



Installation guide

Mb 3101, Mb 2000

Drive systems

Part number: 2910 en - 2017.08 / p

**This document complements the general instructions ref. 2557 (recommendations),
ref. 3711 (ATEX II 2D, II 3D specific recommendations) and the maintenance instructions ref. 5062.**

NOTE

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CAUTION



The specifications, instructions and descriptions are for standard operation. They do not take account of structural variants or special adaptations. Failure to comply with these recommendations may lead to premature deterioration of the gearbox and voiding of the manufacturer's guarantee.

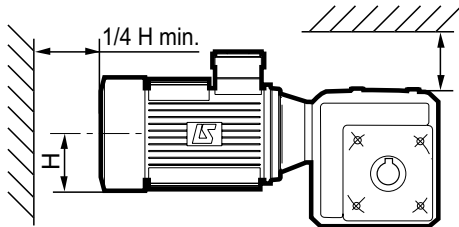
Despite all the care taken in the manufacture and checking of this equipment, LEROY-SOMER cannot guarantee that lubricant will not escape during the product's lifetime. If slight leaks could have serious consequences for the safety of people and property, the installer and user should take all necessary precautions to avoid such consequences.

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1 - INSTALLATION RECOMMENDATIONS

Installation must be performed by qualified personnel.
 Allow sufficient room around the geared motor for plugs accessibility, ex.:
 - 200 mm for a G 3/8" Std plug.



Gearbox:

For the installation of Multibloc gearbox, follow the "Recommendations" chapter in the general manual.

Motor:

For connection of the complete drive system (with brake), follow the instructions of corresponding maintenance delivered with the goods in the parcel.

1.1 - Identification

Gearbox nameplate:

- 1 - gearbox type: **2401**
- 2 - operating position: **V1**
- 3 - form: **NU, NS, BSL, BDL**
- 4 - exact reduction: **40**
- 5 - manufacturing number
- 6 - play: **standard** (Dynabloc)

- number and description of spare part (for the slow speed shaft, please specify the dimensions)
- type, number of poles, power and FF (B5) or FT (B14) flange of the motor (refer to the nameplates).

1.2 - Hollow shaft

1- Check that the cylindrical shaft has been machined in accordance with standard NF - E 22 - 175, with a slide fit: g6, (the hub is: H7).

2- Check that the key is standard and the shaft is the minimum length tapped at the end.

3- Before mounting, degrease all the parts, taking care not to splash any solvent on the seals.
 Use grease (PAO compound) to lubricate any parts in contact, to avoid corrosion.

2 - MAINTENANCE, OIL CHANGE

Control after commissioning (50 hours of operation)

Check tightening of fastening screws and belt tensioning if applicable.

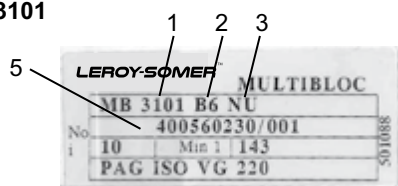
Preventive maintenance visit

- Check regularly that the recommendations concerning mechanical and electrical installation are still complied with.
- Lubrication: refer to corresponding documents.
- If the gearbox is fitted with a breather plug, make sure that the vent hole of the plug is not obstructed.
- Inspect the seals (ref.093, input seal).
- Clean the ventilation louvres of the motor.
- Control the air gap of brake motors.

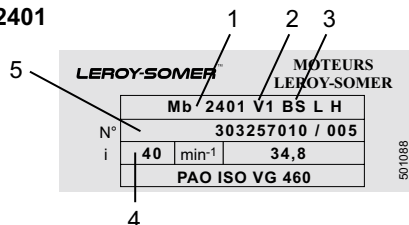
Oil change (Mb 22 to Mb 26xx)

We recommend that the PAO ISO VG 460 oil is changed according to the operating temperature in continuous operation:
 70°C: 25.000 hours - 90°C: 6.000 hours
 80°C: 12.000 hours - 100°C: 3.000 hours
 - Change the seals.

