

LS FCR

Atmospheres containing explosive dust FCR asynchronous brake motors



**CATEGORY 3
ZONE 22**
Non-conductive dust

General information



GENERAL USE : U.G.

Enclosed three-phase asynchronous brake motor, LS series according to IEC 34, 72, EN 50281.

- Single speed : power 0.25 to 15 kW, frame size from 71 to 160 mm 4 poles ; 230/400V or 400 V Δ , 50 Hz.
- Other polarities and two speed : on request (power 0.09 to 9 kW, frame size 71 to 160 mm, general use, two windings or Dahlander ; 400 V Y or Δ , 50 Hz).

Protection

IP 55 standard version providing a goodsealing against projected liquid and dust in an industrial environment.

Motors for variable speed operation :

- fitted with thermal probes in winding (obligatory),
- on consultation
- forced ventilation not allowed (up to 15 kW).

Finish : aluminium housing

Assembled with protected screws.

Protection of the flange and shaft end against atmospheric corrosion.
Individual anti-shock packaging.

Brake motor mains supply

- Standard construction according to IEC 38 :
– 230/400 V +10 % -10 % at 50 Hz ;
– 400 V Δ +10 % -10 % at 50 Hz.
- The brake mains supply is integral and the brake motor connects as a standard motor. If it is separate : the alternating (ac) supply is exterior to the motor.

Options

- Selection of brake inertia (HA 71 to 100) ; manual brake release
- Drip cover ; 2nd shaft end ; thermal probes
- Reduced response time ; connector
- Encoders and/or forced ventilation.

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

They have self-certification for atmospheres containing explosive dust Category 3, Zone 22.

Description of the LS FCR - Zone 22 aluminium three-phase brake motors



II 3D T 125 °C

Component	Materials	Remarks
Finned housing	Aluminium alloy	- with cast feet, or without feet - pressure die-cast <ul style="list-style-type: none"> • 4 mounting holes for foot housing • optional lifting rings at 132 and 112 - optional earth terminal
Stator	Insulated low carbon magnetic steel laminations Electrolytic copper	- the low carbon content guarantees long term stability of the characteristics - electric welded sheet steel lamination pack - fitted into a heat expanded housing to provide mechanical rigidity - semi-enclosed slots - insulation system class F
Rotor	Insulated low carbon magnetic steel laminations	- inclined slots - squirrel cage pressure die cast in aluminium (or alloy for special applications) - mounted on shaft by heat shrinking. - level A rotor dynamic balancing - 1/2 key
Shaft	Steel	- for all frame sizes : <ul style="list-style-type: none"> • shaft end fitted with screw and washer • closed keyway
End shields	Cast iron	- front and rear, assembled with tie rods
Bearings		- ball bearings, sealed, greased for life with the following mounting : <ul style="list-style-type: none"> • locked rear to provide precise positioning of the load • preloaded front to eliminate axial movement
Lipseals	Synthetic rubber	- front lipseals or jet deflector for all motors
Fan	Aluminium alloy or cast iron	- 2 directions of rotation : straight blades
Fan cover	Sheet steel	- on request, fitted with a drip cover for operation in vertical position, shaft facing down
Terminal box	Aluminium alloy	- IP 55, sealed - rotatable in 4 directions for flange version, the opposite position to the feet for foot or foot and flange versions for frame size \geq 80 - fitted with a 6 steel stud terminal board - delivered with polyamide cable glands - 1 earth terminal in all terminal boxes
Painting		- system Ia, colour RAL 6000 (green) - resistance to saline mist : 72 h (following NFX 41002)

