

FCR asynchronous brake motors LS FCR application MO

General information



MACHINE TOOL APPLICATION : MO
Enclosed three-phase asynchronous brake motors, LS series with failsafe brake, according to IEC 60034, 60072, EN 50281.
 • Single speed : power 0.09 to 11 kW, frame size from 71 to 132 mm, 2, 4, 6, 8 poles ; 230/400 V, 50 Hz.

Presentation of the brake motor
IP55 protection providing a good sealing against projected liquid and dust in an industrial environment.

Motors for variable speed operation
centralised system :
 • fitted with thermal probes in windings (obligatory) and separate inverter.
decentralised system :
 • with integrated VARMECA variable speed drive.

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 mains supply
 • Standard according to IEC 60038 :
 – 230/400 V +10 % –10 % at 50 Hz ;
 it is suitable for the following mains supply 220/380 V +5 % –5 % and 240/415 V +5 % –5 % at 50 Hz.
 Design suitable for Y/Δ start
 • The mains supply to the brake is incorporated ; the brake motor connects as a standard motor. If the brake is supplied by a separate alternating (ac) supply this is supplied externally to the motor.

Options
 • Inertia selection (HA 71 to 100), brake torques ; manual brake release
 • Drip cover ; 2nd shaft end ; thermal probes
 • Reduced response time ; IP 65 connector
 • Encoders and/or forced ventilation
 • Stainless steel cover.

Description of the LS FCR aluminium three-phase brake motors Machine tool Application

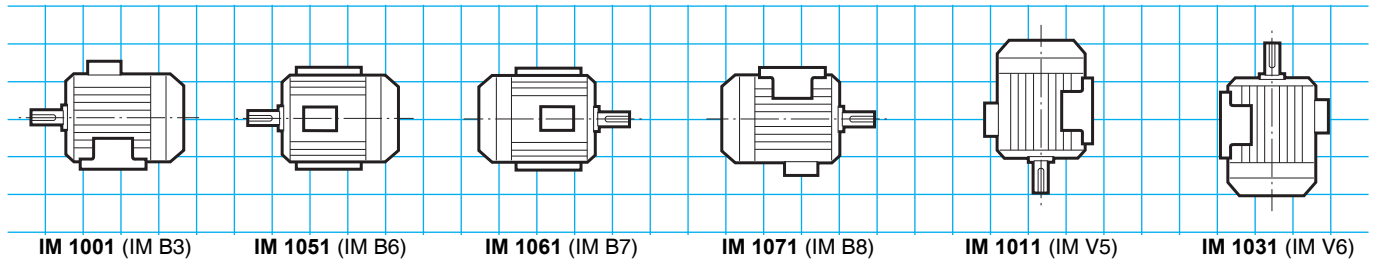
Component	Materials	Remarks
Finned housing	Aluminium alloy	- with cast feet, or without feet - pressure die-cast • 4 mounting holes for the foot housing • lifting rings as an optional extra in 132 and 112 - earth terminal as an optional extra
Stator	Insulated low carbon magnetic steel laminations Electrolytic copper	- the low carbon content guarantees long term stability of the characteristics - electric welded sheet steel lamination pack - fitted into the 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 specific applications) - mounted on shaft by heat shrinking - level A rotor dynamic balancing - 1/2 key
Shaft	Steel	• shaft end fitted with screw and washer • closed keyway
End shields	Cast iron	- front and rear assembled with tie rods, fitted with drain holes at the lowest points - front and rear double lips seals - sealed spigot
Brake	Cylinder head : cast iron Frame : steel	- parts treated against corrosion
Bearings		- ball bearings, sealed, lubricated for life, with the following mounting • locked rear to provide precise positioning of the load no matter the load direction • preloaded front to eliminate axial movement
Lipseals	Nitrile	- terminal box cover - front and rear seals for reinforced sealing at the shaft
Fan	Aluminium alloy or cast iron	- 2 directions of rotation : straight blades
Ventilation cover	Std: Sheet steel	- anti-corrosion treated - on request, fitted with a drip cover for operation in vertical position, shaft facing down
Terminal box	Aluminium alloy	- IP 65, rotatable in 4 directions for flange version, the opposite position to the feet for foot or foot and flange versions for frame size ≥ 80, with nitrile joint - fitted with a 6 steel stud terminal board (brass as an optional extra) and connection by copper straps - delivered with IP 68 polyamide cable glands mounted on concentrically tightened flat plate and fixed cable - 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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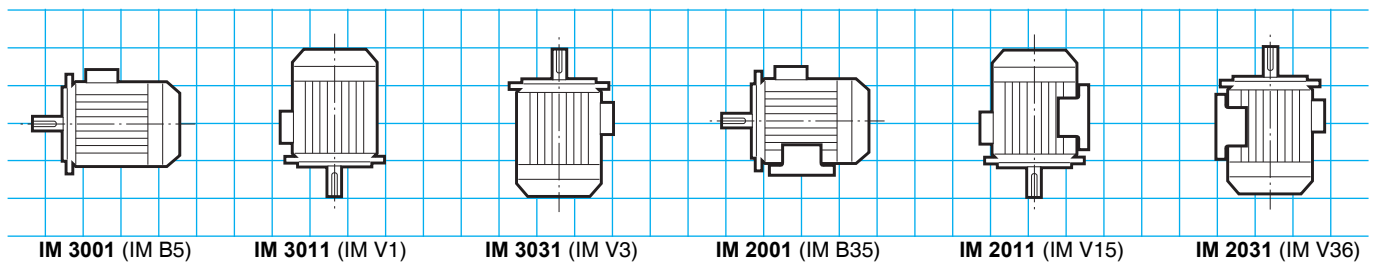
Mounting - Operating positions

