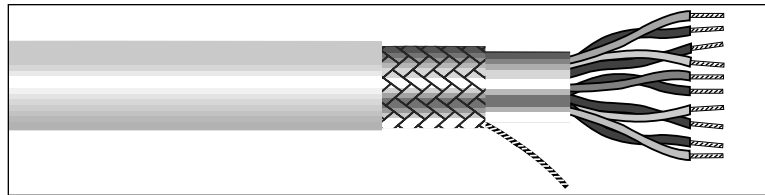
- 300 Volt — CM
- 30 Volt — AWM

COLOR DESCRIPTION:

- Color Code: Chart M Page 377
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Polyethylene
- Shield: Aluminum/Polyester, Foil Facing Out Plus Overall Braid of Tinned Copper (90%)
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Jacket: PVC



24 AWG (0,23mm²), **7/32** (7x0,20mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
						CDR to CDR		CDR to CDR+Shield	
		Inches	mm	Inches	mm	PF/FT	PF/M	PF/FT	PF/M
6412	1	0.035	0,89	0.200	5,1	12.8	42	23	75.5
6413	2	0.035	0,89	0.280	7,1	12.8	42	23	75.5
6414	3	0.035	0,89	0.300	7,6	12.8	42	23	75.5
6415	4	0.035	0,89	0.322	8,2	12.8	42	23	75.5

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2919
- CSA CMH FT1



AVAILABILITY

- 1000 ft (305m), 500 ft (152m), 100 ft (30,5m) put-ups



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CSA CMG FT4
UL TYPE CL2
UL AWM STYLE 2919
300 VOLT

COMMUNICATION & CONTROL

MULTIPAIR, FOIL/BRAID SHIELD

PE/PVC, LOW CAPACITANCE CABLES

APPLICATIONS

- EIA RS-485 Applications
- EIA RS-232C Interface

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

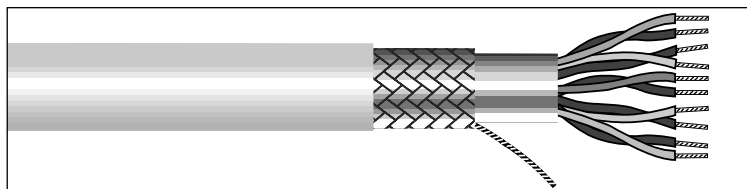
- 300 Volt — CM
- 30 Volt — AWM

COLOR DESCRIPTION:

- Color Code: Chart M Page 377
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Foam Polyethylene
- Shield: Aluminum/Polyester/Aluminum Plus Overall Tinned Copper Braid (65% Coverage)
- Drain Wire: 28 AWG, 7/36 Tinned Copper
- Jacket: PVC



28 AWG (0,089mm²), **7/36** (7x0,13mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR PF/FT	CDR to CDR PF/M	CDR to CDR+Shield PF/FT	CDR to CDR+Shield PF/M
3492C	2	0.035	0,89	0.235	5,9	11	36	20	65.6
3493C	3	0.035	0,89	0.270	6,8	11	36	20	65.6
3494C	4	0.035	0,89	0.290	7,3	11	36	20	65.6
3495C	5	0.035	0,89	0.300	7,6	11	36	20	65.6
3496C	6	0.035	0,89	0.300	7,6	11	36	20	65.6
3498C	8	0.035	0,89	0.330	8,3	11	36	20	65.6
3500/12C	12 ^{1/2}	0.035	0,89	0.407	10,3	11	36	20	65.6
3500/18C	18	0.035	0,89	0.465	11,8	11	36	20	65.6
3500/25C	25	0.035	0,89	0.565	14,3	11	36	20	65.6

SPECIFICATIONS

- UL Type CL2
- UL AWM Style 2919
- CSA CMG FT4



AVAILABILITY

- 1000 ft (305m), 500 ft (152m), 100 ft (30,5m) put-ups

COMMUNICATION & CONTROL

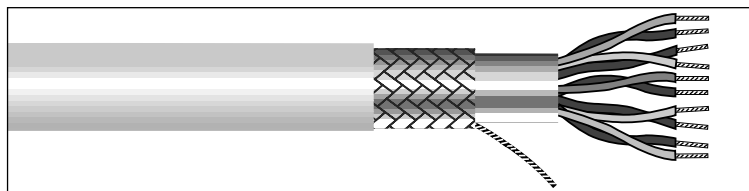
MULTIPAIR, FOIL/BRAID SHIELD, LOW CAP. CAD/CAM CABLES

(EIA RS-232, EIA RS-423, EIA RS-485) FPP / PVC

UL TYPE CM
UL AWM 2919
CSA CMG FT4
300 VOLT

APPLICATIONS

- Computer Interconnects
- EIA RS-232, RS-423, EIA RS-485
- CAD/CAM Systems
- External Interconnection of Computer or Electronic Point-of-Sale Equipment in Areas Where High Levels of Noise Interference Are Anticipated
- Extended Distance



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- -75°C — CM

VOLTAGE RATING:

- 300 Volt — CM
- 30 Volt — AWM

COLOR DESCRIPTION:

- Color Code: Chart M Page 377
- Jacket Color: Chrome Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Cellular (Foam) Dielectric
- Shield: Aluminum/Polyester, Foil Facing Out Plus Overall Braid of Tinned Copper (65%)
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Jacket: PVC

SPECIFICATIONS

- UL Type CM, AWM 2919
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test

UL LISTED  Passes UL VW-1 Flame Test  Certified
Underwriters Laboratories Inc. Canadian Standards Association

AVAILABILITY

- 500 ft (152m), 1000 ft (305m)

CELLULAR (FOAM) POLYPROPYLENE MULTIPAIR OVERALL FOIL / 65% BRAID SHIELD NEC TYPE CM

24 AWG (0,23mm²), 7/32 (7x0,20mm), Insulation Thickness: 0.016" (0,41mm)

Alpha Part No.	No. of Pairs	Jacket Thickness Inches (mm)	Diameter Inches (mm)	Capacitance		Vp %	Zo@1MHz Ohms, Nom.
				cdr. to cdr. pF / ft (pF / m)	cdr. to (cdr. + Shield) pF / ft (pF / m)		
6222C	2	0.035 (0,89)	0.29 (7,4)	12.5 (41,0)	22.0 (72,2)	78	100
6223C	3	0.035 (0,89)	0.30 (7,8)	12.5 (41,0)	22.0 (72,2)	78	100
6224C	4	0.035 (0,89)	0.33 (8,4)	12.5 (41,0)	22.0 (72,2)	78	100
6225C	5	0.035 (0,89)	0.34 (8,7)	12.5 (41,0)	22.0 (72,2)	78	100
6226C	6	0.035 (0,89)	0.37 (9,4)	12.5 (41,0)	22.0 (72,2)	78	100
6227C	7	0.035 (0,89)	0.37 (9,4)	12.5 (41,0)	22.0 (72,2)	78	100
6228C	8	0.035 (0,89)	0.41 (10,4)	12.5 (41,0)	22.0 (72,2)	78	100
6230C	10	0.035 (0,89)	0.46 (11,7)	12.5 (41,0)	22.0 (72,2)	78	100
6230/12C	12 1/2	0.035 (0,89)	0.48 (12,2)	12.5 (41,0)	22.0 (72,2)	78	100
6230/15C	15	0.035 (0,89)	0.54 (13,5)	12.5 (41,0)	22.0 (72,2)	78	100
6230/18C	18	0.050 (1,27)	0.57 (14,5)	12.5 (41,0)	22.0 (72,2)	78	100
6230/25C	25	0.050 (1,27)	0.65 (16,8)	12.5 (41,0)	22.0 (72,2)	78	100



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CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

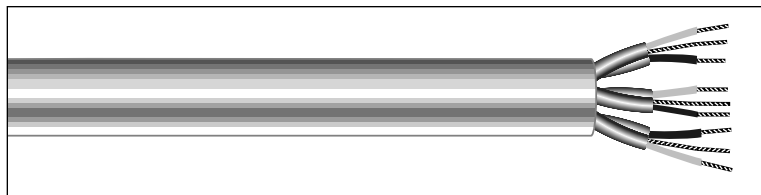
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Shield: Individually Foil Shielded Pairs
Foil Facing In
- Drain Wire: Stranded Tinned Copper
- Jacket: PVC



80°C 300V PVC

22 AWG (0,35mm²), **7/30** (7x0,25mm), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Drain Wire	
		Inches	mm	Inches	mm	AWG	Strand
6052C	2	0.043	1,09	0.31	8,0	22	7/30
6053C	3	0.043	1,09	0.33	8,4	22	7/30
6054C	4	0.043	1,09	0.36	9,1	22	7/30
6056C	6	0.053	1,35	0.43	10,9	22	7/30
6059C	9	0.053	1,35	0.50	12,7	22	7/30
▲ 6059/11C	11	0.053	1,35	0.55	14,0	22	7/30
6059/15C	15	0.053	1,35	0.60	15,3	22	7/30
6059/19C	19	0.063	1,60	0.64	16,4	22	7/30
6059/27C	27	0.063	1,60	0.77	19,7	22	7/30

SPECIFICATIONS

- UL Type CM, AWM 2464
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.



Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m),
1000 ft (305m) put-ups
- ▲ 1000 ft (305m) put-ups

18 AWG (0,81mm²), 16/30 (16x0,25mm), Insulation Thickness: 0.016" (0,41mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Drain Wire	
		Inches	mm	Inches	mm	AWG	Strand
6062C	2	0.043	1,09	0.38	9,6	20	10/30
6063C	3	0.053	1,35	0.42	10,6	20	10/30
6064C	4	0.053	1,35	0.45	11,5	20	10/30
6066C	6	0.053	1,35	0.52	13,3	20	10/30
6069C	9	0.063	1,60	0.62	15,9	20	10/30
6069/15C	15	0.063	1,60	0.76	19,4	20	10/30

COMMUNICATION & CONTROL

MULTIPAIR, INDIVIDUALLY FOIL SHIELDED PP/PVC

UL TYPE CM
UL AWM 2493, CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C – AWM
- 75°C – CM

VOLTAGE RATING:

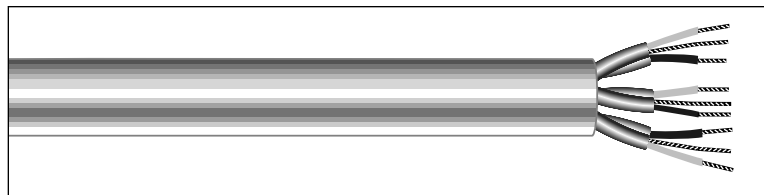
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Solid or Stranded Tinned Copper
- Insulation: Color-Coded Polypropylene (PP)
- Shield: Individually Foil Shielded Pairs
- Drain Wire: 22 AWG Solid or Stranded Tinned Copper
- Jacket: PVC



60° C 300V - UL 2493 - NEC TYPE CM

22 AWG (0,32mm²), SOLID, Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
6000C	3	0.045	1,14	0.30	7,6
▲ 6008C	15	0.045	1,14	0.52	13,2

22 AWG (0,35mm²), 7/30 (7x0,25mm,)

Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
6010C	3	0.045	1,14	0.31	8,0
6012C	6	0.045	1,14	0.39	9,9
6014C	9	0.045	1,14	0.46	11,6
6016C	11	0.045	1,14	0.48	12,1
6017C	12	0.045	1,14	0.48	12,3
6018C	15	0.060	1,52	0.56	14,3
6019C	17	0.060	1,52	0.61	15,6
6020C	19	0.060	1,52	0.63	16,0
6022C	27	0.060	1,52	0.68	17,9

SPECIFICATIONS

- UL Type CM, AWM 2493
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- † Capacitance between conductors in pair
- †† Capacitance between one conductor and other conductors connected to shields



Passes
UL VW-1 Flame Test



Certified
Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m),
1000 ft (305m) put-ups
- ▲ 1000 ft (305m) put-ups

TYPICAL ELECTRICAL CHARACTERISTICS

Alpha Part No.	Cap.† pF / ft	Cap.†† pF / ft	Impedance @ MHz, Ohms
6000C-6008C	25	50	62
6010C-6022C	28	57	55

NOMINAL ATTENUATION @ 20° c (dB. / 100ft.)

Alpha Part No.	10KHz	100KHz	1MHz	10MHz
6000C-6008C	0.21	0.58	1.70	4.60
6010C-6022C	0.13	0.42	1.40	4.20



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CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C – AWM
- 75°C – CM

VOLTAGE RATING:

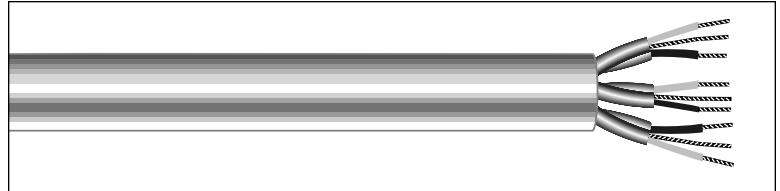
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Polypropylene (PP)
- Shield: Individually Foil Shielded Pairs
- Drain Wire: Stranded Tinned Copper
- Jacket: PVC



60° C UL 2493 - NEC TYPE CM

20 AWG (0,51mm²), **10/30** (10x0,25m), Insulation Thickness: **0.013"** (0,33mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Drain Wire	
		Inches	mm	Inches	mm	AWG	Strand
6032C	2	0.045	1,14	0.31	8,0	22	7/30
6033C	3	0.045	1,14	0.34	8,6	22	7/30
6036C	6	0.045	1,14	0.43	10,9	22	7/30
6039C	9	0.060	1,52	0.53	13,5	22	7/30
6042C	12	0.060	1,52	0.59	15,0	22	7/30
▲ 6045C	15	0.060	1,52	0.64	16,2	22	7/30

SPECIFICATIONS

- UL Type CM, AWM 2493
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- † Capacitance between conductors in pair
- †† Capacitance between one conductor and other conductors connected to shields



AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 1000 ft (305m) put-ups

60° C UL 2493 - NEC TYPE CM

18 AWG (0,81mm²), **16/30** (16x0,25m), Insulation Thickness: **0.016"** (0,41mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Drain Wire	
		Inches	mm	Inches	mm	AWG	Strand
6023C	3	0.045	1,14	0.38	9,7	20	10/30
6024C	6	0.060	1,52	0.56	14,3	20	10/30
6025C	9	0.060	1,52	0.62	15,7	20	10/30

TYPICAL ELECTRICAL CHARACTERISTICS

Alpha Part No.	Cap.† pF / ft	Cap.†† pF / ft	Impedance @ MHz, Ohms
6023C-6025C	28	56	55
6032C-6045C	26	53	59

NOMINAL ATTENUATION @ 20° c (dB. / 100ft.)

Alpha Part No.	10KHz	100KHz	1MHz	10MHz
6023C-6025C	0.08	0.25	0.80	2.50
6032C-6045C	0.09	0.29	1.00	3.30

COMMUNICATION & CONTROL

MULTIPAIR, INDIVIDUALLY FOIL SHIELDED PVC/PVC POWER-LIMITED TRAY CABLE

UL TYPE CM/PLTC, CSA CMG FT4
300 VOLT

APPLICATIONS

- Instrumentation Systems
- Power-Limited Tray Cables

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

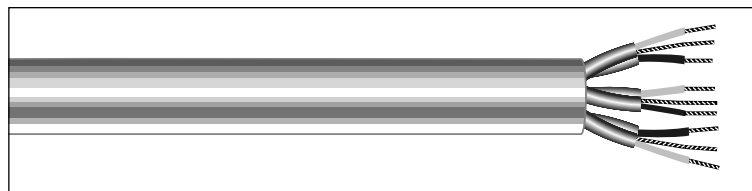
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Black and Red Pairs, Numbered
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Individually Foil Shielded Pairs
- Drain Wire: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Jacket: PVC



22 AWG (0,35mm²), 7/30 (7x0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
6434	2	0.043	1,09	0.315	8,0
6435	3	0.043	1,09	0.331	8,4
6436	4	0.043	1,09	0.360	9,1
6437	6	0.053	1,35	0.437	11,1
6438	9	0.053	1,35	0.500	12,7
6439	11	0.053	1,35	0.551	14,1
6440	19	0.063	1,60	0.686	17,4
6441	51	0.075	1,91	1.050	26,6

18 AWG (0,96mm²), 19/30 (19x0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
6442	2	0.043	1,09	0.380	9,6
6443	3	0.053	1,35	0.423	10,7
6444	4	0.053	1,35	0.486	12,3
6445	6	0.053	1,35	0.538	13,6
6446	9	0.063	1,60	0.650	16,5
6447	11	0.063	1,60	0.727	18,4
6448	15	0.063	1,60	0.806	20,4

SPECIFICATIONS

- UL Type CM/PLTC
- CSA CMG FT4



AVAILABILITY

- 1000 ft (305m), 500 ft (152m) put-ups



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UL TYPE CM
UL AWM STYLE 2464, CSA CMG FT4
300 VOLT

COMMUNICATION & CONTROL

MULTIPAIR, INDIVIDUALLY FOIL SHIELDED

SR-PVC / PVC

APPLICATIONS

- Instrumentation Systems
- Audio Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Black / Red, Green / White
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Individually Foil Shielded Pairs
- Drain Wire: 22 AWG, 7/30 Tinned Copper
- Insulation: Color-Coded Semi-Rigid PVC
- Jacket: PVC



20 AWG (0,56mm²), **7/28** (7x0,32mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR PF / FT	PF / M	CDR to CDR+Shield PF / FT	PF / M
6416	2	0.041	1,04	0.301	7,6	55	180	95	312

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2464
- CSA CMG FT4



LISTED



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AVAILABILITY

- 1000 ft (305m), 500 ft (152m) put-ups

COMMUNICATION & CONTROL

MULTIPAIR, INDIVIDUALLY FOIL SHIELDED

PP/PE, DIRECT BURIAL

350 VOLT

APPLICATIONS

- Direct Burial
- Computer Control / Instrumentation

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

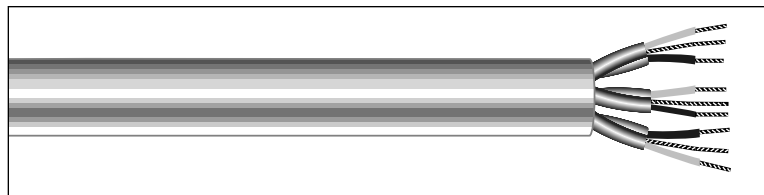
- 350 Volt

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Individually Foil Shielded Pairs
- Drain Wire: 22 AWG, 7/30 Tinned Copper
- Insulation: Color-Coded Polypropylene
- Jacket: High-Density Polyethylene



20 AWG (0,51mm²), **10x30** (10x0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR		CDR to CDR+Shield	
						PF/FT	PF/M	PF/FT	PF/M
6314	3	0.040	1,0	0.309	7,8	30	98	55	180
6315	6	0.045	1,1	0.400	10,2	30	98	55	180

AVAILABILITY

- 1000 ft (305m), 500 ft (152m) put-ups



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UL TYPE CM
UL AWM STYLE 2919
CSA CMH FT1
300 VOLT

COMM. & CONTROL

MULTIPAIR, INDIVIDUALLY FOIL SHIELDED

PE/PVC

APPLICATIONS

- Precision Audio
- Point-Of-Sale Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C — AWM
- 75°C — CM

VOLTAGE RATING:

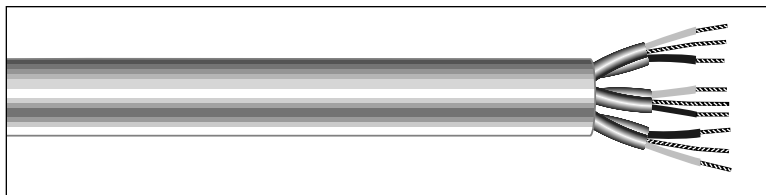
- 300 Volt — CM
- 30 Volt — AWM

COLOR DESCRIPTION:

- Color Code: Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Individually Foil Shielded Pairs
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Insulation: Color-Coded Polyethylene
- Jacket: PVC



24 AWG (0,23mm²), **7/32** (7x0,20mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR		CDR to CDR+Shield	
						PF/FT	PF/M	PF/FT	PF/M
6385	3	0.035	0,89	0.255	6,4	25	82	47	154
6386	6	0.035	0,89	0.330	8,3	25	82	47	154
6387	9	0.035	0,89	0.383	9,7	25	82	47	154
6388	12	0.035	0,89	0.428	10,8	25	82	47	154
6389	25	0.035	0,89	0.636	16,1	25	82	47	154

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SPECIFICATIONS

- UL Type CM
- UL AWM Style 2919
- CSA CMH FT1



AVAILABILITY

- 1000 ft (305m), 500 ft (152m), 100 ft (30,5m) put-ups

COMMUNICATION & CONTROL

MULTIPAIR DATA CABLES, INDIVIDUALLY SHIELDED

PP/PVC & INDIVIDUALLY AND OVERALL SHIELD

UL TYPE CM
UL 2717
CSA CMG FT4
300 VOLT

APPLICATIONS

- Audio, Pulse or RF Signal Transmission
- Computer or Electronic Peripheral Interconnectors
Where High Levels of Noise Interference Are Anticipated
- Banking Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C – AWM
- 75°C – CM

VOLTAGE RATING:

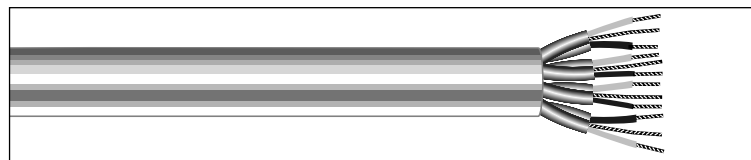
- 400 Volt
- 300 Volt – CM

COLOR DESCRIPTION:

- Color Code: Part No. 2463C, 2466C, 2467C (Red and Black, Green and White, White/Red and White/Black, White/Green and White/Yellow)
Part No. 1243/2C Red/Black, Green/White
- Jacket Color: Gray

PRODUCT DESCRIPTION:

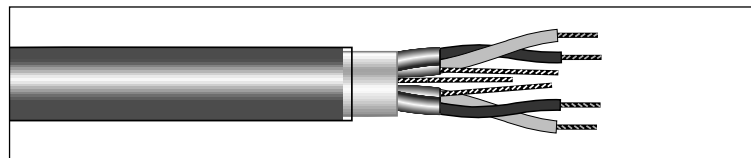
- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded High Density Polypropylene (PP)
- Shield: Aluminum/Polyester
- Drain Wire: Stranded Tinned Copper Each Pair
Part No. 2463C and 2466C Have a Common Drain Wire
- Jacket: PVC



ALPHA PART NO. 2467C



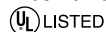
ALPHA PART NO. 2466C



ALPHA PART NO. 1243/2C

SPECIFICATIONS

- UL Type CM
- UL AWM 2717 (Part No. 1243/2C)
- CSA CMG FT4



AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
Contact Alpha for Alpha Qwik-Reel® payout package availability

TYPICAL ELECTRICAL CHARACTERISTICS

Alpha Part No.	Capacitance				Z ₀ , @ 1 MHz, Ohms
	Cdr. To Cdr. pF / ft	Cdr. To Cdr. pF / m	Cdr. To Cdr. & Shield pF / ft	Cdr. To Cdr. & Shield pF / m	
2466C/1243/2C	25	82	51	167	58
2467C	24	72	44	144	66

MULTIPAIR INDIVIDUALLY SHIELDED

Alpha Part No.	AWG	Conductor mm ²	Strand	mm	No. of Pairs	Insul. Thickness Inches	mm	Jacket Thickness Inches	mm	Diameter Inches	mm
2463C	22	0,36	7/30	7 x 0,25	4	0.008	0,20	0.019	0,48	0.23	5,9
2466C	22	0,36	7/30	7 x 0,25	2	0.008	0,20	0.019	0,48	0.16	4,1
2467C	20	0,56	7/28	7 x 0,35	4	0.015	0,38	0.030	0,76	0.34	8,7

TWO PAIR INDIVIDUALLY AND OVERALL SHIELDED

Alpha Part No.	AWG	Conductor	Insulation Thickness	Jacket Thickness	Diameter					
		mm²	Strand	mm	Inches	mm	Inches	mm	Inches	mm
1243/2C	22	0,36	7/30	7 x 0,25	0.008	0,20	0.030	0,76	0.20	5,1



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UL TYPE CM
UL AWM STYLE 2493
CSA CMH FT1
300 VOLT

COMMUNICATION & CONTROL

MULTIPAIR, INDIVIDUALLY SHIELDED WITH OVERALL FOIL/BRAID SHIELD FOAM PE/PVC, LOW CAPACITANCE CABLE

APPLICATIONS

- EIA RS-422 Interface
- CAD/CAM Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C – AWM
- 75°C – CM

VOLTAGE RATING:

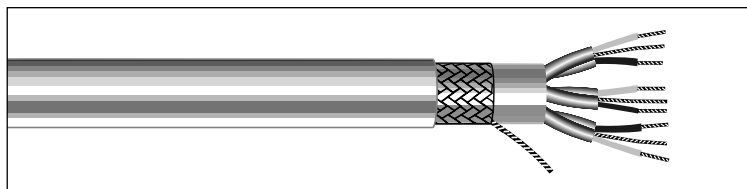
- 300 Volt (UL Type CM)
- UL AWM Style 2493 – Not Specified

COLOR DESCRIPTION:

- Color Code: Chart A Page 374,
except 6319 and 6322 See Color Code Chart Below
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Foam Polyethylene
- Shield: Individually Foil Shielded Pairs
with Overall Foil/Tinned Copper Braid (65% Coverage)
- Drain Wire: 24 AWG, 7/32 Tinned Copper
- Jacket: PVC



24 AWG (0,23mm²), **7/32** (7x0,20mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		Nominal Capacitance			
		Inches	mm	Inches	mm	CDR to CDR PF/FT PF/M	CDR to CDR PF/FT PF/M	CDR+Shield PF/FT PF/M	CDR+Shield PF/FT PF/M
6316	2	0.045	1,14	0.343	8,7	12.5	41	22	72.2
6317	3	0.045	1,14	0.359	9,1	12.5	41	22	72.2
6318	4	0.045	1,14	0.388	9,8	12.5	41	22	72.2
6319	5	0.045	1,14	0.413	10,4	12.5	41	22	72.2
6320	6	0.045	1,14	0.446	11,3	12.5	41	22	72.2
6321	7	0.045	1,14	0.446	11,3	12.5	41	22	72.2
6322	8	0.045	1,14	0.479	12,1	12.5	41	22	72.2
6323	10	0.045	1,14	0.584	14,8	12.5	41	22	72.2
6324	15	0.060	1,52	0.665	16,8	12.5	41	22	72.2
6325	18	0.060	1,52	0.686	17,4	12.5	41	22	72.2
6326	25	0.060	1,52	0.862	20,8	12.5	41	22	72.2

SPECIFICATIONS

- UL Type CM
- UL AWM Style 2493
- CSA CMH FT1



AVAILABILITY

- 1000 ft (305m), 500 ft (152m), 100 ft (30,5m) put-ups

COMMUNICATION & CONTROL

PLENUM-RATED MULTICONDUCTOR, FOIL SHIELD

PLENUM-RATED PVC

UL TYPE CL2P
CSA CMP FT6
150 VOLT

APPLICATIONS

- Remote Control
- Intercom Systems
- Burglar Alarm Systems
- Signaling And Power-Limited Circuits
- Cash Registers
- CRT-To-Control Interface
- Other Low Voltage Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 150 Volt

COLOR DESCRIPTION:

- Color Code: Items Marked With * : Black / Red.
All Other Part No.'s: See Color Code Chart Below
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Shield: Aluminum / Polyester
- Insulation: Color-Coded Plenum-Rated PVC
- Drain Wire: Stranded Tinned Copper
- Jacket: Plenum-Rated PVC

SPECIFICATIONS

- UL Type CL2P
- CSA CMP FT6
- Passes Steiner Tunnel Test

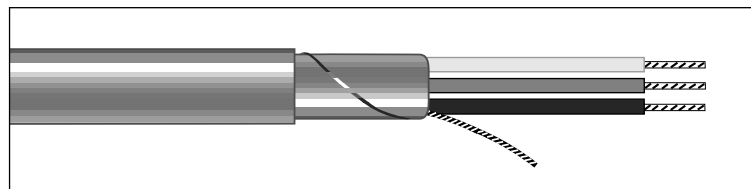
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AVAILABILITY

- 1000 ft (305m), 500 ft (152m)
- ▲ 1000 ft (305m)

COLOR CODE CHART

Cond. No.	Base Color	Cond. No.	Base Color	Stripe
1	Black	13	White	Blue
2	White	14	White	Orange
3	Red	15	White	Green
4	Green	16	White	Brown
5	Brown	17	White	Grey
6	Blue	18	Red	Blue
7	Orange	19	Red	Orange
8	Yellow	20	Red	Green
9	Violet	21	Red	Brown
10	Gray	22	Red	Grey
11	Pink	23	Green	Blue
12	Tan	24	Green	Orange
		25	Green	Brown



24 AWG

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
58401*	2	24	7/32	0.015	0,38	0.102	2,59
57003	3	24	7/32	0.015	0,38	0.121	3,07
57004	4	24	7/32	0.015	0,38	0.131	3,33
57006	6	24	7/32	0.015	0,38	0.147	3,73
57008	8	24	7/32	0.015	0,38	0.164	4,17
57010	10	24	7/32	0.015	0,38	0.180	4,57
57015	15	24	7/32	0.015	0,38	0.212	5,38
▲58110/25	25	24	7/32	0.015	0,38	0.254	6,45

22 AWG

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
58411*	2	22	7/30	0.014	0,36	0.122	3,10
58113	3	22	7/30	0.014	0,36	0.131	3,33
58114	4	22	7/30	0.014	0,36	0.140	3,56
58116	6	22	7/30	0.014	0,36	0.158	4,01
58117	7	22	7/30	0.014	0,36	0.168	4,27
58118	8	22	7/30	0.014	0,36	0.177	4,50
58119	9	22	7/30	0.014	0,36	0.186	4,72
58120	10	22	7/30	0.014	0,36	0.194	4,93
▲58120/12	12	22	7/30	0.014	0,36	0.209	5,31
58120/15	15	22	7/30	0.014	0,36	0.230	5,84
58120/25	25	22	7/30	0.014	0,36	0.287	7,29

20 AWG

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
58421	2	20	7/28	0.014	0,36	0.138	3,51
58124	4	20	7/28	0.014	0,36	0.160	4,06
58126	6	20	7/28	0.014	0,36	0.181	4,60

18 AWG

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
58431	2	18	7/.0152	0.014	0,36	0.158	4,01
58133	3	18	7/.0152	0.014	0,36	0.167	4,24
58134	4	18	7/.0152	0.014	0,36	0.183	4,65
58136	6	18	7/.0152	0.014	0,36	0.210	5,33

16 AWG

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
▲58142	2	16	7/.0192	0.014	0,36	0.186	4,72
58144	4	16	7/.0192	0.014	0,36	0.203	5,16



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UL TYPE CL2P
CSA CMP FT6
150 VOLT

COMMUNICATION & CONTROL

PLENUM-RATED MULTIPAIR, FOIL SHIELD

PLENUM-RATED PVC / PLENUM-RATED PVC

APPLICATIONS

- Remote Control
- Intercom Systems
- Burglar Alarm Systems
- Signaling And Power-Limited Circuits
- Cash Registers
- CRT-To-Control Interface
- Other Low-Voltage Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 150 Volt

COLOR DESCRIPTION:

- Color Code: See Chart Below
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Shield: Aluminum/Polyester
- Insulation: Color-Coded Plenum-Rated PVC
- Drain Wire: Stranded Tinned Copper
- Jacket: Plenum-Rated PVC

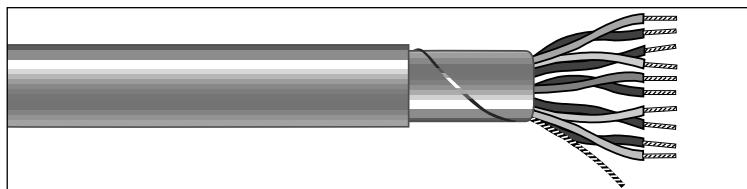
SPECIFICATIONS

- UL Type CL2P
- CSA CMP FT6
- Passes Steiner Tunnel Test



AVAILABILITY

- 1000 ft (305m)



24 AWG

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness		Diameter	
				Inches	mm	Inches	mm
57602	2	24	7/32	0.015	0,38	0.157	3,99
57603	3	24	7/32	0.015	0,38	0.167	4,24
57604	4	24	7/32	0.015	0,38	0.182	4,62
57605	5	24	7/32	0.015	0,38	0.201	5,11
57606	6	24	7/32	0.015	0,38	0.220	5,59

22 AWG

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness		Diameter	
				Inches	mm	Inches	mm
58412	2	22	7/30	0.014	0,36	0.177	4,50
58413	3	22	7/30	0.014	0,36	0.184	4,67
58414	4	22	7/30	0.014	0,36	0.196	4,98
58415	5	22	7/30	0.014	0,36	0.215	5,46
58416	6	22	7/30	0.014	0,36	0.232	5,89
57628	8	22	7/30	0.014	0,36	0.271	6,88
58419	9	22	7/30	0.014	0,36	0.278	7,06
58420/19	19	22	7/30	0.020	0,51	0.398	10,11

20 AWG

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness		Diameter	
				Inches	mm	Inches	mm
57632	2	20	7/28	0.015	0,38	0.196	4,98
57634	4	20	7/28	0.015	0,38	0.230	5,84
57636	6	20	7/28	0.015	0,38	0.279	7,09

COLOR CODE CHART

Pair No.	Combination	Pair No.	Combination
1	Black paired with Red	10	Red paired with Blue
2	Black paired with White	11	Red paired with Yellow
3	Black paired with Green	12	Red paired with Brown
4	Black paired with Blue	13	Red paired with Orange
5	Black paired with Yellow	14	Green paired with White
6	Black paired with Brown	15	Green paired with Blue
7	Black paired with Orange	16	Green paired with Yellow
8	Red paired with White	17	Green paired with Brown
9	Red paired with Green	18	Green paired with Orange
		19	White paired with Blue

COMMUNICATION & CONTROL

PLENUM-RATED MULTIPAIR, SHIELDED (LOW-CAP, MID-CAP)

FEP PLENUM-RATED PVC

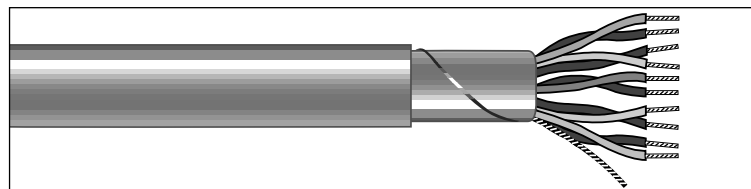
UL TYPE CL2P

CSA CMP FT6

150 VOLT

APPLICATIONS

- Mid-Capacitance Cables
RS-422, RS-423, RS-232 Computer Data Cables
Mainframes To Terminals
CRT-To-Control Interfaces
Other Low Voltage Systems
- Low-Capacitance Cables
RS-422, RS-423, RS-232 Extended Distance Cables
Mainframes To Terminals
CRT-To-Control Interfaces
Other Low Voltage Systems



MID-CAPACITANCE - 24 AWG (0,23mm²)

Alpha Part No.	No. of Pairs	Stranding	Jacket Thickness		Diameter		Nominal Capacitance pF / ft
			Inches	mm	Inches	mm	
58802	2	7/32	0.012	0,30	0.159	4,0	18-20
58803	3	7/32	0.012	0,30	0.169	4,3	18-20
58804	4	7/32	0.012	0,30	0.195	5,0	18-20
▲58806	6	7/32	0.012	0,30	0.222	5,6	18-20
58809†	9	7/32	0.012	0,30	0.261	6,6	18-20
58812†	12½	7/32	0.012	0,30	0.294	7,4	18-20

LOW-CAPACITANCE - 24 AWG (0,23mm²)

Alpha Part No.	No. of Pairs	Stranding	Jacket Thickness		Diameter		Nominal Capacitance pF / ft
			Inches	mm	Inches	mm	
▲58902♦	2	7/32	0.012	0,30	0.210	5,3	12.5-15
58903	3	7/32	0.012	0,30	0.200	5,1	12.5-15
▲58904	4	7/32	0.012	0,30	0.221	5,6	12.5-15
58906	6	7/32	0.012	0,30	0.253	6,4	12.5-15
58909†	9	7/32	0.012	0,30	0.317	8,1	12.5-15
58912†	12½	7/32	0.012	0,30	0.345	8,8	12.5-15

♦ Insulation Thickness .014"

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C
- -55°C to 125°C†

VOLTAGE RATING:

- 150 Volt

COLOR DESCRIPTION:

- Color Code: See Chart Below
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Aluminum/Polyester
- Insulation: Color-Coded FEP
Mid-Capacitance: 0.007" Thickness
Low-Capacitance: 0.012" Thickness
- Drain Wire: Stranded Tinned Copper
- Jacket: Plenum-Rated PVC Except Part No.'s 58809, 58812, 58909, 58912 Which Have A Polyvinylidene Fluoride (PVDF) Jacket

SPECIFICATIONS

- UL Type CL2P
- CSA CMP FT6
- Passes Steiner Tunnel Test



AVAILABILITY

- ▲ 1000 ft (305m), 500 ft (152m)
- 1000 ft (305m)
- 1000 ft put-ups may contain multiple lengths

COLOR CODE CHART

Pair No.	Combination
1	Black paired with Yellow
2	Red paired with Violet
3	Blue paired with Brown
4	Orange paired with Green
5	Black/White paired with White/Black
6	Brown/White paired with White/Brown
7	Red/White paired with White/Red
8	Orange/White paired with White/Orange
9	Yellow/White paired with White/Yellow
10	Green/White paired with White/Green
11	Blue/White paired with White/Blue
12	Violet/White paired with White/Violet
	Single: Green/Yellow



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Web Site: www.alphawire.com
Email: info@alphawire.com

UL TYPE CL2P
CSA CMP FT6
150 VOLT

COMMUNICATION & CONTROL

PLENUM-RATED MULTIPAIR, INDIVIDUALLY FOIL SHIELDED

FEP / PLENUM RATED

APPLICATIONS

- Remote Control
- Intercom Systems
- Burglar Alarm Systems
- Signaling And Power-Limited Circuits
- Cash Registers
- Other Low Voltage Systems

CHARACTERISTICS

OPERATING TEMPERATURE:

- -55°C to 125°C

VOLTAGE RATING:

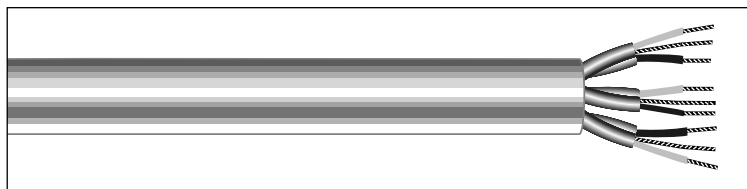
- 150 Volt

COLOR DESCRIPTION:

- Color Code: See Chart Below
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Shield: Individually Foil Shielded Pairs
- Insulation: Color-Coded FEP
- Drain Wire: Stranded Tinned Copper
- Jacket: Polyvinylidene Fluoride (PVDF)



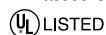
Insulation Thickness: **0.007"** (0,18mm)

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm	Nominal Capacitance pF / ft
▲58602	2	24	7/32	0.012	0,30	0.170	4,3	25.2
58603	3	24	7/32	0.012	0,30	0.180	4,6	25.2
58604	4	24	7/30	0.012	0,30	0.200	5,1	25.2
58612◆	2	22	7/30	0.012	0,30	0.200	5,1	28.6
58613◆	3	22	7/30	0.012	0,30	0.210	5,3	28.6
58616◆	6	22	7/30	0.012	0,30	0.270	6,9	28.6
58632◆	2	18	7/0.0152	0.012	0,30	0.260	6,7	35.5
58633	3	18	7/0.0152	0.012	0,30	0.270	6,9	35.5
58642	2	16	7/0.0192	0.012	0,30	0.300	7,6	38
▲58643	3	16	7/0.0192	0.012	0,30	0.320	8,1	38

◆ These part numbers also have an overall aluminum/polyester shield

SPECIFICATIONS

- UL Type CL2P
- CSA CMP FT6
- Passes Steiner Tunnel Test



AVAILABILITY

- 1000 ft (305m), 500 ft (152m)
 - ▲ 1000 ft (305m)
- 1000 ft put-ups may contain multiple lengths

COLOR CODE CHART

Pair No.	Combination
1	Black paired with Red
2	Black paired with White
3	Black paired with Green
4	Black paired with Blue
5	Black paired with Yellow
6	Black paired with Brown

CHARACTERISTICS:

HI-FI AND STEREO CABLE

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

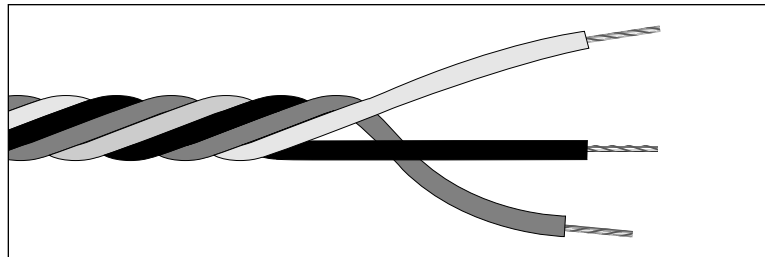
- 200 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC, Conductors Twisted with an Extra Tight Lay

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups



HI-FI AND STEREO CABLE 80°C 200V PVC UNSHIELDED

30 AWG (0,05mm²), **7/38** (7x0,10mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Diameter		Color Code
Inches	mm			
▲ 1115	2	0.06	1,5	Black & Red
▲ 1116	3	0.07	1,8	Black, Red & White

CHARACTERISTICS: SPEAKER CABLE

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper, 24 AWG
- 1 Conductor Tinned Copper and 1 Conductor Bare Copper on 18 AWG

SPECIFICATIONS

- UL SPT-1 (Part Number 1944)

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups

UNSHIELDED

32 AWG (0,034mm²), **7/40** (7x0,08mm²), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Diameter		Color Code
Inches	mm			
▲ 1101	3	0.05	1,3	Black, Red & White
▲ 1102	4	0.06	1,5	Black, Red, White & Green

SPEAKER CABLE 80°C 300V PVC UL SPT-1

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Insulation Thickness		Diameter		Stock Colors
Inches	mm	Inches	mm	Inches	mm			
▲▲ 1944	2	24	7/32	0.016	0,41	0.05x0.12	1,4x3,0	Black

CHARACTERISTICS:

MINIATURE SHIELDED CABLE

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 200 Volt

COLOR DESCRIPTION:

- Jacket Color: Clear

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded PVC
- Shield: Braided Tinned Copper

AVAILABILITY

- 100 ft (30,5m), 500 ft (152m), 1000 ft (305m) put-ups
- ▲ 100 ft (30,5m), 1000 ft (305m) put-ups
- ▲▲ 1000 ft (305m) put-ups

MINIATURE SHIELDED CABLE

28 AWG (0,09mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter		Color Code
		Inches	mm	Inches	mm	
1120	2	0.010	0,25	0.11	2,7	Black & Red
1121	3	0.010	0,25	0.12	2,9	Black, Red & White
1122	4	0.010	0,25	0.13	2,9	Black, Red, White & Green

CHARACTERISTICS:

TELEPHONE STATION CABLE

OPERATING TEMPERATURE:

- -20°C to 75°C — CM
- 60°C — AWM

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: 1-Red, 2-Green, 3-Yellow, 4-Black
- Jacket Color: Beige

PRODUCT DESCRIPTION:

- Conductor: Solid Bare Copper
- Insulation: Color-Coded Polyethylene (PE)

TELEPHONE STATION CABLE 80°C PE/PVC

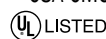
22 AWG Solid, Insulation Thickness: **0.015"** (0,38mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1202	2	0.020	0,50	0.15	3,9
1203	3	0.020	0,50	0.16	4,1
1204	4	0.022	0,55	0.18	4,7

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SPECIFICATIONS

- UL Type CM
- UL AWM 2092, 2093, 2094
- CSA CMG FT4



Passes
UL VW-1 Flame Test



Underwriters Laboratories Inc. Canadian Standards Association

APPLICATIONS:

HEADSET CABLE

- Designed for Two Channel Transmission on Audio-Visual Education, Language Laboratories, Etc.

HEADSET CABLE 80°C 200V PE/PVC

25 AWG (0,18mm²) **7/33** (7x0,18mm), Insulation Thickness: **0.017"** (0,43mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
1985	2	0.020	0,50	0.108x0.215	2,74x5,46

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 200 Volt

COLOR DESCRIPTION:

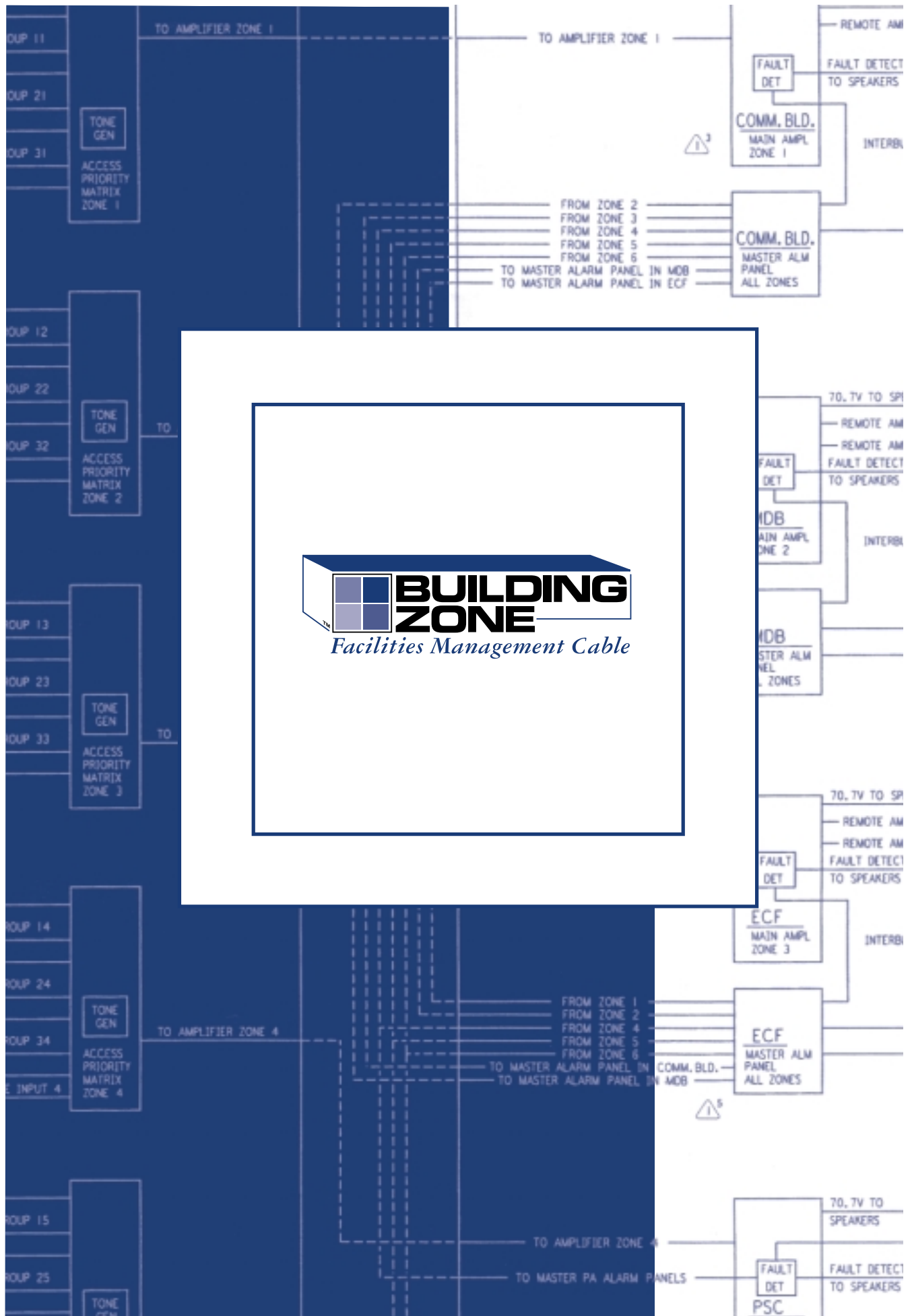
- Color Code: Red, Clear
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Mixture of Tinned Copper and Copper-Clad Steel
- Insulation: Color-Coded Polyethylene (PE)
- Shield: Individually Spiral Wrapped Tinned Copper
- Jacket: PVC

AVAILABILITY

- 1000 ft (305m) put-ups
- Consult Alpha for Alpha Qwik-Reel® payout package availability



BUILDING ZONE Facilities Management Cable offers contractors and installers a reliable, economical and consistent alternative to traditional electronic cables.

BUILDING ZONE

Facilities Management Cables are:

- In-stock and readily available for immediate installation
- Available in the broadest range of constructions consistent with facilities management applications
- Packaged on 1000 ft (305m) spools or in payout boxes to make installation quick and easy
- Sequentially footage marked every two feet on the cable jacket to make measurement easy and eliminate waste
- Designed to economically meet facilities management budget requirements
- Cross-referenced to provide comprehensive product comparisons

APPLICATIONS

- Sound and Audio
- Security
- Fire Alarm
- HVAC
- Intercom
- Public Address Systems
- Simple, Low Voltage Controls
- High EMI/RFI Interference Areas



243

Product Type	Page Number (s)
Multiconductor Cable	
Riser-Rated Unshielded	244
Riser-Rated Foil Shielded	244
Plenum-Rated Unshielded	245
Plenum-Rated Foil Shielded	245
Multipair Cable	
Riser-Rated Unshielded	246
Riser-Rated Foil Shielded	246
Riser-Rated Individually Foil Shielded	246
Plenum-Rated Unshielded	247
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Fire Alarm Cable	
Riser-Rated Unshielded	248
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BUILDING ZONE	
Cross Reference Guide	250-251

BUILDING ZONE FACILITIES MANAGEMENT CABLE

MULTICONDUCTOR, UNSHIELDED & FOIL SHIELDED

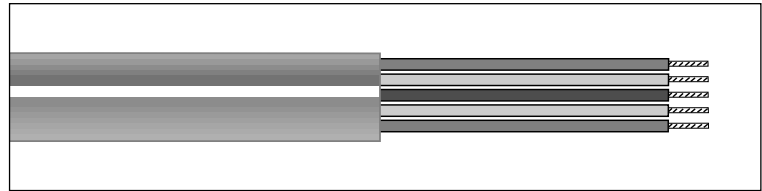
RISER-RATED PVC

300 VOLT

UL TYPES CMR, MPR, CL2R, FPLR

APPLICATIONS

- Security and Alarm Systems
- Intercom/Public Address Systems
- Sound and Audio
- Simple, Low Voltage Controls
- High EMI/RFI Interference Areas (Shielded Cable Only)



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Black, Red, White, Green
- Jacket Color: Gray, Sequentially Footage Marked

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum/Polyester With A Stranded Tinned Copper Drain Wire
- Jacket: PVC

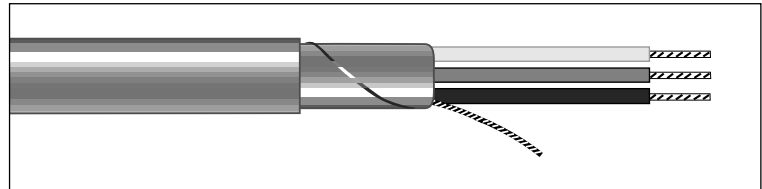
MULTICONDUCTOR, UNSHIELDED RISER

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	mm	Diameter Inches	mm
▲8701R	2	22	7/30	0.018	0,46	0.13	3,30
▲8702R	3	22	7/30	0.018	0,46	0.14	3,56
▲8703R	4	22	7/30	0.018	0,46	0.15	3,81
▲8704R	2	20	7/28	0.018	0,46	0.14	3,56
▲8705R	3	20	7/28	0.018	0,46	0.15	3,81
▲8706R	4	20	7/28	0.018	0,46	0.17	4,32
▲8707R	2	18	7/0.0152	0.018	0,46	0.16	4,06
▲8708R	3	18	7/0.0152	0.018	0,46	0.17	4,32
▲8709R	4	18	7/0.0152	0.018	0,46	0.19	4,83
▲8710R	2	16	7/0.0192	0.018	0,46	0.19	4,83
▲8711R	3	16	7/0.0192	0.018	0,46	0.20	5,08
▲8712R	4	16	7/0.0192	0.018	0,46	0.22	5,59
8713R	2	14	19/0.0147	0.018	0,46	0.23	5,84
8714R	3	14	19/0.0147	0.018	0,46	0.23	5,84
8715R	4	14	19/0.0147	0.018	0,46	0.25	6,35
8716R	2	12	19/0.0185	0.018	0,46	0.27	6,60
8717R	3	12	19/0.0185	0.018	0,46	0.29	7,36

SPECIFICATIONS

- UL Types: CL2R, CMR, FPLR (22 AWG thru 20 AWG)
- UL Types: CMR, MPR, CL2R, FPLR (18 AWG thru 16 AWG)
- UL Types: CL2R, FPLR (14 AWG and 12 AWG)

UL LISTED



AVAILABILITY

- 1000 ft (305m) put-ups
- ▲ Also available in 1000 ft (305m) boxed payout put-ups

MULTICONDUCTOR, FOIL SHIELDED RISER

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	mm	Diameter Inches	mm
▲8718R	2	22	7/30	0.018	0,46	0.13	3,30
▲8719R	3	22	7/30	0.018	0,46	0.14	3,56
▲8720R	2	20	7/28	0.018	0,46	0.15	3,81
▲8721R	3	20	7/28	0.018	0,46	0.15	3,81
▲8722R	2	18	7/0.0152	0.018	0,46	0.16	4,06
▲8723R	3	18	7/0.0152	0.018	0,46	0.18	4,57
▲8724R	4	18	7/0.0152	0.018	0,46	0.18	4,57
▲8725R	2	16	7/0.0192	0.018	0,46	0.19	4,83
▲8726R	3	16	7/0.0192	0.018	0,46	0.20	5,08
8727R	2	14	19/0.0147	0.018	0,46	0.23	5,84
8728R	3	14	19/0.0147	0.018	0,46	0.24	6,10
8729R	2	12	19/0.0185	0.018	0,46	0.27	6,86



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BUILDING ZONE FACILITIES MANAGEMENT CABLE

300 VOLT

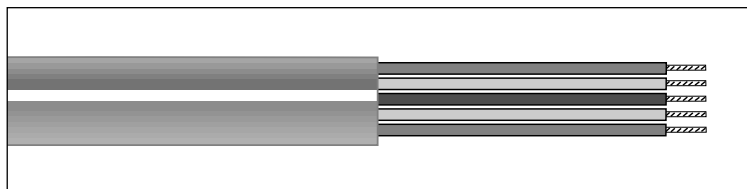
UL TYPES CMP, MPP, CL2P, FPLP

MULTICONDUCTOR, UNSHIELDED & FOIL SHIELDED

PLENUM-RATED PVC

APPLICATIONS

- Security and Alarm Systems
- Intercom/Public Address Systems
- Sound and Audio
- Simple, Low Voltage Controls
- High EMI/RFI Interference Areas (Shielded Cable Only)



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Black, Red, White, Green, Brown, Blue, Orange, Yellow, Purple, Gray
- Jacket Color: White, Sequentially Footage Marked

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum/Polyester With A Stranded Tinned Copper Drain Wire
- Jacket: Plenum-Rated PVC

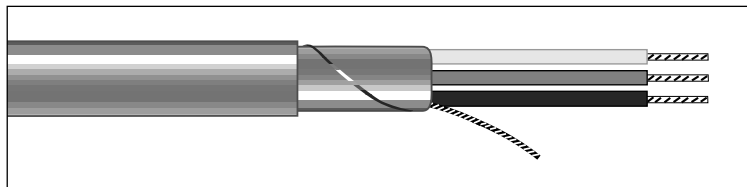
MULTICONDUCTOR, UNSHIELDED PLENUM

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
▲8701P	2	22	7/30	0.014	0,36	0.12	3,05
▲8702P	3	22	7/30	0.014	0,36	0.12	3,05
▲8703P	4	22	7/30	0.014	0,36	0.13	3,30
▲8704P	2	20	7/28	0.014	0,36	0.13	3,30
▲8705P	3	20	7/28	0.014	0,36	0.14	3,56
▲8706P	4	20	7/28	0.014	0,36	0.15	3,81
▲8707P	2	18	7/0.0152	0.014	0,36	0.15	3,81
▲8708P	3	18	7/0.0152	0.014	0,36	0.16	4,06
▲8709P	4	18	7/0.0152	0.014	0,36	0.17	4,32
▲8710P	2	16	7/0.0192	0.014	0,36	0.18	4,57
▲8711P	3	16	7/0.0192	0.014	0,36	0.19	4,83
▲8712P	4	16	7/0.0192	0.014	0,36	0.20	5,08
8713P	2	14	19/0.0147	0.014	0,36	0.20	5,08
8714P	3	14	19/0.0147	0.014	0,36	0.22	5,59
8715P	4	14	19/0.0147	0.014	0,36	0.25	6,35
8716P	2	12	19/0.0185	0.014	0,36	0.25	6,35
8717P	3	12	19/0.0185	0.014	0,36	0.26	6,60

SPECIFICATIONS

- UL Types: CL2P, CMP, FPLP (22 AWG thru 20 AWG)
- UL Types: CMP, MPP, CL2P, FPLP (18 AWG thru 16 AWG)
- UL Types: CL2P, FPLP (14 AWG and 12 AWG)

UL LISTED



AVAILABILITY

- 1000 ft (305m) put-ups
- ▲ Also available in 1000 ft (305m) boxed payout put-ups

MULTICONDUCTOR, FOIL SHIELDED PLENUM

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
▲8718P	2	22	7/30	0.014	0,36	0.12	3,05
▲8719P	3	22	7/30	0.014	0,36	0.13	3,30
▲8720P	4	22	7/30	0.014	0,36	0.14	3,56
▲8721P	6	22	7/30	0.014	0,36	0.17	4,32
▲8722P	8	22	7/30	0.014	0,36	0.18	4,57
▲8723P	10	22	7/30	0.014	0,36	0.20	5,08
▲8724P	2	20	7/28	0.014	0,36	0.13	3,30
▲8725P	3	20	7/28	0.014	0,36	0.14	3,56
▲8726P	4	20	7/28	0.014	0,36	0.16	4,06
▲8727P	2	18	7/0.0152	0.014	0,36	0.15	3,81
▲8728P	3	18	7/0.0152	0.014	0,36	0.16	4,06
▲8729P	4	18	7/0.0152	0.014	0,36	0.18	4,57
▲8730P	2	16	7/0.0192	0.014	0,36	0.18	4,57
▲8731P	3	16	7/0.0192	0.014	0,36	0.19	4,83
8732P	4	16	7/0.0192	0.014	0,36	0.22	5,59
8733P	2	14	19/0.0147	0.014	0,36	0.22	5,59
8734P	3	14	19/0.0147	0.014	0,36	0.23	5,84
8735P	2	12	19/0.0185	0.014	0,36	0.23	5,84

BUILDING ZONE FACILITIES MANAGEMENT CABLE

MULTIPAIR, UNSHIELDED, FOIL SHIELDED & IND. FOIL SHIELDED 300 VOLT
RISER-RATED PVC UL TYPES CMR, MPR, CL2R, FPLR

APPLICATIONS

- Security and Alarm Systems
- Intercom/Public Address Systems
- Sound and Audio
- Simple, Low Voltage Controls
- High EMI/RFI Interference Areas (Shielded Cable Only)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: See Color Code Chart Below
- Jacket Color: Gray, Sequentially Footage Marked

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield: Overall Aluminum/Polyester With A Stranded Tinned Copper Drain Wire
- Individually Shielded: Aluminum/Polyester Each Pair With A Tinned Copper Drain Wire
- Jacket: PVC

SPECIFICATIONS

- UL Types: CL2R, CMR, FPLR (22 AWG thru 20 AWG)
- UL Types: CMR, MPR, CL2R, FPLR (18 AWG)

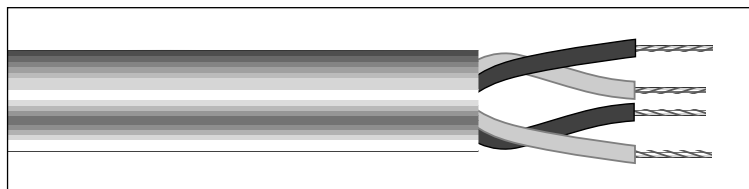
UL LISTED

AVAILABILITY

- 1000 ft (305m) put-ups
- ▲ Also available in 1000 ft (305m) boxed payout put-ups

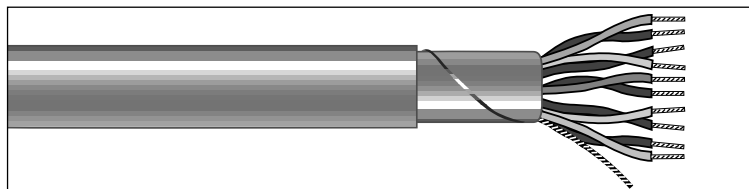
COLOR CODE CHART

Pair No.	Combination	Pair No.	Combination
1	Black paired with Red	4	Black paired with Blue
2	Black paired with White	5	Black paired with Yellow
3	Black paired with Green	6	Black paired with Brown



MULTIPAIR, UNSHIELDED RISER

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness Inches	mm	Diameter Inches	mm
▲8801R	2	22	7/30	0.018	0,46	0.15	3,81
▲8802R	3	22	7/30	0.018	0,46	0.17	4,31
8803R	4	22	7/30	0.018	0,46	0.18	4,57
▲8804R	2	18	7/0.0152	0.018	0,46	0.19	4,83
▲8805R	3	18	7/0.0152	0.018	0,46	0.22	5,58
8806R	4	18	7/0.0152	0.018	0,46	0.24	6,09



MULTIPAIR, FOIL SHIELDED RISER

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness Inches	mm	Diameter Inches	mm
▲8807R	2	22	7/30	0.018	0,46	0.15	3,81
▲8808R	3	22	7/30	0.018	0,46	0.17	4,31
8809R	4	22	7/30	0.018	0,46	0.19	4,83
▲8810R	2	18	7/0.0152	0.018	0,46	0.19	4,83
8811R	3	18	7/0.0152	0.018	0,46	0.22	5,58
8812R	4	18	7/0.0152	0.018	0,46	0.24	6,09



MULTIPAIR, INDIVIDUALLY FOIL SHIELDED RISER

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness Inches	mm	Diameter Inches	mm
8813R	2	22	7/30	0.018	0,46	0.15	3,81
8814R	3	22	7/30	0.018	0,46	0.17	4,31
8815R	4	22	7/30	0.018	0,46	0.19	4,83
8816R	6	22	7/30	0.018	0,46	0.23	5,84
8817R	2	20	7/28	0.018	0,46	0.17	4,31
8818R	3	20	7/28	0.018	0,46	0.20	5,08
8819R	4	20	7/28	0.018	0,46	0.22	5,58
8820R	6	20	7/28	0.018	0,46	0.26	6,60
8821R	2	18	7/0.0152	0.018	0,46	0.19	4,83
8822R	3	18	7/0.0152	0.018	0,46	0.22	5,58
8823R	4	18	7/0.0152	0.018	0,46	0.24	6,09
8824R	6	18	7/0.0152	0.018	0,46	0.29	7,36



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BUILDING ZONE FACILITIES MANAGEMENT CABLE

300 VOLT **MULTIPAIR, UNSHIELDED, FOIL SHIELDED & IND. FOIL SHIELDED**
UL TYPES CMP, MPP, CL2P, FPLP **PLENUM-RATED PVC**

APPLICATIONS

- Security and Alarm Systems
- Intercom/Public Address Systems
- Sound and Audio
- Simple, Low Voltage Controls
- High EMI/RFI Interference Areas (Shielded Cable Only)

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: See Color Code Chart Below
- Jacket Color: White, Sequentially Footage Marked

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield: Overall Aluminum/Polyester With A Stranded Tinned Copper Drain Wire
- Individually Shielded: Aluminum/Polyester Each Pair With A Tinned Copper Drain Wire
- Jacket: Plenum-Rated PVC

SPECIFICATIONS

- UL Types: CL2P, CMP, FPLP (22 AWG)
- UL Types: CMP, MPP, CL2P, FPLP (18 AWG)

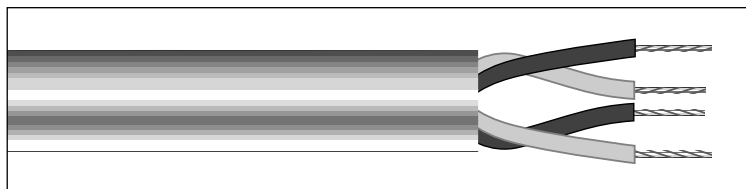
 LISTED

AVAILABILITY

- 1000 ft (305m) put-ups
- ▲ Also available in 1000 ft (305m) boxed payout put-ups

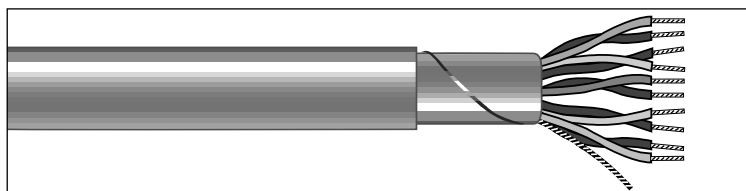
COLOR CODE CHART

Pair No.	Combination	Pair No.	Combination
1	Black paired with Red	4	Black paired with Blue
2	Black paired with White	5	Black paired with Yellow
3	Black paired with Green	6	Black paired with Brown



MULTIPAIR, UNSHIELDED PLENUM

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
▲8801P	2	22	7/30	0.014	0,36	0.14	3,56
▲8802P	3	22	7/30	0.014	0,36	0.16	4,06
8803P	4	22	7/30	0.014	0,36	0.17	4,31
▲8804P	2	18	7/0.0152	0.014	0,36	0.18	4,57
▲8805P	3	18	7/0.0152	0.014	0,36	0.21	5,33
8806P	4	18	7/0.0152	0.014	0,36	0.23	5,84



MULTIPAIR, FOIL SHIELDED PLENUM

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
8807P	2	22	7/30	0.014	0,36	0.14	3,56
▲8808P	3	22	7/30	0.014	0,36	0.17	4,31
8809P	4	22	7/30	0.014	0,36	0.20	5,08
8810P	2	18	7/0.0152	0.014	0,36	0.18	4,57
▲8811P	3	18	7/0.0152	0.014	0,36	0.21	5,33
▲8812P	4	18	7/0.0152	0.014	0,36	0.23	5,84



MULTIPAIR, INDIVIDUALLY FOIL SHIELDED PLENUM

Alpha Part No.	No. of Pairs	Cond. AWG Size	Stranding	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
▲8813P	2	22	7/30	0.014	0,36	0.14	3,56
▲8814P	3	22	7/30	0.014	0,36	0.17	4,31
8815P	6	22	7/30	0.014	0,36	0.22	5,58
8816P	2	18	7/0.0152	0.014	0,36	0.18	4,57
8817P	3	18	7/0.0152	0.014	0,36	0.21	5,33

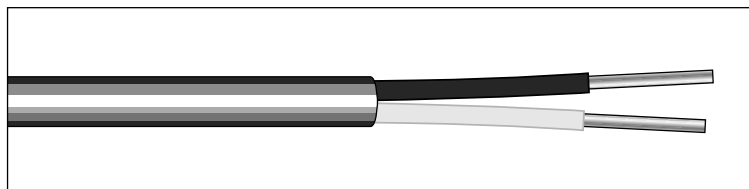
BUILDING ZONE FACILITIES MANAGEMENT CABLE

FIRE ALARM CABLE, UNSHIELDED & FOIL SHIELDED RISER-RATED PVC

300 VOLT
UL TYPE FPLR

APPLICATIONS

- Addressable and Analog Fire Alarm Systems
- Smoke Detectors
- Voice EVAC Systems
- Power Limited Fire-Protective-Signaling Circuit Cable



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

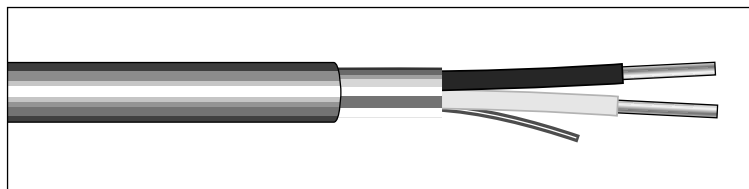
- Color Code: Red, Black, White, Green
- Jacket Color: Red, Sequentially Footage Marked

PRODUCT DESCRIPTION:

- Conductor: Solid Bare Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum/Polyester With A Solid Tinned Copper Drain Wire
- Jacket: PVC

FIRE ALARM, UNSHIELDED RISER

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness		Diameter	
				Inches	mm	Inches	mm
▲8901R	2	18	Solid	0.015	0,38	0.14	3,56
▲8902R	4	18	Solid	0.015	0,38	0.17	4,32
8903R	2	16	Solid	0.015	0,38	0.17	4,32
8904R	4	16	Solid	0.015	0,38	0.20	5,08
8905R	2	14	Solid	0.018	0,46	0.21	5,33
8906R	4	14	Solid	0.018	0,46	0.24	6,09
8907R	2	12	Solid	0.018	0,46	0.24	6,10



SPECIFICATIONS

- UL Type FPLR
- California State Fire Marshall Listed
- UL LISTED

AVAILABILITY

- 1000 ft (305m) put-ups
- ▲ Also available in 1000 ft (305m) boxed payout put-ups

FIRE ALARM, FOIL SHIELDED RISER

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness		Diameter	
				Inches	mm	Inches	mm
▲8908R	2	18	Solid	0.020	0,51	0.17	4,32
8909R	3	18	Solid	0.020	0,51	0.18	4,57
▲8910R	4	18	Solid	0.020	0,51	0.20	5,08
8911R	2	16	Solid	0.020	0,51	0.19	4,83
8912R	4	16	Solid	0.020	0,51	0.22	5,59
8913R	2	14	Solid	0.020	0,51	0.22	5,59
8914R	4	14	Solid	0.020	0,51	0.26	6,60



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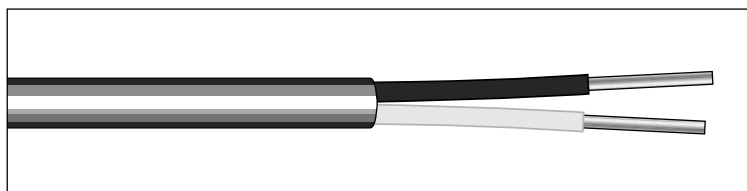
BUILDING ZONE FACILITIES MANAGEMENT CABLE

300 VOLT
UL TYPE FPLP

FIRE ALARM CABLE, UNSHIELDED & FOIL SHIELDED
PLENUM-RATED PVC

APPLICATIONS

- Addressable and Analog Fire Alarm Systems
- Smoke Detectors
- Voice EVAC Systems
- Power Limited Fire-Protective-Signaling Circuit Cable



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

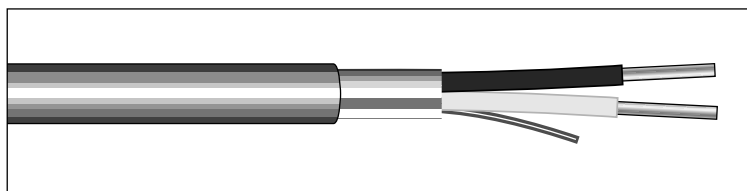
- Color Code: Red, Black, White, Green
- Jacket Color: Red, Sequentially Footage Marked

PRODUCT DESCRIPTION:

- Conductor: Solid Bare Copper
- Insulation: Color-Coded PVC
- Shield: Aluminum/Polyester With A Solid Tinned Copper Drain Wire
- Jacket: Plenum-Rated PVC

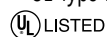
FIRE ALARM, UNSHIELDED PLENUM

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness		Diameter	
				Inches	mm	Inches	mm
▲8901P	2	18	Solid	0.014	0,36	0.14	3,56
▲8902P	4	18	Solid	0.014	0,36	0.18	4,57
8903P	2	16	Solid	0.014	0,36	0.16	4,06
8904P	4	16	Solid	0.014	0,36	0.19	4,83
8905P	2	14	Solid	0.014	0,36	0.19	4,83
8906P	4	14	Solid	0.014	0,36	0.23	5,84
8907P	2	12	Solid	0.014	0,36	0.23	5,84



SPECIFICATIONS

- UL Type FPLP



AVAILABILITY

- 1000 ft (305m) put-ups
- ▲ Also available in 1000 ft (305m) boxed payout put-ups

FIRE ALARM, FOIL SHIELDED PLENUM

Alpha Part No.	No. of Cond.	Cond. AWG Size	Stranding	Jacket Thickness		Diameter	
				Inches	mm	Inches	mm
▲8908P	2	18	Solid	0.014	0,36	0.14	3,56
8909P	3	18	Solid	0.014	0,36	0.15	3,81
▲8910P	4	18	Solid	0.014	0,36	0.18	4,57
8911P	2	16	Solid	0.014	0,36	0.16	4,06
8912P	4	16	Solid	0.014	0,36	0.19	4,83
8913P	2	14	Solid	0.014	0,36	0.18	4,57
8914P	4	14	Solid	0.014	0,36	0.24	6,09

BUILDING ZONE FACILITIES MANAGEMENT CABLE

BUILDING ZONE CROSS REFERENCE

This Cross Reference Guide represents those Alpha Wire products which are functionally equivalent.
Constructional and color code differences are not always indicated. Refer to the Alpha Wire Master Catalog for a detailed product description.

