

FLSD

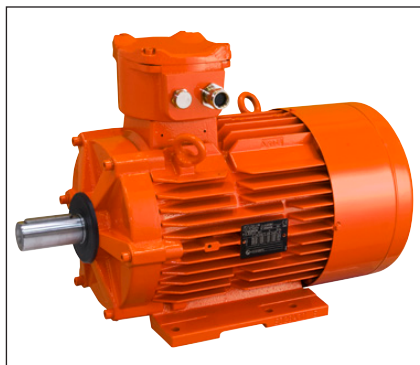
Atmospheres containing explosive GAS



totally enclosed three-phase asynchronous motors

**CATEGORY 2
ZONE 1**

General information



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

Flameproof totally enclosed three-phase asynchronous motors, FLSD series, according to IEC 60034, 60038, 60072, 60079-0 and 60079-1, EN 60079-7. 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)



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 or without foot <ul style="list-style-type: none"> • 4, 6 or 8 mounting holes for the foot casings • lifting rings for frame size ≥ 90 - 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 : <ul style="list-style-type: none"> • tapped shaft end • closed keyway - for frame size ≥ 160 : <ul style="list-style-type: none"> • tapped shaft end • open key
End shields	Cast iron	
Bearings and lubrication		- rear preloaded bearings from 80 to 315 ST and front preloaded from 315 M upwards
Labyrinth seals Lipseals	Technopolymer or steel Synthetic rubber	- front lipseals or labyrinth seals and rear lipseals for frame sizes up to and including 225 and 280 - decompression grooves for frame sizes 250 - 315 and 355
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
Terminal box	Cast iron Steel for frame size 280	- type «d» in standard version and type «e» in option - fitted with flameproof cable gland (the cable Ø should be specified when ordering) - can be rotated: 4 positions - internal earth terminal - terminal block

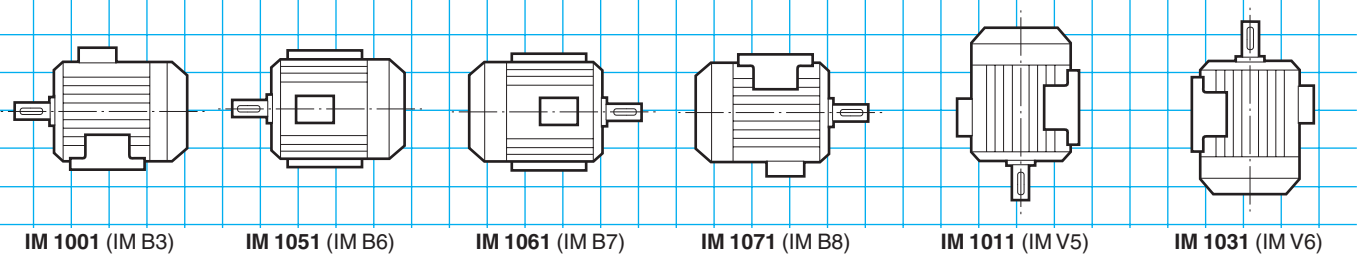
FLSD flameproof



totally enclosed three-phase asynchronous motors

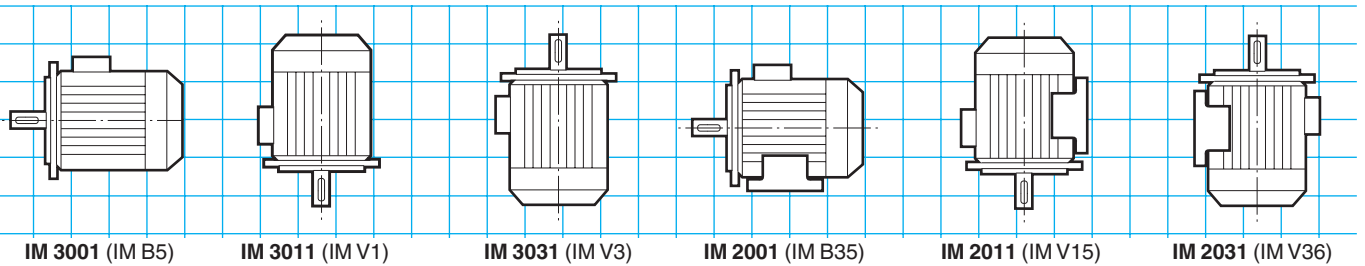
Mounting positions

Foot mounted motors



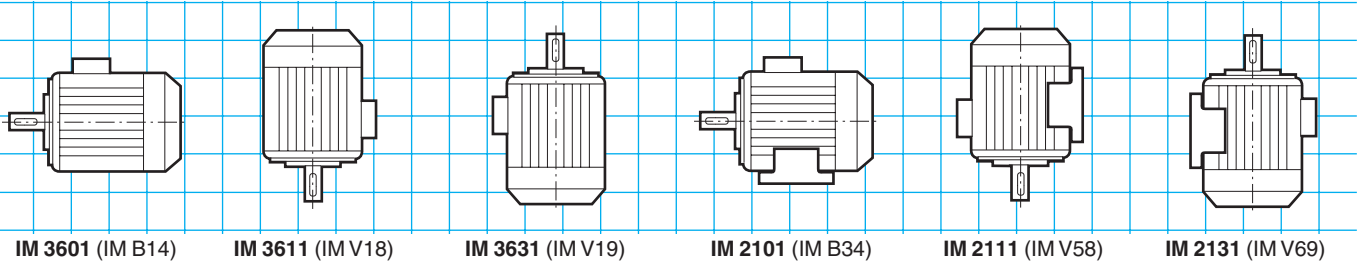
(FF) flange mounted motors with plain holes

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

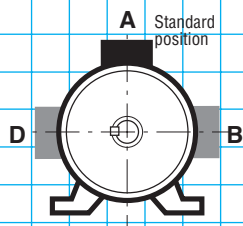


(FT) flange mounted motors with tapped holes

• Possible position up to 132 frame size inclusive

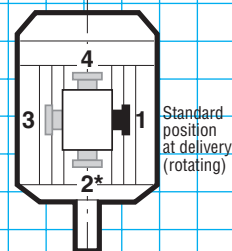


Positions of the terminal box in relation to the motor shaft end



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.

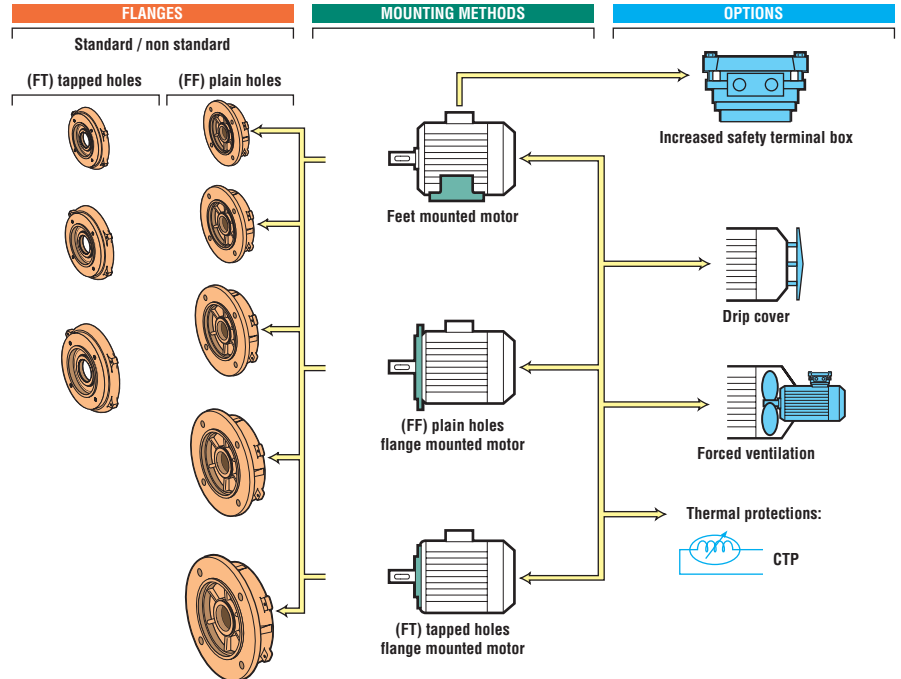


The FLSD motors may be associated to:

