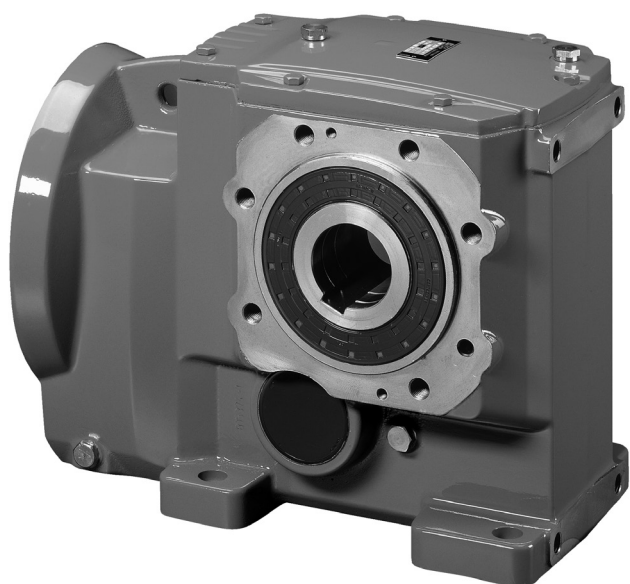
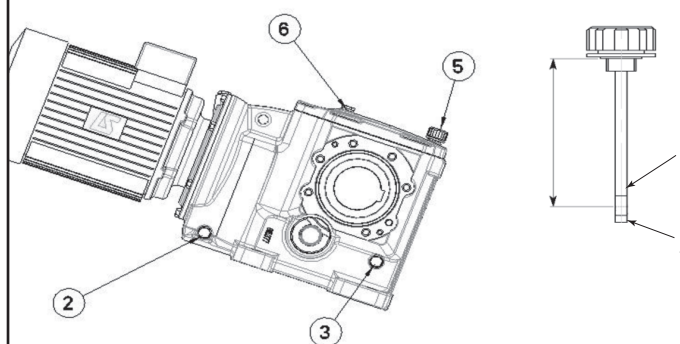




This manual is to be given
to the end user



ORTHOBLOC 3000

Drive systems
Installation

LEROY-SOMER	INSTALLATION	3996 en - 2013.04 / k
Ot 3000 Drive systems		

NOTE

LEROY-SOMER reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without notice.

LEROY-SOMER gives no contractual guarantee whatsoever concerning the information published in this document and cannot be held responsible for any errors it may contain, nor for any damage resulting from its use.

CAUTION



Throughout the manual, this symbol warns of consequences which may arise from inappropriate use of the Orthobloc 3000 since risks may lead to material or physical damage.

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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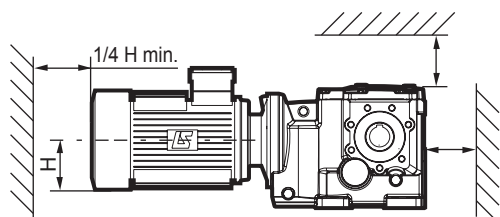
Ot 3000

Drive systems

1 - INSTALLATION RECOMMENDATIONS

Installation must be performed by qualified personnel. Allow sufficient room around the geared motor for plugs (or vessel) accessibility :

- 200 mm : G1/4" plug for Ot 31 to 35.
- 500 mm : G3/4" dipstick for Ot 36 to 39.



Gearbox:

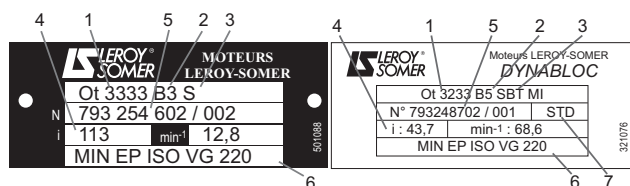
For the installation of Orthobloc 3000 gearbox, follow the "Recommendations" chapter in the general manual.

Motor:

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

Gearbox nameplate:

- 1 - gearbox model and size ;
- 2 - operating position ;
- 3 - fixing type (S with foot, BS, BDn or SBT...) ;
- possible options ;
- 4 - exact ratio ;
- 5 - serial number ;
- 6 - lubricant ;
- 7 - backlash : standard (DYNABLOC).



