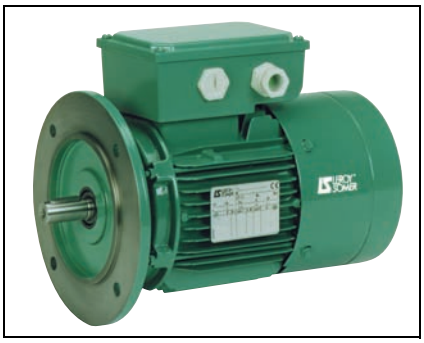
FCR asynchronous brake motors
LS FCR

General information



LIFTING USE : U.L.
Enclosed three-phase asynchronous brake motors, LS series with failsafe brake, according to IEC 34, 72, EN 50281.
• Single speed : power 0.55 to 15 kW, frame size from 80 to 160 mm, 4 poles; 230/400 V or 400 V Δ, 50 Hz.
• Two speed : (on request) power 0.55 to 6 kW, frame size 80 to 132 mm in 2/6, 2/8, lifting use, two windings or Dahlander ; 400 V Y or Δ, 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 :
• 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 the atmospheric corrosion.
Individual anti-shock packaging.

Brake motor mains supply
• Standard according to IEC 38 :
– 230/400 V + 10 % – 10 % at 50 Hz ; it is 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 separate : the alternating (ac) supply is exterior to the motor.

Options
• Choice of Inertia
• Manual brake release.
• Drip cover ; 2nd shaft end ; thermal probes
• Reduced response time ; connector
• Encoders and/or forced ventilation

C

Description of the LS FCR aluminium three-phase brake motors

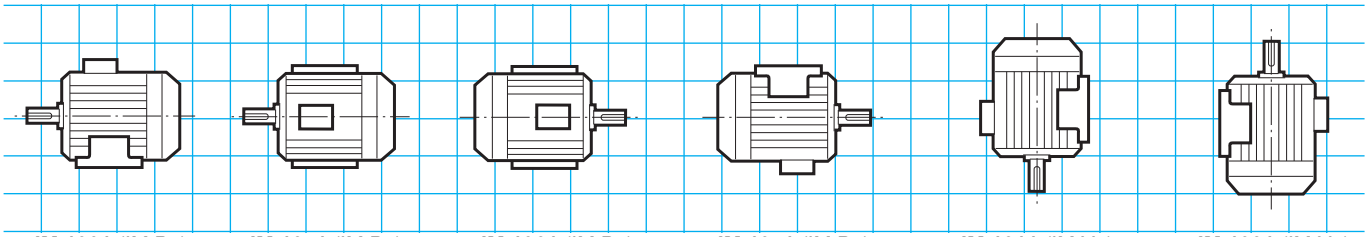
Component	Materials	Remarks
Finned housing	Auminium alloy	- with cast feet, or without feet - pressure die-cast • 4 mounting holes for the foot housing • optional lifting rings at 132 and 112 - optional earth terminal
Stator	Insulated low carbon magnetic steel laminations Electrolytic copper	- the low carbon content guarantees long term stability of the characteristics - welded sheet steel lamination pack - shrink fitted into heat expanded casing 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 : • 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 • 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 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, rotatable in 4 directions for flange version , mounted opposite position to the feet, or foot and flange version for frame sizes ≥ 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)

FCR asynchronous brake motors
LS FCR

Mounting - Operating positions

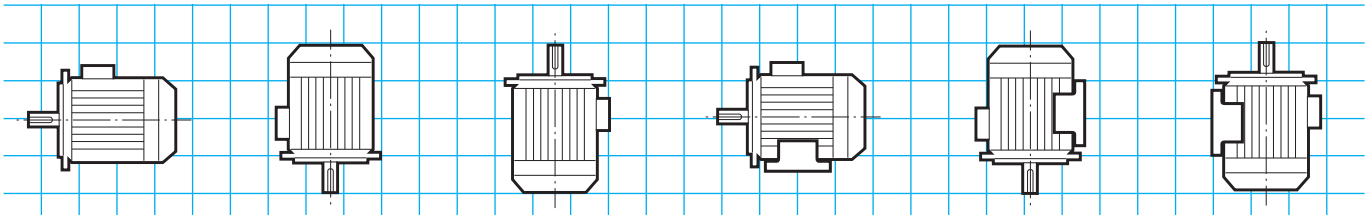
Reference position is viewed from side F (drive end shaft)