- 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	Code
4P FLSD 100 L 3 kW	
IM B3 230/400 V	XD4 30 201
50 Hz IP 55 ADE 1F	
ø 8.5 to 16, Ex d II B T4	

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.



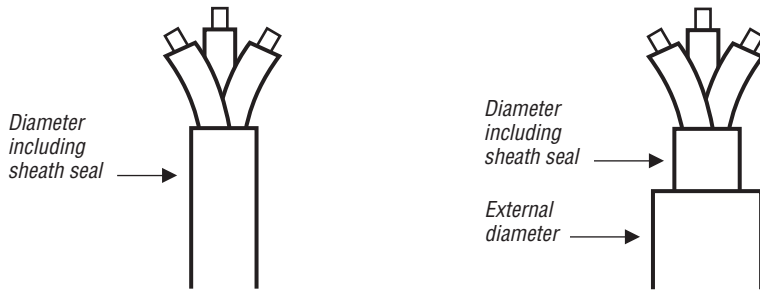
FLSD flameproof

totally enclosed three-phase asynchronous motors

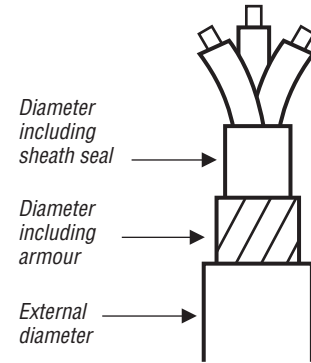
Selection

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

Type	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
	P _N kW	N _N min-1	M _N N.m	I _{N(400V)} A	Cos φ			η			I _d / I _n	M _d /M _n	M _m /M _n	J kg.m ²	IM B3 kg	LP db(A)
FLSD 80 L	0.75	2860	2.51	1.6	0.89	0.84	0.75	78.4	78.5	75.4	5.4	2.9	2.6	0.00087	23	61
FLSD 80 L	1.1	2850	3.67	2.4	0.84	0.77	0.64	77.8	77.9	75.5	6.1	3.4	3.1	0.00087	23	61
FLSD 90 S	1.5	2867	4.99	3	0.88	0.84	0.74	80.9	81.1	77.3	7.4	3.5	3.3	0.00171	31	64
FLSD 90 L	2.2	2849	7.37	4.4	0.88	0.84	0.74	81.4	81.6	79.2	7.8	3.9	2.9	0.00199	32	64
FLSD 100 L	3	2865	10	6.2	0.85	0.81	0.67	81.26	80.5	77.8	7.6	4.3	4.8	0.00227	38	66
FLSD 112 M	4	2891	13.2	8	0.86	0.8	0.7	82.9	82.6	79.7	7.0	2.3	3.9	0.00652	47	69
FLSD 132 S	5.5	2898	18.1	10.9	0.87	0.86	0.83	86.1	86.2	84	8.1	2.3	3.4	0.01191	76	72
FLSD 132 S	7.5	2920	24.5	14.8	0.84	0.81	0.73	86.3	86.6	85.03	7.5	2.1	3.5	0.01443	81	72
FLSD 132 M	9	2938	29.3	16.8	0.89	0.82	0.73	87.2	86.8	84.1	8.3	2.9	3.5	0.01847	88	72
FLSD 160 M	11	2935	35.7	21	0.87	0.85	0.81	86	86	84.1	7.6	3.3	3.2	0.044	125	84
FLSD 160 M	15	2930	49	28	0.88	0.86	0.82	88	88	85.4	7.9	3.4	3.3	0.0515	137	84
FLSD 160 L	18.5	2930	60	34	0.88	0.86	0.82	88.5	88.2	85.3	8.3	3.4	3.4	0.059	170	84
FLSD 180 M	22	2935	72	40	0.88	0.85	0.82	89	89.1	87	9.1	4.1	3.8	0.075	180	85
FLSD 200 L	30	2960	97	53	0.9	0.87	0.82	91	89.8	87.2	9.1	3.0	3.5	0.142	305	85
FLSD 200 L	37	2960	119	65	0.9	0.88	0.81	91.5	91.5	88	8.7	2.9	3.3	0.163	325	85
FLSD 225 M	45	2949	145	77	0.91	0.88	0.82	92.5	92.4	91	8.8	2.9	3.4	0.204	365	83
FLSD 250 M	55	2951	177	99	0.85	0.83	0.77	94.6	94.5	93.9	7.7	2.6	2.7	0.223	490	82
FLSD 280 S	75	2970	241	127	0.9	0.85	0.81	94.5	93.1	94.5	6.8	2.2	2.4	0.75	760	76
FLSD 280 M	90	2975	289	152	0.9	0.86	0.8	95	94.9	94	7.4	2.3	2.5	0.85	800	76
FLSD 315 S	110	2970	353	188	0.89	0.86	0.8	95.2	94.9	94	8.0	2.1	2.6	1.5	1070	84
FLSD 315 M	132	2955	427	229	0.87	0.84	0.79	95.5	94.9	94.1	8.7	2.4	2.7	1.5	1070	84
FLSD 315 LA	160	2955	517	279	0.87	0.85	0.81	95.4	94.8	93.5	7.0	1.9	2.6	1.8	1120	84
FLSD 315 LB	200	2960	645	345	0.88	0.85	0.79	95.3	94.6	93.4	8.0	2.3	2.6	2.1	1220	84
FLSD 355 LA	250	2957	807	421	0.9	0.86	0.81	95.2	94.5	93.3	7.8	1.7	2.5	3.3	1470	84
FLSD 355 LB	315	2960	1016	530	0.9	0.86	0.8	95.5	94.9	94.2	7.2	1.6	2.5	3.85	1570	84
FLSD 355 LC	355	2982	1137	605	0.88	0.86	0.8	96.3	96	95	7.9	1.9	2.6	4.2	1985	84
FLSD 355 LD	400	2980	1282	676	0.89	0.85	0.8	96.3	95.9	94.8	7.8	2.0	2.7	4.2	1995	84

The values given are also used for the finish Ex d II C T4.