ALPHA WIRE	PAGE NO.	BELDEN	MANHATTAN	WEST PENN	SIGNAL	GENERAL CABLE	COMTRAN	QUABBIN
8701R	244	5500UE	M213302	221	51101	E1002S		6500
8702R	244	5501UE	M213303	231	51107	E1003S		
8703R	244	5502UE	M213304	241	51112	E1004S		6520
8704R	244	5400UE	M213402	222		E1022S		
8705R	244	5401UE	M213403	232	51108	E1023S		
8706R	244	5402UE	M213404	242				
8707R	244	5300UE	M213502	224	51104	E1032S		
8708R	244	5301UE	M213503	234	51109	E1033S		
8709R	244	5302UE	M213504	244	51114	E1034S		
8710R	244	5200UE	M213572	225	51105	E1042S		
8711R	244	5201UE	M213573	235	51139			
8712R	244	5202UE	M213574	245	51115	E1044S		
8713R	244	5100UE		226	51140	E1052S		
8714R	244	5101UE		236	51141			
8715R	244	5102UE		246	51174			
8716R	244	5000UE		227	51142	E1062S		
8717R	244	5001UE		238	51143			
8718R	244	5500FE	M113226	291	95211	E2002S		6505
8719R	244	5501FE	M113227	301	95216	E2003S		
8720R	244	5400FE	M113232	292	95213	E2022S		
8721R	244	5401FE	M113233	302	95217	E2023S		
8722R	244	5300FE	M113242	293	95214	E2032S		
8723R	244	5301FE	M113243	303	95218	E2033S		
8724R	244	5302FE	M113244	3244	67003	E2034S		
8725R	244	5200FE	M113247	294	95215	E2042S		
8726R	244	5201FE	M113248	304	95219			
8727R	244	5100FE	M113249	295	95253	E2052S		
8728R	244	5101FE		305	95255			
8729R	244	5000FE		296		E2062S		
8701P	245	6500UE	M244420	25221B	72302	E3002S		
8702P	245	6501UE	M244421	50231	72303	E3003S		
8703P	245	6502UE	M244422	25241B	72304	E3004S		
8704P	245	6400UE	M244430	25222B	71302			
8705P	245	6401UE	M244431	50232				
8706P	245	6402UE	M244432	25242B	71304			
8707P	245	6300UE	M244440	25224B	71902	E3032S		
8708P	245	6301UE	M244441	25234B	71903	E3033S		
8709P	245	6302UE	M244442	25244B	71904	E3034S		
8710P	245	6200UE	M244449	25225B	71702			
8711P	245	6201UE	M244450		71703			
8712P	245	6202UE	M244451		71704			
8713P	245	6100UE		25226B	71502			
8714P	245	6101UE						
8715P	245	6102UE			71504			
8716P	245	6000UE		25227B	71301			
8717P	245	6001UE		25238				
8718P	245	6500FE	M244800		75302			
8719P	245	6501FE	M244801	25301B	75303	E2103S		
8720P	245	6502FE	M244802	253241B	75304	E2104S		
8721P	245	6504FE	M244804	253270B	75306			
8722P	245	6506FE	M244806	253271B	75308			
8723P	245	6508FE	M244808		75310			
8724P	245	6400FE	M244816		75102			
8725P	245	6401FE	M244817					
8726P	245	6402FE	M244818		75104			
8727P	245	6300FE	M244825		75902	E2202S		
8728P	245	6301FE	M244826	50303	75903	E2203S		
8729P	245	6302FE	M244827	253244B	75904	E2204S		
8730P	245	6200FE	M244834		75702			
8731P	245	6201FE	M244835					
8732P	245	6202FE	M244836		75704			
8733P	245	6100FE			75502			
8734P	245	6101FE						
8735P	245	6000FE						
8801R	246	5541UE	M2210	651	89301			
8802R	246	5542UE	M2211	652	89304			
8803R	246		M2212					



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BUILDING ZONE FACILITIES MANAGEMENT CABLE

BUILDING ZONE CROSS REFERENCE

This Cross Reference Guide represents those Alpha Wire products which are functionally equivalent.
Constructional and color code differences are not always indicated. Refer to the Alpha Wire Master Catalog for a detailed product description.

ALPHA WIRE	PAGE NO.	BELDEN	MANHATTAN	WEST PENN	SIGNAL	GENERAL CABLE	COMTRAN	QUABBIN
8804R	246	5341UE	M2215	751				
8805R	246	5342UE	M2216	752	89322			
8806R	246	5343UE	M2217	753				
8807R	246	5541FE	M213222	3651	88101			0240
8808R	246	5542FE	M213223	3652	88103			0245
8809R	246		M213224		88104			0250
8810R	246	5341FE	M213182	3751	88110			0290
8811R	246	5342FE	M213183	3752	88113			0295
8812R	246	5343FE	M213184	3753				
8813R	246		M213102					7395
8814R	246		M213103					7400
8815R	246		M213104					
8816R	246		M213106					
8817R	246		M213142					6151
8818R	246		M213143					6155
8819R	246		M213144					
8820R	246		M213146					6160
8821R	246		M213172					
8822R	246		M213173					4185
8823R	246		M213174					
8824R	246		M213176					4190
8801P	247	6541UE	M243150					
8802P	247	6542UE	M243151					
8803P	247		M243152					
8804P	247	6341UE	M243190					
8805P	247	6342UE	M243191					
8806P	247	6343UE	M243192					
8807P	247	6541FE	M243450					
8808P	247	6542FE	M243451					
8809P	247		M243452					
8810P	247		M243490					
8811P	247	6342FE	M243491					
8812P	247	6343FE	M243492					
8813P	247	6541PA	M243473	D25430				
8814P	247	6542PA	M243103	D25431				
8815P	247		M243106					
8816P	247		M243172					
8817P	247		M243173					
8901R	248	5320UL	M39067			E1502S		4210
8902R	248	5322UL	M39090	982	98804	E1504S	4186	4235
8903R	248	5220UL	M39068			E1512S	4234	3145
8904R	248	5222UL	M39093	992	98604	E1514S	4236	
8905R	248	5120UL	M39069		98420	E1522S	4240	2125
8906R	248	5122UL	M39098		98404	E1524S	4241	
8907R	248	5020UL	M39070	998	98200	E1532S	4511	1110
8908R	248	5320FL	M39124	975	98300	E2502S	4228	4215
8909R	248		M39223				4230	
8910R	248	5322FL	M39125	977	98831	E2504S	4237	4220
8911R	248	5220FL	M39126		98630	E2522S	4239	3150
8912R	248	5222FL	M39127	993	98631	E2524S	4242	3155
8913R	248	5120FL	M39128		98430	E2532S	4244	2130
8914R	248	5122FL	M39193			E2534S	4514	
8901P	249	6320UL	M244690		81802	E3502S	4898	
8902P	249	6322UL	M244692		81804			
8903P	249	6220UL	M244710	60991B	81602		4893	
8904P	249	6222UL	M244712		81604		4895	
8905P	249	6120UL	M244716	60993B	81402		4883	
8906P	249	6122UL	M244718		81404		4885	
8907P	249	6020UL	M244719		81202		4977	
8908P	249	6320FL	M244890		85802	E3602S	4914	
8909P	249		M244891		85803		4916	
8910P	249	6322FL	M244892		85804	E3604S	4909	
8911P	249	6220FL	M244910	60990B	85602	E3612S	4911	
8912P	249	6222FL	M244912		85604	E3614S	4888	
8913P	249	6120FL	M244916		85402	E3622S	4890	
8914P	249	6122FL	M244918		85404		4982	



LOCAL AREA NETWORK

MEETING THE HIGHEST TRANSMISSION STANDARDS

Local Area Networks can be constructed with a variety of media cables including coaxial, multiconductor, multipair and fiber optic configurations. Alpha Local Area Network cables meet the highest transmission standards for a multitude of networking applications. Alpha data cables can be used for RS-232, 422, 423, 449, IEEE-488, TIA/EIA 568-A, and other standard interfaces.

DATA CABLES

Alpha Wire data cables are used extensively in data processing systems, process control monitoring, point-of-sale equipment and local area networking. The products are designed for both new data installations or system expansion.

Expect excellent quality, exceptional customer service, the packaging you require and “on-the-shelf”, ready-to-ship inventory on Alpha Local Area Network products.

ALPHA WIRE COMPANY NOW STOCKS CATEGORY 5 AND CATEGORY 5e DATA COMM CABLES!

Alpha Wire Category 5 and 5e cables are ideally suited for the challenges facing users regarding cable performance and management. The products are designed to provide years of service life and prevent retrofitting after only a short installation period. Alpha Wire's Category 5 and 5e is ideal for ATM 155 Mbps, Fast Ethernet, Token Ring or TP-PMD applications.

Product Type	Page Number (s)
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Twinaxial and Two Pair Data Cable	262-264
Ethernet Coaxial Cables	265-267
Unshielded Twisted Pair (UTP)	268
Shielded Twisted Pair (STP)	269-270
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LOCAL AREA NETWORK

MATERIALS ABBREVIATIONS GUIDE

INNER CONDUCTORS

ABBREVIATION	CONSTRUCTION
BC	Bare Copper
CCS	Copper Clad Steel
CW	Copper Coated Steel
SC	Silver-Coated Copper
SCA	Silver-Coated Alloy
SCCS	Silver-Coated Copper Clad Steel
TC	Tinned Copper

OUTER SHIELD CONDUCTORS

ABBREVIATION	CONSTRUCTION
A/P	Aluminum/Polyester Tape
A/P/A	Aluminum/Polyester/Aluminum
BC	Bare Copper Braid
SC	Silver-Coated Copper Braid
TC	Tinned Copper Braid

INSULATION & JACKET MATERIALS (NON-PLENUM)

ABBREVIATION	CONSTRUCTION
FHPE	Cellular (Foam) High Density Polyethylene
FP	Fluoropolymer
FPE	Cellular (Foam) Polyethylene
FPP	Cellular (Foam) Polypropylene
FPVC	Flexible Polyvinylchloride
HDPE	High Density Polyethylene
LDPE	Low Density Polyethylene
MDPE	Medium Density Polyethylene
P	Polyolefin
PE	Polyethylene
PP	Polypropylene
PU	Polyurethane
PVC	Polyvinylchloride
PVC-NC	Non-Contaminating Polyvinylchloride
SR-PVC	Semi-Rigid Polyvinylchloride
SSP	Semi-Solid Polyethylene

INSULATION & JACKET MATERIALS (PLENUM)

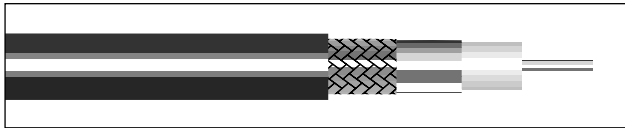
ABBREVIATION	CONSTRUCTION
ECTFE	Ethylene-Chlorotrifluoroethylene
ETFE	Ethylene-Tetrafluoroethylene
FCP	Fluorocopolymer
FEP	Fluorinated Ethylene Propylene
PA	Polymer Alloy PVC (Plenum)
PCTFE	Polychlorotrifluoroethylene
PFA	Perfluoroalkoxy
PLM-PVC	Plenum-Rated PVC
PTFE	Polytetrafluoroethylene
PTP	Plenum Rated Thermoplastic
PVDF	Polyvinylidene Fluoride
TFE	Tetrafluoroethylene



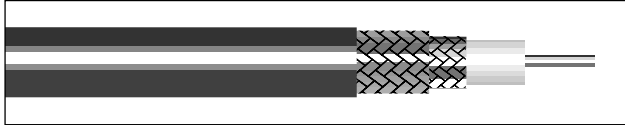
LOCAL AREA NETWORK

COAXIAL CABLES

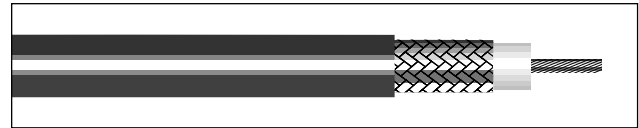
NON-PLENUM



Alpha Part No.	RG Type	Ohms	Rating
9804C	6/U Type	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9006A	6 A/U	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9008	8/U	52	Non-Plenum
9008A	8/U	52	Non-Plenum

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PRODUCT DESCRIPTION

Alpha Part No.	Description	AWG Stranding Material* DCR Ohms / 1000' (/ Km)	Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9804C TYPE CL2 – 150V / 60°C UL AWM 1354 – 30V / 60°C	RG Type: 6/U Type Ohms: 75 Non-Plenum	18 Solid BC 6.6 (21,7)	FPE 0.180 (4,5)	A/P + 60% TC Braid 5.1 (16,7)	Black PVC 0.270 (6,8)	78	17.3 (56,8)	0.3 (1,0) @ 1.00 0.6 (2,0) @ 10.0 1.5 (4,9) @ 50.0 2.1 (6,9) @ 100.0 3.8 (12,4) @ 200.0 4.4 (14,4) @ 400.0
9006A 60°C	RG Type: 6 A/U Ohms: 75 Non-Plenum	21 Solid CW 44 (144,4)	PE 0.184 (4,7)	Inner: 96% SC + Outer: 96% BC 1.1 (3,6)	Black PVC-NC Type II 0.336 (8,5)	66	20.2 (66,6)	0.4 (1,3) @ 1.0 0.8 (2,6) @ 10.0 1.4 (4,6) @ 50.0 2.9 (9,5) @ 100.0 4.1 (13,5) @ 200.0 6.4 (20,9) @ 400.0
9008 60°C	RG Type: 8/U Ohms: 52 Non-Plenum	13 7/21 BC 1.9 (6,2)	Solid PE 0.285 (7,2)	96% BC Braid 1.2 (3,9)	Black PVC 0.405 (10,2)	66	29.5 (96,8)	0.2 (0,7) @ 1.00 0.6 (2,1) @ 10.0 1.5 (4,9) @ 50.0 2.2 (7,2) @ 100.0 2.9 (9,5) @ 200.0 4.6 (15,1) @ 400.0
9008A 60°C	RG Type: 8/U Ohms: 52 Non-Plenum	13 7/21 BC 1.9 (6,2)	Solid PE 0.285 (7,2)	96% BC Braid 1.2 (3,9)	Black PVC-NC Type II 0.405 (10,2)	66	29.5 (96,8)	0.2 (0,7) @ 1.00 0.6 (2,1) @ 10.0 1.5 (4,9) @ 50.0 2.2 (7,2) @ 100.0 2.9 (9,5) @ 200.0 4.6 (15,1) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

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AVAILABILITY

■ See Page 275 for available put-ups

LOCAL AREA NETWORK

COAXIAL CABLES

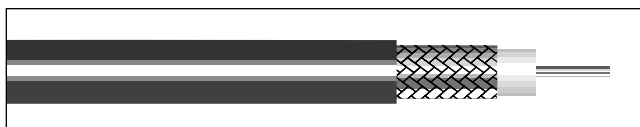
NON-PLENUM



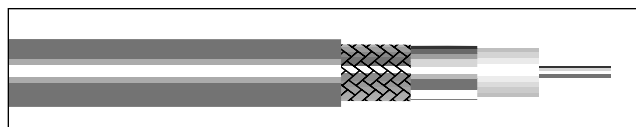
Alpha Part No.	RG Type	Ohms	Rating
9011	11 /U Type	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9011A	11 A /U	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9847	11 /U Type	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9825C	11 A /U	75	Non-Plenum
• ALLEN-BRADLEY DATA HIGHWAY II TYPE •			

PRODUCT DESCRIPTION

Alpha Part No.	Description	AWG Stranding Material* DCR Ohms / 1000' (/ Km)	Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9011 60°C	RG Type: 11/U Type Ohms: 75 Non-Plenum	18 7/26 TC 6.6 (21,7)	Solid PE 0.285 (7,2)	96% BC Braid 2.0 (6,6)	Black PVC 0.405 (10,2)	66	20.6 (67,6)	0.2 (0,7) @ 1.00 0.6 (2,1) @ 10.0 1.5 (4,9) @ 50.0 2.2 (7,2) @ 100.0 3.1 (10,2) @ 200.0 4.6 (15,1) @ 400.0
9847 60°C	RG Type: 11/U Type Ohms: 75 Non-Plenum	14 Solid BC 2.7 (8,9)	FPE 0.285 (7,2)	81% BC Braid 3.4 (11,2)	Black PE 0.405 (10,2)	78	17.3 (56,8)	0.2 (0,7) @ 1.00 0.4 (1,3) @ 10.0 1.0 (3,3) @ 50.0 1.5 (4,9) @ 100.0 2.3 (7,5) @ 200.0 3.3 (10,8) @ 400.0
9011A 60°C	RG Type: 11 A/U Ohms: 75 Non-Plenum	18 7/26 TC 6.5 (21,3)	Solid PE 0.285 (7,2)	96% BC Braid 1.3 (4,3)	Black PVC-NC Type II 0.405 (10,2)	66	20.6 (67,6)	0.2 (0,7) @ 1.00 0.6 (2,1) @ 10.0 1.5 (4,9) @ 50.0 2.2 (7,2) @ 100.0 3.1 (10,2) @ 200.0 4.6 (15,1) @ 400.0
9825C Type CL2 – 150V / 75°C UL AWM 1478 – 30V / 60°C	RG Type: 11 U Ohms: 75 Non-Plenum	14 Solid BC 2.5 (8,2)	FPE 0.285 (7,2)	A/P/A + 95% TC Braid 1.5 (4,9)	Blue PVC 0.400 (10,1)	78	17.9 (59,0)	0.3 (0,9) @ 5.0
ALLEN-BRADLEY DATA HIGHWAY II TYPE								

*Refer to Materials Abbreviation Guide on Page 254

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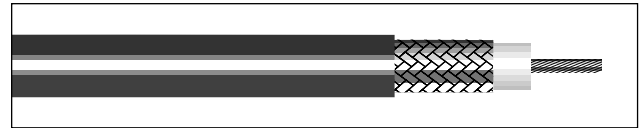
NON-PLENUM



Alpha Part No.	RG Type	Ohms	Rating
9058X	58 / U Type	53	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9058AC	58 A / U	50	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9058C	58 C / U Type	50	Non-Plenum
9858	58 C / U Type	50	Non-Plenum

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PRODUCT DESCRIPTION

Alpha Part No.	Description	AWG Stranding Material* DCR Ohms / 1000' (/ Km)	Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9058X NEC CL2 – 150V / 60°C UL AWM 1354 – 30V / 60°C	RG Type: 58 / U Type Ohms: 53 Non-Plenum	20 Solid BC 10.2 (33,5)	Solid PE 0.116 (2,9)	95% TC Braid 6.0 (19,7)	Black PVC 0.195 (4,9)	66	28.8 (94,5)	0.4 (1,3) @ 1.00 1.2 (3,9) @ 10.0 3.1 (10,2) @ 50.0 4.6 (15,1) @ 100.0 6.8 (22,3) @ 200.0 10.0 (32,8) @ 400.0
9058AC NEC CL2 – 150V / 60°C	RG Type: 58 A / U Ohms: 50 Non-Plenum	20 19/0.0071 TC 10.2 (33,5)	Solid PE 0.116 (2,9)	95% TC Braid 4.2 (13,8)	Black PVC 0.195 (4,9)	66	30.5 (100,0)	0.4 (1,3) @ 1.00 1.4 (4,6) @ 10.0 3.3 (10,8) @ 50.0 4.9 (16,1) @ 100.0 7.4 (24,3) @ 200.0 11.0 (36,0) @ 400.0
9058C 60°C	RG Type: 58 C / U Ohms: 50 Non-Plenum	20 19/0.0071 TC 10.9 (35,8)	Solid PE 0.116 (2,9)	95% TC Braid 4.1 (13,5)	Black PVC-NC Type II 0.195 (4,9)	66	30.5 (100,0)	0.4 (1,3) @ 1.00 1.4 (4,6) @ 10.0 3.3 (10,8) @ 50.0 4.9 (16,1) @ 100.0 7.4 (24,3) @ 200.0 11.0 (36,0) @ 400.0
9858 UL AWM 1354 – 30V / 60°C	RG Type: 58 C / U Type Ohms: 50 Non-Plenum	20 19/0.0071 TC 10.2 (33,5)	Solid PE 0.116 (2,9)	95% TC Braid 5.9 (19,4)	Black PVC 0.193 (4,9)	66	30.8 (101,0)	0.4 (1,4) @ 1.00 1.4 (4,5) @ 10.0 3.3 (10,8) @ 50.0 4.9 (16,1) @ 100.0 7.3 (23,9) @ 200.0 11.5 (37,7) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

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AVAILABILITY

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LOCAL AREA NETWORK

COAXIAL CABLES

NON-PLENUM



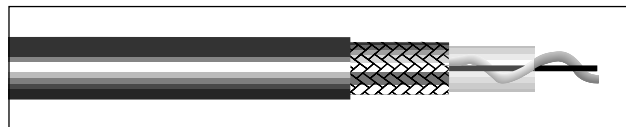
Alpha Part No.	RG Type	Ohms	Rating
9059C	59/U	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9059B	59 B/U	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9803C	59/U Type	75	Non-Plenum



Alpha Part No.	RG Type	Ohms	Rating
9062AC	62 A/U	93	Non-Plenum

PRODUCT DESCRIPTION

Alpha Part No.	Description	AWG Stranding Material* DCR Ohms / 1000' (/ Km)	Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9059C Type CL2 – 150V / 60°C UL AWM 1354 – 30V / 60°C	RG Type: 59/U Ohms: 75 Non-Plenum	22 Solid CW 55 (180,5)	Solid PE 0.146 (3,7)	95% BC Braid 2.8 (9,2)	Black PVC (White, Red, Green, Blue, Gray, Yellow – 1000' only) 0.242 (6,1)	66	21.4 (70,2)	0.6 (2,0) @ 1.00 1.1 (3,6) @ 10.0 2.3 (7,5) @ 50.0 3.3 (10,8) @ 100.0 4.9 (16,1) @ 200.0 6.7 (21,9) @ 400.0
9803C Type CL2 – 150V / 60°C UL AWM 1354 – 30V / 60°C	RG Type: 59/U Type Ohms: 75 Non-Plenum	22 7/30 BC 15.5 (50,8)	FPP 0.146 (3,7)	95% BC Braid 2.6 (8,5)	Black PVC 0.242 (6,1)	78	17.3 (56,8)	0.3 (1,0) @ 1.00 0.9 (3,1) @ 10.0 2.1 (6,9) @ 50.0 2.9 (9,5) @ 100.0 4.5 (14,8) @ 200.0 6.6 (21,6) @ 400.0
9059B 60°C	RG Type: 59 B/U Ohms: 75 Non-Plenum	23 Solid CW 52 (170,6)	Solid PE 0.146 (3,7)	95% BC Braid 2.6 (8,5)	Black PVC-NC Type II 0.242 (6,1)	66	20.1 (65,9)	0.6 (2,0) @ 1.00 1.0 (3,6) @ 10.0 2.3 (7,5) @ 50.0 3.3 (10,8) @ 100.0 4.9 (16,1) @ 200.0 6.7 (21,9) @ 400.0
9062AC Type CL2 – 150V / 60°C UL AWM 1478 – 30V / 60°C	RG Type: 62 A/U Ohms: 93 Non-Plenum	22 Solid CW 43 (141,1)	SSP 0.146 (3,7)	95% BC Braid 2.7 (8,9)	Black PVC (White, Red, Green, Yellow, Blue, Orange, Gray – 1000' only) 0.242 (6,1)	84	13.2 (43,3)	0.3 (1,0) @ 1.00 0.9 (3,0) @ 10.0 1.9 (6,2) @ 50.0 2.8 (9,2) @ 100.0 3.8 (12,5) @ 200.0 8.5 (27,9) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

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AVAILABILITY

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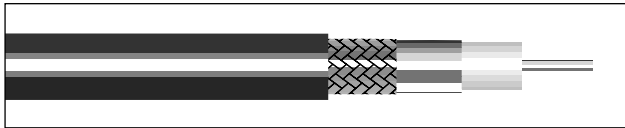
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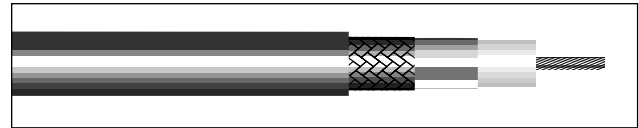
LOCAL AREA NETWORK

COAXIAL CABLES

PLENUM



Alpha Part No.	RG Type	Ohms	Rating
9104	6/U Type	75	Plenum
9104-EL	6/U Type	75	Plenum



Alpha Part No.	RG Type	Ohms	Rating
9859	58 C/U Type	50	Plenum
9859-EL	58 C/U Type	50	Plenum

PRODUCT DESCRIPTION

Alpha Part No.	Description	AWG Stranding Material* DCR Ohms / 1000' (/Km)	Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9104 Type CL2P – 150V / 125°C CSA CMP FT6	RG Type: 6/U Type Ohms: 75 Plenum	18 Solid CW 6.4 (21,0)	Foam FEP 0.180 (4,6)	A/P + 95% TC Braid 4.3 (14,1)	Black FP 0.245 (6,2)	82	18.3 (60,0)	0.3 (1,0) @ 1.00 0.6 (2,0) @ 10.0 1.4 (4,6) @ 50.0 2.0 (6,7) @ 100.0 3.1 (10,2) @ 200.0 4.2 (13,9) @ 400.0
9104-EL Type CL2P – 150V / 75°C CSA CMP FT6	RG Type: 6/U Type Ohms: 75 Plenum	18 Solid CW 6.4 (21,0)	Foam FEP 0.180 (4,6)	A/P + 95% TC Braid 4.3 (14,1)	PLM-PVC 0.226	82	18.3 (60,0)	0.3 (1,0) @ 1.00 0.6 (2,0) @ 10.0 1.4 (4,6) @ 50.0 2.0 (6,7) @ 100.0 3.1 (10,2) @ 200.0 4.2 (13,9) @ 400.0
9859 Type CL2P CSA CMP FT6 IEEE 802.3 10-BASE-2 150V / 125°C	RG Type: 58 C/U Type Ohms: 50 Plenum	20 19/0.0071 TC 10.2 (33,5)	Foam FEP Teflon®* 0.102 (2,59)	A/P/A + 95% TC Braid 5.0 (16,4)	Gray FP 0.161 (4,08)	78	26 (85,3)	0.49 (1,6) @ 1.00 1.7 (5,6) @ 10.0 3.5 (11,5) @ 50.0 4.7 (15,4) @ 100.0 6.7 (22,0) @ 200.0 9.4 (30,8) @ 400.0
9859-EL Type CL2P CSA CMP FT6 IEEE 802.3 10-BASE-2 150V / 75°C	RG Type: 58 C/U Type Ohms: 50 Plenum	20 19/0.0071 TC 10.2 (33,5)	Foam FEP Teflon®* 0.102 (2,59)	A/P/A + 95% TC Braid 5.0 (16,4)	Natural 0.158 PLM-PVC	78	26 (85,3)	0.49 (1,6) @ 1.00 1.7 (5,6) @ 10.0 3.5 (11,5) @ 50.0 4.7 (15,4) @ 100.0 6.7 (22,0) @ 200.0 9.4 (30,8) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

*Registered trademark of E.I. DuPont Co.

SPECIFICATIONS



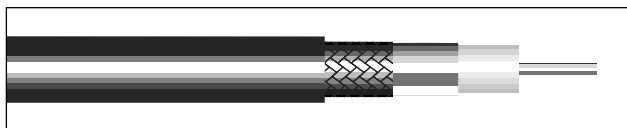
AVAILABILITY

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LOCAL AREA NETWORK

COAXIAL CABLES

PLENUM



Alpha Part No.	RG Type	Ohms	Rating
9102	59/U Type	75	Plenum
9102-EL	59/U Type	75	Plenum



Alpha Part No.	RG Type	Ohms	Rating
9159	59 B/U Type	75	Plenum

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PRODUCT DESCRIPTION

Alpha Part No.	Description	AWG Stranding Material* DCR Ohms / 1000' (/ Km)	Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9102 Type CL2P – 150V / 125°C CSA CMP FT6	RG Type: 59/U Type Ohms: 75 Plenum	20 Solid CW 35.1 (115,0)	Foam FEP 0.146 (3,7)	A/P/A + 95% TC Braid 4.7 (15,4)	Black FP 0.212 (5,4)	82	16.8 (55,1)	0.4 (1,3) @ 1.00 0.8 (2,6) @ 10.0 1.8 (5,9) @ 50.0 2.5 (8,2) @ 100.0 3.9 (12,1) @ 200.0 5.5 (18,0) @ 400.0
9102-EL Type CL2P – 150V / 75°C CSA CMP FT6	RG Type: 59/U Type Ohms: 75 Plenum	20 Solid CW 35.1 (115,0)	Foam FEP 0.146 (3,7)	A/P/A + 95% TC Braid 4.7 (15,4)	PLM-PVC 0.202 (5,1)	82	16.8 (55,1)	0.4 (1,3) @ 1.00 0.8 (2,6) @ 10.0 1.8 (5,9) @ 50.0 2.5 (8,2) @ 100.0 3.9 (12,1) @ 200.0 5.5 (18,0) @ 400.0
9159 Type CL2P – 150V / 125°C CSA CMP FT6	RG Type: 59 B/U Type Ohms: 75 Plenum	23 Solid CW 52.5 (172)	FEP 0.130 (3,3)	95% BC Braid 2.6 (8,5)	Black FP 0.188 (4,8)	69	19.6 (64,3)	0.5 (1,6) @ 1.00 0.9 (2,9) @ 10.0 2.2 (7,2) @ 50.0 3.5 (11,5) @ 100.0 5.3 (17,4) @ 200.0 8.3 (27,2) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

SPECIFICATIONS



AVAILABILITY

■ See Page 275 for available put-ups



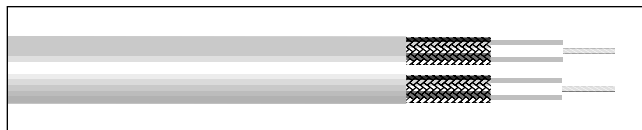
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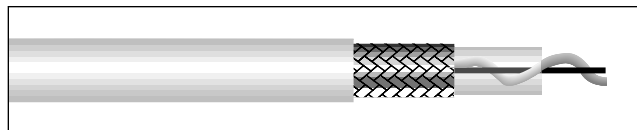
LOCAL AREA NETWORK

COAXIAL CABLES

PLENUM



Alpha Part No.	RG Type	Ohms	Rating
9101	59 B/U Type	75	Plenum



Alpha Part No.	RG Type	Ohms	Rating
9162	62 A/U Type	93	Plenum
9162F	62 A/U Type	93	Plenum

PRODUCT DESCRIPTION

Alpha Part No.	Description	AWG Stranding Material [♦] DCR Ohms / 1000' (/Km)	Core Dielectric Material [♦] Diameter Inches (mm)	Shield & Material [♦] Ohms / 1000' (Ohms / Km)	Jacket Material [♦] Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9101 Type CL2P – 150V / 125°C CSA CMP FT6	RG Type: Dual 59 B/U Type Ohms: 75 Plenum	23 Solid CW 52.5 (172)	FEP Teflon® [★] 0.130 (3,3)	95% BC Braid 2.8 (9,2)	Natural FP 0.180 (4,6) Width: 0.380 (9,7)	69	19.6 (64,3)	0.5 (1,6) @ 1.00 1.1 (3,6) @ 10.0 2.5 (8,2) @ 50.0 3.7 (12,1) @ 100.0 5.3 (17,4) @ 200.0 8.6 (28,2) @ 400.0
9162 Type CL2P – 150V / 125°C CSA CMP FT6	RG Type: 62 A/U Type Ohms: 93 Plenum	22 Solid CW 42.3 (139)	Semi-Solid Teflon® [★] 0.141 (3,6)	95% BC Braid 3.8 (12,5)	Natural FP 0.204 (5,2)	85	13.5 (44,3)	0.3 (1,0) @ 1.00 0.8 (2,6) @ 10.0 1.8 (5,9) @ 50.0 2.8 (9,2) @ 100.0 3.9 (12,8) @ 200.0 5.4 (17,7) @ 400.0
9162F Type CL2P – 150V / 125°C CSA CMP FT6	RG Type: 62 A/U Type Ohms: 93 Plenum	22 Solid CW 42.3 (139)	Foam FEP 0.141 (3,6)	95% BC Braid 3.8 (12,5)	Natural FP 0.199 (5,1)	84	12.9 (42,3)	0.3 (1,0) @ 1.00 0.9 (2,6) @ 10.0 1.8 (5,9) @ 50.0 2.7 (8,9) @ 100.0 3.8 (12,5) @ 200.0 5.3 (17,4) @ 400.0

♦Refer to Materials Abbreviation Guide on Page 254

★Registered trademark of E.I. DuPont Co.

SPECIFICATIONS



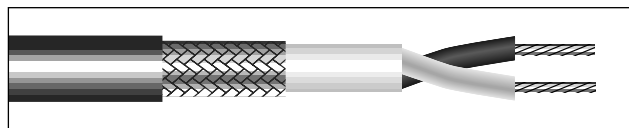
AVAILABILITY

- See Page 275 for available put-ups

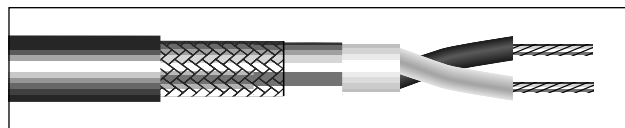
LOCAL AREA NETWORK

TWINAXIAL CABLES

PLENUM AND
NON-PLENUM



Alpha Part No.	Type	Ohms	Rating
9108	Twinax	78	Plenum
9815C	Twinax	78	Non-Plenum
9109	Twinax	100	Plenum



Alpha Part No.	Type	Ohms	Rating
9814C	Twinax	78	Non-Plenum

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PRODUCT DESCRIPTION

Alpha Part No.	Description	Conductor		Core Dielectric Material* Diameter (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
		No. of Cond.	AWG Stranding Material* DCR Ohms / 1000' (/ Km)						
9108 Type CL2P – 150V / 125°C CMP FT6	Twinax Ohms: 78 Plenum	2 Cond.	20 7/28 TC 10.9 (35,8)	Cond. Insul.: FEP 0.075 (1,9)	93% TC Braid 4.1 (13,5)	Blue FEP 0.202 (5,1)	69	18.5 (60,7)	0.6 (1,9) @ 1.00 2.2 (7,2) @ 10.0 5.0 (16,4) @ 50.0 7.7 (25,3) @ 100.0 11.0 (36,7) @ 200.0 16.2 (52,5) @ 400.0
9815C Type CM – 300V / 75°C UL AWM 2582 – 150V / 60°C CSA CMH FT1	Twinax Ohms: 78 Non-Plenum	2 Cond.	20 7/28 TC 10.8 (35,4)	Cond. Insul.: PE 0.076 (1,9)	93% TC Braid 3.7 (12,1)	Blue PVC 0.242 (6,1)	66	19.7 (64,6)	0.6 (1,9) @ 1.00 2.4 (7,8) @ 10.0 6.0 (19,6) @ 50.0 7.5 (24,6) @ 100.0 11.0 (36,0) @ 200.0 16.0 (52,4) @ 400.0
9109 Type CL2P – 150V / 125°C CSA CMP FT6	Twinax Ohms: 100 Plenum	2 Cond.	[1] 20 7/28 BC 9.8 (32,1) & [1] 20 7/28 TC 10.5 (34,4)	Cond. Insul.: FEP Teflon®* 0.072 (1,8) Core Dielec.: FEP Teflon®* 0.195 (4,9)	95% TC Braid 2.3 (7,5)	Gray FP 0.252 (6,4)	69	14 (45,9)	0.4 (1,31) @ 1.00 1.2 (3,94) @ 10.0 2.7 (8,86) @ 50.0 4.2 (13,8) @ 100.0 6.6 (21,7) @ 200.0 10.5 (33,4) @ 400.0
9814C Type CL2 – 150V / 60°C UL AWM 2582	Twinax Ohms: 78 Non-Plenum	2 Cond.	20 7/28 TC 10.8 (35,4)	Cond. Insul.: PE 0.076 (1,9)	A/P + 57% TC Braid & Drain 4.1 (13,5)	Blue PVC 0.242 (6,1)	66	19.7 (64,6)	0.6 (1,9) @ 1.00 2.4 (7,8) @ 10.0 6.0 (19,6) @ 50.0 7.5 (24,6) @ 100.0 11.0 (36,0) @ 200.0 16.0 (52,4) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

*Registered trademark of E.I. DuPont Co.

SPECIFICATIONS



AVAILABILITY

■ See Page 275 for available put-ups



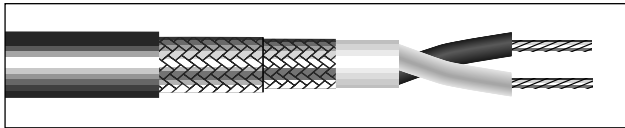
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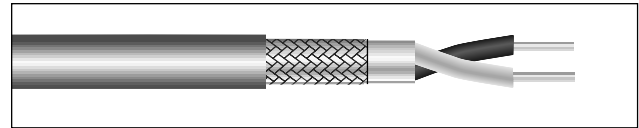
LOCAL AREA NETWORK

TWINAXIAL CABLES

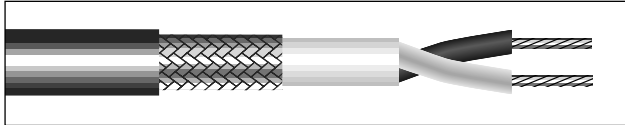
NON-PLENUM



Alpha Part No.	RG Type	Ohms	Rating
9816	Twinax 22 B/U	95	Non-Plenum



Alpha Part No.	Type	Ohms	Rating
9820C	2 Conductor	124	Non-Plenum



Alpha Part No.	Type	Ohms	Rating
9817	Twinax	100	Non-Plenum
9818C	Twinax	100	Non-Plenum

PRODUCT DESCRIPTION

Alpha Part No.	Description	Conductor		Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
		No. of Cond.	AWG Stranding Material* DCR Ohms / 1000' (/ Km)						
9816 MIL-C-17D – 60°C	RG Type: Twinax 22 B/U Ohms: 95 Non-Plenum	1 BC Cond. + 1 TC Cond.	18 7/0.0152 6.8 (22,3)	Cond. Insul.: PE 0.090 (2,3) Core Dielec.: PE 0.285 (7,2)	96% TC Double Braid 1.1 (3,6)	Black PVC-NC Type II 0.420 (10,6)	66	16 (52,5)	0.3 (1,0) @ 1.00 0.9 (2,9) @ 10.0 2.1 (6,8) @ 50.0 3.0 (9,8) @ 100.0 4.5 (14,7) @ 200.0 6.5 (21,3) @ 400.0
9817 UL AWM 2498 – 300V / 80°C	Twinax Ohms: 100 Non-Plenum	1 BC Cond. + 1 TC Cond.	20 7/28 10.8 (35,4)	Cond. Insul.: PE 0.080 (2,0) Core Dielec.: PE 0.236 (5,9)	85% TC Braid 3.0 (9,8)	Black PVC 0.330 (8,3)	66	15.5 (51,0)	0.3 (0,9) @ 1.00 1.2 (3,9) @ 10.0 2.8 (9,2) @ 50.0 4.1 (13,5) @ 100.0 6.4 (21,0) @ 200.0 10.2 (33,5) @ 400.0
9818C Type CL2 – 150V / 75°C UL AWM 2498 – 300V / 80°C	Twinax Ohms: 100 Non-Plenum	2 Cond.	[1] 20 7/28 BC 9.5 (31,1) & [1] 20 7/28 TC 10.5 (34,4)	Cond. Insul.: PE 0.080 (2,0) Core Dielec.: PE 0.236 (5,9)	95% TC Braid 2.0 (6,6)	Black PVC 0.330 (8,3)	66	15.5 (51,0)	0.3 (0,9) @ 1.00 1.2 (3,9) @ 10.0 2.8 (9,2) @ 50.0 4.1 (13,5) @ 100.0 6.4 (21,0) @ 200.0 10.2 (33,5) @ 400.0
9820C Type CM – 300V / 75°C UL AWM 2704 – 30V / 60°C CSA CMH FT1	Twinax Ohms: 124 Non-Plenum	2 Cond.	16 Solid BC 4.3 (14,1)	Cond. Insul.: FPE 0.150 (3,8)	A/P/A + 90% TC Braid 1.5 (4,9)	Black PVC 0.440 (11,1)	78	10.9 (35,8)	0.2 (0,6) @ 1.00 0.7 (2,3) @ 10.0 1.8 (5,9) @ 50.0 2.9 (9,5) @ 100.0 4.1 (13,5) @ 200.0 6.2 (20,3) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

SPECIFICATIONS



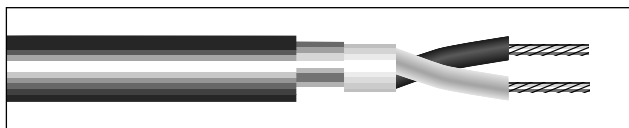
AVAILABILITY

■ See Page 275 for available put-ups

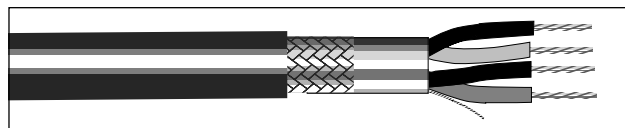
LOCAL AREA NETWORK

TWINAXIAL CABLES AND TWO PAIR DATA CABLE

NON-PLENUM



Alpha Part No.	Type	Ohms	Rating
9821	Twinax	124	Non-Plenum
9823C	Twinax	150	Non-Plenum
9823†	Twinax	150	Non-Plenum



Alpha Part No.	Type	Ohms	Rating
9819C	Two Pair	100	Non-Plenum

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PRODUCT DESCRIPTION

Alpha Part No.	Description	Conductor		Core Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
		No. of Cond.	AWG Stranding Material* DCR Ohms / 1000' (/ Km)						
9821 UL AWM 2092 – 300V / 60°C	Twinax Ohms: 124 Non-Plenum	2 Cond. + Drain Wire Str. TC	25 7/33 TC 31.6 (103,6)	Cond. Insul.: PE 0.083 (2,1)	A/P 100% 12.2 (40,0)	Blue PVC 0.242 (6,1)	66	12.2 (40,0)	0.6 (2,0) @ 1.00 1.7 (5,6) @ 10.0 3.6 (11,8) @ 50.0 5.0 (16,4) @ 100.0 6.9 (20,6) @ 200.0 9.6 (31,5) @ 400.0
9823C, 9823† Type CM – 300V / 75°C UL AWM 2668 – 30V / 60°C CSA CMH FT1	Twinax Ohms: 150 Non-Plenum	2 Cond. + Drain Wire Str. TC	22 19/34 TC 15.8 (51,8)	Cond. Insul.: FPE 0.050 (1,3)	A/P/A + 100% 0.134 (3,4)	Black PVC 0.350 (8,9) 6.5 (21,3)	78	8.8 (28,9)	0.4 (1,3) @ 1.00 1.2 (3,9) @ 10.0 2.7 (8,9) @ 50.0 4.3 (14,1) @ 100.0 6.2 (20,3) @ 200.0 8.8 (28,9) @ 400.0

*Refer to Materials Abbreviation Guide on Page 254

†Not CM Rated

PRODUCT DESCRIPTION

TWO PAIR DATA CABLE MULTIPAIR, OVERALL FOIL AND BRAID SHIELD

Alpha Part No.	Description	Conductor		Insulation Material* Thickness Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket (Gray PVC) Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance @ 1KHz pF / FT (pF / m)	
		No. of Pairs	AWG Stranding Material* DCR Ohms / 1000' (/ Km)					•	••
9819C Type CM – 300V / 75°C UL AWM 2919 – 30V / 80°C CSA CMH FT1	Multipair, Overall Foil & Braid Shield Ohms: 100 Non-Plenum	2 + Drain Wire Str. TC	22 Solid TC 16.8 (55,1)	PE 0.02 (0,5) 0.064 (1,6)	A/P + 58% TC Braid 5.1 (16,7)	Black PVC 0.290 (7,37)	66	15 (49,2)	28 (91,8)

*Refer to Materials Abbreviation Guide on Page 254

• Capacitance between conductors

•• Capacitance between one conductor and the other conductors connected to the shield

SPECIFICATIONS



AVAILABILITY

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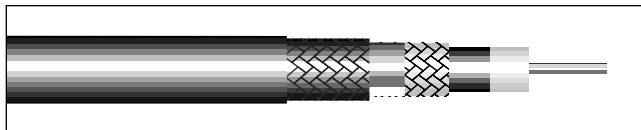
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LOCAL AREA NETWORK

ETHERNET COAXIAL CABLES

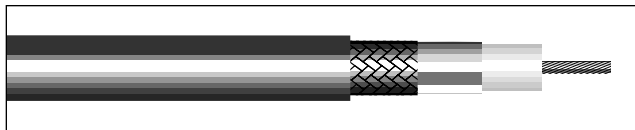
PLENUM AND NON-PLENUM

"THICK" COAXIAL CABLE IEEE 802.3 10BASE5 10 MBPS.



Alpha Part No.	Description	Ohms	Rating
9851C	Ethernet	50	Non-Plenum
9851F	Ethernet	50	Plenum

IEEE SPEC GRADE "THIN" COAXIAL CABLE IEEE 802.3 10BASE2 10 MBPS.



Alpha Part No.	Description	Ohms	Rating
9871C	Ethernet "Thinnet"	50	Non-Plenum
9871F	Ethernet "Thinnet"	50	Plenum

265

PRODUCT DESCRIPTION

Alpha Part No.	Description	Conductor AWG Stranding Material* DCR Ohms / 1000' (/ Km)	Dielectric Material* Diameter Inches (mm)	Shield Material* DCR Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9851C Type CL2 – 150V / 60°C UL AWM 1478 – 30V / 60°C CSA CMG FT4	Ethernet Ohms: 50 Non-Plenum	0.0855" (2,17 mm ²) Solid BC 1.4 (4,6)	Cellular PE 0.247 (6,27)	A/P/A + 92% TC Braid + A/P/A + 92% TC Braid 1.5 (4,9)	Yellow PVC 0.405 (10,28)	78	Maximum: 27.5 (90,2)	Maximum: 6 dB/1640 Ft @ 5 (6 dB/500 m) @ 5 10 dB/1640 Ft @ 10 (10 dB/500 m) @ 10
9851F Type CL2P – 150V / 125°C CSA CMP FT6	Ethernet Ohms: 50 Plenum	0.0855" (2,17 mm ²) Solid BC 1.4 (4,6)	Cellular FEP Teflon®* 0.247 (6,27)	A/P/A + 92% TC Braid + A/P/A + 92% TC Braid 1.5 (4,9)	Orange FEP 0.375 (9,63)	78	Maximum: 27.5 (90,2)	Maximum: 6 dB/1640 Ft @ 5 (6 dB/500 m) @ 5 10 dB/1640 Ft @ 10 (10 dB/500 m) @ 10
9871C Type CL2 CSA CMG FT4 300V / 60°C	Ethernet "Thinnet" Ohms: 50 Non-Plenum	20 19/0.0075" TC 12.0 (39,4)	PE 0.119 (3,02)	A/P/A + 95% TC Braid 3.0 (9,8)	Black PVC 0.200 (5,08)	66	30.5 (100,0)	Maximum: 6 dB/607 Ft @ 5 (6 dB/185 m) @ 5 8.5 dB/607 Ft @ 10 (8.5 dB/185 m) @ 10
9871F Type CL2P CSA CMP FT6 300V / 125°C	Ethernet "Thinnet" Ohms: 50 Plenum	20 19/0.0075" TC 12.0 (39,4)	FEP Teflon®* 0.112 (2,84)	A/P/A + 95% TC Braid 3.0 (9,8)	Gray FP 0.182 (4,62)	78	30.5 (100,0)	Maximum: 6 dB/607 Ft @ 5 (6 dB/185 m) @ 5 8.5 dB/607 Ft @ 10 (8.5 dB/185 m) @ 10

*Refer to Materials Abbreviation Guide on Page 254

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SPECIFICATIONS



AVAILABILITY

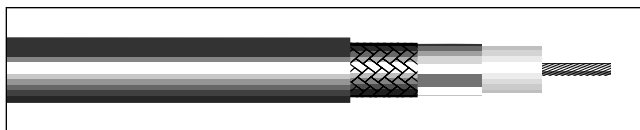
- See Page 275 for available put-ups

LOCAL AREA NETWORK

ETHERNET COAXIAL CABLES

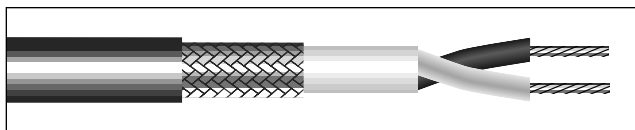
PLENUM AND
NON-PLENUM

COMMERCIAL GRADE THIN-NET COAXIAL CABLE 10 MBPS



Alpha Part No.	Description	Ohms	Rating
9861C	DEC Thinwire	50	Non-Plenum
9861F	DEC Thinwire	50	Plenum
9881C	Ethernet "Thinnet"	50	Non-Plenum

TWINAXIAL TYPE CABLE APPLE TALK LAN CABLE



Alpha Part No.	Description	Ohms	Rating
9888C	Twinax Type	78	Non-Plenum

Alpha Wire offers economical commercial-grade LAN cable alternatives. These cables are designed around the IEEE specifications, but utilize cellular (foam) dielectric to reduce size and material while still offering equivalent electrical and environmental performance. Because a cellular dielectric is used, the diameter must be reduced to achieve the same electrical performance. This has an added benefit of reducing the cost of materials. However, it does not strictly meet the diameter (4,9 mm $\pm$ 0,3 mm for PVC or 4,7 mm $\pm$ 0,3 mm for fluoropolymer jacket) required by the IEEE 802.3, 10Base specification. Therefore, we call it commercial grade.

PRODUCT DESCRIPTION

Alpha Part No.	Description	Conductor AWG Stranding Material* DCR Ohms / 1000' (/ Km)	Dielectric Material* Diameter Inches (mm)	Shield & Material* Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
9861C Type CL2 – 150V / 60°C UL AWM 1354 – 30V / 60°C CSA CMG FT4	DEC ThinWire DEC P/N: 17-01248-00 Ohms: 50 Non-Plenum	20 19/0.0076" TC 10.0 (32,8)	Cellular PE 0.101 (257)	A/P/A + 92% TC Braid 6.2 (20,3)	Gray PVC 0.180 (4,57)	78	25.4 (83,3)	Maximum: 6 dB/607 Ft @ 5 (6 dB/185 m) @ 5 8.5 dB/607 Ft @ 10 (8.5 dB/185 m) @ 10
9861F Type CL2P CSA CMP FT6 150V / 125°C	DEC ThinWire DEC P/N: 17-01246-00 Ohms: 50 Plenum	20 19/0.0076" TC 10.0 (32,8)	Cellular FEP Teflon®* 0.101 (2,57)	A/P/A + 92% TC Braid 6.2 (20,3)	Gray Tint FP 0.166 (4,22)	78	27.0 (88,6)	Maximum: 6 dB/607 Ft @ 5 (6 dB/185 m) @ 5 8.5 dB/607 Ft @ 10 (8.5 dB/185 m) @ 10
9881C Type CL2 CSA CMG FT4 300V / 60°C	Ethernet "Thinnet" Ohms: 50 Non-Plenum	20 19/32 TC 10.0 (32,8)	Cellular PE 0.102 (2,59)	A/P/A + 95% TC Braid 3.5 (11,5)	Black PVC 0.180 (4,57)	78	25.5 (83,6)	Maximum: 6 dB/607 Ft @ 5 (6 dB/185 m) @ 5 8.5 dB/607 Ft @ 10 (8.5 dB/185 m) @ 10

Alpha Part No.	Description	Conductor		Material* Thickness Diameter Inches (mm)	Insulation Shield Material* DCR Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
		No. of Cond.	AWG Stranding Material* Ohms / 1000' (/ Km)						
9888C Type CM – 300V / 60°C UL AWM 2726 – 30V / 60°C CMG FT4	Twinax Type Ohms: 78 Non-Plenum	2 Cond.	22 7/30 TC 16.4 (53,8)	Solid PE 0.058 (1,47)	85% TC Braid 5 (16,4)	Gray PVC 0.185 (4,70)	66	19.7 (64,6)	0.8 (2,6) @ 1 2.5 (8,2) @ 10 4.5 (14,8) @ 50 9.5 (31,2) @ 100 20.0 (65,6) @ 400 32.0 (105,0) @ 1000

*Refer to Materials Abbreviation Guide on Page 254

*Registered trademark of E.I. DuPont Co.

SPECIFICATIONS



AVAILABILITY

■ See Page 275 for available put-ups



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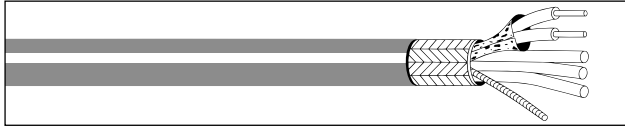
Web Site: www.alphawire.com
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LOCAL AREA NETWORK

ETHERNET COAXIAL CABLES

NON-PLENUM

ETHERNET TRANSCEIVER CABLES IEEE 802.3 TRANSCEIVER CABLES MINI TRANSCEIVER CABLES



Alpha Part No.	Description	Ohms	Rating
9852C	Ethernet	Data Pairs: 78	Non-Plenum
9853C	IEEE 802.3	Data Pairs: 78	Non-Plenum
9854C	Mini†	78	Non-Plenum

†5 Meters or less

COLOR CODE INFORMATION

Alpha Part Nos.: **9852C & 9853C**
 Pair 1: Power (PVC) – Black and Red
 Pair 2: Data (FPP) – Green and Blue
 Pair 3: Data (FPP) – Yellow and Orange
 Pair 4: Data (FPP) – White and Brown

Alpha Part No. **9854C**
 Pair 1: Power (PVC) – Black and Red
 Pair 2: Data (FPP) – Green and Blue
 Pair 3: Data (FPP) – Yellow and Orange
 Pair 4: Data (FPP) – White and Gray

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PRODUCT DESCRIPTION

Alpha Part No.	Description	Conductor		Insulation Material* Thickness Diameter Inches (mm)	Shield Material* DCR Ohms / 1000* (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Nominal Capacitance pF / FT (pF / m)	Nominal Attenuation db / 100' (db / 100m) @ MHz
		No. of Pairs	AWG Stranding Material* Ohms / 1000* (/ Km)						
9852C Type CM – 30V / 75°C UL AWM 2919 – 30V / 80°C CMG FT4	Ethernet Ohms: Data Pairs: 78 Non-Plenum	4 Pairs: 3 and 1 and a Central Drain Wire	22 7/30 TC 16.4 (53,8) 20 7/28 TC 10.2 (33,55) 22 7/28 TC	[3] PP 0.017 (0,43) 0.064 (1,63) and [1] Semi-rigid PVC 0.010 (0,25) 0.060 (1,52)	Individual A/P + Overall A/P/A + 95% TC Braid 3.0 (9,8)	Gray PVC 0.340 (8,64)	Data Pairs: 65	Data Pairs: 20 (65,6)	Maximum: @ 5-10 3.8 dB/164 Ft (3,8 dB/50 m)
9853C Type CL2 – 30V / 75°C CMG FT4	IEEE 802.3 Ohms: Data Pairs: 78 Non-Plenum	4 Pairs: and a Central Drain Wire	20 7/28 TC 10.2 (33,5) 22 7/28 TC	[3] Cellular PP 0.018 (0,46) 0.074 (1,88) and [1] Semi-rigid PVC 0.010 (0,25) 0.058 (1,47)	Individual A/P + Overall A/P/A + 95% TC Braid 3.0 (9,8)	Gray PVC 0.395 (10,03)	Data Pairs: 65	Data Pairs: 17.0 (55,8)	Maximum: @ 5-10 3.8 dB/164 Ft (3 dB/50 m)
9854C Type CL2 – 150V / 75°C UL AWM 2919 – 30V / 80°C CMG FT4	Mini† Ohms: 78 Non-Plenum	4 Pairs: 3 and 1	28 7/36 TC 65 (213) 24 7/32 TC 25 (82)	[3] Cellular PP 0.009 (0,23) 0.033 (0,84) and [1] PVC 0.010 (0,254) 0.044 (1,12)	Individual A/P + A/P/A + 90% TC Braid 3.2 (10,5)	Gray PVC 0.250 (6,35)	66	Data Pairs 19.7 (64,6)	14.0 (45,9) @ 1 32.0 (105,0) @ 5 43.0 (141,0) @ 10

*Refer to Materials Abbreviation Guide on Page 254

†5 Meters or less

SPECIFICATIONS



AVAILABILITY

■ See Page 275 for available put-ups

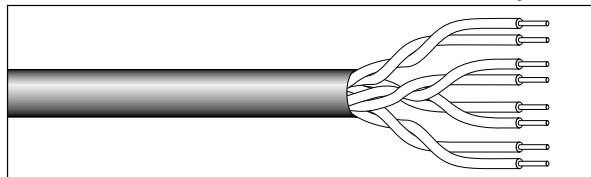
LOCAL AREA NETWORK

UNSHIELDED TWISTED PAIR (UTP)

CATEGORY 5

PLENUM AND
NON-PLENUM

UNSHIELDED TWISTED PAIR (UTP) SOLID CONDUCTOR, CATEGORY 5, 100 Mbps.



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Alpha Part No.	Rating	Ohms @ MHz
9504C	Non-Plenum	See Chart at Right
9504F	Plenum	See Chart at Right
9525F	Plenum	See Chart at Right

Nominal Impedance
Ohms @ MHz

100 ± 15%
1.0 -100 MHz

COLOR CODE
INFORMATION

See Chart M
Page 377

PRODUCT DESCRIPTION

Alpha Part No.	Application	Conductor AWG Stranding Material* DCR Ohms / 1000' (/Km)	Maximum Capacitance pF / FT (pF / m)	Maximum Attenuation dB / 100' (db / 100m) @ MHz	Minimum Near End Cross-Talk dB / 100' (dB / 100M) @MHz
9504C 300V / 75°C Type CM CMG FT4	TIA/EIA 568-A, Category 5 ICEA 661, Category 5 NEMA WC-63.1, Category 5	24 Solid BC 28.4 (98,2) Max.	17 (55,8) @ 1 KHz	0.63 (2,07) @ 1.0 1.3 (4,26) @ 4.0 1.8 (5,90) @ 8.0	19.0 (62,3) @ 1.0 16.2 (53,3) @ 4.0 14.9 (48,8) @ 8.0
9504F 300V / 75°C Type CMP CMP FT6			17 (55,8) @ 1 MHz	2.0 (6,56) @ 10.0 2.5 (8,20) @ 16.0 2.8 (9,18) @ 20.0 3.2 (10,5) @ 25.0 3.6 (11,8) @ 31.25 5.2 (17,1) @ 62.5 6.7 (22,0) @ 100	14.4 (47,3) @ 10.0 13.5 (44,3) @ 16.0 13.0 (42,8) @ 20.0 12.6 (41,3) @ 25.0 12.2 (39,9) @ 31.25 10.8 (35,4) @ 62.5 9.8 (32,3) @ 100
9525F 300V / 60°C Type CMP CMP FT6					

Alpha Part No.	Conductor No. of Pairs	Insulation Material* Thickness Diameter Inches (mm)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %
9504C Type CM CMG FT4	4	Flame Retardant PE 0.009 (0,23) 0.038 (0,97)	Gray or Blue PVC 0.200 (5,08)	66
9504F Type CMP CMP FT6	4	FEP Teflon* 0.007 (0,18) 0.034 (0,86)	Gray, White or Blue Plenum-PVC 0.170 (4,31)	73
9525F Type CMP CMP FT6	25	FEP Teflon* 0.007 (0,18) 0.034 (0,86)	White Plenum-PVC 0.630 (16,0)	73

*Refer to Materials Abbreviation Guide on Page 254

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SPECIFICATIONS



AVAILABILITY

■ See Page 275 for available put-ups



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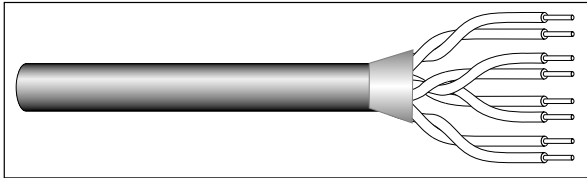
LOCAL AREA NETWORK

SHIELDED TWISTED PAIR (STP)

CATEGORY 5

PLENUM AND
NON-PLENUM

SHIELDED TWISTED PAIR (STP) SOLID CONDUCTOR, CATEGORY 5, 100 Mbps.



Alpha Part No.	Rating	Ohms
9504CS	Non-Plenum	See Chart at Right
9504FS	Plenum	See Chart at Right

Nominal Impedance
Ohms @ MHz

100 ± 15%
1.0-100 MHz

COLOR CODE INFORMATION

Alpha Part Nos.: **9504CS** & **9504FS**
 Pair 1: Blue/White, White/Blue
 Pair 2: Orange/White, White/Orange
 Pair 3: Green/White, White/Green
 Pair 4: Brown/White, White/Brown

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PRODUCT DESCRIPTION

Alpha Part No.	Application	Conductor		Insulation Material* Thickness Diameter Inches (mm)	Shield Material* DCR Ohms / 1000' (Ohms / Km)	Jacket Material* Nom. O.D. Inches (mm)	Vel. of Prop %	Maximum Capacitance pF / FT (pF / m)	Maximum Attenuation dB / 100' (dB / 100m) @ MHz	Minimum Near End Cross-Talk dB 100' (dB / 100M) @ MHz
		No. of Pairs	AWG Stranding Material* DCR Ohms / 1000' (/ Km)							
9504CS 300V / 60°C Type CMR CMR FT4 Non-Plenum Rated	TIA/EIA 568-A, Category 5 ICEA 661, Category 5 NEMA WC-63.1 Category 5	4	24 Solid BC 28.4 (98,2) Max.	Flame Retardant PE 0.009 (0,23) 0.038 (0,97)	A/P 100% 28.4 (93,2)	Gray or Blue PVC 0.260 (6,60)	66	17 (55,8) @ 1 KHz 17 (55,8) @ 1 MHz	0.63 (2,07) @ 1.0 1.3 (4,26) @ 4.0 1.8 (5,90) @ 8.0 2.0 (6,56) @ 10.0 2.5 (8,20) @ 16.0 2.8 (9,18) @ 20.0 3.2 (10,5) @ 25.0 3.6 (11,8) @ 31.25 5.2 (17,1) @ 62.5 6.7 (22,0) @ 100	19.0 (62,3) @ 1.0 16.2 (53,3) @ 4.0 14.9 (48,8) @ 8.0 14.4 (47,3) @ 10.0 13.5 (44,3) @ 16.0 13.0 (42,8) @ 20.0 12.6 (41,3) @ 25.0 12.2 (39,9) @ 31.25 10.8 (35,4) @ 62.5 9.8 (32,3) @ 100
9504FS 300V / 60°C Type CMP CMP FT6 Plenum Rated	TIA/EIA 568-A, Category 5 ICEA 661, Category 5 NEMA WC-63.1 Category 5	4	24 Solid BC 28.4 (98,2) Max.	FEP Teflon* 0.007 (0,18) 0.034 (0,86)	A/P 100% 28.4 (93,2)	Gray or Blue Plenum-PVC 0.240 (6,10)	73	17 (55,8) @ 1 KHz 17 (55,8) @ 1 MHz	0.63 (2,07) @ 1.0 1.3 (4,26) @ 4.0 1.8 (5,90) @ 8.0 2.0 (6,56) @ 10.0 2.5 (8,20) @ 16.0 2.8 (9,18) @ 20.0 3.2 (10,5) @ 25.0 3.6 (11,8) @ 31.25 5.2 (17,1) @ 62.5 6.7 (22,0) @ 100	19.0 (62,3) @ 1.0 16.2 (53,3) @ 4.0 14.9 (48,8) @ 8.0 14.4 (47,3) @ 10.0 13.5 (44,3) @ 16.0 13.0 (42,8) @ 20.0 12.6 (41,3) @ 25.0 12.2 (39,9) @ 31.25 10.8 (35,4) @ 62.5 9.8 (32,3) @ 100

*Refer to Materials Abbreviation Guide on Page 254

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SPECIFICATIONS



AVAILABILITY

■ See Page 275 for available put-ups

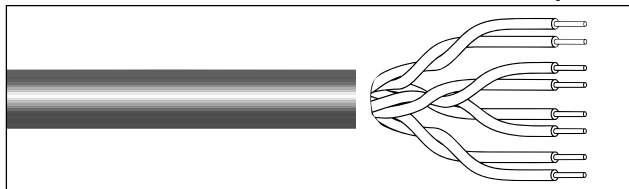
LOCAL AREA NETWORK

UNSHIELDED TWISTED PAIR (UTP)

CATEGORY 5e

**PLENUM AND
NON-PLENUM**

UNSHIELDED TWISTED PAIR (UTP) SOLID CONDUCTOR, CATEGORY 5e, 100 Mbps.