Foot mounted motor



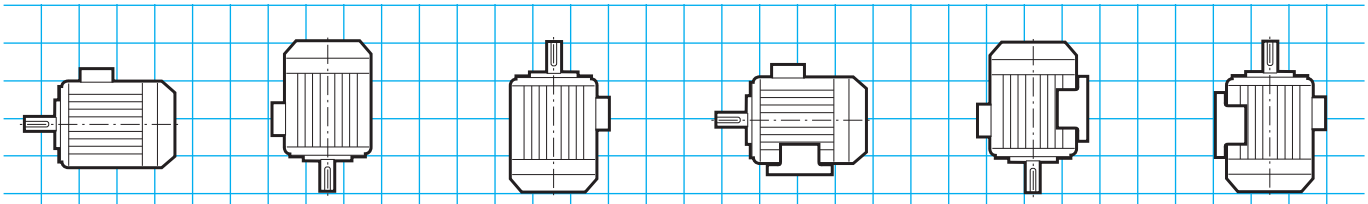
IM 1001 (IM B3) | **IM 1051** (IM B6) | **IM 1061** (IM B7) | **IM 1071** (IM B8) | **IM 1011** (IM V5) | **IM 1031** (IM V6)

(FF) plain hole flange mounted motor



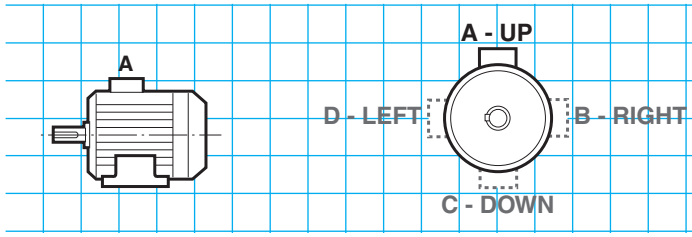
IM 3001 (IM B5) | **IM 3011** (IM V1) | **IM 3031** (IM V3) | **IM 2001** (IM B35) | **IM 2011** (IM V15) | **IM 2031** (IM V36)

(FT) tapped hole flange mounted motor



IM 3601 (IM B14) | **IM 3611** (IM V18) | **IM 3631** (IM V19) | **IM 2101** (IM B34) | **IM 2111** (IM V58) | **IM 2131** (IM V69)

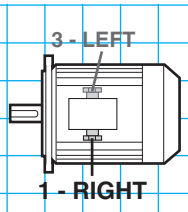
Positions of the terminal box in relation to the motor shaft end



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)

FCR asynchronous brake motors
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Adaptation possibilities