2 - MAINTENANCE

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.
- Clean the ventilation louvres of the motor.
- Lubricate the bearings of the motors fitted with grease nipples.
- Control the air gap of brake motors.

Oil, seals, bearings.

6 months	Adjust oil level. Inspect the seals.
3 years (or 5 000 h)	Drain and refill mineral oil. Change the seals. Change the grease of regreasable bearings.
5 years (or 25 000 h)	Drain and refill synthetic oil. Change the seals. Change the grease of regreasable bearings.

Grease nipple on AP Ot 35.

- Replace the grease ISO VG 100, NLGI 2, after 12 000 h (25°C; 1500 min⁻¹)

Storage period	< 1 year	AP can be commissioned without regreasing.
	>1 and <2 years	Regrease before commissioning.
	2 to 5 years	Dismantle AP. Clean it. Replace the grease completely.

3 - LUBRICATION

For operation in ambient temperature between -10°C and +40°C, Orthobloc 3000 reducer is shipped, as standard, with mineral Extreme Pressure oil : MIN EP ISO VG 220.
From -30°C to +60°C : synthetic oil PAO ISO VG 150.
From -30°C to -10°C : synthetic oil PAO ISO VG 32.
From -30°C to +60°C and for use in the food industry : synthetic oil PAO H1 ISO VG 150.



You must use an oil of the recommended type.

Polyglycol lubricants cannot be mixed with mineral or synthetic lubricants of a different type.

Oil capacities.

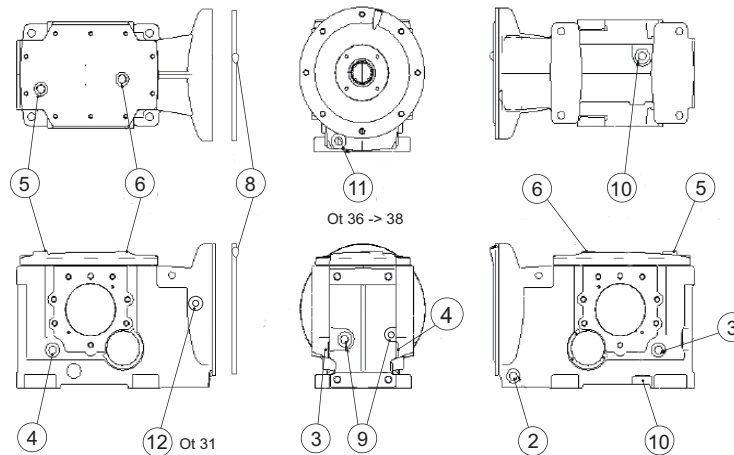
The oil capacities shown in table (see § 3.2) are approximated values and should be used only as reference in determining how much oil to provide. The proper oil levels can only be determined by :

- Ot 31 to Ot 35 : plug : **filling the reducer to the level of the plug.**
- Ot 36 to Ot 39 : dipstick : **adjust oil level between the 2 marks (up/down).**

Ot 3000

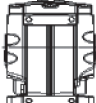
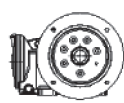
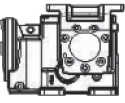
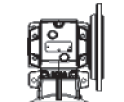
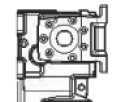
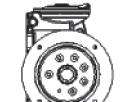
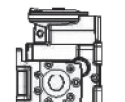
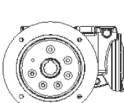
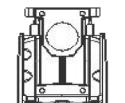
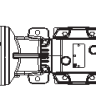
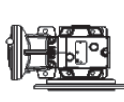
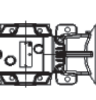
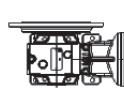
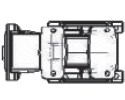
Drive systems

3.1 - Plugs positions (n°) following reference position: B3-B5



Rep n° 8 (G1/8" Ot 31 to 33, G1/4" Ot 34 to 39) on motor face plate or U mount housing.
Place the breather plug at the top of the gearbox.

