GROUP 3 PUMPS

GEAR HOUSING

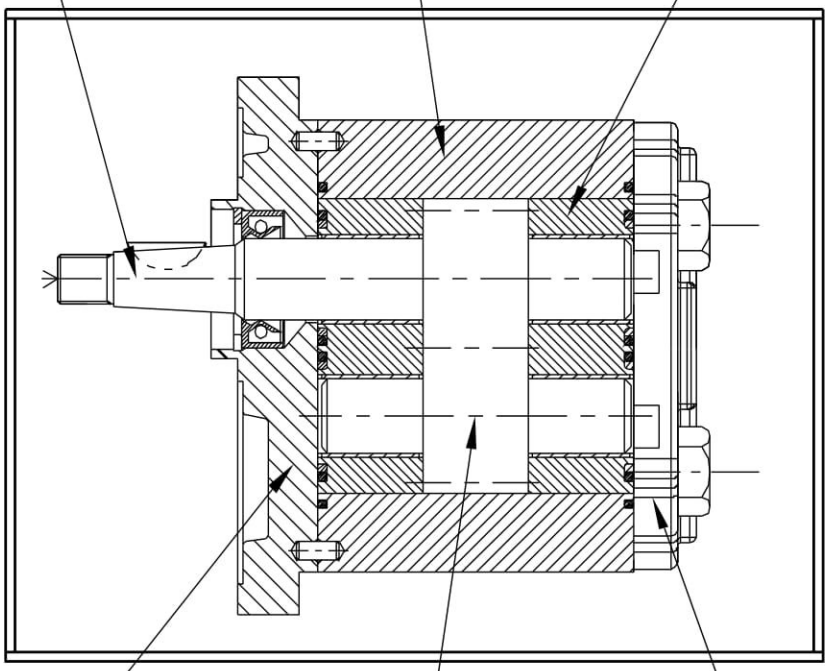
Extruded in aluminium alloy

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

GEARS

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

GROUP 3 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

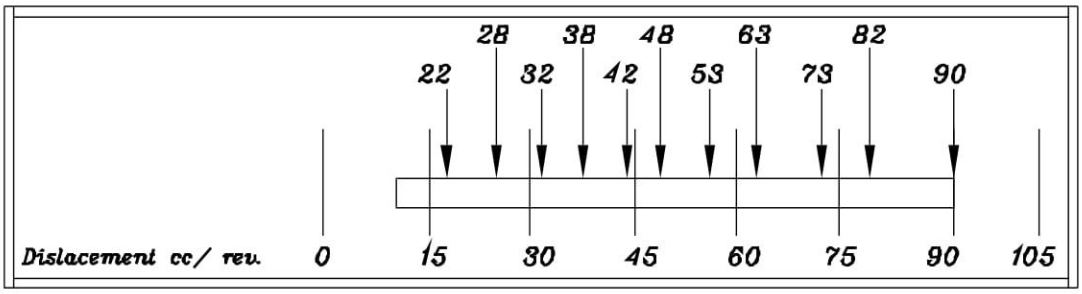
Rs= Enervation load
Rm= Breaking load

GENERAL CHARACTERISTICS:

Maximum pressures up to 300 bar.
Weight : from 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

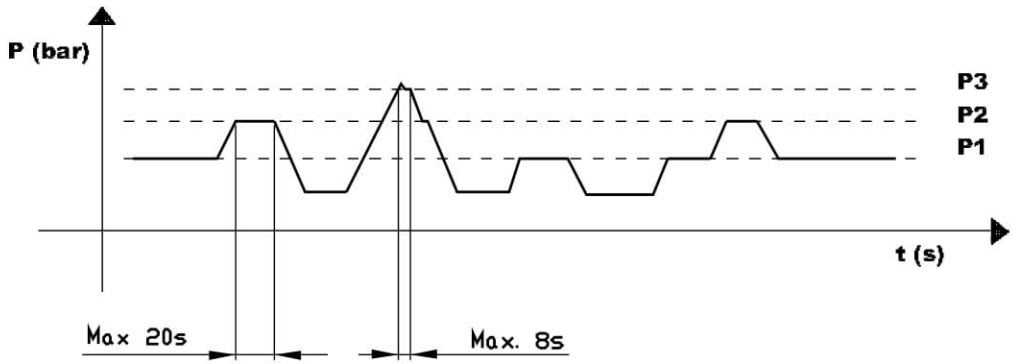
In normal working conditions there must be, in the suction pipe, a pressure lower than the atmospheric pressure.