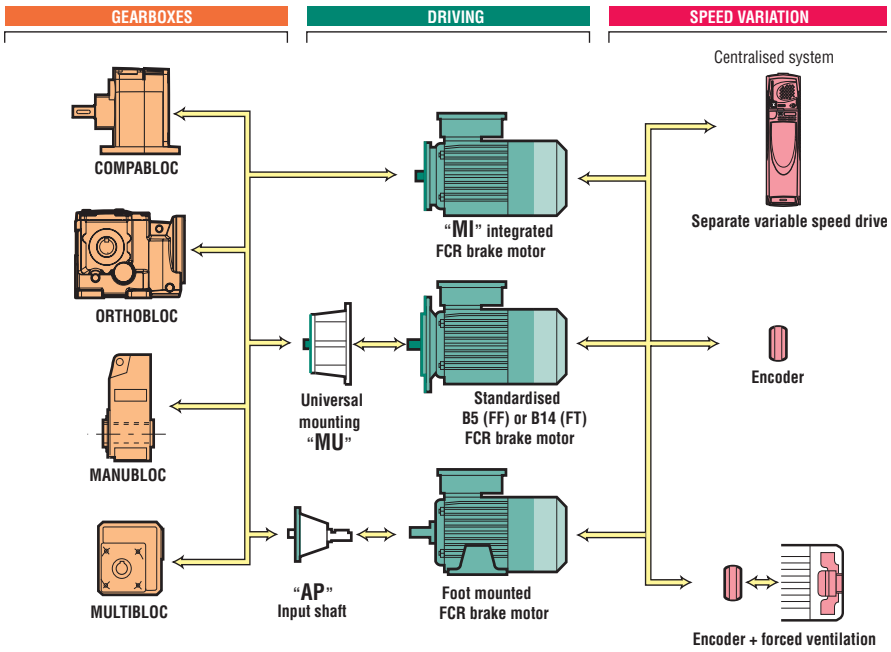
Leroy-Somer offers, for use with their lifting use brake motors, many options which meet the needs of highly diverse applications. They are described below and in the chapters relating to gearboxes (D) fixed speed or variable speed motors.
For other variants or any specific adaptation, consult the technical 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



C

Designation / Codification

4P 1500 min^{-1}	LS	80	L	0.75 kW	IM 3001 (IM B5)	230/400 V 50 Hz	U.L.	FCR	J02	10 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 0.75 kW IM3001 (IM B5) 230/400 V 50 Hz U.L. FCR J02 10 N.m A1

Designation :

4P LS 80 L 0.75 kW B5 230/400 V 50 Hz U.L. FCR J02 10 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**
  DP Rotor - Keyed weight - U.L. Lifting Use
- **Brake - IP 55 - Separate mains supply[1] - 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 100 %	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_f ±20% N.m	Weight* IM B5 J01 to J03 kg	Weight* IM B5 J05 kg
LS 80 L	**FCR J02**	0.55	1370	3.50	1.64	0.71	68	3.8	2.9	3.8	10	15.5	19.2
LS 80 L	**FCR J02**	0.75	1370	5.12	2	0.77	70	4.2	2.7	4.3	10	16.6	20.3
LS 90 L	**FCR J02**	1.1	1360	7.35	2.8	0.8	70	3.9	1.9	7.3	20	20.5	25
LS 90 L	**FCR J02**	1.5	1380	10.03	3.8	0.78	73.5	4.4	2.3	7.9	20	22.5	27
LS 90 L	**FCR J02**	1.8	1400	11.95	4.2	0.81	77.3	5.4	2.7	8.4	20	24.2	28.7
LS 100 L	**FCR J02**	2.2	1400	14.5	5.4	0.77	76	5.3	2.5	9	25	27	-
LS 100 L	**FCR J02**	3	1410	19.5	7.1	0.77	79	5.4	2.7	10.2	32	30	-
LS 112 MG	**FCR J01**	4	1440	26.56	8.8	0.82	82	6.4	2.9	15.3	43	41	-
LS 132 SM	**FCR J02**	5.5	1420	37	12	0.85	80	5.7	2.6	42.2	80	61	-
LS 132 M	**FCR J02**	7.5	1430	49.4	16	0.81	85	6.6	2.7	46	105	70	-
LS 132 M	**FCR J02**	9	1440	59.3	20	0.81	83	6.9	3.1	50	120	75	-
LS 160 MP	**FCR J02**	11	1450	72.2	21.7	0.84	87	7.6	3.1	57	160	85	-
LS 160 LR	**FCR J02**	15	1430	98	27.8	0.88	87	7.4	3.1	63	160	101	-

