

Electromechanical products

Atmospheres containing explosive dust

Compabloc 2000



CATEGORY 3
ZONE 22
Non-conductive dust

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 (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 90 kW.
Reduction ratios : from 1.25 to 160.
From one to three reduction stages.
High efficiency : 95 % to 98 %.
Reversible.
Silent operation.

Gearboxes within the Compabloc 2000 range benefit from the ATEX **certification** : INERIS n° 03 ATEX 3005 X.
For geared motors, this certification becomes : INERIS n° 03 ATEX 0013 X

Construction

Description of Compabloc (Cb) gearboxes - Zone 22



II 3D T 125 °C

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 according to ISO R773 - diameter 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		AP : gearbox with input shaft MI : geared motor with integral mounting MU : geared motor with IEC motor, with universal mounting
Standard motors		LS : multi-voltage 220/380 V - 230/400 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 (see C. 19) : failsafe brake asynchronous motor, ranging from 2.2 to 15 kW, IP 55 protection
Finish	Paint	Shade : RAL 6000 (green), system I (1 polyurethane vinyl layer of 25/30 µm)

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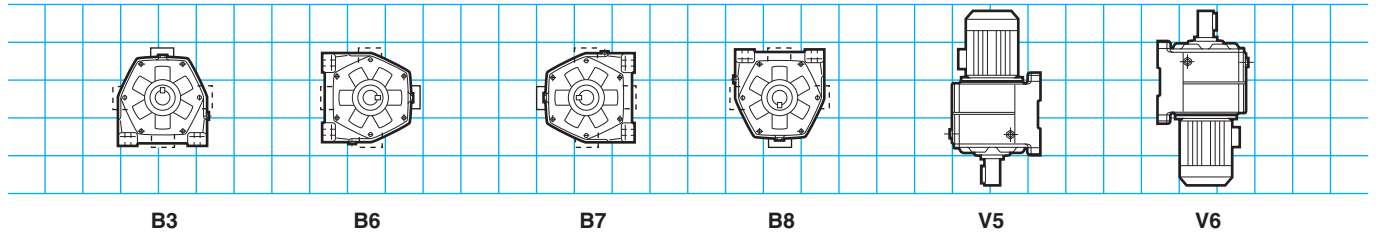
Compabloc 2000



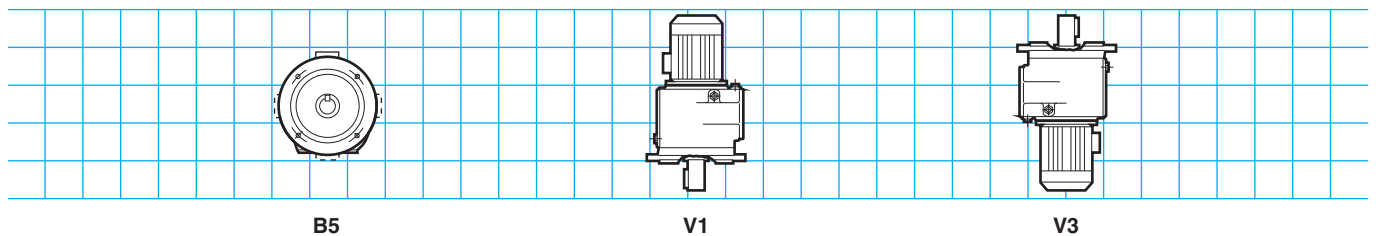
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Forms and operating positions

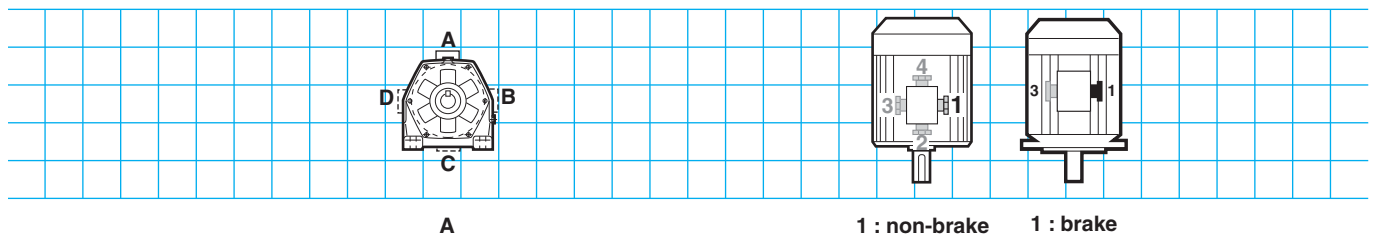
Position S mounting



Position BS, BD, BR mounting



Terminal box positions





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Adaptation possibilities

Leroy-Somer offers several drives for its gearboxes which meet a diverse range of needs. They are described below and offered in this catalogue.

