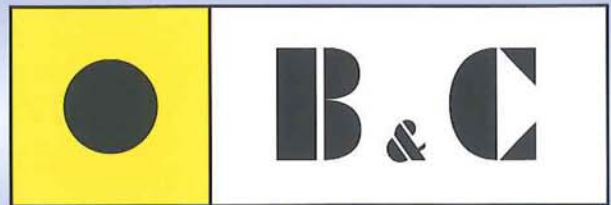




TECHNICAL CATALOGUE



**FIXED DISPLACEMENT
HYDRAULIC VANE PUMPS**

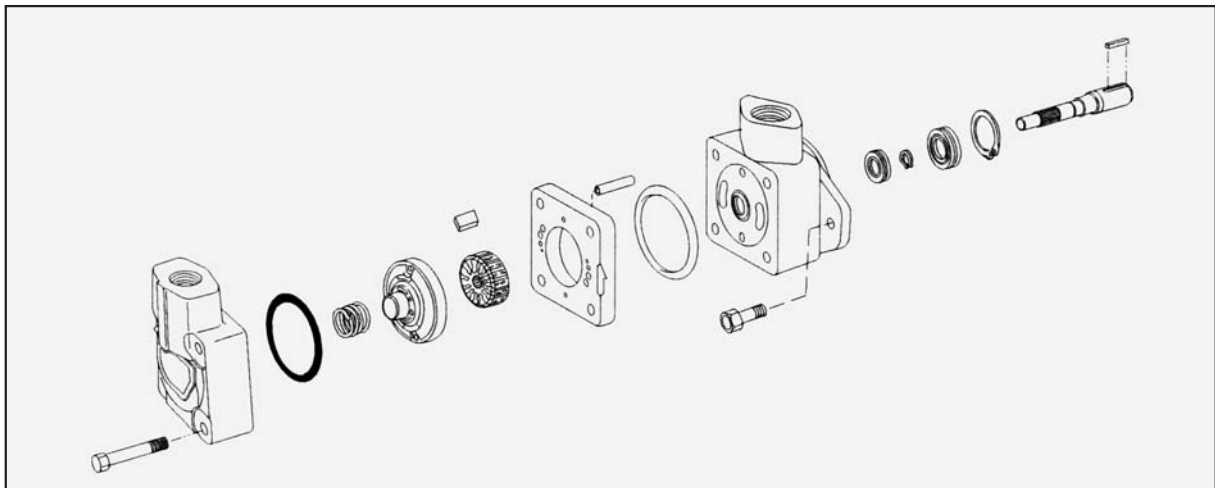
B1/B2 series

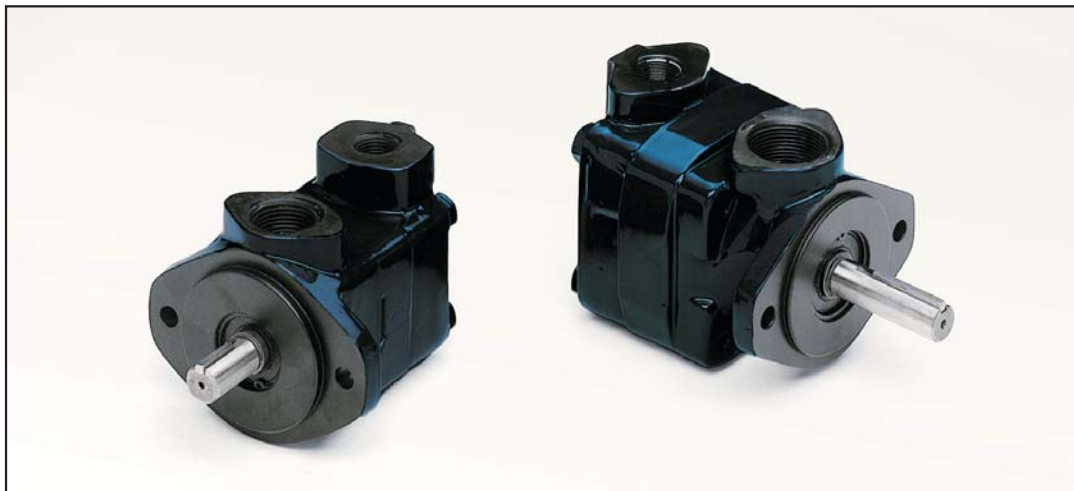


FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “B1/B2” SERIES

Versatility, reliability, high long-term volumetric efficiency and low noise level are the hallmark of the B1 and B2 series of vane pumps.

B1 and B2 pumps combine these qualities, with low running costs to offer a valid alternative to other types of pump for both industrial and mobile use, particularly where noise level must be kept low. B1 pumps are available in eight different versions (from 1 to 7 gpm at 1200 rpm), with maximum power of up to 18 kW; B2 pumps are available in seven different versions (from 6 to 13 gpm at 1200 rpm), with maximum power of up to 27 kW. Both are supplied with different mechanical and hydraulic connections, for extremely simple installation and complete interchangeability with other types of pump.

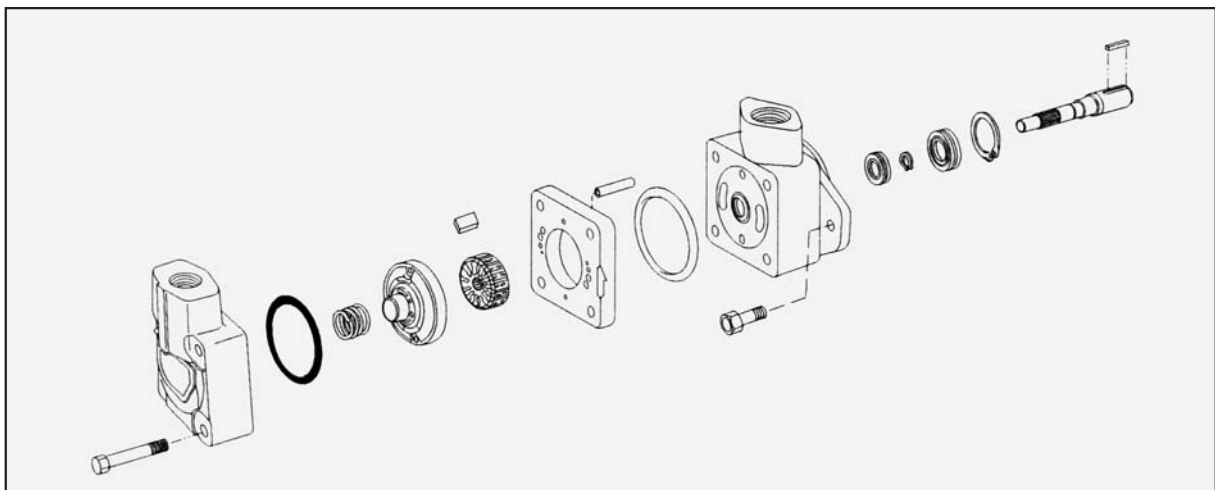


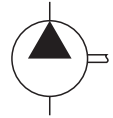
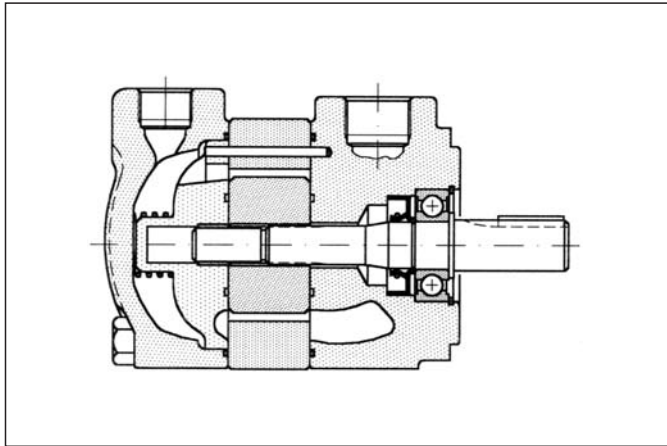


FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “B1/B2” SERIES

Versatility, reliability, high long-term volumetric efficiency and low noise level are the hallmark of the B1 and B2 series of vane pumps.

B1 and B2 pumps combine these qualities, with low running costs to offer a valid alternative to other types of pump for both industrial and mobile use, particularly where noise level must be kept low. B1 pumps are available in eight different versions (from 1 to 7 gpm at 1200 rpm), with maximum power of up to 18 kW; B2 pumps are available in seven different versions (from 6 to 13 gpm at 1200 rpm), with maximum power of up to 27 kW. Both are supplied with different mechanical and hydraulic connections, for extremely simple installation and complete interchangeability with other types of pump.





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of ring used and the speed of rotation. The pump is available in eight different displacements, from 3.29 cc to 22.8 cc.

Technical characteristics

oil viscosity: 25 c.St. (10W), temperature: 45°C, inlet pressure: 0 BAR

| Pump type | Geometric displacement | | Rated capacity at 7 bar | | | | | | Max pressure with mineral oil | | Speed range with min. oil (rpm) | |
|--------------|------------------------|----------------------|-------------------------|--------|----------|--------|----------|--------|-------------------------------|--------|---------------------------------|------|
| | | | 1000 rpm | | 1200 rpm | | 1500 rpm | | | | | |
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| B1G10 | 3,29 | (0.20) | 3,21 | (0.85) | 3,78 | (1) | 4,70 | (1.25) | 175 | (2500) | 650 | 4800 |
| B1G15 | 5,50 | (0.33) | 5,42 | (1.43) | 6,32 | (1.70) | 7,86 | (2.10) | 175 | (2500) | 650 | 4800 |
| B1G20 | 6,53 | (0.40) | 6,45 | (1.70) | 7,57 | (2) | 9,40 | (2.50) | 175 | (2500) | 650 | 4500 |
| B1G30 | 9,82 | (0.60) | 9,72 | (2.57) | 11,35 | (3) | 14,20 | (3.75) | 175 | (2500) | 650 | 4000 |
| B1G40 | 13,10 | (0.80) | 12,91 | (3.41) | 15,14 | (4) | 18,90 | (5.00) | 175 | (2500) | 650 | 3400 |
| B1G50 | 16,39 | (1.00) | 16,25 | (4.29) | 18,92 | (5) | 23,60 | (6.25) | 175 | (2500) | 650 | 3200 |
| B1G60 | 19,50 | (1.19) | 19,44 | (5.14) | 22,71 | (6) | 28,40 | (7.50) | 150 | (2200) | 650 | 3000 |
| B1G70 | 22,80 | (1.39) | 22,36 | (5.91) | 26,49 | (7) | 33,10 | (8.75) | 140 | (2000) | 650 | 2800 |

Hydraulic fluids: mineral oils, phosphate ester based fluids, water emulsions in oil, water-glycol fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure (with mineral oil): from -0,17 to +0,35 bar (-2.5 + 5 psi),
(with synthetic fluids and water-in-oil emulsion): from -0,10 to +0,35 bar (-1.5 + 5 psi)

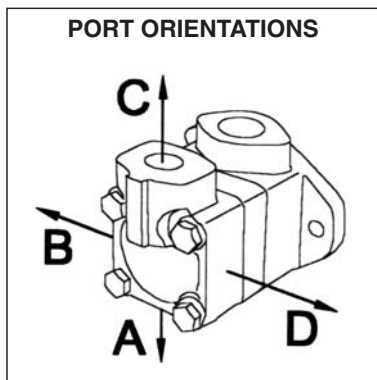
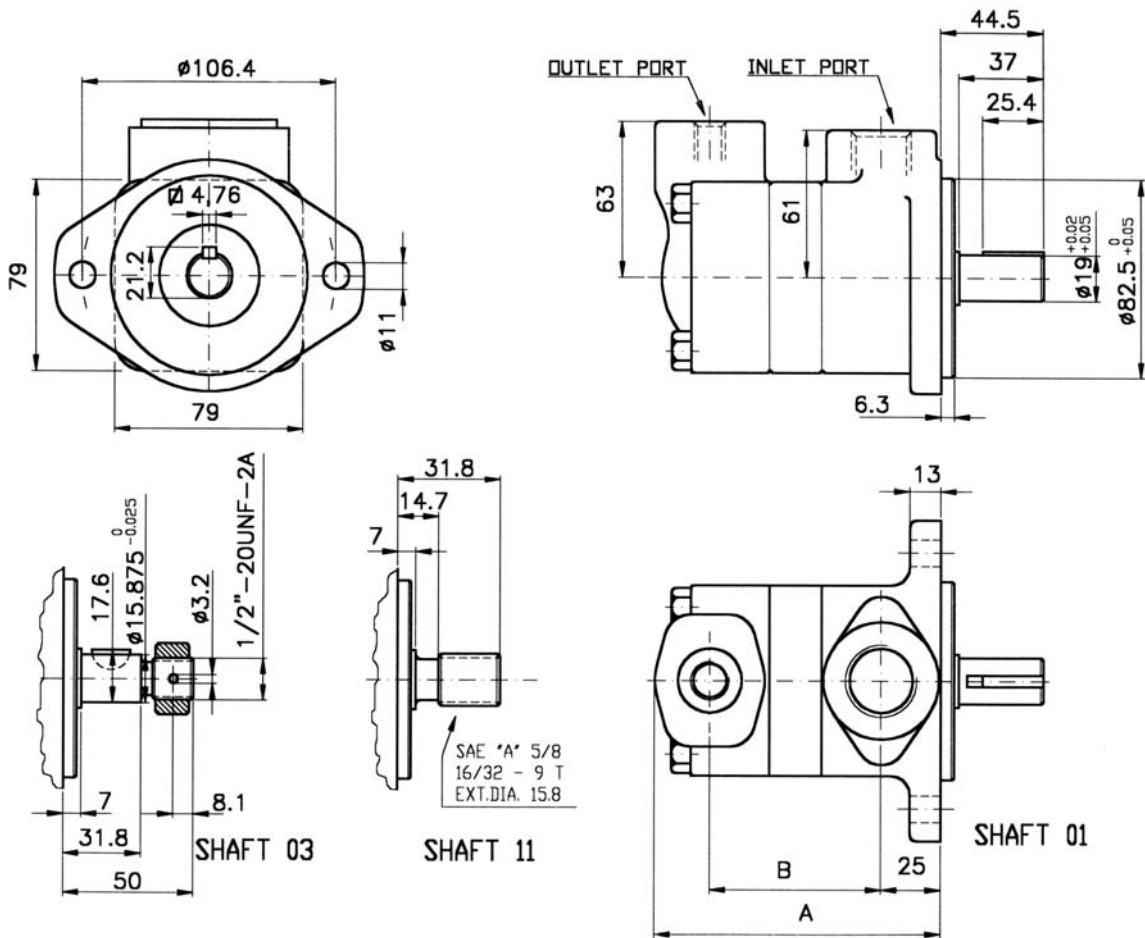
Operating temperature: with mineral oil -10°C to +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

Drive: direct and coaxial by means of a flexible coupling.

Use limits with special fluids

| Pump type | Maximum pressure | | | | | | Speed range (rpm) | |
|------------|------------------|--------|--------------|--------|-----------------------|--------|--|------|
| | syntetic fluid | | water-glycol | | water-in-oil emulsion | | syntetic fluid, water-glycol water-in-oil emulsion | |
| | bar | (psi) | bar | (psi) | bar | (psi) | min | max |
| All | 140 | (2000) | 126 | (1800) | 105 | (1500) | 650 | 1800 |

Installation dimensions mm



Pump length

| Pump type | A | B |
|-----------|-----|------|
| B1G10 | 116 | 67.4 |
| B1G15 | 116 | 67.4 |
| B1G20 | 116 | 67.4 |
| B1G30 | 116 | 67.4 |
| B1G40 | 120 | 73.7 |
| B1G50 | 120 | 73.7 |
| B1G60 | 127 | 78.8 |
| B1G70 | 127 | 78.8 |

Approx. weight: 4,5-6,8 kg. (10-15 lbs.)

Model code breakdown

Nominal size (see table)
10 15 20 30 40 50 60 70

B1 G ** * * * * (L)

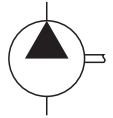
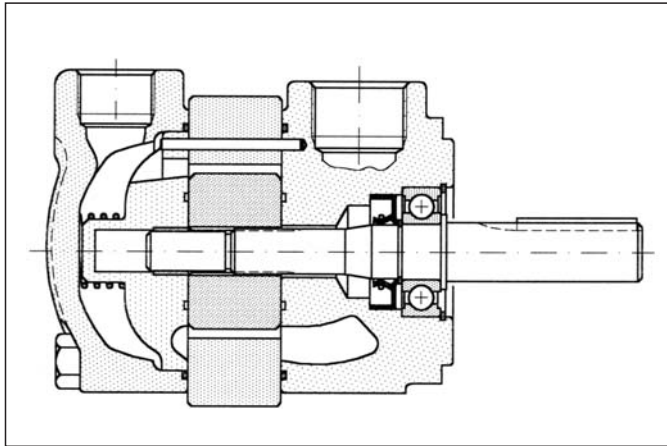
Inlet port connection
B= 1" GAS threaded
P= 1" NPT threaded
S= SAE 1-5/16" 12 UNF-2B threaded

Outlet port connection
B= 1/2" GAS threaded
P= 1/2" NPT threaded
S= SAE 3/4" 16 UNF-2B threaded

Rotation (viewed from shaft end)
L = left hand rotation (omit if right hand rot.)

Shaft end options
01 = Straight with square key (standard)
03 = Threaded with woodruff key
11 = Splined "SAE A" 9 teeth 16/32

Outlet port positions
 (Outlet viewed from cover end)
A = Outlet opposite inlet, **B** = Outlet 90° CCW from inlet,
C = Outlet in line with inlet, **D** = 90° Outlet CW from inlet



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of ring used and the speed of rotation. The pump is available in seven different displacements, from 19.5 cc to 42.4 cc.

Technical characteristics

oil viscosity: 25 c.St. (10W), temperature: 45°C, inlet pressure: 0 BAR

| Pump type | Geometric displacement | | Rated capacity at 7 bar | | | | | | Max pressure with mineral oil | | Speed range with min. oil (rpm) | |
|--------------|------------------------|--------------------|-------------------------|---------|----------|-------|----------|---------|-------------------------------|--------|---------------------------------|------|
| | | | 1000 rpm | | 1200 rpm | | 1500 rpm | | | | | |
| | cm ³ /g | in ³ /r | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| B2G06 | 19,50 | (1.19) | 18,90 | (5.00) | 22,71 | (6) | 28,39 | (7.50) | 175 | (2500) | 450 | 3000 |
| B2G07 | 22,78 | (1.39) | 22,15 | (5.85) | 26,49 | (7) | 33,11 | (8.75) | 175 | (2500) | 450 | 3000 |
| B2G08 | 26,55 | (1.62) | 27,70 | (7.32) | 30,28 | (8) | 37,85 | (10.00) | 175 | (2500) | 450 | 3000 |
| B2G09 | 29,66 | (1.81) | 28,61 | (7.55) | 34,06 | (9) | 42,57 | (11.25) | 175 | (2500) | 450 | 2800 |
| B2G11 | 36,38 | (2.22) | 35,35 | (9.34) | 41,63 | (11) | 52,04 | (13.75) | 175 | (2500) | 450 | 2800 |
| B2G12 | 39,00 | (2.38) | 37,92 | (10.02) | 45,42 | (12) | 56,77 | (15.00) | 150 | (2200) | 450 | 2500 |
| B2G13 | 42,44 | (2.59) | 41,32 | (10.92) | 49,20 | (13) | 61,50 | (16.25) | 140 | (2000) | 450 | 2500 |

Hydraulic fluids: mineral oils, phosphate ester based fluids, water emulsions in oil, water-glycol fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure (with mineral oil): from -0,17 to +0,35 bar (-2.5 + 5 psi),
(with synthetic fluids and water-in-oil emulsion): from -0,10 to +0,35 bar (-1.5 + 5 psi)

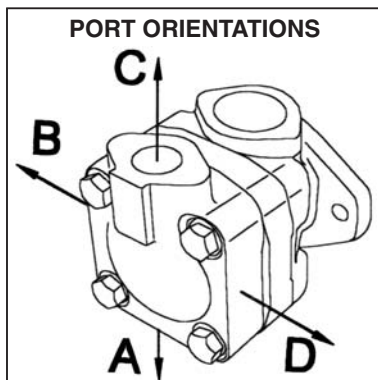
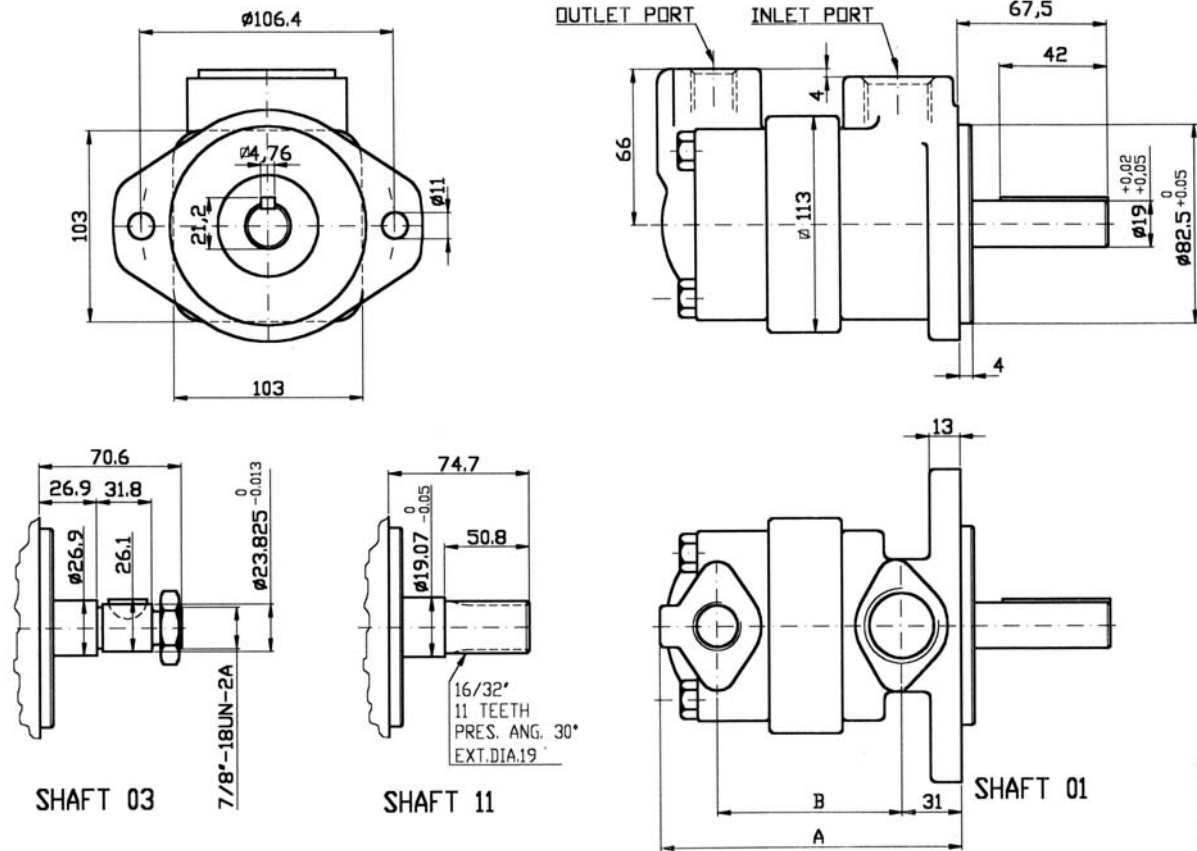
Operating temperature: with mineral oil -10°C to +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

Drive: direct and coaxial by means of a flexible coupling.

Use limits with special fluids

| Pump type | Maximum pressure | | | | | | Speed range (rpm) | |
|------------------|------------------|--------|--------------|--------|-----------------------|--------|--|------|
| | syntetic fluid | | water-glycol | | water-in-oil emulsion | | syntetic fluid, water-glycol water-in-oil emulsion | |
| | bar | (psi) | bar | (psi) | bar | (psi) | min | max |
| B2G6-G8 | 140 | (2000) | 125 | (1800) | 110 | (1500) | 600 | 1800 |
| B2G9 | 140 | (2000) | 110 | (1500) | 95 | (1350) | 600 | 1500 |
| B2G11-G13 | 125 | (1800) | 110 | (1500) | 95 | (1350) | 600 | 1500 |

Installation dimensions mm



Pump length

| Pump type | A | B |
|-----------|-----|----|
| B2G06 | 125 | 72 |
| B2G07 | 132 | 78 |
| B2G08 | 132 | 78 |
| B2G09 | 132 | 78 |
| B2G11 | 137 | 83 |
| B2G12 | 140 | 87 |
| B2G13 | 140 | 87 |

Approx. weight: 7,3-8,2 kg. (16-18 lbs.)

Model code breakdown

Nominal size (see table)

06 07 08 09 11 12 13

B2 G ** * * * * (L)

Inlet port connection

B= 1-1/4" GAS threaded
P= 1-1/4" NPT threaded
S= SAE 1-5/8" 12 UNF-2B threaded

Outlet port connection

B= 3/4" GAS threaded
P= 3/4" NPT threaded
S= SAE 1-1/16" 12 UNF-2B threaded

Rotation (viewed from shaft end)

L = left hand rotation (omit if right hand rot.)

Shaft end options

01 = Straight with square key (standard)
03 = Threaded with woodruff key
11 = Splined "SAE A" 11 teeth 16/32

Outlet port positions

(Outlet viewed from cover end)

A = Outlet opposite inlet, **B** = Outlet 90° CCW from inlet,
C = Outlet in line with inlet, **D** = 90° Outlet CW from inlet

Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7 psi) and with ambient temperature in the range of +30°C to +50°C. Higher speeds than those given cause a reduction in the volumetric efficiency, due to cavitation phenomena in the inlet area inside the pump. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the pump.

Minimum speed: Refer to the technical characteristics table of the pump. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum outlet pressure is different for each type of fluid used as can be seen from the corresponding table. With optimal temperature and filtration conditions a pressure peak of +10% is permissible for a maximum time of 0.5 sec.

Mounting and drive connections: consider the following indications when preparing the installation drawings for the system:

- the pump is designed to operate with keyed shaft coupled axially and by means of a flexible coupling to the drive;
- the clearance between the keyed shaft and the corresponding sleeve coupling has to be between 0.004 and 0.030 mm;
- avoid axial and radial loads on the shaft;
- the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm;
- when mounting onto a gearbox, or other component without a flexible coupling, it is advisable to order pumps with splined shaft. In this case the clearance between splines has to be between 0.013 and 0.051 mm on the pitch diameter.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.)

Inlet line tubing should have a section equal to or greater than that of the inlet port of the pump. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which has to be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The filtration requirements for individual models are given in this catalogue. The use of a filter bypass is recommended for cold starts and should the filter become clogged. Proper maintenance of the filter element is essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, the same general conditions apply as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time:

- completely fill the pump and the inlet line with fluid;
 - start the engine for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed;
 - with a manometer check to ensure that the outlet pressure increases slightly;
 - once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir.
- This procedure should be carefully as any residual air inside the pump can quickly cause the rotor to seize.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits.

The information provided in this catalogue is subject to change without notice



B & C s.r.l.

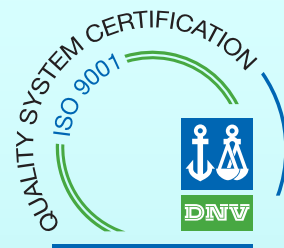
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www.bcit.it - info@bcit.it



TECHNICAL CATALOGUE



**FIXED DISPLACEMENT
HYDRAULIC VANE PUMPS**

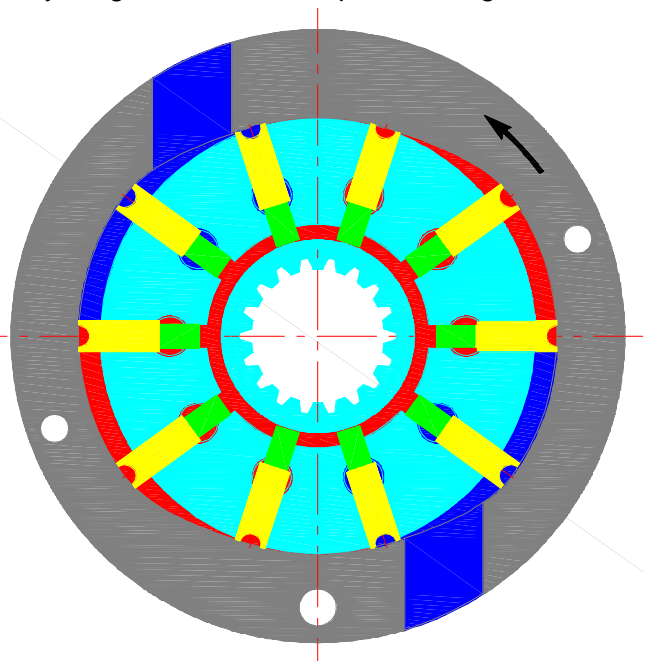
BD series



HIGH PRESSURE HYDRAULIC VANE PUMPS BD SERIES

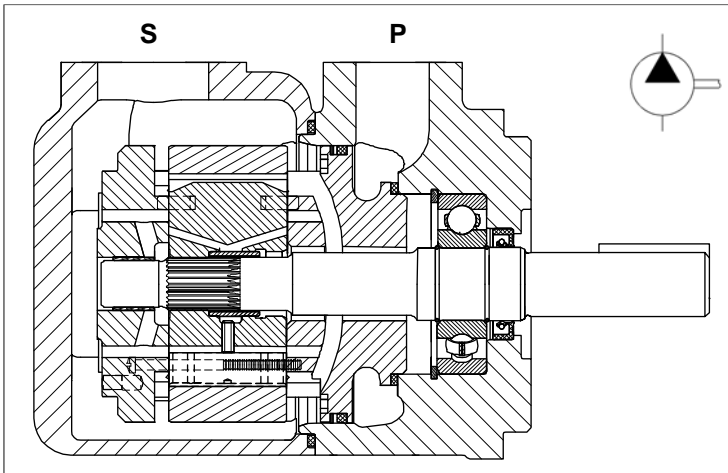
Versatility, power, compactness and low running costs are the main characteristics of BD vane pumps. All the components subject to wear are contained in a cartridge unit that can be easily removed for inspection and/or replacement without disconnecting the pump from the circuit, drastically reducing expensive machine down time. The cartridge contains a rotor, vanes and pins, a cam ring and two supports. During operation the rotor is driven by a splined shaft coupled to the drive unit. As the rotation speed increases, centrifugal forces, in combination with the pressure generated behind the vanes, push the vanes outwards, where they follow the profile of the cam with a sufficient contact pressure to ensure adequate hydraulic sealing. The two opposed pumping chambers formed by the elliptical profile of the cam cancel out radial loads on the shaft bearings, thereby giving them extremely long lifetimes. The special design of the double-lip vanes renders the BD series pumps particularly suitable for applications requiring high pressure levels and very low noise emissions.

The BD series is available in three versions of single pump (from 10 to 227 l/min at 1000 rpm) and four versions of double pump (from 20 to 385 l/min total, at 1000 rpm), with input powers of over 328 KW at max pressure and speed. The BD series pumps are extremely compact and are supplied with SAE norm hydraulic flanges and shafts. This makes them very easy to install and guarantees their interchangeability with other similar pumps.



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| Double pump BD52 | pag. 45 |
| Double pump BD54 | pag. 53 |
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General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in 15 different displacements from 16 to 150 l/min (from 4 to 40 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|--------|--------------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| 03 | 10,8 | (0.66) | 12,93 | (3.42) | 16,2 | (4.29) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 05 | 17,2 | (1.05) | 20,60 | (5.45) | 25,8 | (6.83) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 06 | 21,3 | (1.30) | 25,52 | (6.75) | 31,9 | (8.44) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 08 | 26,4 | (1.61) | 31,64 | (8.37) | 39,6 | (10.48) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 10 | 34,1 | (2.08) | 40,86 | (10.81) | 51,1 | (13.52) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 12 | 37,1 | (2.26) | 44,45 | (11.76) | 55,6 | (14.71) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 14 | 46,0 | (2.81) | 55,11 | (14.58) | 69,0 | (18.25) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 17 | 58,3 | (3.56) | 69,85 | (18.48) | 87,4 | (23.12) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 20 | 63,8 | (3.89) | 76,47 | (20.23) | 95,7 | (25.32) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 22 | 70,3 | (4.29) | 84,26 | (22.29) | 105,4 | (27.88) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 25 | 79,3 | (4.84) | 95,03 | (25.14) | 118,9 | (31.46) | 275 | (4000) | 240 | (3500) | 400 - 2500 |
| 28 | 88,8 | (5.42) | 106,41 | (28.15) | 133,2 | (35.24) | 210 | (3000) | 160 | (2300) | 400 - 2500 |
| 31 | 100,0 | (6.10) | 119,83 | (31.70) | 150,0 | (39.68) | 210 | (3000) | 160 | (2300) | 400 - 2500 |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recomm.). Choose 30 c.St. for max life-time. *Viscosity index:* 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

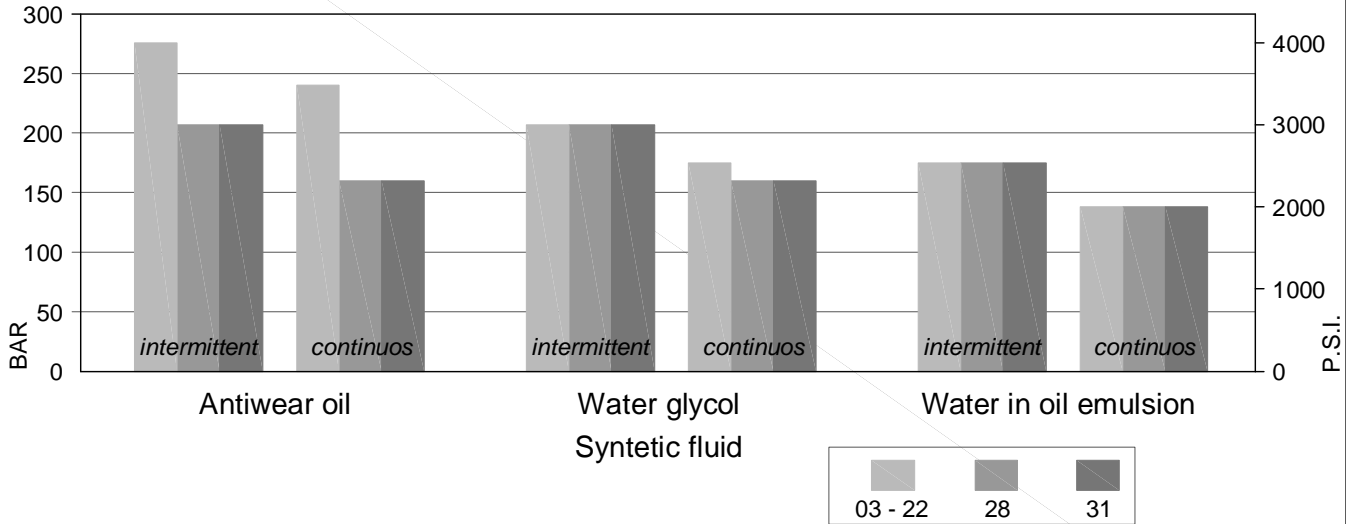
Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

