



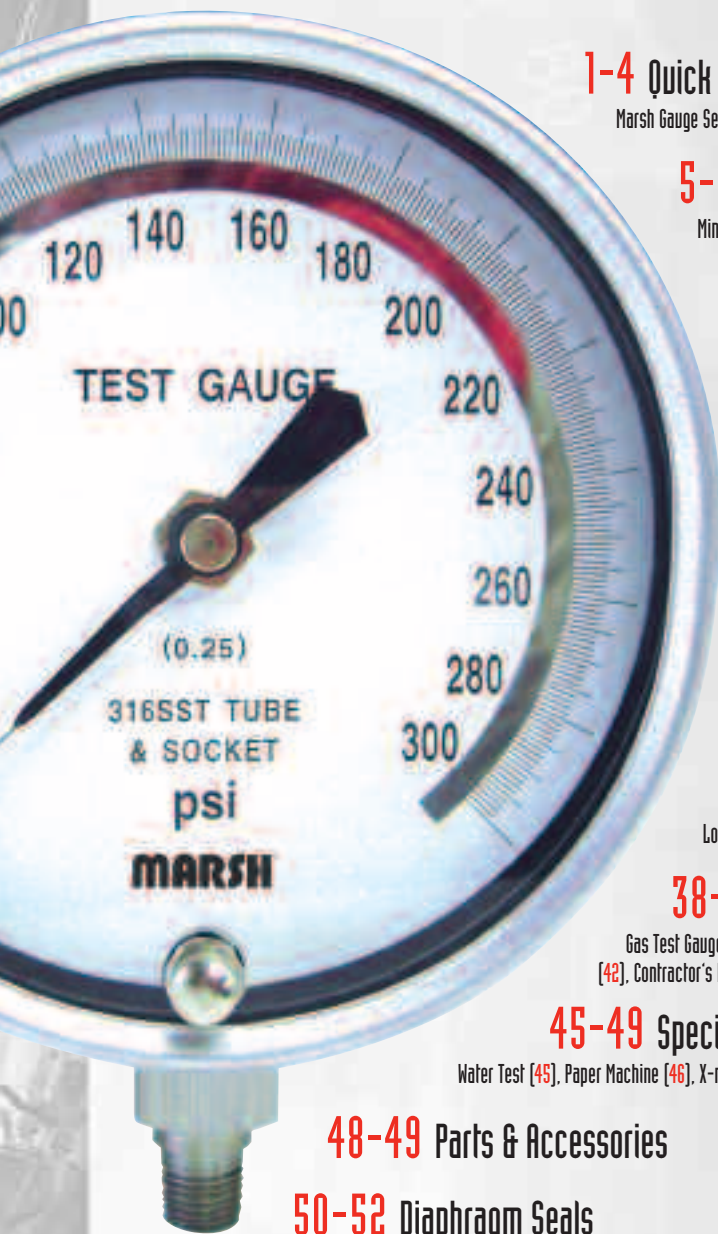
MARSH Instrument Division
Product Catalog

CAUTION:
Never Exceed
G.O. Mark on
Customer's
800 327-1515

MARSH

2009-10

INDEX



1-4 Quick Selector

Marsh Gauge Selection Made easy!

5-8 Filters Regulators Lubricators

Miniature (M1) & Standard (M2) FRL's, Filters, Regulators, Filter-Regulators, Lubricators [5]

9-13 General Service Gauges

Marshalltown Value Series [9] General Service [10-13]

14-19 Severe Service Gauges

40mm & 50mm [14], 63mm Severe Service [15-16], 100mm Severe Service [17-18], 63mm & 100mm Brass Gauges [19]

20-30 Precision Service Gauges

100mm Stainless Steel [19], Quality Series 100mm Stainless Steel Internal [21], Quality Series 100mm Copper Alloy Internal [22], 'HW' 160mm Stainless Steel [23], 100mm Elite Stainless Steel [24], Quality [25-26], Test [27-28], Master Test Gauge [29], Inspector's Test [30]

31-34 Process Gauges

35-37 Diaphragm Gauges

Low Pressure [35-36], Vacuum Cleaner Test [37], Gas Pressure Test [37]

38-44 HVAC/R Gauges

Gas Test Gauge [38], Serviceman Test Gauge [39], Manifold "Reds" & "Blues" [40], Refrigeration Ammonia [41], Refrigeration [42], Contractor's HVAC [43], Heating System [44]

45-49 Special Application Gauges

Water Test [45], Paper Machine [46], X-mas Tree Gauges [47]

48-49 Parts & Accessories

50-52 Diaphragm Seals

Mini, Welded & Removable Diaphragm Seals

53-59 Temperature Instruments

Hot Water Thermometer [53], Bimetal Thermometers [54-55], Pocket Thermometers [56], Industrial Thermometers & Wells [57], Submarine Thermometer [58], Tridicators [59]






60-62 Thermowells

63 Digital Pressure Indicator

64-72 General Information & Reference

Selection and Use of a Pressure Gauge [64], Pressure Gauge Operating Principle [65], How the Diaphragm Gauge Works [65], Marsh Chemical Compatibility Table [66], Accuracy Table [67], Pressure Units Cross Reference Chart [68], Part Number Prefix Guide [69], Part number Suffix Guide [69], Abbreviations and Terms Used [69], Marshalltown Crossover Guide [69], Terms & Conditions [70], Distributor Return Policy [71], Product Classes and options [71], Product Warnings, Claims, Recommendations and Notices [72], Custom Dials [73].




 <p>PAGE 9</p>	 <p>PAGE 10</p>	 <p>PAGE 14</p>	 <p>PAGE 15-18</p>	 <p>PAGE 19</p>
<p>GAUGE SERIES: MARSHALLTOWN VALUE SERIES</p>	<p>GAUGE SERIES: GENERAL SERVICE</p>	<p>GAUGE SERIES: 40/50MM LIQUID FILLED</p>	<p>GAUGE SERIES: SEVERE SERVICE 63MM & 100MM</p>	<p>GAUGE SERIES: 63MM & 100MM BRASS GAUGE</p>
<p>ACCURACY ASME: Grade B = $\pm 3/2/3$ ($\pm 2\%$ of range across middle half of scale)</p>	<p>ACCURACY ASME: Grade B = $\pm 3/2/3$ ($\pm 2\%$ of range across middle half of scale)</p>	<p>ACCURACY ASME: $\pm 2.5\%$ of range across full scale</p>	<p>ACCURACY ASME: 63mm: Grade B = $\pm 3/2/3$ ($\pm 2\%$ of range across middle half of scale) 100mm: Grade A $\pm 2/1/2$ ($\pm 1\%$ of range across middle half of scale)</p>	<p>ACCURACY ASME: 63mm: $\pm 1.6\%$ of range across full scale 100mm: Grade 1A $\pm 1\%$ of range across full scale of scale</p>
<p>CASE SIZE: 1½" & 2" diameter</p>	<p>CASE SIZE: 1½", 2", 2½", 3½", & 4½" diameter</p>	<p>CASE SIZE: 40mm & 50mm diameter</p>	<p>CASE SIZE: 63mm diameter 100mm diameter</p>	<p>CASE SIZE: 63mm diameter (2.5") 100mm diameter (4.0")</p>
<p>CASE MATERIAL: Steel, black painted</p>	<p>CASE MATERIAL: Steel, black painted</p>	<p>CASE MATERIAL: 304 Stainless Steel</p>	<p>CASE MATERIAL: 304 Stainless Steel</p>	<p>CASE MATERIAL: Forged brass</p>
<p>CASE STYLES: Lower Mount, Center Back Mount, Right & Left Mounts</p>	<p>CASE STYLES: Lower Mount, Center Back, U-Clamp & Front Flange Mounts</p>	<p>CASE STYLES: Center Back Mount</p>	<p>CASE STYLES: Rolled ring, hermetically sealed case; Lower Mount, Center Back, U-Clamp & Front Flange Mount</p>	<p>CASE STYLES: Lower mount</p>
<p>TUBE & SOCKET: Copper Alloy</p>	<p>TUBE & SOCKET: Copper Alloy</p>	<p>TUBE & SOCKET: Copper Alloy tube with nickel plated brass socket</p>	<p>TUBE & SOCKET: Copper Alloy or 316 Stainless steel</p>	<p>TUBE & SOCKET: Copper Alloy</p>
<p>MOVEMENT: Brass</p>	<p>MOVEMENT: Brass</p>	<p>MOVEMENT: Brass</p>	<p>MOVEMENT: Brass</p>	<p>MOVEMENT: Brass</p>
<p>CONNECTIONS: ½ or ¼ NPT</p>	<p>CONNECTIONS: ½ or ¼ NPT</p>	<p>CONNECTIONS: 40mm: ½ NPT 50mm: ¼ NPT</p>	<p>CONNECTIONS: ¼ NPT</p>	<p>CONNECTIONS: 63mm: ¼ NPT 100mm: ½ NPT</p>
<p>RANGES: 15 to 160 psi</p>	<p>RANGES: 0-30" Hg vacuum; compound ranges 30" Hg vacuum to 400 psi; and 15 to 5,000 psi</p>	<p>RANGES: 15 to 160 psi</p>	<p>RANGES: 0-30" Hg vacuum; compound ranges 30" Hg vacuum to 400 psi; and 15-10,000 psi</p>	<p>RANGES: 0 to 30" Hg vacuum; compound ranges 30" Hg vacuum to 200 psi; 15-10,000 psi</p>
<p>STANDARD DIAL: Dual Scale psi and kPa</p>	<p>STANDARD DIAL: Dual scale psi and kPa</p>	<p>STANDARD DIAL: Triple scale psi/BAR/kPa</p>	<p>STANDARD DIAL: Dual scale psi and kPa</p>	<p>STANDARD DIAL: Single scale psi</p>
<p>DIAL COLOR: Black markings on white</p>	<p>DIAL COLOR: Black markings on white</p>	<p>DIAL COLOR: Black markings on white</p>	<p>DIAL COLOR: Black markings on white</p>	<p>DIAL COLOR: Black markings on white</p>
<p>POINTER: Aluminum, black painted</p>	<p>POINTER: Aluminum, black painted</p>	<p>POINTER: Aluminum, black painted</p>	<p>POINTER: Aluminum, black painted</p>	<p>POINTER: Aluminum, black painted</p>
<p>WINDOW: Flat plastic with steel friction ring</p>	<p>WINDOW: 1½", 2", 2½", 3½" Acrylic, twist-in Clearlok; 4½" flat glass window with steel friction ring</p>	<p>WINDOW: Acrylic</p>	<p>WINDOW: Polycarbonate</p>	<p>WINDOW: Acrylic</p>
<p>FILL MEDIUM: N/A</p>	<p>FILL MEDIUM: N/A</p>	<p>FILL MEDIUM: Glycerine</p>	<p>FILL MEDIUM: Dry, glycerine, or silicone</p>	<p>FILL MEDIUM: Glycerine</p>
<p>VENT: N/A</p>	<p>VENT: N/A</p>	<p>VENT: Filler/Pressure relief plug</p>	<p>VENT: Rubber plug with snip-off feature</p>	<p>VENT: Rubber plug with snip-off feature</p>




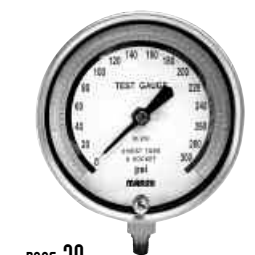

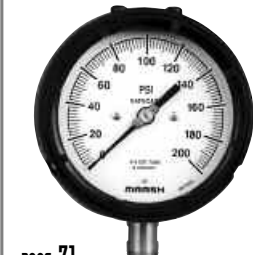

Quick Selector



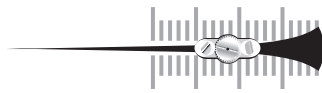
 PAGE 20	 PAGE 21	 PAGE 23	 PAGE 24	 PAGE 25
GAUGE SERIES: 100MM STAINLESS STEEL	GAUGE SERIES: 100MM STAINLESS STEEL NACE	GAUGE SERIES: 'HW' 160MM STAINLESS STEEL	GAUGE SERIES: 100MM ELITE	GAUGE SERIES: QUALITY GAUGE
ACCURACY ASME: Grade 1A = ± 1% full scale	ACCURACY ASME: Grade 1A = ± 1% full scale	ACCURACY ASME: Grade 1A = ± 1% full scale	ACCURACY ASME: Grade 1A = ± 1% full scale	ACCURACY ASME: Grade A = ± 2/1/2 (± 1% of range across middle half of scale)
CASE SIZE: 100mm diameter	CASE SIZE: 100mm diameter	CASE SIZE: 160mm diameter	CASE SIZE: 100mm diameter	CASE SIZE: 3/2" and 4/4" diameter
CASE MATERIAL: 304 Stainless steel	CASE MATERIAL: 304 Stainless steel	CASE MATERIAL: 304 Stainless steel	CASE MATERIAL: 304 Stainless steel	CASE MATERIAL: Steel, black painted
CASE STYLES: Lower Mount, Panel Mount with U-Clamp and three hole Front Flange Mount	CASE STYLES: Lower Mount	CASE STYLES: Lower Mount	CASE STYLES: Safecase with blow-out back construction; Lower Mount	CASE STYLES: Lower Mount, Flush case (Front Flange w/U- Clamp), Back Flange with Lower or Lower Back Mounts
TUBE & SOCKET: 316 Stainless steel	TUBE & SOCKET: 316 Stainless steel	TUBE & SOCKET: 316 Stainless steel with socket welded to the case	TUBE & SOCKET: 316 Stainless steel	TUBE & SOCKET: Copper Alloy up to 1,000 psi. Stainless steel tube, above 1,000 psi
MOVEMENT: Stainless steel	MOVEMENT: Stainless steel	MOVEMENT: Stainless steel	MOVEMENT: Stainless steel rotary movement	MOVEMENT: Stainless steel
CONNECTIONS: ¼ NPT	CONNECTIONS: ½ NPT	CONNECTIONS: ½ NPT	CONNECTIONS: ½ NPT	CONNECTIONS: ¼ or ½ NPT
RANGES: 30-10,000 PSI	RANGES: 15-20,000 PSI	RANGES: 15-20,000 PSI	RANGES: 0-30" Hg vacuum 30-10,000 PSI	RANGES: 0-30" Hg vacuum; compound ranges 30" Hg vacuum to 300 PSI; 15-20,000 PSI
STANDARD DIAL: Dual scale PSI and kPa	STANDARD DIAL: Dual scale PSI and kPa	STANDARD DIAL: Dual scale PSI and kPa	STANDARD DIAL: Dual scale psi and kPa	STANDARD DIAL: Single scale PSI
DIAL COLOR: Black markings on white	DIAL COLOR: Black markings on white	DIAL COLOR: Black markings on white	DIAL COLOR: Black markings on white	DIAL COLOR: Black markings on white
POINTER: Aluminum, black painted	POINTER: Aluminum, Adjustable Micrometer, black painted	POINTER: Aluminum, black painted	POINTER: Aluminum, black painted	POINTER: 3½": Aluminum, black painted with recalibrator. 4½": Aluminum, black painted, micro-adjustable
WINDOW: Acrylic	WINDOW: Safety glass	WINDOW: Safety glass	WINDOW: Safety glass	WINDOW: Glass
FILL MEDIUM: Dry, glycerine or silicone	FILL MEDIUM: Dry, glycerine, or silicone	FILL MEDIUM: Dry, glycerine, or silicone	FILL MEDIUM: Dry, glycerine or silicone	FILL MEDIUM: N/A
VENT: Rubber plug with snip-off feature	VENT: Rubber plug with snip-off feature	VENT: Rubber plug with snip-off feature	VENT: Internal compensating diaphragm	VENT: N/A









 PAGE 27	 PAGE 29	 PAGE 30	 PAGE 31	 PAGE 35
GAUGE SERIES: TEST GAUGE	GAUGE SERIES: MASTER TEST GAUGE	GAUGE SERIES: INSPECTOR'S TEST GAUGE	GAUGE SERIES: PROCESS GAUGE	GAUGE SERIES: DIAPHRAGM GAUGE
ACCURACY ASME: Grade 2A = ±0.50% full scale	ACCURACY ASME: Grade 3A = ±0.25% full scale	ACCURACY ASME: Grade 2A = ±0.50% full scale	ACCURACY ASME: Grade 2A = ±0.50% full scale	ACCURACY ASME: Grade A = ±2/1/2 (±1% of range across middle half of scale) and Grade B = ±3/1/3 (±2% of range for ranges below 30" H ₂ O)
CASE SIZE: 4½" diameter	CASE SIZE: 6" diameter	CASE SIZE: 3" diameter	CASE SIZE: 4½" and 6" diameter	CASE SIZE: 2½", 3½", & 4½" diameter
CASE MATERIAL: Steel, black painted	CASE MATERIAL: 304 Stainless steel	CASE MATERIAL: Brass, nickel plated	CASE MATERIAL: Safecase polypropylene (turret style only) & aluminum	CASE MATERIAL: Steel, black painted
CASE STYLES: Lower Mount, Flush Mount (Front Flange with U-clamp & hinged ring)	CASE STYLES: Lower Mount	CASE STYLES: Lower Mount	CASE STYLES: Turret, Back Flange case, Front Flange Mount, Lower or Lower Back Mount	CASE STYLES: Lower Mount, Center Back, U-Clamp & Front Flange Mount
TUBE & SOCKET: Copper Alloy or 316 Stainless steel	TUBE & SOCKET: Copper Alloy	TUBE & SOCKET: Copper Alloy	TUBE & SOCKET: Copper Alloy or 316 Stainless steel	TUBE & SOCKET: Phosphor bronze diaphragm soft-soldered to brass socket
MOVEMENT: Stainless steel	MOVEMENT: Stainless steel	MOVEMENT: Brass	MOVEMENT: Stainless steel	MOVEMENT: Brass sector and pinion
CONNECTIONS: ¼ or ½ NPT	CONNECTIONS: ¼ or ½ NPT	CONNECTIONS: ¼ NPT	CONNECTIONS: ¼ or ½ NPT	CONNECTIONS: ¼ or ½ NPT and special connections
RANGES: 0 to 30" Hg vacuum; compound ranges 30" Hg vacuum to 300 psi; 15-10,000 psi	RANGES: 0 to 30" Hg vacuum; compound ranges 30" Hg vacuum to 300 psi; 15-10,000 psi	RANGES: 0 to 30" Hg vacuum; 15 to 1,000 psi	RANGES: 0 to 30" Hg vacuum; compound 30" Hg vacuum to 300 psi; 15 to 20,000 psi	RANGES: Dual scale with kPa; 0 to 200" H ₂ O vacuum; 0 to 300" H ₂ O, 0 to 10 psi, 0 to 160 oz/in ² . Triple scale 0-58 oz/in ² , inches H ₂ O & kPa
STANDARD DIAL: Single scale psi	STANDARD DIAL: Single scale psi	STANDARD DIAL: Dual scale psi and kPa	STANDARD DIAL: Single scale psi	STANDARD DIAL: Dual scale in. H ₂ O & kPa, psi & kPa, or Triple scale oz/in ² in. H ₂ O, & kPa
DIAL COLOR: Black markings on white with mirrored dial to avoid parallax	DIAL COLOR: Black markings on white with mirrored dial to avoid parallax	DIAL COLOR: Black markings on white	DIAL COLOR: Black markings on white	DIAL COLOR: Black markings on white
POINTER: Aluminum, black painted, micro-adjustable, knife-edge	POINTER: Aluminum, black painted, knife-edge	POINTER: Aluminum, black painted, knife-edge	POINTER: Aluminum, black painted, micro-adjustable	POINTER: Aluminum, black painted
WINDOW: Glass	WINDOW: Glass	WINDOW: Beveled glass	WINDOW: Acrylic	WINDOW: 2½" & 3½": Acrylic twist-in Clearlok 4½": Flat acrylic with steel friction ring
FILL MEDIUM: N/A	FILL MEDIUM: N/A	FILL MEDIUM: N/A	FILL MEDIUM: Dry, glycerine, or silicone	FILL MEDIUM: N/A
VENT: Blowout disc	VENT: Blowout disc	VENT: N/A	VENT: Internal compensating diaphragm	VENT: N/A





 <p>PAGE 37</p>	 <p>PAGE 38</p>	 <p>PAGE 46</p>	 <p>PAGE 54</p>
<p>GAUGE SERIES: GAS PRESSURE TEST SET</p>	<p>GAUGE SERIES: GAS TEST GAUGES</p>	<p>GAUGE SERIES: PAPER MACHINE GAUGE</p>	<p>GAUGE SERIES: BIMETAL THERMOMETERS</p>
<p>ACCURACY ASME: Grade A = $\pm 2/1/2$ ($\pm 1\%$ of range across middle half of scale) and Grade B = $\pm 3/1/3\%$ for ranges (below 30" H₂O)</p>	<p>ACCURACY ASME: Grade B $\pm 3/2/3\%$ ($\pm 2\%$ of range across middle half of scale)</p>	<p>ACCURACY ASME: Grade A = $\pm 2/1/2$ ($\pm 1\%$ of range across middle half of scale)</p>	<p>ACCURACY ASME: $\pm 1\%$ of span</p>
<p>CASE SIZE: 2½"</p>	<p>CASE SIZE: 2" Diameter</p>	<p>CASE SIZE: 3½" diameter</p>	<p>CASE SIZE: 2", 3" & 5", standard stem lengths of 2½" to 24"</p>
<p>CASE MATERIAL: Provided in grey polyethylene case with 3 ft. of rubber tubing</p>	<p>CASE MATERIAL: Steel, black painted</p>	<p>CASE MATERIAL: Steel, chrome plated</p>	<p>CASE MATERIAL: 304 Stainless steel</p>
	<p>CASE STYLES: Mounting-Reducing Bell or Hex Style Housing Material-Reducing Bell: Iron, Black Painted Hex Body: Steel, Zinc Dichromate Plated</p>	<p>CASE STYLES: Lower Back Mount; Hinged ring case & moisture-proof with weep hole</p>	<p>CASE STYLES: Hermetically sealed; Center Back or Adjustable</p>
<p>TUBE & SOCKET: Phosphor bronze diaphragm soft-soldered to brass socket</p>	<p>TUBE & SOCKET: Copper Alloy</p>	<p>TUBE & SOCKET: Copper Alloy</p>	<p>TUBE & SOCKET: 304 Stainless steel stems</p>
<p>MOVEMENT: Brass sector and pinion</p>	<p>MOVEMENT: Brass</p>	<p>MOVEMENT: Stainless steel</p>	<p>MOVEMENT: Bimetal sensing element with external reset feature</p>
	<p>CONNECTIONS: ¾ NPTF</p>	<p>CONNECTIONS: ¾ NPT</p>	<p>CONNECTIONS: ¾ NPT (2" case only); ½ NPT (3" & 5" cases)</p>
<p>RANGES: 0 to 8.75 oz/in² 0 to 20 oz/in² 0 to 58 oz/in²</p>	<p>RANGES: <u>Bell Type</u> <u>Hex Type</u> 0-15 psi 0-15 psi 0-30 psi 0-30 psi 0-60 psi 0-60 psi 0-100 psi 0-100 psi</p>	<p>RANGES: 30 to 1,000 psi</p>	<p>RANGES: 11 dual scale ranges from -50° F through 1000° F (-50° C through 550° C)</p>
<p>STANDARD DIAL: Triple scale oz/in² in. H₂O, & kPa</p>	<p>STANDARD DIAL: Single Scale psi</p>	<p>STANDARD DIAL: Single scale psi</p>	<p>STANDARD DIAL: Dual scale in degrees Celsius & Fahrenheit</p>
<p>DIAL COLOR: Black markings on white</p>	<p>DIAL COLOR: Black markings on white</p>	<p>DIAL COLOR: Black markings on white</p>	<p>DIAL COLOR: Black markings on white</p>
<p>POINTER: Aluminum, black painted</p>	<p>POINTER: Aluminum, black painted</p>	<p>POINTER: Aluminum, black painted with recalibrator</p>	<p>POINTER: Aluminum, black painted</p>
<p>WINDOW: Acrylic, twist-in Clearlok</p>	<p>WINDOW: Polycarbonate</p>	<p>WINDOW: Glass lens, chrome plated brass ring with weather-tight seal</p>	<p>WINDOW: Glass</p>





	TYPE M1-MINI	TYPE M2-STANDARD
FILTERS		
Port Size	1/8, 1/4 NPT	1/4, 3/8, 1/2 NPT
Filtration (micron)	5μ, 25μ, 50μ	5μ, 25μ, 50μ
Maximum Supply Pressure	1.0 MPa	1.0 MPa
	10 BAR	10 BAR
	145 psi	145 psi
Temperature Range	41°-140° F / 5°-60° C	41°-140° F / 5°-60° C
Drain	Manual / Semi-Auto	Manual / Semi-Auto / Auto
Bowl Capacity	0.75 inch ³	2.75 inch ³
Flow (based on 100 psi inlet pressure with 50 micron filter)	55, 85 SCFM	120, 120, 120 SCFM
REGULATORS		
Effect of Supply Pressure variation (25 psig) on Outlet Pressure	< 0.2 psig (13.8 mBAR)	< 0.2 psig (13.8 mBAR)
Exhaust Capacity (5 psig above 20 psig set point)	< 0.25 SCFM (< 7 LPM)	< 0.25 SCFM (< 7 LPM)
Max. Supply Pressure	145 psig (10 BAR)	145 psig (10 BAR)
Flow Capacity at 100 psig (6.9 BAR) supply and 70 psig (4.8 BAR) outlet	40, 60 SCFM	90, 120, 120 SCFM
Output Pressure Ranges	0-10 psig (0-0.69 BAR)	0-10 psig (0-0.69 BAR)
	0-30 psig (0-2.1 BAR)	0-30 psig (0-2.1 BAR)
	0-60 psig (0-4.1 BAR)	0-60 psig (0-4.1 BAR)
	0-120 psig (0-8.3 BAR)	0-120 psig (0-8.3 BAR)
Total Air Consumption @ Maximum Output	0.3 SCFH (0.14 LPM)	0.3 SCFH (0.14 LPM)
Port Size	1/8, 1/4 NPT	1/4, 3/8, 1/2 NPT
Mounting Options	Pipe, Panel or Bracket	Pipe, Panel or Bracket
FILTER-REGULATORS		
Port Size	1/8, 1/4 NPT	1/4, 3/8, 1/2 NPT
Filtration (micron)	5μ, 25μ, 50μ	5μ, 25μ, 50μ
Maximum Supply Pressure	1.0 MPa	1.0 MPa
	10 BAR	10 BAR
	145 psi	145 psi
Temperature Range	41°-140° F / 5°-60° C	41°-140° F / 5°-60° C
Drain	Manual / Semi-Auto	Manual / Semi-Auto / Auto
Bowl Capacity	0.75 inch ³	2.75 inch ³
Regulator Output Range	0-10, 0-30, 0-60, 0-120 psi	0-10, 0-30, 0-60, 0-120 psi
Flow (based on 100 psi supply/70 psi out)	40, 60 SCFM	90, 120, 120 SCFM
LUBRICATORS		
Port Size	1/8, 1/4 NPT	1/4, 3/8, 1/2 NPT
Lubrication	Mist	Mist
Maximum Supply Pressure	1.0 MPa	1.0 MPa
	10 BAR	10 BAR
	145 psi	145 psi
Temperature Range	41°-140° F / 5°-60° C	41°-140° F / 5°-60° C
Bowl Capacity	1.22 inch ³	5.18 inch ³
Flow (based on 100 psi inlet pressure)	55, 115 SCFM	125, 125, 125 SCFM



FRL FEATURES

Modular design for service & interchangeability

Miniature (M1), Standard (M2)

Small package size and light weight construction

Competitively priced

FILTERS

M1 has polycarbonate bowl, M2 have polycarbonate bowl with metal guard

STOCK ELEMENTS - 5, 25 or 50 micron

Manual, semi-auto or auto drain available

REGULATORS

Bellofram® Rolling Diaphragm for superior regulator performance

Panel, pipe, or bracket (included) mounting

Metal body, polycarbonate bonnet and knob

Non-rising adjustment knob with push-pull lock ring feature

FILTER REGULATORS

Aluminum and polycarbonate construction

Manual, semi-auto or autodrain available

M1 has polycarbonate bowl; M2 has polycarbonate bowl with metal guard

Non-rising adjustment knob with push-pull lock ring feature

For panel or bracket mounting

Bellofram® Rolling Diaphragm for superior regulator performance

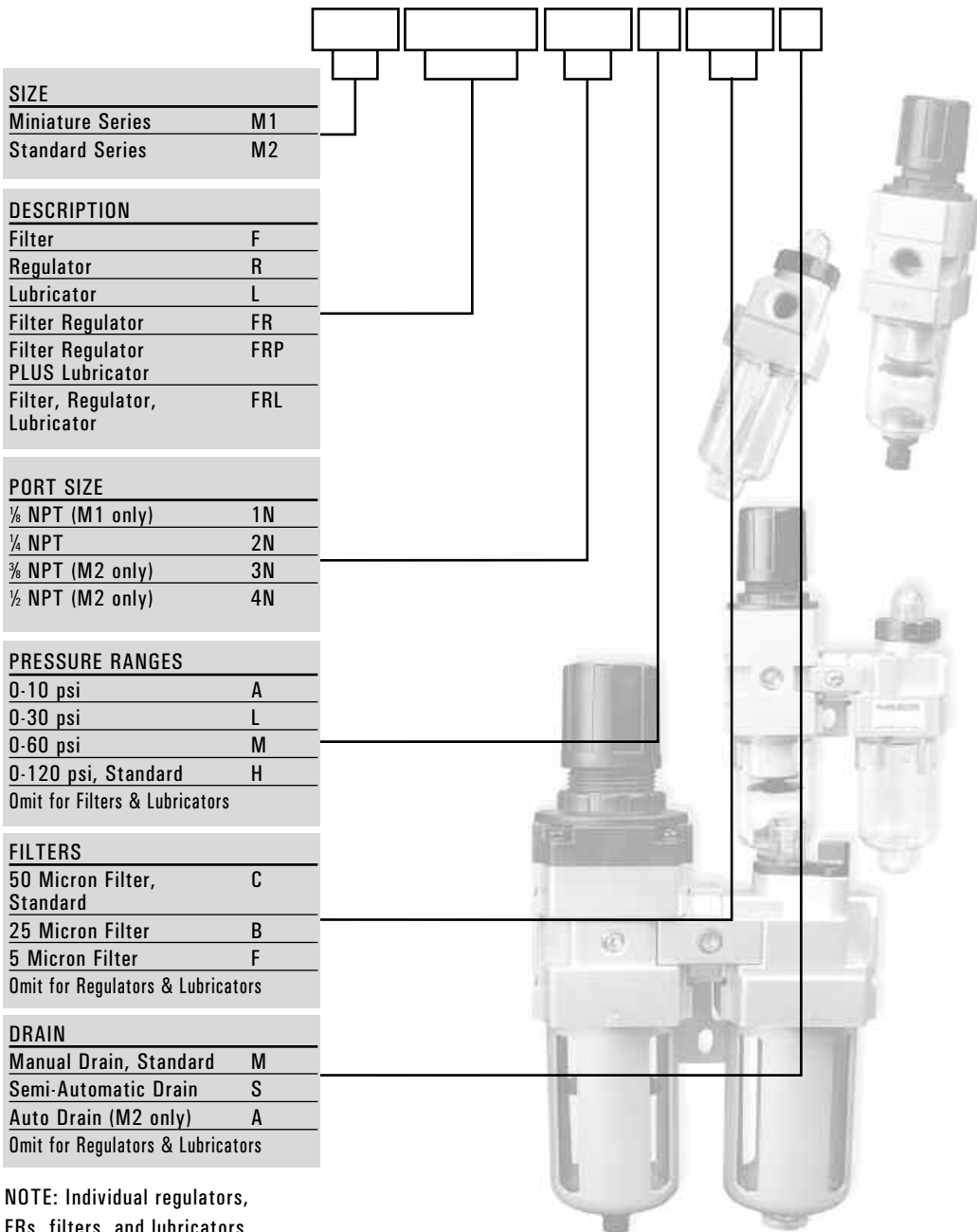
LUBRICATORS

M1 has polycarbonate bowl; remove bowl for filling.