For other drives, consult Leroy-Somer technical specialists who will be pleased to assist you.

☞ *Compabloc gearboxes can be used in conjunction with the following drives:*

• **fixed-speed 3-phase asynchronous motors :**

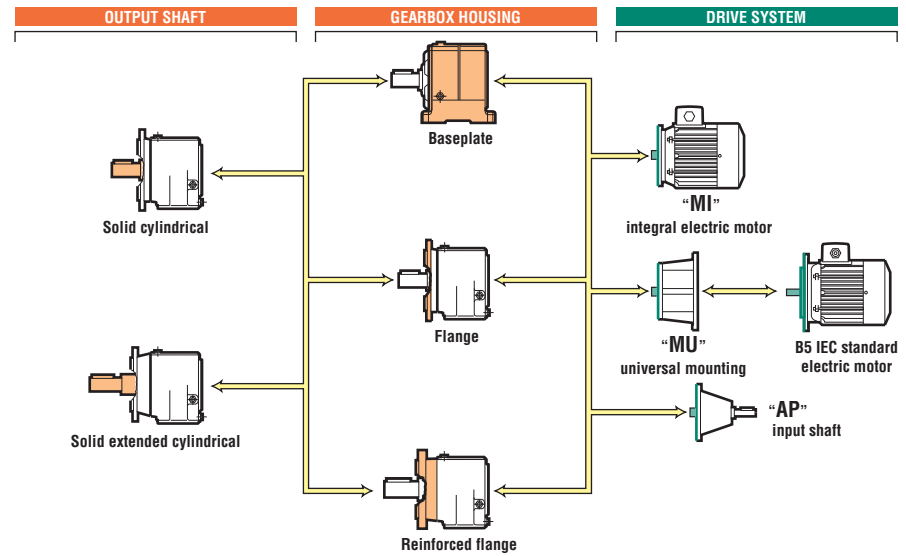
- LS motor from 2.2 to 90 kW,
- FCR brake motor from 2.2 to 15 kW.

• **electronic variable speed motors :**
centralised system with separate drive

- LSMV motor from 2.2 to 90 kW,
- LSMV FCR brake motor from 2.2 to 11 kW.

decentralised system with built-in drive

- VARMECA from 2.2 to 4 kW.



Designation / Coding

ATEX II 3D T 125°C	Cb	2703	B5	BS	49.7	MI	4P	LS 160	15 kW	230/400 V 50 Hz	UG
Specific application	Gearbox type	Manufacturer index and size	Operating position	Mounting type	Exact reduction	Input type Integral mounting	No. of poles	Series, frame size, manufacturer index	Rated power	Voltage and mains frequency	Use

☞ *Codification example :*

Compabloc 2703 B5 15 kW, 29 min⁻¹, class I ATEX zone 22

Designation

Cb 2703 B5 BS 49.7 MI 4P, LS 160, 15 kW - Zone 22

Code

-

All the products in this catalogue have a code.

The coding table is incorporated in the price list with the list of designations.

Each electromechanical product is classified first in order of power and then in order of speed.



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Selection

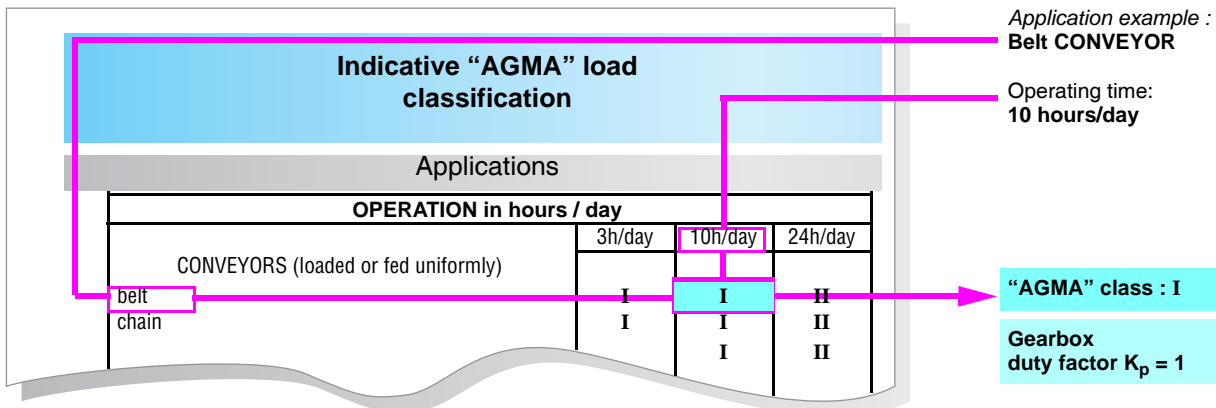
The selection of a gearbox or of a geared motor should take account of the application. Some of these applications are listed in the indicative "AGMA" load classification, page D0.10.