3.2 - Oil quantity (considering operating position)

Operating positions				Ot 3132		Ot 3232		Ot 3233		Ot 3333		Ot 3433		Ot 3533		Ot 3633 Ot 3633 AD		Ot 3733 Ot 3733 AD		Ot 3833 Ot 3833 AD		Ot 3933 Ot 3933 AD									
Ot 31 to Ot 39		Ot 33 to Ot 35		n°	1/4" litres¹	n°	1/4" litres¹	n°	1/4" litres¹	n°	1/4" litres¹	n°	1/4" litres¹	n°	1/4" litres¹	n°	3/4" litres¹	n°	3/4" litres¹	n°	3/4" litres¹	n°	3/4" litres¹								
S, SBT	BS, BD, BR	NS		12	0.9	4	1.85	4	0.52	3	1.1	3	1.3	3	2.7	5	5.75	5	11.5	5	10	5	20								
B3	B5	B8		2		2		2		2		2		2		2		2		2		2		2	2	2	2	11	11		
				6		6		6		6		6		6		6		6		6		6		6	5	5	5	6	5		
				5		5		5		5		5		5		5		5		5		5		5	5	5	5	5	5		
B6	B52	B6		6	1.05	6	2.35	6	1.32	6	2.6	6	3.7	6	6.25	9	13.2	9	23.7	9	24		xx								
				2		2		2		2		8		8		2		8		8		8		2	2	2	2	11			
				5		5		5		5		5		5		5		5		5		5		9	9	9	9	9			
				5		5		4		4		5		5		5		5		5		5		9	9	9	9	9			
B7	B54	B7		2	1.55 ²	2	2.95	2	1.9	2	3.75 ²	2	6.4	2	10.8 ²	11	22.1 ⁵	11	34 ⁵	11	40.7 ⁵		xx								
				5		4		5		5		5		5		5		5		5		5		5	5	5	5	5			
				2		8		8		8		8		8		8		8		8		8		11	11	~~22.1~~	2	~~34~~	11	~~40.7~~	
				2		2		8		8		8		8		8		8		8		8		11	11	11	11	11	11		
B8	B53	B3		12	1 ²	4	1.95	4	1.74 ²	3	3.5 ²	3	6.1	3	8.4 ²	10	18.2	10	23.7	10	33 ⁵		xx								
				6		6		5		5		5		5		5		5		5		5		5	5	5	5	5			
				2		2		3		4		4		4		4		4		4		3		10	10	10	10	10	10		
				2		2		3		2		2		2		2		2		2		2		10	2	11	11	11	11		
V5	V1	V6		6	0.9 ³	6	1.65	5	1.25	5	3.3	5	5.1	6	5.1	4	13.5	4	19.2	4	27.5		xx								
				2		2		2		2		2		2		2		2		2		2		3	3	3	3	3			
				8*D		4		4		4		4		4		4		4		4		5		4	4	4	4	4	4		
				12		4		4		4		4		4		4		4		4		5		4	4	4	4	4	4		
V6	V3	V5		6	0.75 ³	6	1.95	6	1.42	6	2.8	6	4.4	6	7.3	3	12.2	3	17	3	21		xx								
				12		4		8		4		4		4		4		4		8		4		4	4	4	4	4	4		
				8*G		2		3		3		3		3		3		3		3		3		3	3	3	3	3	3		
				2		2		2		2		2		2		2		2		2		2		3	3	3	3	3	3		

1. Limits: ± 0.05 litre for oil quantity < 5 litres

± 10 % for oil quantity ≥ 5 litres

2. Ot 31, 3233, 33, 35: Kit (right angle bend/expansion vessel/valve/extension pipe)

3. Ot 31: kit (extension pipe)

4. Ot 33: Input speed 2p : 3.3 l + PAO ISO VG150

5. Ot 36: Input speed 2p, Ot 37, 38: Kit (foot/expansion vessel/valve/extension pipe)

6. Ot 38 B8/B53: 2p extension pipe

8*: depending on face-plate position (D: right, G: left)