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

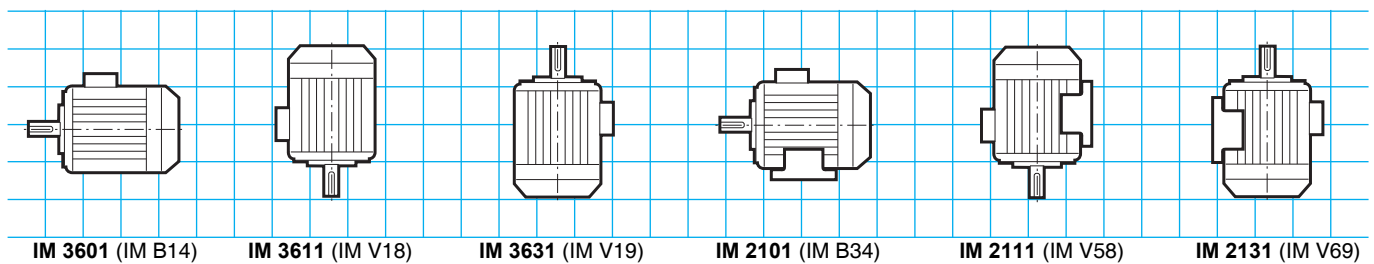
Foot mounted motor



(FF) plain hole flange mounted motor

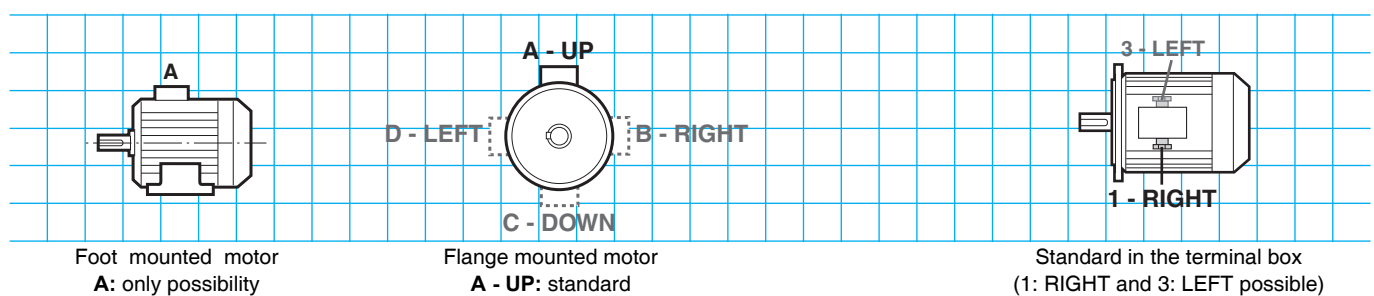


(FT) tapped hole flange mounted motor



Positions of the terminal box

Positions of the cable gland



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Adaptation possibilities

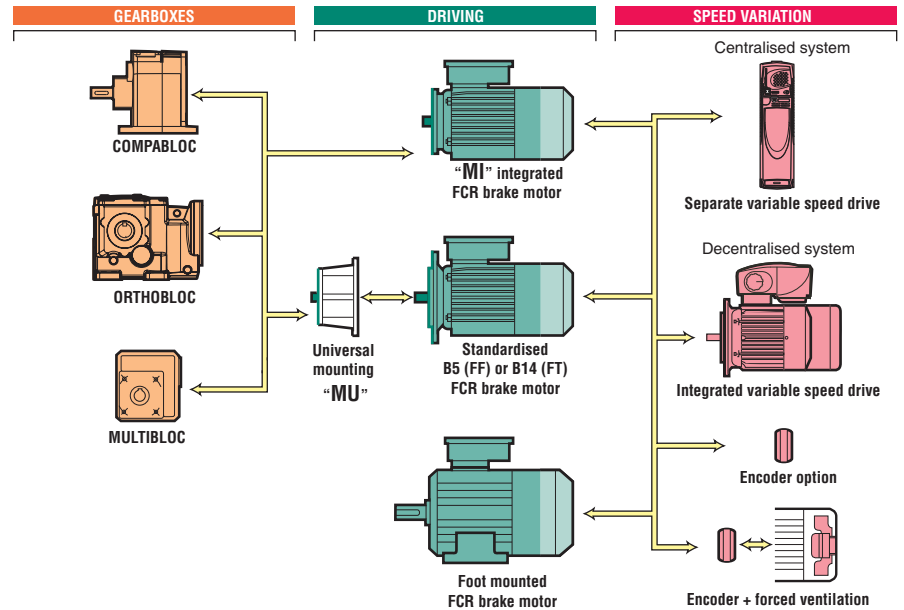
Leroy-Somer offers for use with their specific use MO brake motors, many options which meet the needs of highly diverse applications. They are described below and included in the catalogue. For other variants or any specific adaptation, consult the technical specialists at Leroy-Somer who will be pleased to advise.

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

- Compabloc
- Orthobloc
- Multibloc

☞ **LS FCR MO 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

MO	4P 1500 min ⁻¹	LS	80	L	0.9 kW	IM 3001 (IM B5)	230/400 V 50 Hz	FCR	J02	10 N.m	A1
Machine tool application	Speed polarity	Motor series	Motor frame size	Manuf. index (motor)	Motor rated power : kW (or start moment : N.m)	Mounting position	Power supply frequency and voltage	Brake type	Selected inertia	Brake torque	T Box and PE position

☞ **Codification example :**

Three-phase asynchronous brake motor
0.9 kW, 4 p, B5 for machine tool