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

1st case. – Your application is listed

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



2nd 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, BDn, BR
LS, LS brake FCR - IP 55 - Cl.F - 400 Y - 400 Δ - 50 Hz - U.G.
Ex II 3D T 125°C - ZONE 22

Inputs	Maximum quantity by order				
	Cb 2602/2603	Cb 2702/2703	Cb 2803	Cb 2903	
MI LS	0.37-4 kW	3	3	3	-
	5.5-9 kW	3	3	3	1
	11-90 kW				
MI LS FCR	0.37-7.5 kW	3	3	3	-
	9-15 kW	2	2	2	2
MI FLS	0.55-90 kW				
MI FLS FCR	0.55-9 kW				
MU LS	0.37-4 kW	3	3	3	-
	5.5-9 kW	3	3	3	1
	11-90 kW				
MU LS FCR	0.37-9 kW	5	5	5	-
	11-15 kW	1	1	1	1
MU FLS	0.55-7.5 kW	2	2	2	-
	11-30 kW	2	2	2	1
MU FLS FCR	0.55-9 kW				

	Mechanical options			
	S	BS	BD1	BR
Cb 26../27../2803				
Cb 2903		-	-	-

Mounting	Page(s) of dimensions corresponding to mounting			
	S	BS	BD1	BR
AP	D3.9	D3.10	D3.11	D3.12
MI	D3.13	D3.14	D3.15	D3.16
MU	D3.18-19	D3.18-19	D3.18-19	D3.18-19

Inputs	Electrical options				Brake options				
	4p / MI-MU	230/400 V	400 V Δ	PTO/CTP	DLRA	Drip cover	TRR	Different Mf	J01
LS	0.25-3 kW				-	-	-	-	-
	4-9 kW				-	-	-	-	-
	11-22 kW				-	-	-	-	-
	30-45 kW MI				-	-	-	-	-
	30-45 kW MU				-	-	-	-	-
FLS / FLS FCR	0.55-30 kW MU								
LS FCR	0.25-3 kW								
	4-5.5 kW								
	7.5-9 kW								
	11-15 kW						-		-

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AGMA I

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

Cb 2000

		LS (kW)																				
		0.75	0.9	1.1	1.5	1.8	2.2	3	4	5.5	7.5	9	11	15	18.5	22	30	37	45	55 ¹	75 ¹	90 ¹
		LS 4 p																				
min ⁻¹	i	80	90	100	112	132	160	180	200	225	250	280										
9.06	160																					
10.4	140																					
11.6	125																					
12.9	112																					
14.5	100																					
16.1	90																					
18.1	80																					
20.4	71																					
23	63																					
25.9	56																					
29	50																					
32.2	45																					
36.3	40																					
40.8	35.5																					
46	31.5																					
51.8	28																					
58	25																					
64.7	22.4																					
72.5	20																					
80.6	18																					
90.6	16																					
104	14																					
116	12.5																					
129	11.2																					
145	10																					
161	9																					
181	8																					
204	7.1																					
230	6.3																					
259	5.6																					
290	5																					
322	4.5																					
363	4																					
408	3.55																					
4 p LS brake																						
FCR		80	90	100	112	132	160															

• MU obligatory
1. LS : B35 obligatory.

Exact reductions

Type	Reduction indices																													
	160	140	125	112	100	90	80	71	63	56	50	45	40	35.5	31.5	28	25	22.4	20	18	16	14	12.5	11.2	10	9	8	7.1	6.3	
Cb 26--	159	137	124	109	99	87.5	81.1	71.9	64.2	54.9	49.7	45.2	39.5	34.6	31.5	27.6	25.1	22.2	20.6	18.2	16.3	13.9	12.6	11.5	10	9.17	8.07	7.13	6.32	
Cb 27--	159	137	124	109	99	87.5	81.1	71.9	64.2	54.9	49.7	45.2	39.5	34.6	32.4	27.8	25.7	22.3	20.6	18.4	16.1	13.9	12.5	11.3	10.3	8.99	8.1	7.24	6.38	
Cb 2803			127	109	101	87.6	80.9	72.3	63.4	54.5	49.2	44.6	40.6	35.4	31.8	28.5	25.1	22.1	19.6	18.4	16.6	14.8	13.1	11.5	10.2	8.28				
Cb 2903			127	109	101	87.6	80.9	72.3	63.4	54.5	49.2	44.6	40.6	35.4	31.8	28.5	25.1	22.1	19.6											

Type	Reduction indices								
	8	7.1	6.3	5.6	5	4.5	4	3.5	3.15
Cb 2602²	8.17	6.99	6.32	5.75	5.02	4.6	4.05	3.58	3.21