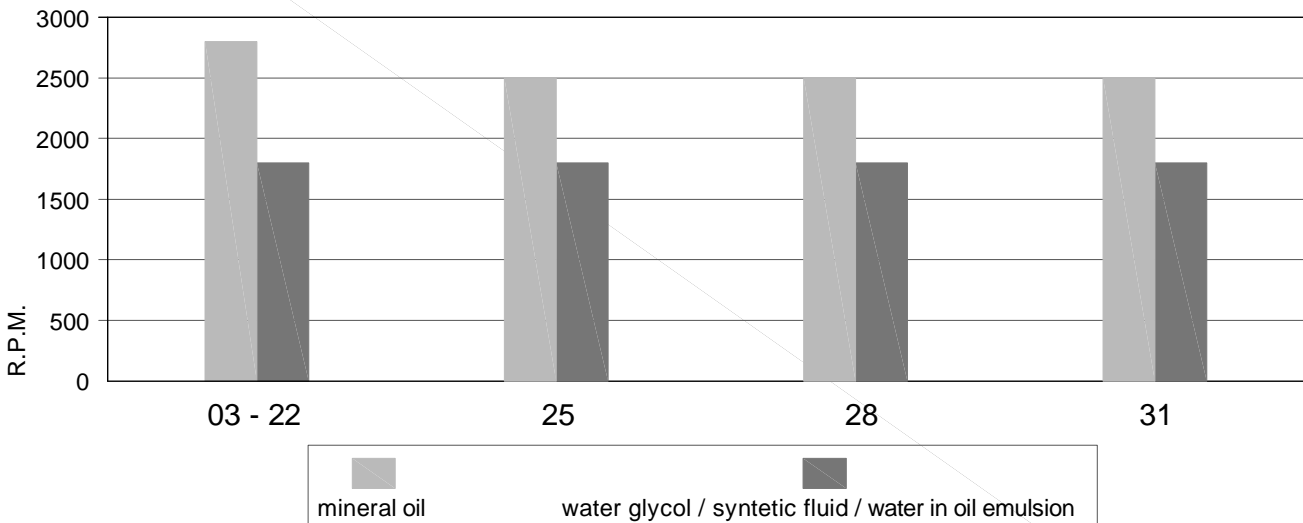
Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data

max pressure / fluid type



max speed / fluid type

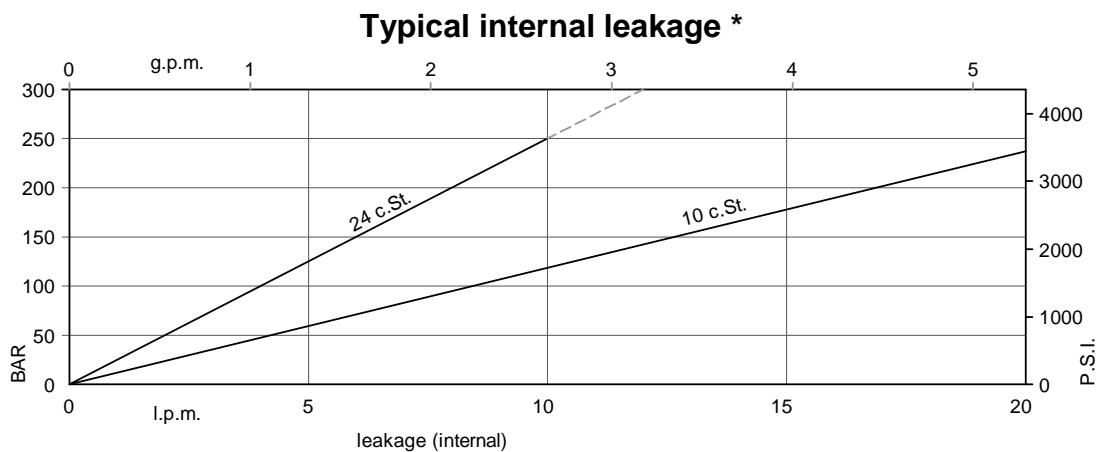
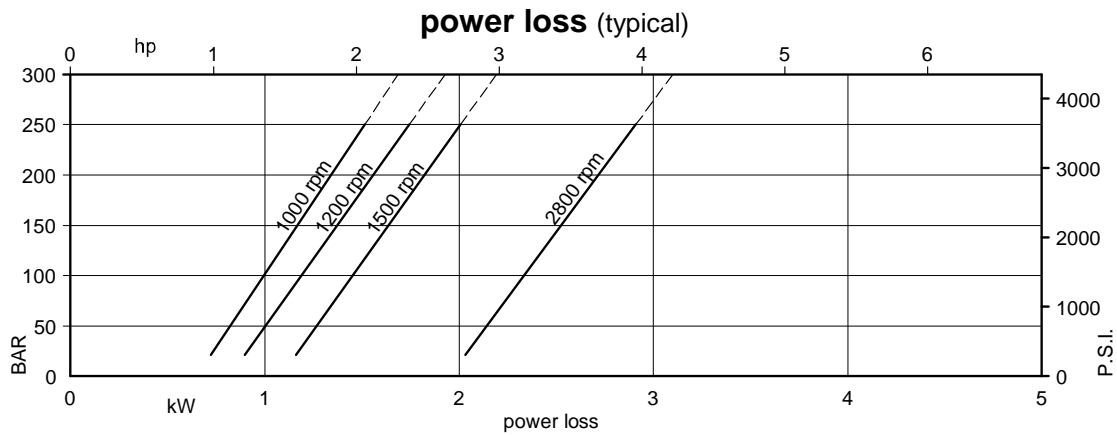
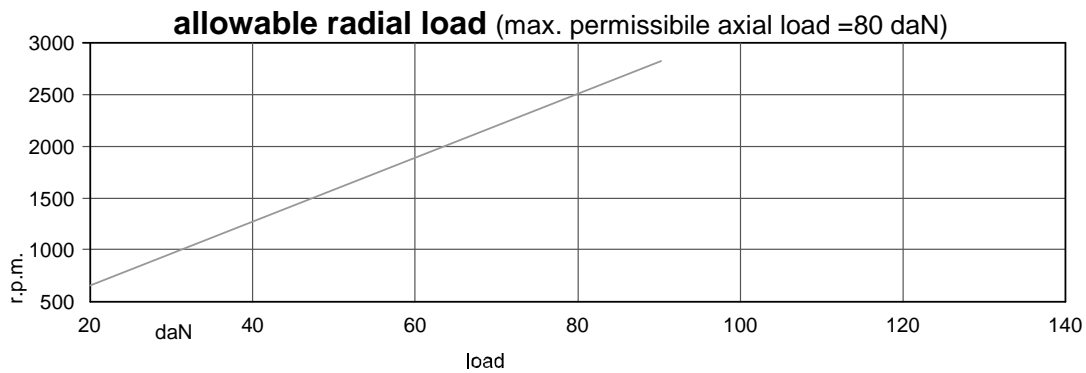
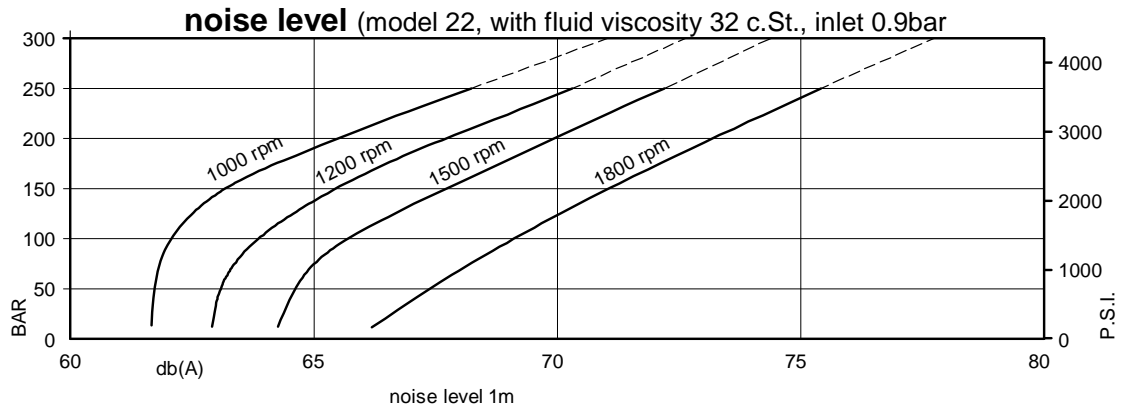


min. allowable inlet pressure / rotation speed (abs. bar)*

| Speed r.p.m. | from 03 to 10 | 12 | 14 | 17 | 20 | 22 | 25 | 28 | 31 |
|--------------|---------------|------|------|------|------|------|------|------|------|
| 2800 | 1.00 | 1.00 | 1.00 | 1.03 | 1.03 | 1.05 | | | |
| 2500 | 0.90 | 0.92 | 0.95 | 0.95 | 0.95 | 0.98 | 1.05 | 1.08 | 1.11 |
| 2300 | 0.80 | 0.85 | 0.85 | 0.90 | 0.90 | 0.90 | 0.95 | 0.98 | 1.0 |
| 2200 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | 0.90 | 0.95 | 0.98 | 0.90 |
| 2100 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.90 | 0.90 | 0.85 |
| 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).
 Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Specific operating data

Typical: 24 c.St. (115 SUS)

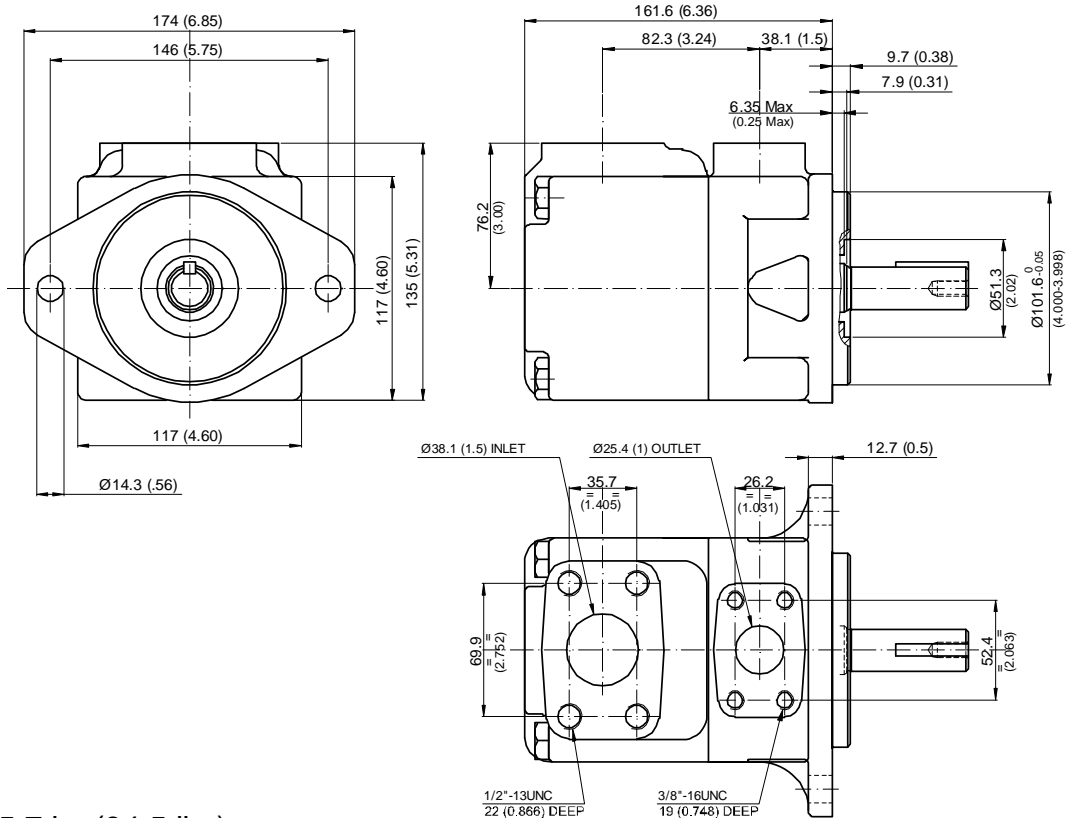
| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|------------------|------------------------|----------------------|-----------|---------|---------|----------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 03 | 10,8 | (0.66) | 1000 | - | - | - | - | 1.00 | - | - |
| | | | 1200 | - | - | - | - | 1.05 | - | - |
| | | | 1500 | 10,7 | (2.84) | - | - | 1.30 | 5.30 | - |
| | | | 1800 | 13,6 | (3.61) | - | - | 1.55 | 8.45 | - |
| 05 | 17,2 | (1.05) | 1000 | 11,7 | (3.09) | - | - | 1.10 | 5.10 | - |
| | | | 1200 | 15,1 | (3.99) | - | - | 1.14 | 8.17 | - |
| | | | 1500 | 20,3 | (5.37) | 15,8 | (4.18) | 1.40 | 7.50 | 12.2 |
| | | | 1800 | 25,1 | (6.65) | 21,0 | (5.56) | 1.68 | 12.0 | 14.4 |
| 06 | 21,3 | (1.30) | 1000 | 15,80 | (4.18) | 11,30 | (2.99) | 1.10 | 6.00 | 10.00 |
| | | | 1200 | 19,73 | (5.22) | 15,61 | (4.13) | 1.19 | 7.13 | 11.86 |
| | | | 1500 | 26,50 | (7.01) | 22,00 | (5.82) | 1.50 | 8.90 | 14.70 |
| | | | 1800 | 32,51 | (8.60) | 28,39 | (7.51) | 1.76 | 10.50 | 17.33 |
| 08 | 26,4 | (1.61) | 1000 | 20,90 | (5.53) | 16,40 | (4.34) | 1.20 | 7.20 | 12.10 |
| | | | 1200 | 25,86 | (6.84) | 21,74 | (5.75) | 1.26 | 8.51 | 14.29 |
| | | | 1500 | 34,10 | (9.02) | 29,60 | (7.83) | 1.60 | 10.70 | 17.70 |
| | | | 1800 | 41,66 | (11.02) | 37,54 | (9.93) | 1.87 | 12.58 | 20.98 |
| 10 | 34,1 | (2.08) | 1000 | 28,60 | (7.57) | 24,10 | (6.38) | 1.30 | 8.90 | 15.10 |
| | | | 1200 | 35,08 | (9.28) | 30,96 | (8.19) | 1.37 | 10.61 | 17.96 |
| | | | 1500 | 45,70 | (12.09) | 41,20 | (10.90) | 1.70 | 13.40 | 22.30 |
| | | | 1800 | 55,53 | (14.69) | 51,41 | (13.60) | 2.03 | 15.72 | 26.47 |
| 12 | 37,1 | (2.26) | 1000 | 31,60 | (8.36) | 27,10 | (7.17) | 1.30 | 9.60 | 16.30 |
| | | | 1200 | 38,67 | (10.23) | 34,55 | (9.14) | 1.41 | 11.42 | 19.38 |
| | | | 1500 | 50,20 | (13.28) | 45,70 | (12.09) | 1.70 | 14.40 | 24.10 |
| | | | 1800 | 60,90 | (16.11) | 56,78 | (15.02) | 2.09 | 16.95 | 28.62 |
| 14 | 46,0 | (2.81) | 1000 | 40,50 | (10.71) | 36,00 | (9.52) | 1.40 | 11.70 | 19.90 |
| | | | 1200 | 49,33 | (13.05) | 45,21 | (11.96) | 1.53 | 13.85 | 23.62 |
| | | | 1500 | 63,50 | (16.80) | 59,00 | (15.61) | 1.90 | 17.60 | 29.50 |
| | | | 1800 | 76,92 | (20.35) | 72,80 | (19.26) | 2.27 | 20.58 | 34.97 |
| 17 | 58,3 | (3.56) | 1000 | 52,80 | (13.97) | 48,30 | (12.78) | 1.60 | 14.50 | 24.80 |
| | | | 1200 | 64,07 | (16.95) | 59,95 | (15.86) | 1.70 | 17.19 | 29.47 |
| | | | 1500 | 82,00 | (21.69) | 77,50 | (20.50) | 2.10 | 21.90 | 36.90 |
| | | | 1800 | 99,04 | (26.20) | 94,92 | (25.11) | 2.52 | 25.60 | 43.76 |
| 20 | 63,8 | (3.89) | 1000 | 58,30 | (15.42) | 53,80 | (14.23) | 1.60 | 15.80 | 27.00 |
| | | | 1200 | 70,69 | (18.70) | 66,57 | (17.61) | 1.77 | 18.68 | 32.09 |
| | | | 1500 | 90,20 | (23.86) | 85,70 | (22.67) | 2.20 | 23.80 | 40.20 |
| | | | 1800 | 108,90 | (28.81) | 103,65 | (27.42) | 2.63 | 27.84 | 47.68 |
| 22 | 70,3 | (4.29) | 1000 | 64,80 | (17.14) | 60,30 | (15.95) | 1.70 | 17.30 | 29.60 |
| | | | 1200 | 78,47 | (20.76) | 74,35 | (19.67) | 1.86 | 20.46 | 35.18 |
| | | | 1500 | 100,00 | (26.46) | 95,50 | (25.26) | 2.30 | 26.10 | 44.10 |
| | | | 1800 | 120,58 | (31.90) | 116,46 | (30.81) | 2.76 | 30.49 | 52.32 |
| 25 ¹⁾ | 79,3 | (4.84) | 1000 | 73,80 | (19.52) | 69,30 | (18.33) | 1.80 | 19.30 | 33.20 |
| | | | 1200 | 89,25 | (23.61) | 85,13 | (22.52) | 1.99 | 22.90 | 39.47 |
| | | | 1500 | 113,50 | (30.03) | 109,00 | (28.84) | 2.50 | 29.20 | 49.50 |
| | | | 1800 | 136,76 | (36.18) | 132,64 | (35.09) | 2.95 | 34.16 | 58.75 |
| 28 ¹⁾ | 88,8 | (5.42) | 1000 | 83,30 | (22.04) | 80,10 ²⁾ | (21.19) ²⁾ | 1.90 | 21.90 | 32.50 ²⁾ |
| | | | 1200 | 100,62 | (26.62) | 97,75 ²⁾ | (25.86) ²⁾ | 2.11 | 25.49 | 37.77 ²⁾ |
| | | | 1500 | 127,70 | (33.78) | 124,50 ²⁾ | (32.94) ²⁾ | 2.80 | 32.70 | 48.50 ²⁾ |
| | | | 1800 | 153,85 | (40.70) | 150,97 ²⁾ | (39.94) ²⁾ | 3.14 | 38.04 | 56.42 ²⁾ |
| 31 ¹⁾ | 100,0 | (6.10) | 1000 | 94,50 | (25.00) | 91,30 ²⁾ | (24.15) ²⁾ | 2.00 | 24.40 | 36.40 ²⁾ |
| | | | 1200 | 114,04 | (30.17) | 111,17 ²⁾ | (29.41) ²⁾ | 2.26 | 28.53 | 42.34 ²⁾ |
| | | | 1500 | 144,50 | (38.23) | 141,30 ²⁾ | (37.38) ²⁾ | 2.80 | 36.50 | 54.40 ²⁾ |
| | | | 1800 | 173,99 | (46.03) | 171,12 ²⁾ | (45.27) ²⁾ | 3.37 | 42.61 | 63.28 ²⁾ |

- Internal leakage exceeding 50% of the theoretical flow

1) 2500 r.p.m. max.

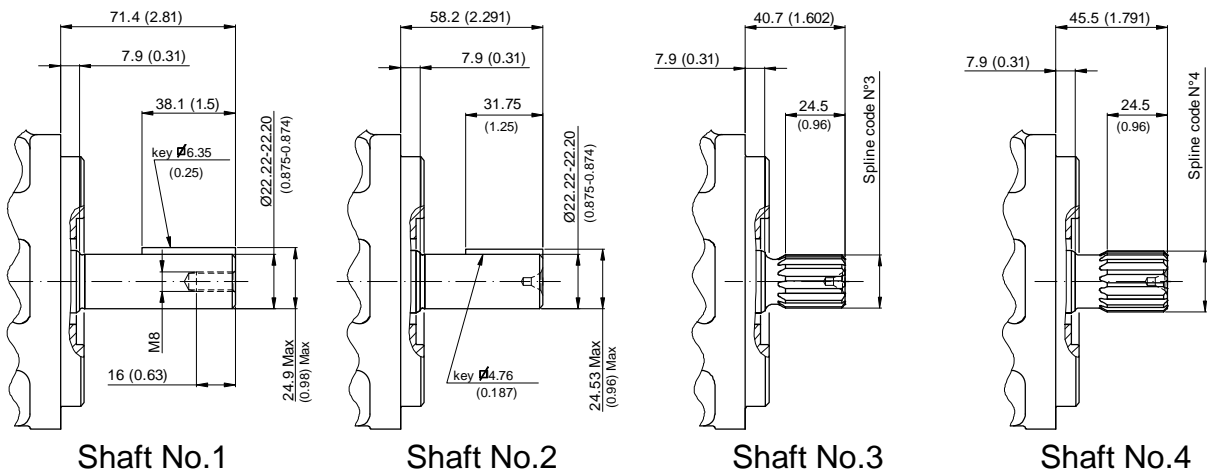
2) 210 bar (3000 p.s.i.) max. int.

Installation dimensions mm (inches)



Approx weight: 15.7 kg (34.5 lbs)

Shaft options mm (inches)



Calculation of the max permitted torque (avoid to exceed)

| Shaft No. | (ml/rev) x bar | (in3/rev) x psi |
|-----------|----------------|-----------------|
| 1 | 16500 | 14473 |
| 2 | 14300 | 12666 |
| 3 | 20600 | 18246 |
| 4 | 21821 | 19309 |

Spline code

| | 3 | 4 |
|----------------|--------------------|--------------------|
| Designation | Sae B | Sae B-B |
| Pressure angle | 30° | 30° |
| No. of teeth | 13 | 15 |
| Pitch | 16/32 d.p. | 16/32 d.p. |
| Spline type | flat root side fit | flat root side fit |
| Class | 1- J498 b | 1- J498 b |

Model code breakdown

BD 02 G ** * * ** *

Pump series

Pump type

Design

Cartridge model

03 05 06 08 10 12 14 17 20 22 25 28 31

Shaft end options

- 1 = keyed (Sae B)
- 2 = Keyed (No Sae)
- 3 = Splined (Sae B)
- 4 = Splined (Sae B-B)

Seals

1 = NBR

Port orientations

(compared to the outlet)

00 = Inlet opposite

01 = Inlet inline

02 = Inlet 90°CW (viewed from shaft-end)

03 = Inlet 90°CCW (viewed from shaft-end)

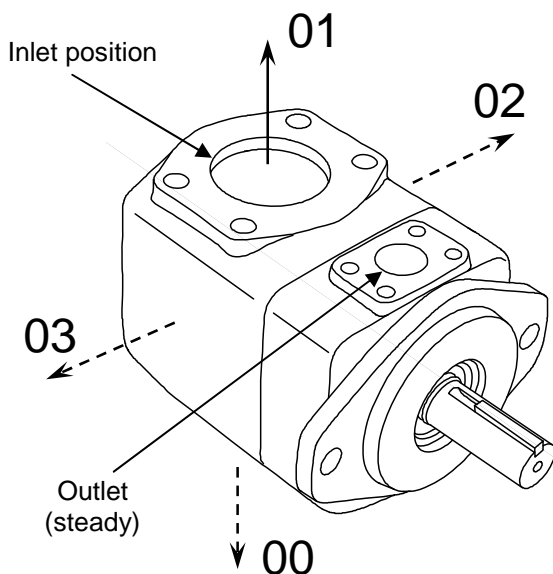
Pump rotation

(viewed from shaft-end)

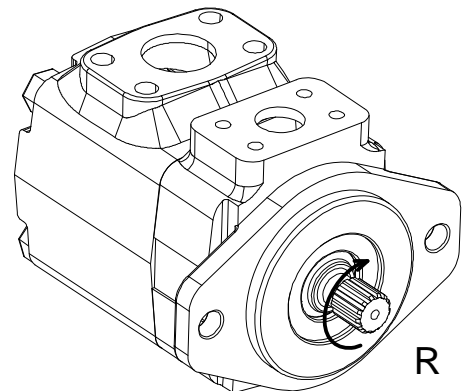
R = Right hand rotation CW

L = Left hand rotation CCW

Port orientations



Pump rotation



Id. codes of pump components

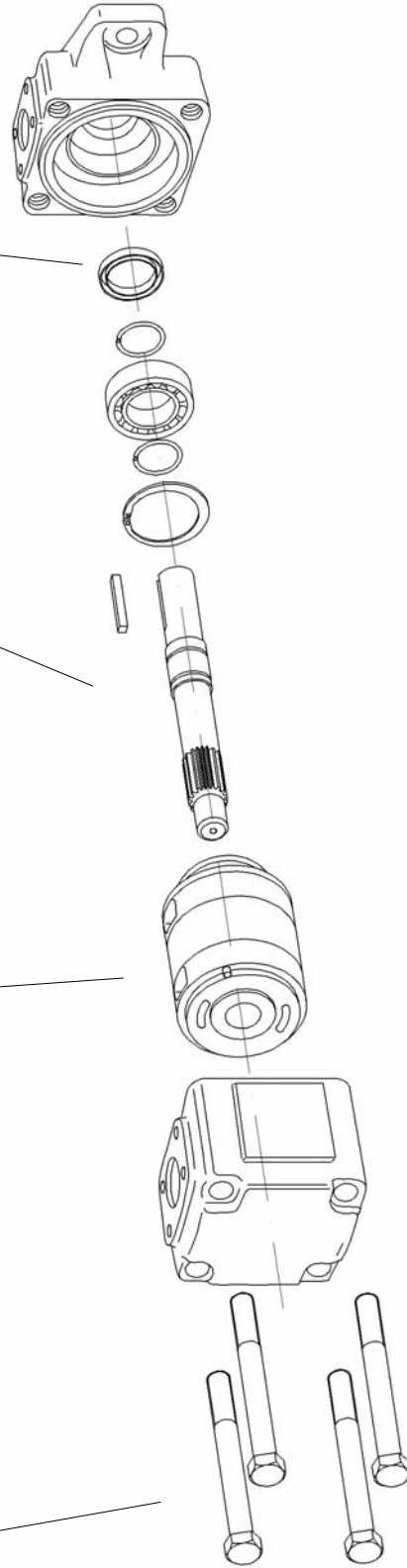
| Screw | |
|--------------------------------|----------|
| Part No. | M3002070 |
| Torque at 159 Nm (1418 lb.in.) | |

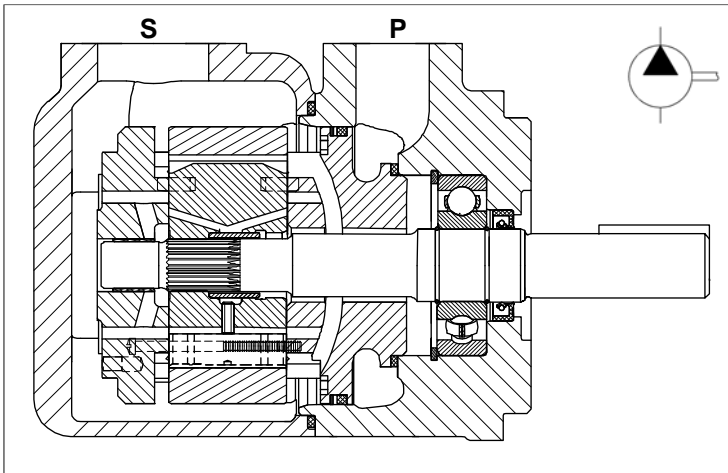
| Type | Cartridge | |
|------|------------|---------------|
| | Model | Pump rotation |
| | Right hand | Left hand |
| BD02 | 03 | N0100010 |
| | 05 | N0100030 |
| | 06 | N0100050 |
| | 08 | N0100070 |
| | 10 | N0100090 |
| | 12 | N0100110 |
| | 14 | N0100130 |
| | 17 | N0100150 |
| | 20 | N0100170 |
| | 22 | N0100190 |
| | 25 | N0100210 |
| | 28 | N0100230 |
| | 31 | N0100250 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K6021000 |
| 02 | K6022000 |
| 03 | K6023000 |
| 04 | K6024000 |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3020060 | NBR |

| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3020500 | NBR |





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in 10 different displacements from 71 to 237 l/min (from 19 to 63 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|--------|-----------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| 14 | 47,6 | (2.90) | 57,04 | (15.09) | 71,4 | (18.89) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 20 | 66,0 | (4.03) | 79,08 | (20.92) | 99,0 | (26.19) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 24 | 79,5 | (4.85) | 95,26 | (25.20) | 119,3 | (31.56) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 28 | 89,7 | (5.47) | 107,50 | (28.44) | 134,5 | (35.58) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 31 | 98,3 | (6.00) | 117,82 | (31.17) | 147,4 | (38.99) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 35 | 111,0 | (6.77) | 133,02 | (35.19) | 166,5 | (44.05) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 38 | 120,3 | (7.34) | 144,17 | (38.14) | 180,4 | (47.72) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 42 | 136,0 | (8.30) | 162,99 | (43.12) | 204,0 | (53.97) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 45 | 145,7 | (8.89) | 174,60 | (46.19) | 218,5 | (57.80) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 50 | 158,0 | (9.64) | 189,34 | (50.09) | 237,0 | (62.70) | 210 | (3000) | 160 | (2300) | 400 - 2200 |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recomm.). Choose 30 c.St. for max life-time. *Viscosity index:* 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

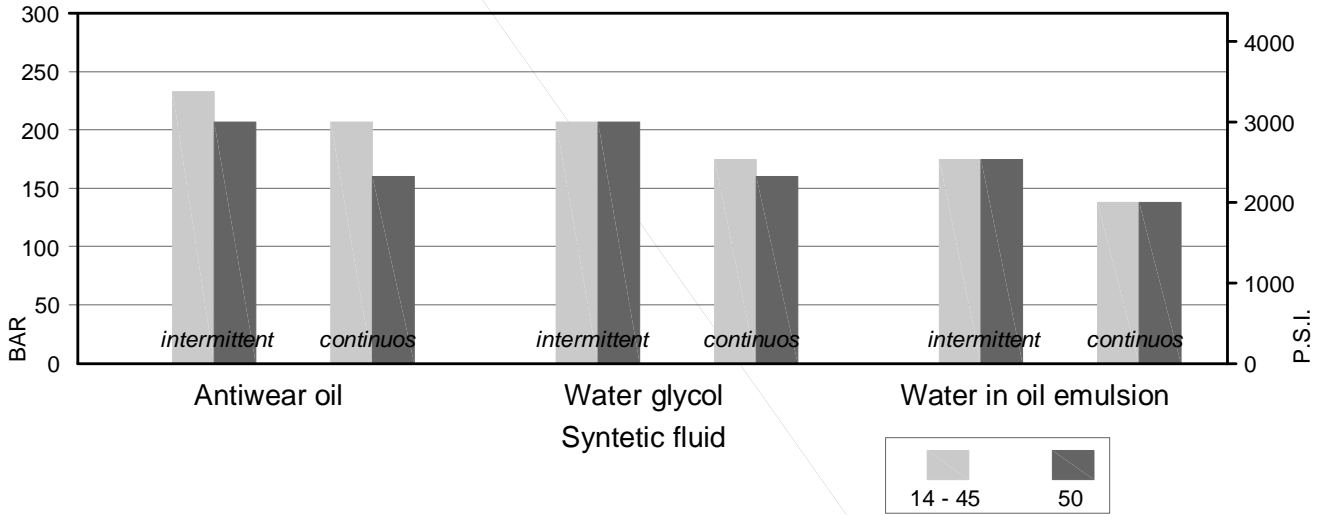
Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

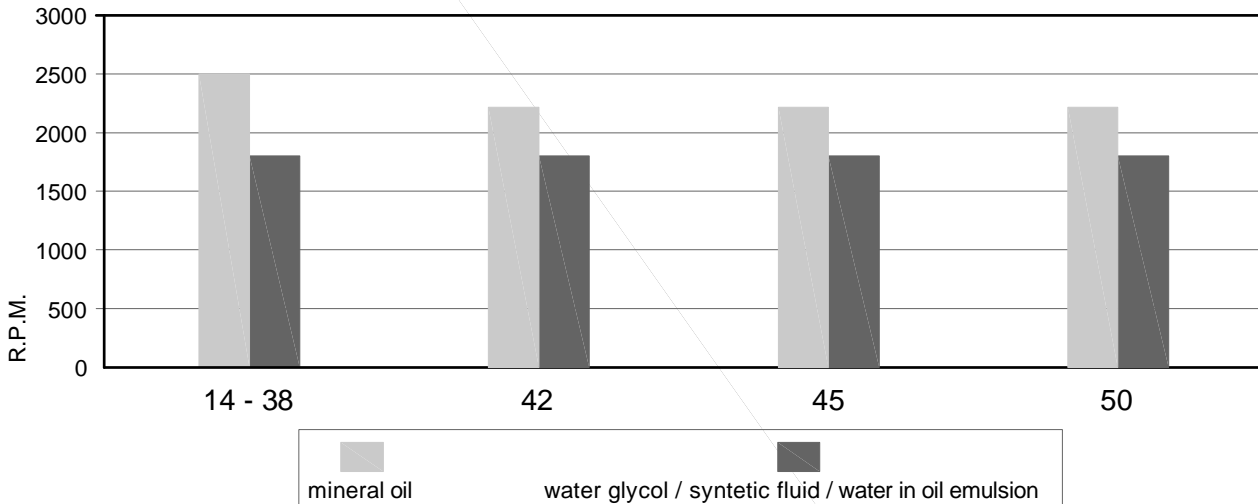
Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data

max pressure / fluid type



max speed / fluid type



min. allowable inlet pressure / rotation speed (abs. bar)*

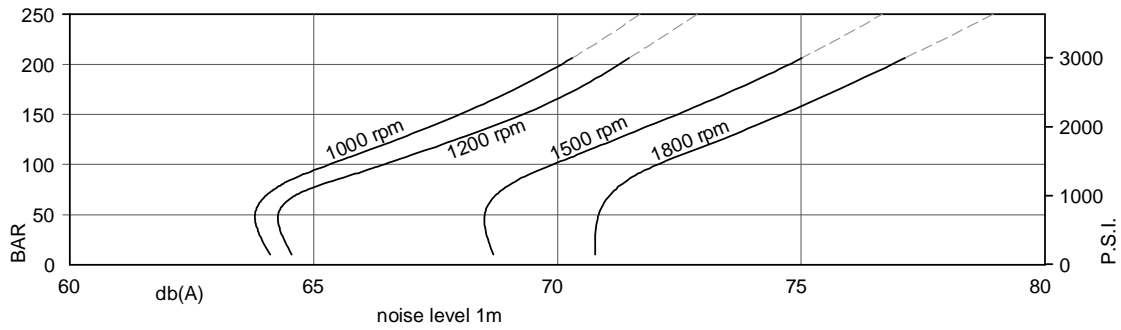
| Speed r.p.m. | from 14 to 20 | 24 | 28 | 31 | 35 | 38 | 42 | 45 | 50 |
|--------------|---------------|------|------|------|------|------|------|------|------|
| 2500 | 1.00 | 1.10 | 1.18 | 1.23 | 1.29 | 1.29 | - | - | - |
| 2300 | 0.95 | 0.95 | 1.00 | 1.00 | 1.02 | 1.05 | 1.08 | - | - |
| 2200 | 0.88 | 0.88 | 0.92 | 0.95 | 0.98 | 1.00 | 1.02 | 1.05 | 1.09 |
| 2100 | 0.80 | 0.82 | 0.85 | 0.90 | 0.92 | 0.95 | 0.95 | 0.98 | 1.02 |
| 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 |
| 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).

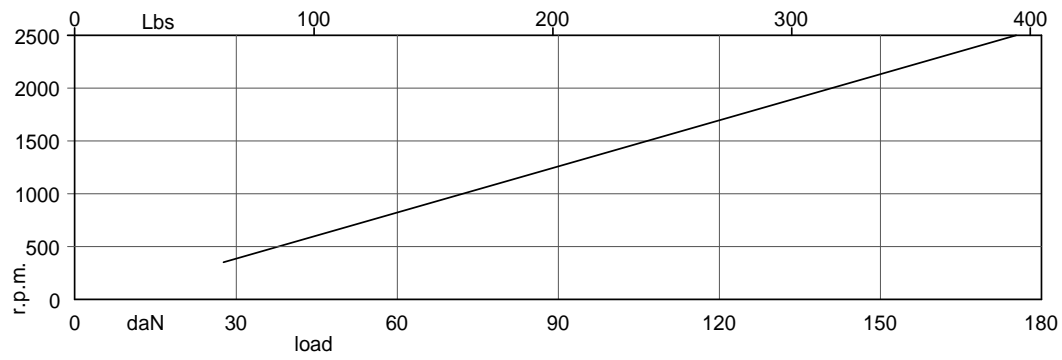
Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data

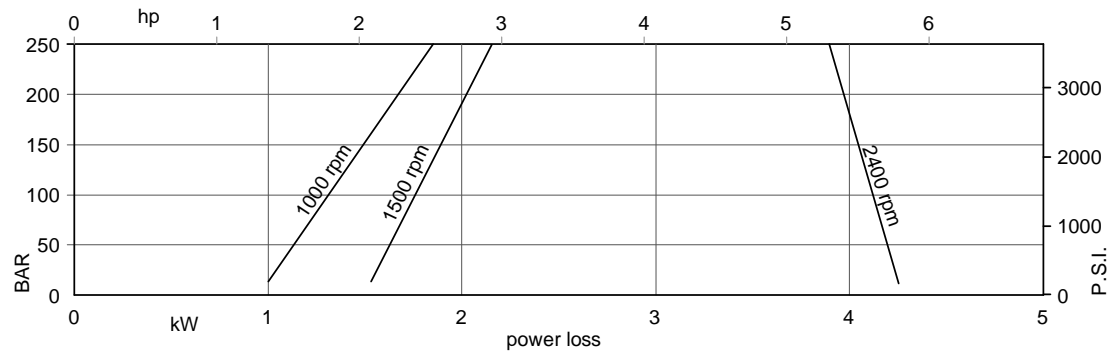
noise level (model 38 with fluid viscosity 32 c.St., inlet 0.9 bar abs.)