Alpha Part No.	Rating	Ohms @ MHz
9504CE	Non-Plenum	See Chart at Right
9504FE	Plenum	See Chart at Right

NEW!

Introducing Alpha's new Category 5 Enhanced Cable.
Alpha's Cat 5e supports current Category 5 enhanced applications such as 100 base TX, 100 base VG anylan and 155 ATM.
Alpha's Cat 5e will support future Cat 5 enhanced applications like Gigabit Ethernet.

Nominal Impedance Ohms @ MHz

100 ± 15%
1.0-100 MHz

100 ± 25%
100.1-200.0 MHz

COLOR CODE INFORMATION

Alpha Part Nos.: **9504CE** & **9504FE**
White/Blue & Blue
White/Orange & Orange
White/Green & Green
White/Brown & Brown

PRODUCT DESCRIPTION

Alpha Part No.	Application	Conductor		Insulation Material* Thickness Diameter Inches (mm)	Nominal Capacitance pF/FT (pF/m)	Jacket Material* Nom. O.D. Inches (mm)	Maximum Attenuation dB / 100' (dB / 100m) @ MHz	Minimum Near End Cross-Talk dB / 100' (dB / 100m) @ MHz
		No. of Pairs	AWG Stranding Material* DCR Ohms / 1000' (/Km)					
9504CE 300V / 60°C Type CMG CMG FT4 Non-Plenum Rated	ANSI/TIA/EIA-568-A-5 Category 5e ISO/IEC 11801 Category 5 NEMA WC-63.1 Category 5e	4	24 Solid BC 28.4 (98,2) Max.	Polyolefin 0.008 (0,20) 0.037 (0,94)	Maximum 15 (49,2) @ 1 KHz	Slate, Blue, White PVC 0.210 (5,33)	0.61 (2,0) @ 1.0 1.25 (4,1) @ 4.0 1.77 (5,8) @ 8.0 1.98 (6,5) @ 10.0 2.50 (8,2) @ 16.0 2.83 (9,3) @ 20.0 3.17 (10,4) @ 25 3.57 (11,7) @ 31.25 5.18 (17,0) @ 62.5 6.71 (22,0) @ 100 8.53 (28,0) @ 155 9.88 (32,4) @ 200	19.0 (62,3) @ 1.0 16.2 (53,3) @ 4.0 14.9 (48,8) @ 8.0 14.4 (47,3) @ 10.0 13.5 (44,3) @ 16.0 13.0 (42,8) @ 20.0 12.6 (41,3) @ 25 12.2 (39,9) @ 31.25 10.8 (35,4) @ 62.5 9.8 (32,3) @ 100 9.0 (29,5) @ 155 8.5 (27,8) @ 200

Alpha Part No.	Application	Conductor		Insulation Material* Thickness Diameter Inches (mm)	Nominal Capacitance pF/FT (pF/m)	Jacket Material* Nom. O.D. Inches (mm)	Maximum Attenuation dB / 100' (dB / 100m) @ MHz	Minimum Near End Cross-Talk dB / 100' (dB / 100m) @ MHz
		No. of Pairs	AWG Stranding Material* DCR Ohms / 1000' (/Km)					
9504FE 300V / 60°C Type CMP CMP FT6 Plenum Rated	ANSI/TIA/EIA-568-A-5 Category 5e ISO/IEC 11801 Category 5 NEMA WC-63.1 Category 5e	4	24 Solid BC 28.4 (98,2) Max.	FEP Teflon* 0.007 (0,18) 0.034 (0,86)	Maximum 15 (49,2) @ 1 KHz	Slate, Blue, White Plenum 0.200 (5,08)	0.61 (2,0) @ 1.0 1.25 (4,1) @ 4.0 1.77 (5,8) @ 8.0 1.98 (6,5) @ 10.0 2.50 (8,2) @ 16.0 2.83 (9,3) @ 20.0 3.17 (10,4) @ 25 3.57 (11,7) @ 31.25 5.18 (17,0) @ 62.5 6.71 (22,0) @ 100 8.53 (28,0) @ 155 9.88 (32,4) @ 200	19.0 (62,3) @ 1.0 16.2 (53,3) @ 4.0 14.9 (48,8) @ 8.0 14.4 (47,3) @ 10.0 13.5 (44,3) @ 16.0 13.0 (42,8) @ 20.0 12.6 (41,3) @ 25 12.2 (39,9) @ 31.25 10.8 (35,4) @ 62.5 9.8 (32,3) @ 100 9.0 (29,5) @ 155 8.5 (27,8) @ 200

*Refer to Materials Abbreviation Guide on Page 254

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SPECIFICATIONS

UL LISTED

AVAILABILITY

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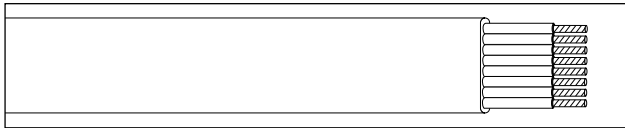
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LOCAL AREA NETWORK

MODULAR TELEPHONE CABLE

SILVER SATIN

UNSHIELDED



Alpha Part No.	Description
1604	Multiconductor, Stranded Unshielded Flat (Oval)
1606	
1608	

COLOR CODE INFORMATION

1604 – Black, Red, Green & Yellow
1606 – White, Black, Red, Green, Yellow & Blue
1608 – Slate, Orange, Black, Red, Green, Yellow, Blue & Brown

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PRODUCT DESCRIPTION

Alpha Part No.	Description	No. of Conductors	AWG Stranding Material*	Insulation Material* Thickness Diameter Inches (mm)	Jacket Material* and Thickness x Width Inches (mm)
1604 150V / 60°C	Multiconductor, Stranded Unshielded Flat (Oval)	4	26 7/34 BC	PE 0.010 (0,25) 0.037 (0,95)	Silver PVC 0.100 (2,5) x 0.200 (5,0)
1606 150V / 60°C		6	26 7/34 BC	PE 0.010 (0,25) 0.037 (0,95)	Silver PVC 0.100 (2,5) x 0.275 (7,0)
1608 150V / 60°C		8	26 7/34 BC	PE 0.010 (0,25) 0.037 (0,95)	Silver PVC 0.100 (2,5) x 0.350 (8,9)

*Refer to Materials Abbreviation Guide on Page 254

AVAILABILITY

- See Page 275 for available put-ups

LOCAL AREA NETWORK

ALPHA-BYTE™ DATA CABLES MULTIPAIR FOIL SHIELDED, CELLULAR PP/PVC

30 VOLT, 60°C
UL 2490, 2493, 2668
CSA PCC FT4

Alpha-Byte™ Low Capacitance Data Cables. As today's computer's become faster and more powerful, the need for cables with improved transmission characteristics becomes even more critical. In keeping pace with new computer technology, Alpha Wire has expanded its data cable line to include specialized cable for low capacitance, extended distance transmission. With its unique structure, the Alpha-Byte™ line enables cable pairs to exhibit a lower dielectric constant — a key electrical characteristic resulting in less loss, lower signal distortion and higher transmission speeds. Suitable for use with EIA RS-232C, RS-422, RS-423, RS-449 interfaces.

ALPHA-BYTE™ APPLICATIONS:

- Precision Audio, Pulse or RF Signal Transmission Where Low Distortion and High Speed Data Rates are Required
- External Interconnection of Computer or Electronic Point-Of-Sale Equipment in Areas Where High Levels of Noise Interference are Anticipated

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C — AWM
- 75°C — CM

VOLTAGE RATING:

- 30 Volt — AWM
- 300 Volt — CM

COLOR DESCRIPTION:

- Color Code: Black/Yellow, Pink/Blue
- Jacket Color: Gray
- *Part No. 6072C has a Black Jacket

PRODUCT DESCRIPTION:

- Conductor: Stranded or Solid Tinned Copper
- Insulation: Color-Coded Cellular Polypropylene (PP)
- Shield: Aluminum/Polyester, Foil Facing Inward
- Drain Wire: Stranded Tinned Copper
- Jacket: Premium PVC

SPECIFICATIONS

- UL Type CM, AWM 2490, 2493, 2668
CSA CMG FT4

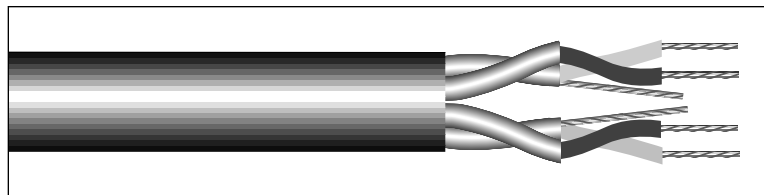


AVAILABILITY

- See Page 275 for available put-ups

TYPICAL ELECTRICAL CHARACTERISTICS

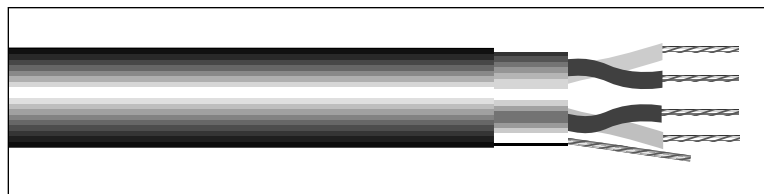
Alpha Part No.	Capacitance		Vp. %	Zo @ 1 Mhz, Ohms
	cdr. to cdr. pF/ft	cdr. to (cdr. & shield) pF/ft (pFm)		
6072C	8.7 (28,5)	15,9 (52,2)	80	150
6073C thru 6079/27C	12.5 (41,0)	22.0 (72,5)	80	100



INDIVIDUALLY SHIELDED, UL 2490, 2493, TYPE CM

24 AWG (0,23mm²), 7/ 32 (7x0,20mm), Insulation Thickness: **0.023"** (0,58mm)

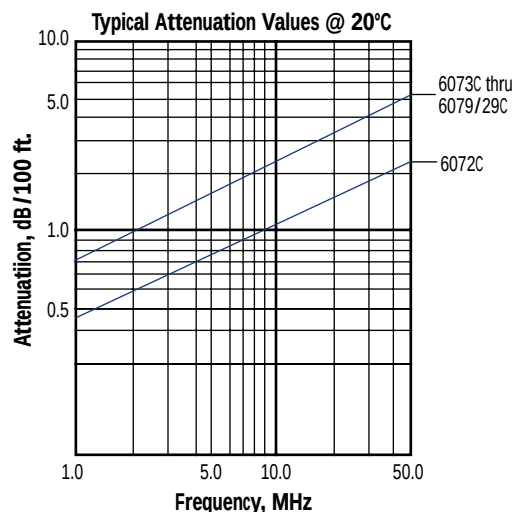
Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		UL Style No.
		Inches	mm	Inches	mm	
6073C	3	0.048	1,22	0.37	9,4	2493
6076C	6	0.048	1,22	0.48	12,2	2493
6079C	9	0.065	1,65	0.59	15,0	2493
6079/11C	11	0.065	1,65	0.64	16,2	2493
6079/12C	12	0.065	1,65	0.66	16,8	2493
6079/15C	15	0.065	1,65	0.72	18,3	2493
6079/27C	27	0.087	2,21	0.95	24,1	2490



OVERALL SHIELDED, UL 2668, TYPE CM

22 AWG (0,32mm²), Solid, Insulation Thickness: **0.023"** (0,58mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Diameter		UL Style No.
		Inches	mm	Inches	mm	
6072C*	2	0.035	0,89	0.42	10,6	2668



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Email: info@alphawire.com

LOCAL AREA NETWORK

IEEE-488 (GPIB) INTERFACE BUS CABLES

300 VOLT, 80°C

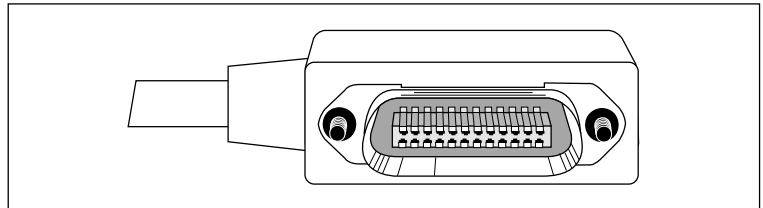
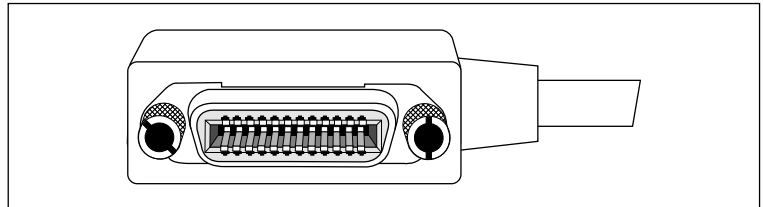
MOLDED ASSEMBLY LENGTHS

Alpha Part Nos.	Ft.	m
5900/1	3.3	1
5900/2	6.6	2
5900/3	9.9	3
5900/4	13.1	4
5900/8	26.2	8
5900/12	39.4	12
5900/16	52.5	16

Molded Assemblies

Alpha provides molded assemblies using the IEEE standard 488 24-pin connector. Field replacement of damaged cable or changes in system configuration can be effected without costly down-time. A wide range of available lengths makes these assemblies ideal for system development, reconfiguration and maintenance.

Alpha Wire 5900 assemblies are designed to meet the cable constructional and electrical parameters mandated by the IEEE-488 interface standard. Compliance with the guidelines of this standard allows as many as fifteen discrete devices, such as digital test, measurement and recording units, configured to this standard, to communicate with each other with no need for custom designed bus-to-unit networks.



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

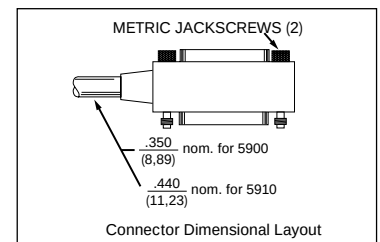
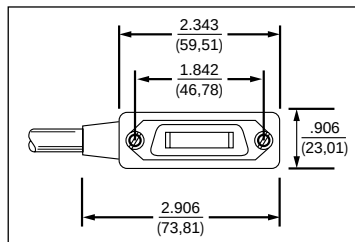
COLOR DESCRIPTION:

- Refer to Color Description Chart Below

PRODUCT DESCRIPTION:

- D.C. Resistance:
 - #24 AWG — 23.9 ohms/kft (78.4 ohms/km)
 - #26 AWG — 38.4 ohms/kft (126.0 ohms/km)
- Capacitance: Conductor to Conductor, Nominal:
 - Single Conductors — 35 pF/ft (114.8 pF/m)
 - Pairs — 38 pF/ft (124.7 pF/m)
- Characteristic Impedance, Nominal:
 - Single Conductors — 70 ohms
 - Pairs — 75 ohms
- 6 Twisted Pairs Conductors #26 AWG (7/34) Tinned Copper + 0.010" Semi-Rigid PVC Insulation
- 10 Single Conductors #26 AWG (7/34) Tinned Copper + 0.010" Semi-Rigid PVC Insulation
- 1 Single Conductor #24 AWG (7/32) Tinned Copper + 0.010" Semi-Rigid PVC Insulation
- Drain Wire: #24 AWG (7/32) Tinned Copper
- Shield: Braided Tinned Copper (90% Coverage)
- Jacket: Gray PVC 0.035" (0.89mm) Nominal Wall Thickness
- Nominal O.D.: 0.350" (8.89mm)

CONNECTOR DIMENSIONAL LAYOUT



COLOR DESCRIPTION CHART

Twisted Pairs

1. Blue paired with white / gray
2. Violet paired with white / black / brown
3. Gray paired with white / black / red
4. White paired with white / black / orange
5. White / black paired with white / black / yellow
6. White / brown paired with white / black / green

#26 AWG (0.14mm²) Singles

1. Brown
2. Red
3. Orange
4. Yellow
5. Green
6. White / orange
7. White / yellow
8. White / green
9. White / blue
10. White / violet

#24 AWG (0.23mm²) Single

1. White / blue / black

AVAILABILITY

- 1 piece package

LOCAL AREA NETWORK

RS-232-C PRE-TERMINATED ASSEMBLIES

300 VOLT, 80°C

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MALE-TO-FEMALE ASSEMBLIES / LENGTHS		
Alpha Part Nos.	Ft.	m
DCA 522A-6	6	1,8
DCA 522A-10	10	3,0
DCA 522A-15	15	4,6
DCA 522A-25	25	7,6
DCA 522A-50	50	15,2

MALE-TO-MALE ASSEMBLIES / LENGTHS		
Alpha Part Nos.	Ft.	m
DCA 512A-6	6	1,8
DCA 512A-10	10	3,0
DCA 512A-15	15	4,6
DCA 512A-25	25	7,6
DCA 512A-50	50	15,2

BULK CABLE / STANDARD PUT-UPS		
Alpha Part Nos.	Ft.	m
5199 / 25C	100	30,5
5199 / 25C	500	152,4
5199 / 25C	1000	305,0

RS-232-C PRE-TERMINATED ASSEMBLIES APPLICATIONS:

- General Purpose EIA RS-232-C Extensions
- Modem Control and Error Detection

CHARACTERISTICS

OPERATING TEMPERATURE:

- 20°C to 80°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

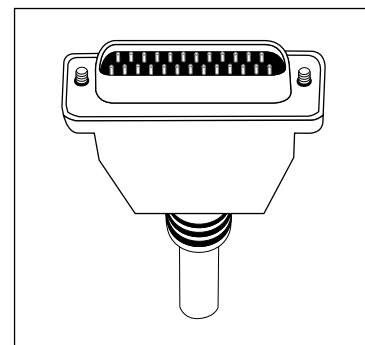
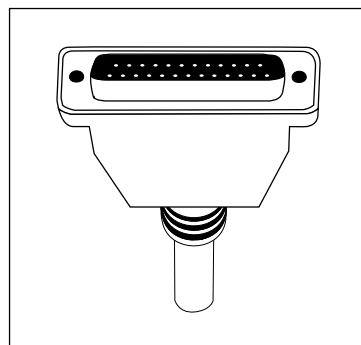
- Refer to Color Description Chart Below

PRODUCT DESCRIPTION:

- 25 Cabled Conductors: #22 AWG — 0,36mm², 7/30 (7x0,25mm), Tinned Copper
- 0.009" (0,23mm) Color-Coded SR-PVC Insulation
- Aluminum/Polyester Foil Shield with Stranded Tinned Copper Drain Wire
- Gray PVC Jacket; Wall Thickness: 0.032" (0,81mm)
- O.D.: 0.380" (9,65mm), Nominal
- Connectors:
 - Current Rating: 4.0 Amps/Contact (with #22 AWG Conductor)
 - Dielectric Withstand Voltage: 1000 Volts, Minimum
 - Contacts: Gold Over Nickel Plated Beryllium Copper
 - No. of Positions: 25 (Pins or Sockets)
- Cord Configuration:
 - Male Connector, Each End, Fully Pinned
 - Male Connector to a Female Connector, Fully Pinned
- Electrical Specifications:
 - Capacitance: 35 pF/ft. (115 pF/m), Nominal
 - Impedance: 50 Ohms, Nominal
 - Shielding: Pin-to-Pin Shielded

Alpha Wire molded and tested RS-232-C data cable assemblies are designed to meet the requirements of the EIA RS-232 specification. Compliance with the requirements of this specification assures the end user high quality intra-system transmission of signals between the computer memory and peripherals such as printers, VDU's and other ancillary equipment under RS-232-C guidelines. These molded assemblies have improved cable strain relief over conventional RS-232-C cable assemblies.

*Most terminal interfaces conform to the Electronic Industries Association standard RS-232-C. This standard specifies a 25-pin connector with numbered pin assignments for data (transmit and receive), ground, control and timing circuits. The RS-232-C specification limits cable lengths to 50 feet or less because of capacitance limitations, but provides the greatest flexibility in equipment selection.



COLOR DESCRIPTION CHART

No.	Base Color	1st Stripe	2nd Stripe	No.	Base Color	1st Stripe	2nd Stripe
1 —	Black	—	—	14 —	White	Orange	—
2 —	Brown	—	—	15 —	White	Yellow	—
3 —	Red	—	—	16 —	White	Green	—
4 —	Orange	—	—	17 —	White	Blue	—
5 —	Yellow	—	—	18 —	White	Violet	—
6 —	Green	—	—	19 —	White	Gray	—
7 —	Blue	—	—	20 —	White	Black	Brown
8 —	Violet	—	—	21 —	White	Black	Red
9 —	Gray	—	—	22 —	White	Black	Orange
10 —	White	—	—	23 —	White	Black	Yellow
11 —	White	Black	—	24 —	White	Black	Green
12 —	White	Brown	—	25 —	White	Black	Blue
13 —	White	Red	—				

SPECIFICATIONS

- UL Type CM, AWM 2464 — Alpha Part No. 5199 / 25C
- CSA CMG FT4 — Alpha Part No. 5199 / 25C

AVAILABILITY

- 1 piece put-up



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LOCAL AREA NETWORK

AVAILABILITY BY PART NUMBER

ALPHA PART NO.	PAGE NO.	100 FT. REEL (30,5m)	500 FT. REEL (152m)	1000 FT. REEL (305m)
1604▲	271			
1606▲	271			
1608▲	271			
6072C	272		X	X
6073C	272	X	X	X
6076C	272	X	X	X
6079/C	272	X	X	X
6079/11C	272	X	X	X
6079/12C	272		X	X
6079/15C	272		X	X
6079/27C	272	X	X	X
9006A	255/278	X	X	X
9008	255/278	X	X	X
9008A	255/278	X	X	X
9011	256/278		X	X
9011A	256/278	X	X	X
9055	278	X	X	X
9055B	279	X	X	X
9058	279	X	X	X
9058A	279	X	X	X
9058AC	279/257	X	X	X
9058C	279/257	X	X	X
9058X	279/257	X	X	X
9059	279	X	X	X
9059B	280/258	X	X	X
9059C	279/258	X	X	X
9062	280	X	X	X
9062A	280	X	X	X
9062AC	258/280	X	X	X
9071B	280	X	X	X
9101	261/284			X
9102	260/284		X	X
9102-EL	260/284			X
9104	259		X	X
9104-EL	259			X
9105	284		X	X
9108	262		X	X
9109	262			X
9158	284		X	X
9158S	284		X	X
9159	260/284			X
9162	261/285			X
9162-EL	285			X
9162F	261/285			X
9174	281	X	X	X
9178B	281	X	X	X
9179B	281	X	X	X
9180B	281	X	X	X
9187A	281	X	X	X
9188A	281	X	X	X
9196A	281	X	X	X

▲ Available in 328 ft. (100m) or 1000 ft. (305m) packages only. **ALPHA QWIK - REEL**

▲▲ 9804C also available in 2500 ft. (762m) reel.
9805C also available in 2000 ft. (610m) reel.

ALPHA PART NO.	PAGE NO.	100 FT. REEL (30,5m)	500 FT. REEL (152m)	1000 FT. REEL (305m)
9213	281	X	X	X
9214	281	X	X	X
9217	282	X	X	X
9223	282	X	X	X
9525F	268			X
9259	280			X
9316	282	X	X	X
9504C	268			X
9504CS	269			X
9504F	268			X
9504FS	269			X
9803C	258/279	X	X	X
9804C▲▲	255/278	X	X	X
9805▲▲	280	X	X	X
9807	282	X	X	X
9808	282	X		X
9810	283	X		X
9813	283			X
9814C	262	X	X	X
9815C	262		X	X
9816	263	X	X	X
9817	263		X	X
9818C	263		X	X
9819C	264	X	X	X
9820C	263	X	X	X
9821	264	X	X	X
9823	264	X	X	X
9823C	264	X	X	X
9825C	256			X
9830	279	X	X	X
9840	280		X	X
9843	278	X		X
9845	280			X
9847	256/278	X		X
9848	279	X		X
9850	280	X	X	X
9851C	265/282			X
9851F	265/285		X	X
9852C	267			X
9853C	267	X		X
9854C	267			X
9858	257/279	X	X	X
9859	259		X	X
9859-EL	259			X
9861C	266			X
9861F	266		X	X
9871C	265			X
9871F	265		X	X
9881C	266			X
9888C	266			X

Consult Alpha for **ALPHA QWIK - REEL** payout package availability.

**ALPHA WIRE COMPANY
NOW STOCKS
CATEGORY 5 AND
CATEGORY 5e
DATA COMM CABLES!**

Alpha Wire Category 5 and 5e cables are ideally suited for the challenges facing users regarding cable performance and management. The products are designed to provide years of service life and prevent retrofitting after only a short installation period. Alpha Wire's Category 5 and 5e is ideal for ATM 155 Mbps, Fast Ethernet, Token Ring or TP-PMD applications.

COAXIAL CABLE SYSTEMS

GUIDE TO COAXIAL CABLE SYSTEMS

Signal transmission in electronic applications and data communications is changing in a dramatic way. Cables now have to accommodate faster signal speeds over longer distances with less signal loss. Additionally, new shielding requirements to meet FCC RFI/EMI emission controls, tougher fire regulations required in plenum installations and demands for high-density wiring are factors which have been considered in creating many of Alpha's coaxial and data cable products. The products in this section are designed to meet these needs for safe and reliable transmission of voice, video or data.

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A VARIETY OF COAXIAL PRODUCTS

Alpha coaxial products are supplied in a wide variety of impedance grades (and RG Types) for most voice, video and data applications. Our comprehensive line includes:

- Standard RG Coax For Commercial & Military Use
- 75 Ohm Precision Video Cables
- Dual Coax
- Networking Coax — Ethernet

When used in Local Area Network or other work station interconnects, Alpha coaxial products are complemented by our BNC (plug & jack) connector line.

Expect excellent quality, exceptional customer service, the packaging you require and “on-the-shelf”, ready-to-ship inventory on Alpha coaxial cable products.

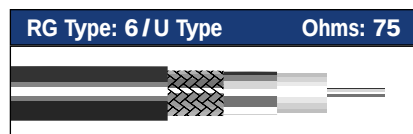
Additional coaxial cables can be found in our Local Area Network Section beginning on page 253.

Product Type	Page Number (s)
Coaxial Cables	278-283
Plenum Coaxial Cables	284, 285
Coaxial Cable Crimp/Stripping Tools	286
Availability By Part Number	287
Coaxial Cable Attenuation Levels	288

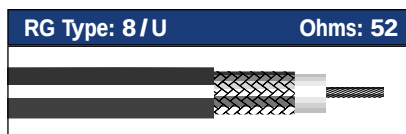
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

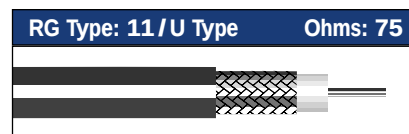
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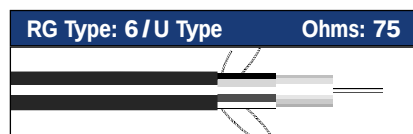
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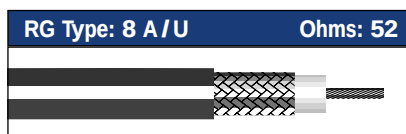
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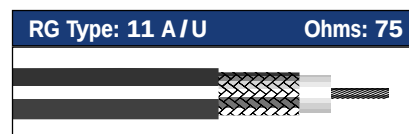
Alpha Part No.: **9847**



Alpha Part No.: **9843**



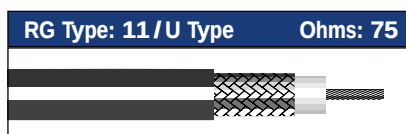
Alpha Part No.: **9008A**



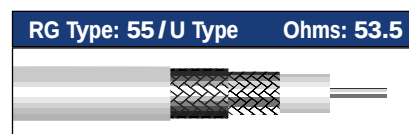
Alpha Part No.: **9011A**



Alpha Part No.: **9006A**



Alpha Part No.: **9011**



Alpha Part No.: **9055**

PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor AWG (mm ²)	Strand (mm)	Mat'l. ♦	Dielectric Mat'l. ♦ Diameter In. (mm)	Shield Mat'l. ♦ Nom. Cov., %	Jacket Mat'l. ♦ Diameter In. (mm)	UL Style No.	VP %	Capacitance pF / ft (pF / m)	Specifica- tions
9804C 6/U	18 (0,82)	Solid	BC	FPE 0.180 (4,57)	A/P + TC Braid 100 60	Black V 0.270 (6,86)	1354	78	17.3 (56,8)	UL Standard 13, Type CL2
9843 6/U	18 (0,82)	Solid	BC	FPE 0.180 (4,57)	A/P + 4 TC DW 100	White, Gray or Black V 0.242 (6,15)	—	78	17.3 (56,8)	—
9006A 6 A/U	21 (0,41)	Solid	CW	PE 0.185 (4,70)	Inner: SC Outer: BC 96	Black NCV 0.336 (8,53)	—	66	20.2 (66,6)	MIL-C-17D Type
9008 8/U	13 (2,88)	7/21 (7 x 0,73)	BC	PE 0.285 (7,24)	BC Braid 96	Black V 0.405 (10,28)	—	66	29.5 (96,8)	JAN-C-17A
9008A 8 A/U	13 (2,88)	7/21 (7 x 0,73)	BC	PE 0.285 (7,24)	BC Braid 96	Black NCV 0.405 (10,28)	—	66	29.8 (97,7)	MIL-C-17D Type
9011 11/U	18 (0,90)	7/26 (7 x 0,40)	TC	PE 0.285 (7,24)	BC Braid 96	Black V 0.405 (10,28)	—	66	20.6 (67,6)	—
9847 11/U	14 (2,08)	Solid	BC	FPE 0.285 (7,24)	BC Braid 81	Black PE 0.405 (10,28)	—	78	17.3 (56,8)	—
9011A 11 A/U	18 (0,90)	7/26 (7 x 0,40)	TC	PE 0.285 (7,24)	BC Braid 96	Black NCV 0.450 (10,28)	—	66	20.6 (67,6)	—
9055 55/U	20 (0,52)	Solid	BC	PE 0.116 (2,95)	Double TC Braid 99	Natural PE 0.206 (5,23)	—	66	28.8 (94,5)	—

♦Refer to Materials Abbreviation Guide on Page 283
See pages 284, 285 and the Local Area Network Section for plenum-rated coax.



ATTENUATION LEVELS

- See Chart on Page 288

AVAILABILITY

- See Page 287 for available put-ups



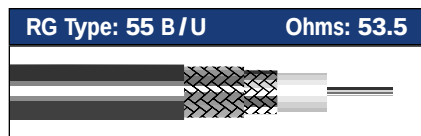
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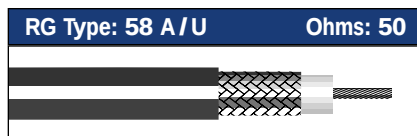
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

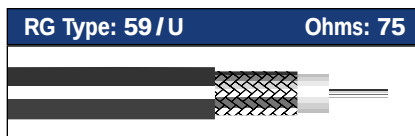
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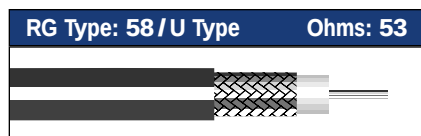
Alpha Part No.: **9055B**



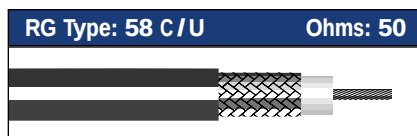
Alpha Part Nos.: **9058AC, 9058A**



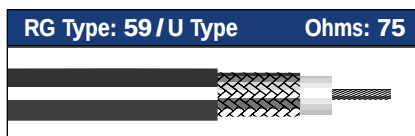
Alpha Part Nos.: **9059C, 9059**



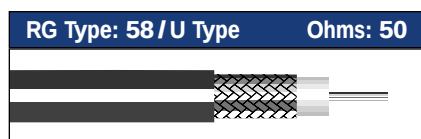
Alpha Part Nos.: **9058X, 9058**



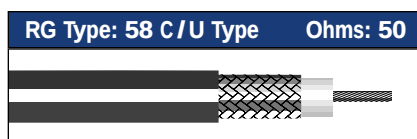
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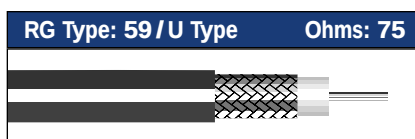
Alpha Part No.: **9803C**



Alpha Part No.: **9848**



Alpha Part No.: **9858**



Alpha Part No.: **9830**

PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor AWG (mm ²)	Strand (mm)	Mat'l. [♦]	Dielectric Mat'l. [♦]	Diameter In. (mm)	Shield Mat'l. [♦]	Nom. Cov., %	Jacket Mat'l. [♦]	Diameter In. (mm)	UL Style No.	VP %	Capacitance pF / ft (pF / m)	Specifica- tions
9055B 55 B/U	20 (0,52)	Solid	SC	PE	0.116 (2,95)	Double TC Braid	99	Black PE	0.206 (5,23)	—	66	28.8 (94,5)	—
9058X 58/U	20 (0,52)	Solid	BC	PE	0.116 (2,95)	TC Braid	81	Black V	0.195 (4,95)	1354	66	28.8 (94,5)	UL Standard 13, Type CL2
9058 58/U	20 (0,52)	Solid	BC	PE	0.116 (2,95)	TC Braid	81	Black V	0.195 (4,95)	1354	66	28.8 (94,5)	—
9848 58/U	18 (0,82)	Solid	BC	FPE	0.116 (2,95)	TC Braid	93	Black V	0.195 (4,95)	1354	78	26 (85,3)	—
9058AC 58 A/U	20 (0,48)	19/0.0071 (19 x 0,18)	TC	PE	0.116 (2,95)	TC Braid	95	Black V	0.195 (4,95)	—	66	30.5 (100,0)	UL Standard 13, Type CL2
9058A 58 A/U	20 (0,48)	19/0.0071 (19 x 0,18)	TC	PE	0.116 (2,95)	TC Braid	95	Black V	0.195 (4,95)	—	66	30.5 (100,0)	JAN-C-17A
9058C 58 C/U	20 (0,48)	19/0.0071 (19 x 0,18)	TC	PE	0.116 (2,95)	TC Braid	95	Black NCV	0.195 (4,95)	—	66	30.5 (100,0)	MIL-C-17D Type
9858 58 C/U	20 (0,48)	19/0.0071 (19 x 0,18)	TC	PE	0.116 (2,95)	TC Braid	95	Black V	0.193 (4,90)	1354	66	30.8 (101,5)	UL Standard 13, Type CL2
9059C 59/U	22 (0,32)	Solid	CW	PE	0.146 (3,71)	BC Braid	95	Black, Red, Green, Blue and Gray V	0.242 (6,15)	1354	66	21.4 (70,2)	UL Standard 13, Type CL2
9059 59/U	22 (0,32)	Solid	CW	PE	0.146 (3,71)	BC Braid	95	White, Gray or Black V	0.242 (6,15)	1354	66	21.4 (70,2)	JAN-C-17A
9803C 59/U	22 (0,32)	7/30 (7 x 0,25)	BC	FPE	0.146 (3,71)	BC Braid	95	Black V	0.242 (6,15)	1354	78	17.3 (56,8)	UL Standard 13, Type CL2
9830 59/U	22 (0,32)	Solid	CW	PE	0.146 (3,71)	BC Braid	80	Black V	0.242 (6,15)	1354	66	21.6 (70,8)	—

♦Refer to Materials Abbreviation Guide on Page 283

See pages 284, 285 and the Local Area Network Section for plenum-rated coax.



ATTENUATION LEVELS

■ See Chart on Page 288

AVAILABILITY

■ See Page 287 for available put-ups

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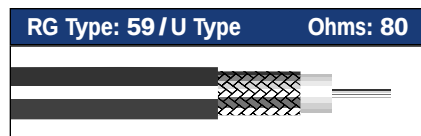
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Europe/UK Telephone: +44 (0) 1932 772422 • Europe/UK Fax: +44 (0) 1932 772433



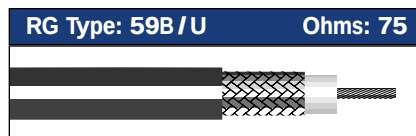
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

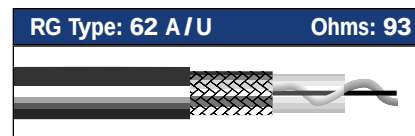
NON-PLENUM



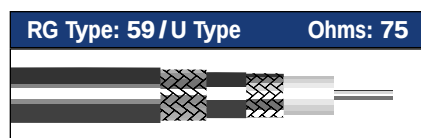
Alpha Part No.: **9840**



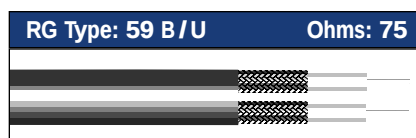
Alpha Part No.: **9259**



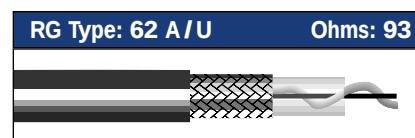
Alpha Part Nos.: **9062AC, 9062A**



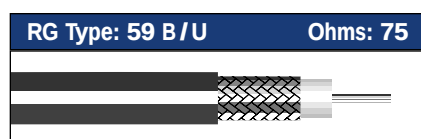
Triaxial - Alpha Part No.: **9850**



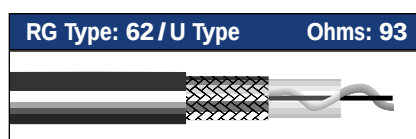
Dual - Alpha Part No.: **9845**



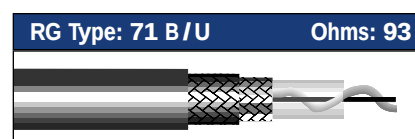
Alpha Part No.: **9805**



Alpha Part No.: **9059B**



Alpha Part No.: **9062**



Alpha Part No.: **9071B**

PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor			Dielectric		Shield		Jacket		UL Style No.	VP %	Capacitance pF/ft (pF/m)	Specifica-tions
	AWG (mm ²)	Strand (mm)	Mat'l. ♦	Mat'l. ♦	Diameter In. (mm)	Mat'l. ♦	Nom. Cov., %	Mat'l. ♦	Diameter In. (mm)				
9840 59/U	22 (0,32)	Solid	CW	FPE	0.146 (3,71)	BC Braid	80	Black V	0.242 (6,15)	—	78	15.4 (50,5)	—
9850 (Triaxial) 59/U	20 (0,52)	Solid	CW	FPE	0.143 (3,63)	BC Braid + PE dielectric BC Braid	96	Black PE	0.315 (8,00)	—	78	17.3 (56,8)	100% Sweep Test @ 5 to 300 MHz
9059B 59 B/U	23 (0,26)	Solid	CW	PE	0.146 (3,71)	BC Braid	95	Black NCV	0.242 (6,15)	—	66	20.1 (65,9)	MIL-C-17D Type
9259 59 B/U	24	7/32	C	PE	0.142	BC Braid	95	PVC	0.240	—	—	21.0 (68,9)	—
9845 (Dual) 59 B/U	23 (0,26)	Solid	CW	PE	0.146 (3,71)	BC Braid	95	Black V	0.242 x 0.504 (6,15) x (13,00)	—	66	20.1 (65,9)	—
9062 62/U	22 (0,32)	Solid	CW	SSP	0.146 (3,71)	BC Braid	81	Black V (Indoor)	0.242 (6,15)	—	84	13.1 (43,0)	JAN-C-17A
9062AC 62 A/U	22 (0,32)	Solid	CW	SSP	0.146 (3,71)	BC Braid	95	Black, White, Red, Green, Blue, Orange, and Gray	0.242 (6,15)	1478	84	13.2 (67,6)	UL Standard 13, Type CL2
9062A 62 A/U	22 (0,32)	Solid	CW	SSP	0.146 (3,71)	BC Braid	95	Black V (Indoor)	0.242 (6,15)	1478	84	13.2 (67,6)	JAN-C-17A
9805 62 A/U	22 (0,32)	Solid	CW	SSP	0.146 (3,71)	BC Braid	93	Black V (Outdoor)	0.260 (6,60)	1478	84	13.2 (43,3)	—
9071B 71 B/U	22 (0,32)	Solid	CW	SSP	0.146 (3,71)	BC Braid + TC Braid	97	Black PE	0.250 (6,35)	—	84	13.2 (43,3)	—

♦Refer to Materials Abbreviation Guide on Page 283

See pages 284, 285 and the Local Area Network Section for plenum-rated coax.



ATTENUATION LEVELS

■ See Chart on Page 288

AVAILABILITY

■ See Page 287 for available put-ups



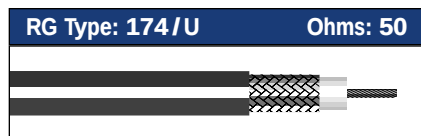
Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
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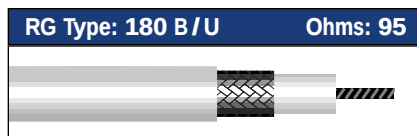
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

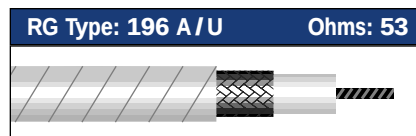
NON-PLENUM



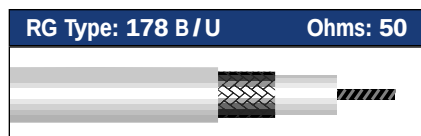
Alpha Part No.: **9174**



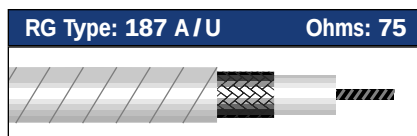
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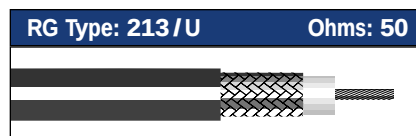
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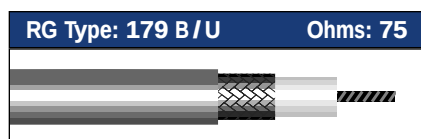
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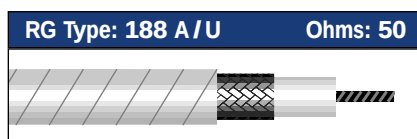
Alpha Part No.: **9187A**



Alpha Part No.: **9213**



Alpha Part No.: **9179B**



Alpha Part No.: **9188A**



Alpha Part No.: **9214**

281

PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor			Dielectric		Shield		Jacket		UL Style No.	VP %	Capacitance pF / ft (pF / m)	Specifica- tions
	AWG (mm ²)	Strand (mm)	Mat'l. ♦	Mat'l. ♦	Diameter In. (mm)	Mat'l. ♦	Nom. Cov., %	Mat'l. ♦	Diameter In. (mm)				
9174 174/U	26 (0.14)	7/34 (7 x 0.16)	CW	PE	0.060 (1.52)	TC Braid	88	Black V	0.100 (2.54)	1354	66	31.1 (102,0)	—
9178B 178 B/U	30 (0.06)	7/38 (7 x 0.10)	SCW	TFE	0.034 (0.86)	SC Braid	96	Natural FEP	0.071 (1.80)	—	70	28.4 (93,1)	100% Sweep Test @ 5 to 300 MHz ♦♦
9179B 179 B/U	30 (0.06)	7/38 (7 x 0.10)	SCW	TFE	0.063 (1.60)	SC Braid	93	Brown Tint FEP	0.100 (2.54)	—	70	19.6 (64,3)	100% Sweep Test @ 5 to 300 MHz ♦♦
9180B 180 B/U	30 (0.06)	7/38 (7 x 0.10)	SCW	TFE	0.102 (2.59)	SC Braid	93	Natural FEP	0.140 (3.56)	—	70	15.7 (51,5)	100% Sweep Test @ 5 to 300 MHz ♦♦
9187A 187 A/U	30 (0.06)	7/38 (7 x 0.10)	SCW	TFE	0.060 (1.52)	SC Braid	94	White TFE Tape	0.105 (2.67)	—	70	19.5 (64,0)	♦♦
9188A 188 A/U	25 (0.16)	7/0.0067 (7 x 0.17)	SCW	TFE	0.060 (1.52)	SC Braid	94	White TFE Tape	0.106 (2.69)	—	70	28.3 (92,8)	♦♦
9196A 196 A/U	30 (0.06)	7/38 (7 x 0.101)	SCW	TFE	0.034 (0.86)	SC Braid	95	White TFE Tape	0.076 (1.93)	—	70	27.8 (91,2)	♦♦
9213 213/U	13 (1.83)	7/0.0296 (7 x 0.75)	BC	PE	0.285 (7.24)	BC Braid	96	Black NCV	0.405 (10.29)	—	66	30.8 (101,0)	MIL-C-17D Type
9214 214/U	13 (1.83)	7/0.0296 (7 x 0.75)	SC	PE	0.285 (7.24)	Double SC Braid	99	Black NCV	0.425 (10.80)	—	66	30.8 (101,0)	MIL-C-17D Type

♦Refer to Materials Abbreviation Guide on Page 283

♦♦All Polyethylene Jacketed Material is Type III A per MIL-C-17

**Recognized
Component**
Underwriters Laboratories Inc.

ATTENUATION LEVELS

■ See Chart on Page 288

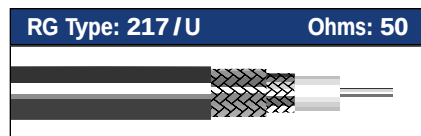
AVAILABILITY

■ See Page 287 for available put-ups

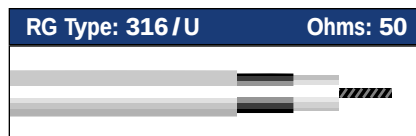
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

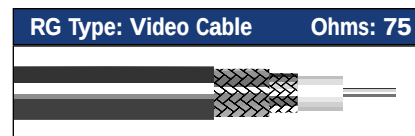
NON-PLENUM



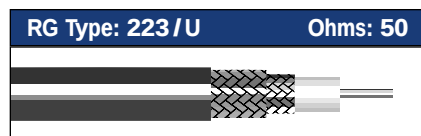
Alpha Part No.: **9217**



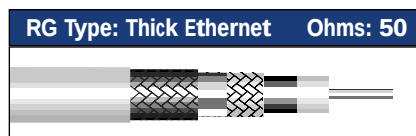
Alpha Part No.: **9316**



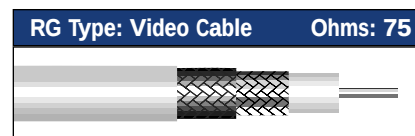
Alpha Part No.: **9807**



Alpha Part No.: **9223**



Alpha Part No.: **9851C**



Alpha Part No.: **9808**

PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor			Dielectric		Shield		Jacket		UL Style No.	VP %	Capacitance pF / ft (pF / m)	Specifica- tions
	AWG (mm ²)	Strand (mm)	Mat'l. ♦	Mat'l. ♦	Diameter In. (mm)	Mat'l. ♦	Nom. Cov., %	Mat'l. ♦	Diameter In. (mm)				
9217 217/U	10 (5,26)	Solid	BC	PE	0.370 (9,40)	Double C Braid	99	Black NCV	0.545 (13,84)	—	66	29.5 (96,8)	MIL-C-17D Type
9223 223/U	19 (0,65)	Solid	SC	PE	0.116 (2,94)	Double SC Braid	99	Black NCV	0.212 (5,38)	—	66	31.5 (103,3)	MIL-C-17D Type
9316 316/U	26 (0,15)	7/0.0067 (7 x 0,17)	SCCS	TFE	0.060 (1,52)	SC	93	FEP	0.098 (2,48)	—	70	30 (98,43)	—
9851C Thick Ethernet	.0855 (2,17)	Solid	BC	FPE	0.247 (6,27)	A/P/A + TC Braid + A/P/A + TC Braid	100 95 100 95	Yellow V	0.405 (10,28)	—	78	26.0 (85,0)	UL Standard 13, Type CL2
9807 Video	20 (0,52)	Solid	BC	PE	0.200 (5,08)	Double TC Braid	99	Black PE	0.304 (7,72)	—	66	20.7 (67,9)	100% Sweep Test @ 5 to 300 MHz, JAN-C-17A
9808 Video	20 (0,52)	Solid	BC	PE	0.200 (5,08)	Double TC Braid	98	Clear PE Indoor	0.304 (7,72)	—	66	21.0 (68,9)	100% Sweep Test @ 5 to 300 MHz, JAN-C-17A

♦Refer to Materials Abbreviation Guide on Page 283



ATTENUATION LEVELS

■ See Chart on Page 288

AVAILABILITY

■ See Page 287 for available put-ups



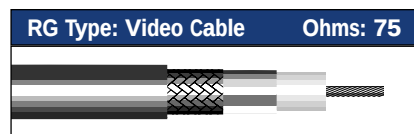
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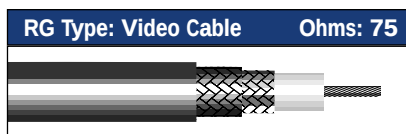
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

NON-PLENUM



Alpha Part No.: **9810**



Extra Flexible - Alpha Part No.: **9813**

PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor			Dielectric		Shield		Jacket		UL Style No.	VP %	Capacitance pF / ft (pF / m)	Specifications
	AWG (mm ²)	Strand (mm)	Mat'l. ♦	Mat'l. ♦	Diameter In. (mm)	Mat'l. ♦	Nom. Cov., %	Mat'l. ♦	Diameter In. (mm)				
9810 Video	23 (0,23)	7/32 (7 x 0,20)	BC Compacted	PE	0.146 (3,71)	A/P/A + TC Braid (96%)	100	Black PE	0.220 (5,59)	—	66	21.0 (68,9)	100% Sweep Test @ 5 to 300 MHz
9813 Video	22	7/30	BC	PE	0.193	Double BC Braid	92	Black PVC	0.303	—	66	21	—

♦Refer to Materials Abbreviation Guide Below

ATTENUATION LEVELS

- See Chart on Page 288

AVAILABILITY

- See Page 287 for available put-ups

♦MATERIAL ABBREVIATION GUIDE

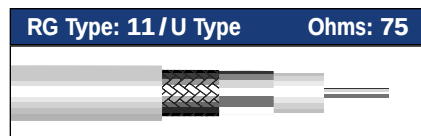
AB – Aluminum Braid	PE – Solid Polyethylene
A/P – Aluminum Polyester	PVC – Polyvinylchloride
A/P/A – Aluminum/Polyester/Aluminum	SC – Silver Coated Copper
BC – Bare Copper	SCCS – Silver Coated Copper Covered Steel
CW – Copper Coated Steel	SCW – Silver Coated Copper Coated Steel
DW – Drain Wire	SSP – Semi-Solid Polyethylene
FEP★ – Fluorinated Ethylene-Propylene	SST – Semi-Solid Teflon®★
FPE – Cellular (foam) Polyethylene	TC – Tinned Copper
FPP – Cellular (foam) Polypropylene	V – Polyvinylchloride – Type I
NCV – Non-contaminating Polyvinylchloride - Type II	

★Registered trademarks of E.I. DuPont Co.

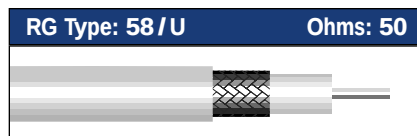
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

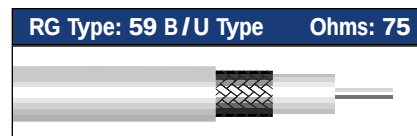
PLENUM RATED
TYPE CL2P



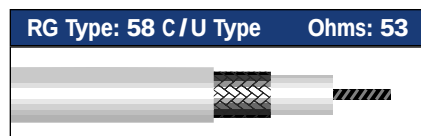
Alpha Part No.: **9105**



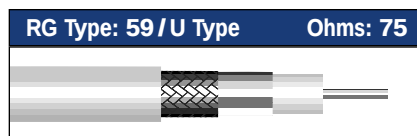
Alpha Part No.: **9158S**



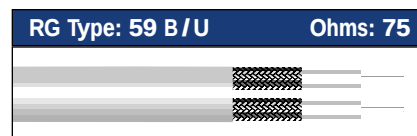
Alpha Part No.: **9159**



Alpha Part No.: **9158**



Alpha Part No.: **9102**
9102-EL



Dual - Alpha Part No.: **9101**

PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor			Dielectric		Shield		Jacket		VP %	Capacitance pF / ft (pF / m)
	AWG (mm ²)	Strand (mm)	Mat'l. ♦	Mat'l. ♦	Diameter In. (mm)	Mat'l. ♦	Nom. Cov., %	Mat'l. ♦	Diameter In. (mm)		
9105 11/U	14	Solid	BC	FFEP	0.285	A/P + TC 95% Braid	100	FP	0.353 (89,0)	82	16.5
9158 58 C/U	20	19/0.0071	TC	FEP	0.116	TC Braid	95	FP	0.171 (4,3)	70	29.0
9158S 58/U	20	Solid	BC	FEP	0.102	BC Braid	95	FP	0.158 (4,0)	69	29.5
9102 59/U	20	Solid	CW	FFEP	0.146	A/P/A + TC 95% Braid	100	FP	0.212 (5,4)	82	16.5
9102-EL 59/U	20	Solid	CW	FFEP	0.146	A/P/A + TC 95% Braid	100	PLM-PVC	0.212 (5,4)	82	16.5
9159 59 B/U	23	Solid	CW	FEP	0.136	BC Braid	95	FP	0.188 (4,8)	69	19.7
9101 Dual 59 B/U	23	Solid	CW	FEP	0.134	BC Braid	95	FP	0.200 x 0.450 0.180 (4,6) x 0.380 (9,7)	69	19.7

♦Refer to Materials Abbreviation Guide Below

COAXIAL CABLE APPLICATIONS

- Programmable Controllers
- Data Loggers
- Local Net Installations
- Graphic Systems Installations
- CRT (VDU) Installations
- Closed Circuit TV

CHARACTERISTICS

OPERATING TEMPERATURE:

- PLM-PVC — 20°C to 60°C
- FP — 55°C to 125°C
- FEP — 55°C to 150°C

SPECIFICATIONS

- UL Standard 13, Type CL2P



ATTENUATION LEVELS

- See Chart on Page 288

AVAILABILITY

- See Page 287 for available put-ups

♦MATERIAL ABBREVIATION GUIDE

A/P	— Aluminum/Polyester
A/P/A	— Aluminum/Polyester/Aluminum
BC	— Bare Copper
CW	— Copper Coated Steel
FP	— Fluoropolymer
FEP★	— Fluorinated Ethylene Propylene
FFEP	— Foam Fluorinated Ethylene-Propylene
PE	— Polyethylene
PLM-PVC	— Plenum-Rated PVC
PVC	— Polyvinylchloride
SST	— Semi-Solid Teflon®★
TC	— Tinned copper

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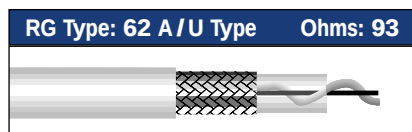
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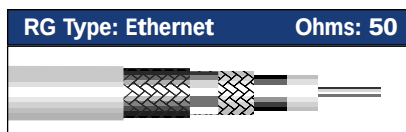
COAXIAL CABLE SYSTEMS

COAXIAL CABLES

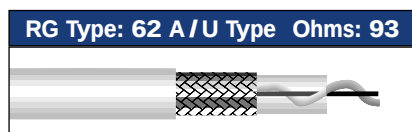
PLENUM RATED TYPE CL2P



Alpha Part No.: **9162**
9162-EL



FEP* Plenum - Alpha Part No.: **9851F**



Alpha Part No.: **9162F**

Note:

Additional Plenum-Rated Coaxial Cables Can Be Found In The Local Area Network Section

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PRODUCT DESCRIPTION

Alpha Part No. Type	Inner Conductor			Dielectric		Shield		Jacket		VP %	Capacitance pF / ft (pF / m)
	AWG (mm ²)	Strand (mm)	Mat'l. ♦	Mat'l. ♦	Diameter In. (mm)	Mat'l. ♦	Nom. Cov., %	Mat'l. ♦	Diameter In. (mm)		
9162 62 A/U	22	Solid	CW	SST	0.146	BC Braid	95	FP	0.204	85	12.8
9162F 62 A/U	22	Solid	CW	FFEP	0.145	BC Braid	95	FP	0.199	82	12.8
9162-EL 62 A/U	22	Solid	CW	SST	0.146	BC Braid	95	PLM-PVC	0.204	85	12.8
9851F Ethernet	0.855 (2,17)	Solid	BC	FFEP	0.247 (6,27)	A/P + TC Braid + A/P/A + TC Braid	100,95 100 95	Orange Tint FP	0.387 (9,63)	80	24.9 (81,7)

♦Refer to Materials Abbreviation Guide Below

COAXIAL CABLE APPLICATIONS SPECIFICATIONS

- Programmable Controllers
- Data Loggers
- Local Net Installations
- Graphic Systems Installations
- CRT (VDU) Installations
- Closed Circuit TV

- UL Standard 13, Type CL2P



Underwriters Laboratories Inc.

ATTENUATION LEVELS

- See Chart on Page 288

AVAILABILITY

- See Page 287 for available put-ups

CHARACTERISTICS

OPERATING TEMPERATURE:

- PLM-PVC — 20°C to 60°C
- FP — 55°C to 125°C
- FEP — 55°C to 150°C

♦MATERIAL ABBREVIATION GUIDE

A/P	— Aluminum/Polyester
A/P/A	— Aluminum/Polyester/Aluminum
BC	— Bare copper
CW	— Copper coated steel
FP	— Fluoropolymer
FEP*	— Fluorinated Ethylene Propylene
FFEP	— Foam Fluorinated Ethylene-Propylene
PE	— Polyethylene
PLM-PVC	— Plenum-Rated PVC
PVC	— Polyvinylchloride
SST	— Semi-Solid Teflon®*
TC	— Tinned copper

*Registered trademarks of E.I. DuPont Co.

COAXIAL CABLE SYSTEMS

COAXIAL CABLE CRIMP / STRIPPING TOOLS

CHOOSE COAXIAL CABLE CRIMPING TOOLS FOR:

- Ratchet Hand Tool for RG-55, 58, 59, 62, and Thin-net Coaxial Cable Connectors and 6-Position or 8-Position Modular Plugs



CHOOSE COAXIAL CABLE STRIPPING TOOLS FOR:

- Coaxial Cable Cut and Strip Preparation

AT-140/3 THREE-CUT COAX STRIP TOOL

Easily Strips Coaxial Cable to 3 Levels in a Single Motion. Typical Cassette Life is Over 2,000 Strips. When the Blades Dull, Simply Insert Alpha's AT-141/3 Replacement Cassette

FEATURES:

- Easy One-Step Stripping Operation
- For Stripping RG-6, RG-58, RG-59 and RG-62 Coax Cable
- Replacement Blade Cassette Available
- Up to 1,500 to 2,000 Strips Per Cassette
- Adjustable Blade Depth to Minimize Nicks
- With Attached Center Conductor Cutter



Alpha Part No.	Cable	Description	Standard Pkg.
AT-140/3	IEEE 802.3 (10Base2) "Thin" Coaxial Cable	Multi-Blade Stripping Tool	1
AT-141/3	IEEE 802.3 (10Base2) "Thin" Coaxial Cable	3-Blade Replacement Cassette (Brown) For Use With AT-140/3	

Alpha Part No.	Description	Terminates (Plugs)	Standard Pkg.
AT-340	Modular plug crimp tool for 6 and 8 position plugs	6-Position (4-Wire) 6-Position 8-Position 8-Position Keyed	1

Alpha Part No.	Description	Standard Pkg.
AT-141/2B	Replacement Cassette (Blue) For Use With AT-140/3	1
AT-141/3	Replacement Cassette (Brown) For Use With AT-140/3	1
AT-141/2G	Replacement Cassette (Green) For Use With AT-140/3	1
AT-141/3	(Brown) Replacement 3-blade cassette for preparing cable when using crimp type BNC & TNC connectors	
AT-141/2B	(Blue) Replacement -blade cassette for preparing cable when using twist-on and F Series connectors	
AT-141/2G	(Green) Replacement 2-blade cassette for preparing cable when using twinaxial cable connectors.	



Alpha Part No.	Description	Standard Pkg.
AT-255	Crimp Tool Complete with Dies (For use with CMC-3005)	1
Ratchet hand tool for RG-55, 58, 59, 62 and "Thin" coaxial cable connectors	Note: Replacement die set for AT-255 is Alpha Part No. AT-255D	

COAXIAL CABLE SYSTEMS

AVAILABILITY BY PART NUMBER

ALPHA PART NO.	PAGE NO.	100 FT. REEL (30,5m)	500 FT. REEL (152m)	1000 FT. REEL (305m)
1604▲	271			
1606▲	271			
1608▲	271			
6072C	272		X	X
6073C	272	X	X	X
6076C	272	X	X	X
6079/C	272	X	X	X
6079/11C	272	X	X	X
6079/12C	272		X	X
6079/15C	272		X	X
6079/27C	272	X	X	X
9006A	255/278	X	X	X
9008	255/278	X	X	X
9008A	255/278	X	X	X
9011	256/278		X	X
9011A	256/278	X	X	X
9055	278	X	X	X
9055B	279	X	X	X
9058	279	X	X	X
9058A	279	X	X	X
9058AC	279/257	X	X	X
9058C	279/257	X	X	X
9058X	279/257	X	X	X
9059	279	X	X	X
9059B	280/258	X	X	X
9059C	279/258	X	X	X
9062	280	X	X	X
9062A	280	X	X	X
9062AC	258/280	X	X	X
9071B	280	X	X	X
9101	261/284			X
9102	260/284		X	X
9102-EL	260/284			X
9104	259		X	X
9104-EL	259			X
9105	284		X	X
9108	262		X	X
9109	262			X
9158	284		X	X
9158S	284		X	X
9159	260/284			X
9162	261/285			X
9162-EL	285			X
9162F	261/285			X
9174	281	X	X	X
9178B	281	X	X	X
9179B	281	X	X	X
9180B	281	X	X	X
9187A	281	X	X	X
9188A	281	X	X	X
9196A	281	X	X	X

▲ Available in 328 ft. (100m) or 1000 ft. (305m) ALPHA **OWIK-REEL** packages only.

▲▲ 9804C also available in 2500 ft. (762m) reel.
9805C also available in 2000 ft. (610m) reel.

ALPHA PART NO.	PAGE NO.	100 FT. REEL (30,5m)	500 FT. REEL (152m)	1000 FT. REEL (305m)
9213	281	X	X	X
9214	281	X	X	X
9217	282	X	X	X
9223	282	X	X	X
9525F	268			X
9259	280			X
9316	282	X	X	X
9504C	268			X
9504CS	269			X
9504F	268			X
9504FS	269			X
9803C	258/279	X	X	X
9804C▲▲	255/278	X	X	X
9805▲▲	280	X	X	X
9807	282	X	X	X
9808	282	X		X
9810	283	X		X
9813	283			X
9814C	262	X	X	X
9815C	262		X	X
9816	263	X	X	X
9817	263		X	X
9818C	263		X	X
9819C	264	X	X	X
9820C	263	X	X	X
9821	264	X	X	X
9823	264	X	X	X
9823C	264	X	X	X
9825C	256			X
9830	279	X	X	X
9840	280		X	X
9843	278	X		X
9845	280			X
9847	256/278	X		X
9848	279	X		X
9850	280	X	X	X
9851C	265/282			X
9851F	265/285		X	X
9852C	267			X
9853C	267	X		X
9854C	267			X
9858	257/279	X	X	X
9859	259		X	X
9859-EL	259			X
9861C	266			X
9861F	266		X	X
9871C	265			X
9871F	265		X	X
9881C	266			X
9888C	266			X

Consult Alpha for **ALPHA OWIK-REEL** payout package availability.

COAXIAL CABLE SYSTEMS

COAXIAL CABLE ATTENUATION LEVELS

Alpha Part No.	RG Type	Attenuation (db / 100 ft.)						
		10MHz	50 MHz	100 MHz	200 MHz	400 MHz	1000 MHz	3000 MHz
NON-PLENUM								
9006A, 9807♦	6 A/U	0.80	1.40	2.90	4.30	6.40	11.00	22.00
9808♦	6 A/U	0.78	1.90	2.70	—	—	—	17.50
9810♦	6 A/U	1.30	4.00	4.90	—	—	—	—
9843, 9804C	6/U	0.62	1.50	2.10	3.10	4.40	7.10	—
9008	8/U	0.66	1.50	2.20	3.20	4.60	9.00	19.00
9008A	8 A/U	0.66	1.50	2.20	3.20	4.60	9.00	19.00
9011	11/U	0.66	1.50	2.20	3.20	4.60	9.00	19.00
9011A	11 A/U	0.66	1.50	2.20	3.20	4.60	9.00	19.00
9847	11/U	0.41	1.00	1.50	2.20	3.30	5.60	10.90
9055	55/U	1.35	3.00	4.30	6.00	8.80	16.50	36.00
9055B	55 B/U	1.35	3.00	4.30	6.00	8.80	16.50	36.00
9058, 9058X	58/U	1.20	3.10	4.60	7.00	10.00	17.50	38.00
9058A, 9058AC	58 A/U	1.40	3.30	4.90	7.30	11.00	20.00	41.00
9058C	58 C/U	1.40	3.30	4.90	7.30	11.00	20.00	41.00
9848	58/U	1.20	3.10	4.80	6.90	10.10	18.00	—
9850	59/U	0.70	1.80	2.60	3.80	5.60	—	—
9059, 9059C, 9830	59/U	1.10	2.30	3.30	4.70	6.70	11.50	25.50
9059B, 9845, 9845C	59 B/U	1.10	2.30	3.30	4.70	6.70	11.50	25.50
9259, 9840, 9803C	59/U	0.95	2.10	2.90	4.10	6.60	11.00	—
9062, 9805	62/U	0.90	1.90	2.80	3.70	5.20	8.50	18.40
9062A, 9062AC	62 A/U	0.90	1.90	2.80	3.70	5.20	8.50	18.40
9071B	71 B/U	0.90	1.90	2.80	3.70	5.20	8.50	18.40
9174	174/U	3.80	6.50	8.90	12.00	17.50	31.00	64.30
9178B	178 B/U	5.30	10.00	13.30	20.00	27.50	45.00	78.00
9179B	179 B/U	5.00	7.90	9.80	12.70	15.80	25.00	43.00
9180B	180 B/U	3.10	4.20	5.10	7.30	10.40	16.50	36.00
9187A	187 A/U	5.00	7.90	9.80	12.70	15.80	25.00	43.00
9188A	188 A/U	3.80	7.90	11.50	15.00	20.00	30.00	58.00
9196A	196 A/U	5.30	10.00	13.30	20.00	27.50	45.00	78.00
9213	213/U	0.66	1.50	2.20	3.20	4.60	9.00	19.00
9214	214/U	0.66	1.50	2.20	3.20	4.60	9.00	19.00
9217	217/U	0.41	1.00	1.40	2.10	3.10	5.80	13.00
9223	223/U	1.35	3.00	4.30	6.00	8.80	16.50	36.00
9316	316	3.10	7.60	10.9	1.50	21.2	33.0	59.10
9806	AlphaMini	3.10	4.20	5.10	7.30	10.40	—	—
9858	58 C/U	1.40	3.30	4.90	7.30	11.00	20.00	41.00

PLENUM								
9104	6/U	0.62	1.41	2.03	2.92	4.23	—	—
9104-EL	6/U	0.62	1.41	2.03	2.92	4.23	—	—
9105	11/U	0.38	0.86	1.25	1.82	2.67	—	—
9158	58 C/U	1.11	2.52	3.59	5.15	7.43	—	—
9158S	58/U	—	—	4.10	6.20	—	—	—
9102	59/U	0.77	1.76	2.51	3.60	5.20	—	—
9102-EL	59/U	0.77	1.76	2.51	3.60	5.20	—	—
9159	59/U	0.97	2.21	3.18	4.60	6.27	—	—
9101	59/U Dual	0.98	2.24	3.22	4.65	6.78	—	—
9162F	62/U	0.72	1.64	2.34	3.35	4.83	—	—
9162	62 A/U	0.73	1.65	2.35	3.87	4.86	—	—
9162-EL	62 A/U	0.73	1.65	2.35	3.87	4.86	—	—

Note: ♦ Precision Video Cable



Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
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CORDS AND ELECTRICAL

CORDS AND CORDSETS, ELECTRICAL WIRE AND CABLE

ALPHA WIRE CORDS AND CORDSETS

Alpha's Cords and Cordsets are ideal for use in consumer and industrial devices, appliances, tools, hospital and biomedical instruments, instrumentation, business machine and communication equipment. All Alpha cordsets are UL Listed and CSA Certified. Insulation color codes conform either to North American Standards or the International Commission on Rules for the Approval of Electrical Equipment (CEE).

