



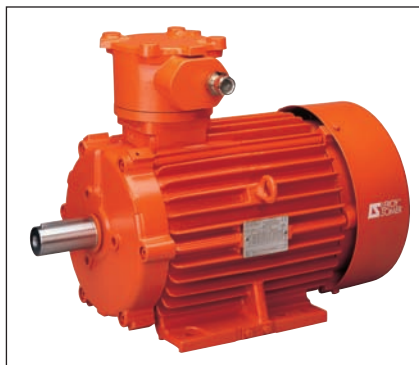
FLSD (E)

Atmospheres containing explosive GAS

totally enclosed three-phase asynchronous motors

General information

CATEGORY 2
ZONE 1



Motors in accordance with the European Directive 94/9/CE.

Flameproof totally enclosed three-phase asynchronous motors, FLSD (E) series, according to IEC 60034, 60038, 60072, 60079-0 and 60079-1, EN 50019. FLSD series, from 0.55 to 400 kW.

Finish

Ex d(e) II B T4¹ protection mode.
Paint finish epoxy RAL 2004 (orange).
Protection of the flange and shaft end against atmospheric corrosion.

Protection

IP 55² standard version providing good sealing against projected liquid and dust in an industrial environment.

Mains supply

Standard construction suitable for the following supplies:

- 220/380 V Δ +10% -5% at 50 Hz,
- 230/400 V Δ +6% -10% at 50 Hz,
- 380 V Δ +10% -5% at 50 Hz,
- 400 V Δ +6% -10% at 50 Hz.

1. Other protections Ex d(e) II B, Ex d II C and Ex d(e) II C : consult us.

2. or IP 65 if 2GD application (gas and dust)

A

Description of the FLSD cast iron three-phase motors



II 2G Ex d II BT4¹

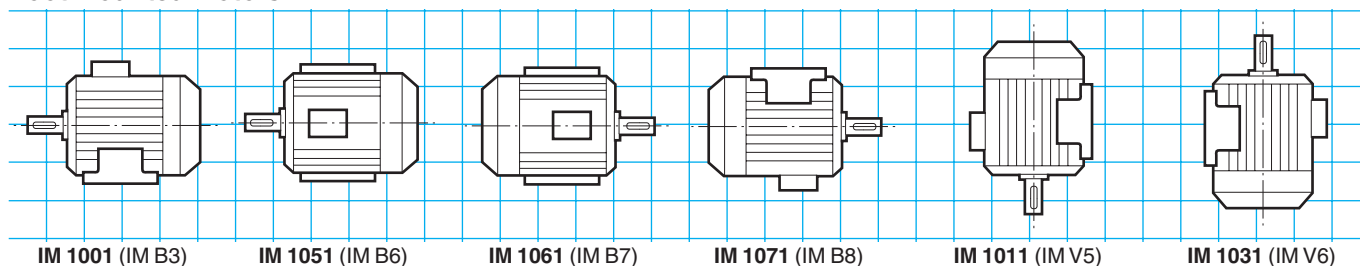
Component	Materials	Remarks
Finned housing	Cast iron	- with cast foot (with the exception of frame size 80), or without foot • 4, 6 or 8 mounting holes for the foot casings • lifting rings for frame size ≥ 100 - external earth terminal
Stator	Insulated low carbon magnetic steel laminations Enameled electrolytic copper	- the low carbon content guarantees the long term stability of the characteristics - semi-enclosed slots - insulation system class F
Rotor	Insulated low carbon magnetic steel laminations Aluminium (A5L) or copper	- squirrel cage with inclined bars - squirrel cage pressure die cast in aluminium (or alloy for special applications) or soldered in copper - key or mounted on the shaft by heat shrinking - dynamically balanced rotor class A - 1/2 key
Shaft	Steel	- for frame size ≤ 132 : • tapped shaft end • closed keyway - for frame size ≥ 160 : • tapped shaft end • open key
End shields	Cast iron or steel	- cast iron for frame size ≤ 280 - steel for frame size ≥ 315
Bearings and lubrication		- ZZ types lubricated for life up to 132 - regreasable types from 160 upwards - front bearing locked on frame size 80 - rear preloaded bearings from 90 to 315 ST - from preloaded from 315 M upwards
Labyrinth seals Lipseals	Technopolymer or steel Synthetic rubber	- front and rear lipseals for frame sizes up to and including 225 and 280 - front and rear labyrinth seals for frame sizes ≥ 250 (except 280)
Fan	Composite material up to 225 inclusive, metal for larger models	- 2 directions of rotation: straight blades
Fan cover	Sheet steel	- fitted with a drip cover for operation in vertical position, shaft facing down for frame sizes from 80 to 225. For larger models, at request
Terminal box	Cast iron for frame sizes ≤ 280 Steel for frame sizes ≥ 315	- type «d» in standard version - fitted with flameproof cable gland (the cable $\varnothing$ should be specified when ordering) - can be rotated: 4 positions - internal earth terminal - planchette à bornes ou bornes traversantes



FLSD flameproof totally enclosed three-phase asynchronous motors

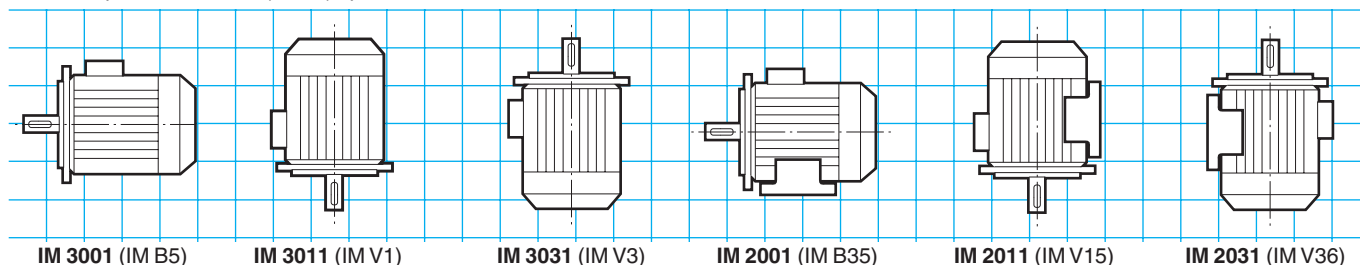
Mounting positions

Foot mounted motors



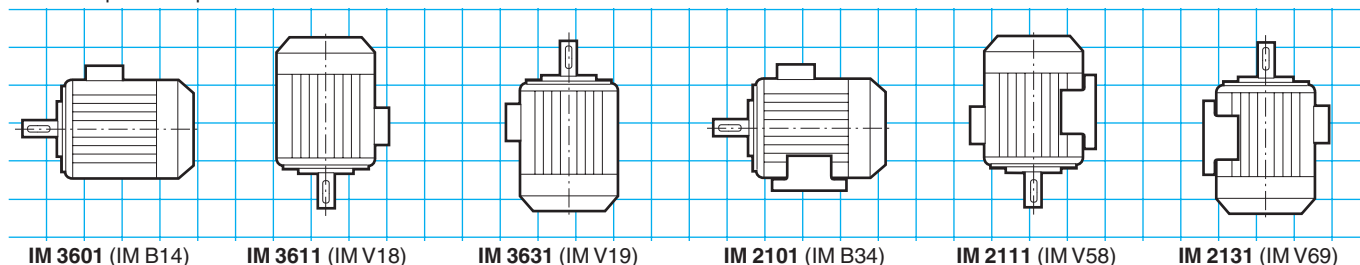
(FF) flange mounted motors with plain holes

- Possible position IM 3001 (IM B5) up to 225 frame size inclusive

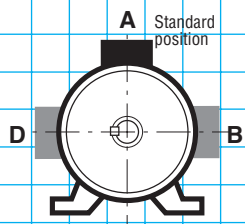


(FT) flange mounted motors with tapped holes

- Possible position up to 132 frame size inclusive

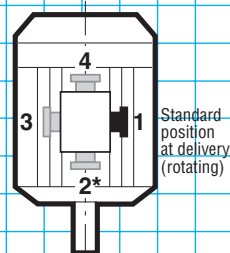


Positions of the terminal box in relation to the motor shaft end



A: standard

Positions of the cable gland in relation to the motor shaft end



1: standard

* Position 2 not recommended and not feasible
on standard flange motor with plain holes (FF)



FLSD flameproof totally enclosed three-phase asynchronous motors

Adaptation possibilities

Leroy-Somer offers, for use with the FLSD flameproof motors, many options which meet the needs of highly diverse applications. They are described below and in the chapters relating to gearboxes and to speed variation.

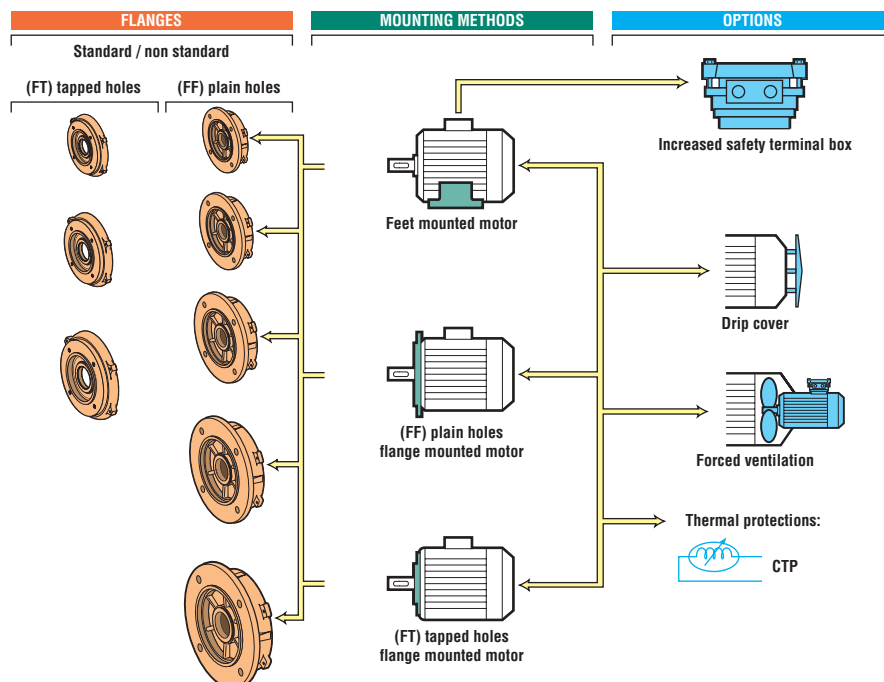
For other variants or any special adaptation, consult the technical specialists at Leroy-Somer.

