



# LSMV FCR variable speed asynchronous motors with brake FCR

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

## General information



### GENERAL USE : U.G.

**Enclosed three-phase asynchronous brake motors**, LSMV series with failsafe brake, according to IEC 60034, 60072, EN 50281.

- Single speed : power 0.25 to 11 kW, frame size from 71 to 160 mm, 4 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. It has a self-certification for atmospheres containing explosive dust category 3, zone 22.

### Motors for variable speed operation :

- fitted with thermal probes in windings (obligatory)

### Options

- Selection of the brake torques ; manual brake release
- Drip cover ; 2nd shaft end ;
- IP65 plug in connector
- Incremental encoder 5V 1024 pts on request (dispensation)

### 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 ;  
suitable for the following mains supply  
220/380 V +5 % –5 % and  
240/415 V +5 % –5 % at 50 Hz.

## Description of the LSMV FCR aluminium three-phase brake motors

Component	Materials	Remarks
Finned housing	Aluminium alloy	- with cast feet, or without feet - pressure die-cast <ul style="list-style-type: none"> <li>• 4 mounting holes for the foot housing</li> <li>• lifting rings frame size series 160, option at 132 and 112</li> </ul> - 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 - semi-enclosed slots - magnetic circuit based on acquired experience in frequency variation - impregnation resistant to violent voltage variations generated by the high chopping frequency of variable speed drive IGBT transistors. Conforms with standard IEC 34-17 - insulation system class F - PTC thermal protection (1 by phase) and OTP
Rotor	Insulated low carbon magnetic steel laminations	- inclined slots - squirrel cage pressure die cast in aluminium (or alloy for special applications) - mounted on the shaft by heat shrinking - level B rotor dynamic balancing
Shaft	Steel	- for all frame sizes : <ul style="list-style-type: none"> <li>• centre holes fitted with screw and a shaft end washer</li> <li>• closed keyway</li> </ul>
End shields	Cast iron	- front and rear assembled with tie rods
FCR brake		Variation range - from 10 to 50 Hz constant torque - from 50 to 60 Hz constant power
Bearings		- ball bearings, sealed, lubricated for life, with the following mounting <ul style="list-style-type: none"> <li>• locked rear to provide precise positioning of the load no matter the load direction</li> <li>• preloaded front to eliminate axial movement.</li> </ul>
Lipseals	Synthetic rubber	- front and rear seals 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, for foot or foot and flange versions - 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)



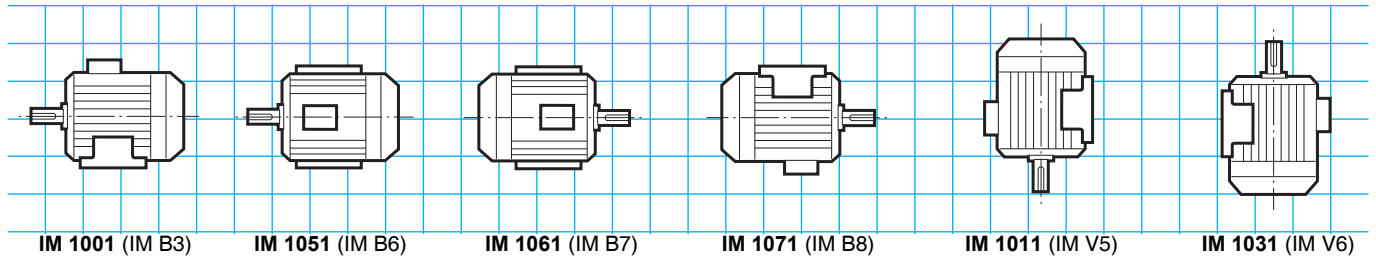
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ZONE 22**  
Non-conductive dust