M2 has polycarbonate bowl with metal guard; top plug permits filling without removing bowl or shutting off air

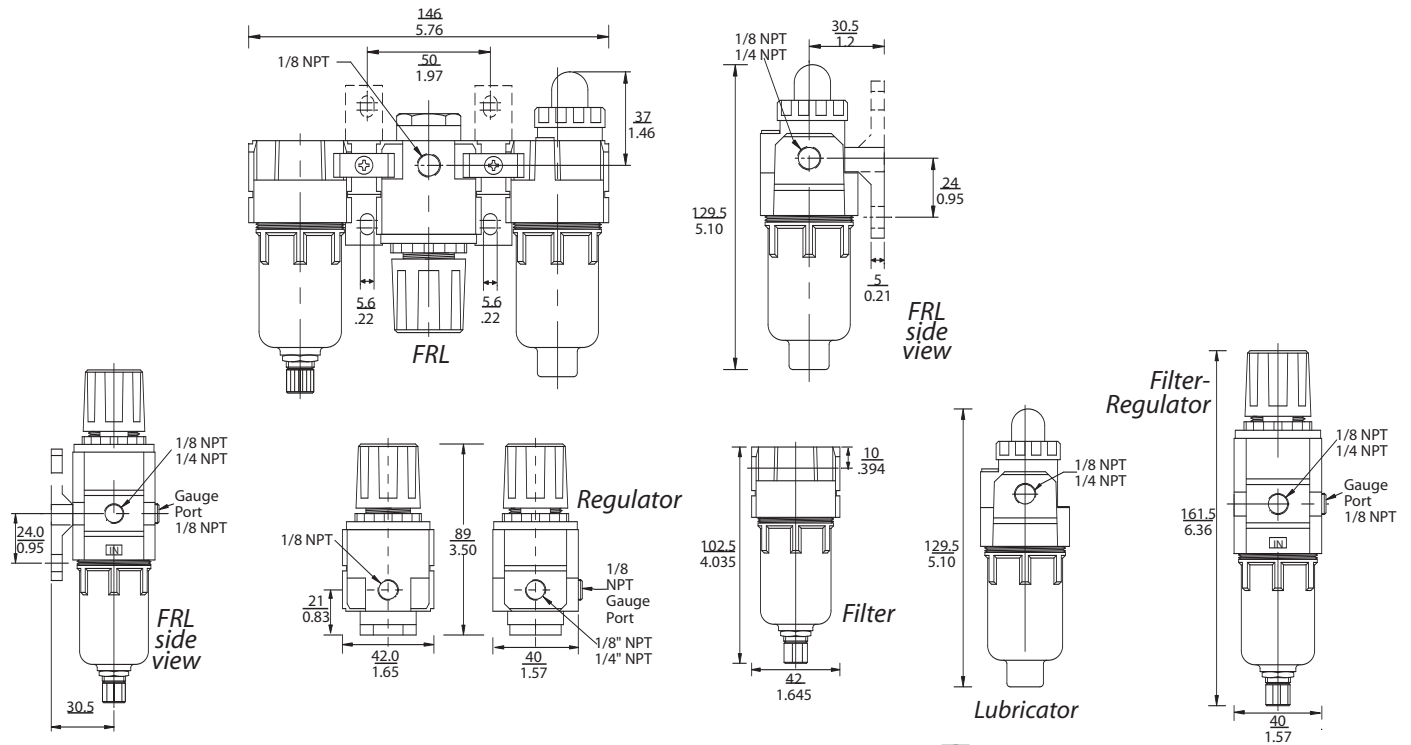
Adjust drip rate by hand, using graduated ring on M1, with screw-driver on M2

FRL ORDERING INFORMATION



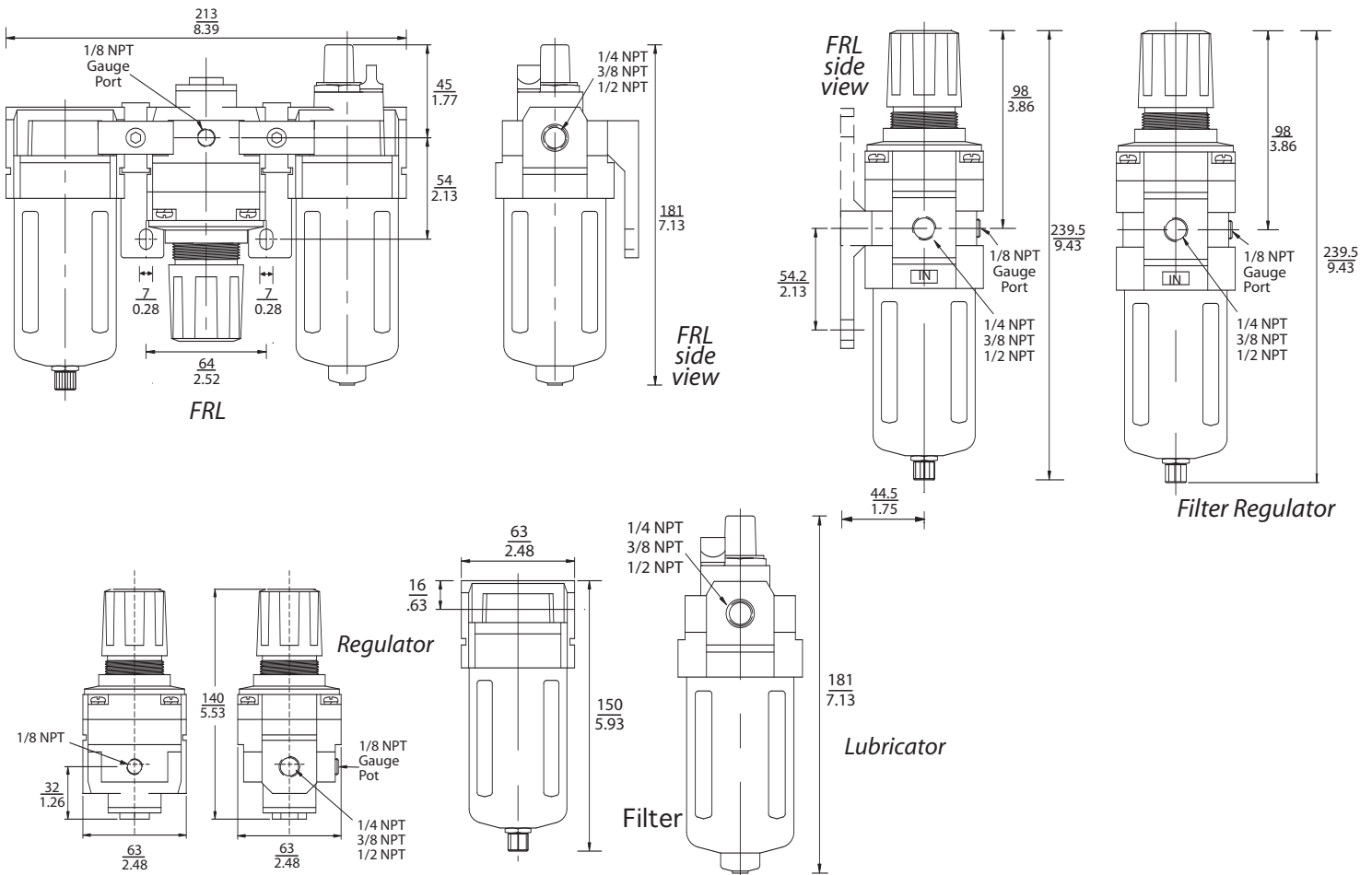
NOTE: Individual regulators, FRs, filters, and lubricators come complete with bracket .
FRL assemblies come complete with all bracket/connectors.

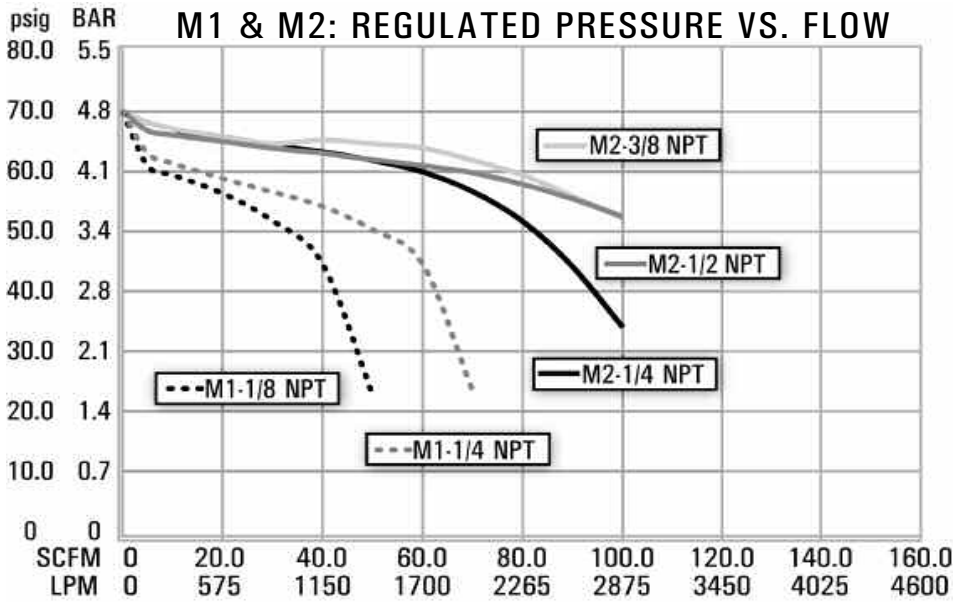
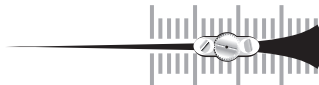




TYPE M1

TYPE M2





REPLACEMENT PARTS



Description	Model #
Miniature Size Connector Kit	M1K
Miniature Size Connector Kit FR+L	M1K2
Standard Size Connector Kit	M2K
Standard Size Connector Kit FR+L	M2K2



Miniature Size Filter or Lubricator Bracket	M1FB
Standard Size Filter or Lubricator Bracket	M2FB
Miniature Size Regulator or Filter Regulator Bracket	M1RB
Standard Size Regulator or Filter Regulator Bracket	M2RB



Description	Model #
Miniature 5 micron Filter Element	M1FK05
Miniature 25 micron Filter Element	M1FK25
Miniature 50 micron Filter Element	M1FK50
Standard 5 micron Filter Element	M2FK05
Standard 25 micron Filter Element	M2FK25
Standard 50 micron Filter Element	M2FK50



Miniature Bowl / Manual Drain Assembly	M1DM
Miniature Bowl / Semi-Automatic Drain Assembly	M1DSA
Standard Bowl / Manual Drain Assembly	M2DM
Standard Bowl / Semi-Automatic Drain Assembly	M2DSA
Standard Bowl / Automatic Drain Assembly	M2DA

Pressure Gauges - "GG" Series Gauges pg. 9



MARSHALLTOWN VALUE SERIES GAUGE

- ASME Grade B Accuracy
- Extra Savings with Quantity Pricing
- 4 Standard Mounting Options: LM, CB, Right & Left

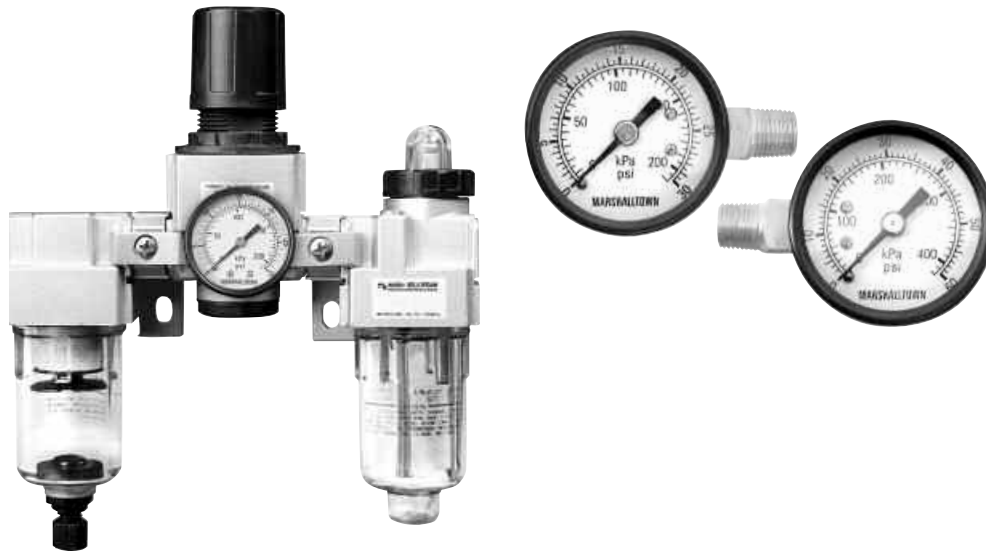
Marshalltown Value Series are the most economical, general purpose gauges in the Marsh gauge line. Suited for use with water, oil, air, gas, or other non-corrosive media.

Typical applications include FRL's, compressors, pumps, boilers, regulators, dryers as well as commercial and industrial equipment.

STANDARD RANGES & PART NUMBERS

TYPE	MARSHALLTOWN VALUE SERIES GAUGES							
	1 1/2"				2"			
Mounting	LM	CB	Right	Left	LM	CB	LM	CB
Connection	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT
0 to 15 psi		GG1515C8						
0 to 30 psi	GG1530L8	GG1530C8	GG1530G8	GG1530F8	GG2030L4	GG2030C4	GG2030L8	GG2030C8
0 to 60 psi	GG1560L8	GG1560C8	GG1560G8	GG1560F8	GG2060L4	GG2060C4		
0 to 100 psi	GG15100L8	GG15100C8			GG20100L4	GG20100C4	GG20100L8	GG20100C8
0 to 160 psi	GG15160L8	GG15160C8			GG20160L4	GG20160C4	GG20160L8	GG20160C8
0 to 200 psi		GG15200C8				GG20200C4		GG20200C8
0 to 300 psi						GG20300C4		

Consult Factory for additional ranges.



SPECIFICATIONS

ACCURACY

ASME Grade B = $\pm 3/2/3\%$ ($\pm 2\%$ of range across middle half of scale)

CASE SIZES

1 1/2" and 2" diameter

CASE MATERIAL

Steel, black painted

CASE STYLE

CB – Center Back Mount

LM – Lower Mount

Right Mount

Left Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

Brass

CONNECTION

1/2" & 1/4" NPT

RANGES

15 to 200 psi

DIAL STANDARD

Dual standard psi and kPa

DIAL COLOR

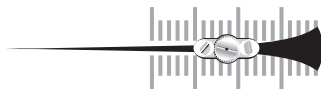
Black markings on white

POINTER

Aluminum, Black painted

WINDOW

Flat plastic with steel friction ring



GENERAL SERVICE GAUGE

- Dial Sizes: 1½", 2", 2½", 3½" & 4½"
- Superb quality, economical price
- Pressure ranges to 5000 psi

Marsh Instruments General Service Steel Case Gauges are an economical, general purpose gauge for pressure measurement from vacuum/compound through 5,000 psi. Suited for use with water, oil, air, gas, or other non-corrosive media.

Typical applications include FRLs, compressors, pumps, boilers, regulators, dryers as well as commercial and industrial equipment.



SPECIFICATIONS

ACCURACY

ASME Grade B-±3/2/3% (±2% of range across middle half of scale)

CASE SIZES

1½", 2", 2½", 3½", 4½" diameter

CASE MATERIAL

Steel, black painted

CASE STYLE

CB – Center Back Mount

LM – Lower Mount

UC – U-Clamp Mount

See option tables for Front Flange

TUBE & SOCKET

Copper alloy

MOVEMENT

Brass

CONNECTION

½ & ¼ NPT

RANGES

0 to 30" Hg VAC; Compound 30" Hg vac to 400 psi; 15 to 5,000 psi

DIAL STANDARD

Dual scale psi and kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

1½", 2", 2½", 3½": acrylic, twist-in Clearlok

4½": flat glass window with steel friction ring

RESTRICTOR

Standard for ranges 1,000 psi and above

STANDARD RANGES & PART NUMBERS

TYPE	GENERAL SERVICE GAUGES						
Size	1½"			2"			
Case Material	Steel			Steel			
Internals	Copper Alloy			Copper Alloy			
Mounting / Case Style	LM	UC	CB	LM	LM	CB	CB
Connection	½ NPT	½ NPT	½ NPT	½ NPT	¼ NPT	½ NPT	¼ NPT
Scale Standard	psi/kPa			psi/kPa			
0 to 30" Hg VAC	J0405	J0505	J0605	J1105	J1405	J1805	J2005
30" Hg VAC to 15 psi							
30" Hg VAC to 30 psi					J1412		
30" Hg VAC to 60 psi					J1414		
30" Hg VAC to 100 psi							
30" Hg VAC to 150 psi	J0418	J0518	J0618	J1118	J1418	J1818	J2018
30" Hg VAC to 200 psi	J0420	J0520	J0620	J1120	J1420	J1820	J2020
30" Hg VAC to 300 psi	J0424	J0524	J0624	J1124	J1424	J1824	J2024
30" Hg VAC to 400 psi				J1126	J1426	J1826	J2026
0 to 15 psi	J0440	J0540	J0640	J1140	J1440	J1840	J2040
0 to 30 psi	J0442	J0542	J0642	J1142	J1442	J1842	J2042
0 to 60 psi	J0446	J0546	J0646	J1146	J1446	J1846	J2046
0 to 100 psi	J0448	J0548	J0648	J1148	J1448	J1848	J2048
0 to 160 psi	J0452	J0552	J0652	J1152	J1452	J1852	J2052
0 to 200 psi	J0454	J0554	J0654	J1154	J1454	J1854	J2054
0 to 300 psi	J0458	J0558	J0658	J1158	J1458	J1858	J2058
0 to 400 psi				J1160	J1460	J1860	J2060
0 to 600 psi					J1464	J1864	
0 to 1,000 psi							
0 to 1,500 psi							
0 to 2,000 psi							
0 to 3,000 psi					J1478	J1878	J2078
0 to 5,000 psi					J1482		





STANDARD RANGES & PART NUMBERS

TYPE	GENERAL SERVICE GAUGES											
	2"		2½"						3½"		4½"	
Case Material	Steel		Steel						Steel		Steel	
Internals	Copper Alloy		Copper Alloy						Copper Alloy			
Mounting / Case Style	UC	UC	LM	LM	CB	CB	UC	UC	LM	CB	UC	LM
Connection	½ NPT	¼ NPT	½ NPT	¼ NPT	½ NPT	¼ NPT	½ NPT	¼ NPT	½ NPT	¼ NPT	½ NPT	¼ NPT
Scale Standard	psi/kPa		psi/kPa						psi/kPa		psi/kPa	
0 to 30" Hg VAC	J2405	J2605	J4005	J4605	J5005	J5405	J6005	J6205	J8005	J8605	J8805	J9005
30" Hg VAC to 15 psi												
30" Hg VAC to 30 psi				J4612					J8012			
30" Hg VAC to 60 psi				J4614					J8014			J9014
30" Hg VAC to 100 psi												
30" Hg VAC to 150 psi	J2418	J2618	J4018	J4618	J5018	J5418	J6018	J6218	J8018	J8618	J8818	J9018
30" Hg VAC to 200 psi	J2420	J2620	J4020	J4620	J5020	J5420	J6020	J6220	J8020	J8620	J8820	J9020
30" Hg VAC to 300 psi	J2424	J2624	J4024	J4624	J5024	J5424	J6024	J6224	J8024	J8624	J8824	J9024
30" Hg VAC to 400 psi	J2426	J2626	J4026	J4626	J5026	J5426	J6026	J6226	J8026	J8626	J8826	J9026
0 to 15 psi	J2440	J2640	J4040	J4640		J5440		J6240	J8040	J8640	J8840	J9040
0 to 30 psi	J2442	J2642	J4042	J4642	J5042	J5442	J6042	J6242	J8042	J8642	J8842	J9042
0 to 60 psi	J2446	J2646	J4046	J4646	J5046	J5446	J6046	J6246	J8046	J8646	J8846	J9046
0 to 100 psi	J2448	J2648	J4048	J4648	J5048	J5448	J6048	J6248	J8048	J8648	J8848	J9048
0 to 160 psi	J2452	J2652	J4052	J4652	J5052	J5452	J6052	J6252	J8052	J8652	J8852	J9052
0 to 200 psi	J2454	J2654	J4054	J4654	J5054	J5454	J6054	J6254	J8054	J8654	J8854	J9054
0 to 300 psi	J2458	J2658	J4058	J4658	J5058	J5458	J6058	J6258	J8058	J8658	J8858	J9058
0 to 400 psi	J2460	J2660	J4060	J4660	J5060	J5460	J6060	J6260	J8060	J8660	J8860	J9060
0 to 600 psi				J4664					J8064	J8664	J8864	J9064
0 to 1,000 psi			J4072	J4672		J5472		J6272		J8672	J8872	J9072
0 to 1,500 psi				J4674					J8074			
0 to 2,000 psi				J4676		J5476		J6276				J9076
0 to 3,000 psi	J2478	J2678		J4678	J5078	J5478	J6078	J6278				
0 to 5,000 psi				J4682						J8682	J8882	J9082

General Service



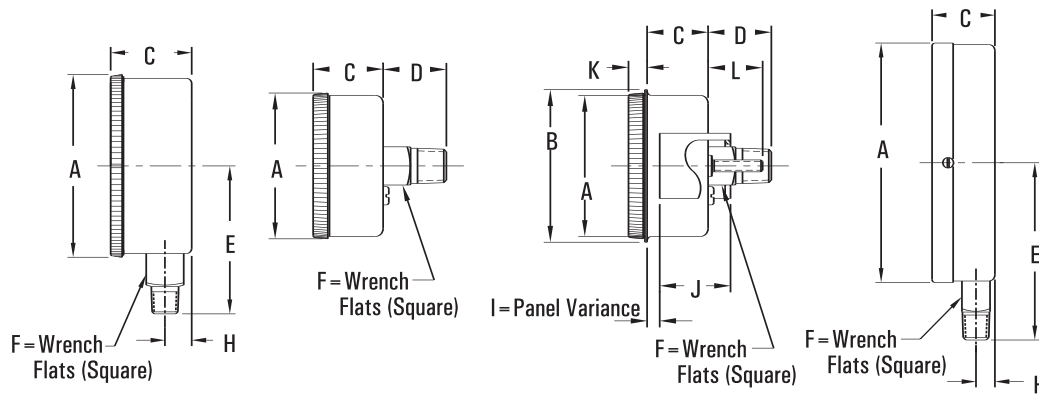
Dial Divisions	General Service 3/2/3% of Span		
Ranges	Figure Intervals	Minor Graduations	
Vacuum	5	1	
COMPOUND			
30" Hg VAC to 15 psi	10	5	2 1
30" Hg VAC to 30 psi	10	10	2 1
30" Hg VAC to 60 psi	10	10	2 2
30" Hg VAC to 150 psi	30	30	5 5
30" Hg VAC to 300 psi	30	50	- 10
PRESSURE			
0 to 15 psi	3	0.2	
0 to 30 psi	5	1	
0 to 60 psi	10	1	
0 to 100 psi	10	2	
0 to 160 psi	20	2	
0 to 200 psi	50	4	
0 to 300 psi	50	5	
0 to 400 psi	50	5	
0 to 600 psi	50	10	
HIGH PRESSURE			
0 to 1,000 psi	200	20	
0 to 1,500 psi	300	20	
0 to 2,000 psi	400	40	
0 to 3,000 psi	500	100	
0 to 4,000 psi	1,000	100	
0 to 5,000 psi	1,000	100	

GENERAL SERVICE GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictors	Add restrictor	H	All models – Consult factory for other sizes
Catalog Dials	psi only	E	See Marsh Price List for minimums
	bar only	L1	
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
psi & MPa	W4		
Custom Dials	Custom face	M	See Marsh Price List for minimums
Window	Instrument glass w/ring (GS)	F1	1½" - 3½" Consult factory for availability
	Acrylic	F2	4½" Consult factory for availability
Pointer	Adjustable (slotted) pointer (AD)	Z1	2" - 4½" Consult factory for availability
	Max. Hand Assembly (MX)	Z2	2" - 3½" CB or LM only, Consult factory for availability
Increased Accuracy	Grade A: (2/1/2%)	B	All models - 10 piece minimum order
Cases	3 hole front flange (FF)		1½" - 3½" See below for part number
	Part Numbers: 1½"x ⅛" (J07XX), 2"x ⅛" (J25XX), 2"x ¼" (J29XX), 2½" x ⅛" (J61XX), 2½"x ¼" (J63XX), 3½"x ⅛" (J85XX), 3½"x ¼" (J89XX). Consult factory for availability.		
	Stainless steel (SS)	J1	Consult factory for availability
	Brass (BR)	J2	
Rings	Friction ring (external), Polished stainless steel (FC)	A1	1½" to 3½" CB or LM only
	Friction ring (external), black (FB)	A2	1½" to 3½" CB or LM only
	Press ring, black (PB)	A3	2" to 3½" [Panel mount]
	Press ring, chrome (PC)	A4	2" to 3½" [Panel mount]
Special Connections			Consult Factory for availability



(J90XX Only)



GENERAL SERVICE CASE DIMENSIONS

Part#	Dial Size	Mount	A	B	C	D	E	F	H	I	J	K	L
J04xx	1½	⅝" LM	1.67		.90		1.50	⅞"	.26				
J05xx	1½	⅝" UC	1.60	1.75	.71	.72		⅞"		.06-.37	.81	.19	.63
J06xx	1½	⅝" CB	1.67		.90	.72		⅞"					
J11xx	2.0	⅝" LM	2.20		1.22		1.82	⅞"	.40				
J14xx	2.0	¼" LM	2.20		1.22		1.82	⅞"	.40				
J18xx	2.0	⅝" CB	2.20		1.22	.82		⅞"					
J20xx	2.0	¼" CB	2.20		1.22	.82		⅞"					
J24xx	2.0	⅝" UC	2.06	2.25	.94	.88		⅞"		0-0.43	1.22	.20	.92
J26xx	2.0	¼" UC	2.06	2.25	.94	.88		⅞"		0-0.43	1.22	.20	.92
J40xx	2½	⅝" LM	2.73		1.22		2.10	⅞"	.40				
J46xx	2½	¼" LM	2.73		1.22		2.10	⅞"	.40				
J50xx	2½	⅝" CB	2.73		1.23	.82		⅞"					
J54xx	2½	¼" CB	2.73		1.23	.82		⅞"					
J60xx	2½	⅝" UC	2.58	2.81	.94	.88		⅞"		0-0.43	1.22	.20	.92
J62xx	2½	¼" UC	2.58	2.81	.94	.88		⅞"		0-0.43	1.22	.20	.92
J80xx	3½	¼" LM	3.71		1.22		2.77	⅞"	.40				
J86xx	3½	¼" CB	3.71		1.15	.80		⅞"					
J88xx	3½	¼" UC	3.65	3.98	.91	.87		⅞"		0-0.49	1.10	.24	.92
J90xx	4½	¼" LM	4.53		1.22		3.16	⅞"	.40				



40MM & 50MM SEVERE SERVICE GAUGE

- Copper Alloy Internals
- Glycerine Filled
- Center Back Mount Only

Marsh Instruments Liquid-Filled Gauges are designed to perform in rugged and harsh environmental conditions - especially where pulsation and vibration is a problem. Liquid Filled Gauges offer a significant cushioning and dampening effect, reducing pointer flutter and internal gauge damage. Liquid Filled Gauges feature a ventable top fill plug and can be mounted on a horizontal or vertical plane. The hermetically sealed construction reduces the chance of leaks and makes field filling an easy option.

Typical applications include refineries, chemical, oil & gas, marine and OEM processes.

SPECIFICATIONS

ACCURACY

±2.5% of range across full scale

CASE SIZES

40 or 50 mm diameter

CASE MATERIAL

304 Stainless Steel

CASE STYLE

CB – Center Back mount

TUBE & SOCKET

Copper Alloy tube
with nickel plated brass socket

MOVEMENT

Brass

CONNECTION

½ NPT & ¼ NPT

RANGES

15 to 160 psi

DIAL STANDARD

Triple scale psi/BAR/kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Acrylic

FILL MEDIUM

Glycerine Standard

RESTRICTOR

Standard, all ranges

VENT PLUG

Filler/pressure relief plug

TEMPERATURE LIMITS

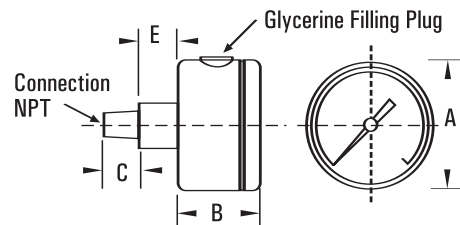
0 – 140° F (filled)

STANDARD RANGES & PART NUMBERS

TYPE	40MM & 50MM GAUGES	
Size	40mm	50mm
Case Material	304 Stainless Steel	304 Stainless Steel
Internals	Copper Alloy	Copper Alloy
Mounting / Case Style	CB	CB
Connection	½ NPT	½ NPT
Scale Standard	psi/BAR/kPa	psi/BAR/kPa
0 to 15 psi	M4040P	M5040P
0 to 30 psi	M4042P	M5042P
0 to 60 psi	M4046P	M5046P
0 to 100 psi	M4048P	M5048P
0 to 160 psi	M4052P	M5052P

40MM AND 50MM GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Custom Dials	Custom face	M	See Marsh Price List for minimums
Other Ranges			Consult factory for availability
Fill Medium	Silicone (SL)	I	Consult factory



A-Size	B	C	E
40mm Dia	27.00mm 1.06"	11.5mm 0.45"	13.00mm 0.51"
50mm Dia	30.00mm 1.18"	11.5mm 0.45"	10.00mm 0.39"



63MM SEVERE SERVICE GAUGE

- 3 Standard Mounting Options: LM, CB and U-Clamp
- Glycerine Filled
- Ranges to 10,000 psi

Marsh Instruments Liquid-Filled Gauges are designed to perform in rugged applications and harsh environmental conditions - especially where pulsation and vibration are a problem. Liquid Filled Gauges offer a significant cushioning and dampening effect, reducing pointer flutter and internal gauge damage; also lubricating the internals, and reducing corrosion.

All stainless steel Liquid Filled Gauges feature a ventable top fill plug for pressure relief and ease of venting after installation. Pressure ranges are available through 10,000 psi, with high pressure ranges offering a Helical Bourdon Tube for longer gauge life and increased durability. The hermetically sealed construction reduces the chance of leaks, and makes field filling an easy option.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications, general industrial application and OEM processes.