For T5 and T6 applications, consult us.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

IP 55 - 50 Hz - Class F - ΔT 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 P_N kW	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
		Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.75	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 - ΔT 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 P_N kW	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 2001 (IM B35)	
		Code	Qty	Code	Qty	Code	Qty
FLSD 80 L	0.75	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:	11 kW
Mounting and position:	IM 1001 (IM B3)
Mains supply voltage:	230/400 V
Specific finish:	Ex d II B T4

Designation:

**2P FLSD 160 M 11 kW IM 1001 (IM B3)
230/400 V**

Code : XD2 11 301

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 / Ex d II C T4

4
poles
1500 min⁻¹

A

Type	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
	P _N kW	N _N min ⁻¹	M _N N.m	I _{N(400V)} A	Cos φ			η			I _d / I _n	M _d /M _n	M _v /M _n	J kg.m ²	IM B3 kg	LP db(A)
					4/4	3/4	2/4	4/4	3/4	2/4						
FLSD 80 L	0.55	1430	3.67	1.45	0.7	0.61	0.5	74	72.8	68.3	5.0	2.9	3.3	0.00167	22	44
FLSD 80 L	0.75	1420	5	2	0.74	0.66	0.54	75.1	74.1	69.7	5.4	3.1	3.6	0.00212	24	44
FLSD 90 S	1.1	1427	7.4	2.4	0.86	0.79	0.67	76.1	76.4	73.4	5.0	1.8	2.3	0.00264	28	50
FLSD 90 L	1.5	1432	10	3.23	0.86	0.79	0.65	77.8	77.9	75	5.4	2.0	2.7	0.00321	30	50
FLSD 100 L	2.2	1435	14.6	4.6	0.85	0.78	0.65	80.5	80.4	77.6	6.1	2.5	3.1	0.00432	38	52
FLSD 100 L	3	1439	20	6.8	0.806	0.74	0.61	81.2	81.2	78.7	6.6	2.7	3.1	0.00557	41	52
FLSD 112 M	4	1458	26.2	8.5	0.81	0.76	0.67	84.6	84.3	82	7.5	2.3	3.2	0.01226	51	52
FLSD 132 S	5.5	1450	36.2	10	0.89	0.87	0.81	86.8	87.3	86.2	7.0	2.3	2.4	0.02507	89	59
FLSD 132 M	7.5	1460	49.1	14.7	0.85	0.84	0.8	87.8	88.2	87.2	7.7	2.3	3.1	0.02776	93	59
FLSD 160 M	11	1450	73	21	0.85	0.79	0.71	87.5	87.7	86.5	6.2	2.4	2.5	0.0666	130	66
FLSD 160 L	15	1450	99	29	0.85	0.82	0.72	88.5	88.6	87.7	6.9	2.3	2.4	0.0913	155	66
FLSD 180 M	18.5	1450	122	35	0.85	0.83	0.74	89.5	89.5	88.7	7.2	3.0	3.1	0.1053	175	68
FLSD 180 L	22	1455	145	42	0.85	0.81	0.71	89.5	89.5	88.9	7.6	3.0	3.1	0.1205	195	68
FLSD 200 L	30	1470	195	56	0.84	0.79	0.67	91.5	91.6	90.2	7.5	2.8	2.9	0.2147	305	74
FLSD 225 S	37	1470	241	69	0.84	0.78	0.69	92	91.4	89.7	7.7	2.9	2.8	0.2613	330	73
FLSD 225 M	45	1470	293	84	0.84	0.8	0.7	92.5	92.5	91.2	7.8	3.0	2.8	0.3136	365	73
FLSD 250 M	55	1480	355	101	0.85	0.79	0.69	92.5	92.6	91.6	7.8	2.5	2.6	0.399	540	80
FLSD 280 S	75	1487	484	141	0.81	0.75	0.65	95.5	94.8	93.5	8.2	3.3	2.6	1.45	780	70
FLSD 280 M	90	1488	581	169	0.81	0.75	0.65	95	94.5	93	10.0	3.3	2.6	1.75	830	70
FLSD 315 S	110	1482	710	199	0.84	0.81	0.73	95	94.5	93	7.7	2.7	2.6	2.7	1070	73
FLSD 315 M	132	1483	850	238	0.84	0.8	0.72	95.4	94.8	93.7	7.4	2.8	2.6	2.7	1070	73
FLSD 315 LA	160	1483	1032	286	0.85	0.82	0.72	95	94.4	93	7.0	2.0	2.4	3.2	1120	73
FLSD 315 LB	200	1485	1291	357	0.85	0.8	0.69	95.2	94.8	93.6	9.0	2.8	3.0	4.1	1220	73
FLSD 355 LA	250	1483	1611	420	0.9	0.86	0.78	95.5	95.2	94	7.8	2.0	2.4	6.9	1580	80
FLSD 355 LB	300	1489	1930	520	0.87	0.84	0.77	95.7	95.4	94.2	6.7	1.6	2.4	8	1630	80
FLSD 355 LC	355	1489	2279	610	0.87	0.84	0.78	96.5	96.3	95.1	6.8	1.8	2.4	8.4	1870	80
FLSD 355 LD	400	1489	2564	688	0.87	0.83	0.77	96.5	96.3	95	7.4	2.1	2.4	8.7	1990	80

The values given are also used for the finish Ex d II C T4.
 For T5 and T6 applications, consult us.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection

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

4
poles
1500 min⁻¹

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	0.55	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 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 - ΔT 80 K - 230 V Δ / 400 V Y - S1
II - 2G - Ex d II C T4

4
poles
1500 min⁻¹

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	0.55	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:	11 kW
Mounting and position:	IM 3001 (IM B5)
Mains supply voltage:	230/400 V
Specific finish:	Ex d II B T4

Designation:

4P FLSD 160 M 11 kW IM 3001 (IM B5)
230/400 V

Code : XD4 11 303

FLSD flameproof



totally enclosed three-phase asynchronous motors

Selection

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

2
poles
3000 min⁻¹

Type	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
	P _N kW	N _N min ⁻¹	M _N N.m	I _{N(400V)} A	Cos φ			η			I _d / I _n	M _d /M _n	M _m /M _n	J kg.m ²	IM B3 kg	LP db(A)
					4/4	3/4	2/4	4/4	3/4	2/4						
FLSD 80 L	0.75	2860	2.51	1.6	0.89	0.84	0.75	78.4	78.5	75.4	5.4	2.9	2.6	0.00087	23	61
FLSD 80 L	1.1	2850	3.67	2.4	0.84	0.77	0.64	77.8	77.9	75.5	6.1	3.4	3.1	0.00087	23	61
FLSD 90 S	1.5	2867	4.99	3	0.88	0.84	0.74	80.9	81.1	77.3	7.4	3.5	3.3	0.00171	31	64
FLSD 90 L	2.2	2849	7.37	4.4	0.88	0.84	0.74	81.4	81.6	79.2	7.8	3.9	2.9	0.00199	32	64
FLSD 100 L	3	2865	10	6.2	0.85	0.81	0.67	81.26	80.5	77.8	7.6	4.3	4.8	0.00227	38	66
FLSD 112 M	4	2891	13.2	8	0.86	0.8	0.7	82.9	82.6	79.7	7.0	2.3	3.9	0.00652	47	69
FLSD 132 S	5.5	2898	18.1	10.9	0.87	0.86	0.83	86.1	86.2	84	8.1	2.3	3.4	0.01191	76	72
FLSD 132 S	7.5	2920	24.5	14.8	0.84	0.81	0.73	86.3	86.6	85.03	7.5	2.1	3.5	0.01443	81	72
FLSD 132 M	9	2938	29.3	16.8	0.89	0.82	0.73	87.2	86.8	84.1	8.3	2.9	3.5	0.01847	88	72
FLSD 160 M	11	2935	35.7	21	0.87	0.85	0.81	86	86	84.1	7.6	3.3	3.2	0.044	125	84
FLSD 160 M	15	2930	49	28	0.88	0.86	0.82	88	88	85.4	7.9	3.4	3.3	0.0515	137	84
FLSD 160 L	18.5	2930	60	34	0.88	0.86	0.82	88.5	88.2	85.3	8.3	3.4	3.4	0.059	170	84
FLSD 180 M	22	2935	72	40	0.88	0.85	0.82	89	89.1	87	9.1	4.1	3.8	0.075	180	85
FLSD 200 L	30	2960	97	53	0.9	0.87	0.82	91	89.8	87.2	9.1	3.0	3.5	0.142	305	85
FLSD 200 L	37	2960	119	65	0.9	0.88	0.81	91.5	91.5	88	8.7	2.9	3.3	0.163	325	85
FLSD 225 M	45	2949	145	77	0.91	0.88	0.82	92.5	92.4	91	8.8	2.9	3.4	0.204	365	83
FLSD 250 M	55	2951	177	99	0.85	0.83	0.77	94.6	94.5	93.9	7.7	2.6	2.7	0.223	490	82
FLSD 280 S	75	2970	241	127	0.9	0.85	0.81	94.5	93.1	94.5	6.8	2.2	2.4	0.75	760	76
FLSD 280 M	90	2975	289	152	0.9	0.86	0.8	95	94.9	94	7.4	2.3	2.5	0.85	800	76
FLSD 315 S	110	2970	353	188	0.89	0.86	0.8	95.2	94.9	94	8.0	2.1	2.6	1.5	1070	84
FLSD 315 M	132	2955	427	229	0.87	0.84	0.79	95.5	94.9	94.1	8.7	2.4	2.7	1.5	1070	84
FLSD 315 LA	160	2955	517	279	0.87	0.85	0.81	95.4	94.8	93.5	7.0	1.9	2.6	1.8	1120	84
FLSD 315 LB	200	2960	645	345	0.88	0.85	0.79	95.3	94.6	93.4	8.0	2.3	2.6	2.1	1220	84
FLSD 355 LA	250	2957	807	421	0.9	0.86	0.81	95.2	94.5	93.3	7.8	1.7	2.5	3.3	1470	84
FLSD 355 LB	315	2960	1016	530	0.9	0.86	0.8	95.5	94.9	94.2	7.2	1.6	2.5	3.85	1570	84
FLSD 355 LC	355	2982	1137	605	0.88	0.86	0.8	96.3	96	95	7.9	1.9	2.6	4.2	1985	84
FLSD 355 LD	400	2980	1282	676	0.89	0.85	0.8	96.3	95.9	94.8	7.8	2.0	2.7	4.2	1995	84

The values given are also used for the finish Ex d II C T4.
 For T5 and T6 applications, consult us.



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

2
poles
3000 min⁻¹

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 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

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 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
 - 2G - Ex d II B T4 / Ex d II C T4

4
poles
1500 min⁻¹

A

Type	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
	P _N kW	N _N min-1	M _N N.m	I _{N(400V)} A	Cos φ			η			I _d / I _n	M _d /M _n	M _u /M _n	J kg.m ²	IM B3 kg	LP db(A)
					4/4	3/4	2/4	4/4	3/4	2/4						
FLSD 80 L	0.55	1430	3.67	1.45	0.7	0.61	0.5	74	72.8	68.3	5.0	2.9	3.3	0.00167	22	44
FLSD 80 L	0.75	1420	5	2	0.74	0.66	0.54	75.1	74.1	69.7	5.4	3.1	3.6	0.00212	24	44
FLSD 90 S	1.1	1427	7.4	2.4	0.86	0.79	0.67	76.1	76.4	73.4	5.0	1.8	2.3	0.00264	28	50
FLSD 90 L	1.5	1432	10	3.23	0.86	0.79	0.65	77.8	77.9	75	5.4	2.0	2.7	0.00321	30	50
FLSD 100 L	2.2	1435	14.6	4.6	0.85	0.78	0.65	80.5	80.4	77.6	6.1	2.5	3.1	0.00432	38	52
FLSD 100 L	3	1439	20	6.8	0.806	0.74	0.61	81.2	81.2	78.7	6.6	2.7	3.1	0.00557	41	52
FLSD 112 M	4	1458	26.2	8.5	0.81	0.76	0.67	84.6	84.3	82	7.5	2.3	3.2	0.01226	51	52
FLSD 132 S	5.5	1450	36.2	10	0.89	0.87	0.81	86.8	87.3	86.2	7.0	2.3	2.4	0.02507	89	59
FLSD 132 M	7.5	1460	49.1	14.7	0.85	0.84	0.8	87.8	88.2	87.2	7.7	2.3	3.1	0.02776	93	59
FLSD 160 M	11	1450	73	21	0.85	0.79	0.71	87.5	87.7	86.5	6.2	2.4	2.5	0.0666	130	66
FLSD 160 L	15	1450	99	29	0.85	0.82	0.72	88.5	88.6	87.7	6.9	2.3	2.4	0.0913	155	66
FLSD 180 M	18.5	1450	122	35	0.85	0.83	0.74	89.5	89.5	88.7	7.2	3.0	3.1	0.1053	175	68
FLSD 180 L	22	1455	145	42	0.85	0.81	0.71	89.5	89.5	88.9	7.6	3.0	3.1	0.1205	195	68
FLSD 200 L	30	1470	195	56	0.84	0.79	0.67	91.5	91.6	90.2	7.5	2.8	2.9	0.2147	305	74
FLSD 225 S	37	1470	241	69	0.84	0.78	0.69	92	91.4	89.7	7.7	2.9	2.8	0.2613	330	73
FLSD 225 M	45	1470	293	84	0.84	0.8	0.7	92.5	92.5	91.2	7.8	3.0	2.8	0.3136	365	73
FLSD 250 M	55	1480	355	101	0.85	0.79	0.69	92.5	92.6	91.6	7.8	2.5	2.6	0.399	540	80
FLSD 280 S	75	1487	484	141	0.81	0.75	0.65	95.5	94.8	93.5	8.2	3.3	2.6	1.45	780	70
FLSD 280 M	90	1488	581	169	0.81	0.75	0.65	95	94.5	93	10.0	3.3	2.6	1.75	830	70
FLSD 315 S	110	1482	710	199	0.84	0.81	0.73	95	94.5	93	7.7	2.7	2.6	2.7	1070	73
FLSD 315 M	132	1483	850	238	0.84	0.8	0.72	95.4	94.8	93.7	7.4	2.8	2.6	2.7	1070	73
FLSD 315 LA	160	1483	1032	286	0.85	0.82	0.72	95	94.4	93	7.0	2.0	2.4	3.2	1120	73
FLSD 315 LB	200	1485	1291	357	0.85	0.8	0.69	95.2	94.8	93.6	9.0	2.8	3.0	4.1	1220	73
FLSD 355 LA	250	1483	1611	420	0.9	0.86	0.78	95.5	95.2	94	7.8	2.0	2.4	6.9	1580	80
FLSD 355 LB	300	1489	1930	520	0.87	0.84	0.77	95.7	95.4	94.2	6.7	1.6	2.4	8	1630	80
FLSD 355 LC	355	1489	2279	610	0.87	0.84	0.78	96.5	96.3	95.1	6.8	1.8	2.4	8.4	1870	80
FLSD 355 LD	400	1489	2564	688	0.87	0.83	0.77	96.5	96.3	95	7.4	2.1	2.4	8.7	1990	80

The values given are also used for the finish Ex d II C T4.
 For T5 and T6 applications, consult us.



