

# FMC asynchronous brake motors

## LS FMC

### General information



#### GENERAL USE : U.G.

**Single phase and three-phase asynchronous brake motors**, series LS with failsafe brake and continuous current (dc) coil.

Power 0.06 to 0.37 kW ; frame size 56 to 71, 4 and 6 poles ; 230/400 V.

- Direct on line starting on 230 V or 400 V three phase supplies.
- delta connection ( $\Delta$ ) at 230 V,
- start connection (Y) at 400 V.
- Single phase operation at 230 V +10% 50 Hz.

#### PRESENTATION

##### Motor protection

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

#### Options

- Brake manual release (option).
- Air-gap setting without brake dismantling.
- Factory preset brake inertia.

#### Finish

Assembled with zinc plated screws bichromated or cadmium plated. Finishing paint RAL 6000 (green). Shaft end protected against atmospheric corrosion.

Identification on riveted aluminium nameplate.

#### Brake motor mains supply

- Standard according to IEC 60038 :
- 230/400 V +10% -10% at 50 Hz.

Standard construction suitable for the following mains supply :

- 220/380 V +5% -5% at 50 Hz;
- 230/400 V +10% -10% at 50 Hz;
- 240/415 V +5% -5% at 50 Hz.

#### Brake mains supply

Incorporated in the motor as standard : the motor connects as a standard motor.

Separate : single phase (ac) mains supply external to the motor or continuous current (dc) direct supply.

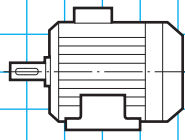
### Description of the LS FMC aluminium three-phase brake motors

Component	Materials	Remarks
Finned housing	Aluminium alloy	- with cast feet or without feet - pressure die cast • 4 mounting holes for foot housings - 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 - shrunk 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 aluminium (or alloy for specific applications) - mounted on the shaft by heat shrinking - dynamically balanced rotor class N - 1/2 key
Shaft	Steel	- shaft end fitted with screw and washer - closed keyway
End shields	Aluminium	- front and rear assembled with tie rods
Bearings		- ball bearings, sealed, lubricated for life mounted as follows : • locked rear enables 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 on motor shaft
Fan	Plastic	- 2 directions of rotation : straight blades
Fan cover	Sheet Steel	
Terminal box	Aluminium alloy	- located on top of the motor, sealed and provided with one or two cable glands. - Internal rectifier.
Painting		- system Ia, colour RAL 6000 (green) - resistance to saline mist : 72h (in accordance with NFX 41002)

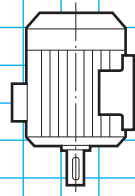
# FMC asynchronous brake motors LS FMC

## Mounting positions

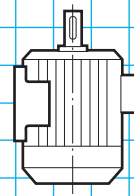
### Foot mounted motor



IM 1001 (IM B3)

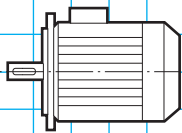


IM 1011 (IM V5)

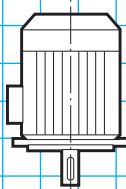


IM 1031 (IM V6)

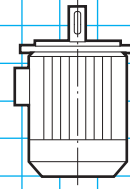
### (FF) plain hole flange mounted motor



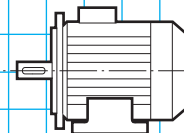
IM 3001 (IM B5)



IM 3011 (IM V1)

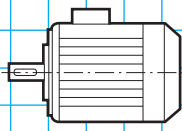


IM 3031 (IM V3)

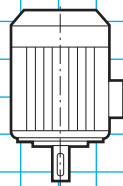


IM 2001 (IM B35)

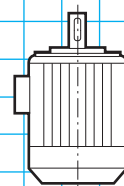
### (FT) tapped hole flange mounted motor



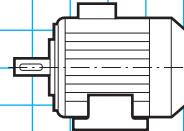
IM 3601 (IM B14)



IM 3611 (IM V18)

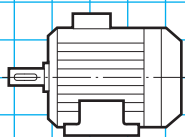


IM 3631 (IM V19)

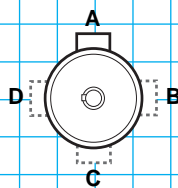


IM 2101 (IM B34)

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

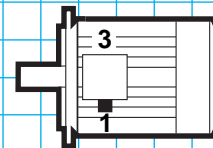


Foot mounted motor  
A : only possibility



Flange mounted motor  
A : standard

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



1 : standard  
(3 : only as option)

# FMC asynchronous brake motors

## LS FMC

### Adaptation possibilities

Leroy-Somer offers, for use with their brake motors, 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.