AD: operation with backstop

backstop not allowed

xx: consult LS

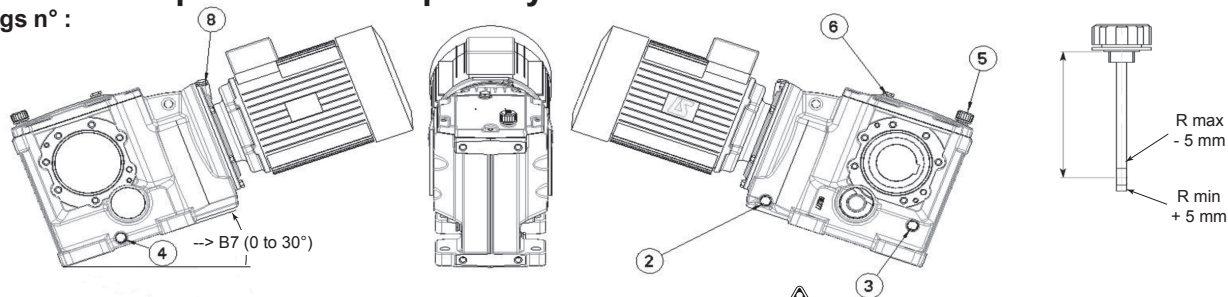
Level Draining Breather Filling

Ot 3000

Drive systems

3.3 - Inclined positions - Oil quantity

Plugs n° :



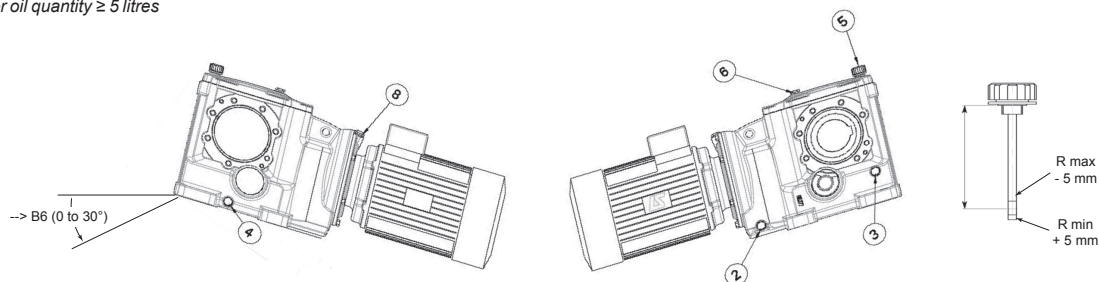
⚠ : Fit on the dipstick : ajust oil level between the two marks (R)

Level plug position and oil quantity (Litres')

Operating position B3 inclined plan B7 in °	Level dipstick	Ot 3233		Ot 33		Ot 34		Ot 35		Ot 36-Ot 36 AD		Ot 37-Ot 37 AD		Ot 38-Ot 38 AD		Ot 39-Ot 39 AD	
		°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'
25 to 30°	☉	5	1.05	5	2.1	5	3.2	5	6.6	6	14	6	23.5	6	16		NC
20 to 25°	☉	5	1.17	5	1.9	5	3.55	5	4.7	5	14	6	21	6	14.5		NC
15 to 20°	☉	5	0.72	5	1.7	5	3.8	5	5.3	5	13.5	6	19.5 AD : NC	6	13		NC
10 to 15°	☉	5	0.8	5	1.55	5	4	5	4.7	5	13	5	17	5	11		NC
5 to 10°	☉	5	0.5	5	1.3	5	1.95	5	4.8	5	12.5	5	15	5	10.5		NC
0 to 5°	☉	5	0.55	5	1.1	5	2.2	5	4.8	5	11.5	5	12.5	5	8.5		NC

1. Limits: ± 0.05 litre for oil quantity < 5 litres
 $\pm 2\%$ for oil quantity ≥ 5 litres

AD: operation with backstop
 NC: consult LS



Operating position B3 inclined plan B6 in °	Level dipstick	Ot 3233		Ot 33		Ot 34		Ot 35		Ot 36-Ot 36 AD		Ot 37-Ot 37 AD		Ot 38-Ot 38 AD		Ot 39-Ot 39 AD	
		°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'	°	1/4" litres'
0 to 5°	☉	5	0.57	5	1.3	5	3.2	5	6.5	5	6	5	10	5	9		NC
5 to 10°	☉	5	0.425	5	1.5	5	3.5	5	7.3	5	6	5	10	5	9		NC
10 to 15°	☉	5	0.47	5	1.7	5	4.2	5	8.3	5	6	5	10	5	9.5		NC
15 to 20°	☉	5	0.57	3	1.9	5	4.5	5	8.8	5	7	5	10	5	10		NC
20 to 25°	☉	5	0.67	3	2.2	3	3.1	3	3.8	5	8	5	11	5	10		NC
25 to 30°	☉	5	0.835	3	2.47	3	3.85	3	4.8	5	10	5	11	5	10.5		NC

1. Limits: ± 0.05 litre for oil quantity < 5 litres
 $\pm 2\%$ for oil quantity ≥ 5 litres

NC: consult LS

In case of operating position in another inclined plan, a study will be done.