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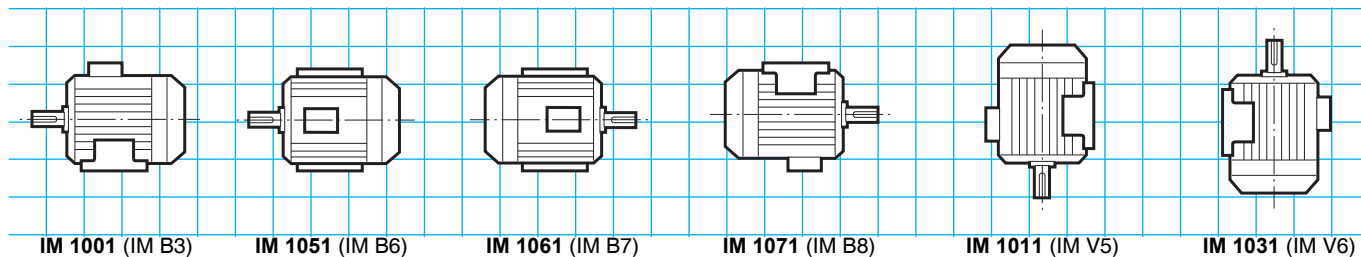


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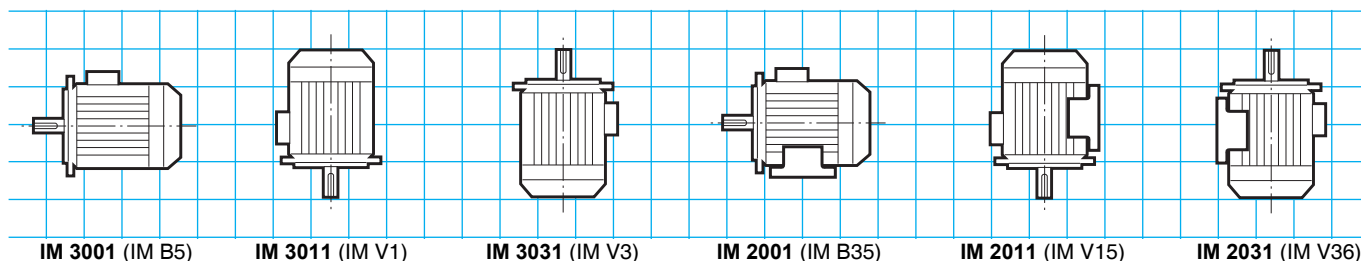
Mounting - Operating positions

Reference position is viewed from side F (drive end shaft)