The FLSD motors may be associated to:

- gearboxes with universal mounting
- electronic variable speed drives: in this application, thermal protection must be included in the winding (and in the bearings from frame size 160 upwards).

The options:

- drip cover
- forced ventilation for frame sizes ≥ 160
- thermal protection
- «e» increased safety terminals box
- direct output by cable
- output by cables
 - Encoder
 - Cable glands with different dimensions
 - Second shaft end
 - Roller bearings
 - Anti-condensation heaters
 - Corrosive atmosphere finish



Designation / Codification

4P 1500 min ⁻¹	FLSD	100	L	3 kW	IM1001 (IM B3)	230 / 400 V	50 Hz	IP 55	ADE 1F ISO M20x1.5	ø 8.5 to 16 min
Speed polarity	Motor type	IEC 60072-1 frame size	Housing designation	Rated power	IEC 60034-7 mounting position	Power supply voltage	Power supply frequency	IEC 60034-5 protection	Number and type of cable glands	Diameter of permitted cable
	Ex d	II	B¹	T4²						
		Explosion group	Gas subdivision	Temperature class						

1. C on request
2. T5 and T6 on request

Codification example:

FLSD flameproof motor 1500 min⁻¹, 3kW
IM 1001, 230/400 V Ex d II B T4

Designation

4P FLSD 100 L 3 kW
IM B3 230/400 V
50 Hz IP 55 ADE 1F
ø 8.5 to 16, Ex d II B T4

Code

XD4 30 201

The table above is an example.

It allows the creation of the designation for the required product.

This designation corresponds to a product code.

The product codes that are present in the selection grids can be used directly.

They simplify the ordering process.

The codification table is incorporated in the price list with the designations list.

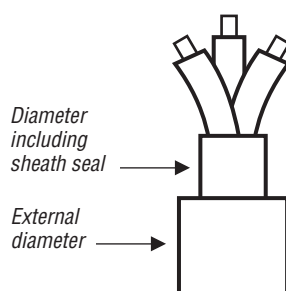
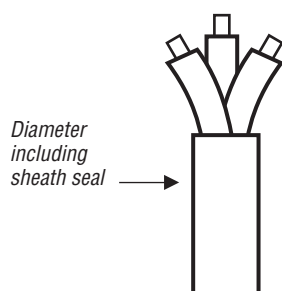


FLSD flameproof totally enclosed three-phase asynchronous motors

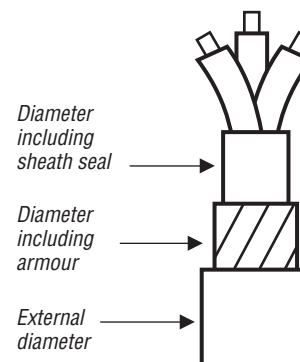
Selection

Main supply cables

Non-armoured cables (associated with ADE 1F type cable glands)



Armoured cables (associated with ADE 4F type cable glands)



The sealed sheath diameter of the power supply cable is compressed by the certified cable gland ring, thus creating the flameproof seal. Anchoring generally affects the cable external diameter.

The sealed sheath diameter must absolutely correspond to a permissible diameter for the cable glands.
THIS CONDITION IS ESSENTIAL IN ORDER TO MAINTAIN THE FLAMEPROOF CHARACTER OF THE MOTOR.

Number and size of the standard cable glands for “d”

The following table indicates, for standard boxes:

- the cable glands normally provided
- maximum size cable glands may be provided for connection of only one cable
- maximum size cable glands may be provided for connection of two cables

Terminal box for frame size	Standard cable glands		Maximum size for 1 cable gland		Maximum size for 2 cable glands	
	Type	Ø admissible cable (mm)	Type	Ø admissible cable (mm)	Type	Ø admissible cable (mm)
80 - 132	ISO M25 x 1.5	8.5 to 16	ISO M25 x 1.5	12 to 20.5	ISO M25 x 1.5	12 to 20.5
160 - 180	ISO M32 x 1.5	16 to 27.5	ISO M50 x 1.5	27 to 41	ISO M50 x 1.5	27 to 41
200 - 225	ISO M40 x 1.5	21 to 34	ISO M50 x 1.5	27 to 41	ISO M50 x 1.5	27 to 41
250	ISO M40 x 1.5	21 to 34	ISO M75 x 1.5	47 to 65	ISO M75 x 1.5	47 to 65
280	ISO M50 x 1.5	27 to 41	ISO M75 x 1.5	47 to 65	ISO M75 x 1.5	47 to 65
315 S/M	ISO M63 x 1.5	33 to 48	ISO M75 x 1.5	47 to 65	ISO M75 x 1.5	47 to 65
315 L	ISO M75 x 1.5	47 to 65	ISO M75 x 1.5	47 to 65	ISO M75 x 1.5	47 to 65
355'	2 x M63 x 1.5	33 to 48	ISO M75 x 1.5	47 to 65	ISO M75 x 1.5	47 to 65

Cable gland (ISO M20) for accessories (CTP, ...) sealed by flameproof metal plug
The cable glands are provide in brass and Ex e safety certified fitted cable glands.

Size of the standard cable glands for “e”

Terminal box for frame size	Standard cable glands	
	Type	Ø admissible cable (mm)
80 - 90	ISO M20 x 1.5	7.5 to 13
100 - 160	ISO M25 x 1.5	12.5 to 18
180 - 200	ISO M32 x 1.5	17.5 to 25
225	ISO M40 x 1.5	24.5 to 33.5
250	ISO M40 x 1.5	21 to 34
250 - 315	ISO M50 x 1.5	33 to 43
355	CMA 3" GC	40 to 62

The cable glands are provide in brass and Ex e safety certified fitted cable glands.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y - S1
II - 2G - Ex d II B T4 / Ex d II C T4

2
poles
3000 min⁻¹

	Rated power	Rated speed	Rated moment	Rated current	Power factor	Efficiency IEC 60034-2; 1996	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight	Noise
Type	P _N kW	N _N min ⁻¹	M _N N.m	I _N (400V) A	Cos Phi 100%	η 100%	I _d / I _N	M _d /M _N	M _u /M _N	J kg.m ²	IM B3 kg	LP db(A)
FLSD 80L'	0.75	2845	2.52	1.8	0.85	71	5.4	2.9	2.6	0.001	18	67
FLSD 80L'	1.1	2860	3.67	2.5	0.83	76	5.9	3.4	3.1	0.001	20.5	67
FLSD 90S'	1.5	2875	4.98	3	0.9	79.4	7.4	3.5	3.4	0.002	36	68
FLSD 90L'	2.2	2863	7.34	4.3	0.92	83	8.0	3.9	2.9	0.002	40	68
FLSD 100L'	3	2861	10	5.8	0.92	80.8	8.1	4.3	4.8	0.003	45	67
FLSD 112M'	4	2897	13.2	7.7	0.93	81.1	7.3	2.3	3.9	0.008	56	76
FLSD 132S'	5.5	2916	18	10.7	0.9	82.1	8.2	2.3	3.4	0.016	82	83
FLSD 132S'	7.5	2930	24.4	14	0.9	85.7	8.0	2.2	3.6	0.016	82	83
FLSD 132M'	9	2937	29.3	16.3	0.91	87.4	8.5	2.9	3.5	0.019	88	83
FLSD 160M	11	2940	35.7	21	0.87	86	8.4	3.6	3.5	0.044	125	84
FLSD 160M	15	2930	48.9	28	0.88	88	7.9	3.4	3.3	0.052	137	84
FLSD 160L	18.5	2930	60.3	34	0.88	88.5	8.3	3.4	3.4	0.059	170	84
FLSD 180M	22	2935	71.6	40	0.88	89	9.1	4.1	3.8	0.075	180	85
FLSD 200L	30	2960	96.8	53	0.9	91	8.8	3.0	3.5	0.142	295	85
FLSD 200L	37	2960	119	65	0.9	91.5	8.7	2.9	3.3	0.163	325	85
FLSD 225M	45	2949	146	77	0.91	92.5	8.8	2.9	3.4	0.204	365	83
FLSD 250M	55	2951	178	99	0.85	94.6	7.7	2.6	2.7	0.223	490	82
FLSD 280S	75	2970	241	127	0.9	94.5	6.8	2.2	2.4	0.75	760	76
FLSD 280M	90	2975	289	153	0.9	94.5	8.7	2.3	2.5	0.85	800	76
FLSD 315S	110	2970	354	191	0.9	95.5	8.0	2.1	2.6	1.5	1070	84
FLSD 315M	132	2955	427	226	0.89	94.7	7.8	1.8	2.5	1.5	1070	84
FLSD 315LA	160	2955	517	281	0.87	94.7	7.5	1.9	2.5	1.8	1120	84
FLSD 315LB	200	2960	645	345	0.88	95	8.0	2.0	2.5	2.1	1220	84
FLSD 355LA	250	2957	807	421	0.9	95.2	7.8	1.7	2.5	3.3	1470	84
FLSD 355LB	315	2960	1016	530	0.9	95.2	7.2	1.6	2.5	3.85	1570	84
FLSD 355LC	355	2982	1137	605	0.88	96.3	7.9	1.9	2.6	4.2	1985	84
FLSD 355LD	400	2980	1282	676	0.89	96	7.8	2.0	2.7	4.2	1995	84

1. Ex dII B T4 / Ex dII B T4 motors are according to EN 50014 and EN 50018.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes $\leq$ 250.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y - S1
II - 2G - Ex d II B T4