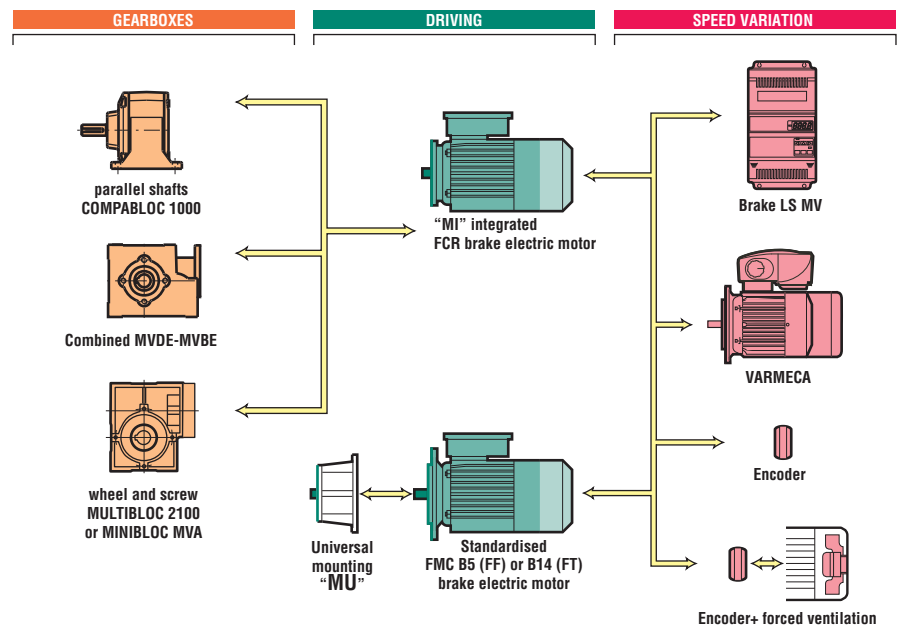
For other variants or any specific adaptation, consult the technical specialists at Leroy-Somer who will be pleased to advise you.

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

- Compabloc
- Multibloc
- Minibloc

☞ **LS FMC brake motors may be controlled by variable speed drives :**

- Centralised system with separate variable speed drives (open loop vector drive technology or universal variable speed drive).



### Designation / Codification

4P 1500 min <sup>-1</sup>	LS	63	-	FMC	S1	2.5 N.m	0.18 kW	IM 3001 (IM B5)	230/400 V $\Delta$	A
Speed polarity	Motor type	Motor frame size	Manuf. index (motor)	Brake type	Operation duty	Brake torque	Motor power	Mounting position	Supply voltage	T Box position

☞ **Codification example :**  
4P LS 63- FMC S1 2.5 N.m 0.18 kW  
IM 3001 (IM B5), 230/400 V - A

**Designation**  
4P LS 63- FMC S1 0.18 kW  
B5 230/400 V

**Code**  
-

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.

# FMC asynchronous brake motors

## LS FMC

### Selection

- LS FMC Three-phase motor - IP 55 - 50 Hz - Class F - 230 V  $\Delta$  / 400 V Y
  - Aluminium rotor, U.G. general use
  - IP 40 brake - Separate mains supply

4 poles  
1500 min<sup>-1</sup>

Motor type	Brake type	Rated power at 50 Hz	Rated speed	Rated current	Power factor	Efficiency	Starting current / Rated current	Starting torque / Rated torque	Rated torque	Moment of Inertia	Brake torque	Weight
		$P_N$ kW	$N_N$ min <sup>-1</sup>	$I_N(400V)$ A	$\cos \varphi$ 100 %	$\eta$ 100 %	$I_D / I_N$	$M_D / M_N$	$M_N$ N.m	$J$ kg.m <sup>2</sup>	$M_f \pm 20\%$ N.m	IM B3 kg
LS 56	FMC 15	0.06	1380	0.3	0.75	42	2.8	2.2	0.43	0.2	1.5	4.7
LS 56	FMC 15	0.09	1400	0.4	0.6	55	3.2	2.8	0.64	0.2	1.5	4.9
LS 63	FMC 15	0.12	1410	0.4	0.65	63	3.2	2.6	0.85	0.37	1.5	5.7
LS 63	FMC 25	0.18	1390	0.65	0.65	63	3.7	2.7	1.25	0.5	2.5	5.9
LS 71	FMC 25	0.25	1425	0.8	0.65	70	4.6	2.7	1.7	0.71	2.5	7.3
LS 71	FMC 25	0.37	1420	1.12	0.7	72	4.9	2.7	2.55	0.88	2.5	8.2

