GROUP 2 PUMPS

GEAR HOUSING

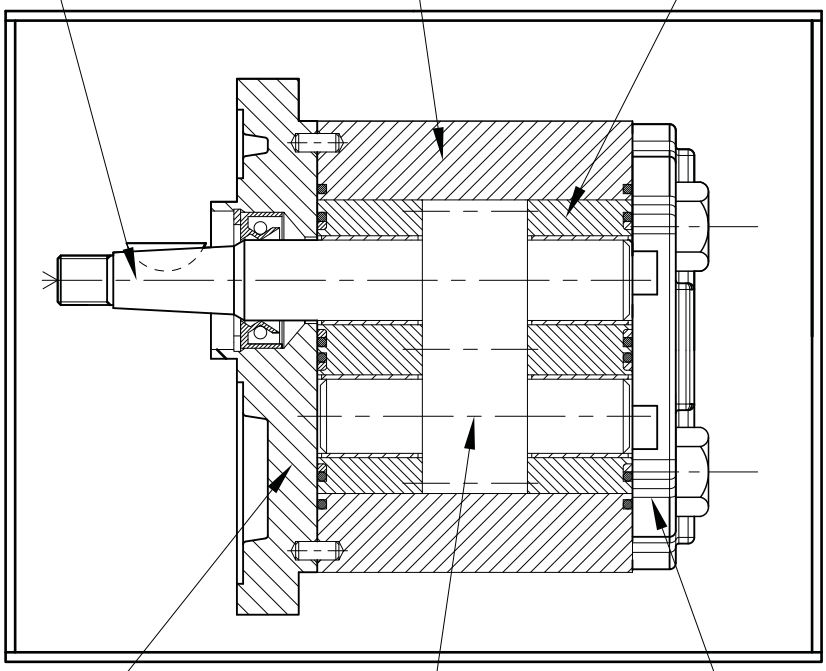
Extruded In aluminium alloy

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 2 PUMPS

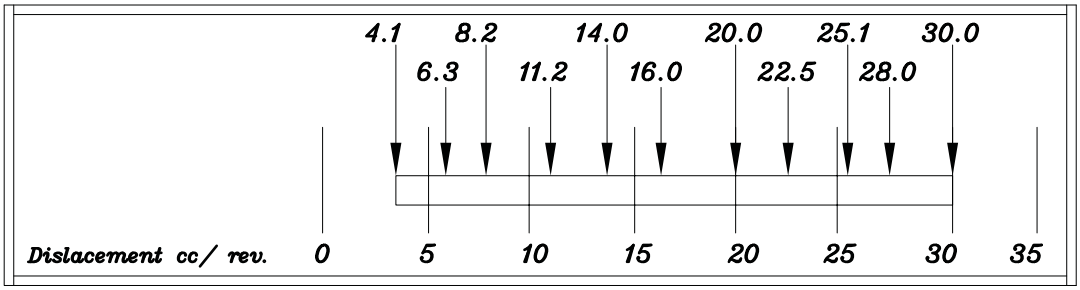
CONSTRUCTIVE CHARACTERISTICS:

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	Avional 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 3.1 Kg to 4.3 kg
Maximum speed up to 4.000 rpm.
Type of shafts: Taper 1:8 and 1:5
Oldham
Slined DIN 5482 17x14.
SAE A splined-9 teeth
SAE A cylindrical - Ø15.85
Type of flanges: European standard
German standard
SAE A standard.
Displacements from 4 cc/rev to 30cc/rev.
The displacements are available according this table:



There is also available a special version with built-in support.