2
poles
3000 min⁻¹

Type	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.75	XD2 75 101	2	XD2 75 103	1	XD2 75 1A3	2
FLSD 80 L	1.1	XD2 11 201	2	XD2 11 203	1	XD2 11 2A3	2
FLSD 90 S	1.5	XD2 15 201	2	XD2 15 203	1	XD2 15 2A3	2
FLSD 90 L	2.2	XD2 22 201	2	XD2 22 203	1	XD2 22 2A3	2
FLSD 100 L	3	XD2 30 201	2	XD2 30 203	1	XD2 30 2A3	2
FLSD 112 M	4	XD2 40 201	2	XD2 40 203	1	XD2 40 2A3	2
FLSD 132 S	5.5	XD2 55 201	2	XD2 55 203	1	XD2 55 2A3	1
FLSD 132 S	7.5	XD2 75 201	2	-	-	XD2 75 2A3	1
FLSD 132 M	9	-	-	-	-	-	-
FLSD 160 M	11	XD2 11 301	2	-	-	XD2 11 3A3	2
FLSD 160 M	15	XD2 15 301	2	-	-	XD2 15 3A3	2
FLSD 160 L	18.5	XD2 18 301	2	-	-	XD2 18 3A3	2
FLSD 180 M	22	XD2 22 301	1	-	-	XD2 22 3A3	1
FLSD 200 L	30	-	-	-	-	-	-
FLSD 200 L	37	-	-	-	-	-	-
FLSD 225 M	45	-	-	-	-	-	-
FLSD 250 M	55	-	-	-	-	-	-
FLSD 280 S	75	-	-	-	-	-	-
FLSD 280 M	90	-	-	-	-	-	-
FLSD 315 S	110	-	-	-	-	-	-
FLSD 315 M	132	-	-	-	-	-	-

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y - S1
II - 2G - Ex d II C T4

2
poles
3000 min⁻¹

Type	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.75	XD2 75 110	2	XD2 75 113	1	XD2 75 1B3	2
FLSD 80 L	1.1	XD2 11 211	2	XD2 11 213	1	XD2 11 2B3	2
FLSD 90 S	1.5	XD2 15 211	2	XD2 15 213	1	XD2 15 2B3	2
FLSD 90 L	2.2	XD2 22 211	2	XD2 22 213	1	XD2 22 2B3	2
FLSD 100 L	3	XD2 30 211	2	XD2 30 213	1	XD2 30 2B3	2
FLSD 112 M	4	XD2 40 211	2	XD2 40 213	1	XD2 40 2B3	2
FLSD 132 S	5.5	XD2 55 211	2	XD2 55 213	1	XD2 55 2B3	1
FLSD 132 S	7.5	XD2 75 211	2	-	-	XD2 75 2B3	1
FLSD 160 M	11	-	-	-	-	-	-
FLSD 160 M	15	-	-	-	-	-	-
FLSD 160 L	18.5	-	-	-	-	-	-
FLSD 180 M	22	-	-	-	-	-	-
FLSD 200 L	30	-	-	-	-	-	-
FLSD 200 L	37	-	-	-	-	-	-
FLSD 225 M	45	-	-	-	-	-	-
FLSD 250 M	55	-	-	-	-	-	-

Selection example:

Speed:	3000 min ⁻¹ - 2 poles
Power:	1.5 kW
Mounting and position:	IM 1001 (IM B3)
Mains supply voltage:	230/400 V
Specific finish:	Ex d II B T4

Designation:

2P FLSD 90 S 1.5 kW IM 1001 (IM B3)
230/400 V

Code : XD2 15 201



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y - S1
II - 2G - Ex d II B T4 / Ex d II C T4

4
poles
1500 min⁻¹

	Rated power	Rated speed	Rated moment	Rated current	Power factor	Efficiency IEC 60034-2; 1996	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight	Noise
Type	P _N kW	N _N min ⁻¹	M _N N.m	I _{N (400V)} A	Cos Phi 100%	η 100%	I _d / I _n	M _d /M _n	M _x /M _n	J kg.m ²	IM B3 kg	LP db(A)
FLSD 80L ¹	0.55	1415	3.71	1.5	0.79	67	4.0	2.1	2.2	0.002	18	48
FLSD 80L ¹	0.75	1420	5.04	2.1	0.74	69	4.5	2.6	2.7	0.002	20	48
FLSD 90S ¹	1.1	1440	7.29	2.4	0.86	77.3	6.0	2.2	2.6	0.004	36	57
FLSD 90L ¹	1.5	1442	9.93	3.3	0.84	77.3	6.0	2.3	3.0	0.004	40	57
FLSD 100L ¹	2.2	1434	14.7	4.8	0.85	78.6	5.9	2.4	3.0	0.005	43	54
FLSD 100L ¹	3	1429	20	6.8	0.8	79.8	6.2	2.8	2.8	0.006	47	54
FLSD 112M ¹	4	1439	26.5	8.5	0.88	81.7	7.5	2.3	3.2	0.012	56	54
FLSD 132S ¹	5.5	1452	36.2	10.2	0.91	85.7	7.3	2.1	3.1	0.025	89	64
FLSD 132M ¹	7.5	1459	49.1	14.2	0.87	87.4	7.7	2.4	3.9	0.028	96	64
FLSD 160M	11	1450	72.4	21	0.85	87.5	6.2	2.4	2.5	0.067	130	66
FLSD 160L	15	1450	98.8	29	0.85	88.5	6.9	2.3	2.4	0.091	155	66
FLSD 180M	18.5	1450	122	35	0.85	89.5	7.2	3.0	3.1	0.105	175	68
FLSD 180L	22	1455	144	42	0.85	89.5	7.6	3.0	3.1	0.121	195	68
FLSD 200L	30	1470	195	56	0.84	91.5	7.5	2.8	2.9	0.215	305	74
FLSD 225S	37	1470	240	69	0.84	92	7.7	2.9	2.8	0.261	330	73
FLSD 225M	45	1470	292	84	0.84	92.5	7.8	3.0	2.8	0.314	365	73
FLSD 250M	55	1480	355	101	0.85	92.5	7.8	2.5	2.6	0.399	540	80
FLSD 280S	75	1487	482	142	0.8	95.5	8.2	3.3	2.6	1.45	780	70
FLSD 280M	90	1488	578	172	0.8	95	10.0	3.8	2.6	1.75	830	70
FLSD 315S	110	1482	709	199	0.84	95	7.7	2.7	2.6	2.7	1070	73
FLSD 315M	132	1483	850	238	0.84	95.4	7.4	2.6	2.5	2.7	1070	73
FLSD 315LA	160	1483	1030	286	0.85	95	8.0	2.0	2.4	3.2	1120	73
FLSD 315LB	200	1485	1286	357	0.85	95.2	8.0	2.0	2.5	4.1	1220	73
FLSD 355LA	250	1483	1610	420	0.9	95.5	7.8	2.0	2.4	6.9	1580	80
FLSD 355LB	300	1489	1924	520	0.87	95.7	6.7	1.6	2.4	8	1630	80
FLSD 355LC	355	1489	2277	610	0.87	96.5	6.8	1.8	2.4	8.4	1870	80
FLSD 355LD	400	1489	2565	688	0.87	96.5	7.4	2.1	2.4	8.7	1990	80

1. Ex dII B T4 / Ex dII B T4 motors are according to EN 50014 and EN 50018.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes $\leq$ 250.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y - S1
Ex II - 2G - Ex d II B T4

A

4
poles
1500 min⁻¹

Type	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.55	XD4 55 101	2	XD4 55 103	2	XD4 55 1A3	2
FLSD 80 L	0.75	XD4 75 101	2	XD4 75 103	2	XD4 75 1A3	2
FLSD 90 S	1.1	XD4 11 201	2	XD4 11 203	1	XD4 11 2A3	2
FLSD 90 L	1.5	XD4 15 201	2	XD4 15 203	1	XD4 15 2A3	2
FLSD 100 L	2.2	XD4 22 201	2	XD4 22 203	1	XD4 22 2A3	2
FLSD 100 L	3	XD4 30 201	2	XD4 30 203	1	XD4 30 2A3	2
FLSD 112 M	4	XD4 40 201	2	XD4 40 203	1	XD4 40 2A3	2
FLSD 132 S	5.5	XD4 55 201	2	XD4 55 203	1	XD4 55 2A3	2
FLSD 132 M	7.5	XD4 75 201	2	XD4 75 203	1	XD4 75 2A3	2
FLSD 160 M	11	XD4 11 301	2	XD4 11 303	1	XD4 11 3A3	2
FLSD 160 L	15	XD4 15 301	2		-	XD4 15 3A3	2
FLSD 180 M	18.5	XD4 18 301	2		-	XD4 18 3A3	2
FLSD 180 L	22	XD4 22 301	2		-	XD4 22 3A3	2
FLSD 200 L	30		-		-		-
FLSD 225 S	37		-		-		-
FLSD 225 M	45		-		-		-
FLSD 250 M	55		-		-		-
FLSD 280 S	75		-		-		-
FLSD 280 M	90		-		-		-
FLSD 315 S	110		-		-		-
FLSD 315 M	132		-		-		-

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y - S1
Ex II - 2G - Ex d II C T4

4
poles
1500 min⁻¹

Type	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.55	XD4 55 111	2	XD4 55 113	2	XD4 55 1B3	2
FLSD 80 L	0.75	XD4 75 111	2	XD4 75 113	2	XD4 75 1B3	2
FLSD 90 S	1.1	XD4 11 211	2	XD4 11 213	1	XD4 11 2B3	2
FLSD 90 L	1.5	XD4 15 211	2	XD4 15 213	1	XD4 15 2B3	2
FLSD 100 L	2.2	XD4 22 211	2	XD4 22 213	1	XD4 22 2B3	2
FLSD 100 L	3	XD4 30 211	2	XD4 30 213	1	XD4 30 2B3	2
FLSD 112 M	4	XD4 40 211	2	XD4 40 213	1	XD4 40 2B3	2
FLSD 132 S	5.5	XD4 55 211	2	XD4 55 213	1	XD4 55 2B3	2
FLSD 132 M	7.5	XD4 75 211	2	XD4 75 213	1	XD4 75 2B3	2
FLSD 160 M	11		-		-		-
FLSD 160 L	15		-		-		-
FLSD 180 M	18.5		-		-		-
FLSD 180 L	22		-		-		-
FLSD 200 L	30		-		-		-
FLSD 225 S	37		-		-		-
FLSD 225 M	45		-		-		-
FLSD 250 M	55		-		-		-

Selection example:

Speed:	1500 min ⁻¹ - 4 poles
Power:	1.1 kW
Mounting and position:	IM 3001 (IM B5)
Mains supply voltage:	230/400 V
Specific finish:	Ex d II B T4

Designation:

4P FLSD 90 S 1.1 kW IM 3001 (IM B5)
230/400 V

Code : XD4 11 203



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V Δ - S1
Ex II - 2G - Ex d II B T4 / Ex d II C T4

