

FCR asynchronous brake motors

LS FCR

General information



TRANSLATION USE : U.T.

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

- Single speed : starting torque 3.5 to 120 N.m, frame size 71 to 132 mm, 4 poles; 230/400 V or 400 V Δ , 50 Hz.
- Two speed : starting torque 2.5 to 40 N.m, frame size 71 to 132 mm at 2/8 poles translation use, two windings 400 V Y or Δ , 50 Hz.

Brake motor protection

IP 55 protection providing good sealing against projected liquid and dust in an industrial environment.

Operating as a variable speed motor :

- fitted with thermal probes in winding (obligatory)

Finish : aluminium housing

Routine test, no load test, dielectric test, control of the resistance and direction of rotation.

Protection of the flange and shaft end against atmospheric corrosion.

Individual anti-shock packaging.

Brake motor supplies

- Standard according to IEC 38 :
– 230/400 V +10 % –10 % at 50 Hz ;
suitable for the following supplies:
220/380 V +5 % –5 % and
240/415 V +5 % –5 % at 50 Hz

– 400 V Δ +10 % –10 % at 50 Hz.

Design suitable for Y/ Δ starting.

- 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.

Individual anti-shock packaging.

If it is separate : the alternating (ac) supply is exterior to the motor.

Options

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

Description of the LS FCR aluminium three-phase brake motor

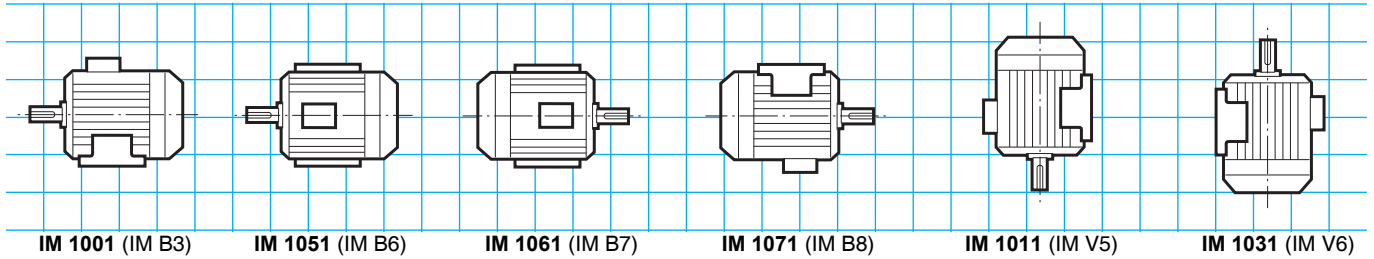
Component	Materials	Remarks
Finned housing	Aluminium alloy	- with cast feet, or without feet - pressure die-cast <ul style="list-style-type: none"> • 4 mounting holes for the foot housing • optional lifting rings at 132 and 112 - optional earth terminal
Stator	Insulated low carbon magnetic steel laminations Electrolytic copper	- the low carbon content guarantees long term stability of the characteristics - welded sheet steel lamination pack - shrink fitted into 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 special alloy for application : Lifting - 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 no matter the load direction • preloaded front to eliminate axial movement
Lipseals	Synthetic rubber	- front and rear lipseals for IP 55 sealing at the shaft
Fan	Aluminium alloy	- 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, rotatable in 4 directions for flange version, mounted opposite position to the feet, or foot and flange version for frame sizes \geq 80 - fitted with a 6 steel stud terminal board (brass as an optional extra) with connection by copper straps. - 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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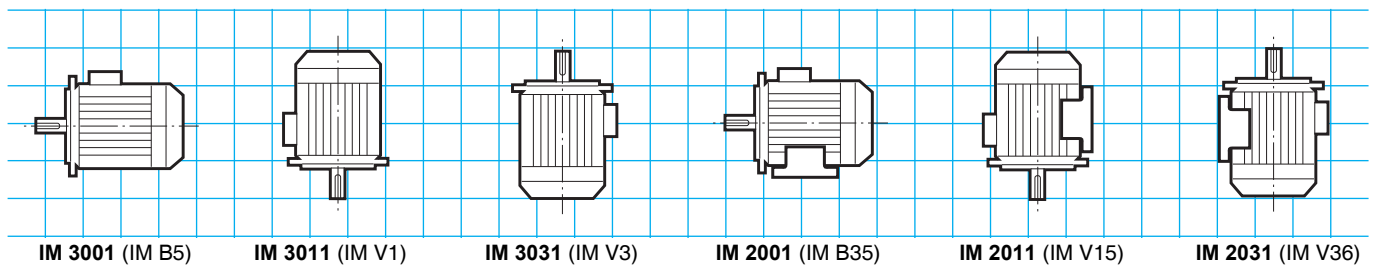
Mounting - Operating positions