Alpha's complete cord and cordset offering includes shielded and unshielded cords, stripped and terminated ends, and a variety of male and female connector combinations. In addition, we offer cords built to international standards, retractile cords and extension cords.

ELECTRICAL WIRE AND CABLE

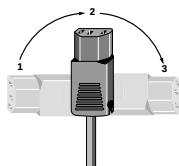
Alpha's electrical wire and cable products are 600 to 2000 Volt rated for use with all types of control and signal circuits within industrial plant operations. We offer shielded and unshielded tray control cable, switchboard wire, welding cable, diesel locomotive cable and portable power cable as well as a complete line of portable cordage. Most Alpha products are UL Listed and meet the requirements of the National Electric Code (NEC).

M.A.P.® CORDS "Multiple Application Power" Cords

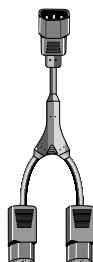
Introducing Alpha's new line of **M.A.P.® Cords** ("Multiple Application Power" Cords). **M.A.P.® Cords** actually change how a system is connected to its power source!

These unique power cords are designed with revolutionary new features that enable a single cord to be used in multiple applications.

M.A.P.® 180°: Has a standard NEMA 5-15P plug on one end with a NEW REVERSIBLE IEC C-13 connector on the other. This new connector can be converted 180° from a left-angle plug to a straight or right-angle plug instantly!



M.A.P.® Twin End Power And Jumper Cords: Alpha's new **M.A.P.®** Twin End Power Cords are designed with a unique "Twin End" feature where a single cord actually splits into two ends, each having its own IEC C-13 connector. The single end on these new power cords is available with either a NEMA 5-15P plug or an IEC C-14 connector.



Product Type

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CORDS & ELECTRICAL

M.A.P.® TWIN END POWER AND JUMPER CORD SETS

M.A.P.® ("Multiple Application Power" CORDS) TWIN END CORD SETS!

TYPE SJT

CHOOSE M.A.P.® TWIN END CORD SETS FOR:

- Powering 2 Pieces of Equipment with One Cord
- Reduce the Number of Power Cords Needed to Power an Entire System
- Reduce the Amount of Cordage Used, Conserving Space in Crowded Rear Panel Areas
- Connecting to Standard Wall Sockets or Power Supplies Such as a PC

M.A.P.® TWIN END CORD SET APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Black, White, Green or Green / Yellow
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Jacket: PVC

SPECIFICATIONS

- UL Standard 817
- CSA C22.2 No. 21



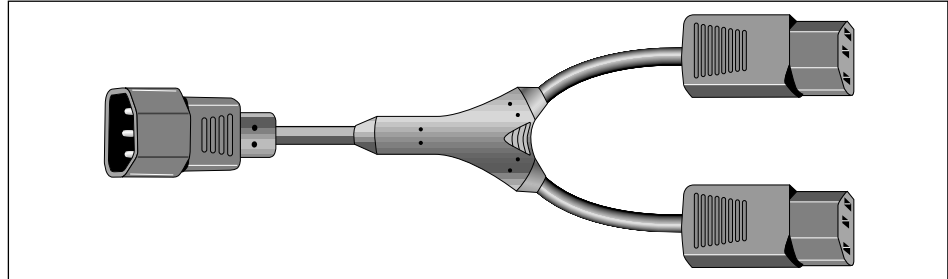
Canadian Standards Association



Underwriters Laboratories Inc.

AVAILABILITY

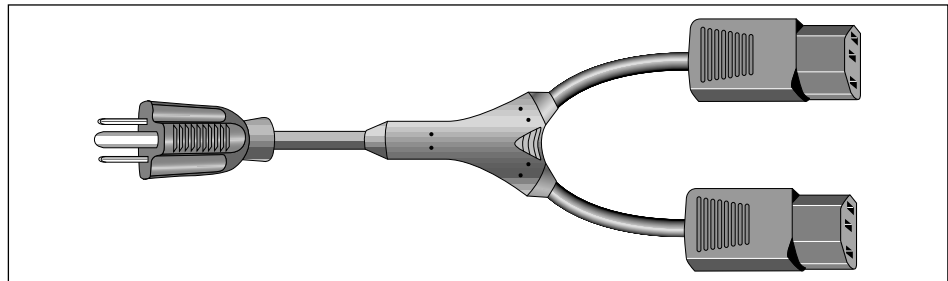
- 25 Piece Packages



M.A.P.® TWIN END JUMPER CORD SET, UNSHIELDED

Alpha Part No.	Length		AWG	Conductor		mm ²	Diameter		Power Rating			Cord Type
	Ft.	m		mm ²	Strand		In.	mm	Watts	Amps	Volts	
468*	6	1,8	18	0,82	41x34	41x0,16	0.30	7,6	1250	10	125	SJT
469*	10	3,0	18	0,82	41x34	41x0,16	0.30	7,6	1250	10	125	SJT
470*	6	1,8	16	1,31	65x34	65x0,16	0.33	8,3	3250	13	250	SJT
471*	10	3,0	16	1,31	65x34	65x0,16	0.33	8,3	3250	13	250	SJT

*Individual leg length is 2 ft.



M.A.P.® TWIN END POWER CORD SET, UNSHIELDED

Alpha Part No.	Length		AWG	Conductor		mm ²	Diameter		Power Rating			Cord Type
	Ft.	m		mm ²	Strand		In.	mm	Watts	Amps	Volts	
472*	6	1,8	18	0,82	41x34	41x0,16	0.30	7,6	1250	10	125	SJT
473*	10	3,0	18	0,82	41x34	41x0,16	0.30	7,6	1250	10	125	SJT
474*	6	1,8	16	1,31	65x34	65x0,16	0.33	8,3	3250	13	250	SJT
475*	10	3,0	16	1,31	65x34	65x0,16	0.33	8,3	3250	13	250	SJT

*Individual leg length is 2 ft.



Toll Free: 1-800-52 ALPHA • Telephone: 908-925-8000 • Fax: 908-925-6923
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CORDS & ELECTRICAL

M.A.P.® 180° REVERSIBLE CORD SETS

TYPE SVT M.A.P.® ("Multiple Application Power" CORDS) 180° REVERSIBLE CONNECTOR CORDS

CHOOSE M.A.P.® 180° REVERSIBLE CORDS FOR:

- 3 Changeable Connector Positions for Efficient Cordage Routing
- Conserving Space Between Rear Panels and Walls

M.A.P.® 180° REVERSIBLE CORD APPLICATIONS:

- Business Machines
- Computers and Peripheral Equipment
- OEM Equipment
- Electronic Equipment Racks

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green / Yellow
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Jacket: PVC

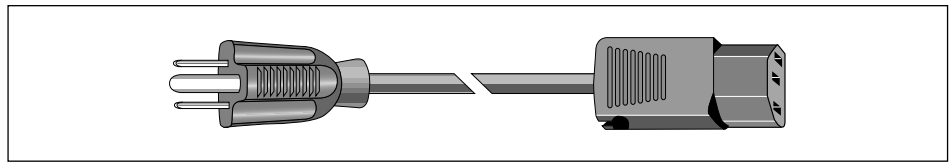
SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49



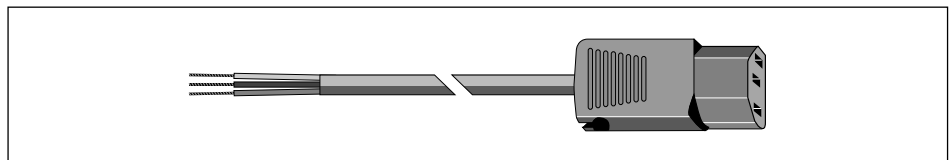
AVAILABILITY

- 25 Piece Packages



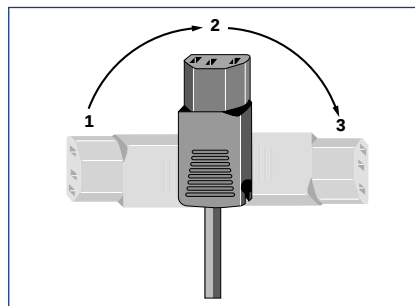
M.A.P.® 180° REVERSIBLE CORD SET, UNSHIELDED

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm²	Strand	mm²	Diameter In.	mm	Power Rating Watts	Amps	Volts	Cord Type
451	7-6	2,29	18	0,82	41x34	41x0,16	0.246	6,25	1250	10	125	SVT



M.A.P.® 180° REVERSIBLE CORD, UNSHIELDED

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm²	Strand	mm²	Diameter In.	mm	Power Rating Watts	Amps	Volts	Cord Type
454	7-6	2,29	18	0,82	41x34	41x0,16	0.246	6,25	1250	10	125	SVT



M.A.P.® 180° CORDS & CORD SETS

convert from a left-angle plug to a straight or right-angle plug instantly.



LEFT-ANGLE PLUG



STRAIGHT PLUG



RIGHT-ANGLE PLUG

CORDS & ELECTRICAL

3 CONDUCTOR ELECTRONIC LINE CORDS

SHIELDED AND UNSHIELDED PVC

TYPES SVT, SJT

CORD APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

**C-13 Style
Connector**



**Jacket
Stripped 1.5"
Insulation
Stripped 5/8"**

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green/Yellow (CEE)
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield (when specified): Aluminum/Polyester, Foil Facing In With Tinned Copper Drain Wire
- Jacket: PVC

UNSHIELDED - STRAIGHT PLUGS

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
523	7-6	2,3	18	0,82	41/34	41 x 0,16	0.25	6,4	1250	10	SVT
511	6-7	2	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
512	9-10	3	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
513	6-7	2	16	1,31	65/34	65 x 0,16	0.35	8,9	1625	13	SJT
514	9-10	3	16	1,31	65/34	65 x 0,16	0.35	8,9	1625	13	SJT

**Right Angle
C-13 Style
Connector**



**Jacket
Stripped 1.5"
Insulation
Stripped 5/8"**

SHIELDED - RIGHT ANGLE PLUG

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
521F	6-7	2	14	2,08	41/30	41 x 0,25	0.40	10,1	1825	15	SJT

SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49



Canadian Standards Association

AVAILABILITY

- 25 Piece Packages

**SEE OUR LINE OF
M.A.P.® 180° CORDS with a
Reversible, C-13 Connector
ON PAGE 291!**



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Email: info@alphawire.com

CORDS & ELECTRICAL

TYPES SVT, SJT, SPT-1
SHIELDED AND UNSHIELDED PVC

3 CONDUCTOR ELECTRONIC JUMPER CORDS PARALLEL LAMP CORDS

CORD APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green / Yellow (CEE)
- Jacket Colors: Black
601B Available with White or Slate Jacket Only

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield (when specified):
Aluminum/Polyester, Foil Facing In
With Tinned Copper Drain Wire
- Jacket: PVC

SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49

† UL Recognized Wiring Harness



Canadian Standards Association



Underwriters Laboratories Inc.

AVAILABILITY

- 25 Piece Packages
- 601B In Stock, 100 Piece Packages

NEMA
1-15P Plug



Conductors
Split 1"
Conductors
Stripped 5/8"

PARALLEL LAMP CORDS

Alpha Part No.	Length Ft.-in.	m	AWG	mm ²	Conductor Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
601B	6-0	1,8	18	0,82	41/34	41x 0,16	0.11x 0.22	2,8 x 5,6	1250	10	SPT-1

C-13 Style
Connector



C-14 Style
Shrouded
Plug

ELECTRONIC JUMPER CORDS SHIELDED

Alpha Part No.	Length Ft.-in.	m	AWG	mm ²	Conductor Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
560F†	3-3	1	18	0,82	41/34	41 x 0,16	0.27	6,8	1250	10	SVT

ELECTRONIC JUMPER CORDS UNSHIELDED

Alpha Part No.	Length Ft.-in.	m	AWG	mm ²	Conductor Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
551†	3-3	1	18	0,82	41/34	41 x 0,16	0.33	8,4	1250	10	SJT
552†	3-3	1	16	1,31	65/34	65 x 0,16	0.35	9,0	1625	13	SJT

SEE OUR LINE OF
M.A.P.® TWIN END
JUMPER CORDS
ON PAGE 290!

CORDS & ELECTRICAL

3 CONDUCTOR POWER SUPPLY CORDS PVC, RUBBER AND NEOPRENE

TYPES SJ, SJT, SJO, SV, SVT

CORD APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

NEMA
5-15P Plug



Jacket
Stripped 1.5"
Insulation
Stripped 5/8"

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Black, White, Green, or Green / Yellow
- Jacket Color: Black
- * Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC, Rubber or Neoprene
- Jacket: PVC, Rubber or Neoprene

TYPE SJT PVC, SJ RUBBER and SJO NEOPRENE

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
615	6-0	1,8	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJ
780*	6-0	1,8	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJT
780B*	6-0	1,8	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJT
778	8-0	2,4	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJ
779*	8-0	2,4	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJT
779B*	8-0	2,4	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJT
781	8-0	2,4	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJO
616	9-0	2,7	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJ
782	12-0	3,7	18	0,81	16/30	16 X 0,25	0.33	8,4	1250	10	SJ

SJ RUBBER

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
783	9-0	2,7	16	1,31	26/30	26 X 0,25	0.35	8,9	1625	13	SJ
784	12-0	3,7	16	1,31	26/30	26 X 0,25	0.35	8,9	1625	13	SJ

TYPE SV RUBBER and SVT PVC

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
775	6-0	1,8	18	0,824	41/34	41 X 0,16	0.26	6,6	1250	10	SV
776	8-0	2,4	18	0,824	41/34	41 X 0,16	0.26	6,6	1250	10	SV
777*	6-0	1,8	18	0,824	41/34	41 X 0,16	0.25	6,4	1250	10	SVT
777B*	6-0	1,8	18	0,824	41/34	41 X 0,16	0.25	6,4	1250	10	SVT
787*	8-0	2,4	18	0,824	41/34	41 X 0,16	0.25	6,4	1250	10	SVT
787B*	8-0	2,4	18	0,824	41/34	41 X 0,16	0.25	6,4	1250	10	SVT

SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49



Canadian Standards Association

AVAILABILITY

- 25 Piece Packages
- Items Marked With B Are In Stock: 100 Piece Packages



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CORDS & ELECTRICAL

3 CONDUCTOR POWER SUPPLY CORDS

PVC, RUBBER AND NEOPRENE

TYPES SJ, SJT, SVT

CORD APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green/Yellow (CEE)
- * Color Code: Black, White, Green, or Green/Yellow
- Jacket Colors: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC, or Rubber
- Shield (when specified): Aluminum/Polyester, Foil Facing In With Tinned Copper Drain Wire
- Jacket: PVC or Rubber

SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49



Certified
Canadian Standards Association

AVAILABILITY

- 25 Piece Packages
- Items Marked With B Are In Stock:
100 Piece Packages

NEMA
5-15P Plug



Jacket
Stripped 1.5"
Insulation
Stripped 5/8"

TYPE SVT PVC SHIELDED

Alpha Part No.	Length Ft.-in. m		AWG	Conductor mm ² Strand mm			Diameter In. mm		Power Rating Watts Amps		Cord Type
507F	6-7	2	18	0,82	41/34	41 x 0,16	0.27	6,8	1250	10	SVT
508F	9-10	3	18	0,82	41/34	41 x 0,16	0.27	6,8	1250	10	SVT

TYPE SVT PVC and SJT PVC UNSHIELDED

Alpha Part No.	Length Ft.-in. m		AWG	Conductor mm ² Strand mm			Diameter In. mm		Power Rating Watts Amps		Cord Type
501	6-7	2	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
501B	6-7	2	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
502	9-10	3	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
502B	9-10	3	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
503	6-7	2	16	1,31	65/34	65 x 0,16	0.35	8,9	1625	13	SJT
504	9-10	3	16	1,31	65/34	65 x 0,16	0.35	8,9	1625	13	SJT
505	6-7	2	14	2,08	41/30	41 x 0,25	0.38	9,6	1875	15	SJT
505B	6-7	2	14	2,08	41/30	41 x 0,25	0.38	9,6	1875	15	SJT
506	9-10	3	14	2,08	41/30	41 x 0,25	0.38	9,6	1875	15	SJT

TYPE SJ RUBBER - UNSHIELDED

Alpha Part No.	Length Ft.-in. m		AWG	Conductor mm ² Strand mm			Diameter In. mm		Power Rating Watts Amps		Cord Type
788*	9-0	2,7	14	2,08	41/30	41 x 0,25	0.38	9,6	1875	15	SJ
789*	15-0	4,6	14	2,08	41/30	41 x 0,25	0.38	9,6	1875	15	SJ

CORDS & ELECTRICAL

3 COND. DETACHABLE POWER SUPPLY CORD SETS SHIELDED AND UNSHIELDED PVC

TYPES SVT, SJT

CORD APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green / Yellow (CEE)
- * Color Code: Black, White, Green or Green / Yellow
- Jacket Colors: Black
Part No. 543 also available in Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield (when specified):
Aluminum / Polyester, Foil Facing In
With Drain Wire
- Jacket: PVC

SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49



Certified
Canadian Standards Association

AVAILABILITY

- 25 Piece Packages
- Items Marked With B Are In Stock:
100 Piece Packages

NEMA
5-15P Plug



UNSHIELDED - STRAIGHT PLUGS

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Volts	Cord Type
543*	7-6	2,3	18	0,82	41/34	41 x 0,16	0.25	6,4	875	7	125	SVT

Item 543 Also Has a Gray Jacket and Meets UL 817

NEMA
5-15P Plug



IEC 320-C13
Receptacle

UNSHIELDED - STRAIGHT PLUGS

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
545*	7-6	2,3	18	0,82	41/34	41 x 0,16	0.25	6,4	1250	10	SVT
545B*	7-6	2,3	18	0,82	41/34	41 x 0,16	0.25	6,4	1250	10	SVT
546	7-6	2,3	16	1,31	65/34	65 x 0,16	0.35	9,0	1625	13	SJT

SHIELDED - STRAIGHT PLUGS

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
547F	6-7	2	18	0,82	41/34	41 x 0,16	0.27	6,8	1250	10	SVT
548F	9-10	3	18	0,82	41/34	41 x 0,16	0.27	6,8	1250	10	SVT
531F	6-7	2	18	0,82	41/34	41 x 0,16	0.34	8,6	1250	10	SJT
532F	9-10	3	18	0,82	41/34	41 x 0,16	0.34	8,6	1250	10	SJT
536F	9-10	3	14	2,08	41/30	41 x 0,25	0.40	10,1	1875	15	SJT

UNSHIELDED - STRAIGHT PLUGS

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Cord Type
531*	6-7	2	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
531B*	6-7	2	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
535*	7-7	2,3	18	0,82	41/34	41 x 0,16	0.25	6,4	1250	10	SVT
535B*	7-7	2,3	18	0,82	41/34	41 x 0,16	0.25	6,4	1250	10	SVT
532*	9-10	3	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
532B*	9-10	3	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
533	6-7	2	16	1,31	65/34	65 x 0,16	0.35	9,0	1625	13	SJT
534*	9-10	3	16	1,31	65/34	65 x 0,16	0.35	9,0	1625	13	SJT
534B*	9-10	3	16	1,31	65/34	65 x 0,16	0.35	9,0	1625	13	SJT

SEE OUR LINE OF

M.A.P.® 180° CORDS with a Reversible, C-13 Connector
ON PAGE 291!



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CORDS & ELECTRICAL

3 COND. DETACHABLE POWER SUPPLY CORD SETS

SHIELDED AND UNSHIELDED PVC

TYPES SVT, SJT

CORD APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green/Yellow (CEE)
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Shield (when specified): Aluminum/Polyester, Foil Facing In With Tinned Copper Drain Wire
- Jacket: PVC

NEMA
5-15P Plug



Right Angle
C-13 Style
Connector

SHIELDED - RIGHT ANGLE PLUGS

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Rating Amps	Cord Type
550F	9-10	3	18	0,82	41/34	41 x 0,16	0.27	6,8	1250	10	SVT

UNSHIELDED - RIGHT ANGLE PLUGS

Alpha Part No.	Length Ft.-in.	m	AWG	Conductor mm ²	Strand	mm	Diameter In.	mm	Power Rating Watts	Rating Amps	Cord Type
537	6-7	2	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
537B	6-7	2	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
538	9-10	3	18	0,82	41/34	41 x 0,16	0.33	8,3	1250	10	SJT
540	9-10	3	16	1,31	65/34	65 x 0,16	0.35	9,0	1625	13	SJT

297

SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49



Canadian Standards Association

SEE OUR LINE OF

M.A.P.® 180° CORDS with a Reversible, C-13 Connector
ON PAGE 291!

AVAILABILITY

- 25 Piece Packages
- Items Marked With B Are In Stock: 100 Piece Packages

CORDS & ELECTRICAL

3 COND. POWER SUPPLY CORDSETS

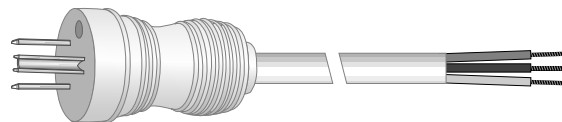
MEDICAL GRADE

TYPE SJT

MEDICAL GRADE CORDS APPLICATIONS:

- In All Medical Environments Where Positive Ground is Critical to Reduce Shock and Sparks
- On X-Ray, Diagnostic and Operating Equipment
- On IV's, Blood Analyzers, Bedside Motors and Other Bio-Medical Equipment

**NEMA
5-15P Plug**



**Jacket
Stripped 2.0"
Insulation
Stripped 5/8"**

TYPE SJT PVC CORD

Alpha Part No.	Length Ft.-in.	mm	AWG	mm	Conductor Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Jacket Color	Plug Color
801	10-0	3,0	18	1,20	43/34	43 x 0,16	0.31	7,8	1250	10	Black	Clear
802	10-0	3,0	18	1,20	43/34	43 x 0,16	0.31	7,8	1250	10	Gray	Gray

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

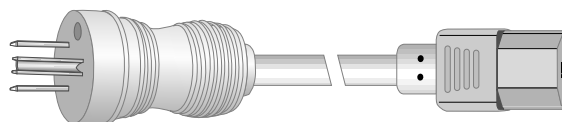
COLOR DESCRIPTION:

- Color Code: Black, White, Green
- Jacket Color: Black or Gray
- Plug Color: Black, Clear, Gray
- Connector Color: Black, Clear, Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Jacket: PVC

**NEMA
5-15P Plug**



**C-13 Style
Connector**

TYPE SJT PVC CORDSET

Alpha Part No.	Length Ft.-in.	mm	AWG	mm	Conductor Strand	mm	Diameter In.	mm	Power Rating Watts	Amps	Jacket Color	Plug Color	Conn. Color
820	10-0	3,0	18	1,20	43/34	43 x 0,16	0.31	7,8	1250	10	Black	Clear	Black
821	10-0	3,0	18	1,20	43/34	43 x 0,16	0.31	7,8	1250	10	Gray	Gray	Gray
822	10-0	3,0	18	1,20	43/34	43 x 0,16	0.31	7,8	1250	10	Gray	Clear	Clear
830	10-0	3,0	16	1,50	68/34	68 x 0,16	0.33	8,5	1625	13	Black	Clear	Black
831	10-0	3,0	16	1,50	68/34	68 x 0,16	0.33	8,5	1625	13	Gray	Gray	Gray
832	10-0	3,0	16	1,50	68/34	68 x 0,16	0.33	8,5	1625	13	Gray	Clear	Clear

SPECIFICATIONS

- UL Standard 62
- UL Standard 817
- CSA C22.2 No. 49
- CSA C22.2 No. 21
- Passes CSA FT2 Flame Test



Canadian Standards Association

AVAILABILITY

- 25 Piece Packages



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CORDS & ELECTRICAL

3 CONDUCTOR EXTENSION CORD SETS

RUBBER

TYPE SJ

CORD SET APPLICATIONS:

- Business Machines
- Point-Of-Sale Terminals
- Computers and Peripheral Equipment
- OEM Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 125 Volt

COLOR DESCRIPTION:

- Color Code: Black, White, Green
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded Rubber
- Jacket: Rubber

NEMA
5-15P Plug



NEMA
5-15R
Receptacle

TYPE SJ RUBBER

Alpha Part No.	Length		AWG	Conductor		mm	Diameter		Power Rating	
	Ft.-in.	m		mm ²	Strand		In.	mm	Watts	Amps
633	10-0	3,1	16	1,32	26/30	26 x 0,25	0,35	8,9	1625	13
640	15-0	4,6	16	1,32	26/30	26 x 0,25	0,35	8,9	1625	13

299

SPECIFICATIONS

- UL Standard 817
- UL Standard 62
- CSA C22.2 No. 21
- CSA C22.2 No. 49



Canadian Standards Association

AVAILABILITY

- Item 633 — 25 Piece Pack,
Item 640 — Individually Bagged

CORDS & ELECTRICAL

INTERNATIONAL POWER SUPPLY CORDS

INDIVIDUALLY APPROVED
FOR EXPORT

PRODUCT INFORMATION

Due to current global growth in the electronic/electrical marketplace, Alpha provides internationally approved power cords for a diverse range of products such as computer peripheral equipment and communication devices and meets all approvals for that particular country.

The correct approvals are molded on each individual plug with the corresponding symbols. Alpha's International power cords are specially designed to ease customer uncertainty regarding cord selection and product compatibility.

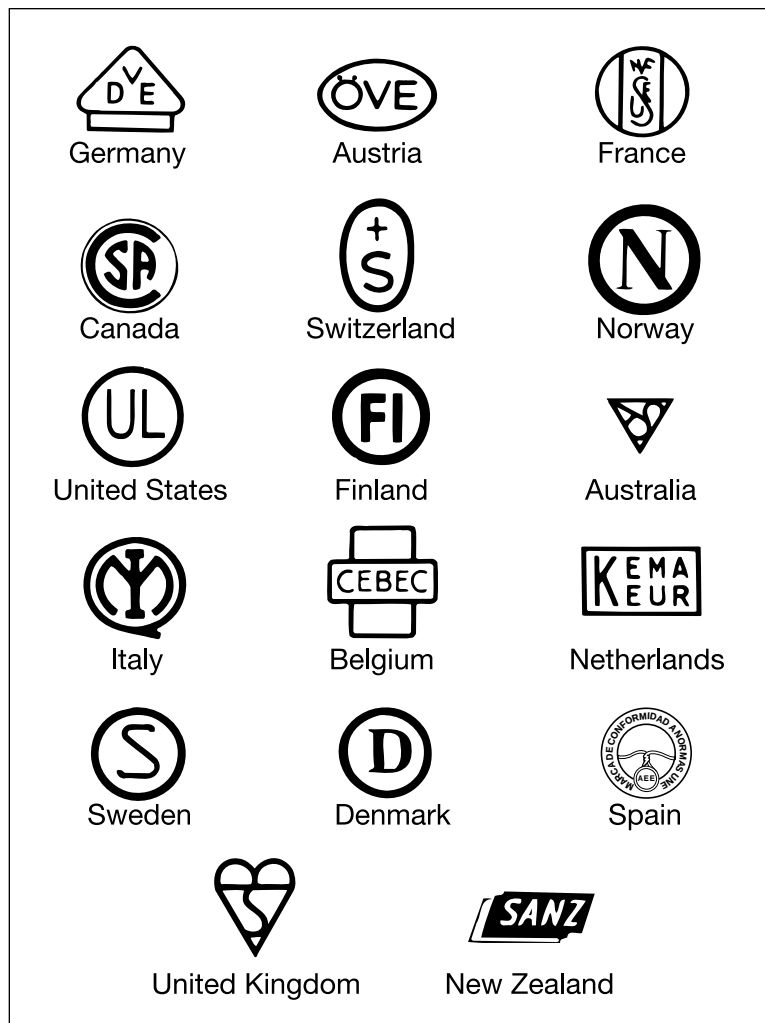
All international cordage is <HAR> (Harmonized), which is measured in terms of square millimeters of the cross section of the conductors. North American cordage is sized in accordance with the AWG. Therefore, harmonized cordage which can be used internationally, can only be produced in a European country approved by an organization called CENELEC.

Cenelec is the main organization of all international approval agencies which enforces the agreement between all international agencies to use one and the same cordage. Each Alpha cord is individually tested for ground, line and neutral continuity as well as other manufacturing and installation test procedures.

Alpha offers the industry cordsets manufactured to the highest quality levels that meet all International standards.

FEATURES / BENEFITS

- Meets All International Safety Regulations
- Available from Inventory
- All Cords Meet Required Approvals and are Marked Accordingly
- Available in Smallest Put-Ups in the Industry
- Allows Existing Electronic Equipment to be Easily Modified for Export



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INTERNATIONAL CORD APPLICATIONS:

- With Electronic Equipment to be Used in Europe
- With Consumer Electronics and Appliances

CHARACTERISTICS

OPERATING TEMPERATURE:

- -15°C to 70°C

VOLTAGE RATING:

- 250 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Yellow/Green
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Jacket: PVC or Neoprene

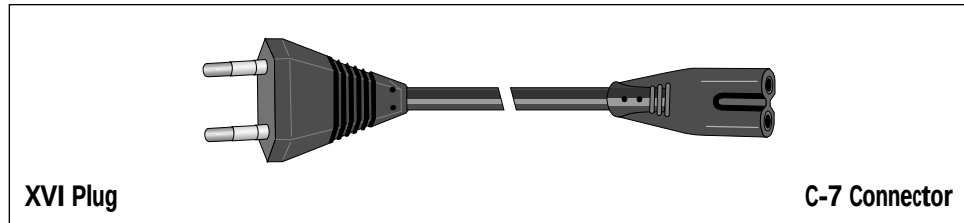
SPECIFICATIONS

- VDE — Germany
- SEMKO — Sweden
- OVE — Austria
- DEMKO — Denmark
- N.V. KEMA — Netherlands
- SETI — Finland
- UNE — Spain
- CEBEC — Belgium
- UTE — France
- NEMKO — Norway

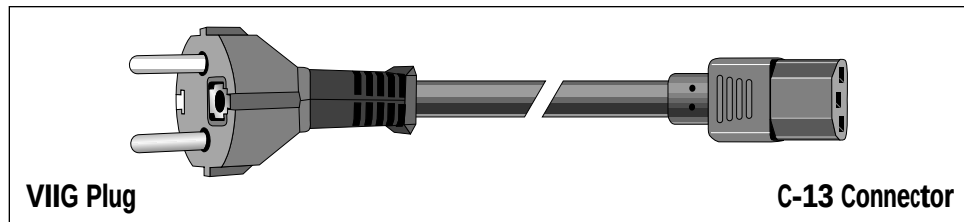
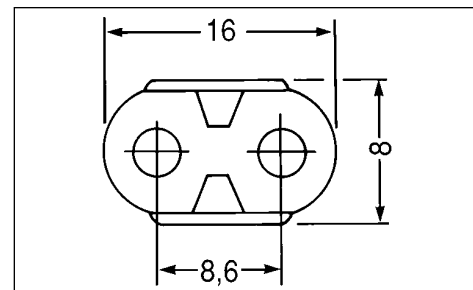
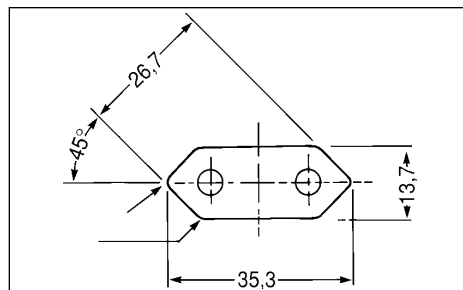


AVAILABILITY

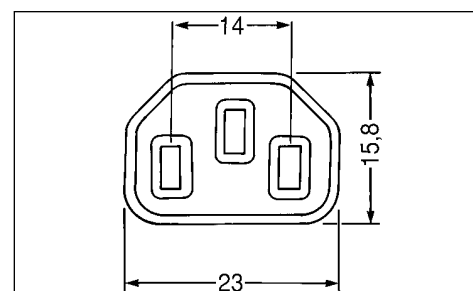
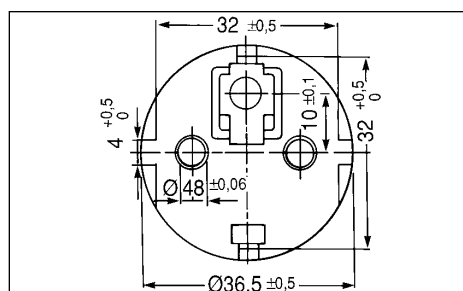
- 25 Piece Packages



UNSHIELDED - 2 CONDUCTOR							CORDAGE TYPE: HO3VVH2F2X0.75				
Alpha Part No.	Length Ft.-in.	Length m	Approx. AWG	Conductor mm ²	Strand	mm	Diameter Nominal In.	Diameter Nominal mm	Power Rating		
									Watts	Amps	Volts
952	5.5	1,8	18	0,75	23/32	23 x 0,20	0.133 x .22	0,40 x 5,60	625	2.5	250



UNSHIELDED - 3 CONDUCTOR							CORDAGE TYPE: HO5VVF3G1.00				
Alpha Part No.	Length Ft.-in.	Length m	Approx. AWG	Conductor mm ²	Strand	mm	Diameter Nominal In.	Diameter Nominal mm	Power Rating		
									Watts	Amps	Volts
920	8.2	2,5	16	1,00	31/32	31 x .20	0.270	6,80	2500	10	250



**INTERNATIONAL
AGENCIES
APPROVED**

- To Connect Accessories and Peripherals to Computers and Electronic Test Equipment
- Internationally Based on IEC 320 Connector System



C-13 Connector

C-14 Shrouded Plug

OPERATING TEMPERATURE:

- -15°C to 70°C

VOLTAGE RATING:

- 250 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green / Yellow
- Jacket Color: Black

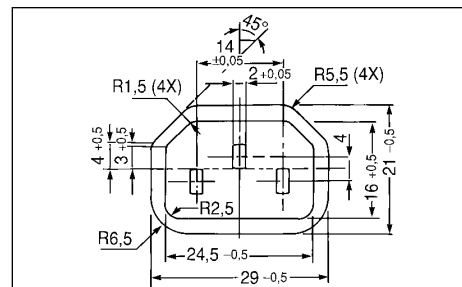
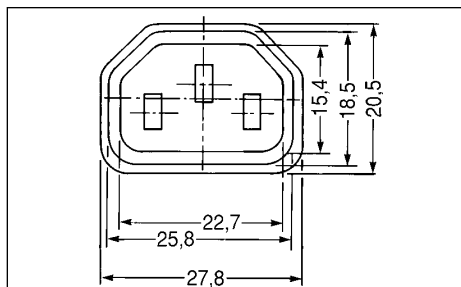
PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Jacket: PVC

UNSHIELDED

CORDAGE TYPE: HARSJT3X18AWG

Alpha Part No.	Length		Approx. AWG	Conductor			Diameter		Power Rating		
	Ft.-in.	m		mm ²	Strand	mm	Nominal In.	mm	Watts	Amps	Volts
953	8.2	2,5	18	1,00	56/34	56 x 0,15	0.314	8,0	2500	10	250



- VDE — Germany
- SEMKO — Sweden
- OVE — Austria
- DEMKO — Denmark
- N.V. KEMA — Netherlands
- SETI — Finland
- UNE — Spain
- CEBEC — Belgium
- UTE — France
- NEMKO — Norway
- UL — United States
- CSA — Canada
- SEV — Switzerland
- SAA — Australia
- CEI — Italy
- BSI — United Kingdom



- 25 Piece Packages

3 CONDUCTOR POWER SUPPLY CORD APPLICATIONS:

- With Equipment to be Used in Australia
- On Computer Related Equipment
- With Communication Equipment and Other Electronics

CHARACTERISTICS

OPERATING TEMPERATURE:

- -15°C to 70°C

VOLTAGE RATING:

- 250 Volt

COLOR DESCRIPTION:

- Color Code: Blue, Brown, Green/Yellow
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Jacket: PVC

SPECIFICATIONS

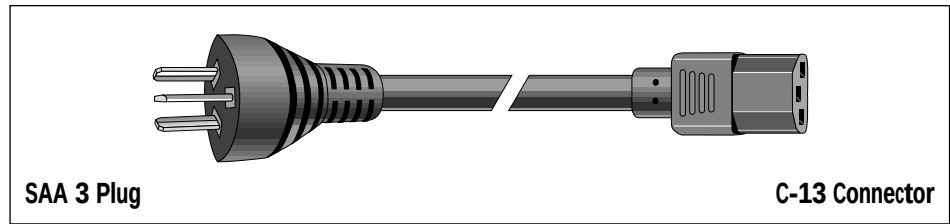
- SAA — Australia



Australia

AVAILABILITY

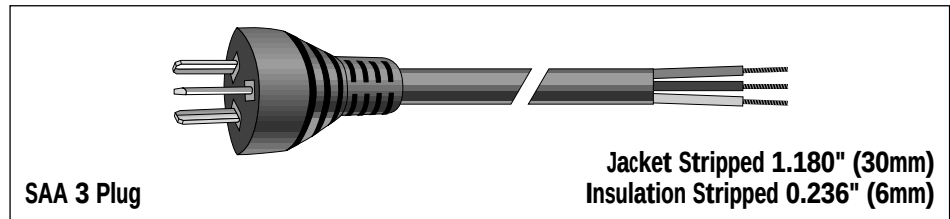
- 25 Piece Packages



UNSHIELDED

CORDAGE TYPE: HO5VVF3G1.00

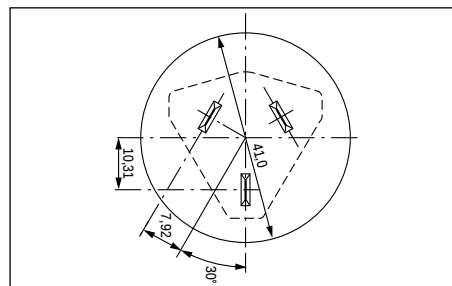
Alpha Part No.	Length		Approx. AWG	Conductor			Diameter Nominal		Power Rating		
	Ft.-in.	m		mm ²	Strand	mm	In.	mm	Watts	Amps	Volts
910	8.2	2,5	16	1,00	31/32	31 x ,20	.270	6,80	2500	10	250



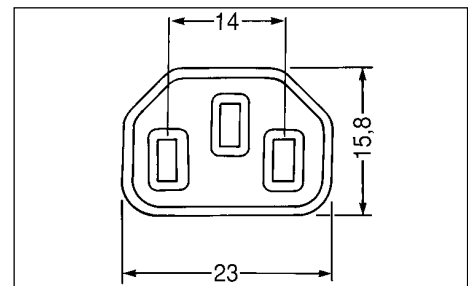
UNSHIELDED

CORDAGE TYPE: HO5VVF3G1.00

Alpha Part No.	Length		Approx. AWG	Conductor			Diameter Nominal		Power Rating		
	Ft.-in.	m		mm ²	Strand	mm	In.	mm	Watts	Amps	Volts
911	8.2	2,5	16	1,00	31/32	31 x ,20	.270	6,80	2500	10	250



P/N 910 and 911 PLUG



P/N 910 CONNECTOR

CORDS & ELECTRICAL

RETRACTILE COMMUNICATION CORDS

POLYPROPYLENE / PVC

UL 2464

**REDUCED
DIAMETERS!**

RETRACTILE CORD APPLICATIONS:

- Industrial Test Equipment
- Musical Instruments and Equipment
- Computer Keyboard Cable
- Mobile Communications
- Pick and Place Automation

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt
- 1 Amp

COLOR DESCRIPTION:

- Conductor Color: See Color Chart Below*
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Polypropylene (0.012" Insulation Thickness)
- Jacket: PVC

SPECIFICATIONS

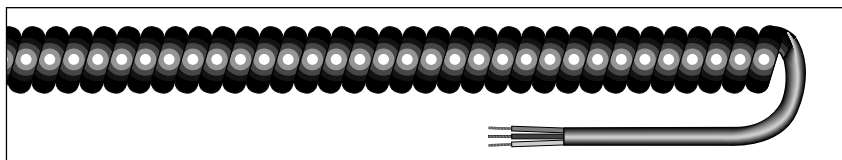
- UL AWM Style 2464



AVAILABILITY

- 1 Piece Packages

*CONDUCTOR COLOR CHART			
COND. NO.	COLOR	COND. NO.	COLOR
1	Black	9	Gray
2	White	10	Pink
3	Red	11	Violet
4	Green	12	Tan
5	Orange	13	White/Black
6	Blue	14	Red/Black
7	Yellow	15	Green/Black
8	Brown		



RETRACTED LENGTH - 1 FT., EXTENDED LENGTH - 5 FT.
12 INCH LEADS AT EACH END - 23 AWG (0,27mm²), **21 / 36** (21x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter		Cord Diameter	
		Inches	mm	Inches	mm
702R	2	5/8	15,89	0.18	4,57
703R	3	11/16	17,46	0.19	4,83
704R	4	11/16	17,46	0.20	5,08
705R	5	3/4	19,10	0.22	5,59
706R	6	7/8	22,22	0.23	5,84
707R	7	7/8	22,22	0.23	5,84

RETRACTED LENGTH - 2 FT., EXTENDED LENGTH - 10 FT.
6 INCH LEADS AT EACH END - 23 AWG (0,27mm²), **21 / 36** (21x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter		Cord Diameter	
		Inches	mm	Inches	mm
702/2R	2	5/8	15,89	0.18	4,57
703/2R	3	11/16	17,46	0.19	4,83
704/2R	4	11/16	17,46	0.20	5,08
705/2R	5	3/4	19,10	0.22	5,59
706/2R	6	7/8	22,22	0.23	5,84
707/2R	7	7/8	22,22	0.23	5,84

RETRACTED LENGTH - 3 FT., EXTENDED LENGTH - 15 FT.
6 INCH LEADS AT EACH END - 23 AWG (0,27mm²), **21 / 36** (21x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter		Cord Diameter	
		Inches	mm	Inches	mm
704/3R	4	11/16	17,46	0.20	5,08
705/3R	5	3/4	19,10	0.22	5,59
706/3R	6	7/8	22,22	0.23	5,84
707/3R	7	7/8	22,22	0.23	5,84

RETRACTED LENGTH - 4 FT., EXTENDED LENGTH - 20 FT.
6 INCH LEADS AT EACH END - 23 AWG (0,27mm²), **21 / 36** (21x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter		Cord Diameter	
		Inches	mm	Inches	mm
703/4R	3	11/16	17,46	0.19	4,83
704/4R	4	11/16	17,46	0.20	5,08
705/4R	5	3/4	19,10	0.22	5,59
706/4R	6	7/8	22,22	0.23	5,84
707/4R	7	7/8	22,22	0.23	5,84
708/4R	8	7/8	22,22	0.25	6,35
710/4R	10	15/16	23,81	0.28	7,11
712/4R	12	1	25,4	0.29	7,37
715/4R	15	1-1/16	26,56	0.31	7,87



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CORDS & ELECTRICAL

RETRACTILE COMMUNICATION CORDS

SHIELDED POLYPROPYLENE / PVC

UL 2464

**REDUCED
DIAMETERS!**

RETRACTILE CORD APPLICATIONS:

- Industrial Test Equipment
- Musical Instruments and Equipment
- Computer Keyboard Cable
- Mobile Communications
- Pick and Place Automation

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 80°C

VOLTAGE RATING:

- 300 Volt

CURRENT RATING:

- 1 Amp

COLOR DESCRIPTION:

- Conductor Color: See Product Chart
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Polypropylene (0.012" Insulation Thickness)
- Shield: Spiral Wrapped Tinned Copper
- Jacket: PVC

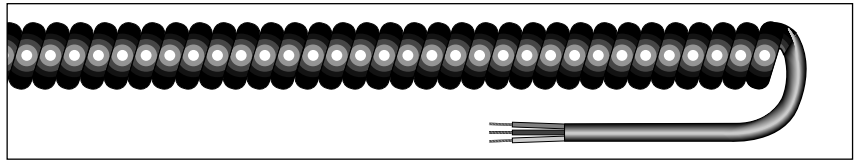
SPECIFICATIONS

- UL AWM Style 2464



AVAILABILITY

- 1 Piece Packages



RETRACTED LENGTH - 2 FT., EXTENDED LENGTH - 10 FT.
6 INCH LEADS AT EACH END - 23 AWG (0,27mm²), **21 / 36** (21x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter Inches	mm	Cord Diameter Inches	mm	Shielded	Color Code
722/2R	2	3/4	19,1	0.21	5,3	Individually Shielded	Black, White
723/2R	3	3/4	19,1	0.21	5,3	2 Unshielded 1 Shielded	Black, White, Red

305

CORDS & ELECTRICAL

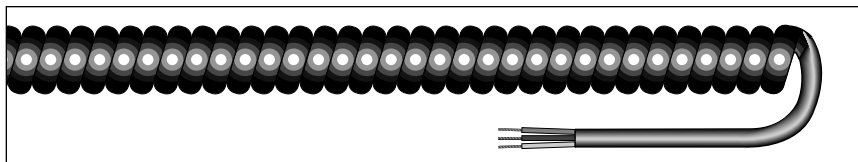
MINIATURE RETRACTILE COMMUNICATION CORDS

UNSHIELDED PVC/PVC

UL AWM STYLE 20013

RETRACTILE CORD APPLICATIONS:

- Industrial Test Equipment
- Musical Instruments and Equipment
- Computer Keyboard Cable
- Mobile Communications
- Pick and Place Automation



RETRACTED LENGTH - 2 FT., EXTENDED LENGTH - 10 FT.
6 INCH LEADS AT EACH END - 28 AWG (0,09mm²), **19 / 40** (19x0,08mm)

Alpha Part No.	No. of Cond.	Coil Diameter		Cord Diameter	
		Inches	mm	Inches	mm
651	2	1/2	12,7	0.14	3,4
652	4	1/2	12,7	0.15	3,8

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 30 Volt

COLOR DESCRIPTION:

- Conductor Color: See Color Chart Below*
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: PVC
- Jacket: PVC

SPECIFICATIONS

- UL AWM Style 20013



Underwriters Laboratories Inc.

AVAILABILITY

- 1 Piece Packages

*CONDUCTOR COLOR CHART

COND. NO.	COLOR
1	Black
2	White
3	Red
4	Green



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CORDS & ELECTRICAL

RETRACTILE COMMUNICATION CORDS

NEOPRENE

UL AWM STYLES: 4194, 4195,
4196, 4197, 4198, 4182

RETRACTILE CORD APPLICATIONS:

- Industrial Test Equipment
- Musical Instruments and Equipment
- Computer Keyboard Cable
- Mobile Communications
- Pick and Place Automation

CHARACTERISTICS

OPERATING TEMPERATURE:

- -30°C to 60°C

VOLTAGE RATING:

- 300 Volt

CURRENT RATING:

- 1 Amp

COLOR DESCRIPTION:

- Conductor Color: See Color Chart Below*
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: Color-Coded Rubber
- Jacket: Neoprene

SPECIFICATIONS

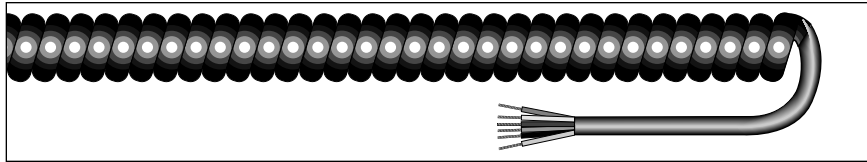
- UL AWM Styles: 4194, 4195, 4196, 4197, 4198, 4182 (see product chart)



Underwriters Laboratories Inc.

AVAILABILITY

- 1 Piece Packages



RETRACTED LENGTH - 2 FT., EXTENDED LENGTH - 10 FT.
6 INCH LEAD AT ONE END - 23 AWG (0,27mm²), 21 / 36 (21x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter Inches	mm	Cord Diameter Inches	mm	UL AWM Style
680/2	2	3/4	19,1	0.22	5,5	4194
681/2	3	13/16	20,6	0.22	5,6	4195
682/2	4	15/16	23,8	0.25	6,4	4196
683/2	5	1-1/16	27,0	0.29	7,2	4197
684/2	6	1-1/8	28,6	0.31	7,8	4198
685/2	7	1-1/4	31,8	0.32	8,1	4182

RETRACTED LENGTH - 4 FT., EXTENDED LENGTH - 20 FT.
6 INCH LEADS AT EACH END - 23 AWG (0,27mm²), 21 / 36 (21x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter Inches	mm	Cord Diameter Inches	mm	UL AWM Style
680/4	2	3/4	19,1	0.22	5,5	4194
681/4	3	13/16	20,6	0.22	5,6	4195
682/4	4	15/16	23,8	0.25	6,4	4196
683/4	5	1-1/16	27,0	0.29	7,2	4197
684/4	6	1-1/8	28,6	0.31	7,8	4198
685/4	7	1-1/4	31,8	0.32	8,1	4182

*CONDUCTOR COLOR CHART

COND. NO.	COLOR	COND. NO.	COLOR
1	Black	5	Orange
2	White	6	Blue
3	Red	7	Yellow
4	Green		

CORDS & ELECTRICAL

RETRACTILE COMMUNICATION CORDS

NEOPRENE

TYPE SO, SVO, SJO

RETRACTILE CORD APPLICATIONS:

- Industrial Test Equipment
- Musical Instruments and Equipment
- Computer Keyboard Cable
- Mobile Communications
- Pick and Place Automation

CHARACTERISTICS

OPERATING TEMPERATURE:

- -30°C to 70°C

VOLTAGE RATING:

- 300 Volt
- 600 Volt — Type SO

COLOR DESCRIPTION:

- Conductor Color: See Color Chart Below*
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded Rubber
- Jacket: Neoprene

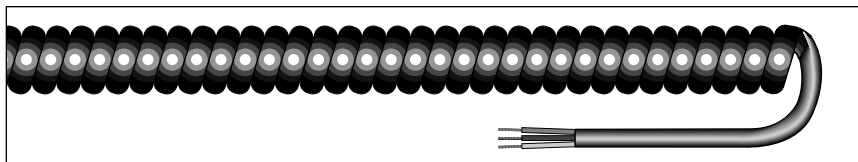
SPECIFICATIONS

- UL Standard 62

UL LISTED

AVAILABILITY

- 1 Piece Packages



RETRACTED LENGTH - 1 FT., EXTENDED LENGTH - 5 FT. 6 INCH LEADS AT EACH END

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Coil Diameter Inches	mm	Diameter Inches	mm	Voltage Rating	UL Type
725	2	18	41/34	15/16	23,8	0.24	6,1	300	SVO
727	3	18	41/34	1-3/8	34,9	0.33	8,4	300	SJO

RETRACTED LENGTH - 2 FT., EXTENDED LENGTH - 10 FT. 6 INCH LEAD AT ONE END

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Coil Diameter Inches	mm	Diameter Inches	mm	Voltage Rating	UL Type
760/2	3	18	41/34	1	25,4	0.27	7,0	300	SVO
674/2	4	14	41/30	2-1/4	57,2	0.61	15,4	600	SO

RETRACTED LENGTH - 4 FT., EXTENDED LENGTH - 20 FT. 6 INCH LEADS AT EACH END

Alpha Part No.	No. of Cond.	Conductor AWG	Strand	Coil Diameter Inches	mm	Diameter Inches	mm	Voltage Rating	UL Type
760/4	3	18	41/34	1	25,4	0.27	7,0	300	SVO
665/4	3	16	65/34	1-7/16	35,5	0.35	9,9	300	SJO
674/4	4	14	41/30	2-1/4	57,2	0.61	15,4	600	SO

*CONDUCTOR COLOR CHART

COND. NO.	COLOR
1	Black
2	White
3	Red
4	Green



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CORDS & ELECTRICAL

RETRACTILE POWER CORDS, TEST LEAD WIRE

NEOPRENE

UL TYPE SJO, SVO

RETRACTILE POWER CORD APPLICATIONS:

- Industrial Test Equipment
- Musical Instruments and Equipment
- Computer Keyboard Cable
- Mobile Communications
- Pick and Place Automation

CHARACTERISTICS

OPERATING TEMPERATURE:

- Power Cord: -20°C to 60°C
- Test Lead Wire: -30°C to 60°C

VOLTAGE RATING:

- Power Cord: 300 Volt
- Test Lead Wire: 5000 Volt

COLOR DESCRIPTION:

- Power Cord:
 - Conductor Color: See Color Chart Below*
 - Jacket Color: Black
- Test Lead Wire:
 - Conductor Color: Black or Red

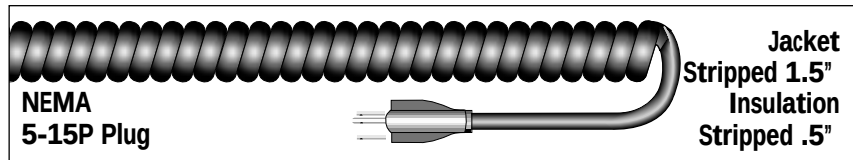
PRODUCT DESCRIPTION:

- Power Cord:
 - Conductor: Stranded Bare Copper
 - Insulation: Color-Coded Rubber
 - Jacket: Neoprene
 - Molded Male Plug on One End
 - Stripped Conductors on One End
- Test Lead Wire:
 - Conductor: Stranded Tinned Copper
 - Insulation: Color-Coded Rubber

SPECIFICATIONS

- UL Standard 817
- UL Standard 62

† Not UL Listed

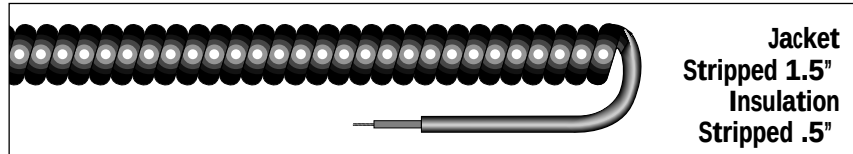


RETRACTILE POWER CORD
RETRACTED LENGTH - 1 FT., EXTENDED LENGTH - 5 FT.
18 AWG (0,824mm²), 41 / 34 (41x0,16mm)

Alpha Part No.	No. of Cond.	Coil Diameter Inches	mm	Cord Diameter Inches	mm	UL Type	Power Rating Watts	Amps
654	2	7/8	22,2	0.24	6,1	SVO	1250	10
656	3	1-3/8	34,9	0.33	8,4	SJO	1250	10

RETRACTILE POWER CORD
RETRACTED LENGTH - 2 FT., EXTENDED LENGTH - 10 FT.
16 AWG (1,31mm²), 65 / 34 (65x0,16mm)

Alpha Part No.	No. of Cond.	Coil Diameter Inches	mm	Cord Diameter Inches	mm	UL Type	Power Rating Watts	Amps
659	3	1-7/16	36,5	0.35	8,9	SJO	1625	13



RETRACTILE TEST LEAD WIRE
RETRACTED LENGTH - 1 FT., EXTENDED LENGTH - 5 FT.
6 INCH STRAIGHT LEADS AT EACH END
20 AWG (0,53mm²), 41 / 36 (41x0,13mm)

Alpha Part No.	No. of Cond.	Coil Diameter Inches	mm	Cord Diameter Inches	mm
650†	1	3/4	19,0	0.17	4,2

AVAILABILITY

*CONDUCTOR COLOR CHART	
COND. NO.	COLOR
1	Black
2	White
3	Red

CORDS & ELECTRICAL

2 CONDUCTOR CORDAGE

NEOPRENE

TYPE SVO, SJO, SO

CORDAGE APPLICATIONS:

- Motor Controls
- In-Plant Power Distribution

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt
- 600 Volt — Type SO

COLOR DESCRIPTION:

- Color Code: Black, White
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC
- Jacket: Neoprene

SPECIFICATIONS

- UL Standard 62
- CSA Standard C22.2 No. 49



Canadian Standards Association

AVAILABILITY

- 250 ft (76,2m) put-ups



TYPE SVO 2 CONDUCTOR

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
1931	18	0,82	41/34	41 x 0,16	0.016	0,41	0.032	0,81	0.24	6,1

TYPE SJO 2 CONDUCTOR

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
1932	18	0,81	16/30	16 x 0,25	0.030	0,76	0.030	0,76	0.30	7,6
1933	16	1,32	26/30	26 x 0,25	0.030	0,76	0.030	0,76	0.32	8,2

TYPE SO 2 CONDUCTOR

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
1934	18	0,81	16/30	16 x 0,25	0.030	0,76	0.060	1,52	0.36	9,1
1935	16	1,32	26/30	26 x 0,25	0.030	0,76	0.060	1,52	0.38	9,6
1936	14	1,08	41/30	41 x 0,25	0.045	1,14	0.080	2,03	0.52	13,4
1937	12	3,29	65/30	65 x 0,25	0.045	1,14	0.095	2,41	0.59	15,2



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CORDS & ELECTRICAL

3 CONDUCTOR CORDAGE

PVC AND RUBBER

TYPES SJT, SVT, SJ, SV

CORDAGE APPLICATIONS:

- Motor Controls
- In-Plant Power Distribution

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Black, White, Green
- Jacket Color: Black, Gray
- * Available in Black Jacket Only

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC or Rubber
- Jacket: PVC or Rubber

SPECIFICATIONS

- UL Standard 62
- CSA Standard C22.2 No. 49

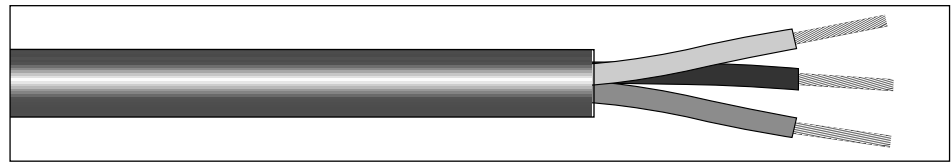
† Not CSA Certified



Canadian Standards Association

AVAILABILITY

- 100 ft (30,5m) and 250 ft (76,2m) put-ups
- ▲ Gray available in 250 ft (76,2m) only



TYPE SJT 3 CONDUCTOR - PVC JACKET

Alpha Part No.	AWG	Conductor mm ²	Strand	mm	Insulation Thickness In.	mm	Jacket Thickness In.	mm	Diameter In.	mm
1952/3T	18	0,82	41/34	41 x 0,16	0.030	0,76	0.030	0,76	0.33	8,4
▲1953/3T	16	1,31	65/34	65 x 0,16	0.030	0,76	0.030	0,76	0.35	8,9

TYPE SVT 3 CONDUCTOR - PVC JACKET

Alpha Part No.	AWG	Conductor mm ²	Strand	mm	Insulation Thickness In.	mm	Jacket Thickness In.	mm	Diameter In.	mm
1951/3T†	18	0,82	41/34	41 x 0,16	0.015	0,38	0.030	0,76	0.25	6,4

TYPE SJ 3 CONDUCTOR - RUBBER JACKET

Alpha Part No.	AWG	Conductor mm ²	Strand	mm	Insulation Thickness In.	mm	Jacket Thickness In.	mm	Diameter In.	mm
1952/3*	18	0,81	16/30	16 x 0,25	0.030	0,76	0.030	0,76	0.33	8,4
1953/3*	16	1,32	26/30	26 x 0,25	0.030	0,76	0.030	0,76	0.35	8,9

TYPE SV 3 CONDUCTOR - RUBBER JACKET

Alpha Part No.	AWG	Conductor mm ²	Strand	mm	Insulation Thickness In.	mm	Jacket Thickness In.	mm	Diameter In.	mm
1951/3*	18	0,82	41/34	41 x 0,16	0.015	0,38	0.030	0,76	0.26	6,6

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CORDS & ELECTRICAL

3 AND 4 CONDUCTOR CORDAGE

PVC AND NEOPRENE, SHIELDED AND UNSHIELDED

TYPES SJO, SO, SJT, SO

CORDAGE

APPLICATIONS:

- Motor Controls
- In-Plant Power Distribution

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 300 Volt
- 600 Volt — Type SO

COLOR DESCRIPTION:

- Color Code: Black, White, Green, Red for 4 Conductor
Items Marked With *:
Blue, Brown, Green/Yellow (CEE)
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Color-Coded PVC or Rubber
- Shield (when specified):
Aluminum/Polyester Facing
In With Tinned Copper
Drain Wire
- Jacket: PVC or Neoprene

SPECIFICATIONS

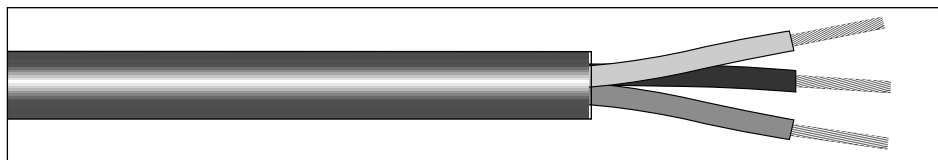
- UL Standard 62
- CSA Standard C22.2 No. 49



Certified
Canadian Standards Association

AVAILABILITY

- 50 ft (15,2m), 100 ft (30,5m) and 250 ft (76,2m) put-ups
- ▲ Available in 100 ft (30,5m) and 250 ft (76,2m) put-ups
- ▲▲ Available in 250 ft (76,2m) put-up



TYPE SJO 3 CONDUCTOR - NEOPRENE JACKET UNSHIELDED

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
▲1932/3	18	0,81	16/30	16 x 0,25	0.030	0,76	0.030	0,76	0.33	8,4
▲▲1933/3	16	1,32	26/30	26 x 0,25	0.030	0,76	0.030	0,76	0.35	8,9

TYPE SO 3 CONDUCTOR - NEOPRENE JACKET UNSHIELDED

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
1934/3	18	0,81	16/30	16 x 0,25	0.030	0,76	0.060	1,52	0.38	9,6
1935/3	16	1,32	26/30	26 x 0,25	0.030	0,76	0.060	1,52	0.40	10,2
1936/3	14	2,08	41/30	41 x 0,25	0.045	1,14	0.080	2,03	0.55	14,1
1937/3	12	3,29	65/30	65 x 0,25	0.045	1,14	0.095	2,41	0.62	15,7
▲1938/3	10	5,32	105/30	105 x 0,25	0.045	1,14	0.095	2,41	0.67	17,0

TYPE SJT 3 CONDUCTOR - PVC JACKET UNSHIELDED

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
1941/3*	18	0,82	41/34	41 x 0,16	0.030	0,76	0.030	0,76	0.33	8,4
▲1942/3*	16	1,31	65/34	65 x 0,16	0.030	0,76	0.030	0,76	0.35	8,9
▲1943/3*	14	2,08	41/30	41 x 0,25	0.030	0,76	0.030	0,76	0.38	9,6

TYPE SJT 3 CONDUCTOR - PVC JACKET SHIELDED

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
1941/3F*	18	0,82	41/34	41 x 0,16	0.030	0,76	0.030	0,76	0.34	8,6
▲1942/3F*	16	1,31	65/34	65 x 0,16	0.030	0,76	0.030	0,76	0.36	9,2
▲1943/3F*	14	2,08	41/30	41 x 0,25	0.030	0,76	0.030	0,76	0.40	10,2

TYPE SO 4 CONDUCTOR - NEOPRENE JACKET UNSHIELDED

Alpha Part No.	AWG	Conductor			Insulation Thickness		Jacket Thickness		Diameter	
		mm ²	Strand	mm	In.	mm	In.	mm	In.	mm
1934/4	18	0,81	16/30	16 x 0,25	0.030	0,76	0.060	1,52	0.41	10,4
1935/4	16	1,32	26/30	26 x 0,25	0.030	0,76	0.060	1,52	0.44	11,2
▲1936/4	14	2,08	41/30	41 x 0,25	0.045	1,14	0.080	2,03	0.60	15,2
1937/4	12	3,29	65/30	65 x 0,25	0.045	1,14	0.095	2,41	0.67	17,0
▲1938/4	10	5,32	105/30	105 x 0,25	0.045	1,14	0.095	2,41	0.72	18,3



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CORDS & ELECTRICAL

UNSHIELDED CONTROL CABLE

RUBBER / NEOPRENE

UNSHIELDED CONTROL CABLE APPLICATIONS:

- In General Purpose Industrial Utility Control Applications

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 60°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

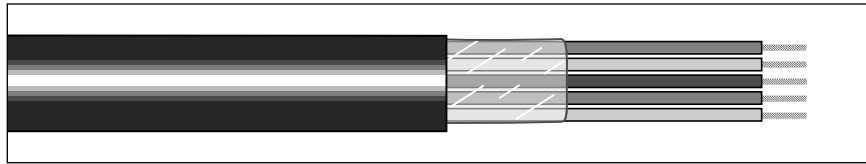
- Color Code: Chart F Page 376
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Rubber
- Jacket: Heavy Neoprene

AVAILABILITY

- Cut to Specific Length



18 AWG (0,81mm²), Insulation Thickness: 2/64" (0,79mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
4506	6	0.078	1,98	0.51	12,9
4510	10	0.078	1,98	0.62	15,7

16 AWG (1,23mm²), Insulation Thickness: 2/64" (0,79mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
4605	5	0.078	1,98	0.52	13,2
4606	6	0.078	1,98	0.54	13,7
4608	9	0.078	1,98	0.63	16,0
4610	10	0.094	2,39	0.67	17,0
4612	12	0.094	2,39	0.72	18,3
4614	14	0.094	2,39	0.76	19,4
4630	30	0.109	2,77	1.04	26,4
4637	37	0.109	2,77	1.13	28,7

14 AWG (1,95mm²), Insulation Thickness: 3/64" (1,19mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
4705	5	0.094	2,39	0.67	17,1
4706	6	0.094	2,39	0.70	17,9
4707	7	0.094	2,39	0.71	18,0
4712	12	0.094	2,39	0.90	22,8

12 AWG (3,31mm²), Insulation Thickness: 3/64" (1,19mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
4805	5	0.094	2,39	0.74	18,8
4806	6	0.094	2,39	0.79	20,0
4808	8	0.094	2,39	0.82	20,8
4810	10	0.109	2,77	1.01	25,6
4812	12	0.109	2,77	1.04	26,4

10 AWG (5,03mm²), Insulation Thickness: 3/64" (1,19mm)

Alpha Part No.	No. of Cond.	Jacket Thickness Inches	Jacket Thickness mm	Diameter Inches	Diameter mm
4825	5	0.094	2,39	0.80	20,3

CORDS & ELECTRICAL

UNSHIELDED TRAY CABLE

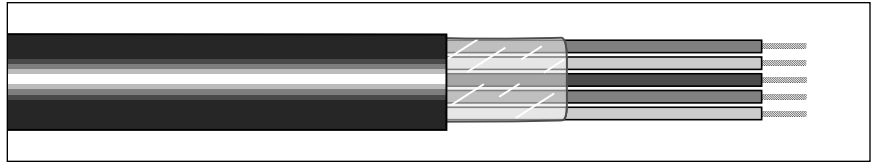
15/5 PVC/NYLON

UL 1277, NEC ART. 340 Class 1, Div. II

ICEA S-61-402

UNSHIELDED TRAY CABLE APPLICATIONS:

- In Industrial Tray Cable Applications
- With All Types of Control and Signal Circuits



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Color Code: Chart J Page 376
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: PVC/Nylon
- Jacket: PVC

SPECIFICATIONS

- UL Standard 1277
- NEC Article 340 Class 1, Div. II
- ICEA S-61-402
- Passes UL Vertical Tray Flame Test