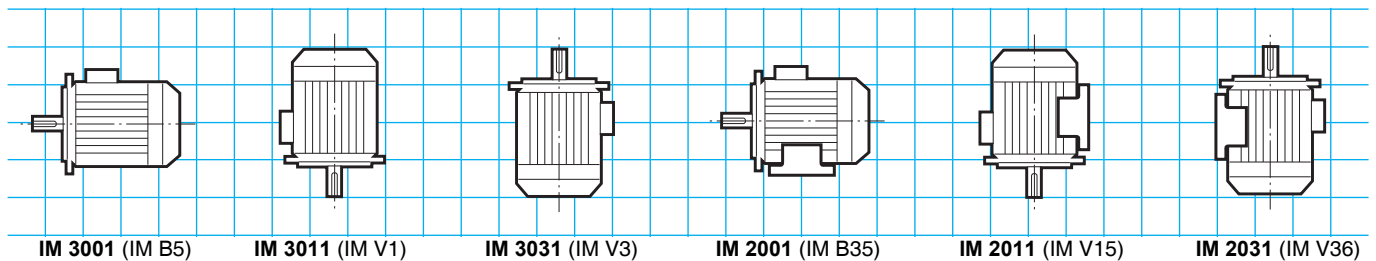
## Mounting positions

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

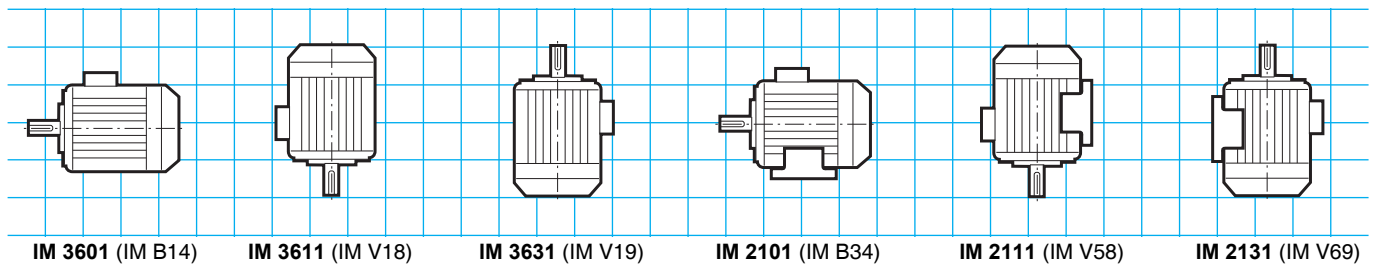
### Foot mounted motor



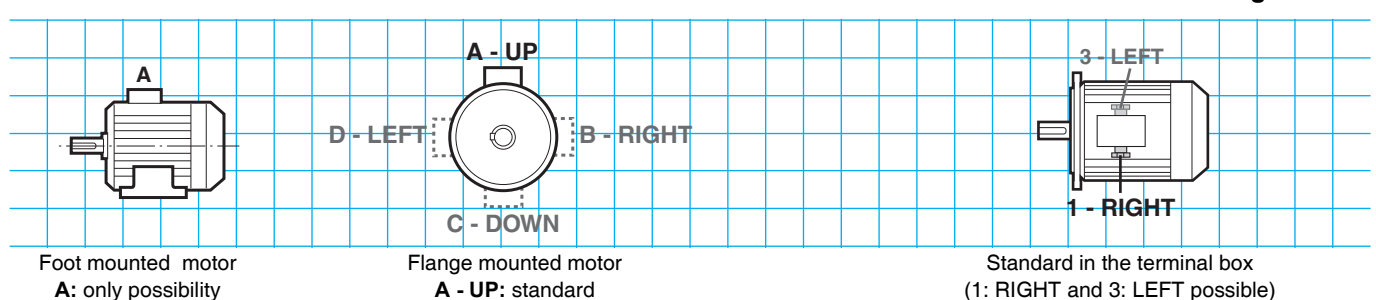
### (FF) plain hole flange mounted motor



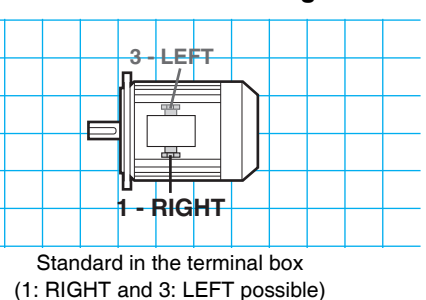
### (FT) tapped hole flange mounted motor