2. Fast Cb 2602 : B3 or B5 only.

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AGMA II

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

Cb 2000

		LS (kW)																								
		0.55	0.75	0.9	1.1	1.5	1.8	2.2	3	4	5.5	7.5	9	11	15	18.5	22	30	37	45	55 ¹	75 ¹	90 ¹			
		LS 4 p																								
min ⁻¹	i	71	80	90	100	112	132	160	180	200	225	250	280													
9.06	160																									
10.4	140																									
11.6	125																									
12.9	112																									
14.5	100																									
16.1	90																									
18.1	80																									
20.4	71																									
23	63																									
25.9	56																									
29	50																									
32.2	45																									
36.3	40																									
40.8	35.5																									
46	31.5																									
51.8	28																									
58	25																									
64.7	22.4																									
72.5	20																									
80.6	18																									
90.6	16																									
104	14																									
116	12.5																									
129	11.2																									
145	10																									
161	9																									
181	8																									
204	7.1																									
230	6.3																									
259	5.6																									
290	5																									
322	4.5																									
363	4																									
408	3.55																									
460	3.15																									

4 p LS brake																					
FCR		71	80	90	100	112	132	160													

• MU obligatory
1. LS : B35 obligatory

Exact reductions

Type	Reduction indices																												
	160	140	125	112	100	90	80	71	63	56	50	45	40	35.5	31.5	28	25	22.4	20	18	16	14	12.5	11.2	10	9	8	7.1	6.3
Cb 26--	159	137	124	109	99	87.5	81.1	71.9	64.2	54.9	49.7	45.2	39.5	34.6	31.5	27.6	25.1	22.2	20.6	18.2	16.3	13.9	12.6	11.5	10	9.17	8.07	7.13	6.32
Cb 27--	159	137	124	109	99	87.5	81.1	71.9	64.2	54.9	49.7	45.2	39.5	34.6	32.4	27.8	25.7	22.3	20.6	18.4	16.1	13.9	12.5	11.3	10.3	8.99	8.1	7.24	6.38
Cb 2803			127	109	101	87.6	80.9	72.3	63.4	54.5	49.2	44.6	40.6	35.4	31.8	28.5	25.1	22.1	19.6	18.4	16.6	14.8	13.1	11.5	10.2	8.28			
Cb 2903			127	109	101	87.6	80.9	72.3	63.4	54.5	49.2	44.6	40.6	35.4	31.8	28.5	25.1	22.1	19.6										

Type	Reduction indices								
	8	7.1	6.3	5.6	5	4.5	4	3.5	3.15
Cb 2602²	8.17	6.99	6.32	5.75	5.02	4.6	4.05	3.58	3.21

2. Fast Cb2602 : B3 or B5 only.

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AGMA III

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

Cb 2000

		LS (kW)																						
		0.37	0.55	0.75	0.9	1.1	1.5	1.8	2.2	3	4	5.5	7.5	9	11	15	18.5	22	30	37	45	55 ¹		
		LS 4 p																						
min ⁻¹	i	71	80	90	100	112	132	160	180	200	225	250												
9.06	160																							
10.4	140																							
11.6	125																							
12.9	112																							
14.5	100																							
16.1	90																							
18.1	80																							
20.4	71																							
23	63																							
25.9	56																							
29	50																							
32.2	45																							
36.3	40																							
40.8	35.5																							
46	31.5																							
51.8	28																							
58	25																							
64.7	22.4																							
72.5	20																							
80.6	18																							
90.6	16																							
104	14																							
116	12.5																							
129	11.2																							
145	10																							
161	9																							
181	8																							
204	7.1																							
230	6.3																							
259	5.6																							
290	5																							
322	4.5																							
363	4																							
408	3.55																							
460	3.15																							
4 p LS brake																								
FCR		71	80	90	100	112	132	160																

MU obligatory
1. LS : B35 obligatory

Exact reductions

Type	Reduction indices																												
	160	140	125	112	100	90	80	71	63	56	50	45	40	35.5	31.5	28	25	22.4	20	18	16	14	12.5	11.2	10	9	8	7.1	6.3
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Cb 2803				127	109	101	87.6	80.9	72.3	63.4	54.5	49.2	44.6	40.6	35.4	31.8	28.5	25.1	22.1	19.6	18.4	16.6	14.8	13.1	11.5	10.2	8.28		
Cb 2903				127	109	101	87.6	80.9	72.3	63.4	54.5	49.2	44.6	40.6	35.4	31.8	28.5	25.1	22.1	19.6									

Type	Reduction indices								
	8	7.1	6.3	5.6	5	4.5	4	3.5	3.15
Cb 2602²	8.17	6.99	6.32	5.75	5.02	4.6	4.05	3.58	3.21

2. Fast Cb2602 : B3 or B5 only.