FLSD flameproof totally enclosed three-phase asynchronous motors

Selection



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

4
poles
1500 min⁻¹

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 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		1		-		-
FLSD 280 S	75		1		-		-
FLSD 280 M	90		-		-		-
FLSD 315 S	110		-		-		-

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

4
poles
1500 min⁻¹

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 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:	11 kW
Mounting and position:	IM 1001 (IM B3)
Mains supply voltage:	400 V
Specific finish:	Ex d II B T4

Designation:

4P FLSD 160 M 11 kW IM 1001 (IM B3)
400 V

Code : XD4 11 302

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


Type	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
	P _N kW	N _N min ⁻¹	M _N N.m	I _{N(400V)} A	Cos φ			η			I _d / I _n	M _d /M _n	M _v /M _n	J kg.m ²	IM B3 kg	LP db(A)
					4/4	3/4	2/4	4/4	3/4	2/4						
FLSD 80 L	0.25	950	2.51	0.8	0.74	0.68	0.55	60.3	58.2	54.0	3.6	2.0	1.9	0.0022	22	40
FLSD 80 L	0.37	940	3.76	1.2	0.74	0.68	0.55	61.0	59.9	55.2	3.8	1.9	2.1	0.0028	24	40
FLSD 80 L	0.55	955	5.5	1.8	0.67	0.59	0.46	65.1	64.0	59.0	4.4	2.5	2.6	0.0036	24	40
FLSD 90 S	0.75	940	7.62	2.1	0.8	0.75	0.65	70.5	69.3	63.5	3.5	2.0	2.2	0.0031	28	45
FLSD 90 L	1.1	940	11.2	2.7	0.81	0.76	0.66	70.7	71.0	66.7	4.8	1.8	2.2	0.0037	30	45
FLSD 100 L	1.5	955	15	3.5	0.78	0.72	0.61	75.7	76.4	75.2	6.3	2.2	2.8	0.0056	38	48
FLSD 112 M	2.2	960	21.9	5.2	0.77	0.71	0.59	77.7	78.2	76.3	5.5	2.3	2.4	0.012	51	48
FLSD 132 S	3	953	30.1	6.9	0.76	0.74	0.63	79.7	81.0	79.7	5.3	2.2	2.4	0.0199	89	55
FLSD 132 M	4	970	39.4	9	0.78	0.72	0.61	82.4	83.3	81.9	6.7	2.8	2.7	0.0275	93	55
FLSD 132 M	5.5	970	54.1	12.2	0.79	0.74	0.63	83.1	84.0	82.7	7.1	3.2	2.7	0.0343	93	55
FLSD 160 M	7.5	965	75	17	0.76	0.70	0.58	86.0	85.7	83.6	5.5	2.0	2.6	0.085	125	58
FLSD 160 L	11	970	109	24	0.77	0.72	0.59	87.0	86.7	84.5	6.1	2.1	2.8	0.118	145	58
FLSD 180 L	15	970	148	34	0.74	0.67	0.53	87.0	86.1	84.0	6.8	2.2	2.4	0.158	180	60
FLSD 200 L	18.5	975	182	37	0.8	0.75	0.5	90.0	90.1	85.6	7.5	1.9	2.7	0.305	305	66
FLSD 200 L	22	970	217	45	0.79	0.73	0.62	90.0	90.2	89.9	7.5	2.2	3.2	0.305	305	66
FLSD 225 M	30	970	295	60	0.8	0.73	0.6	90.0	89.5	87.3	7.7	2.3	3.1	0.394	350	65
FLSD 250 M	37	982	360	74.5	0.78	0.73	0.6	92.0	91.9	90.4	7.2	2.4	2.2	0.56	530	71
FLSD 280 S	45	987	440	83	0.87	0.84	0.76	93.9	94.0	93.0	6.1	1.9	2.3	1.1	780	72
FLSD 280 M	55	987	536	100	0.84	0.8	0.71	95.0	94.9	94.0	6.4	2.1	2.4	1.25	830	72
FLSD 315 S	75	987	731	130	0.87	0.83	0.77	95.0	95.0	94.1	7.2	1.7	2.3	3.1	1080	76
FLSD 315 M	90	983	875	161	0.86	0.83	0.75	94.0	93.9	92.5	7.1	1.5	2.5	3.1	1080	76
FLSD 315 LA	110	985	1067	197	0.86	0.82	0.74	94.3	93.0	86.0	6.8	1.6	2.5	4	1130	76
FLSD 315 LB	132	986	1280	234	0.86	0.83	0.74	94.9	94.7	93.3	7.5	1.7	2.5	4.4	1195	76
FLSD 315 LB	150	985	1454	265	0.86	0.82	0.72	94.7	94.4	93.0	6.8	1.5	2.4	4.4	1215	76
FLSD 355 LA	185	991	1783	329	0.86	0.83	0.74	94.2	94.2	93.1	7.5	1.7	2.7	5	1485	78
FLSD 355 LB	220	987	2129	384	0.87	0.84	0.75	95.0	95.0	93.7	7.5	1.8	2.7	6	1610	78
FLSD 355 LD	300	993	2885	553	0.82	0.79	0.71	95.5	95.3	94.0	7.6	1.6	2.6	8	1995	78

The values given are also used for the finish Ex d II C T4.
For T5 and T6 applications, consult us.