### Positions of the terminal box



### Positions of the cable glands





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## Adaptation possibilities

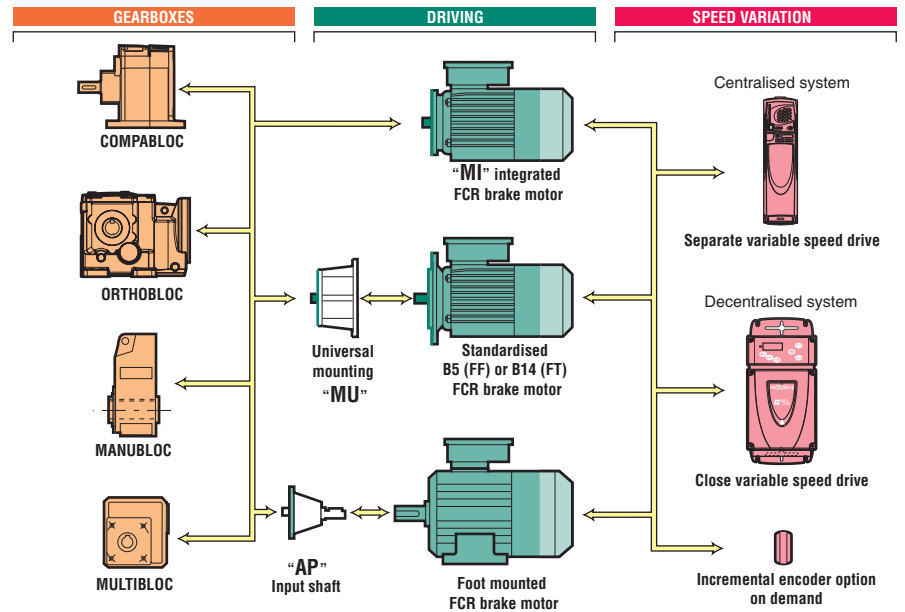
Leroy-Somer offers, for use with their general use brake motors, many options which meet the needs of highly diverse applications : ATEX dust. They are described below and included in the chapter of the catalogue relating to gearboxes. For other variants or any specific adaptation, consult the technical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

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

- Compabloc
- Orthobloc
- Manubloc
- Multibloc

**The LSMV FCR brake motors may be controlled by a variable speed drive :**

- Centralised system with separate variable speed drive (open loop vector variable speed drive technology or universal variable speed drive).
- Decentralised system with variable speed drive close to the brake motor.



## Designation / Codification

ATEX II 3D T 125°C	4P 1500 min <sup>-1</sup>	LS MV	80	L	0.75 kW	IM 3001 (IM B5)	230/400 V 50 Hz	U.G.	FCR J01	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	Inertia and brake type	Brake torque	T Box and PE position

☛ **Codification example :**

LSMV flange brake motor, 1500 min<sup>-1</sup>, 230/400 V operating in zone 22

**Designation :**

4P LSMV 80 L 0.75 kW B5 230/400 V 50 Hz  
U.G. FCR J01 10 N.m ATEX zone 22

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.

# LSMV FCR

## variable speed asynchronous motors with brake FCR



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

### Selection

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

- LSMV series motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y Aluminium Rotor (ALU) - U.G. General Use
- Brake - IP 55 - Separate mains supply - Brake torque set in factory

LSMV FCR without option

Motor type	Brake type	Rated power at 50 Hz $P_N$ kW	Rated speed <sup>1</sup> $N_N$ min <sup>-1</sup>	Rated current $N_{max}$ min <sup>-1</sup>	Rated torque $M_N$ N.m	Brake torque $M_t \pm 20\%$ N.m	Brake release response time $t_1$ ms	Brake applied response time $t_2$ ms	Brake applied response time cut in DC supply $t_2$ ms	Moment of inertia $J$ 10 <sup>-3</sup> kg.m <sup>2</sup>	Weight <sup>3</sup> IM B5 kg
LSMV 71 L	FCR J01	0.25	1445	4000	1.68	5	60	90	≤ 10	1.075	11.5
LSMV 71 L	FCR J01	0.37	1440	4000	2.49	5	60	90	≤ 10	1.25	12.5
LSMV 80 L	FCR J01	0.75	1435	4000	5.12	10	80	85	≤ 10	3.4	16.6
LSMV 90 SL	FCR J01	1.1	1445	4000	7.35	20	150	140	≤ 10	5.7	22.7
LSMV 90 L	FCR J01	1.5	1435	4000	10.03	20	150	140	≤ 10	6.7	24.7
LSMV 100 L	FCR J01	2.2	1440	4000	14.5	25	150	140	≤ 10	8.9	30
LSMV 100 L	FCR J01	3	1435	4000	19.5	25	150	140	≤ 10	8.9	33
LSMV 112 MG	FCR J01	4	1440	4000	26.56	43	150	580	≤ 40	19.3	49.3
LSMV 132 SM	FCR J02	5.5	1460	4000	36.3	80	280	620	≤ 90	60.4	71.3
LSMV 132 M	FCR J02	7.5	1455	4000	49.4	80	280	620	≤ 90	62	77.3
LSMV 132 M	FCR J02	9	1460	4000	59.3	105	280	620	≤ 90	65.5	80
LSMV 160 MR	FCR J02	11	1460	4000	72.2	120	280	550	≤ 90	96	102

