

Electromechanical products - variable speed Compabloc 2000 / LSMV

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_{rS}) expressed in Newton-metres (N.m) :

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

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.

Construction

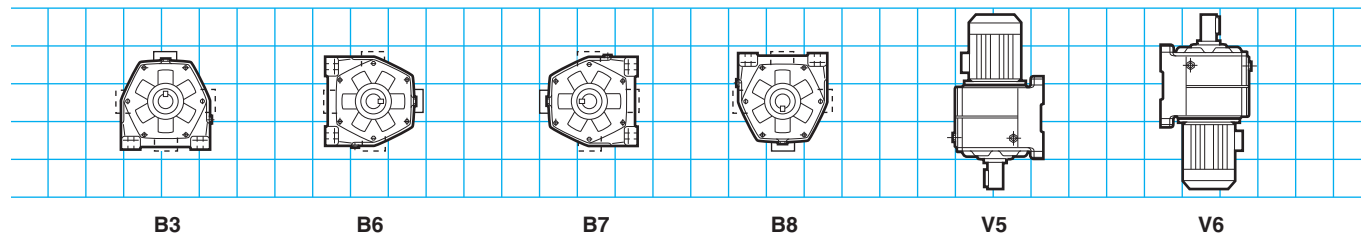
Description of Compabloc (Cb) gearboxes

| Component | Materials | Remarks |
|-----------------|----------------|--|
| Housing | Cast iron | <ul style="list-style-type: none"> - use of FGL cast iron (flake graphite : tensile strength 150 MPa) single component perlite to ensure the complete sealing of the unit - monobloc with internal reinforcing ribs 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 | <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - sealing rings between housing and flange - anti-dust lipseals according to DIN 3760 AS form |
| Shaft | Steel | <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - reinforced by large ribs, it ensures the ruggedness of the gearbox under heavy loads |
| Lubrication | Oil | <ul style="list-style-type: none"> - 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 | | <ul style="list-style-type: none"> MI : geared motor with integrated variable speed motor MU : geared motor with variable speed IEC motor, with universal mounting |
| Standard motors | | <ul style="list-style-type: none"> LSMV : multi-voltage 220/380 V - 230/400 V - 240/145 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 | | <ul style="list-style-type: none"> FCR : failsafe brake asynchronous motor, ranging from 3 to 11 kW, IP 55 protection FCPL : failsafe brake asynchronous motor, ranging from 15 to 90 kW, IP 44 protection |
| Other motors | | See pages D0.7 to D0.9 |
| Finish | Paint | Shade : RAL 6000 (green), system I (1 polyurethane vinyl layer of 25/30 μm) |

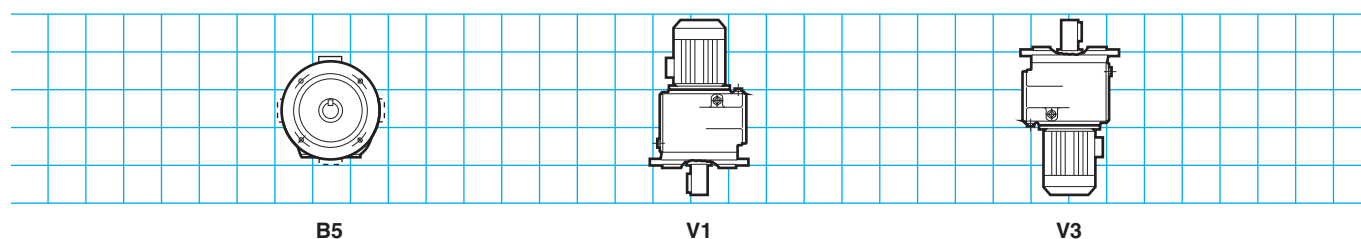
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Forms and operating positions

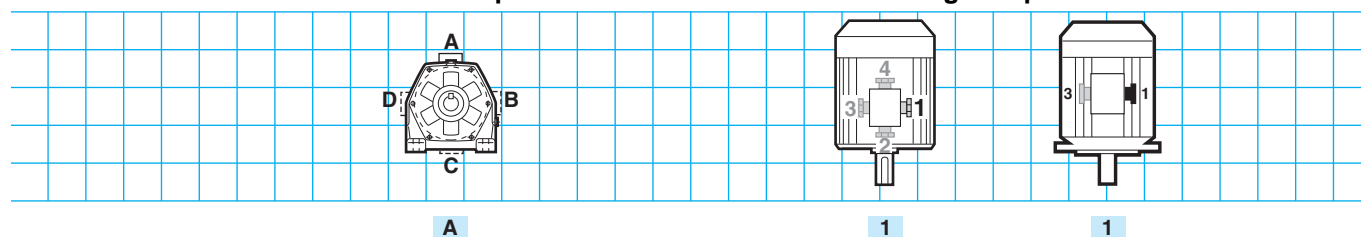
Positions for form S (baseplate)