The pressure range in suction must be:

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

The 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:

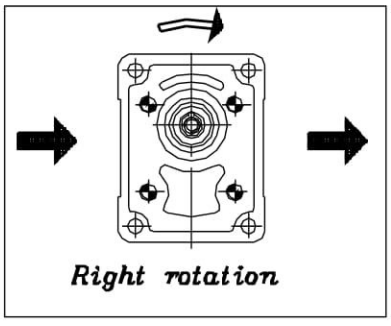


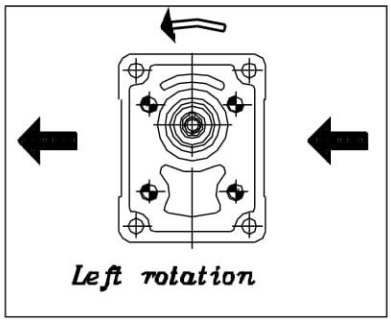
P3 Maximum peak pressure.
P2 Maximum intermittent pressure.
P1 Maximum continuous pressure.

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 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 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 (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

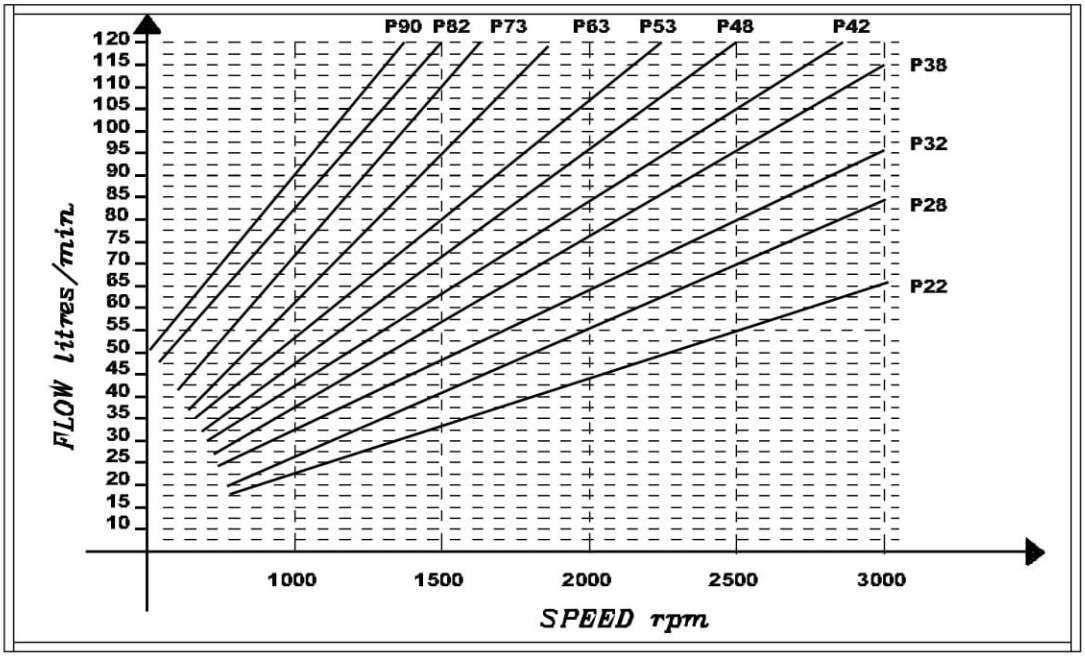
For applications with water-glycol (HF-C) it is racommended to consider the following limitations: 1500 rpm maximum speed and 200 bar maximum pressure.
For applications with phosphate ester fluids, please contact our Technical department.