1. Take into account the maximum mechanical speed : 4000 min<sup>-1</sup>.

2. Brake applied response time, with no applied voltage, when the continuous current (dc) circuit is cut.

3. These values are given for information only.

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

- LSMV series motor - IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y Aluminium Rotor (ALU) - U.G. General Use
- Brake - IP 55 - Separate mains supply - Brake torque set in factory

LSMV FCR + V.F. +  
encoder 5V 1024 pts

Motor type	Brake type	Rated power at 50 Hz $P_N$ kW	Rated speed <sup>1</sup> $N_N$ min <sup>-1</sup>	Rated current $N_{max}$ min <sup>-1</sup>	Rated torque $M_N$ N.m	Brake torque $M_t \pm 20\%$ N.m	Brake release response time $t_1$ ms	Brake applied response time $t_2$ ms	Brake applied response time cut in DC supply $t_2$ ms	Moment of inertia $J$ 10 <sup>-3</sup> kg.m <sup>2</sup>	Weight <sup>3</sup> IM B5 kg
LSMV 71 L	FCR J01	0.25	1445	4000	1.68	5	60	90	≤ 10	1.075	11.5
LSMV 71 L	FCR J01	0.37	1440	4000	2.49	5	60	90	≤ 10	1.25	12.5
LSMV 80 L	FCR J01	0.75	1435	4000	5.12	10	80	85	≤ 10	3.4	16.6
LSMV 90 SL	FCR J01	1.1	1445	4000	7.35	20	150	140	≤ 10	5.7	22.7
LSMV 90 L	FCR J01	1.5	1435	4000	10.03	20	150	140	≤ 10	6.7	24.7
LSMV 100 L	FCR J01	2.2	1440	4000	14.5	25	150	140	≤ 10	8.9	30
LSMV 100 L	FCR J01	3	1435	4000	19.5	25	150	140	≤ 10	8.9	33
LSMV 112 MG	FCR J01	4	1440	4000	26.56	43	150	580	≤ 40	19.3	49.3
LSMV 132 SM	FCR J02	5.5	1460	4000	36.3	80	280	620	≤ 90	60.4	71.3
LSMV 132 M	FCR J02	7.5	1455	4000	49.4	80	280	620	≤ 90	62	77.3
LSMV 132 M	FCR J02	9	1460	4000	59.3	105	280	620	≤ 90	65.5	80
LSMV 160 MR	FCR J02	11	1460	4000	72.2	120	280	550	≤ 90	96	102