Positions for form BS, BD, BR

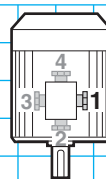


Terminal box position



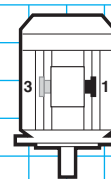
A

Cable gland position



1

Non-brake motor



1

Brake motor

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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 3 to 90 kW,
- FCR brake LS motor from 3 to 15 kW,
- FCPL brake LS motor from 18.5 to 90 kW,
- FLS motor from 0.55 to 90 kW,
- FCR brake LS motor from 0.55 to 9 kW,
- FCPL brake LS motor from 11 to 90 kW,

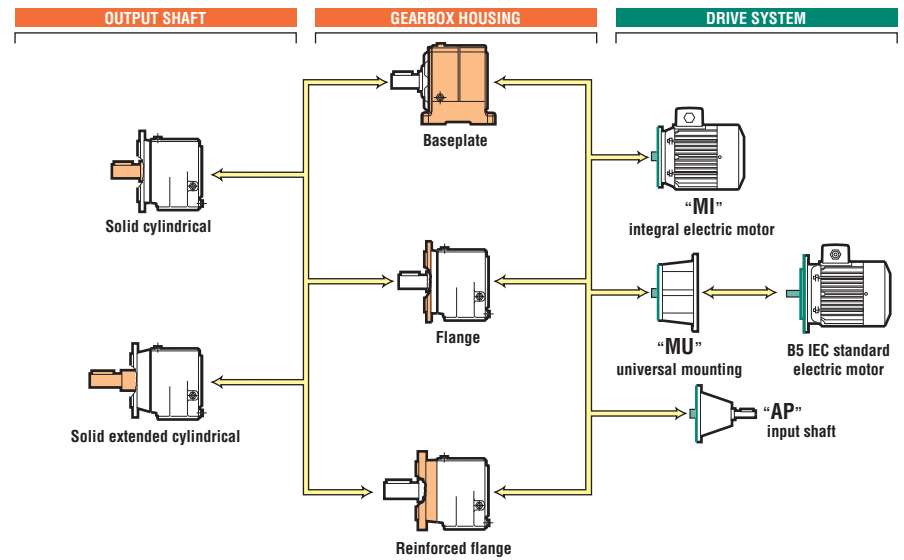
• **electronic variable speed motors :**

centralised system with separate drive

- LSMV motor from 3 to 90 kW,
- LSMV FCR brake motor from 3 to 11 kW,
- LSMV FCPL brake motor from 15 to 90 kW.

decentralised system with built-in drive

- VARMECA from 3 to 11 kW.



Designation / Coding

| | | | | | | | | | | |
|------------------------|-----------------------------|--------------------|---------------|-----------------|---------------------------------|--------------|--|---------------|-----------------------------|-----------|
| Cb | 2603 | B5 | BS | 49.7 | MI | 4P | LSMV 132 | 7.5 kW | 230/400 V 50 Hz | UG |
| Compabloc 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 2603 B5 7.5 kW, 29 min⁻¹, class I

Designation

Cb 2603 B5 BS 49,7 MI 4P, LSMV 132, 7.5 kW

Code

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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

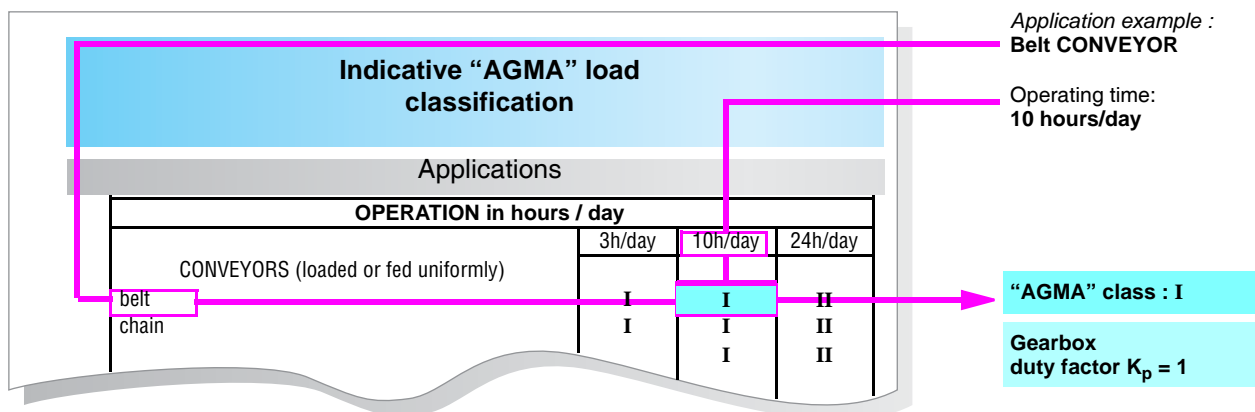
The selection of a gearbox or of a geared motor should take account of the application. Some of these applications are listed in the indicative "AGMA" load classification, page D0.10.