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 2 PUMPS

WORKING CONDITIONS- LIMIT PERFORMANCES

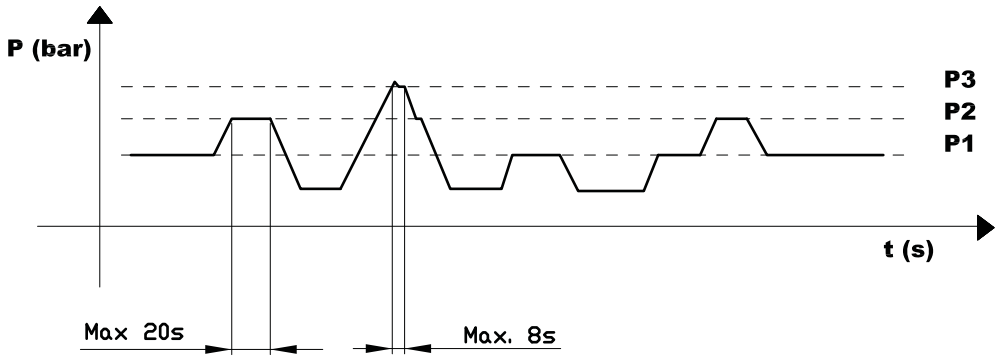
In normal working conditions there must be, in the suction pipe, a pressure lower than the atmospheric pressure.

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:

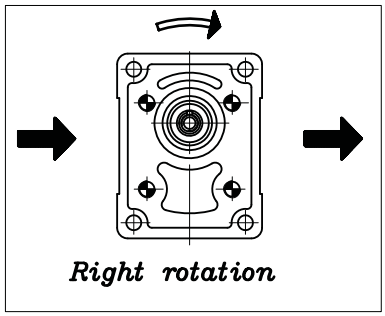


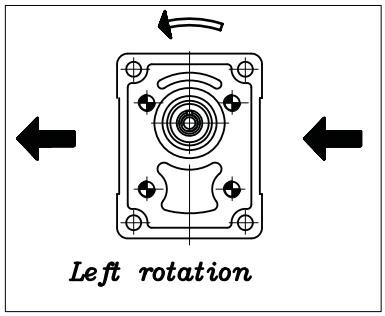
P3 Maximum peak pressure.
P2 Maximum intermittent pressure.
P1 Maximum continuous pressure.

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

Min. = 400 rpm	Max = (See following table)

DIRECTION OF ROTATION LOOKING AT THE SHAFT:





GROUP 2 PUMPS

FLUID FILTRATION

It is known that in many cases the premature pump performances reduction is due to a non correct filtration In the circult.
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 technlcal 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 (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	100 mm^2/s
SUGGESTED VISCOSITY	20 mm^2/s / 100 mm /s
SUGGESTED TEMPERATURE	30°C / 50°C
WORKING TEMPERATURE	-15°C / +80°C

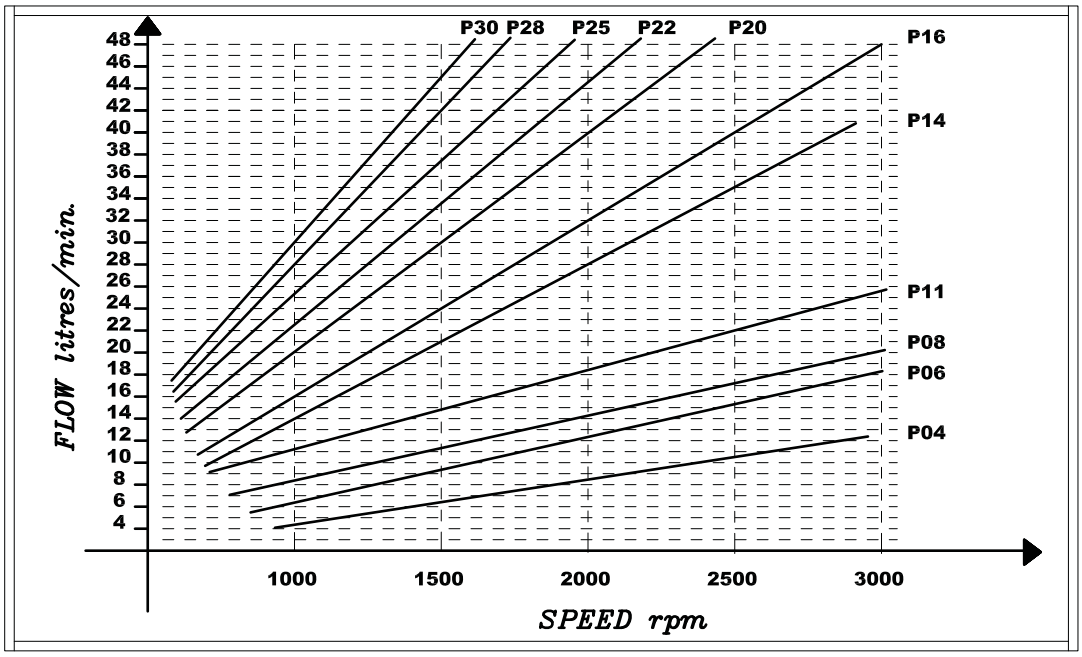
For applications with water-glycol (HF-C) it is racommended to consider the following limitations: 1500 rpm maximum speed and 200 bar maximum pressure.
For applications with phosphate ester fluids, please contact our Technical department.