2
poles
3000 min⁻¹

	Rated power	Rated speed	Rated moment	Rated current	Power factor	Efficiency IEC 60034-2; 1996	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight	Noise
Type	P _N kW	N _N min ⁻¹	M _N N.m	I _{N (400V)} A	Cos Phi 100%	η 100%	I _d / I _N	M _d /M _N	M _u /M _N	J kg.m ²	IM B3 kg	LP db(A)
FLSD 80L'	0.75	2845	2.52	1.8	0.85	71	5.4	2.9	2.6	0.001	18	67
FLSD 80L'	1.1	2860	3.67	2.5	0.83	76	5.9	3.4	3.1	0.001	20.5	67
FLSD 90S'	1.5	2875	4.98	3	0.9	79.4	7.4	3.5	3.4	0.002	36	68
FLSD 90L'	2.2	2863	7.34	4.3	0.92	83	8.0	3.9	2.9	0.002	40	68
FLSD 100L'	3	2861	10	5.8	0.92	80.8	8.1	4.3	4.8	0.003	45	67
FLSD 112M'	4	2897	13.2	7.7	0.93	81.1	7.3	2.3	3.9	0.008	56	76
FLSD 132S'	5.5	2916	18	10.7	0.9	82.1	8.2	2.3	3.4	0.016	82	83
FLSD 132S'	7.5	2930	24.4	14	0.9	85.7	8.0	2.2	3.6	0.016	82	83
FLSD 132M'	9	2937	29.3	16.3	0.91	87.4	8.5	2.9	3.5	0.019	88	83
FLSD 160M	11	2940	35.7	21	0.87	86	8.4	3.6	3.5	0.044	125	84
FLSD 160M	15	2930	48.9	28	0.88	88	7.9	3.4	3.3	0.052	137	84
FLSD 160L	18.5	2930	60.3	34	0.88	88.5	8.3	3.4	3.4	0.059	170	84
FLSD 180M	22	2935	71.6	40	0.88	89	9.1	4.1	3.8	0.075	180	85
FLSD 200L	30	2960	96.8	53	0.9	91	8.8	3.0	3.5	0.142	295	85
FLSD 200L	37	2960	119	65	0.9	91.5	8.7	2.9	3.3	0.163	325	85
FLSD 225M	45	2949	146	77	0.91	92.5	8.8	2.9	3.4	0.204	365	83
FLSD 250M	55	2951	178	99	0.85	94.6	7.7	2.6	2.7	0.223	490	82
FLSD 280S	75	2970	241	127	0.9	94.5	6.8	2.2	2.4	0.75	760	76
FLSD 280M	90	2975	289	153	0.9	94.5	8.7	2.3	2.5	0.85	800	76
FLSD 315S	110	2970	354	191	0.9	95.5	8.0	2.1	2.6	1.5	1070	84
FLSD 315M	132	2955	427	226	0.89	94.7	7.8	1.8	2.5	1.5	1070	84
FLSD 315LA	160	2955	517	281	0.87	94.7	7.5	1.9	2.5	1.8	1120	84
FLSD 315LB	200	2960	645	345	0.88	95	8.0	2.0	2.5	2.1	1220	84
FLSD 355LA	250	2957	807	421	0.9	95.2	7.8	1.7	2.5	3.3	1470	84
FLSD 355LB	315	2960	1016	530	0.9	95.2	7.2	1.6	2.5	3.85	1570	84
FLSD 355LC	355	2982	1137	605	0.88	96.3	7.9	1.9	2.6	4.2	1985	84
FLSD 355LD	400	2980	1282	676	0.89	96	7.8	2.0	2.7	4.2	1995	84

1. Ex d II B T4 / Ex d II B T4 motors are according to EN 50014 and EN 50018.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes $\leq$ 250.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

A

IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V Δ - S1
II - 2G - Ex d II B T4

2
poles
3000 min⁻¹



	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N						
Type	kW	Code	Qty	Code	Qty	Code	Qty
FLSD 112 M	4	XD2 40 202	1	XD2 40 204	2	XD2 40 2A4	2
FLSD 132 S	5.5	XD2 55 202	2	XD2 55 204	2	XD2 55 2A4	2
FLSD 132 S	7.5	XD2 75 202	2	XD2 75 204	2	XD2 75 2A4	2
FLSD 132 M	9		-		-		-
FLSD 160 M	11	XD2 11 302	2	XD2 11 304	2	XD2 11 3A4	2
FLSD 160 M	15	XD2 15 302	2	XD2 15 304	2	XD2 15 3A4	2
FLSD 160 L	18.5	XD2 18 302	2	XD2 18 304	2	XD2 18 3A4	2
FLSD 180 M	22	XD2 22 302	1	XD2 22 304	1	XD2 22 3A4	1
FLSD 200 L	30		1		1		1

IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V Δ - S1
II - 2G - Ex d II C T4

2
poles
3000 min⁻¹

	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
Type							
FLSD 112 M	4	XD2 40 212	1	XD2 40 214	2	XD2 40 2B4	2
FLSD 132 S	5.5	XD2 55 212	2	XD2 55 214	2	XD2 55 2B4	2
FLSD 132 S	7.5	XD2 75 212	2	XD2 75 214	2	XD2 75 2B4	2
FLSD 160 M	11		-		-		-
FLSD 160 M	15		-		-		-
FLSD 160 L	18.5		-		-		-
FLSD 180 M	22		-		-		-

Selection example:

Speed:	3000 min ⁻¹ - 2 poles
Power:	11 kW
Mounting and position:	IM 3001 (IM B5)
Mains supply voltage:	400 V
Specific finish:	Ex d II B T4

Designation:

2P FLSD 160 M 11 kW IM 3001 (IM B5)
400 V

Code : XD2 11 304



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V Δ - S1
Ex - 2G - Ex d II B T4 / Ex d II C T4

4
poles
1500 min⁻¹

	Rated power	Rated speed	Rated moment	Rated current	Power factor	Efficiency IEC 60034-2; 1996	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight	Noise
Type	P _N kW	N _N min ⁻¹	M _N N.m	I _{N (400V)} A	Cos Phi 100%	η 100%	I _d / I _n	M _d /M _n	M _u /M _n	J kg.m ²	IM B3 kg	LP db(A)
FLSD 80L ¹	0.55	1415	3.71	1.5	0.79	67	4.0	2.1	2.2	0.002	18	48
FLSD 80L ¹	0.75	1420	5.04	2.1	0.74	69	4.5	2.6	2.7	0.002	20	48
FLSD 90S ¹	1.1	1440	7.29	2.4	0.86	77.3	6.0	2.2	2.6	0.004	36	57
FLSD 90L ¹	1.5	1442	9.93	3.3	0.84	77.3	6.0	2.3	3.0	0.004	40	57
FLSD 100L ¹	2.2	1434	14.7	4.8	0.85	78.6	5.9	2.4	3.0	0.005	43	54
FLSD 100L ¹	3	1429	20	6.8	0.8	79.8	6.2	2.8	2.8	0.006	47	54
FLSD 112M ¹	4	1439	26.5	8.5	0.88	81.7	7.5	2.3	3.2	0.012	56	54
FLSD 132S ¹	5.5	1452	36.2	10.2	0.91	85.7	7.3	2.1	3.1	0.025	89	64
FLSD 132M ¹	7.5	1459	49.1	14.2	0.87	87.4	7.7	2.4	3.9	0.028	96	64
FLSD 160M	11	1450	72.4	21	0.85	87.5	6.2	2.4	2.5	0.067	130	66
FLSD 160L	15	1450	98.8	29	0.85	88.5	6.9	2.3	2.4	0.091	155	66
FLSD 180M	18.5	1450	122	35	0.85	89.5	7.2	3.0	3.1	0.105	175	68
FLSD 180L	22	1455	144	42	0.85	89.5	7.6	3.0	3.1	0.121	195	68
FLSD 200L	30	1470	195	56	0.84	91.5	7.5	2.8	2.9	0.215	305	74
FLSD 225S	37	1470	240	69	0.84	92	7.7	2.9	2.8	0.261	330	73
FLSD 225M	45	1470	292	84	0.84	92.5	7.8	3.0	2.8	0.314	365	73
FLSD 250M	55	1480	355	101	0.85	92.5	7.8	2.5	2.6	0.399	540	80
FLSD 280S	75	1487	482	142	0.8	95.5	8.2	3.3	2.6	1.45	780	70
FLSD 280M	90	1488	578	172	0.8	95	10.0	3.8	2.6	1.75	830	70
FLSD 315S	110	1482	709	199	0.84	95	7.7	2.7	2.6	2.7	1070	73
FLSD 315M	132	1483	850	238	0.84	95.4	7.4	2.6	2.5	2.7	1070	73
FLSD 315LA	160	1483	1030	286	0.85	95	8.0	2.0	2.4	3.2	1120	73
FLSD 315LB	200	1485	1286	357	0.85	95.2	8.0	2.0	2.5	4.1	1220	73
FLSD 355LA	250	1483	1610	420	0.9	95.5	7.8	2.0	2.4	6.9	1580	80
FLSD 355LB	300	1489	1924	520	0.87	95.7	6.7	1.6	2.4	8	1630	80
FLSD 355LC	355	1489	2277	610	0.87	96.5	6.8	1.8	2.4	8.4	1870	80
FLSD 355LD	400	1489	2565	688	0.87	96.5	7.4	2.1	2.4	8.7	1990	80

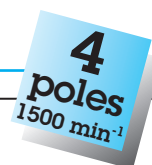
1. Ex dII B T4 / Ex dII B T4 motors are according to EN 50014 and EN 50018.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes ≤ 250 .