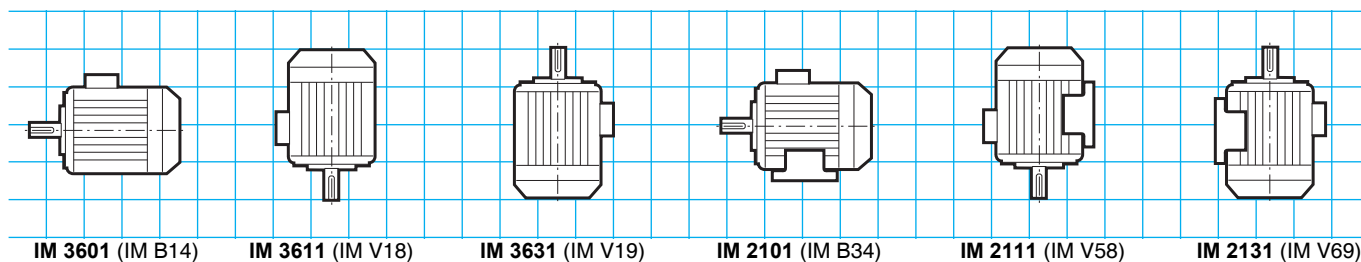
Foot mounted motor



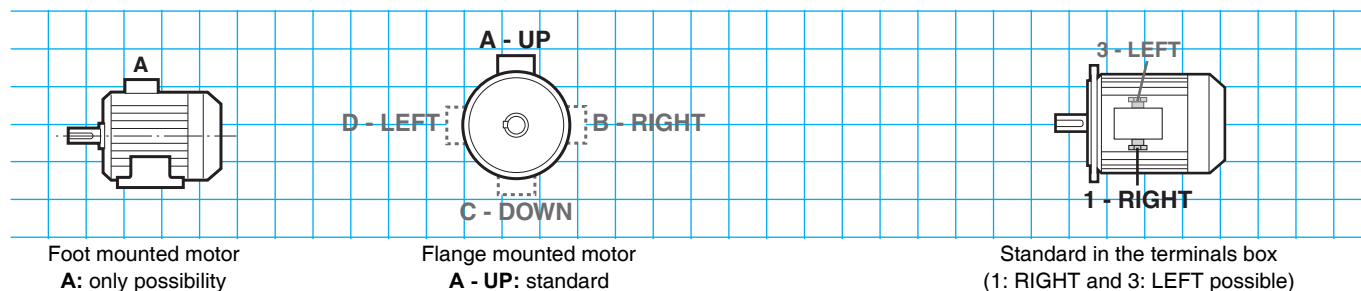
(FF) plain hole flange mounted motor



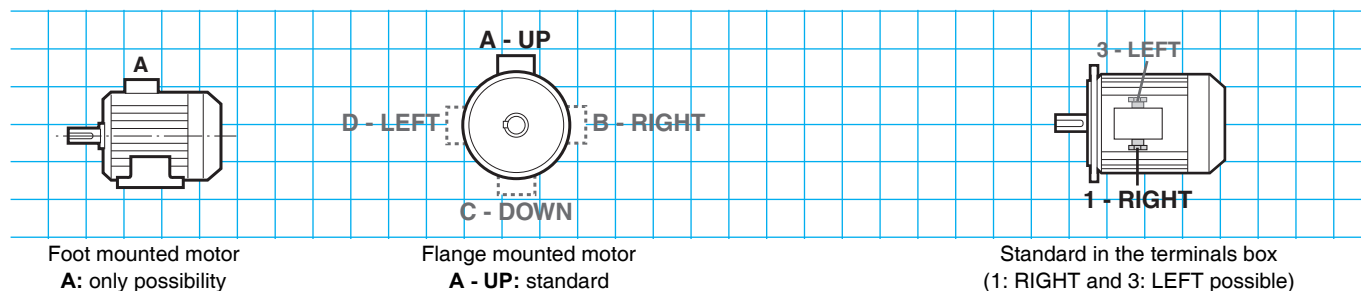
(FT) tapped hole flange mounted motor



Positions of the terminal box



Positions of the cable gland





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Adaptation possibilities

Leroy-Somer offers, for use with their general use brake motors operating in explosive dust atmospheres, many options which meet the needs of highly diverse applications. They are described below and in the chapters relating to fixed speed motors, gearboxes and to variable speed drives.

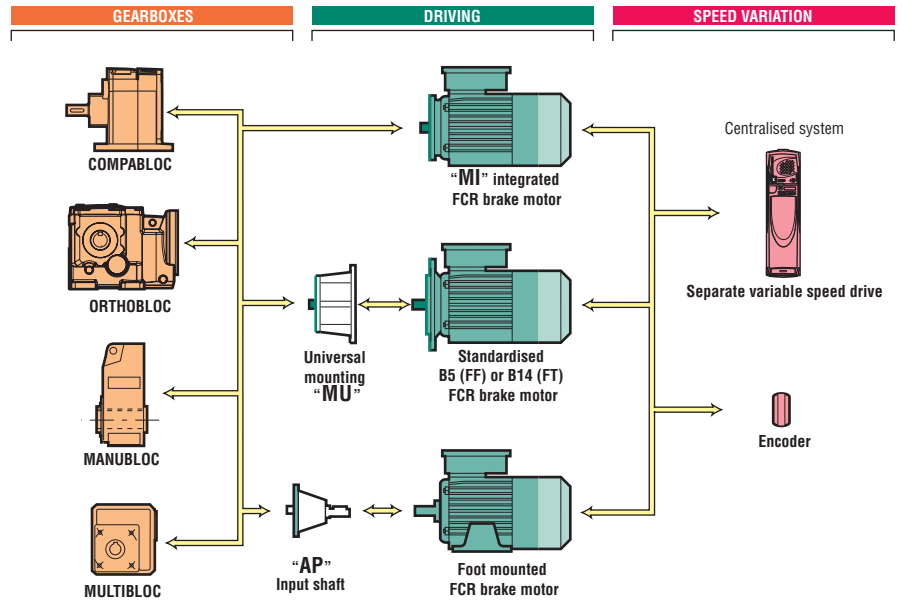
For other variants or any specific adaptation, consult the technical specialists at Leroy-Somer who will be pleased to advise.