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

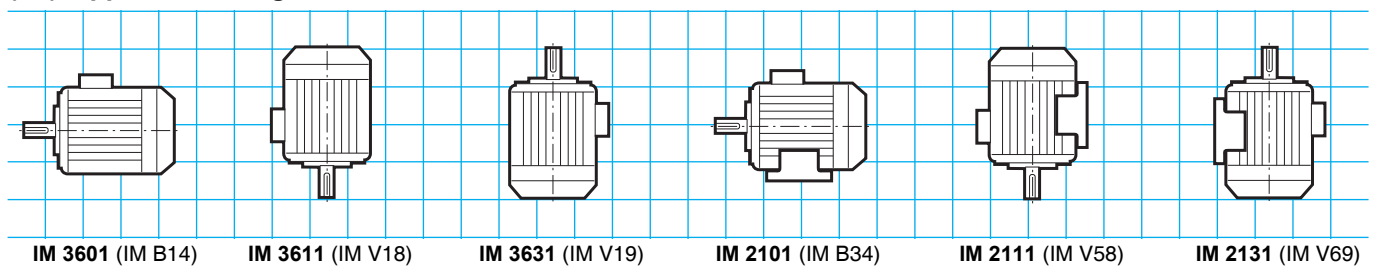
Foot mounted motor



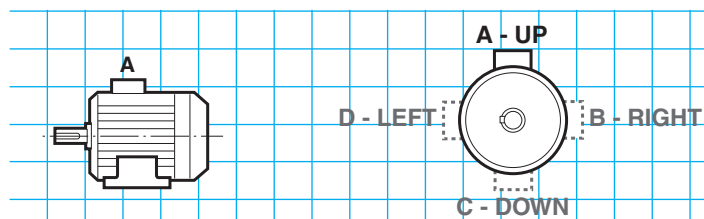
(FF) plain hole flange mounted motor



(FT) tapped hole flange mounted motor



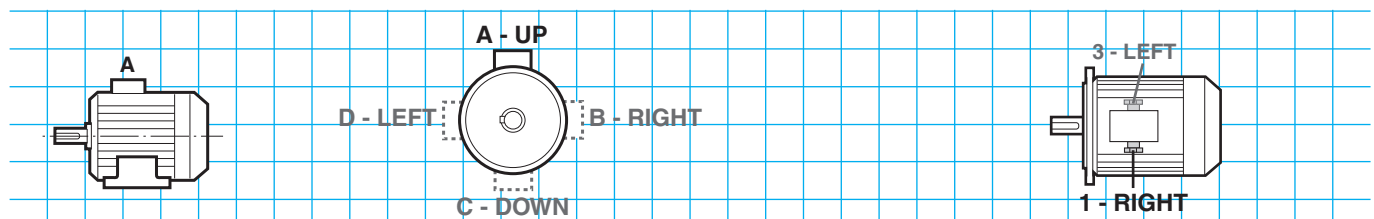
Positions of the terminal box in relation to the motor shaft end



Foot mounted motor
A: only possibility

Flange mounted motor
A - UP: standard

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



Standard in the terminal box
(1: RIGHT and 3: LEFT possible)

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Adaptation possibilities

Leroy-Somer offers, for use with their translation use brake motors, many options which meet the needs of highly diverse applications. They are described below and included in other chapters of the catalogue.

