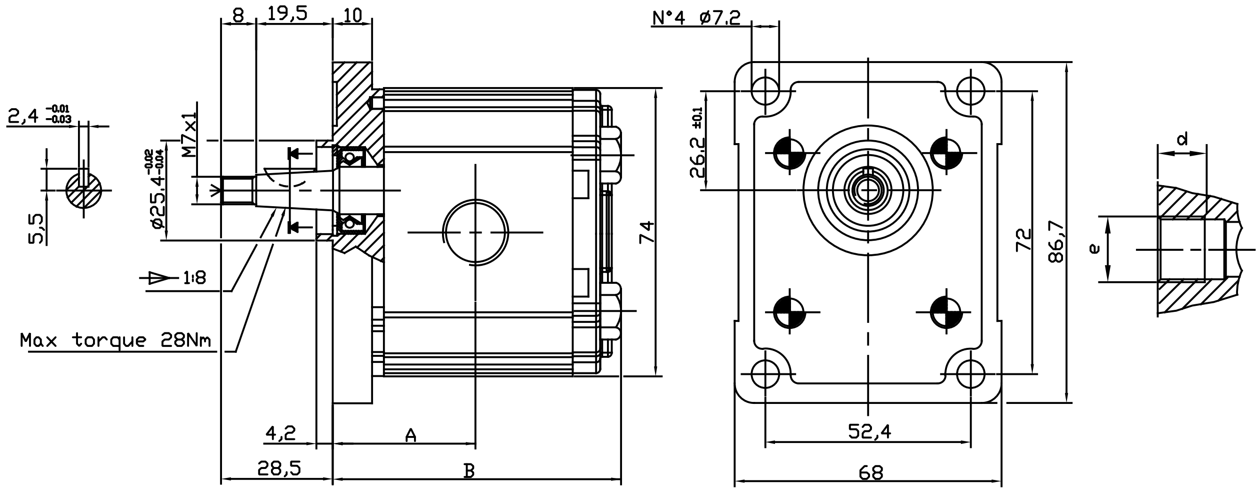
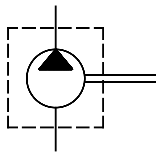
GROUP 1 PUMPS - EUROPEAN STANDARD

VERSION: G18 P1





Port	Dimension	e	d mm
Outlet	3/8"	G 3/8"	14
Inlet	3/8"	G 3/8"	14

Type	Displacement (cc/rev)	Max working pressure P1 (bar)	Peak pressure P3 (bar)	Max speed (r.p.m)	Dimension A (mm)	Dimension B (mm)	Absorbed torque at 150 bar (Nm)	Code (Anti-clockwise)	Code (Clockwise)
OT 100 P07	0.73	200	240	5000	31.30	64.5	1.8	PS1007061S	PS1007061D
OT 100 P11	1.05	240	280	5000	31.90	65.6	2.4	PS1007062S	PS1007062D
OT 100 P16	1.45	260	300	5000	32.75	67.3	4.2	PS1007063S	PS1007063D
OT 100 P20	1.80	260	300	5000	33.45	68.7	5.2	PS1007064S	PS1007064D
OT 100 P25	2.45	260	300	5000	34.50	70.8	6.7	PS1007065S	PS1007065D
OT 100 P32	3.05	260	300	5000	35.50	72.8	8.3	PS1007066S	PS1007066D
OT 100 P40	3.80	260	300	4500	36.90	75.6	10.1	PS1007067S	PS1007067D
OT 100 P49	4.70	240	280	4500	38.45	78.7	12.7	PS1007068S	PS1007068D
OT 100 P58	5.55	200	240	4000	40.00	81.8	15.0	PS1007069S	PS1007069D
OT 100 P65	6.25	190	230	3750	41.25	84.3	16.8	PS1007070S	PS1007070D
OT 100 P79	7.60	170	220	3500	43.60	89.0	20.5	PS1017071S	PS1017071D