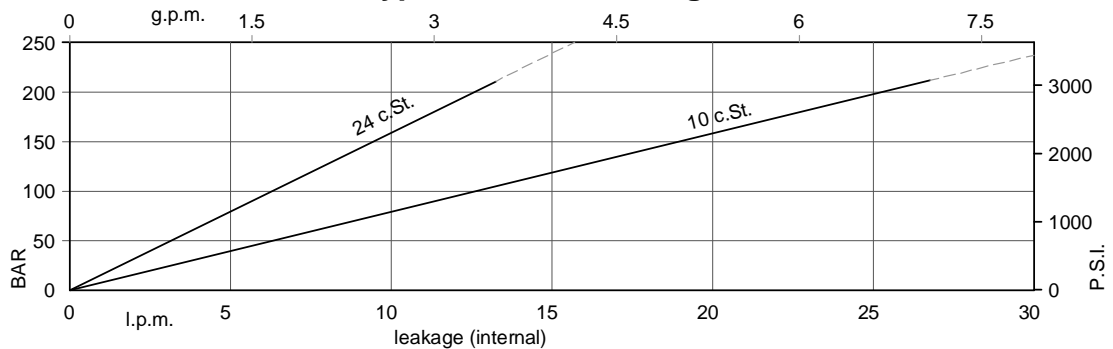
allowable radial load (max. permissible axial load =80 daN)



power loss (typical)



Typical internal leakage *



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Main operating data

Typical: 24 c.St. (115 SUS)

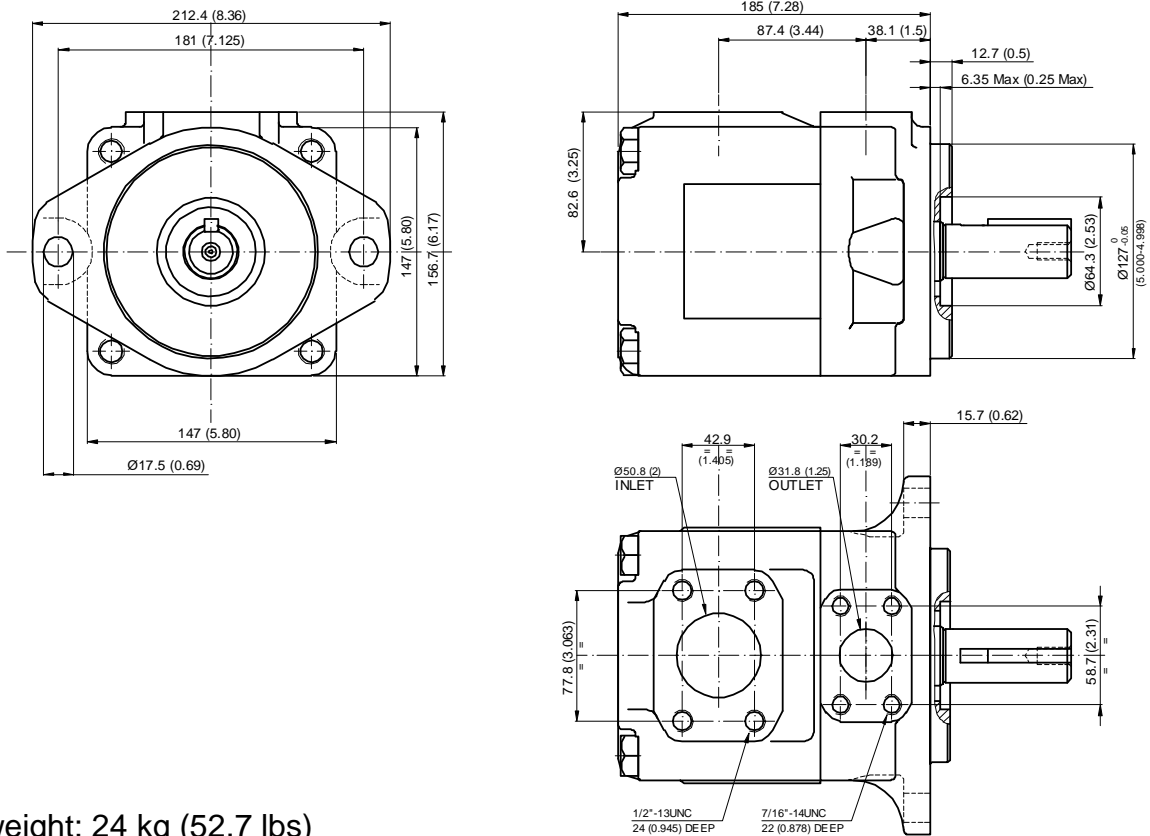
| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|------------------|------------------------|----------------------|-----------|---------|---------|---------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 14 | 47,6 | (2.90) | 1000 | 38,3 | (10.13) | 32,1 | (8.49) | 1.50 | 12.50 | 20.70 |
| | | | 1200 | 48,8 | (12.91) | 42,6 | (11.27) | 1.80 | 14.43 | 24.44 |
| | | | 1500 | 62,1 | (16.43) | 55,9 | (14.79) | 2.30 | 18.50 | 30.60 |
| | | | 1800 | 77,3 | (20.46) | 71,1 | (18.82) | 2.96 | 21.57 | 36.31 |
| 20 | 66,0 | (4.03) | 1000 | 56,7 | (15.00) | 50,5 | (13.36) | 1.70 | 16.80 | 28.00 |
| | | | 1200 | 70,8 | (18.74) | 64,6 | (17.10) | 2.05 | 19.44 | 33.20 |
| | | | 1500 | 89,7 | (23.73) | 83,5 | (22.09) | 2.80 | 24.90 | 41.70 |
| | | | 1800 | 110,4 | (29.21) | 104,2 | (27.57) | 3.33 | 29.09 | 49.47 |
| 24 | 79,5 | (4.85) | 1000 | 70,2 | (18.57) | 64,0 | (16.93) | 1.90 | 19.90 | 33.40 |
| | | | 1200 | 87,02 | (23.02) | 80,8 | (21.38) | 2.23 | 23.11 | 39.63 |
| | | | 1500 | 110,0 | (29.10) | 103,8 | (27.46) | 3.00 | 29.60 | 49.80 |
| | | | 1800 | 134,7 | (35.63) | 128,5 | (33.99) | 3.61 | 34.61 | 59.12 |
| 28 | 89,7 | (5.47) | 1000 | 80,4 | (21.27) | 74,2 | (19.63) | 2.00 | 22.30 | 37.50 |
| | | | 1200 | 99,3 | (26.26) | 93,1 | (24.62) | 2.37 | 25.89 | 44.49 |
| | | | 1500 | 125,2 | (33.12) | 119,0 | (31.48) | 3.20 | 33.20 | 55.90 |
| | | | 1800 | 153,0 | (40.48) | 146,1 | (38.64) | 3.82 | 38.77 | 66.41 |
| 31 | 98,3 | (6.00) | 1000 | 89,0 | (23.54) | 82,8 | (21.90) | 2.10 | 24.30 | 40.90 |
| | | | 1200 | 109,6 | (28.99) | 103,4 | (27.35) | 2.49 | 28.23 | 48.59 |
| | | | 1500 | 138,1 | (36.53) | 131,9 | (34.89) | 3.30 | 36.20 | 61.00 |
| | | | 1800 | 168,5 | (44.57) | 162,3 | (42.93) | 4.00 | 42.28 | 72.55 |
| 35 | 111,0 | (6.77) | 1000 | 101,7 | (26.90) | 95,5 | (25.26) | 2.30 | 27.30 | 46.00 |
| | | | 1200 | 124,8 | (33.01) | 118,6 | (31.37) | 2.66 | 31.68 | 54.64 |
| | | | 1500 | 157,2 | (41.59) | 151,0 | (39.95) | 3.50 | 40.70 | 68.70 |
| | | | 1800 | 191,3 | (50.61) | 185,1 | (48.97) | 4.25 | 47.47 | 81.63 |
| 38 | 120,3 | (7.34) | 1000 | 111,0 | (29.37) | 104,8 | (27.72) | 2.40 | 29.40 | 49.80 |
| | | | 1200 | 135,9 | (35.96) | 129,7 | (34.32) | 2.79 | 36.42 | 59.07 |
| | | | 1500 | 171,1 | (45.26) | 164,9 | (43.62) | 3.70 | 43.90 | 74.30 |
| | | | 1800 | 208,0 | (55.03) | 201,8 | (53.39) | 4.45 | 51.27 | 88.28 |
| 42 ¹⁾ | 136,0 | (8.30) | 1000 | 126,7 | (33.52) | 120,5 | (31.88) | 2.60 | 33.10 | 56.00 |
| | | | 1200 | 154,7 | (40.94) | 148,6 | (39.30) | 3.00 | 38.49 | 66.56 |
| | | | 1500 | 194,7 | (51.51) | 188,5 | (49.87) | 4.00 | 49.40 | 83.70 |
| | | | 1800 | 236,3 | (62.50) | 230,1 | (60.86) | 4.76 | 57.68 | 99.50 |
| 45 ¹⁾ | 145,7 | (8.89) | 1000 | 136,4 | (36.08) | 130,2 | (34.44) | 2.70 | 35.30 | 59.90 |
| | | | 1200 | 166,4 | (44.01) | 160,2 | (42.37) | 3.14 | 41.14 | 71.18 |
| | | | 1500 | 209,2 | (55.34) | 203,0 | (53.70) | 4.10 | 52.80 | 89.50 |
| | | | 1800 | 253,7 | (67.11) | 247,5 | (65.47) | 4.96 | 61.64 | 106.43 |
| 50 ¹⁾ | 158,0 | (9.64) | 1000 | 148,7 | (39.34) | 145,0 ²⁾ | (38.36) ²⁾ | 2.80 | 38.20 | 56.80 ²⁾ |
| | | | 1200 | 181,1 | (47.91) | 176,6 ²⁾ | (46.73) ²⁾ | 3.30 | 44.48 | 66.19 ²⁾ |
| | | | 1500 | 227,7 | (59.24) | 224,0 ²⁾ | (59.26) ²⁾ | 4.40 | 57.00 | 85.00 ²⁾ |
| | | | 1800 | 275,8 | (72.96) | 271,3 ²⁾ | (71.78) ²⁾ | 5.21 | 66.67 | 99.02 ²⁾ |

- Internal leakage exceeding 50% of the theoretical flow

1) 2200 r.p.m. max.

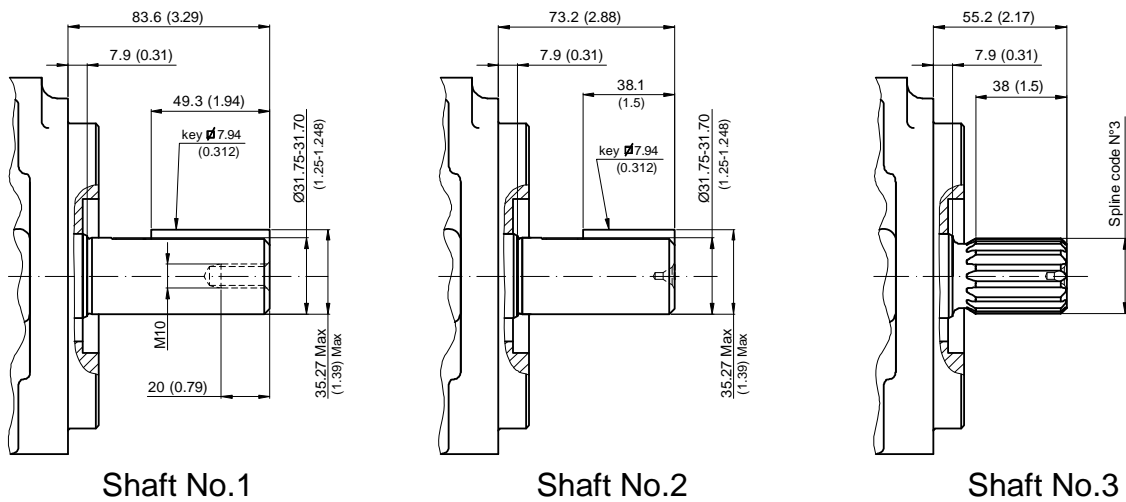
2) 210 bar (3000 p.s.i.) max. int.

Installation dimensions mm (inches)



Approx weight: 24 kg (52.7 lbs)

Shaft options mm (inches)



Shaft No.1

Shaft No.2

Shaft No.3

Calculation of the max permitted torque:
(avoid to exceed)

| Shaft No. | (ml/rev) x bar | (in3/rev) x psi |
|-----------|----------------|-----------------|
| 1 | 43283 | 38299 |
| 2 | 34590 | 30638 |
| 3 | 61200 | 54207 |

Spline code

3

| | |
|----------------|--------------------|
| Designation | Sae C |
| Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 d.p. |
| Spline type | flat root side fit |
| Class | 1- J498 b |

Model code breakdown

BD 04 G ** * * ** *

Pump series

Pump type

Design

Cartridge model

14 20 24 28 31 35 38 42 45 50

Shaft end options

- 1 = keyed (Sae C)
- 2 = Keyed (No Sae)
- 3 = Splined (Sae C)

Seals

1 = NBR

Port orientations

(Viewed from cover end)

00 = Inlet opposite outlet

01 = Inlet inline with outlet

02 = Inlet 90°CW from outlet

03 = Inlet 90°CCW from outlet

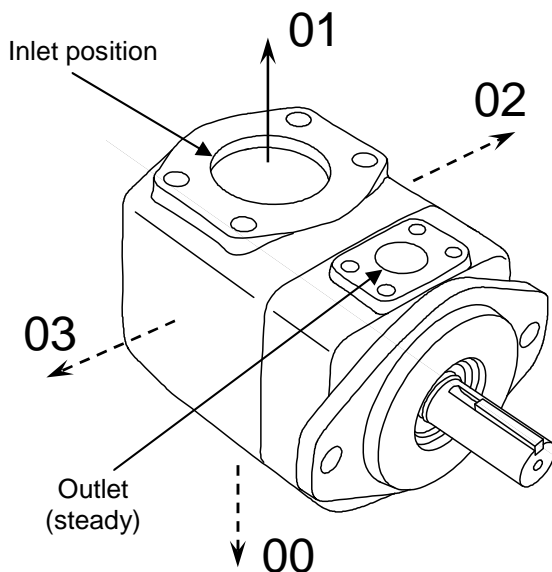
Rotation

(viewed from shaft-end)

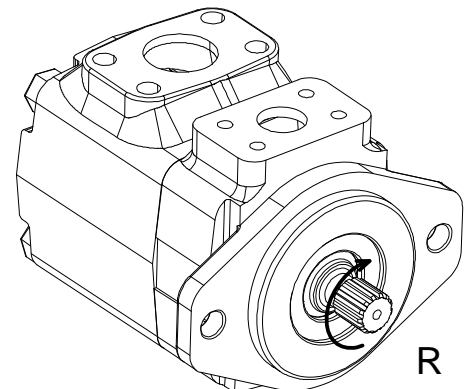
R = Right hand rotation CW

L = Left hand rotation CCW

Port orientations



Pump rotation



Id. codes of pump components

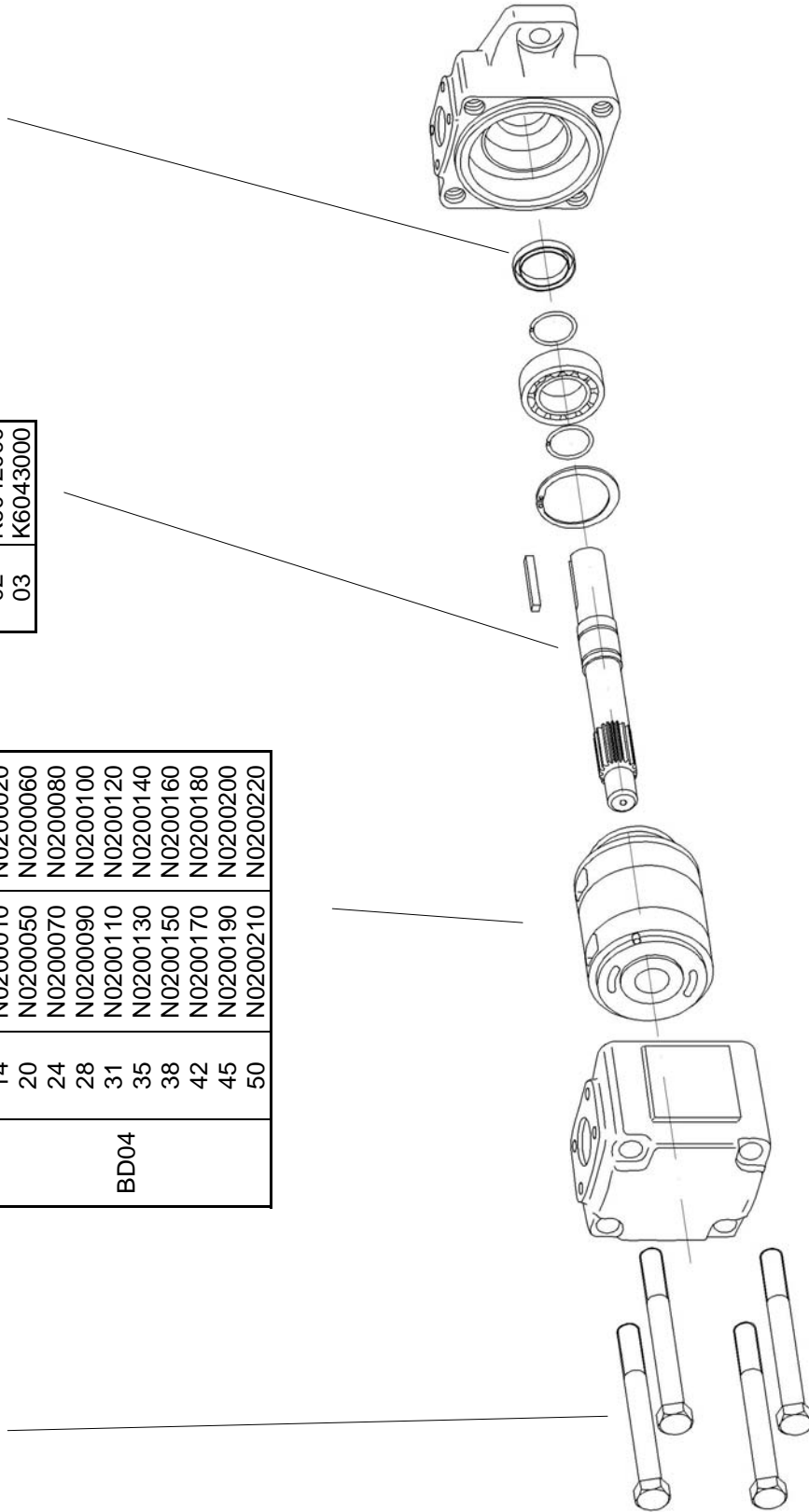
| Screw | |
|--------------------------------|----------|
| Part No. | M3040070 |
| Torque at 187 Nm (1668 lb.in.) | |

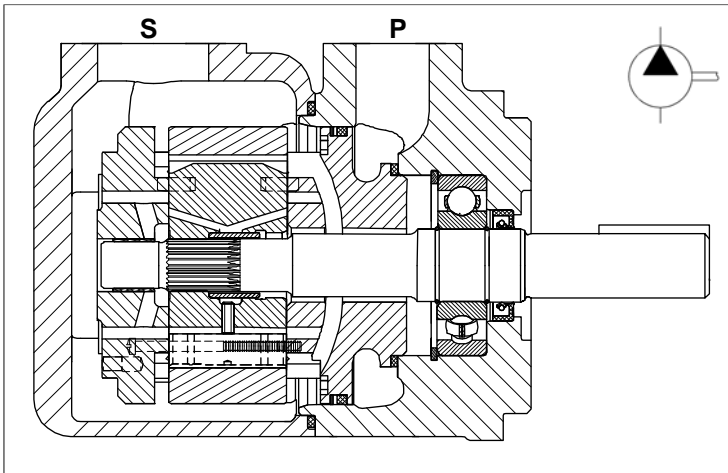
| Type | Cartridge | |
|------|-----------|---------------|
| | Model | Pump rotation |
| BD04 | 14 | N0200010 |
| | 20 | N0200050 |
| | 24 | N0200070 |
| | 28 | N0200090 |
| | 31 | N0200110 |
| | 35 | N0200130 |
| | 38 | N0200150 |
| | 42 | N0200170 |
| | 45 | N0200190 |
| | 50 | N0200210 |
| | | |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K6041000 |
| 02 | K6042000 |
| 03 | K6043000 |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3040060 | NBR |

| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3040500 | NBR |





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in 6 different displacements from 214 to 341 l/min (from 56 to 90 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|--------|-----------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| 45 | 142,4 | (8.69) | 170.7 | (45.15) | 213.6 | (56.51) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 50 | 158,5 | (9.67) | 189.9 | (50.25) | 237.7 | (62.88) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 52 | 164,8 | (10.06) | 197.5 | (52.25) | 247.2 | (65.40) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 62 | 196,7 | (12.00) | 235.7 | (62.36) | 295.0 | (78.04) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 66 | 213,3 | (13.02) | 255.6 | (67.62) | 319.9 | (84.63) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 72 | 227,1 | (13.86) | 272.2 | (72.00) | 340.6 | (90.11) | 240 | (3500) | 210 | (3000) | 400 - 2200 |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recommended). Choose 30 c.St. for max lifetime. *Viscosity index:* 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C

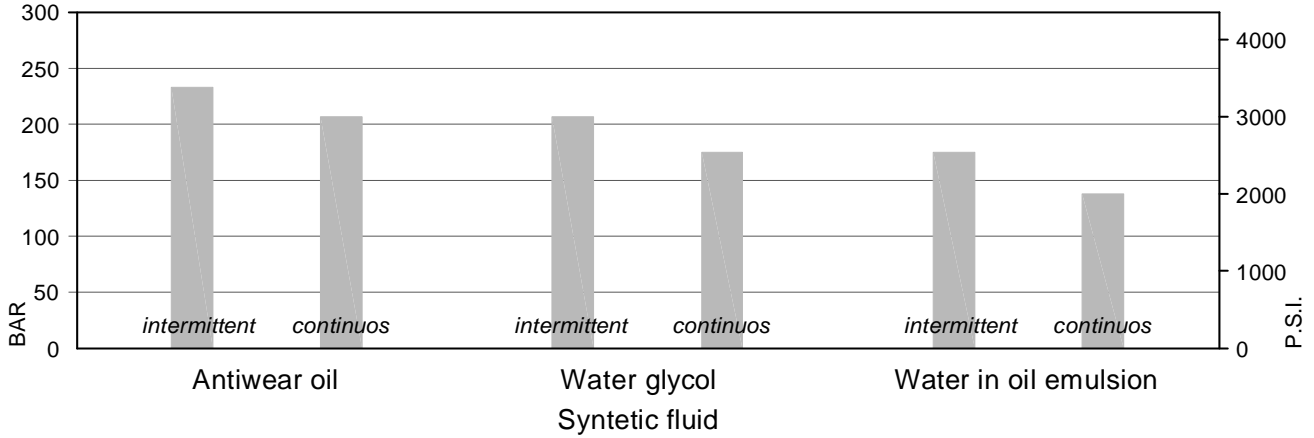
Minimum inlet pressure (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100°C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

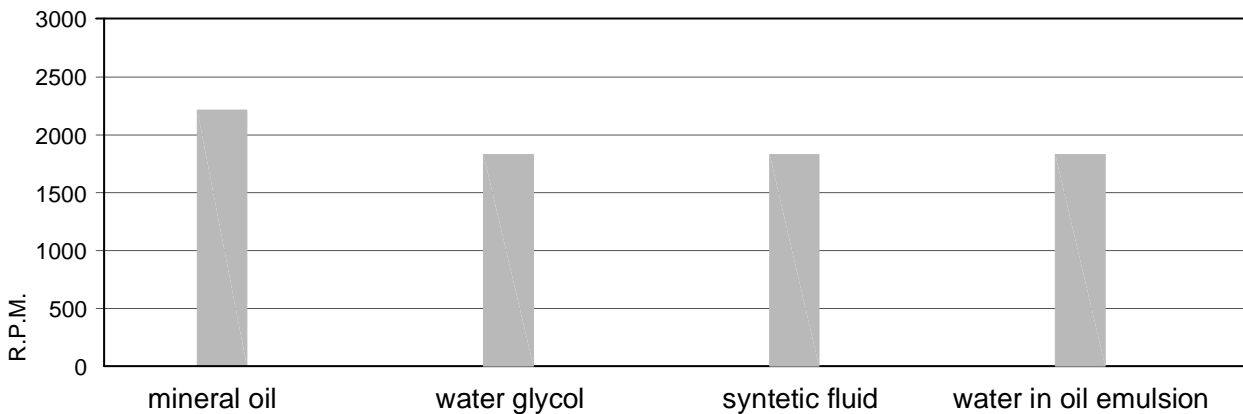
Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data

max pressure / fluid type



max speed / fluid type



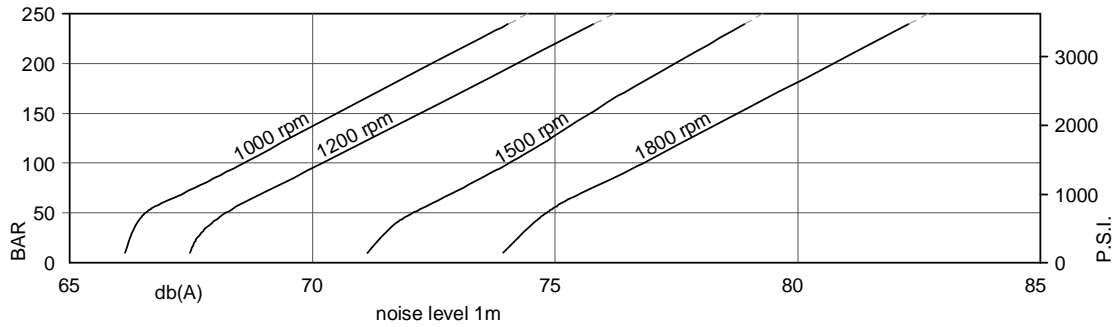
min. allowable inlet pressure / rotation speed (abs. bar)*

| Speed r.p.m. | 45 | 50 | 52 | 62 | 66 | 72 |
|--------------|------|------|------|------|------|------|
| 2200 | 1.00 | 1.00 | 1.00 | 1.00 | 1.09 | 1.05 |
| 2100 | 0.90 | 0.90 | 0.90 | 0.95 | 1.00 | 1.00 |
| 1800 | 0.80 | 0.80 | 0.80 | 0.85 | 0.95 | 0.85 |
| 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 |
| 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 |

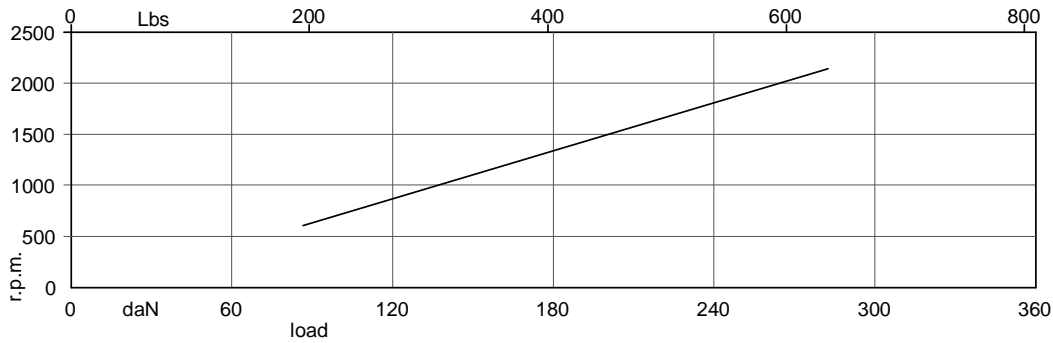
* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).
 Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data

noise level (model 50, with fluid viscosity 32 c.St., inlet 0.9 bar abs.)

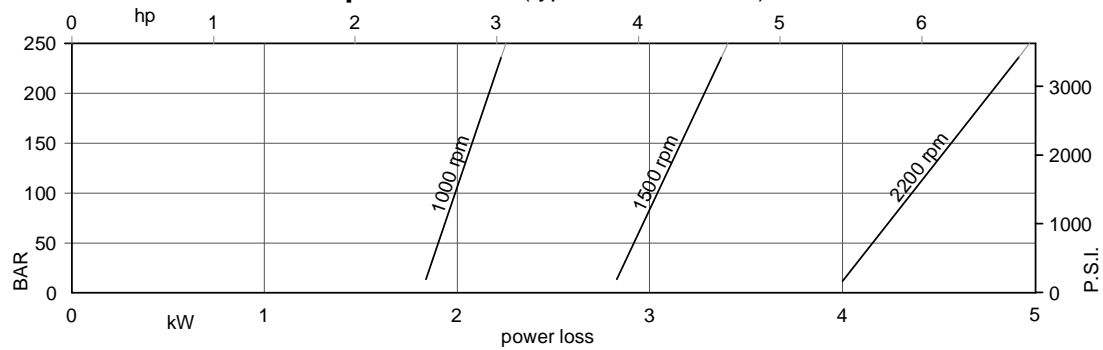


allowable radial load * (max. permissible axial load =200 daN)

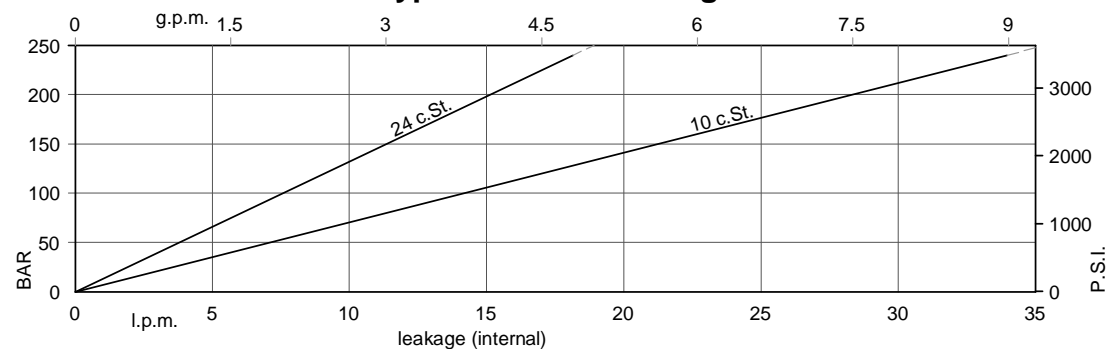


* Positioned in the middle of the key, in the No. 1 shaft

power loss (typical with 24 c.St.)



Typical internal leakage



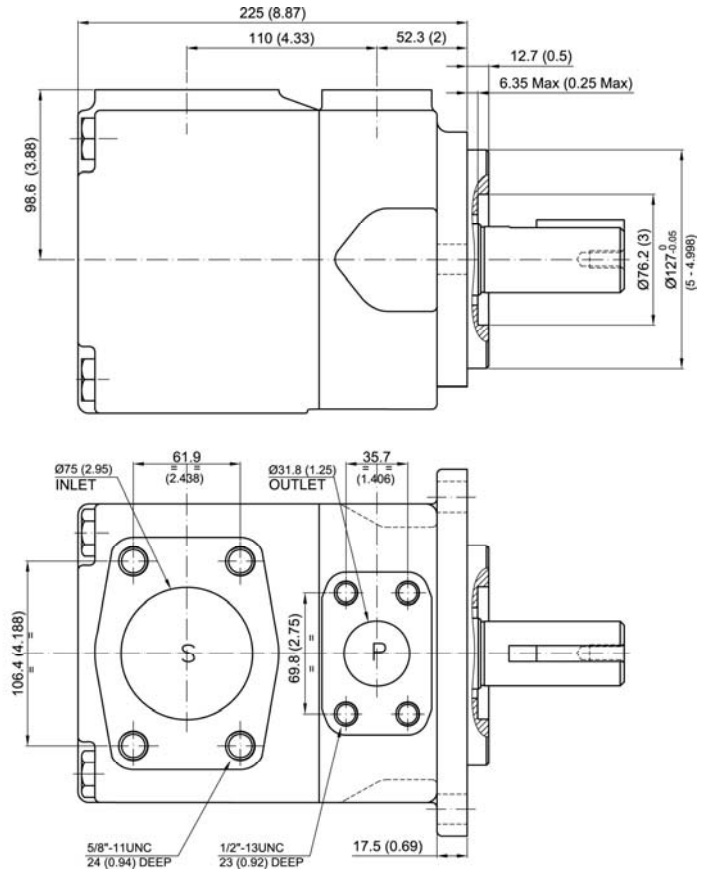
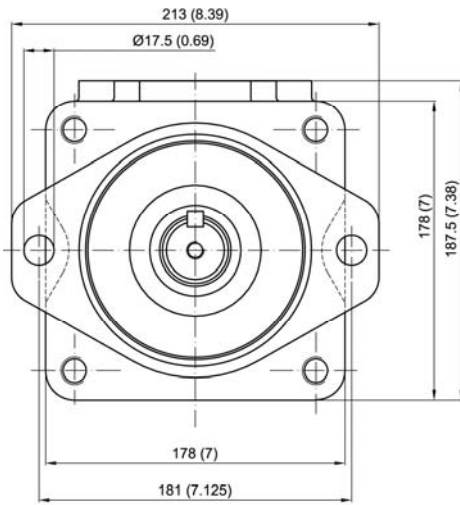
Main operating data

Typical: 24 c.St. (115 SUS)

| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|-----------------|------------------------|----------------------|-----------|---------|----------|---------|----------|------------------|--------------------|--------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 45 | 142,4 | (8.69) | 1000 | 132,4 | (35.03) | 125,3 | (33.15) | 3.40 | 35.30 | 59.20 |
| | | | 1200 | 161,0 | (42.60) | 154,0 | (40.75) | 3.18 | 40.24 | 69.43 |
| | | | 1500 | 203,6 | (53.86) | 196,5 | (51.98) | 5.40 | 52.90 | 88.70 |
| | | | 1800 | 246,3 | (65.17) | 239,3 | (63.32) | 5.05 | 60.36 | 104.05 |
| 50 | 158,5 | (9.67) | 1000 | 148,5 | (39.29) | 141,4 | (37.41) | 3.50 | 39.00 | 65.60 |
| | | | 1200 | 180,3 | (47.70) | 173,3 | (45.85) | 3.40 | 44.62 | 77.10 |
| | | | 1500 | 227,7 | (60.24) | 220,6 | (58.36) | 5.70 | 58.50 | 98.30 |
| | | | 1800 | 275,3 | (72.83) | 268,3 | (70.98) | 5.38 | 66.93 | 115.55 |
| 52 | 164,8 | (10.06) | 1000 | 154,8 | (40.95) | 147,7 | (39.07) | 3.60 | 40.50 | 68.20 |
| | | | 1200 | 187,9 | (49.70) | 180,9 | (47.85) | 3.49 | 46.33 | 80.10 |
| | | | 1500 | 237,2 | (62.75) | 230,1 | (60.87) | 5.80 | 60.80 | 102.10 |
| | | | 1800 | 286,6 | (75.82) | 279,6 | (73.97) | 5.51 | 69.50 | 120.05 |
| 62 | 196,7 | (12.00) | 1000 | 186,7 | (49.39) | 179,6 | (47.51) | 4.00 | 47.90 | 80.90 |
| | | | 1200 | 226,1 | (59.81) | 219,1 | (57.96) | 3.93 | 55.01 | 95.28 |
| | | | 1500 | 285,0 | (75.40) | 277,9 | (73.52) | 6.40 | 71.90 | 121.30 |
| | | | 1800 | 343,9 | (90.99) | 336,9 | (89.14) | 6.16 | 82.51 | 142.83 |
| 66 | 213,3 | (13.02) | 1000 | 203,3 | (53.78) | 196,2 | (51.90) | 4.20 | 51.80 | 87.60 |
| | | | 1200 | 246,0 | (65.07) | 239,0 | (63.22) | 4.15 | 59.52 | 103.18 |
| | | | 1500 | 309,9 | (81.98) | 302,8 | (80.11) | 6.70 | 77.70 | 131.20 |
| | | | 1800 | 373,8 | (98.89) | 366,8 | (97.04) | 6.50 | 89.29 | 154.68 |
| 72 | 227,1 | (13.86) | 1000 | 217,1 | (57.43) | 210,0 | (55.56) | 4.30 | 55.00 | 93.10 |
| | | | 1200 | 262,5 | (69.45) | 255,5 | (67.60) | 4.34 | 63.27 | 109.75 |
| | | | 1500 | 330,6 | (87.46) | 323,5 | (85.58) | 6.90 | 82.60 | 139.50 |
| | | | 1800 | 398,6 | (105.45) | 391,6 | (103.60) | 6.78 | 94.92 | 164.54 |

Installation dimensions

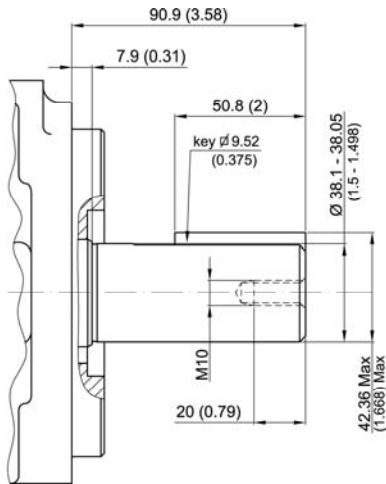
mm (inches)



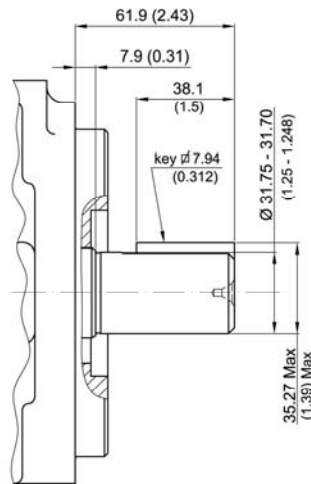
Approx weight: 43.3 kg (386 lbs)

Shaft options

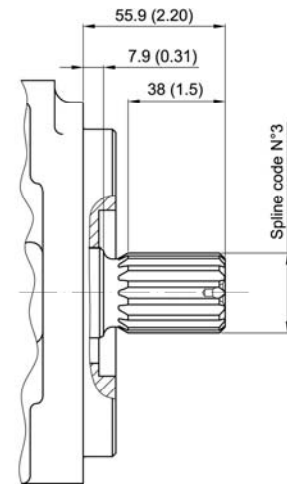
mm (inches)



Shaft No.1



Shaft No.2



Shaft No.3

Calculation of the max permitted torque:
(avoid to exceed)

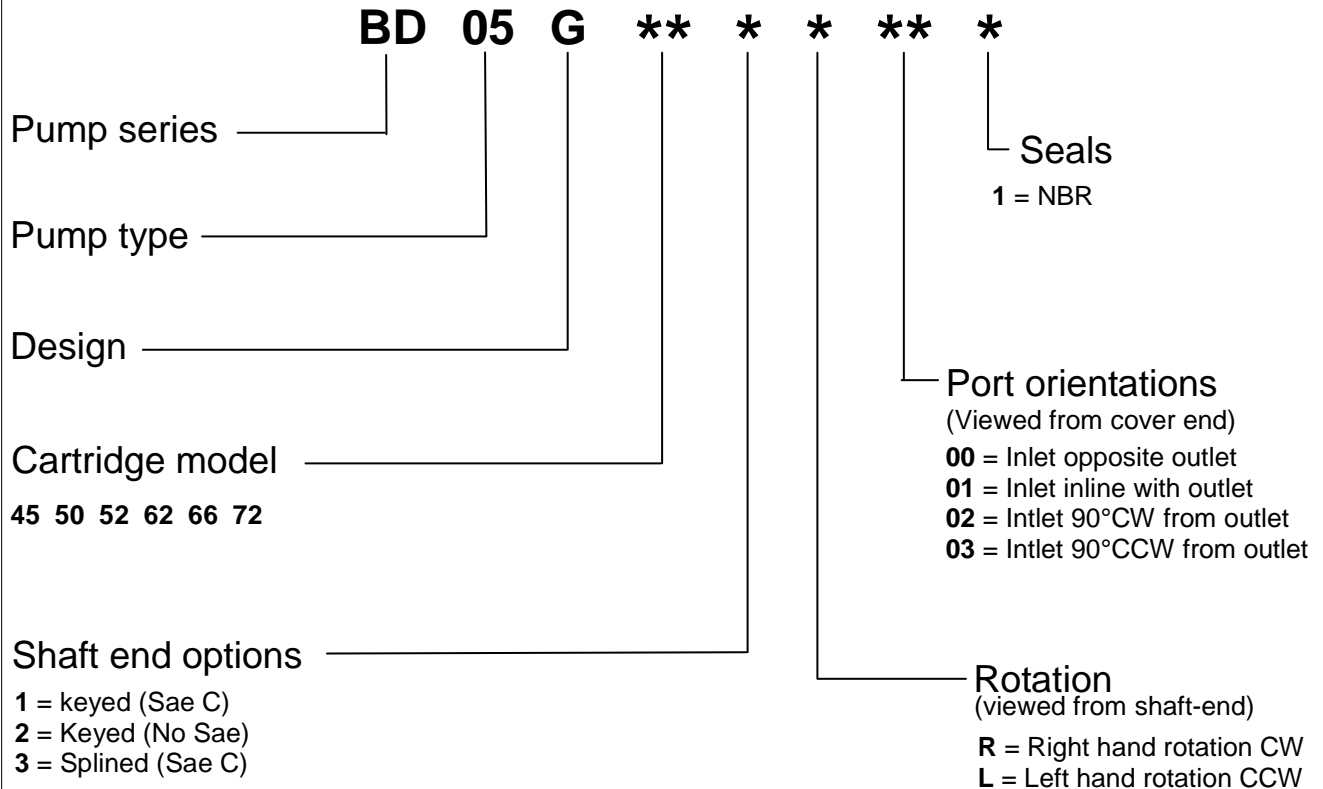
| Shaft No. | (ml/rev) x bar | (in3/rev) x psi |
|-----------|----------------|-----------------|
| 1 | 54555 | 48273 |
| 2 | 34590 | 30638 |
| 3 | 61200 | 54207 |

Spline code

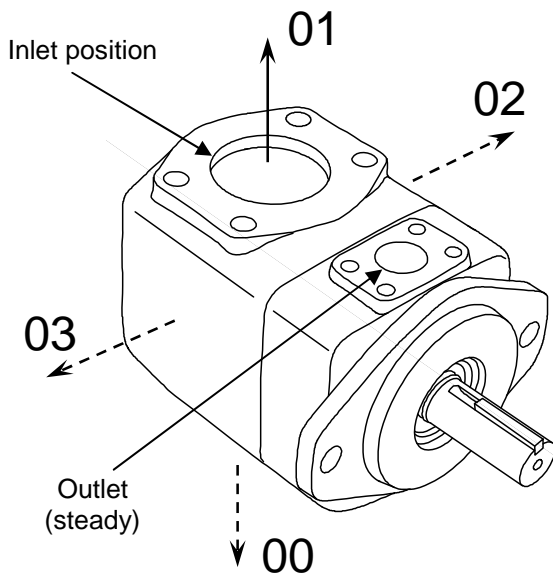
3

| Designation | Sae C |
|----------------|--------------------|
| Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 d.p. |
| Spline type | flat root side fit |
| Class | 1- J498 b |