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

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


Type	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
	P _N kW	N _N min ⁻¹	M _N N.m	I _{N(400V)} A	Cos φ			η			I _d / I _n	M _d /M _n	M _v /M _n	J kg.m ²	IM B3 kg	LP db(A)
					4/4	3/4	2/4	4/4	3/4	2/4						
FLSD 80 L	0.18	710	2.42	0.8	0.64	0.58	0.46	52.3	51	45	3.0	1.7	1.7	0.0028	22	40
FLSD 80 L	0.25	720	3.32	1.1	0.6	0.55	0.44	54.5	54	46	3.18	2.0	2.4	0.0036	24	40
FLSD 90 S	0.37	685	5.16	1.2	0.71	0.57	0.45	64	63	59	3.5	1.6	1.6	0.0031	28	48
FLSD 90 L	0.55	695	7.56	1.7	0.72	0.59	0.46	63	58	54	3.29	1.9	1.8	0.0037	30	48
FLSD 100 L	0.75	720	9.95	2.3	0.68	0.6	0.47	70.9	70	66	4.09	1.9	1.9	0.0085	38	46
FLSD 100 L	1.1	720	14.6	3.8	0.62	0.56	0.44	68	66	60	4.11	1.8	2.4	0.0117	41	46
FLSD 112 M	1.5	725	19.8	4.8	0.63	0.57	0.45	72.5	72	68	4.0	2.1	2.2	0.0150	51	49
FLSD 132 S	2.2	715	29.4	7.2	0.6	0.55	0.44	74	74	72	3.19	1.4	1.8	0.0253	89	56
FLSD 132 M	3	705	40.6	9.1	0.63	0.57	0.46	76	76	73	3.1	1.3	1.9	0.0334	93	56
FLSD 160 M	4	724	54	11	0.65	0.58	0.46	82	81.7	80.2	3.7	2.1	2.0	0.0761	140	58
FLSD 160 M	5.5	710	75	15	0.65	0.58	0.47	82	82.1	80.6	3.6	2.0	1.9	0.0761	140	58
FLSD 160 L	7.5	710	102	21	0.63	0.56	0.45	82	82.4	81	3.8	2.2	2.0	0.0913	155	58
FLSD 180 L	11	710	148	31	0.63	0.54	0.43	82	82.5	81	3.9	1.9	2.0	0.1205	195	60
FLSD 200 L	15	725	198	34	0.72	0.65	0.52	89	88.3	86.5	5.4	1.9	2.4	0.39	305	66
FLSD 225 S	18.5	725	244	43	0.7	0.64	0.53	88.5	88.5	86.9	5.5	2.0	2.5	0.393	320	65
FLSD 225 M	22	725	290	50	0.71	0.67	0.57	88.5	88.7	87.2	5.3	1.9	2.4	0.466	350	65
FLSD 250 M	30	733	391	61	0.78	0.74	0.64	91.3	91.4	90.5	5.5	1.6	2.0	0.57	530	71
FLSD 280 S	37	740	480	72	0.8	0.73	0.63	93.9	94.2	93.7	7.0	1.8	2.3	1.6	780	72
FLSD 280 M	45	741	585	90	0.77	0.72	0.63	94	93.2	91.4	7.5	2.0	2.3	1.75	810	72
FLSD 315 S	55	743	715	108	0.78	0.72	0.63	94.8	94.8	94.1	7.3	2.0	2.5	3.1	1070	78
FLSD 315 M	75	737	972	140	0.83	0.74	0.65	93.5	93.8	93.2	7.4	2.0	2.6	3.1	1070	78
FLSD 315 LA	90	735	1169	167	0.83	0.74	0.64	94	94.2	93.5	7.3	2.0	2.5	4.2	1100	78
FLSD 315 LB	110	740	1420	204	0.82	0.74	0.63	94.2	94.1	93.3	7.2	1.6	2.2	5.1	1195	78
FLSD 355 LA	132	740	1703	244	0.83	0.75	0.64	94.2	94.3	93.4	6.7	1.7	2.7	5.5	1485	78
FLSD 355 LB	160	740	2065	296	0.82	0.74	0.63	95.2	95	93.5	6.9	1.8	2.7	6	1605	78
FLSD 355 LB	200	740	2581	360	0.84	0.75	0.65	95.4	95.2	93.6	6.7	1.6	2.6	6.5	1995	78

The values given are also used for the finish Ex d II C T4.
For T5 and T6 applications, consult us.



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



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	0.18		-		-		-
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

A

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	4/8 poles	4/6 poles
		Dahlander	Dahlander	2 windings
		Rated power at 50 Hz kW	Rated power at 50 Hz kW	Rated power at 50 Hz kW
FLSD 80 L	GV ¹ / PV ²	1.1 / 0.28	1.1 / 0.18	0.75 / 0.25
FLSD 90 S	GV / PV	1.5 / 0.37	1.1 / 0.18	1.1 / 0.37
FLSD 90 L	GV / PV	2.2 / 0.55	1.5 / 0.25	1.4 / 0.45
FLSD 100 L	GV / PV	2.8 / 0.7	1.8 / 0.3	2 / 0.6
FLSD 100 L	GV / PV	-	2.2 / 0.37	-
FLSD 112 M	GV / PV	4 / 1	3.3 / 0.6	3 / 1
FLSD 132 S	GV / PV	6.4 / 1.6	5 / 1.1	4 / 1.3
FLSD 132 M	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. GV : High speed
 2. 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



Type		2/4 poles	4/8 poles	4/6 poles
		Dahlander	Dahlander	2 windings
		Rated power at 50 Hz kW	Rated power at 50 Hz kW	Rated power at 50 Hz kW
FLSD 80 L	GV ¹ / PV ²	0.75 / 0.55	0.75 / 0.37	0.75 / 0.37
FLSD 90 S	GV / PV	1.3 / 0.9	1 / 0.5	0.9 / 0.6
FLSD 90 L	GV / PV	1.85 / 1.2	1.2 / 0.6	1.1 / 0.75
FLSD 100 L	GV / PV	2.5 / 1.6	1.7 / 0.9	1.6 / 1.1
FLSD 112 M	GV / PV	4 / 3	2.4 / 1.3	2.3 / 1.5
FLSD 132 S	GV / PV	6.2 / 4.5	5 / 2.8	3.6 / 2.4
FLSD 132 M	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. GV : High speed
 2. 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

Notes

A



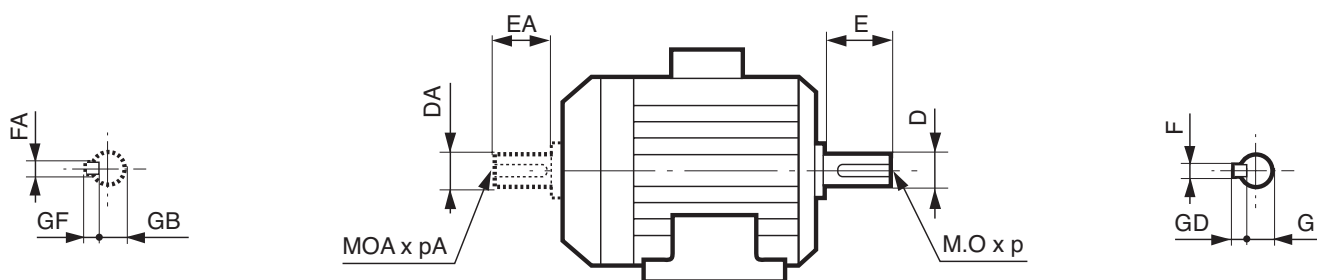
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

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

Dimensions in millimetres

– shaft end



Type	Main shaft end													
	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

Type	Secondary shaft end													
	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	58	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



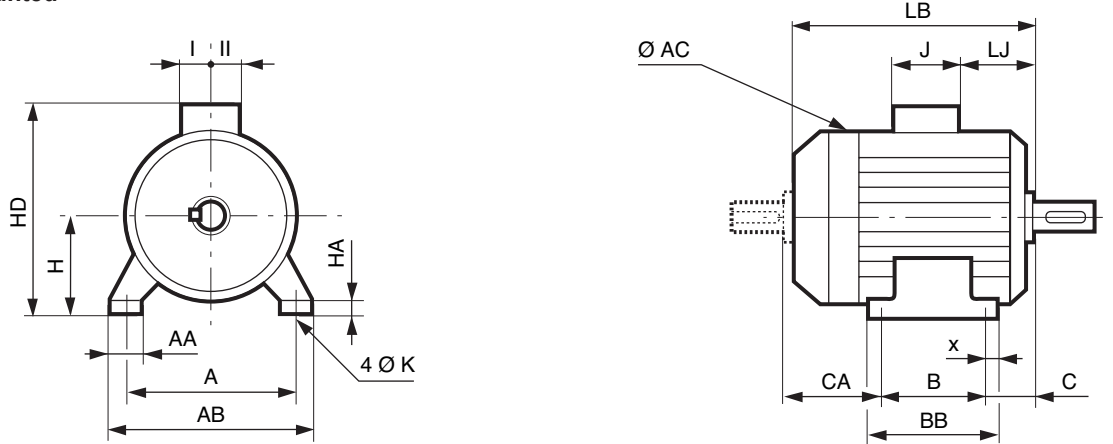
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