EXAMPLE OF ORDERING CODE

OT100 P 20 S / G 18 P1

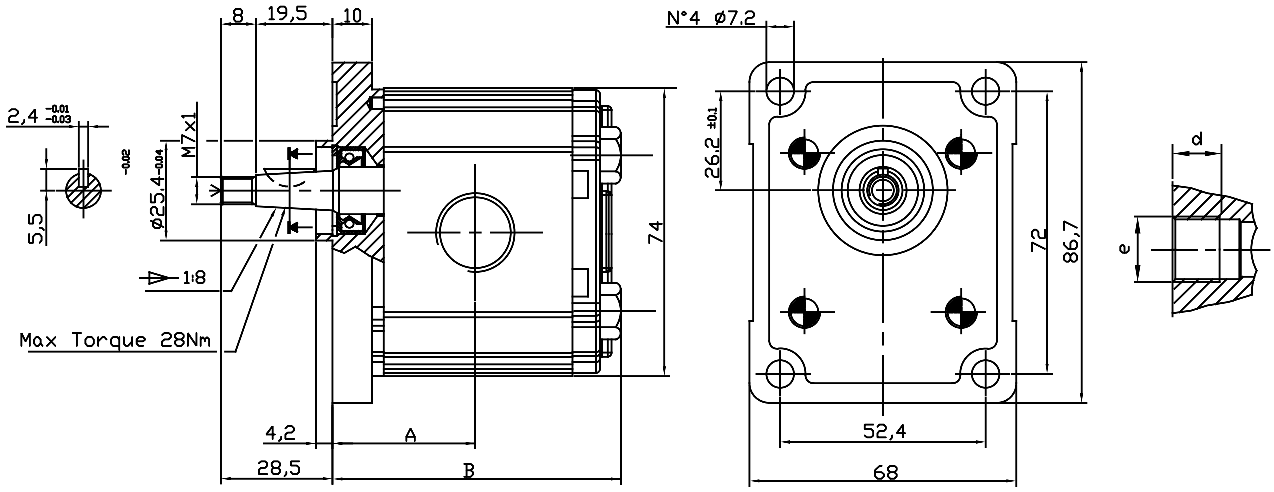
- OT100 — Series
- P — Pump
- 20 — Displacement (see above table)
- S — Rotation: S Anti-clockwise; D Clockwise
- G — Body with threated ports (BSP)
- 18 — Taper shaft (1:8)
- P1 — European standard flange

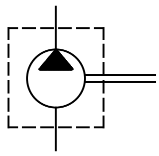
Rotation	
S	Anti-clockwise
D	Clockwise

(hatched) AVAILABLE FOR QUANTITIES

GROUP 1 PUMPS - EUROPEAN STANDARD

VERSION: G2 18 P1





Port	Dimension	e	d mm
Outlet	3/8"	G 3/8"	14
Inlet	1/2"	G 1/2"	14

Type	Displacement (cc/rev)	Max working pressure P1 (bar)	Peak pressure P3 (bar)	Max speed (r.p.m)	Dimension A (mm)	Dimension B (mm)	Absorbed torque at 150 bar (Nm)	Code (Anti-clockwise) OT100 M79	Code (Clockwise)
OT 100 P49	4.70	240	280	4500	38.45	78.7	12.7	PS1027035S	PS1027035D
OT 100 P58	5.55	200	240	4000	40.00	81.8	15.0	PS1027036S	PS1027036D
OT 100 P65	6.25	190	230	3750	41.25	84.3	16.8	PS1027037S	PS1027037D
OT 100 P79	7.60	170	220	3500	43.60	89.0	20.5	PS1027038S	PS1027038D

EXAMPLE OF ORDERING CODE

OT100 P 65 S / G2 18 P1

- OT100 — Series
- P — Pump
- 65 — Displacement (see above table)
- S — Rotation: S Anti-clockwise; D Clockwise
- G2 — Body with threated ports (BSP) Inlet G 1/2"
- 18 — Taper shaft (1:8)
- P1 — European standard flange

Rotation	
S	Anti-clockwise
D	Clockwise

AVAILABLE FOR QUANTITIES (hatched)

