

# Electromechanical products - variable speed Atmospheres containing explosive dust Compabloc 2000 / LSMV



**CATEGORY 3  
ZONE 22**

## General information



Compabloc 2000 geared motors with helical gears are used to adapt the speed of the electric motor to that of the driven machine. Their size is therefore determined by the motor power ( $P$ ) expressed in kilowatts (kW) and the output rotation speed of the gear box ( $n_S$ ) in revolutions per minute ( $\text{min}^{-1}$ ). The main characteristic of the speed reducers is the rated output torque ( $M_{nS}$ ) expressed in Newton-metres (N.m) :

$$M_{nS} = \frac{P \times 9550}{n_S} \times \text{efficiency}$$

A range of four sizes : 26, 27, 28, 29.  
Rated output torque : from 800 N.m to 16 000 N.m.  
Power rating : from 0.37 to 45 kW.  
Reduction ratios : from 1.25 to 160.  
Two to three reduction stages.  
High efficiency : 95 % to 98 %.  
Reversible.  
Silent operation.

Geared motors within the Compabloc 2000 range with or without FCR option have been subject to a certification made by INERIS.

## Construction

### Description of Compabloc (Cb) geared motors

Component	Materials	Remarks
Housing	Cast iron	- use of FGL cast iron (flake graphite : tensile strength 150 MPa) single component perlite to ensure the complete sealing of the unit - monobloc with reinforced internal ribbing to absorb vibrations and noise, and to increase rigidity - with S baseplate or BS, BD..., BR flanges. They are compact and meet industrial application-related requirements
Gears	Steel Ni Cr Mo	- cut by gear hob, they are heat treated by cementation, then undergo a final machining. The quality and the precision of the gear cutting allow maximum torque with minimum noise level
Seals	Nitrile	- sealing rings between housing and flange - anti-dust lipseals according to DIN 3760 AS form
Shaft	Steel	- grinding of the sealing surfaces - key accor tolerances in accordance with NFE 22-051 and ISO R 775 - tapped holes at the shaft end in accordance with DIN 332 version D for mounting connecting equipment
End shields	Cast iron	- reinforced by large ribs, it ensures the ruggedness of the gearbox under heavy loads
Lubrication	Oil	- in accordance with ISO 6743 / 6 - supplied with the quantity of oil corresponding to the operating position, it is fitted with drain, level and vent plugs
Mounting		MI : geared motor with integrated variable speed motor MU : geared motor with IEC variable speed motor, with universal mounting
Standard motors		LSMV : multi-voltage 220/380 V - 230/400 V - 240/415 V - sheet metal fan cover, fitted on request with a drip cover for operation in vertical position (shaft end facing down) - metal terminal box fitted with cable gland - IP 55 standard protection
Brake motors		FCR : failsafe brake asynchronous motor, ranging from 2.2 to 11kW, IP 55 protection
Other motors		See pages D0.6 to D0.9
Finish	Paint	Shade : RAL 6000 (green), system I (1 polyurethane vinyl layer of 25/30 $\mu\text{m}$ )

