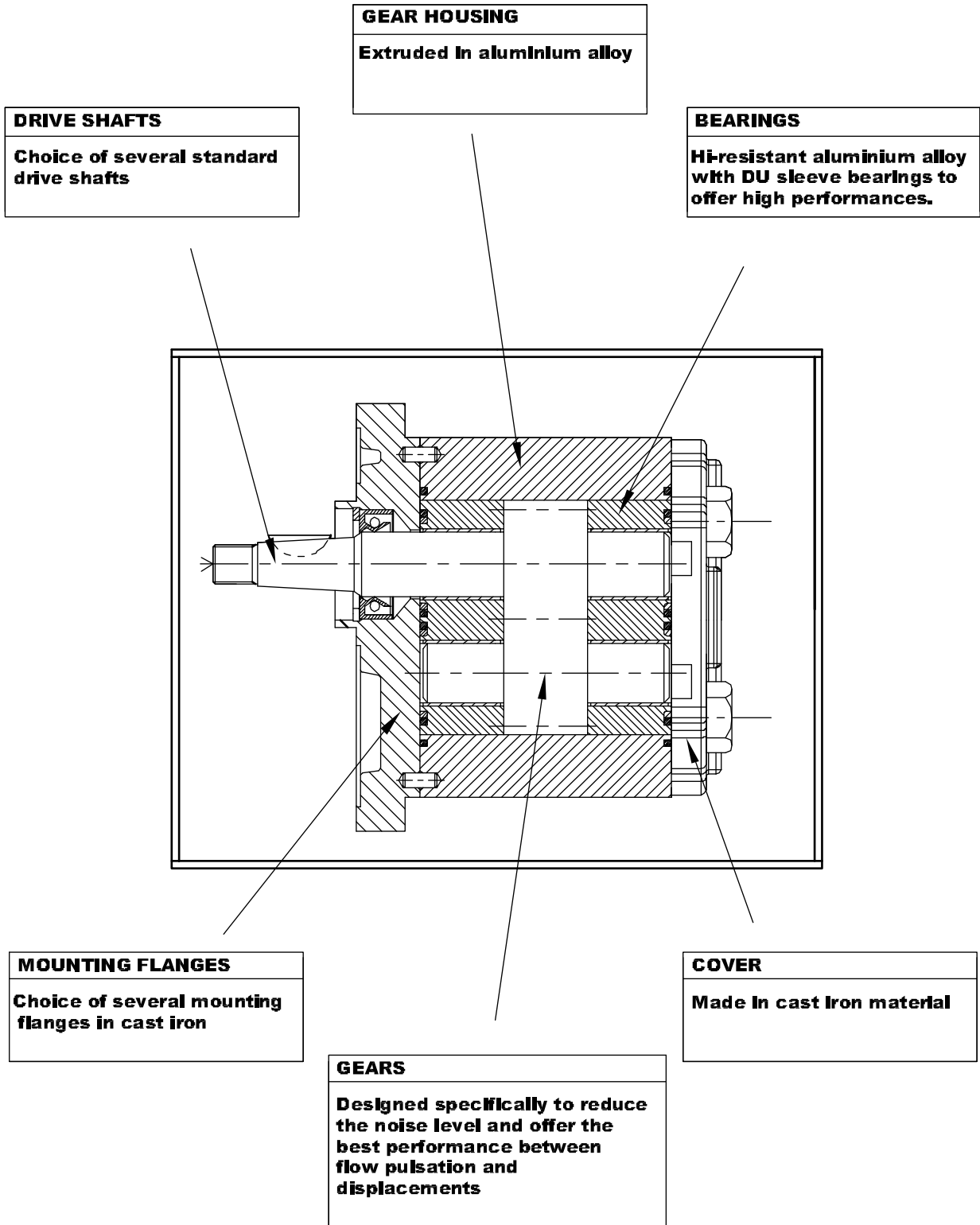


GROUP 3 PUMPS



GROUP 3 PUMPS

CONSTRUCTIVE CHARACTERISTICS:

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

Rs= Enervation load

Rm= Breaking load

GENERAL CHARACTERISTICS:

Maximum pressures up to 300 bar.

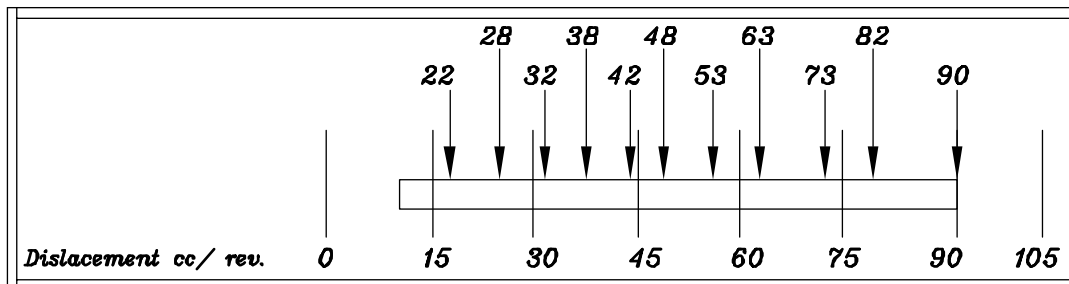
Weight : from 8,2 Kg to 10,5 kg

Maximum speed up to 3,000 rpm.