Designation :

4P LS 80 L 0.9 kW B5 230/400 V 50 Hz U.G. FCR
J02 10 N.m Application MO

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 application MO

Selection

2
poles
3000 min⁻¹

- LS series motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y
Aluminium Rotor (ALU)
- Brake - IP 55 - Incorporated mains supply - Brake torque set in factory

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	0.37	2800	1.3	0.98	0.80	68	5.2	3.2	1.35	5	9.1	11.6	
LS 71 L	FCR J02	0.55	2800	1.9	1.32	0.80	75	6	3.2	1.45	5	10	12.5	
LS 80 L	FCR J02	0.75	2840	2.5	1.64	0.87	76	5.9	2.4	3.2	10	15.5	19.2	
LS 80 L	FCR J02	1.1	2837	3.7	2.4	0.84	78	5.8	2.7	3.4	10	17	20.7	
LS 80 L	FCR J02	1.5	2859	5	3.2	0.83	80.3	7	3.6	3.6	10	18.6	22.3	
LS 90 L	FCR J02	1.5	2870	5	3.4	0.81	79.6	8	3.9	6.1	20	21	25.5	
LS 90 L	FCR J02	1.8	2865	6	3.6	0.86	83.1	8	3.6	6.4	20	23	27.5	
LS 90 L	FCR J02	2.2	2862	7.4	4.3	0.88	83.6	7.7	3.7	6.8	20	25	29.5	
LS 100 L	FCR J02	3	2868	10	6.3	0.81	83.9	7.5	3.8	6.9	25	30	-	
LS 112 M	FCR J02	4	2877	13.5	7.8	0.85	86	7.8	4.1	11.2	22	33.4	-	
LS 132 S	FCR J01	5.5	2916	18.1	10.5	0.88	86.6	9	3.1	11.9	43	46	-	
LS 132 SM	FCR J02	7.5	2905	24.5	14.7	0.85	86.5	8.7	3.4	35.8	80	54	-	
LS 132 M	FCR J02	9	2910	29.6	17.3	0.85	88.1	8.6	2.5	43	80	64	-	
LS 132 M	FCR J02	11	2944	36	20.7	0.86	89.4	7.5	2.7	45	80	70	-	