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
LSMV, LSMV brake FCR - IP 55 - Cl.F - 400 V Y - 50 Hz

| Inputs | | Maximum quantity by order | | | |
|--------------|------------|---------------------------|------------|---------|---------|
| | | Cb 2602-03 | Cb 2702-03 | Cb 2803 | Cb 2903 |
| MI LSMV | 3-4 kW | 3 | 3 | 3 | - |
| | 5.5-7.5 kW | 3 | 3 | 3 | - |
| | 9-11 kW | | | | |
| | 15-90 kW | | | | |
| MI LSMV FCR | 3-4 kW | 3 | 3 | 3 | - |
| | 5.5-7.5 kW | 3 | 3 | 3 | - |
| | 9-11 kW | | | | |
| MI LSMV FCPL | 15-90 kW | | | | |
| | | | | | |
| MU LSMV | 3-4 kW | 3 | 3 | 3 | - |
| | 5.5-9 kW | 3 | 3 | 3 | |
| | 11 kW | | | | |
| | 15-90 kW | | | | |
| MU LSMV FCR | 3-4 kW | 3 | 3 | 3 | - |
| | 5.5-9 kW | 3 | 3 | 3 | |
| | 11 kW | 1 | 1 | 1 | |
| MU LSMV FCPL | 15-90 kW | | | | |

| | Mechanical options | | | |
|------------------|--------------------|----|-----|----|
| | S | BS | BD1 | BR |
| Cb 26/27/2802-03 | | | | |
| Cb 2903 | | | - | - |

| Mounting | Page(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 | 3-4 kW | - | | - | | |
| | 5.5-9 kW | - | | - | | |
| | 11 kW | - | | - | | |
| | 15-90 kW | - | | - | | |
| LSMV FCR | 3-9 kW | | | - | | |
| | 11 kW | | | - | | |



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AGMA I

Cb 2000 : S, BS
LSMV, LSMV brake FCR - IP 55 - CI.F - 400 V Y - 50 Hz

| | | Cb 2000 | | | | | | |
|------------------------|------|----------------|-------|----------------|----------------|----------------|----------------|------------------|
| | | LSMV (kW) | | | | | | |
| | | 1.5 | 2.2 | 3 | 4 | 5.5 | 7.5 | 9 |
| | | LSMV 4p | | | | | | |
| min ⁻¹ | i | 90 L | 100 L | 112 MG | 132 SM | 132 M | | |
| 9.38 | 160 | | | 2703 | | | | |
| 12 | 125 | | 2603 | | | | 2703 | 2803 |
| 15 | 100 | | | | | | 2703 | |
| 18.8 | 80 | | | | 2603 | | | |
| 23.8 | 63 | | | | | | | |
| 30 | 50 | | | | | | 2603 | |
| 37.5 | 40 | | | | | | | |
| 46.9 | 31.5 | | | | | | | |
| 60 | 25 | | | | | | | |
| 75 | 20 | | | | | | | |
| 93.8 | 16 | | | | | | | |
| 120 | 12.5 | | | | | | | |
| 150 | 10 | | | | | | | |
| 188 | 8 | | | | | | | |
| 238 | 6.3 | | | | | | | |
| 300 | 5 | | | | | | | |
| 375 | 4 | | | | | | | |
| 469 | 3.15 | | | | | | | |
| 4 p LSMV brake | | | | | | | | |
| FCR¹ | | | | FCR J01 | FCR J01 | FCR J02 | FCR J02 | • FCR J02 |

1. See chapter C13.

• Obligatory MU

| Rated power kW | LSMV, LSMV brake - 4p 150 to 1 500 ⁻¹ with constant torque | | | |
|----------------|--|--------------------------------------|---------------------|--------------------------------------|
| | Motors | J 10 ⁻³ kg.m ² | Brake mtors | J 10 ⁻³ kg.m ² |
| 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 |
| Cb 2603 | 159 | 124 | 99 | 81.1 | 64.2 | 49.7 | 39.5 |
| Cb 2703 | 159 | 124 | 99 | 81.1 | 64.2 | 49.7 | 39.5 |
| Cb 2803 | | 127 | 101 | 80.9 | 63.4 | 49.2 | 40.6 |