GROUP 1 PUMPS

GEAR HOUSING

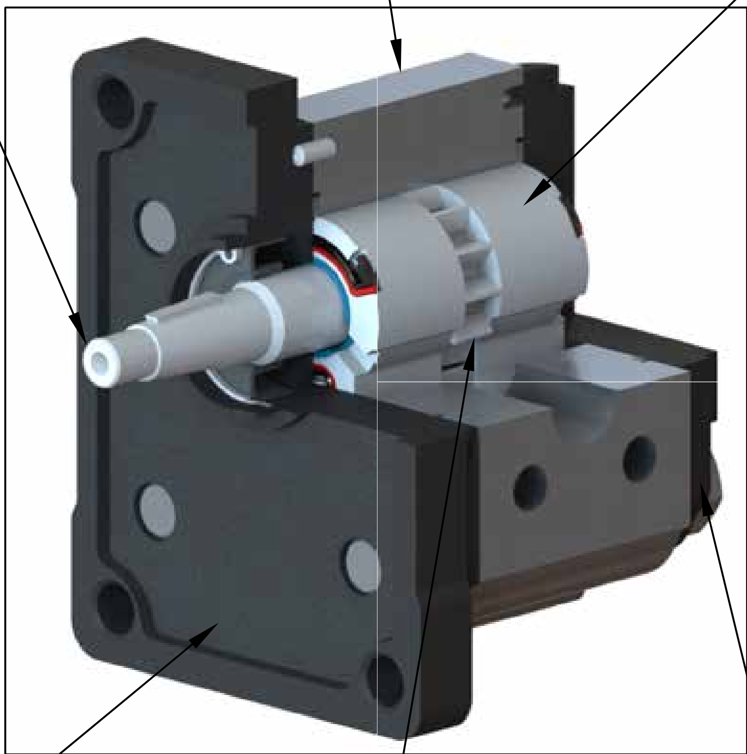
Extruded in aluminium alloy

DRIVE SHAFTS

Choice of several standard drive shafts

BEARINGS

Hi-resistant aluminium alloy with DU sleeve bearings to offer high performances.



MOUNTING FLANGES

Choice of several mounting flanges in cast iron

COVER

Made in cast iron material and available with suction port

GEARS

Designed specifically to reduce the noise level and offer the best performance between flow pulsation and displacements

GROUP 1 PUMPS

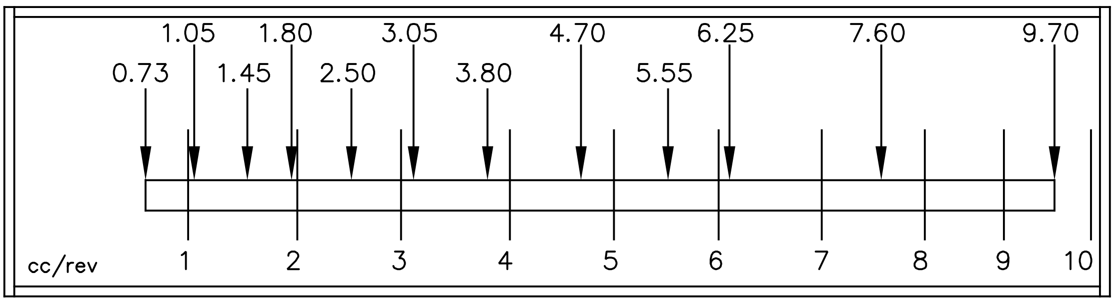
CONSTRUCTIVE CHARACTERISTICS:

PART	MATERIAL	CHARACTERISTICS
GEARS	**Hardened steel UNI 7846**	**Rs= 1250 N/mm^2** **Rm= 1450 N/mm^2**
FLANGE AND COVER	**G25 / G30 cast iron**	**Rs= 300 N/mm^2** **Rm= 450 N/mm^2**
BEARINGS	**Sical 3** **Bearings with DU**	**Rs= 350 N/mm^2** **Rm= 390 N/mm^2**
BODY	**Etruded in aluminium alloy** **Series 7020**	**Rs= 350 N/mm^2** **Rm= 390 N/mm^2**
O-RINGS	**Buna N** **Viton**	**90 Shore, up to 90°C** **80 Shore, for high temperature**
ANTIEXTRUSION	**Zitel**	**With glass fibres**