1. Brake coil 180 V.

** These values are given for information only.*

FCR asynchronous brake motors
LS FCR

Selection

4 poles 1500 min^{-1}

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

Motor type	Brake type	Rated power at 50 Hz P_N kW	Brake torque $M_f \pm 20\%$ N.m	IM 1001 (IM B3) Code	Qty	IM 3001 (IM B5) Code	Qty	IM 3601 (IM B14) Code	Qty
LS 80 L	**FCR J02**	0.55	10		-		-		-
LS 80 L	**FCR J02**	0.75	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	32		-		-		-
LS 112 MG	**FCR J01**	4	43		-		-		-
LS 132 SM	**FCR J02**	5.5	80		-		-		-
LS 132 M	**FCR J02**	7.5	105		-		-		-
LS 132 M	**FCR J02**	9	120		-		-		-
LS 160 MP	**FCR J02**	11	160		-		-		-
LS 160 LR	**FCR J02**	15	160		-		-		-

C

Selection example :

Required power :	1.1 kW
Required speed :	1360 min^{-1}
Mounting and position :	IM 3001 (IM B5)

Designation :
4P LS 90 L 1.1 kW B5 230/400V
UL FCR J02 20 N.m

Code : consult us

FCR asynchronous brake motors
LS FCR

Selection

2-6 Poles 3000-1000 min^{-1}

• LS series motor - IP 55 - 50 Hz - Class F - 400 V Y
DP Rotor - Keyed weight - U.L. Lifting Use
• Brake - IP 55 - Separate mains supply[1] - 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 $Cos\ \varphi$ 100 %		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_f±20% N.m	Weight[2] IM B5 kg
		GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	-	-	-
LS 80 L	**FCR J02**	0.55	0.18									Consult us								18.2
LS 90 L	**FCR J02**	0.75	0.25	2760	925	2.5	2.5	2.1	1.8	0.85	0.78	62	62	4.2	4	3.2	2.7	7.2	6	23
LS 90 L	**FCR J02**	1.5	0.5	2820	920	5	5	3.8	1.5	0.8	0.77	72	63	4.7	3.3	2.9	2	8.5	9	25
LS 100 L	**FCR J02**	2.2	0.75	2855	925	7.5	7.5	5.4	2.1	0.8	0.76	73	69	6.1	4.3	4.4	2.7	9.8	15	31
LS 112 MG	**FCR J01**	3	0.9									Consult us								43
LS 132 SM	**FCR J02**	4	1.3									Consult us								75
LS 132 M	**FCR J02**	6	2									Consult us								80

1. brake coil 180 V ; GV : high speed ; PV : low speed.
2. These values are givem for information only.

2-8 Poles 3000-750 min^{-1}

• LS series motor - IP 55 - 50 Hz - Class F - 400 V Y
DP Rotor - Keyed weight -U.L. Lifting Use
• Brake - IP 55 - Separate mains supply[1] - 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 $Cos\ \varphi$ 100 %		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_f±20% N.m	Weight[2] IM B5 kg
		GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	GV	PV	-	-	-
LS 80 L	**FCR J02**	0.55	0.12	2870	670	1.9	1.7	1.55	0.7	0.8	0.65	65	40	4.8	2	1.95	1.82	4.2	4.5	18.2
LS 90 L	**FCR J02**	0.75	0.18	2650	690	2.5	2.5	2.1	1.1	0.88	0.65	59	39	3.5	1.9	2.8	1.6	7.2	6	23
LS 90 L	**FCR J02**	1.1	0.33	2860	710	3.8	4.5	3.1	2	0.74	0.55	70	45	5.3	2.5	3.68	2.31	8.5	9	25
LS 100 L	**FCR J02**	2.2	0.55	2760	685	7.5	7.5	5.4	2.2	0.82	0.68	70	52	4.6	2.9	2.8	2.04	9.8	15	31
LS 112 MG	**FCR J01**	3	0.75	2870	705	10	10	8.2	3.1	0.75	0.63	70	56	5.4	2.7	3.5	1.95	15.3	22	43
LS 132 SM	**FCR J02**	4	1	2810	710	13.5	13.5	12	4.3	0.7	0.54	67	62	3.8	3	2.44	2	46.2	40	75
LS 132 M	**FCR J02**	6	1.5	2845	720	20	20	17.5	6.7	0.7	0.54	72	59	4.5	3.1	3.2	2.28	51	40	80

1. brake coil 180 V ; GV : high speed ; PV : low speed.
2. These values are givem for information only.