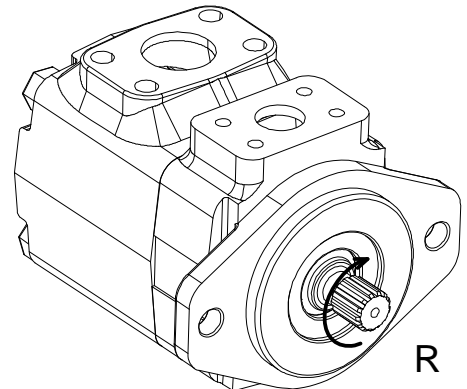
Model code breakdown



Port orientations



Pump rotation



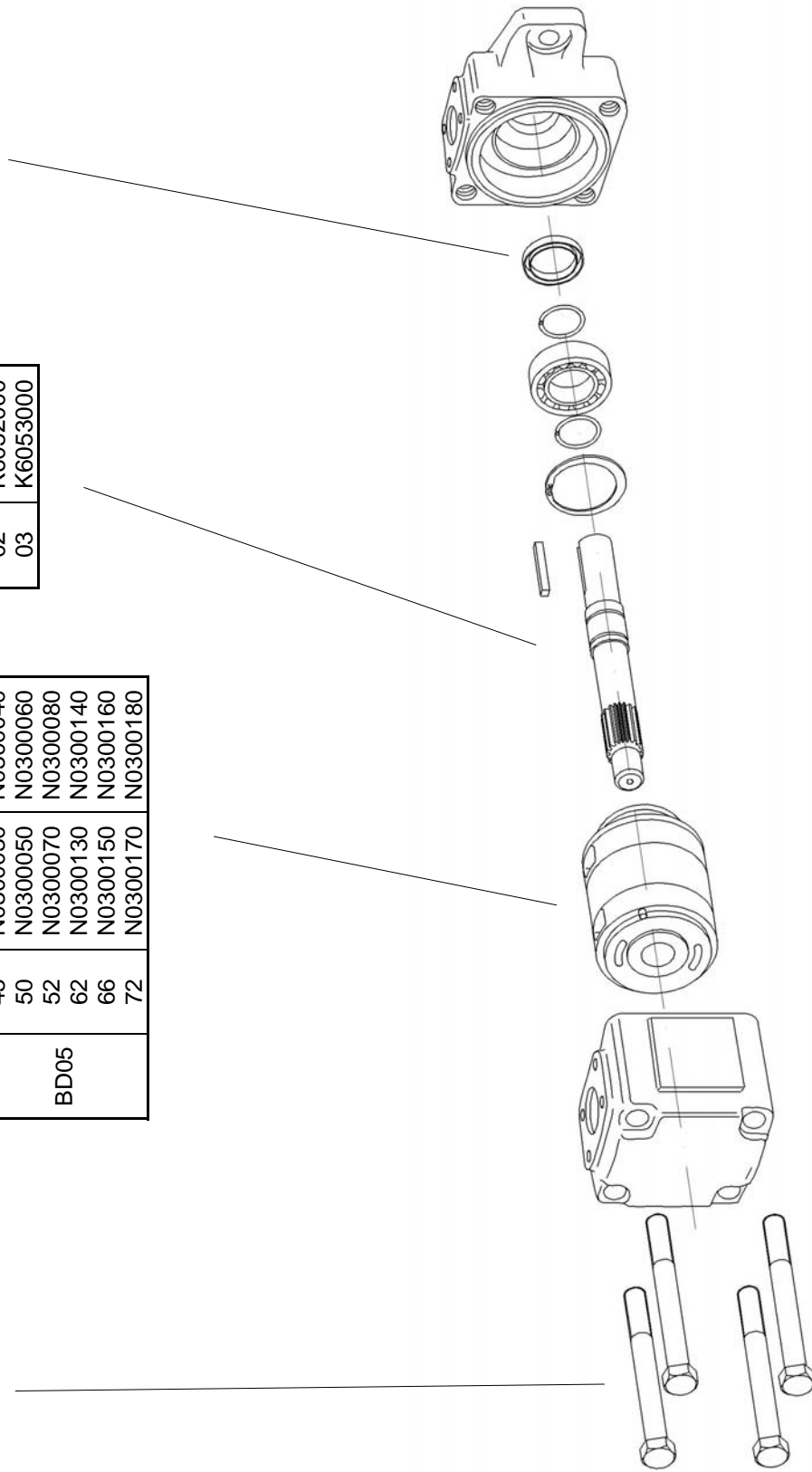
Id. codes of pump components

| Screw | |
|--------------------------------|----------|
| Part No. | M3050070 |
| Torque at 187 Nm (1668 lb.in.) | |

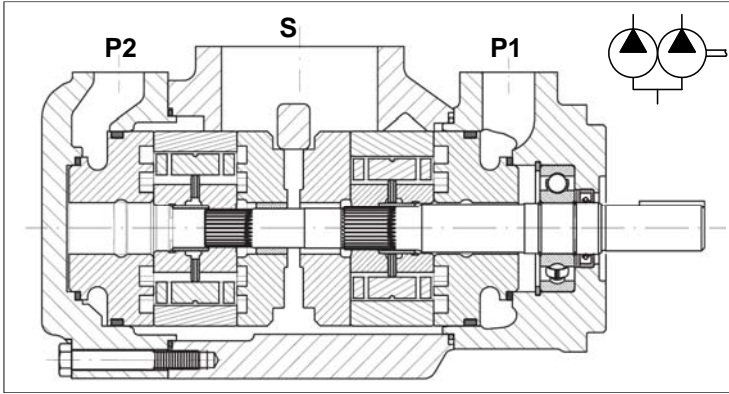
| Type | Cartridge | |
|------|-----------|-------------------|
| | Model | Pump rotation |
| BD05 | 45 | N0300030 N0300040 |
| | 50 | N0300050 N0300060 |
| | 52 | N0300070 N0300080 |
| | 62 | N0300130 N0300140 |
| | 66 | N0300150 N0300160 |
| | 72 | N0300170 N0300180 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K6051000 |
| 02 | K6052000 |
| 03 | K6053000 |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3050060 | NBR |



| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3050500 | NBR |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with rated capacity from 32 to 300 l/min (from 8 to 80 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics (P1 and P2 sections)

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|--------|--------------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| 03 | 10,8 | (0.66) | 12,93 | (3.42) | 16,2 | (4.29) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 05 | 17,2 | (1.05) | 20,60 | (5.45) | 25,8 | (6.83) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 06 | 21,3 | (1.30) | 25,52 | (6.75) | 31,9 | (8.44) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 08 | 26,4 | (1.61) | 31,64 | (8.37) | 39,6 | (10.48) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 10 | 34,1 | (2.08) | 40,86 | (10.81) | 51,1 | (13.52) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 12 | 37,1 | (2.26) | 44,45 | (11.76) | 55,6 | (14.71) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 14 | 46,0 | (2.81) | 55,11 | (14.58) | 69,0 | (18.25) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 17 | 58,3 | (3.56) | 69,85 | (18.48) | 87,4 | (23.12) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 20 | 63,8 | (3.89) | 76,47 | (20.23) | 95,7 | (25.32) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 22 | 70,3 | (4.29) | 84,26 | (22.29) | 105,4 | (27.88) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 25 | 79,3 | (4.84) | 95,03 | (25.14) | 118,9 | (31.46) | 275 | (4000) | 240 | (3500) | 400 - 2500 |
| 28 | 88,8 | (5.42) | 106,41 | (28.15) | 133,2 | (35.24) | 210 | (3000) | 160 | (2300) | 400 - 2500 |
| 31 | 100,0 | (6.10) | 119,83 | (31.70) | 150,0 | (39.68) | 210 | (3000) | 160 | (2300) | 400 - 2500 |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recomm.). Choose 30 c.St. for max life-time. *Viscosity index:* 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

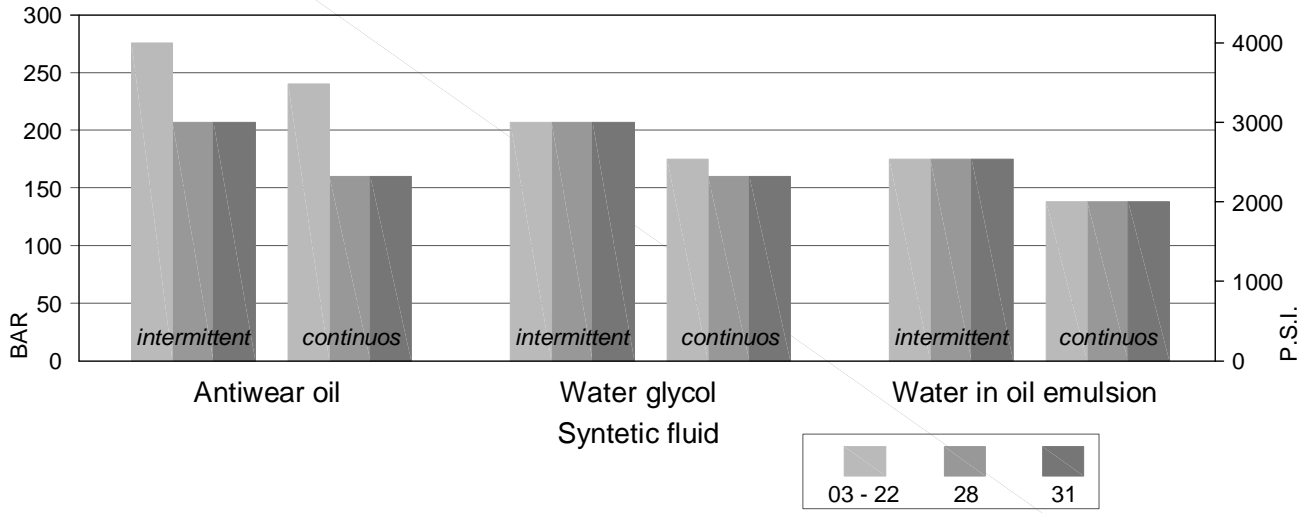
Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

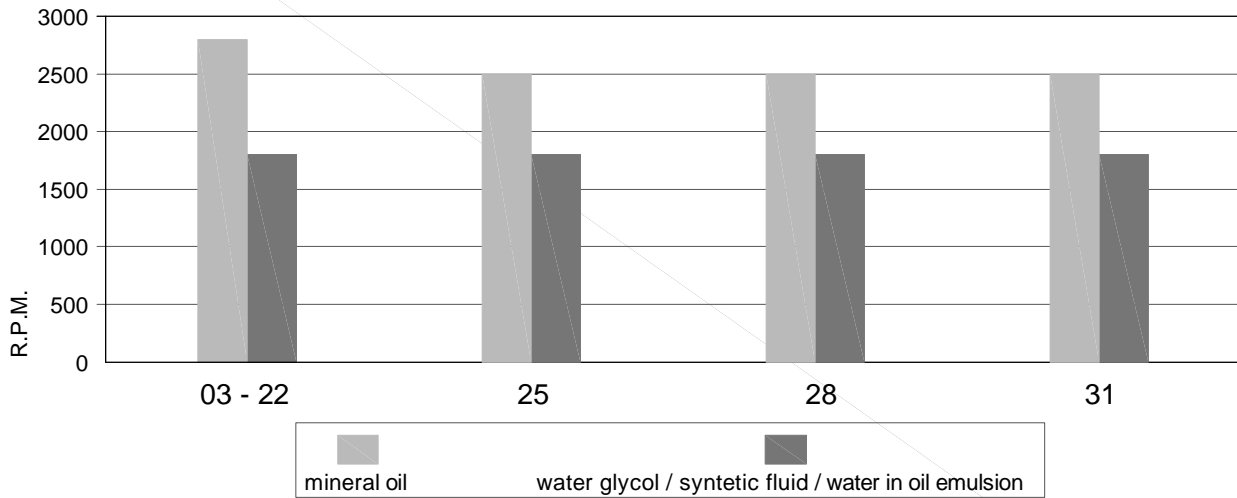
Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data

max pressure / fluid type



max speed / fluid type



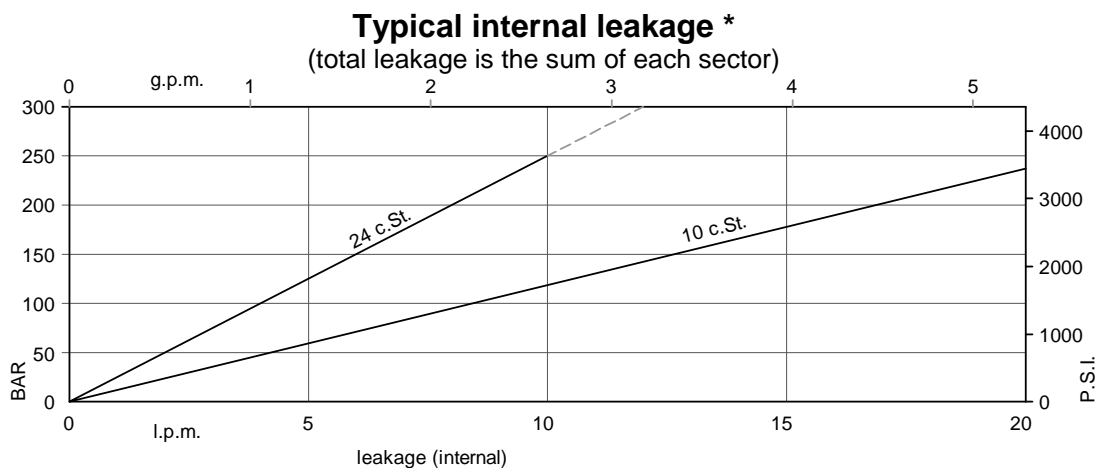
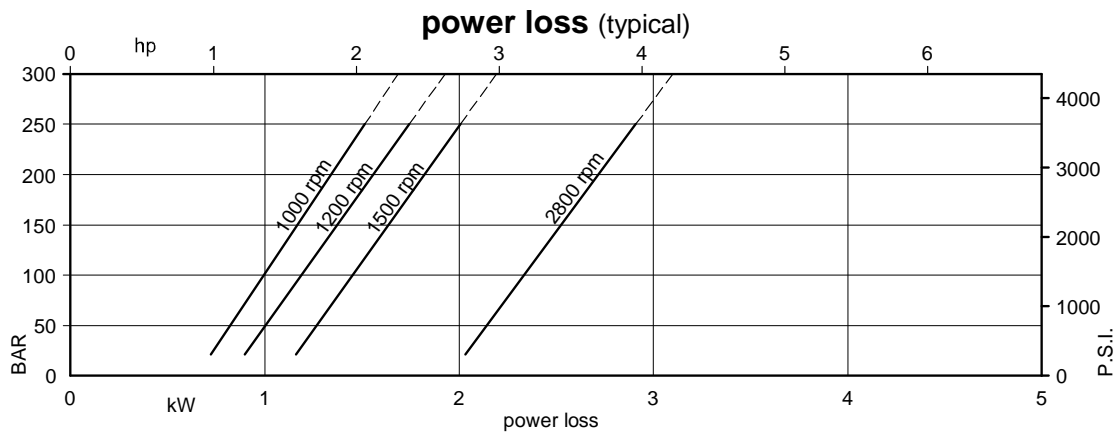
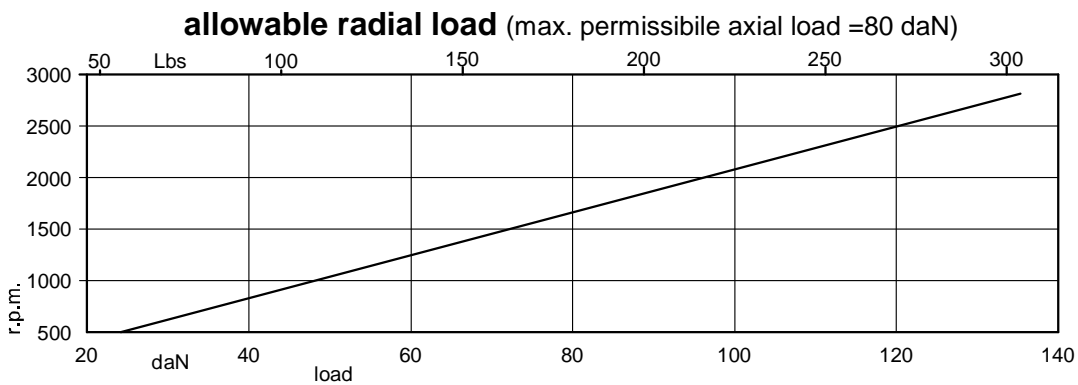
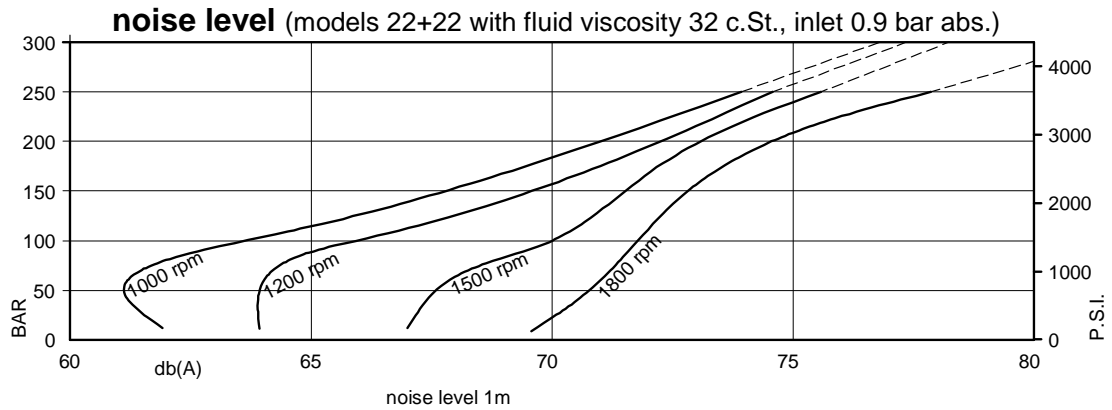
min. allowable inlet pressure / rotation speed (abs. bar)*

| Speed r.p.m. | from 03 to 10 | 12 | 14 | 17 | 20 | 22 | 25 | 28 | 31 |
|--------------|---------------|------|------|------|------|------|------|------|------|
| 2800 | 1.00 | 1.00 | 1.00 | 1.03 | 1.03 | 1.05 | | | |
| 2500 | 0.90 | 0.92 | 0.95 | 0.95 | 0.95 | 0.98 | 1.05 | 1.08 | 1.11 |
| 2300 | 0.80 | 0.85 | 0.85 | 0.90 | 0.90 | 0.90 | 0.95 | 0.98 | 1.0 |
| 2200 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | 0.90 | 0.95 | 0.98 | 0.90 |
| 2100 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.90 | 0.90 | 0.85 |
| 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).

Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Main operating data (P1 and P2 sections)

Typical: 24 c.St. (115 SUS)

| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|------------------|------------------------|----------------------|-----------|---------|---------|----------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 03 | 10,8 | (0.66) | 1000 | - | - | - | - | 1.00 | - | - |
| | | | 1200 | - | - | - | - | 1.05 | - | - |
| | | | 1500 | 10,7 | (2.84) | - | - | 1.30 | 5.30 | - |
| | | | 1800 | 13,6 | (3.61) | - | - | 1.55 | 8.45 | - |
| 05 | 17,2 | (1.05) | 1000 | 11,7 | (3.09) | - | - | 1.10 | 5.10 | - |
| | | | 1200 | 15,1 | (3.99) | - | - | 1.14 | 8.17 | - |
| | | | 1500 | 20,3 | (5.37) | 15,8 | (4.18) | 1.40 | 7.50 | 12.2 |
| | | | 1800 | 25,1 | (6.65) | 21,0 | (5.56) | 1.68 | 12.0 | 14.4 |
| 06 | 21,3 | (1.30) | 1000 | 15,80 | (4.18) | 11,30 | (2.99) | 1.10 | 6.00 | 10.00 |
| | | | 1200 | 19,73 | (5.22) | 15,61 | (4.13) | 1.19 | 7.13 | 11.86 |
| | | | 1500 | 26,50 | (7.01) | 22,00 | (5.82) | 1.50 | 8.90 | 14.70 |
| | | | 1800 | 32,51 | (8.60) | 28,39 | (7.51) | 1.76 | 10.50 | 17.33 |
| 08 | 26,4 | (1.61) | 1000 | 20,90 | (5.53) | 16,40 | (4.34) | 1.20 | 7.20 | 12.10 |
| | | | 1200 | 25,86 | (6.84) | 21,74 | (5.75) | 1.26 | 8.51 | 14.29 |
| | | | 1500 | 34,10 | (9.02) | 29,60 | (7.83) | 1.60 | 10.70 | 17.70 |
| | | | 1800 | 41,66 | (11.02) | 37,54 | (9.93) | 1.87 | 12.58 | 20.98 |
| 10 | 34,1 | (2.08) | 1000 | 28,60 | (7.57) | 24,10 | (6.38) | 1.30 | 8.90 | 15.10 |
| | | | 1200 | 35,08 | (9.28) | 30,96 | (8.19) | 1.37 | 10.61 | 17.96 |
| | | | 1500 | 45,70 | (12.09) | 41,20 | (10.90) | 1.70 | 13.40 | 22.30 |
| | | | 1800 | 55,53 | (14.69) | 51,41 | (13.60) | 2.03 | 15.72 | 26.47 |
| 12 | 37,1 | (2.26) | 1000 | 31,60 | (8.36) | 27,10 | (7.17) | 1.30 | 9.60 | 16.30 |
| | | | 1200 | 38,67 | (10.23) | 34,55 | (9.14) | 1.41 | 11.42 | 19.38 |
| | | | 1500 | 50,20 | (13.28) | 45,70 | (12.09) | 1.70 | 14.40 | 24.10 |
| | | | 1800 | 60,90 | (16.11) | 56,78 | (15.02) | 2.09 | 16.95 | 28.62 |
| 14 | 46,0 | (2.81) | 1000 | 40,50 | (10.71) | 36,00 | (9.52) | 1.40 | 11.70 | 19.90 |
| | | | 1200 | 49,33 | (13.05) | 45,21 | (11.96) | 1.53 | 13.85 | 23.62 |
| | | | 1500 | 63,50 | (16.80) | 59,00 | (15.61) | 1.90 | 17.60 | 29.50 |
| | | | 1800 | 76,92 | (20.35) | 72,80 | (19.26) | 2.27 | 20.58 | 34.97 |
| 17 | 58,3 | (3.56) | 1000 | 52,80 | (13.97) | 48,30 | (12.78) | 1.60 | 14.50 | 24.80 |
| | | | 1200 | 64,07 | (16.95) | 59,95 | (15.86) | 1.70 | 17.19 | 29.47 |
| | | | 1500 | 82,00 | (21.69) | 77,50 | (20.50) | 2.10 | 21.90 | 36.90 |
| | | | 1800 | 99,04 | (26.20) | 94,92 | (25.11) | 2.52 | 25.60 | 43.76 |
| 20 | 63,8 | (3.89) | 1000 | 58,30 | (15.42) | 53,80 | (14.23) | 1.60 | 15.80 | 27.00 |
| | | | 1200 | 70,69 | (18.70) | 66,57 | (17.61) | 1.77 | 18.68 | 32.09 |
| | | | 1500 | 90,20 | (23.86) | 85,70 | (22.67) | 2.20 | 23.80 | 40.20 |
| | | | 1800 | 108,90 | (28.81) | 103,65 | (27.42) | 2.63 | 27.84 | 47.68 |
| 22 | 70,3 | (4.29) | 1000 | 64,80 | (17.14) | 60,30 | (15.95) | 1.70 | 17.30 | 29.60 |
| | | | 1200 | 78,47 | (20.76) | 74,35 | (19.67) | 1.86 | 20.46 | 35.18 |
| | | | 1500 | 100,00 | (26.46) | 95,50 | (25.26) | 2.30 | 26.10 | 44.10 |
| | | | 1800 | 120,58 | (31.90) | 116,46 | (30.81) | 2.76 | 30.49 | 52.32 |
| 25 ¹⁾ | 79,3 | (4.84) | 1000 | 73,80 | (19.52) | 69,30 | (18.33) | 1.80 | 19.30 | 33.20 |
| | | | 1200 | 89,25 | (23.61) | 85,13 | (22.52) | 1.99 | 22.90 | 39.47 |
| | | | 1500 | 113,50 | (30.03) | 109,00 | (28.84) | 2.50 | 29.20 | 49.50 |
| | | | 1800 | 136,76 | (36.18) | 132,64 | (35.09) | 2.95 | 34.16 | 58.75 |
| 28 ¹⁾ | 88,8 | (5.42) | 1000 | 83,30 | (22.04) | 80,10 ²⁾ | (21.19) ²⁾ | 1.90 | 21.90 | 32.50 ²⁾ |
| | | | 1200 | 100,62 | (26.62) | 97,75 ²⁾ | (25.86) ²⁾ | 2.11 | 25.49 | 37.77 ²⁾ |
| | | | 1500 | 127,70 | (33.78) | 124,50 ²⁾ | (32.94) ²⁾ | 2.80 | 32.70 | 48.50 ²⁾ |
| | | | 1800 | 153,85 | (40.70) | 150,97 ²⁾ | (39.94) ²⁾ | 3.14 | 38.04 | 56.42 ²⁾ |
| 31 ¹⁾ | 100,0 | (6.10) | 1000 | 94,50 | (25.00) | 91,30 ²⁾ | (24.15) ²⁾ | 2.00 | 24.40 | 36.40 ²⁾ |
| | | | 1200 | 114,04 | (30.17) | 111,17 ²⁾ | (29.41) ²⁾ | 2.26 | 28.53 | 42.34 ²⁾ |
| | | | 1500 | 144,50 | (38.23) | 141,30 ²⁾ | (37.38) ²⁾ | 2.80 | 36.50 | 54.40 ²⁾ |
| | | | 1800 | 173,99 | (46.03) | 171,12 ²⁾ | (45.27) ²⁾ | 3.37 | 42.61 | 63.28 ²⁾ |

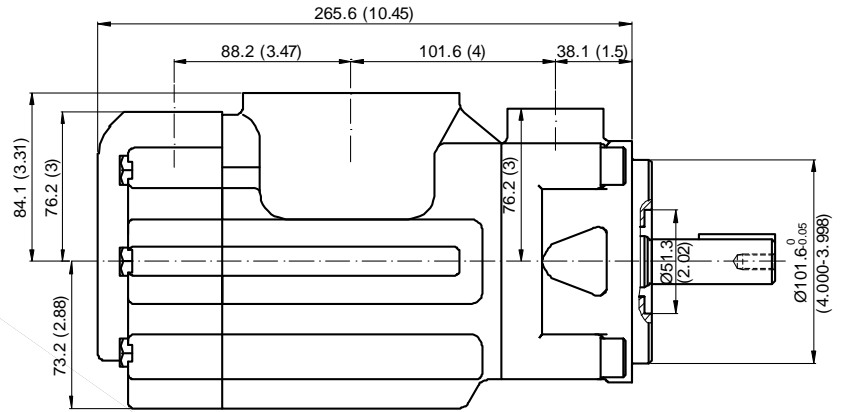
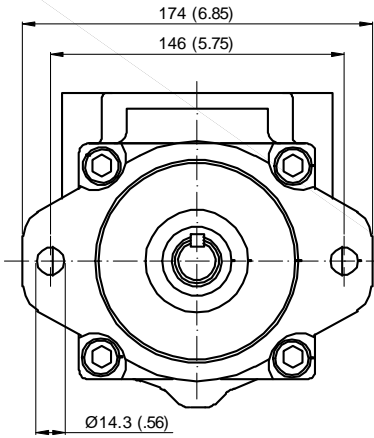
- Internal leakage exceeding 50% of the theoretical flow

1) 2500 r.p.m. max.

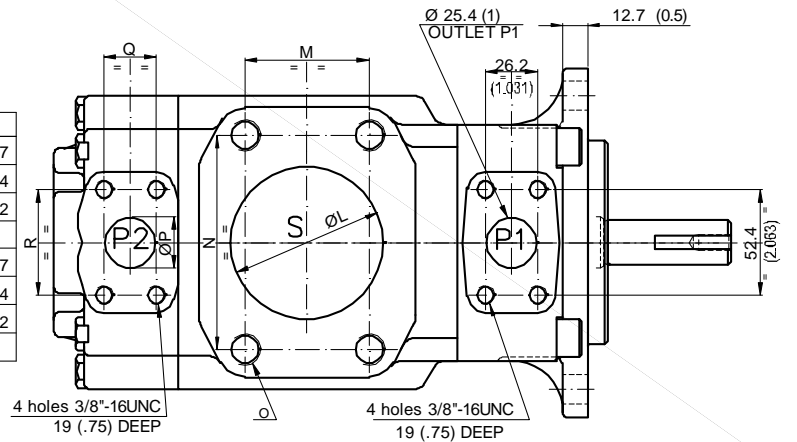
2) 210 bar (3000p.s.i.) max. int.

Installation dimensions

mm (inches)



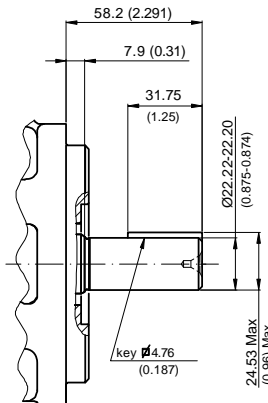
| CONF. | L | M | N | O | P | Q | R | S | |
|-------|-----|------|------|-------|-----------------------|------|------|------|------|
| A | mm | 76.2 | 61.9 | 106.4 | 5/8"-11UNC Prof. 28 | 25.4 | 26.2 | 52.4 | 74.7 |
| | in. | 3 | 2.44 | 4.19 | 5/8"-11UNC Prof. 1.1" | 1 | 1.03 | 2.06 | 2.94 |
| B | mm | 76.2 | 61.9 | 106.4 | 5/8"-11UNC Prof. 28 | 19 | 22.2 | 47.7 | 76.2 |
| | in. | 3 | 2.44 | 4.19 | 5/8"-11UNC Prof. 1.1" | 0.75 | 0.88 | 1.88 | 3 |
| C | mm | 63.5 | 50.8 | 88.9 | 1/2"-13UNC Prof. 24 | 25.4 | 26.2 | 52.4 | 74.7 |
| | in. | 2.5 | 2 | 3.5 | 1/2"-13UNC Prof. .94 | 1 | 1.03 | 2.06 | 2.94 |
| D | mm | 63.5 | 50.8 | 88.9 | 1/2"-13UNC Prof. 24 | 19 | 22.4 | 47.7 | 76.2 |
| | in. | 2.5 | 2 | 3.5 | 1/2"-13UNC Prof. .94 | 0.75 | 0.88 | 1.88 | 3 |



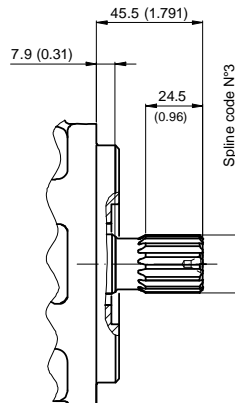
Approx weight: 26 kg (57 lbs)

Shaft options

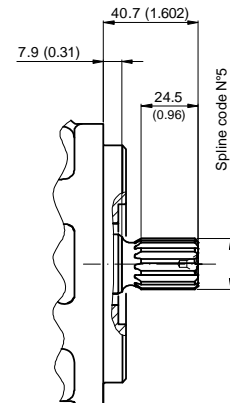
mm (inches)



Shaft No.1



Shaft No.3



Shaft No.5

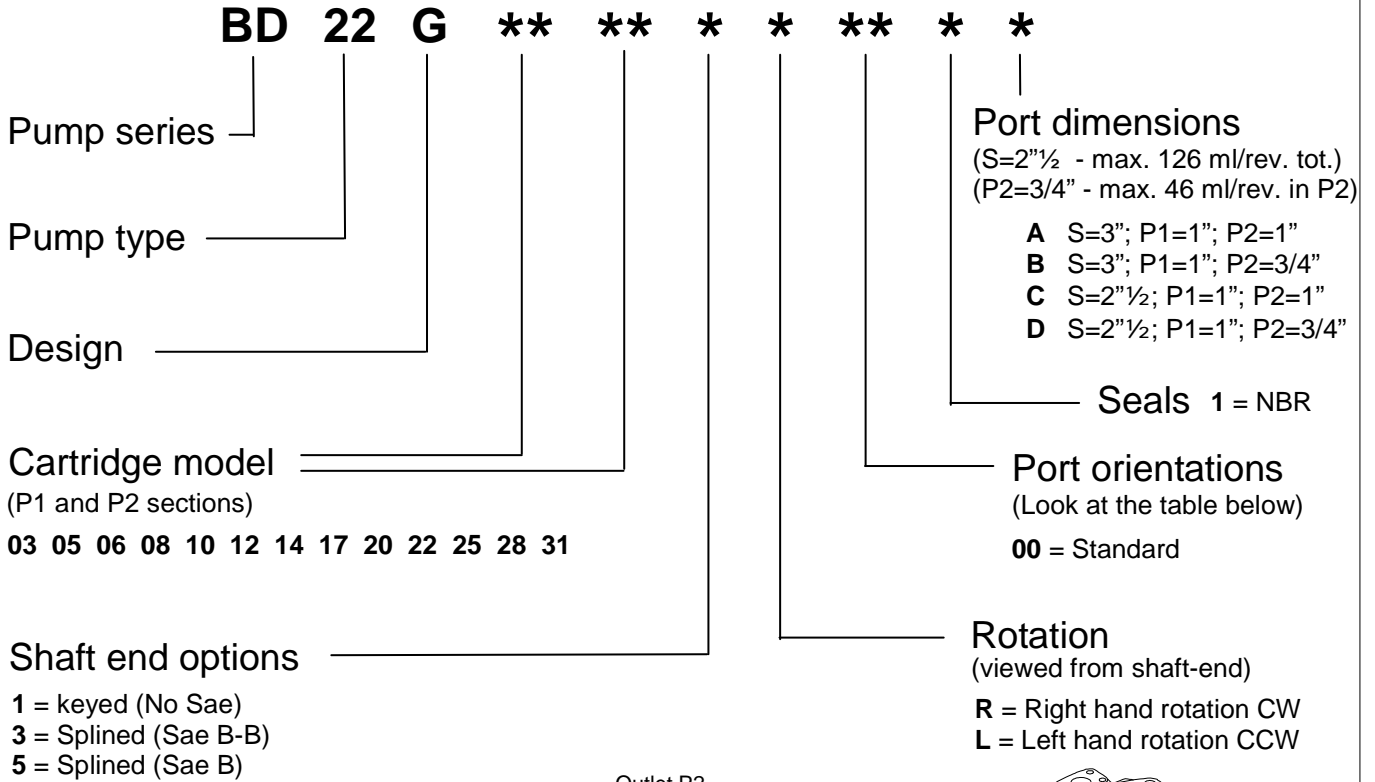
Calculation of the max permitted torque (avoid to exceed)

| Shaft No. | (ml/rev) x bar P1+P2 | (in3/rev) x psi P1+P2 |
|-----------|-------------------------|--------------------------|
| 1 | 14300 | 12666 |
| 3 | 32670 | 28937 |
| 5 | 20600 | 18246 |

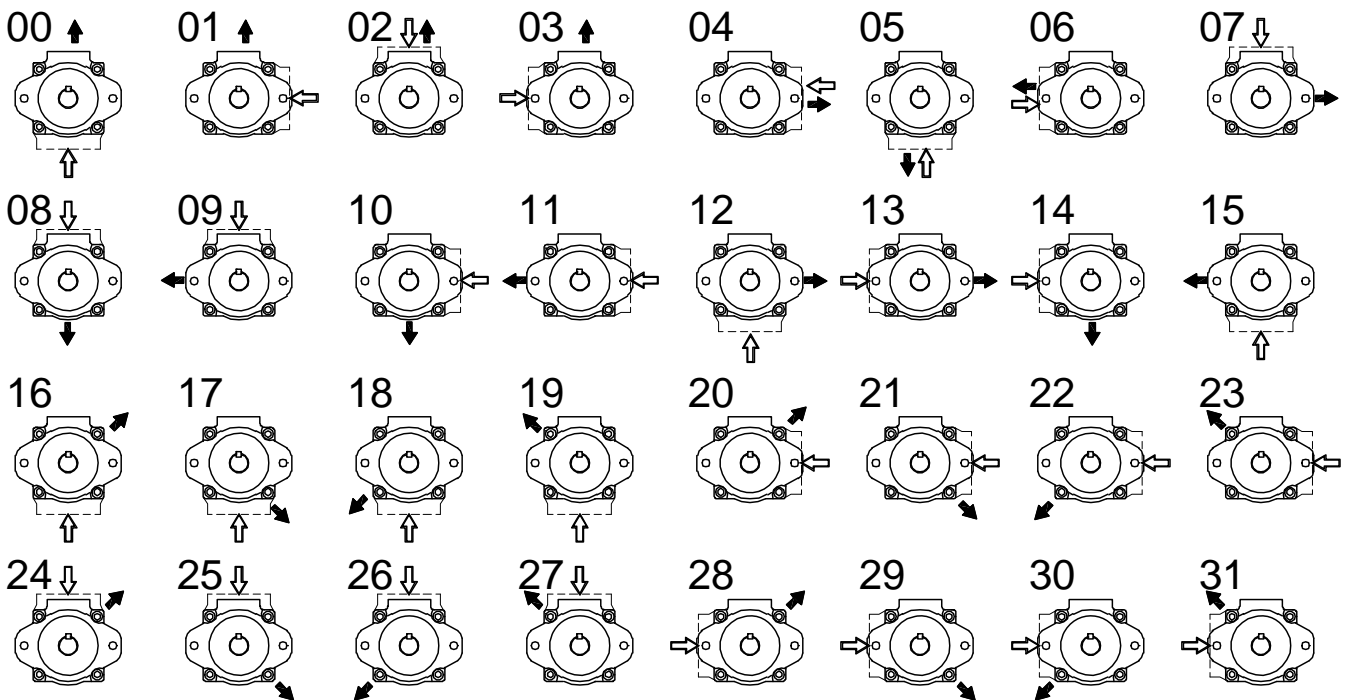
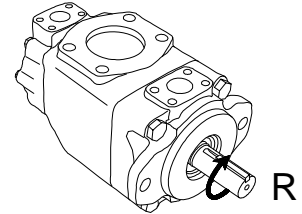
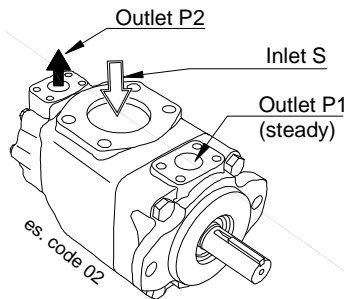
Spline code

| | 3 | 5 |
|----------------|--------------------|------------|
| Designation | Sae B-B | Sae B |
| Pressure angle | 30° | 30° |
| No. of teeth | 15 | 13 |
| Pitch | 16/32 d.p. | 16/32 d.p. |
| Spline type | flat root side fit | |
| Class | 1- J498 b | 1- J498 b |

Model code breakdown



Port orientations



Id. codes of pump components

| Rear cartridge | | | |
|----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD22 | 03 | N0400270 | N0400280 |
| | 05 | N0400290 | N0400300 |
| | 06 | N0400310 | N0400320 |
| | 08 | N0400330 | N0400340 |
| | 10 | N0400350 | N0400360 |
| | 12 | N0400370 | N0400380 |
| | 14 | N0400390 | N0400400 |
| | 17 | N0400410 | N0400420 |
| | 20 | N0400430 | N0400440 |
| | 22 | N0400450 | N0400460 |
| | 25 | N0400470 | N0400480 |
| | 28 | N0400490 | N0400500 |
| | 31 | N0400510 | N0400520 |

| Front cartridge | | | |
|-----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD22 | 03 | N0400010 | N0400020 |
| | 05 | N0400030 | N0400040 |
| | 06 | N0400050 | N0400060 |
| | 08 | N0400070 | N0400080 |
| | 10 | N0400090 | N0400100 |
| | 12 | N0400110 | N0400120 |
| | 14 | N0400130 | N0400140 |
| | 17 | N0400150 | N0400160 |
| | 20 | N0400170 | N0400180 |
| | 22 | N0400190 | N0400200 |
| | 25 | N0400210 | N0400220 |
| | 28 | N0400230 | N0400240 |
| | 31 | N0400250 | N0400260 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K6211000 |
| 03 | K6213000 |
| 05 | K6215000 |