STANDARD RANGES & PART NUMBERS

TYPE	63MM SEVERE SERVICE GAUGES					
	63mm			63mm		
Size	63mm			63mm		
Case Material	304 Stainless Steel			304 Stainless Steel		
Internals	Copper Alloy			Stainless Steel		
Mounting / Case Style	LM	UC	CB	LM	UC	CB
Connection	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT
Scale Standard	psi/kPa			psi/kPa		
0 to 30" Hg VAC	J7605P	J7205P	J6405P	J7805P	J7405P	J6605P
30" Hg VAC to 15 psi						
30" Hg VAC to 30 psi	J7612P					
30" Hg VAC to 60 psi	J7614P					
30" Hg VAC to 100 psi						
30" Hg VAC to 150 psi	J7618P	J7218P	J6418P	J7818P	J7418P	J6618P
30" Hg VAC to 200 psi	J7620P	J7220P	J6420P	J7820P	J7420P	J6620P
30" Hg VAC to 300 psi	J7624P	J7224P	J6424P	J7824P	J7424P	J6624P
30" Hg VAC to 400 psi	J7626P	J7226P	J6426P	J7826P	J7426P	J6626P
0 to 15 psi	J7640P	J7240P	J6440P	J7840P	J7440P	J6640P
0 to 30 psi	J7642P	J7242P	J6442P	J7842P	J7442P	J6642P
0 to 60 psi	J7646P	J7246P	J6446P	J7846P	J7446P	J6646P
0 to 100 psi	J7648P	J7248P	J6448P	J7848P	J7448P	J6648P
0 to 160 psi	J7652P	J7252P	J6452P	J7852P	J7452P	J6652P
0 to 200 psi	J7654P	J7254P	J6454P	J7854P	J7454P	J6654P
0 to 300 psi	J7658P	J7258P	J6458P	J7858P	J7458P	J6658P
0 to 400 psi	J7660P	J7260P	J6460P	J7860P	J7460P	J6660P
0 to 600 psi	J7664P	J7264P	J6464P	J7864P	J7464P	J6664P
0 to 1,000 psi	J7672P	J7272P	J6472P	J7872P	J7472P	J6672P
0 to 1,500 psi	J7674P	J7274P	J6474P	J7874P	J7474P	J6674P
0 to 2,000 psi	J7676P	J7276P	J6476P	J7876P	J7476P	J6676P
0 to 3,000 psi	J7678P	J7278P	J6478P	J7878P	J7478P	J6678P
0 to 5,000 psi	J7682P	J7282P	J6482P	J7882P	J7482P	J6682P
0 to 6,000 psi	J7684P	J7284P	J6484P	J7884P	J7484P	J6684P
0 to 10,000 psi				J7890P	J7490P	J6690P

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

SPECIFICATIONS

ACCURACY

ASME Grade B - ±3/2/3% (±2% of range across middle half of scale)

CASE SIZES

63mm (2.47") diameter

CASE MATERIAL

304 Stainless Steel

CASE STYLE

Rolled ring, hermetically sealed case

CB - Center Back Mount

LM - Lower Mount

UC - U-Clamp Mount

TUBE & SOCKET

Copper alloy or 316 stainless steel

MOVEMENT

Brass

CONNECTION

¼ NPT

RANGES

0 to 30" Hg VAC; Compound 30" Hg to 400 psi; 15 to 10,000 psi

DIAL STANDARD

Dual scale psi and kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Polycarbonate

FILL MEDIUM

Glycerine Standard

RESTRICTOR

Standard for all ranges

VENT PLUG

Rubber plug with snip-off feature

Severe Service



front flange mount

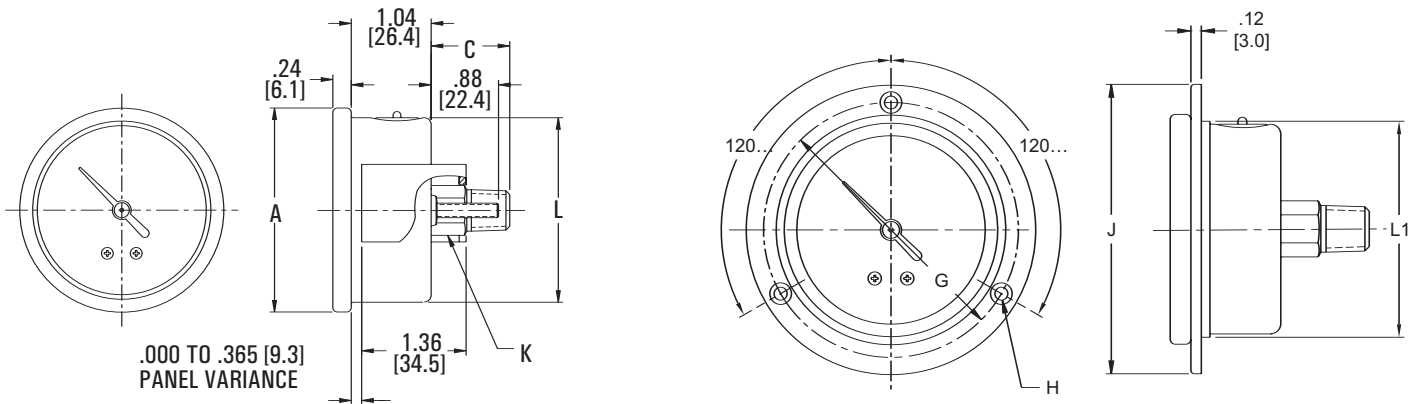


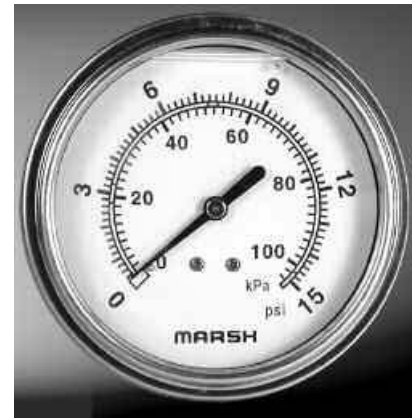
63MM SEVERE SERVICE GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Delete suffix P	All models
	Silicone (SL)	I	All models
Front Flange	Adapter ring (3 hole)	R1	Center Back & U-Clamp only (factory Installed)
	Adapter ring (no holes)	R2	U-Clamp only (factory Installed)
Bayonet Case & Ring w/Safety Glass		J	Center Back or Lower Mount (consult factory)
Catalog Dials	psi only	E	See Marsh Price List for minimum
	bar only	L1	
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
psi & MPa	W4		
Custom Dials	Logo or Custom face	M	Consult factory for colors and minimums
Restrictor	Special restrictor	H	All models - See Marsh Price List for minimum
	Restrictor removed	H1	
Increased Accuracy	Grade A (2/1/2%)	B	All models - See Marsh Price List for minimum
Special Connections			Consult Factory

Dimension Table

Gauge Size	Connection	A	C	G	H	K	J	L	L1
63mm	1/4"	2.66"	1.03"	2.95"	0.15"	0.56"	3.35	2.43"	2.5"
		68mm	26mm	75mm	4mm	14mm	85mm	62mm	64mm





100MM SEVERE SERVICE GAUGE

- Brass or Stainless Steel Internals
- Ranges to 10,000 psi
- Glycerine Filled

Marsh Instruments Liquid Filled Gauges are designed to perform in rugged applications and harsh environmental conditions - especially where pulsation and vibration are a problem. Liquid Filled Gauges offer a significant cushioning and dampening effect, reducing pointer flutter and internal gauge damage; also lubricating the internals, and reducing corrosion. All stainless steel Liquid Filled Gauges feature a ventable top fill plug for pressure relief and ease of venting after installation. The hermetically sealed construction reduces the chance of leaks, and makes field filling an easy option.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications, general industrial application and OEM processes.

STANDARD RANGES & PART NUMBERS

TYPE	100MM SEVERE SERVICE GAUGES					
	100mm			100mm		
Size	100mm			100mm		
Case Material	Stainless Steel			Stainless Steel		
Internals	Copper Alloy			Stainless Steel		
Mounting / Case Style	LM	CB	UC	LM	CB	UC
Connections (NPT)	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT
Scale Standard	psi/kPa			psi/kPa		
0 to 30" Hg VAC	X32965P			X32967P		
30" Hg VAC to 30 psi	X32501P					
30" Hg VAC to 60 psi	X32502P					
30" Hg VAC to 100 psi						
30" Hg VAC to 150 psi	X32887P	X32901P	X32894P	X32929P	X32941P	X32935P
30" Hg VAC to 200 psi	X32888P	X32902P	X32895P	X32930P	X32942P	X32936P
30" Hg VAC to 300 psi	X32889P	X32903P	X32896P	X32931P	X32943P	X32937P
0 to 15 psi	X32504P	X32546P	X32525P	X32630P	X32678P	X32654P
0 to 30 psi	X32505P	X32547P	X32526P	X32631P	X32679P	X32655P
0 to 60 psi	X32506P	X32548P	X32527P	X32632P	X32680P	X32656P
0 to 100 psi	X32507P	X32549P	X32528P	X32633P	X32681P	X32657P
0 to 160 psi	X32508P	X32550P	X32529P	X32634P	X32682P	X32658P
0 to 200 psi	X32509P	X32551P	X32530P	X32635P	X32683P	X32659P
0 to 300 psi	X32510P	X32552P	X32531P	X32636P	X32684P	X32660P
0 to 400 psi	X32511P	X32553P	X32532P	X32637P	X32685P	X32661P
0 to 600 psi	X32512P	X32554P	X32533P	X32638P	X32686P	X32662P
0 to 1,000 psi	X32513P	X32555P	X32534P	X32639P	X32687P	X32663P
0 to 1,500 psi	X32514P	X32556P	X32535P			
0 to 2,000 psi	X32515P	X32557P	X32536P	X32641P	X32689P	X32665P
0 to 3,000 psi	X32516P	X32558P	X32537P	X32642P	X32690P	X32666P
0 to 5,000 psi	X32518P	X32560P	X32539P	X32644P	X32692P	X32668P
0 to 6,000 psi	X32519P	X32561P	X32540P	X32645P	X32693P	X32669P
0 to 10,000 psi				X32647P	X32695P	X32671P

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

SPECIFICATIONS

ACCURACY
ASME Grade A - ±2/1/2% (±1% of range across middle half of scale)

CASE SIZES
100mm (3.89") diameter

CASE MATERIAL
304 Stainless Steel

CASE STYLE
Rolled ring, hermetically sealed case
CB - Center Back Mount
LM - Lower Mount
UC - U-Clamp Mount

TUBE & SOCKET
Copper alloy or 316 stainless steel

MOVEMENT
Brass

CONNECTION
¼ NPT

RANGES
0 to 30" Hg VAC
Compound 30" Hg VAC to 300 psi
15 to 10,000 psi

DIAL STANDARD
Dual scale psi & kPa

DIAL COLOR
Black markings on white

POINTER
Aluminum, black painted

WINDOW
Polycarbonate

FILL MEDIUM
Glycerine Standard

RESTRICTOR
Standard for all ranges

VENT PLUG
Rubber plug with snip-off feature

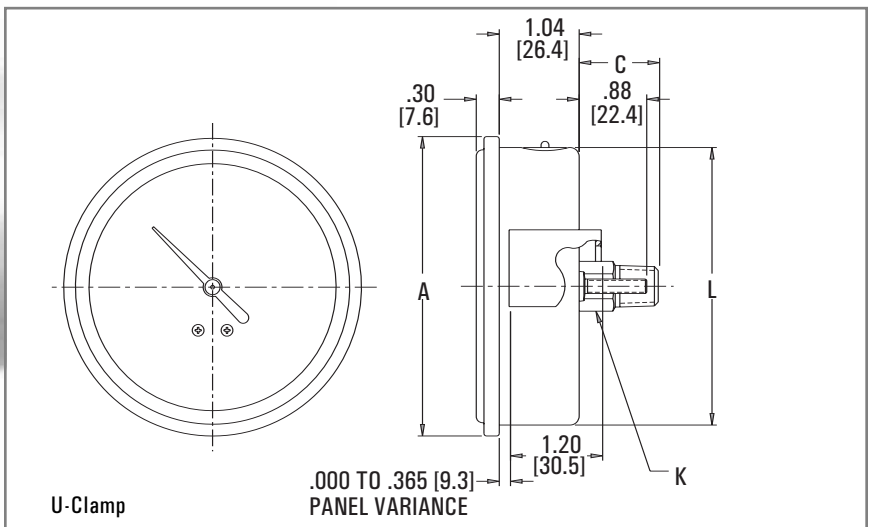
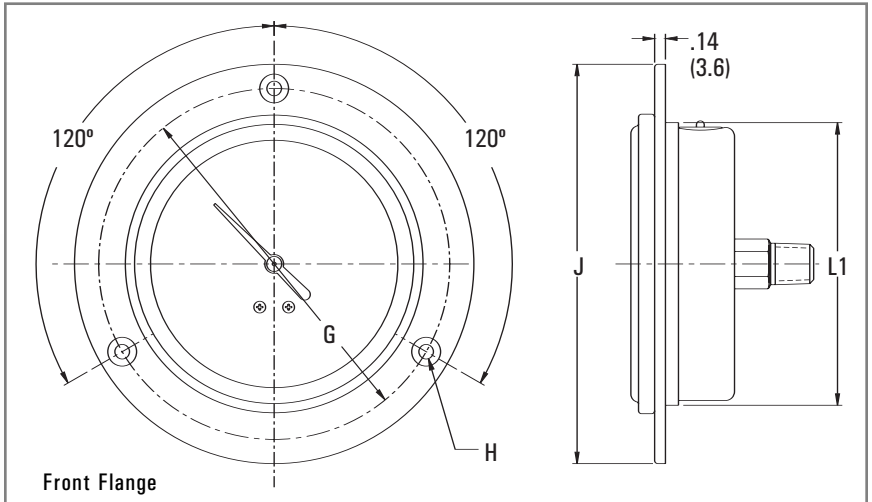


Severe Service



100MM SEVERE SERVICE GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Delete suffix P	All models
	Silicone (SL)	I	All models
Front Flange	Adapter Ring (3 hole)	R	U-Clamp & Center Back only (factory installed)
Catalog Dials	psi only	E	See Marsh Price List for minimum
	bar only	L1	
	kg/cm ²	L2	
	kPa only	L3	
	MPa	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
psi & MPa	W4		
Custom Dials	Logo or custom face	M	Consult factory for colors and minimums.
Restrictor	Special restrictor	H	All models - See Marsh Price List for minimum
	Restrictor removed	H1	All models - See Marsh Price List for minimum
Increased Accuracy	Grade 1A ±1% full scale	B	All models - See Marsh Price List for minimum
Special Connections			Consult factory for Availability



Gauge Size	Conn- ection	A	C	G	H	K	J	L	L1
100mm	1/4"	3.90" 99mm	1.03" 26mm	4.57" 116mm	0.19" 5mm	9/16" 14mm	5.20" 132mm	3.62" 92mm	3.68" 94mm





63MM & 100MM BRASS GAUGE

- Forged Brass case (one piece construction)
- Ranges to 10,000PSI
- Heavy Duty Performance

Marsh forged brass gauges are designed for top performance in rugged applications and harsh environments, where corrosive gas or media is not an issue. Applications include Oil patch, Hydraulics, Natural gas, OEM and General Industrial applications where superior quality is required. Liquid Filling protects against pulsation and vibration offering a cushioning and dampening effect. The hermetically sealed one piece design reduces the chance of leaks and allows field filling as an easy option.

STANDARD RANGES & PART NUMBERS

TYPE	63MM BRASS	100MM BRASS
Size	63mm	100mm
Case Material	Forged Brass	Forged Brass
Internals	Copper Alloy	Copper Alloy
Mounting / Case Style	LM	LM
Connection	¼ NPT	½ NPT
Scale Standard	psi	psi
0 to 30" Hg VAC	W9005PE	W9405PE
30" Hg VAC to 30 psi	W9012PE	W9412PE
30" Hg VAC to 60 psi	W9014PE	W9414PE
30" Hg VAC to 100 psi	W9016PE	W9416PE
30" Hg VAC to 200 psi	W9020PE	W9420PE
0 to 15 psi	W9040PE	W9440PE
0 to 30 psi	W9042PE	W9442PE
0 to 60 psi	W9046PE	W9446PE
0 to 100 psi	W9048PE	W9448PE
0 to 160 psi	W9052PE	W9452PE
0 to 200 psi	W9054PE	W9454PE
0 to 300 psi	W9058PE	W9458PE
0 to 400 psi	W9060PE	W9460PE
0 to 600 psi	W9064PE	W9464PE
0 to 1,000 psi	W9072PE	W9472PE
0 to 1,500 psi	W9074PE	W9474PE
0 to 2,000 psi	W9076PE	W9476PE
0 to 3,000 psi	W9078PE	W9478PE
0 to 5,000 psi	W9082PE	W9482PE
0 to 10,000 psi	W9090PE	W9490PE

SPECIFICATIONS

ACCURACY

63mm: ±1.6% of range across full scale
100mm: ASME Grade 1A - ±1% of range across full scale

CASE SIZES

63mm: diameter (2.5")
100mm: diameter (4.0")

CASE MATERIAL

Forged Brass

CASE STYLES

LM – Lower Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

Brass

CONNECTION

63mm: ¼ NPT
100mm: ½ NPT

RANGES

0-30" Hg vacuum;
compound ranges 30" Hg vacuum to 200 psi; and 15-10,000 psi

DIAL STANDARD

Single Scale psi

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Acrylic

RING

63mm: Gold Plated ABS
100mm: Chrome Plated

FILL MEDIUM

Glycerine Standard

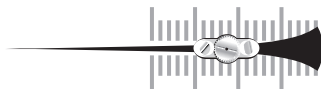
VENT

Rubber plug with snip-off feature

63MM & 100MM BRASS GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Delete Suffix P	Consult factory for minimums
	Glycerine	Standard	
	Silicone (SL)	I	
Catalog Dials	Bar only	L1	
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & BAR	W1	
	psi & kg/cm ²	W2	
	psi & kPa	W3	
psi & MPa	W4		
Custom Dials	Logo or Custom Face	M	Consult factory for minimums.





100MM STAINLESS STEEL GAUGE

- Liquid Filled or Dry
- Field Fillable
- Ranges to 10,000 psi
- Heavy Duty Stainless Steel

Marsh Instruments Stainless Steel Gauges are built for extended life, and designed for harsh and corrosive environments. These stainless steel gauges feature top fill plugs and are field fillable. Pressure ranges are available to 10,000 psi. Marsh Liquid Filled Gauges offer significant cushioning and dampening which reduces pointer flutter and internal gauge damage.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications, general industrial application and OEM processes.



SPECIFICATIONS

ACCURACY

ASME Grade 1A - $\pm 1.0\%$ of range across full scale

CASE SIZES

100mm diameter (4")

CASE MATERIAL

304 Stainless Steel

CASE STYLES

LM - Lower Mount
UC - U-Clamp Mount
FF - Front Flange Mount

TUBE & SOCKET

316 Stainless Steel

MOVEMENT

Stainless Steel

CONNECTION

$\frac{1}{4}$ " NPT lower or lowerback connection

RANGES

30 to 10,000 psi

DIAL STANDARD

Dual scale psi and kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Acrylic

FILL MEDIUM

See options

VENT

Rubber plug with snip-off feature

STANDARD RANGES & PART NUMBERS

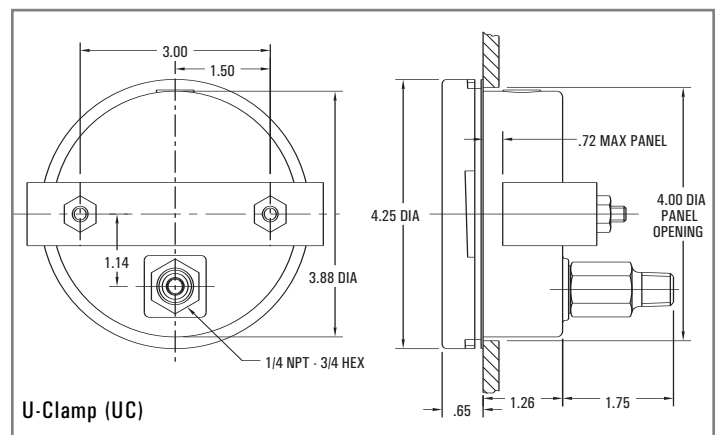
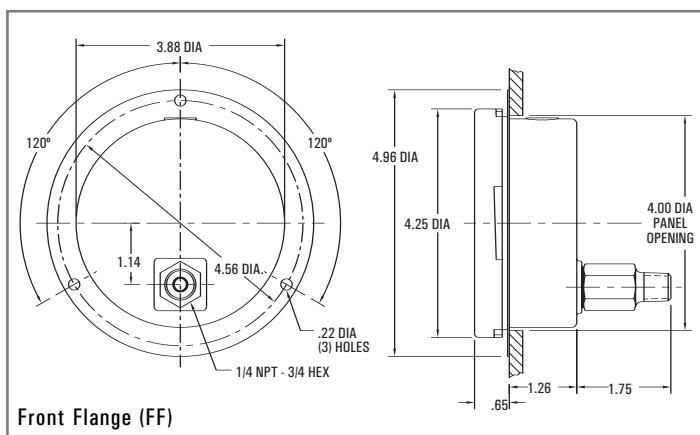
TYPE	100MM STAINLESS STEEL GAUGES		
Size	100mm	100mm	100mm
Case Material	Stainless Steel	Stainless Steel	Stainless Steel
Internals	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Mounting / Case Style	LM	UC	FF
Connection	$\frac{1}{4}$ NPT	$\frac{1}{4}$ NPT	$\frac{1}{4}$ NPT
Scale Standard	psi/kPa	psi/kPa	psi/kPa
0 to 30 psi	H10742	H10842	H10842R
0 to 60 psi	H10746	H10846	H10846R
0 to 100 psi	H10748	H10848	H10848R
0 to 160 psi	H10752	H10852	H10852R
0 to 200 psi	H10754	H10854	H10854R
0 to 300 psi	H10758	H10858	H10858R
0 to 400 psi	H10760	H10860	H10860R
0 to 600 psi	H10764	H10864	H10864R
0 to 1,000 psi	H10772	H10872	H10872R
0 to 1,500 psi	H10774	H10874	H10874R
0 to 2,000 psi	H10776	H10876	H10876R
0 to 3,000 psi	H10778	H10878	H10878R
0 to 5,000 psi	H10782	H10882	H10882R
0 to 10,000 psi	H10790	H10890	H10890R

To order filled, see filling chart below.

100MM STAINLESS STEEL GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Standard	All ranges
	Glycerine (GL)	Add suffix P	
	Silicone (SL)	Add suffix PI	

DIMENSIONS



QUALITY SERIES 100MM STAINLESS STEEL INTERNAL GAUGE

- Liquid Filled or Dry - Field Fillable
- Adjustable Micrometer Pointer
- Ranges to 15,000 psi
- Safety Glass Window

Marsh Stainless Steel gauges are built for extended life and are designed for harsh and corrosive environments. They feature a top fill plug, polished bayonet ring and are field fillable. Liquid filled gauges offer significant cushioning and dampening plus extend the life of a gauge.

Typical applications include Oil patch, Refineries, Oil Rigs, Control Panels, Offshore Platforms, Marine and General Industrial.



STANDARD RANGES & PART NUMBERS

TYPE	QUALITY SERIES 100MM STAINLESS STEEL INTERNAL GAUGES	
Size	100mm	NACE 100mm
Case Material	Stainless Steel	Stainless Steel
Internals	316 Stainless Steel	316 Stainless Steel
Mounting / Case Style	LM	LM
Connection	½ NPT	½ NPT
Scale Standard	psi/kPa	psi/kPa
0 to 30" Hg Vacuum	H20905	
0 to 15 psi	H20940	HN20940
0 to 30 psi	H20942	HN20942
0 to 60 psi	H20946	HN20946
0 to 100 psi	H20948	HN20948
0 to 160 psi	H20952	HN20952
0 to 200 psi	H20954	HN20954
0 to 300 psi	H20958	HN20958
0 to 400 psi	H20960	HN20960
0 to 600 psi	H20964	HN20964
0 to 1,000 psi	H20972	HN20972
0 to 1,500 psi	H20974	HN20974
0 to 2,000 psi	H20976	HN20976
0 to 3,000 psi	H20978	HN20978
0 to 5,000 psi	H20982	HN20982
0 to 10,000 psi	H20990	HN20990
0 to 15,000 psi	H20992	HN20992
0 to 20,000 psi	H20994	HN20994

To order filled, see filling chart below.

QUALITY SERIES 100MM STAINLESS STEEL INTERNAL GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Standard	All ranges
	Glycerine (GL)	Add suffix P	
	Silicone (SL)	Add suffix PI	
Catalog Dials	psi only	E	
	Bar only	L1	
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & BAR	W1	
	psi & kg/cm ²	W2	
psi & MPa	W4		

SPECIFICATIONS

- ACCURACY**
ASME Grade 1A – ± 1.0% of range across full scale
- CASE SIZES**
100mm diameter (4")
- CASE MATERIAL**
304 Stainless Steel
- CASE STYLES**
LM – Lower Mount
- TUBE & SOCKET**
316 Stainless Steel Welded to Case
- MOVEMENT**
Stainless Steel
- CONNECTION**
½ NPT
- RANGES**
Vacuum to 15,000 psi
- DIAL STANDARD**
Dual scale psi and kPa
- DIAL COLOR**
Black markings on white
- POINTER**
Aluminum, black painted, micro-adjustable
- WINDOW**
Safety Glass
- FILL MEDIUM**
See options
- VENT**
Rubber plug with snip-off feature





QUALITY SERIES 100MM COPPER ALLOY INTERNAL GAUGE

- Liquid Filled or Dry
- Removable polished bayonet ring
- Ranges to 10,000 psi
- Safety Glass Window

Stainless steel case with copper alloy internals. Ideal for heavy duty service in industrial and commercial environments. Features robust design with removable polished bayonet ring and adjustable pointer. Field fillable.

Typical applications include industrial machinery, oil field equipment and controls, wellheads, pipeline and general industrial.

SPECIFICATIONS

ACCURACY

ASME Grade 1A - $\pm 1.0\%$ of range across full scale

CASE SIZES

100mm diameter (4")

CASE MATERIAL

304 Stainless Steel

CASE STYLES

LM - Lower Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

Stainless Steel

CONNECTION

$\frac{1}{2}$ NPT lower mount

RANGES

Vacuum to 10,000 psi

DIAL STANDARD

Single scale psi

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted, micro-adjustable

WINDOW

Safety Glass

FILL MEDIUM

See options

VENT

Rubber plug with snip-off feature

STANDARD RANGES & PART NUMBERS

TYPE	QUALITY SERIES 100MM COPPER ALLOY INTERNAL GAUGES
Size	100mm
Case Material	Stainless Steel
Internals	Copper Alloy
Mounting / Case Style	LM
Connection	$\frac{1}{2}$ NPT
Scale Standard	psi
0 to 30" Hg Vacuum	H20505
0 to 15 psi	H20540
0 to 30 psi	H20542
0 to 60 psi	H20546
0 to 100 psi	H20548
0 to 160 psi	H20552
0 to 200 psi	H20554
0 to 300 psi	H20558
0 to 400 psi	H20560
0 to 600 psi	H20564
0 to 1,000 psi	H20572
0 to 1,500 psi	H20574
0 to 2,000 psi	H20576
0 to 3,000 psi	H20578
0 to 5,000 psi	H20582
0 to 10,000 psi	H20590

To order filled, see filling chart below.

QUALITY SERIES 100MM COPPER ALLOY INTERNAL GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Standard	All ranges
	Glycerine (GL)	Add suffix P	
	Silicone (SL)	Add suffix PI	
Catalog Dials	bar only	L1	
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & BAR	W1	
	psi & kg/cm ²	W2	
	psi & kPa	W3	
psi & MPa	W4		

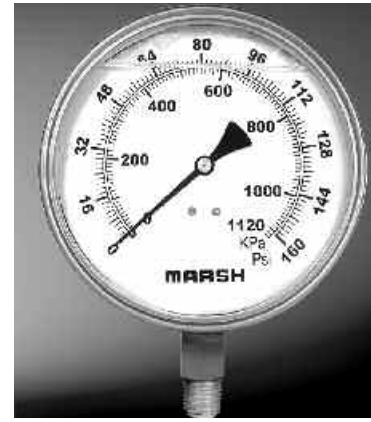


'HW' 160MM STAINLESS STEEL GAUGE

- Liquid Filled or Dry - Field Fillable
- Socket Welded to the Case
- Ranges to 20,000 psi
- Heavy Duty All Stainless Steel

Marsh Instruments Stainless Steel Gauges are built for extended life, and designed for harsh and corrosive environments. These stainless steel gauges feature top fill plugs and are field fillable. Pressure ranges are available to 20,000psi. Marsh Liquid Filled Gauges offer significant cushioning and dampening which reduces pointer flutter and internal gauge damage.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications, general industrial application and OEM processes.



SPECIFICATIONS

ACCURACY

ASME Grade 1A – ± 1.0% of range across full scale

CASE SIZES

160mm diameter (6")

CASE MATERIAL

304 Stainless Steel

CASE STYLES

LM – Lower Mount

TUBE & SOCKET

316 Stainless steel welded to the case

MOVEMENT

Stainless Steel

CONNECTION

½ NPT

RANGES

15 to 20,000 psi

DIAL STANDARD

Dual scale psi and kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Safety glass

FILL MEDIUM

See options

VENT

Rubber plug with snip-off feature

STANDARD RANGES & PART NUMBERS

TYPE	'HW' 160MM STAINLESS STEEL GAUGES
Size	160mm
Case Material	304 Stainless Steel
Internals	316 Stainless Steel
Mounting / Case Style	LM
Connection	½ NPT
Scale Standard	psi/kPa
0 to 15 psi	
0 to 30 psi	HW30942
0 to 60 psi	HW30946
0 to 100 psi	HW30948
0 to 160 psi	HW30952
0 to 200 psi	HW30954
0 to 300 psi	HW30958
0 to 400 psi	HW30960
0 to 600 psi	HW30964
0 to 1,000 psi	HW30972
0 to 1,500 psi	HW30974
0 to 2,000 psi	HW30976
0 to 3,000 psi	HW30978
0 to 5,000 psi	HW30982
0 to 10,000 psi	HW30990
0 to 20,000 psi	HW30994

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

NOTE: To order filled, consult filling chart below.

'HW' 160MM STAINLESS STEEL GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Standard	All ranges
	Glycerine (GL)	Add suffix P	
	Silicone (SL)	Add suffix PI	
Catalog Dials	psi only	E	
	BAR only	L1	
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & BAR	W1	
	psi & kg/cm ²	W2	
psi & MPa	W4		



100MM ELITE STAINLESS STEEL GAUGE

- All Stainless Steel
- Field Fillable
- Ranges to 10,000 psi
- Liquid Filled or Dry
- Solid Front Design – Safecase

Marsh Instruments all stainless steel gauges are built for extended life, and designed for harsh and corrosive environments. These stainless steel gauges feature top fill plugs and are field fillable. Marsh Liquid Filled Gauges offer significant cushioning and dampening which reduces pointer flutter and internal gauge damage.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications, general industrial application and OEM processes.

SPECIFICATIONS

ACCURACY

ASME Grade 1A – ± 1.0% of range across full scale

CASE SIZES

100mm diameter (4")

CASE MATERIAL

304 Stainless Steel

CASE STYLE

Solid front & blow-out back
Safecase construction
LM – Lower Mount

TUBE & SOCKET

316 Stainless Steel

MOVEMENT

Stainless Steel

CONNECTION

½ NPT

RANGES

30 to 10,000 psi
and 0 to 30" VAC Hg

DIAL STANDARD

Dual scale psi and kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Safety glass

FILL MEDIUM

See Options

VENT

Internal compensating diaphragm

STANDARD RANGES & PART NUMBERS

TYPE	100MM ELITE STAINLESS STEEL GAUGES
Size	100mm
Case Material	304 Stainless Steel
Internals	316 Stainless Steel
Mounting/Case Style	LM
Connection	½ NPT
Scale Standard	psi/kPa
0 to 30" Hg VAC	W9605
0 to 30 psi	W9642
0 to 60 psi	W9646
0 to 100 psi	W9648
0 to 200 psi	W9654
0 to 300 psi	W9658
0 to 600 psi	W9664
0 to 1,000 psi	W9672
0 to 1,500 psi	W9674
0 to 2,000 psi	W9676
0 to 3,000 psi	W9678
0 to 5,000 psi	W9682
0 to 10,000 psi	W9690

NOTE: To order filled, consult filling chart below.

100MM ELITE STAINLESS STEEL GAUGE OPTIONS			
OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Fill Medium	Dry (no fill)	Standard	All ranges
	Glycerine (GL)	Add suffix P	All ranges
	Silicone (SL)	Add suffix PI	All ranges





QUALITY GAUGE

- Dial Sizes: 3½" and 4½"
- Stainless Steel Movement
- 3 Case Styles
- Recalibrator Standard on 3½"; Adjustable pointer standard on 4½"
- Ranges to 20,000 psi

Marsh Quality Gauges feature the exclusive recalibrator and the accuracy is within ±1% in the middle half of span. These gauges provide continuous service at an economical price.

Typical applications include air compressors, reciprocating pumps, boilers, engines, hydraulic presses and countless other industrial and OEM applications.

STANDARD RANGES & PART NUMBERS

TYPE	QUALITY GAUGES						
	With Recalibrator				With Adjustable Pointer		
Size	3½"				4½"		
Internals	Copper Alloy				Copper Alloy		
Case Material	Steel				Steel		
Mounting	LM	LM	LBM	LBM	LM	LM	LBM
Connection	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT
Case Style	P	G	G	F	P	P	F
Scale Standard	psi	psi	psi	psi	psi	psi	psi
0 to 30" Hg VAC	H0205	H1205	H1805	H2005	H4205	H4805	H6005
30" Hg VAC to 30 psi	H0212	H1212	H1812	H2012	H4212	H4812	H6012
30" Hg VAC to 60 psi	H0214	H1214	H1814	H2014	H4214	H4814	H6014
30" Hg VAC to 150 psi	H0218	H1218	H1818	H2018	H4218	H4818	H6018
30" Hg VAC to 300 psi	H0224	H1224	H1824	H2024	H4224	H4824	H6024
0 to 15 psi	H0240						
0 to 30 psi	H0242	H1242	H1842	H2042	H4242	H4842	H6042
0 to 60 psi	H0246	H1246	H1846	H2046	H4246	H4846	H6046
0 to 100 psi	H0248	H1248	H1848	H2048	H4248	H4848	H6048
0 to 160 psi	H0252	H1252	H1852	H2052	H4252	H4852	H6052
0 to 200 psi	H0254	H1254	H1854	H2054	H4254	H4854	H6054
0 to 300 psi	H0258	H1258	H1858	H2058	H4258	H4858	H6058
0 to 400 psi	H0260	H1260	H1860	H2060	H4260	H4860	H6060
0 to 600 psi	H0264	H1264	H1864	H2064	H4264	H4864	H6064
0 to 1,000 psi	H0272	H1272	H1872	H2072	H4272	H4872	H6072
0 to 1,500 psi	H0274	H1274	H1874	H2074		H4874	
0 to 2,000 psi	H0276	H1276	H1876	H2076		H4876	
0 to 3,000 psi	H0278	H1278	H1878	H2078		H4878	
0 to 4,000 psi	H0280	H1280	H1880	H2080			
0 to 5,000 psi	H0282	H1282	H1882	H2082		H4882	
0 to 6,000 psi	H0284	H1284	H1884	H2084			
0 to 10,000 psi	H0290	H1290	H1890	H2090		H4890	
0 to 15,000 psi	H0292	H1292	H1892	H2092			
0 to 20,000 psi	H0294	H1294	H1894	H2094			

SPECIFICATIONS

ACCURACY

ASME Grade A – ±2/1/2% (±1% of range in middle half of scale)

CASE SIZES

3½" and 4½" diameter
6" diameter (see options)

CASE MATERIAL

Steel, black painted

CASE STYLE

F – Front Flanged, Lower Back Mount with U-Clamp; 4½" has Hinged Ring (LBM)
G – Back Flanged case
P – Plain Case, Lower Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

Stainless Steel

RECALIBRATOR

Standard 3½" only, 4½" has adjustable pointer

CONNECTION

¼ or ½ NPT

RANGES

0 to 30" Hg VAC; Compound 30" Hg VAC to 300 psi; 15 to 20,000 psi

DIAL STANDARD

Single scale psi

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Instrument Glass

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.





