

# Electromechanical products

## Atmospheres containing explosive dust

### Compabloc 2000



**CATEGORY 2**  
**ZONE 21**

## General information



Compabloc 2000 geared motors with helical parallel 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 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 3000 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 21



**II 2D 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 base-mount 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 form AS
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		LSPX : 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. 15) : failsafe brake asynchronous motor, ranging from 2.2 to 15 kW, IP 65 protection
Finish	Paint	Shade : RAL 1007 (yellow), system I (1 polyurethane vinyl layer of 25/30 $\mu\text{m}$ )

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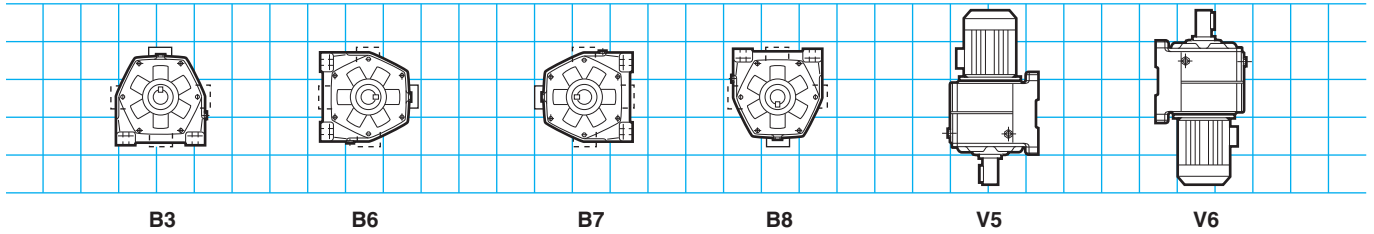


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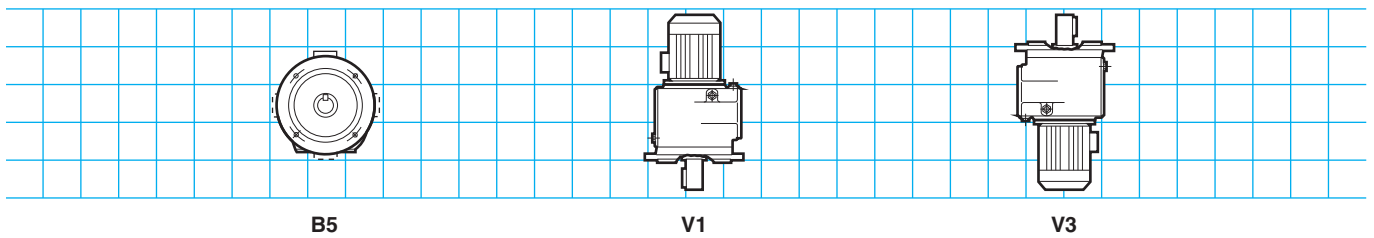
## Forms and operating positions

### 1 - Operating position

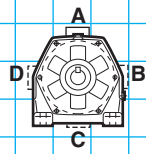
#### 1.1 - S mounting



#### 1.2 - BS, BD, BR mounting

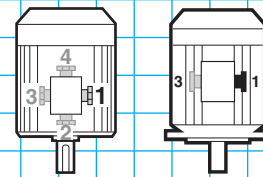


### 2 - Terminal box positions



A

### 3 - Cable gland positions



1 : non-brake

1 : brake





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## Selection

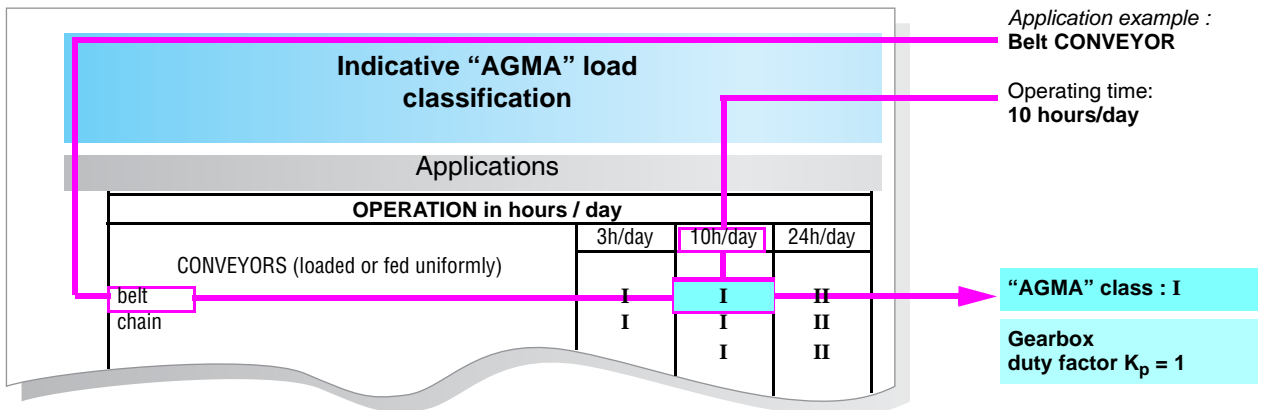
The selection of a gearbox or of a geared motor should take account of the application. Some of these applications are listed in the indicative "AGMA" load classification, page D0.10.