FCR asynchronous brake motors
LS FCR

Selection

2-6 Poles 3000-1000 min^{-1}

U.L. Lifting Use
IP 55 - 50 Hz - Class F - 400 V Y

Motor type	Brake type	Rated power at 50 Hz P_N kW	Brake torque $M_f \pm 20\%$ N.m	IM 1001 (IM B3) Code	Qty	IM 3001 (IM B5) Code	Qty	IM 3601 (IM B14) Code	Qty
LS 80 L	**FCR J02**	0.55/0.18	NC[1]		-		-		-
LS 90 L	**FCR J02**	0.75/0.25	6		-		-		-
LS 90 L	**FCR J02**	1.5/0.5	9		-		-		-
LS 100 L	**FCR J02**	2.2/0.75	15		-		-		-
LS 112 MG	**FCR J01**	3/0.9	NC[1]		-		-		-
LS 132 SM	**FCR J02**	4/1.3	NC[1]		-		-		-
LS 132 M	**FCR J02**	6/2	NC[1]		-		-		-

1. Consult us

2-8 Poles 3000-750 min^{-1}

U.L. Lifting Use
IP 55 - 50 Hz - Class F - 400 V Y

Motor type	Brake type	Rated power at 50 Hz P_N kW	Brake torque $M_f \pm 20\%$ N.m	IM 1001 (IM B3) Code	Qty	IM 3001 (IM B5) Code	Qty	IM 3601 (IM B14) Code	Qty
LS 80 L	**FCR J02**	0.55/0.12	4.5		-		-		-
LS 90 L	**FCR J02**	0.75/0.18	6		-		-		-
LS 90 L	**FCR J02**	1.1/0.33	9		-		-		-
LS 100 L	**FCR J02**	2.2/0.55	15		-		-		-
LS 112 MG	**FCR J01**	3/0.75	22		-		-		-
LS 132 SM	**FCR J02**	4/1	40		-		-		-
LS 132 M	**FCR J02**	6/1.5	40		-		-		-

Selection example :

Required power :	1.5 = 0.5 kW
Required speed :	2820/920 min^{-1}
Mounting and position :	IM 3001 (IM B5)

Designation :
2/6P LS 90 L 1.5/0.5 kW B5 400V
UL FCR J02 9 N.m

Code : consult us

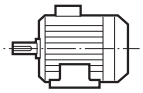
FCR asynchronous brake motors
LS FCR

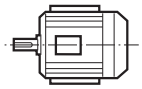
Dimensions

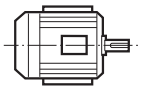
Dimensions of the LS FCR asynchronous brake motors

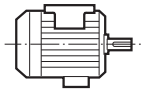
According to the operating position and mechanical forms of the brake motor

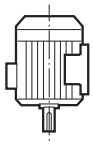
Foot mounted motor — S

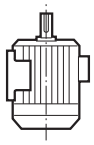

IM 1001 (IM B3)


IM 1051 (IM B6)


IM 1061 (IM B7)

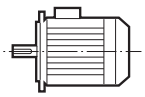

IM 1071 (IM B8)

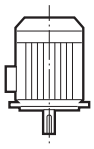

IM 1011 (IM V5)

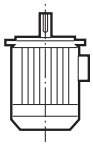

IM 1031 (IM V6)

Page C2.12

(FF) plain hole flange mounted motor — BS

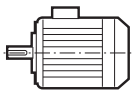

IM 3001 (IM B5)

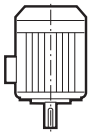

IM 3011 (IM V1)

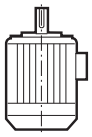

IM 3031 (IM V3)

Page C2.13

(FT) tapped hole flange mounted motors — BT


IM 3061 (IM B14)


IM 3611 (IM V18)


IM 3631 (IM V19)

Page C2.14

Options — **Pages C2.10 and C2.11**