6 poles  
1000 min<sup>-1</sup>

Motor type	Brake type	Rated power at 50 Hz	Rated speed	Rated current	Power factor	Efficiency	Starting current / Rated current	Starting torque / Rated torque	Rated torque	Moment of Inertia	Brake torque	Weight
		$P_N$ kW	$N_N$ min <sup>-1</sup>	$I_N(400V)$ A	$\cos \varphi$ 100 %	$\eta$ 100 %	$I_D / I_N$	$M_D / M_N$	$M_N$ N.m	$J$ kg.m <sup>2</sup>	$M_f \pm 20\%$ N.m	IM B3 kg
LS 56	FMC 15	0.045	875	0.3	0.6	35	1.7	1.6	0.46	0.2	1.5	5.4
LS 63	FMC 15	0.09	860	0.45	0.8	35	2.2	1.7	1	0.5	1.5	6.4
LS 71	FMC 25	0.12	920	0.63	0.55	49	2.8	1.74	1.28	0.71	2.5	7.4
LS 71	FMC 25	0.18	940	0.8	0.63	52	2.7	2.3	1.87	1.15	2.5	8.5
LS 71	FMC 25	0.25	840	1.05	0.7	50	2.5	1.75	2.8	1.25	2.5	8.8

- LS FMC Single phase motor - IP 55 - 50 Hz - Class F - 230 V  $\Delta$  / 400 V Y
  - Aluminium rotor, U.G. general use
  - IP 40 brake - Separate mains supply

4 poles  
1500 min<sup>-1</sup>

Motor type	Brake type	Rated power at 50 Hz	Rated speed	Rated current	Power factor	Efficiency	Starting current / Rated current	Starting torque / Rated torque	Rated torque	Moment of Inertia	Brake torque	Weight
		$P_N$ kW	$N_N$ min <sup>-1</sup>	$I_N(400V)$ A	$\cos \varphi$ 100 %	$\eta$ 100 %	$I_D / I_N$	$M_D / M_N$	$M_N$ N.m	$J$ kg.m <sup>2</sup>	$M_f \pm 20\%$ N.m	IM B3 kg
LS 56 P	FMC 15	0.06	1420	0.7	0.93	40	2.6	1.2	0.4	0.2	1.5	5.4
LS 63 P	FMC 15	0.09	1380	0.75	0.97	55	2.3	0.75	0.62	0.37	1.5	6.2
LS 63 P	FMC 15	0.12	1410	1	0.97	56	2.8	0.9	0.82	0.5	1.5	6.4
LS 71 P	FMC 25	0.18	1430	1.8	0.78	57	3.9	0.6	1.2	0.71	2.5	7.8
LS 71 P	FMC 25	0.25	1430	2.1	0.83	63	4.3	0.6	1.7	1.15	2.5	8.7
LS 71 P	FMC 25	0.37	1410	2.8	0.86	66	4	0.52	2.5	1.25	2.5	9

For all these motors, it is possible to have a separate mains supply to the brake :

- in ac mode (rectifier in the terminalsbox) : 24 - 48 - 110 - 127 - 220 - 254 Volts
- continuous current (dc) (without rectifier) : 12 - 19 - 24 - 41 - 48 - 97 - 112 - 196 - 225 Volts

Option : brake release lever

# FMC asynchronous brake motors

## LS FMC

### Selection

- LS FMC Three-phase motor - IP 55 - 50 Hz - Class F - 230 V  $\Delta$  / 400 V Y
- Aluminium rotor, U.G. general use
- IP 40 brake - Separate mains supply

**4**  
poles  
1500 min<sup>-1</sup>

Motor type	Brake type	Rated power at 50 Hz	Brake torque	IM 1001 (IM B3)		IM 3001 (IM B5)	
		$P_N$ kW	$M_f \pm 20\%$ N.m	Code	Qty	Code	Qty
LS 56	FMC 15	0.06	1.5		-		-
LS 56	FMC 15	0.09	1.5		-		-
LS 63	FMC 15	0.12	1.5		-		-
LS 63	FMC 25	0.18	2.5		-		-
LS 71	FMC 25	0.25	2.5		-		-
LS 71	FMC 25	0.37	2.5		-		-