QUALITY GAUGES

Dial Divisions	Quality Gauge 2/1 1/2% of Span			
Ranges	Figure Intervals	Minor Graduations		
Vacuum	3	0.2		
COMPOUND				
30" Hg VAC to 15 psi	5	3	0.5	0.2
30" Hg VAC to 30 psi	10	5	1	0.5
30" Hg VAC to 60 psi	10	10	1	0.5
30" Hg VAC to 150 psi	30	30	2	1
30" Hg VAC to 300 psi	30	30	5	2

PRESSURE

0 to 15 psi	1	0.1
0 to 30 psi	5	0.2
0 to 60 psi	5	0.5
0 to 100 psi	10	1
0 to 160 psi	20	2
0 to 200 psi	20	2
0 to 300 psi	50	2
0 to 400 psi	50	2
0 to 600 psi	50	5

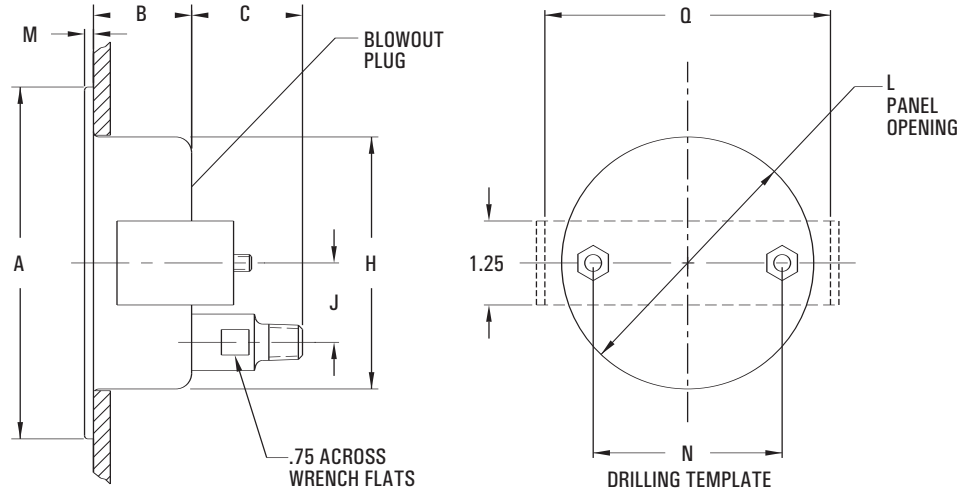
HIGH PRESSURE

0 to 1,000 psi	100	10
0 to 1,500 psi	300	20
0 to 2,000 psi	200	20
0 to 3,000 psi	500	20
0 to 4,000 psi	500	50
0 to 5,000 psi	500	50
0 to 6,000 psi	1,000	50
0 to 10,000 psi	1,000	100
0 to 15,000 psi	3,000	200
0 to 20,000 psi	2,000	200

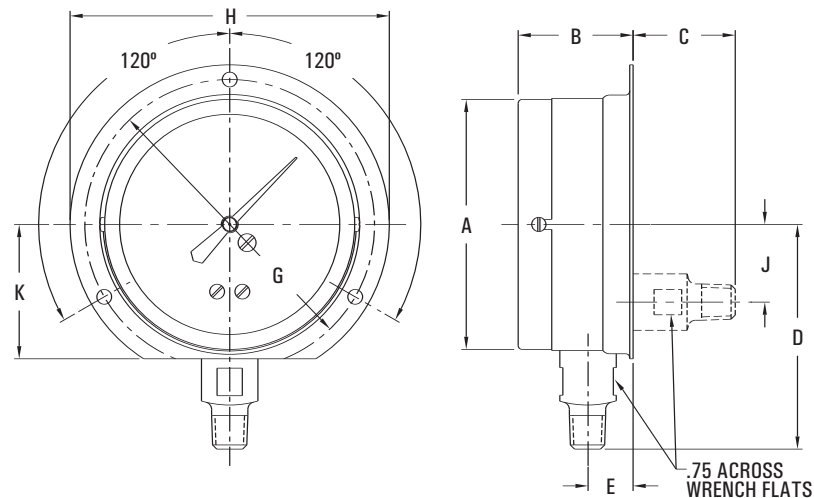
QUALITY GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictors	Add restrictor	H	All ranges
	bar only	L1	See Marsh Price List for minimum
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
	psi & kPa	W3	
psi & MPa	W4		
Catalog Dials	Logo or Custom Face	M	All models - consult factory
	Acrylic (AY)	F2	3 1/2" - 4 1/2"
Window	Safety Glass (SG)	F3	3 1/2" - 4 1/2"
	Grade 1A: ± 1% full scale	B	All models
Cases	Aluminum Back Flange	J	4 1/2" - 6" consult factory
	Steel Hinged Ring Case	J	6" consult factory

CASE PATTERNS & DIMENSIONS



Size	A	B	C	H	J	L	M	N	Q
3 1/2"	4.86	1.66	1.55	3.75	1.16	3.75	.11	2.81	4.25
4 1/2"	6.31	1.39	2.15	4.81	1.27	4.88	.11	3.88	5.31



Size	A	B	C	D	E	G	J	K	Panel Mounting
3 1/2"	3.72	1.69	1.55	3.34	.67	4.31	1.16	2.00	.22





TEST GAUGE +/- 0.5%

- Adjustable Micrometer Knife-Edge Pointer with Mirror Dial
- Stainless Steel Movement
- Dial Size: 4½"
- Ranges to 10,000 psi

The Marsh Test Gauge is designed with a black painted steel housing and the choice of copper alloy or 316 stainless steel tube and socket to meet the demanding service needs of various test gauge applications. Accuracy is $\pm 0.5\%$ of full span. A highly polished integral mirror is positioned between the two graduation arcs on the dial face. The knife-edge pointer is reflective so that, when the pointer and its reflection are in alignment, parallax is virtually eliminated and a true dial reading is assured.

Typical applications include test stands, aviation ground support, petroleum, chemical, utilities, industrial vessels and panel builders.

STANDARD RANGES & PART NUMBERS

TYPE	TEST GAUGES							
	4½"				4½"			
Size	4½"				4½"			
Internals	Copper Alloy				Stainless Steel			
Case Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	
Mounting	LM	LM	LBM	LM	LM	LBM	LBM	
Case Style	P	P	F	P	P	F	F	
Connection	¼ NPT	½ NPT	¾ NPT	¼ NPT	½ NPT	¾ NPT	¾ NPT	
Scale Standard	psi				psi			
0 to 30" Hg VAC	D0205	D0605	D1205	D5205	D5605	D6105	D6405	
30" Hg VAC to 15 psi	D0210	D0610	D1210	D5210	D5610	D6110	D6410	
30" Hg VAC to 30 psi	D0212	D0612	D1212	D5212	D5612	D6112	D6412	
30" Hg VAC to 60 psi	D0214	D0614	D1214	D5214	D5614	D6114	D6414	
0 to 15 psi	D0240	D0640	D1240	D5240	D5640	D6140	D6440	
0 to 30 psi	D0242	D0642	D1242	D5242	D5642	D6142	D6442	
0 to 60 psi	D0246	D0646	D1246	D5246	D5646	D6146	D6446	
0 to 100 psi	D0248	D0648	D1248	D5248	D5648	D6148	D6448	
0 to 160 psi	D0252	D0652	D1252	D5252	D5652	D6152	D6452	
0 to 200 psi	D0254	D0654	D1254	D5254	D5654	D6154	D6454	
0 to 300 psi	D0258	D0658	D1258	D5258	D5658	D6158	D6458	
0 to 400 psi	D0260	D0660	D1260	D5260	D5660	D6160	D6460	
0 to 600 psi	D0264	D0664	D1264	D5264	D5664	D6164	D6464	
0 to 1,000 psi				D5272	D5672	D6172	D6472	
0 to 1,500 psi				D5274	D5674	D6174	D6474	
0 to 2,000 psi				D5276	D5676	D6176	D6476	
0 to 3,000 psi				D5278	D5678	D6178	D6478	
0 to 5,000 psi				D5282	D5682	D6182	D6482	
0 to 10,000 psi				D5290	D5690	D6190	D6490	

SPECIFICATIONS

ACCURACY

ASME Grade 2A - $\pm 0.5\%$ of range across full scale

CASE SIZE

4½" diameter

CASE MATERIAL

Steel, Black Painted

CASE STYLE

F - Front Flanged with U-clamp and hinged ring (LBM)

P - Plain Case Lower Mount (LM)

TUBE & SOCKET

Copper alloy or 316 Stainless Steel

MOVEMENT

Stainless Steel

CONNECTION

¼ or ½ NPT

RANGES

0 to 30" Hg VAC; Compound 30" Hg to 60 psi; 15 to 10,000 psi

DIAL STANDARD

single scale psi

DIAL COLOR

Black markings on white with mirror dial to avoid parallax

POINTER

Aluminum, black painted, micro-adjustable, knife-edge

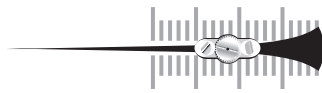
WINDOW

Instrument Glass

PRESSURE RELIEF

Blowout plug

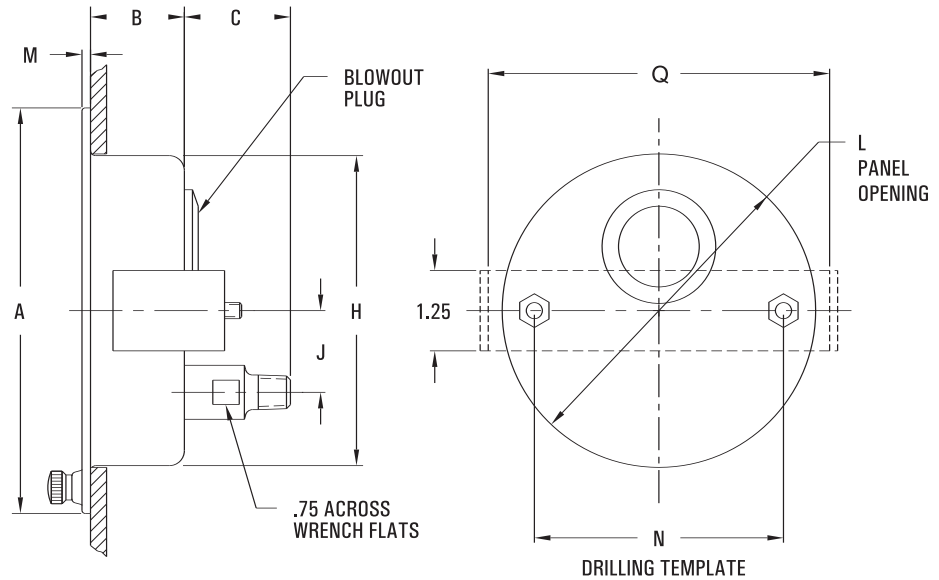




Dial Divisions	Test Gauge 0.50% of Span		
Ranges	Figure Intervals	Minor Graduations	
Vacuum	2	0.1	
COMPOUND			
30" Hg VAC to 15 psi	5	3	0.2
30" Hg VAC to 30 psi	10	5	0.5
30" Hg VAC to 60 psi	10	5	1
30" Hg VAC to 150 psi	30	10	2
30" Hg VAC to 300 psi	30	30	5
PRESSURE			
0 to 15 psi	1	0.5	
0 to 30 psi	2	0.1	
0 to 60 psi	5	0.2	
0 to 100 psi	10	0.5	
0 to 160 psi	10	0.5	
0 to 200 psi	20	1	
0 to 300 psi	50	1	
0 to 400 psi	50	2	
0 to 600 psi	50	2	
HIGH PRESSURE			
0 to 1,000 psi	100	5	
0 to 1,500 psi	100	5	
0 to 2,000 psi	200	10	
0 to 3,000 psi	500	10	
0 to 4,000 psi	500	20	
0 to 5,000 psi	500	20	
0 to 6,000 psi	500	20	
0 to 10,000 psi	1,000	50	

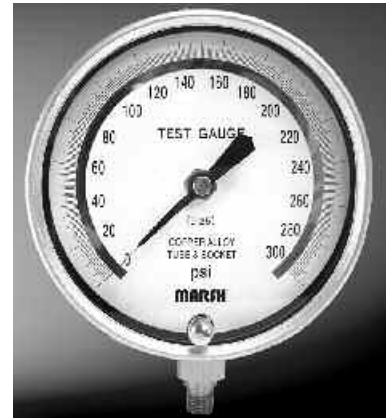
TEST GAUGE OPTIONS			
OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictors	Add restrictor	H	All ranges
Catalog Dials	bar only	L1	See Marsh Price List for minimum
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
	psi & kPa	W3	
	psi & MPa	W4	
Custom Dials	Logo or Custom Face	M	All models - consult factory
Window	Acrylic (AY)	F2	4½"
	Safety Glass (SG)	F3	4½"
Cases	4½" Polypropylene (TR)	J1	Consult Factory
	4½" Aluminum Back Flange	J2	
	4½" Aluminum Front Flange	J3	

CASE PATTERNS & DIMENSIONS



Size	A	B	C	H	J	L	M	N	Q
4½"	6.31	1.39	2.31	4.81	1.27	4.88	.11	3.88	5.31





MASTER TEST GAUGE (SERIES 'D')

- Knife-Edge Pointer with Mirror Dial
- External Dial Adjustment
- Dial Size: 6"
- Ranges to 10,000 psi

Marsh Master Test Gauges are used in precision laboratory applications and industrial environments where precise accuracy is demanded. For pressure readings to 10,000 psi, Marsh Master Test Gauges offer dependable, consistent accuracy within $\pm 0.25\%$ of span, meeting all requirements of ASME Grade 3A specifications. The pressure relieving blowout plug provides the increased safety required for potentially dangerous applications.

Typical applications include lab's, universities, automotive testing, government test facilities and pharmaceutical.

STANDARD RANGES & PART NUMBERS

TYPE	MASTER TEST GAUGES	
Size	6" (160mm)	
Case Material	Stainless Steel	
Internals	Copper Alloy	
Mounting / Case Style	LM	LM
Connection	¼ NPT	½ NPT
Scale Standard	psi	psi
0 to 30" Hg VAC	D31405	
30" Hg VAC to 15 psi	D31410	
30" Hg VAC to 30 psi	D31412	
30" Hg VAC to 60 psi	D31414	
0 to 15 psi	D31440	
0 to 30 psi	D31442	
0 to 60 psi	D31446	
0 to 100 psi	D31448	
0 to 160 psi	D31452	
0 to 200 psi	D31454	
0 to 300 psi	D31458	
0 to 400 psi	D31460	
0 to 600 psi	D31464	
0 to 1,000 psi		D31472
0 to 1,500 psi		D31474
0 to 2,000 psi		D31476
0 to 3,000 psi		D31478
0 to 5,000 psi		D31482
0 to 10,000 psi		D31490

SPECIFICATIONS

ACCURACY

ASME Grade 3A – $\pm 0.25\%$ of range across full scale

CASE SIZE

6" (160mm) diameter

CASE MATERIAL

304 Stainless Steel

CASE STYLE

LM—Lower Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

Stainless Steel

CONNECTION

¼" NPT through 600 psi

½" NPT 1000 psi & above

RANGES

0 to 30" Hg VAC; Compound 30" Hg to 60 psi; 15 to 10,000 psi

DIAL STANDARD

Single scale psi

DIAL COLOR

Black markings on white with mirror dial to avoid parallax

POINTER

Aluminum, black painted, knife-edge

WINDOW

Instrument Glass

PRESSURE RELIEF

Blowout plug

MASTER TEST GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Catalog Dials	bar only	L1	Consult Factory
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
	psi & kPa	W3	
psi & MPa	W4		
Custom Dials	Logo or Custom Face	M	
Window	Acrylic (AY)	F2	
	Safety Glass (SG)	F3	
Tube & Socket	Stainless Steel		



INSPECTOR'S TEST GAUGE

- 3" Dial
- Vacuum to 1,000 psi Range
- Recalibrator on Dial Face
- ASME Grade 2A Accuracy

Marsh Inspector's Test Gauges are specifically designed for use by steam boiler, air brake and pressure system inspectors. The rugged 3" Inspector's Test Gauge features a nickel-plated case and an accuracy of $\pm 0.5\%$ of span. The bushed Mastergauge movement with Recalibrator is standard for these gauges. Mating parts are of dissimilar metals to prevent seizing. Bearing sleeves are of bronze, and the sector is brass.

Typical applications include steam boiler, air brakes, pressure system inspectors, and for use on other testing applications.

STANDARD RANGES & PART NUMBERS

TYPE	INSPECTOR'S TEST GAUGES
Size	3"
Case Material	Nickel Plated Brass
Internals	Copper Alloy
Mounting / Case Style	LM
Connection	1/4 NPT
Scale Standard	psi/kPa
0 to 30" Hg VAC	D1505
0 to 15 psi	D1540
0 to 30 psi	D1542
0 to 60 psi	D1546
0 to 100 psi	D1548
0 to 160 psi	D1552
0 to 200 psi	D1554
0 to 300 psi	D1558
0 to 600 psi	D1564
0 to 1,000 psi	D1572

SPECIFICATIONS

ACCURACY

ASME Grade 2A - $\pm 0.5\%$ of span across full scale

CASE SIZES

3" diameter

CASE MATERIAL

Brass, Nickel Plated

CASE STYLE

Lower Mount with threaded ring

TUBE & SOCKET

Copper alloy

MOVEMENT

Brass

RECALIBRATOR

Standard

CONNECTION

1/4 NPT

RANGES

0 to 30" Hg VAC; 15 to 1,000 psi

DIAL STANDARD

Dual Scale psi/kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted, knife-edge

WINDOW

Beveled glass

PROTECTIVE COVER

Opaque plastic lens cover

INSPECTOR'S TEST GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictors	Add restrictor	H	All ranges
Catalog Dials	psi only	E	See Marsh Price List for minimum
	bar only	L1	
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
psi & MPa	W4		
Custom Dials	Logo or Custom Face	M	All models - consult factory





PROCESS GAUGE

- 4½" and 6" Dials
- 4 Safecase Designs
- Pressure Ranges Vacuum to 20,000 psi
- Dry or Liquid Filled
- Micrometer Pointer

Marsh Process Gauges are the industry standard in performance. With over 125 years of proven experience, Marsh offers the most complete line of process instrumentation in the industry. An extensive list of designs and options makes the Marsh line of Process Gauges the intelligent and practical choice in process instrumentation. All case styles feature safecase solid-front construction.

Typical applications include chemical and petroleum chemical processes, compressors, power plants and oil platforms.

STANDARD RANGES & PART NUMBERS

TYPE	PROCESS GAUGES					
	4½"			4½"		
Size	4½"			4½"		
Case Material	Polypropylene			Polypropylene		
Internals	Copper Alloy			Stainless Steel		
Mounting	LM	LBM	LM	LBM	LM	LBM
Case Style	T	T	T	T	T	T
Connection	¼ NPT	¼ NPT	½ NPT	½ NPT	¼ NPT	¼ NPT
Scale Standard	psi	psi	psi	psi	psi	psi
0 to 30" Hg VAC	P0105	P0205	P0505	P0605	P5105	P5205
30" Hg VAC to 15 psi	P0110	P0210	P0510	P0610	P5110	P5210
30" Hg VAC to 30 psi	P0112	P0212	P0512	P0612	P5112	P5212
30" Hg VAC to 60 psi	P0114	P0214		P0614	P5114	P5214
30" Hg VAC to 100 psi	P0116	P0216	P0516	P0616	P5116	P5216
30" Hg VAC to 200 psi	P0120	P0220	P0520	P0620	P5120	P5220
30" Hg VAC to 300 psi	P0124	P0224	P0524	P0624	P5124	P5224
0 to 15 psi	P0140	P0240	P0540	P0640	P5140	P5240
0 to 30 psi	P0142	P0242	P0542	P0642	P5142	P5242
0 to 60 psi	P0146	P0246	P0546	P0646	P5146	P5246
0 to 100 psi	P0148	P0248	P0548	P0648	P5148	P5248
0 to 160 psi	P0152	P0252	P0552	P0652	P5152	P5252
0 to 200 psi	P0154	P0254	P0554	P0654	P5154	P5254
0 to 300 psi	P0158	P0258	P0558	P0658	P5158	P5258
0 to 400 psi	P0160	P0260	P0560	P0660	P5160	P5260
0 to 600 psi	P0164	P0264	P0564	P0664	P5164	P5264
0 to 1,000 psi	P0168	P0268	P0568	P0668	P5168	P5268
0 to 1,500 psi			P0574		P5174	P5274
0 to 2,000 psi			P0576		P5176	P5276
0 to 3,000 psi			P0578		P5178	P5278
0 to 5,000 psi			P0582		P5182	P5282
0 to 10,000 psi			P0590		P5190	P5290
0 to 15,000 psi					P5192	P5292
0 to 20,000 psi					P5194	P5294

Add "P" Suffix to P/N for Liquid Filling with Glycerine, add "PI" for Silicone.

NOTE: Lower back mount gauges are not fillable

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

SPECIFICATIONS

ACCURACY

ASME Grade 2A – ±0.5% of full scale

CASE SIZES

4½" and 6" diameter

CASE MATERIAL

Safecase polypropylene (turret style only) & safecase aluminum

CASE STYLE

4½": G – Back flanged case (aluminum)

H – Front flange hinged ring (aluminum)

T – Turret (polypropylene)

6": G – Back flanged case

TUBE & SOCKET

Copper alloy or 316 stainless steel

MOVEMENT

Stainless Steel

CONNECTION

¼ or ½ NPT

LM – Lower Mount

LBM – Lower Back Mount

RANGES

0 to 30" Hg VAC; Compound 30" Hg VAC to 300 psi; 15 to 20,000 psi

DIAL STANDARD

Single Scale psi

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted, micro-adjustable

WINDOW

Acrylic

FILL MEDIUM

Dry or filled. Note: ALL 4½" lower mount Process Gauges are field-fillable. Optional factory filled glycerin or silicone

SAFECASE

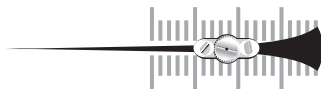
Safecase construction standard on all Process Gauges

VENT

Internal compensating diaphragm



Process Gauges

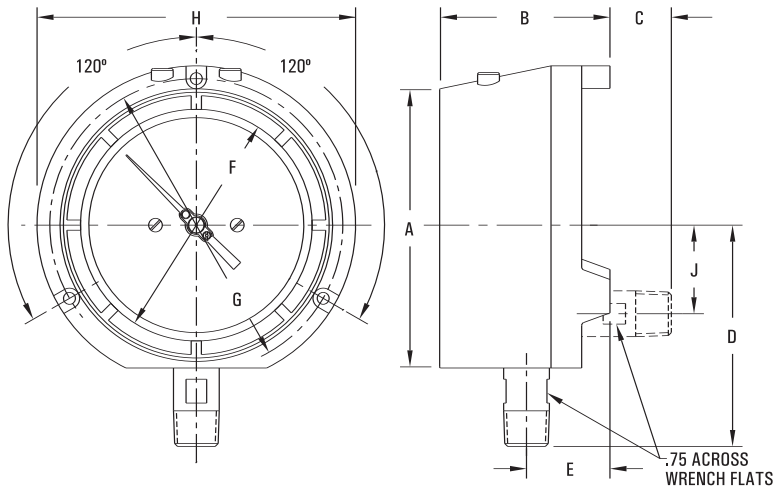


PROCESS GAUGES - STANDARD RANGES & PART NUMBERS										
TYPE	4 1/2"				4 1/2"				4 1/2"	
Size	4 1/2"				4 1/2"				4 1/2"	
Case Material	Polypropylene				Aluminum				Aluminum	
Internals	Stainless Steel				Copper Alloy				Stainless Steel	
Mounting	LM	LBM	LM	LM	LBM	LBM	LBM	LBM	LM	LM
Case Style	T	T	G	G	G	G	H	H	G	G
Connection	1/2 NPT	1/2 NPT	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT
Scale Standard	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
0 to 30" Hg VAC	P5605	P5705	P10005	P10505	P11005	P11505	P16005	P16505	P14005	P14505
30" Hg VAC to 15 psi	P5610	P5710	P10010	P10510	P11010	P11510	P16010	P16510	P14010	P14510
30" Hg VAC to 30 psi	P5612	P5712	P10012	P10512	P11012	P11512	P16012	P16512	P14012	P14512
30" Hg VAC to 60 psi	P5614	P5714	P10014	P10514	P11014	P11514	P16014	P16514	P14014	P14514
30" Hg VAC to 100 psi	P5616	P5716	P10016	P10516	P11016	P11516	P16016	P16516	P14016	P14516
30" Hg VAC to 200 psi	P5620	P5720	P10020	P10520	P11020	P11520	P16020	P16520		
30" Hg VAC to 300 psi	P5624	P5724	P10024	P10524	P11024	P11524	P16024	P16524		
0 to 15 psi	P5640	P5740	P10040	P10540	P11040	P11540	P16040	P16540	P14040	P14540
0 to 30 psi	P5642	P5742	P10042	P10542	P11042	P11542	P16042	P16542	P14042	P14542
0 to 60 psi	P5646	P5746	P10046	P10546	P11046	P11546	P16046	P16546	P14046	P14546
0 to 100 psi	P5648	P5748	P10048	P10548	P11048	P11548	P16048	P16548	P14048	P14548
0 to 160 psi	P5652	P5752	P10052	P10552	P11052	P11552	P16052	P16552	P14052	P14552
0 to 200 psi	P5654	P5754	P10054	P10554	P11054	P11554	P16054	P16554	P14054	P14554
0 to 300 psi	P5658	P5758	P10058	P10558	P11058	P11558	P16058	P16558	P14058	P14558
0 to 400 psi	P5660	P5760	P10060	P10560	P11060	P11560	P16060	P16560	P14060	P14560
0 to 600 psi	P5664	P5764	P10064	P10564	P11064	P11564	P16064	P16564	P14064	P14564
0 to 1,000 psi	P5668	P5768	P10068	P10568	P11068	P11568	P16068	P16568	P14068	P14568
0 to 1,500 psi	P5674	P5774								P14574
0 to 2,000 psi	P5676	P5776								P14576
0 to 3,000 psi	P5678	P5778								P14578
0 to 5,000 psi	P5682	P5782								P14582
0 to 10,000 psi	P5690	P5790								P14590
0 to 15,000 psi	P5692	P5792								P14592
0 to 20,000 psi	P5694	P5794								P14594

Size	4 1/2"				6"				6"			
Case Material	Aluminum				Aluminum				Aluminum			
Internals	Stainless Steel				Copper Alloy				Stainless Steel			
Mounting	LBM	LBM	LBM	LBM	LM	LM	LBM	LBM	LM	LM	LBM	LBM
Case Style	G	G	H	H	G	G	G	G	G	G	G	G
Connection	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT	1/4 NPT	1/2 NPT
Scale Standard	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
0 to 30" Hg VAC	P15005	P15505	P18005	P18505	P20005	P20505	P21005	P21505	P24005	P24505	P25005	P25505
30" Hg VAC to 15 psi	P15010	P15510	P18010	P18510	P20010	P20510	P21010	P21510	P24010		P25010	P25510
30" Hg VAC to 30 psi	P15012	P15512	P18012	P18512	P20012	P20512	P21012	P21512	P24012	P24512	P25012	P25512
30" Hg VAC to 60 psi	P15014	P15514	P18014	P18514	P20014	P20514	P21014	P21514	P24014	P24514	P25014	P25514
30" Hg VAC to 100 psi	P15016	P15516	P18016	P18516	P20016	P20516	P21016	P21516	P24016	P24516	P25016	P25516
30" Hg VAC to 200 psi	P15020	P15520	P18020	P18520								
30" Hg VAC to 300 psi	P15024	P15524	P18024	P18524								
0 to 15 psi	P15040	P15540	P18040	P18540	P20040	P20540	P21040	P21540	P24040	P24540	P25040	P25540
0 to 30 psi	P15042	P15542	P18042	P18542	P20042	P20542	P21042	P21542	P24042	P24542	P25042	P25542
0 to 60 psi	P15046	P15546	P18046	P18546	P20046	P20546	P21046	P21546	P24046	P24546	P25046	P25546
0 to 100 psi	P15048	P15548	P18048	P18548	P20048	P20548	P21048	P21548	P24048	P24548	P25048	P25548
0 to 160 psi	P15052	P15552	P18052	P18552	P20052	P20552	P21052	P21552	P24052	P24552	P25052	P25552
0 to 200 psi	P15054	P15554	P18054	P18554	P20054	P20554	P21054	P21554	P24054	P24554	P25054	P25554
0 to 300 psi	P15058	P15558	P18058	P18558	P20058	P20558	P21058	P21558	P24058	P24558	P25058	P25558
0 to 400 psi	P15060	P15560	P18060	P18560	P20060	P20560	P21060	P21560	P24060	P24560	P25060	P25560
0 to 600 psi	P15064	P15564	P18064	P18564	P20064	P20564	P21064	P21564	P24064	P24564	P25064	P25564
0 to 1,000 psi	P15068	P15568	P18068	P18568	P20068	P20568	P21068	P21568	P24068	P24568	P25068	P25568
0 to 1,500 psi	P15074	P15574	P18074	P18574					P24074	P24574	P25074	P25574
0 to 2,000 psi	P15076	P15576	P18076	P18576					P24076	P24576	P25076	P25576
0 to 3,000 psi	P15078	P15578	P18078	P18578					P24078	P24578	P25078	P25578
0 to 5,000 psi	P15082	P15582	P18082	P18582					P24082	P24582	P25082	P25582
0 to 10,000 psi	P15090	P15590	P18090	P18590					P24090	P24590	P25090	P25590
0 to 15,000 psi	P15092	P15592	P18092	P18592					P24092	P24592	P25092	P25592
0 to 20,000 psi	P15094	P15594	P18094	P18594					P24094	P24594	P25094	P25594

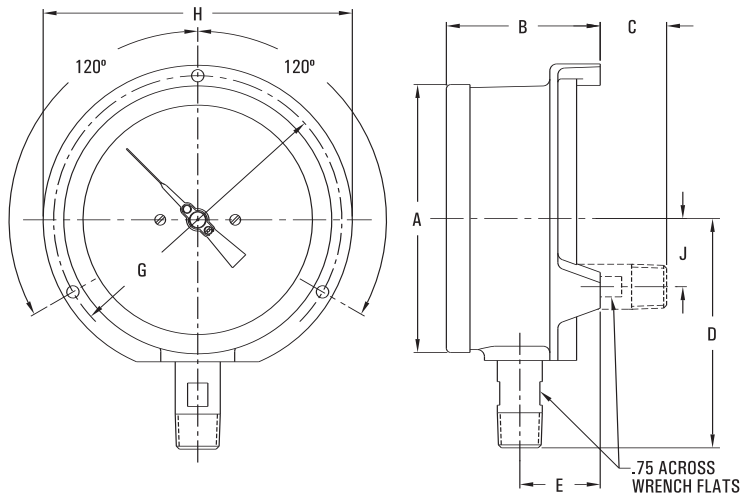


Process Gauges



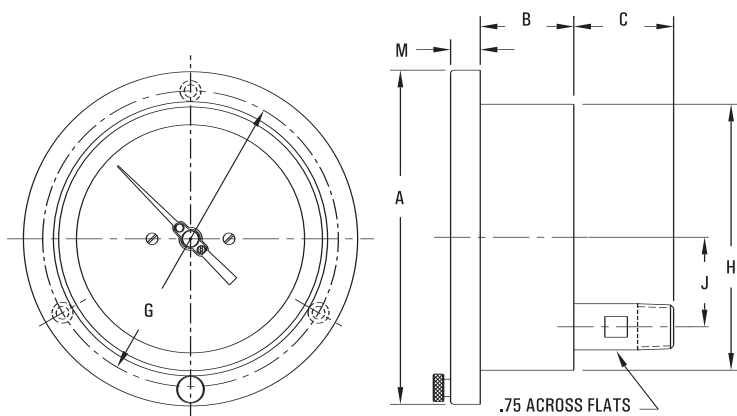
TURRET CASE

Turret Panel Mounting Holes 0.22	Size	A	B	C	D	E	F	G	H	J
	4 1/2"	5.00	3.13	1.13	4.28	1.53	4.13	5.38	5.85	1.27



BACK FLANGE CASE

Back Flanged	Size	A	B	C	D	E	G	H	J	23
	4 1/2"	4.94	2.88	1.19	4.28	1.50	5.38	5.78	1.27	.23
	6"	6.63	2.88	1.19	4.97	1.50	7.00	7.50	1.27	.28



FRONT FLANGE CASE

Front Flanged Panel Mounting Holes 0.23	Size	A	B	C	G	H	J	M
	4 1/2"	6.08	1.70	1.88	5.38	4.88	1.27	0.54



Process Gauges



PROCESS GAUGE OPTIONS			
OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictors	Add restrictor	H	All ranges
Fill Medium	Glycerine (GL)	P	4½" Lower Mount only (all ranges)
	Silicone (SL)	PI	4½" Lower Mount only (all ranges)
Catalog Dials	bar only	L1	See Marsh Price List for minimum
	kg/cm² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm²	W2	
	psi & kPa	W3	
Window	Instrument Glass (GS)	F1	4½" & 6"
	Safety Glass (SG)	F3	4½" & 6"
Cases	Phenolic Turret (PH)	J1	4½"
	4½" Steel Case (LM or LBM)	J	4½" (Adjustable pointer only)
	6" Hinged Ring Steel Case with U-Clamp	J	6" (Adjustable pointer only)
Custom Dials	Logo or Custom Face	M	Consult factory for colors and minimums.