ISTALLATION INSTRUCTION

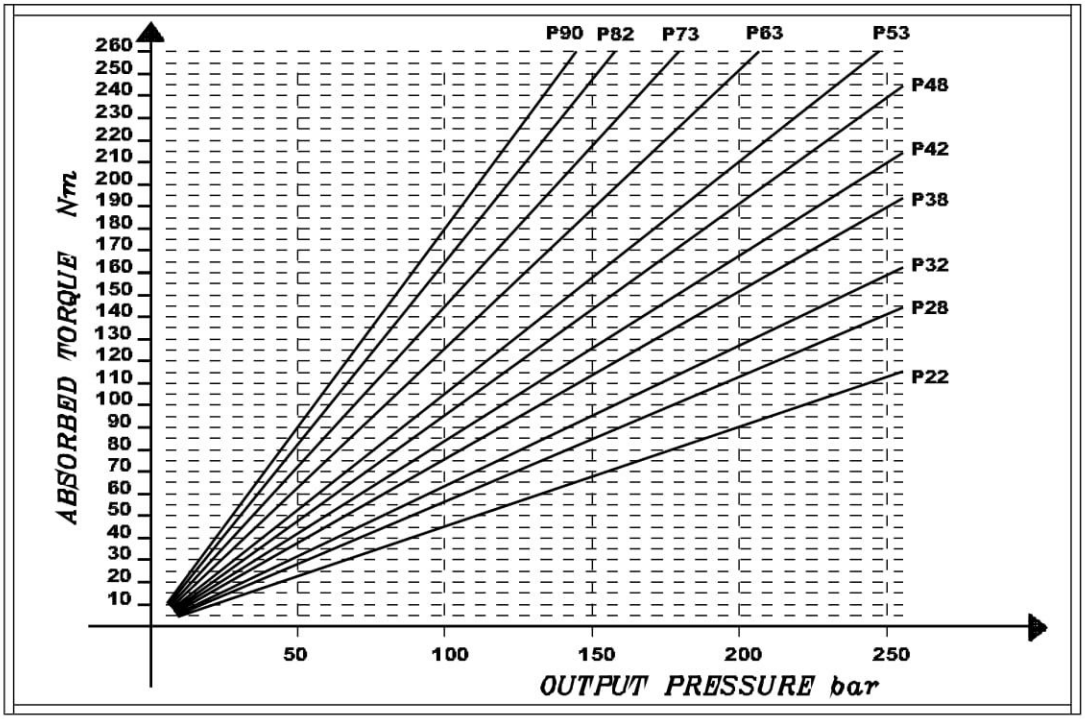
During the first starting it is racommended:
- to set the maximum pressure relief valves to a low value and gradually increase the pressure.
- to check, with single rotation pumps, that the rotation direction it is correct.
- to check that the connection betwen the motor and pump shaft is correct: without 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 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
η_v	Volumetric efficiency	0.95
η_m	Mechanical efficiency	0.9
η_t	Total efficiency	0.85

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

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

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

GROUP3 MOTORS

OT300 SINGLE ROTATION MOTORS GENERAL DATA

MOTOR TYPE	DISPLACEMENT	MAX. PRESSURE			MAX. SPEED	MIN. SPEED
		P1	P2	P3		
	cc ^{3} / rev	bar			rev $^{-1}$	rev $^{-1}$
OT300 M22	22	250	280	300	4000	600
OT300 M28	28					
OT300 M32	32					
OT300 M38	38	240	260	280	3500	500
OT300 M42	42					
OT300 M48	48					
OT300 M53	53	190	210	250	3000	
OT300 M63	63	190	210	240	2500	
OT300 M73	73	160	180	210		
OT300 M82	82	150	170	200	2000	
OT300 M90	90	130	150	180		

P1= Max. continuous pressure P2= Max. intermittent pressure P3= Max. peak pressure

FOR DIMENSION PLEASE CHECK
RELATIVE SINGLE PUMP TABLES