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection



IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V Δ - S1
II - 2G - Ex d II B T4



Type	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
FLSD 112 M	4	XD4 40 202	2	XD4 40 204	2	XD4 40 2A4	2
FLSD 132 S	5.5	XD4 55 202	2	XD4 55 204	2	XD4 55 2A4	2
FLSD 132 M	7.5	XD4 75 202	2	XD4 75 204	2	XD4 75 2A4	2
FLSD 160 M	11	XD4 11 302	2	XD4 11 304	2	XD4 11 3A4	2
FLSD 160 L	15	XD4 15 302	2	XD4 15 304	2	XD4 15 3A4	2
FLSD 180 M	18.5	XD4 18 302	1	XD4 18 304	1	XD4 18 3A4	1
FLSD 180 L	22	XD4 22 302	1	XD4 22 304	1	XD4 22 3A4	1
FLSD 200 L	30	XD4 30 302	1		-		-
FLSD 225 S	37	XD4 37 302	1		-		-
FLSD 225 M	45	XD4 45 302	1		-		-
FLSD 250 M	55	XD4 55 302	1		-		-
FLSD 280 S	75	XD4 75 302	1		-		-
FLSD 280 M	90		-		-		-
FLSD 315 S	110		-		-		-



IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V Δ - S1
II - 2G - Ex d II C T4



Type	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
FLSD 112 M	4	XD4 40 212	2	XD4 40 214	2	XD4 40 2B4	2
FLSD 132 S	5.5	XD4 55 212	2	XD4 55 214	2	XD4 55 2B4	2
FLSD 132 M	7.5	XD4 75 212	2	XD4 75 214	2	XD4 75 2B4	2
FLSD 160 M	11		-		-		-
FLSD 160 L	15		-		-		-
FLSD 180 M	18.5		-		-		-
FLSD 180 L	22		-		-		-
FLSD 200 L	30		-		-		-
FLSD 225 S	37		-		-		-
FLSD 225 M	45		-		-		-
FLSD 250 M	55		-		-		-

Selection example:

Speed:	1500 min ⁻¹ - 4 poles
Power:	4 kW
Mounting and position:	IM 1001 (IM B3)
Mains supply voltage:	400 V
Specific finish:	Ex d II B T4

Designation:

4P FLSD 112 M 4 kW IM 1001 (IM B3)
400 V

Code : XD4 40 202



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y or 400 V Δ - S1
II - 2G - Ex d II B T4

6
poles
1000 min⁻¹

	Rated power	Rated speed	Rated moment	Rated current	Power factor	Efficiency IEC 60034-2; 1996	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight	Noise
Type	P _N kW	N _N min ⁻¹	M _N N.m	I _{N(400V)} A	Cos Phi 100%	η 100%	I _d / I _n	M _d /M _n	M _u /M _n	J kg.m ²	IM B3 kg	LP db(A)
FLSD 80L ¹	0.25	950	2.51	0.9	0.67	63.4	3.1	1.6	1.8	0.002	17	40
FLSD 80L ¹	0.37	960	3.68	1.2	0.64	69	3.7	1.9	2.1	0.003	18	40
FLSD 80L ¹	0.55	960	5.47	1.8	0.62	69	3.3	2.0	2.5	0.004	20.5	40
FLSD 90S ¹	0.75	940	7.62	2	0.76	71.5	4.5	2.7	3.6	0.005	36	48
FLSD 90L ¹	1.1	932	11.3	3	0.75	69.6	5.2	3.0	2.7	0.006	40	48
FLSD 100L ¹	1.5	928	15.4	3.8	0.78	74.1	5.4	2.8	2.8	0.01	47	46
FLSD 112M ¹	2.2	947	22.2	5.2	0.82	78.1	5.5	5.5	2.4	0.016	56	48
FLSD 132S ¹	3	957	29.9	7	0.76	81	5.6	2.1	2.7	0.019	84	56
FLSD 132M ¹	4	961	39.7	9.3	0.75	83.6	5.9	2.5	2.9	0.027	89	56
FLSD 132M ¹	5.5	959	54.8	13.3	0.71	84	5.5	2.5	2.8	0.034	93	56
FLSD 160M	7.5	965	74.2	17	0.76	86	5.5	2.0	2.6	0.087	125	58
FLSD 160L	11	970	108	24	0.77	87	6.1	2.1	2.8	0.118	145	58
FLSD 180L	15	970	148	34	0.74	87	6.8	2.0	2.4	0.158	180	60
FLSD 200L	18.5	975	181	37	0.8	90	7.5	1.9	2.7	0.305	305	66
FLSD 200L	22	970	217	45	0.79	90	7.5	2.2	3.2	0.305	305	66
FLSD 225M	30	970	295	60	0.8	90	7.7	2.3	3.1	0.394	350	65
FLSD 250M	37	982	360	74.5	0.78	92	7.2	2.4	2.2	0.56	530	71
FLSD 280S	45	987	435	83	0.87	93.9	6.1	1.9	2.3	1.1	780	72
FLSD 280M	55	987	532	100	0.84	95	6.4	2.1	2.4	1.25	830	72
FLSD 315S	75	987	726	130	0.87	95	7.2	1.7	2.3	3.1	1080	76
FLSD 315M	90	983	874	161	0.86	94	7.1	1.5	2.5	3.1	1080	76
FLSD 315LA	110	985	1066	197	0.86	94.3	6.8	1.6	2.5	4	1130	76
FLSD 315LB	132	986	1278	234	0.86	94.9	7.5	1.7	2.5	4.4	1195	76
FLSD 315LB	150	985	1454	265	0.86	94.7	6.8	1.5	2.4	4.4	1215	76
FLSD 355LA	185	991	1783	329	0.86	94.2	7.5	1.7	2.7	5	1485	78
FLSD 355LB	220	987	2129	384	0.87	95	7.5	1.8	2.7	6	1610	78
FLSD 355LD	300	993	2885	553	0.82	95.5	7.6	1.6	2.6	8	1995	78

1. Ex dII B T4 / Ex dII B T4 motors are according to EN 50014 and EN 50018.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes ≤ 250 .



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y or 400 V Δ - S1
II - 2G - Ex d II B T4



A

Type	Rated power at 50 Hz P_N kW	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
		Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.25		-		-		-
FLSD 80 L	0.37		-		-		-
FLSD 80 L	0.55		-		-		-
FLSD 90 S	0.75		-		-		-
FLSD 90 L	1.1		-		-		-
FLSD 100 L	1.5		-		-		-
FLSD 112 M	2.2		-		-		-
FLSD 132 S	3		-		-		-
FLSD 132 M	4		-		-		-
FLSD 132 M	5.5		-		-		-
FLSD 160 M	7.5		-		-		-
FLSD 160 L	11		-		-		-
FLSD 180 L	15		-		-		-
FLSD 200 L	18.5		-		-		-
FLSD 200 L	22		-		-		-
FLSD 225 M	30		-		-		-
FLSD 250 M	37		-		-		-
FLSD 280 S	45		-		-		-
FLSD 280 M	55		-		-		-
FLSD 315 S	75		-		-		-
FLSD 315 M	90		-		-		-



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y or 400 V Δ - S1
II - 2G - Ex d II B T4

8
poles
750 min⁻¹

	Rated power	Rated speed	Rated moment	Rated current	Power factor	Efficiency IEC 60034-2; 1996	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight	Noise
Type	P _N kW	N _N min ⁻¹	M _N N.m	I _{N (400V)} A	Cos Phi 100%	η 100%	I _d / I _n	M _d /M _n	M _h /M _n	J kg.m ²	IM B3 kg	LP db(A)
FLSD 80L ¹	0.18	705	2.44	1	0.5	54	3.0	2.5	2.4	0.002	19	40
FLSD 80L ¹	0.25	690	3.46	1.1	0.6	57	2.6	1.7	1.8	0.003	20	40
FLSD 90S ¹	0.37	685	5.16	1.2	0.72	62	3.3	1.7	2.1	0.004	34	48
FLSD 90L ¹	0.55	670	7.84	1.7	0.73	63.5	3.6	1.9	2.0	0.005	36	48
FLSD 100L ¹	0.75	680	10.5	2.4	0.67	67.5	3.8	2.1	2.1	0.01	47	46
FLSD 100L ¹	1.1	675	15.6	3.7	0.67	64	3.6	2.1	2.3	0.01	47	46
FLSD 112M ¹	1.5	710	20.2	3.6	0.72	65	3.4	1.8	2.2	0.016	56	49
FLSD 132S ¹	2.2	715	29.4	6	0.69	77	4.4	1.9	2.6	0.019	80	56
FLSD 132M ¹	3	715	40.1	8.2	0.69	76	4.3	1.9	2.0	0.025	89	56
FLSD 160M	4	724	52.8	11	0.65	82	3.7	2.1	2.0	0.076	140	58
FLSD 160M	5.5	710	74	15	0.65	82	3.6	2.0	1.9	0.076	140	58
FLSD 160L	7.5	710	101	21	0.63	82	3.8	2.2	2.1	0.091	155	58
FLSD 180L	11	710	148	31	0.63	82	3.9	1.9	2.0	0.121	195	60
FLSD 200L	15	725	198	34	0.72	89	5.4	1.9	2.4	0.39	305	66
FLSD 225S	18.5	725	244	43	0.7	88.5	5.5	2.0	2.5	0.393	320	65
FLSD 225M	22	725	290	50	0.71	88.5	5.3	1.9	2.4	0.466	350	65
FLSD 250M	30	733	391	61	0.78	91.3	5.5	1.6	2.0	0.57	530	71
FLSD 280S	37	740	478	72	0.8	93.9	7.0	1.8	2.3	1.6	780	72
FLSD 280M	45	741	580	90	0.77	94	7.5	2.0	2.3	1.75	810	72
FLSD 315S	55	743	707	108	0.78	94.8	7.3	2.0	2.5	3.1	1070	78
FLSD 315M	75	737	972	140	0.83	93.5	7.4	2.0	2.6	3.1	1070	78
FLSD 315LA	90	735	1169	167	0.83	94	7.3	2.0	2.5	4.2	1100	78
FLSD 315LB	110	740	1420	204	0.82	94.2	7.2	1.6	2.2	5.1	1195	78
FLSD 355LA	132	740	1703	244	0.83	94.2	6.7	1.7	2.7	5.5	1485	78
FLSD 355LB	160	740	2065	296	0.82	95.2	6.9	1.8	2.7	6	1605	78

1. Ex dII B T4 / Ex dIII B T4 motors are according to EN 50014 and EN 50018.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes ≤ 250.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - Δ T 80 K - 230 V Δ / 400 V Y or 400 V Δ - S1
 II - 2G - Ex d II B T4

8
poles
750 min⁻¹

A

Type	Rated power at 50 Hz	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
	P_N kW	Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.18		-		-		-
FLSD 80 L	0.25		-		-		-
FLSD 90 S	0.37		-		-		-
FLSD 90 L	0.55		-		-		-
FLSD 100 L	0.75		-		-		-
FLSD 100 L	1.1		-		-		-
FLSD 112 M	1.5		-		-		-
FLSD 132 S	2.2		-		-		-
FLSD 132 M	3		-		-		-
FLSD 160 M	4		-		-		-
FLSD 160 M	5.5		-		-		-
FLSD 160 L	7.5		-		-		-
FLSD 180 L	11		-		-		-
FLSD 200 L	15		-		-		-
FLSD 225 S	18.5		-		-		-
FLSD 225 M	22		-		-		-
FLSD 250 M	30		-		-		-
FLSD 280 S	37		-		-		-
FLSD 280 M	45		-		-		-
FLSD 315 S	55		-		-		-
FLSD 315 M	75		-		-		-