Rs= Enervation load
Rm= Breaking load

GENERAL CHARACTERISTICS:

Maximum pressures up to 300 bar
Weight : from 0.9 Kg to 1.6 kg
Maximum speed up to 5.000 rpm
Type of shafts: **Taper 1:8**
Oldham
Slined DIN 5482
SAE AA
Keyed
Type of flanges: **European standard**
Standard for power units
SAE AA standard
Displacements from 0.73 cc/rev to 9.9 cc/rev
The displacements are available according this table:



There is also available a special version with built-in support and a bigger taper 1:8 shaft (diameter Ø14) for 9.9 cc/rev pump.
In the range there are tandem pumps with unloading valve in the back cover and pumps with built in maximum pressure relief valve (with internal or external drain)

DRIVE:

The connection of the pump to the motor must be done preferably with the use of a flexible coupling to avoid any radial and/or axial force on the shaft, otherwise pump efficiency will dramatically drop due to early wear of inner moving parts.
In any applications where the motion is trasmitted through belts, it is necessary to use a support to avoid any radial or axial load to the pump shaft.
In any applications where are used splined shafts ot Oldham couplings, it is suggested to assure a costant lubrification through grease or similar products.

GROUP 1 PUMPS

WORKING CONDITIONS- LIMIT PERFORMANCES

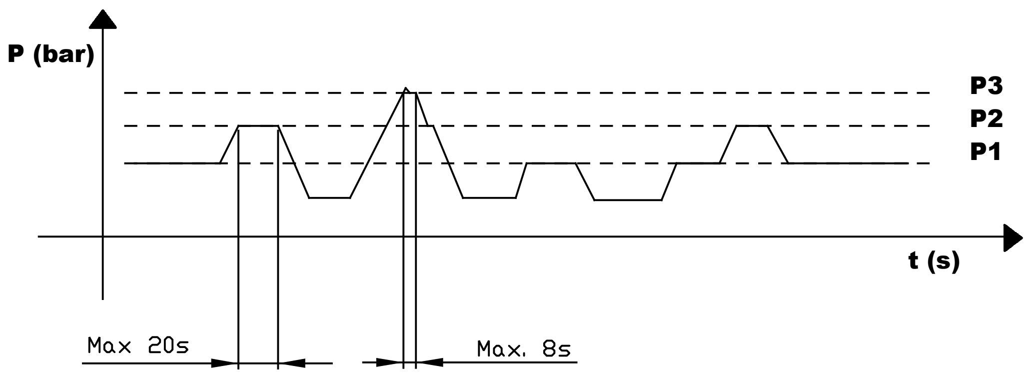
In normal working conditions there must be, in the suction pipe, a pressure lower than the atmospheric pressure.

The pressure range in suction must be:

Min. 0.75 bar (absolute)	Max 2,0 bar (absolute)

The maximun pressure values "P1" are referred to a continuous working at 1500 rpm with standard hydraulic fluids with minimum viscosity of 10 cSt.
For heavier working conditions (viscosity or high temperature) it is necessary to reduce the "P1" values.

In the following table are described the admitted pressures:

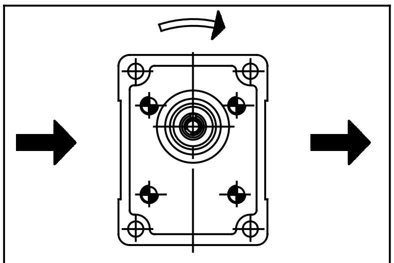


P3 Maximum peak pressure.
P2 Maximum intermittent pressure.
P1 Maximum continuous pressure.