Type of shafts: Taper 1:8
SAE B splined-13 teeth
SAE B cylindrical - Ø22.2

Type of flanges: European standard
SAE A standard.

Displacements from 22 cc/rev to 90 cc/rev.
The displacements are available according this table:



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.

GROUP 3 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:

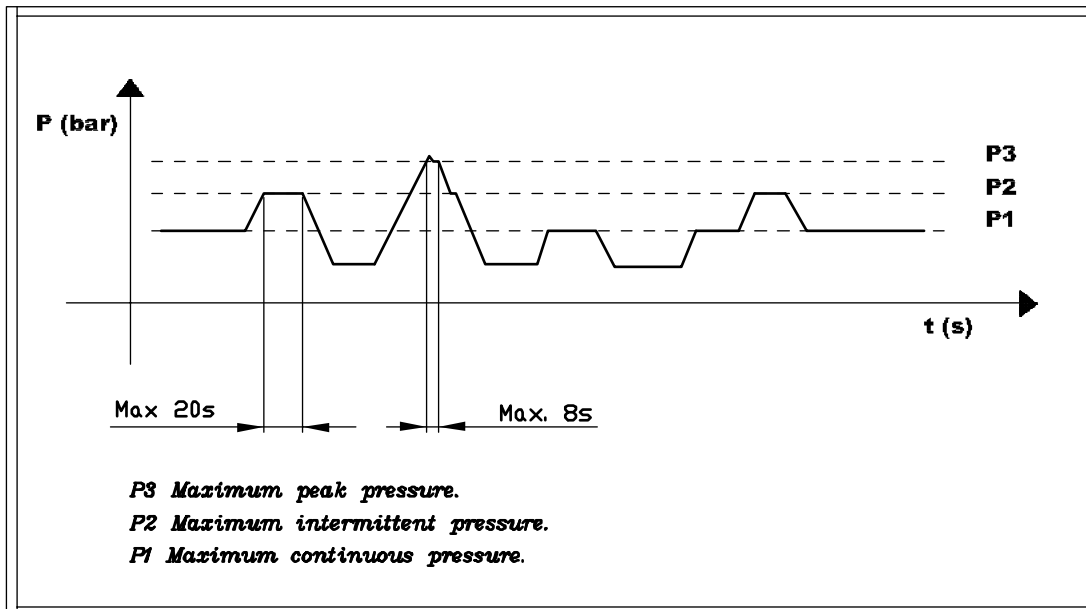
Min. 0.75 bar (absolute)

MAX 2,0 bar (absolute)

The maximum 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:

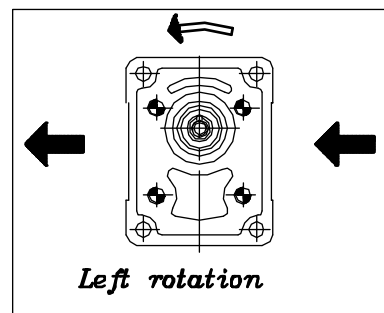
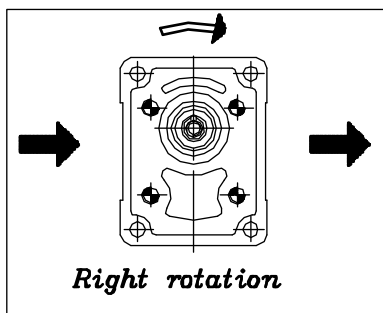


The standard working speeds (minimum and maximum) are the following:

Min. = 400 rpm

Max = (See following table)

DIRECTION OF ROTATION LOOKING AT THE SHAFT:



GROUP 3 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 recommended 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:

<i>FILTRATION IN SUCTION LINE</i>	30 / 60 Nominal micron
<i>FILTRATION IN PRESSURE LINE</i>	10 / 25 absolute micron
<i>MAXIMUM SPEED IN SUCTION</i>	0,5 / 1,5 m/s
<i>MAXIMUM SPEED IN OUTPUT</i>	3,0 / 5,5 m/s

Sometime (contaminated places) it is recommended 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

<i>MINIMUM VISCOSITY</i>	10 mm ² /s
<i>MAXIMUM VISCOSITY</i>	100 mm ² /s
<i>SUGGESTED VISCOSITY</i>	20 mm ² /s / 100 mm /s
<i>SUGGESTED TEMPERATURE</i>	30°C / 50°C
<i>WORKING TEMPERATURE</i>	-15°C / +80°C

For applications with water-glycol (HF-C) it is recommended 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.