☞ **LS FCR brake motors may be integrally (fitted motor), or with universal mounting (IEC standardised motor) with the following gearboxes :**

- Compabloc
- Orthobloc
- Manubloc
- Multibloc

☞ **LS FCR brake motors may be controlled by a variable speed drive :**

- Centralised system with separate variable speed drive LSMV brake FCR
- Decentralised system with integrated variable speed drive LS VARMECA FCR
- Decentralised system with variable speed drive close to the LSMV FCR



Designation / Codification

ATEX II 3D T 125°C	4P 1500 min⁻¹	LS	80	L	0.9	IM 3001 (IM B5)	230/400 V 50 Hz	U.G.	FCR	J02	10 N.m	A1
Specific application	Speed polarity	Motor series	Motor frame size	Manuf. index (motor)	Motor rated power : kW	Mounting position	Power supply frequency and voltage	Use	Brake type	Selected inertia	Brake torque	T Box and PE position

☞ **Codification example :**

For 4P flange brake motor operating in zone 22

Designation :

4P LS 80 L 0.9 kW IM3001 (IM B5) 230/400 V 50 Hz U.G. FCR J02 10 N.m A1

All the products in this catalogue have a code.

The coding table is incorporated in the price list together with the list of designations.

Each brake motor product is classified first in order of power and then in order of speed.

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Selection

**4
poles**
1500 min⁻¹

- LS series motor- IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y or 400 V Δ
Aluminium Rotor (ALU) - U.G. General Use
- Brake - IP 55 - Incorporated mains supply - Brake torque set in factory - II 3D T 125 °C

Motor type	Brake type	Rated power at 50 Hz P_N kW	Rated speed N_N min ⁻¹	Rated torque M_N N.m	Rated current I_N 400 V A	Power factor $\cos \varphi$	Efficiency η 100 %	Starting current / Rated current I_D / I_N	Starting torque / Rated torque M_D / M_N	Moment of inertia J 10 ⁻³ kg.m ²	Brake torque $M_T \pm 20\%$ N.m	Weight ¹ IM B5		
												J01 to J03 kg	J05 kg	
LS 71 L	FCR J02	0.25	1425	1.7	0.80	0.65	69	4.6	2.7	1.68	5	9.1	11.6	
LS 71 L	FCR J02	0.37	1420	2.5	1.06	0.70	72	4.9	2.4	1.85	5	10	12.5	
LS 71 L	FCR J02	0.55	1400	3.8	1.62	0.70	70	4.8	2.3	2.1	5	11	13.5	
LS 80 L	FCR J02	0.55	1410	3.8	1.42	0.76	73.4	4.5	2	3.8	10	15.5	19.2	
LS 80 L	FCR J02	0.75	1400	5.1	2.01	0.77	70	4.5	2	4.3	10	16.6	20.3	
LS 80 L	FCR J02	0.9	1425	6	2.44	0.73	73	5.8	3	4.9	10	18.2	21.9	
LS 90 L	FCR J02	1.1	1429	7.4	2.5	0.84	76.8	4.8	1.6	7.3	20	20.5	25	
LS 90 L	FCR J02	1.5	1428	10	3.4	0.82	78.5	5.3	1.8	7.9	20	22.5	27	
LS 90 L	FCR J02	1.8	1438	12	4	0.82	80.1	6	2.1	8.4	20	24.2	28.7	
LS 100 L	FCR J02	2.2	1436	14.7	4.8	0.81	81	5.9	2.1	9	25	27	-	
LS 100 L	FCR J02	3	1437	20.1	6.5	0.81	82.6	6	2.5	10.2	25	30	-	
LS 112 MG	FCR J01	4	1450	26.56	8.6	0.82	83	6.3	2.2	15.3	43	41	-	
LS 132 S	FCR J01	5.5	1447	36.7	11.1	0.83	85.7	6.3	2.4	18.3	43	48	-	
LS 132 M	FCR J02	7.5	1451	49.4	15.2	0.82	87	7	2.4	46	80	70	-	
LS 132 M	FCR J02	9	1455	59.3	18.1	0.82	87.7	6.9	2.2	50	105	75	-	
LS 160 MP	FCR J02	11	1454	72.2	21	0.86	88.4	7.7	2.3	57	120	85	-	
LS 160 LR	FCR J02	15	1453	98	28.8	0.84	89.4	7.5	2.9	63	120	101	-	