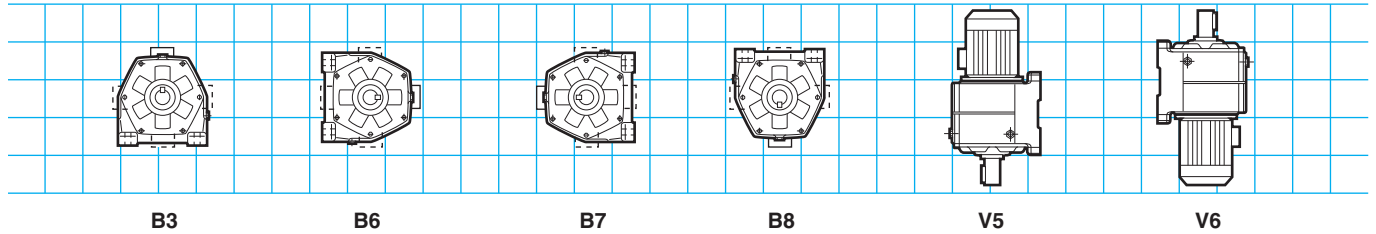
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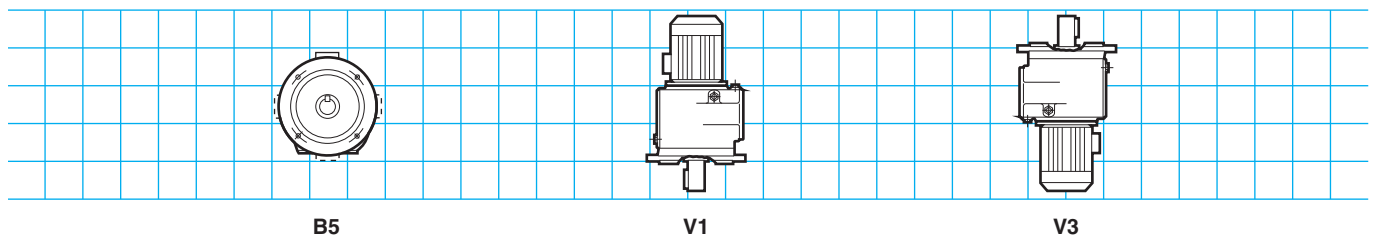
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## Forms and operating positions

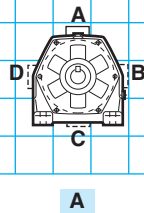
### Positions for S form (with baseplate)



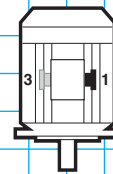
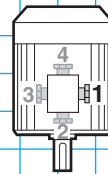
### Positions for BS, BD, BR form



### Terminal box position



### Cable gland position



Non-brake motor

Brake motor



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## Selection

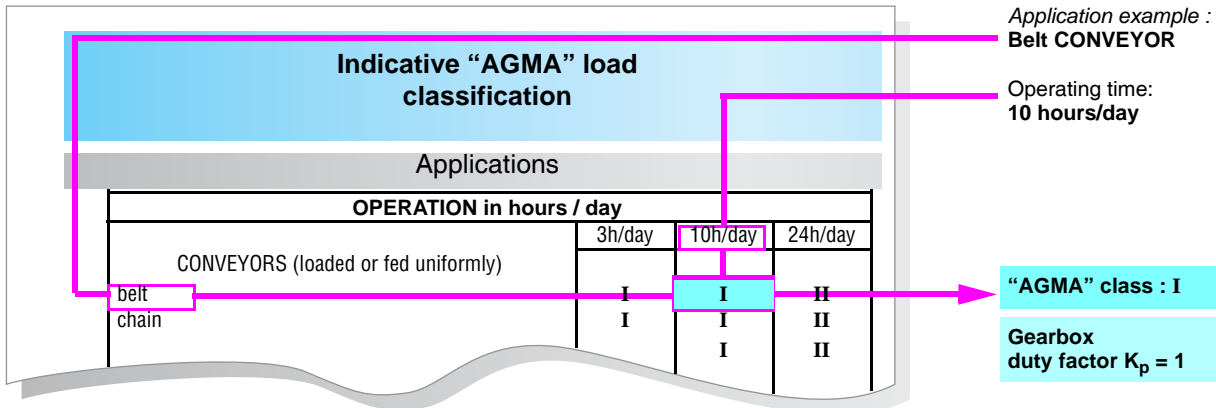
The selection of a gearbox or of a geared motor should take account of the application. Some of these applications are listed in the indicative "AGMA" load classification, page D0.10.

The opposite table summarises the relationship between the "AGMA" class and the gearbox duty factor  $K_p$ .