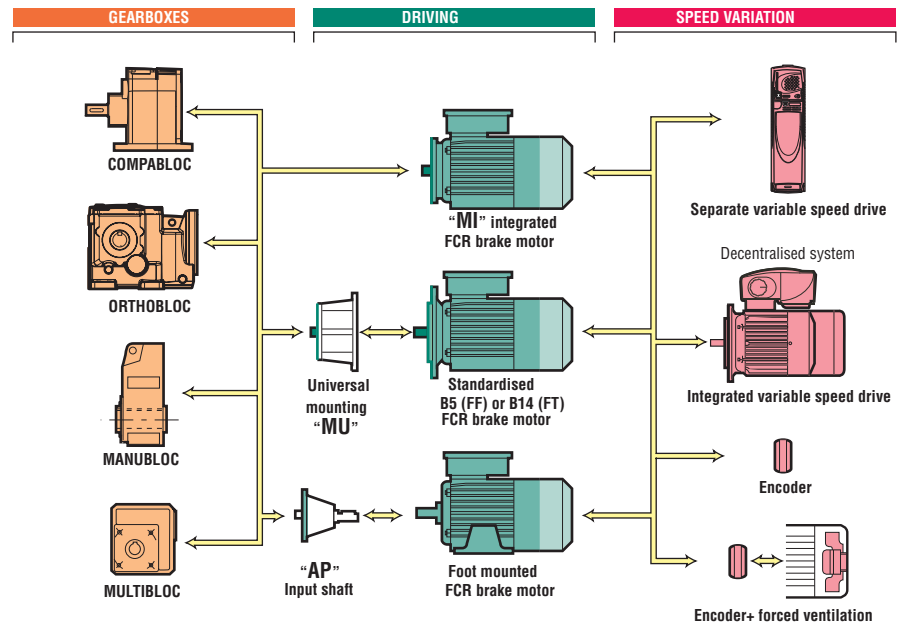
For other variants or any specific adaptation, consult the technical specialists at Leroy-Somer who will be pleased to advise you.

☞ **LS FCR brake motors may be integrally mounted (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



Designation / Codification

4P 1500 min ⁻¹	LS	80	L	15 N.m	IM 3001 (IM B5)	230/400 V 50 Hz	U.T.	FCR	J02	6 N.m	A1
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 :**

4P LS 80 L 15 N.m IM3001 (IM B5) 230/400 V
50 Hz U.T. FCR J02 6 N.m A1

Designation :

4P LS 80 L 15 N.m B5 230/400 V 50 Hz U.T. FCR
J02 6 N.m

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.

FCR asynchronous brake motors LS FCR

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
U.T. Translation Use

- Brake - IP 55 - Integrated mains supply - Brake torque set in factory

Motor type	Brake type	Starting torque at 50 Hz	Rated speed	Average starting torque 400 V 1300min ⁻¹	Average starting torque 400 V 1200min ⁻¹	Starting current 400 V	Rated current 400 V 1200min ⁻¹	Rated torque 400 V 1300min ⁻¹	Rated torque 400 V 1200 min ⁻¹	Input power	Brake torque	Moment of inertia	Brake current	Weight ¹ IM B5
		M_D N.m	N_N min ⁻¹	M_{dm} N.m	M_{dm} N.m	I_D A	I_N A	M_N N.m	M_N N.m	kW	$M_T \pm 20\%$ N.m	J 10 ⁻³ kg.m ²	$I : 180 V$ A	kg
LS 71 L	FCR J02	3.5	1410	2.8	2.9	1.7	0.7	1	1.4	0.25	1.6	2.5	0.27	9.1
LS 71 L	FCR J02	5	1420	3.8	3.9	2.4	1.1	1.4	2	0.37	2	2.5	0.27	10
LS 71 L	FCR J02	7.5	1400	6.1	6.4	3.4	1.6	1.8	2.7	0.55	2.4	2.5	0.27	11
LS 71 L	FCR J02	10	1410	7.7	8.2	4.5	2.6	2.3	3.3	0.75	4	2.5	0.27	12.5
LS 80 L	FCR J02	15	1420	12.2	12.7	5.6	2.45	4.3	6	1.1	6	5	0.31	18.2
LS 90 L	FCR J02	20	1440	14.9	15.7	7.3	2.9	4.9	6.2	1.5	6	10	0.35	20.5
LS 90 L	FCR J02	25	1435	15.2	16	8.5	3.15	5.3	7.6	1.8	8	10	0.35	22.5
LS 90 L	FCR J02	30	1440	19.4	20.4	9.3	3.45	6.3	8.8	2.2	9	10	0.35	24.2
LS 100 L	FCR J02	40	1435	32.5	33.9	16.4	5.7	10.8	14.9	3	15	11.5	0.35	27
LS 112 MG	FCR J01	55	1450	43	46	22.6	7.5	20	25	4	22	35.7	0.44	41
LS 132 M	FCR J02	80	1450	64	67	31.5	9.5	26	36	6	40	55.5	0.49	70
LS 132 M	FCR J02	120	1455	94	97	47.5	14	34	47	9	40	55.5	0.49	75