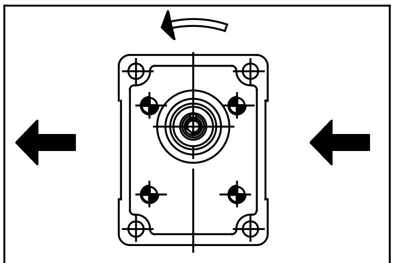
The standard working speeds (minimum and maximum) are the following:

Min. = 750 rpm	Max = (See following tables)

DIRECTION OF ROTATION LOOKING AT THE SHAFT:



Right rotation



Left rotation

GROUP 1 PUMPS

FLUID FILTRATION

It is known that in many cases the premature pump performances reduction is due to a non correct filtration in the circuit.
The presence of contamination particles in the fluid usually corresponds to an irreparable wear of the pump internal parts.
It is raccomanded to pay attention to the plant cleaning, mainly in the starting activity.
The starting fluid contamination it must be according to the Norms ISO 4406 and it should not exceed the Class 19/16 with a filter 3x75.

Here below the technical parameters to respect:

FILTRATION IN SUCTION LINE	**30 / 60 Nominal micron**
FILTRATION IN PRESSURE LINE	**10 / 25 absolute micron**
MAXIMUM SPEED IN SUCTION	**0.5 / 1.5 m/s**
MAXIMUM SPEED IN OUTPUT	**3.0 / 5.5 m/s**

Sometime in contaminated places it is racommended to improve the filtration in pressure line and fit also an air filter.

HYDRAULIC FLUIDS

It is recommended the use of fluids made for hydraulic circuits.
Usually they are hydraulic oils with mineral basis HLP HV (DIN 51524).
Here below the technical parameters to respect:

MINIMUM VISCOSITY	**10 mm^2/s**
MAXIMUM VISCOSITY *	**750 mm^2/s**
SUGGESTED VISCOSITY	**20 mm^2/s / 100 mm /s**
SUGGESTED TEMPERATURE	**30°C / 50°C**
WORKING TEMPERATURE	**-15°C / +80°C**

For applications with water-glycol (HF-C) it is racommended to consider the following limitations: 1500 rpm maximum speed and 200 bar maximum pressure.
For applications with phosphate ester fluids, please contact our Technical department.
* **From 0.7 cc until 1.1 cc MAXIMUM VISCOSITY 500 mm /s**

ISTALLATION INSTRUCTION

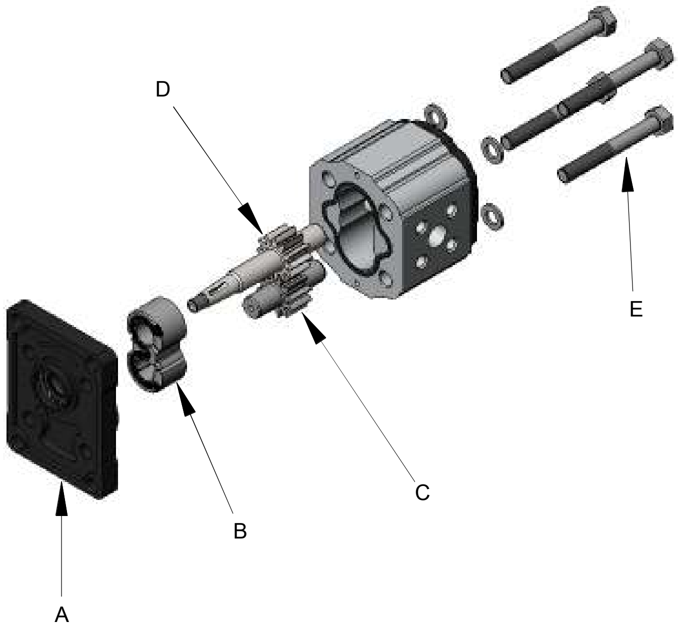
During the first starting it is racommended:
- **to set the maximum pressure relief valves to a low value and gradually increase the pressure.**
- **to check, with single rotation pumps, that the rotation direction it is correct.**
- **to check that the connection betwen the motor and pump shaft is correct: without radial or axial load.**
- **to avoid starting under pressure in low temperature conditions or after long period of inactivity**
- **to check the fluid level in the tank**
- **to disconnect the return pipe and purge any air in the circuit**
- **to protect the pumpshaft seal when painting power pack**
- **to use suitable systems in the return lines to tank, to avoid turbulence in the circuit and ingress of air, water or contamination**
- **to check the torque that must be lower than the maximum torque admissible on the pump shaft**
- **to use new oil filters with absence of water or any other emulsifying substance**
- **to avoid starting with a air-oil solution**