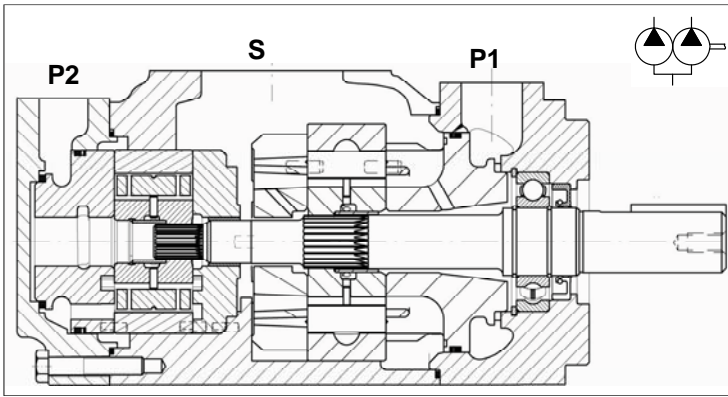
| Shaft seal | |
|------------|------|
| Part No. | type |
| M3020060 | NBR |

| Screw | |
|--------------------------------|----------|
| Part No. | M3020140 |
| Torque at 159 Nm (1418 lb.in.) | |

| Screw | |
|------------------------------|----------|
| Part No. | M3020130 |
| Torque at 61 Nm (544 lb.in.) | |

| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3022500 | NBR |





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with rated capacity from 87 to 300 l/min (from 8 to 80 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|------------|--------------------|
| | ml/rev. | (in ³ /r) | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | | | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| P1 | 14 | 47,6 (2.90) | 57,04 | (15.09) | 71,4 | (18.89) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| | 20 | 66,0 (4.03) | 79,08 | (20.92) | 99,0 | (26.19) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| | 24 | 79,5 (4.85) | 95,26 | (25.20) | 119,3 | (31.56) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| | 28 | 89,7 (5.47) | 107,50 | (28.44) | 134,5 | (35.58) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| | 31 | 98,3 (6.00) | 117,82 | (31.17) | 147,4 | (38.99) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| | 35 | 111,0 (6.77) | 133,02 | (35.19) | 166,5 | (44.05) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| | 38 | 120,3 (7.34) | 144,17 | (38.14) | 180,4 | (47.72) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| | 42 | 136,0 (8.30) | 162,99 | (43.12) | 204,0 | (53.97) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| | 45 | 145,7 (8.89) | 174,60 | (46.19) | 218,5 | (57.80) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| | 50 | 158,0 (9.64) | 189,34 | (50.09) | 237,0 | (62.70) | 210 | (3000) | 160 | (2300) | 400 - 2200 |
| P2 | 03 | 10,8 (0.66) | 12,93 | (3.42) | 16,2 | (4.29) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 05 | 17,2 (1.05) | 20,60 | (5.45) | 25,8 | (6.83) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 06 | 21,3 (1.30) | 25,52 | (6.75) | 31,9 | (8.44) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 08 | 26,4 (1.61) | 31,64 | (8.37) | 39,6 | (10.48) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 10 | 34,1 (2.08) | 40,86 | (10.81) | 51,1 | (13.52) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 12 | 37,1 (2.26) | 44,45 | (11.76) | 55,6 | (14.71) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 14 | 46,0 (2.81) | 55,11 | (14.58) | 69,0 | (18.25) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 17 | 58,3 (3.56) | 69,85 | (18.48) | 87,4 | (23.12) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 20 | 63,8 (3.89) | 76,47 | (20.23) | 95,7 | (25.32) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 22 | 70,3 (4.29) | 84,26 | (22.29) | 105,4 | (27.88) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| | 25 | 79,3 (4.84) | 95,03 | (25.14) | 118,9 | (31.46) | 275 | (4000) | 240 | (3500) | 400 - 2500 |
| | 28 | 88,8 (5.42) | 106,41 | (28.15) | 133,2 | (35.24) | 210 | (3000) | 160 | (2300) | 400 - 2500 |
| 31 | 100,0 (6.10) | 119,83 | (31.70) | 150,0 | (39.68) | 210 | (3000) | 160 | (2300) | 400 - 2500 | |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 cSt. (18 to 108 cSt. recomm.). Choose 30 cSt. for max lifetime. *Viscosity index:* 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

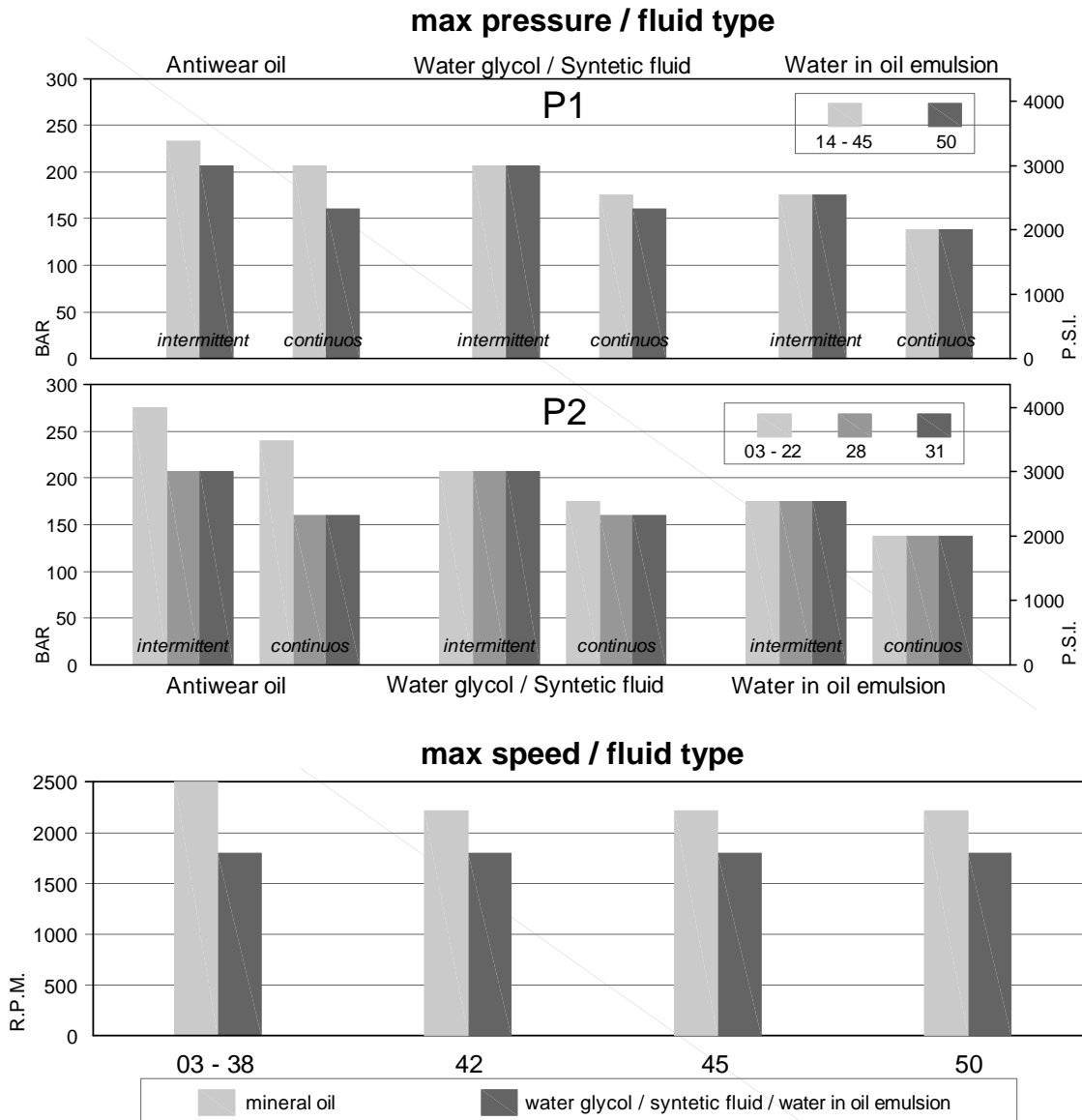
Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100°C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data



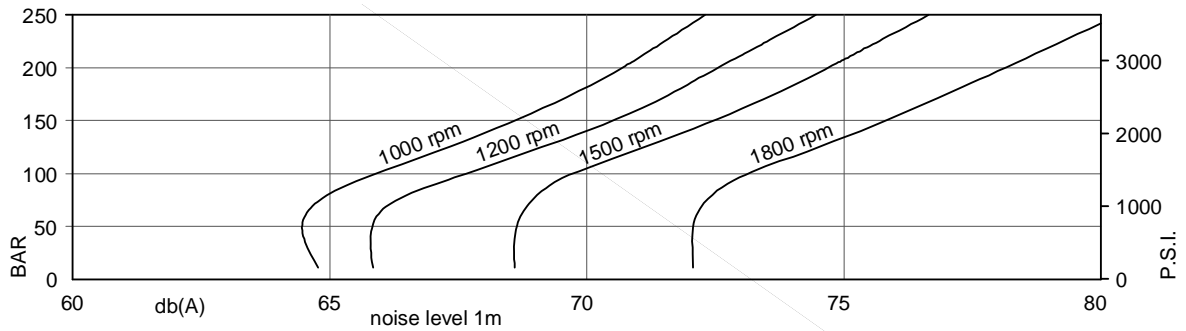
min. allowable inlet pressure / rotation speed (abs. bar)*

| | Speed r.p.m. | rotation speed (abs. bar) | | | | | | | | | |
|-----------|--------------|---------------------------|------|------|------|------|------|------|------|------|------|
| | | from 14 to 20 | 24 | 28 | 31 | 35 | 38 | 42 | 45 | 50 | |
| P1 | 2500 | 1.00 | 1.10 | 1.18 | 1.23 | 1.29 | 1.29 | - | - | - | |
| | 2300 | 0.95 | 0.95 | 1.00 | 1.00 | 1.02 | 1.05 | 1.08 | - | - | |
| | 2200 | 0.88 | 0.88 | 0.92 | 0.95 | 0.98 | 1.00 | 1.02 | 1.05 | 1.09 | |
| | 2100 | 0.80 | 0.82 | 0.85 | 0.90 | 0.92 | 0.95 | 0.95 | 0.98 | 1.02 | |
| | 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 |
| | 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| P2 | Speed r.p.m. | from 03 to 10 | 12 | 14 | 17 | 20 | 22 | 25 | 28 | 31 | |
| | 2800 | 1.00 | 1.00 | 1.00 | 1.03 | 1.03 | 1.05 | | | | |
| | 2500 | 0.90 | 0.92 | 0.95 | 0.95 | 0.95 | 0.98 | 1.05 | 1.08 | 1.11 | |
| | 2300 | 0.80 | 0.85 | 0.85 | 0.90 | 0.90 | 0.90 | 0.95 | 0.98 | 1.0 | |
| | 2200 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | 0.90 | 0.95 | 0.98 | 0.90 | |
| | 2100 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.90 | 0.90 | 0.85 | |
| | 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | |
| | 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | |
| 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | | |

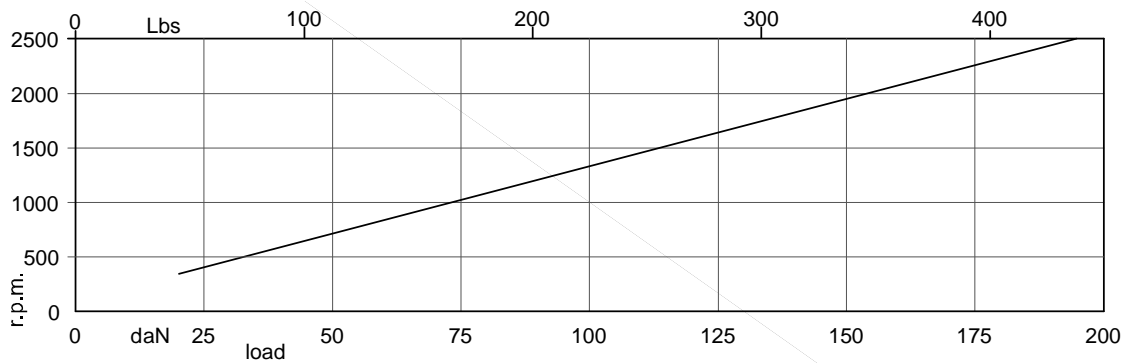
* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.). Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data

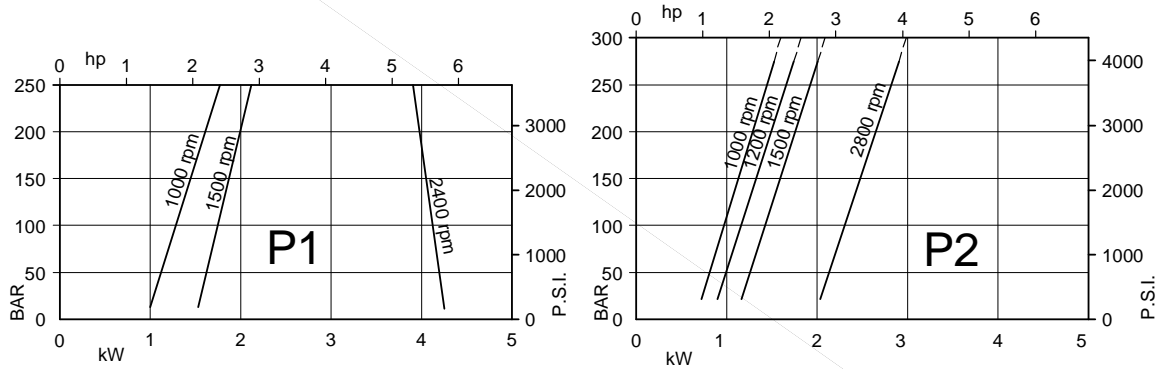
noise level (model 38+22, with fluid viscosity 32 c.St., inlet 0.9 bar abs.)



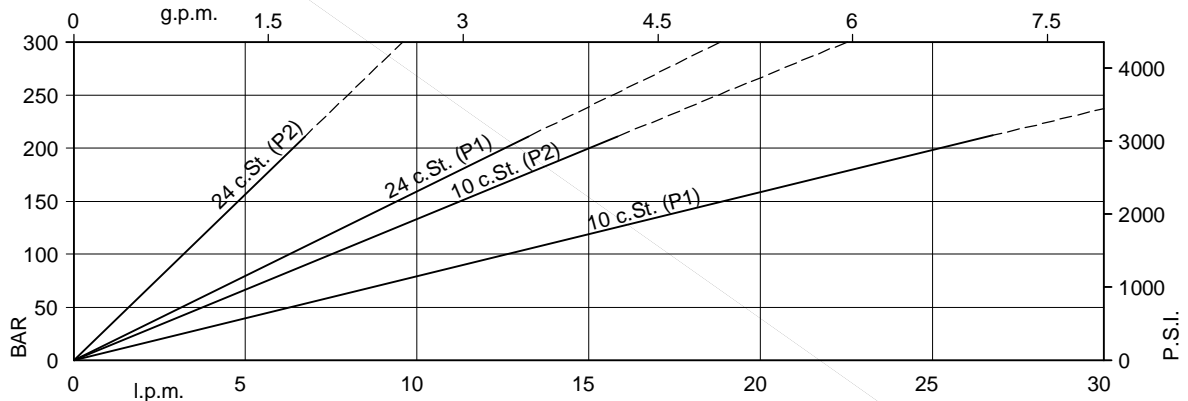
allowable radial load (max. permissible axial load = 120 daN)



power loss (typical)



Typical internal leakage *
(total leakage is the sum of each sector)



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Main operating data

P1 section

Typical: 24 c.St. (115 SUS)

| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|------------------|------------------------|----------------------|-----------|---------|---------|---------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 14 | 47,6 | (2.90) | 1000 | 38,3 | (10.13) | 32,1 | (8.49) | 1.50 | 12.50 | 20.70 |
| | | | 1200 | 48,8 | (12.91) | 42,6 | (11.27) | 1.80 | 14.43 | 24.44 |
| | | | 1500 | 62,1 | (16.43) | 55,9 | (14.79) | 2.30 | 18.50 | 30.60 |
| | | | 1800 | 77,3 | (20.46) | 71,1 | (18.82) | 2.96 | 21.57 | 36.31 |
| 20 | 66,0 | (4.03) | 1000 | 56,7 | (15.00) | 50,5 | (13.36) | 1.70 | 16.80 | 28.00 |
| | | | 1200 | 70,8 | (18.74) | 64,6 | (17.10) | 2.05 | 19.44 | 33.20 |
| | | | 1500 | 89,7 | (23.73) | 83,5 | (22.09) | 2.80 | 24.90 | 41.70 |
| | | | 1800 | 110,4 | (29.21) | 104,2 | (27.57) | 3.33 | 29.09 | 49.47 |
| 24 | 79,5 | (4.85) | 1000 | 70,2 | (18.57) | 64,0 | (16.93) | 1.90 | 19.90 | 33.40 |
| | | | 1200 | 87,02 | (23.02) | 80,8 | (21.38) | 2.23 | 23.11 | 39.63 |
| | | | 1500 | 110,0 | (29.10) | 103,8 | (27.46) | 3.00 | 29.60 | 49.80 |
| | | | 1800 | 134,7 | (35.63) | 128,5 | (33.99) | 3.61 | 34.61 | 59.12 |
| 28 | 89,7 | (5.47) | 1000 | 80,4 | (21.27) | 74,2 | (19.63) | 2.00 | 22.30 | 37.50 |
| | | | 1200 | 99,3 | (26.26) | 93,1 | (24.62) | 2.37 | 25.89 | 44.49 |
| | | | 1500 | 125,2 | (33.12) | 119,0 | (31.48) | 3.20 | 33.20 | 55.90 |
| | | | 1800 | 153,0 | (40.48) | 146,1 | (38.64) | 3.82 | 38.77 | 66.41 |
| 31 | 98,3 | (6.00) | 1000 | 89,0 | (23.54) | 82,8 | (21.90) | 2.10 | 24.30 | 40.90 |
| | | | 1200 | 109,6 | (28.99) | 103,4 | (27.35) | 2.49 | 28.23 | 48.59 |
| | | | 1500 | 138,1 | (36.53) | 131,9 | (34.89) | 3.30 | 36.20 | 61.00 |
| | | | 1800 | 168,5 | (44.57) | 162,3 | (42.93) | 4.00 | 42.28 | 72.55 |
| 35 | 111,0 | (6.77) | 1000 | 101,7 | (26.90) | 95,5 | (25.26) | 2.30 | 27.30 | 46.00 |
| | | | 1200 | 124,8 | (33.01) | 118,6 | (31.37) | 2.66 | 31.68 | 54.64 |
| | | | 1500 | 157,2 | (41.59) | 151,0 | (39.95) | 3.50 | 40.70 | 68.70 |
| | | | 1800 | 191,3 | (50.61) | 185,1 | (48.97) | 4.25 | 47.47 | 81.63 |
| 38 | 120,3 | (7.34) | 1000 | 111,0 | (29.37) | 104,8 | (27.72) | 2.40 | 29.40 | 49.80 |
| | | | 1200 | 135,9 | (35.96) | 129,7 | (34.32) | 2.79 | 36.42 | 59.07 |
| | | | 1500 | 171,1 | (45.26) | 164,9 | (43.62) | 3.70 | 43.90 | 74.30 |
| | | | 1800 | 208,0 | (55.03) | 201,8 | (53.39) | 4.45 | 51.27 | 88.28 |
| 42 ¹⁾ | 136,0 | (8.30) | 1000 | 126,7 | (33.52) | 120,5 | (31.88) | 2.60 | 33.10 | 56.00 |
| | | | 1200 | 154,7 | (40.94) | 148,6 | (39.30) | 3.00 | 38.49 | 66.56 |
| | | | 1500 | 194,7 | (51.51) | 188,5 | (49.87) | 4.00 | 49.40 | 83.70 |
| | | | 1800 | 236,3 | (62.50) | 230,1 | (60.86) | 4.76 | 57.68 | 99.50 |
| 45 ¹⁾ | 145,7 | (8.89) | 1000 | 136,4 | (36.08) | 130,2 | (34.44) | 2.70 | 35.30 | 59.90 |
| | | | 1200 | 166,4 | (44.01) | 160,2 | (42.37) | 3.14 | 41.14 | 71.18 |
| | | | 1500 | 209,2 | (55.34) | 203,0 | (53.70) | 4.10 | 52.80 | 89.50 |
| | | | 1800 | 253,7 | (67.11) | 247,5 | (65.47) | 4.96 | 61.64 | 106.43 |
| 50 ¹⁾ | 158,0 | (9.64) | 1000 | 148,7 | (39.34) | 145,0 ²⁾ | (38.36) ²⁾ | 2.80 | 38.20 | 56.80 ²⁾ |
| | | | 1200 | 181,1 | (47.91) | 176,6 ²⁾ | (46.73) ²⁾ | 3.30 | 44.48 | 66.19 ²⁾ |
| | | | 1500 | 227,7 | (30.24) | 224,0 ²⁾ | (59.26) ²⁾ | 4.40 | 57.00 | 85.00 ²⁾ |
| | | | 1800 | 275,8 | (72.96) | 271,3 ²⁾ | (71.78) ²⁾ | 5.21 | 66.67 | 99.02 ²⁾ |

1) 2200 r.p.m. max.

2) 210 bar (3000p.s.i.) max. int.

Main operating data

P2 section

Typical: 24 c.St. (115 SUS)

| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|------------------|------------------------|----------------------|-----------|---------|---------|----------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 03 | 10,8 | (0.66) | 1000 | - | - | - | - | 1.00 | - | - |
| | | | 1200 | - | - | - | - | 1.05 | - | - |
| | | | 1500 | 10,7 | (2.84) | - | - | 1.30 | 5.30 | - |
| | | | 1800 | 13,6 | (3.61) | - | - | 1.55 | 8.45 | - |
| 05 | 17,2 | (1.05) | 1000 | 11,7 | (3.09) | - | - | 1.10 | 5.10 | - |
| | | | 1200 | 15,1 | (3.99) | - | - | 1.14 | 8.17 | - |
| | | | 1500 | 20,3 | (5.37) | 15,8 | (4.18) | 1.40 | 7.50 | 12.2 |
| | | | 1800 | 25,1 | (6.65) | 21,0 | (5.56) | 1.68 | 12.0 | 14.4 |
| 06 | 21,3 | (1.30) | 1000 | 15,80 | (4.18) | 11,30 | (2.99) | 1.10 | 6.00 | 10.00 |
| | | | 1200 | 19,73 | (5.22) | 15,61 | (4.13) | 1.19 | 7.13 | 11.86 |
| | | | 1500 | 26,50 | (7.01) | 22,00 | (5.82) | 1.50 | 8.90 | 14.70 |
| | | | 1800 | 32,51 | (8.60) | 28,39 | (7.51) | 1.76 | 10.50 | 17.33 |
| 08 | 26,4 | (1.61) | 1000 | 20,90 | (5.53) | 16,40 | (4.34) | 1.20 | 7.20 | 12.10 |
| | | | 1200 | 25,86 | (6.84) | 21,74 | (5.75) | 1.26 | 8.51 | 14.29 |
| | | | 1500 | 34,10 | (9.02) | 29,60 | (7.83) | 1.60 | 10.70 | 17.70 |
| | | | 1800 | 41,66 | (11.02) | 37,54 | (9.93) | 1.87 | 12.58 | 20.98 |
| 10 | 34,1 | (2.08) | 1000 | 28,60 | (7.57) | 24,10 | (6.38) | 1.30 | 8.90 | 15.10 |
| | | | 1200 | 35,08 | (9.28) | 30,96 | (8.19) | 1.37 | 10.61 | 17.96 |
| | | | 1500 | 45,70 | (12.09) | 41,20 | (10.90) | 1.70 | 13.40 | 22.30 |
| | | | 1800 | 55,53 | (14.69) | 51,41 | (13.60) | 2.03 | 15.72 | 26.47 |
| 12 | 37,1 | (2.26) | 1000 | 31,60 | (8.36) | 27,10 | (7.17) | 1.30 | 9.60 | 16.30 |
| | | | 1200 | 38,67 | (10.23) | 34,55 | (9.14) | 1.41 | 11.42 | 19.38 |
| | | | 1500 | 50,20 | (13.28) | 45,70 | (12.09) | 1.70 | 14.40 | 24.10 |
| | | | 1800 | 60,90 | (16.11) | 56,78 | (15.02) | 2.09 | 16.95 | 28.62 |
| 14 | 46,0 | (2.81) | 1000 | 40,50 | (10.71) | 36,00 | (9.52) | 1.40 | 11.70 | 19.90 |
| | | | 1200 | 49,33 | (13.05) | 45,21 | (11.96) | 1.53 | 13.85 | 23.62 |
| | | | 1500 | 63,50 | (16.80) | 59,00 | (15.61) | 1.90 | 17.60 | 29.50 |
| | | | 1800 | 76,92 | (20.35) | 72,80 | (19.26) | 2.27 | 20.58 | 34.97 |
| 17 | 58,3 | (3.56) | 1000 | 52,80 | (13.97) | 48,30 | (12.78) | 1.60 | 14.50 | 24.80 |
| | | | 1200 | 64,07 | (16.95) | 59,95 | (15.86) | 1.70 | 17.19 | 29.47 |
| | | | 1500 | 82,00 | (21.69) | 77,50 | (20.50) | 2.10 | 21.90 | 36.90 |
| | | | 1800 | 99,04 | (26.20) | 94,92 | (25.11) | 2.52 | 25.60 | 43.76 |
| 20 | 63,8 | (3.89) | 1000 | 58,30 | (15.42) | 53,80 | (14.23) | 1.60 | 15.80 | 27.00 |
| | | | 1200 | 70,69 | (18.70) | 66,57 | (17.61) | 1.77 | 18.68 | 32.09 |
| | | | 1500 | 90,20 | (23.86) | 85,70 | (22.67) | 2.20 | 23.80 | 40.20 |
| | | | 1800 | 108,90 | (28.81) | 103,65 | (27.42) | 2.63 | 27.84 | 47.68 |
| 22 | 70,3 | (4.29) | 1000 | 64,80 | (17.14) | 60,30 | (15.95) | 1.70 | 17.30 | 29.60 |
| | | | 1200 | 78,47 | (20.76) | 74,35 | (19.67) | 1.86 | 20.46 | 35.18 |
| | | | 1500 | 100,00 | (26.46) | 95,50 | (25.26) | 2.30 | 26.10 | 44.10 |
| | | | 1800 | 120,58 | (31.90) | 116,46 | (30.81) | 2.76 | 30.49 | 52.32 |
| 25 ¹⁾ | 79,3 | (4.84) | 1000 | 73,80 | (19.52) | 69,30 | (18.33) | 1.80 | 19.30 | 33.20 |
| | | | 1200 | 89,25 | (23.61) | 85,13 | (22.52) | 1.99 | 22.90 | 39.47 |
| | | | 1500 | 113,50 | (30.03) | 109,00 | (28.84) | 2.50 | 29.20 | 49.50 |
| | | | 1800 | 136,76 | (36.18) | 132,64 | (35.09) | 2.95 | 34.16 | 58.75 |
| 28 ¹⁾ | 88,8 | (5.42) | 1000 | 83,30 | (22.04) | 80,10 ²⁾ | (21.19) ²⁾ | 1.90 | 21.90 | 32.50 ²⁾ |
| | | | 1200 | 100,62 | (26.62) | 97,75 ²⁾ | (25.86) ²⁾ | 2.11 | 25.49 | 37.77 ²⁾ |
| | | | 1500 | 127,70 | (33.78) | 124,50 ²⁾ | (32.94) ²⁾ | 2.80 | 32.70 | 48.50 ²⁾ |
| | | | 1800 | 153,85 | (40.70) | 150,97 ²⁾ | (39.94) ²⁾ | 3.14 | 38.04 | 56.42 ²⁾ |
| 31 ¹⁾ | 100,0 | (6.10) | 1000 | 94,50 | (25.00) | 91,30 ²⁾ | (24.15) ²⁾ | 2.00 | 24.40 | 36.40 ²⁾ |
| | | | 1200 | 114,04 | (30.17) | 111,17 ²⁾ | (29.41) ²⁾ | 2.26 | 28.53 | 42.34 ²⁾ |
| | | | 1500 | 144,50 | (38.23) | 141,30 ²⁾ | (37.38) ²⁾ | 2.80 | 36.50 | 54.40 ²⁾ |
| | | | 1800 | 173,99 | (46.03) | 171,12 ²⁾ | (45.27) ²⁾ | 3.37 | 42.61 | 63.28 ²⁾ |

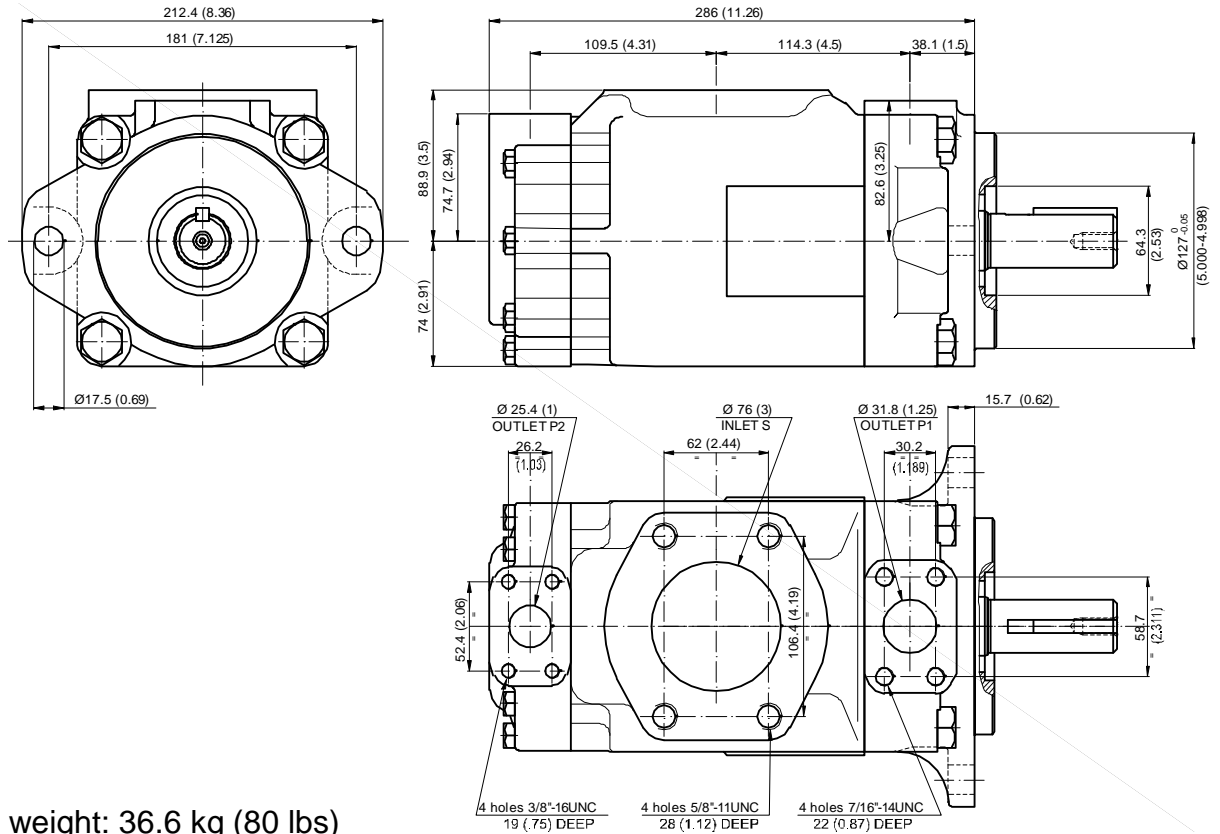
-) Internal leakage exceeding 50% of the theoretical flow

1) 2500 r.p.m. max.

2) 210 bar (3000p.s.i.) max. int.

Installation dimensions

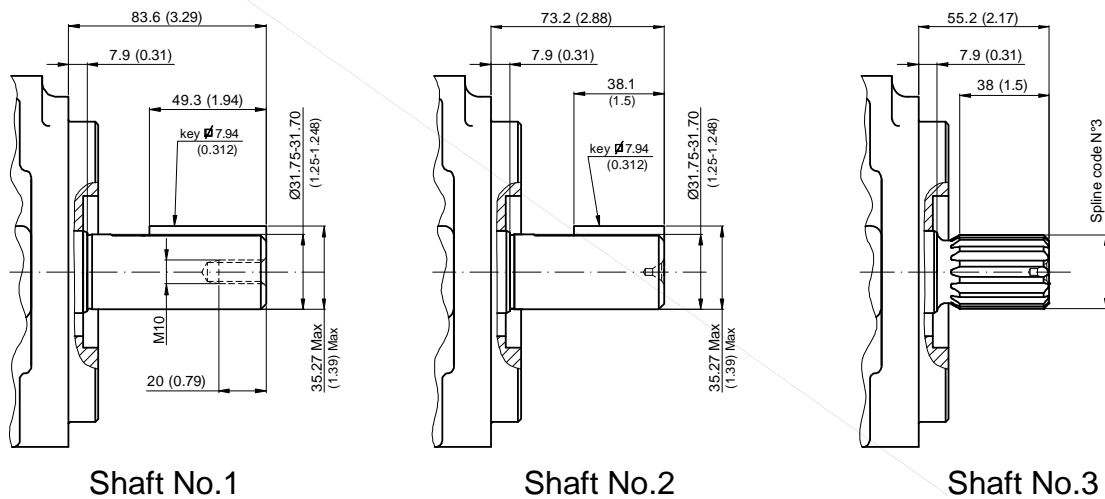
mm (inches)



Approx weight: 36.6 kg (80 lbs)

Shaft options

mm (inches)



Shaft No.1

Shaft No.2

Shaft No.3

Calculation of the max permitted torque:
(avoid to exceed)

| Shaft No. | (ml/rev) x bar P1+P2 | (in3/rev) x psi P1+P2 |
|-----------|-------------------------|--------------------------|
| 1 | 43240 | 38300 |
| 2 | 34590 | 30638 |
| 3 | 61200 | 54207 |

Spline code

3

| Designation | Sae C |
|----------------|--------------------|
| Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 d.p. |
| Spline type | flat root side fit |
| Class | 1- J498 b |

Model code breakdown

BD 42 G ** ** * * ** *

Pump series

Pump type

Design

Cartridge model

(P1 section)

14 20 24 28 31 35 38 42 45 50

(P2 section)

03 05 06 08 10 12 14 17 20 22 25 28 31

Shaft end options

- 1 = keyed (Sae C)
- 2 = keyed (No Sae)
- 3 = Splined (Sae C)

Seals

1 = NBR

Port orientations

(Look at the table below)

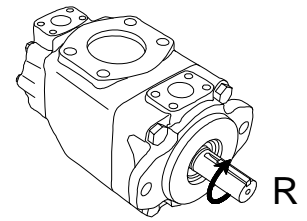
00 = Standard

Rotation

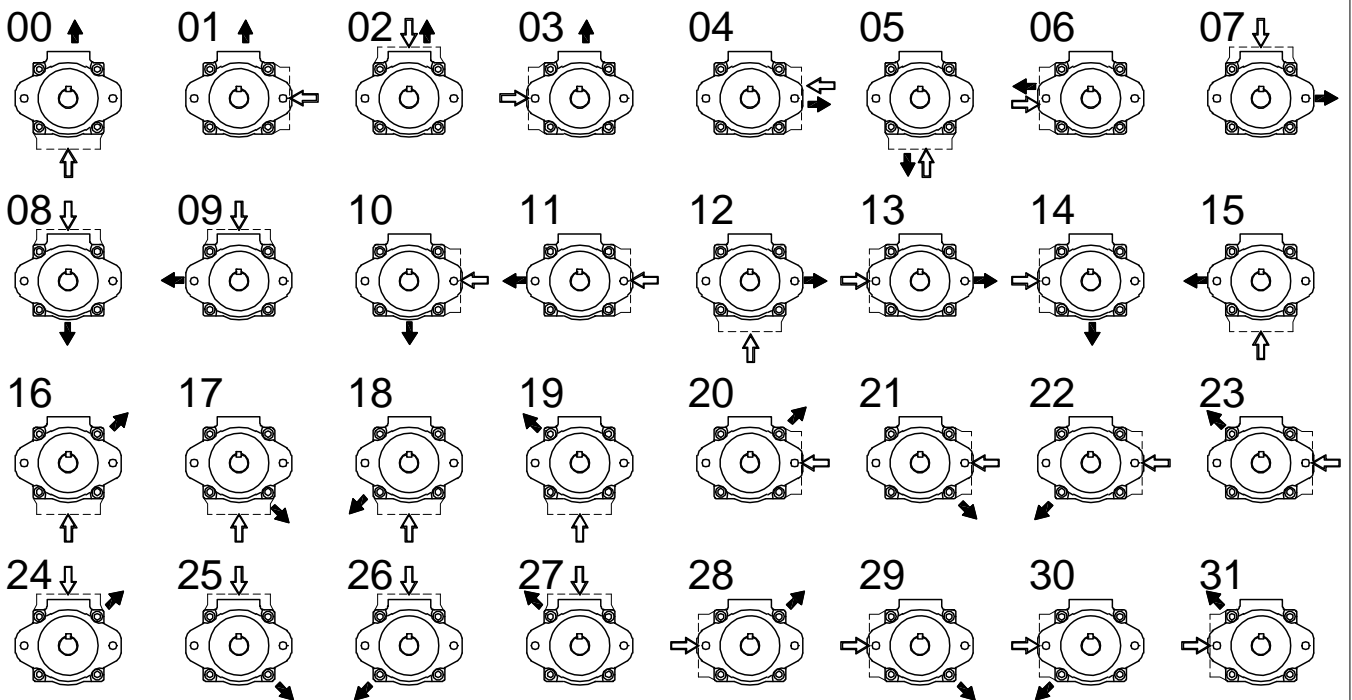
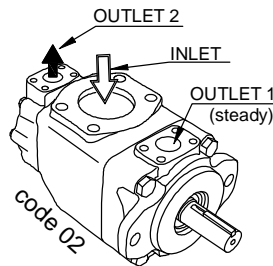
(viewed from shaft-end)

R = Right hand rotation CW

L = Left hand rotation CCW



Port orientations



Id. codes of pump components

| Rear cartridge | | | |
|----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD42 | 03 | N0500230 | N0500240 |
| | 05 | N0500250 | N0500260 |
| | 06 | N0500270 | N0500280 |
| | 08 | N0500290 | N0500300 |
| | 10 | N0500310 | N0500320 |
| | 12 | N0500330 | N0500340 |
| | 14 | N0500350 | N0500360 |
| | 17 | N0500370 | N0500380 |
| | 20 | N0500390 | N0500400 |
| | 22 | N0500410 | N0500420 |
| | 25 | N0500430 | N0500440 |
| | 28 | N0500450 | N0500460 |
| | 31 | N0500470 | N0500480 |

| Front cartridge | | | |
|-----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD42 | 14 | N0500010 | N0500020 |
| | 20 | N0500050 | N0500060 |
| | 24 | N0500070 | N0500080 |
| | 28 | N0500090 | N0500100 |
| | 31 | N0500110 | N0500120 |
| | 35 | N0500130 | N0500140 |
| | 38 | N0500150 | N0500160 |
| | 42 | N0500170 | N0500180 |
| | 45 | N0500190 | N0500200 |
| | 50 | N0500210 | N0500220 |