Dial Divisions	Process Gauge Series "P" 0.5% of Span		
Ranges	Figure Intervals	Minor Graduations	
Vacuum	3	0.2	
COMPOUND			
30" Hg VAC to 15 psi	5	3	0.5 0.2
30" Hg VAC to 30 psi	10	5	1 0.5
30" Hg VAC to 60 psi	10	10	1 0.5
30" Hg VAC to 150 psi	30	30	2 1
30" Hg VAC to 300 psi	30	30	5 2
PRESSURE			
0 to 15 psi	1	0.1	
0 to 30 psi	5	0.2	
0 to 60 psi	5	0.5	
0 to 100 psi	10	1	
0 to 160 psi	20	1	
0 to 200 psi	20	2	
0 to 300 psi	50	2	
0 to 400 psi	50	2	
0 to 600 psi	50	5	
HIGH PRESSURE			
0 to 1,000 psi	100	10	
0 to 1,500 psi	300	10	
0 to 2,000 psi	200	20	
0 to 3,000 psi	500	20	
0 to 4,000 psi	500	20	
0 to 5,000 psi	500	50	
0 to 6,000 psi	1,000	50	
0 to 10,000 psi	1,000	100	
0 to 15,000 psi	3,000	100	
0 to 20,000 psi	2,000	200	

NOTE: 4½" Lower back mount, 6" Lower mount and 6" Lower back are not fillable (only available dry).



DIAPHRAGM GAUGES

- Dial Sizes: 2½", 3½", 4½"
- Four Case Styles
- Accuracy: ASME B40.1 - 2/1/2%

Marsh Instruments Low Pressure Diaphragm Gauges are universally known for their dependable performance and accuracy. Incorporating a unique design feature, the diaphragm element in this gauge allows accurate low pressure readings in a variety of applications. Featuring a bronze diaphragm element, the gauge is capable of ASME Grade A-1% accuracy for ranges above 30" of water. Ranges are available in vacuum and pressure in inches of water, ounces per square inch and millimeters of mercury.

Typical applications include HVAC systems and low pressure gas burner systems.



STANDARD RANGES & PART NUMBERS

TYPE	DIAPHRAGM GAUGES									
Size	2½"					3½"			4½"	
Case Material	Steel							Steel		
Internal	Copper Alloy							Copper Alloy		
Mounting/Case	LM	LM	U	U	CB	CB	FF	LM	LM	
Connection	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	¼ NPT	
0 to 10" H ₂ O	G22675	G22711	G11181	G11248	G22747	G27110	G11578	G24608	G25756	
0 to 15" H ₂ O	G24500	G24503	G11246	G11313	G26504	G30237	G11642	G24631	G25981	
0 to 30" H ₂ O	G22704	G22740	G11189	G11256	G22776	G11652	G11586	G24625	G25749	
0 to 60" H ₂ O	G22705	G22741	G11208	G11314	G22777	G11671	G11605	G24626	G25844	
0 to 100" H ₂ O	G22687	G22723	G11217	G11284	G22759	G11675	G11609	G24613	G25982	
0 to 160" H ₂ O	G22695	G22731	G11232	G11299	G22767	G11695	G11628	G24617	G25980	
0 to 200" H ₂ O	G22696	G22732	G11233	G11300	G22768	G11696	G33412	G24618	G26021	
0 to 300" H ₂ O	G22697	G22733	G11236	G11303	G22769	G11699	G33413	G24619	G25755	
0 to 3 psi	G22685	G22721	G11215	G11282	G22757	G11678	G11612	G24612	G33414	
0 to 5 psi	G22702	G22738	G10623	G11310	G22774	G22810	G10619	G24624	G26018	
0 to 10 psi	G22699	G22735	G11239	G11306	G22771	G11702	G11635	G24621	G25754	
0 to 10 oz/in ²	G22677	G22713	G11186	G11253	G22749	G11649	G11583	G24609	G33415	
0 to 15 oz/in ²	G22680	G22716	G11194	G11261	G22752	G11657	G11591	G24610	G25753	
0 to 30 oz/in ²	G24501	G33404	G11206	G11273	G24504	G11669	G11603	G24632	G25750	
0 to 60 oz/in ²	G22684	G22720	G11213	G11280	G22756	G11676	G11610	G24611	G25757	
0 to 100 oz/in ²	G22691	G22727	G11226	G11293	G22763	G33411	G11622	G24615	G26025	
0 to 160 oz/in ²	G26062	G33405	G11237	G11304	G33410	G11700	G11633	G26894	G33416	
8.75 oz/in ² and 15" H ₂ O	G22706	G22742	G11185	G11252	G22778	G11648	G11582	G24627	G33417	
20 oz/in ² and 35" H ₂ O	G22709	G22745	G11200	G11267	G22781	G11663	G11597	G24629	G25748	
32 oz/in ² and 55" H ₂ O	G22707	G22743	G11195	G11262	G22779	G11658	G11592	G24628	G25984	
58 oz/in ² and 100" H ₂ O	G22710	G22746	G11214	G11281	G22782	G22947	G11611	G24630	G33418	
0 to 15" H ₂ O VAC	G22912	G33406	G11873	G11906	G22942	G12104	G12071	G24708	G26023	
0 to 30" H ₂ O VAC	G22914	G29804	G11876	G11909	G22944	G12107	G12074	G24709	G26020	
0 to 60" H ₂ O VAC	G22918	G33407	G11884	G11917	G22948	G12115	G12082	G24710	G26016	
0 to 100" H ₂ O VAC	G24502	G26962	G11885	G11918	G22949	G12116	G12083	G24716	G26019	
0 to 200" H ₂ O VAC	G22921	G33409	G11892	G11925	G22951	G12123	G12090	G24711	G33420	

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

SPECIFICATIONS

ACCURACY

For ranges 30" H₂O & above:
ASME Grade A = ±2/1/2% (±1% of range across middle half of scale). For ranges below 30" H₂O:
±3/1/3% (±1% of range across middle half of scale)

CASE SIZES

2½", 3½", 4½" diameter

CASE MATERIAL

Steel, black painted

CASE STYLE

CB – Center Back Mount
FF – Three-holed Front Flanged Mount
LM – Lower Mount
UC – U-Clamp Mount

DIAPHRAGM & SOCKET

Phosphor bronze diaphragm soft-soldered to brass socket

MOVEMENT

Brass sector and pinion

CONNECTION

¼ & ½ NPT

DIAL STANDARD

Dual Scale with kPa
Triple Scale: oz/in², in H₂O, & kPa

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

2½" & 3½": Acrylic twist-in Clearlok
4½": flat acrylic with steel friction ring

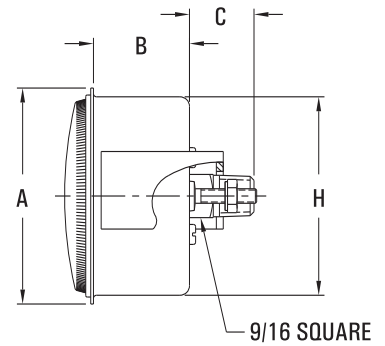
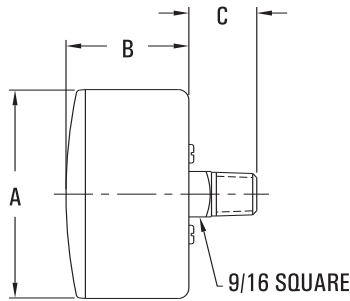
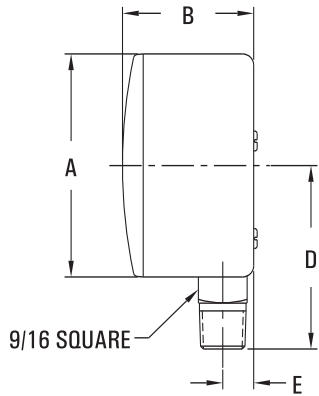
RESTRICTOR

0.013" standard. No restrictor on 0 to 10" H₂O range

Diaphragm



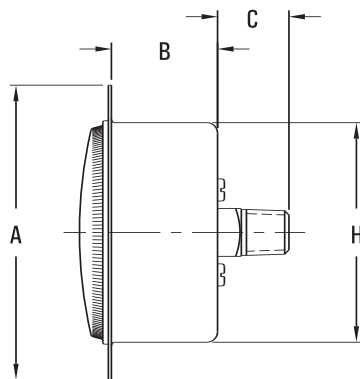
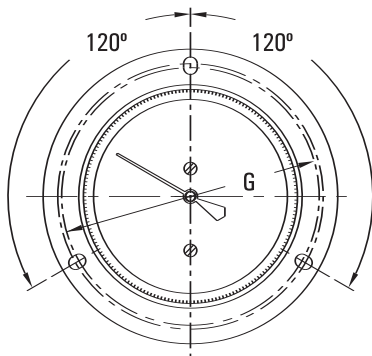
DIAPHRAGM GAUGE OPTIONS		
OPTION	TYPE	AVAILABLE ON MODELS
Window	Acrylic (knurled edge)	all models
Restrictors	0.008 Restrictor	all models
	0.016 Restrictor	
	0.018 Restrictor	
	0.025 Restrictor	
Ring	Press ring, chrome	2½" to 3½" Panel Mount
Ring / Window	Glass & Black Steel Ring	2½" to 3½" all models
Cases	Stainless Steel	2½" - Lower Mount or Panel Mount
	Brass	2½" - Lower Mount or Centerback
	Chrome plated	Lower Mount or Centerback
3½" Case	Center Back (CB)	3½"
	U-Clamp (UC)	3½"
Connections	Hose Barb (⅝" OD & ¼" OD)	All models (10 pc. minimum)
Compound Ranges	Vacuum & Pressure with front zero adjustment	All models (10 pc. minimum)
Custom Dials	Logo or custom face	Consult factory for colors and minimums.



Back Flanged	SIZE	A	B	D	E
	2½"	2.63	1.50	2.19	.38
	3½"	3.69	1.59	2.72	.38
4½"	4.78	1.47	3.38	.81	

Center Back	Size	A	B	C
	2½"	2.63	1.50	.84
	3½"	3.69	1.59	.84

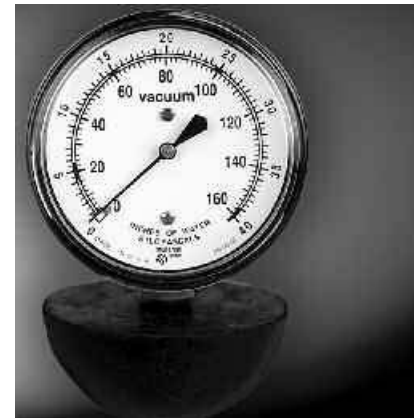
U-Clamp	Size	A	B	C	H
	2½"	2.81	1.25	.84	2.59
	3½"	3.98	1.69	.84	3.66



VACUUM CLEANER TEST GAUGE

- Includes 2½" dial size gauge
- Dual Scale: in. H₂O & kPa vacuum
- Complete with rubber plug to fit vacuum cleaner intake opening

TYPE	82K
Range	Part No.
0 to 60" H ₂ O	G32426
0 to 100" H ₂ O	G24505
0 to 160" H ₂ O	G25759
0 to 200" H ₂ O	G26098



GAS PRESSURE TEST SET

- Includes 2½" dial size gauge
- Provided in grey polyethylene case with 3 ft. of rubber tubing

TYPE			84K
Range			Part No.
0 to 15" H ₂ O		0 to 4.0 kPa	G28145
0 to 8.75 oz/in ²	0 to 15" H ₂ O	0 to 4.0 kPa	G33421
0 to 20 oz/in ²	0 to 30" H ₂ O	0 to 8.6 kPa	G24507
0 to 58 oz/in ²	0 to 100" H ₂ O	0 to 25 kPa	G27038



Ranges	Figure Intervals	Minor Graduations
0 to 10" H ₂ O	1	0.1
0 to 15" H ₂ O	3	0.2
0 to 30" H ₂ O	5	0.5
0 to 60" H ₂ O	10	1
0 to 100" H ₂ O	10	1
0 to 160" H ₂ O	20	2
0 to 200" H ₂ O	20	2
0 to 300" H ₂ O	50	5
0 to 3 psi	0.5	0.05
0 to 5 psi	1	0.1
0 to 10 psi	1	0.1
0 to 10 psi oz/in ²	1	0.1
0 to 15 psi oz/in ²	3	0.2
0 to 30 psi oz/in ²	5	0.5
0 to 60 psi oz/in ²	10	1
0 to 100 psi oz/in ²	10	1
0 to 160 psi oz/in ²	20	2
8.75 oz/in ² and 15" H ₂ O	1/3	0.2/0.2
20 oz/in ² and 35" H ₂ O	4/5	0.5/1
32 oz/in ² and 55" H ₂ O	4/10	1/1
58 oz/in ² and 100" H ₂ O	10/20	1/2
0 to 15" H ₂ O VAC	3	0.2
0 to 30" H ₂ O VAC	5	0.5
0 to 60" H ₂ O VAC	10	1
0 to 100" H ₂ O VAC	10	1
0 to 160" H ₂ O VAC	20	2
0 to 200" H ₂ O VAC	20	2

SPECIAL MEDICAL GAUGES

Consult Factory
800-727-5646





GAS TEST GAUGE

- Hex or Bell Type mounting
- 15 to 100 Psi pressure ranges
- Steel case and brass internals

Use to pressure test all new gas installations for leaks and passing inspection codes. After installing Gas Test Gauge, the system is pressurized with air. Any leakage will be indicated by a pressure drop on the gauge. Typical applications include testing of gas and other pressure media.

SPECIFICATIONS

ACCURACY

ASME Grade $\pm 3/2/3\%$ ($\pm 2\%$ of range across middle half of scale)

CASE SIZES

2" diameter

CASE MATERIAL

Steel, black painted

MOUNTING STYLE

Reducing Bell or Hex Style

HOUSING MATERIAL

Reducing Bell: Iron, black painted
Hex Body: Steel, Zinc Dichromate Plated

TUBE & SOCKET

Copper alloy

MOVEMENT

Brass

CONNECTION

$\frac{1}{4}$ " FPT

RANGES

15 to 100 psi

DIAL STANDARD

Single Scale psi

DIAL COLOR

Black markings on white

POINTER

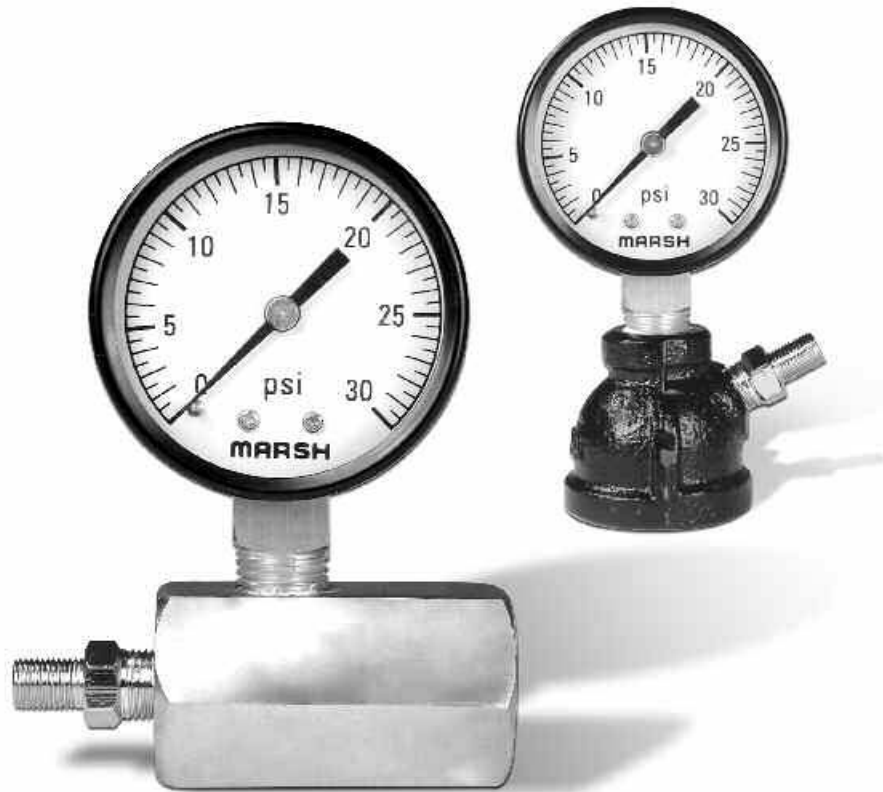
Aluminum, black painted

WINDOW

Polycarbonate

STANDARD RANGES & PART NUMBERS

TYPE	GAS TEST GAUGES	
Size	2"	
Case Material	Steel	
Internals	Copper Alloy	
Connection	$\frac{1}{4}$ " FPT	
Scale Standard	psi	
Mounting style	Bell Type	Hex Type
0 to 15 psi	G33522	G33526
0 to 30 psi	G33523	G33527
0 to 60 psi	G33524	G33528
0 to 100 psi	G33525	G33529



SERVICEMAN'S TEST GAUGE

- Recalibrator and Restrictor Standard
- Heavy Duty Brass Case
- Clam Shell Packaging Optional

Marsh Instruments Deluxe Serviceman's Test Gauge is designed to assure the modern serviceman the best possible gauge for testing refrigeration equipment. Corresponding, easy-to-read temperature scales are printed in red on the inner arcs of the dial face.

Typical applications include testing, servicing and recharging AC and R systems.



STANDARD RANGES & PART NUMBERS

TYPE	SERVICEMAN'S TEST GAUGES		
Size	2½"		
Case Material	Brass		
Internals	Copper Alloy		
Mounting/Case Style	LM		
Connection	½ NPT		
Scale Standard	psi & temperature (°F)		
30" X 350 psi	W0070	R-12, 22, 502	Carton
30" X 350 psi	W0070Q	R-12, 22, 502	Clam Shell
0 to 500 psi	W0072	R-12, 22, 502	Carton
0 to 500 psi	W0072Q	R-12, 22, 502	Clam Shell
Set of (2) W0070 & W0072	W0074	R-12, 22, 502	Carton Only
30" X 350 psi	W8070	R-134a, 404A, 507	Carton
30" X 350 psi	W8070Q	R-134a, 404A, 507	Clam Shell
0 to 500 psi	W8072	R-134a, 404A, 507	Carton
0 to 500 psi	W8072Q	R-134a, 404A, 507	Clam Shell
30" x 500 psi	W8115	R-22, 407C, 410A	Carton
30" x 500 psi	W8115Q	R-22, 407C, 410A	Clam Shell
0 to 800 psi	W8127	R-22, 407C, 410A	Carton
0 to 800 psi	W8127Q	R-22, 407C, 410A	Clam Shell

SPECIFICATIONS

ACCURACY
ASME Grade B - ±3/2/3% (±2% of range across middle half of scale)

CASE SIZE
2½" diameter

CASE MATERIAL
Polished brass

CASE STYLE
LM - Lower Mount

TUBE & SOCKET
Copper Alloy

MOVEMENT
Brass with recalibrator

CONNECTION
½ NPT

RANGES
0-500 psi, 30" Hg VAC to 120 psi retarded to 350 psi

DIAL STANDARD
psi with corresponding temperature scales

DIAL COLOR
Black markings on white with red or blue temperature scales

POINTER
Aluminum, black painted

WINDOW
Beveled glass



HVAC/R Gauges



MANIFOLD GAUGE

- Recalibrator and Restrictor Standard
- Color Coded Cases, "Reds" & "Blues"
- Overpressure Protection to 350 psi

These gauges are designed for the pressure measurement of refrigeration systems. All dials are furnished with corresponding temperature scales for the various refrigerants. Dials feature R-12, R-22, and R-502. Standard connections are 1/8 NPT lower mount with your choice of red or blue case.

Marsh Manifold Gauges are used in refrigeration applications for testing, servicing, and recharging AC and R Systems.



SPECIFICATIONS

ACCURACY

ASME Grade B - $\pm 3/2/3\%$ (2% of range across middle half of scale)

CASE SIZE

2 1/2" diameter

CASE MATERIAL

Steel, red or blue painted

TUBE & SOCKET

Copper alloy

MOVEMENT

Brass with recalibrator

CONNECTION

1/8 NPT

RANGES

0-500 psi, 30" Hg VAC to 120 psi retarded to 350 psi

DIAL STANDARD

psi with corresponding temperature scales

DIAL COLOR

Black markings on white with red or blue temperature scales

POINTER

Aluminum, black painted

WINDOW

Impact resistant plastic

STANDARD RANGES & PART NUMBERS

TYPE		MANIFOLD GAUGES			
Size	2 1/2"				
Case Material	Steel				
Internals	Copper Alloy				
Mounting/Case Style	LM				
Connection	1/8 NPT				
Scale Standard	psi & temperature (°F)				
30" X 350 psi	W0011	R-12, 22, 502	Blue Case	Carton	
30" X 350 psi	W0011Q	R-12, 22, 502	Blue Case	Clam Shell	
0 to 500 psi	W0023	R-12, 22, 502	Red Case	Carton	
0 to 500 psi	W0023Q	R-12, 22, 502	Red Case	Clam Shell	
30" X 350 psi	W8011	R-134a, 404A & 507	Blue Case	Carton	
30" X 350 psi	W8011Q	R-134a, 404A & 507	Blue Case	Clam Shell	
0 to 500 psi	W8023	R-134a, 404A & 507	Red Case	Carton	
0 to 500 psi	W8023Q	R-134a, 404A & 507	Red Case	Clam Shell	
30" X 500 psi	W8015	R-22, 407C & 410A	Blue Case	Carton	
30" X 500 psi	W8015Q	R-22, 407C & 410A	Blue Case	Clam Shell	
0 to 800 psi	W8027	R-22, 407C & 410A	Red Case	Carton	
0 to 800 psi	W8027Q	R-22, 407C & 410A	Red Case	Clam Shell	
30" X 350 psi	J7622PQ-001	R-12, 22, 502	S/S Case	Clam Shell	Liquid Filled
0 to 500 psi	J7662PQ-001	R-12, 22, 502	S/S Case	Clam Shell	Liquid Filled
30" X 350 psi	J7622PQ-002	R-134a, 404A & 507	S/S Case	Clam Shell	Liquid Filled
0 to 500 psi	J7662PQ-002	R-134a, 404A & 507	S/S Case	Clam Shell	Liquid Filled



REFRIGERATION AMMONIA GAUGE

- Range 30" Hg to 150 psi or 300 psi
- Case Sizes: 63mm and 3 1/2"
- ASME Grade B

Marsh Ammonia Gauges include a restrictor that protects the gauge against sudden shock or pulsating pressure. The inner dial arc shows pressure, outer arc shows the corresponding temperature scale. Marsh Refrigeration Ammonia Gauges are available in a stainless steel case.

Marsh Instruments Refrigeration Ammonia Gauges are designed for use on ammonia compressors and other ammonia refrigeration equipment.



STANDARD RANGES & PART NUMBERS

TYPE	REFRIGERATION AMMONIA GAUGES	
Size	63mm	3 1/2"
Case Material	Stainless Steel	Stainless Steel
Internals	Stainless Steel	Stainless Steel
Mounting / Case Style	LM	LM
Scale Standard	psi & Ammonia (°F)	psi & Ammonia (°F)
Connection	1/4 NPT	1/4 NPT
30" Hg VAC to 150 psi	W0104	W0112
30" Hg VAC to 150 psi	W0104Q	
30" Hg VAC to 300 psi	W0108	W0116
30" Hg VAC to 300 psi	W0108Q	

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

REFRIGERATION AMMONIA GAUGE OPTIONS

OPTION	TYPE	SUFFIX	
Fill Medium	Glycerine (GL)	P	All Models
	Silicone (SL)	PI	All Models
Custom Dials	Logo or Custom face	M	Consult factory for colors and minimums

SPECIFICATIONS

ACCURACY

ASME Grade B - ± 3/2/3% (± 2% of range across middle half of scale)

CASE SIZES

63mm and 3 1/2" diameter

CASE MATERIAL

304 Stainless steel

CASE STYLE

LM - Lower Mount

TUBE & SOCKET

Stainless steel

MOVEMENT

Brass

CONNECTION

1/4 NPT

RANGES

Compound 30" Hg Vac to 150 psi or 30" Hg Vac to 300 psi

DIAL STANDARD

Single scale psi with corresponding Ammonia temperature scales

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Polycarbonate

RESTRICTORS

Standard

PACKAGING

Optional clam shell packed gauges are on 4 1/2" X 6 1/2" cards, pre-punched for pegboard hanging





REFRIGERATION GAUGE

- Color Coded Dial
- Adjustable Pointer Standard

Marsh Refrigeration Gauges are sturdily constructed and tested to give long, continuous, accurate service. In addition to the standard pressure or compound scale, dials also show the corresponding temperature scales for R-12, R-22, and R-502, in the various combinations shown in the chart below. Dial markings are sharp, clear and easy to read.

Marsh Instruments Refrigeration Gauges are designed specifically for use on refrigeration systems.



SPECIFICATIONS

ACCURACY

ASME Grade B - $\pm 3/2/3\%$ (2% of range across middle half of scale)

CASE SIZES

2 1/2" and 3 1/2" diameter

CASE MATERIAL

Steel, black painted

CASE STYLE

LM - Lower Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

Brass

CONNECTION

1/8 or 1/4 NPT

RANGES

Compound 30" Hg Vac to 150 psi,
30" Hg Vac to 300 psi, 0 to 300 psi

DIAL STANDARD

psi with corresponding temperature scales

DIAL COLOR

Black markings on white with red temperature scales

POINTER

Aluminum, black painted, adjustable

WINDOW

Acrylic Clearlok

RESTRICTORS

Standard

OPTIONS

Consult factory

STANDARD RANGES & PART NUMBERS

TYPE	REFRIGERATION GAUGES	
Size	2 1/2"	3 1/2"
Case Material	Steel	
Internals	Copper Alloy	
Mounting/Case Style	LM	LM
Connection	1/8 NPT	1/4 NPT
Scale Standard	psi and temperature (°F)	
R-12		
30" Hg VAC 150 psi	W0002	W0030
0 to 300 psi	W0016	W0034
R-22		
30" Hg VAC to 150 psi		W0032
R-12 & R-22		
30" Hg VAC 150 psi	W0004	
30" Hg VAC 300 psi	W0012	
0 to 300 psi	W0018	

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

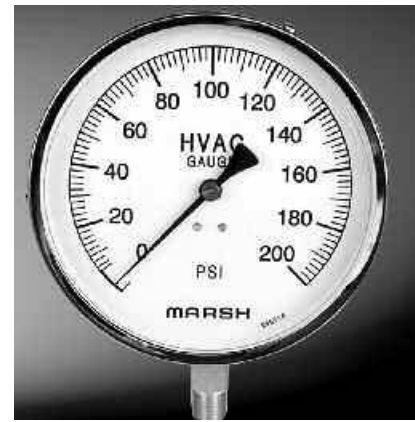


CONTRACTOR'S GAUGE

- 4½" Dial
- Polished Stainless Steel Case
- Adjustable Pointer
- 1% Accuracy

Marsh Instruments Contractor's HVAC Service Gauge is a newly redesigned gauge with a long-life movement to meet the needs of contractors in air conditioning, heating, plumbing and refrigeration. This rugged and reliable gauge is economically priced and offers many features normally found on more expensive gauges such as adjustable pointer, acrylic lens and polished stainless steel case.

Marsh Instruments Contractor's Gauges are designed for use on plumbing and HVAC equipment.



STANDARD RANGES & PART NUMBERS

TYPE	CONTRACTOR'S GAUGES
Size	4½"
Case Material	Polished Stainless Steel
Internals	Copper Alloy
Mounting / Case Style	LM
Connection	¼ NPT
Scale Standard	psi
30" Hg VAC to 30 psi	W0480
30" Hg VAC to 160 psi	W0487
0 to 30 psi	W0481
0 to 60 psi	W0483
0 to 100 psi	W0484
0 to 160 psi	W0486
0 to 200 psi	W0488
0 to 300 psi	W0490
0 to 600 psi	W0492

SPECIFICATIONS

ACCURACY
ASME Grade A – ±2/1/2% (1% of range across middle half of scale)

CASE SIZE
4½" diameter

CASE MATERIAL
Polished stainless steel

CASE STYLE
LM – Lower Mount

TUBE & SOCKET
Copper alloy

MOVEMENT
Brass sector and pinion

CONNECTION
¼ NPT

RANGES
Compound 30" Hg Vac to 160 psi;
30 to 600 psi

DIAL STANDARD
Single scale psi

DIAL COLOR
Black markings on white

POINTER
Aluminum, black painted,
adjustable

WINDOW
Acrylic

CONTRACTOR'S GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictors	Push Fit .008 or .018	H	all models
Catalog dials	psi and kPa	W3	all models
All other dials - consult factory for lead time			25 Piece minimum





HEATING SYSTEM GAUGE

- Adjustable Set Hand
- Ranges to 300 psi and 690 Feet of Water
- 3½" and 4½" Dials

Marsh Instruments Heating System Gauges are available in 3½" and 4½" dial sizes in the most popular ranges. An adjustable red altitude pointer is standard on feet-of-water gauges. This feature allows the user to indicate the head of water to be maintained in the system.

Marsh Instruments Heating System Gauges provide accurate psi and feet-of-water measurements in elevated tanks, reservoirs, standpipes, and similar applications where reliability and dependability are crucial in heating system equipment.