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

Dimensions in millimetres

– foot mounted



Main dimensions

Type	A	AB	B	BB	C	x	AA	K	HA	H	AC	HD	LB	LJ	J	I	II'
FLSD 80 L	125	157	100	132	50	10	34	9	10	80	167	283	258	26	142	71	77
FLSD 90 S	140	170	100	155	56	11	33	12	10	90	184	306	297	32	142	71	77
FLSD 90 L	140	170	125	155	56	11	33	12	10	90	184	306	297	32	142	71	77
FLSD 100 L	160	196	140	201	63	19	40	12	13	100	195	316	345	32	142	71	77
FLSD 112 M	190	230	140	186	70	14	47	12	14	112	220	357	346	34	142	71	77
FLSD 132 S	216	255	140	243	89	14	63	12	16	132	264	371	462	56	142	71	77
FLSD 132 M	216	256	178	243	89	14	63	12	16	132	264	371	462	56	142	71	77
FLSD 160 M	254	310	210	322	108	30	75	15	18	160	310	490	549	19	250	125	145
FLSD 160 L	254	310	254	322	108	30	75	15	18	160	310	490	549	19	250	125	145
FLSD 180 M	279	340	241	364	121	30	80	15	20	180	310	510	617	19	250	125	145
FLSD 180 L	279	340	279	364	121	30	80	15	20	180	310	510	617	19	250	125	145
FLSD 200 L	318	380	305	385	133	40	90	19	24	200	385	565	648	33	250	125	145
FLSD 225 S	356	445	286	400	149	44	90	19	30	225	385	590	718	33	250	125	145
FLSD 225 M	356	445	311	400	149	44	90	19	30	225	385	590	718	33	250	125	145
FLSD 250 M	406	510	349	455	168	43	105	22	40	250	465	720	827	173	360	208	208
FLSD 280 S	457	537	368	499	190	40	80	22	40	280	540	768	1065	77	330	165	271
FLSD 280 M	457	537	419	499	190	40	80	22	40	280	540	768	1065	77	330	165	271
FLSD 315 S	508	600	406	598	216	45	100	27	38	315	624	952	1203	96	400	195	340
FLSD 315 M	508	600	457	598	216	45	100	27	38	315	624	952	1203	96	400	195	340
FLSD 315 LA/LB	508	600	508	598	216	45	100	27	38	315	624	952	1203	96	400	195	340
FLSD 355 LA/LB	610	710	630	710	254	40	110	27	38	355	700	1027	1302	88	400	195	340
FLSD 355 LC/LD	610	710	630	710	254	40	110	27	38	355	700	1027	1426	88	400	195	340

1. Dimensions without cable glands.



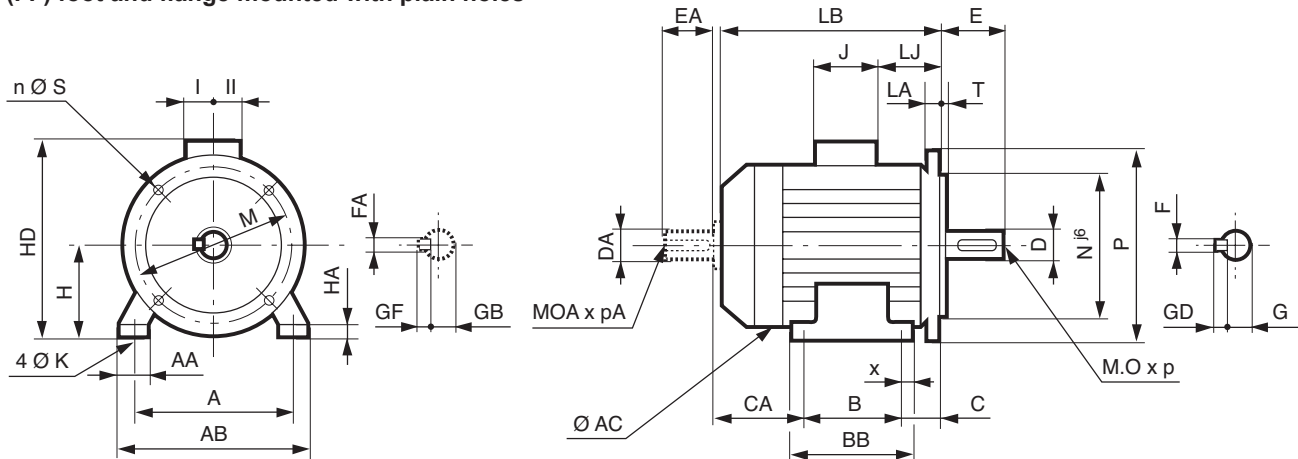
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

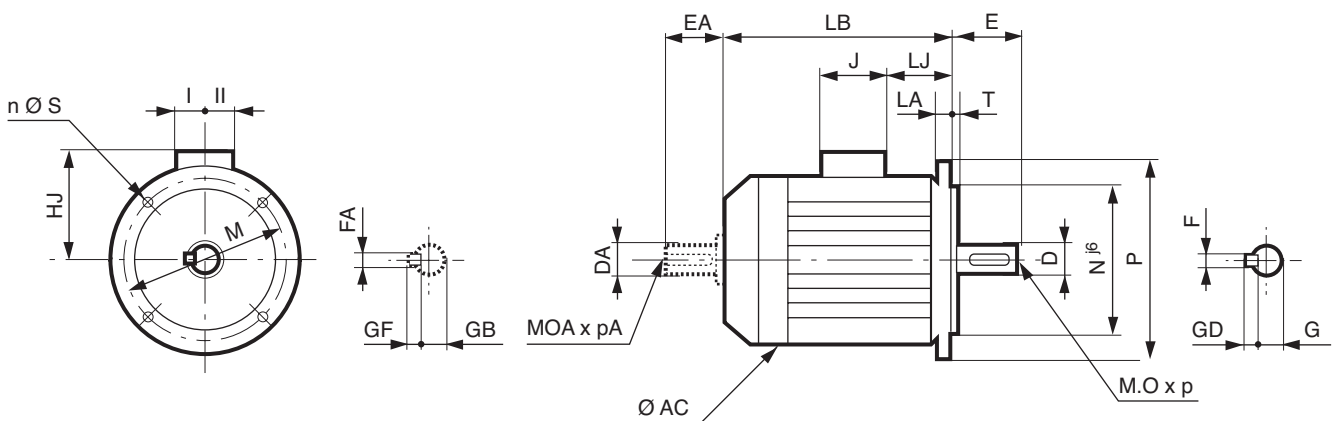
Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55
Cage rotor

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																		Symb
	A	AB	B	BB	C	x	AA	K	HA	H	AC	HD	LB	HJ	LJ	J	I	II'	
FLSD 80 L	125	157	100	132	50	10	34	9	10	80	167	283	258	203	26	142	71	77	FF 165
FLSD 90 S	140	170	100	155	56	11	33	12	10	90	184	306	297	216	32	142	71	77	FF 165
FLSD 90 L	140	170	125	155	56	11	33	12	10	90	184	306	297	216	32	142	71	77	FF 165
FLSD 100 L	160	196	140	201	63	19	40	12	13	100	195	316	345	216	32	142	71	77	FF 215
FLSD 112 M	190	230	140	186	70	14	47	12	14	112	220	357	346	225	34	142	71	77	FF 215
FLSD 132 S	216	255	140	243	89	14	63	12	16	132	264	371	462	239	56	142	71	77	FF 265
FLSD 132 M	216	256	178	243	89	14	63	12	16	132	264	371	462	239	56	142	71	77	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	13
FF 265	265	230	300	4	4	15	14
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.