FLSD

explosion proof multispeed

totally enclosed three-phase asynchronous motors

Selection

General table for multispeed motors
Use: centrifugal machines
Ex d II B T4
IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V - S1

Type		2/4 poles Dahlander	4/8 poles Dahlander	4/6 poles 2 windings
		Rated power at 50 Hz kW	Rated power at 50 Hz kW	Rated power at 50 Hz kW
FLSD 80 L ¹	GV ² / PV ³	1.1 / 0.28	1.1 / 0.18	0.75 / 0.25
FLSD 90 S ¹	GV / PV	1.5 / 0.37	1.1 / 0.18	1.1 / 0.37
FLSD 90 L ¹	GV / PV	2.2 / 0.55	1.5 / 0.25	1.4 / 0.45
FLSD 100 L ¹	GV / PV	2.8 / 0.7	1.8 / 0.3	2 / 0.6
FLSD 100 L ¹	GV / PV	-	2.2 / 0.37	-
FLSD 112 M ¹	GV / PV	4 / 1	3.3 / 0.6	3 / 1
FLSD 132 S ¹	GV / PV	6.4 / 1.6	5 / 1.1	4 / 1.3
FLSD 132 M ¹	GV / PV	7.5 / 1.85	6 / 1.3	5.3 / 1.7
FLSD 160 M	GV / PV	13.5 / 3.3	10 / 2.2	7.3 / 2.4
FLSD 160 L	GV / PV	19 / 4.5	15 / 3.2	12.5 / 4
FLSD 180 M	GV / PV	22 / 5.5	17 / 3.6	14.4 / 4.6
FLSD 180 L	GV / PV	24 / 6	19 / 4	16 / 5.1
FLSD 200 L	GV / PV	28 / 7	24 / 6	20 / 6.5
FLSD 225 S	GV / PV	34 / 8.5	30 / 8	25 / 8.2
FLSD 225 M	GV / PV	42 / 10.5	36 / 9	30 / 10

1. Ex dII B T4 / Ex dII B T4 motors are according to EN 50014 and EN 50018.

2. GV : High speed

3. PV : Low speed

For larger frame sizes and higher power ratings: consult us.

The electrical characteristics specific for these motors available on request.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes $\leq$ 250.



FLSD

explosion proof multispeed

totally enclosed three-phase asynchronous motors

Selection

General table for multispeed motors
General use
Ex d II B T4
IP 55 - 50 Hz - Class F - Δ T 80 K - 400 V - S1

A

Type		2/4 poles Dahlander	4/8 poles Dahlander	4/6 poles 2 windings
		Rated power at 50 Hz kW	Rated power at 50 Hz kW	Rated power at 50 Hz kW
FLSD 80 L ¹	GV ² / PV ³	0.75 / 0.55	0.75 / 0.37	0.75 / 0.37
FLSD 90 S ¹	GV / PV	1.3 / 0.9	1 / 0.5	0.9 / 0.6
FLSD 90 L ¹	GV / PV	1.85 / 1.2	1.2 / 0.6	1.1 / 0.75
FLSD 100 L ¹	GV / PV	2.5 / 1.6	1.7 / 0.9	1.6 / 1.1
FLSD 112 M ¹	GV / PV	4 / 3	2.4 / 1.3	2.3 / 1.5
FLSD 132 S ¹	GV / PV	6.2 / 4.5	5 / 2.8	3.6 / 2.4
FLSD 132 M ¹	GV / PV	7.5 / 5.5	6 / 3.4	4.8 / 3.2
FLSD 160 M	GV / PV	13.5 / 10.3	8.1 / 4.5	6 / 4
FLSD 160 L	GV / PV	18.5 / 14	11 / 6	9.5 / 6.3
FLSD 180 M	GV / PV	21 / 16	12.7 / 7	11 / 7.3
FLSD 180 L	GV / PV	23 / 17.5	14 / 7.6	12 / 8
FLSD 200 L	GV / PV	28 / 21	18.5 / 10	17 / 11.3
FLSD 225 S	GV / PV	33 / 25	23 / 12.5	21 / 14
FLSD 225 M	GV / PV	38 / 28	28 / 16	26 / 17

1. Ex dII B T4 / Ex dII B T4 motors are according to EN 50014 and EN 50018.

2. GV : High speed

3. PV : Low speed

For larger frame sizes and higher power ratings: consult us.

The values given in this catalogue are also used for the specific finishes: Ex d II C T4 for frame sizes $\leq$ 250.



FLSD flameproof totally enclosed three-phase asynchronous motors

Options

Selection table of options for FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55

2
poles
3000 min⁻¹

4
poles
1500 min⁻¹

	«e» terminal box	Corrosive atmosphere finish	Drip cover ¹	Space heater
Type	Code	Code	Code	Code
FLSD 80	XD BA 104	MDA CO 080	MATP 1014	
FLSD 90	XD BA 105	MDA CO 090	MATP 1015	
FLSD 100	XD BA 106	MDA CO 100	MATP 1016	
FLSD 112	XD BA 107	MDA CO 112	MATP 1017	
FLSD 132	XD BA 108	MDA CO 132	MATP 1018	
FLSD 160	XD BA 109	MDA CO 160	MATP 1019	
FLSD 180	XD BA 110	MDA CO 180	MATP 1020	
FLSD 200				
FLSD 225				
FLSD 250				
FLSD 280				
FLSD 315				

1. Compulsory for all vertical positions, shaft facing down, frame sizes ≤ 225.

Use guide:

- STEP 1: Select the required basic motor according to the selection grids of the previous pages.
- STEP 2: Select the required additional option or options and add them to the basic designation.

Codification example:

Cast iron motor Corrobloc finish tri 22 kW
3000 min⁻¹ foot B3, 230/400 V with CTP.

Designation **Code**
2P FLSD180MR 22kW B3 230/400V → XD2 22 301

↓
CTP → 4160216

	CTP* Thermal probes  Code	CTP* + 2nd nameplate Variable speed Code
Type		
FLSD 80		
FLSD 90	4160216	
FLSD 100	4160216	
FLSD 112	4160216	
FLSD 132	4160216	
FLSD 160	4160216	
FLSD 180	4160216	

* CTP Winding for frame size motor < 160mm

* CTP Winding and stage for frame size motor ≥ 60mm



FLSD flameproof totally enclosed three-phase asynchronous motors

Notes

A



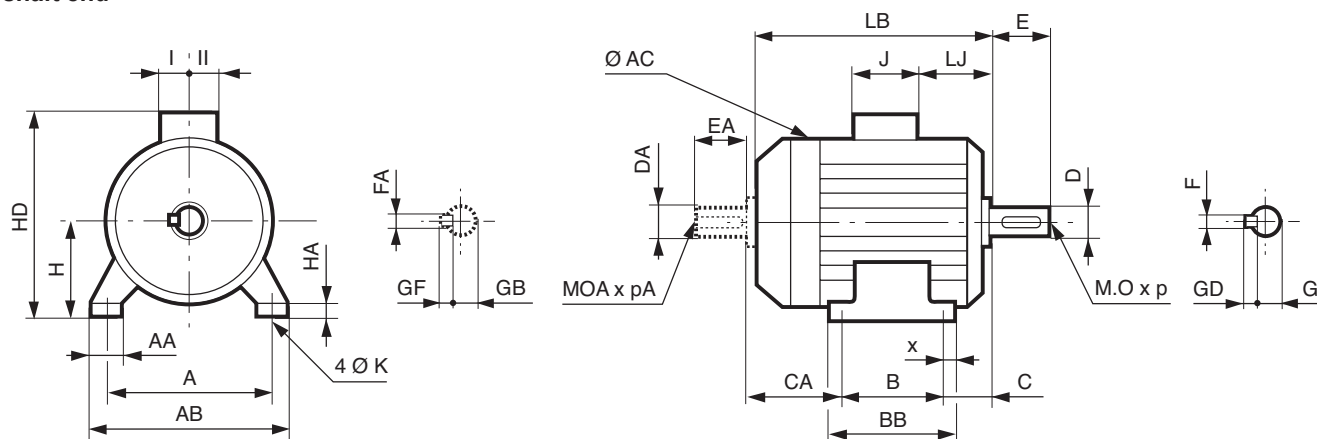
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55 Cage rotor

Dimensions in millimetres

– shaft end



Main shaft end

Type	4, 6 and 8 poles							2 poles						
	F	GD	D	G	E	O	p	F	GD	D	G	E	O	p
FLSD 80 L	6	6	19 j6	15.5	40	6	16	6	6	19 j6	15.5	40	6	16
FLSD 90 S/L	8	7	24 j6	20	50	8	19	8	7	24 j6	20	50	8	19
FLSD 100 L	8	7	28 j6	24	60	10	22	8	7	28 j6	24	60	10	22
FLSD 112 M	8	7	28 j6	24	60	10	22	8	7	28 j6	24	60	10	22
FLSD 132 S/M	10	8	38 k6	33	80	12	28	10	8	38 k6	33	80	12	28
FLSD 160 M/L	12	8	42 k6	37	110	16	36	12	8	42 k6	37	110	16	36
FLSD 180 M/L	14	9	48 k6	42.5	110	16	36	14	9	48 k6	42.5	110	16	36
FLSD 200 L	16	10	55 m6	49	110	20	42	16	10	55 m6	49	110	20	42
FLSD 225 S/M	18	11	60 m6	53	140	20	42	16	10	55 m6	49	110	20	42
FLSD 250 M	18	11	65 m6	58	140	20	42	18	11	60 m6	53	140	20	42
FLSD 280 S/M	20	12	75 m6	67.5	140	20	53	18	11	65 m6	58	140	20	53
FLSD 315 S/M	22	14	80 m6	71	170	20	53	18	11	65 m6	58	140	20	53
FLSD 315 L	25	14	90 m6	81	170	24	53	20	12	70 m6	62.5	140	20	53
FLSD 355 L	28	16	100 m6	90	210	24	53	22	14	80 m6	71	170	20	53