STANDARD RANGES & PART NUMBERS

TYPE	HEATING SYSTEM HVAC/R GAUGES	
Size	3½"	4½"
Case Material	Steel	Aluminum
Internals	Copper Alloy	Copper Alloy
Mounting / Case Style	LM	LM
Connection	¼ NPT	¼ NPT
Scale Standards	psi, ft. H ₂ O and metric	psi, ft. H ₂ O and metric
0 to 15 psi and 0 to 30 ft H ₂ O		W0456
0 to 30 psi and 0 to 70 ft H ₂ O	W0450	W0457
0 to 100 psi and 0 to 230 ft H ₂ O	W0451	W0458
0 to 150 psi and 0 to 345 ft H ₂ O		W0459
0 to 160 psi and 0 to 370 ft H ₂ O	W0452	
0 to 200 psi and 0 to 460 ft H ₂ O	W0453	W0460
0 to 300 psi and 0 to 690 ft H ₂ O	W0454	W0461

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

HEATING SYSTEM GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictors	Special Restrictor	H	All models
Custom Dials	Logo or Custom face	M	Consult factory for colors and minimums



SPECIFICATIONS

ACCURACY

3½" ASME Grade B – ±3/2/3%
(2% of range across middle half of scale)

4½" ASME Grade A – ±2/1/2%
(1% of range across middle half of scale)

CASE SIZE

3½" and 4½" diameter

CASE MATERIAL

3½": Steel, black painted

4½": Aluminum back flange case, black painted

CASE STYLE

LM – Lower Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

3½": Brass

4½": Stainless steel

CONNECTION

¼ NPT

RANGES

Dual Scale 15 to 300 psi and 300 to 690 ft. H₂O

DIAL STANDARD

psi, ft. H₂O and metric

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted with red set hand

WINDOW

3½": Acrylic Clearlok

4½": Instrument Glass

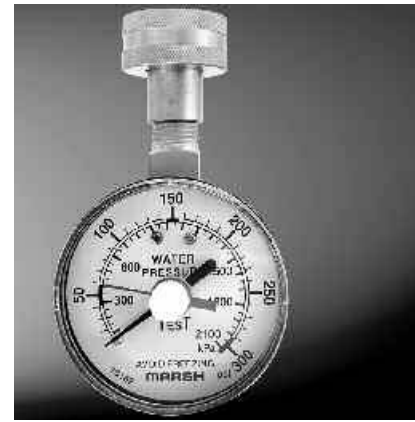


WATER TEST GAUGE

- Connects Directly to Standard Water Faucet or Hose
- Measures Commercial & Residential Water Pressure
- Dual Scale Dial

Marsh Water Test Gauge is designed to connect directly to a standard $\frac{3}{4}$ " water faucet or hose. The maxi pointer included on the Water Test Gauge allows you to monitor a peak operating or surge pressure point.

Typical applications include measuring residential and commercial water pressure, also selection and adjustment of valves, regulators, and other controls.



STANDARD RANGES & PART NUMBERS

TYPE	WATER TEST GAUGES	
Size	2½"	
Internals	Copper Alloy	
Case Materials	Steel	
Mounting/Case Style	Top mount	
Connection	¾" - 1½" NH female hosebib	
Scale Standard	psi/kPa	
Window	Acrylic	Acrylic w/maxhand
Part Number	G24545	G24545-001

SPECIFICATIONS

ACCURACY ASME
Grade B - $\pm 3/2/3\%$ ($\pm 2\%$ of range across middle half of scale)

CASE SIZES
2½" diameter

CASE MATERIAL
Steel, black painted

CASE STYLE
Top mount

TUBE & SOCKET
Copper alloy

MOVEMENT
Brass

CONNECTION
¾" - 1½" NH Female hosebib

RANGES
0 to 300 psi

DIAL STANDARD
Dual scale psi and kPa

DIAL COLOR
Black markings on white

POINTER
Aluminum, black painted

WINDOW
Acrylic with or without red maximum indicating pointer

OPTIONS
Other ranges are available
Consult factory





PAPER MACHINE GAUGE

- Hinged Ring Chrome Plated Steel Case
- Protective Weather Tight Seal
- Restrictor is Standard

Marsh Instruments Chrome Plated Paper Machine Gauges are available in nine ranges and fit existing panel cutouts. The heavy-duty case features a front flanged/ hinged ring design which allows easy access to the recalibrator and a weep hole that prevents condensation buildup. A restrictor is standard. The Marsh Paper Machine Gauge is available in 3½" size only. Each gauge has a weather-tight seal to protect against dust and atmospheric contaminants. Marsh Instruments Paper Machine gauges are specifically designed to meet the demands of the pulp and paper industry.

SPECIFICATIONS

ACCURACY

ASME Grade A - ±2/1/2% (±1% of range across middle half of scale)

CASE SIZES

3½" diameter

CASE MATERIAL

Steel, chrome plated

CASE STYLE

LBM - Lower Back Mount

TUBE & SOCKET

Copper alloy

MOVEMENT

Stainless Steel with recalibrator

CONNECTION

¼ NPT

RANGES

30 to 1,000 psi

DIAL STANDARD

Single scale psi

DIAL COLOR

Black markings on white

POINTER

Aluminum, black painted

WINDOW

Glass lens, chrome plated brass ring with weather-tight seal

RESTRICTOR

Standard

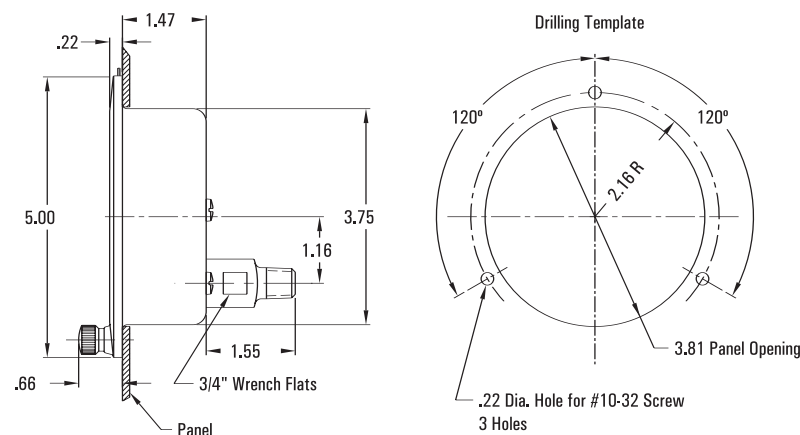
STANDARD RANGES & PART NUMBERS

TYPE	PAPER MACHINE GAUGES
Size	3½"
Case Material	Steel, Chrome Plated
Internals	Copper Alloy
Mounting / Case Style	LBM
Connection	¼ NPT
Scale Standard	psi
0 to 30 psi	W6042
0 to 60 psi	W6046
0 to 100 psi	W6048
0 to 160 psi	W6052
0 to 200 psi	W6054
0 to 300 psi	W6058
0 to 400 psi	W6060
0 to 600 psi	W6064
0 to 1,000 psi	W6072

PAPER MACHINE GAUGE OPTIONS

OPTION	TYPE	SUFFIX	AVAILABLE ON MODELS
Restrictor	Special Restrictor	H	
	No restrictor	H1	
Catalog Dials	bar only	L1	See Marsh Price List for minimum
	kg/cm ² only	L2	
	kPa only	L3	
	MPa only	L4	
	psi & bar	W1	
	psi & kg/cm ²	W2	
	psi & kPa	W3	
	psi & MPa	W4	
Custom Dials	Logo or custom face	M	Consult factory for colors and minimums

PAPER MACHINE GAUGE DIMENSIONS



X-MAS TREE GAUGE

- Accuracy $\pm 1\%$
- Polished Stainless Steel Case
- Ranges to 10,000 psi
- Adjustable Micrometer Pointer

Marsh Instruments has been on top of X-mas Trees and well-heads longer than any other name. Marsh offers the same high-performance gauge for replacement. Other gauge manufacturers can state X-mas Tree Gauge on their products but only Marsh Instruments can offer you all the special features, and dependability, that you expect! Features include a polished stainless steel case with stainless steel tube, tip, and socket, and an easy to adjust micrometer pointer.

Marsh Instruments X-mas Tree gauges are designed for the oil patch, well heads and offshore oil platforms.



STANDARD RANGES & PART NUMBERS

TYPE	X-MAS TREE GAUGE
Size	4½"
Case Material	304 Stainless Steel
Internals	Stainless Steel
Mounting / Case Style	LM
Connection	½ NPT
Scale Standard	psi
0 to 1,000 psi	W0574
0 to 1,500 psi	W0578
0 to 2,000 psi	W0582
0 to 3,000 psi	W0586
0 to 5,000 psi	W0590
0 to 10,000 psi	W0594

SPECIFICATIONS

ACCURACY

ASME Grade A – $\pm 1\%$
($\pm 1\%$ of range across full scale)

CASE SIZES

4½" diameter

CASE MATERIAL

304 Stainless Steel

CASE STYLE

LBM – Lower Mount
with blowout plug

TUBE & SOCKET

Stainless Steel

MOVEMENT

316 Stainless Steel

CONNECTION

½ NPT

RANGES

1,000 to 10,000 psi

DIAL STANDARD

Single scale psi

DIAL COLOR

Black markings on white

POINTER

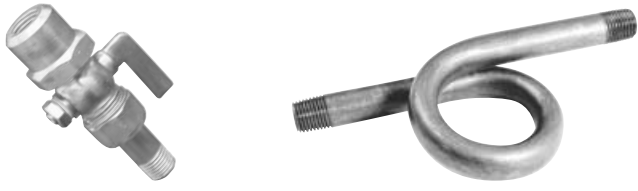
Aluminum, black painted,
micro-adjustable.

WINDOW & RING

Acrylic window with bayonet ring





PART#	DESCRIPTION
	
GAUGE COCK AND SIPHONS	
111025	1/4" F x 1/4" F Brass Gauge Cock (T-Handle #123)
111028	1/4" M union x 1/4" F Brass Gauge Cock (Lever Handle #125)
111029	1/4" M x 1/4" M Steel Straight Siphon (600psi @ 400°F)
111030	1/4" M x 1/4" M Brass Straight Siphon (250psi @ 400°F)
111031	1/4" M x 1/4" M Steel Angle Type Siphon (600psi @ 400°F)
111032	1/4" M x 1/4" M Brass Angle Type Siphon (250psi @ 400°F)
CLEARLOK (ACRYLIC) CONVEX WINDOW INTERNAL THREAD "G" Series Fig. 83 Diaphragm Gauges	
124602	2 1/2" for 83K & 83KC
127985	2 1/2" for 83KB & 83KD
125448-001	3 1/2" for all models (knurled edge)
CLEARLOK (ACRYLIC) WINDOWS (INTERNAL THREAD) "J" SERIES	
W15CL	1 1/2" for LM or CB
W20CL	2" for LM or CB
W20CLUC	2" for U-Clamp or Front Flange
W25CL	2 1/2" for LM or CB
W25CLUC	2 1/2" for U-Clamp or Front Flange
W35CL	3 1/2" for LM or CB
W35CLUC	3 1/2" for U-Clamp or Front Flange
RESTRICTOR SCREWS 1/8" & 1/4" NPT Threaded Brass 8-40	
100116-008	AIR (.008)
100116-013	WATER (.013)
100116-016	OIL (.016)
RESTRICTOR SCREWS LARGE DIAL (D, E, H, & P) 1/4" & 1/2" NPT Threaded Brass M5 X 0.8	
RES008BRLD	AIR (.008)
RES013BRLD	WATER (.013)
RES016BRLD	OIL (.016)
RESTRICTOR SCREWS LARGE DIAL (D, E, H, & P) 1/4" & 1/2" NPT Threaded 316 SST M5 X 0.8	
RES018SSLD	All Apps. (.018)
RESTRICTOR SCREWS GENERAL SERVICE (J)	
150139-013	Air (.013)
150139-018	"Standard" (.018)
150139-025	Water (.025)
150139-040	Oil (.040)
RESTRICTOR SCREWS SEVERE SERVICE SERIES (J & X) 1/8", 1/4" & 1/2" NPT Push-In Brass	
RES018PB	"Standard" (.018)
RES013PB	AIR (.013)
RES025PB	WATER (.025)
RES040PB	OIL (.040)

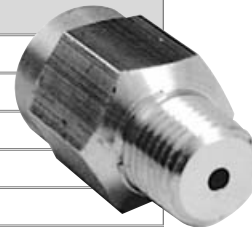
PART#	DESCRIPTION
RESTRICTOR SCREWS SEVERE SERVICE SERIES J & X 1/8", 1/4" & 1/2" Push-In 316 SST	
RES018PBSS	"Standard" (.018)
FRONT FLANGE (3-HOLE) CASE & WINDOW ASS'Y FOR BACK CONNECT (CB) "J" Series Gauge	
CS25FF	2 1/2" Front Flange Case
W25CLUC	2 1/2" Window Assembly
CS35FF	3 1/2" Front Flange Case
W35CLUC	3 1/2" Window Assembly
LIQUID FILL CONVERSION KIT	
9-79999-93	Liquid Fill Kit
127656	Silicone, 1000 cc, 1 quart
133426	Glycerine, 1 quart
	
MAX. HAND ASSEMBLY WITH THUMB SCREW	
W20CLMAX	2" Steel Case (J) LM & CBM only
W25CLMAX	2 1/2" Steel Case (J) LM & CBM only
W35CLMAX	3 1/2" Steel Case (J&W) LM & CBM only
128311-001	3 1/2" Large Dial (H)
128311-002	4 1/2" Large Dial (D, H, & P)
	
HAND JACK & DUPLEX HAND JACK	
110983	Duplex Hand Jack/Driver Set
110985	Hand Jack (Pointer Remover)
ADJUSTABLE (SLOTTED) POINTER	
PTR20ADJ-B	Adjustable Pointer - 2"
PTR25ADJ-B	Adjustable Pointer - 2 1/2"
PTR35ADJ-B	Adjustable Pointer - 3 1/2"
PTR45ADJ-B	Adjustable Pointer - 4 1/2"
MICROMETER POINTER, LARGE DIAL SERIES	
PTRP45	4 1/2" Dial (D, H & P)
PTRP60	6" Dial (D, H & P)



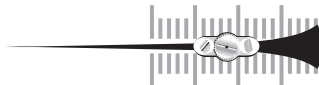
PART#	DESCRIPTION
SEVERE SERVICE GAUGE ACCESSORIES	
127794	Adapter ring, 63mm to 2½"
Flange63	Front Flange for 63mm: C Case
133279	Front Flange for 63mm: CB or UC case (no holes)
Flange100	Front Flange for 100mm: C Case
CERTIFICATION FORMS	
134476	Material Certification
134477	Certificate of Conformance
134478	Certificate of Compliance
134479	Certificate of Origin
134480	Certificate of Calibration
134481	Certificate of Accuracy



PART#	DESCRIPTION	MEDIA	MAXIMUM PRESSURES
INDUSTRIAL PRESSURE SNUBBERS			
S20BD	¼ NPT, Brass	Heavy Oil	5,000 psi
S20BE	¼ NPT, Brass	Water & Light Oil	5,000 psi
S20BG	¼ NPT, Brass	Air & Gases	5,000 psi
S20SD	¼ NPT, 303SS	Heavy Oil	15,000 psi
S20SE	¼ NPT, 303SS	Water & Light Oil	15,000 psi
S20SG	¼ NPT, 303SS	Air & Gases	15,000 psi
S40BD	½ NPT, Brass	Heavy Oil	5,000 psi
S40BE	½ NPT, Brass	Water & Light Oil	5,000 psi
S40BG	½ NPT, Brass	Air & Gases	5,000 psi
S40SD	½ NPT, 303SS	Heavy Oil	15,000 psi
S40SE	½ NPT, 303SS	Water & Light Oil	15,000 psi
S40SG	½ NPT, 303SS	Air & Gases	15,000 psi



Diaphragm Seals



MODEL 12000 MINI SERVICEABLE RUBBER DIAPHRAGM SEAL

The Model 12000 Serviceable Mini Diaphragm Seal is designed for gauges and instruments with operating pressures of 2500 psi with stainless and 500 psi with PVC models. Ideally suited for small applications and corrosive installations. The optional 'Easy Clean Out' feature allows the removal of the process side housing without losing the instrument side fill fluid. Fill / bleed screw port in the instrument side housing, and stainless steel build screws are standard.

FILLED & CALIBRATED TO GAUGES ONLY.



MODEL B8498 GAUGE PROTECTOR WITH RUBBER DIAPHRAGM SEAL

The Model B8498 Gauge Protector is designed for extremely high volume displacement. Ideally suited for gauges and instruments with operating pressures up to 200 psi and vacuum applications. Available in 1/4" threaded connections and chrome plated zinc construction. A 3/8" flush plug is standard in the process side housing.

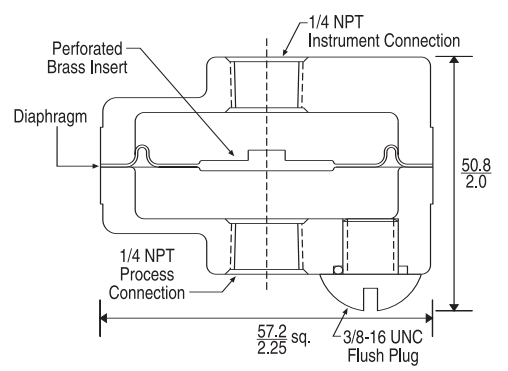
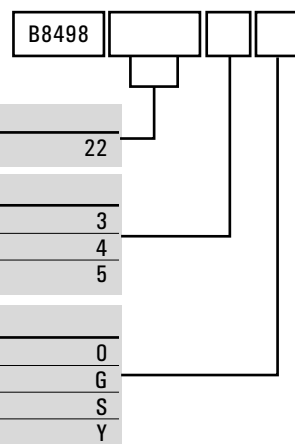
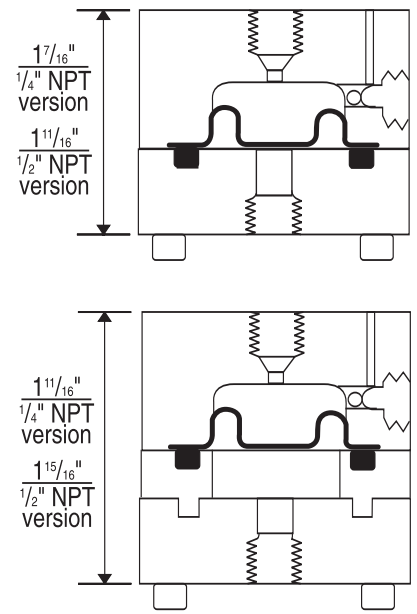
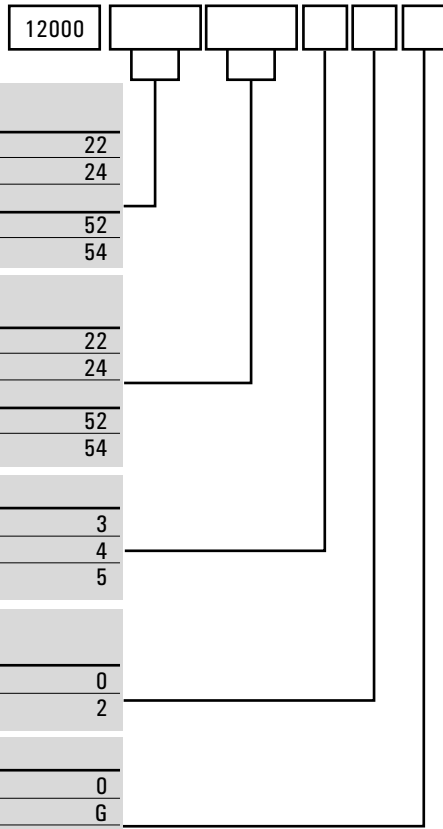
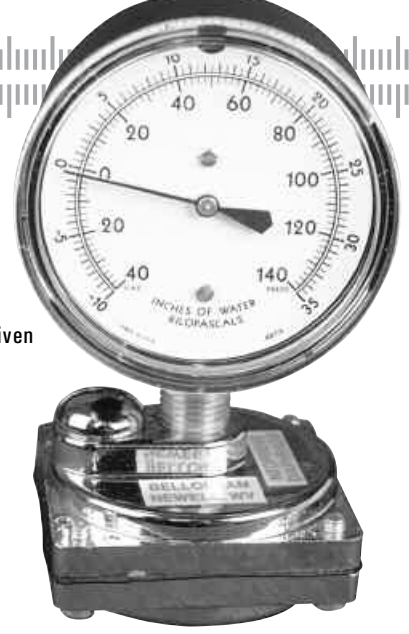
FILLED & CALIBRATED TO GAUGES ONLY.

Diaphragm seals are isolation devices which separate pressure gauges and other instruments from the process media while allowing the instrument to measure the process pressure. The service life of the instrument is greatly extended, because it is protected from corrosion, clogging, freezing, or pulsation.

LIQUID FILLINGS

The selection of the fill depends on the temperature expected in any given application. Temperature ratings for available fillings are listed below.

Glycerine	0 to 400°F
Silicone	-40 to 600°F
Syltherm	-40 to 750°F



Diaphragm Seals



MODEL 13000 MINI / ALL WELDED DIAPHRAGM SEAL

The Model 13000 Mini Welded Seal is designed for 2" to 3½" bourdon tube gauges with a minimum pressure of 100 psi. The maximum operating pressure is 2000 psi at 100° F. Available in all 316 SS or Hastelloy C process housing and diaphragm.

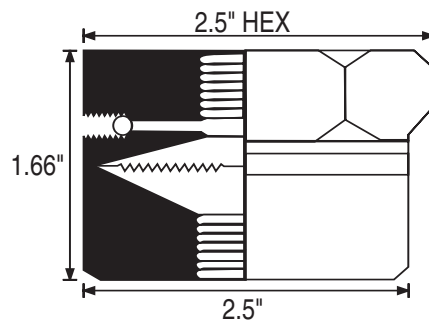
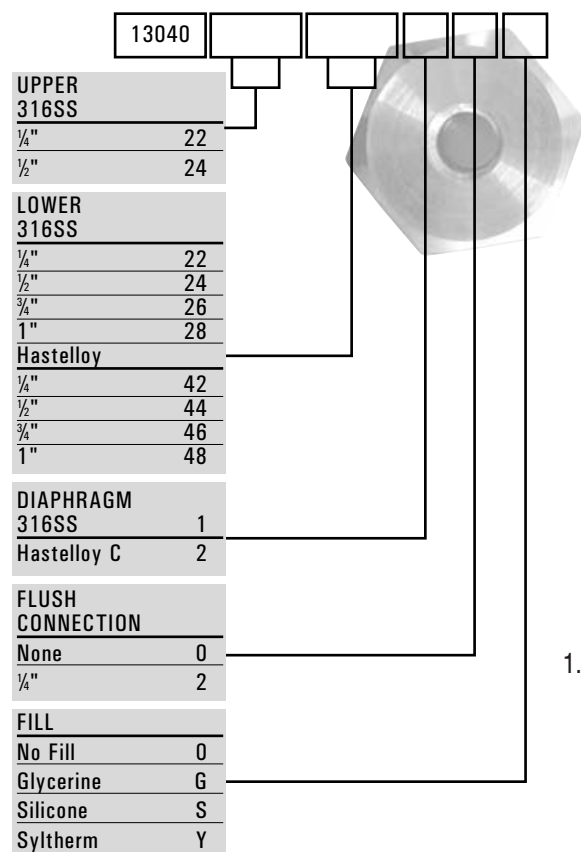
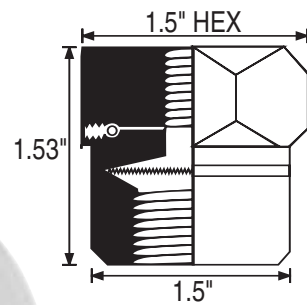
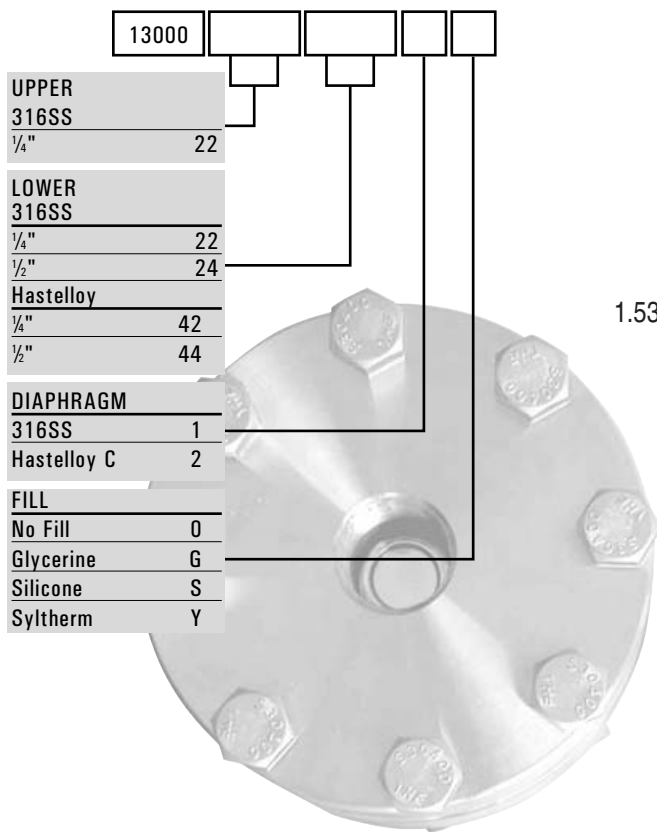
FILLED & CALIBRATED TO GAUGES ONLY.



MODEL 13040 ALL WELDED DIAPHRAGM SEAL

The Model 13040 All Welded Seal is designed for 2" to 4½" bourdon tube gauges with pressure ranges from vacuum to 1000 psi. Available in all 316SS or Hastelloy C process housing and diaphragm, with threaded connections. Optional flushing connections also available.

FILLED & CALIBRATED TO GAUGES ONLY.



Diaphragm Seals



MODEL 14000 REMOVABLE DIAPHRAGM SEAL

The Model 14000 Diaphragm Seal is a clamped metal design featuring interlocking construction inside the bolt circle for perfect alignment. The upper and lower housings clamp the diaphragm in place and allow for field servicing. The 14000 is available in threaded connections for pressures from vacuum to 2500 psi. Fill/bleed port screw in the upper is standard and an optional flush connection is available.

FILLED & CALIBRATED TO GAUGES ONLY.

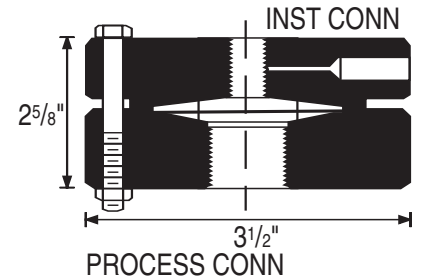


MODEL 14040 WELDED DIAPHRAGM SEAL

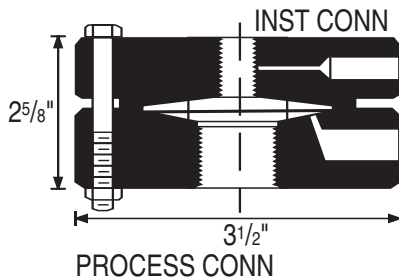
The Model 14040 Welded Diaphragm Seal is a welded diaphragm-to-upper design allowing the upper housing to be removed with the instrument in place without losing fill. The same interlocking feature as the 14000 is used to assure alignment of the upper to the lower. Available in threaded connections for pressures from vacuum to 2500 psi. Fill/bleed port screw in the upper is standard and an optional flush connection is available.

FILLED & CALIBRATED TO GAUGES ONLY

14000						
UPPER Steel						
1/4"	12					
1/2"	14					
316SS						
1/4"	22					
1/2"	24					
LOWER Steel						
1/4"	12					
1/2"	14					
3/4"	16					
1"	18					
316SS						
1/4"	22					
1/2"	24					
3/4"	26					
1"	28					
DIAPHRAGM						
316SS	1					
Hastelloy C	2					
Tantalum	3					
FLUSH CONNECTION						
None	0					
1/4"	2					
BOLTS & NUTS						
Steel	0					
Stainless	1					
FILL						
No Fill	0					
Glycerine	G					
Silicone	S					
Syltherm	Y					



14040						
UPPER Steel						
1/4"	12					
1/2"	14					
316SS						
1/4"	22					
1/2"	24					
LOWER Steel						
1/4"	12					
1/2"	14					
3/4"	16					
1"	18					
316SS						
1/4"	22					
1/2"	24					
3/4"	26					
1"	28					
DIAPHRAGM						
316SS	1					
Hastelloy C	2					
Tantalum	3					
FLUSH CONNECTION						
None	0					
1/4"	2					
BOLTS & NUTS						
Steel	0					
Stainless	1					
FILL						
No Fill	0					
Glycerine	G					
Silicone	S					
Syltherm	Y					



HOT WATER THERMOMETER

- ± 1% of span throughout entire range
- Aluminum stem and case material
- Bi-metallic element

Thermometer is available with standard ½" or ¾" NPT male separable socket or ½" or ¾" sweatwell connection that allows easy thermometer removal while maintaining a "sealed" system.

Marsh Instruments Hot Water Thermometers are designed for accurate temperature readings in hot water lines, boilers and hydronic systems.



DESCRIPTION	P/N
½ NPT	L8004-1
¾ NPT	L8004-2
½" sweatwell	L8004-3
¾" sweatwell	L8004-4

SPECIFICATIONS

ACCURACY
± 1% of span throughout entire range

CASE SIZE
2½" Diameter

CASE MATERIAL
Aluminum

STEM
Aluminum

MOVEMENT
Bi-metallic element

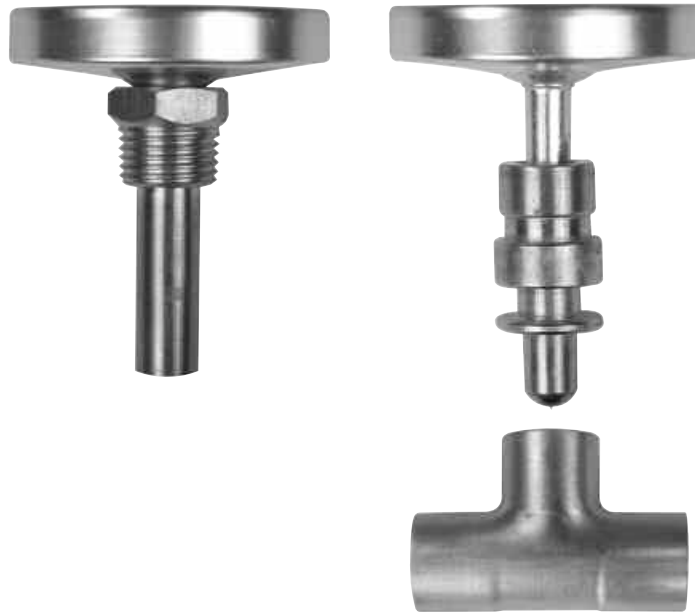
CONNECTION
½ or ¾ NPT Center Back,
½" or ¾" Sweatwell Center Back

RANGE
30-250° F & 0-120° C

DIAL COLOR
White with Black & Red Markings

POINTER
Aluminum, Black Painted

RECALIBRATOR
Standard





BIMETAL THERMOMETERS

- External Reset Feature for Field Recalibration (3" & 5")
- 9 Dual Scale Ranges to 1,000°F (525°C)
- Hermetically Sealed Case Design
- 2", 3" and 5" Dials
- Stem Lengths to 24"
- 1% Full Scale Accuracy

Marsh Instruments Bimetal Thermometers combine the benefits of economy and reliability for local mounted temperature indication in the dual scale ranges from -50° to 1,000°F (-40° to 525°C). Additional advantages offered by the Series "L" Bimetal Thermometers include an easy-to-read dual scale, fast speed of response, and accurate temperature indication. The hermetically sealed and ruggedly built case is resistant to shock, vibration, dust and moisture. Corrosion resistance to most chemicals is provided by the all welded type 304 Stainless Steel construction. The extremely responsive bimetal sensing element provides an accuracy to within $\pm 1\%$ of scale. An external adjustment screw on the back of the 3" and 5" case provides convenient reset and field recalibration. Built-in over range protection is a standard feature.

Typical applications include process, offshore, power, chemical industries, HVAC and OEM applications.