**6**  
poles  
1000 min<sup>-1</sup>

Motor type	Brake type	Rated power at 50 Hz	Brake torque	IM 1001 (IM B3)		IM 3001 (IM B5)	
		$P_N$ kW	$M_f \pm 20\%$ N.m	Code	Qty	Code	Qty
LS 56	FMC 15	0.045	1.5		-		-
LS 63	FMC 15	0.09	1.5		-		-
LS 71	FMC 25	0.12	2.5		-		-
LS 71	FMC 25	0.18	2.5		-		-
LS 71	FMC 25	0.25	2.5		-		-

- LS FMC Single phase motor - IP 55 - 50 Hz - Class F - 230 V  $\Delta$  / 400 V Y
- Aluminium rotor, U.G. general use
- IP 40 brake - Separate mains supply

**4**  
poles  
1500 min<sup>-1</sup>

Motor type	Brake type	Rated power at 50 Hz	Brake torque	IM 1001 (IM B3)		IM 3001 (IM B5)	
		$P_N$ kW	$M_f \pm 20\%$ N.m	Code	Qty	Code	Qty
LS 56P	FMC 15	0.06	1.5		-		-
LS 63 P	FMC 15	0.09	1.5		-		-
LS 63 P	FMC 15	0.12	1.5		-		-
LS 71 P	FMC 25	0.18	2.5		-		-
LS 71 P	FMC 25	0.25	2.5		-		-
LS 71 P	FMC 25	0.37	2.5		-		-

# FMC asynchronous brake motors LS FMC

## Options

Type	Delivery time
Brake release lever with automatic return (DLRA)	
Shaft exit on the brake side	
Thermal protection (PTO)	
Encoder adaptation	
Forced ventilation for LS FMC 71 only	
Thermal protection PTC or PTO	

### Possible brake torque (N.m)

Type	Brake torque (N.m)	
LS 56 FMC	1.5	2.5
LS 63 FMC	1.5	2.5
LS 71 FMC	1.5	2.5

### Flanges options

Type	Poles	(FF) plain hole flange (IM B5)		
		FF 100	FF 115	FF 130
LS 56	4			
	6			
LS 63	4			
	6			
LS 71	4			
	6			

Type	Poles	(FT) tapped hole flange (IM B14)		
		FT 65	FT 75	FT 85
LS 56	4			
	6			
LS 63	4			
	6			
LS 71	4			
	6			

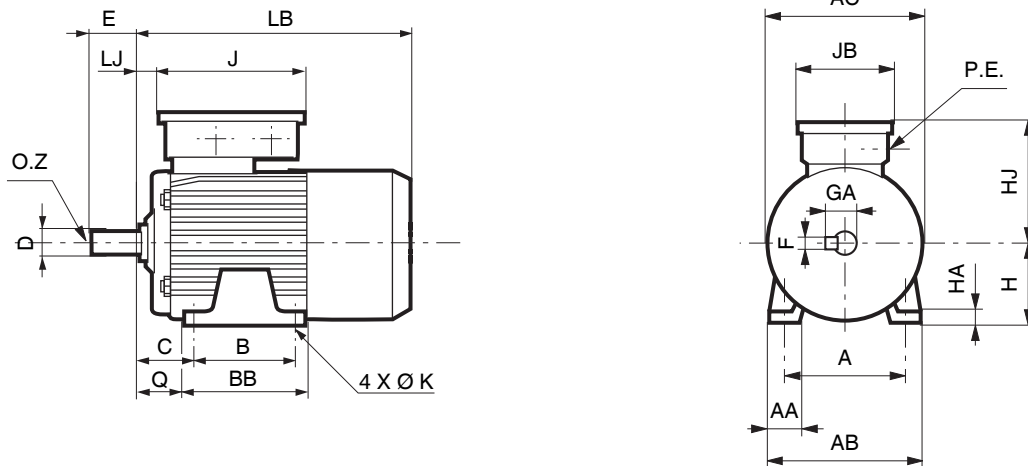
# FMC asynchronous brake motors LS FMC

## Dimensions

Dimensions of the LS, LSMV, FMC brake and three-phase asynchronous motors  
4 and 6 pole - IP 55 protection

Dimensions in millimetres

– foot mounted



Asynchronous brake motor																	
Type	A	AA	AB	AC	B	BB	C	HD	H	HA	J	I	II	K	LB	LJ	x
LS 56 FMC	90	-	104	110	71	87	36	140	56	7	86	43	43	6	206	16	8
LS 63 FMC	100	-	115	124	80	96	40	152	63	9	86	43	43	7	222	26	8
LS 71 FMC	112	23	126	140	90	106	45	170	71	9	86	43	43	7	233	21	8

Output shaft						
Type	D	E	F	G	GD	O,p
LS 56 FMC	9j6	26	3	7	3	M4 x 10
LS 63 FMC	11j6	23	4	8.5	4	M4 x 10
LS 71 FMC	14j6	30	5	11	5	M5 x 10