1. These values are given for information only.

- LS series motor - IP 55 - 50 Hz - Class F - 400 V
U.T. Translation Use

- Standard : Brake - IP 55 - Separate mains supply - Brake torque set in factory
- Option : Brake - IP 55 - Incorporated mains supply - Brake torque set in factory

2-8
Poles
3000-750 min⁻¹

Motor type	Brake type	Starting torque at 50 Hz	Average starting torque 400 V 2600min ⁻¹	Average starting torque 400 V 2400min ⁻¹	Starting current 400 V	Rated current 400 V 2400 / 600	Rated torque 400 V 2600min ⁻¹	Rated torque 400 V 2400 min ⁻¹	Input power 2400 / 600	Brake torque	Moment of inertia	Brake current	R_{H^2}	Electromagnet resistance 180 V	Weight ² IM B5	
		M_D N.m	M_{dm} N.m	M_{dm} N.m	I_D A	I_N A	M_N N.m	M_N N.m	kW	$M_T \pm 20\%$ N.m	J 10 ⁻³ kg.m ²	$I : 100 V$ A	$I : 180 V$ A	R	kg	
LS 71 L	FCR J02	2.5	2.1	2.2	3.4 / 0.85	1.1 / 0.6	0.55	0.75	0.25/0.06	1.2	1.5	0.46	0.27	200	665	9.1
LS 71 L	FCR J02	3.5	3.5	3.9	5.5 / 1.8	1.6 / 1.3	0.88	1.4	0.37 / 0.09	1.6	1.5	0.46	0.27	95	665	10
LS 71 L	FCR J02	4.5	4.2	4.5	6.3 / 2.2	1.6 / 1.3	1.1	1.7	0.55 / 0.13	1.6	1.6	0.46	0.27	80	665	12.5
LS 80 L	FCR J02	5	3.9	4.1	5.2 / 1.6	2.2 / 1.3	2.2	2.4	0.75 / 0.19	3	5.5	0.54	0.31	100	572	18.2
LS 90 L	FCR J02	7.5	4.4	4.7	5.2 / 2.3	2.5 / 1.7	1.7	2.4	1.1 / 0.27	4	10	0.65	0.35	80	510	23
LS 90 L	FCR J02	10	9.3	9.7	10.8 / 3	4.7 / 2	4.4	6	1.5 / 0.37	6	10	0.65	0.35	50	510	25
LS 100 L	FCR J02	15	13.9	14.7	16.3 / 3.6	6 / 2.35	6	8.1	2.2 / 0.55	9	11.5	0.65	0.35	40	510	31
LS 112 MG	FCR J01	20	14.9	15.4	20.5 / 5.5	7.1 / 3.1	5.4	8	3 / 0.75	16	35.7	0.79	0.44	30	412	43
LS 132 M	FCR J02	30	25.2	25.8	33 / 9	12.6 / 4	11.8	15.8	4.5 / 1.1	40	55.5	-	0.49	18	361	75
LS 132 M	FCR J02	40	31.4	32.3	36.5 / 10.5	14.5 / 4.9	16	21.4	6 / 1.5	40	55.5	-	0.49	15	361	80