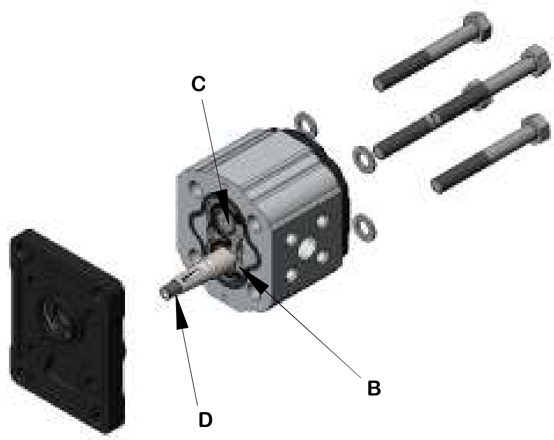
It is important to specify an oil tank at least twice the flow from the pump.

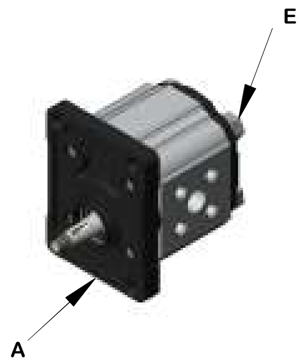
GROUP 1 PUMPS- CHANGING ROTATION

TO CHANGE ROTATION OF OT100 PUMP IT'S NECESSARY TO OPERATE IN THE FOLLOWING WAY:

1. **Clean the pump externally with care.**
2. **Loosen, and remove, the clamp bolts (E).**
3. **Coat the sharp edges of the drive shaft (D) with adesive tape and smear a layer of clean grease on the shaft end extension to avoid damaging the lip of the shaft seal when removing the mounting flange.**
4. **Remove the mounting flange (A), taking care to keep the flange as straight as possible during removal. Ensure that while removing the front mounting flange, the drive shaft and other components ramain in position.**
5. **Ease the drive gear (D) up to facilitate removal of bearings (B), taking care that the precision ground surfaces do not become damaged, and removed the drive gear.**
6. **Remove the driven gear (D) without overturning. The rear flange has not to be removed.**
7. **Re-locate the driven gear (C) in the position previously occupied by the drive gear (D).**
8. **Re-locate the drive gear (D) in the position previously occupied by the driven gear (C).**
9. **Replace the front flange (A) in its original position.**
10. **Gently wipe the machined surface of the front flange (A) and the body with a canvas.**
11. **Refit the front mounting flange (A) turned by 180° from its original position.**
12. **Refit the clamp bolts (E).(SCREW TIGHTENING TORQUE = 28 Nm)**
13. **Check that the pump rotates freely when the drive shaft (D) is turned by hand. If not a pressure plate seal may be pinched.**
14. **The pump is ready for installation with the original rotation reversed.**