UL LISTED

AVAILABILITY

- Cut to Specific Length

16 AWG (1,23mm²), PVC Insulation: **0.015"** (0,38mm), Nylon Insulation: **0.005"** (0,13mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
7500	2 (flat)	0.045	1,14	0.20 x 0.31	5,0 x 7,8
7502	3	0.045	1,14	0.31	8,0
7503	4	0.045	1,14	0.34	8,6
7506	7	0.045	1,14	0.40	10,1
7508	9	0.045	1,14	0.46	11,6
7518	19	0.060	1,52	0.63	16,1
7519	20	0.060	1,52	0.66	16,8
7523	24	0.060	1,52	0.73	18,7
7524	25	0.060	1,52	0.73	18,7

14 AWG (1,95mm²), PVC Insulation: **0.015"** (0,38mm), Nylon Insulation: **0.005"** (0,13mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
7527	3	0.045	1,14	0.34	8,6
7528	4	0.045	1,14	0.37	9,4
7529	5	0.045	1,14	0.40	10,2
7531	7	0.045	1,14	0.43	11,1
7534	10	0.060	1,52	0.59	15,1
7536	12	0.060	1,52	0.61	15,4
7540	16	0.060	1,52	0.67	17,1
7544	20	0.060	1,52	0.74	18,9
7548	24	0.060	1,52	0.82	20,9
7549	25	0.060	1,52	0.82	20,9
7540/30	30	0.080	2,03	0.91	23,2

12 AWG (3,31mm²), PVC Insulation: **0.015"** (0,38mm), Nylon Insulation: **0.005"** (0,13mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
7550	2 (flat)	0.045	1,14	0.23 x 0.36	5,7 x 9,2
7552	3	0.045	1,14	0.38	9,7
7553	4	0.045	1,14	0.42	10,6
7556	7	0.045	1,14	0.50	12,7
7559	10	0.060	1,52	0.66	16,8
7561	12	0.060	1,52	0.68	17,4

10 AWG (5,03mm²), PVC Insulation: **0.020"** (0,51mm), Nylon Insulation: **0.005"** (0,13mm)

Alpha Part No.	No. of Cond.	Jacket Thickness		Diameter	
		Inches	mm	Inches	mm
7582	3	0.045	1,14	0.46	11,6
7583	4	0.045	1,14	0.50	12,8
7584	5	0.060	1,52	0.58	14,8



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CORDS & ELECTRICAL

WELDING CABLE

WELDING CABLE APPLICATIONS:

- On Welding Apparatus and Equipment



CHARACTERISTICS

OPERATING TEMPERATURE:

- -30°C to 70°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Tape: Separator Tape
- Jacket: Neoprene

Alpha Part No.	Conductor AWG	Strand	Diameter		Current Carrying Capacity (Amps)	Voltage Drop Per 100 Ft. at 60°C Volts
			Inches	mm		
6112	6	259/30	0.35	8,89	75	3.30
6113	4	437/30	0.42	10,70	100	2.80
6115	2	665/30	0.48	12,19	200	3.60
6116	1	836/30	0.52	13,21	250	3.80
6117	1/0	1045/30	0.58	14,77	300	3.60
6118	2/0	1330/30	0.64	16,26	375	3.37
6119	3/0	1672/30	0.70	17,78	450	3.40
6120	4/0	2107/30	0.82	20,83	550	3.30

315

AVAILABILITY

- Cut to Specific Length

CORDS & ELECTRICAL

PORTABLE POWER CABLE

TYPE W
ICEA, NEMA ACCEPTED

PORTABLE POWER CABLE APPLICATIONS:

- With AC and DC Power Systems
- With Mobile Power Equipment
- With Cranes and Heavy Equipment
- For Mines and Other Industrial and Construction Operations

CHARACTERISTICS

OPERATING TEMPERATURE:

- -30°C to 90°C

VOLTAGE RATING:

- 2000 Volt

COLOR DESCRIPTION:

- Color Code: Black, White, Green
- Jacket Color: Black

PRODUCT DESCRIPTION:

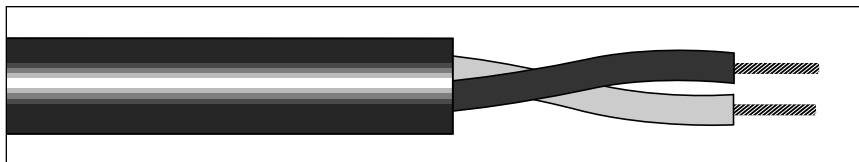
- Conductor: Stranded Bare Copper
- Insulation: Thermoset
- Jacket: Chlorinated Polyethylene (CPE)

SPECIFICATIONS

- Type W
- ICEA, NEMA Accepted

AVAILABILITY

- Cut to Specific Length



SINGLE CONDUCTOR

Alpha Part No.	AWG or MCM	No. of Strands	Insulation Thickness		Jacket Thickness		Diameter		Current Carrying Capacity (Amps)*
			Inches	mm	Inches	mm	Inches	mm	
7431	6	133	0.063	1,60	0.080	2,03	0.51	12,9	85
7432	4	133	0.063	1,60	0.080	2,03	0.57	14,4	110
7434	2	133	0.063	1,60	0.080	2,03	0.66	16,7	150
7436	1/0	259	0.078	1,98	0.080	2,03	0.77	19,5	200
7437	2/0	259	0.078	1,98	0.080	2,03	0.82	20,8	235
7439	4/0	259	0.078	1,98	0.080	2,03	0.93	23,6	315

TWO CONDUCTOR ROUND

Alpha Part No.	AWG or MCM	No. of Strands	Insulation Thickness		Jacket Thickness		Diameter		Current Carrying Capacity (Amps)*
			Inches	mm	Inches	mm	Inches	mm	
7680	8	133	0.063	1,60	0.095	2,41	0.81	20,5	50
7681	6	133	0.063	1,60	0.095	2,41	0.93	23,6	65
7682	4	133	0.063	1,60	0.110	2,79	1.08	27,4	90
7684	2	133	0.063	1,60	0.140	3,56	1.27	32,2	125

THREE CONDUCTOR ROUND

Alpha Part No.	AWG or MCM	No. of Strands	Insulation Thickness		Jacket Thickness		Diameter		Current Carrying Capacity (Amps)*
			Inches	mm	Inches	mm	Inches	mm	
7700	8	133	0.063	1,60	0.140	3,56	0.91	23,1	50
7701	6	133	0.063	1,60	0.140	3,56	1.01	25,6	65
7702	4	133	0.063	1,60	0.140	3,56	1.17	29,7	85

*Based on a Single Conductor Cable in Free Air 40°C Ambient



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CORDS & ELECTRICAL

PORTABLE POWER CABLE

TYPE G
ICEA, NEMA ACCEPTED

PORTABLE POWER CABLE APPLICATIONS:

- With AC and DC Power Systems
- With Mobile Power Equipment
- With Cranes and Heavy Equipment
- For Mines and Other Industrial and Construction Operations

CHARACTERISTICS

OPERATING TEMPERATURE:

- -30°C to 90°C

VOLTAGE RATING:

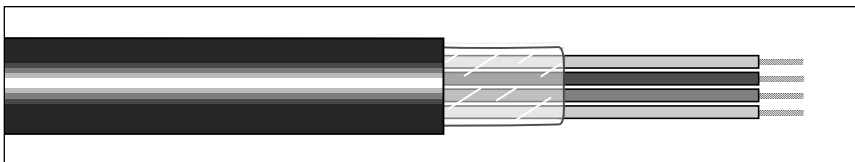
- 2000 Volt

COLOR DESCRIPTION:

- Color Code: Black, White, Red, Orange
- ★ Color Code: Black, White, Green, Red
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Bare Copper
- Insulation: Thermoset
- Ground Wires (when specified): Stranded Bare Copper with Rubber Insulation
- Jacket: Chlorinated Polyethylene (CPE)



FOUR CONDUCTOR ROUND

Alpha Part No.	AWG	No. of Strands	Insulation Thickness		Jacket Thickness		Diameter		Current Carrying Capacity (Amps)*
			Inches	mm	Inches	mm	Inches	mm	
7800*	8	133	0.063	1,60	0.110	2,79	0.99	25,1	40
7801*	6	133	0.063	1,60	0.110	2,79	1.10	27,9	50

FOUR CONDUCTOR WITH GROUND

Alpha Part No.	AWG	No. of Strands	Insulation Thickness		Ground Wire AWG	Diameter		Current Carrying Capacity (Amps)*
			Inches	mm		Inches	mm	
7760	8	133/29	0.063	1,60	12	0.99	25,1	45
7761	6	133/0.0140	0.063	1,60	12	1.10	27,9	55
7762	4	133/0.0177	0.063	1,60	10	1.27	32,2	75
7764	2	133/0.0223	0.063	1,60	9	1.48	37,5	100
7765	1	133/0.0251	0.078	1,98	8	1.68	42,6	110
7766	1/0	259/24	0.078	1,98	7	1.79	45,4	130

*Based on Ambient Temperature of 40°C

SPECIFICATIONS

- Type W
- ICEA, NEMA Accepted

AVAILABILITY

- Cut to Specific Length

317

CORDS & ELECTRICAL

MATERIAL CLASSES AND SPECIFICATIONS

UL 62 - MATERIAL CLASSES EMPLOYED FOR CONDUCTOR INSULATION AND JACKETS

CLASS NO.	TYPE
1	Rubber Insulation, Unvulcanized
2	Rubber Insulation
3	Rubber Insulation (Jacketed Cords)
4	Rubber Insulation, Jacket (Braidless Parallel)
5	Class 5 Deleted
6	Rubber Jacket Material
7	Rubber Insulation, Heat Resistant (Fixture Wire)
8	Rubber Insulation, Heat Resistant (75°C)
9	Class 9 Deleted
10	Rubber Jacket Material, Heat Resistant (75°C)
11	Thermoplastic Insulation and Jacket
12	Thermoplastic Insulation and Jacket, Heat Resistant (74°C, 90°C, 105°C)
12A	FEP Thermoplastic Insulation
12B	Thermoplastic Insulation, Heat Resistant (90°C)
12C	PTFE Thermoplastic Insulation
13	Neoprene Insulation
14	Neoprene Insulation and Jacket (Braidless Parallel)
15	Neoprene Jacket Material
16	Neoprene Jacket Material, Heat Resistant (75°C)

CLASS NO.	TYPE
17	Neoprene Insulation and Jacket, Heat Resistant (90°C)
18	Class 18 Deleted
19	Asbestos, Impregnated (105°C)
20	Cotton, Impregnated (90°C)
21	Class 21 Deleted
22	Silicone Insulation (Fixture Wire) (200°C)
23	NBR/PVC Jacketing Compound (60°C)
24	CP Insulation and Jacket (90°C)
24A	CPE Jacketing Compound (90°C)
25	NBR/PVC Insulation and Jacket (90°C)
26	CP Jacketing Compound
27	NBR/PVC Jacketing Compound (90°C)
28	EPDM Insulation and Jacket (75°C)
29	X-Linked Thermostat PE Compound Heat Resistant (90°C)
30	Thermoplastic PD Compound (75°C)
31	X-Linked Thermoset PE Compound Heat Resistant (75°C)
32	CP Insulation and Jacket (105°C)
33	X-Linked Thermoset PE Compound Heat Resistant (105°C)
34	Thermoplastic Elastomer Insulation and Jacket (90°C, 105°C)
35	EP Rubber Insulation (105°C)

SPECIFICATIONS BY CORD TYPE BASED ON UL STANDARD 62

CORD TYPE	S	SJ	SJO	SJT	SV	SVT	SVO	SO	SP-1	SP-2	SPT-1	SPT-2	HPN
Max. Temp. °C	60	60	60	60	60	60	60	60	60	60	60	60	90
Max. Voltage	600	300	300	300	300	300	300	600	300	300	300	300	300
Conductor Size Range, AWG	18-2	18-10	18-10	18-10	18	18-17	18	18-2	18	18-16	18	18-16	18-12
Insulation, Allowable Classes	3, 8, 11, 12, 12A, 14, 17, 24, 28, 39, 31, 32, 33, 35	3, 8, 12A, 14, 17, 24, 28, 29, 31, 35	3, 8, 12A, 14, 17, 24, 28, 29, 31, 35	3, 8, 11, 12, 12A, 14, 29, 30, 31, 33, 34, 35	3, 14, 24, 28, 29	3, 11, 12, 14, 29, 31, 34	3, 14, 24, 28, 31	3, 8, 11, 12, 12A, 14, 17, 24, 28, 29, 31, 32, 33, 35	3, 4, 14	3, 4, 14	11, 12, 29, 30, 31, 33, 34	11, 12, 29, 30, 31, 33, 34	17, 24, 25, 29, 32, 33
Jacketing, Allowable Classes	6, 10, 15, 16, 17, 23, 24, 25, 26, 27, 28, 32	6, 10, 15, 16, 17, 23, 24, 25, 26, 27, 28	15, 16, 17, 23, 24, 25, 26, 27	11, 12, 34	6, 10, 15, 16, 17, 23, 24, 25, 26, 27, 28	11, 12, 34	15, 16, 17, 23, 24, 25, 26, 27	15, 16, 17, 23, 24, 25, 26, 27, 32	—	—	—	—	—



INSTRUMENTATION & THERMOCOUPLE

MEETS OR EXCEEDS ALL NECESSARY SPECIFICATIONS

Today, the vital functions of measurement and control in manufacturing and processing operations are largely dependent on electronic circuitry. An improving technology, delivering greater control, accuracy and broadened capability, makes the reliability and durability of the interconnecting cables more significant than ever . . . to you, and to Alpha Wire.

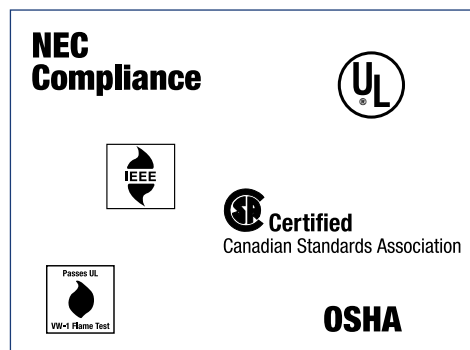
In many respects, instrumentation cables are functionally similar to other cables used in electronic devices. Alpha's line of instrumentation cables are designed for ease of installation, for the transmission of signals and energy with minimal interference and for maximum durability in full compliance with recognized industry and government standards.

Concern for safety and environmental protection has made it mandatory that the cable you design, specify, install, move or service meet specific rigid requirements. These requirements are particularly demanding for instrumentation cable utilized in process control, instrumentation, computers, control systems and monitor networks.

The Alpha line of instrumentation cable is designed to meet or exceed all necessary specifications and enable the cable used in these applications to perform safely under the most stringent and demanding environmental conditions.

- **UL Listed**
- **CSA Certified CMG FT4**
- **NEC** — meets the demanding requirements of the 1999 National Electrical Code (NEC). 300 Volt rated cables meet NEC Article-725 (Power Limited Tray Cable); 600 Volt rated cables meet NEC Article-340 (Tray Cable).
- **UL** — Alpha 300 Volt PLTC and 600 Volt Tray Cables pass the UL Vertical Tray Flame Test.
- **IEEE 383** — 300 Volt PLTC and 600 Volt Tray Cables pass the IEEE Vertical Tray Flame Test.
- **OSHA** — Alpha cables that are UL Listed and installed to meet the 1999 NEC Code are acceptable to OSHA.

Since the measurement of temperature is frequently critical in the control of manufacturing and processing operations, Alpha supplies a full line of Thermocouple Grade Wire and Thermocouple Extension Wire and Cable to complement its instrumentation Cable. Alpha Thermocouple Wire and Cable products are designed to maintain the integrity of the temperature-EMF-generated signals, even when the most sophisticated electronic circuitry is used to sense and transmit temperature measurements. Specific information on design parameters for Thermocouple Wire and Cable is covered in detail in this section on pages 326 - 332.



Product Type Page Number (s)

INSTRUMENTATION CABLE:

PLTC/PVC	320 - 322
TC PVC/Nylon	323 - 325

THERMOCOUPLE WIRE AND CABLE:

Design Parameters	326, 327
Extension Wire	328
Grade Wire	329
Hi Temp. Extension Cable	330
Extension Cable	331, 332

INSTRUMENTATION CABLE

UNSHIELDED/MULTIPAIR, MULTITRIAD

UL TYPE PLTC
CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

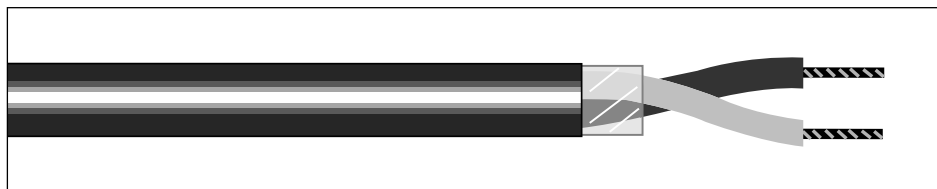
- -20°C to 105°C

VOLTAGE RATING:

- 300 Volt

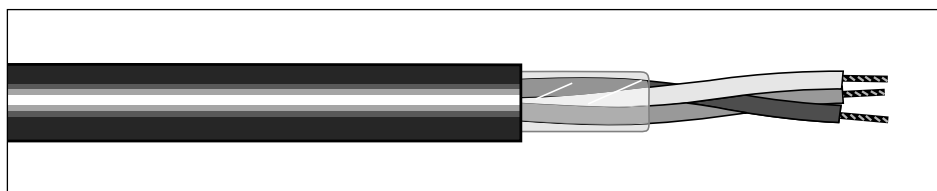
PRODUCT DESCRIPTION:

- Stranded Bare Copper Conductors
- PVC Insulation:
 - Paired Construction Color Coded — One Black, One White
 - Triad Construction Color Coded — One Black, One White, One Red
- When Shielded:
 - Aluminum/Polyester and Tinned Copper Drain Wire
- PVC Jacket — Black, UV Resistant



UNSHIELDED PAIRS

Alpha Part No.	No. of Pairs	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5600B2001	1	20	7	0.013	0,33	0.035	0,89	0.21	5,2
▲ 5600B1801	1	18	7	0.016	0,41	0.035	0,89	0.24	6,0
▲ 5600B1601	1	16	7	0.016	0,41	0.035	0,89	0.26	6,5



UNSHIELDED TRIADS

Alpha Part No.	No. of Triads	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
5630B2001	1	20	7	0.013	0,33	0.035	0,89	0.22	6,1
5630B1801	1	18	7	0.016	0,41	0.035	0,89	0.25	7,4

SPECIFICATIONS

- UL Type PLTC
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- Complies with NEC Article 725, Type PLTC



Canadian Standards Association

AVAILABILITY

- Bulk, Cut to Length
- ▲ Available in 1000 ft (305m) put-ups



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INSTRUMENTATION CABLE

OVERALL SHIELDED MULTIPAIR/MULTITRIAD

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

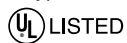
- 300 Volt

PRODUCT DESCRIPTION:

- Stranded Bare Copper Conductors
- PVC Insulation:
Paired Construction Color Coded —
One Black, One White
Triad Construction Color Coded —
One Black, One White, One Red
White Conductor Printed with
Pair/Triad Number at One Inch
Intervals for Easy Identification
- When Shielded:
Aluminum/Polyester and Tinned
Copper Drain Wire
- PVC Jacket — Black, UV Resistant

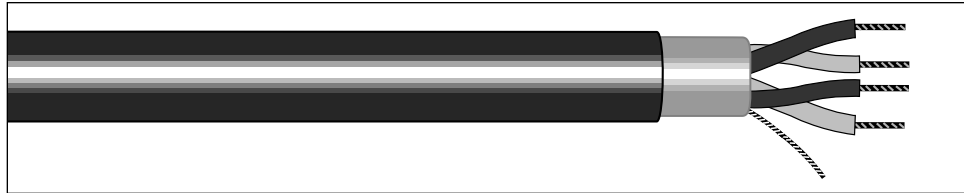
SPECIFICATIONS

- UL Type PLTC
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- Complies with NEC Article 725,
Type PLTC



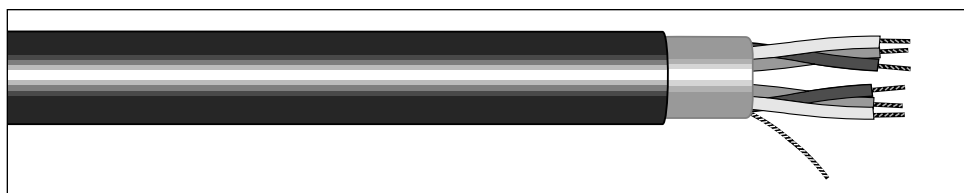
AVAILABILITY

- Bulk, Cut to Length
- ▲ Available in 1000 ft (305m) put-ups



OVERALL SHIELDED PAIRS

Alpha Part No.	No. of Pairs	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5610B2201	1	22	7	0.013	0,33	0.035	0,89	0.19	4,9
▲ 5610B2001	1	20	7	0.013	0,33	0.035	0,89	0.21	5,3
▲ 5610B2002	2	20	7	0.013	0,33	0.040	1,02	0.31	7,1
▲ 5610B2004	4	20	7	0.013	0,33	0.050	1,27	0.38	9,6
▲ 5610B2008	8	20	7	0.013	0,33	0.050	1,27	0.47	11,9
▲ 5610B2010	10	20	7	0.013	0,33	0.050	1,27	0.53	13,0
▲ 5610B2012	12	20	7	0.013	0,33	0.050	1,27	0.55	14,1
▲ 5610B2016	16	20	7	0.013	0,33	0.060	1,52	0.63	16,0
▲ 5610B2020	20	20	7	0.013	0,33	0.060	1,52	0.66	17,3
▲ 5610B2024	24	20	7	0.013	0,33	0.060	1,52	0.74	18,5
▲ 5610B1801	1	18	7	0.016	0,41	0.035	0,89	0.24	6,1
▲ 5610B1802	2	18	7	0.016	0,41	0.040	1,02	0.37	8,4
▲ 5610B1804	4	18	7	0.016	0,41	0.050	1,27	0.45	11,2
▲ 5610B1808	8	18	7	0.016	0,41	0.050	1,27	0.56	14,2
▲ 5610B1812	12	18	7	0.016	0,41	0.060	1,52	0.68	17,0
▲ 5610B1601	1	16	7	0.016	0,41	0.035	0,89	0.26	6,5
▲ 5610B1602	2	16	7	0.016	0,41	0.050	1,27	0.43	9,6
▲ 5610B1604	4	16	7	0.016	0,41	0.050	1,27	0.49	12,2
▲ 5610B1608	8	16	7	0.016	0,41	0.060	1,52	0.64	16,2
▲ 5610B1612	12	16	7	0.016	0,41	0.060	1,52	0.75	18,8
▲ 5610B1401	1	14	19	0.020	0,51	0.040	1,02	0.31	7,9
▲ 5610B1201	1	12	19	0.020	0,51	0.040	1,02	0.35	8,8



OVERALL SHIELDED TRIADS

Alpha Part No.	No. of Triads	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5640B2201	1	22	7	0.013	0,33	0.035	0,89	0.20	5,8
▲ 5640B2001	1	20	7	0.013	0,33	0.035	0,89	0.22	6,6
▲ 5640B2004	4	20	7	0.013	0,33	0.050	1,27	0.44	11,2
▲ 5640B1801	1	18	7	0.016	0,41	0.035	0,89	0.25	7,4
▲ 5640B1601	1	16	7	0.016	0,41	0.040	1,01	0.27	8,6

INSTRUMENTATION CABLE

INDIVIDUALLY AND OVERALL SHIELDED MULTIPAIR/MULTITRIAD

UL TYPE PLTC
CSA CMG FT4
300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 300 Volt

PRODUCT DESCRIPTION:

- Stranded Bare Copper Conductors
- PVC Insulation:
 - Paired Construction Color Coded — One Black, One White
 - Triad Construction Color Coded — One Black, One White, One Red
 - White Conductor Printed with Pair/Triad Number at One Inch Intervals for Easy Identification
- When Shielded:
 - Aluminum/Polyester and Tinned Copper Drain Wire
- PVC Jacket — Black, UV Resistant



INDIVIDUALLY AND OVERALL SHIELDED PAIRS

Alpha Part No.	No. of Pairs	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5620B2002	2	20	7	0.013	0,33	0.040	1,02	0.36	9,2
▲ 5620B2004	4	20	7	0.013	0,33	0.050	1,27	0.40	10,2
▲ 5620B2008	8	20	7	0.013	0,33	0.050	1,27	0.51	13,0
▲ 5620B2012	12	20	7	0.013	0,33	0.060	1,52	0.61	15,5
5620B2016	16	20	7	0.013	0,33	0.060	1,52	0.68	17,3
5620B2020	20	20	7	0.013	0,33	0.060	1,52	0.74	18,8
5620B2024	24	20	7	0.013	0,33	0.070	1,79	0.82	20,8
5620B1802	2	18	7	0.016	0,41	0.050	1,27	0.37	9,4
▲ 5620B1804	4	18	7	0.016	0,41	0.050	1,27	0.46	11,7
5620B1808	8	18	7	0.016	0,41	0.060	1,52	0.62	15,7
▲ 5620B1812	12	18	7	0.016	0,41	0.060	1,52	0.73	18,5
5620B1820	20	18	7	0.016	0,41	0.070	1,79	0.91	23,1
5620B1836	36	18	7	0.016	0,41	0.080	2,03	1.18	30,0
▲ 5620B1602	2	16	7	0.016	0,41	0.050	1,02	0.40	10,2
▲ 5620B1604	4	16	7	0.016	0,41	0.050	1,02	0.51	13,0
▲ 5620B1608	8	16	7	0.016	0,41	0.060	1,27	0.68	17,3
5620B1612	12	16	7	0.016	0,41	0.070	1,79	0.82	20,8
5620B1616	16	16	7	0.016	0,41	0.070	1,79	0.92	23,4

SPECIFICATIONS

- UL Type PLTC
- CSA CMG FT4
- Passes UL Vertical Tray Flame Test
- Complies with NEC Article 725, Type PLTC



Certified
Canadian Standards Association

AVAILABILITY

- Bulk, Cut to Length
- ▲ Available in 1000 ft (305m) put-ups



INDIVIDUALLY AND OVERALL SHIELDED TRIADS

Alpha Part No.	No. of Triads	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5650B2004	4	20	7	0.013	0,33	0.050	1,27	0.44	11,4
▲ 5650B2008	8	20	7	0.013	0,33	0.050	1,27	0.57	15,0



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UL TYPE TC
90°C 600 VOLT

INSTRUMENTATION CABLE

UNSHIELDED/OVERALL SHIELDED MULTIPAIR INDIVIDUALLY AND OVERALL SHIELDED MULTIPAIR

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 90°C

VOLTAGE RATING:

- 600 Volt

PRODUCT DESCRIPTION:

- Stranded Bare Copper Conductors
- PVC/Nylon Insulation:
Paired Construction Color Coded—
One Black, One White
White Conductor Printed with Pair
Number for Easy Identification
- When Shielded:
Aluminum Polyester and Tinned
Copper Drain Wire
- PVC Jacket — Black, UV Resistant

SPECIFICATIONS

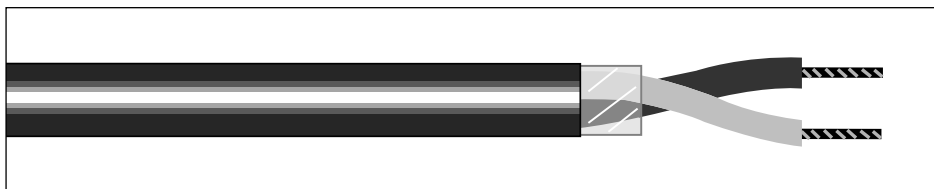
- UL Type TC
- Passes UL Vertical Tray Flame Test
- Complies with NEC Article 340
(Article 725 Class 1)

† Not UL Listed



AVAILABILITY

- Bulk, Cut to Length
- ▲ Available in 1000 ft (305m) put-ups



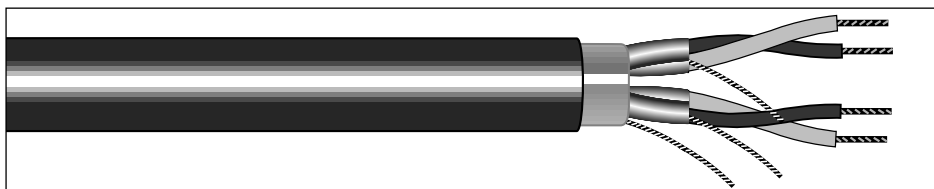
UNSHIELDED PAIRS

Alpha Part No.	No. of Pairs	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5606B1801	1	18	7	0.021	0,53	0.045	1,14	0.27	7,0
▲ 5606B1601	1	16	7	0.021	0,53	0.045	1,14	0.29	7,4



OVERALL SHIELDED PAIRS

Alpha Part No.	No. of Pairs	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5616B2001†	1	20	7	0.016	0,41	0.035	0,89	0.22	5,5
▲ 5616B1801	1	18	7	0.021	0,53	0.045	1,14	0.28	7,0
5616B1804	4	18	7	0.021	0,53	0.045	1,14	0.49	11,9
▲ 5616B1808	8	18	7	0.021	0,53	0.060	1,52	0.64	16,2
5616B1812	12	18	7	0.021	0,53	0.060	1,52	0.74	18,8
▲ 5616B1601	1	16	7	0.021	0,53	0.045	1,14	0.30	7,5
▲ 5616B1602	2	16	7	0.021	0,53	0.045	1,14	0.46	10,2
5616B1604	4	16	7	0.021	0,53	0.060	1,52	0.53	13,7
5616B1608	8	16	7	0.021	0,53	0.060	1,52	0.69	17,8
▲ 5616B1401	1	14	19	0.021	0,53	0.045	1,14	0.32	8,3
5616B1201	1	12	19	0.021	0,53	0.045	1,14	0.36	9,2



INDIVIDUALLY AND OVERALL SHIELDED PAIRS

Alpha Part No.	No. of Pairs	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
5626B1804	4	18	7	0.021	0,53	0.050	1,34	0.51	13,0
5626B1808	8	18	7	0.021	0,53	0.070	1,78	0.70	17,8
5626B1602	2	16	7	0.021	0,53	0.050	1,34	0.47	12,0

INSTRUMENTATION CABLE

OVERALL SHIELDED MULTITRIAD

INDIVIDUALLY AND OVERALL SHIELDED MULTITRIAD

UL TYPE TC
90°C 600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

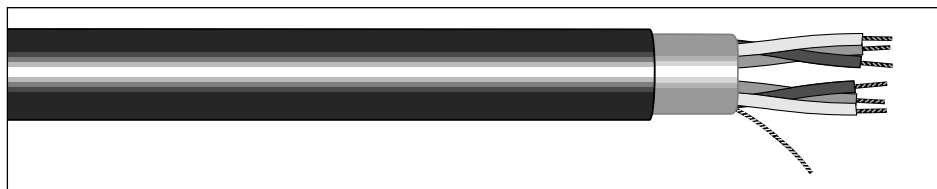
- -20°C to 90°C

VOLTAGE RATING:

- 600 Volt

PRODUCT DESCRIPTION:

- Stranded Bare Copper Conductors
- PVC/Nylon Insulation:
Triad Construction Color Coded —
One Black, One White, One Red
White Conductor Printed with Triad
Number at One Inch Intervals
for Easy Identification
- When Shielded:
Aluminum Polyester and Tinned
Copper Drain Wire
- PVC Jacket — Black, UV Resistant



OVERALL SHIELDED TRIADS

Alpha Part No.	No. of Triads	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5646B1801	1	18	7	0.021	0,53	0.045	1,14	0.29	7,4
▲ 5646B1601	1	16	7	0.021	0,53	0.045	1,14	0.31	7,9
5646B1401	1	14	19	0.021	0,53	0.045	1,14	0.35	8,7



SPECIFICATIONS

- UL Type TC
- Passes UL Vertical Tray Flame Test
- Complies with NEC Article 340
(Article 725 Class 1)

UL LISTED

INDIVIDUALLY AND OVERALL SHIELDED TRIADS

Alpha Part No.	No. of Triads	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5656B1604	4	16	7	0.021	0,53	0.060	1,52	0.67	17,0
▲ 5656B1608	8	16	7	0.021	0,53	0.080	2,03	0.92	27,9

AVAILABILITY

- Bulk, Cut to Length
- ▲ Available in 1000 ft (305m) put-ups



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INSTRUMENTATION CABLE

MULTICONDUCTOR OVERALL SHIELDED

UL TYPE TC
90°C 600 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

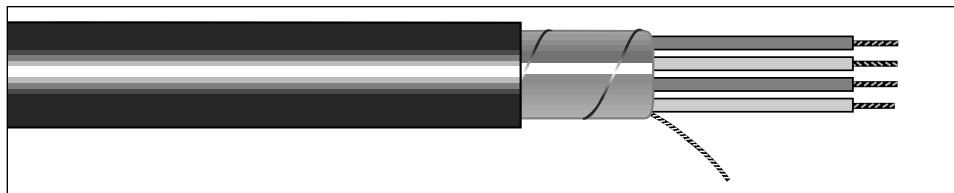
- -20°C to 90°C

VOLTAGE RATING:

- 600 Volt

PRODUCT DESCRIPTION:

- Stranded Bare Copper Conductors
- PVC/Nylon Insulation:
Alphanumeric Conductor
Identification with ICEA K2
Color Code: Chart J Page 361
- Shield:
Aluminum/Polyester and Tinned
Copper Drain Wire
- PVC Jacket — Black, UV Resistant



OVERALL SHIELDED MULTICONDUCTOR

Alpha Part No.	No. of Cond.	AWG	No. of Strands	Nom. Insulation Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
7614/2	2	14	7	0.015/0.004	0,38/0,10	0.045	1,14	0.33	8,3
▲ 7614/3	3	14	7	0.015/0.004	0,38/0,10	0.045	1,14	0.34	8,8
▲ 7614/4	4	14	7	0.015/0.004	0,38/0,10	0.045	1,14	0.37	9,5
7614/6	6	14	7	0.015/0.004	0,38/0,10	0.045	1,14	0.44	11,2
7614/7	7	14	7	0.015/0.004	0,38/0,10	0.045	1,14	0.46	11,7
7614/9	9	14	7	0.015/0.004	0,38/0,10	0.060	1,52	0.54	13,7
7614/12	12	14	7	0.015/0.004	0,38/0,10	0.060	1,52	0.60	15,2
▲ 7616/2	2	16	7	0.015/0.004	0,38/0,10	0.045	1,14	0.30	7,5
7616/3	3	16	7	0.015/0.004	0,38/0,10	0.045	1,14	0.31	8,0
▲ 7616/4	4	16	7	0.015/0.004	0,38/0,10	0.045	1,14	0.33	8,5
7616/5	5	16	7	0.015/0.004	0,38/0,10	0.045	1,14	0.37	9,5
7616/6	6	16	7	0.015/0.004	0,38/0,10	0.045	1,14	0.39	9,9
7616/7	7	16	7	0.015/0.004	0,38/0,10	0.045	1,14	0.40	10,2

SPECIFICATIONS

- UL Type TC
- Passes UL Vertical Tray Flame Test
- Complies with NEC Article 340
(Article 725 Class 1)



AVAILABILITY

- Bulk, Cut to Length
- ▲ Available in 1000 ft (305m) put-ups

325

THERMOCOUPLE WIRE AND CABLE

TEMPERATURE MEASUREMENT AND CONTROL

The measurement of temperature is one of the most vital functions in the control of manufacturing and processing operations. As demands for greater quality, reliability and economy increase, the demands for more precise measurement and control increase. Newer and more sophisticated electronic circuitry is employed creating stringent demands on the wire and cable used to sense and transmit temperature measurements. To meet these ever-increasing demands, Alpha has a full-line of Thermocouple Grade Wire and Thermocouple Extension Wire and Cable. Complementing its line of Electronic Instrumentation Cable, Alpha now provides the industry with a complete line of wire

and cable for manufacturing and process control, all produced to the highest standards of reliability and safety established by government and industry.

THE THERMOCOUPLE

At the heart of all temperature measurements is the thermocouple. Although involving very complex design parameters, the fundamental concept of all thermocouples is the same. Two wires of dissimilar metal are joined together at one end. An increase in temperature creates an electromotive force (emf) or signal, which is transmitted through these wires to a monitoring device which "reads" this signal and displays it on a previously calibrated meter or digital device.

The monitoring device is usually at a location some distance away from the actual thermocouple. To connect the thermocouple

to the monitor requires wire or cable (for multiple thermocouple installations) that will maintain the integrity of the temperature-emf signal generated by the primary wires in the thermocouple.

CONDUCTOR MATERIALS

The range and accuracy of temperature measurement are dependent on the conductor materials employed. Pairs of various metal alloys will react differently with changes in temperature.

Chart (1) gives the temperature range and limits of error (tolerance) for the most popular alloy combinations. All Alpha thermocouple wire and cable is tested and calibrated to the **standard** limits of error as indicated. Where situations require closer tolerances, wire and cable calibrated to the **special** error limits is available under special order.

LIMITS OF ERROR FOR THERMOCOUPLE GRADE AND EXTENSION WIRE[▲]
CHART NO. 1

ANSI Type	Material	THERMOCOUPLE GRADE Temperature Range °C	Standard Limits (±)	Special Limits (±)
J	Iron/Constantan	0 to 277	2.22°C	1.11°C
K*	Chromel/Alumel	277 to 760	3/4%	3/8%
		0 to 277	2.22°C	1.11°C
T	Copper/Constantan	277 to 1260	3/4%	3/8%
		-184 to -101	—	1%
		-101 to -59	2%	1%
		-59 to +93	0.83°C	0.42°C
E	Chromel/Constantan	93 to 371	3/4%	3/8%
		0 to 316	1.67°C	1.25%*C
		316 to 871	1/2%	3/8%
R	Platinum 13% Rhodium/Platinum	0 to 538	1.39°C	—
S	Platinum 10% Rhodium/Platinum	538 to 1482	1/4%	—
		0 to 538	1.39°C	—
B	Platinum 30% Rhodium/Platinum 6% Rhodium	538 to 1482	1/4%	—
		0 to 538	±0.5%	—
		538 to 1482	1/4%	—
ANSI Type	Material	THERMOCOUPLE EXTENSION Temperature Range °C	Standard Limits (±)	Special Limits (±)
JX	Iron/Constantan	-18 to 204	2.22°C	1.11°C
KX	Chromel/Alumel	-18 to 204	2.22°C	1.11°C
TX	Copper/Constantan	-59 to 93	0.83°C	0.42°C
EX	Chromel/Constantan	-18 to 204	2.22°C	1.11°C
RX†	Platinum 13% Rhodium/Platinum	24 to 204	6.67°C	—
SX†	Platinum 10% Rhodium/Platinum	24 to 204	6.67°C	—
BX	Platinum 30% Rhodium/Platinum 6% Rhodium	0 to 100	††	—

††Copper/copper compensating extension wires have no significant error in the 0 to 100°C range.

▲ The limits of error based on a reference junction of 0°C (32°F) per ANSI Circular MC 96. Percentages apply to actual temperature being measured.

† Copper/Alloy #11 — Compensating Extension Wires for Platinum/Platinum-Rhodium Thermocouples.

*Trademark, Hoskins Co.



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THERMOCOUPLE WIRE AND CABLE

INSULATION AND JACKETS

Alpha's Standard line of thermocouple wire and cable is available in a wide range of insulating and jacketing materials to suit the most demanding environmental conditions.

Chart (2) gives the most popular combinations of materials and the characteristics of each. Special situations may require other types of materials. Alpha's technical services team is available to help in determining the exact choice for your application.

GENERAL CHARACTERISTICS OF THERMOCOUPLE WIRE INSULATIONS
CHART NO. 2

Insulation	Jacket	Temp. °C (°F)		Mechanical Properties			Chemical Properties (Resistance to)			
		Cont.	Inter.	Flame	Abrasion Res.	Flexibility	Solvents	Acids	Bases	Moisture
Nylon	Nylon	120 (248)	—	P	E	G	G	P	E	F/P
PVC	PVC	105 (221)	—	G	G	G	F	G	G	G
Teflon (FEP)**	Teflon (FEP)**	205 (400)	—	E	E	G	E	E	E	E
Glass Braid with Silicone	Glass Braid with Silicone	482 (900)	538 (1000)	E	F/G	G	E	E	E	F/G (to 204°C)
Refrasil*	Refrasil*	871 (1600)	982 (1800)	E	P	F/G	E	E	E	P
Kapton**	Kapton**	316 (600)	427 (800)	E	E	E	E	E	E	E
Teflon (TFE-TAPE)**	Teflon (TFE-TAPE)**	260 (500)	—	E	E	E	E	E	E	E
PVC	Nylon	105 (221)	—	G	E	G	F	P	E	G
Tefzel**	Tefzel**	150 (302)	—	E	E	E	E	E	E	E
Ceramic Fiber	Ceramic Fiber	1427 (2600)	—	E	G	E	G/E	F/G	G/E	G/E
High Temperature Glass Braid with Silicone	High Temperature Glass Braid with Silicone	649 (1200)	—	E	F/G	G	E	E	E	F/G (to 204°C)

*Trademark, H.I. Thompson Co.

**Registered trademark of E.I. DuPont Co.

E = Excellent G = Good F = Fair P = Poor

ANSI / ISA COMPLIANCE

The key to precise temperature measurement is consistency. Establishing very exacting standards of calibration, ANSI, the **American National Standards Institute** and ISA, **Instrument Society of America** have been able to govern the specification and manufacture of thermocouple and extension wire and cable. These standards establish quality control techniques and require certification by the manufacturer to ensure performance.

Alpha provides the entire product line with full compliance to these standards. ANSI color coding is used throughout enabling positive identification and installation in complete conformance to governing specifications.

ISA / ANSI COLOR CODE

Type						Overall Jacket			
Grade	Extension	Positive Wires		Negative Wires		Grade	Tracer	Extension	
J	JX	Iron	White	Constantan	Red	Brown	Black	Black	
K	KX	Chromel	Yellow	Alumel	Red	Brown	Yellow	Yellow	
T	TX	Copper	Blue	Constantan	Red	Brown	Blue	Blue	
E	EX	Chromel	Purple	Constantan	Red	Brown	Purple	Purple	
—	RX,SX	Copper	Black	Alloy #11	Red	—	—	Green	

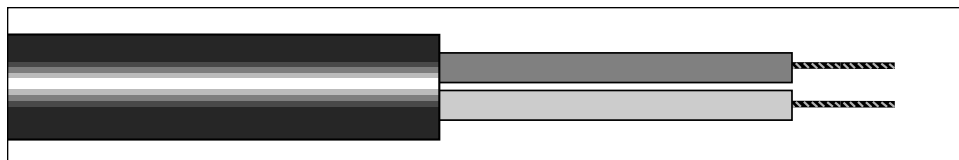
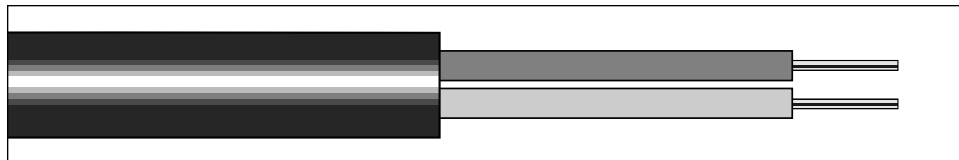
THERMOCOUPLE WIRE AND CABLE

DUPLEX PARALLEL THERMOCOUPLE EXTENSION WIRE

CHARACTERISTICS

PRODUCT DESCRIPTION:

- Solid or Stranded Alloy Wire Matched and Calibrated to Standard Limits of Error per ISA Specification RP-1.1-3 and ANSI Circular MC 96.1
- ANSI Color-Coded Insulation and Jacket



SPECIFICATIONS

- ISA Specification RP-1.1-3
- ANSI Circular MC 96.1
- † Silicone Varnish Impregnated Glass

ANSI

AVAILABILITY

- Bulk, Cut to Length
- Items Marked With ▲:
Also Available in 100 ft (30,5m),
500 ft (152m) and 1000 (305m)
ft put-ups

ANSI TYPE EX (CHROMEL-CONSTANTAN)

Alpha Part No.	Conductor AWG	Conductor mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions	
						Inches	mm
▲ 5704	20	0,51	Solid	Polyvinylchloride	Polyvinylchloride	0.084 x 0.142	2,13 x 3,61

ANSI TYPE JX (IRON-CONSTANTAN)

Alpha Part No.	Conductor AWG	Conductor mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions	
						Inches	mm
▲ 5710	14	2,03	Solid	Polyvinylchloride	Polyvinylchloride	0.134 x 0.228	3,40 x 5,79
▲ 5712	16	1,33	Solid	Polyvinylchloride	Polyvinylchloride	0.121 x 0.201	3,07 x 5,11
5714	16	1,33	Solid	Glass Braid†	Glass Braid†	0.081 x 0.142	2,06 x 3,61
5715	16	1,33	Solid	FEP Teflon*	FEP Teflon*	0.091 x 0.161	2,31 x 4,09
5716	20	0,51	Solid	Polyvinylchloride	Polyvinylchloride	0.100 x 0.163	2,54 x 4,14

ANSI TYPE KX (CHROMEL-ALUMEL)

Alpha Part No.	Conductor AWG	Conductor mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions	
						Inches	mm
▲ 5721	16	1,33	Solid	Polyvinylchloride	Polyvinylchloride	0.121 x 0.201	3,07 x 5,11
▲ 5724	20	0,51	Solid	Polyvinylchloride	Polyvinylchloride	0.100 x 0.163	2,54 x 4,14
▲ 5724S	20	0,56	7/28	Polyvinylchloride	Polyvinylchloride	0.090 x 0.154	2,29 x 3,91

ANSI TYPE TX (COPPER-CONSTANTAN)

Alpha Part No.	Conductor AWG	Conductor mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions	
						Inches	mm
5730	16	1,33	Solid	Polyvinylchloride	Polyvinylchloride	0.121 x 0.201	3,07 x 5,11
▲ 5731	20	0,51	Solid	Polyvinylchloride	Polyvinylchloride	0.100 x 0.163	2,54 x 4,14
5731S	20	0,56	7/28	Polyvinylchloride	Polyvinylchloride	0.090 x 0.154	2,29 x 3,91

ANSI TYPE RSX (COPPER ALLOY #11)

Alpha Part No.	Conductor AWG	Conductor mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions	
						Inches	mm
5740	16	1,33	Solid	Polyvinylchloride	Polyvinylchloride	0.121 x 0.201	3,07 x 5,11
5741H	16	1,33	Solid	Hi-Temp Glass Braid†	Hi-Temp Glass Braid†	0.099 x 0.179	2,51 x 4,55

*Registered trademark of E.I. DuPont Co.

Thermocouple Wire Diameter and Resistance Information can be found on page 332 of this catalog.



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THERMOCOUPLE WIRE AND CABLE

DUPLEX PARALLEL THERMOCOUPLE WIRE GRADE

CHARACTERISTICS

PRODUCT DESCRIPTION:

- Solid or Stranded Alloy Wire Matched and Calibrated to Standard Limits of Error per ISA Specification RP-1.1-3 and ANSI Circular MC 96.1
- ANSI Color-Coded Insulation and Jacket

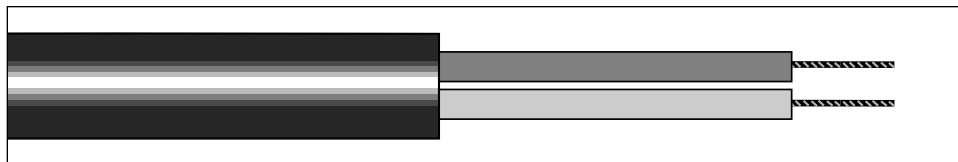
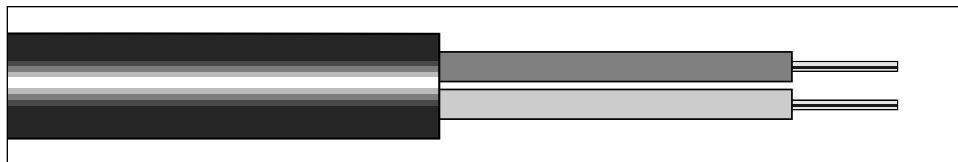
SPECIFICATIONS

- ISA Specification RP-1.1-3
- ANSI Circular MC 96.1
- † Silicone Varnish Impregnated Glass

ANSI

AVAILABILITY

- Bulk, Cut to Length
- Items Marked With ▲: Also Available in 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups



ANSI TYPE J (IRON-CONSTANTAN)

Alpha Part No.	Conductor AWG	mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions Inches	mm
▲ 5762	20	0,51	Solid	Glass Braid†	Glass Braid†	0.064 x 0.109	1,63 x 2,77
▲ 5762S	20	0,56	7/28	Glass Braid†	Glass Braid†	0.090 x 0.154	2,29 x 3,91
▲ 5763H	20	0,51	Solid	Hi-Temp Glass Braid†	Hi-Temp Glass Braid†	0.080 x 0.136	2,03 x 3,45
▲ 5765	20	0,51	Solid	FEP Teflon*	FEP Teflon*	0.072 x 0.124	1,83 x 3,15
▲ 5766	24	0,20	Solid	Glass Braid†	Glass Braid†	0.049 x 0.081	1,24 x 2,06
▲ 5767H	24	0,20	Solid	Hi-Temp Glass Braid†	Hi-Temp Glass Braid†	0.068 x 0.112	1,73 x 2,84
▲ 5769/1	30	0,05	Solid	Glass Wrap†	Glass Braid†	0.032 x 0.052	0,81 x 1,32

ANSI TYPE K (CHROMEL-ALUMEL)

Alpha Part No.	Conductor AWG	mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions Inches	mm
▲ 5772	20	0,51	Solid	Glass Braid†	Glass Braid†	0.064 x 0.109	1,63 x 2,77
▲ 5772S	20	0,56	7/28	Glass Braid†	Glass Braid†	0.090 x 0.154	2,29 x 3,91
▲ 5773H	20	0,51	Solid	Hi-Temp Glass Braid†	Hi-Temp Glass Braid†	0.080 x 0.136	2,03 x 3,45
▲ 5775	20	0,51	Solid	FEP Teflon*	FEP Teflon*	0.072 x 0.124	1,83 x 3,15
▲ 5776	24	0,20	Solid	Glass Wrap†	Glass Braid†	0.049 x 0.081	1,24 x 2,06

ANSI TYPE T (COPPER-CONSTANTAN)

Alpha Part No.	Conductor AWG	mm ²	Strand	Conductor Insulation	Jacket Material	Nominal Dimensions Inches	mm
▲ 5782	20	0,51	Solid	Glass Braid†	Glass Braid†	0.064 x 0.109	1,63 x 2,77
▲ 5785	20	0,51	Solid	FEP Teflon*	FEP Teflon*	0.072 x 0.124	1,68 x 3,15
▲ 5788	24	0,20	Solid	Nylon	Nylon	0.040 x 0.069	1,02 x 1,75
▲ 5789F	24	0,20	Solid	Polyvinylchloride	None	0.046 x 0.096	1,17 x 2,44
▲ 5784	30	0,05	Solid	Glass Wrap†	Glass Braid†	0.032 x 0.052	0,81 x 1,32

*Registered trademark of E.I. DuPont Co.

Thermocouple Wire Diameter and Resistance Information can be found on page 332 of this catalog.

THERMOCOUPLE WIRE AND CABLE

SINGLE PAIR UNSHIELDED AND SHIELDED

THERMOCOUPLE EXTENSION CABLE

UL TYPE PLTC
105°C 300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

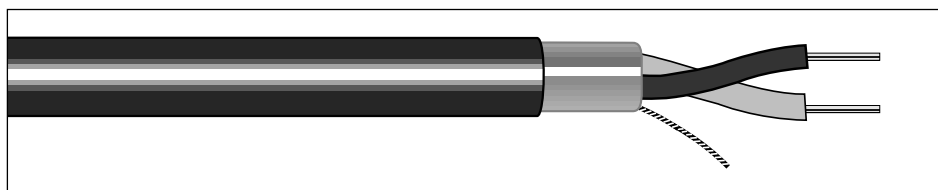
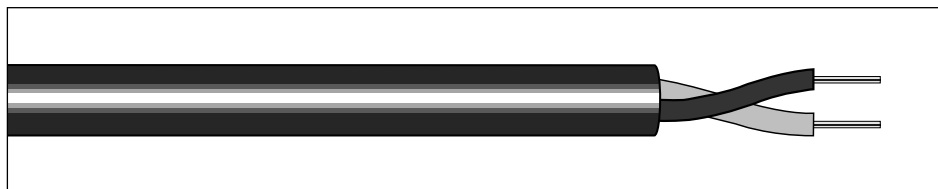
- -20°C to 105°C

VOLTAGE RATING:

- 300 Volt

PRODUCT DESCRIPTION:

- Solid or Stranded Alloy Wire Matched and Calibrated to Standard Limits of Error per ISA Specification RP-1.1-3 and ANSI Circular MC 96.1
- ANSI Color-Coded PVC Insulation and Jacket
- Twisted Pairs
- Each Conductor Printed with a Pair Number at One Inch Intervals. Numbers are Printed Alternately and Inverted
- When Shielded: Aluminum/Polyester, Foil Facing In Tinned Copper Drain Wire
- ANSI Color-Coded PVC Jacket



UNSHIELDED SINGLE PAIR

16 AWG SOLID CONDUCTOR 0.016" (0,41mm) NOMINAL INSULATION

Alpha Part No. Type JX	Alpha Part No. Type TX	Nominal Jacket Thickness		Nominal O.D.	
Inches	mm	Inches	mm	Inches	mm
▲ 5701/1601	▲ 5703/1601	0.035	0,89	0.249	6,32

SHIELDED SINGLE PAIR

16 AWG SOLID CONDUCTOR 0.016" (0,41mm) NOMINAL INSULATION

Alpha Part No. Type EX	Alpha Part No. Type JX	Alpha Part No. Type KX	Alpha Part No. Type RSX	Nominal Jacket Thickness		Nominal O.D.	
Inches	mm	Inches	mm	Inches	mm	Inches	mm
▲ 5710/1601	▲ 5711/1601	▲ 5712/1601	5714/1601	0.035	0,89	0.252	6,40

SHIELDED SINGLE PAIR

20 AWG SOLID CONDUCTOR 0.013" (0,33mm) NOMINAL INSULATION

Alpha Part No. Type EX	Alpha Part No. Type JX	Alpha Part No. Type KX	Alpha Part No. Type TX	Nominal Jacket Thickness		Nominal O.D.	
Inches	mm	Inches	mm	Inches	mm	Inches	mm
▲ 5710/2001	▲ 5711/2001	▲ 5712/2001	▲ 5713/2001	0.035	0,89	0.202	5,13

SPECIFICATIONS

- ISA Specification RP-1.1-3
- ANSI Circular MC 96.1
- UL Type PLTC
- Passes UL Vertical Tray Flame Test



AVAILABILITY

- Bulk, Cut to Length
- Items Marked With ▲: Also Available in 100 ft (30,5m), 500 ft (152m) and 1000 ft (305m) put-ups

Thermocouple Wire Diameter and Resistance Information can be found on page 332 of this catalog.



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THERMOCOUPLE WIRE AND CABLE

MULTIPAIR OVERALL SHIELDED & INDIVIDUALLY & OVERALL SHIELDED THERMOCOUPLE EXTEN.CABLE

UL TYPE PLTC
105°C 300 VOLT

CHARACTERISTICS

OPERATING TEMPERATURE:

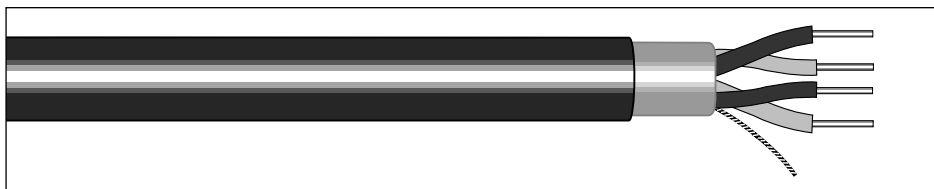
- -20°C to 105°C

VOLTAGE RATING:

- 300 Volt

PRODUCT DESCRIPTION:

- Solid Alloy Wire Matched and Calibrated to Standard Limits of Error per ISA Specification RP-1.1-3 and ANSI Circular MC 96.1
- ANSI Color-Coded PVC Insulation and Jacket
- Twisted Pairs
- Each Conductor Printed with a Pair Number at One Inch Intervals. Numbers are Printed Alternately and Inverted
- Shield:
Aluminum/Polyester, Foil Facing In
Tinned Copper Drain Wire
- ANSI Color-Coded PVC Jacket



OVERALL SHIELDED MULTIPAIR 20 AWG SOLID CONDUCTOR 0.013" (0,33mm) NOMINAL INSULATION

Alpha Part No. Type JX	Alpha Part No. Type KX	Alpha Part No. Type TX	No. of Pairs	Nominal Jacket Thickness		Nominal O.D.	
				Inches	mm	Inches	mm
▲ 5711/2002	5712/2002		2	0.040	1,02	0.296	7,52
▲ 5711/2004	5712/2004	5713/2004	4	0.050	1,27	0.366	9,30
▲ 5711/2008	5712/2008		8	0.050	1,27	0.460	11,68
5711/2012		▲ 5713/2012	12	0.050	1,27	0.533	13,54
	5712/2024	▲ 5713/2024	24	0.060	1,52	0.712	18,08
	▲ 5712/2036		36	0.070	1,79	0.837	21,26

SPECIFICATIONS

- ISA Specification RP-1.1-3
- ANSI Circular MC 96.1
- UL Type PLTC
- Passes UL Vertical Tray Flame Test

UL LISTED

INDIVIDUALLY AND OVERALL SHIELDED MULTIPAIR 20 AWG SOLID CONDUCTOR 0.013" (0,33mm) NOMINAL INSULATION

Alpha Part No. Type JX	Alpha Part No. Type TX	No. of Pairs	Nominal Jacket Thickness		Nominal O.D.	
			Inches	mm	Inches	mm
5721/2012	5723/2004	4	0.050	1,27	0.424	10,77
	5723/2012	12	0.060	1,52	0.661	16,79
	▲ 5723/2024	24	0.070	1,79	0.887	22,53

AVAILABILITY

- Bulk, Cut to Length
- Items Marked With ▲:
Also Available in 100 ft (30,5m),
500 ft (152m) and 1000 ft
(305m) put-ups

Thermocouple Wire Diameter and Resistance Information can be found on page 332 of this catalog.

THERMOCOUPLE WIRE AND CABLE

HIGH TEMP. THERMOCOUPLE EXTENSION CABLE

200°C 300 VOLT

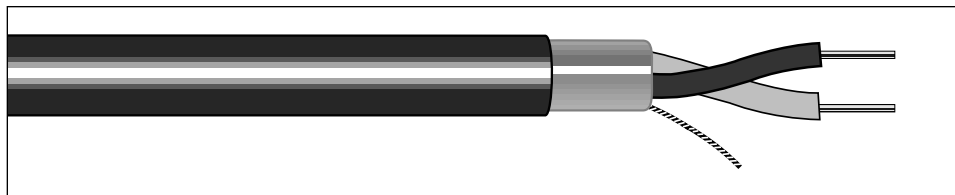
CHARACTERISTICS

OPERATING TEMPERATURE:

- -80°C to 200°C

PRODUCT DESCRIPTION:

- Solid Alloy Wire Matched and Calibrated to Standard Limits of Error per ISA Specification RP-1.1-3 and ANSI Circular MC 96.1
- ANSI Color-Coded FEP Teflon* Insulation
- Twisted Pairs
- Shield:
Aluminum / Polyester, Foil Facing In
Tinned Copper Drain Wire
- FEP Teflon* Jacket



SHIELDED TWISTED PAIR 16, 20 AWG SOLID CONDUCTOR

Alpha Part No. Type JX	Alpha Part No. Type KX	Alpha Part No. Type TX	AWG	Nom. Insul. Thickness		Nom. Jacket Thickness		Nom. O.D.	
				Inches	mm	Inches	mm	Inches	mm
▲ 5717/1601	▲ 5718/1601	5719/1601	16	0.010	0,25	0.015	0,38	0.181	4,60
▲ 5717/2001	▲ 5718/2001	5719/2001	20	0.010	0,25	0.015	0,38	0.144	3,66

SPECIFICATIONS

- ISA Specification RP-1.1-3
- ANSI Circular MC 96.1

AVAILABILITY

- Bulk, Cut to Length
- Items Marked With ▲:
Also Available in 100 ft (30,5m),
500 ft (152m) and 1000 ft
(305m) put-ups

*Registered trademark of E.I. DuPont Co.

Thermocouple Wire Diameter and Resistance Information

THERMOCOUPLE WIRE DIAMETER AND RESISTANCE (Ohms per 100 Double Feet @ 20°C)

AWG	Diameter, Inches (Single Conductor)	Type J Iron / Constantan	Type K Chromel / Alumel	Type T Copper / Constantan	Type E Chromel / Constantan	Type S and R Copper / Alloy #11
14	0.0641	8.92	14.72	7.43	17.58	0.93
16	0.0508	14.06	23.23	11.70	27.70	1.48
18	0.0403	22.86	37.70	19.05	45.00	2.39
20	0.0320	35.69	58.80	29.72	70.20	3.76
22	0.0253	56.71	93.90	47.21	111.90	5.97
24	0.0201	90.47	148.80	75.37	177.80	9.50
28	0.0126	229.70	379.00	191.49	453.00	24.01
30	0.0100	365.00	602.00	304.32	719.00	38.18



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FLAT CABLE

RELIABILITY AND CONVENIENCE

Alpha Wire supplies a full range of *EXTRUDED* flat cable with controlled tolerance spacing to insure proper mass termination. The Alpha Wire flat cable product range includes both shielded and unshielded types. 72 standard stock cables in conductor counts from 9-64 are available.

APPLICATIONS

- PC Board to PC Board Interconnects Where Space is a Premium
- Flexible Interconnects Within Computer and Business Machine Cabinetry
- Applications Requiring Reduced Cross Talk
- Routing in Cramped Spaces

Product Type	Page Number (s)
Gray Flat Cable 0.050" Centers	334
Color-Coded Flat Cable 0.050" Centers	335
Gray Flat Cable 0.025" Centers	336
Color-Coded Twist-To-Flat Cable 0.050" Centers	337
Shielded Round-To-Flat Cable	338
Shielded and Jacketed Flat Cable	339
Flat Cable Cross Reference	340

FLAT CABLE

GRAY FLAT CABLE

0.050" CENTERS

300 VOLT
UL STYLE 2651

GRAY FLAT CABLE APPLICATIONS:

- PC Board to PC Board Interconnects
Where Space is a Premium
- Flexible Interconnects Within Computer and
Business Machine Cabinetry



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

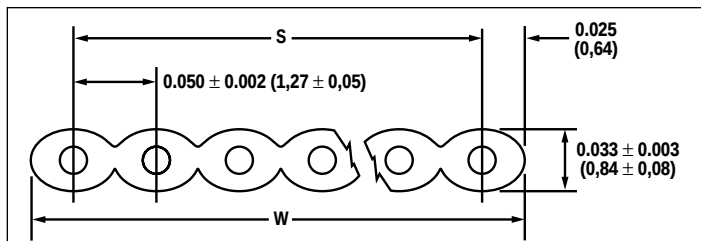
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Gray with Red Stripe
on Leading Edge

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned
Copper Conductors on 0.050"
(1,27mm) Centers
- Insulation: PVC



28 AWG (0,09mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)

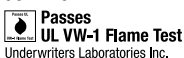
Alpha Part No.	No. of Conductors	Nominal Overall Width (W)		Nominal Span (S)	
		Inches	mm	Inches	mm
3580/9	9	0.45	11,43	0.40	10,16
3580/10	10	0.50	12,70	0.45	11,43
3580/14	14	0.70	17,78	0.65	16,51
3580/15	15	0.75	19,05	0.70	17,78
3580/16	16	0.80	20,32	0.75	19,05
3580/20	20	1.00	25,40	0.95	24,13
3580/24	24	1.20	30,48	1.15	29,21
3580/25	25	1.25	31,75	1.20	30,48
3580/26	26	1.30	33,02	1.25	31,75
3580/34	34	1.70	43,18	1.65	41,91
3580/37	37	1.85	46,99	1.80	45,72
3580/40	40	2.00	50,80	1.95	49,53
3580/50	50	2.50	63,50	2.45	62,23
3580/60	60	3.00	76,20	2.95	74,93
3580/64	64	3.20	81,28	3.15	80,01

SPECIFICATIONS

- Capacitance: 14 pF/ft
(45,9 pF/m) Nom. at 1MHz†
- Propagation Delay: 1.4 ns/ft-
0.18 ns (4,6 ns/m-0,18 ns)
Rise Time Pulse at 1 MHz†
- Impedance: 105 Ohms, Nom.†
- Crosstalk: Nom. Between 2
Adjacent Signal Lines at 1 ns Rise
Time Over 10 ft (3,05m) Length,
Near End: 3.2%; Far End: 11.5%†
- UL AWM Style 2651

† Transmission Characteristics:
Ground-Signal-Ground-Signal, etc.
With All Grounds Common

 **Recognized
Component**
Underwriters Laboratories Inc.

 **Passes
UL VW-1 Flame Test**
Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m) put-ups,
may contain multiple lengths



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Email: info@alphawire.com

300 VOLT
UL STYLE 20932

FLAT CABLE

COLOR-CODED FLAT CABLE

0.050" CENTERS

COLOR-CODED FLAT CABLE APPLICATIONS:

- PC Board to PC Board Interconnects
Where Space is a Premium
- Flexible Interconnects Within Computer and Business Machine Cabinetry
- Use Where a High Degree of Flexibility is Required, Such as Drawer Enclosed Electronic Circuitry

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: Brown, Red, Orange, Yellow, Green, Blue, Violet, Gray, White, Black.
- Repeats Beyond 10 Conductors

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper Conductors on 0.050" (1,27mm) Centers
- Insulation: Thermally-Bonded PVC with Clear PVC Covering

SPECIFICATIONS

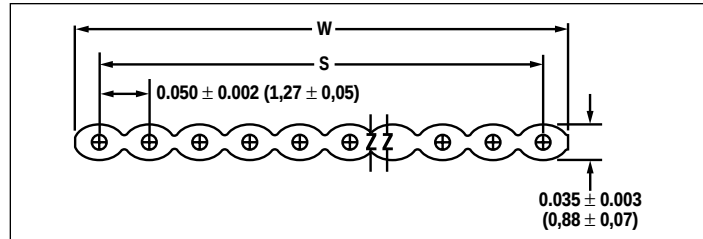
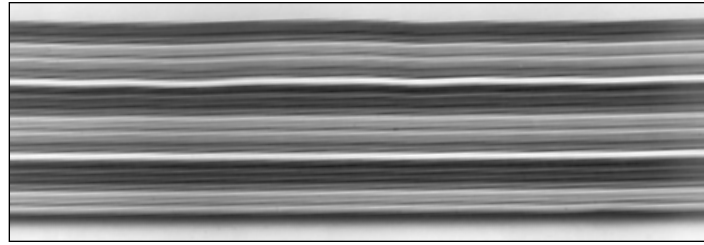
- Capacitance: 14 pF/ft (45,9 pF/m) Nom. at 1MHz†
 - Propagation Delay: 1.4 ns/ft-0.18 ns (4,6 ns/m-0,18 ns) Rise Time Pulse at 1 MHz†
 - Impedance: 105 Ohms, Nom.†
 - Crosstalk: Nom. Between 2 Adjacent Signal Lines at 1 ns Rise Time Over 10 ft (3,05m) Length, Near End: 3.2%; Far End: 11.5%†
 - UL AWM Style 20932
- † Transmission Characteristics: Ground-Signal-Ground-Signal, etc. With All Grounds Common

 **Recognized Component**
Underwriters Laboratories Inc.

 **Passes UL VW-1 Flame Test**
Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m) put-ups, may contain multiple lengths



28 AWG (0,09mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Conductors	Nominal Overall Width (W)		Nominal Span (S)	
		Inches	mm	Inches	mm
3583/9	9	0.45	11,43	0.40	10,16
3583/10	10	0.50	12,70	0.45	11,43
3583/14	14	0.70	17,78	0.65	16,51
3583/15	15	0.75	19,05	0.70	17,78
3583/16	16	0.80	20,32	0.75	19,05
3583/20	20	1.00	25,40	0.95	24,13
3583/24	24	1.20	30,48	1.15	29,21
3583/25	25	1.25	31,75	1.20	30,48
3583/26	26	1.30	33,02	1.25	31,75
3583/34	34	1.70	43,18	1.65	41,91
3583/37	37	1.85	46,99	1.80	45,72
3583/40	40	2.00	50,80	1.95	49,53
3583/50	50	2.50	63,50	2.45	62,23
3583/60	60	3.00	76,20	2.95	74,93
3583/64	64	3.20	81,28	3.15	80,01

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FLAT CABLE

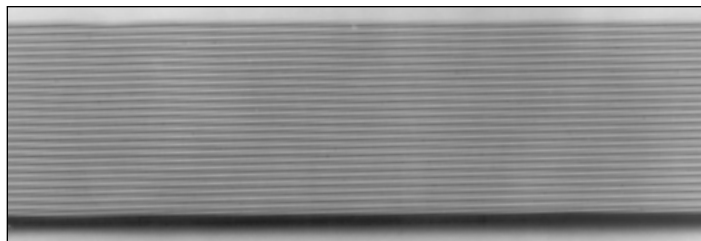
GRAY FLAT CABLE

0.025" CENTERS

150 VOLT
UL STYLE 2962

GRAY FLAT CABLE APPLICATIONS:

- Easy Termination to 0.025" IDC Connectors
- For Situations Where Reduced Crosstalk is Necessary such as High-Speed Data Transmissions in Computers, Cash Registers and Communications Equipment



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

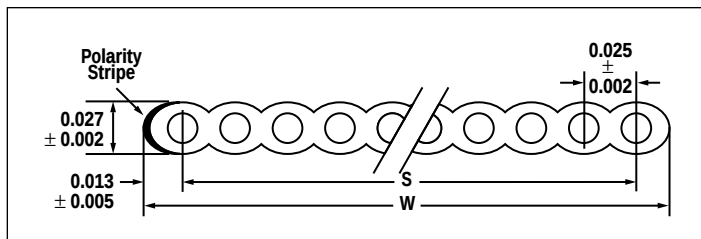
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Gray with Red Stripe on Leading Edge

PRODUCT DESCRIPTION:

- Conductor: Solid Bare Copper Conductors on 0.025" (0,64mm) Centers
- Insulation: PVC



30 AWG Solid, Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Conductors	Nominal Overall Width (W)		Nominal Span (S)	
		Inches	mm	Inches	mm
3582/26	26	0.650 ± 0.007	16,51 ± 0,18	0.625 ± 0.007	15,88 ± 0,18
3582/40	40	1.00 ± 0.007	25,40 ± 0,18	0.975 ± 0.007	24,76 ± 0,18
3582/50	50	1.25 ± 0.010	31,75 ± 0,25	1.225 ± 0.007	31,15 ± 0,18
3582/60	60	1.50 ± 0.010	38,10 ± 0,25	1.475 ± 0.007	37,46 ± 0,18

SPECIFICATIONS

- Capacitance: 25 pF/ft (82 pF/m) Nom. at 1KHz
- Time Delay: 1.62 ns/ft
- Impedance: 80 Ohms
- UL AWM Style 2962



Recognized
Component
Underwriters Laboratories Inc.



Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m) put-ups may contain multiple lengths



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300 VOLT
UL STYLE 20184

FLAT CABLE

COLOR-CODED, TWIST-TO-FLAT CABLE

0.050" CENTERS

COLOR-CODED, TWIST-TO-FLAT CABLE APPLICATIONS:

- Easy Termination to 0.050" IDC Connectors
- For Situations Where Reduced Crosstalk is Necessary such as High Speed Data Transmissions in Computers, Cash Registers and Communications Equipment

CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

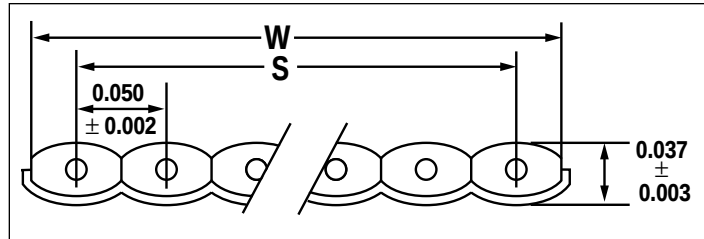
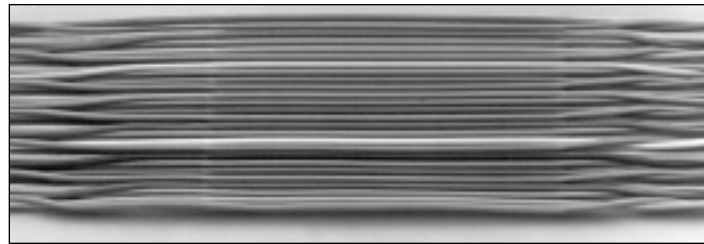
- 300 Volt

COLOR DESCRIPTION:

- Color Code: Brown, Red, Orange, Yellow, Green, Blue, Violet, Gray, White, Black, Tan (common), Repeats After 10 Conductors

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper Conductors on 0.050" (1,27mm) Centers
- Insulation: PVC
- 0.007" Laminated Film for Stability
- Twisted Lengths: 18"
- Flat Lengths: 2"



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28 AWG (0,09mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Conductors (Pairs)	Nominal Inches	Overall Width (W) mm	Nominal Span (S) Inches	Nominal Span (S) mm
3586/26	26 (13)	1.300 ± 0.015	33,0 ± 0,38	1.250 ± 0.011	31,75 ± 0,28
3586/40	40 (20)	2.000 ± 0.020	50,8 ± 0,51	1.950 ± 0.015	49,53 ± 0,38
3586/50	50 (25)	2.500 ± 0.020	63,5 ± 0,51	2.450 ± 0.015	62,23 ± 0,38
3586/60	60 (30)	3.000 ± 0.020	76,2 ± 0,51	2.950 ± 0.015	74,93 ± 0,38

SPECIFICATIONS

- Capacitance: 21 pF/ft (69 pF/m) Nom.
- Propagation Delay: 1.56 ns/ft (5,12m) 10 ns Rise Time Pulse
- Impedance: 100 Ohms Nom.
- Crosstalk: Nom. Between 2 Adjacent Signal Lines at 1 ns Rise Time Over 10 ft (3,05m) Length, Near End: 3.8%; Far End: 1.5%
- UL AWM Style 20184



Underwriters Laboratories Inc. Passes UL VW-1 Flame Test Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m) put-ups, may contain multiple lengths

FLAT CABLE

SHIELDED ROUND-TO-FLAT CABLE

0.050" CENTERS

UL TYPE CL2
UL STYLE 20381
150 VOLT

SHIELDED ROUND-TO-FLAT CABLE APPLICATIONS:

- For Routing in Cramped Spaces
Where Flat Cable is Required and a
Round Shape is More Workable



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

- 300 Volt — AWM
150 Volt — CL2

COLOR DESCRIPTION:

- Color Code: Gray with Red Stripe
on Leading Edge

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned
Copper Conductors on 0.050"
(1,27mm) Centers
- Insulation: PVC
- Shielding: Aluminum / Polyester
with Tinned Copper Braid
(90% Coverage)
- Flat Cable Termination are 0.75"
in Length and Occurs Every 1.5"
- Black PVC Jacket Thickness:
0.030" (0,08mm)

28 AWG (0,09mm²), **7/36** (7x0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Conductors	Nominal Diameter		Nominal Width	
		Inches	mm	Inches	mm
3585/25	25	0.34	8,64	1.20	30,48
3585/26	26	0.39	9,91	1.65	41,91
3585/40	40	0.40	10,20	1.95	49,53
3585/50	50	0.46	11,70	2.45	62,23

SPECIFICATIONS

- Capacitance: 24 pF / ft (69 pF / m)
at 1MHz Nom.
- Impedance: 70 Ohms Nom.
- UL Type CL2
- UL AWM Style 20381



 **Passes**
UL 910 Flame Test
Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m) put-ups,
may contain multiple lengths



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UL TYPE CL2
UL STYLE 2912
150 VOLT

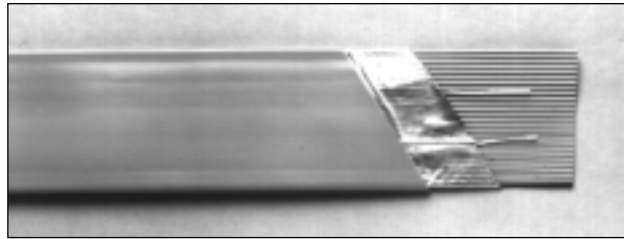
FLAT CABLE

SHIELDED AND JACKETED FLAT CABLE

0.050" CENTERS

SHIELDED AND JACKETED FLAT CABLE APPLICATIONS:

- Used for External Interconnect Between Data Processing Peripherals Where RF Suppression is Mandated
- Provides EMI, RFI, ESD Protection



CHARACTERISTICS

OPERATING TEMPERATURE:

- -20°C to 105°C

VOLTAGE RATING:

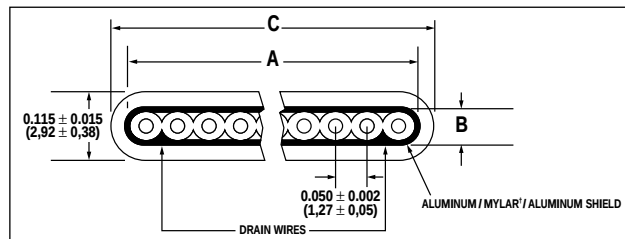
- 150 Volt

COLOR DESCRIPTION:

- Color Code: Gray with Red Stripe on Leading Edge
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper Conductors on 0.050" (1,27mm) Centers
- Insulation: PVC
- Shielding: Aluminum/Mylar/Aluminum with Two Stranded Tinned Copper Drain Wires 28 AWG, 7/36
- Jacket: 0.030" (0,08mm) PVC Jacket



SPECIFICATIONS

- Capacitance: 20 pF/ft (65,6 pF/m) at 1 MHz Nom.
- Impedance: 70 Ohms Nom.
- Propagation Delay: 1.56 ns/ft (3,3m) 0.18 ns Rise Time Pulse
- Crosstalk: At 3.5 ns Rise Time; Near End: 5.5%; Far End: 1.6%
- UL Type CL2
- UL AWM Style 2912



Passes
UL 910 Flame Test
Underwriters Laboratories Inc.

AVAILABILITY

- 100 ft (30,5m) put-ups, may contain multiple lengths

28 AWG (0,09mm²), 7/36 (7x0,13mm), Insulation Thickness: 0.010" (0,25mm)

Alpha Part No.	Core Width "A"		Core Thickness (Max.) "B"		Width "C"	
	Inches	mm	Inches	mm	Inches	mm
3590/9	0.450 ± 0.010	11,43 ± 0,25	0.035	0,88	0.520 ± 0.020	13,21 ± 0,51
3590/10	0.500 ± 0.010	12,70 ± 0,25	0.035	0,88	0.570 ± 0.020	14,48 ± 0,51
3590/14	0.700 ± 0.010	17,78 ± 0,25	0.035	0,88	0.770 ± 0.030	19,56 ± 0,76
3590/15	0.750 ± 0.010	19,05 ± 0,25	0.035	0,88	0.820 ± 0.030	20,83 ± 0,76
3590/16	0.800 ± 0.010	20,32 ± 0,25	0.035	0,88	0.870 ± 0.030	22,10 ± 0,76
3590/20	1.000 ± 0.015	25,40 ± 0,38	0.035	0,88	1.070 ± 0.030	27,18 ± 0,76
3590/24	1.200 ± 0.015	30,48 ± 0,38	0.035	0,88	1.270 ± 0.030	32,26 ± 0,76
3590/25	1.250 ± 0.015	31,75 ± 0,38	0.035	0,88	1.320 ± 0.030	33,53 ± 0,76
3590/26	1.300 ± 0.015	33,02 ± 0,38	0.035	0,88	1.370 ± 0.030	34,80 ± 0,76
3590/34	1.700 ± 0.015	43,18 ± 0,38	0.035	0,88	1.770 ± 0.035	44,95 ± 0,88
3590/37	1.850 ± 0.015	46,99 ± 0,38	0.035	0,88	1.950 ± 0.035	49,53 ± 0,88
3590/40	2.000 ± 0.015	50,80 ± 0,38	0.035	0,88	2.070 ± 0.035	52,57 ± 0,88
3590/50	2.500 ± 0.020	63,50 ± 0,51	0.035	0,88	2.570 ± 0.035	65,27 ± 0,88
3590/60	3.000 ± 0.020	76,20 ± 0,51	0.035	0,88	3.070 ± 0.035	77,97 ± 0,88

†Registered trademark of E.I. DuPont

FLAT CABLE CROSS REFERENCE

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ALPHA WIRE PART NO.	PAGE NO.	AMP / TYCO PART NO.	ANSLEY PART NO.	BELDEN PART NO.	HITACHI PART NO.	AMPHENOL SPECTRA-STRIP PART NO.	3M PART NO.
3580/9	334	1-57040-2	171-9	9L28009	23100-9	843-191-2801-109	
3580/10	334	1-57040-3	171-10	9L28010	23100-10	843-191-2801-110	3365/10
3580/14	334	1-57040-4	171-14	9L28014	23100-14	843-191-2801-114	3365/14
3580/15	334	1-57040-5	171-15	9L28015	23100-15	843-191-2801-115	
3580/16	334	1-57040-6	171-16	9L28016	23100-16	843-191-2801-116	3365/16
3580/20	334	57040-1	171-20	9L28020	23100-20	843-191-2801-120	3365/20
3580/24	334	1-57040-7	171-24	9L28024	23100-24	843-191-2801-124	3365/24
3580/25	334	57040-2	171-25	9L28025	23100-25	843-191-2801-125	
3580/26	334	57040-3	171-26	9L28026	23100-26	843-191-2801-126	3365/26
3580/34	334	57040-4	171-34	9L28034	23100-34	843-191-2801-134	3365/34
3580/37	334	1-57040-8	171-37	9L28037	23100-37	843-191-2801-137	
3580/40	334	57040-5	171-40	9L28040	23100-40	843-191-2801-140	3365/40
3580/50	334	57040-6	171-50	9L28050	23100-50	843-191-2801-150	3365/50
3580/60	334	57040-7	171-60	9L28060	23100-60	843-191-2801-160	3365/60
3580/64	334	2-57040-2	171-64	9L28064	23100-64	843-191-2801-164	3365/64
3582/26	336			9L30026	23129-26	843-191-3005-026	
3582/40	336				23129-40		
3582/50	336			9L30050	23129-50	843-191-3005-050	
3582/60	336				23129-60		
3583/9	335		201-9		23026-9		3302/9
3583/10	335	1-57643-0	201-10	9R28010	23026-10	843-135-2801-010	3302/10
3583/14	335	1-57643-4	201-14	9R28014	23026-14	843-135-2801-014	3302/14
3583/15	335		201-15		23026-15		3302/15
3583/16	335	1-57643-6	201-16	9R28016	23026-16	843-135-2801-016	3302/16
3583/20	335	2-57643-6	201-20	9R28020	23026-20	843-135-2801-020	3302/20
3583/24	335	2-57643-4	201-24	9R28024	23026-24	843-135-2801-024	3302/24
3583/25	335	2-57643-5	201-25	9R28025	23026-25	843-135-2801-025	3302/25
3583/26	335	2-57643-6	201-26	9R28026	23026-26	843-135-2801-026	3302/26
3583/34	335	3-57643-4	201-34	9R28034	23026-34	843-135-2801-034	3302/34
3583/37	335	3-57643-7	201-37	9R28037	23026-37	843-135-2801-037	3302/37
3583/40	335	4-57643-0	201-40	9R28040	23026-40	843-135-2801-040	3302/40
3583/50	335	5-57643-0	201-50	9R28050	23026-50	843-135-2801-050	3302/50
3583/60	335	6-57643-0	201-60	9R28060	23026-60	843-135-2801-060	3302/60
3583/64	335	6-57643-4	201-64	9R28064	23026-64	843-135-2801-064	3302/64
3585/25	338				23122-25		3579/25
3585/26	338				23122-26		3579/26
3585/40	338				23122-40		3579/40
3585/50	338				23122-50		3579/50
3586/26	337		200-26	9V28026	LQ2826	132-2801-026	1700/26
3586/40	337		200-40	9V28040	LQ2840	132-2801-040	1700/40
3586/50	337		200-50	9V28050	LQ2850	132-2801-050	1700/50
3586/60	337		200-60	9V28060		132-2801-060	1700/60
3590/9	339		187-9	9L28309	23109-9	151-2831-009	
3590/10	339		187-10	9L28310	23109-10	151-2831-010	3517/10
3590/14	339		187-14		23109-14		3517/14
3590/15	339		187-15	9L28315	23109-15	151-2831-015	3517/15
3590/16	339		187-16		23109-16		3517/16
3590/20	339		187-20	9L28320	23109-20	151-2831-020	3517/20
3590/24	339		187-24		23109-24		3517/24
3590/25	339		187-25	9L28325	23109-25	151-2831-025	3517/25
3590/26	339		187-26	9L28326	23109-26	151-2831-026	3517/26
3590/34	339		187-34	9L28334	23109-34	151-2831-034	3517/34
3590/37	339		187-37	9L28337	23109-37	151-2831-037	3517/37
3590/40	339		187-40	9L28340	23109-40	151-2831-040	3517/40
3590/50	339		187-50	9L28350	23109-50	151-2831-050	3517/50
3590/60	339		187-60	9L28360	23109-60	151-2831-060	3517/60



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Service is the catchword in Alpha Wire's mission statement. An important aspect to the service we provide is the availability of detailed and accurate technical information. The Technical Information Guide is provided to assist the user in the application of existing Alpha Wire Company products and in the creation of custom, nonstandard items not found within the Alpha Wire Master Catalog.

This section provides all of the technical information necessary for the proper design and selection of wire, cable and tubing products for a wide variety of industry applications. Logically, this information is divided into design specific and application specific sections. Design specific information found in this guide includes data on insulation and jacket material properties, copper conductors, current carrying capacity, cable shielding selection and color code charts for product wiring diagrams and specifications.

Application specific information found in this guide includes tables for AWG to metric conductor conversions, temperature conversion charts, a wire and tubing cut pieces estimator chart, flexible cable application parameters, flexible cable test results and flexible cable installation and handling procedures. In addition, a cable design specification worksheet is provided to assist with the identification of custom cable design parameters.

For a complete guide to industry-specific terminology, refer to Alpha's glossary of terms. The glossary includes all pertinent terms for the wire, cable and tubing products supplied by Alpha Wire.

TECHNICAL ENGINEERING AND DESIGN ASSISTANCE

Alpha Wire maintains a Technical Engineering staff, which can assist in the selection of the proper Alpha Wire product for your application, or with the design of a custom product to suit your specific requirements. Refer to page 405 in this Master Catalog for a cable design specification sheet or call for additional information on product design, specifications and product applications.

www.alphawire.com YOUR VIRTUAL LINK TO ALPHA WIRE COMPANY TECHNICAL DATA

Alpha Wire's interactive web site integrates the information contained in this Master Catalog with the speed and functionality of the internet. www.alphawire.com is a comprehensive online reference guide to the selection and specification of wire, cable and tubing products.

When it comes to ease of use, breadth of content and real-world usefulness, www.alphawire.com is the one site that delivers the engineering and technical essentials you need. The site is designed to offer quick, transparent access to critical information. Find the product and technical data required for your application by employing any one or all of the following online tools available at www.alphawire.com:

- Online Master Catalog
- Product Specification Search
- Alpha Wire Part Number Search
- Competitive Part Number Search
- Interactively Linked Technical Data
- Immediate Literature Access
- Electronic Glossary of Terms

Use www.alphawire.com for answers to your wire, cable and tubing questions — around the clock and from anywhere in the world.

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TECHNICAL DATA

SHIELDING

SIGNAL INTERFERENCE

When a particular installation is prone to EMI/RFI/ESI interference from either internal or external sources, some form of cable shielding will be required. The types of interference, or noise cables are exposed to can determine the type of cable shielding required. There are basically four types of noise which will affect the wiring or cabling of an instrument or control circuit: static, magnetic, common mode and crosstalk noise.

STATIC NOISE. This refers to signal distortion due to the electrical field radiated by a voltage source, which has coupled into the signal-bearing circuit. Simple shielding of the full circuit is a typical means of mitigating this electrostatic type of interference. Foil shields, which offer 100% shielding efficiency, have proven most effective against this type of interference. It is critical that the shield be continued to, and completely encompass, the transmitting and receiving ends of the circuit if high levels of noise reduction are required. Effective grounding of the shield is also required; "floating" or non-grounded shields only partially reduce the effects of noise.

MAGNETIC NOISE. Magnetic fields, radiated by power wiring found in large AC motors, transformers and knife switches, can set up current flows in opposition to the instrument circuit field. The result is the superimposing of a noise current on the signal current. The simplest and best means of mitigating the effects of such magnetic interference is by simple twisting of the cable elements.

COMMON MODE NOISE. Common mode interference is the result of currents flowing between different potential grounds located at various points within a system. Receivers with very high common mode rejection ratios minimize this type of interference.

CROSSTALK. This refers to the superimposing of either pulsed DC or standard AC signals carried on one wire pair to another wire pair in close proximity. Although pair twist tends to reduce crosstalk levels, the most effective means of mitigation is individual cable pair shielding coupled to pair twist.

NOISE LEVELS. Once it has been determined that noise currents are going to pose a system problem, it becomes necessary to determine if the noise is of a low, medium or high level. The table below gives general guidelines as to the areas which are subject to these generalized noise levels:

NOISE LEVEL CHART

Noise Level	Sources of Noises	Typical Locations
High	Electrolytic processes, heavy motors, generators, transformers, induction heating, relay controls, power lines and control wire in close proximity.	Heavy processing plants such as steel mills and foundries.
Medium	Wiring near medium-sized motors, control relays.	Average manufacturing plants.
Low	Wiring located far from power lines, motors; motors <5 hp; no induction heating, arcs, control or power relays nearby.	Storage areas, labs, offices and light assembly operations.

SHIELDING PERFORMANCE

The shielding of electronic interconnect cables can play a critical role in overall system performance. System configuration, type of signals transmitted and proximity to noise generating sources all must be considered. These factors plus the type of interference, whether electromagnetic (EMI), electrostatic (ESI) or radio frequency (RFI), will determine the necessity and type of shielding required. Alpha's **XTRA-GUARD®** Cables are available in two shielded constructions providing protection for the majority of installation needs.

SHIELD COVERAGE - BRAIDED SHIELD

The effectiveness of a braided shield depends upon the percent coverage afforded by the shield. Leakage in a braided shield is due to air spaces which exist between the weave. The following equation can be used to determine the percent coverage of a braided shield.

$$\tan a = \frac{2(D + 2d)P}{C}$$

Where:

D = Diameter under shield, inches

d = Diameter of 1 strand, inches

P = Picks per inch

N = Number of strands per carrier

a = Shield angle, degrees

K = Percent coverage

C = Number of carriers

When:

$$K = (2F - F^2) \times 100$$

and:

$$F = \frac{NdP}{\sin a}$$

Shield Resistance

The D.C. resistance for braided shields can be calculated using the following equation:

$$R = \frac{dR}{\cos a (NC)}$$

Where:

R = D.C. resistance, ohms/unit length

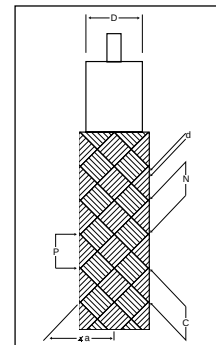
dR = D.C. resistance of 1 strand end,

ohms/unit length

a = Braid angle, degrees

N = Number of strand ends in one carrier

C = Number of carriers



XTRA•GUARD®

HIGH PERFORMANCE ELECTRONIC CABLES

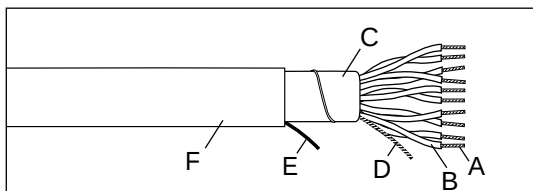
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XTRA•GUARD® SHIELDING and ARMORING OPTIONS

CHOOSE ALPHA ALUMINUM POLYESTER FOIL SHIELDING FOR:

- Lightweight Shielding
- Low Cost
- Ease of Termination With Use of Stranded Tinned Copper Drain Wire
- Low Frequency Interference Applications
- 100% Coverage Over the Core of Cable Conductors

Alpha Aluminum/Polyester Foil Shielding consists of an aluminum polyester tape, foil side facing inward, with a 25% overlap and in contact with a stranded, tinned copper drain wire equal in size to insulated cable conductors.



LEGEND:

A. Conductor	D. Drain Wire
B. Insulation	E. Rip Cord
C. Aluminum/Polyester Foil	F. Jacket



CHOOSE XTRA•GUARD® FLEXIBLE CABLE BRAID SHIELDING FOR:

- EMI/RFI Resistance in Power, Control and Data Applications
- Continuous Shield Continuity in Flexing Applications
- High Physical Strength

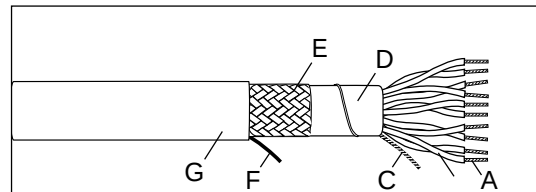
XTRA•GUARD® Flexible Cables have specific shielding requirements resulting from the stresses of motion and flexing. Where foil shields will tear and lose continuity, **XTRA•GUARD® Flexible Cables** use a flexible, 85% coverage, tinned copper braid with a double jacket isolating the shield from the cable's inner core.



CHOOSE ALPHA SUPRASHIELD® (FOIL / BRAID) SHIELDING FOR:

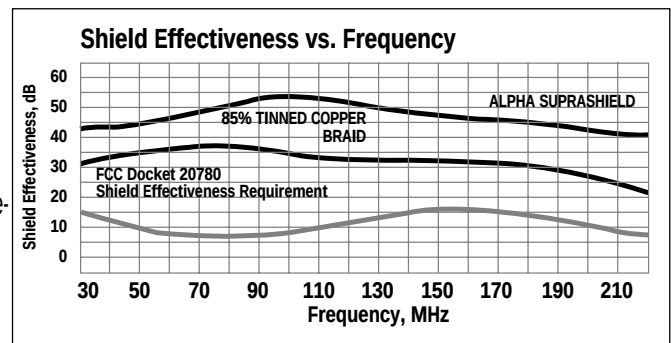
- Ease of Termination With Use of Stranded Tinned Copper Drain Wire
- High-Frequency Interference Applications
- High Physical Strength

Alpha **SUPRASHIELD®** (foil/braid) Shielding System consists of a unique triple-laminate tape. An aluminum/polyester/aluminum tape is bonded in one layer with a 25% overlap and in contact with a stranded tinned copper drain wire equal in size to the insulated cable conductors. A 70% coverage tinned copper braid shield is applied overall.



LEGEND:

A. Conductor	D. Triple-Laminate Foil Shield
B. Insulation	E. Braided Shield
C. Drain Wire	F. Rip Cord
	G. Jacket



CHOOSE ALPHA-LOC® ARMORING FOR:

- Protection from Mechanical Abuse
- Increased Protection from Water Exposure
- Crush Resistance
- Protection from Chemical Attack

Made of flexible galvanized, interlock steel with a jacket of UV-stabilized PVC to provide crush resistance and resistance against corrosion and chemical attack. Perfect for industrial applications requiring a high degree of mechanical protection for computer, process control, communication and instrumentation cables.

TECHNICAL DATA

XTRA•GUARD® COMPARISON CHART

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	Weatherability	Moisture Resistance	Cold Bend
XTRA•GUARD® 1		Good	
XTRA•GUARD® 2	Excellent	Good	Good
XTRA•GUARD® 3	Outstanding	Outstanding	Good
XTRA•GUARD® 4	Outstanding	Excellent	Outstanding
XTRA•GUARD® 5	Outstanding	Outstanding	Outstanding
XTRA•GUARD® Standard-Flex Control Cables		Good	Outstanding
XTRA•GUARD® High-Flex Control Cables		Good	Outstanding

	Resistance In Mechanical Abuse	Flame Retardancy	Flexibility
XTRA•GUARD® 1	Good	Excellent	Good
XTRA•GUARD® 2	Outstanding	Excellent	Good
XTRA•GUARD® 3	Excellent		
XTRA•GUARD® 4	Excellent	Outstanding	
XTRA•GUARD® 5	Excellent	Outstanding	
XTRA•GUARD® Standard-Flex Control Cables	Excellent	Excellent	Excellent
XTRA•GUARD® High-Flex Control Cables	Excellent	Excellent	Outstanding

These charts are to be used as a general reference guide only. Alpha Wire Company does not guarantee the results to be obtainable in all instances.
Contact the Alpha Wire Technical Department for further information.



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ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA·GUARD® 1**.

Manufactured from stranded, tinned copper conductors in accordance with ASTM-B-33. Conductors shall be insulated with premium polyvinylchloride, which exceeds the flame test requirements of UL VW-1. Conductor insulations shall conform with UL styles 1007, 1061, 1015 and CSA AWM I A/B. Insulated conductors shall be fully color coded.

Jacketing shall be manufactured from premium polyvinylchloride conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Type CM, AWM 2464, 2343, 2344, 2501 and CSA AWM I A/B II A/B, CMG FT4 rating requirements, for 300 Volt and 600 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Stranded tin coated copper conductor per ASTM B-33
- 1.2** Size range 24 AWG thru 14 AWG
- 1.3** Premium PVC insulated conductors
- 1.4** Fully color coded conductors
- 1.5** UL, CSA conductor styles - 300 volts
 - A) 24 AWG and 22 AWG
UL Style 1061
CSA AWM I A/B 80bC
 - B) 20 AWG, 18 AWG and 16 AWG
UL Style 1007
CSA AWM I A/B 80bC
- 1.6** UL, CSA conductor styles - 600 volts
 - A) 22 AWG thru 14 AWG
UL Style 1015
CSA AWM I A/B 105bC
- 1.7** UL, CSA cable style - 300 volts
 - A) 24 AWG thru 16 AWG
UL type CM or AWM 2464
CSA CMG FT4
 - B) 24 AWG thru 20 AWG
UL type CM or AWM 2343, 2344
CSA CMG FT4
- 1.8** UL, CSA cable style - 600 volts
 - A) 22 AWG to 14 AWG
UL Style 2501
CSA AWM I A/B II A/B FT4
- 1.9** Shielding Options
 - A) Unshielded:
Clear polyester wrap, 25% overlap
 - B) Foil Shielded:
Aluminum / polyester, 25% overlap, foil facing in with stranded tinned copper drain wire equal in size to insulated conductor.
 - C) **SUPRASHIELD®**
Foil / braid combination. Triple laminate, aluminum / polyester / aluminum bonded in one layer, 25% overlap, overall 70% coverage tinned copper braid shield. Provides maximum shielding effectiveness.
- 1.10** Jacketing
 - A) Premium polyvinylchloride
 - B) Available in gray or black.

TECHNICAL DATA

XTRA•GUARD® 1

ENGINEERING SPECIFICATION

2.0 PERFORMANCE

- 2.1 Unsurpassed Flame and Moisture Resistance
- 2.2 Fast, Easy Stripping of Insulation and Jacket
- 2.3 UL Recognition and UL Listing
- 2.4 Flexible Cable Routing Requirements
- 2.5 **SUPRASHIELD®** - Twice as Effective as Foil Shielding

3.0 APPLICATIONS

- 3.1 High Technology Applications in Controlled Environments
- 3.2 Point-of-Sale Equipment
- 3.3 Computer Peripherals
- 3.4 Industrial Process Controls

4.0 TEST DATA

4.1

Property	Test Method	Standard	Vinyl Type [♦] Semi-Rigid
Physical			
Specific Gravity	ASTM D-792	1.25 – 1.38	1.38
Durometer Hardness	ASTM D-2240	85 – 90	90 – 96
Tensile Strength, psi	ASTM D-412	2100 – 2700	3200 – 4000
Elongation, %	ASTM D-412	250 – 350	150 – 250
Abrasion Resistance	—	F	G
Cut-Thru Resistance	—	G	G
Water Resistance	—	G	G
Thermal			
Heat Distortion, %	ASTM D-1047	7 – 50	7 – 50
Max. Operating Temp., °C	—	105	80
Flame Resistance	—	E	E
Solder Iron Resistance	—	E	E
Electrical			
Dielectric Constant @ 1 MHz	ASTM D-150	4 – 6	3 – 5♦♦
Dissipation Factor @ 1 MHz	ASTM D-150	0.06 – 0.10	0.08 – 0.085
Dry Dielectric, v/mil	ASTM D-149	800 – 900	800 – 900
Wet Dielectric, v/mil	ASTM D-149	700 – 800	700 – 800
♦ Because Alpha uses many vinyl compounds to meet various commercial specifications and to satisfy special requirements (non-staining, odorless-tasteless, etc.) only ranges can be shown. This data provides general information and shows approximate values which may be used as a guide in comparing vinyl compounds with each other and with other plastics.			
E – Excellent G – Good F – Fair P – Poor			
♦♦ When covered with braided copper shield			

4.2 Flame Retardancy

UL Vertical Tray
CSA FT4



TECHNICAL DATA

XTRA•GUARD® 2

ENGINEERING SPECIFICATION

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® 2**. Manufactured from stranded, tinned copper conductors in accordance with ASTM-B-33. Conductors shall be insulated with premium polyvinylchloride, which exceeds the flame test requirements of UL VW-1. Conductor insulations shall conform with UL styles 1569, 1730, 1015 and CSA AWM I A/B. Insulated conductors shall be fully color coded.

Extra-rugged jacketing shall be manufactured from specially formulated polyurethane conforming to UL and CSA standards, be in compliance with **CE** and shall exhibit superior resistance to oils, fuels, chemicals, solvents, water and abrasions.

Complete cables meet UL AWM 20668, 20952 and CSA AWM I A/B II A/B for 300 Volt and 600 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Stranded tin coated copper conductor per ASTM B-33
- 1.2** Size range 24 AWG thru 14 AWG
- 1.3** Premium PVC insulated conductors
- 1.4** Fully color coded insulated conductors
- 1.5** UL, CSA conductor styles - 300 volts
 - A) 24 AWG and 22 AWG
UL Style 1730
CSA AWM I A/B 90°C
 - B) 20 AWG, 18 AWG and 16 AWG
UL Style 1569
CSA AWM I A/B 90°C
- 1.6** UL, CSA conductor styles - 600 volts
 - A) 18 AWG thru 14 AWG
UL Style 1015
CSA AWM I A/B 105°C
- 1.7** UL, CSA cable style - 300 volts and 600 volts
UL AWM Styles: 20668, 20952
CSA AWM I A/B II A/B FT1
- 1.8** Shielding Options
 - A) Unshielded:
Clear polyester wrap, overlap Foil Shielded
 - B) Foil Shielded:
Aluminum / polyester, 25% overlap, foil facing in with stranded tinned copper drain wire equal in size to insulated conductor.
 - C) **SUPRASHIELD®**
Foil / braid combination. Triple laminate, aluminum / polyester / aluminum bonded in one layer, 25% overlap, overall 70% coverage tinned copper braid shield.
Provides maximum shielding effectiveness.
- 1.9** Jacketing
 - A) Specially formulated polyurethane jacket meets UL and CSA requirements.
 - B) Available in orange, blue, green, yellow, gray, red, sand-beige, white and black.

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TECHNICAL DATA

XTRA•GUARD® 2

ENGINEERING SPECIFICATION

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2.0 PERFORMANCE

- 2.1 Unmatched Resistance to Oils, Fuels, Solvents and Water
- 2.2 Twice the Tensile Strength of PVC
- 2.3 Three times the Tear and Abrasion Resistance of PVC
- 2.4 Superior Low-Temperature Flexibility to -20°C
- 2.5 Ultraviolet Light Stability (Jacket Color Black)
- 2.6 Extraordinary Fungus Resistance
- 2.7 Rated to 90°C (300V) 105°C (600V)

3.0 APPLICATIONS

- 3.1 CNC Machine Centers
- 3.2 Automotive Assembly Plant Operations
- 3.3 Military Ground Support Systems
- 3.4 Packaging Machinery
- 3.5 Petrochemical Plant Operations
- 3.6 Geophysical Exploration Equipment

4.0 TEST DATA

4.1 Property	Test Method	Value
Tensile Strength, psi (min.)	ASTM D-412	4050
Elongation, % (min.)	ASTM D-412	450
Durometer Hardness, Shore "A"	ASTM D-2240	90
Set, % (max.)	ASTM D-395	37
Tear Strength, LB/Inch	ASTM D-624	480

4.2 Low Temperature Flexibility Temperature

ASTM D1053		Modulus of Rigidity	
°C	°F	MPa	(psi)
23	73	6.8	(990)
0	32	9.0	(1,300)
-20	-4	17.2	(2,500)
-30	-22	41.2	(6,000)
-40	-40	124.0	(18,000)
-50	-58	345.0	(50,000)

4.3 Flame Retardancy

UL Rating	Oxygen Index
VW-1	32 (ASTM D-2863)

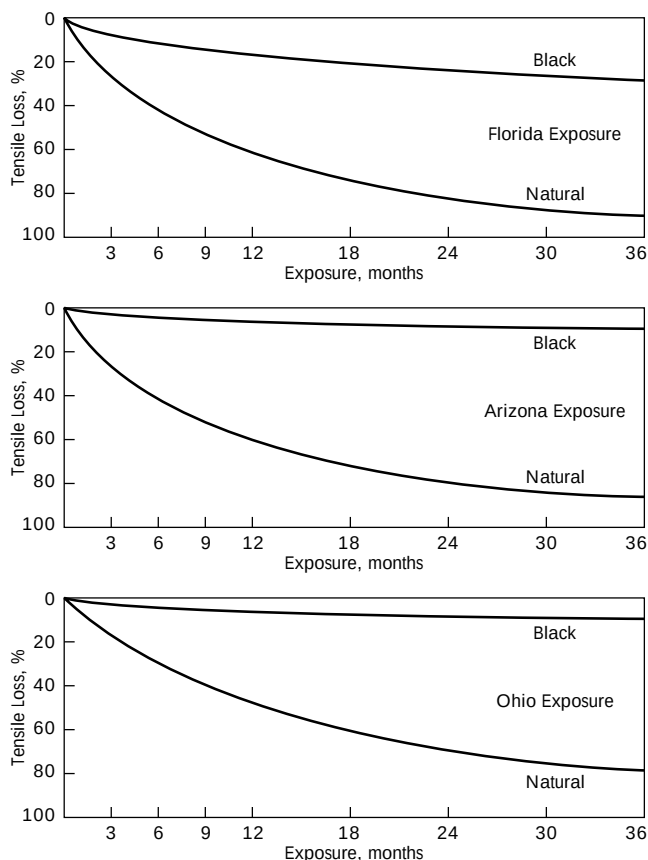
4.0 TEST DATA (Continued)

4.4 Tensile and Tear Resistance Comparison of Various Jacketing Materials

Materials	Tensile Strength (psi)	Tear ⁽¹⁾ Strength Lbs.	% Elongation
Polyurethane Low Density	4050	480	450
Polyethylene	2200	45	200
Plasticized PVC	2100	60	250
Neoprene	2100	30	320
Hypalon	2500	30	190
Ethylene Propylene Rubber	1480	48	600

(1) ASTM D-624

4.5 Outdoor Aging of XTRA•GUARD® 2 Polyurethane



TECHNICAL DATA

XTRA-GUARD® 2

ENGINEERING SPECIFICATION

4.0 TEST DATA (Continued)

4.6 Aging Characteristics

	ASTM Method	Tensile Strength PSI	Ultimate Elongation %	100% Modulus PSI	300% Modulus PSI	Weight Change %	Volume Change %
ORIGINAL PROPERTIES	D-412	4150	620	900	1100		
Heat Stability	D-573						
(Air-oven 1 wk)							
@ 121°C		3400	720	700	1200		
@ 140°C		2000	790	600	900		
UV Stability	D-1499						
(Fade-o-meter)							
after 20 hrs.		3850	630	900	1200		
60 hrs.		3700	630	900	1150		
100 hrs.		3500	650	800	1100		
200 hrs.		3200	620	800	1100		
Hydrolytic Stability	D-3137						
Immersion @ 75°C							
after 2 wks.		3600	680	750	1100		
4 wks.		3350	630	750	1200		
6 wks.		3150	650	725	1125		
8 wks.		2950	640	725	1100		
Immersion @ 85°C							
after 2 wks.		3000	690	650	1050		
4 wks.		2500	640	700	1050		
6 wks.		2400	700	650	1000		
8 wks.		1950	620	625	975		
Original Properties		4150	620	900	1100		
SERVICE FLUID IMMERSION D-471							
ASTM Fuel A @ R.T.							
after 70 hrs.		3900	590	700	1100	+ 3.18	+ 6.28
2 wks.		4100	600	750	1100	+ 2.53	+ 6.04
4 wks.		4000	590	700	1100	+ 1.89	+ 5.51
ASTM Fuel B @ R.T.							
after 70 hrs.		2750	590	550	900	+ 16.27	+ 28.24
2 wks.		2750	610	600	900	+ 14.78	+ 26.84
4 wks.		2600	600	600	900	+ 15.60	+ 28.43
ASTM Oil #1 @ 100°C							
after 70 hrs.		3800	690	700	1200	-4.50	+ 1.57
2 wks.		3150	710	750	1200	+ 4.84	+ 1.94
4 wks.		2825	620	725	1250	+ 4.19	+ 0.13

TECHNICAL DATA

XTRA•GUARD® 3

ENGINEERING SPECIFICATION

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® 3**. Manufactured from stranded, tinned copper conductors in accordance with ASTM-B-33. Conductors shall be insulated with premium polyvinylchloride, which exceeds the flame test requirements of UL VW-1. Conductor insulations shall conform with UL styles 1007, 1061, 1015 and CSA AWM I A/B.

Insulated conductors shall be fully color coded. Jacketing shall be manufactured with ethylene propylene copolymer (polyethylene) 80°C. Jacketing shall exhibit superior resistance to abrasion, chemicals, moisture and ultraviolet light (UV).

Cable shall be capable of direct burial in wet earth.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Stranded tin coated copper conductor per ASTM B-33
- 1.2** Size range 24 AWG thru 14 AWG
- 1.3** Premium PVC insulated conductors
- 1.4** Fully color coded insulated conductors
- 1.5** UL, CSA conductor styles - 300 volts
 - A) 24 AWG and 22 AWG
UL Style 1061
CSA AWM I A/B 80°C
 - B) 20 AWG, 18 AWG and 16 AWG
UL Style 1007
CSA AWM I A/B 80°C
- 1.6** UL, CSA conductor styles - 600 volts
 - A) 24 AWG thru 14 AWG
UL Style 1015
CSA AWM I A/B 80°C
- 1.7** Shielding Options
 - A) Unshielded:
Clear polyester wrap, 25% overlap
 - B) Foil Shielded:
Aluminum/polyester, 25% overlap, foil facing in with stranded tinned copper drain wire equal in size to insulated conductors.
 - C) **SUPRASHIELD®**
Foil/braid combination. Triple laminate, aluminum/polyester/aluminum bonded in one layer, 25% overlap, overall 70% coverage tinned copper braid shield.
Provides maximum shielding effectiveness.
- 1.8** Jacketing
Specially formulated ethylene propylene copolymer (polyethylene) 80°C.

2.0 PERFORMANCE

- 2.1** Five Times the Water Resistance of PVC Cable
- 2.2** Direct Burial in Wet Earth Without Conduit
- 2.3** Unsurpassed Service Life in Outdoor Use
- 2.4** Unmatched Ultraviolet Light Stability

3.0 APPLICATIONS

- 3.1** Inter-building Communications
- 3.2** Satellite Communications Equipment
- 3.3** Land Irrigation Systems
- 3.4** Outdoor Security Systems
- 3.5** Outdoor Scoreboards and Displays
- 3.6** Pipeline Sensor Controls

4.0 TEST DATA

4.1

Property	Test Method	Values
Specific Gravity	ASTM D-792	0.92
Durometer Hardness	ASTM D-2240	D45
Tensile Strength, psi (min)	ASTM D-412	2200
Elongation, % (min)	ASTM D-412	600
Water Absorption — PVC Index	ASTM D-570	0.5 — 1%
Water Absorption — Polyethylene	ASTM D-570	0.01%



TECHNICAL DATA

XTRA•GUARD® 4

ENGINEERING SPECIFICATION

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® 4**. Manufactured from stranded, tinned copper conductors in accordance with ASTM-B-33. Conductors shall be insulated and jacketed with thermoplastic elastomer (TPE) which meets the flame test for 300 volt cables at 210,000 BTU/HR and 600 volt cables at 70,000 BTU/HR. Conductor insulations shall conform with UL styles 1888, 300 volt, 125°C and UL Style 1722, 600 volt 125°C applications.

Insulated conductors shall be fully color coded. Cable shall meet or exceed the requirements of UL Style 20237, 20238, 20239, 20240 and CSA, AWM I A/B II A/B FT1 for 300v and 600v installations.

Cable shall conform to UL tray cable ratings UL standard 13 type PLTC (Power Limited Tray Cable) 90°C, 300v or UL Standard 1277 type TC (Tray Cable) 90°C, 600v.

Cable shall be approved for use in mines in accordance with Pennsylvania Bureau of Deep Mine Safety, P-MWMS-1-85 and be in compliance with **CE**. Cable shall exhibit superior resistance to ultra-violet light, ozone, cold impact, chemicals and water.

Cable shall exhibit minimum levels of corrosive outgassing when subjected to heat or thermal decomposition.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Stranded tin coated copper conductor per ASTM B-33
- 1.2** Size range 24 AWG thru 14 AWG
- 1.3** Fully color coded insulated conductors
- 1.4** Thermoplastic Elastomer insulated conductors
- 1.5** UL, CSA conductor styles - 300 volts
24 AWG thru 16 AWG
UL Style 1888
CSA AWM I A/B 125°C
- 1.6** UL, CSA conductor styles - 600 volts
18 AWG thru 14 AWG
UL Style 1722
CSA AWM I A/B 125°C
- 1.7** UL, CSA cable styles - 300 volts
24 AWG thru 16 AWG
UL Style 20237
CSA AWM I A/B II A/B FT1
- 1.8** UL, CSA cable styles - 600 volts
18 AWG thru 14 AWG
UL Style 20238
CSA AWM I A/B II A/B FT1
- 1.9** Shielding Options
 - A) Unshielded:
Clear polyester wrap, 25% overlap
 - B) Foil Shielded:
Aluminum / polyester, 25% overlap, foil facing in with stranded tinned copper drain wire equal in size to insulated conductors.
 - C) **SUPRASHIELD®**
Foil / braid combination. Triple laminate, aluminum / polyester / aluminum bonded in one layer, 25% overlap, overall 70% coverage tinned copper braid shield.
Provides maximum shielding effectiveness.
- 1.10** UL Tray Cable Ratings - 90°C - 300 volts
22 AWG thru 16 AWG
UL Standard 13 type PLTC (Power Limited Tray Cable)
- 1.11** UL Tray Cable Ratings - 90°C - 600 volts
18 AWG thru 14 AWG
UL Standard 1277 type TC (Tray Cable)
- 1.12** Meets or exceeds flame test for 300 Volt cables at 210,000 BTU/HR and 600v cables at 70,000 BTU/HR
- 1.13** Mine approved in accordance with Pennsylvania Bureau of Deep Mine Safety P-MWMS-1-85
- 1.14** Jacketing
Thermoplastic Elastomer (TPE) 125°C UL Recognized

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TECHNICAL DATA

XTRA•GUARD® 4

ENGINEERING SPECIFICATION

352

2.0 PERFORMANCE

- 2.1 Three Times the Low-Temperature Flexibility of Conventional PVC
- 2.2 Unmatched Performance at Temperatures from -60°C to 125°C
- 2.3 Resistance to Oils, Fuels, Solvents and Water
- 2.4 UL Recognition and UL Listing
- 2.5 Unmatched Flame Resistant Insulation and Jacket
- 2.6 Ultraviolet Light Stability (Jacket Color Black)

3.0 APPLICATIONS

- 3.1 Wood, Paper, Pulp, Plant Operations
- 3.2 Mining Instruments and Controls
- 3.3 Mass Transit Systems
- 3.4 Military Electronic Applications
- 3.5 Food and Beverage Plants
- 3.6 Petrochemical Process Controls
- 3.7 Arctic Pipeline Controls

4.0 TEST DATA

4.1

Property	Value†
Tensile Strength, psi	1800
Elongation, %	530
Air Oven Aging, 7 days @ 136°C	
Tensile Strength, psi	1800
Elongation, %	530
Tear Strength, lbs/in	250

Values are typical

† Test procedures per applicable ASTM specification

4.2 Flame Retardancy

UL VW-1
CSA FT1
210,000 BTU — 300 Volt
70,000 BTU — 600 Volt

4.0 TEST DATA (Continued)

4.3 Low Temperature Flexibility

Static: Cold Bend Aging: -80°C

Dynamic: Cold Impact Aging: -50°C

Passed without physical damage to the cable specimens on cold bend mandrel and impact testing

4.4 Resistance to Solvents, Oils, Water

MOISTURE ABSORPTION

ASTM D570: MG/IN²

7 Days, 80°C : 3.3

24 Hours, 80°C : 1.5

ASTM #2 OIL AGING	% Retention	
	Tensile	Elongation
UL 62 (7 days, 160°C)	93	100
UL 83 (4 days, 100°C)	80	100
Methanol — ASTM D-471	95	95
Silicone Oil — ASTM D-471	100	85

4.5 Corrosive Outgassing Comparison

Outgassing occurs when insulation and jacketing materials are subjected to heat, flame or thermal decomposition.

Compound	PVC Parts Per Million	TPE (Thermoplastic Elastomer) Parts Per Million
HCL (Hydrochloric Acid Gas)	330,000	6
CO ₂	1,182,000	119
CO	90,000	750
Benzene	11,000	0
Methane	68,000	0
Ethane	29,000	0
Vinylchloride	26,000	0
Propane	14,000	0
Propylene	14,000	0
Toluene	10,000	0



TECHNICAL DATA

XTRA•GUARD® 5

ENGINEERING SPECIFICATION

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® 5**. Manufactured from stranded, tin coated copper conductors in accordance with ASTM-B-33. Conductors shall be insulated and jacketed with fluorinated ethylene propylene FEP Teflon®, which exceeds requirements of the UL VW-1 and 210,000 BTU/HR Flame Tests.

Conductor insulation shall conform with UL style 1886 (300 Volt, 150°C).

Insulated conductors shall be fully color coded.

Cable shall meet or exceed the requirements of UL Style 20229, 20231 and 20232 for 300 Volt installations, and CSA CMP FT6 for 300 Volt applications. Cable shall be in compliance with **CE**.

Cable shall be approved for use in mines in accordance with Pennsylvania Bureau of Deep Mine Safety, P-MWMS-1-85.

Cable shall be unaffected by any known chemicals, acids, fuels, solvents or oils at room temperature.

Cable shall be resistant to weather, heat aging and ultraviolet (UV) light.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Stranded, tin coated copper conductor per ASTM B-33
- 1.2** Size range 24 AWG thru 16 AWG
- 1.3** Fluorinated Ethylene Propylene (FEP) Teflon* Insulated Conductors
- 1.4** Fully color coded insulated conductors
- 1.5** UL conductor style - 300 volts
24 AWG thru 16 AWG
UL Style 1886
150°C
- 1.6** UL cable style - 300 volts
UL Type CMP
UL AWM Styles 20229, 20231 and 20232
- 1.7** CSA cable style - 300 volts
CSA CMP FT6
- 1.8** Meets or exceeds the 210,000 BTU/HR Flame Test Requirements
- 1.9** Passes Steiner Tunnel Test (Low smoke generation)
- 1.10** Mine approved in accordance with Pennsylvania Bureau of Deep Mine Safety P-MWMS-1-85.
- 1.11** Jacketing
Fluorinated Ethylene Propylene (FEP) — Teflon, 150°C, UL Listed and CSA Certified.
- 1.12** NEC Article 800
- 1.13** Shielding Options
 - A) Unshielded:
High temperature tape wrap, 25% overlap
 - B) Foil Shielded:
Aluminum / polyester, 25% overlap, foil facing in with stranded tinned copper drain wire equal in size to insulated conductors.
 - C) **SUPRASHIELD®**
Foil / braid combination. Triple laminate tape, aluminum / polyester / aluminum bonded in one layer, 25% overlap, overall 70% coverage tinned copper braid shield. Provides maximum shielding effectiveness.

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*Teflon is a registered trademark of E.I. DuPont

TECHNICAL DATA

XTRA•GUARD® 5

ENGINEERING SPECIFICATION

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2.0 PERFORMANCE

- 2.1** Unmatched Performance at Temperatures from -80°C to 200°C
- 2.2** 100% Impervious to All Chemicals, Acids, Fuels, Solvents and Water at Room Temperature
- 2.3** Excellent Ampacity Capability
- 2.4** Low Dielectric Constant of 2.1
- 2.5** 20-30% Smaller Cable Diameter
- 2.6** Extremely Low Friction Jacket for Ease of Routing
- 2.7** Suitable for Use in Class 1 Clean Rooms
- 2.8** FDA Recognized as Food/Medical Grade (can be sterilized)

3.0 APPLICATIONS

- 3.1** Military Electronic Applications
- 3.2** Steel, Glass and Metal Foundries
- 3.3** Mining Instruments and Controls
- 3.4** Food and Beverage Plants
- 3.5** Clean Room Environments
- 3.6** Refinery Cracker Unit Controls

4.0 TEST DATA

4.1

Property	Test Method	Teflon* FEP
Specific Gravity	ASTM D-792	2.17
Durometer Hardness (Shore "D")	ASTM D-2240	59
Tensile Strength, psi (min.)	ASTM D-412	3100
Elongation % (min.)	ASTM D-412	300
Operating Temperature, °C	—	200
Dielectric constant	—	2.1

4.2

Flame Retardancy
UL Vertical Tray
Steiner Tunnel
210,000 BTU/HR

4.3

Ampacity (Insulated Conductors)
Current Carrying Capacity of Copper Conductors (Measured in Amperes)

INSULATION MATERIALS AT GIVEN TEMPERATURES					
CONDUCTOR SIZE	POLYETHYLENE NEOPRENE POLYURETHANE POLYVINYLCHLORIDE (SEMI-RIGID) AT 80°C	POLYPROPYLENE POLYETHYLENE (HIGH DENSITY) AT 90°C	POLYVINYLCHLORIDE PVC (IRRADIATED) NYLON AT 105°C	KYNAR POLYETHYLENE (CROSSLINKED) THERMOPLASTIC ELASTOMERS AT 125°C	KAPTON TEFLON SILICONE AT 200°C
24 AWG	6	7	7	8	10
22 AWG	8	9	10	11	13
20 AWG	10	12	13	14	17
18 AWG	15	17	18	20	24
16 AWG	19	22	24	26	32



TECHNICAL DATA

XTRA·GUARD® 5

ENGINEERING SPECIFICATION

4.0 TEST DATA (Continued)

4.4 Chemical Resistance

Reagent		Exposure Temp., °C (°F)	Exposure Time	Weight Increase, %
Hydrochloric Acid	10%	25 (77)	12 mo.	0
		50 (122)	12 mo.	0
		70 (158)	12 mo.	0
	20%	100 (212)	8 hr.	0
		200 (392)	8 hr.	0
Nitric Acid	10%	25 (77)	12 mo.	0
		70 (158)	12 mo.	0.1
Sulfuric Acid	30%	25 (77)	12 mo.	0
		70 (158)	12 mo.	0
		100 (212)	8 hr.	0
		200 (392)	8 hr.	0.1
Sodium Hydroxide	10%	25 (77)	12 mo.	0
		70 (158)	12 mo.	0.1
	50%	100 (212)	8 hr.	0
Ammonium Hydroxide	10%	25 (77)	12 mo.	0
		70 (158)	12 mo.	0.1

Solvent		Exposure Temp., °C (°F)	Exposure Time	Weight Increase, %
Acetone		25 (77)	12 mo.	0.3
		50 (122)	12 mo.	0.4
		70 (158)	2 wk.	0
Benzene		78 (172)	96 hr.	0.5
		100 (212)	8 hr.	0.8
		200 (392)	8 hr.	1.0
Carbon Tetrachloride		25 (77)	12 mo.	0.8
		50 (122)	12 mo.	1.8
		70 (158)	2 wk.	1.8
		100 (212)	8 hr.	2.5
		200 (392)	8 hr.	3.7
Ethyl Alcohol (95%)		25 (77)	12 mo.	0
		50 (122)	12 mo.	0
		70 (158)	2 wk.	0
		100 (212)	8 hr.	0.1
		200 (392)	8 hr.	0.3
Ethyl Acetate		25 (77)	12 mo.	0.5
		50 (122)	12 mo.	0.7
		70 (158)	2 wk.	0.7
Toluene		25 (77)	12 mo.	0.3
		50 (122)	12 mo.	0.3
		70 (158)	2 wk.	0.6

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TECHNICAL DATA

INSULATION AND JACKETING MATERIALS PROPERTIES

INSULATION MATERIALS PROPERTIES CHART

PROPERTIES	PVC	PE	POLYPROPYLENE	TFE	FEP	KYNAR PVDF	TPE
1 Abrasion Resistance	Good	Good	Fair	Fair	Good	Good	Good
2 Heat Resistance	Good	Good	Good	Excellent	Excellent	Excellent	Excellent
3 Weatherability	Good	Excellent	Excellent	Excellent	Excellent	Good	Excellent
4 Flame Retardancy	Excellent	Poor	Poor	Excellent	Excellent	Excellent	Excellent
5 Water Resistance	Good	Excellent	Excellent	Excellent	Good	Good	Good
6 Acid Resistance	Good	Good	Excellent	Excellent	Excellent	Excellent	Excellent
7 Alkali Resistance	Good	Good	Excellent	Excellent	Excellent	Excellent	Excellent
8 Aliphatic Hydro. Resis.	Good	Poor	Fair	Excellent	Excellent	Excellent	Poor
9 Aromatic Hydro. Resis.	Poor	Poor	Fair	Excellent	Excellent	Excellent	Poor

PROPERTIES	ASTM METHOD	PVC	PE	POLY-PROPYLENE	TFE	FEP	PVDF	TPE
1 Specific Gravity	D-792-66	1.16-1.70	0.91-1.26	0.890-0.905	2.13-2.20	2.12-2.17	1.75-1.78	1.16-1.20
2 Tensile Strength, psi	D-638-77	1500-4500	1500-2200	2900-4500	1000-3500	2700-3100	5200-7500	2300
3 Elongation, %	D-412-75	40-400	180-600	700	275	250-330	500	500
4 Volume Resistivity, ohm-cm	D-257-78	10 ⁴ -10 ¹⁶	>10 ¹⁵	1.5 x 10 ¹⁵ 2.8 x 10 ¹⁵	>10 ¹⁸	2.0 x 10 ¹⁸	2 x 10 ¹⁴	2.2 x 10 ¹⁸
5 Dielectric Strength, volts/mil	D-149-75	250-500	230-1420	450-850	500	500-600	260	625
6 Dielectric Constant @ 60 Hz	D-150-78	3.2-9.0	2.28-2.50	2.50-2.75	2.0-2.1	2.1	8.40	2.8
7 Dielectric Constant @ 1 kHz	D-150-78	3.0-8.0	2.27-2.50	2.50-2.65	2.0-2.1	2.1	7.9	2.8
8 Power Factor (Dissipation) @ 60 Hz	D-150-78	0.007-0.15	0.003-0.044	0.0054-0.0070	0.0004	0.0002	0.049	0.002
9 Power Factor (Dissipation) @ 1 kHz	D-150-78	0.009-0.16	0.00048-0.00049	0.0036-0.0050	0.0001	0.0007	0.019	0.002

The above chart reflects a qualitative comparison of insulating properties and should be used as a general guide only. For specific compound information, consult Alpha's Engineering Staff.

Note: All values shown are nominal.

XTRA® GUARD® CHEMICAL RESISTANCE CHART

	Crude Oil	Detergent Motor Oil	Non-Detergent Motor Oil	Dibasic Acid Esters (Aircraft Turbine Oil)	Synthetic Oils	Castor Oil	Fluoro-Lubricants	Silicone Lubricants	Phosphate Esters (Brake Fluid HD)	Aviation Gasoline	Aviation Gas	Benzene
XTRA® GUARD® 1	F	F	F	F	F	F	G	G	P	F	F	P
XTRA® GUARD® 2	G	G	G	P	G	P	G	E	P	F	F	p
XTRA® GUARD® 3	F	G	G	P	G	P	G	E	P	F	F	P
XTRA® GUARD® 4	G	G	G	G	G	G	G	G	G	F	F	P
XTRA® GUARD® 5	E	E	E	E	E	E	E	E	E	E	E	E

This chart is to be used as a general reference guide only, for casual exposure at room temperature. These recommendations are based upon test results believed reliable. Alpha Wire does not guarantee the results to be obtainable in all instances.

E = Excellent
F = Fair

G = Good
P = Poor



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TECHNICAL DATA

INSULATION AND JACKETING MATERIALS PROPERTIES

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INSULATION MATERIALS PROPERTIES CHART

PROPERTIES	TEFZEL ETFE	NATURAL RUBBER	HYPALON	NEOPRENE	SILICONE	POLYURETHANE
1 Abrasion Resistance	Good	Excellent	Good	Excellent	Fair	Excellent
2 Heat Resistance	Excellent	Fair	Excellent	Good	Excellent	Good
3 Weatherability	Good	Fair	Excellent	Good	Excellent	Good
4 Flame Retardancy	Excellent	Poor	Good	Good	Good	Good
5 Water Resistance	Excellent	Good	Good	Excellent	Excellent	Good
6 Acid Resistance	Excellent	Fair	Excellent	Good	Good	Fair
7 Alkali Resistance	Excellent	Fair	Excellent	Good	Good	Fair
8 Aliphatic Hydro. Resis.	Excellent	Poor	Fair	Good	Poor	Good
9 Aromatic Hydro. Resis.	Excellent	Poor	Fair	Fair	Poor	Poor

PROPERTIES	ASTM METHOD	TEFZEL ETFE	NATURAL RUBBER	HYPALON	NEOPRENE	SILICONE	POLY-URETHANE
1 Specific Gravity	D-792-66	1.70-1.86	1.3-1.7	1.35-1.7	1.23-1.65	1.1-1.6	1.30
2 Tensile Strength, psi	D-638-77	6500	1500-4000	1200-2200	1200-2700	1000	>3500
3 Elongation, %	D-412-75	200	300-700	300-600	300-700	100-500	540-750
4 Volume Resistivity, ohm-cm	D-257-78	>10 ¹⁶	10 ¹³ -10 ¹⁶	10 ¹² -10 ¹⁴	10 ¹¹ -10 ¹³	2 x 10 ¹⁴ 8 x 10 ¹³	11 x 10 ¹⁴
5 Dielectric Strength, volts/mil	D-149-75	500	—	500	600	100-700	330-630
6 Dielectric Constant @ 60 Hz	D-150-78	2.6	—	—	—	—	5.4-7.6
7 Dielectric Constant @ 1 kHz	D-150-78	2.6	2.3-3.0	9.0-11.0	5.0-7.0	3.0-3.5	5.6-7.6
8 Power Factor (Dissipation) @ 60 Hz	D-150-78	—	—	—	—	—	0.015-0.046
9 Power Factor (Dissipation) @ 1 kHz	D-150-78	0.0006	0.0023-0.0030	0.05-0.07	3.5	0.001-0.010	0.043-0.060

The above chart reflects a qualitative comparison of insulating properties and should be used as a general guide only.

For specific compound information, consult Alpha's Engineering Staff.

Note: All values shown are nominal.

XTRA® GUARD® CHEMICAL RESISTANCE CHART

	Kerosene	JP-4	JP-5	Alcohols	MEK	Hydrochloric Acid (10%)	Sulfuric Acid (10%)	Acetone	Carbon Tetrachloride	TriChlor ethylene	Chlorine (Wet)
XTRA® GUARD® 1	P	P	P	G	P	E	G	P	F	P	G
XTRA® GUARD® 2	F	P	P	F	P	F	F	P	P	P	P
XTRA® GUARD® 3	G	P	P	G	P	G	G	P	F	P	P
XTRA® GUARD® 4	F	P	P	G	P	G	G	P	F	P	P
XTRA® GUARD® 5	E	E	E	E	E	E	E	E	E	E	E

This chart is to be used as a general reference guide only, for casual exposure at room temperature. These recommendations are based upon test results believed reliable. Alpha Wire does not guarantee the results to be obtainable in all instances.

E = Excellent G = Good
F = Fair P = Poor

TECHNICAL DATA

XTRA•GUARD® STANDARD-FLEX CONTROL CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® Standard-Flex Control Cable**. Manufactured from finely stranded bare copper conductors in accordance with ASTM-B-3. Conductors shall be insulated with premium polyvinylchloride, which meets the UL VW-1 flame test requirements. Conductor insulation shall conform with UL Style 10012 and CSA AWM I A/B. Insulated conductors shall be black, numbered white with one yellow/green grounding conductor on the outer layer.

Jacketing shall be manufactured from premium oil resistant flexible polyvinylchloride conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Style 2587 and CSA AWM I A/B II A/B FT1 rating requirements, for 600 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Finely stranded bare copper conductor per ASTM B-3
- 1.2** Size range 20 AWG thru 10 AWG
- 1.3** Premium lubricated polyvinylchloride insulated conductors
- 1.4** Black conductors, numbered white
- 1.5** UL, CSA conductor styles - 600 volts
UL Style 10012
CSA AWM I A/B 90bC
- 1.6** UL, CSA cable styles - 600 volts
UL Style 2587
CSA AWM I A/B II A/B FT1
- 1.7** Shielding
 - A) Unshielded:
Paper wrap, 25% overlap
 - B) Shielded:
Tinned copper braid over inner jacket, overall 85% coverage
- 1.8** Jacketing
 - A) Premium oil resistant flexible polyvinylchloride
 - B) Available in gray

2.0 PERFORMANCE

- 2.1** Outstanding Chemical and Oil Resistance
- 2.2** UL Recognized and CSA Certified, **CE** Marked
- 2.3** Jacket Meets VDE 0472, Section 803 Oil Test
- 2.4** Ease of Installation
- 2.5** NOT FOR USE IN HIGH-FLEX CABLE APPLICATIONS

3.0 APPLICATIONS

- 3.1** Material Handling Equipment
- 3.2** Machine Tools
- 3.3** CNC Machine Centers
- 3.4** Data Processing Equipment
- 3.5** Automation Equipment

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	84 / 78
	Tensile Strength, psi	ASTM D-412	2525
	Elongation, %	ASTM D-412	400
	Oxygen Index	ASTM D-2863	28.5
	Specific Gravity	ASTM D-792	1.36

- 4.2** Flame Retardancy
 - UL VW-1
 - CSA FT1



TECHNICAL DATA

XTRA·GUARD® HIGH-FLEX CONTROL CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA·GUARD® High-Flex Control Cable**. Manufactured from super finely stranded bare copper conductors in accordance with ASTM-B-3. Conductors shall be insulated with premium polyvinylchloride, which meets the UL VW-1 flame test requirements. Conductor insulation shall conform with UL Style 10012 and CSA AWM I A/B. Insulated conductors shall be red, numbered black with one yellow/green grounding conductor on the outer layer.

Jacketing shall be manufactured from premium oil resistant flexible polyvinylchloride conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Style 2587 and CSA AWM I A/B II A/B FT1 rating requirements, for 600 Volt applications.