Secondary shaft end

Type	4, 6 and 8 poles							2 poles						
	FA	GF	DA	GB	EA	OA	pA	FA	GF	DA	GB	EA	OA	pA
FLSD 80 L	5	5	16 j6	13	40	5	12	5	5	16 j6	13	40	5	12
FLSD 90 S/L	8	7	24 j6	20	50	8	19	8	7	24 j6	20	50	8	19
FLSD 100 L	8	7	24 j6	20	50	8	19	8	7	24 j6	20	50	8	19
FLSD 112 M	8	7	28 j6	24	60	10	22	8	7	28 j6	24	60	10	22
FLSD 132 S/M	10	8	38 k6	33	80	12	28	10	8	38 k6	33	80	12	28
FLSD 160 M/L	12	8	42 k6	37	110	16	36	12	8	42 k6	37	110	16	36
FLSD 180 M/L	14	9	48 k6	42.5	110	16	36	14	9	48 k6	42.5	110	16	36
FLSD 200 L	16	10	55 m6	49	110	20	42	16	10	55 m6	49	110	20	42
FLSD 225 S/M	16	10	55 m6	49	110	20	42	16	10	55 m6	49	110	20	42
FLSD 250 M	18	11	60 m6	53	140	20	42	18	11	60 m6	53	140	20	42
FLSD 280 S/M	20	12	60 m6	67.5	140	20	53	18	11	65 m6	58	140	20	53
FLSD 315 S/M	22	14	80 m6	71	170	20	53	18	11	65 m6	58	140	20	53
FLSD 315 L	25	14	90 m6	81	170	24	53	20	12	70 m6	62.5	140	20	53
FLSD 355 L	28	16	100 m6	90	210	24	53	22	14	80 m6	71	170	20	53



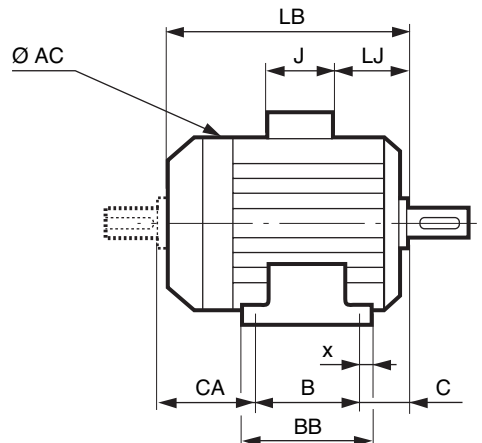
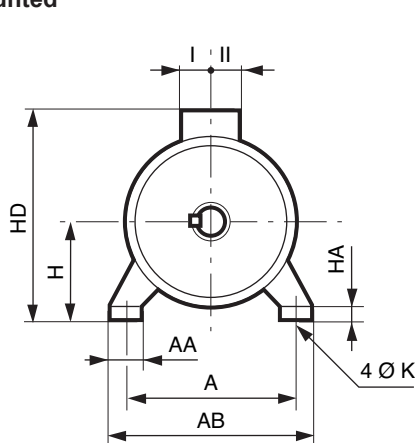
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55 Cage rotor

Dimensions in millimetres

– foot mounted



Type	Main dimensions																	
	A	AB	B	BB	C	x	AA	K	HA	H	AC	HD	LB	LJ	J	I	II'	CA
FLSD 80 L	125	155	100	126	50	13	35	9	9	80	158	253	295	140	110	55	55	125
FLSD 90 S	140	170	100	155	56	15	42	9	10	90	184	317	298	6	174	87	95	148
FLSD 90 L	140	170	125	155	56	15	42	9	10	90	184	317	298	6	174	87	95	123
FLSD 100 L	160	205	140	170	63	15	50	12	13	100	195	327	340	4	174	87	95	142
FLSD 112 M	190	224	140	170	70	15	55	12	13	112	220	351	348	4	174	87	95	144
FLSD 132 S	216	256	140	228	89	25	60	12	15	132	264	386	440	24	174	87	95	217
FLSD 132 M	216	256	178	228	89	25	60	12	15	132	264	386	440	24	174	87	95	179
FLSD 160 M	254	310	210	322	108	30	75	15	18	160	310	490	549	19	250	125	145	237
FLSD 160 L	254	310	254	322	108	30	75	15	18	160	310	490	549	19	250	125	145	193
FLSD 180 M	279	340	241	364	121	30	80	15	20	180	310	510	617	19	250	125	145	261
FLSD 180 L	279	340	279	364	121	30	80	15	20	180	310	510	617	19	250	125	145	223
FLSD 200 L	318	380	305	385	133	40	90	19	24	200	385	565	648	33	250	125	145	216
FLSD 225 S	356	445	286	400	149	44	90	19	30	225	385	590	718	33	250	125	145	289
FLSD 225 M	356	445	311	400	149	44	90	19	30	225	385	590	718	33	250	125	145	264
FLSD 250 M	406	510	349	455	168	43	105	22	40	250	465	720	827	173	360	208	208	315
FLSD 280 S	457	537	368	499	190	40	80	22	40	280	540	768	1065	77	330	165	271	507
FLSD 280 M	457	537	419	499	190	40	80	22	40	280	540	768	1065	77	330	165	271	456
FLSD 315 S	508	600	406	598	216	45	100	27	38	315	624	952	1203	96	400	195	340	587
FLSD 315 M	508	600	457	598	216	45	100	27	38	315	624	952	1203	96	400	195	340	536
FLSD 315 LA/LB	508	600	508	598	216	45	100	27	38	315	624	952	1203	96	400	195	340	485
FLSD 355 LA/LB	610	710	630	710	254	40	110	27	38	355	700	1027	1302	88	400	195	340	427
FLSD 355 LC/LD	610	710	630	710	254	40	110	27	38	355	700	1027	1426	88	400	195	340	552

1. Dimensions without cable glands. For the dimensions according to the cable gland types, refer to page A6.5.



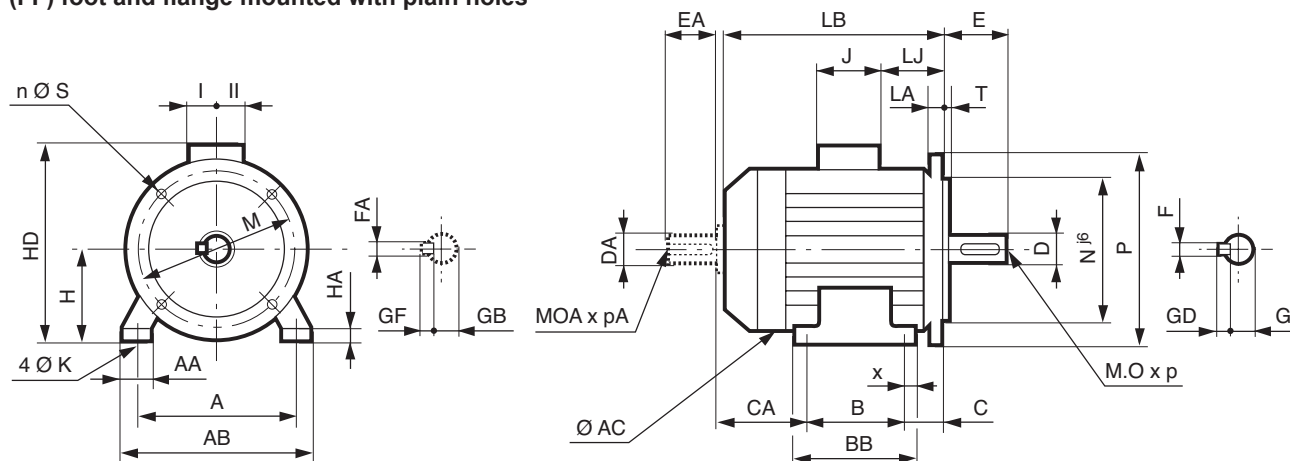
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

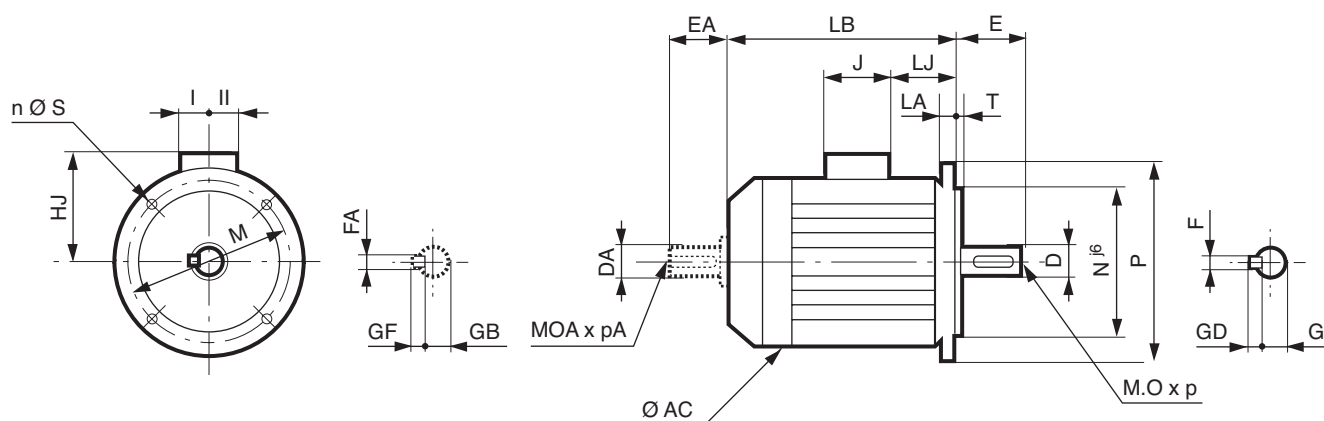
Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55 Cage rotor

Dimensions in millimetres

– (FF) foot and flange mounted with plain holes



– (FF) plain hole flange mounted



CA dimension and shaft ends dimensions identical to those of the foot mounted motors



FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55 Cage rotor

Dimensions in millimetres

- (FF) foot and flange mounted with plain holes

- (FF) plain hole flange mounted

Type	Main dimensions																		Sym.
	A	AB	B	BB	C	x	AA	K	HA	H	AC	HD	LB	HJ	LJ	J	I	II'	
FLSD 80 L	125	155	100	126	70	13	35	9	9	80	158	253	295	173	160	110	55	55	FF 165
FLSD 90 S	140	170	100	155	76	15	42	9	10	90	184	317	318	227	26	174	87	95	FF 165
FLSD 90 L	140	170	125	155	76	15	42	9	10	90	184	317	318	227	26	174	87	95	FF 165
FLSD 100 L	160	205	140	170	63	15	50	12	13	100	195	327	340	227	4	174	87	95	FF 215
FLSD 112 M	190	224	140	170	70	15	55	12	13	112	220	351	348	239	4	174	87	95	FF 215
FLSD 132 S	216	256	140	228	89	25	60	12	15	132	264	386	440	254	24	174	87	95	FF 265
FLSD 132 M	216	256	178	228	89	25	60	12	15	132	264	386	440	254	24	174	87	95	FF 265
FLSD 160 M	254	310	210	322	108	30	75	15	18	160	310	490	549	330	19	250	125	145	FF 300
FLSD 160 L	254	310	254	322	108	30	75	15	18	160	310	490	549	330	19	250	125	145	FF 300
FLSD 180 M	279	340	241	364	121	30	80	15	20	180	310	510	617	330	19	250	125	145	FF 300
FLSD 180 L	279	340	279	364	121	30	80	15	20	180	310	510	617	330	19	250	125	145	FF 300
FLSD 200 L	318	380	305	385	133	40	90	19	24	200	385	565	648	365	33	250	125	145	FF 350
FLSD 225 S	356	445	286	400	149	44	90	19	30	225	385	590	718	365	33	250	125	145	FF 400
FLSD 225 M	356	445	311	400	149	44	90	19	30	225	385	590	718	365	33	250	125	145	FF 400
FLSD 250 M	406	510	349	455	168	43	105	22	40	250	465	720	827	470	173	360	208	208	FF 500
FLSD 280 S	457	537	368	499	190	40	80	22	40	280	540	768	1065	547	77	330	165	271	FF 500
FLSD 280 M	457	537	419	499	190	40	80	22	40	280	540	768	1065	547	77	330	165	271	FF 500
FLSD 315 S	508	600	406	598	216	45	100	27	38	315	624	952	1203	637	96	400	195	340	FF 600
FLSD 315 M	508	600	457	598	216	45	100	27	38	315	624	952	1203	637	96	400	195	340	FF 600
FLSD 315 LA/LB	508	600	508	598	216	45	100	27	38	315	624	952	1203	637	96	400	195	340	FF 600
FLSD 355 LA/LB	610	710	630	710	254	40	110	27	38	355	700	1027	1302	672	88	400	195	340	FF 740
FLSD 355 LC/LD	610	710	630	710	254	40	110	27	38	355	700	1027	1426	672	88	400	195	340	FF 740

1. Dimensions without cable glands. For the dimensions according to the cable gland types, refer to page A6.5.

IEC symbol	Flange dimensions						
	M	N	P	T	n	S	LA
FF 165	165	130	200	3.5	4	12	10
FF 215	215	180	250	4	4	15	11
FF 265	265	230	300	4	4	15	13
FF 300	300	250	350	5	4	18	13
FF 350	350	300	400	5	4	18	15
FF 400	400	350	450	5	8**	18	16
FF 500	500	450	550	5	8**	18	18*
FF 600	600	550	660	6	8**	22	25
FF 740	740	680	800	6	8**	22	25

FF flange mounted motors, in position IM 3001 (IM B5), are only available up to frame size 225. Thereafter, consult us. See page A6.2 for mounting possibilities.

*. LA = 22 from frame size 280 upwards.

** = holes oriented at 22°30' in relation to the vertical.



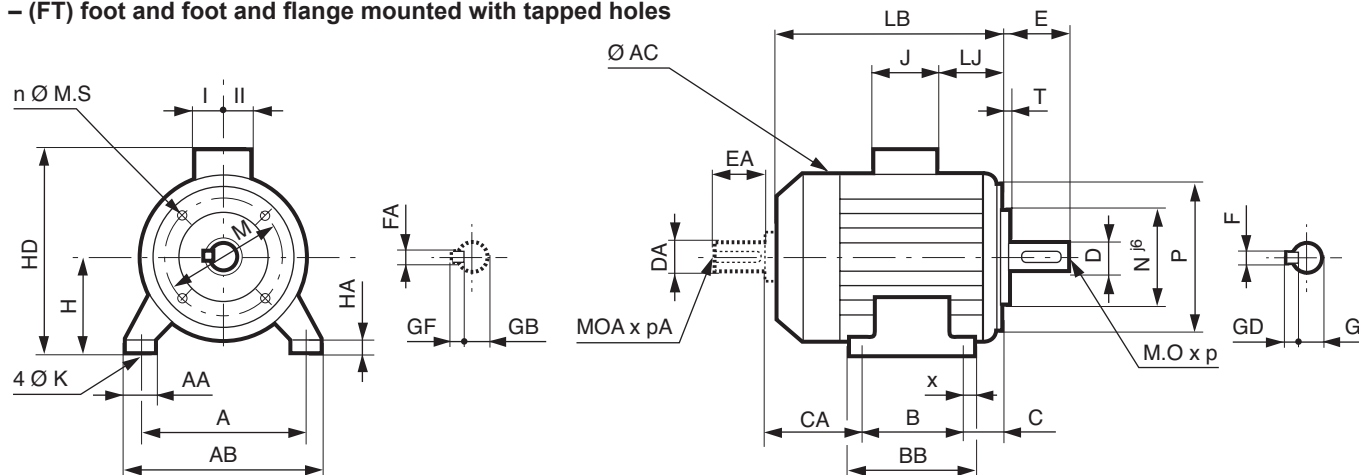
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

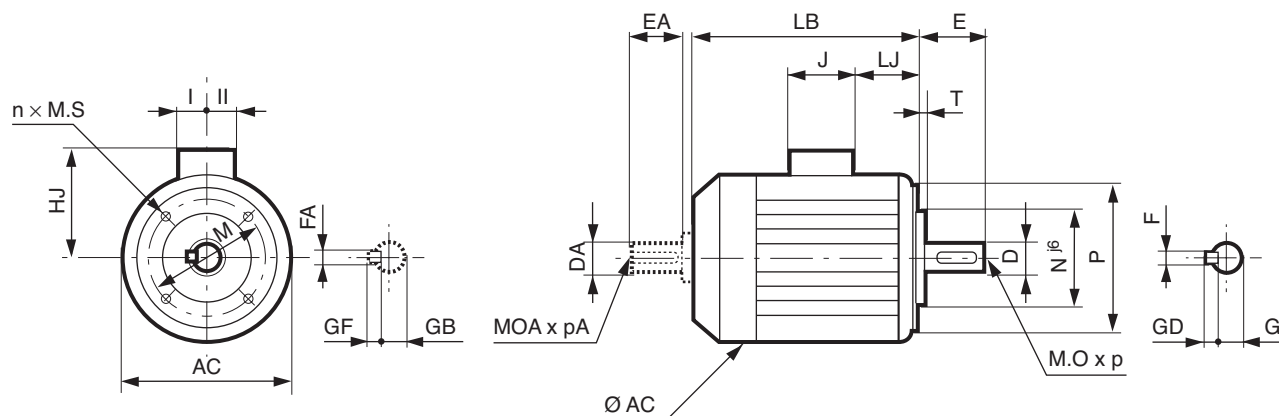
Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55
Cage rotor

Dimensions in millimetres

– (FT) foot and foot and flange mounted with tapped holes



– (FT) tapped hole flange mounted





FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55 Cage rotor

Dimensions in millimetres

– (FT) foot and foot and flange mounted with tapped holes

– (FT) tapped hole flange mounted

Type	Main dimensions																		Sym.
	A	AB	B	BB	C	x	AA	K	HA	H	AC	HD	LB	HJ	LJ	J	I	II'	
FLSD 80 L	125	155	100	126	50	13	35	9	9	80	158	253	295	173	140	110	55	55	FF 100
FLSD 90 S	140	170	100	155	56	15	42	9	10	90	184	317	298	227	6	174	87	95	FF 115
FLSD 90 L	140	170	125	155	56	15	42	9	10	90	184	317	298	227	6	174	87	95	FF 115
FLSD 100 L	160	205	140	170	63	15	50	12	13	100	195	327	340	227	4	174	87	95	FF 130
FLSD 112 M	190	224	140	170	70	15	55	12	13	112	220	351	348	239	4	174	87	95	FF 130
FLSD 132 S	216	256	140	228	89	25	60	12	15	132	264	386	440	254	24	174	87	95	FF 215
FLSD 132 M	216	256	178	228	89	25	60	12	15	132	264	386	440	254	24	174	87	95	FF 215

1. Dimensions without cable glands. For the dimensions according to the cable gland types, refer to page A6.5.

IEC symbol	Flange dimensions					
	M	N	P	T	n	Threading x length
FT 100	100	80	120	3	4	M6 x 13
FT 115	115	95	140	3	4	M8 x 13
FT 130	130	110	160	3.5	4	M8 x 13
FT 165	165	130	200	3.5	4	M10 x 20
FT 215	215	180	250	4	4	M12 x 20

(FT) tapped hole flange mounted non standard

Motor type	Flange type				
	FT 100	FT 115	FT 130	FT 165	FT 215
80	●				
90	○	●	○		
100			●		
112			●		
132				○	●

● : standard
○ : in option



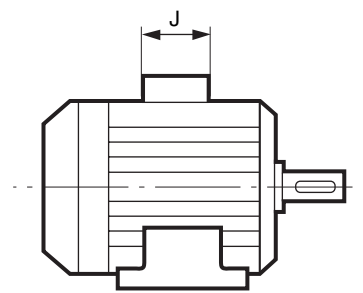
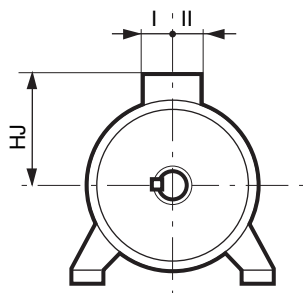
FLSD flameproof totally enclosed three-phase asynchronous motors

A

Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors Mechanical options

Dimensions in millimetres

– optional “e” increased safety terminal box



Type	J	HJ	I	II
FLSD 80	126 (158)	180 (196)	63 (79)	63 (79)
FLSD 90 et 100	126 (158)	190 (206)	63 (79)	63 (79)
FLSD 112	126 (158)	202 (218)	63 (79)	63 (79)
FLSD 132	158	230	79	79
FLSD 160 et 180	223	311	114	156
FLSD 200 et 225	223	346	135	135
FLSD 250	360	470	208	208
FLSD 280	340	577	190	333
FLSD 315 S/M/L	425	628	220	270
FLSD 355	425	663	220	270

() motors fitted with probes.