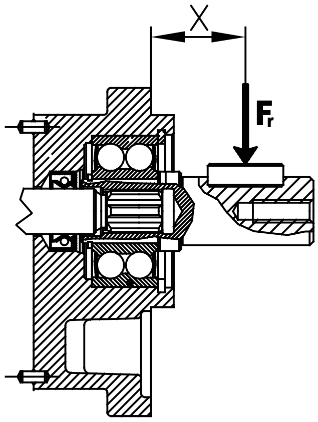






GROUP 1 PUMPS - WITH FRONT BEARING

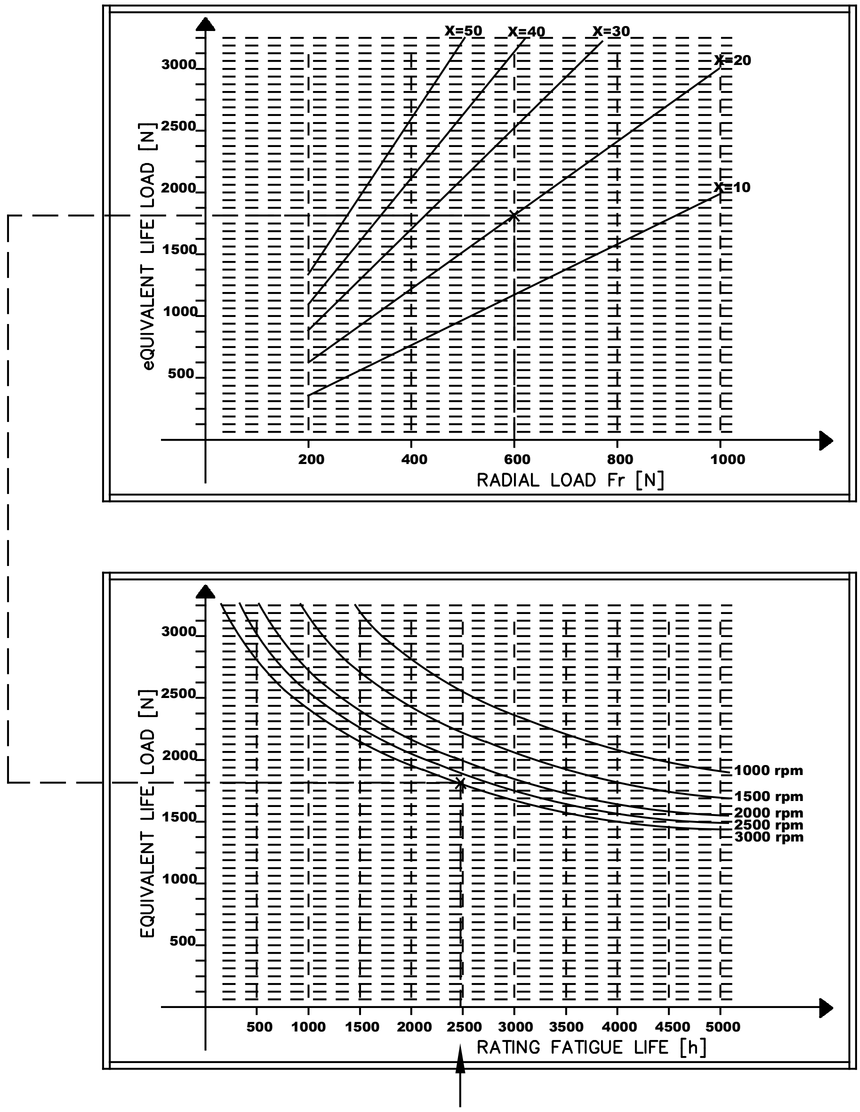
VERIFY OF BEARING DURATION



X = Distance of the radial flange result from the mounting flange

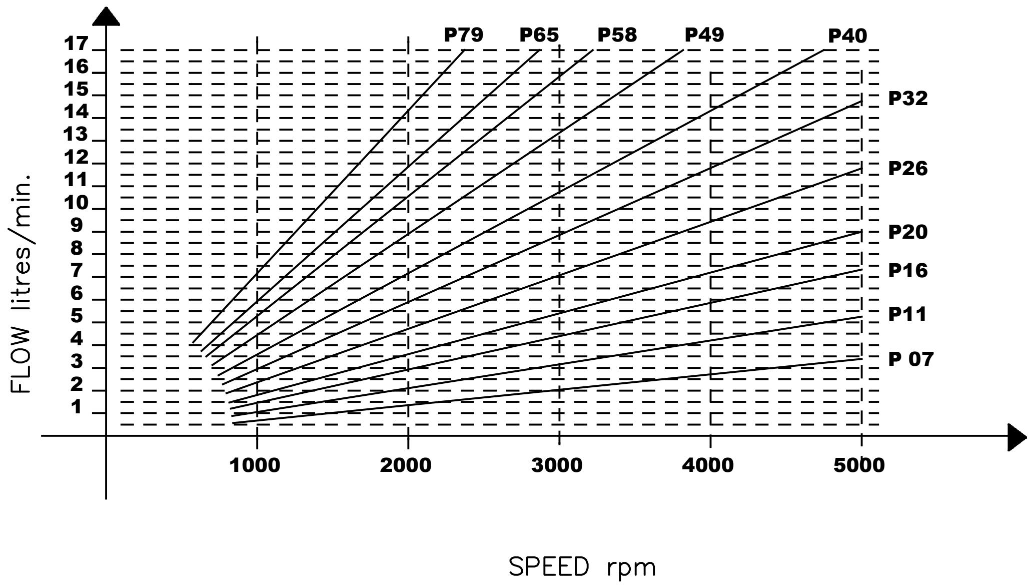
Each curve has been obtained at:
Lubrificant oil ISO VG 46
Temperature 60° C (140° F)
Without or with very low axial load