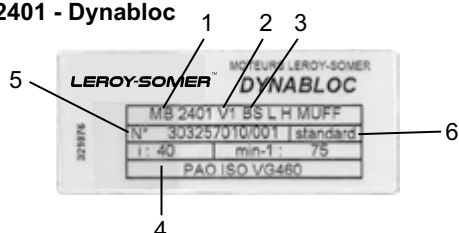
Mb 3101



Mb 2401



Mb 2401 - Dynabloc



3 - LUBRICATION

For operation between -20 and +40°C, the Multibloc gearbox is delivered, as standard, lubricated with synthetic oil of the following type:

- for Mb 3101: PAG (polyalkyleneglycol) ISO VG 220 (Shell OMALAS4 WE 220, approved by our technical departments)
- for Mb 2201 to 2601: PAO (polyalphaolefin) ISO VG 460.

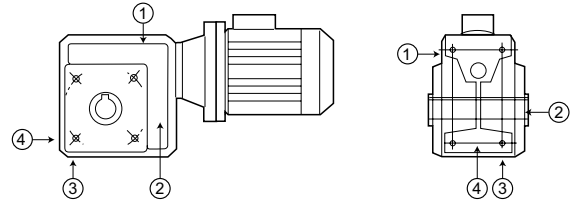
⚠ It is essential to use an oil of the same type as that recommended. Polyglycol lubricants cannot be mixed with different types of mineral or synthetic lubricant. We recommend greasing the motor coupling with NL GI 2 PAO + Clay grease (Mobil temp SHC 100).

3.1 - Options

Duty factor $K \geq 1$, for operation between:

- -30 and -10°C: synthetic oil ISO VG 150 (max. oil T°: 90°C in continuous operation)
- -50 and -30°C: synthetic oil ISO VG 32 (max. oil T°: 40°C in continuous operation).

3.2 - Positions of the plugs according to standard position B3-B5 (Mb 22 to Mb 26xx)



3.3 - Lubrication

		Mb 31	Mb 22xx		Mb 23xx		Mb 24xx		Mb 25xx		Mb 26xx	
			litres ¹	3x G 1/8" n° 1 x Δ G 1/8" n°	litres ²	3x G 1/8" n° 1 x Δ G 1/8" n°	litres ²	3x G 1/8" n° 1 x Δ G 1/8" n°	litres ²	3x G 1/8" n° 1 x Δ G 1/8" n°	litres ²	litres ²
B3-B5	▽	0.12	0.21	1	1	1	1	1	1	1.3	2.2	2.8
	△			1	1	1	1					
	▼			3	3	3	3					
B6-B52	▽	0.12	0.21	4 or 3	4 or 3	4 or 3	4 or 3	4 or 3	1	1.3	2.2	2.8
	△			4	4	4	4					
	▼			2	2	2	2					
B7-B54	▽	0.12	0.21	2	2	2	2	2	1	1.3	2.2	2.8
	△			2	2	2	2					
	▼			4	4	4	4					
B8-B53	▽	0.12	0.21	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	1	1.3	2.2	2.8
	△			3	3	3	3					
	▼			1	1	1	1					
V5-V1	▽	0.12	0.21	2	2	2	2	2	1	1.3	2.2	2.8
	△			2	2	2	2					
	▼			1	1	1	1					
V6-V3	▽	0.12	0.21	1	1	1	1	1	1	1.3	2.2	2.8
	△			1	1	1	1					
	▼			2	2	2	2					

1. This gearbox is lubricated for life with P.A.G. ISO VG 220
 2. PAO ISO VG 460, tolerance: the quantities of oil indicated must be adhered to within ± 5%, regardless of the operating position.
 * option for B3-B5 and B6-B52 operating positions