3.4 - Oil quantity combined Ot/Cb

Combined Ot									
Ot Output	i	Cb Input	Operating position						
			B3 - B5 litres' Ot / Cb	B6 - B52 litres' Ot / Cb	B8 - B53 litres' Ot / Cb	B7 - B54 litres' Ot / Cb	V5 - V1 litres' Ot / Cb	V6 - V3 litres' Ot / Cb	
3935	191 → 17900	3433 - 2/3 T	xx / 3.3	xx / 7.5	xx / 6.7	xx / 7.5	xx / 4.5	xx / 7	
3835	171 → 4559	3233 - 2T	23 / 0.95	24 / 2.7	33 / 2.25	40.7 / 2.25	xx / 1.55	xx / 1.75	
3835	5059 → 18505	3233 - 3T	23 / 0.95	24 / 2.7	33 / 2.25	40.7 / 2.25	xx / 1.55	xx / 2.3	
3735	187 → 5287	3233 - 2T	26 / 0.95	26 / 2.7	23.7 / 2.25	34 / 2.25	xx / 1.55	xx / 1.75	
3735	6059 → 19441	3233 - 3T	26 / 0.95	26 / 2.7	23.7 / 2.25	34 / 2.25	xx / 1.55	xx / 2.3	
3635	174 → 4771	3233 - 2T	18.2 / 0.95	18.2 / 2.7	18.2 / 2.25	22.1 / 2.25	xx / 1.55	xx / 1.75	
3635	5295 → 18805	3233 - 3T	18.2 / 0.95	18.2 / 2.7	18.2 / 2.25	22.1 / 2.25	xx / 1.55	xx / 2.3	
3535	174 → 5370	3133 - 2T	7.3 / 0.6	7.3 / 1.4	8.4 / 1.1	10.8 / 1.15	xx / 0.85	xx / 0.95	
3535	6630 → 17300	3133 - 3T	7.3 / 0.6	7.3 / 1.4	8.4 / 1.1	10.8 / 1.15	xx / 0.85	xx / 1.23	
3435	183 → 4250	3133 - 2T	5.1 / 0.6	5.1 / 1.4	6.1 / 1.1	6.4 / 1.15	xx / 0.85	xx / 0.95	
3435	4440 → 17500	3133 - 3T	5.1 / 0.6	5.1 / 1.4	6.1 / 1.1	6.4 / 1.15	xx / 0.85	xx / 1.23	
3335	178 → 253	3133 - 2T	3.3 / 0.6	3.3 / 1.4	3.5 / 1.1	3.75 / 1.15	xx / 0.85	xx / 0.95	
3335	283 → 6200	3032	3.3 / 0.6	3.3 / 0.6	3.5 / 0.6	3.75 / 0.6	xx / 0.6	xx / 0.6	
3335	7010 → 20000	3033	3.3 / 0.7	3.3 / 0.7	3.5 / 0.7	3.75 / 0.7	xx / 0.7	xx / 0.7	
3235	178 → 4410	3032	1.42 / 0.6	1.42 / 0.6	1.74 / 0.6	1.9 / 0.6	xx / 0.6	xx / 0.6	
3235	4780 → 19800	3033	1.42 / 0.7	1.42 / 0.7	1.74 / 0.7	1.9 / 0.7	xx / 0.7	xx / 0.7	

1. Limits: $\pm 10\%$

xx: consult LS

Ot 3000

Drive systems

4 - ASSEMBLY OF THE OPTIONS

4.1 - Shrink-disc Ot 3132 to 3933

4.1.1 - Mounting

Remove the cover. Remove all grease from shaft and hollow shaft bore.