STANDARD RANGES & PART NUMBERS

TYPE	BIMETAL THERMOMETERS						
Size	2"						
Connection	½ NPT						
Mounting	CB	CB	CB	CB	CB	CB	CB
Stem Length	2½"	4"	6"	9"	12"	15"	18"
-50° to 120°F / -40° to 50°C	L11101	L11201	L11301	L11401	L11501	L11601	L11701
-40° to 160°F / -40° to 70°C	L11102	L11202	L11302	L11402	L11502	L11602	L11702
0° to 200°F / -20° to 90°C	L11104	L11204	L11304	L11404	L11504	L11604	L11704
0° to 250°F / -20° to 120°C	L11105	L11205	L11305	L11405	L11505	L11605	L11705
50° to 300°F / 10° to 150°C	L11106	L11206	L11306	L11406	L11506	L11606	L11706
50° to 400°F / 10° to 200°C	L11107	L11207	L11307	L11407	L11507	L11607	L11707
50° to 550°F / 10° to 300°C	L11108	L11208	L11308	L11408	L11508	L11608	L11708
150° to 750°F / 70° to 400°C	L11110	L11210	L11310	L11410	L11510	L11610	L11710
200° to 1000°F / 100° to 525°C	L11111	L11211	L11311	L11411	L11511	L11611	L11711
Size	3"						
Connection	½ NPT						
Mounting	CB	CB	CB	CB	CB	CB	CB
Stem Length	2½"	4"	6"	9"	12"	15"	18"
-50° to 120°F / -40° to 50°C	L31101	L31201	L31301	L31401	L31501	L31601	L31701
-40° to 160°F / -40° to 70°C	L31102	L31202	L31302	L31402	L31502	L31602	L31702
0° to 200°F / -20° to 90°C	L31104	L31204	L31304	L31404	L31504	L31604	L31704
0° to 250°F / -20° to 120°C	L31105	L31205	L31305	L31405	L31505	L31605	L31705
50° to 300°F / 10° to 150°C	L31106	L31206	L31306	L31406	L31506	L31606	L31706
50° to 400°F / 10° to 200°C	L31107	L31207	L31307	L31407	L31507	L31607	L31707
50° to 550°F / 10° to 300°C	L31108	L31208	L31308	L31408	L31508	L31608	L31708
150° to 750°F / 70° to 400°C	L31110	L31210	L31310	L31410	L31510	L31610	L31710
200° to 1000°F / 100° to 525°C	L31111	L31211	L31311	L31411	L31511	L31611	L31711

SPECIFICATIONS

ACCURACY

$\pm 1\%$ of span throughout entire range for 2" immersion in liquids, 4" in gases

CASE SIZES

2", 3", and 5" sizes

CASE MATERIAL

304 Stainless steel

STEM

2½", 4", 6", 9", 12", 15", 18" & 24" Stainless Steel; ¼" diameter

CONNECTIONS

½" NPT: CB—Center Back connection (2" case only)

½" NPT: CB—Center Back connection or AJ—Adjustable connection (3" & 5")

DIALS

Dual scale in degrees Celsius and Fahrenheit

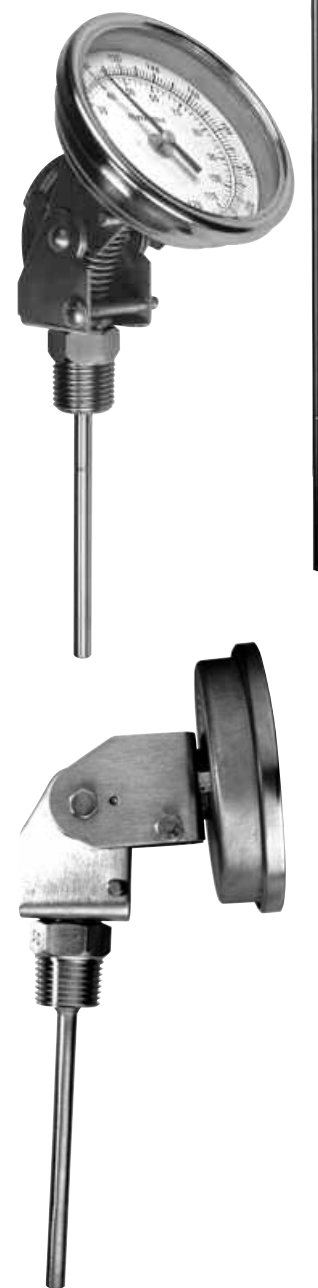
WINDOW

Glass, hermetically sealed



STANDARD RANGES & PART NUMBERS

TYPE		BIMETAL THERMOMETERS							
Size	3" Adjustable Angle								
Connection	½ NPT								
Mounting	AJ	AJ	AJ	AJ	AJ	AJ	AJ		
Stem Length	2½"	4"	6"	9"	12"	15"			
-50° to 120°F/-40° to 50°C	L33101	L33201	L33301	L33401	L33501	L33601			
-40° to 160°F/-40° to 70°C	L33102	L33202	L33302	L33402	L33502	L33602			
0° to 200°F/-20° to 90°C	L33104	L33204	L33304	L33404	L33504	L33604			
0° to 250°F/-20° to 120°C	L33105	L33205	L33305	L33405	L33505	L33605			
50° to 300°F/ 10° to 150°C	L33106	L33206	L33306	L33406	L33506	L33606			
50° to 400°F/ 10° to 200°C	L33107	L33207	L33307	L33407	L33507	L33607			
50° to 550°F/ 10° to 300°C	L33108	L33208	L33308	L33408	L33508	L33608			
150° to 750°F/ 70° to 400°C	L33110	L33210	L33310	L33410	L33510	L33610			
200° to 1000°F/ 100° to 525°C	L33111	L33211	L33311	L33411	L33511	L33611			
Size	5"								
Connection	½ NPT								
Mounting	CB	CB	CB	CB	CB	CB	CB	CB	
Stem Length	2½"	4"	6"	9"	12"	15"	18"	24"	
-50° to 120°F/-40° to 50°C	L51101	L51201	L51301	L51401	L51501	L51601	L51701	L51801	
-40° to 160°F/-40° to 70°C	L51102	L51202	L51302	L51402	L51502	L51602	L51702	L51802	
0° to 200°F/-20° to 90°C	L51104	L51204	L51304	L51404	L51504	L51604	L51704	L51804	
0° to 250°F/-20° to 120°C	L51105	L51205	L51305	L51405	L51505	L51605	L51705	L51805	
50° to 300°F/ 10° to 150°C	L51106	L51206	L51306	L51406	L51506	L51606	L51706	L51806	
50° to 400°F/ 10° to 200°C	L51107	L51207	L51307	L51407	L51507	L51607	L51707	L51807	
50° to 550°F/ 10° to 300°C	L51108	L51208	L51308	L51408	L51508	L51608	L51708	L51808	
150° to 750°F/ 70° to 400°C	L51110	L51210	L51310	L51410	L51510	L51610	L51710	L51810	
200° to 1000°F/ 100° to 525°C	L51111	L51211	L51311	L51411	L51511	L51611	L51711	L51811	
Size	5" Adjustable Angle								
Connection	½ NPT								
Mounting	AJ	AJ	AJ	AJ	AJ	AJ	AJ	AJ	
Stem Length	2½"	4"	6"	9"	12"	15"	18"	24"	
-50° to 120°F/-40° to 50°C	L53101	L53201	L53301	L53401	L53501	L53601	L53701	L53801	
-40° to 160°F/-40° to 70°C	L53102	L53202	L53302	L53402	L53502	L53602	L53702	L53802	
0° to 200°F/-20° to 90°C	L53104	L53204	L53304	L53404	L53504	L53604	L53704	L53804	
0° to 250°F/-20° to 120°C	L53105	L53205	L53305	L53405	L53505	L53605	L53705	L53805	
50° to 300°F/ 10° to 150°C	L53106	L53206	L53306	L53406	L53506	L53606	L53706	L53806	
50° to 400°F/ 10° to 200°C	L53107	L53207	L53307	L53407	L53507	L53607	L53707	L53807	
50° to 550°F/ 10° to 300°C	L53108	L53208	L53308	L53408	L53508	L53608	L53708	L53808	
150° to 750°F/ 70° to 400°C	L53110	L53210	L53310	L53410	L53510	L53610	L53710	L53810	
200° to 1000°F/ 100° to 525°C	L53111	L53211	L53311	L53411	L53511	L53611	L53711	L53811	



Temperature



POCKET THERMOMETER

- 1" Dial
- 304 Stainless Steel Hermetically Sealed Case
- 5" long stem
- Protective Case with Stainless Steel Clip

Marsh pocket thermometers have a 1" dial, 304SS hermetically sealed case, 304SS 0.4mm diameter 5" long stem, and plastic lens. The accuracy is $\pm 1.5\%$ of scale range. Each unit comes with a protective case with SS clip, that allows it to be safely carried in your pocket and also can be used to hold the thermometer in the medium to be tested.

Typical applications include the food industries, HVAC/R industries, and any applications requiring fast and accurate temperature.

SPECIFICATIONS

ACCURACY

$\pm 1.5\%$ of span throughout entire range

CASE MATERIAL

304 Stainless Steel

RANGES

-40/160°F, 0/220°F, 50/550°F

STANDARD RANGES & PART NUMBERS

PART NUMBER	DESCRIPTION & RANGE
L020E	1" dial, 5" stem, -40/160°F
L041E	1" dial, 5" stem, 0/220°F
L080E	1" dial, 5" stem, 50/550°F



DIGITAL POCKET THERMOMETER

- 3.5 Digit LCD display
- ABS Plastic Case
- 5" long stem
- Protective Case with Stainless Steel Clip

Marsh Digital Pocket Thermometers have a 3.5 digit LCD display, ABS case and a 304SS 5" long stem. The accuracy is $\pm 2^\circ\text{F}$ with an update time of 10 seconds. Each unit has an on-off switch for longer battery life and comes with the protective carrying case.

Typical applications include the food industries, HVAC/R industries, and any applications requiring fast and accurate temperature.

SPECIFICATIONS

ACCURACY

$\pm 2^\circ\text{F}$

CASE MATERIAL

ABS Plastic

RANGE

-58 to 302 °F / -50 to 150 °C

STANDARD RANGES & PART NUMBERS

PART NUMBER	DESCRIPTION & RANGE
L021DG	3.5 digit display, 5" stem, -58 to 302 °F / -50 to 150 °C



INDUSTRIAL THERMOMETER

- Standard Well & Lagging Well Option
- Mounting Options: Adjustable Angle
- Easy to Read Dual Scale
- 5 Temperature Ranges
- Aluminum or Molded Glass Fiber Case

Marsh Industrial Thermometers are designed for demanding applications. The large 9" scale permits easy reading at longer distances. The glass-reinforced nylon case is lightweight yet rugged enough for demanding installations. The adjustable stem can be locked into any position through a 180° arc. These thermometers are commonly used on hot or chilled water lines in commercial/industrial buildings.

The Marsh Industrial Thermometers have a compact design that is well suited for limited space applications such as diesel engines, steam turbines, reduction gears, pumps, condensers and pipelines.

STANDARD RANGES & PART NUMBERS

TYPE	INDUSTRIAL THERMOMETERS 9" ADJUSTABLE		
	With 3½" Stem		
Stem & Well	3½" (NO)	3½" SW	3½" LW
Dual Scale	°F & °C	°F & °C	°F & °C
Range			
-40° to 110°F / -40° to 40°C	Y1210	Y1202	Y1242
0° to 120°F / -15° to 45°C	Y1211	Y1203	Y1243
0° to 160°F / -15° to 65°C	Y1212	Y1204	Y1244
30° to 240°F / 0° to 115°C	Y1214	Y1206	Y1246
30° to 300°F / 0° to 150°C	Y1216	Y1208	Y1248
	With 6" Stem		
Stem & Well	6" (NO)	6" SW	6" LW
Dual Scale	°F & °C	°F & °C	°F & °C
Range			
-40° to 110°F / -40° to 40°C	Y1218	Y1226	Y1234
0° to 120°F / -15° to 45°C	Y1219	Y1227	Y1235
0° to 160°F / -15° to 65°C	Y1220	Y1228	Y1236
30° to 240°F / 0° to 115°C	Y1222	Y1230	Y1238
30° to 300°F / 0° to 150°C	Y1224	Y1232	Y1240

TYPE	SEPARABLE SOCKETS (THERMOWELLS)	
Process Connection	¾ NPT	¾ NPT
Material	Brass	304 SST
Stem Length & Well Style		
3½" Standard	223499-001	223502
6" Standard	223371	223512
6" with 2" Lagging	223389	223538

INDUSTRIAL THERMOMETER OPTIONS

Option	Type	Suffix	Available on Models
Case	Aluminum	A	All Models



SPECIFICATIONS

ACCURACY

± 1% of scale range

INDICATING COLUMN

Blue liquid fill

SCALE

Dual scale °F & °C.

White coated aluminum

SCALE LENGTH

9 inches

CASE MATERIAL

Molded black nylon, glass fiber reinforced

WINDOW

Glass

CONNECTION & STEM

1¼"-18 swivel nut, for use with separable socket. Adjustable aluminum 3½" or 6" stem with 360° rotation

SEPARABLE SOCKET (THERMOWELL)

Choice of (NO) well, (SW) Standard Brass Well, or (LW) 2" Lagging Brass Extension Well.



SUBMARINE THERMOMETER

- 5" Scale Size
- V-Shaped aluminum scale with black markings
- Lens front, red reading organic filled tube
- Gray ABS Case
- 2" nominal stem length for 3/4" OA socket

Each thermometer is manufactured to a standard accuracy of 1% of span. Gray case with red reading spirit filled tube with magnifying lens for easy readability. White aluminum scale with bold black graduations and figures. Typical applications include diesel engines, steam turbines, pumps, condensers, pipelines, boilers and chillers.

SPECIFICATIONS

ACCURACY

± 1% of scale range

INDICATING COLUMN

Red liquid fill

SCALE

Dual scale °F & °C.

White coated aluminum

SCALE LENGTH

5 inches

CASE MATERIAL

Gray ABS

WINDOW

Glass

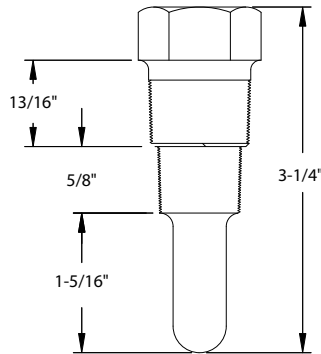
CONNECTION & STEM

3/4"-28" swivel nut, for use with separable socket (thermowell).

STANDARD RANGES & PART NUMBERS

TYPE	SUBMARINE THERMOMETERS	
Stem Length	2"	
Dual Scale	°F & °C	
	STRAIGHT	90° BACK ANGLE
Range		
-40° to 110°F / -40° to 40°C	Y1402	Y1412
20° to 180°F / -6° to 82°C	Y1404	Y1414
30° to 240°F / 0° to 114°C	Y1406	Y1416
50° to 400°F / 10° to 200°C	Y1408	Y1418

TYPE	THERMOWELL
Connection	1/2" and 3/4" NPT
Material	Brass
Stem/Well Length	
2" / 3/4" OA	223666



THERMOWELL DIMENSIONS—3/4"-28" Female Thread (internal)



TRIDICATORS

- Back and Bottom Mounting Options
- Rotatable Set Pointer
- Rugged Construction
- Three-Color Dial
- Three Pressure Ranges
- 2½" & 3½" Sizes

Marsh Instruments Tridicators (Boiler Gauges) are designed and suitable for hot water heating systems. These instruments indicate pressure in psi and altitude for pools and spa's in feet of H₂O; in °F and °C. All models feature a set hand for setting the desired pressure and altitude of the installation.

Typical applications include hot water boilers, heated pools, spa's and hot tubs.

STANDARD RANGES & PART NUMBERS

TYPE	TRIDICATORS		
	2½"	3½"	3½"
Size	2½"	3½"	3½"
Case Material	Steel	Steel	Steel
Internals	Copper Alloy	Copper Alloy	Copper Alloy
Mounting/Case Style	CB	LBM	LM
Connection	¼ NPT	½ NPT	½ NPT
Scale Standard	psi/Feet of Water	psi/Feet of Water	psi/Feet of Water
0 to 60 psi / 0 to 130 ft H ₂ O	Y22026	Y22006	Y22002
0 to 100 psi / 0 to 230 ft H ₂ O		Y22008	Y22004
0 to 200 psi / 0 to 460 ft H ₂ O		Y22016	Y22012
0 to 300 psi / 0 to 680 ft H ₂ O		Y22018	Y22014



SPECIFICATIONS

ACCURACY
ASME Grade B = ±3/2/3% (±2% of range across middle half of scale)

CASE SIZE
2½" Round & 3½" Square

CASE MATERIAL
Steel, black painted

CONNECTION
2½" case: ¼ NPT Center Back Mount, 3½" case: ½ NPT Lower Mount or Lower Back Mount

PRESSURE RANGES
Dual scale in 4 ranges:
0 to 60 psi & 0 to 130 ft. of water
0 to 100 psi & 0 to 230 ft. of water
0 to 200 psi & 0 to 480 ft. of water
0 to 300 psi & 0 to 680 ft. of water

TEMPERATURE RANGE
60° to 260°F & 20° to 120°C

DIALS
Black markings on white

TUBE & SOCKET
Copper Alloy

POINTERS
Aluminum, red painted with black painted set pointer

WINDOW
3½" Glass
2½" Acrylic



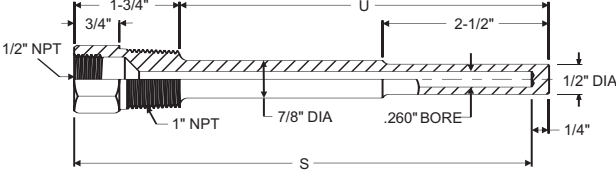


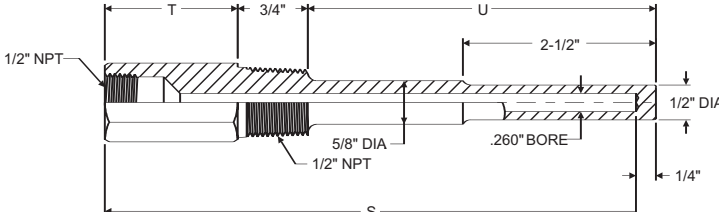
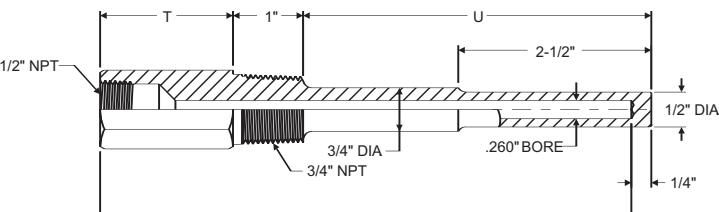
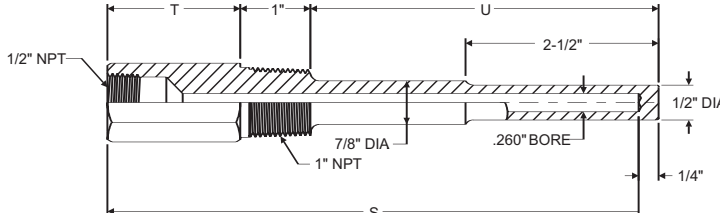
THERMOWELLS

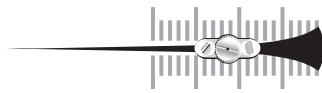
- In-Stock Thermowells for fast delivery
- Brass, 304 Stainless Steel or 316 Stainless Steel
- Tapered or Straight Shank
- 0.260/0.385 Standard Bore Sizes
- Threaded for easy connection

THERMOWELLS	PART #	"S" STEM	"U" INSERTION	WELL MATERIAL
	M3957K67	2½	1½	Brass
	M3957K68	2½	1½	304SS
	M3957K69	2½	1½	316SS
	M3957K64	4	2½	Brass
	M3957K65	4	2½	304SS
	M3957K66	4	2½	316SS
	M3957K37	6	4½	Brass
	M3957K38	6	4½	304SS
	M3957K51	6	4½	316SS
	M3957K39	9	7½	Brass
	M3957K41	9	7½	304SS
	M3957K52	9	7½	316SS
	M3957K42	12	10½	Brass
	M3957K43	12	10½	304SS
	M3957K53	12	10½	316SS
	M3957K71	18	16½	Brass
	M3957K72	18	16½	304SS
	M3957K73	18	16½	316SS
	M3957K75	24	22½	304SS
	M3957K76	24	22½	316SS
	M3957K77	2½	1½	Brass
	M3957K78	2½	1½	304SS
	M3957K79	2½	1½	316SS
		M3957K11	4	2½
M3957K21		4	2½	304SS
M3957K54		4	2½	316SS
M3957K12		6	4½	Brass
M3957K22		6	4½	304SS
M3957K55		6	4½	316SS
M3957K13		9	7½	Brass
M3957K23		9	7½	304SS
M3957K56		9	7½	316SS
M3957K44		12	10½	Brass
M3957K45		12	10½	304SS
M3957K57		12	10½	316SS
M3957K84		18	16½	Brass
M3957K85		18	16½	304SS
M3957K86		18	16½	316SS
M3957K87	24	22½	Brass	
M3957K88	24	22½	304SS	
M3957K89	24	22½	316SS	



THERMOWELLS	PART #	"S" STEM	"U" INSERTION	WELL MATERIAL
	M3957K46	4	2½	Brass
	M3957K47	4	2½	304SS
	M3957K58	4	2½	316SS
	M3957K48	6	4½	Brass
	M3957K49	6	4½	304SS
	M3957K59	6	4½	316SS
	M3957K91	9	7½	Brass
	M3957K92	9	7½	304SS
	M3957K93	9	7½	316SS
	M3957K94	12	10½	Brass
	M3957K95	12	10½	304SS
	M3957K96	12	10½	316SS
	M3957K14	18	16½	Brass
	M3957K15	18	16½	304SS
	M3957K16	18	16½	316SS
	M3957K18	24	22½	304SS
	M3957K19	24	22½	316SS

THERMOWELLS	PART #	"S" STEM	"U" INSERTION	"T" LAG	WELL MATERIAL
	M3957K24	9	4½	4	Brass
	M3957K25	9	4½	4	304SS
	M3957K26	9	4½	4	316SS
	M3957K27	12	7½	4	Brass
	M3957K28	12	7½	4	304SS
	M3957K29	12	7½	4	316SS
	M3957K4	18	13½	4	Brass
	M3957K5	18	13½	4	304SS
	M3957K6	18	13½	4	316SS
	M3957K8	24	19½	4	304SS
	M3957K9	24	19½	4	316SS
	M3957K31	6	2½	2¾	Brass
	M3957K32	6	2½	2¾	304SS
	M3957K61	6	2½	2¾	316SS
	M3957K33	9	4½	3¾	Brass
	M3957K34	9	4½	3¾	304SS
	M3957K62	9	4½	3¾	316SS
	M3957K35	12	7½	3¾	Brass
	M3957K36	12	7½	3¾	304SS
	M3957K63	12	7½	3¾	316SS
	M3957K115	18	13½	3¾	304SS
	M3957K116	18	13½	3¾	316SS
	M3957K117	24	19½	3¾	Brass
	M3957K118	24	19½	3¾	304SS
	M3957K119	24	19½	3¾	316SS
	M3957K121	9	4½	3¾	Brass
	M3957K122	9	4½	3¾	304SS
	M3957K123	9	4½	3¾	316SS
	M3957K124	12	7½	3¾	Brass
	M3957K125	12	7½	3¾	304SS
	M3957K126	12	7½	3¾	316SS
	M3957K131	18	13½	3¾	Brass
	M3957K132	18	13½	3¾	304SS
	M3957K133	18	13½	3¾	316SS
	M3957K134	24	19½	3¾	Brass
	M3957K135	24	19½	3¾	304SS
	M3957K136	24	19½	3¾	316SS



THERMOWELLS	PART #	"S" STEM	"U" INSERTION	WELL MATERIAL
	M3957K137	4	2½	Brass
	M3957K138	4	2½	304SS
	M3957K139	4	2½	316SS
	M3957K141	6	4½	Brass
	M3957K142	6	4½	304SS
	M3957K143	6	4½	316SS
	M3957K144	9	7½	Brass
	M3957K145	9	7½	304SS
	M3957K146	9	7½	316SS
	M3957K147	12	10½	Brass
	M3957K148	12	10½	304SS
	M3957K149	12	10½	316SS
	M3957K162	4	2½	Brass
	M3957K163	4	2½	304SS
	M3957K164	4	2½	316SS
	M3957K165	6	4½	Brass
	M3957K166	6	4½	304SS
	M3957K167	6	4½	316SS
	M3957K168	9	7½	Brass
	M3957K169	9	7½	304SS
	M3957K171	9	7½	316SS
	M3957K172	12	10½	Brass
	M3957K173	12	10½	304SS
	M3957K174	12	10½	316SS
	M3957K221	4	2½	Brass
	M3957K222	4	2½	304SS
	M3957K223	4	2½	316SS
	M3957K231	6	4½	Brass
	M3957K232	6	4½	304SS
	M3957K233	6	4½	316SS
	M3957K241	9	7½	Brass
	M3957K242	9	7½	304SS
	M3957K243	9	7½	316SS
	M3957K261	4	2½	Brass
	M3957K262	4	2½	304SS
	M3957K263	4	2½	316SS
	M3957K271	6	4½	Brass
	M3957K272	6	4½	304SS
	M3957K273	6	4½	316SS
	M3957K281	9	7½	Brass
	M3957K282	9	7½	304SS
	M3957K283	9	7½	316SS



DIGITAL PRESSURE INDICATOR

- Converts Pressure Input to LCD Digital Readout
- High Accuracy in Lightweight, Portable Package
- State of the Art Semi-Conductor

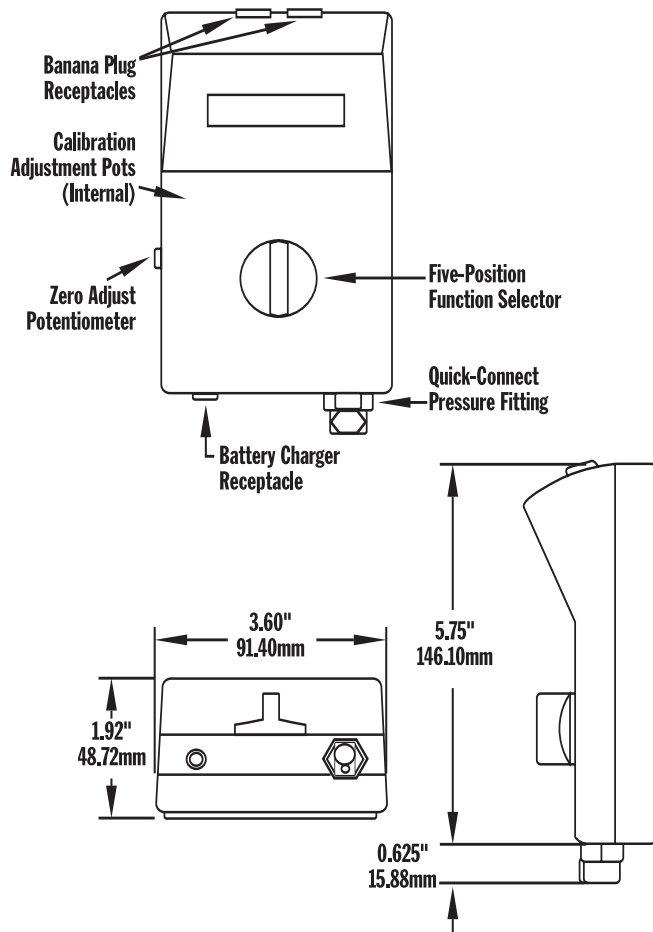
The Marsh Instruments Digital Pressure Indicator is portable, lightweight, hand-held testing and calibrating instrument indicates pressure to 50 psig at accuracy levels of $\pm 0.50\%$ of reading ± 1 count. A state-of-the-art semiconductor-type pressure transducer converts pressure input to analog voltage, which is displayed on a $3\frac{1}{2}$ digit LCD readout. Internal 9-volt rechargeable battery powers the indicator, and a zero adjust potentiometer standardizes the transducer bridge at zero pressure for higher accuracy.

Marsh Instruments Handheld Digital Pressure Indicator and Calibrator is ideal for calibrating DP cells, I/P's and P/I's. The indicator tests installed instruments and transmitters, verifies operation and settings of valves and switches, detects system leaks, and is used for other testing or maintenance applications.



DIGITAL PRESSURE INDICATOR	
RANGE	PART NUMBER
-14.7 to 50p	4-DPP-20050-BBC
-14.7 to 60p	4-DPP-20060-B3
-14.7 to 200p	4-DPP-20200-BBC

NOTE: Connection: $\frac{1}{16}$ " quick connect tube fitting
Elec. Range: 0-200 MA



SPECIFICATIONS

PNEUMATIC RANGE

Range: -14.7 to 200 psig; with corresponding inches of water column and inches of mercury

WETTED MATERIAL

Brass fitting, silicone wafer diaphragm, suitable for instrument air (clean & dry) or any clean, non-conductive fluid

PRESSURE FITTING

$\frac{1}{16}$ " quick-connect tube fitting standard, with mating nickel-plated brass locking quick-connector. 8" plastic hose with ferruleless $\frac{1}{4}$ " OD has to coupling insert with shutoff valve

DISPLAY

$3\frac{1}{2}$ " digit LCD, $\frac{1}{2}$ " high black numerals on light background, with polarity and low battery indicators

ACCURACY

$\pm 0.5\%$ of reading ± 1 count, must be zeroed at barometric pressure

TEMPERATURE

Calibration range: 50°-90°F. Operating range: 30°-130°F. Effect of temperature outside calibration range is $\pm 0.01\%$ per degree F

POWER

Internal: 9-volt transistor battery, Ni-Cad chargeable. External: 12-volt adapter will power unit or charge battery in approx. 14 hours. Approximate operation is 8-10 hours per charge

CASE SIZE

3.60" wide x $5\frac{1}{4}$ " long x 1.92" high, ABS plastic

INCLUDES

Carrying case, battery charger, 8" plastic hose, quick-connect fitting, and technical manual



SELECTION AND USE OF A PRESSURE GAUGE

When selecting a pressure gauge, it is important to consider the following factors to insure safety and accuracy:

1. Pressure range
2. Temperature range
3. Conditions affecting wear of the system
4. Case venting
5. Pressure fluid composition
6. Pressure fluid temperature
7. Ambient conditions
8. Method of mounting
9. Required accuracy

PRESSURE RANGE: A range of 2 times the operating pressure is recommended for safety and extended gauge life. The operating pressure should be limited to the middle 75% of range.

TEMPERATURE RANGE: Ambient temperature for General Service ("J") is -40° to 160°F. Ambient temperature for Severe Service ("J" & "X"), for Dry Gauges is -40° to 160°F and for Liquid Filled is 0° to 140°F.

SHOCK, VIBRATION, PULSATION, OR CORROSIVE ATMOSPHERE CONDITIONS: Liquid Filled Gauges have a fill material to lubricate the movement and reduce friction and wear. When used with a restrictor these gauges absorb vibration and dampen pressure shock and spikes. Liquid filling also prevents moisture or a corrosive atmosphere from affecting the gauge internals.

CASE VENTING: Process (Series "P") and Elite (Series "W") have a internal diaphragm which compensates for atmospheric changes that could affect the calibration of the filled gauge. Severe Service (Series "J" & "X") and 100mm (Series "HW") liquid filled gauges have an elastomeric vent fill plug tip which can be easily cut to permit case venting.

PRESSURE FLUID COMPOSITION: Since the sensing element of a pressure gauge may be exposed directly to the measured medium, consider the characteristics of this medium. It may be corrosive, it may solidify at various temperatures, or it may contain solids that will leave deposits inside the sensing element. For pressure fluids that will not solidify under normal conditions or leave deposits, a Bourdon Tube Gauge is acceptable Diaphragm Chemical Seals should be considered when gauge wetted parts are not compatible with the measured media. A chemical compatibility chart follows this section to aid in the selection of the proper sensing element or diaphragm seal material.

PRESSURE FLUID TEMPERATURE: Steam and other hot media may raise the temperature of the gauge components above safe working limits of the sealed joints. In these cases it is recommended that a syphon, cooling tower or chemical seal be used in conjunction with the pressure gauge Diaphragm Seals and remote capillary can also be considered for use with gauges or transducers which are subjected to very low or high ambient temperature.

AMBIENT CONDITIONS: The normal ambient temperature range for Marsh Instruments gauges is -40° to 160°F (-40° to +71°C) for Dry Gauges, -4° to 140°F (-20° to 60°C) for Glycerine filled gauges, and -40° to 140 °F (-40° to 60° C) for Silicone filled gauges. The error caused by temperature changes is ±0.3% per 18°F rise or fall, respectively. The reference temperature is 70°F (20°C). The correction is for the temperature of the gauge, and not the temperature of the measured medium. Remote gauge mounting using a diaphragm seal and capillary line is one alternative for applications involving extreme ambient temperature.