ISTALLATION INSTRUCTION

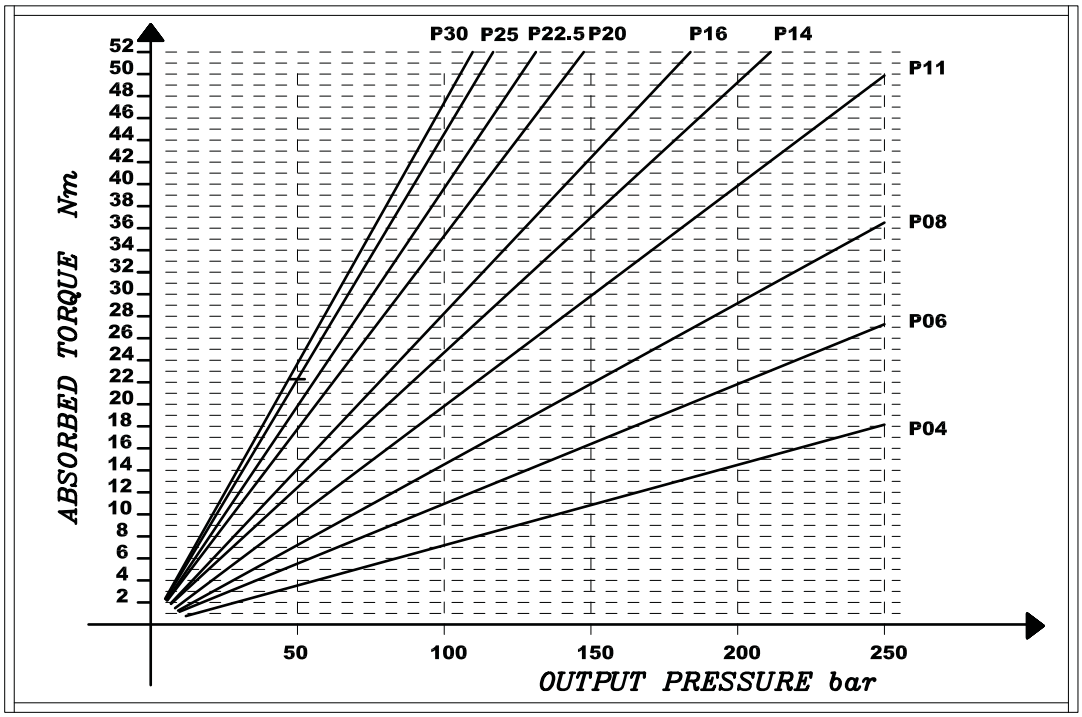
During the first starting it is racommended:
- to set the maximum pressure relief valves to a low value and gradually increase the pressure.
- to check, with single rotation pumps, that the rotation direction it is correct.
- to check that the connection betwen the motor and pump shaft is correct: without 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 2 PUMPS

FLOW CHARACTERISTICS CURVES



ABSORBED TORQUE



NOTE

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

GROUP 2 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

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

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

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