1. These values are given for information only.

4
poles
1500 min⁻¹

- LS series motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y
Aluminium Rotor (ALU)
- Brake - IP 55 - Incorporated mains supply - Brake torque set in factory

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	-	

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Selection

2
poles
3000 min⁻¹

IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y

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	0.37	5		-		-		-
LS 71 L	FCR J02	0.55	5		-		-		-
LS 80 L	FCR J02	0.75	10		-		-		-
LS 80 L	FCR J02	1.1	10		-		-		-
LS 80 L	FCR J02	1.5	10		-		-		-
LS 90 L	FCR J02	1.5	20		-		-		-
LS 90 L	FCR J02	1.8	20		-		-		-
LS 90 L	FCR J02	2.2	20		-		-		-
LS 100 L	FCR J02	3	25		-		-		-
LS 112 M	FCR J02	4	25		-		-		-
LS 132 S	FCR J01	5.5	43		-		-		-
LS 132 SM	FCR J02	7.5	80		-		-		-
LS 132 M	FCR J02	9	80		-		-		-
LS 132 M	FCR J02	11	80		-		-		-

4
poles
1500 min⁻¹

IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y

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		-		-		-
LS 71 L	FCR J02	0.37	5		-		-		-
LS 71 L	FCR J02	0.55	5		-		-		-
LS 80 L	FCR J02	0.55	10		-		-		-
LS 80 L	FCR J02	0.75	10		-		-		-
LS 80 L	FCR J02	0.9	10		-		-		-
LS 90 L	FCR J02	1.1	20		-		-		-
LS 90 L	FCR J02	1.5	20		-		-		-
LS 90 L	FCR J02	1.8	20		-		-		-
LS 100 L	FCR J02	2.2	25		-		-		-
LS 100 L	FCR J02	3	25		-		-		-
LS 112 MG	FCR J01	4	43		-		-		-
LS 132 S	FCR J01	5.5	43		-		-		-
LS 132 M	FCR J02	7.5	80		-		-		-
LS 132 M	FCR J02	9	105		-		-		-

Selection example :

Application : MO
 Required power : 1.1 kW
 Required speed : 1430 min⁻¹
 Mounting and position : IM 3001 (IM B5)

Designation :

**4P LS 90 L 1.1 kW B5 230/400V 50 Hz
FCR J02 20 N.m MO**

Code : consult us

FCR asynchronous brake motors LS FCR application MO

Selection

6
poles
1000 min⁻¹

- LS series motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y
Aluminium Rotor (ALU)
- Brake - IP 55 - Incorporated mains supply - Brake torque set in factory

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	0.18	895	1.8	0.81	0.62	52	2.7	1.9	2.1	5	10.3	12.8
LS 71 L	FCR J02	0.25	840	2.6	1	0.7	50	2.5	1.7	2.3	5	10.6	13.1
LS 80 L	FCR J02	0.37	950	3.7	1.1	0.72	66	4.3	1.7	5.7	10	17	20.7
LS 80 L	FCR J02	0.55	950	5.5	1.8	0.64	68	4.9	2.1	6.7	10	18.6	22
LS 90 L	FCR J02	0.75	930	7.7	2.1	0.77	68.5	4.2	2.4	8.6	20	22.5	27
LS 90 L	FCR J02	1.1	915	11.5	3	0.76	70	4.7	2.4	9.5	20	24.2	28.7
LS 100 L	FCR J02	1.5	905	15.8	4.2	0.74	69	4.5	2.5	10.5	25	29	-
LS 112 MG	FCR J01	2.2	950	23.21	6.2	0.68	75.4	5.2	2.1	13	43	41	-
LS 132 S	FCR J01	3	957	30.3	6.8	0.78	81.1	6	2	22.3	43	54	-
LS 132 M	FCR J02	4	961	39.6	9.3	0.75	83.6	5.9	2.5	61	80	68.5	-
LS 132 M	FCR J02	5.5	960	54.2	13.3	0.71	84.1	5.5	2.5	66	80	75.5	-

1. These values are given for information only.

8
poles
750 min⁻¹

- LS series motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y
Aluminium Rotor (ALU)
- Brake - IP 55 - Incorporated mains supply - Brake torque set in factory