INSTALLATION INSTRUCTION

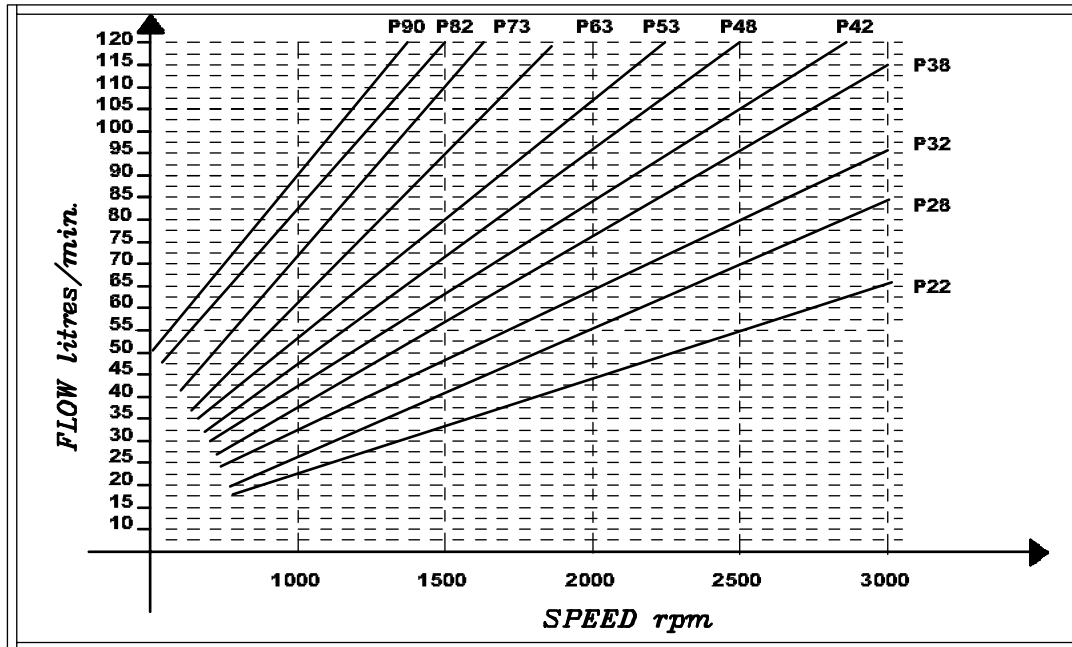
During the first starting it is recommended:

- 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 between 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

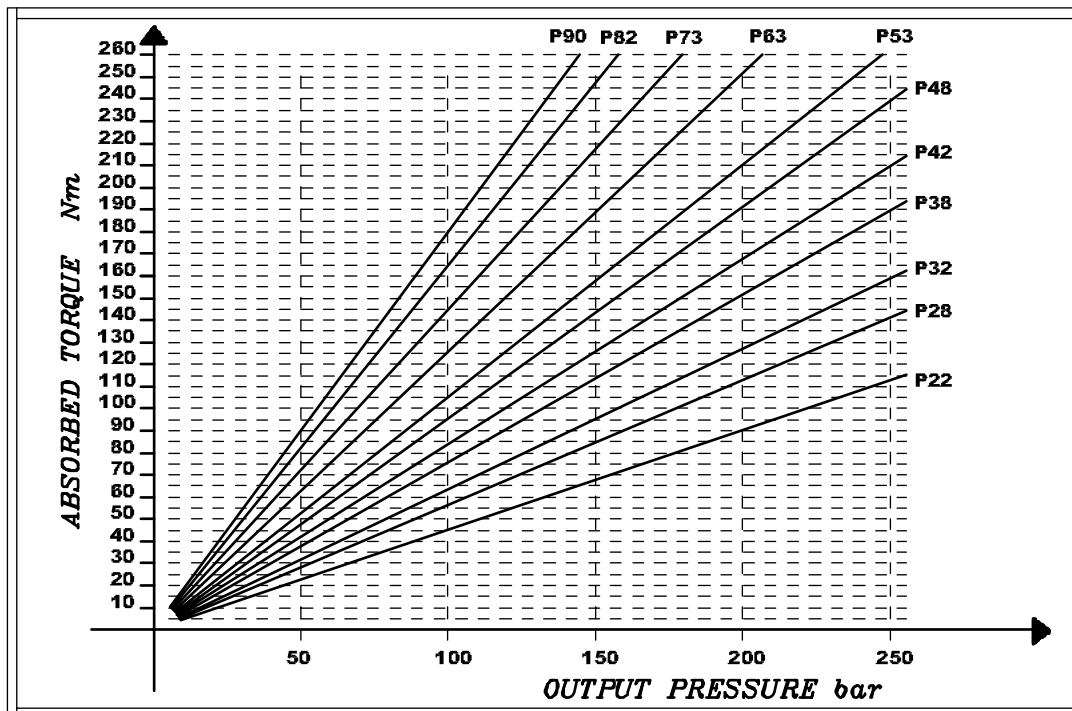
It is important to specify an oil tank at least twice the flow from the pump.

GROUP 3 PUMPS

FLOW CHARACTERISTICS CURVES



ABSORBED TORQUE



NOTE

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

GROUP 3 PUMPS

PUMP CALCULATION

V	Displacement	CC / REV
Q	Flow	l/min
P	Power	kW
C	Torque	N · m
N	Speed	-15°C / +80°C
ΔP	Pressure	bar
n_v	Volumetric efficiency	0.95
n_m	Mechanical efficiency	0.9
n_t	Total efficiency	0.85

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

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

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