# FMC asynchronous brake motors

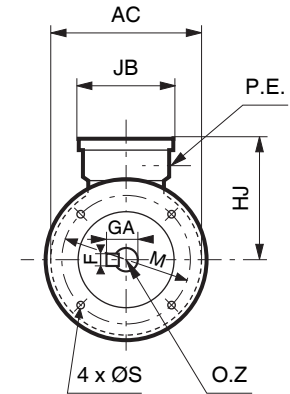
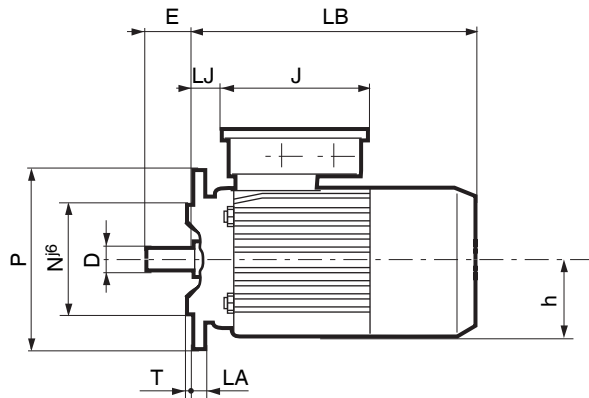
## LS FMC

### Dimensions

Dimensions of the LS, LSMV, FMC brake and three-phase asynchronous motors  
4 and 6 poles - IP 55 protection

Dimensions in millimetres

– (FF) plain hole flange mounted



Type	Asynchronous brake motor													
	AC	HJ	h	J	I	II	LB	LJ	D	E	F	G	GD	O.p
LS 56 FMC	110	90	55	86	43	43	206	16	9j6	20	3	7	3	M4 x 10
LS 63 FMC	124	110	62	86	43	43	222	26	11j6	23	4	8.5	4	M4 x 10
LS 71 FMC	140	129	70	86	43	43	233	21	14j6	30	5	11	5	M5 x 15

Type	FF flange							Symb.
	M	N	n	P	S	T	LA	
LS 56 FMC	100	80	4	120	7	2.5	5	FF 100
LS 63 FMC	115	95	4	140	10	3	10	FF 115
LS 71 FMC	130	110	4	160	10	3.5	10	FF 130

# FMC asynchronous brake motors

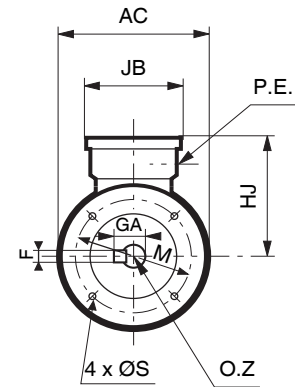
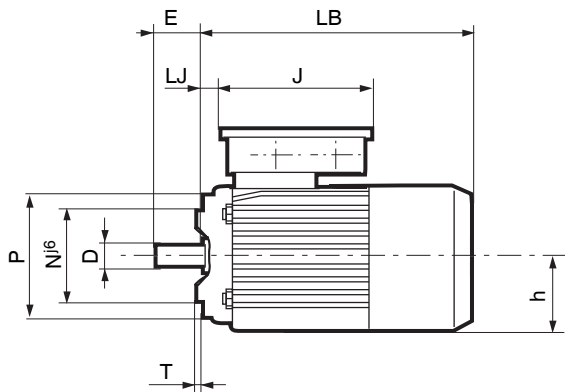
## LS FMC

### Dimensions

Dimensions of the LS, LSMV, FMC brake and three-phase asynchronous motors  
4 and 6 pole - IP 55 protection

Dimensions in millimetres

– (FT) tapped hole flange mounted



Asynchronous brake motor														
Type	AC	HJ	h	J	I	II	LB	LJ	D	E	F	G	GD	O.p
LS 56 FMC	110	90	55	86	43	43	206	16	9j6	20	3	7	3	M4 x 10
LS 63 FMC	124	110	62	86	43	43	222	26	11j6	23	4	8.5	4	M4 x 10
LS 71 FMC	140	129	70	86	43	43	233	21	14j6	30	5	11	5	M5 x 15

FT flange							
Type	M	N	n	P	S	T	Symb.
LS 56 FMC	65	50	4	80	M5	2.5	FF 65
LS 63 FMC	75	60	4	90	M5	2.5	FF 75
LS 71 FMC	85	70	4	105	M6	2.5	FF 85