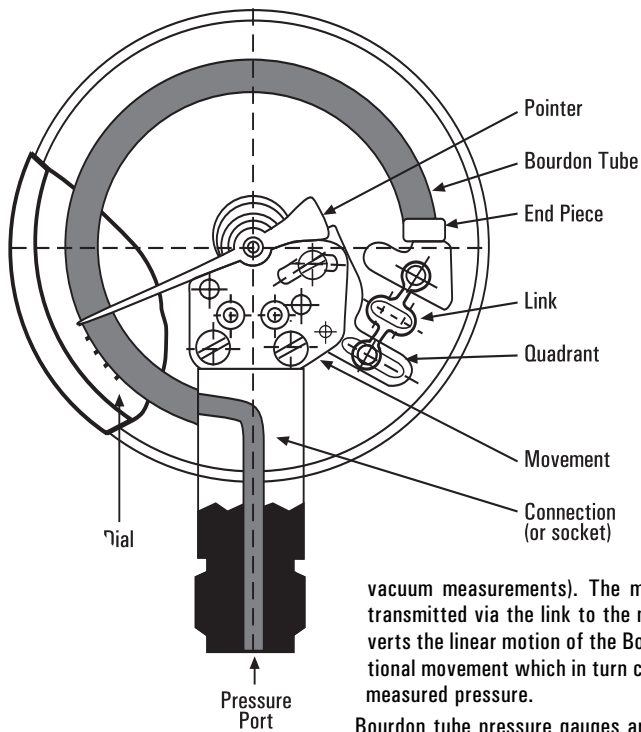
Moisture and weather effects must also be considered. Liquid Filled Gauges prevent condensation build up. For outdoor use, stainless steel, brass, or plastic cased gauges are recommended.

1-800-727-5646 SALES

1-304-387-4417 SALES FAX



PRESSURE GAUGE OPERATING PRINCIPLE



When pressure is applied to the measuring system through the pressure port, the pressure causes the Bourdon tube to straighten itself, thus causing the end piece to move upward (or downward for vacuum measurements). The movement of the end piece is transmitted via the link to the movement. The movement converts the linear motion of the Bourdon tube end piece to a rotational movement which in turn causes the pointer to indicate the measured pressure.

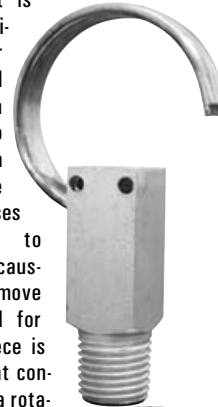
Bourdon tube pressure gauges are designed for the measurement of pressure and vacuum and are generally suitable for all clean and non-clogging liquid and gaseous media.

Various types of Bourdon tubes are used. C-shape Bourdon tubes are typically used for ranges to 1,000 psi. Higher ranges use coiled Bourdon tubes for safety.

Bourdon tube pressure gauges are available to measure full vacuums, compound and pressure ranges from 0-10 psi to 0-20,000 psi with an accuracy from $\pm 0.25\%$ to $\pm 3/2/3\%$ of span (ASME Grade 3A to Grade B).

Bourdon tube pressure gauges are widely used in all branches of industry. The construction is simple yet rugged, and operation does not require any additional power source. The Bourdon tube element is directly exposed to the medium being measured and is normal made of copper alloy (brass) or stainless steel as the application demands.

The Bourdon tube measuring element is made of a thin walled tube that is either bent into a semi-circle (C-Shape tube) or spirally wound (coiled safety tube). When pressure is applied to the measuring system through the pressure port, the pressure causes the Bourdon tube to straighten itself, thus causing the end piece to move upward (or downward for vacuum measurements). The movement of the end piece is transmitted via the link to the movement. The movement converts the linear motion of the Bourdon tube end piece to a rotational movement which in turn causes the pointer to indicate the measured pressure.



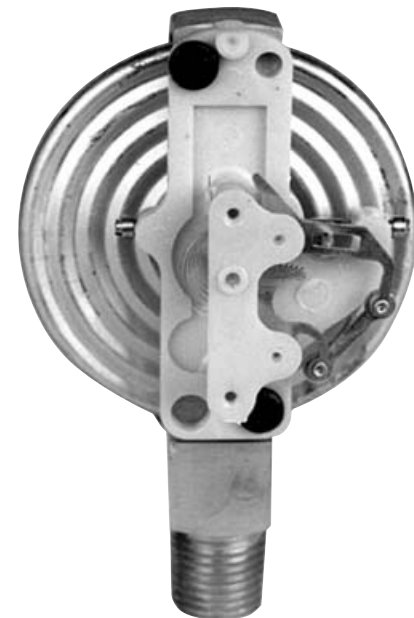
HOW THE DIAPHRAGM GAUGE WORKS

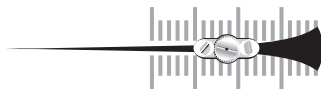


Diaphragm gauges are sensitive instruments used in low pressure applications not exceeding 10 psi. The diaphragm capsule is an elastic metal sensing element comprised of two thin wall diaphragms whose sides are soldered together to make the capsule.

Whenever air or gas enters the intake port (gauge connection), it travels into the diaphragm capsule.

As vacuum or pressure is applied to the diaphragm capsule, the walls of the capsule expand and contract in response to the change in pressure. This change is then transferred to a rotating rod and arm that rest on the outside of the capsule. The rotating rod is connected to a geared movement through a linkage system. Connected to a shaft, this system then drives the pointer over a dial marked in appropriate pressure or vacuum units.





CHEMICAL COMPATIBILITY TABLE

The media being measured must be compatible with the wetted parts of the pressure instrument. To use the chart below, locate the media whose pressure is to be measured and select a suitable material from those available. This is a simplified chart and assumes the media temperature is 200°F except for media with a "*" which must be below 100°F, Throttling devices and/or a liquid-filled instrument are recommended in applications with pulsation or vibration. These recommendations are only a guide, as service life is dependent on temperature, concentrations, catalysts that may be added, or other conditions beyond our control. Consult factory for specific applications and for any services not listed.

Media Application	Pressure Instrument Material				Media Application	Pressure Instrument Material				Media Application	Pressure Instrument Material			
	Brass or Bronze	316 SS	Monel	Diaphragm Seals**		Brass or Bronze	316 SS	Monel	Diaphragm Seals**		Brass or Bronze	316 SS	Monel	Diaphragm Seals**
Acetone*2	•	•	•		Ethyl Oxide > 99%	•	•	•		Palmitic Acid > 99%*2				
Acetic Acid < 40%		•			Ferric Chloride < 40%				•	Paraffin	•			
Acetic Anhydride				•	Ferric Sulfate < 10%		•			Phosphoric Acid < 80%*2		•		
Acetylene (Dry)		•			Ferrous Chloride < 30%				•	Photographic Solutions		•		
Acrolein 100%				•	Ferrous Sulfate < 50%				•	Pickling Solutions		•		
Air	•	•	•		Flurine Gas (Dry)		•	•		Picric Acid 10%		•		
Alcohol, Ethyl	•	•	•		Formaldehyde < 95%		•	•		Propane (Dry)		•	•	
Aluminum Chloride.10%				•	Formic Acid*2				•	Potassium Chloride				Consult Factory
Aluminum Sulfate 10-50%		•			Freons		•			Potassium Cyanide		•		
Ammonia Gas		•			Furfural < 10%				•	Potassium Permanganate		•		
Ammonium Chloride < 40%				•	Gallic Acid		•			Sea Water (Flowing)			•	
Ammonium Nitrate < 50%		•			Gas (for lighting)	•				Silver Nitrate < 70%				•
Ammonium Sulfate < 60%				•	Gasoline		•			Sodium Bicarbonate < 20%		•	•	
Aniline > 99%		•			Glucose			•		Sodium Bisulfate < 30%				•
Argon	•	•	•		Glycerine > 99%	•	•	•		Sodium Carbonate < 40%				Consult Factory
Beer		•			Hydrobromic Acid				•	Sodium Chromate < 60%	•	•	•	
Benzidine > 99%				•	Hydrochloric Acid				•	Sodium Cyanide				Consult Factory
Benzene < 50%		•	•		Hydrofluoric Acid				•	Sodium Hydroxide		•	•	
Benzoic Acid < 70%		•			Hydroflusilic Acid				•	Sodium Hypochlorite < 25%				•
Benzol	•				Hydrogen 2	•	•			Sodium Phosphate, Tri < 60%		•	•	
Bordeaus Mixture	•				Hydrogen Peroxide < 50%		•			Sodium Silicate < 50%		•	•	
Boric Acid < 25%		•			Kerosene	•	•	•		Sodium Sulfide < 50%				Consult Factory
Bromine (Dry)				•	Lacquers	•				Stannous Chloride < 10%		•		
Butane	•	•	•		Lactic Acid < 70%*2		•			Steam (Use siphon)	•	•	•	
Butanol	•				Lysol		•			Stearic Acid		•	•	
Butyric Acid < 25%		•			Magnesium Chloride < 40%				•	Sulfur Dioxide (Dry) > 99%				•
Calcium Chloride < 80%				•	Magnesium Sulfate		•			Sulfur Trioxide (Dry) > 99%				•
Calcium Hydroxide < 50%				•	Mercuric Chloride < 60%		•			Sulfurous Acid				•
Carbon Dioxide	•	•	•		Mercury > 99%				•	Tannic Acid < 80%	•	•	•	
Carbon Monoxide > 99%	•	•	•		Methyl Chloride				Consult Factory	Tanning Liquors				Consult Factory
Chlorine (Dry)				•	Methyl Salicylate				Consult Factory	Tartaric Acid < 50%		•	•	
Chlorine (Moist)*2				•	Milk		•			Tin Chloride (ous) < 10%		•		
Chloroform (Dry)		•	•		Naphtha > 99%	•	•	•		Toluene > 99%	•	•	•	
Chromic Acid				•	Naphthalene > 99%		•			Turpentine > 98%	•	•	•	
Citric Acid 10-50%		•			Nickel Chloride > 99%				•	Vegetable Oils		•		
Corn Oil		•			Nitric Acid < 95%*2		•			Vinegar		•		
Cottonseed Oil		•			Nitrogen	•	•	•		Water	•	•	•	
Creosote (Crude)		•			Nitrous Oxide				Consult Factory	Whiskey		•		
Crude Oil (Sour) (Use NACE)		•	•		Oleic Acid	•	•			Zinc Chloride < 35%*2				•
Crude Oil (Sweet)		•	•		Oxalic Acid*2				•	Zinc Sulphate < 40%				•
Ethyl Acetate	•	•	•		Oxygen (Gas)1	•	•	•						

1. Bronze and 316 Stainless Steel are acceptable for oxygen service, provided the instrument has been cleaned for service and is free from oil.

2. Over 1000 psi – entire system must be 316 Stainless Steel.

*Media temperature must be below 100°F

**Any standard bourdon tube or material may be used in conjunction with a diaphragm seal the gauge selection should be taken into consideration the corrosive environment in which it is to operate.



ACCURACY TABLE											
GAUGE PRODUCT	PAGE #	ACCURACY	1½"(40MM)	2 (50MM)	2½"	63MM	3½"	100MM	4½"	6" (160MM)	
GENERAL SERVICE											
GG Gauges	9	B	•	•							
General Service Gauges	10	B	•	•	•		•		•		
SEVERE SERVICE											
40/50mm Severe Service	14	B	•	•							
63mm Severe Service	15	B				•					
100mm Severe Service	17	A						•			
63mm Brass	19	A				•					
100mm Brass	19	1A						•			
PRECISION SERVICE											
Elite Stainless Steel	24	1A						•			
100mm Stainless Steel	20	1A						•			
Quality Series 100mm	21	1A						•			
"HW" Stainless Steel	23	1A						•		•	
Quality	25	A					•		•	•	
Test	27	2A							•	•	
Master Test	29	3A								•	
Inspector's Test	30	2A					3.0				
PROCESS											
Process	31	2A							•	•	
DIAPHRAGM GAUGE											
Low Pressure	35	A			•		•		•		
HVAC/R											
Contractor's HVAC	43	A							•		
Heating (Ft. H ₂ O)	44	A & B					•		•		
Refrigeration Ammonia	41	B				•	•				
Refrigeration	42	B			•		•				
Serviceman	39	B			•						
Manifold	40	B			•						
SPECIAL APPLICATION											
Water Test	45	B			•						
Paper Machine	46	A					•				
X-mas Tree Gauge	47	1A							•		

ASME B40.1 GRADE		ACCURACY
3A	± 0.25%	Full Scale
2A	± 0.50%	Full Scale
1A	± 1.0%	Full Scale
A	± 2/1/2%	± 1% over middle half of scale
B	± 3/2/3%	± 2% over middle half of scale



PRESSURE UNITS CROSS REFERENCE CHART

psi	atms.	"H ₂ O	mmH ₂ O	cmH ₂ O	oz./in ²	Kg/cm ²	"Hg	mmHg (Torr)	cm Hg	mbar	bar	Pa (N/m ²)	kPa	MPa
1	0.0681	27.71	703.8	70.38	16	0.0704	2.036	51.715	5.17	68.95	0.0689	6895	6.895	0.0069
14.7	1	407.2	10,343	1,034.3	235.1	1.033	29.92	760	76	1013	1.013	101,325	101.3	0.1013
0.0361	0.00246	1	25.4	2.54	0.5775	0.00254	0.0795	1.866	0.187	2.488	0.00249	248.8	0.249	0.00025
0.001421	0.000097	0.0394	1	0.1	0.0227	0.001	0.00289	0.0735	0.00735	0.098	0.000098	9.8	0.0098	0.00001
0.01421	0.000967	0.3937	10	1	0.227	0.001	0.0289	0.735	0.0735	0.98	0.00098	98	0.098	0.0001
0.0625	0.00425	1.732	43.986	4.40	1	0.0044	0.1273	3.232	0.323	4.31	0.00431	431	0.431	0.00043
14.22	0.968	394.1	100,010	1,001	227.6	1	28.96	735.6	73.56	980.7	0.981	98,067	98.07	0.0981
0.4912	0.03342	13.61	345.7	34.57	7.858	0.0345	1	25.4	2.54	33.86	0.0339	3386	3.386	0.00339
0.01934	0.001316	0.536	13.61	1.361	0.310	0.00136	0.0394	1	0.1	1.333	0.001333	133.3	0.1333	0.000133
0.1934	0.01316	5.358	136.1	13.61	3.10	0.0136	0.394	10	1	13.33	0.01333	1333	1.333	0.00133
0.0145	0.000987	0.4012	10.21	1.021	0.2321	0.00102	0.0295	0.75	0.075	1	0.001	100	0.1	0.0001
14.504	0.987	401.9	10,210	1021	232.1	1.02	29.53	750	75	1000	1	100,000	100	0.1
0.000145	0.00001	0.00402	0.102	0.0102	0.00232	0.00001	0.000295	0.0075	0.00075	0.01	0.00001	1	0.001	0.000001
0.14504	0.00987	401.9	102.07	10.207	2.321	0.0102	0.295	7.05	0.75	10	0.01	1,000	1	0.001
145.04	9.869	4019	102,074	10,207	2321	10.22,036	295.3	7500	750	10,000	10	1,000,000	1,000	1

To use this chart:

1. Find the column with the units you want to convert from
2. Move down that column until you find the "1"
3. Staying in the same row, move horizontally to the column with the units you are converting to
4. Multiply the number in that box by the amount you are changing from to get the converted value

Reference



MARSH

PART NUMBER PREFIX GUIDE

Marsh Instrument part numbers begin with a letter prefix which helps identify the product		
PREFIX	PRODUCT TYPE	SEE PAGES
D	Test Gauges	30
D	Inspector's Test Gauges	33
G	Diaphragm Gauges	38
G	Water Test Gauges	49
H	Quality Gauges	28
H	100mm Stainless Steel (L.F.)	22
HW	100mm Welded Socket	25
J	General Service Gauges	12
J	63mm Severe Service Gauges (L.F.)	17
L	Bimetal Thermometers	58
P	Process Gauges	34
W	100mm Elite Gauges (L.F.)	27
W	HVAC/R (Heating System, Contractor's, Refrigeration Ammonia, Manifold)	41-47
W	Paper Machine, X-Tree, Sprinkler	50, 51, 48
X	100mm Severe Service Gauges (L.F.)	19
Y	Tridicators, Industrial Thermometers	63, 61
M	40mm & 50mm Severe Service	16
GG	Marshalltown Value Series	11

PART NUMBER SUFFIX GUIDE

Marsh Instruments part numbers end with a letter suffix to denote a special feature or options.		
SUFFIX	OPTION	DESCRIPTION
A	Ring Options	Friction-Black (FB)
		Press-Black (PB)
		Press-Chrome (PC)
		Friction Chrome (FC)
B	Accuracy	ASME Grade 2A 0.5% (H%F);
		ASME Grade 1A, 1.0% (1%F);
		ASME Grade A 2-1-2% (1%H)
D	Oxygen Cleaned	
E	Single Scale psi only Dial	
F	Window Options	Safety Glass (SG)
		Acrylic (AY)
		Instrument Glass (GS)
G	Weatherproof case	
H	Restrictors	
I	Fill Options	Silicone (SL)
		Glycerine (GL)
J	Case Options	Phenolic (PH); Brass (BR)
		Chrome (CR); Stainless Steel (SS)
		Polypropylene Turret (TR)
L	Metric Dial	L1 -Bar Only
		L2-kg/cm ² Only
		L3-kPa Only
		L4-MPa only
M	Custom Name on Dial or Service Printing	
P	Liquid Filled product	
R	Front Flange	
W	Dual Scale	W1 -psi & Bar
		W2-psi & kg/cm ²
		W3-psi & kPa
		W4-psi & MPa
Z	Pointers	Adjustable Pointers (AD)
		Max. Hand Assembly (MX)

NOTE: Not all options are available on all products, please consult factory

ABBREVIATIONS AND TERMS USED

p or psi	Pounds per square inch
kPa	kilopascals
Case	The case style
oz/in ²	Ounces per square inch
H ₂ O	Inches of water
ft. H ₂ O	Feet of water
Hg	Inches of mercury
VAC	Range is in vacuum
NOTE: Compound Ranges, where the gauge measures both vacuum and pressure are designated as: 30" Hg VAC to 100p = measures from 30 inches of mercury vacuum to 100psi pressure.	
P	plain case (no flange or clamps)
F	front flange case (with U-clamp)
R	3 holed front flange (no clamp)
G	back flange case
H	hinged ring case (front flange case with U-clamp and removable cover)
UC	U-clamp case
CONNECTION : The process connection 1/8", 1/4", 1/2" - NPT diameter of connection (National Pipe Thread Standard)	
LM	lower mount
LBM	lower back mount
CB	center back mount
REGISTERED TRADEMARKS: Viton®, Teflon®, & Delrin® are registered trademarks of the E.I. DuPont family of companies.	

MARSHLANTOWN CROSSOVER GUIDE

FIGURE #	MARSH SERIES
16	"G" Water Test
22 & 23K, KB, KC, KD	"J" General Service
22 & 23P, PC	N/A
24 & 25	"H" Quality
38	"W" Ammonia
42 (compound)	"H" Quality
44, 44K (ft. of H2O)	"W" Heating System
45K (compound)	"J" General Service
50K, 51 (High Pressure)	"X" Series and "J" Severe Service
52, B, C, & D	"J" 63mm SST Case (L.F.)
54, 58	"W" Ammonia Refrigeration
60	"D" Test
63	"D" Inspector's Test
71	"W" Heating System
82, 83K, 84 (Diaphragm)	"G" Diaphragm
98, 99, 100	"L" Bimetal
105,107,117	"Y" Tridicators
175, 179, 180-184	"P" Process
185-188 (Severe Service)	"J" & "X" 63 & 100mm Case (L.F.)
224 WF	"W" Contractors HVAC
254	"L" Bimetal (Adjustable)
286P	N/A
400-413	"P" Process



MARSH BELLOFRAM TERMS & CONDITIONS

I. GENERAL

- A. Customer purchase orders are binding only after written acceptance by Marsh Bellofram. Verbal orders shall not be accepted as binding until confirmed in writing by Marsh Bellofram.
- B. Prices are effective from date of publication and are subject to change without notice.
- C. Marsh Bellofram reserves the right, without prior notice to:
 1. Change and/or revoke any price.
 2. Change and /or revoke any provisions contained herein.
 3. Discontinue shipments to any customers.
 4. Resolve any inconsistencies, conflicts or ambiguities.
- D. Special production runs or product orders are subject to Marsh Bellofram requirements such as, but not limited to, minimum quantities and extended delivery times. On special production run products Marsh Bellofram reserves the right to over ship or under ship the purchase order quantity by up to 5% and invoice accordingly. Special orders are subject to cancellation charges.
- E. Minimum billing: \$60 net per order.

II. PAYMENT TERMS

- A. For customer with established credit terms: Net 30 days from shipment date.
- B. If credit is not established, payment plus estimated (By Marsh Bellofram) freight charges shall accompany order or arrangements shall be made for collect on delivery (C.O.D.)
- C. Marsh Bellofram reserves the right to revoke any credit extended to a customer if the customer fails to pay for any shipments when due. If in Marsh Bellofram's opinion there is a material adverse chance in customer's financial condition, Marsh Bellofram shall have the right to suspend further shipments until receipt of adequate assurance of customer's ability to pay therefor.
- D. All shipments are F.O.B. Plant of Manufacture.
- E. The shipment is deemed accepted in good condition by the common carrier and title and all risk of loss or damage is transferred to customer upon that acceptance by the carrier. The customer is responsible for inspection the merchandise upon receipt. The customer shall insist that visible damage be noted on its copy of the freight bill. If the product has been lost or damaged in transit, the customer must file the claim with the carrier, as Marsh Bellofram bears no responsibility for any such loss or damage.
- F. All freight, handling and insurance charges shall be invoiced to the customer or shipped freight collect.
- G. All shipments are made by carriers of Marsh Bellofram's choice. Any special arrangements requested by customer shall be at customer's additional expense.
- H. Any quantity shortages, incorrect items, or billing errors shall be reported in writing to Marsh Bellofram within 15 days of delivery. Sales order and invoice numbers are to be furnished on all claims.
- I. Marsh Bellofram reserves the right to make delivery in installments. All such installments shall be separately invoiced and paid for when due, without regard to subsequent deliveries. Delay in delivery of any installment shall not relieve customer of his obligation to accept remaining deliveries.
- J. Marsh Bellofram shall not be liable for failure to deliver or delay in delivery occasioned by causes beyond Marsh Bellofram's control, including without limitation, lock-outs, fires, embargoes, war or other breakouts of hostilities, act of inability to obtain shipping space, machinery breakdowns, delays of suppliers, and domestic or foreign governmental acts or regulations. In the event of any delay in delivery due to such causes, unless otherwise agreed, time of delivery shall be deemed extended for a period of sixty (60) days. Customer shall extend the letter of credit if payment is to be made by letter of credit. If delivery is not made within such extended sixty (60) day period, contract shall be deemed cancelled without liability to either party.

III. CANCELED ORDERS

ORDER CANCELLATIONS CAN ONLY BE ACCEPTED BY WRITTEN REQUEST via FAX or MAIL.

All order cancellations result in a cancellation fee of at least 25% of the appropriate invoice of the finished item. Additional cancellation fees are:

1. Catalog Stock Items
- If cancelled less than 1 week before ship date, 25% cancellation fee.
2. Catalog Non-Stock Items
- If cancelled less than 30 days before ship date, full price.
3. Customer Specials
- If cancelled at any time, full price.

IV. LIMITED WARRANTY

- A. All Marsh Bellofram products are warranted against defects in workmanship materials under normal use for 1 year after date of purchase from Marsh Bellofram unless otherwise stated. (Proof of purchase is required). Any product which is determined by Marsh Bellofram to be defective in material or workmanship and returned to Marsh Bellofram, shipping costs prepaid, shall be, as the sole remedy, repaired or replaced at Marsh Bellofram's option.
- B. This warranty is expressly in lieu of all other warranties expressed or implied, including the warranties of merchantability and fitness for use and all other obligations or liabilities on the part of Marsh Bellofram, and Marsh Bellofram neither assumes nor authorizes any other person to assume for it, and other liability in connection with the sale hereunder. Marsh Bellofram disclaims any liability for product defects that are due to product misuse, improper product selection or misapplication.
- C. Marsh Bellofram shall not be liable for customer's costs, lost profits, good will or other special or consequential damages Marsh Bellofram's liability in all events is limited and shall not exceed, the value of merchandise involved.
- D. Remedies - Any controversy or claim arising out of or relating to the contract, or the breach thereof, shall be settled by arbitration in Hancock County, State of West Virginia in accordance with the commercial arbitration Rule of the American Arbitration Association, and judgement on the award render by the arbitrator(s) may be entered in a court having jurisdiction thereof.

V. MODIFICATION OF TERMS

This contract constitutes the entire agreement between the parties, all private representations and understanding having been merged herein. It may not be modified or terminated except in writing signed by a duly authorized representative of Marsh Bellofram. This contract shall be governed by and construed according to the laws of the State of West Virginia.



DISTRIBUTOR RETURN POLICY FOR PRESSURE GAUGES & ACCESSORIES

I. RETURN GOODS AUTHORIZATION (RGA)

- A. Merchandise returned to Marsh Bellofram for any reason must have a Marsh Bellofram Returned Goods Authorization (RGA) number. Warranty returns also require proof of purchase (invoice number, date, and an RGA number).
- B. An RGA is valid for 45 days from issuance and merchandise must arrive at Marsh Bellofram within that validity period.
- C. All material must be shipped freight prepaid.
- D. The RGA number must be clearly visible on the outside of the package. A packing list must be included which clearly shows the RGA number, quantity, product description and reason for return.
- E. No returns will be accepted without an authorized RGA (Return Goods Authorization)

II. MARSH BELLOFRAM CANNOT BE HELD RESPONSIBLE FOR ANY MERCHANDISE RETURNED WITHOUT AN RGA NUMBER.

- A. An RGA number is issued in good faith based upon customer's representation of the merchandise quantity, condition, age and reason for return. All returned material is subject to inspection by Marsh Bellofram. If the material is found to be other than that originally represented, the shipment will be returned at the customer's expense.
- B. An RGA may be requested by mail, fax or by telephoning Marsh Bellofram at 304-387-1200.
 1. Warranty Returns (see Warranty Policy): Limited in-warranty merchandise must have an RGA number and be returned freight prepaid. The merchandise will be repaired or replaced under Marsh Bellofram's warranty terms, it will be returned freight prepaid to the customer.
 2. Incorrect Shipments: For short shipments or incorrectly supplied merchandise, discrepancies must be reported within 15 days of receipt. For short shipments, a debit memo should be issued to Marsh Bellofram. Marsh Bellofram will then issue a credit memo, ship the missing merchandise freight prepaid and issue an invoice. For incorrectly supplied merchandise, all returns require an RGA number and must be returned freight prepaid. A debit memo should be issued to Marsh Bellofram for the freight. If a replacement is required, Marsh Bellofram will ship freight prepaid and invoice for the new product plus freight.
 3. General Terms for Returns (Exchange or Credit): Material requested to be returned will be considered if the following conditions are met:
 - a. Merchandise is unused, current standard catalog stock of latest design, with both product and packaging in saleable condition.
 - b. Merchandise shall have been purchased directly from Marsh Bellofram in the last 12 months.
 - c. Merchandise shall not have been purchased on a "product promotion" or other special pricing.
 4. Marsh Bellofram reserves the right to reject any return request. If accepted, the return will be under the terms specified herein. The following products are not returnable:

- a. Annual Merchandise Exchange Policy for Marsh Bellofram Distributors: Marsh Bellofram will normally accept one stock exchange in a 12 month period, for the purpose of increasing the flexibility of distributor's stock. This annual exchange is limited to distributors who are in good standing and whose accounts are current. The merchandise is subject to the product restrictions listed previously and limited to no more than 2% of the net invoiced sales from Marsh Bellofram to the distributor location during the previous 12 months. The value of the exchange will be determined by the current list price and current maximum published discount.

An offsetting order equal to the return is required.

1. The distributor shall issue a written request for an RGA number for the annual exchange showing quantity, product catalog number and description.
2. The exchange is subject to Marsh Bellofram approval and may be subject to an on-site inspection by Marsh Bellofram personnel. Please allow minimum 2 weeks for approval. Non-stock product or custom product is not returnable.
3. Upon approval of the exchange, Marsh Bellofram will inform the distributor of the net amount of the exchange for the scheduled date for return. The RGA number will be issued only upon receipt of a purchase order for an equal (net) value, calculated on current list price, current maximum published discount.
4. Upon receipt of RGA number, the distributor shall then package the authorized material and return freight prepaid to Marsh Bellofram, Newell, WV. The distributors bears liability for lost shipments or shipping damage.
5. All merchandise is subject to inspection upon receipt. Merchandise which is found to be damaged, modified, or in any other way ineligible for exchange, will be returned at the customer's expense and the value will be deducted from the exchange. A credit memo will then be issued for the net value of the exchange.
6. The replacement order will be shipped and invoiced against the new purchase order with freight at distributor's expense.
- b. Merchandise Returns for Credit: Merchandise returned for credit requires an RGA number, and is subject to a 25% restocking charge and must be returned freight prepaid. The amount of the credit will be determined as follows:
 1. Items returned within 90 days of purchase and with proof of purchase (copy of invoice) will be at invoiced price less applicable charges.
 2. All other will be calculated at current list price and current maximum published discount less 25% restocking fee.
 3. In addition to the standard restocking fee, gauges with accessories will be subject to a removal charge equal to the difference between the "installed" and "sold separately" prices.
 4. Solid fill thermometry products are non-returnable.
- c. Credit Memos:
 1. Where required, Marsh Bellofram will issue a credit memo for the returned or exchanged merchandise less any applicable restocking or removal charges.
 2. The credit memo will be issued only after receipt and inspection of merchandise.
 3. Deduction from payments shall not be made until the Marsh Bellofram issued credit memo has been received.

PRODUCT CLASSES AND OPTIONS

- A. Stock items: Shipped in 7 days or less, with no minimum quantity. *(Large quantities may require extended lead times.)*
- B. Non-stock items: Consult factory for quantities and lead times.
- C. Custom options on stock items: Dials, rings, windows, restrictors, and cosmetic changes - 4 weeks.
- E. Customer special class: Special connections and materials consult factory for quantities and lead times.



PRODUCT WARNINGS, CLAIMS, RECOMMENDATIONS AND NOTICES

WARNING: A failure resulting in injury or damage may be caused by pressure beyond top of scale, excessive vibration or pressure pulsation, excessive instrument temperature, corrosion of the pressure containing parts, or other misuse. For correct use and application of pressure gauges, refer to ASME standard B40.1 1998, entitled 'Gauges: Pressure Indicating Type: Elastic Element.' This document is available from The American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10007.

WARNING: LIQUID FILL: Glycerine or Silicone when combined with strong oxidizing agents, including but not limited to chlorine, nitric acid, and hydrogen peroxide, can result in a spontaneous chemical reaction, ignition, or explosion which can cause property damage and personal injury. If gauges are to be used in such service, do not use glycerine or silicone fill. Consult factory for proper fill medium.

IMPORTANT NOTICE: Our recommendations, if any, for the use of these products are believed to be reliable. The greatest care is exercised in the selection of our raw materials and in our manufacturing operations. However, since the use of this product is beyond the control of the manufacturer, no guarantee or warranty, express or implied, is made to such use or effects incidental to such use, handling or possession or the results to be obtained whether in accordance with the directions claimed so to be. The manufacturer expressly disclaims responsibility therefor. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing laws and/or patents covering any material or use.

LIMITED WARRANTY:

(1) All Marsh Instruments products are warranted against defects in workmanship or materials under normal use for one year after date of purchase from Marsh Instruments unless otherwise stated. (Proof of purchase is required). Any product which is determined by Marsh Instruments to be defective in material or workmanship and is returned to Marsh Instruments with shipping costs prepaid, shall be, as the sole remedy, repaired or replaced at Marsh Instruments' option.

(2) THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF MARSH INSTRUMENTS, AND MARSH INSTRUMENTS NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE HEREUNDER. MARSH INSTRUMENTS DISCLAIMS ANY LIABILITY FOR PRODUCT DEFECTS THAT ARE DUE TO PRODUCT MISUSE, IMPROPER PRODUCT SELECTION OR MISAPPLICATION.

(3) Marsh Instruments shall not be liable for customer's costs, lost profits, good will or other special or consequential damages incurred in any way. Marsh Instruments' liability in all events is limited to, and shall not exceed, the value of merchandise involved.

NOTE: ALL MARSH INSTRUMENT PRODUCTS ARE SUBJECT TO CONTINUOUS IMPROVEMENT. THEREFORE, MATERIAL AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.





MARSH

LT0375 10m 2/09

MARSH BELLOFRAM
8019 Ohio River Blvd.
State Route 2, Box 305
Newell, WV 26050

(304) 387-1200
FAX (304) 387-4417
e-mail:
info@marshbellofram.com

SALES
& APPLICATION
800-727-5646