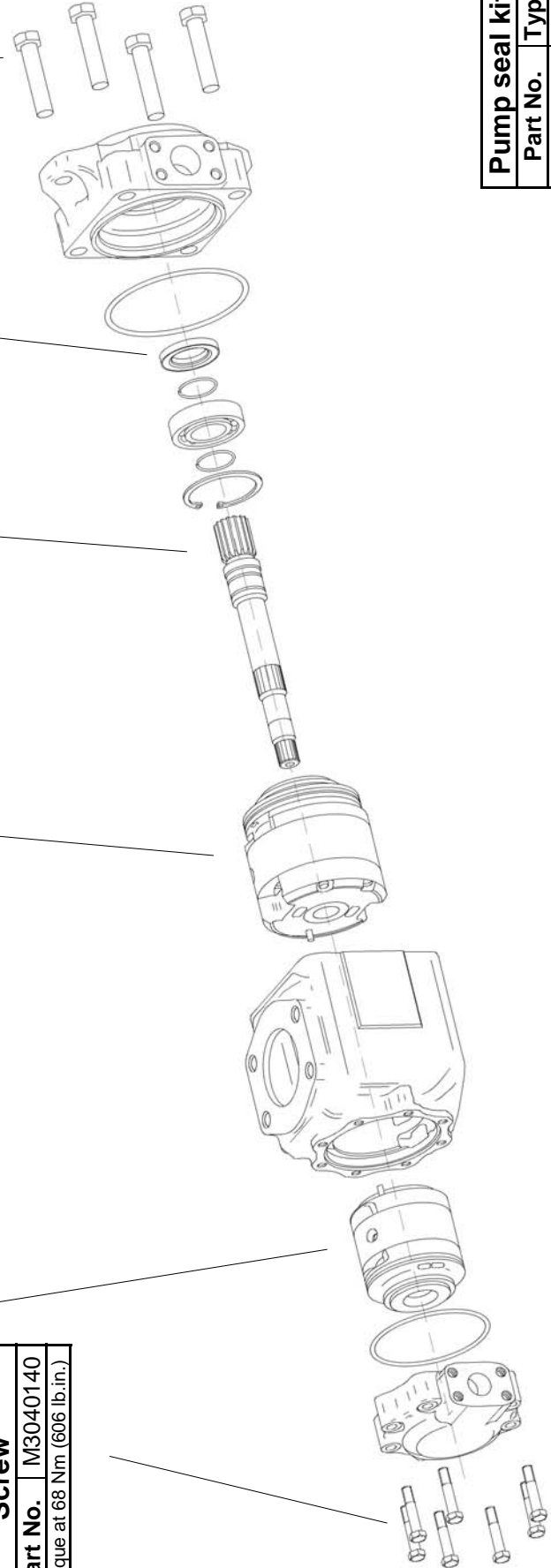
| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K6411000 |
| 02 | K6412000 |
| 03 | K6413000 |

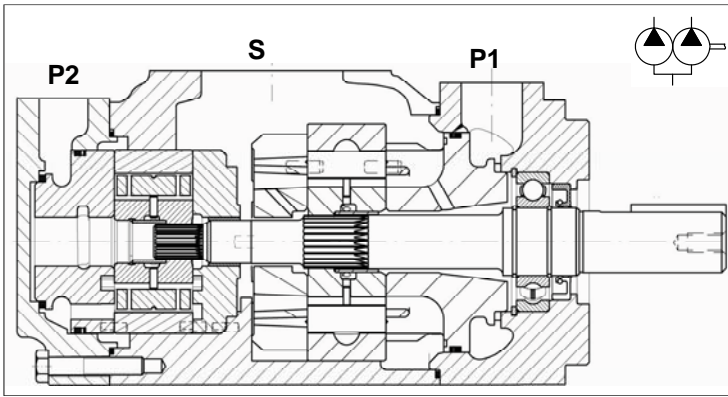
| Screw | |
|----------|--------------------------------|
| Part No. | Torque at 187 Nm (1668 lb.in.) |
| M3040130 | |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3040060 | NBR |

| Screw | |
|----------|------------------------------|
| Part No. | Torque at 68 Nm (606 lb.in.) |
| M3040140 | |

| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3042500 | NBR |





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with rated capacity from 230 to 490 l/min (from 61 to 130 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------------|------------|------------|------------------|-------|------------|-------|--------------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| P1 | 45 | 142,4 (8.69) | 170.7 (45.15) | 213.6 (56.51) | 240 (3500) | 210 (3000) | 400 - 2200 | | | | |
| | 50 | 158,5 (9.67) | 189.9 (50.25) | 237.7 (62.88) | 240 (3500) | 210 (3000) | 400 - 2200 | | | | |
| | 52 | 164,8 (10.06) | 197.5 (52.25) | 247.2 (65.40) | 240 (3500) | 210 (3000) | 400 - 2200 | | | | |
| | 62 | 196,7 (12.00) | 235.7 (62.36) | 295.0 (78.04) | 240 (3500) | 210 (3000) | 400 - 2200 | | | | |
| | 66 | 213,3 (13.02) | 255.6 (67.62) | 319.9 (84.63) | 240 (3500) | 210 (3000) | 400 - 2200 | | | | |
| | 72 | 227,1 (13.86) | 272.2 (72.00) | 340.6 (90.11) | 240 (3500) | 210 (3000) | 400 - 2200 | | | | |
| P2 | 03 | 10,8 (0.66) | 12,93 (3.42) | 16,2 (4.29) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 05 | 17,2 (1.05) | 20,60 (5.45) | 25,8 (6.83) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 06 | 21,3 (1.30) | 25,52 (6.75) | 31,9 (8.44) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 08 | 26,4 (1.61) | 31,64 (8.37) | 39,6 (10.48) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 10 | 34,1 (2.08) | 40,86 (10.81) | 51,1 (13.52) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 12 | 37,1 (2.26) | 44,45 (11.76) | 55,6 (14.71) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 14 | 46,0 (2.81) | 55,11 (14.58) | 69,0 (18.25) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 17 | 58,3 (3.56) | 69,85 (18.48) | 87,4 (23.12) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 20 | 63,8 (3.89) | 76,47 (20.23) | 95,7 (25.32) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 22 | 70,3 (4.29) | 84,26 (22.29) | 105,4 (27.88) | 275 (4000) | 240 (3500) | 400 - 2800 | | | | |
| | 25 | 79,3 (4.84) | 95,03 (25.14) | 118,9 (31.46) | 275 (4000) | 240 (3500) | 400 - 2500 | | | | |
| | 28 | 88,8 (5.42) | 106,41 (28.15) | 133,2 (35.24) | 210 (3000) | 160 (2300) | 400 - 2500 | | | | |
| | 31 | 100,0 (6.10) | 119,83 (31.70) | 150,0 (39.68) | 210 (3000) | 160 (2300) | 400 - 2500 | | | | |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 cSt. (18 to 108 cSt. recomm.). Choose 30 cSt. for max lifetime.
Viscosity index: 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8. Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

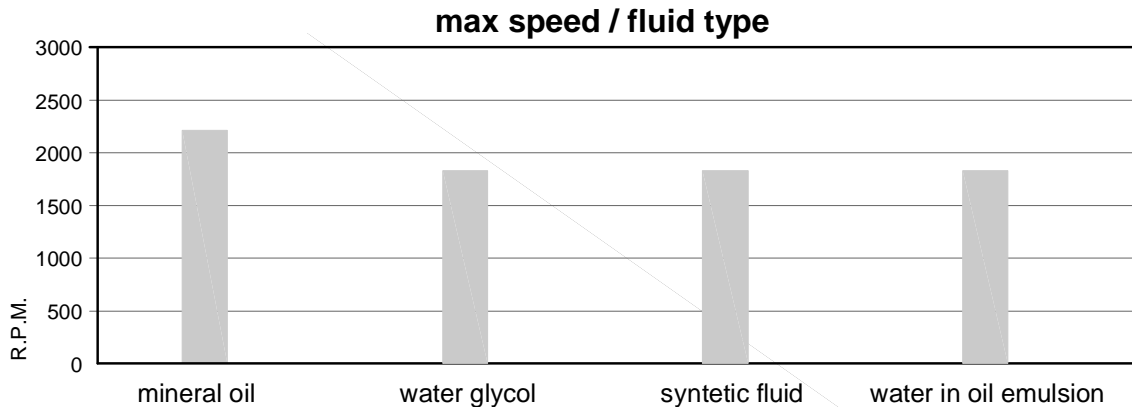
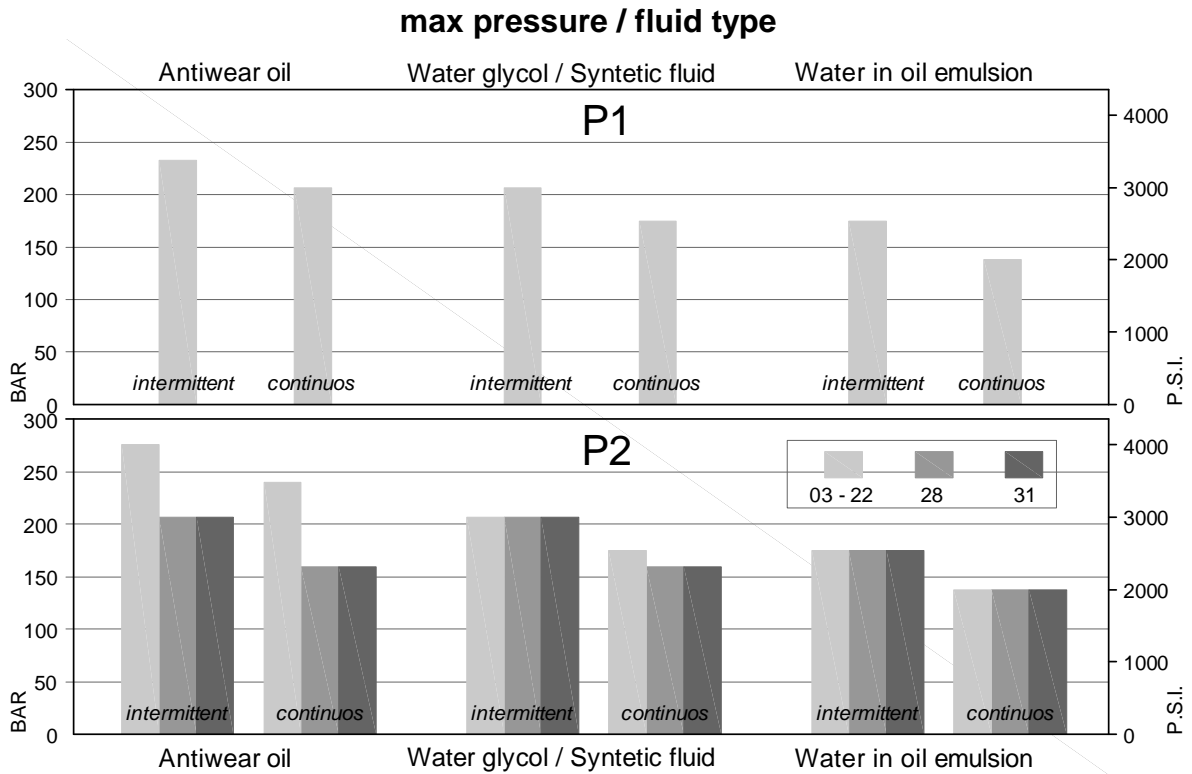
Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

Minimum inlet pressure: (with mineral oil 10-65 cSt.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data



min. allowable inlet pressure / rotation speed (abs. bar)*

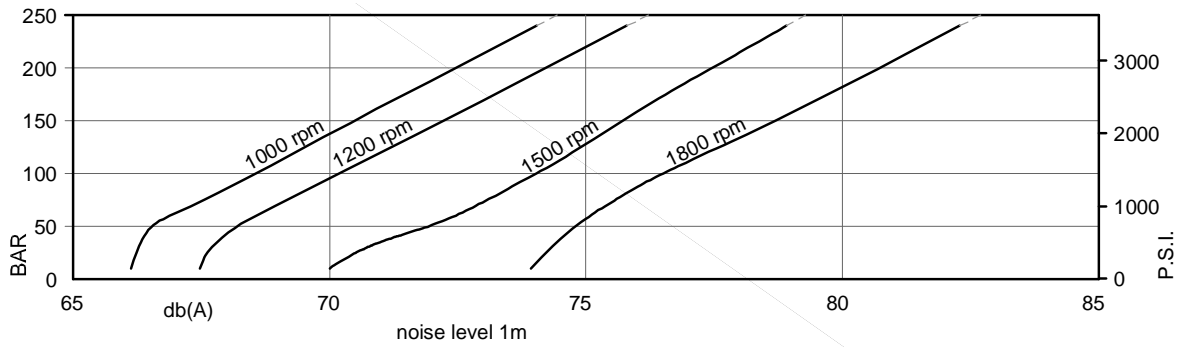
| | Speed r.p.m. | 45 | 50 | 52 | 62 | 66 | 72 | | | |
|-----------|--------------|---------------|------|------|------|------|------|------|------|------|
| | P1 | 2200 | 1.00 | 1.00 | 1.00 | 1.00 | 1.09 | 1.05 | | |
| 2100 | | 0.90 | 0.90 | 0.90 | 0.95 | 1.00 | 1.00 | | | |
| 1800 | | 0.80 | 0.80 | 0.80 | 0.85 | 0.95 | 0.85 | | | |
| 1500 | | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | | | |
| 1200 | | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | | | |
| P2 | Speed r.p.m. | from 03 to 10 | 12 | 14 | 17 | 20 | 22 | 25 | 28 | 31 |
| | 2800 | 1.00 | 1.00 | 1.00 | 1.03 | 1.03 | 1.05 | | | |
| | 2500 | 0.90 | 0.92 | 0.95 | 0.95 | 0.95 | 0.98 | 1.05 | 1.08 | 1.11 |
| | 2300 | 0.80 | 0.85 | 0.85 | 0.90 | 0.90 | 0.90 | 0.95 | 0.98 | 1.0 |
| | 2200 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | 0.90 | 0.95 | 0.98 | 0.90 |
| | 2100 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.90 | 0.90 | 0.85 |
| | 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).

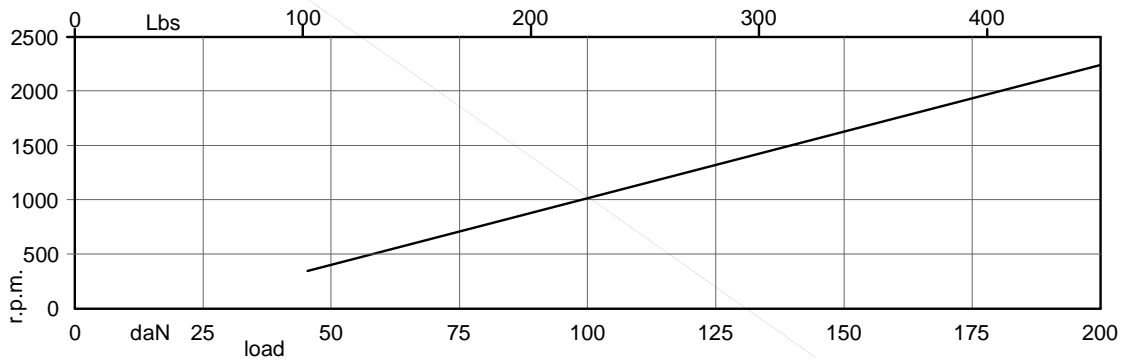
Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data

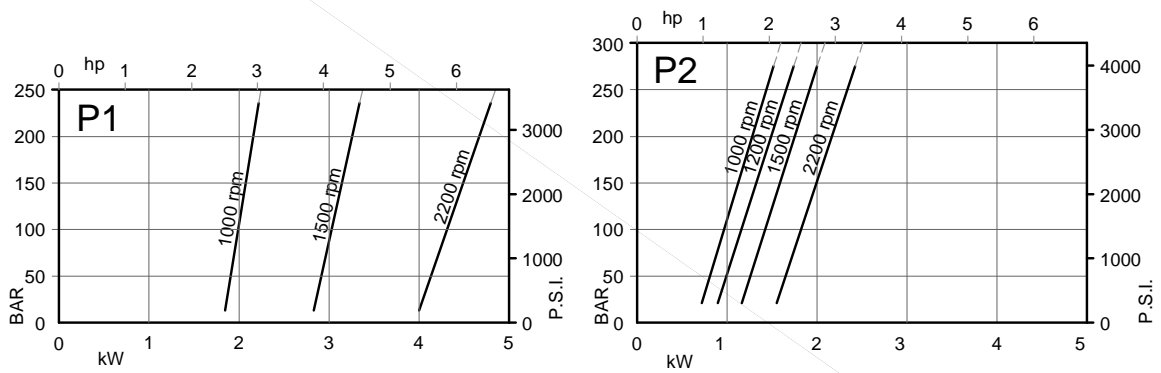
noise level (model 50 + 22, with fluid viscosity 32 c.St., inlet 0.9 bar abs.)



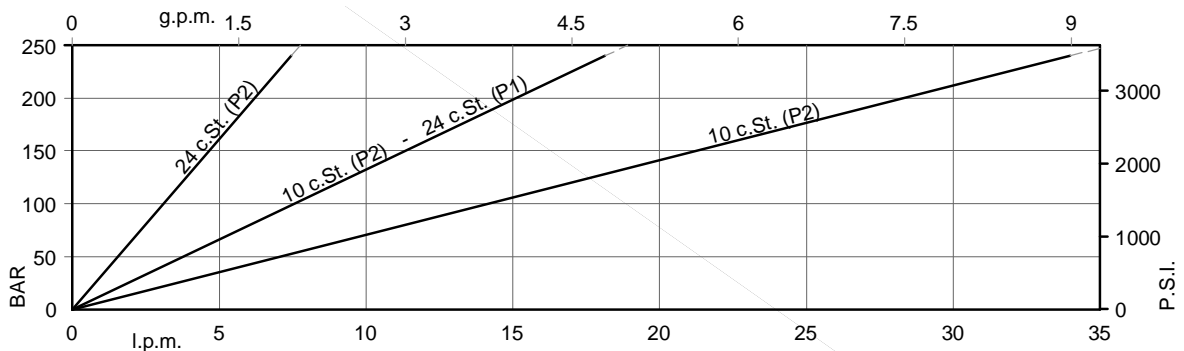
allowable radial load (max. permissible axial load = 200 daN)



power loss (typical)



Typical internal leakage *
(total leakage is the sum of each sector)



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Main operating data

P1 section

Typical: 24 c.St. (115 SUS)

| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|-----------------|------------------------|----------------------|-----------|---------|----------|---------|----------|------------------|--------------------|--------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 45 | 142,4 | (8.69) | 1000 | 132,4 | (35.03) | 125,3 | (33.15) | 3.40 | 35.30 | 59.20 |
| | | | 1200 | 161,0 | (42.60) | 154,0 | (40.75) | 3.18 | 40.24 | 69.43 |
| | | | 1500 | 203,6 | (53.86) | 196,5 | (51.98) | 5.40 | 52.90 | 88.70 |
| | | | 1800 | 246,3 | (65.17) | 239,3 | (63.32) | 5.05 | 60.36 | 104.05 |
| 50 | 158,5 | (9.67) | 1000 | 148,5 | (39.29) | 141,4 | (37.41) | 3.50 | 39.00 | 65.60 |
| | | | 1200 | 180,3 | (47.70) | 173,3 | (45.85) | 3.40 | 44.62 | 77.10 |
| | | | 1500 | 227,7 | (60.24) | 220,6 | (58.36) | 5.70 | 58.50 | 98.30 |
| | | | 1800 | 275,3 | (72.83) | 268,3 | (70.98) | 5.38 | 66.93 | 115.55 |
| 52 | 164,8 | (10.06) | 1000 | 154,8 | (40.95) | 147,7 | (39.07) | 3.60 | 40.50 | 68.20 |
| | | | 1200 | 187,9 | (49.70) | 180,9 | (47.85) | 3.49 | 46.33 | 80.10 |
| | | | 1500 | 237,2 | (62.75) | 230,1 | (60.87) | 5.80 | 60.80 | 102.10 |
| | | | 1800 | 286,6 | (75.82) | 279,6 | (73.97) | 5.51 | 69.50 | 120.05 |
| 62 | 196,7 | (12.00) | 1000 | 186,7 | (49.39) | 179,6 | (47.51) | 4.00 | 47.90 | 80.90 |
| | | | 1200 | 226,1 | (59.81) | 219,1 | (57.96) | 3.93 | 55.01 | 95.28 |
| | | | 1500 | 285,0 | (75.40) | 277,9 | (73.52) | 6.40 | 71.90 | 121.30 |
| | | | 1800 | 343,9 | (90.99) | 336,9 | (89.14) | 6.16 | 82.51 | 142.83 |
| 66 | 213,3 | (13.02) | 1000 | 203,3 | (53.78) | 196,2 | (51.90) | 4.20 | 51.80 | 87.60 |
| | | | 1200 | 246,0 | (65.07) | 239,0 | (63.22) | 4.15 | 59.52 | 103.18 |
| | | | 1500 | 309,9 | (81.98) | 302,8 | (80.11) | 6.70 | 77.70 | 131.20 |
| | | | 1800 | 373,8 | (98.89) | 366,8 | (97.04) | 6.50 | 89.29 | 154.68 |
| 72 | 227,1 | (13.86) | 1000 | 217,1 | (57.43) | 210,0 | (55.56) | 4.30 | 55.00 | 93.10 |
| | | | 1200 | 262,5 | (69.45) | 255,5 | (67.60) | 4.34 | 63.27 | 109.75 |
| | | | 1500 | 330,6 | (87.46) | 323,5 | (85.58) | 6.90 | 82.60 | 139.50 |
| | | | 1800 | 398,6 | (105.45) | 391,6 | (103.60) | 6.78 | 94.92 | 164.54 |

Main operating data

P2 section

Typical: 24 c.St. (115 SUS)

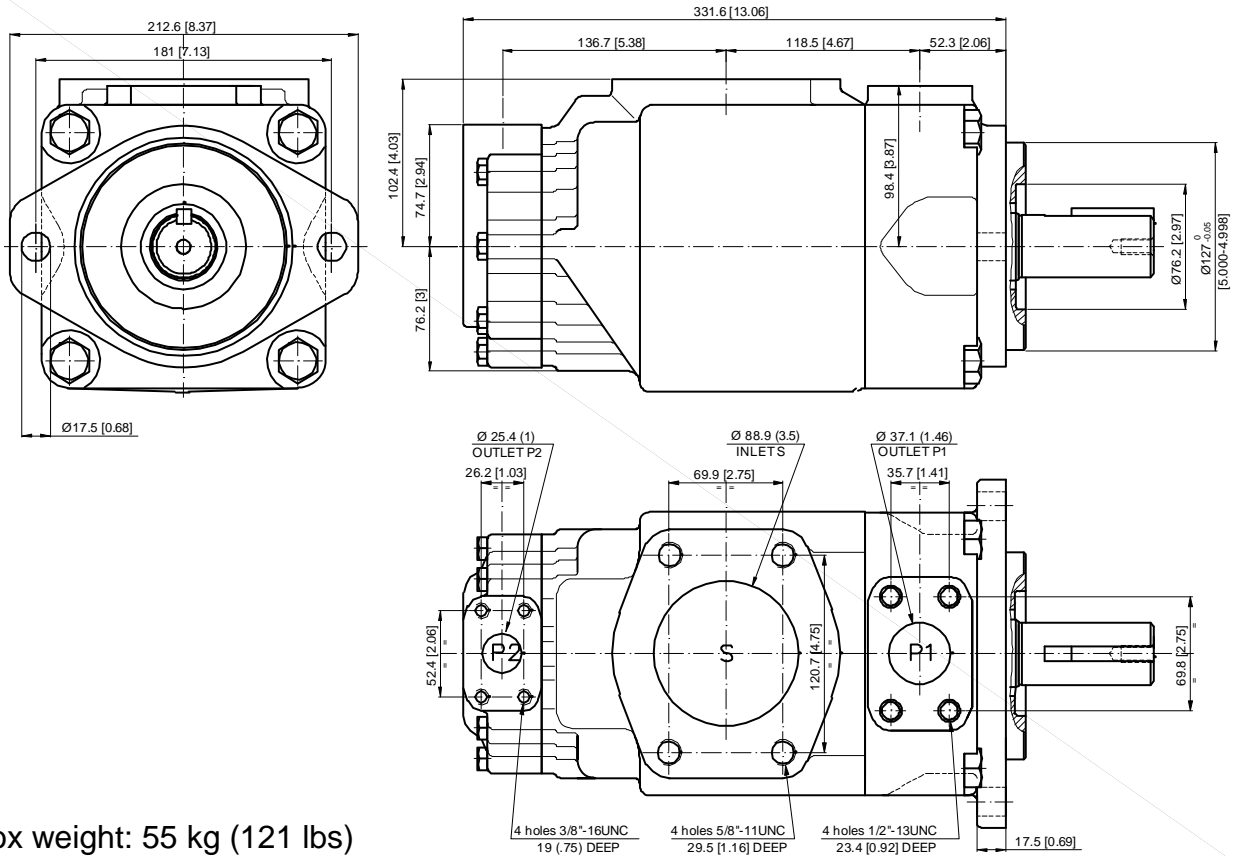
| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|-----------------|------------------------|----------------------|-----------|---------|---------|----------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 03 | 10,8 | (0.66) | 1000 | - | - | - | - | 1.00 | - | - |
| | | | 1200 | - | - | - | - | 1.05 | - | - |
| | | | 1500 | 10,7 | (2.84) | - | - | 1.30 | 5.30 | - |
| | | | 1800 | 13,6 | (3.61) | - | - | 1.55 | 8.45 | - |
| 05 | 17,2 | (1.05) | 1000 | 11,7 | (3.09) | - | - | 1.10 | 5.10 | - |
| | | | 1200 | 15,1 | (3.99) | - | - | 1.14 | 8.17 | - |
| | | | 1500 | 20,3 | (5.37) | 15,8 | (4.18) | 1.40 | 7.50 | 12.2 |
| | | | 1800 | 25,1 | (6.65) | 21,0 | (5.56) | 1.68 | 12.0 | 14.4 |
| 06 | 21,3 | (1.30) | 1000 | 15,80 | (4.18) | 11,30 | (2.99) | 1.10 | 6.00 | 10.00 |
| | | | 1200 | 19,73 | (5.22) | 15,61 | (4.13) | 1.19 | 7.13 | 11.86 |
| | | | 1500 | 26,50 | (7.01) | 22,00 | (5.82) | 1.50 | 8.90 | 14.70 |
| | | | 1800 | 32,51 | (8.60) | 28,39 | (7.51) | 1.76 | 10.50 | 17.33 |
| 08 | 26,4 | (1.61) | 1000 | 20,90 | (5.53) | 16,40 | (4.34) | 1.20 | 7.20 | 12.10 |
| | | | 1200 | 25,86 | (6.84) | 21,74 | (5.75) | 1.26 | 8.51 | 14.29 |
| | | | 1500 | 34,10 | (9.02) | 29,60 | (7.83) | 1.60 | 10.70 | 17.70 |
| | | | 1800 | 41,66 | (11.02) | 37,54 | (9.93) | 1.87 | 12.58 | 20.98 |
| 10 | 34,1 | (2.08) | 1000 | 28,60 | (7.57) | 24,10 | (6.38) | 1.30 | 8.90 | 15.10 |
| | | | 1200 | 35,08 | (9.28) | 30,96 | (8.19) | 1.37 | 10.61 | 17.96 |
| | | | 1500 | 45,70 | (12.09) | 41,20 | (10.90) | 1.70 | 13.40 | 22.30 |
| | | | 1800 | 55,53 | (14.69) | 51,41 | (13.60) | 2.03 | 15.72 | 26.47 |
| 12 | 37,1 | (2.26) | 1000 | 31,60 | (8.36) | 27,10 | (7.17) | 1.30 | 9.60 | 16.30 |
| | | | 1200 | 38,67 | (10.23) | 34,55 | (9.14) | 1.41 | 11.42 | 19.38 |
| | | | 1500 | 50,20 | (13.28) | 45,70 | (12.09) | 1.70 | 14.40 | 24.10 |
| | | | 1800 | 60,90 | (16.11) | 56,78 | (15.02) | 2.09 | 16.95 | 28.62 |
| 14 | 46,0 | (2.81) | 1000 | 40,50 | (10.71) | 36,00 | (9.52) | 1.40 | 11.70 | 19.90 |
| | | | 1200 | 49,33 | (13.05) | 45,21 | (11.96) | 1.53 | 13.85 | 23.62 |
| | | | 1500 | 63,50 | (16.80) | 59,00 | (15.61) | 1.90 | 17.60 | 29.50 |
| | | | 1800 | 76,92 | (20.35) | 72,80 | (19.26) | 2.27 | 20.58 | 34.97 |
| 17 | 58,3 | (3.56) | 1000 | 52,80 | (13.97) | 48,30 | (12.78) | 1.60 | 14.50 | 24.80 |
| | | | 1200 | 64,07 | (16.95) | 59,95 | (15.86) | 1.70 | 17.19 | 29.47 |
| | | | 1500 | 82,00 | (21.69) | 77,50 | (20.50) | 2.10 | 21.90 | 36.90 |
| | | | 1800 | 99,04 | (26.20) | 94,92 | (25.11) | 2.52 | 25.60 | 43.76 |
| 20 | 63,8 | (3.89) | 1000 | 58,30 | (15.42) | 53,80 | (14.23) | 1.60 | 15.80 | 27.00 |
| | | | 1200 | 70,69 | (18.70) | 66,57 | (17.61) | 1.77 | 18.68 | 32.09 |
| | | | 1500 | 90,20 | (23.86) | 85,70 | (22.67) | 2.20 | 23.80 | 40.20 |
| | | | 1800 | 108,90 | (28.81) | 103,65 | (27.42) | 2.63 | 27.84 | 47.68 |
| 22 | 70,3 | (4.29) | 1000 | 64,80 | (17.14) | 60,30 | (15.95) | 1.70 | 17.30 | 29.60 |
| | | | 1200 | 78,47 | (20.76) | 74,35 | (19.67) | 1.86 | 20.46 | 35.18 |
| | | | 1500 | 100,00 | (26.46) | 95,50 | (25.26) | 2.30 | 26.10 | 44.10 |
| | | | 1800 | 120,58 | (31.90) | 116,46 | (30.81) | 2.76 | 30.49 | 52.32 |
| 25 | 79,3 | (4.84) | 1000 | 73,80 | (19.52) | 69,30 | (18.33) | 1.80 | 19.30 | 33.20 |
| | | | 1200 | 89,25 | (23.61) | 85,13 | (22.52) | 1.99 | 22.90 | 39.47 |
| | | | 1500 | 113,50 | (30.03) | 109,00 | (28.84) | 2.50 | 29.20 | 49.50 |
| | | | 1800 | 136,76 | (36.18) | 132,64 | (35.09) | 2.95 | 34.16 | 58.75 |
| 28 | 88,8 | (5.41) | 1000 | 83,30 | (22.04) | 80,10 ¹⁾ | (21.19) ¹⁾ | 1.90 | 21.90 | 32.50 ¹⁾ |
| | | | 1200 | 100,62 | (26.61) | 97,75 ¹⁾ | (25.86) ¹⁾ | 2.11 | 25.49 | 37.77 ¹⁾ |
| | | | 1500 | 127,70 | (33.78) | 124,50 ¹⁾ | (32.94) ¹⁾ | 2.80 | 32.70 | 48.50 ¹⁾ |
| | | | 1800 | 153,85 | (40.70) | 150,97 ¹⁾ | (39.94) ¹⁾ | 3.14 | 38.04 | 56.42 ¹⁾ |
| 31 | 100,0 | (6.10) | 1000 | 94,50 | (25.00) | 91,30 ¹⁾ | (24.15) ¹⁾ | 2.00 | 24.40 | 36.40 ¹⁾ |
| | | | 1200 | 114,04 | (30.17) | 111,17 ¹⁾ | (29.41) ¹⁾ | 2.26 | 28.53 | 42.34 ¹⁾ |
| | | | 1500 | 144,50 | (38.23) | 141,30 ¹⁾ | (37.38) ¹⁾ | 2.80 | 36.50 | 54.40 ¹⁾ |
| | | | 1800 | 173,99 | (46.03) | 171,12 ¹⁾ | (45.27) ¹⁾ | 3.37 | 42.61 | 63.28 ¹⁾ |

-) Not to use because the internal leakage exceeding 50% of the theoretical flow

1) 210 bar (3000p.s.i.) max. int.

Installation dimensions

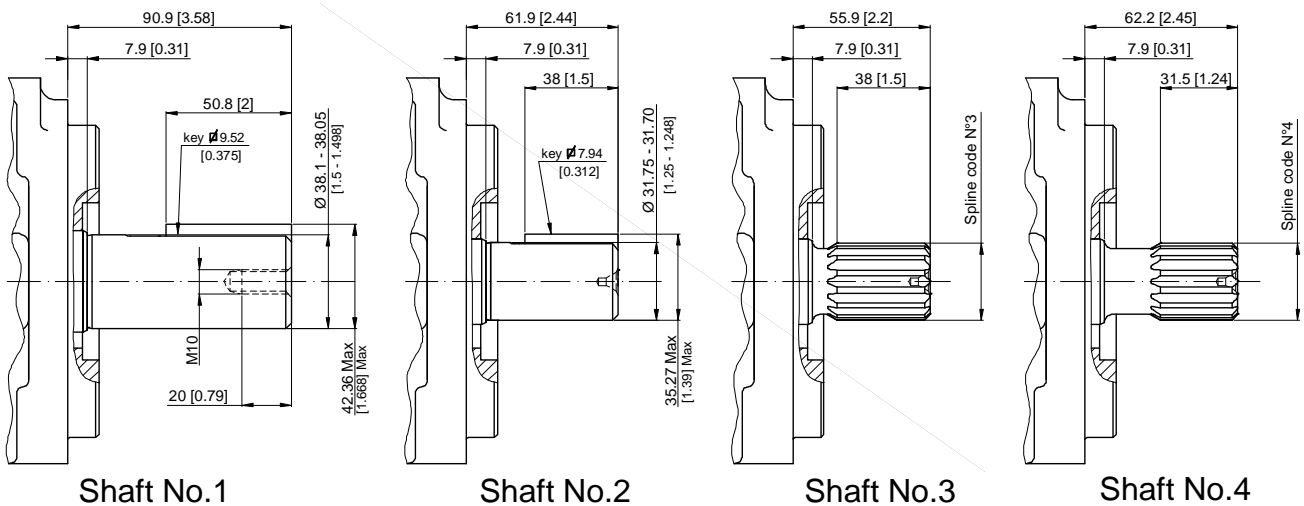
mm (inches)



Approx weight: 55 kg (121 lbs)

Shaft options

mm (inches)



Calculation of the max permitted torque: (avoid to exceed)

| Shaft No. | (ml/rev) x bar P1+P2 | (in3/rev) x psi P1+P2 |
|-----------|-------------------------|--------------------------|
| 1 | 72306 | 64044 |
| 2 | 34590 | 30638 |
| 3 | 61200 | 54207 |
| 4 | 76376 | 67582 |

Spline code

| | 3 | 4 |
|----------------|--------------------|--------------------|
| Designation | Sae C | No Sae |
| Pressure angle | 30° | 30° |
| No. of teeth | 14 | 17 |
| Pitch | 12/24 d.p. | 12/24 d.p. |
| Spline type | flat root side fit | flat root side fit |
| Class | 1- J498 b | 1- J498 b |

Model code breakdown

BD 52 G ** ** * * ** *

Pump series

Pump type

Design

Cartridge model

(P1 section)

45 50 52 62 66 72

(P2 section)

03 05 06 08 10 12 14 17 20 22 25 28 31

Shaft end options

- 1 = keyed (Sae CC)
- 2 = keyed (No Sae)
- 3 = Splined (Sae C)
- 4 = Splined (no Sae)

Seals

1 = NBR

Port orientations

(Look at the table below)

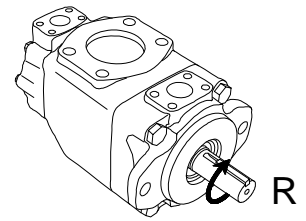
00 = Standard

Rotation

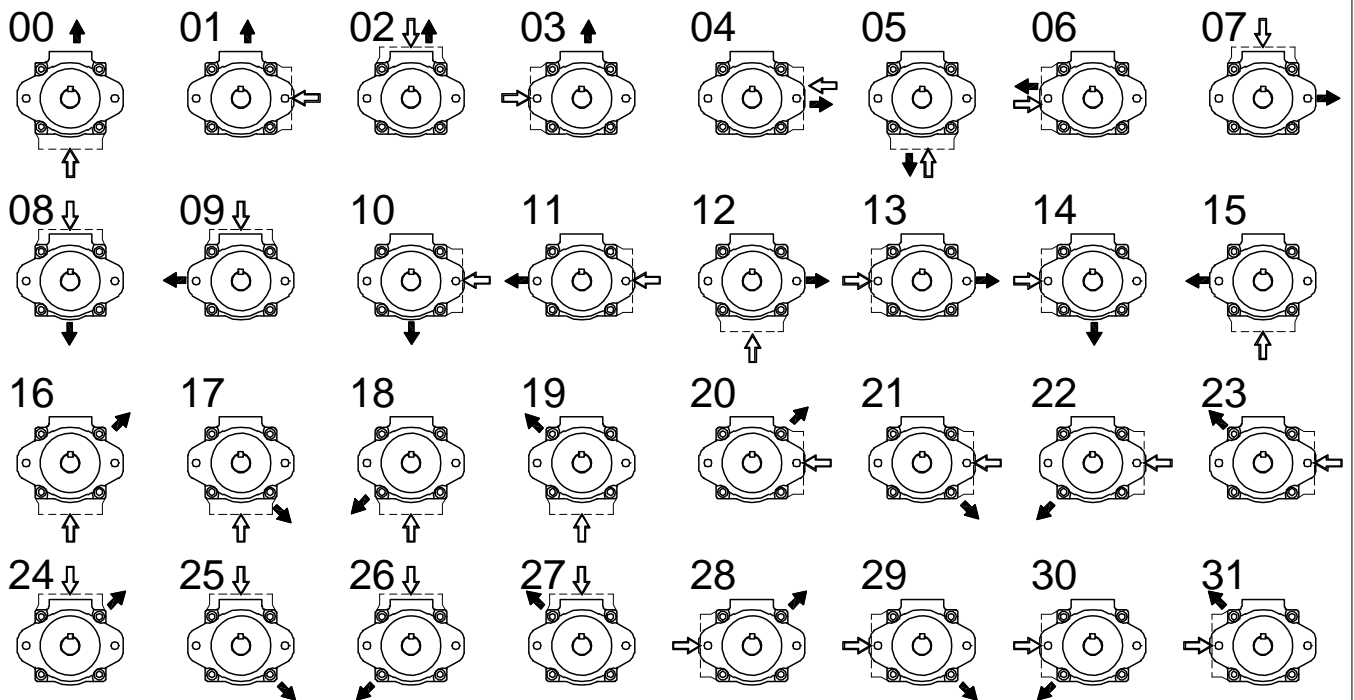
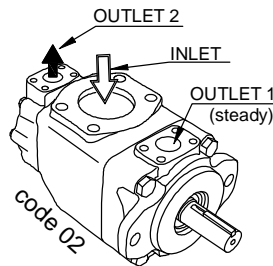
(viewed from shaft-end)