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	II
Violent shocks, many starts	10 hours / day	III
Damped shocks	24 hours / day	III



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## Selection

**Cb 2000 : S, BS, BDn, BR**  
**LSPX, LSPX brake FCR - IP 65 - Cl.F - 400 V Y - 400 V Δ - 50 Hz - U.G.**  
**Ex II 2D T 125°C - ZONE 21**

Inputs	Maximum quantity by order			
	Cb 2602/2603	Cb 2702/2703	Cb 2803	Cb 2903
MI LSPX	0.37-0.55 kW	-	-	-
	0.75-4 kW	3	3	3
	5.5-9 kW	3	3	3
	11-45 kW	-	-	-
MI LSPX FCR	0.37-7.5 kW	3	3	3
	9-15 kW	2	2	2
MI FLS PX	0.55-90 kW	-	-	-
MI FLS PX FCR	0.55-9 kW	-	-	-
MU LSPX	0.37-0.55 kW	-	-	-
	0.75-4 kW	3	3	3
	5.5-9 kW	3	3	3
	11-15 kW	1	1	1
	18.5-45 kW	-	-	-
MU LSPX FCR	0.37-9 kW	5	5	5
	11-15 kW	1	1	1
MU FLS PX	0.55-90 kW	-	-	-
MU FLS PX 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	4p / MI-MU	Electrical options			Brake options				
		230/400 V	400 V Δ	PTO/CTP	DLRA	Drip cover	TRR	Different Mf	J01
LSPX	0.37-0.55 kW	-	-	-	-	-	-	-	-
	0.75-3 kW	-	-	-	-	-	-	-	-
	4-9 kW	-	-	-	-	-	-	-	-
	11-22 kW	-	-	-	-	-	-	-	-
FLS PX, FLS PX FCR	0.55-22 kW	-	-	-	-	-	-	-	-
	0.37-3 kW	-	-	-	-	-	-	-	-
LSPX FCR	4-5.5 kW	-	-	-	-	-	-	-	-
	7.5-9 kW	-	-	-	-	-	-	-	-
	11-15 kW	-	-	-	-	-	-	-	-

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## AGMA I

**Cb 2000**  
**LSPX, LSPX brake FCR - IP 65 - Cl.F - 400 Y - 400 Δ - 50 Hz - U.G.**  
**Ex II 2D T 125°C - ZONE 21**

### Cb 2000

		LSPX (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 <sup>1</sup>	75 <sup>1</sup>	90 <sup>1</sup>	
		LSPX 4 p																					
min <sup>-1</sup>	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																						
<b>4 p LSPX brake</b>																							
<b>FCR</b>		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		
<b>Cb 26--</b>	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		
<b>Cb 27--</b>	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		
<b>Cb 2803</b>			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					
<b>Cb 2903</b>			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
<b>Cb 2602<sup>2</sup></b>	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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**CATEGORY 2**  
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**AGMA II**

**Cb 2000**  
**LSPX, LSPX brake FCR - IP 65 - Cl.F - 400 Y - 400 Δ - 50 Hz - U.G.**  
**Ex II 2D T 125°C - ZONE 21**

		<b>Cb 2000</b>																							
		LSPX (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 <sup>1</sup>	75 <sup>1</sup>	90 <sup>1</sup>		
		LSPX 4 p																							
min <sup>-1</sup>	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																								
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259	5.6																								
290	5																								
322	4.5																								
363	4																								
408	3.55																								
460	3.15																								

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

• Obligatory MU  
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	
<b>Cb 26--</b>	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	
<b>Cb 27--</b>	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	
<b>Cb 2803</b>			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				
<b>Cb 2903</b>			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
<b>Cb 2602<sup>2</sup></b>	8.17	6.99	6.32	5.75	5.2	4.6	4.5	3.58	3.21

2. Fast Cb2602 : B3 or B5 only.

# Electromechanical products

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## AGMA III

**Cb 2000**  
LSPX, LSPX brake FCR - IP 65 - Cl.F - 400 Y - 400 Δ - 50 Hz - U.G.  
II 2D T 125°C - ZONE 21

### Cb 2000

		LSPX (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 <sup>1</sup>
		LSPX 4 p																				
min <sup>-1</sup>	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																					
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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																					
<b>4 p LSPX brake</b>																						
<b>FCR</b>		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		
<b>Cb 26--</b>	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		
<b>Cb 27--</b>	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		
<b>Cb 2803</b>			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					
<b>Cb 2903</b>			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
<b>Cb 2602<sup>1</sup></b>	8.17	6.99	6.32	5.75	5.02	4.6	4.05	3.58	3.21

1. Fast Cb2602 : B3 or B5 only.