: ▽ Filling plug △ Breather plug with valve ▼ Drain plug

3.4 - Oil quantity combined Mb/Cb

		Combined Mb					
		Quantity of oil for Cb ¹ for each operating position					
Mb Output	Cb Input						
		B3-B5 litres ¹ Cb (B5)	B6-B52 litres ¹ Cb (V3)	B8-B53 litres ¹ Cb (B53)	B7-B54 litres ¹ Cb (V1)	V5-V1 litres ¹ Cb (B54)	V6-V3 litres ¹ Cb (B52)
Mb 2634	Cb 3233	0.95	2.7	2.25	2.25	1.55	2.3
Mb 2632	Cb 3231	0.25	0.8	0.75	0.6	0.55	0.55
Mb 2534	Cb 3133	0.6	1.4	1.1	1.15	0.85	1.23
Mb 2532	Cb 3131	0.35	1	0.7	0.55	0.5	0.5
Mb 2433	Cb 3032	0.6	0.6	0.6	0.6	0.6	0.6
Mb 2333	Cb 3032	0.6	0.6	0.6	0.6	0.6	0.6
Mb 2232	Cb 3032	0.6	0.6	0.6	0.6	0.6	0.6

1. Cb: MINeral Extreme Pressure ; oil: MIN EP ISO VG 220 ; oil capacity and tolerance: ± 0.05 litre for quantity of oil < 5 litres.

4 - KIT

4.1 - Torque arm kit for Mb 31, Mb 22 to 25



Ref.	Description	Qty
017	torque arm	1
195	fixing screws	4

MOUNTING THE TORQUE ARM

The torque arm (17) should be fixed onto the frame using the 4 holes on the chosen side with cheese head screws (195) class 8.8 minimum (according to NFE 27-005).

These four screws should be locked with an anaerobic adhesive (Loctite 243 Removable Threadlocker for example) which should resist vibrations but still allow the screws to be removed if necessary.

Tightening torque of fixing screws

All four screws should be tightened gradually and simultaneously.

⚠ All the fixing screws must be tightened up to 70% of their yield strength.

5 - Mb (food processing industry)

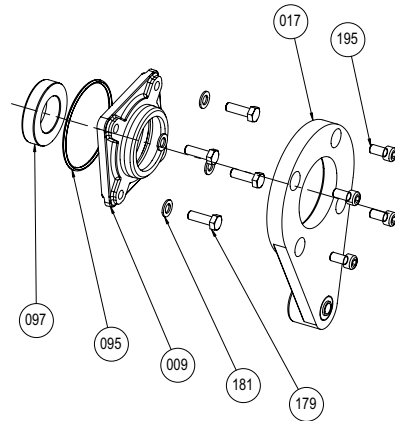
For applications in the food processing industry, we supply gearboxes conforming to the machinery directive 89/392/EEC and complying with the requirements of the USDA (United States Department of Agriculture) with the PAO H1 option: lubricant which can come into accidental contact with food.

5.1 - Torque arm kit with sealing cartridge

Mb 31, Mb 22 to Mb 25

Ref.	Description	Qty
009	seal retainer	1
017	torque arm	1
095	O ring seal	1
097	cartridge seal	1
195	st. steel fixing screw	4

Mounting the torque arm: see § 4.1



5.2 - Sealing cartridge kit

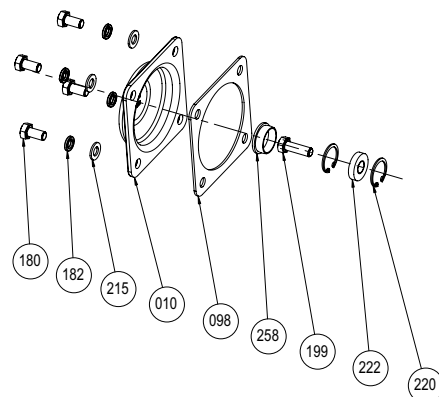
Ref.	Description	Qty
009	seal retainer	1
095	O ring seal	1
097	cartridge seal	1
179	st. steel fixing screw	1
181	st. steel washer	4