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1.0 PRODUCT SPECIFICATIONS

- 1.1** Super finely stranded bare copper conductor per ASTM B-3
- 1.2** Size range 20 AWG thru 10 AWG
- 1.3** Premium lubricated polyvinylchloride insulated conductors
- 1.4** Red conductors, numbered black
- 1.5** UL, CSA conductor styles - 600 volts
UL Style 10012
CSA AWM I A/B 90°C
- 1.6** UL, CSA cable styles - 600 volts
UL Style 2587
CSA AWM I A/B II A/B FT1
- 1.7** Shielding
 - A) Unshielded:
Flexible tape wraps, 25% overlap
 - B) Shielded:
Tinned copper braid over inner jacket, overall 85% coverage
- 1.8** Jacketing
 - A) Premium oil resistant flexible polyvinylchloride
 - B) Available in black

2.0 PERFORMANCE

- 2.1** Extra Flexibility and Durability for Continuous Motion
- 2.2** Extended Cycle Life
- 2.3** Outstanding Oil and Chemical Resistance
- 2.4** Jacket Meets VDE 0472, Section 803 Oil Test
- 2.5** UL Recognized and CSA Certified, **CE** Marked

3.0 APPLICATIONS

- 3.1** Robotics
- 3.2** Installation in Cable Track
- 3.3** Data Processing Equipment
- 3.4** Assembly Lines
- 3.5** Automation Equipment

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	80/70
	Tensile Strength, psi	ASTM D-412	2100
	Elongation, %	ASTM D-412	400
	Oxygen Index	ASTM D-2863	27
	Specific Gravity	ASTM D-792	1.32

- 4.2** Flame Retardancy
 - UL VW-1
 - CSA FT1

TECHNICAL DATA

XTRA•GUARD® HIGH-FLEX MINI DIAMETER MULTICONDUCTOR DATA CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® High-Flex Mini Diameter Multiconductor Data Cable**. Manufactured from finely stranded tinned copper conductors in accordance with ASTM-B-33. Conductors shall be insulated with premium semi-rigid polyvinylchloride, which meets the UL VW-1 flame test requirements. Conductor insulation shall conform with UL Style 1731 and CSA AWM I A/B. Insulated conductors shall be fully color coded.

Jacketing shall be manufactured from premium oil resistant flexible polyvinylchloride conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Type CM, UL Style 2661, CSA CMG and CSA AWM I A/B II A/B FT4 rating requirements, for 300 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Finely stranded tinned copper conductor per ASTM B-33
- 1.2** Size range 28 AWG thru 12 AWG
- 1.3** Premium lubricated semi-rigid polyvinylchloride insulated conductors
- 1.4** Fully color coded conductors
- 1.5** UL, CSA conductor styles - 300 volts
UL Style 1731
CSA AWM I A/B 105pC
- 1.6** UL, CSA cable styles - 300 volts
UL Type CM, UL Style 2661
CSA CMG, CSA AWM I A/B II A/B FT4
- 1.7** Shielding
 - A) Aluminum/Polyester, 25% overlap
 - B) 26 AWG (7/34) tinned copper drain wire
 - C) Tinned copper serve, 90% overall coverage
- 1.8** Jacketing
 - A) Premium oil resistant flexible polyvinylchloride
 - B) Available in gray

2.0 PERFORMANCE

- 2.1** Extreme Flexibility in Small Spaces
- 2.2** Continual Flexing in Cable Tracks
- 2.3** Outstanding EMI Protection
- 2.4** Superior Oil Resistance
- 2.5** UL Listed, UL Recognized, CSA Certified and **CE** Marked

3.0 APPLICATIONS

- 3.1** Industrial Electronic Processing Equipment
- 3.2** Datacomm Connections
- 3.3** Connecting Sensors and Actuators to Controllers
- 3.4** Sensor and I/O Interconnects

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	97/87
	Tensile Strength, psi	ASTM D-412	2300
	Elongation, %	ASTM D-412	300
	Oxygen Index	ASTM D-2863	30.5
	Specific Gravity	ASTM D-792	1.44

- 4.2** Flame Retardancy
 - UL Vertical Tray
 - CSA FT4



TECHNICAL DATA

XTRA•GUARD® HIGH-FLEX MINI DIAMETER MULTIPAIR DATA CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® High-Flex Mini Diameter Multipair Data Cable**. Manufactured from finely stranded tinned copper conductors in accordance with ASTM-B-33. Conductors shall be insulated with premium semi-rigid polyvinylchloride, which meets the UL VW-1 flame test requirements. Conductor insulation shall conform with UL Style 1731 and CSA AWM I A/B. Insulated conductors shall be fully color coded.

Jacketing shall be manufactured from premium oil resistant flexible polyvinylchloride conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Type CM, UL Style 2661, CSA CMG and CSA AWM I A/B II A/B FT4 rating requirements, for 300 Volt applications.

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1.0 PRODUCT SPECIFICATIONS

- 1.1** Finely stranded tinned copper conductor per ASTM B-33
- 1.2** Size range 28 AWG thru 22 AWG
- 1.3** Premium lubricated semi-rigid polyvinylchloride insulated conductors
- 1.4** Fully color coded conductors
- 1.5** UL, CSA conductor styles - 300 volts
UL Style 1731
CSA AWM I A/B 105pC
- 1.6** UL, CSA cable styles - 300 volts
UL Type CM, UL Style 2661
CSA CMG, CSA AWM I A/B II A/B FT4
- 1.7** Shielding
 - A) Aluminum/Polyester, 25% overlap
 - B) 26 AWG (7/34) tinned copper drain wire
 - C) Tinned copper braid, 85% overall coverage
- 1.8** Jacketing
 - A) Premium oil resistant flexible polyvinylchloride
 - B) Available in gray

2.0 PERFORMANCE

- 2.1** Extreme Flexibility in Small Spaces
- 2.2** Continual Flexing in Cable Tracks
- 2.3** High Speed Digital Data Transmission
- 2.4** Outstanding EMI Protection
- 2.5** UL Listed, UL Recognized, CSA Certified and **CE** Marked

3.0 APPLICATIONS

- 3.1** Industrial Electronic Processing Equipment
- 3.2** Datacomm Connections
- 3.3** Automation Networking
- 3.4** PLC, Microprocessor and Computer Interconnects

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	97/87
	Tensile Strength, psi	ASTM D-412	2300
	Elongation, %	ASTM D-412	300
	Oxygen Index	ASTM D-2863	30.5
	Specific Gravity	ASTM D-792	1.44

- 4.2** Flame Retardancy
 - UL Vertical Tray
 - CSA FT4

TECHNICAL DATA

XTRA•GUARD® HIGH-FLEX TORSION ROBOTIC CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **XTRA•GUARD® High-Flex Torsion Robotic Cable**. Manufactured from finely stranded bare copper conductors in accordance with ASTM-B-3. Conductors shall be insulated with premium thermoplastic elastomer, which meets the UL VW-1 flame test requirements. Conductor insulation shall conform with UL Style 10162 and CSA AWM I A/B. Insulated conductors shall be black, numbered white with one green/yellow grounding conductor on the outer layer.

Jacketing shall be manufactured from specially formulated oil resistant extra-rugged polyurethane conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Style 20234 and CSA AWM I A/B II A/B FT1 rating requirements, for 600 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Finely stranded bare copper conductor per ASTM B-3
- 1.2** Size range 24 AWG thru 10 AWG
- 1.3** Premium thermoplastic elastomer
- 1.4** Black conductors, numbered white
- 1.5** UL, CSA conductor styles - 600 volts
UL Style 10162
CSA AWM I A/B 80bC
- 1.6** UL, CSA cable styles - 600 volts
UL Style 20234
CSA AWM I A/B II A/B FT1
- 1.7** Shielding
 - A) Unshielded: Low friction tape
 - B) Shielded: Tinned copper serve, 90% overall coverage
- 1.8** Jacketing
 - A) Specially formulated oil resistant polyurethane
 - B) Available in black

2.0 PERFORMANCE

- 2.1** Twisting and Random Robotic Flexing Motions
- 2.2** Extreme Oil Resistance
- 2.3** Where Shielding is Required (shielded version only)
- 2.4** UL Recognized, CSA Certified and **CE** Marked

3.0 APPLICATIONS

- 3.1** Twisting and Random Robotic Flexing Applications
- 3.2** Power Supply to Welding, Painting and Articulating Robots
- 3.3** Automation Networking
- 3.4** Connecting Sensors and Actuators to Controllers

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	89/82
	Tensile Strength, psi	ASTM D-412	1800
	Elongation, %	ASTM D-412	500
	Oxygen Index	ASTM D-2863	36
	Specific Gravity	ASTM D-792	1.52

- 4.2** Flame Retardancy
UL VW-1
CSA FT1



TECHNICAL DATA

XTRA•GUARD® FLEXIBLE CABLE OIL AND CHEMICAL RESISTANCE CHART

CHEMICAL	XTRA•GUARD® FLEXIBLE CABLE PRODUCT TYPE			
	XTRA•GUARD® STANDARD-FLEX	XTRA•GUARD® HIGH-FLEX	XTRA•GUARD® MINI-DIAMETER	XTRA•GUARD® TORSION
Crude Oil	G	G	G	G
Detergent Motor Oil	G	G	G	G
Non-Detergent Motor Oil	G	G	G	G
Dibasic Acid Esters (Aircraft Turbine Oil)	G	G	G	P
Synthetic Oils	G	G	G	G
Castor Oil	G	G	G	P
Fluoro-Lubricants	G	G	G	G
Silicone Lubricants	G	G	G	E
Phosphate Esters (Brake Fluid HD)	P	P	P	P
Gasoline	F	F	F	F
Aviation Gas	F	F	F	F
Benzene	P	P	P	P
Kerosene	P	P	P	F
JP-4	P	P	P	P
JP-5	P	P	P	P
Alcohols	G	G	G	F
MEK	P	P	P	P
Hydrochloric Acid (10%)	E	E	E	F
Sulfuric Acid (10%)	G	G	G	F
Acetone	P	P	P	P
Carbon Tetrachloride	F	F	F	P
TriChlorethylene	P	P	P	P
Chlorine (Wet)	G	G	G	P

Legend

E = Excellent – non-measureable effects on product integrity.
 G = Good – no significant physical effects on product integrity.
 F = Fair – moderate exposure only.
 P = Poor – immediate effects noticable, not recommended for use.

TECHNICAL DATA

XTRA•GUARD® COMMON FLEXING APPLICATIONS

There are four common types of flexing to consider when designing and applying a flexing cable. They are Rolling Flex, Bending or "Tick-Tock" Flex, Torsional Flex and Variable / Random Flex.

ROLLING FLEX

Rolling Flex Applications include linear motion associated with cable track systems or single axis slide apparatus. (See figure 1.) The most common type of rolling flex includes cable track systems where the cables are "managed" within an enclosed rolling motion carrier.

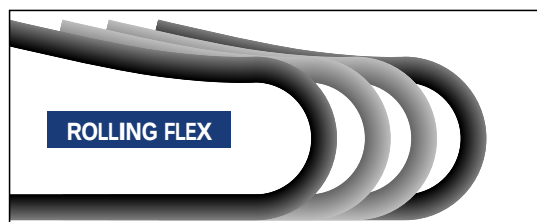


Figure 1

TORSIONAL FLEX

Torsional Flexing Applications occur when the cable is subjected to twisting forces, usually in a circular motion around the central axis of the cable. Robotic and pick / place apparatus are the most common applications subjecting cables to torsional stress.

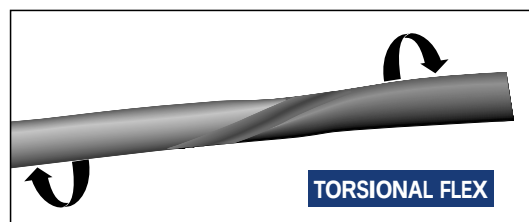


Figure 3

BENDING FLEX

Bending or "Tick Tock" Flex occurs when a cable is subjected to repetitive motion at a fixed point in the axis of the cable. The bending moment of the cable is subjected to stress and fatigue from lateral motion in these applications.

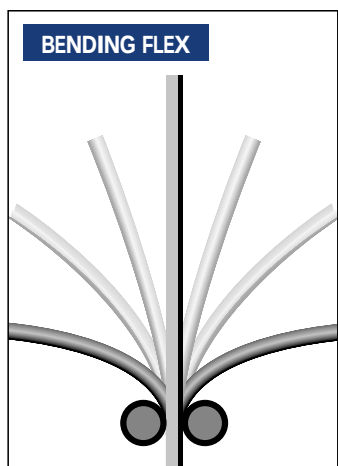


Figure 2

VARIABLE FLEX

Variable Flexing Applications are random applications, which may occur in any number of flexing environments. Examples include articulation found in robotics, automated equipment and hand-held devices.

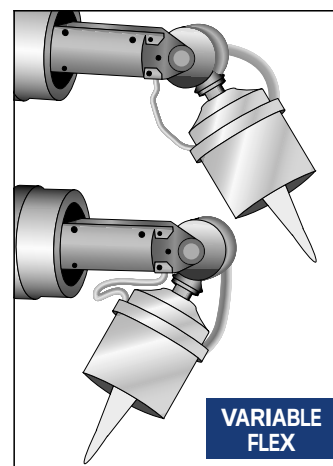


Figure 4

Alpha Wire Company offers a line of high flex **XTRA•GUARD® Flexible Cable** products designed specifically for each of the four listed types of flexure. In addition, Alpha's Engineering Staff can assist the user in the design of application specific cables to suit specific needs, or in the specification of an existing Alpha Wire product. A close examination of the flex requirements and the physical, mechanical or environmental requirements is an important first step in the determination of product selection. A product design specification worksheet can be found on page 405 of this Master Catalog to assist you in the selection process.



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TECHNICAL DATA

ALPHA WIRE COMPANY MANUFACTURING CAPABILITIES

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Alpha Wire is dedicated to providing our customers with premium products and service. A key component to this commitment is our world class manufacturing capability. Alpha has embarked on a major capital investment program in its Leominster, MA manufacturing facility that ensures every product made by Alpha lives up to our dedication to quality, fit for use, delivery and service. This two-year initiative will result in a transformation that includes every major manufacturing component in the facility. From primary extrusion, cabling, twisting, shielding and jacketing, to process and shop floor control. Alpha Wire has redesigned its manufacturing capabilities to provide existing products more efficiently and to better prepare for future developments in our industry.

Primary Extrusion

Alpha Wire's primary insulation processes provide a broad range of capabilities in the extrusion of thermoplastic materials over primary conductors. Primary core sizes from 4/0 through 30 AWG are produced utilizing state of the art digital process control technology. Insulation options include standard single pass polyester, PVC, polyethylene, polypropylene and a wide range of thermoplastic elastomers (TPE). Dual extrusion processing of constructions utilizing PVC/nylon or applicable materials is also available.

Jacketing

As with primary extrusion, Alpha Wire can claim the latest in finished jacketing extrusion technology. Construction diameters from less than 0.100" up to 1.5" are manufactured utilizing state of the art digital control technology. The latest raw material handling, drying and colorization equipment are used to reduce set up time and enhance product quality. Digital loop control ensures process specifications are met with 100% accuracy and repeatability. All thermoplastic-jacketing compounds can be extruded per UL, (C)UL and CSA standards.

Cabling

Alpha Wire's cabling capability is state of the art. From the latest in planetary cabling technology to the most current neutralization payoff and take up techniques, Alpha has the processing capability to build the most complex constructions.

Equipment and Shop Floor Control

Alpha Wire employs the Belden Automated Equipment Process Control (AEPC) standard on all extruders in its manufacturing facility. The AEPC version 3.0 controller is a scalable system that can monitor multiple I/O locations. Process parameters ranging from barrel and screw temperature through finished cable outside diameter are measured continuously. This data is digitally linked and statistical process control (SPC) techniques are employed to match the data with the individual process order. Quality control traceability is thus ensured at all steps in the process, for all products.

Shielding

Alpha Wire employs all of the standard shielding techniques including wrapped or inline foil shield (aluminum/polyester), tinned copper braid, spiral or serve wrapped tinned copper or the **SUPRASHIELD®** triple laminate foil shield with drain and a 70% coverage tinned braid combination.

The Alpha Information Management System (AIMS) employs the BPCS shop floor control module for process planning, production scheduling and shop floor tracking. From the moment an order is placed, either directly or through the company wide MRP system, Alpha's materials management and manufacturing systems are employed to ensure the product is produced on time, according to specification and with the highest quality possible.

In all, Alpha Wire provides manufacturing capabilities that have been carefully configured to fit Alpha's business model of quality brand and the finest service in the industry. Call Alpha Wire today for world class manufacturing technology designed to suit your special requirements.

TECHNICAL DATA

Alpha Wire INDUSTRIAL SERIES – SERIES F

HIGH PERFORMANCE, FLEXIBLE AUTOMOTIVE CONTROL CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **Alpha Wire INDUSTRIAL SERIES – SERIES F High Performance, Flexible Automotive Control Cable**. Manufactured from finely stranded bare copper conductors in accordance with ASTM-B-3. Conductors shall be insulated with premium polyvinylchloride/nylon, which meets the flame test requirements of UL VW-1. Conductor insulation shall conform with UL Type TFFN and CSA AWM I A/B. Insulated conductors shall be red, numbered black or other option is blue numbered white. One green/yellow grounding conductor and one neutral conductor will be on the outer layer. Neutral conductor color will be white/red when insulation color is red or white/blue when insulation color is blue.

Jacketing shall be manufactured from oil resistant thermoplastic elastomer conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Type TC and CSA AWM I A/B II A/B FT4 rating requirements, for 600 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Finely stranded bare copper conductor per ASTM B-3
- 1.2** Conductor size: 16 AWG
- 1.3** Premium lubricated polyvinylchloride/nylon insulated conductors
- 1.4** Red conductors numbered black, or blue conductors numbered white
- 1.5** UL, CSA conductor styles - 600 volts
UL Type TFFN
CSA AWM I A/B FT4
- 1.6** UL, CSA cable styles - 600 volts
UL Type TC
CSA AWM I A/B II A/B FT4
- 1.7** Jacketing
 - A) Oil resistant thermoplastic elastomer
 - B) Available in black

2.0 PERFORMANCE

- 2.1** Maximum Flex Life
- 2.2** Reduced Cable Cost
- 2.3** Oil Resistance
- 2.4** Abrasion Resistance
- 2.5** UL Listed, CSA Certified and **CE** Marked

3.0 APPLICATIONS

- 3.1** Factory Equipment Interconnects
- 3.2** Robotics
- 3.3** Machine Tools
- 3.4** Automotive Assembly Equipment
- 3.5** Conveyor Systems

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	80/70
	Tensile Strength, psi	ASTM D-412	1900
	Elongation, %	ASTM D-412	360
	Oxygen Index	ASTM D-2863	34
	Specific Gravity	ASTM D-792	1.44

- 4.2** Flame Retardancy
 - UL Vertical Tray
 - CSA FT4



TECHNICAL DATA

Alpha Wire INDUSTRIAL SERIES – SERIES M

HIGH PERFORMANCE, STATIONARY AUTOMOTIVE CONTROL CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **Alpha Wire INDUSTRIAL SERIES – SERIES M High Performance Stationary Automotive Control Cable**. Manufactured from finely stranded bare copper conductors in accordance with ASTM-B-3. Conductors shall be insulated with premium polyvinylchloride/nylon, which meets the UL VW-1 flame test requirements. Conductor insulation shall conform with UL Type TFFN and CSA AWM I A/B. Insulated conductors shall be red, numbered black. One green/yellow grounding conductor and one neutral conductor will be on the outer layer. Neutral conductor color will be white/red.

Jacketing shall be manufactured from premium oil resistant polyvinylchloride conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Type TC and CSA AWM I A/B II A/B FT4 rating requirements, for 600 Volt applications.

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1.0 PRODUCT SPECIFICATIONS

- 1.1** Finely stranded bare copper conductor per ASTM B-3
- 1.2** Conductor size: 16 AWG
- 1.3** Premium lubricated polyvinylchloride/nylon insulated conductors
- 1.4** Red conductors, numbered black
- 1.5** UL, CSA conductor styles - 600 volts
UL Type TFFN
CSA AWM I A/B 90°C
- 1.6** UL, CSA cable styles - 600 volts
UL Type TC
CSA AWM I A/B II A/B FT4
- 1.7** Jacketing
 - A) Premium oil resistant polyvinylchloride
 - B) Available in gray

2.0 PERFORMANCE

- 2.1** Improved Cable Life
- 2.2** Reduced Cable Cost
- 2.3** Oil Resistance
- 2.4** Abrasion Resistance **CE**
- 2.5** UL Listed, CSA Certified and **CE** Marked

3.0 APPLICATIONS

- 3.1** Factory Equipment Interconnects
- 3.2** Stationary Track/Tray
- 3.3** Machine Tools
- 3.4** Robotics
- 3.5** Automotive Assembly Equipment

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	97/87
	Tensile Strength, psi	ASTM D-412	2300
	Elongation, %	ASTM D-412	300
	Oxygen Index	ASTM D-2863	30.5
	Specific Gravity	ASTM D-792	1.44

- 4.2** Flame Retardancy
 - UL Vertical Tray
 - CSA FT4

TECHNICAL DATA

Alpha Wire INDUSTRIAL SERIES – SERIES S

SERVO POWER CABLE AND COMPOSITE SERVO POWER CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **Alpha Wire INDUSTRIAL SERIES – SERIES S Servo Power Cable and Composite Servo Power Cable**. Manufactured from finely stranded tinned copper conductors in accordance with ASTM-B-33. Servo data conductors shall be insulated with thermoplastic elastomer, servo power conductors shall be insulated with premium polyvinylchloride, and meet the flame test requirements of UL VW-1. Conductor insulation shall conform with UL Style 1015, 10162 and CSA AWM I A/B. Insulated conductors shall be black, numbered white with one green/yellow grounding conductor.

Jacketing shall be manufactured from oil resistant thermoplastic elastomer conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Style 20626 and CSA AWM I A/B II A/B FT1 rating requirements, for 600 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1 Finely stranded tinned copper conductor per ASTM B-3
- 1.2 Power conductor size range 24 AWG thru 8 AWG
- 1.3 Data conductor size range 18 AWG thru 16 AWG
- 1.4 Premium lubricated polyvinylchloride or thermoplastic elastomer insulated conductors
- 1.5 Black conductors numbered white
- 1.6 UL, CSA conductor styles - 600 volts
UL Style 1015, 10162
CSA AWM I A/B 90°C
- 1.7 UL, CSA cable styles - 600 volts
UL Style 20626
CSA AWM I A/B II A/B FT1
- 1.8 Shielding
 - A) Power Cable:
Overall aluminum/polyester, tinned copper drain wire, 85% tinned copper braid
 - B) Composite Cable:
Individual shielded pairs, aluminum/polyester, tinned copper drain wire, 85% tinned copper braid. Part Number S61224CY has one single shielded double pair, pairs are not individually shielded. Overall shield of aluminum/polyester, tinned copper drain wire, 85% tinned copper braid.
- 1.9 Jacketing
 - A) Oil resistant thermoplastic elastomer
 - B) Available in orange

2.0 PERFORMANCE

- 2.1 Power Supply Cable for Connecting Servo System Motors to Drives, Controllers and Power Supplies (Servo)
- 2.2 Power Supply and Data Cable for Connecting Servo System Motors and Electro-mechanical Devices to Drives, Controllers and Power Supplies (Composite)
- 2.3 For Temperature Feedback and Braking Control, Two Individually Shielded Pairs are Added to the 3 Power and One Grounding Conductor (Composite)
- 2.4 UL Recognized and CSA Certified, **CE** Marked

3.0 APPLICATIONS

- 3.1 Machine Tools
- 3.2 Automated Pick and Place Systems
- 3.3 C-track or Stationary Applications
- 3.4 Automated Handling Systems

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	89/83
	Tensile Strength, psi	ASTM D-412	1800
	Elongation, %	ASTM D-412	590
	Oxygen Index	ASTM D-2863	25
	Specific Gravity	ASTM D-792	1.24

- 4.2 Flame Retardancy
UL VW-1
CSA FT1



TECHNICAL DATA

Alpha Wire INDUSTRIAL SERIES – SERIES S SERVO RESOLVER CABLE AND SERVO ENCODER CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **Alpha Wire INDUSTRIAL SERIES – SERIES S Servo Resolver Cable and Servo Encoder Cable**. Resolver cables are manufactured from finely stranded tinned copper conductors in accordance with ASTM-B-33. Encoder cables are manufactured with bare copper conductors in accordance with ASTM-B-3. Conductors shall be insulated with polyolefin and meet the flame test requirements of UL VW-1. Conductor insulation shall conform with UL Style 1921 and CSA AWM I A/B. Insulated conductors shall be fully color coded.

Jacketing shall be manufactured from oil resistant thermoplastic elastomer conforming to current UL and CSA standards and in compliance with **CE**.

Complete cables meet UL Style 20626 and CSA AWM I A/B II A/B FT1 rating requirements, for 300 Volt applications.

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1.0 PRODUCT SPECIFICATIONS

- 1.1** Finely stranded tinned copper conductor per ASTM B-33 (Resolver)
- 1.2** Finely stranded bare copper conductor per ASTM B-3 (Encoder)
- 1.3** Conductor size: 20 AWG
- 1.4** Polyolefin insulated conductors
- 1.5** Fully color coded conductors
- 1.6** UL, CSA conductor styles - 300 volts
UL Style 1921
CSA AWM I A/B 80°C
- 1.7** UL, CSA cable styles - 300 volts
UL Style 20626
CSA AWM I A/B II A/B FT1
- 1.8** Shielding
 - A) Resolver:
Individual shielded pairs, aluminum/polyester, tinned copper drain wire. Overall shield of 85% tinned copper braid.
 - B) Encoder:
Overall shield of 85% tinned copper braid
- 1.9** Jacketing
 - A) Oil resistant thermoplastic elastomer
 - B) Available in orange

2.0 PERFORMANCE

- 2.1** Stationary or Flexing Applications
- 2.2** Connecting to Motor Position Sensors, Processors and Controllers
- 2.3** UL Recognized and CSA Certified, **CE** Marked

3.0 APPLICATIONS

- 3.1** For Use in Servo Systems
- 3.2** Regulation and Measurement of Motor Speeds and Positions
- 3.3** Automated Handling Systems

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	89/83
	Tensile Strength, psi	ASTM D-412	1800
	Elongation, %	ASTM D-412	590
	Oxygen Index	ASTM D-2863	25
	Specific Gravity	ASTM D-792	1.24

- 4.2** Flame Retardancy
UL VW-1
CSA FT1

TECHNICAL DATA

Alpha Wire INDUSTRIAL SERIES – SERIES L

COMPOSITE INPUT/OUTPUT INDUSTRIAL TWINAX AND CONTROL CABLE

ENGINEERING SPECIFICATION

Cable shall be Alpha Wire Company **Alpha Wire INDUSTRIAL SERIES – SERIES L Composite Input/Output Twinax and Control Cable**. Composite cable manufactured using twinaxial components and finely stranded bare copper conductors in accordance with ASTM-B-3. Single conductors shall be insulated with premium polyvinylchloride/nylon, which meets the UL VW-1 flame test requirements. Conductor insulation shall conform with UL type TFFN and AWM I A/B. Insulated single conductors shall be fully color coded.

Jacketing shall be manufactured from premium polyvinylchloride to current UL standards and in compliance with **CE**.

Complete cables meet UL Style 2464 and AWM I A/B II A/B FT1 rating requirements, for 300 Volt applications.

1.0 PRODUCT SPECIFICATIONS

- 1.1** Twinaxial component: Belden 9463 Blue Hose®
- 1.2** Finely stranded bare copper conductor per ASTM-B-3
- 1.3** Single conductor size: 16 AWG
- 1.4** Premium polyvinylchloride/nylon insulated single conductors
- 1.5** Fully color coded single conductors
- 1.6** Single conductor styles - 300 volts
 - UL Type TFFN
 - AWM I A/B 90°C
- 1.7** Cable styles - 300 volts
 - UL AWM 2464
 - AWM I A/B II A/B FT1
- 1.8** Shielding
 - A) Unshielded: Flexible tape wrap
 - B) Shielded: Aluminum/polyester with tinned copper braid
- 1.9** Jacketing
 - A) Premium polyvinylchloride
 - B) Available in blue

2.0 PERFORMANCE

- 2.1** High Speed Data Transmission and Control Power in One Cable
- 2.2** Belden 9463 Blue Hose® Twinaxial Component
- 2.3** Reduces Cable Installation Labor and Eliminates Additional Cable Protection
- 2.4** UL Recognition and **CE** Marked

3.0 APPLICATIONS

- 3.1** Machine Tools
- 3.2** Automotive Assembly
- 3.3** Pick-and-Place Units
- 3.4** Conveyor Systems
- 3.5** PLC Controlled Equipment

4.0 JACKET TEST DATA

4.1	Property	Test Method	Standard
	Durometer Hardness	ASTM D-2240	97/87
	Tensile Strength, psi	ASTM D-412	2300
	Elongation, %	ASTM D-412	300
	Oxygen Index	ASTM D-2863	30.5
	Specific Gravity	ASTM D-792	1.44

- 4.2** Flame Retardancy
 - UL VW-1
 - FT1



TECHNICAL DATA

Alpha Wire INDUSTRIAL SERIES

OIL AND CHEMICAL RESISTANCE CHART

CHEMICAL	Alpha Wire INDUSTRIAL SERIES PRODUCT TYPE			
	SERIES F	SERIES M	SERIES S	SERIES L
Crude Oil	G	G	G	G
Detergent Motor Oil	G	G	G	G
Non-Detergent Motor Oil	G	G	G	G
Dibasic Acid Esters (Aircraft Turbine Oil)	G	G	G	G
Synthetic Oils	G	G	G	G
Castor Oil	G	G	G	G
Fluoro-Lubricants	G	G	G	G
Silicone Lubricants	G	G	G	G
Phosphate Esters (Brake Fluid HD)	G	P	G	P
Gasoline	F	F	F	F
Aviation Gas	F	F	F	F
Benzene	P	P	P	P
Kerosene	F	P	F	P
JP-4	P	P	P	P
JP-5	P	P	P	P
Alcohols	G	G	G	G
MEK	P	P	P	P
Hydrochloric Acid (10%)	G	E	G	E
Sulfuric Acid (10%)	G	G	G	G
Acetone	P	P	P	P
Carbon Tetrachloride	F	F	F	P
TriChlorethylene	P	P	P	P
Chlorine (Wet)	P	G	P	G

Legend

E = Excellent – non-measureable effects on product integrity.
 G = Good – no significant physical effects on product integrity.
 F = Fair – moderate exposure only.
 P = Poor – immediate effects noticable, not recommended for use.

TECHNICAL DATA

FLEXIBLE CABLE TESTING CAPABILITIES

Alpha Wire Company offers a comprehensive, onsite flex testing service, which provides life cycle test data for use in failure analysis and fit for use comparisons. A state of the art rolling flex test apparatus (Figure 1) is employed to provide rolling flex life data. This device operates continuously in a 24 x 7 environment. Cables are flexed at a rate of approximately 17 cycles per minute over a 14-ft. length of travel. The cables are flex tested within a cable track system with a continuous 24 VDC electrical signal used to measure conductor continuity. Cycle count accrues only if electrical continuity is maintained on all conductors in the test samples. Testing stops immediately if continuity fails. A single cycle is measured when the device completes an "out and back" motion from 0ft. to 14-ft. and back to 0-ft. in the axis of motion.

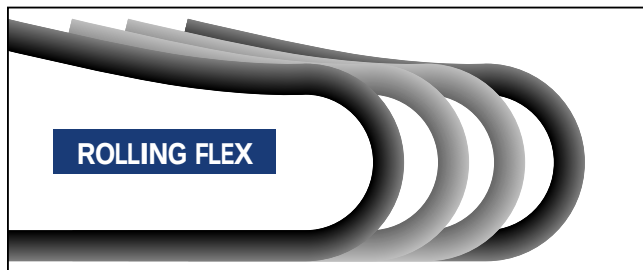


Figure 1

For the determination of bending and torsional flex life-cycle performance, Alpha Wire Company employs MIL-C-13777G, *General Specification for Cable, Special Purpose, Electrical*.

This standard offers two distinct destructive test procedures that have been found to provide accurate, comparative cable flex test results. Sections 3.7.2, 4.5.4.1 and related figures 3 and 5, of the MIL-C-13777G specification describe the test requirements for bend and twist (torsion). In each instance the cables are tested at temperatures in the range of 68° to 95° F. A 110 or 220 volt, 60 Hz, AC potential with a prescribed load current of not less than .5 amperes is used to permit the determination of failure caused by broken conductors or by short circuits between conductors. Failure due to either cause terminates the test. Values obtained are derived from tests of a minimum of three samples per test. If any of the samples tested do not comply with the requirements, the test is considered a failure.

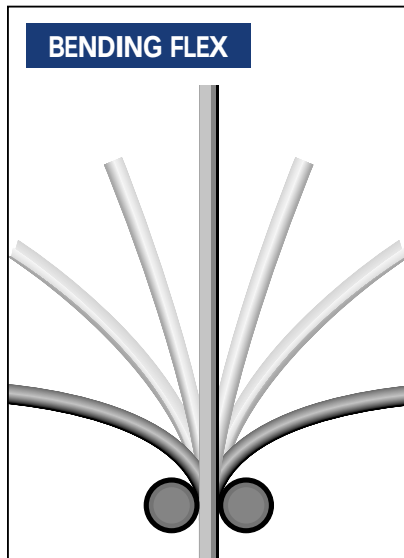


Figure 2

The MIL-C-13777G bend test employs an apparatus which subjects the cable test sample to bending $\pm 90^\circ$ about a mandrel, with a radius of $5/8$ " for cables with a diameter of $.750$ " or larger, and $3/8$ " radius for cables with a diameter of $.749$ " or smaller. The test is performed using a cable test specimen of 42" to which is fixed a weight of between 20 and 50 lbs., based on the circular mil area (CMA) of the copper conductors in the cable sample. A weight to CMA chart is supplied in the test procedure. The test cycle rate is 30 cycles per minute.

linear mil area (CMA) of the copper conductors in the cable sample. A weight to CMA chart is supplied in the test procedure. The test cycle rate is 30 cycles per minute.

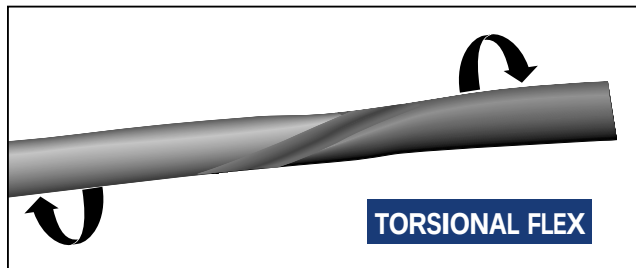


Figure 3

The MIL-C-13777G torsional test is performed using a cable specimen length of 66". The cable is weighted at one end using a 50 lb. weight for cables containing copper Circular Mil Area (CMA) above 14000 and 20 lbs. for cables containing copper CMA below 14000. 22" inches from the weighted end, the cable is wound about a mandrel of between 3" and 9", depending on cable diameter. The cable is affixed to a continuously rotating arm driven at 30 cycles per minute. Torsion is applied to the 22" weighted end of the test sample using a helical travel of $\pm 90^\circ$ over a length of 8". The torsional stress applied to the cable is 8.2° of motion per inch of cable.



TECHNICAL DATA

CABLE FLEX TEST CAPABILITIES MATRIX

FLEX TEST TYPE	APPLICABLE STANDARD	TRAVEL SPEED OR CYCLIC RATE	LENGTH OF TRAVEL	TEST SPECIMEN LENGTH	BEND RADIUS OR MANDREL DIAMETER	SAMPLE POPULATION	ACCEPTANCE CRITERIA
ROLLING	Cable Track Alpha Rolling Flex	12.5 Ft./sec 17 Cycles Per Minute	14 Ft.	28 Ft.	4.5" to 6.69"	1 Test Specimen Per Construction	Cycles to Failure
BENDING/ TIC-TOC	MIL-C-13777G Section 3.7.2 and Section 4.5.4.1	30 Cycles Per Minute	42" @ ±90 degrees	42"	3/8" to 5/8"	3 Test Specimens Per Construction	Pass/Fail @ 3,000 Cycles
TORSIONAL	MIL-C-13777G Section 3.7.2 and Section 4.5.4.1	30 Cycles Per Minute	22" @ ±90 degrees	66"	3", 4.5", 6" & 9"	3 Test Specimens Per Construction	Pass/Fail @ 3,000 Cycles

Rolling, Bending/Tic-Toc and Torsional testing occurs at Alpha Wire on an ongoing basis. Consult www.alphawire.com for most recent results.

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CABLE FLEX TEST RESULTS MATRIX

CABLE FAMILY	ALPHA WIRE PART NO. / CABLE DESCRIPTION	SHIELD	BEND RADIUS	CABLE DIAMETER	BEND RATIO: RADIUS / DIAMETER	FAILURE	CYCLE COUNT	TEST STATUS
XTRA•GUARD®	85025 20AWG x 25 Conductor	No	6.69	0.77	8.69 : 1	No	13,800,000	Test Complete
XTRA•GUARD®	85807CY 18AWG x 7 Conductor	Yes	6.69	0.61	10.97 : 1	No	13,800,000	Test Complete
XTRA•GUARD®	85618 16AWG x 18 Conductor	No	6.69	0.78	8.58 : 1	No	13,800,000	Test Complete
XTRA•GUARD®	85404CY 14AWG x 4 Conductor	Yes	6.69	0.64	10.45 : 1	No	13,800,000	Test Complete
Alpha Wire INDUSTRIAL SERIES	M16122R 16AWG x 22 Conductor	No	4.5	0.58	7.76 : 1	No	1,594,000	Test Complete
Alpha Wire INDUSTRIAL SERIES	M16133R 16AWG x 33 Conductor	No	4.5	0.89	5.06 : 1	Yes	1,594,000	Test Complete
Alpha Wire INDUSTRIAL SERIES	F16017R 16AWG x 17 Conductor	No	6.69	0.67	9.99 : 1	No	5,698,000	Test Complete
Alpha Wire INDUSTRIAL SERIES	F16025R 16AWG x 25 Conductor	No	6.69	0.79	8.47 : 1	No	5,698,000	Test Complete
Alpha Wire INDUSTRIAL SERIES	F16022R 16AWG x 22 Conductor	No	6.69	0.73	9.16 : 1	No	5,698,000	Test Complete
Alpha Wire INDUSTRIAL SERIES	F16012R 16AWG x 12 Conductor	No	4.5	0.58	7.76 : 1	No	Above 7,000,000	Ongoing
Alpha Wire INDUSTRIAL SERIES	F16033R 16AWG x 33 Conductor	No	6.69	0.89	7.52 : 1	No	Above 7,000,000	Ongoing
Alpha Wire INDUSTRIAL SERIES	F16017R 16AWG x 17 Conductor	No	6.69	0.67	9.99 : 1	No	Above 3,000,000	Ongoing
Alpha Wire INDUSTRIAL SERIES	F16033R 16AWG x 33 Conductor	No	6.69	0.89	7.52 : 1	No	Above 3,000,000	Ongoing
Alpha Wire INDUSTRIAL SERIES	F16022R 16AWG x 22 Conductor	No	6.69	0.73	9.16 : 1	No	Above 3,000,000	Ongoing
Alpha Wire INDUSTRIAL SERIES	86714CY 22AWG x 7 Pair	No	4.5	0.51	8.82 : 1	No	Above 1,000,00	Ongoing
Alpha Wire INDUSTRIAL SERIES	86325CY 22AWG x 25 Conductor	No	4.5	0.41	10.98 : 1	No	Above 1,000,000	Ongoing
Alpha Wire INDUSTRIAL SERIES	S61223CY 10AWG x 4 Conductor 16AWG x 2 Pair	Yes	6.69	0.81	8.26:1	No	Above 1,000,000	Ongoing

TECHNICAL DATA

COLOR CODE CHARTS

MULTIPAIR CABLES

374

CHART A

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	Black paired with Red	14	Green paired with Blue	27	Brown paired with Yellow	40	Slate paired with Blue
2	Black paired with White	15	Green paired with White	28	Purple paired with Red	41	Slate paired with Brown
3	Black paired with Green	16	Green paired with Brown	29	Purple paired with White	42	Slate paired with Yellow
4	Black paired with Blue	17	Green paired with Orange	30	Purple paired with Green	43	Slate paired with Orange
5	Black paired with Brown	18	Green paired with Yellow	31	Purple paired with Blue	44	Slate paired with Black
6	Black paired with Yellow	19	White paired with Blue	32	Purple paired with Brown	45	White/Black paired with Red
7	Black paired with Orange	20	White paired with Brown	33	Purple paired with Yellow	46	White/Black paired with Green
8	Red paired with Green	21	White paired with Orange	34	Purple paired with Orange	47	White/Black paired with Blue
9	Red paired with White	22	White paired with Yellow	35	Purple paired with Slate	48	White/Black paired with Brown
10	Red paired with Blue	23	Blue paired with Brown	36	Purple paired with Black	49	White/Black paired with Yellow
11	Red paired with Yellow	24	Blue paired with Orange	37	Slate paired with Red	50	White/Black paired with Orange
12	Red paired with Brown	25	Blue paired with Yellow	38	Slate paired with White	51	White/Black paired with Purple
13	Red paired with Orange	26	Brown paired with Orange	39	Slate paired with Green		

CHART B

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	White paired with Black	27	Red paired with Green	53	White/Black paired with Violet	78	White/Orange paired with Green
2	White paired with Brown	28	Red paired with Blue	54	White/Black paired with Gray	79	White/Orange paired with Blue
3	White paired with Red	29	Red paired with Violet	55	White/Brown paired with Black	80	White/Orange paired with Violet
4	White paired with Orange	30	Red paired with Gray	56	White/Brown paired with Brown	81	White/Orange paired with Gray
5	White paired with Yellow	31	Orange paired with Yellow	57	White/Brown paired with Red	82	White/Yellow paired with Black
6	White paired with Green	32	Orange paired with Green	58	White/Brown paired with Orange	83	White/Yellow paired with Brown
7	White paired with Blue	33	Orange paired with Blue	59	White/Brown paired with Yellow	84	White/Yellow paired with Red
8	White paired with Violet	34	Orange paired with Violet	60	White/Brown paired with Green	85	White/Yellow paired with Orange
9	White paired with Gray	35	Orange paired with Gray	61	White/Brown paired with Blue	86	White/Yellow paired with Yellow
10	Black paired with Brown	36	Yellow paired with Green	62	White/Brown paired with Violet	87	White/Yellow paired with Green
11	Black paired with Red	37	Yellow paired with Blue	63	White/Brown paired with Gray	88	White/Yellow paired with Blue
12	Black paired with Orange	38	Yellow paired with Violet	64	White/Red paired with Black	89	White/Yellow paired with Violet
13	Black paired with Yellow	39	Yellow paired with Gray	65	White/Red paired with Brown	90	White/Yellow paired with Gray
14	Black paired with Green	40	Green paired with Blue	66	White/Red paired with Red	91	White/Green paired with Black
15	Black paired with Blue	41	Green paired with Violet	67	White/Red paired with Orange	92	White/Green paired with Brown
16	Black paired with Violet	42	Green paired with Gray	68	White/Red paired with Yellow	93	White/Green paired with Red
17	Black paired with Gray	43	Blue paired with Violet	69	White/Red paired with Green	94	White/Green paired with Orange
18	Brown paired with Red	44	Blue paired with Gray	70	White/Red paired with Blue	95	White/Green paired with Yellow
19	Brown paired with Orange	45	Violet paired with Gray	71	White/Red paired with Violet	96	White/Green paired with Green
20	Brown paired with Yellow	46	White/Black paired with Black	72	White/Red paired with Gray	97	White/Green paired with Blue
21	Brown paired with Green	47	White/Black paired with Brown	73	White/Orange paired with Black	98	White/Green paired with Violet
22	Brown paired with Blue	48	White/Black paired with Red	74	White/Orange paired with Brown	99	White/Green paired with Gray
23	Brown paired with Violet	49	White/Black paired with Orange	75	White/Orange paired with Red	100	White/Blue paired with Black
24	Brown paired with Gray	50	White/Black paired with Yellow	76	White/Orange paired with Orange	101	White/Blue paired with Brown
25	Red paired with Orange	51	White/Black paired with Green	77	White/Orange paired with Yellow	102	White/Blue paired with Red
26	Red paired with Yellow	52	White/Black paired with Blue				

CHART C

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	Blue paired with White	14	Orange/Slate paired with White	27	Blue/Orange paired with Red	40	Slate/White paired with Red
2	Orange paired with White	15	Green/White paired with White	28	Blue/Green paired with Red	41	Blue paired with Black
3	Green paired with White	16	Green/Brown paired with White	29	Blue/Brown paired with Red	42	Orange paired with Black
4	Brown paired with White	17	Green/Slate paired with White	30	Blue/Slate paired with Red	43	Green paired with Black
5	Slate paired with White	18	Brown/White paired with White	31	Orange/White paired with Red	44	Brown paired with Black
6	Blue/White paired with White	19	Brown/Slate paired with White	32	Orange/Green paired with Red	45	Slate paired with Black
7	Blue/Orange paired with White	20	Slate/White paired with White	33	Orange/Brown paired with Red	46	Blue/White paired with Black
8	Blue/Green paired with White	21	Blue paired with Red	34	Orange/Slate paired with Red	47	Blue/Orange paired with Black
9	Blue/Brown paired with White	22	Orange paired with Red	35	Green/White paired with Red	48	Blue/Green paired with Black
10	Blue/Slate paired with White	23	Green paired with Red	36	Green/Brown paired with Red	49	Blue/Brown paired with Black
11	Orange/White paired with White	24	Brown paired with Red	37	Green/Slate paired with Red	50	Blue/Slate paired with Black
12	Orange/Green paired with White	25	Slate paired with Red	38	Brown/White paired with Red	51	Orange/White paired with Black
13	Orange/Brown paired with White	26	Blue/White paired with Red	39	Brown/Slate paired with Red		



TECHNICAL DATA

COLOR CODE CHARTS

MULTICONDUCTOR CABLES

375

CHART D

No.	Base Color	1st Stripe	2nd Stripe	3rd Stripe	No.	Base Color	1st Stripe	2nd Stripe	3rd Stripe	No.	Base Color	1st Stripe	2nd Stripe	3rd Stripe
1 – Black					35 – White	Red	Red			69 – White	Black	Green	Blue	
2 – Red					36 – White	Red	Green			70 – White	Black	Green	Brown	
3 – White					37 – White	Red	Blue			71 – White	Black	Green	Orange	
4 – Green					38 – White	Red	Brown			72 – White	Black	Green	Gray	
5 – Orange					39 – White	Red	Violet			73 – White	Black	Green	Violet	
6 – Blue					40 – White	Green	Black			74 – White	Black	Yellow	Blue	
7 – Brown					41 – White	Green	Red			75 – White	Black	Yellow	Brown	
8 – Yellow					42 – White	Green	Green			76 – White	Black	Yellow	Orange	
9 – Violet					43 – White	Green	Blue			77 – White	Black	Yellow	Gray	
10 – Gray					44 – White	Green	Brown			78 – White	Black	Yellow	Violet	
11 – Pink					45 – White	Green	Violet			79 – White	Black	Blue	Brown	
12 – Tan					46 – White	Blue	Black			80 – White	Black	Blue	Orange	
13 – Red	Green				47 – White	Blue	Red			81 – White	Black	Blue	Gray	
14 – Red	Yellow				48 – White	Blue	Green			82 – White	Black	Blue	Violet	
15 – Red	Black				49 – White	Blue	Blue			83 – White	Black	Brown	Orange	
16 – White	Black				50 – White	Blue	Brown			84 – White	Black	Brown	Gray	
17 – White	Red				51 – White	Blue	Violet			85 – White	Black	Brown	Violet	
18 – White	Green				52 – White	Brown	Black			86 – White	Black	Orange	Gray	
19 – White	Yellow				53 – White	Brown	Red			87 – White	Black	Orange	Violet	
20 – White	Blue				54 – White	Brown	Green			88 – White	Black	Gray	Violet	
21 – White	Brown				55 – White	Brown	Blue			89 – White	Red	Black	Green	
22 – White	Orange				56 – White	Brown	Brown			90 – White	Red	Black	Yellow	
23 – White	Gray				57 – White	Brown	Violet			91 – White	Red	Black	Blue	
24 – White	Violet				58 – White	Violet	Red			92 – White	Red	Black	Brown	
25 – White	Black	Red			59 – White	Violet	Green			93 – White	Red	Black	Orange	
26 – White	Black	Green			60 – White	Violet	Blue			94 – White	Red	Black	Gray	
27 – White	Black	Yellow			61 – White	Black	Red	Green		95 – White	Red	Black	Violet	
28 – White	Black	Blue			62 – White	Black	Red	Yellow		96 – White	Red	Green	Yellow	
29 – White	Black	Brown			63 – White	Black	Red	Blue		97 – White	Red	Green	Blue	
30 – White	Black	Orange			64 – White	Black	Red	Brown		98 – White	Red	Green	Brown	
31 – White	Black	Gray			65 – White	Black	Red	Orange		99 – White	Red	Green	Orange	
32 – White	Black	Violet			66 – White	Black	Red	Gray		100 – White	Red	Green	Gray	
33 – White	Black	Black			67 – White	Black	Red	Violet						
34 – White	Red	Black			68 – White	Black	Green	Yellow						

CHART E

No.	Base Color	1st Stripe	2nd Stripe	3rd Stripe	No.	Base Color	1st Stripe	2nd Stripe	3rd Stripe	No.	Base Color	1st Stripe	2nd Stripe	3rd Stripe
1 – Black					35 – White	Red	Orange			69 – White	Black	Orange	Green	
2 – Brown					36 – White	Red	Yellow			70 – White	Black	Orange	Blue	
3 – Red					37 – White	Red	Green			71 – White	Black	Orange	Violet	
4 – Orange					38 – White	Red	Blue			72 – White	Black	Orange	Gray	
5 – Yellow					39 – White	Red	Violet			73 – White	Black	Yellow	Green	
6 – Green					40 – White	Red	Gray			74 – White	Black	Yellow	Blue	
7 – Blue					41 – White	Orange	Yellow			75 – White	Black	Yellow	Violet	
8 – Violet					42 – White	Orange	Green			76 – White	Black	Yellow	Gray	
9 – Gray					43 – White	Orange	Blue			77 – White	Black	Green	Blue	
10 – White					44 – White	Orange	Violet			78 – White	Black	Green	Violet	
11 – White	Black				45 – White	Orange	Gray			79 – White	Black	Green	Gray	
12 – White	Brown				46 – White	Yellow	Green			80 – White	Black	Blue	Violet	
13 – White	Red				47 – White	Yellow	Blue			81 – White	Black	Blue	Gray	
14 – White	Orange				48 – White	Yellow	Violet			82 – White	Black	Violet	Gray	
15 – White	Yellow				49 – White	Yellow	Gray			83 – White	Brown	Red	Orange	
16 – White	Green				50 – White	Green	Blue			84 – White	Brown	Red	Yellow	
17 – White	Blue				51 – White	Green	Violet			85 – White	Brown	Red	Green	
18 – White	Violet				52 – White	Green	Gray			86 – White	Brown	Red	Blue	
19 – White	Gray				53 – White	Blue	Violet			87 – White	Brown	Red	Violet	
20 – White	Black	Brown			54 – White	Blue	Gray			88 – White	Brown	Red	Gray	
21 – White	Black	Red			55 – White	Violet	Gray			89 – White	Brown	Orange	Yellow	
22 – White	Black	Orange			56 – White	Black	Brown	Red		90 – White	Brown	Orange	Green	
23 – White	Black	Yellow			57 – White	Black	Brown	Orange		91 – White	Brown	Orange	Blue	
24 – White	Black	Green			58 – White	Black	Brown	Yellow		92 – White	Brown	Orange	Violet	
25 – White	Black	Blue			59 – White	Black	Brown	Green		93 – White	Brown	Orange	Gray	
26 – White	Black	Violet			60 – White	Black	Brown	Blue		94 – White	Brown	Yellow	Green	
27 – White	Black	Gray			61 – White	Black	Brown	Violet		95 – White	Brown	Yellow	Blue	
28 – White	Brown	Red			62 – White	Black	Brown	Gray		96 – White	Brown	Yellow	Violet	
29 – White	Brown	Orange			63 – White	Black	Red	Yellow		97 – White	Brown	Yellow	Gray	
30 – White	Brown	Yellow			64 – White	Black	Red	Green		98 – White	Brown	Green	Blue	
31 – White	Brown	Green			65 – White	Black	Red	Blue		99 – White	Brown	Green	Violet	
32 – White	Brown	Blue			66 – White	Black	Red	Violet		100 – White	Brown	Green	Gray	
33 – White	Brown	Violet			67 – White	Black	Red	Gray						
34 – White	Brown	Gray			68 – White	Black	Orange	Yellow						

TECHNICAL DATA

COLOR CODE CHARTS

MULTICONDUCTOR CABLES AND COMBINATION GAUGES

376

CHART F

No. Color	No. Color	No. Color	No. Color
1 — Black	14 — Green / White	27 — Blue / Black / White	39 — White / Black / Green
2 — White	15 — Blue / White	28 — Black / Red / Green	40 — Red / White / Green
3 — Red	16 — Black / Red	29 — White / Red / Green	41 — Green / White / Blue
4 — Green	17 — White / Red	30 — Red / Black / Green	42 — Orange / Red / Green
5 — Orange	18 — Orange / Red	31 — Green / Black / Orange	43 — Blue / Red / Green
6 — Blue	19 — Blue / Red	32 — Orange / Black / Green	44 — Black / White / Blue
7 — White / Black	20 — Red / Green	33 — Blue / White / Orange	45 — White / Black / Blue
8 — Red / Black	21 — Orange / Green	34 — Black / White / Orange	46 — Red / White / Blue
9 — Green / Black	22 — Black / White / Red	35 — White / Red / Orange	47 — Green / Orange / Red
10 — Orange / Black	23 — White / Black / Red	36 — Orange / White / Blue	48 — Orange / Red / Blue
11 — Blue / Black	24 — Red / Black / White	37 — White / Red / Blue	49 — Blue / Red / Orange
12 — Black / White	25 — Green / Black / White	38 — Black / White / Green	50 — Black / Orange / Red
13 — Red / White	26 — Orange / Black / White		

CHART G

No. Color	No. Color	No. Color	No. Color
1 — White	5 — Yellow	9 — Slate	13 — White / Red
2 — Black	6 — Blue	10 — Violet	14 — White / Orange
3 — Red	7 — Brown	11 — White / Black	15 — White / Yellow
4 — Green	8 — Orange	12 — White / Brown	

CHART H

No. Color	No. Color	No. Color	No. Color
1 — Black	6 — Blue	11 — White / Black	16 — White / Brown
2 — White	7 — Brown	12 — White / Red	17 — White / Purple
3 — Red	8 — Orange	13 — White / Green	18 — White / Slate
4 — Green	9 — Slate	14 — White / Yellow	19 — Black / Red
5 — Yellow	10 — Purple	15 — White / Blue	20 — Black / Yellow

CHART I Combination Gauges

#18 AWG — Black, Red
#22 AWG — Green, White, Brown, Blue, Orange, Yellow

CHART J

ICEA K-2 (COLORED COMPOUND WITH TRACERS)

No. Base Color	Tracer Color	No. Base Color	Tracer Color	No. Base Color	Tracer Color
1 — Black	...	13 — Blue	Red	25 — Yellow	Orange
2 — Red	...	14 — Orange	Red	26 — Brown	Orange
3 — Blue	...	15 — Yellow	Red	27 — Black	Yellow
4 — Orange	...	16 — Brown	Red	28 — Red	Yellow
5 — Yellow	...	17 — Black	Blue	29 — Blue	Yellow
6 — Brown	...	18 — Red	Blue	30 — Orange	Yellow
7 — Red	Black	19 — Orange	Blue	31 — Brown	Yellow
8 — Blue	Black	20 — Yellow	Blue	32 — Black	Brown
9 — Orange	Black	21 — Brown	Blue	33 — Red	Brown
10 — Yellow	Black	22 — Black	Orange	34 — Blue	Brown
11 — Brown	Black	23 — Red	Orange	36 — Yellow	Brown
12 — Black	Red	24 — Blue	Orange	35 — Orange	Brown

NOTE: No Green or White Conductors or Stripes are present.



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TECHNICAL DATA

COLOR CODE CHARTS

MULTIPAIR CABLES AND COMBINATION GAUGES

377

CHART K MULTIPAIR CABLES			
No.	Color	No.	Color
1	Black paired with Red	11	Red paired with Yellow
2	Black paired with White	12	Red paired with Brown
3	Black paired with Green	13	Red paired with Orange
4	Black paired with Blue	14	Green paired with White
5	Black paired with Yellow	15	Green paired with Blue
6	Black paired with Brown	16	Green paired with Yellow
7	Black paired with Orange	17	Green paired with Brown
8	Red paired with White	18	Green paired with Orange
9	Red paired with Green	19	White paired with Blue
10	Red paired with Blue	20	White paired with Yellow
		21	White paired with Brown
		22	White paired with Orange
		23	Blue paired with Yellow
		24	Blue paired with Brown
		25	Blue paired with Orange
		26	Brown paired with Yellow
		27	Brown paired with Orange
		28	Orange paired with Yellow
		29	Violet paired with Orange
		30	Violet paired with Red
		31	Violet paired with White
		32	Violet paired with Green
		33	Violet paired with Blue
		34	Violet paired with Yellow
		35	Violet paired with Brown
		36	Violet paired with Black
		37	Gray paired with White

CHART L REA COLOR CODE			
PAIR GROUP IDENTIFICATION		PAIR GROUP IDENTIFICATION	
Pair No.	Colors	Group No.	Binder Color
1	White paired with Blue	1	White—Blue
2	White paired with Orange	2	White—Orange
3	White paired with Green	3	White—Green
4	White paired with Brown	4	White—Brown
5	White paired with Slate	5	White—Slate
6	Red paired with Blue	6	Red—Blue
7	Red paired with Orange	7	Red—Orange
8	Red paired with Green	8	Red—Green
9	Red paired with Brown		
10	Red paired with Slate		
11	Black paired with Blue		
12	Black paired with Orange		
13	Black paired with Green		
14	Black paired with Brown		
15	Black paired with Slate		
16	Yellow paired with Blue		
17	Yellow paired with Orange		
18	Yellow paired with Green		
19	Yellow paired with Brown		
20	Yellow paired with Slate		
21	Violet paired with Blue		
22	Violet paired with Orange		
23	Violet paired with Green		
24	Violet paired with Brown		
25	Violet paired with Slate		
			Group Pair Count
			1—25
			26—50
			51—75
			76—100
			101—125
			126—150
			151—175
			176—200

CHART M			
Pair No.	Colors	Pair No.	Colors
1	Blue/White paired with White/Blue	9	Brown/Red paired with Red/Brown
2	Orange/White paired with White/Orange	10	Slate/Red paired with Red/Slate
3	Green/White paired with White/Green	11	Blue/Black paired with Black/Blue
4	Brown/White paired with White/Brown	12	Orange/Black paired with Black/Orange
5	Slate/White paired with White/Slate	13	Green/Black paired with Black/Green
6	Blue/Red paired with Red/Blue	14	Brown/Black paired with Black/Brown
7	Orange/Red paired with Red/Orange	15	Slate/Black paired with Black/Slate
8	Green/Red paired with Red/Green	16	Blue/Yellow paired with Yellow/Blue
		17	Orange/Yellow paired with Yellow/Orange
		18	Green/Yellow paired with Yellow/Green
		19	Brown/Yellow paired with Yellow/Brown
		20	Slate/Yellow paired with Yellow/Slate
		21	Blue/Violet paired with Violet/Blue
		22	Orange/Violet paired with Violet/Orange
		23	Green/Violet paired with Violet/Green
		24	Brown/Violet paired with Violet/Brown
		25	Slate/Violet paired with Violet/Slate

TECHNICAL DATA

DECIMAL EQUIVALENTS

378

Fraction of Inch					Equivalent	
4th	8th	16th	32nd	64th	Decimal	mm
—	—	—	—	1	0.015625	0,397
—	—	—	1	2	0.031250	0,794
—	—	—	—	3	0.036875	1,191
—	—	1	2	4	0.062500	1,159
—	—	—	—	5	0.078125	1,984
—	—	—	3	6	0.093750	2,381
—	—	—	—	7	0.109375	2,778
—	1	2	4	8	0.125000	3,175
—	—	—	—	9	0.140625	3,572
—	—	—	5	10	0.156250	3,969
—	—	—	—	11	0.171875	4,366
—	—	3	6	12	0.187500	4,762
—	—	—	—	13	0.203125	5,159
—	—	—	7	14	0.218750	5,556
—	—	—	—	15	0.234375	5,953
1	2	4	8	16	0.250000	6,350
—	—	—	—	17	0.265625	6,747
—	—	—	9	18	0.281250	7,144
—	—	—	—	19	0.296875	7,541
—	—	5	10	20	0.312500	7,938
—	—	—	—	21	0.328125	8,335
—	—	—	11	22	0.343750	8,732
—	—	—	—	23	0.359375	9,129
—	3	6	12	24	0.375000	9,524

Fraction of Inch					Equivalent	
4th	8th	16th	32nd	64th	Decimal	mm
—	—	—	—	25	0.390625	9,921
—	—	—	13	26	0.406250	10,318
—	—	—	—	27	0.421875	10,715
—	—	7	14	28	0.437500	11,112
—	—	—	—	29	0.453125	11,509
—	—	—	15	30	0.468750	11,906
—	—	—	—	31	0.484375	12,303
2	4	8	16	32	0.500000	12,700
—	—	—	—	33	0.515625	13,097
—	—	—	17	34	0.531250	13,494
—	—	—	—	35	0.546875	13,891
—	—	9	18	36	0.562500	14,288
—	—	—	—	37	0.578125	14,685
—	—	—	19	38	0.593750	15,082
—	—	—	—	39	0.609375	15,479
—	5	10	20	40	0.625000	15,876
—	—	—	—	41	0.640625	16,273
—	—	—	21	42	0.656250	16,670
—	—	—	—	43	0.671875	17,067
—	—	11	22	44	0.687500	17,464

Fraction of Inch					Equivalent	
4th	8th	16th	32nd	64th	Decimal	mm
—	—	—	—	45	0.703125	17,861
—	—	—	23	46	0.718750	18,238
—	—	—	—	47	0.734375	18,635
3	6	12	24	48	0.750000	19,048
—	—	—	—	49	0.765625	19,445
—	—	—	25	50	0.781250	19,842
—	—	—	—	51	0.796875	20,239
—	—	13	26	52	0.812500	20,636
—	—	—	—	53	0.828125	21,033
—	—	—	27	54	0.843750	21,430
—	—	—	—	55	0.859375	21,827
—	7	14	28	56	0.875000	22,224
—	—	—	—	57	0.890625	22,621
—	—	—	29	58	0.906250	23,018
—	—	—	—	59	0.921875	23,415
—	—	15	30	60	0.937500	23,812
—	—	—	—	61	0.953125	24,209
—	—	—	31	62	0.968750	24,606
—	—	—	—	63	0.984375	25,003
4	8	16	32	64	1.000000	25,400

ENGLISH / METRIC METRIC / ENGLISH

CONVERSION FACTORS

LENGTH	AREA	VOLUME	MASS
Inch x 25.40 = Millimeters	Sq. Inch x 6.452 = Sq. Centimeter	Cu. Inch x 16.39 = Cu. Centimeter	Ounce x 28.35 = Gram
Millimeters x 0.03937 = Inches	Sq. Centimeter x 0.1550 = Sq. Inch	Cu. Cm. x 0.06102 = Cu. Inch	Gram x 0.03527 = Ounce
Feet x 0.3048 = Meters	Sq. Foot x 0.0929 = Sq. Meter	Cu. Foot x 0.02832 = Cu. Meter	Pound x 0.4536 = Kilogram
Meters x 3.281 = Feet	Sq. Meter x 10.76 = Sq. Foot	Cu. Meter x 35.31 = Cu. Foot	Kilogram x 2.205 = Pound
Miles x 1.609 = Kilometers	Sq. Mile x 2.590 = Sq. Kilometer		Kilogram/km x 0.6214 = Pounds/kft
Kilometers x 0.6214 = Miles	Sq. Kilometer x 0.3861 = Sq. Mile		Pounds/kft x 1.4881 = Kilogram/km
Ohms/km x 0.3048 = Ohms/kft	Circular Mil x 0.7854 = Sq. Mil		

METRIC PREFIXES (SI)

PREFIX	VALUE	SYMBOL
Tera	10 ¹²	T
Giga	10 ⁹	G
Mega	10 ⁶	M
Kilo	10 ³	k

PREFIX	VALUE	SYMBOL
Hecto	10 ²	h
Deca	10 ¹	da
Deci	10 ⁻¹	d
Centi	10 ⁻²	c

PREFIX	VALUE	SYMBOL
Milli	10 ⁻³	m
Micro	10 ⁻⁶	μ
Nano	10 ⁻⁹	n
Pico	10 ⁻¹²	p



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TECHNICAL DATA

AWG/METRIC CONDUCTOR CHART

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AWG	STRANDING	APPROX. O.D.		CIRCULAR MIL AREA	SQUARE		WEIGHT LBS. / 1000 FT.	WEIGHT KG / KM	D.C. RESISTANCE OHMS / 1000 FT.	D.C. RESISTANCE OHMS / K / M
		INCHES	MM		INCHES	MM				
36	Solid	0.0050	0,127	25.0	—	0,013	0.076	0,113	445.0	1460,0
36	7/44	0.006	0,152	28.0	—	0,014	0.085	0,126	371.0	1271,0
34	Solid	0.0063	0,160	39.7	—	0,020	0.120	0,179	280.0	918,0
34	7/42	0.0075	0,192	43.8	—	0,022	0.132	0,196	237.0	777,0
32	Solid	0.008	0,203	67.3	0.0001	0,032	0.194	0,289	174.0	571,0
32	7/40	0.008	0,203	67.3	0.0001	0,034	0.203	0,302	164.0	538,0
32	19/44	0.009	0,229	76.0	0.0001	0,039	0.230	0,342	136.0	448,0
30	Solid	0.010	0,254	100.0	0.0001	0,051	0.30	0,45	113.0	365,0
30	7/38	0.012	0,305	112.0	0.0001	0,057	0.339	0,504	103.0	339,0
30	19/42	0.012	0,305	118.8	0.0001	0,061	0.359	0,534	87.3	286,7
28	Solid	0.013	0,330	159.0	0.0001	0,080	0.48	0,72	70.8	232,0
28	7/36	0.015	0,381	175.0	0.0001	0,072	0.529	0,787	64.9	213,0
28	19/40	0.016	0,406	182.6	0.0001	0,093	0.553	0,823	56.7	186,0
27	7/35	0.018	0,457	219.5	0.0002	0,112	0.664	0,988	54.5	179,0
26	Solid	0.016	0,409	256.0	0.0002	0,128	0.770	1,14	43.6	143,0
26	10/36	0.021	0,533	250.0	0.0002	0,128	0.757	1,13	41.5	137,0
26	19/38	0.020	0,508	304.0	0.0002	0,155	0.920	1,37	34.4	113,0
26	7/34	0.019	0,483	277.8	0.0002	0,142	0.841	1,25	37.3	122,0
24	Solid	0.020	0,511	404.0	0.0003	0,205	1.22	1,82	27.3	89,4
24	7/32	0.024	0,610	448.0	0.0004	0,229	1.36	2,02	23.3	76,4
24	10/34	0.023	0,582	396.9	0.0003	0,202	1.20	1,79	26.1	85,6
24	19/36	0.024	0,610	475.0	0.0004	0,242	1.43	2,13	21.1	69,2
24	41/40	0.023	0,582	384.4	0.0003	0,196	1.16	1,73	25.6	84,0
22	Solid	0.025	0,643	640.0	0.0005	0,324	1.95	2,91	16.8	55,3
22	7/30	0.030	0,762	700.0	0.0006	0,357	2.12	3,16	14.7	48,4
22	19/34	0.031	0,787	754.1	0.0006	0,385	2.28	3,39	13.7	45,1
22	26/36	0.030	0,762	650.0	0.0005	0,332	1.97	2,93	15.9	52,3
20	Solid	0.032	0,813	1020.0	0.0008	0,519	3.10	4,61	10.5	34,6
20	7/28	0.038	0,965	1111.0	0.0009	0,562	3.49	5,19	10.3	33,8
20	10/30	0.035	0,889	1000.0	0.0008	0,510	3.03	4,05	10.3	33,9
20	19/32	0.037	0,940	1216.0	0.0010	0,620	3.70	5,48	8.6	28,3
20	26/34	0.036	0,914	1031.9	0.0008	0,526	3.12	4,64	10.0	33,0
20	41/36	0.036	0,914	1025.0	0.0008	0,523	3.10	4,61	10.0	32,9
18	Solid	0.040	1,020	1620.0	0.0013	0,823	4.92	7,32	6.6	21,8
18	7/26	0.048	1,219	1769.6	0.0014	0,902	5.36	7,98	5.9	19,2
18	16/30	0.047	1,194	1600.0	0.0013	0,816	4.84	7,20	8.5	21,3
18	19/30	0.049	1,245	1900.0	0.0015	0,969	5.75	8,56	5.5	17,9
18	41/34	0.047	1,194	1627.3	0.0013	0,830	4.92	7,32	6.4	20,9
18	65/36	0.047	1,194	1625.0	0.0013	0,829	4.91	7,31	6.4	21,0
16	Solid	0.051	1,290	2580.0	0.0020	1,310	7.81	11,60	4.2	13,7
16	7/24	0.060	1,524	2828.0	0.0022	1,442	8.56	12,74	3.7	12,0
16	65/34	0.059	1,499	2579.9	0.0020	1,316	7.81	11,62	4.0	13,2
16	26/30	0.059	1,499	2600.0	0.0021	1,326	7.87	11,71	4.0	13,1
16	19/29	0.058	1,473	2426.3	0.0019	1,327	7.35	10,94	4.3	14,0
16	105/36	0.059	1,499	2625.0	0.0021	1,339	7.95	11,83	4.0	13,1
14	Solid	0.064	1,630	4110.0	0.0032	2,080	12.40	18,50	2.6	8,6
14	7/22	0.073	1,854	4480.0	0.0035	2,285	13.56	20,18	2.3	7,6
14	19/27	0.073	1,854	3830.4	0.0030	1,954	11.59	17,25	2.7	8,9
14	41/30	0.073	1,854	4100.0	0.0032	2,091	12.40	18,45	2.5	8,3
14	105/34	0.073	1,854	4167.5	0.0033	2,125	12.61	18,77	2.5	8,2