1. Take into account the maximum mechanical speed : 4000 min<sup>-1</sup>.

2. Brake applied response time, with no applied voltage, when the continuous current (dc) circuit is cut.

3. These values are given for information only.



# LSMV FCR variable speed asynchronous motors with brake FCR

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

## Selection

**LSMV FCR without option**

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

**U.G. general 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)		IM 3001 (IM B5)		IM 3601 (IM B14)	
				Code	Qty	Code	Qty	Code	Qty
LSMV 71 L	FCR J01	0.25	5		-	4593016	5	4593034	5
LSMV 71 L	FCR J01	0.37	5		-	4593018	5	4593043	5
LSMV 80 L	FCR J01	0.75	10		-	4593020	5	4593044	5
LSMV 90 SL	FCR J01	1.1	20		-	4593021	5	4593045	5
LSMV 90 L	FCR J01	1.5	20		-	4593022	5	4593046	5
LSMV 100 L	FCR J01	2.2	25		-	4593025	5	4593053	5
LSMV 100 L	FCR J01	3	25		-	4593026	5	4593055	5
LSMV 112 MG	FCR J01	4	43		-	4593027	5	4593058	5
LSMV 132 SM	FCR J02	5.5	80		-	4593028	3	4593063	-
LSMV 132 M	FCR J02	7.5	80		-	4593031	3	4593064	-
LSMV 132 M	FCR J02	9	105		-	4593032	3	4593068	-
LSMV 160 MR	FCR J02	11	120		-	4593033	1	4593069	-



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

**U.G. general use**  
**IP 55 - 50 Hz - Class F - 230 V Δ / 400 V Y**

**LSMV FCR + V.F. +  
encoder 5V 1024 pts**

Motor type	Brake type	Rated power at 50 Hz $P_N$ kW	Brake torque $M_f \pm 20\%$ N.m	IM 1001 (IM B3)		IM 3001 (IM B5)		IM 3601 (IM B14)	
				Code	Qty	Code	Qty	Code	Qty
LSMV 71 L	FCR J01	0.25	5		-		-		-
LSMV 71 L	FCR J01	0.37	5		-		-		-
LSMV 80 L	FCR J01	0.75	10		-		-		-
LSMV 90 SL	FCR J01	1.1	20		-		-		-
LSMV 90 L	FCR J01	1.5	20		-		-		-
LSMV 100 L	FCR J01	2.2	25		-		-		-
LSMV 100 L	FCR J01	3	25		-		-		-
LSMV 112 MG	FCR J01	4	43		-		-		-
LSMV 132 SM	FCR J02	5.5	80		-		-		-
LSMV 132 M	FCR J02	7.5	80		-		-		-
LSMV 132 M	FCR J02	9	105		-		-		-
LSMV 160 MR	FCR J02	11	120		-		-		-

**Selection example :**

Application :	Atex 22
Required power :	1.1 kW
Required speed :	1500 min <sup>-1</sup>
Mounting and position :	IM 3001 (IM B5)
Mains supply voltage :	230/400 V

**Designation :**

**4P LSMV 90 SL 1.1 kW B5 230/400V**  
**UG FCR J01 20 N.m**  
**Zone 22**  
**Code : 4593021**



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Non-conductive dust

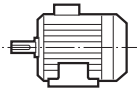
## Dimensions

### Dimensions of the LSMV FCR asynchronous brake motors

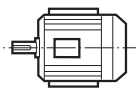
According to the operating position and mechanical forms of the brake motor

Foot mounted motor

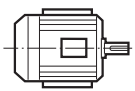
S



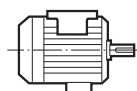
IM 1001 (IM B3)



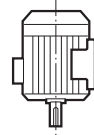
IM 1051 (IM B6)



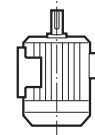
IM 1061 (IM B7)



IM 1071 (IM B8)



IM 1011 (IM V5)

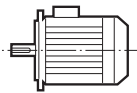


IM 1031 (IM V6)

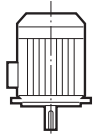
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(FF) plain holes flange mounted motor

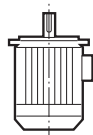
BS



IM 3001 (IM B5)



IM 3011 (IM V1)

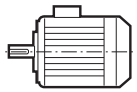


IM 3031 (IM V3)

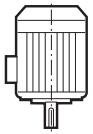
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(FT) tapped hole flange mounted motor

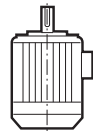
BT



IM 3061 (IM B14)



IM 3611 (IM V18)



IM 3631 (IM V19)

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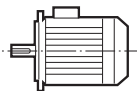
Options

Pages C2.10 and C2.11

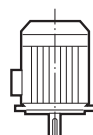
## Options

Dimensions of the FCR asynchronous (FF flange mounted) brake motor with incremental encoder

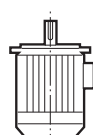
BS



IM 3001 (IM B5)



IM 3011 (IM V1)



IM 3031 (IM V3)

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