5.3 - Hollow shaft protection kit

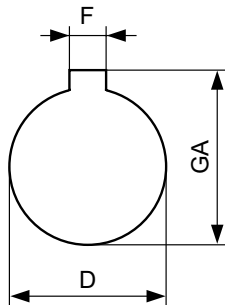
Ref.	Description	Qty
010	hollow shaft protective cover	1
098	seal	1
180	st. steel cover fixing screw (010)	4
182	st. steel washers	4
199	st. steel screw	1
215	washer	4
220	circlip	2
222	washer	1
258	protective cap	1
999	tub of grease	1

Mounting the hollow shaft protection:

Place the seal (ref. 098) on the protective cover (ref. 010) and fix them on the frame using the 4 holes on the chosen side with the screws (ref. 180), not forgetting the washers (ref. 182), to avoid scratching the paint.



5.4 - Mounting the cylindrical hollow shaft with the shaft of the driven machine

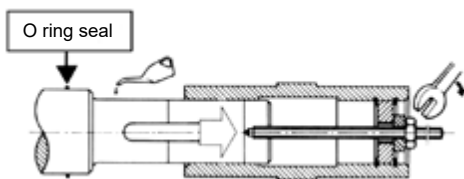


Type	Hollow output shaft			Client shaft						
	Ø DH7	F	GA	Ø Dg6	Length L		Ref. 097 ¹		Thread	
					Min.	Max.	ØJC	L1	O	Z
Mb 2601	50	14	53.8	50	-	-	-	-	-	-
Mb 2501	45	14	48.8	45	130	132	56 h8	25	M16	36
Mb 2401	35	10	38.3	35	105	109	45 h8	25	M12	28
Mb 2301	30	8	33.3	30	90	93	35 h8	21	M10	22
Mb 2201	25	8	28.3	25	85	90	35 h8	20	M10	22
Mb 3101	20	6	22.8	20	70	72	25 h8	17	M6	16

1. Cartridge seal Ø (ref. 097)

- 1 - Check that the cylindrical shaft has been machined in accordance with standard NF - E 22 - 175, with a slide fit: g6, (the hub is: H7).
 - 2 - Check that the key is standard and the shaft is the minimum length L (see above table) tapped at the end (O.Z).
 - 3 - Before mounting, degrease all the parts, taking care not to splash any solvent on the seals.
- Use the supplied jar of grease (PAO compound) (ref. 999) to lubricate any parts in contact, to avoid corrosion.

Mounting:

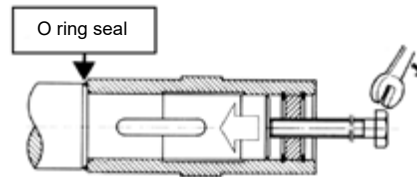


Mounting should be performed as described in the procedure above, without jolting.

The Mb gearbox is mounted on the machine shaft using a threaded rod, screwed into the shaft.

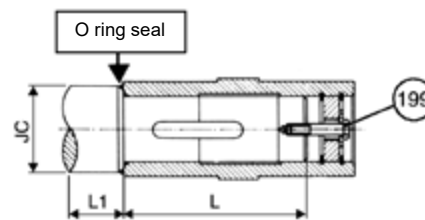
By screwing the nut down onto the washer (ref. 222), the shaft is smoothly inserted into the cylindrical hub of the Mb. Tighten with the screw (ref. 199).

Dismantling:

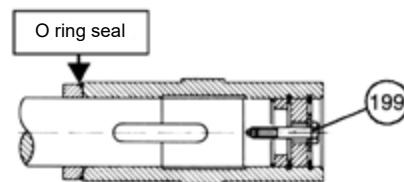


Use a spanner with a diameter corresponding to the washer thread (ref. 222) and turn the screw until the shaft comes out.

Fixing on a shouldered shaft:



Fixing on an untapped shaft:



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