- (FF) plain hole flange mounted non standard

Motor type	Flange type			
	FF 130	FF 165	FF 215	FF 265
FLSD 80	○	●		
FLSD 90	*	●		
FLSD 100		*	●	
FLSD 112		○	●	
FLSD 132				●

● : standard

○ : adapted shaft

* : adaptable without modification of the shaft



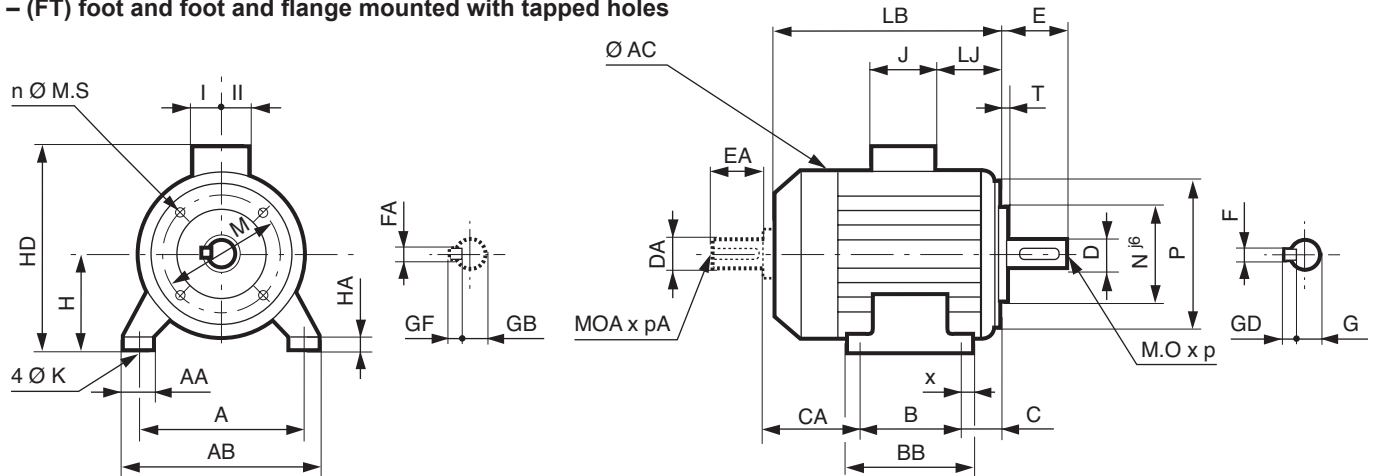
FLSD flameproof totally enclosed three-phase asynchronous motors

Dimensions

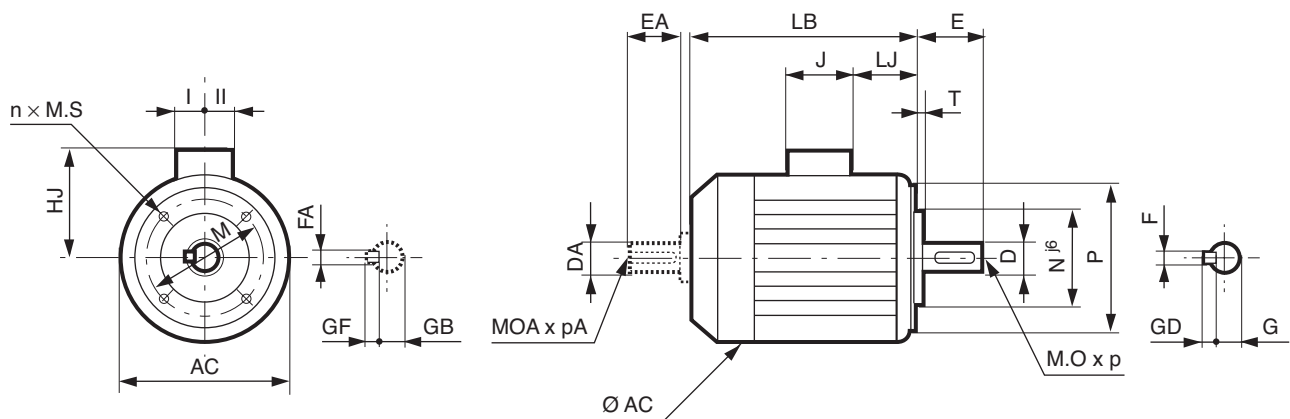
Dimensions of the FLSD flameproof totally enclosed three-phase asynchronous motors - IP 55
Cage rotor

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	LJ	J	I	II'	
FLSD 80 L	125	157	100	132	50	10	34	9	10	80	167	283	258	26	142	71	77	FT 100
FLSD 90 S	140	170	100	155	56	11	33	12	10	90	184	306	297	32	142	71	77	FT 115
FLSD 90 L	140	170	125	155	56	11	33	12	10	90	184	306	297	32	142	71	77	FT 115
FLSD 100 L	160	196	140	201	63	19	40	12	13	100	195	316	345	32	142	71	77	FT 130
FLSD 112 M	190	230	140	186	70	14	47	12	14	112	220	357	346	34	142	71	77	FT 130
FLSD 132 S	216	255	140	243	89	14	63	12	16	132	264	371	462	56	142	71	77	FT 215
FLSD 132 M	216	256	178	243	89	14	63	12	16	132	264	371	462	56	142	71	77	FT 215

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

IEC symbol	Flange dimensions						Threading x length
	M	N	P	T	n		
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



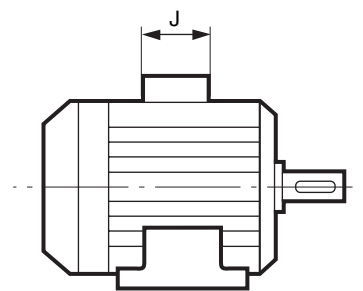
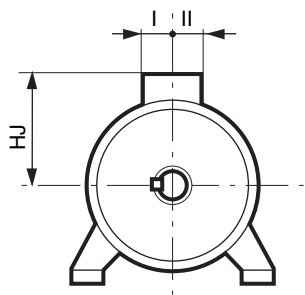
totally enclosed three-phase asynchronous motors

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	136	-	68	68
FLSD 90 and 100	136	-	68	68
FLSD 112	136	-	68	68
FLSD 132	136	230	68	68
FLSD 160 and 180	223	311	114	156
FLSD 200 and 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