Example
Fr = 600 N
X = 20 mm
Speed = 3000 rpm
Rating fatigue life ≈ 2500 h

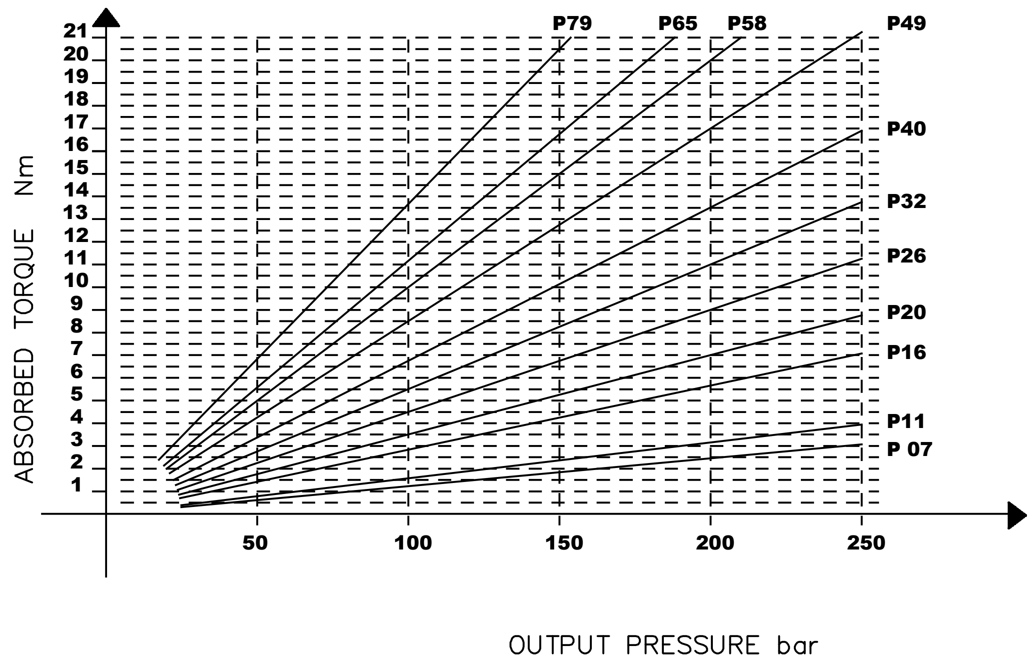


GROUP 1 PUMPS

FLOW CHARACTERISTICS CURVES



ABSORBED TORQUE



NOTE

Above flow characteristics curves have been made considering a volumetric efficiency of 95%

GROUP 1 PUMPS

PUMP CALCULATION

V	**Displacement**	**cc / rev**
Q	**Flow**	**l/min**
P	**Power**	**kW**
C	**Torque**	**N · m**
N	**Speed**	**rpm**
ΔP	**Pressure**	**bar**
n_v	**Volumetric efficiency**	**0.95**
n_m	**Mechanical efficiency**	**0.9**
n_t	**Total efficiency**	**0.85**

$$Q = V \cdot n_v \cdot N \cdot 10^{3} \qquad l/min$$

$$C = \frac{\Delta P \cdot V}{62.8 \cdot n_m} \qquad N \cdot m$$

$$P = \frac{\Delta P \cdot V \cdot N}{612000 \cdot n_t} \qquad kW$$