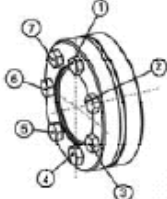
1 - Lightly oil the seating of the shrink-disc on the hollow shaft.
2 - Draw shrink-disc onto hollow shaft. Slide shaft and hollow shaft into one another.

3 - Tighten diametrically opposed clamping screws by hand whilst aligning the shrink-disc so that the clamping flanges lie parallel to each other.

Tighten the shrink disc screws, increasing the torque very progressively to tightening torque indicated in the chart below. It is normal that each screw must be tightened several times until the torque is obtained.

	Ot 31 to 34	Ot 35	Ot 36	Ot 37	Ot 38	Ot 39
Tightening torque for bolts of shrink-disc (N.m)	12	30	30	59	100	250
Ø shrink disc screws	M6	7xM8	10xM8	12xM10	10xM12	8xM16

Do not tighten "cross-shaped" but "in one rotation", starting at the top right and following sketch below.



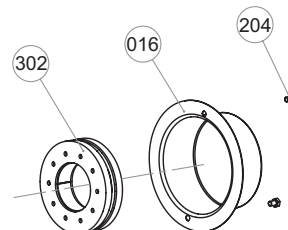
Tightness of shrink disc screws to be controlled periodically.

Dismantling

1 - Part-release the clamping screws evenly in stages in order to avoid any tilting of the clamping flanges whilst taking great care for safety reasons that the clamping screws are not completely released from the thread bore as the pretensions in the shrink-disc could cause the discs to jump apart.

2 - Draw the shrink-disc off the hollow shaft, and if applicable, clean oxidizing on shaft and hollow shaft bore.

4.1.2 - Shrink-disc exploded view/parts list



Rep	Description	Ot 3132 to Ot 3733 Qty	Ot 3833, Ot 3933 Qty
16	Shrink disc cover	1	1
204	Cover fixing screw	2	4
302	Shrink disc	1	1

4.2 - Torque arm kit

4.2.1 - Torque arm mounting

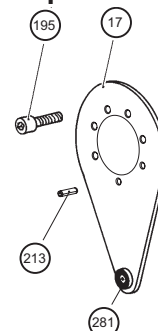
Screw the torque arm (17) on the fixing side and machinery by using screws (195) class 8.8 minimum (according to NFE 27-005). Centre torque arm. Place the pin.

The screws must be stopped by an anaerobic adhesive (Loctite Freinfillet normal 243 for example). This adhesive must resist to vibrations and may allow dismantling of torque arm if necessary.

Braking torque of fixing screws

Tighten screws simultaneously and progressively.

4.2.2 - Torque arm exploded view/parts list



All the bolts must be screwed up to 70% of their elastic strength.

Rep	Description	Ot 3132 to Ot 3533 Qty	Ot 3633, Ot 3733 Qty	Ot 3833 Qty	Ot 3933 Qty
17	Torque arm	1	1	1	1
195	Torque arm fixing screw	3	4	8	10
213	Pin	1	1	2	2
281	Flexible mounting	1	1	1	1

4.3 - Hollow shaft

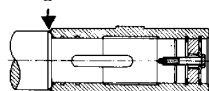
1- Check that the cylindrical shaft has been machined in accordance with standard NF - E 22 - 175, with a slide fit: g6, (the hub is: H7).

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

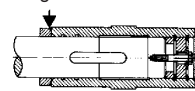
3 - Before mounting, degrease all the parts, taking care not to splash any solvent on the seals.

Use grease (PAO compound) to lubricate any parts in contact, to avoid corrosion.

Fixing on a shouldered shaft
O ring seal

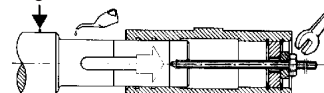


Fixing on an untapped shaft
O ring seal



Mounting

O ring seal



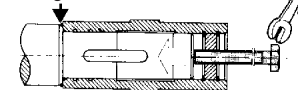
Mounting should be performed as described in the procedure above, without jolting.

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

By screwing the nut down onto the washer, the shaft is smoothly inserted into the cylindrical hub.

Dismantling

O ring seal



Use a spanner with a diameter corresponding to the shaft thread and turn until the shaft comes out.