R = Right hand rotation CW

L = Left hand rotation CCW



Port orientations



Id. codes of pump components

| Rear cartridge | | | |
|----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD52 | 03 | N0500230 | N0500240 |
| | 05 | N0500250 | N0500260 |
| | 06 | N0500270 | N0500280 |
| | 08 | N0500290 | N0500300 |
| | 10 | N0500310 | N0500320 |
| | 12 | N0500330 | N0500340 |
| | 14 | N0500350 | N0500360 |
| | 17 | N0500370 | N0500380 |
| | 20 | N0500390 | N0500400 |
| | 22 | N0500410 | N0500420 |
| | 25 | N0500430 | N0500440 |
| | 28 | N0500450 | N0500460 |
| | 31 | N0500470 | N0500480 |

| Front cartridge | | | |
|-----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD52 | 45 | N0600030 | N0600040 |
| | 50 | N0600050 | N0600060 |
| | 52 | N0600070 | N0600080 |
| | 62 | N0600090 | N0600100 |
| | 66 | N0600110 | N0600120 |
| | 72 | N0600130 | N0600140 |

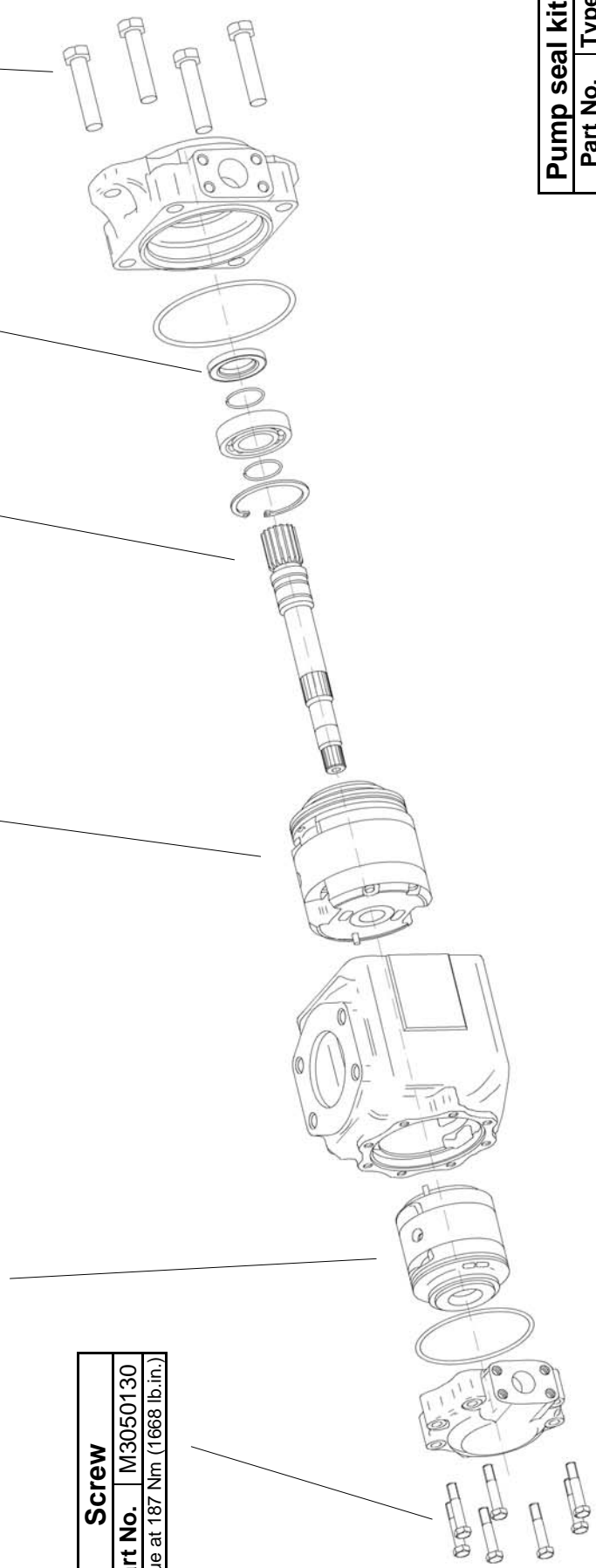
| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K6511000 |
| 02 | K6512000 |
| 03 | K6513000 |
| 04 | K6514000 |

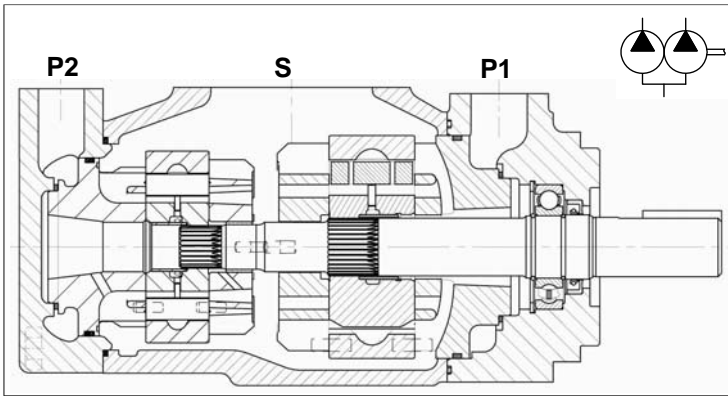
| Screw | |
|----------|------------------------------|
| Part No. | Torque at 68 Nm (606 lb.in.) |
| M3040140 | |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3050060 | NBR |

| Screw | |
|----------|--------------------------------|
| Part No. | Torque at 187 Nm (1668 lb.in.) |
| M3050130 | |

| Pump seal kit | | |
|---------------|------|-----|
| Part No. | Type | NBR |
| M3052500 | | |





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with rated capacity from 285 to 577 l/min (from 75 to 153 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|--------|-----------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| 45 | 142,4 | (8.69) | 170.7 | (45.15) | 213.6 | (56.51) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 50 | 158,5 | (9.67) | 189.9 | (50.25) | 237.7 | (62.88) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 52 | 164,8 | (10.06) | 197.5 | (52.25) | 247.2 | (65.40) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 62 | 196,7 | (12.00) | 235.7 | (62.36) | 295.0 | (78.04) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 66 | 213,3 | (13.02) | 255.6 | (67.62) | 319.9 | (84.63) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 72 | 227,1 | (13.86) | 272.2 | (72.00) | 340.6 | (90.11) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 14 | 47,6 | (2.90) | 57,04 | (15.09) | 71,4 | (18.89) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 20 | 66,0 | (4.03) | 79,08 | (20.92) | 99,0 | (26.19) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 24 | 79,5 | (4.85) | 95,26 | (25.20) | 119,3 | (31.56) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 28 | 89,7 | (5.47) | 107,50 | (28.44) | 134,5 | (35.58) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 31 | 98,3 | (6.00) | 117,82 | (31.17) | 147,4 | (38.99) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 35 | 111,0 | (6.77) | 133,02 | (35.19) | 166,5 | (44.05) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 38 | 120,3 | (7.34) | 144,17 | (38.14) | 180,4 | (47.72) | 240 | (3500) | 210 | (3000) | 400 - 2500 |
| 42 | 136,0 | (8.30) | 162,99 | (43.12) | 204,0 | (53.97) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 45 | 145,7 | (8.89) | 174,60 | (46.19) | 218,5 | (57.80) | 240 | (3500) | 210 | (3000) | 400 - 2200 |
| 50 | 158,0 | (9.64) | 189,34 | (50.09) | 237,0 | (62.70) | 210 | (3000) | 160 | (2300) | 400 - 2200 |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recomm.). Choose 30 c.St. for max lifetime.
Viscosity index: 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8. Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

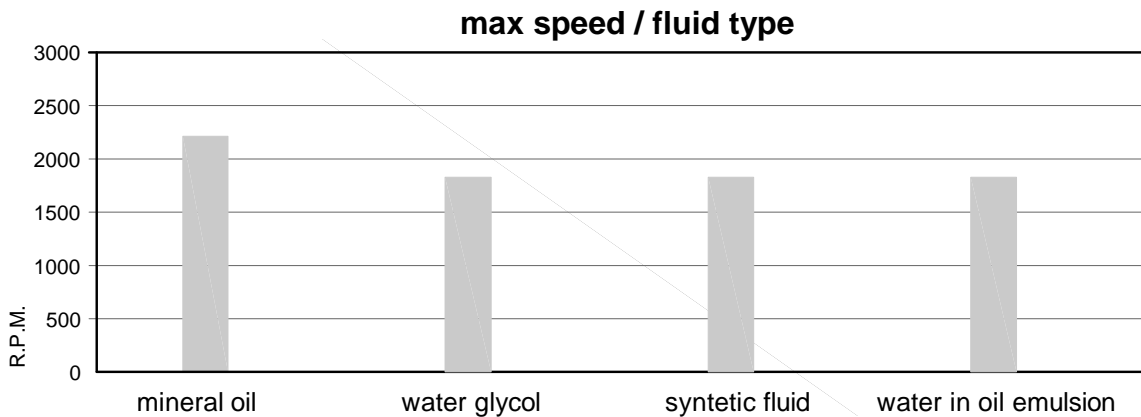
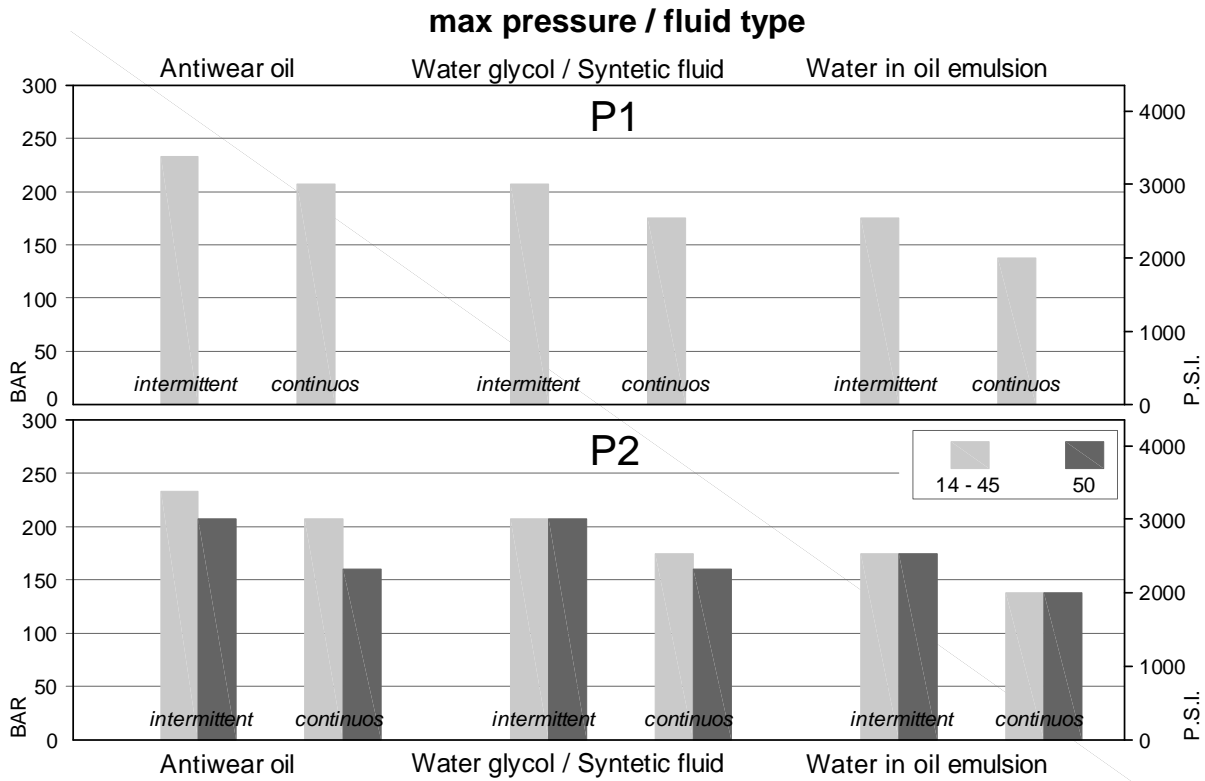
Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data



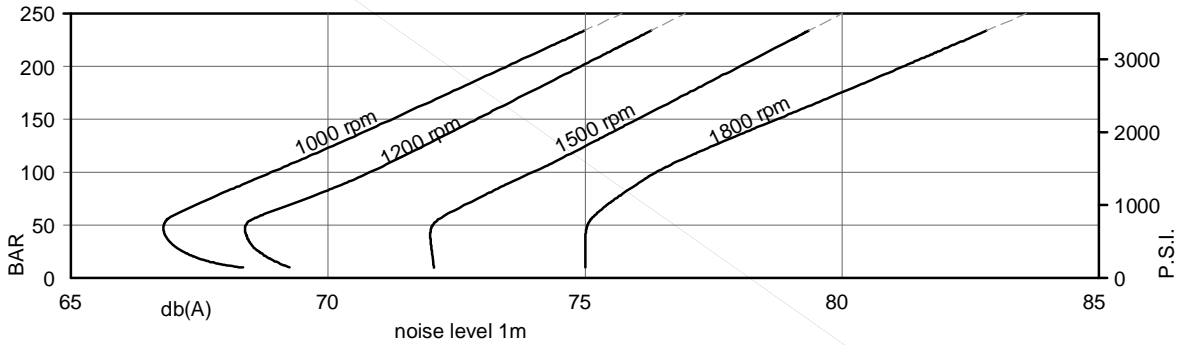
min. allowable inlet pressure / rotation speed (abs. bar)*

| Pump | Speed r.p.m. | 45 | 50 | 52 | 62 | 66 | 72 | | | |
|------|--------------|---------------|------|------|------|------|------|------|------|------|
| | P1 | 2200 | 1.00 | 1.00 | 1.00 | 1.00 | 1.09 | 1.05 | | |
| 2100 | | 0.90 | 0.90 | 0.90 | 0.95 | 1.00 | 1.00 | | | |
| 1800 | | 0.80 | 0.80 | 0.80 | 0.85 | 0.95 | 0.85 | | | |
| 1500 | | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | | | |
| 1200 | | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | | | |
| P2 | Speed r.p.m. | from 14 to 20 | 24 | 28 | 31 | 35 | 38 | 42 | 45 | 50 |
| | 2500 | 1.00 | 1.10 | 1.18 | 1.23 | 1.29 | 1.29 | - | - | - |
| | 2300 | 0.95 | 0.95 | 1.00 | 1.00 | 1.02 | 1.05 | 1.08 | - | - |
| | 2200 | 0.88 | 0.88 | 0.92 | 0.95 | 0.98 | 1.00 | 1.02 | 1.05 | 1.09 |
| | 2100 | 0.80 | 0.82 | 0.85 | 0.90 | 0.92 | 0.95 | 0.95 | 0.98 | 1.02 |
| | 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 |
| | 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| | 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

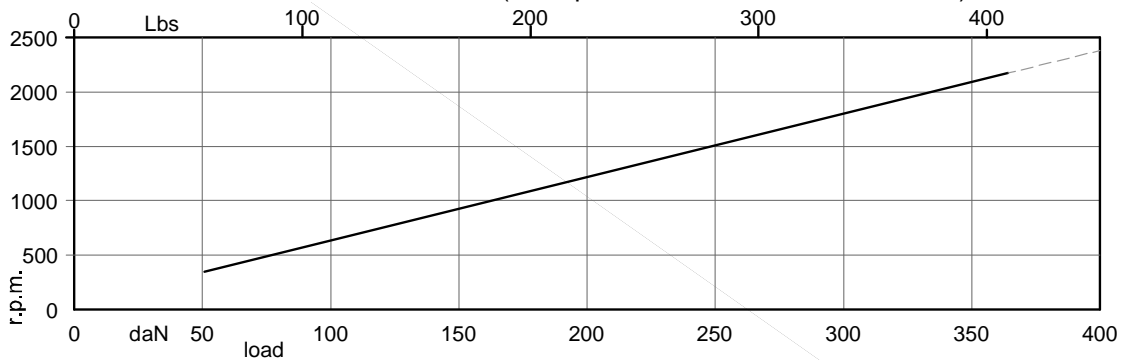
* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).
 Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data

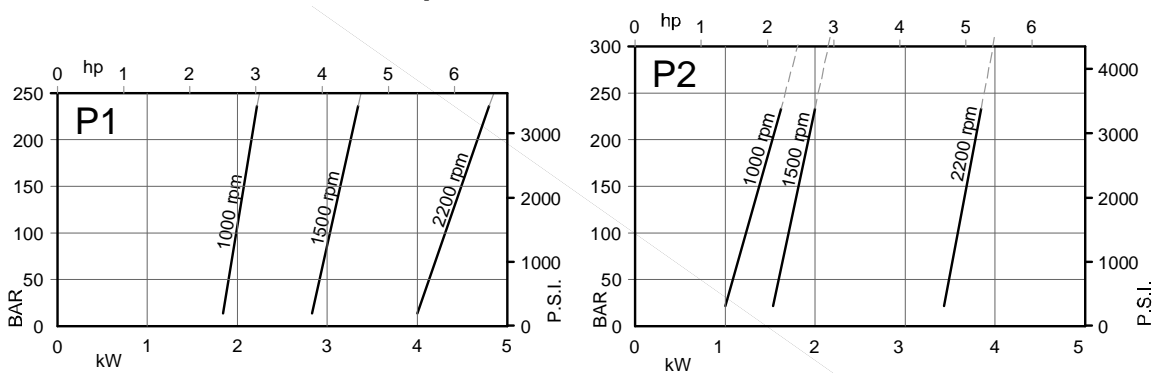
noise level (model 50 + 38, with fluid 32 c.St., inlet viscosity 0.9 bar abs.)



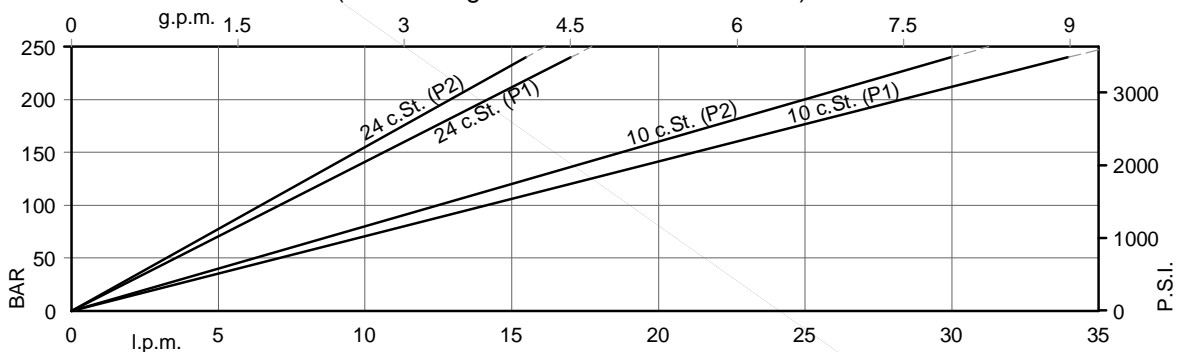
allowable radial load (max. permissible axial load = 200 daN)



power loss (typical)



Typical internal leakage *
(total leakage is the sum of each sector)



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Main operating data

P1 section

Typical: 24 c.St. (115 SUS)

| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|-----------------|------------------------|----------------------|-----------|---------|----------|---------|----------|------------------|--------------------|--------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 45 | 142,4 | (8.69) | 1000 | 132,4 | (35.03) | 125,3 | (33.15) | 3.40 | 35.30 | 59.20 |
| | | | 1200 | 161,0 | (42.60) | 154,0 | (40.75) | 3.18 | 40.24 | 69.43 |
| | | | 1500 | 203,6 | (53.86) | 196,5 | (51.98) | 5.40 | 52.90 | 88.70 |
| | | | 1800 | 246,3 | (65.17) | 239,3 | (63.32) | 5.05 | 60.36 | 104.05 |
| 50 | 158,5 | (9.67) | 1000 | 148,5 | (39.29) | 141,4 | (37.41) | 3.50 | 39.00 | 65.60 |
| | | | 1200 | 180,3 | (47.70) | 173,3 | (45.85) | 3.40 | 44.62 | 77.10 |
| | | | 1500 | 227,7 | (60.24) | 220,6 | (58.36) | 5.70 | 58.50 | 98.30 |
| | | | 1800 | 275,3 | (72.83) | 268,3 | (70.98) | 5.38 | 66.93 | 115.55 |
| 52 | 164,8 | (10.06) | 1000 | 154,8 | (40.95) | 147,7 | (39.07) | 3.60 | 40.50 | 68.20 |
| | | | 1200 | 187,9 | (49.70) | 180,9 | (47.85) | 3.49 | 46.33 | 80.10 |
| | | | 1500 | 237,2 | (62.75) | 230,1 | (60.87) | 5.80 | 60.80 | 102.10 |
| | | | 1800 | 286,6 | (75.82) | 279,6 | (73.97) | 5.51 | 69.50 | 120.05 |
| 62 | 196,7 | (12.00) | 1000 | 186,7 | (49.39) | 179,6 | (47.51) | 4.00 | 47.90 | 80.90 |
| | | | 1200 | 226,1 | (59.81) | 219,1 | (57.96) | 3.93 | 55.01 | 95.28 |
| | | | 1500 | 285,0 | (75.40) | 277,9 | (73.52) | 6.40 | 71.90 | 121.30 |
| | | | 1800 | 343,9 | (90.99) | 336,9 | (89.14) | 6.16 | 82.51 | 142.83 |
| 66 | 213,3 | (13.02) | 1000 | 203,3 | (53.78) | 196,2 | (51.90) | 4.20 | 51.80 | 87.60 |
| | | | 1200 | 246,0 | (65.07) | 239,0 | (63.22) | 4.15 | 59.52 | 103.18 |
| | | | 1500 | 309,9 | (81.98) | 302,8 | (80.11) | 6.70 | 77.70 | 131.20 |
| | | | 1800 | 373,8 | (98.89) | 366,8 | (97.04) | 6.50 | 89.29 | 154.68 |
| 72 | 227,1 | (13.86) | 1000 | 217,1 | (57.43) | 210,0 | (55.56) | 4.30 | 55.00 | 93.10 |
| | | | 1200 | 262,5 | (69.45) | 255,5 | (67.60) | 4.34 | 63.27 | 109.75 |
| | | | 1500 | 330,6 | (87.46) | 323,5 | (85.58) | 6.90 | 82.60 | 139.50 |
| | | | 1800 | 398,6 | (105.45) | 391,6 | (103.60) | 6.78 | 94.92 | 164.54 |

Main operating data

P2 section

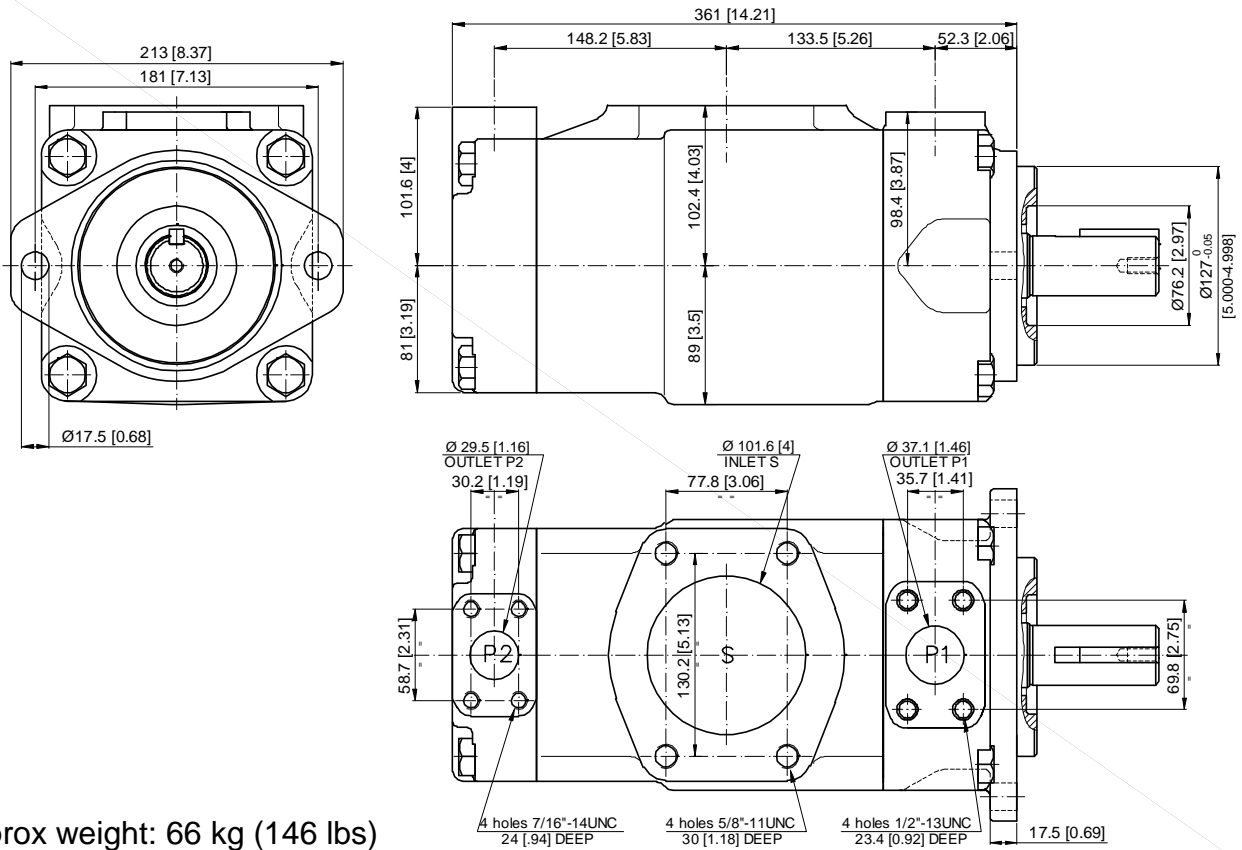
Typical: 24 c.St. (115 SUS)

| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|-----------------|------------------------|----------------------|-----------|---------|---------|---------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 14 | 47,6 | (2.90) | 1000 | 38,3 | (10.13) | 32,1 | (8.49) | 1.50 | 12.50 | 20.70 |
| | | | 1200 | 48,8 | (12.91) | 42,6 | (11.27) | 1.80 | 14.43 | 24.44 |
| | | | 1500 | 62,1 | (16.43) | 55,9 | (14.79) | 2.30 | 18.50 | 30.60 |
| | | | 1800 | 77,3 | (20.46) | 71,1 | (18.82) | 2.96 | 21.57 | 36.31 |
| 20 | 66,0 | (4.03) | 1000 | 56,7 | (15.00) | 50,5 | (13.36) | 1.70 | 16.80 | 28.00 |
| | | | 1200 | 70,8 | (18.74) | 64,6 | (17.10) | 2.05 | 19.44 | 33.20 |
| | | | 1500 | 89,7 | (23.73) | 83,5 | (22.09) | 2.80 | 24.90 | 41.70 |
| | | | 1800 | 110,4 | (29.21) | 104,2 | (27.57) | 3.33 | 29.09 | 49.47 |
| 24 | 79,5 | (4.85) | 1000 | 70,2 | (18.57) | 64,0 | (16.93) | 1.90 | 19.90 | 33.40 |
| | | | 1200 | 87,02 | (23.02) | 80,8 | (21.38) | 2.23 | 23.11 | 39.63 |
| | | | 1500 | 110,0 | (29.10) | 103,8 | (27.46) | 3.00 | 29.60 | 49.80 |
| | | | 1800 | 134,7 | (35.63) | 128,5 | (33.99) | 3.61 | 34.61 | 59.12 |
| 28 | 89,7 | (5.47) | 1000 | 80,4 | (21.27) | 74,2 | (19.63) | 2.00 | 22.30 | 37.50 |
| | | | 1200 | 99,3 | (26.26) | 93,1 | (24.62) | 2.37 | 25.89 | 44.49 |
| | | | 1500 | 125,2 | (33.12) | 119,0 | (31.48) | 3.20 | 33.20 | 55.90 |
| | | | 1800 | 153,0 | (40.48) | 146,1 | (38.64) | 3.82 | 38.77 | 66.41 |
| 31 | 98,3 | (6.00) | 1000 | 89,0 | (23.54) | 82,8 | (21.90) | 2.10 | 24.30 | 40.90 |
| | | | 1200 | 109,6 | (28.99) | 103,4 | (27.35) | 2.49 | 28.23 | 48.59 |
| | | | 1500 | 138,1 | (36.53) | 131,9 | (34.89) | 3.30 | 36.20 | 61.00 |
| | | | 1800 | 168,5 | (44.57) | 162,3 | (42.93) | 4.00 | 42.28 | 72.55 |
| 35 | 111,0 | (6.77) | 1000 | 101,7 | (26.90) | 95,5 | (25.26) | 2.30 | 27.30 | 46.00 |
| | | | 1200 | 124,8 | (33.01) | 118,6 | (31.37) | 2.66 | 31.68 | 54.64 |
| | | | 1500 | 157,2 | (41.59) | 151,0 | (39.95) | 3.50 | 40.70 | 68.70 |
| | | | 1800 | 191,3 | (50.61) | 185,1 | (48.97) | 4.25 | 47.47 | 81.63 |
| 38 | 120,3 | (7.34) | 1000 | 111,0 | (29.37) | 104,8 | (27.72) | 2.40 | 29.40 | 49.80 |
| | | | 1200 | 135,9 | (35.96) | 129,7 | (34.32) | 2.79 | 36.42 | 59.07 |
| | | | 1500 | 171,1 | (45.26) | 164,9 | (43.62) | 3.70 | 43.90 | 74.30 |
| | | | 1800 | 208,0 | (55.03) | 201,8 | (53.39) | 4.45 | 51.27 | 88.28 |
| 42 | 136,0 | (8.30) | 1000 | 126,7 | (33.52) | 120,5 | (31.88) | 2.60 | 33.10 | 56.00 |
| | | | 1200 | 154,7 | (40.94) | 148,6 | (39.30) | 3.00 | 38.49 | 66.56 |
| | | | 1500 | 194,7 | (51.51) | 188,5 | (49.87) | 4.00 | 49.40 | 83.70 |
| | | | 1800 | 236,3 | (62.50) | 230,1 | (60.86) | 4.76 | 57.68 | 99.50 |
| 45 | 145,7 | (8.89) | 1000 | 136,4 | (36.08) | 130,2 | (34.44) | 2.70 | 35.30 | 59.90 |
| | | | 1200 | 166,4 | (44.01) | 160,2 | (42.37) | 3.14 | 41.14 | 71.18 |
| | | | 1500 | 209,2 | (55.34) | 203,0 | (53.70) | 4.10 | 52.80 | 89.50 |
| | | | 1800 | 253,7 | (67.11) | 247,5 | (65.47) | 4.96 | 61.64 | 106.43 |
| 50 | 158,0 | (9.64) | 1000 | 148,7 | (39.34) | 145,0 ¹⁾ | (38.36) ¹⁾ | 2.80 | 38.20 | 56.80 ¹⁾ |
| | | | 1200 | 181,1 | (47.91) | 176,6 ¹⁾ | (46.73) ¹⁾ | 3.30 | 44.48 | 66.19 ¹⁾ |
| | | | 1500 | 227,7 | (59.24) | 224,0 ¹⁾ | (59.26) ¹⁾ | 4.40 | 57.00 | 85.00 ¹⁾ |
| | | | 1800 | 275,8 | (72.96) | 271,3 ¹⁾ | (71.78) ¹⁾ | 5.21 | 66.67 | 99.02 ¹⁾ |

1) 210 bar (3000p.s.i.) max. int.

Installation dimensions

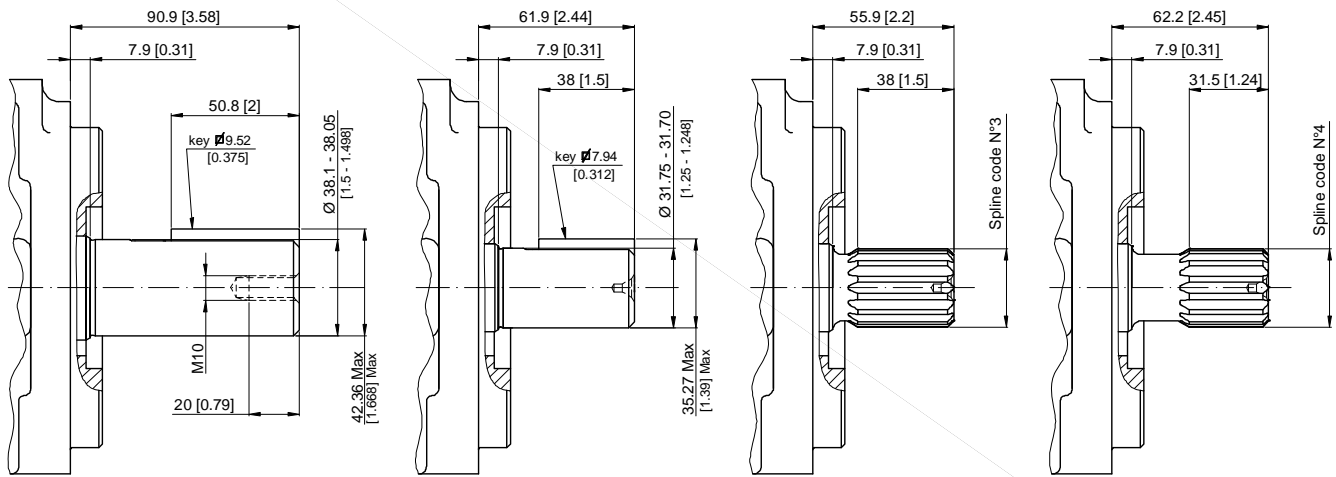
mm [inches]



Approx weight: 66 kg (146 lbs)

Shaft options

mm [inches]



Shaft No.1

Shaft No.2

Shaft No.3

Shaft No.4

Calculation of the max permitted torque: (avoid to exceed)

| Shaft No. | (ml/rev) x bar P1+P2 | (in3/rev) x psi P1+P2 |
|-----------|-------------------------|--------------------------|
| 1 | 72306 | 64044 |
| 2 | 34590 | 30638 |
| 3 | 61200 | 54207 |
| 4 | 76376 | 67582 |

Spline code

| | 3 | 4 |
|----------------|--------------------|--------------------|
| Designation | Sae C | No Sae |
| Pressure angle | 30° | 30° |
| No. of teeth | 14 | 17 |
| Pitch | 12/24 d.p. | 12/24 d.p. |
| Spline type | flat root side fit | flat root side fit |
| Class | 1- J498 b | 1- J498 b |

Model code breakdown

BD 54 G ** ** * * ** *

Pump series

Pump type

Design

Cartridge model

(P1 section)

45 50 52 62 66 72

(P2 section)

14 20 24 28 31 35 38 42 45 50

Shaft end options

- 1 = keyed (Sae CC)
- 2 = keyed (No Sae)
- 3 = Splined (Sae C)
- 4 = Splined (no Sae)

Seals

1 = NBR

Port orientations

(Look at the table below)

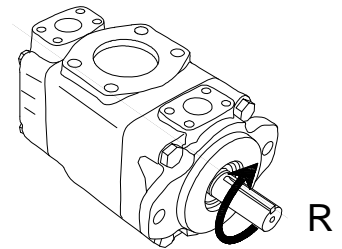
00 = Standard

Rotation

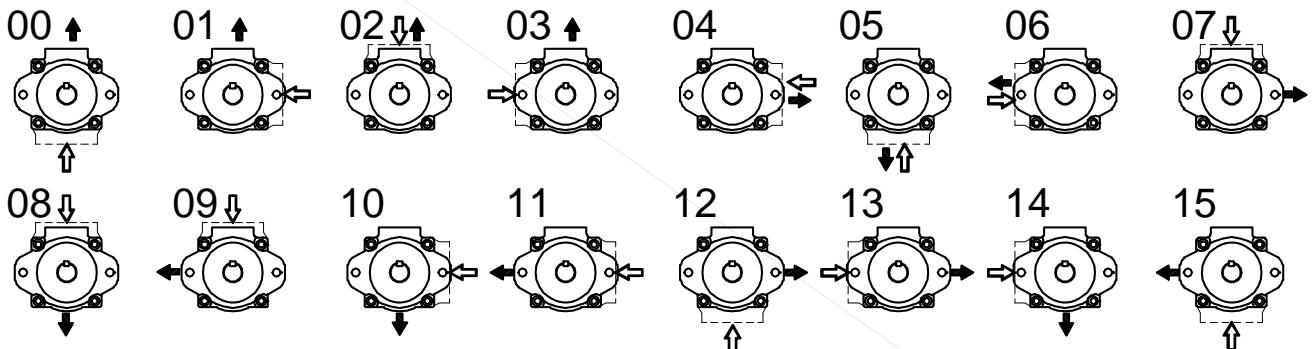
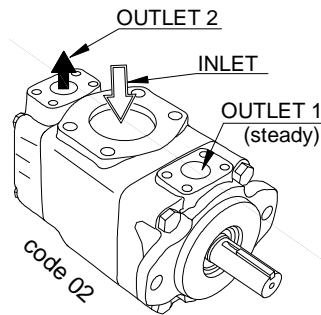
(viewed from shaft-end)

R = Right hand rotation CW

L = Left hand rotation CCW



Port orientations



Id. codes of pump components

| Rear cartridge | | | |
|----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD54 | 14 | N0600150 | N0600160 |
| | 20 | N0600190 | N0600200 |
| | 24 | N0600210 | N0600220 |
| | 28 | N0600230 | N0600240 |
| | 31 | N0600250 | N0600260 |
| | 35 | N0600270 | N0600280 |
| | 38 | N0600290 | N0600300 |
| | 42 | N0600310 | N0600320 |
| | 45 | N0600330 | N0600340 |
| | 50 | N0600350 | N0600360 |

| Front cartridge | | | |
|-----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| BD54 | 45 | N0600030 | N0600040 |
| | 50 | N0600050 | N0600060 |
| | 52 | N0600070 | N0600080 |
| | 62 | N0600090 | N0600100 |
| | 66 | N0600110 | N0600120 |
| | 72 | N0600130 | N0600140 |

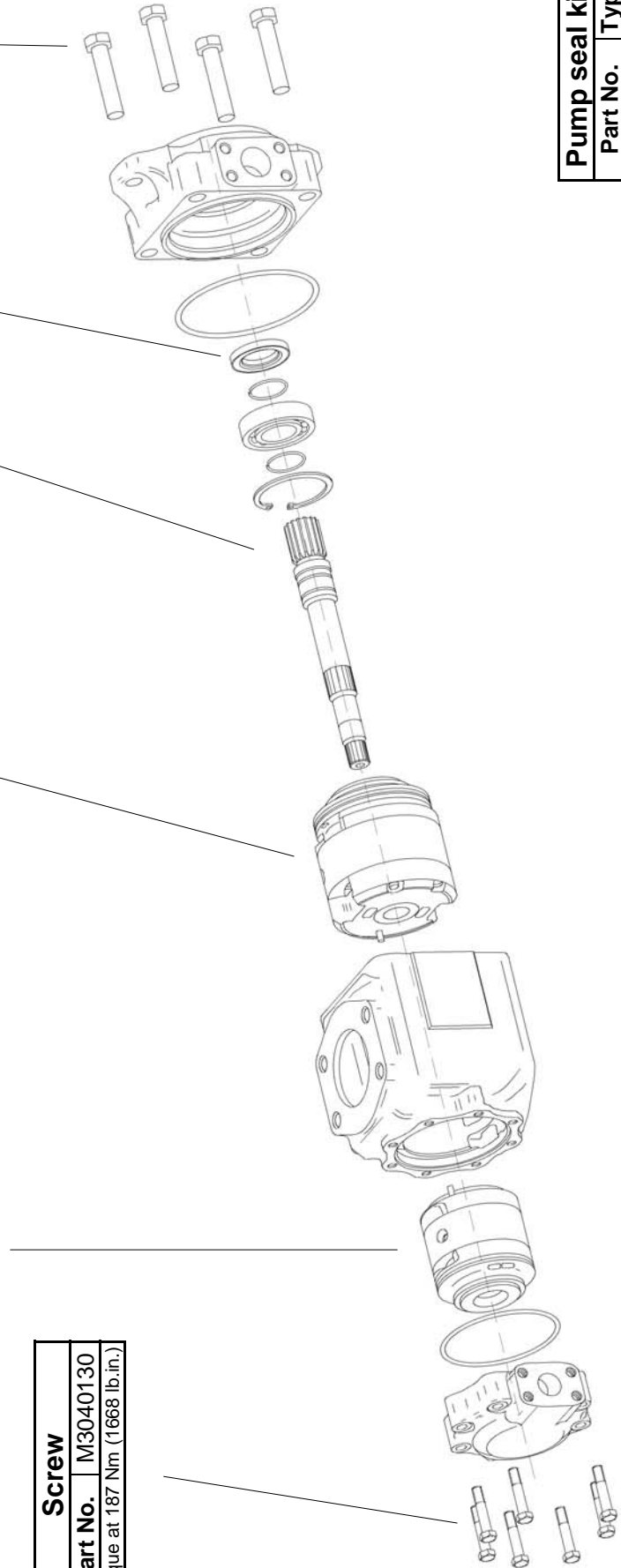
| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K6521000 |
| 02 | K6522000 |
| 03 | K6523000 |
| 04 | K6524000 |

| Screw | |
|--------------------------------|----------|
| Part No. | M3050130 |
| Torque at 187 Nm (1668 lb.in.) | |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3050060 | NBR |

| Screw | |
|--------------------------------|----------|
| Part No. | M3040130 |
| Torque at 187 Nm (1668 lb.in.) | |

| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3054500 | NBR |



Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7psi), fluid viscosity between 10 to 65 cSt., and ambient temperature in the range of +30°C to +50°C. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the cartridge.