1. These values are given for information only.



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Selection

4
poles
1500 min⁻¹

IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y (LS 71 to 132) - 400 V Δ (LS 160)
U.G. General Use - II 3D T 125° C

Motor type	Brake type	Rated power at 50 Hz	Brake torque	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 3601 (IM B14)	
		P_N kW	$M_f \pm 20\%$ N.m	Code	Qty	Code	Qty	Code	Qty
LS 71 L	FCR J02	0.25	5	4262434	3	4262437	5	4262439	5
LS 71 L	FCR J02	0.37	5	4262440	3	4262441	5	4262442	5
LS 71 L	FCR J02	0.55	5	4262443	-	4262444	5	4262445	5
LS 80 L	FCR J02	0.55	10	4262448	3	4262450	5	4262451	5
LS 80 L	FCR J02	0.75	10	4262455	3	4262456	5	4262459	5
LS 80 L	FCR J02	0.9	10	4262461	3	4262462	5	4262463	5
LS 90 L	FCR J02	1.1	20	4262581	3	4187623	5	4262585	5
LS 90 L	FCR J02	1.5	20	4229559	3	4262590	5	4262596	5
LS 90 L	FCR J02	1.8	20	4262597	3	4262598	5	4262599	5
LS 100 L	FCR J02	2.2	25	4262603	3	4243031	5	4262606	5
LS 100 L	FCR J02	3	25	4262610	3	4262611	5	4262623	5
LS 112 MG	FCR J01	4	43	4262686	3	4262687	5	4262688	5
LS 132 S	FCR J01	5.5	43	4262689	3	4262690	5	4262691	-
LS 132 M	FCR J02	7.5	80	4262693	3	4262695	5	-	-
LS 132 M	FCR J02	9	105	4262696	3	4262701	5	-	-
LS 160 MP	FCR J02	11	120	4305385	1	4305393	1	-	-
LS 160 LR	FCR J02	15	120	4305388	1	4305394	1	-	-

Selection example :

Required power :	0.9 kW
Required speed :	1500 min ⁻¹
Mounting and position :	IM 3001 (IM B5)
Application :	ATEX zone 22

Designation :

4P LS 80 L 0.9 kW B5 230/400V
50 Hz UG FCR J02 10 N.m A1

Code : 4262462



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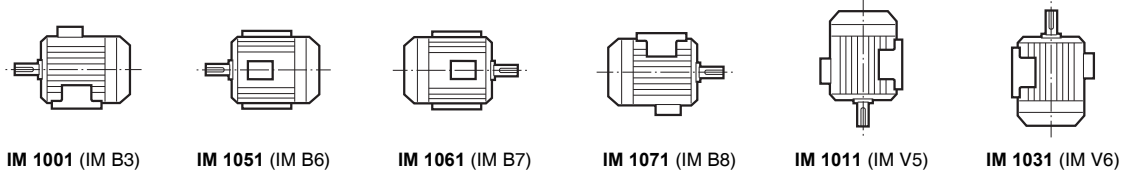
Dimensions

Dimensions of the LS FCR asynchronous brake motors

According to the operating position and mechanical forms of the brake motor

Foot mounted motor

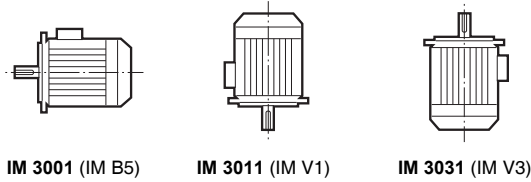
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(FF) plain hole flange mounted motor

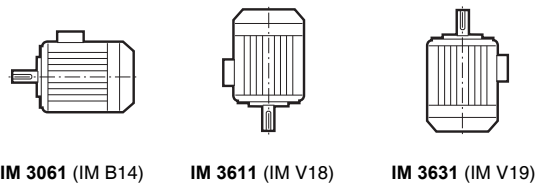
BS



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(FT) tapped hole flange mounted motor

BT



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Options

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