1. Hypersynchronous resistance for 1 motor ; for x motors, divide R by x.

2. These values are given for information only.

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Selection

4
poles
1500 min⁻¹

U.T. Translation Use
IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y

Motor type	Brake type	Starting torque at 50 Hz	Brake torque	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 3601 (IM B14)	
		M_D N.m	$M_f \pm 20\%$ N.m	Code	Qty	Code	Qty	Code	Qty
LS 71 L	FCR J02	3.5	1.6		-		-		-
LS 71 L	FCR J02	5	2		-		-		-
LS 71 L	FCR J02	7.5	2.4		-		-		-
LS 71 L	FCR J02	10	4		-		-		-
LS 80 L	FCR J02	15	6		-		-		-
LS 90 L	FCR J02	20	6		-		-		-
LS 90 L	FCR J02	25	8		-		-		-
LS 90 L	FCR J02	30	9		-		-		-
LS 100 L	FCR J02	40	15		-		-		-
LS 112 MG	FCR J01	55	22		-		-		-
LS 132 M	FCR J02	80	40		-		-		-
LS 132 M	FCR J02	120	40		-		-		-



2-8
Poles
3000-750 min⁻¹

U.T. Translation Use
IP 55 - 50 Hz - Class F - 400 V

Motor type	Brake type	Starting torque at 50 Hz	Brake torque	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 3601 (IM B14)	
		M_D N.m	$M_f \pm 20\%$ N.m	Code	Qty	Code	Qty	Code	Qty
LS 71 L	FCR J02	2.5	1.2		-		-		-
LS 71 L	FCR J02	3.5	1.6		-		-		-
LS 71 L	FCR J02	4.5	1.6		-		-		-
LS 80 L	FCR J02	5	3		-		-		-
LS 90 L	FCR J02	7.5	4		-		-		-
LS 90 L	FCR J02	10	6		-		-		-
LS 100 L	FCR J02	15	9		-		-		-
LS 112 MG	FCR J01	20	16		-		-		-
LS 132 M	FCR J02	30	40		-		-		-
LS 132 M	FCR J02	40	40		-		-		-

Selection example :

Starting torque : 15 N.m
 Required speed : 1420 min⁻¹
 Mounting and position : IM 3001 (IM B5)

Designation :

4P LS 80 L 15 N.m B5 230/400V
 UT FCR J02 6 N.m

Code : consult us

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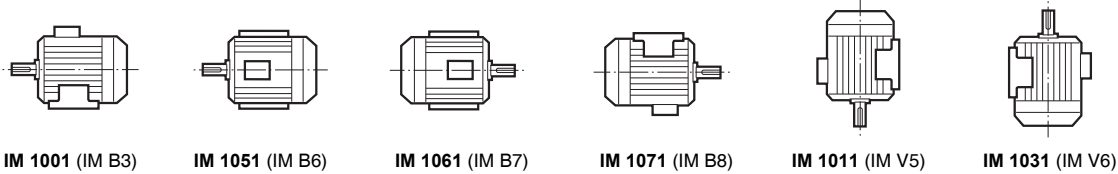
Dimensions

Dimensions of the LS FCR asynchronous brake motors

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

Foot mounted motor

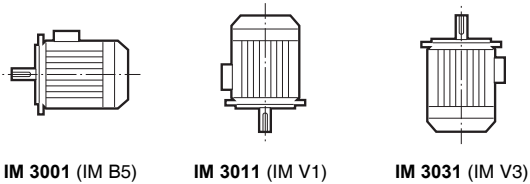
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(FF) plain hole flange mounted motor

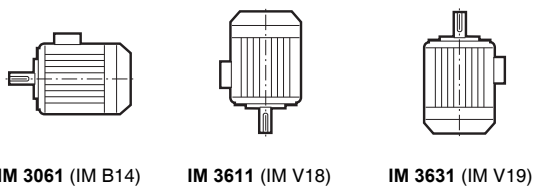
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(FT) tapped hole flange mounted motor

BT



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Options

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