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	0.09	690	1.25	0.5	0.55	44	2.8	1.52	2.1	5	10.2	12.7
LS 71 L	FCR J02	0.12	650	1.7	0.72	0.55	44	2.1	1.3	2.3	5	10.7	13.2
LS 80 L	FCR J02	0.18	705	2.4	0.79	0.63	52	2.9	1.5	5.6	10	17	20.7
LS 80 L	FCR J02	0.25	700	3.4	0.98	0.68	54	2.8	1.7	6.6	10	18.6	22.3
LS 90 L	FCR J02	0.37	685	5.2	1.2	0.72	62	3.8	1.7	8.5	20	22.5	27
LS 90 L	FCR J02	0.55	670	7.8	1.7	0.72	63.5	3.5	1.7	9.4	20	24.2	28.7
LS 100 L	FCR J02	0.75	670	10.7	2.4	0.71	63.5	3.5	1.8	9.4	25	27	-
LS 100 L	FCR J02	1.1	670	15.7	3.7	0.68	63	3.7	2	11.5	25	31	-
LS 112 MG	FCR J01	1.5	710	20.2	4.7	0.64	72	3.8	2	19.3	43	41	-
LS 132 S M	FCR J02	2.2	713	30.2	6.1	0.68	77.1	4	1.7	52	80	60.6	-
LS 132 M	FCR J02	3	712	40.7	8	0.65	79.8	4.3	1.9	60	80	69	-

1. These values are given for information only.

FCR asynchronous brake motors LS FCR application MO

Selection

6
poles
1000 min⁻¹

IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y

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	0.18	5		-		-		-
LS 71 L	FCR J02	0.25	5		-		-		-
LS 80 L	FCR J02	0.37	10		-		-		-
LS 80 L	FCR J02	0.55	10		-		-		-
LS 90 L	FCR J02	0.75	20		-		-		-
LS 90 L	FCR J02	1.1	20		-		-		-
LS 100 L	FCR J02	1.5	25		-		-		-
LS 112 MG	FCR J01	2.2	43		-		-		-
LS 132 S	FCR J01	3	43		-		-		-
LS 132 M	FCR J02	4	80		-		-		-
LS 132 M	FCR J02	5.5	80		-		-		-

8
poles
750 min⁻¹

IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y

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	0.09	5		-		-		-
LS 71 L	FCR J02	0.12	5		-		-		-
LS 80 L	FCR J02	0.18	10		-		-		-
LS 80 L	FCR J02	0.25	10		-		-		-
LS 90 L	FCR J02	0.37	20		-		-		-
LS 90 L	FCR J02	0.55	20		-		-		-
LS 100 L	FCR J02	0.75	25		-		-		-
LS 100 L	FCR J02	1.1	25		-		-		-
LS 112 MG	FCR J01	1.5	43		-		-		-
LS 132 SM	FCR J02	2.2	80		-		-		-
LS 132 M	FCR J02	3	80		-		-		-

Selection example :

Application : MO
 Required power : 1.1 kW
 Required speed : 915 min⁻¹
 Mounting and position : IM 3001 (IM B5)

Designation :

**6P LS 100 L 1.1 kW B5 230/400V 50 Hz
FCR J02 20 N.m MO**

Code : consult us

FCR asynchronous brake motors LS FCR application MO

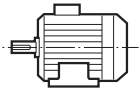
Dimensions

Dimensions of the LS FCR MO asynchronous brake motors

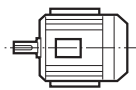
According to the operating position and mechanical forms of the brake motor

Foot mounted motor

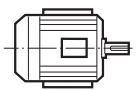
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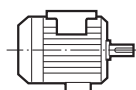
IM 1001 (IM B3)



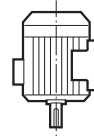
IM 1051 (IM B6)



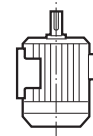
IM 1061 (IM B7)



IM 1071 (IM B8)



IM 1011 (IM V5)

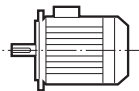


IM 1031 (IM V6)

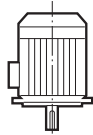
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(FF) plain hole flange mounted motor

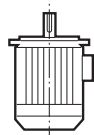
BS



IM 3001 (IM B5)



IM 3011 (IM V1)

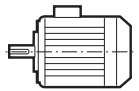


IM 3031 (IM V3)

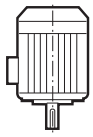
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(FT) tapped hole flange mounted motor

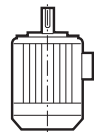
BT



IM 3061 (IM B14)



IM 3611 (IM V18)



IM 3631 (IM V19)

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Options

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