TECHNICAL DATA

AWG/METRIC CONDUCTOR CHART

380

AWG	STRANDING	APPROX. O.D.		CIRCULAR MIL AREA	SQUARE		WEIGHT LBS. / 1000 FT.	WEIGHT KG / KM	D.C. RESISTANCE OHMS / 1000 FT.	D.C. RESISTANCE OHMS / K / M
		INCHES	MM		INCHES	MM				
12	Solid	0.081	2,05	6,530.0	0.0052	3,31	19.80	29,50	1.7	5,4
12	7/20	0.096	2,438	7,168.0	0.0057	3,66	21.69	32,28	1.5	4,8
12	19/25	0.093	2,369	6,087.6	0.0048	3,105	18.43	27,43	1.7	5,6
12	65/30	0.095	2,413	6,500.0	0.0051	3,315	19.66	29,26	1.8	5,7
12	165/34	0.095	2,413	6,548.9	0.0052	3,340	19.82	29,49	1.6	5,2
10	Solid	0.102	2,59	1,038.0	0.0083	5,26	31.4	46,80	1.0	3,4
10	37/26	0.115	2,921	9,353.6	0.0074	4,770	28.31	41,13	1.1	3,6
10	49/27	0.116	2,946	9,878.4	0.0078	5,038	29.89	44,48	1.1	3,6
10	105/30	0.116	2,946	10,530.0	0.0083	5,370	31.76	47,26	0.98	3,2
8	49/25	0.188	4,775	16,589.0	0.0130	8,403	47.53	70,73	0.67	2,2
8	133/29	0.166	4,216	16,851.0	0.0132	8,536	51.42	76,52	0.61	2,0
8	655/36	0.166	4,216	16,625.0	0.0131	8,422	49.58	73,78	0.62	2,0
6	133/27	0.210	5,334	26,799.0	0.0210	13,575	81.14	120,74	0.47	1,5
6	259/30	0.210	5,334	26,029.0	0.0204	13,185	78.35	116,59	0.40	1,3
6	1050/36	0.204	5,181	26,250.0	0.0206	13,297	79.47	118,26	0.39	1,3
4	133/25	0.257	6,527	42,613.0	0.0334	21,587	129.01	191,98	0.24	0,80
4	259/28	0.261	6,629	41,388.0	0.0324	20,966	158.02	235,15	0.20	0,66
4	1666/36	0.290	7,366	41,650.0	0.0327	21,099	126.10	187,65	0.25	0,82
2	133/23	0.328	8,331	67,763.0	0.0532	34,327	205.62	305,98	0.15	0,50
2	259/26	0.325	8,255	65,811.0	0.0516	33,338	198.14	294,85	0.16	0,52
2	665/30	0.335	8,509	66,832.0	0.0524	33,856	201.16	299,35	0.16	0,52
2	2646/36	0.379	9,626	66,150.0	0.0519	33,510	200.28	298,04	0.16	0,52
1	133/22	0.365	9,271	85,439.0	0.0671	43,282	257.60	383,34	0.12	0,40
1	259/25	0.375	9,525	82,982.0	0.0651	42,037	251.20	373,81	0.13	0,41
1	836/30	0.377	9,575	84,015.0	0.0659	42,562	247.10	367,71	0.13	0,42
1	2107/34	0.375	9,525	83,753.0	0.0657	42,428	253.29	376,92	0.12	0,41
1/0	133/21	0.464	11,786	107,743.0	0.0846	54,581	327.05	486,68	0.096	0,31
1/0	259/24	0.422	10,668	104,636.0	0.0821	53,007	316.76	471,37	0.099	0,32
2/0	133/20	0.500	12,700	135,926.0	0.1067	68,858	412.17	613,35	0.077	0,25
2/0	259/23	0.473	12,014	131,960.0	0.1036	66,849	400.41	595,85	0.077	0,25
3/0	259/22	0.509	12,928	166,381.0	0.1306	84,286	501.70	746,58	0.062	0,20
3/0	427/24	0.538	13,665	167,401.0	0.1314	87,802	522.20	777,09	0.059	0,19
4/0	259/21	0.606	15,392	209,815.0	0.1647	106,289	638.88	950,72	0.049	0,16
4/0	427/23	0.605	15,367	212,342.0	0.1667	107,569	660.01	982,16	0.047	0,15



TECHNICAL DATA

AWG/IMPERIAL/METRIC COMPARISON

SOLID CONDUCTOR

DIAMETER		AMERICAN WIRE GAUGE (AWG)	GAUGE NUMBERS BRITISH STANDARD WIRE GAUGE (IMPERIAL)	METRIC WIRE GAUGE
MILS	MM			
460.1	11,68	4/0	—	—
432	11,0	—	5/0	—
409.6	10,40	3/0	—	—
400	10,2	—	4/0	—
393.7	10,0	—	—	100
372	9,45	—	3/0	—
364.8	9,266	2/0	—	—
354	9,00	—	—	90
348	8,84	—	2/0	—
324.9	8,252	1/0	—	—
324	8,23	—	1/0	—
315	8,00	—	—	80
300	7,62	—	1	—
289.3	7,348	1	—	—
276	7,01	—	2	—
276	7,00	—	—	70
257.6	6,543	2	—	—
252	6,40	—	3	—
236	6,00	—	—	60
232	5,89	—	4	—
229.4	5,827	3	—	—
212	5,38	—	5	—
204.3	5,189	4	—	—
197	5,00	—	—	50
192	4,88	—	6	—
181.9	4,620	5	—	—
177.2	4,50	—	—	45
176	4,47	—	7	—
162.0	4,115	6	—	—
160	4,06	—	8	—
157	4,00	—	—	40
144.3	3,665	7	—	—
144	3,66	—	9	—
138	3,50	—	—	35
128.5	3,264	8	—	—
128	3,25	—	10	—
118	3,00	—	—	30
116	2,95	—	11	—
114.4	2,906	9	—	—
104	2,64	—	12	—
101.9	2,588	10	—	—
98.4	2,50	—	—	25
92	2,34	—	13	—
90.7	2,30	11	—	—
80.8	2,05	12	—	—
80.0	2,03	—	14	—
78.7	2,00	—	—	20
72.0	1,83	13	15	—
70.9	1,80	—	—	18
64.1	1,63	14	—	—
64	1,63	—	16	—
63	1,60	—	—	16
57.1	1,45	15	—	—
56	1,42	—	17	—
55.1	1,40	—	—	14
50.8	1,29	16	—	—
48	1,22	—	18	—
47.2	1,20	—	—	12
45.3	1,15	17	—	—
40.3	1,02	18	—	—
40	1,02	—	19	—

DIAMETER		AMERICAN WIRE GAUGE (AWG)	GAUGE NUMBERS BRITISH STANDARD WIRE GAUGE (IMPERIAL)	METRIC WIRE GAUGE
MILS	MM			
39.4	1,00	—	—	10
36	0,914	—	20	—
35.9	0,912	19	—	—
35.4	0,90	—	—	9.0
32.0	0,813	20	21	—
31.5	0,800	—	—	8.0
28.5	0,724	21	—	—
28	0,711	—	22	—
27.6	0,70	—	—	7.0
25.3	0,643	22	—	—
24	0,610	—	23	—
23.6	0,60	—	—	6.0
22.6	0,574	23	—	—
22	0,559	—	24	—
20.1	0,511	24	—	—
20	0,508	—	25	—
19.7	0,50	—	—	5.0
18	0,457	—	26	—
17.9	0,455	25	—	—
17.7	0,45	—	—	4.5
16.4	0,417	—	27	—
15.9	0,404	26	—	—
15.7	0,40	—	—	4.0
14.8	0,376	—	28	—
14.2	0,361	27	—	—
13.8	0,35	—	—	3.5
13.6	0,345	—	29	—
12.6	0,320	28	—	—
12.4	0,315	—	30	—
11.8	0,30	—	—	3.0
11.6	0,295	—	31	—
11.3	0,287	29	—	—
10.8	0,274	—	32	—
10.0	0,254	30	33	—
9.84	0,25	—	—	2.5
9.2	0,234	—	34	—
8.9	0,226	31	—	—
8.4	0,213	—	35	—
8.0	0,203	32	—	—
7.87	0,20	—	—	2.0
7.6	0,193	—	36	—
7.1	0,180	33	—	—
7.09	0,18	—	—	1.8
6.8	0,173	—	37	—
6.3	0,160	34	—	1.6
6.0	0,152	—	38	—
5.91	0,15	—	—	1.5
5.6	0,142	35	—	—
5.51	0,14	—	—	1.4
5.2	0,132	—	39	—
5.12	0,13	—	—	1.3
5.0	0,127	36	—	—
4.8	0,122	—	40	—
4.72	0,12	—	—	1.2
4.5	0,114	37	—	—
4.4	0,112	—	41	—
4.33	0,11	—	—	1.1
4.0	0,102	38	42	—
3.94	0,10	—	—	1.0
3.6	0,0914	—	43	—
3.5	0,889	39	—	—

TECHNICAL DATA

AWG/METRIC COMPARISON

STRANDED CONDUCTOR

382

SQUARE MILLIMETERS	NUMBER AND DIAMETER OF STRANDS MILLIMETERS	CORRESPONDING AWG
0,014	7 x 0,05	—
0,035	7 x 0,08	32
0,047	24 x 0,05	—
0,049	1 x 0,25	30
0,055	7 x 0,10	30
0,079	10 x 0,10	—
0,079	7 x 0,12	—
0,080	1 x 0,32	28
0,093	7 x 0,13	28
0,094	12 x 0,10	—
0,094	48 x 0,05	—
0,096	19 x 0,08	28
0,113	10 x 0,12	—
0,118	60 x 0,05	—
0,118	15 x 0,10	—
0,124	7 x 0,15	26
0,126	1 x 0,40	26
0,149	19 x 0,10	26
0,177	10 x 0,15	24
0,188	24 x 0,10	—
0,196	1 x 0,50	24
0,212	27 x 0,10	—
0,212	12 x 0,15	—
0,220	7 x 0,20	24
0,251	32 x 0,10	—
0,252	19 x 0,13	24
0,283	1 x 0,60	—
0,291	37 x 0,10	—
0,314	40 x 0,10	—
0,322	1 x 0,64	22
0,336	19 x 0,15	22
0,344	7 x 0,25	22
0,377	12 x 0,20	—
0,377	48 x 0,10	—
0,389	22 x 0,15	—
0,442	1 x 0,75	—
0,459	26 x 0,15	20
0,491	10 x 0,25	20
0,495	7 x 0,30	—

SQUARE MILLIMETERS	NUMBER AND DIAMETER OF STRANDS MILLIMETERS	CORRESPONDING AWG
0,503	16 x 0,20	—
0,515	1 x 0,81	20
0,563	7 x 0,32	20
0,597	19 x 0,20	20
0,636	36 x 0,15	—
0,754	24 x 0,20	—
0,785	16 x 0,25	18
0,817	1 x 1,02	18
0,848	12 x 0,30	—
0,880	7 x 0,40	18
0,933	19 x 0,25	18
0,990	56 x 0,15	—
1,005	32 x 0,20	—
1,276	26 x 0,25	16
1,327	1 x 1,30	16
1,343	19 x 0,30	16
1,374	7 x 0,50	16
1,473	30 x 0,25	—
1,508	12 x 0,40	—
1,828	19 x 0,35	14
1,885	60 x 0,20	—
1,909	27 x 0,030	—
1,979	7 x 0,60	—
2,011	16 x 0,40	—
2,013	41 x 0,25	14
2,087	1 x 1,63	14
2,454	50 x 0,25	14
3,022	19 x 0,45	12
3,142	16 x 0,50	—
3,181	45 x 0,30	—
3,191	65 x 0,25	12
3,393	48 x 0,30	—
3,958	56 x 0,30	—
4,650	37 x 0,40	—
4,714	7 x 7 x 0,35	—
5,154	105 x 0,25	—
5,160	73 x 0,30	10
5,300	75 x 0,30	10



TECHNICAL DATA

CURRENT CARRYING CAPACITY OF COPPER CONDUCTORS

Current carrying capacity is defined as the amperage a conductor can carry before melting either the conductor or the insulation. Heat, caused by an electrical current flowing through the conductor, will determine the amount of current a wire will handle. Theoretically, the amount of current that can be passed through a single bare copper wire can be increased until the heat generated reaches the melting temperature of the copper.

There are many factors which will limit the amount of current that can be passed through a wire. These major determining factors are:

Conductor Size:

The larger the circular mil area, the greater the current carrying capacity.

The amount of heat generated should never exceed the maximum temperature rating of the insulation.

Ambient Temperature:

The higher the ambient temperature, the less heat required to reach the maximum temperature rating of the insulation.

Conductor Number:

Heat dissipation is lessened as the number of individually insulated conductors, bundled together, is increased.

Installation Conductors:

Restricting the heat dissipation by installing the conductors in conduit, duct, trays or raceways lessens the current carrying capacity. This restriction can be alleviated somewhat by using proper ventilation methods, forced air cooling, etc.

Taking into account all the variables involved, no simple chart of current ratings can be developed and used as the final word when designing a system where amperage ratings can become critical.

The chart shows the current required to raise the temperatures of single insulated conductor in free air (30°C ambient) to the limits of various insulation types. The following table gives a derating factor to be used when the conductors are bundled. These charts should only be used as a guide when attempting to establish current ratings on conductor and cable.

DERATING FACTORS FOR BUNDLED CONDUCTORS

BUNDLE #	DERATING FACTOR (X AMPS)
2-5	0.8
6-15	0.7
16-30	0.5

CURRENT CARRYING CAPACITY OF COPPER CONDUCTORS (Measured in Amperes)

CONDUCTOR SIZE	INSULATION MATERIALS AT GIVEN TEMPERATURES				
	POLYETHYLENE NEOPRENE POLYURETHANE POLYVINYLCHLORIDE (SEMI-RIGID) AT 80°C	POLYPROPYLENE POLYETHYLENE (HIGH DENSITY) AT 90°C	POLYVINYLCHLORIDE PVC (IRRADIATED) NYLON AT 105°C	KYNAR POLYETHYLENE (CROSSLINKED) THERMOPLASTIC ELASTOMERS AT 125°C	KAPTON TEFLON SILICONE AT 200°C
30 AWG	2	3	3	3	4
28 AWG	3	4	4	5	6
26 AWG	4	5	5	6	7
24 AWG	6	7	7	8	10
22 AWG	8	9	10	11	13
20 AWG	10	12	13	14	17
18 AWG	15	17	18	20	24
16 AWG	19	22	24	26	32
14 AWG	27	30	33	40	45
12 AWG	36	40	45	50	55
10 AWG	47	55	58	70	75
8 AWG	65	70	75	90	100
6 AWG	95	100	105	125	135
4 AWG	125	135	145	170	180
2 AWG	170	180	200	225	240

Single Conductor in Free Air 30°C Ambient Temp.

TECHNICAL DATA

TEMPERATURE CONVERSION – FAHRENHEIT/CENTIGRADE

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°F	°C	°F	°C	°F	°C	°F	°C	°F	°C
-40	-40.00	36	2.22	92	33.33	148	64.44	220	104.44
-38	-38.89	37	2.78	93	33.89	149	65.00	225	107.22
-36	-37.78	38	3.33	94	34.44	150	65.56	230	110.00
-34	-36.67	39	3.89	95	35.00	151	66.11	235	112.78
-32	-35.56	40	4.44	96	35.56	152	66.66	240	115.56
-30	-34.44	41	5.00	97	36.11	153	67.22	245	118.33
-28	-33.33	42	5.56	98	36.67	154	67.77	250	121.11
-26	-32.22	43	6.11	99	37.22	155	68.33	255	123.89
-24	-31.11	44	6.67	100	37.78	156	68.88	260	126.67
-22	-30.00	45	7.22	101	38.33	157	69.44	265	129.44
-20	-28.89	46	7.78	102	38.88	156	70.00	270	132.22
-18	-27.78	47	8.33	103	39.44	159	70.55	275	135.00
-16	-26.67	48	8.89	104	40.00	160	71.11	280	137.78
-14	-25.56	49	9.44	105	40.55	161	71.66	285	140.55
-12	-24.44	50	10.00	106	41.11	162	72.22	290	143.33
-10	-23.33	51	10.56	107	41.66	163	72.77	295	146.11
-8	-22.22	52	11.11	108	42.22	164	73.33	300	148.89
-6	-21.11	53	11.67	109	42.77	165	73.89	305	151.67
-4	-20.00	54	12.22	110	43.33	166	74.44	310	154.44
-2	-18.89	55	12.78	111	43.88	167	75.00	315	157.22
0	-17.78	56	13.33	112	44.44	168	75.55	320	160.00
1	-17.22	57	13.89	113	45.00	169	76.11	325	162.78
2	-16.67	58	14.44	114	45.55	170	76.67	330	165.56
3	-16.11	59	15.00	115	46.11	171	77.22	335	168.33
4	-15.56	60	15.56	116	46.66	172	77.77	340	171.11
5	-15.00	61	16.11	117	47.22	173	78.33	345	173.89
6	-14.44	62	16.67	118	47.77	174	78.88	350	176.67
7	-13.89	63	17.22	119	48.33	175	79.44	355	179.44
8	-13.33	64	17.78	120	48.89	176	80.00	360	182.22
9	-12.78	65	18.33	121	49.44	177	80.55	365	185.00
10	-12.22	66	18.89	122	50.00	178	81.11	370	187.78
11	-11.67	67	19.44	123	50.55	179	81.66	375	190.55
12	-11.11	68	20.00	124	51.11	180	82.22	380	193.33
13	-10.56	69	20.56	125	51.67	181	82.77	385	196.11
14	-10.00	70	21.11	126	52.22	182	83.33	390	198.89
15	- 9.44	71	21.67	127	52.77	183	83.88	395	201.67
16	- 8.89	72	22.22	128	53.33	184	84.44	400	204.44
17	- 8.33	73	22.78	129	53.88	185	85.00	405	207.22
18	- 7.78	74	23.33	130	54.44	186	85.55	410	210.00
19	- 7.22	75	23.89	131	55.00	187	86.11	415	212.78
20	- 6.67	76	24.44	132	55.55	188	86.66	420	215.56
21	- 6.11	77	25.00	133	56.11	189	87.22	425	218.33
22	- 5.56	78	25.56	134	56.66	190	87.78	430	221.11
23	- 5.00	79	26.11	135	57.22	191	88.33	435	223.89
24	- 4.44	80	26.67	136	57.77	192	88.88	440	226.67
25	- 3.89	81	27.22	137	58.33	193	89.44	445	229.44
26	- 3.33	82	27.78	138	58.88	194	90.00	450	232.22
27	- 2.78	83	28.33	139	59.44	195	90.55	455	235.00
28	- 2.22	84	28.89	140	60.00	196	91.11	460	237.78
29	- 1.67	85	29.44	141	60.55	197	91.66	465	240.55
30	- 1.11	86	30.00	142	61.11	198	92.22	470	243.33
31	- 0.56	87	30.56	143	61.66	199	92.77	475	246.11
32	0.00	88	31.11	144	62.22	200	93.33	480	248.89
33	0.56	89	31.67	145	62.78	205	96.11	485	251.67
34	1.11	90	32.22	146	63.33	210	98.89	490	254.44
35	1.67	91	32.78	147	63.88	215	101.67	495	257.22
								500	260.00

TEMPERATURE CONVERSION FORMULAE

$$^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32)$$

$$^{\circ}\text{F} = \frac{9}{5} ^{\circ}\text{C} + 32$$



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TECHNICAL DATA

WIRE AND TUBING CUT PIECES ESTIMATOR CHART

Chart relates the length♦ of wire or tubing required, to the necessary footage to make 1000 pieces; and to the number of individual pieces that can be cut from 1000 feet of material.

Length	Minimum Ft. Req. Per 1000 Pcs.	No. of Pcs. Per 1000 Ft.	Cut Pcs. Length	Minimum Ft. Req. Per 1000 Pcs.	No. of Pcs. Per 1000 Ft.	Cut Pcs. Length	Minimum Ft. Req. Per 1000 Pcs.	No. of Pcs. Per 1000 Ft.
1/8	10.4	96,000	4-1/8	343.8	2,900	8-1/8	677.1	1,475
1/4	20.9	48,000	4-1/4	354.2	2,800	8-1/4	687.5	1,450
3/8	31.3	32,000	4-3/8	364.6	2,725	8-3/8	698.0	1,425
1/2	41.7	24,000	4-1/2	375.0	2,650	8-1/2	708.4	1,400
5/8	52.1	19,200	4-5/8	385.4	2,575	8-5/8	718.7	1,375
3/4	62.5	16,000	4-3/4	395.9	2,525	8-3/4	729.2	1,350
7/8	73.0	13,750	4-7/8	406.2	2,450	8-7/8	739.6	1,350
1	83.4	12,000	5	416.7	2,400	9	750.0	1,325
1-1/8	93.8	10,700	5-1/8	427.1	2,325	9-1/8	760.4	1,300
1-1/4	104.2	9,600	5-1/4	437.5	2,275	9-1/4	770.8	1,275
1-3/8	114.6	8,750	5-3/8	447.9	2,225	9-3/8	781.3	1,275
1-1/2	125.0	8,000	5-1/2	458.4	2,175	9-1/2	791.7	1,250
1-5/8	135.5	7,400	5-5/8	468.8	2,125	9-5/8	802.1	1,225
1-3/4	145.9	6,900	5-3/4	479.2	2,075	9-3/4	812.5	1,225
1-7/8	156.3	6,400	5-7/8	489.6	2,025	9-7/8	823.0	1,200
2	166.7	6,000	6	500.0	2,000	10	833.3	1,200
2-1/8	177.1	5,650	6-1/8	510.4	1,950	10-1/8	843.7	1,175
2-1/4	187.5	5,350	6-1/4	520.8	1,900	10-1/4	854.1	1,150
2-3/8	198.0	5,100	6-3/8	531.3	1,875	10-3/8	864.5	1,150
2-1/2	208.4	4,800	6-1/2	541.7	1,825	10-1/2	875.0	1,125
2-5/8	218.8	4,600	6-5/8	552.1	1,800	10-5/8	885.4	1,125
2-3/4	229.2	4,400	6-3/4	562.5	1,775	10-3/4	895.9	1,100
2-7/8	239.6	4,200	6-7/8	572.9	1,725	10-7/8	906.2	1,100
3	250.0	4,000	7	583.4	1,700	11	916.7	1,075
3-1/8	260.5	3,850	7-1/8	593.7	1,650	11-1/8	927.0	1,075
3-1/4	270.9	3,700	7-1/4	604.2	1,650	11-1/4	937.4	1,050
3-3/8	281.3	3,600	7-3/8	614.6	1,625	11-3/8	947.9	1,050
3-1/2	291.7	3,450	7-1/2	625.0	1,600	11-1/2	958.3	1,025
3-5/8	302.1	3,350	7-5/8	635.4	1,575	11-5/8	968.7	1,025
3-3/4	312.5	3,200	7-3/4	645.8	1,550	11-3/4	979.1	1,000
3-7/8	323.0	3,100	7-7/8	656.2	1,500	11-7/8	989.5	1,000
4	333.4	3,000	8	666.7	1,500	12	1,000	1,000

♦Chart reflects actual footage with no allowance for waste and slippage

TECHNICAL DATA

GLOSSARY

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Abrasion Resistance: Ability of a wire, cable or material to resist surface wear.

Accelerated Aging: A test in which voltage, temperature, etc. are increased above normal operating values to obtain observable deterioration in a relatively short period of time.

Aerial Cable: A cable suspended in the air on poles or other overhead structure.

Alloy: A metal formed by combining two or more different metals to obtain desirable properties.

Alpha-Byte® : Alpha Wire trademark for high-speed cellular data cables for extended distances.

Alternating Current (AC): Electric current that continually reverses its direction. It is expressed in cycles per second (hertz or Hz).

Ambient Temperature: The temperature of a medium surrounding an object.

American Wire Gauge (AWG): A standard system for designating wire diameter. Primarily used in the United States.

Ampacity: The maximum current an insulated wire or cable can safely carry without exceeding either the insulation or jacket material limitations. (Same as Current Carrying Capacity.)

Ampere: The unit of current. One ampere is the current flowing through one ohm of resistance at one volt potential.

Analog: Representation of data by continuously variable quantities.

Annealed Wire: Wire, which after final draw-down, has been heated and slowly cooled to remove the effects of cold working.

ANSI: Abbreviation for American National Standards Institute.

Anti-Oxidant: A substance which prevents or slows down oxidation of material exposed to heat.

ASA: Abbreviation for American Standards Association. Former name of ANSI.

ASCII: American Standard Code for Information Interchange.

ASME: Abbreviation for American Society of Mechanical Engineers.

ASTM: American Society for Testing and Materials.

Attenuation: Power loss in an electrical system. In cables, generally expressed in dB per unit length.

Audio Frequency: Those frequencies audible to the human ear, generally considered to be in the range of 32 to 16,000 hertz (Hz).

AWG: Abbreviation for American Wire Gauge.

AWM: Designation for Appliance Wiring Material.

Backbone Wiring: The physical/electrical interconnections between telecommunications closets and equipment rooms. Cross-connect hardware and cabling in the main and intermediate cross-connections are considered part of the backbone wiring.

Band Marking: A continuous circumferential band applied to a conductor at regular intervals for identification.

Bandwidth: The difference between the upper and lower limits of a given band of frequencies. Expressed in hertz (Hz).

Balanced Circuit: A circuit so arranged that the impressed voltages on each conductor of the pair are equal in magnitude but opposite in polarity with respect to ground.

Baud: Unit of data transmission speed representing bits per second. 9600 baud = 9600 bits per second.

Bend Loss: Stated in dB, or decibels, the amount of optical power lost due to outside forces strong enough to allow the light to radiate out through the bend.

Bend Radius: The radius of curvature that a wire or cable can bend without causing any damaging effects.

Binder: A spirally served tape or thread used for holding assembled cable components in place awaiting subsequent manufacturing operations.

Bit: One binary digit.

Bit Error Rate, (BER): Discrepancy between outgoing and incoming bits transmitted between data equipment.

Bond Strength: Amount of adhesion between surfaces, e.g. in cemented ribbon cable.

Braid: A fibrous or metallic group of filaments interwoven in cylindrical form to form a covering over one or more wires.

Braid Angle: The smaller of the two angles formed by the shielding strand and the axis of the cable being shielded.

Braid Carrier: A spool or bobbin on a braider which holds one group of strands or filaments consisting of a specific number of ends. The carrier revolves during braiding operations.

Braid Ends: The number of strands used to make up one carrier. The strands are wound side by side on the carrier bobbin and lie parallel in the finished braid.

Breakdown Voltage: The voltage at which the insulation between two conductors is destroyed.

Breakout: The point at which a conductor or group of conductors is separated from a multiconductor cable to complete circuits at various points along the main cable.

Bunch Stranding: A group of wires of the same diameter twisted together without a predetermined pattern.

Byte: A group of eight binary digits.

Cable Assembly: A length of cable with connectors on one or both ends.

Cable Track "C" Track: Flexible plastic or metallic tray, used to guide and protect cables in high speed motion applications.

Campus Backbone: Wiring between buildings that share telecommunications facilities.

CAD/CAM: Computer Aided Design, Computer Aided Manufacturing.

Capacitance: Storage of electrically separated charges between two plates having different potentials. The value depends largely on the surface area of the plates and the distance between them.

Capacitance, Direct: The capacitance measured directly from conductor to conductor through a single insulating layer.

Capacitance, Mutual: The capacitance between two conductors with all other conductors, including shield, short circuited to ground.

Carrier Frequency: The electromagnetic wave frequency selected to transmit information. Optical carrier frequency is from the infrared, visible range or ultraviolet spectrum areas (10^{12} Hz and above).

CATV: An acronym for Community Antenna Television.

Cellular Polyethylene: Expanded or "foam" polyethylene consisting of individual closed cells suspended in a polyethylene medium.

CE (Conformité Européenne): European Economic Community approval indicating that a product complies with a European Directive.

CENELEC: European Economic Community Committee for Standardization of technical requirements.



Certificate of Compliance (C of C): A certificate which is normally generated by a Quality Control Department, which shows that the product being shipped meets customer's specifications.

Certified Test Report (CTR): A report providing actual test data on a cable. Tests are normally run by a Quality Control Department, which shows that the product being shipped conforms to test specifications.

Characteristic Impedance: The impedance that, when connected to the output terminals of a transmission line of any length, makes the line appear infinitely long. The ratio of voltage to current at every point along a transmission line on which there are no standing waves.

Circular Mil: The area of a circle on mil (0.001") in diameter; 7.845×10^{-7} sq. in. Used in expressing wire cross sectional area.

CL2: Cables intended for general purpose use within buildings in accordance with the National Electric Code Section 725-53 (e).

CM: Cables intended for general purpose communications use within buildings in accordance with the National Electric Code Section 800-53 (c).

Coaxial Cable: A cable consisting of two cylindrical conductors with a common axis, separated by a dielectric.

Cold Flow: Deformation of the insulation due to mechanical force or pressure (not due to heat softening).

Common Axis Cabling: In multiple cable constructions, a twisting of all conductors about a "common axis" with two conductor groups then selected as pairs. This practice yields smaller diameter constructions than does a separate axis construction, but tends to yield greater susceptibility to EMI and ESI.

Common Carrier: Public transmission link such as the Bell or General Telephone Systems.

Common Mode: (Noise), caused by a difference in "group potential". By grounding at either end rather than both ends (usually grounded at source) one can reduce this interference.

Concentric Stranding: A central wire surrounded by one or more layers of helically wound strands in a fixed round geometric arrangement.

Concentricity: In a wire or cable, the measurement of the location of the center of the conductor with respect to the geometric center of the surrounding insulation.

Conductance: The ability of a conductor to carry an electrical charge. The ratio of the current flow to the potential difference causing the flow. The reciprocal of resistance.

Conductivity: The capability of a material to carry electrical current—usually expressed as a percentage of copper conductivity (copper being 100%).

Conductor: An uninsulated wire suitable for carrying electrical current.

Conduit: A tube or trough in which insulated wires and cables are passed.

Connector: A device used to physically and electrically join two or more conductors.

Connector Adaptor: The female connector part that mates two male connectors. There are two types: threaded and bulkhead (flanged).

Continuous Vulcanization: Simultaneous extrusion and curing of elastomeric wire coating materials.

Control Cable: A multiconductor cable made for operation in control or signal circuits.

Copolymer: A compound resulting from the polymerization of two different monomers.

Copper-Clad: Steel with a coating of copper welded to it.

Corrosion: The deterioration of a material by chemical reaction or galvanic action.

Crazing: The minute cracks on the surface of plastic materials.

Creep: The dimensional change with time of a material under load.

Cross-linked: A term denoting intermolecular bonds between long chain thermoplastic polymers, effected by chemical or irradiation techniques.

Crosstalk: A type of interference caused by signals from one circuit being coupled into adjacent circuits.

CRT: Abbreviation for Cathode Ray Tube; common terminology for a video display terminal. Also referred to as VDU or VDT.

C.S.A.: Abbreviation for Canadian Standards Association, a non-profit, independent organization which operates a certification service for electrical and electronic materials and equipment.

C-Track: A cable guide mechanism manufactured of either plastic or metal used in continuous flexing applications.

Cut-Through Resistance: The ability of a material to withstand mechanical pressure, (usually a sharp edge or small radius) without separation.

Cycle Life: The number of repetitive flex motions that a wire or cable can withstand prior to breakdown.

DBS: Acronym meaning Digital Broadcast System.

Decibel (dB): A unit to express differences of power level. A term that expresses two power levels used to indicate gains or losses in a system.

Derating Factor: A factor used to reduce the current carrying capacity of a wire when used in environments other than that for which the value was established.

Dielectric: Any insulating material between two conductors, which permits electrostatic attraction and repulsion to take place across it.

Dielectric Constant (E): The ratio of the capacitance using the material in question as the dielectric, to the capacitance resulting when the material is replaced by air.

Dielectric Strength: The voltage which an insulation can withstand before breakdown occurs. Usually expressed as a voltage gradient (such as volts per mil).

Digital: Representation of data by discrete characters.

Direct Current (DC): An electric current which flows in one direction.

Drain Wire: In a cable, the uninsulated wire in intimate contact with a shield to provide for easier termination of such a shield to ground.

Duct: An underground or overhead tube for carrying electrical cables.

* Belden Wire and Cable Company trademark.

TECHNICAL DATA

GLOSSARY

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Duplex Insulated: In the thermocouple industry, a combination of dissimilar metal conductors of a thermocouple or thermocouple extension wire.

EIA: Abbreviation for Electronic Industries Association.

Elastomer: A class of long-chain polymers capable of being crosslinked to produce elastic compounds, e.g. polychloroprene and ethylene propylene rubber.

Electromagnetic: Pertaining to the combined electric and magnetic fields associated with movements of electrons through conductors.

Electromotive Force (emf): Pressure or voltage. The force which causes current to flow in a circuit.

Electrostatic: Pertaining to static electricity or electricity at rest. A constant intensity electric charge.

Elongation: The fractional increase in length of a material stressed in tension.

EMI: Abbreviation for electromagnetic interference.

Epoxy: An adhesive used in the connector termination process.

Ethylene Propylene Rubber (EPR): An ozone-resistant rubber consisting primarily of ethylene propylene copolymer (EPM) or ethylene propylene diene terpolymer (EDPM).

Expanded Diameter: Diameter of shrink tubing as supplied. When heated, the tubing will shrink to its extruded diameter.

External Interference: The effects of electrical waves or fields which cause spurious signals other than the desired intelligence, e.g. noise.

Farad: Unit of capacitance whereby a charge of one coulomb produces a one volt potential difference.

Fatigue Resistance: Resistance to metal crystallization which leads to conductors breaking from flexing.

FEP: Fluorinated Ethylene Propylene is a "Teflon" fluorocarbon resin and is a registered T.M. of the DuPont Company. This is a melt extrudable fluorocarbon resin.

FiTi: Alpha Wire registered trademark for shrinkable tubing products.

Filler: (1) A material used in multiconductor cables to occupy large interstices formed by the assembled conductors. (2) An inert substance added to a compound to improve properties or decrease cost.

Flat Cable: Multiconductor cable arranged in a parallel type configuration manufactured with controlled tolerance spacing.

Flame Resistance: The ability of a material not to propagate flame once the flame source is removed.

Flammability: The measure of the material's ability to support combustion.

Flex Life: The measurement of the ability of a conductor or cable to withstand repeated bending.

Flexibility: That quality of a cable or cable component which allows for bending under the influence of outside force, as opposed to limpness which is bending due to the cable's own weight.

Foam Polyethylene: See Cellular Polyethylene.

Foamed Plastics: Insulations having a cellular structure.

Frequency: Refers to the number of cycles per second of an AC signal or an RF signal.

FT1: Flammability rating established by Canadian Standards Association for a vertical flame test of wire and cable.

FT4: Flammability rating established by Canadian Standards Association for a vertical flame test of cables in cable trays.

FT6: Flammability rating established by Canadian Standards Association for horizontal flame and smoke testing of cables.

Gauge: A term used to denote the physical size of a wire.

Gigahertz (GHz): A unit of frequency equal to one billion hertz.

GPIB: Abbreviation for General Purpose Interface Bus Assembly typically used for interconnecting measurement devices.

Ground: The connection between an electrical circuit and the earth or other large conducting body to serve as an earth thus making a complete electrical circuit.

Harmonized: Products meeting requirements of CENELEC for use in European Economic Community.

Harness: An arrangement of wires and cables, usually with many breakouts, which have been tied together or pulled into a rubber or plastic sheath, used to interconnect electric circuits.

Hash Mark Stripe: A non-continuous helical stripe applied to a conductor for identification.

Heat Distortion: Distortion of a material due to the effects of heat.

Heat Shock: A test to determine stability of a material by sudden exposure to a high temperature for a short period of time.

Helical Stripe: A continuous, colored, spiral stripe applied to a conductor for circuit identification.

Hertz (Hz): A term replacing cycles-per-second as a unit of frequency.

Hi-Pot: A test designed to determine the highest voltage that can be applied to a conductor without electrically breaking down the insulation.

Hook-Up Wire: A single insulated conductor used for low current, low voltage (usually under 1000 Volts) applications within enclosed electronic equipment.

Hygroscopic: Readily absorbing and retaining moisture.

Hypalon: DuPont's trade name for their chloro-sulfonated polyethylene, an ozone-resistant synthetic rubber.

Impact Strength: A test for determining the mechanical punishment a cable can withstand without physical or electrical breakdown by impacting with a given weight, dropped a given distance, in a controlled environment.

Impedance: The total opposition that a circuit offers to the flow of alternating current or any other varying current at a particular frequency. It is a combination of resistance R and reactance X, measured in ohms.

Index of Refraction: The ratio of the velocity of light in free space to the velocity of light in a given material.

Inductance: The property of a circuit or circuit element that opposes a change in current flow, thus causing current changes to lag behind voltage changes. It is measured in henrys.

Insulation: A material having high resistance to the flow of electric current.

Insulation Resistance (I.R.): That resistance offered by an insulation to an impressed dc voltage, tending to produce a leakage current through the insulation.

IEC: International Electrotechnical Commission.

IEEE: Abbreviation for Institute of Electrical and Electronics Engineers.

Interconnecting Cable: The wiring between modules, between units, or the larger portions of a system.

Interference: Electrical or electromagnetic



disturbances which introduce undesirable responses into other electronic equipment.

Interstices: Voids or valleys between individual strands in a conductor or between insulated conductors in a multiconductor cable during extreme flexing.

IPCEA: Abbreviation for Insulated Power Cable Engineers Association.

Irradiation: In insulations, the exposure of the material to high energy emissions to alter the molecular structure by crosslinking.

ISA: Instrument Society of America.

ISO: International Standards Organization.

Jacket: An outer covering, usually non-metallic, mainly used for protection against the environment.

Kilometer (km): 1000 meters or 3,281 feet (0.621 miles).

KPSI: Tensile strength in thousands of pounds per square inch.

Kynar: Elf Atochem, North America trade name for polyvinylidene fluoride, a fluorocarbon material typically used as insulation for wire wrap wire.

Lay: The length measured along the axis of a wire or cable required for a single strand (in stranded wire) or conductor (in cable) to make one complete turn about the axis of the conductor or cable.

Leakage Current: The undesirable flow of current through or over the surface of an insulation.

Life Cycle: A test to determine the length of time before failure in a controlled, usually accelerated, environment.

Limits of Error: The maximum deviation (in degrees or percent) of a thermocouple or thermocouple extension wire from standard emf-temperature to be measured.

Link: An optical cable with connectors attached to a transmitter and receiver (source and detector).

Local Area Network (LAN): A baseband or broadband interactive bi-directional communication systems for voice, video or data use on a common cable medium.

Loc-Trac®: Alpha Wire's registered trademark for a zipper tubing closure track which does not require any sealants to keep it closed.

Longitudinal Shield: A tape shield, flat or

corrugated, applied parallel to the axis of the core being shielded.

Longitudinal Shrinkage: A term generally applied to shrink products denoting the discrete axial length lost through heating in order to obtain the recovered diameter.

Loop Resistance: The total resistance of two conductors measured round trip from one end.

Low Loss Dielectric: An insulating material that has a relatively low dielectric loss, such as polyethylene or Teflon.

Magnetic Field: The region within which a body or current experiences magnetic forces.

Magnetic Flux: The rate of flow of magnetic energy across or through a surface (real or imaginary).

Magnetic Noise: Caused by change in current level, e.g. AC powerline (creates magnetic field around that cable) this magnetic field causes the magnetic noise.

Mastic: A meltable coating used on the inside of some shrink products which, when heated, flows to encapsulate the interstitial air voids.

MATV: Acronym for Master Antenna Television System — a combination of components providing multiple television receiver operations from one antenna or group of antennas; normally on a single building.

MCM: One thousand circular mils.

Meter: Unit of measurement, one meter equals 3.28 feet.

Mho: The unit of conductivity. The reciprocal of an ohm.

MHz: Megahertz (one million cycles per second). Formerly Mc.

Microwave: A short (usually less than 30 cm) electrical wave.

Mil: A unit used in measuring diameter of a wire or thickness of insulation over a conductor. One one-thousandth of an inch (.001").

Millimeter: One millimeter equals 0.03937 inches.

Mis-Match: A termination having a different impedance than that for which a circuit or cable is designed.

Modulation: The coding of information onto the carrier frequency. Modulation means include (among others) amplitude, frequency, or phase pulse many forms of on-off digital coding.

Modulus of Elasticity: The ratio of stress to strain in an elastic material.

Moisture Absorption: The amount of moisture, in percentage, that a material will absorb under specified conditions.

Moisture Resistance: The ability of a material to resist absorbing moisture from the air or when immersed in water.

Monomer: The basic chemical unit used in building a polymer.

MTW: An acronym for thermoplastic insulated Machine Tool Wire.

Multiplexing: Simultaneous transmission of two or more messages over the same cable medium. See TDM.

MUX: Multiplexer.

Mylar: DuPont trade name for a polyester material.

National Electrical Code (NEC): A consensus standard published by the National Fire Protection Association (NFPA) and incorporated in OSHA regulations.

NBS: Abbreviation for National Bureau of Standards.

Nanosecond: One thousandth of one one-millionth of a second (10^{-9} seconds).

NEMA: Abbreviation for National Electrical Manufacturers Association.

NFPA: Abbreviation for National Fire Protection Association. That association responsible as the Administrative Sponsor of the National Electrical Code. Also identified as "ANSI Standards Committee C1."

Non-Contaminating PVC: A polyvinylchloride formulation, which does not produce electrical contamination.

Nylon: A group of polyamide polymers which are used for wire and cable jacketing.

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OFHC: Abbreviation for oxygen-free, high conductivity copper. It has no residual deoxidant, 99.95% minimum copper content and an average annealed conductivity of 101%.

Ohm: Unit of resistance such that a constant current of one ampere produces a force of one Volt.

OSHA: Abbreviation for Occupational Safety and Health Act. Specifically the Williams-Steiger law passed in 1970 covering all factors relating to safety in places of employment.

Outgassing: Percentage of a gas released during the combustion of insulation or jacketing material.

Overlap: The amount the trailing edge laps over the leading edge of a tape wrap.

Pairing: The union of two insulated single conductors through twisting.

Pick: Distance between two adjacent crossover points of braid filaments. The measurement in picks per inch indicates the degree of coverage.

Pitch: In flat cable, the nominal distance between the index edges of two adjacent conductors.

Plastic Deformation: Change in dimensions under load that is not recovered when the load is removed.

Plasticizer: A chemical agent added to plastics to make them softer and more pliable.

Plenum: The air return path of a central air handling system, either ductwork or open space over a dropped ceiling.

Plenum Cable: Cable listed by Underwriters Laboratories for installation in plenums without the need for conduit.

Polyester: Polyethylene terephthalate, which is used extensively in the production of a high-strength moisture-resistant film used as a cable core wrap.

Polyethylene: A family of insulations derived from the polymerization of ethylene gas and characterized by outstanding electrical properties, including high I.R., low dielectric constant, and low dielectric loss across the frequency spectrum. Mechanically rugged, it resists abrasion and cold flow.

Polymer: A material of high molecular weight formed by the chemical union of monomers.

Polyolefin: A family of thermoplastics based upon the unsaturated hydrocarbons known as olefins. When combined with butylene or styrene polymers, they form compounds such as polyethylene and polypropylene.

Polyurethane: A family of flexible, abrasion resistant jackets used for **XTRA•GUARD® 2** harsh environment cables.

Polyvinylchloride: A general purpose family of insulations whose basic constituent is polyvinylchloride or its copolymer with vinyl acetate. Plasticizers, stabilizers, pigments and fillers are added in lesser quantity to improve mechanical and/or electrical properties of this material.

Porosity: Multiple air voids in an insulation or jacket wall.

Potting: The sealing of a cable termination or other component with a liquid which thermosets into an elastomer.

Power Factor: The ratio of resistance to impedance. The ratio of an actual power of an alternating current to apparent power. Mathematically, the cosine of the angle between the voltage applied and the current resulting.

Primary Insulation: The first layer of non-conductive material applied over a conductor, whose prime function is to act as electrical barrier (sic... insulation).

Propagation: Delay time required for an electrical wave to travel between two points on a transmission line.

Pulling Eye: A device fastened to a cable to which a hook may be attached in order to pull the cable into or from a duct.

Quad: A four conductor cable.

REA: Abbreviation for Rural Electrification Administration. A branch of the U.S. Department of Agriculture responsible for the standardization of the independent telephone companies throughout the U.S.

Reactance: The opposition offered to the flow of alternating current by inductance or capacitance of a component or circuit.

Recovered Diameter: Diameter of shrinkable products after heating has caused it to return to its extruded diameter.

Reference Junction: The junction of a thermocouple which is at a known reference temperature. Also known as the "cold" junction, it is usually located at the emf measuring device.

Refractive Index: Ratio of light velocity in a vacuum to its velocity in the transmitting medium.

Repeater: A transmitter and receiver combination used to regenerate a signal.

Resin: A synthetic organic material formed by the union (polymerization) of one or more monomers with one or more acids.

Resistance: A measure of the difficulty in moving electrical current through a medium when voltage is applied. It is measured in ohms.

Retractable Cable: A cable that returns by its own stored energy from an extended condition to its original contracted form.

RFI: Abbreviation for Radio Frequency Interference.

RG / U: Abbreviation for Radio Government, Universal. RG is the military designation for coaxial cable in MIL-C-17 and U stands for "general utility".

Ribbon Cable: A flat cable of individually insulated conductors lying parallel and held together by means of adhesive film laminate.

Ridge Marker: One or more ridges running laterally along the outer surface of an insulated wire for purposes of identification.

Root Mean Square (RMS): The effective value of an alternating current or voltage.

Rope Lay Conductor: A conductor composed of a central core surrounded by one or more layers of helically laid groups of wires.

Rupture: In the breaking strength or tensile strength tests, the point at which the material physically comes apart, as opposed to elongation yield strength, etc.

SAE: Abbreviation for Society of Automotive Engineers.

Self Extinguishing: The characteristic of a material whose flame is extinguished after the igniting flame is removed.

Semiconductor: A material that has a resistance characteristic between that of insulators and conductors.

Semi-Rigid PVC: A hard semi-flexible polyvinylchloride compound with low plasticizer content.

Separator: A layer of insulating material such as textile, paper, polyester, etc. Used to improve stripping qualities, flexibility, mechanical or electrical protection to the components.

Serve: A filament or group of filaments such as fibers or wires, wound around a central core.

Sheath: The outer covering or jacket of a multi-conductor cable.

Shield: In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic interference between the enclosed wires and external fields.



Shield Coverage: The physical area of a cable that is actually covered by the shielding material and is expressed in percent.

Shield Effectiveness: The relative ability of a shield to screen out undesirable signals.

Shrinkage Ratio: The ratio between the expanded diameter and recovered diameter of shrinkable products.

Shrink Temperature: That temperature which effects complete recovery of a shrinkable product from the expanded state.

Shrink Tubing: Tubing which has been extruded, cross-linked and non cross-linked, and mechanically expanded which when reheated will return to its original diameter.

Signal: A current used to convey information, either digital, analog, audio or video.

Signal Cable: A cable designed to carry current of usually less than one ampere per conductor.

Simplex: Mode of data transmission in one direction only. Usually on a two-wire facility.

Sintering: Fusion of a spirally applied tape wrap jacket by the use of high heat to a homogenous continuum. Usually employed for fluorocarbon, non-extrudable materials.

Skin Effect: The phenomenon in which the depth of penetration of electric currents into a conductor decreases as the frequency increases.

Sleeving: A braided, extruded or woven tube.

Soldering Sleeves: Shrinkable tubing with a solder preform used for highest reliability soldering connections or shield grounding.

Solid Conductor: A conductor consisting of a single wire.

Span: In flat cables, the distance from the reference edge of the first conductor to the reference edge of the last conductor (in cables having flat conductors), or the distance between the centers of the first and last conductors (in cables having round conductors), expressed in inches or centimeters.

Spark Test: A test designed to locate imperfections (usually pin-holes) in the insulation of a wire or cable by application of a voltage for a very short period of time while the wire is being drawn through the electrode field.

Specific Gravity: The ratio of the density (mass per unit volume) of a material to that of water.

Spiral Wrap: The helical wrap of a material over a core.

Splice: A mechanical device or fusion process that permanently bonds two fibers together without a connector producing extremely low loss.

STP: Shielded Twisted Pair cable.

Stability Factor: The difference between the percentage power factor at 80 volts/mil and at 40 volts/mil measured on wire immersed in water at 75°C for a specified time.

Static Condition: Used to denote the environmental conditions of an installed cable rather than the conditions existing during cable installation.

Stranded Conductor: A conductor composed of single solid wires twisted together, either singly or in groups.

Strip Force: The force required to remove a small section of insulating material from the conductor it covers.

Structure Return Loss (SRL): Expresses the amount of signal lost in negative terms, and occurs when signals reflect back to points of transmission.

Suggested Working Voltage: AC voltage that can be applied between adjacent conductors.

Surface Resistivity: The resistance of a material between two opposite sides of a unit square of its surface. It is usually expressed in ohms.

Surge: A temporary, large increase in the voltage or current in an electric circuit or cable.

SUPRASHIELD®: Alpha Wire trade name for foil/braid combination used for maximum shielding effectiveness.

Sweep Test: A method to determine the frequency response of a cable, by generating an RF voltage whose frequency is varied at a rapid constant rate over a given range.

Tank Test: A voltage dielectric test in which the test sample is submerged in water and voltage is applied between the conductor and water as ground.

Tape Wrap: A spirally applied tape over an insulated or uninsulated wire.

TDM: Abbreviation for Time Division Multiplexing.

Tear Strength: The force required to initiate or continue a tear in a material under specified conditions.

Teflon: A DuPont Company trademark for polytetrafluoroethylene.

Tefzel: DuPont trade name for a fluorocarbon material typically used as the insulation on wire wrap wire.

Temperature Rating: The maximum and minimum temperature at which an insulating material may be used in continuous operation without loss of its basic properties.

Tempest: Classified procedure which details the complex measurement of the combined reduction of all electromagnetic emissions from specified equipment.

Tensile Strength: The pull stress required to break a given specimen.

Thermal Shock: A test to determine the ability of a material to withstand heat and cold by subjecting it to rapid and wide changes in temperature.

Thermocouple: A device consisting of two dissimilar metals in physical contact, which when heated, will develop an emf output.

Thermocouple Element: A thermocouple designed to be used as part of an assembly, but without associated parts such as the terminal block, connecting head, or protecting tube.

Thermocouple Extension Cable: A cable comprised of one or more twisted thermocouple extension wires under a common sheath.

Thermocouple Extension Wire: A pair of wires of dissimilar alloys having such emf-temperature characteristics complementing the thermocouple which is intended to be used, such that when properly connected allows the emf to be faithfully transmitted to the reference junction.

Thermocouple Wire (Grade): A pair of wires of dissimilar alloys having emf-temperature characteristics calibrated to higher temperature levels than the extension type of thermocouple wire. Unlike the thermocouple extension wire, this wire may be employed as the thermocouple hot junction in addition to serving as the entire wire connection between hot and cold reference junctions.

Thermoplastic: A material which softens when heated or reheated and becomes firm on cooling.

Thermoset: A material which hardens or sets by heat, chemical or radiation cross-linking techniques and which, once set, cannot be resoftened by heating.

Tinned Copper: Tin coating added to copper to aid in soldering and inhibit corrosion.

Transmission Line: A signal-carrying circuit with controlled electrical characteristics used to transmit high-frequency or narrow-pulse signals.

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Transmission Loss: The decrease or loss in power during transmission of energy from one point to another. Usually expressed in decibels.

Tray: A cable tray system is a unit or assembly of units or sections, and associated fittings, made of non-combustible materials forming a rigid structural system used to support cables. Cable tray systems (previously termed continuous rigid cable supports) include ladders, troughs, channels, solid bottom trays, and similar structures.

Tray Cable: A factory-assembled multiconductor or multipair control, signal or power cable specifically approved under the National Electrical Code for installation in trays.

Triaxial Cable: A cable construction having three coincident axes, such as conductor, first shield and second shield all insulated from one another.

Triple (Triad): A cable consisting of three insulated single conductors twisted together.

Tubing: A tube of extruded non-supported plastic or metallic material.

Twinning: Synonymous with pairing.

UF: Thermoplastic underground feeder and branch circuit cable.

UHF: Abbreviation for Ultra High Frequency, 300 to 3,000 MHz.

UL: Abbreviation for Underwriters Laboratories, a non-profit independent organization, which operates a listing service for electrical and electronic materials and equipment.

UTP: Unshielded Twisted Pair cable.

Unbalanced Circuit: A transmission line in which voltages on the two conductors are unequal with respect to ground; e.g. a coaxial cable.

VDE: German Society of Engineers that establishes standards and testing requirements.

Velocity of Propagation: The speed of an electrical signal down a length of cable compared to speed in free space expressed as a percent. It is the reciprocal of the square root of the dielectric constant of the cable insulation.

VHF: Abbreviation for Very High Frequency, 30 to 300 MHz.

Viton: DuPont trademark for a series of fluoro-elastomers based on the copolymer of unylidene fluoride and hexafluoropropylene.

Volt: A unit of electromotive force.

Voltage: The term most often used in place of electromotive force, potential, potential difference, or voltage drop to designate the electric pressure that exists between two points and is capable of producing a current when a closed circuit is connected between two points.

Voltage Rating: The highest voltage that may be continuously applied to a wire in conformance with standards or specifications.

Voltage Standing Wave Ratio (VSWR): The ratio of the maximum effective voltage to the minimum effective voltage measured along the length of a mis-matched radio frequency transmission line.

Volume Resistivity: The electrical resistance between opposite faces of a one cm. cube of insulating material, commonly expressed in ohms-centimeter.

VW-1: A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designed vertical flame test, formerly designated FR-1.

Water Absorption: Water by percent weight absorbed by a material after a given immersion period.

Watt: A unit of electric power. The watt is the power required to do work at the rate of one joule per second.

Wavelength: The distance, measured in the direction of propagation, of a repetitive electrical pulse or waveform between two successive points.

Wicking: The longitudinal flow of a liquid in a wire or cable due to capillary action.

Wire: A slender rod or filament of drawn metal.

XTRA-GUARD®: The Alpha Wire trade name for cable constructions designed for use in virtually any type of environment.

Yield Strength: The minimum stress at which a material will start to physically deform.

Zipper Tubing: Alpha Wire's trade name for a harnessing/jacketing material containing a zipper-track type closure. The zipper arrangement allows installation with no need to disconnect previously wired schemes for its installation. (See Loc-Trac®).

Zytel: DuPont's trade name for nylon resins.



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1002A	5711/2012	331	1097A	5656B1604	324	1585A	9504F	268	5342UE	8805R	246
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1035A	5600B1601	320	1120A	5616B1801	323	5120FL	8913R	248	5501FE	8719R	244
1036A	5640B1801	321	1121A	5646B1801	324	5120UL	8905R	248	5501UE	8702R	244
1049A	5626B1804	323	1162A	9818C	263	5122FL	8914R	248	5502UE	8703R	244
1050A	5626B1808	323	1192A	1772	198	5122UL	8906R	248	5541FE	8807R	246
1055A	5626B1602	323	1242A	1204	241	5200FE	8725R	244	5541UE	8801R	246
1056A	5610B2004	321	1419A	6202C	219	5201FE	8726R	244	5542FE	8808R	246
1057A	5610B2008	321	1420A	6203C	219	5201UE	8711R	244	5542UE	8802R	246
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1059A	5610B2016	321	1422A	6205C	219	5220FL	8911R	248	6000UE	8716P	245
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1076A	5620B2004	322	1485A	5610B1608	321	5302UE	8709R	244	6120UL	8905P	249
1077A	5620B2008	322	1486A	5610B1612	321	5320FL	8908R	248	6122FL	8914P	249
1078A	5620B2012	322	1492A	5620B1602	322	5320UL	8901R	248	6122UL	8906P	249
1079A	5620B2016	322	1493A	5620B1604	322	5322FL	8910R	248	6200FE	8730P	245
1080A	5620B2024	322	1494A	5620B1608	322	5322UL	8902R	248	6200UE	8710P	245
1083A	5650B2004	322	1495A	5620B1612	322	5341FE	8810R	246	6201FE	8731P	245

**This Cross Reference Guide represents those Alpha Wire products which are functionally equivalent.
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6300UE	8707P	245	7307A	87303	96	8106	6226C	226	8232	9850	280
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TECHNICAL DATA

SPECIALTY CABLE CAPABILITIES SPECIALTY CABLE CONSTRUCTION OPTIONS

Choose from the Alpha Wire Company's many manufacturing capabilities to design the specialty cable that will meet your environmental needs and electronic /electrical requirements.

CONDUCTOR AWG SIZE:

- ☐ 30 AWG to 4/0.

CONDUCTOR AND PAIR COUNT:

- ☐ From 1 to 80 conductors or pairs.

INSULATION OPTIONS:

- ☐ **POLYVINYLCHLORIDE (PVC)**
General purpose and most popular. Flame retardant, chemical resistant, good insulating properties and moderate cost. Temperature range 60°C to 105°C.
- ☐ **POLYETHYLENE (PE)**
Superior electrical properties to PVC. Not as flexible. Not flame retardant. Temperature range to 80°C.
- ☐ **POLYPROPYLENE (PP)**
Similar to PE. Less flexible than PE. Not flame retardant. Temperature range to 80°C.
- ☐ **THERMOPLASTIC ELASTOMER (TPE)**
Good electrical properties. Temperature range to 125°C. Highly flame resistant. Low corrosive outgassing.
- ☐ **FOAMED POLYETHYLENE (FPE)**
Superior electrical properties to polyethylene.
- ☐ **FOAMED POLYPROPYLENE (FPP)**
Superior electrical properties to polypropylene.
- ☐ **PVC WITH NYLON JACKET**
Increased cut-through strength, abrasion and chemical resistant. Good for use in high-flex applications due to low coefficient of friction.
- ☐ **HYTREL®**
Flexible and abrasion resistant insulation. Excellent for use in high-flex and torsion cables. Poor flame retardancy.
- ☐ **TEFLON®**
High temperature range, 200°C-250°C. Flame retardant. Excellent electrical properties and outstanding chemical resistance.

SHIELDING OPTIONS:

- ☐ **ALUMINUM / POLYESTER FOIL SHIELD**
Thin and lightweight. Provides 100% coverage over cable core or conductor pairs. Easy to terminate with stranded tinned copper drain wire. Excellent shielding at high frequencies.
- ☐ **TINNED COPPER BRAID**
Provides mechanical protection. Maximum coverage approximately 95%. More difficult to terminate than Aluminum/Polyester. Best shielding at low frequencies.
- ☐ **SPIRAL / SERVE WRAP COPPER**
Used in many high-flex cables. More flexible than braid. Easier to terminate than braid. Performs best when used at low frequencies. Provides coverage up to 95%-97%.
- ☐ **SUPRASHIELD®**
Aluminum/Polyester/Aluminum (triple laminate foil shield) with stranded tinned copper drain wire and 70% tinned copper braid shield. For maximum protection against EMI/RFI interference. Easy to terminate with drain wire. Foil provides 100% cable core coverage with the added mechanical protection of copper braid.

JACKETING OPTIONS:

- ☐ **POLYVINYLCHLORIDE (PVC)**
Good flame and moisture resistance. Easy to strip jacket for termination of conductors. Good flexibility. Temperature range to 105°C.
- ☐ **POLYURETHANE (PUR)**
Very good resistance to oils, fuels, solvents and water. Twice the tensile strength of PVC. Three times the tear and abrasion resistance of PVC. Low temperature flexibility to -20°C.
- ☐ **POLYETHYLENE (PE)**
Five times the water resistance of PVC. Good for direct burial applications. Excellent for outdoor use.
- ☐ **THERMOPLASTIC ELASTOMER (TPE)**
Three times the low temperature flexibility of most PVC. Low temperature capability to -60°C. High temperature to 125°C. Resistant to oils, fuels, solvents and water. Highly flame resistant.
- ☐ **TEFLON® (FEP)**
Excellent high and low temperature performance. From -80°C to 200°C. Impervious to all chemicals, acids, fuels, solvent and water.

**MOST OF THE MATERIALS ABOVE ARE AVAILABLE WITH UL RECOGNITION OR LISTING,
CSA CERTIFICATION AND CE COMPLIANCE**

Teflon® is a registered trademark of E.I. DuPont Co.



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TECHNICAL DATA

SPECIALTY CABLE DESIGN REQUIREMENTS FORM

ALPHA WIRE COMPANY

SPECIALTY CABLES ... CUSTOM-DESIGNS TO MEET YOUR NEEDS! Alpha Wire's team of cable design engineers recognize the need for custom specialty cables for today's ever-changing industrial factory automation requirements. As a world class wire and cable manufacturer, Alpha Wire has the technical ability and manufacturing capability to design and, when necessary, provide prototypes of custom specialty cables. Our materials and manufacturing techniques provide a platform for specialty products that are ideally suited for your industrial and factory automation needs.

You may find it helpful to first visit our Product Specification Search at www.alphawire.com. Your requirements may already exist in an Alpha Wire Master Catalog product!

Simply outline your Specialty Cable Requirements below and fax this form directly to Alpha Wire's Technical Department at 908-925-6923.

CONTACT INFORMATION

Company Name: _____ Division: _____

Contact Name: _____

Additional Engineering Contacts: _____ Additional Purchasing Contacts: _____

Address: _____ City: _____ State/Province: _____ Country: _____ Zip/Postal Code: _____

Telephone: _____ Fax: _____ E-Mail: _____

What is Your Industry?: _____ Application/Project Name: _____ ☐ Existing ☐ New

End Customer/Industry/Market: _____ Description/Alpha Wire Part No. (if available): _____

CONSTRUCTION REQUIREMENTS

CONDUCTORS

No. of Conductors: _____ No. of Pairs: _____

AWG Size: _____ Solid: _____ Stranded: _____

Bare: _____ Tinned: _____ Silver Plated: _____

Other: _____

Special Flexibility Requirements: _____

(Describe) _____

INSULATION

Material: _____ Thickness: _____

Temp.: _____ Volt Rating: _____

Color Code: _____

ELECTRICAL

Capacitance: _____

Current Carrying Capacity: _____

Crosstalk: _____

Shielding Effectiveness: _____

GENERAL REQUIREMENTS

General Environments (oils, acids, fuels, flame, etc.)/End Use: _____

Length Requirements: Min _____ Max _____ Tolerance _____

Total Quantity: _____

SHIELDING

Braid: _____ Spiral: _____ Tin: _____

Bare: _____ % Coverage: _____

Alum/Polyester Foil: Overall _____ Individual _____

Drain Wire: _____ Size: _____

SUPRASHIELD® (Foil & Braid): _____

Other (Define): _____

JACKET

Material: _____ Thickness: _____

Temp.: _____ Color: _____

Cable O.D.: Nom _____ Min _____ Max _____

REGULATORY STANDARDS

Specs: Mil _____ UL _____

CSA _____ Other: _____

Special Tests Required: _____

MECHANICAL REQUIREMENTS

Abrasion: _____ Flame: _____

Flexing Type: ☐ Rolling ☐ Tick-Toc ☐ Torsional ☐ Random/Variable

Bend Radius: _____ Length of Stroke: _____ Velocity: _____

Acceleration: _____ Use Life: _____ Cycles Per Minute: _____

Cable Track Used? ☐ Yes ☐ No ☐ Metal ☐ Plastic

REGULATORY AGENCY STANDARDS

UNDERWRITERS LABORATORIES, INC.

Underwriters Laboratories, Inc. (UL) was founded as a not-for-profit organization which provides testing for products and UL "Recognition" or "Listing" for manufacturers. In the United States, UL sets standards for safety for wire, cable, tubing and other products.

■ UL "AWM" RECOGNIZED COMPONENTS



Many wire and cable products have UL AWM (Appliance Wiring Material) Recognized component styles. A wire or cable product bearing a UL Style can be used for internal or external wiring as Recognized component of an original equipment product. By using an appropriate UL Recognized component AWM Style product, the manufacturer can then obtain the appropriate UL Listing for their product.

■ C-UL RECOGNIZED COMPONENT MARK



This Recognized component mark is applied to products for the Canadian market. Products with this type of mark have been evaluated to Canadian Standard requirements.

■ UL "LISTED" WIRE AND CABLE PRODUCTS



UL Listed wire and cable products are used in applications where the product is not an integral part of the manufactured system. UL Listed wire and cable products are intended for use within residential, commercial or industrial buildings. The National Electrical Code (NEC®) requires use of Listed products to meet the requirements of various "Articles" within the code.

■ C-UL LISTING MARK



This Listing mark is applied to products for the Canadian market. Products with this type of mark have been evaluated to Canadian standard requirements

CANADIAN STANDARDS ASSOCIATION



Canadian Standards Association

CSA is an abbreviation for Canadian Standards Association, a non-profit, independent organization which operates a certification service for electrical and electronic materials and equipment. Alpha Wire Company offers the following types of Canadian Standards Association (CSA) Certification on a wide variety of both wire and cable products.

- AWM – Appliance Wiring Material (AWM) is manufactured in accordance with CSA Standard C22.2 No. 210. These products are intended for the internal wiring of electrical and electronic equipment and interconnecting wiring between equipment.

All of these wires and cables must pass one of the following flame tests in order to fully comply with CSA Certification requirements.

- FT1 – The Vertical Flame Test per CSA C22.2 No. 3 which specifies that finished cable shall not propagate a flame or continue to burn for more than one minute after five, fifteen-second applications of the test flame. There is an interval of fifteen seconds between flame applications.
- FT4 – The Vertical Flame Test per CSA C22.2 No. 3 for cables in cable trays. This test is similar to, but more severe than, the UL Standard 1581 Vertical Tray flame test. The UL 1581 has its burner at 0° from the horizontal while the FT4 has its burner mounted at 20° from the horizontal with its burner parts facing up. The allowable char length is only 1.5m (4.92 ft.) while UL 1581 allows damage up to a maximum of eight feet.

■ CE Conformity to European Directive.



CE (Conformité Européenne) is a European Economic Community approval indicating that a product complies with a European Directive.



ISO 9001 – A standard for quality assurance in design, development, production, installation and service.

Alpha Wire is also a member of the



Robotic Industries Association

All of the information presented in this catalog is believed to be reliable and is presented only as a guide to product selection. As each application is unique, Alpha can make no warranties as to the suitability of any product for a particular use. Alpha's only obligations are those in the standard terms and conditions of sale for each product. Specifications are subject to change.

LIMITED WARRANTY, DISCLAIMER AND LIMITATION OF REMEDIES

Alpha Wire Company warrants its products against defects in workmanship and materials for a period of one year from date of purchase. In the event of a defect or other failure not caused by misuse or damage to the product, Alpha will, at its option, repair or replace the product or refund the purchase price. To obtain warranty performance, return the product with proof of purchase to the dealer from whom it was purchased.

EXCEPT FOR THE LIMITED WARRANTY MADE ABOVE, ALPHA MAKES NO OTHER WARRANTY REGARDING THIS PRODUCT, EITHER EXPRESS OR IMPLIED, AND HEREBY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ALPHA BE LIABLE TO ANY PERSON FOR ANY DAMAGES, WHETHER DIRECT OR INDIRECT, INCIDENTAL OR CONSEQUENTIAL, WHETHER ARISING IN CONTRACT OR TORT, EVEN IF ALPHA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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FIT®

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Alpha Wire

INDUSTRIAL SERIES



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