"AGMA" class	Gearbox duty factor $K_p$
I	1
II	1.4
III	2

### 1<sup>st</sup> case. – Your application is listed

Follow the indicative "AGMA" load classification table, page D0.10 of this catalogue. ▼



### 2<sup>nd</sup> case. – Your application is not listed

The "AGMA" selection class is defined by the daily operating time and by the application operating type, according to the table below. ▼

Type of application	Daily operating time	"AGMA" class
Shock-free, few starts	10 hours / day	I
Damped shocks	10 hours / day	II
Shock-free, few starts	24 hours / day	III
Violent shocks, many starts	10 hours / day	III
Damped shocks	24 hours / day	III

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## Conditions

**Cb 2000 : S, BS**  
**LSMV, LSMV brake FCR - IP 55 - Cl.F - 400 Y - 50 Hz**  
**II 3D T 125°C - ZONE 22**

Inputs	Maximum quantity by order				
	Cb 2602/2603	Cb 2702/2703	Cb 2803	Cb 2903	
MI LSMV	0.37-7.5 kW	3	3	3	-
	9-11 kW				
	15-90 kW				
MI LSMV FCR	0.37-7.5 kW	3	3	3	-
	9-11 kW				
MU LSMV	0.37-9 kW	3	3	3	
	11 kW				
	15-90 kW				
MU LSMV FCR	0.37-9 kW	3	3	3	
	11 kW				

Cb 26../27../28..	Mechanical options			
	S	BS	BD1	BR

Mounting	Pages(s) of dimensions corresponding to mounting			
	S	BS	BD1	BR
MI	D3.13	D3.14	D3.15	D3.16
MU	D3.18-19	D3.18-19	D3.18-19	D3.18-19

Inputs 4p / MI-MU	Mains supply 230/400 V	Brake options and VV				
		DLRA	Drip cover	TRR	Encoder	VF
LSMV	0.37-3 kW	-	-	-		-
	4 kW	-	-	-		-
	5.5-9 kW	-	-	-		-
	11 kW	-	-	-		-
	15-30 kW	-	-	-		-
LSMV FCR	0.37-9 kW			-		-
	11 kW			-		-



# Electromechanical products - variable speed Atmospheres containing explosive dust Compabloc 2000 / LSMV



AGMA I

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**Cb 2000**  
LSMV, LSMV brake FCR - IP 55 - Cl.F - 400 Y - 50 Hz  
 II 3D T 125°C - ZONE 22

## Cb 2000

		LSMV (kW)						
		1.5	2.2	3	4	5.5	7.5	9
		LSMV 4 p						
min <sup>-1</sup>	i	90 L	100 L	112 MG	132 SM	132 M		
9.38	160			2703				
12	125		2603					2803
15	100					2703		
18.8	80				2603			
23.8	63							
30	50					2603		
37.5	40							
46.9	31.5						2603	
60	25							
75	20							
93.8	16							
120	12.5							
150	10							
188	8							
238	6.3							
300	5							
375	4							
469	3.15							
<b>4p LSMV brake<sup>1</sup></b>								
<b>FCR<sup>1</sup></b>		FCR J01	FCR J01	FCR J01	FCR J02	FCR J02		

1. See chapter C26.

Rated power kW	LSMV, LSMV brake - 4p 300 to 1 500 <sup>-1</sup> with constant torque			
	Motors	J 10 <sup>-3</sup> kg.m2	Brake motors	J 10 <sup>-3</sup> kg.m2
1.5	LSMV 90 L	6.7	LSMV 90 L FCR J01	6.7
2.2	LSMV 100 L	6.9	LSMV 100 L FCR J01	6.9
3	LSMV 100 L	8.9	LSMV 100 L FCR J01	8.9
4	LSMV 112 MG	19.3	LSMV 112 MG FCR J01	19.3
5.5	LSMV 132 SM	60.4	LSMV 132 SM FCR J02	60.4
7.5	LSMV 132 M	62	LSMV 132 M FCR J02	62
9	LSMV 132 M	65.5	LSMV 132 M FCR J02	65.5

### Exact reductions

Type	Reduction indices						
	160	125	100	80	63	50	40
<b>Cb 2603</b>	159	124	99	81.1	64.2	49.7	39.5
<b>Cb 2703</b>	159	124	99	81.1	49.7	49.7	39.5
<b>Cb 2803</b>		127	101	80.9	63.4	49.2	40.6