Minimum speed: In general, the min. speed for all pumps is 400 rpm. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum continuous outlet pressure is different for each type of fluid used as can be seen from the corresponding diagrams. If fluid viscosity, pump speed and contamination level are respected, an intermittent pressure of +15% is permissible for a maximum time of 80% of the duty cycle lasting 15 minutes. For longer duty cycles, please consult our technical office.

Mounting and drive connections: consider the following indications when preparing the installation drawings:

Pump with keyed shaft: the pump with keyed shaft has to be coupled axially and by means of a flexible coupling to the drive; the clearance between the keyed shaft and the corresponding sleeve coupling has to be between 0.004 and 0.030 mm; avoid axial and radial loads on the shaft; the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm.

Pump with splined shaft: the female spline must be hardened (30 to 45 R.C.) and should be free to float to find its own center; the clearance between splines has to be between 0.013 and 0.051 mm on the pitch diameter; the max angular misalignment between the two spline axes must be less than ± 0.05 per 25 mm radius. The coupling spline must be lubricated with grease or similar lubricant.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.) Inlet line tubing must have the sections that permits a fluid velocity between 0.5 and 1.9 m/sec. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which must be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The use of a filter by-pass is recommended for cold starts and should avoid the filter become clogged. Proper maintenance of the filter elements are essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, apply the same general conditions as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time: completely fill the pump and the inlet line with fluid; start the motor at lower speed for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed; with a manometer check to ensure that the outlet pressure increases slightly; once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir. This procedure should be carefully applied because any residual air inside the pump can quickly cause the rotor to seize. After long stops (>1 week) the start up procedure must be repeated.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits. Make sure the fluid viscosity is within the limits, by consulting the specific pump model in this catalogue.

Vertical installation: The pump cannot work in vertical position (vertical shaft), unless the hydraulic circuit is equipped by devices to fill the pump completely before each starting.

The information provided in this catalogue is subject to change without notice



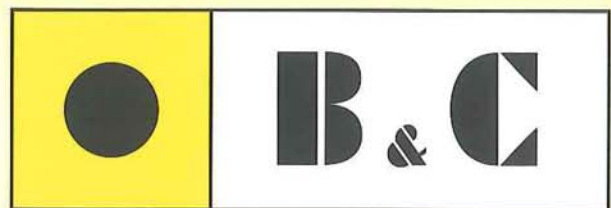
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TECHNICAL CATALOGUE



FIXED DISPLACEMENT
HYDRAULIC VANE PUMPS
BQ series



FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “BQ” SERIES

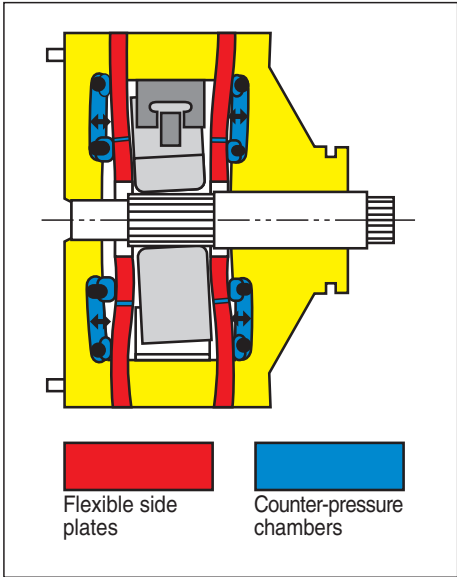
Versatility, power, compactness and low running costs are the main characteristics of B&C vane pumps.

All the components subject to wear are contained in a cartridge unit that can be easily removed for inspection and/or replacement without disconnecting the pump from the circuit, drastically reducing expensive machine down time.

The cartridge contains a rotor, vanes and inserts, a cam ring, two flexible plates and two covers. During operation the rotor is driven by a splined shaft coupled to the drive unit. As the rotation speed increases, centrifugal forces, in combination with the pressure generated behind the vanes, push the vanes outwards, where they follow the profile of the cam with a sufficient contact pressure to ensure adequate hydraulic sealing. The two opposed pumping chambers formed by the elliptical profile of the cam cancel out radial loads on the shaft bearings, thereby giving them extremely long lifetimes.

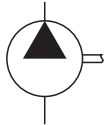
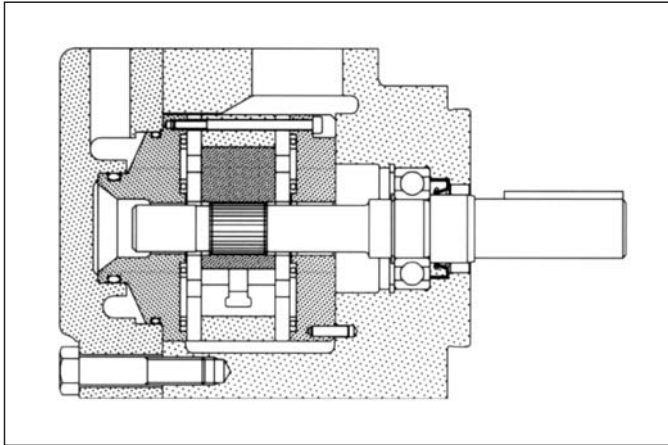
The design characteristics of the BQ series pumps make them particularly suited to applications in the mobile field. The special design of the flexible plates enables any thermal expansion in the rotor to be compensated for and to adequately cope with any sudden change in pressure. Furthermore, the counter-pressure chambers positioned between the flexible plates and the cartridge covers balance the internal pressure; this ensures that the correct clearance between the rotor and the flexible plates is always maintained so guaranteeing maximum volumetric efficiency (see drawing).

The BQ series is available in five versions of single pump (from 8 to 230 l/min at 1200 rpm) and seven versions of double pump (from 55 to 370 l/min at 1200 rpm), with maximum powers of over 300 HP. The BQ series pumps are extremely compact and are supplied with ISO norm mechanical couplings and SAE norm hydraulic fittings. This makes them very easy to install and guarantees their interchangeability with other similar pumps.



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General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in seven versions with capacities from 8 to 55 l/min (*from 2 to 14 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|--------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | in ³ /r | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| A01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| A01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| A01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| A01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| A01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| A01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (*with mineral oil*): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

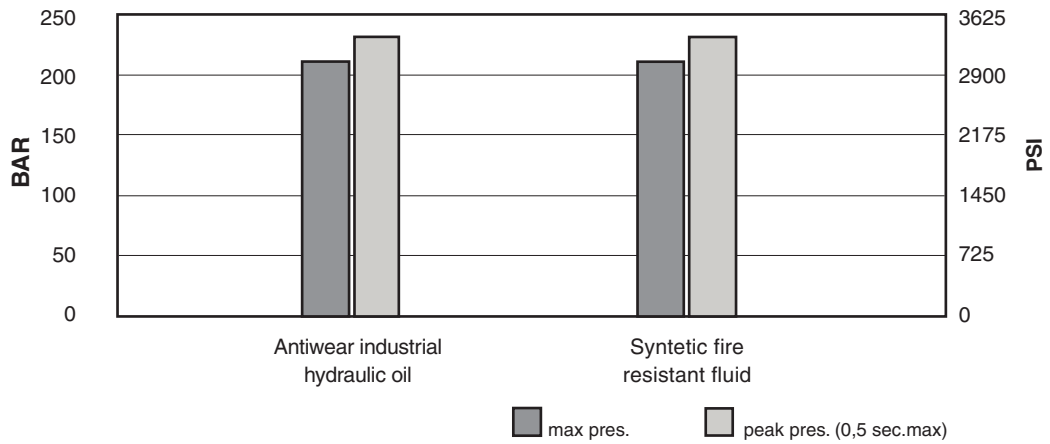
Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

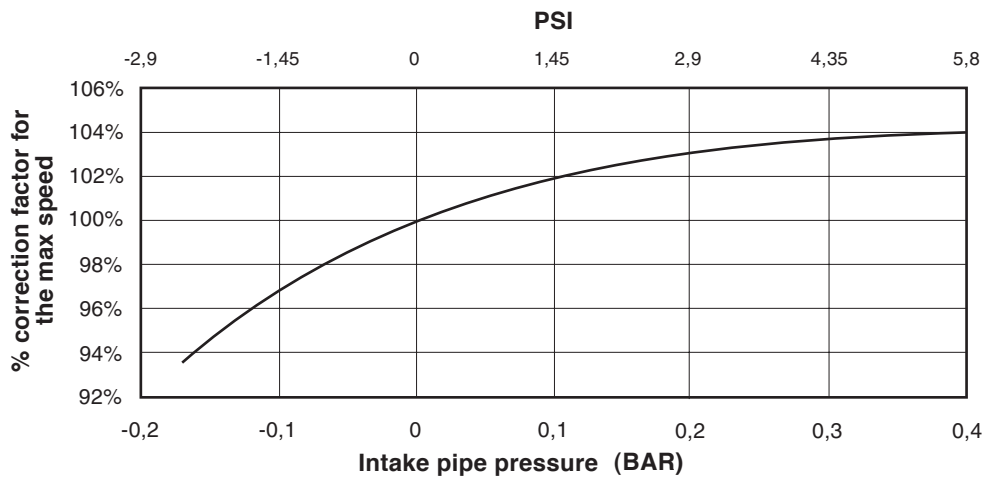


max speed / hydraulic fluid (with 0 bar in the intake pipe)

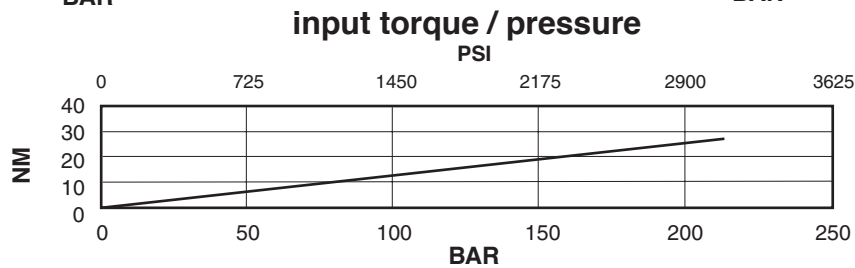
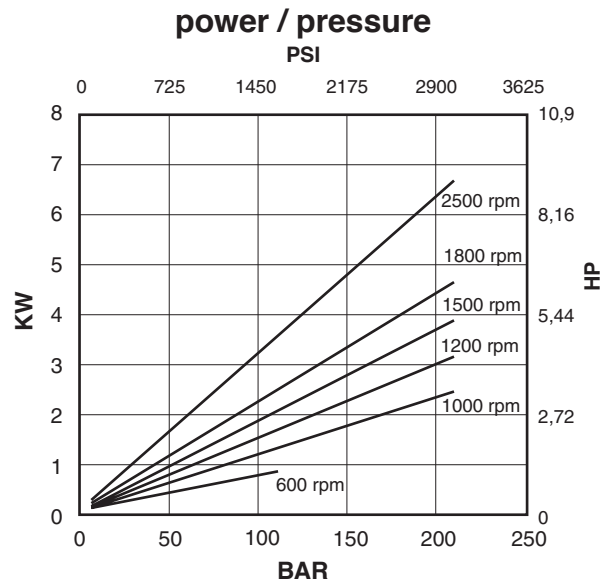
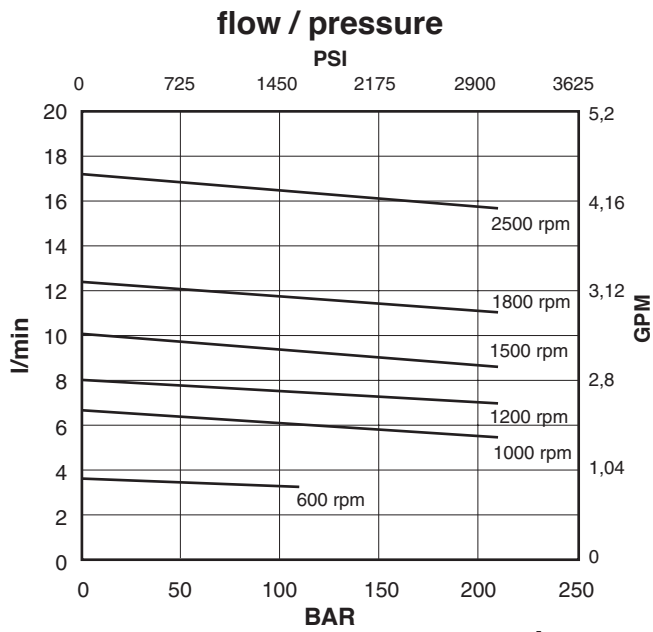


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

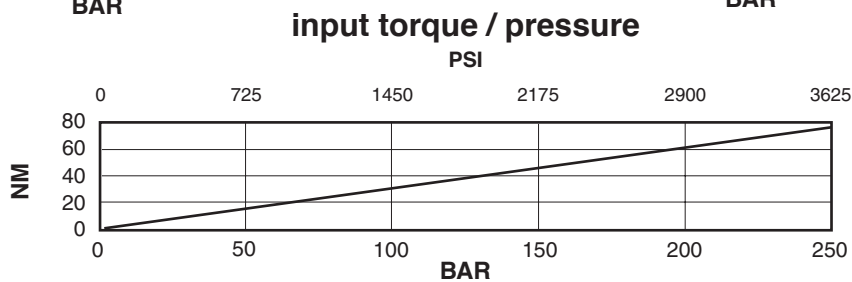
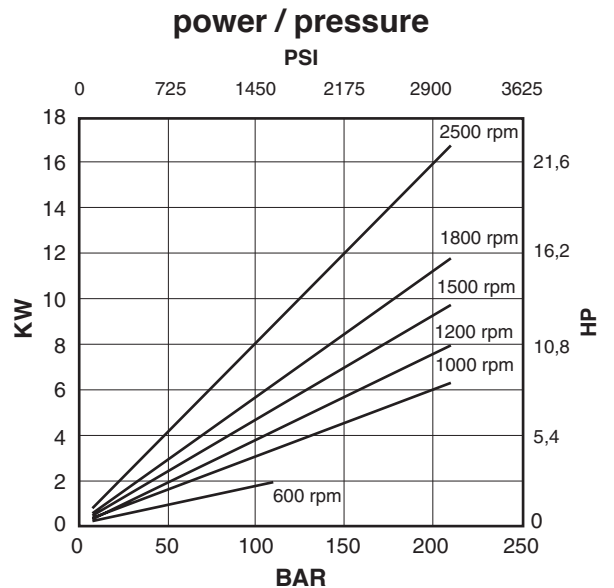
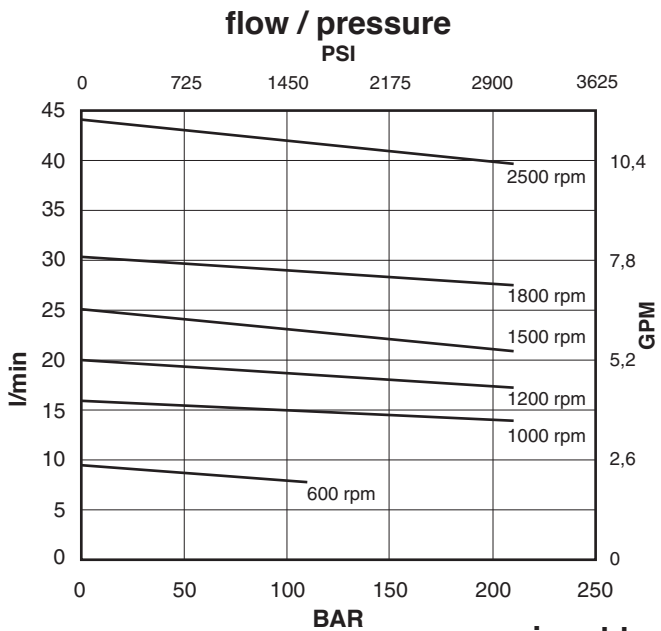


Cartridge A01-02



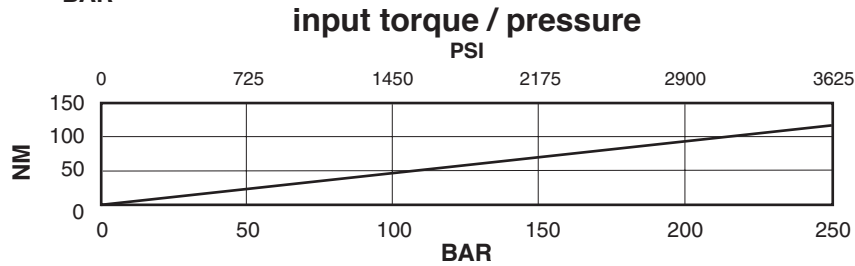
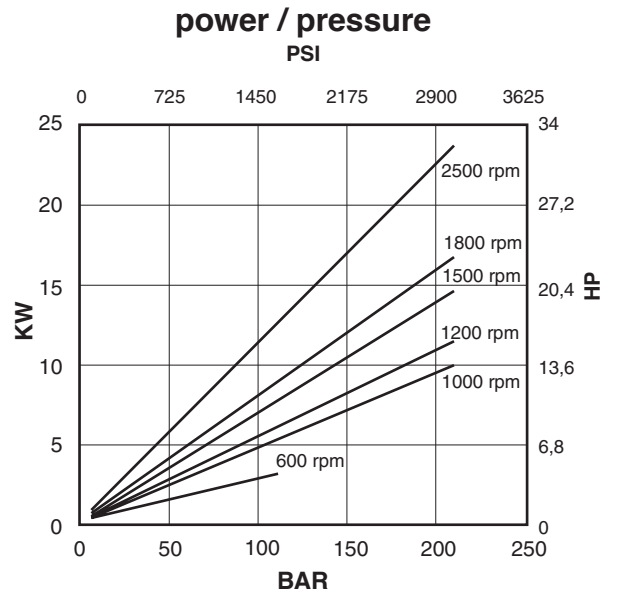
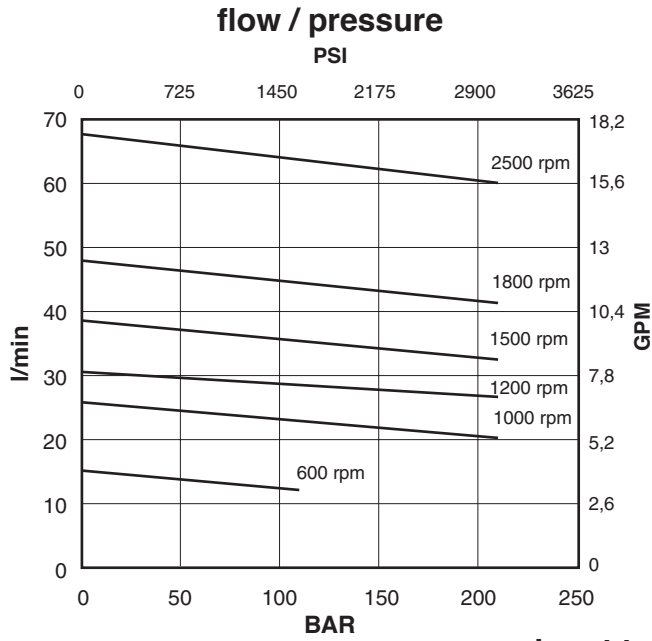
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A01-05



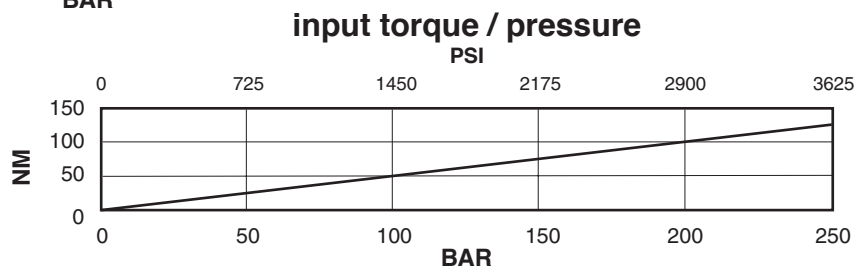
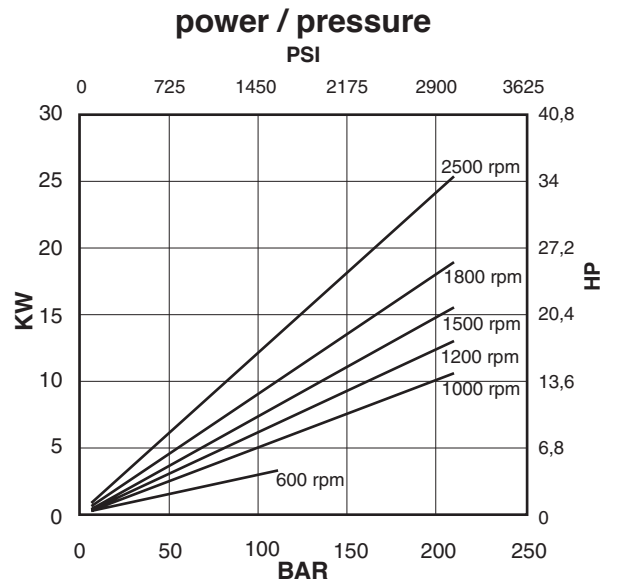
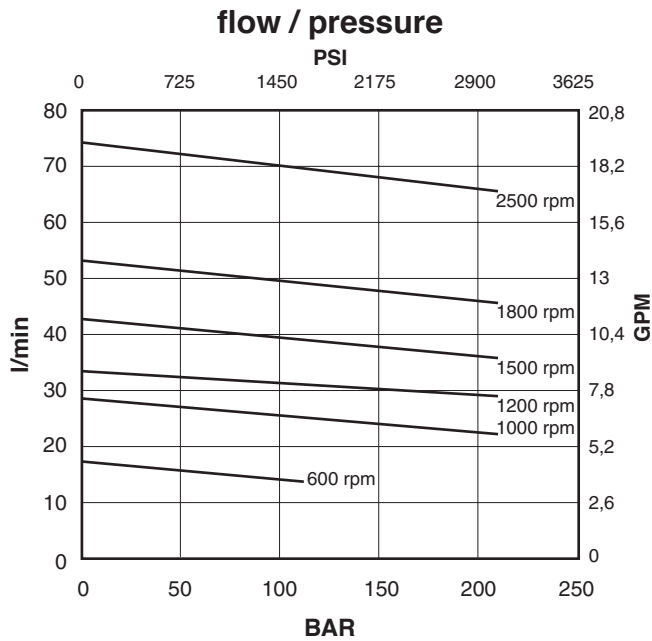
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A01-08



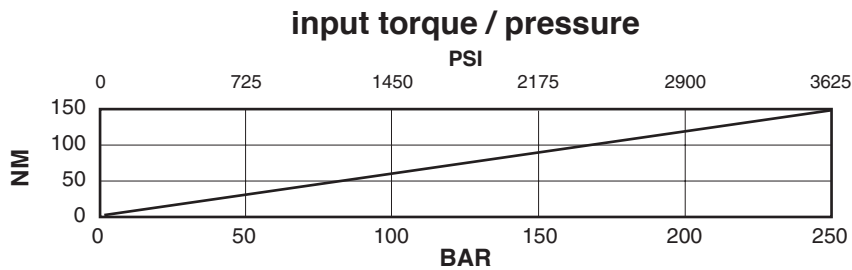
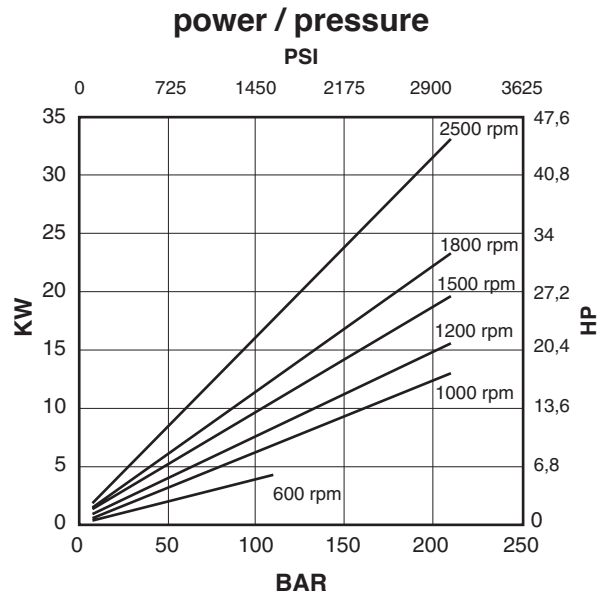
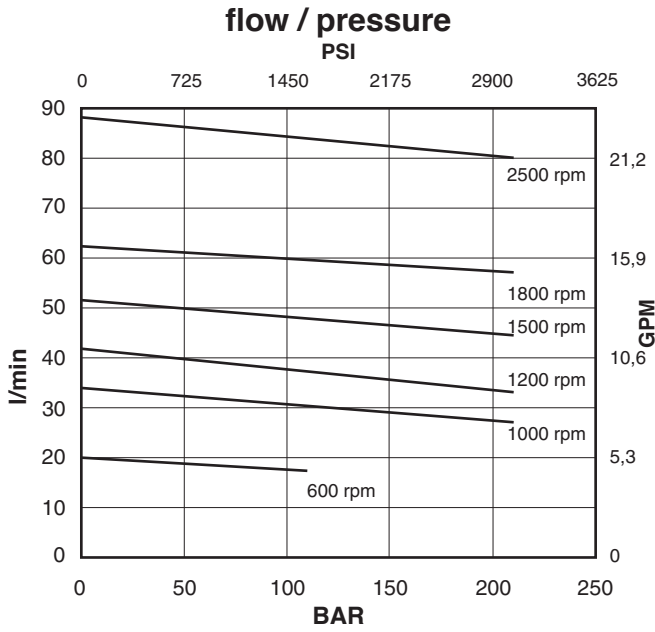
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A01-09



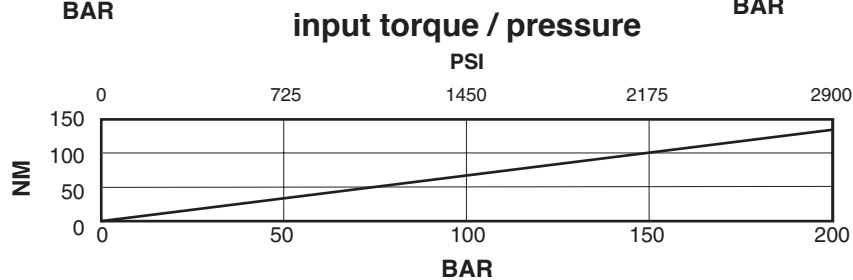
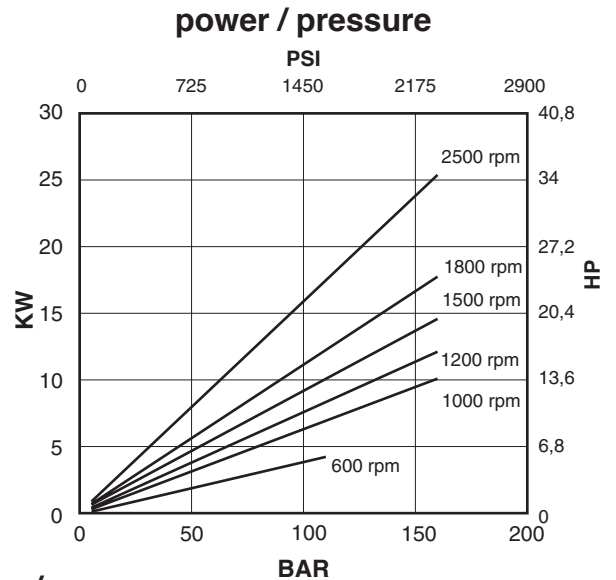
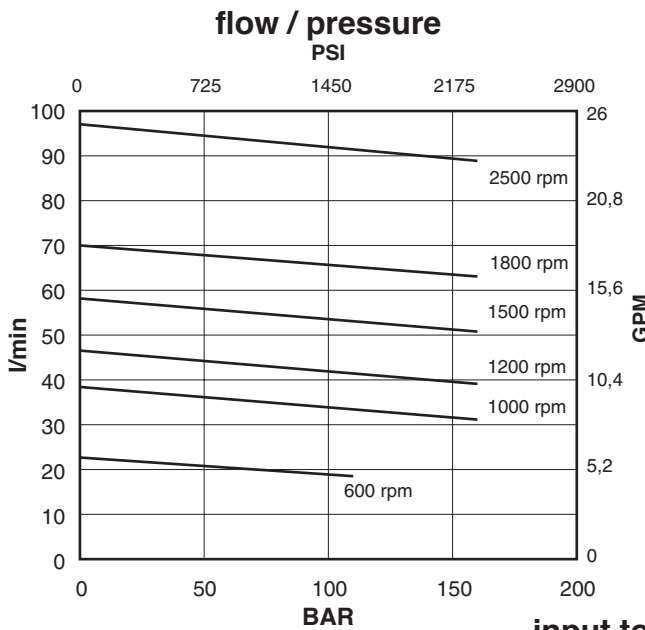
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A01-11



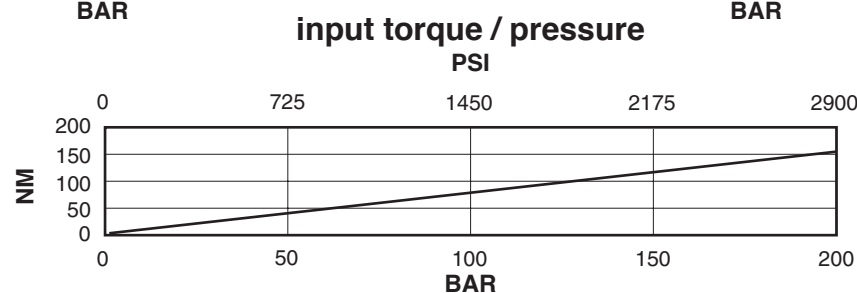
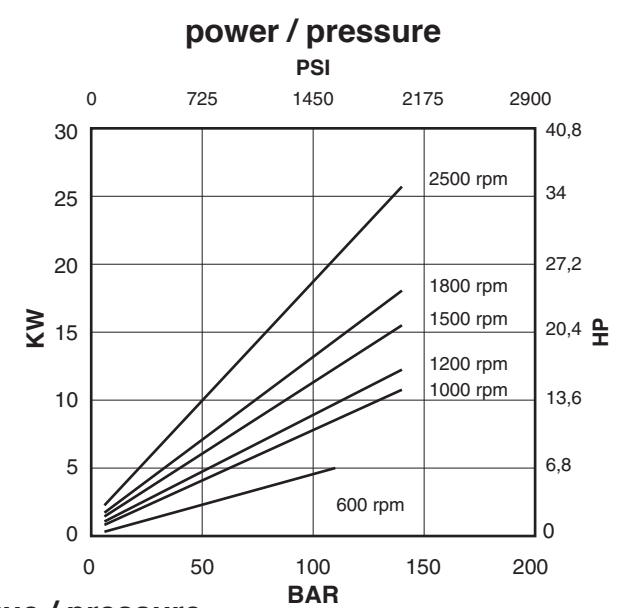
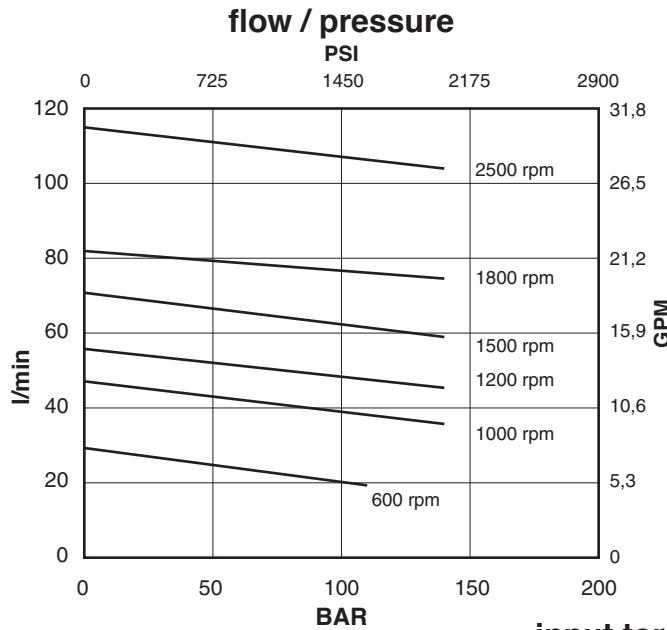
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A01-12



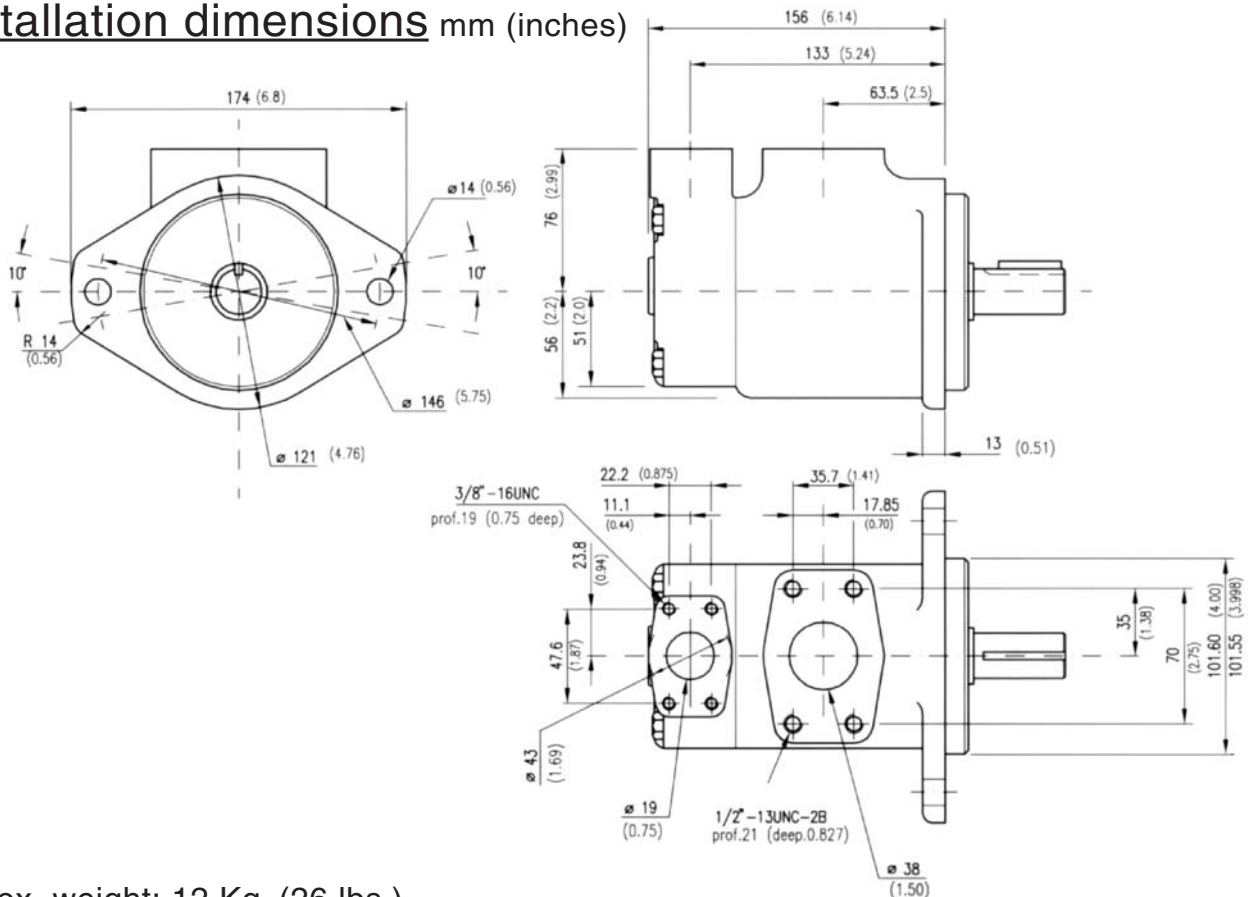
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A01-14



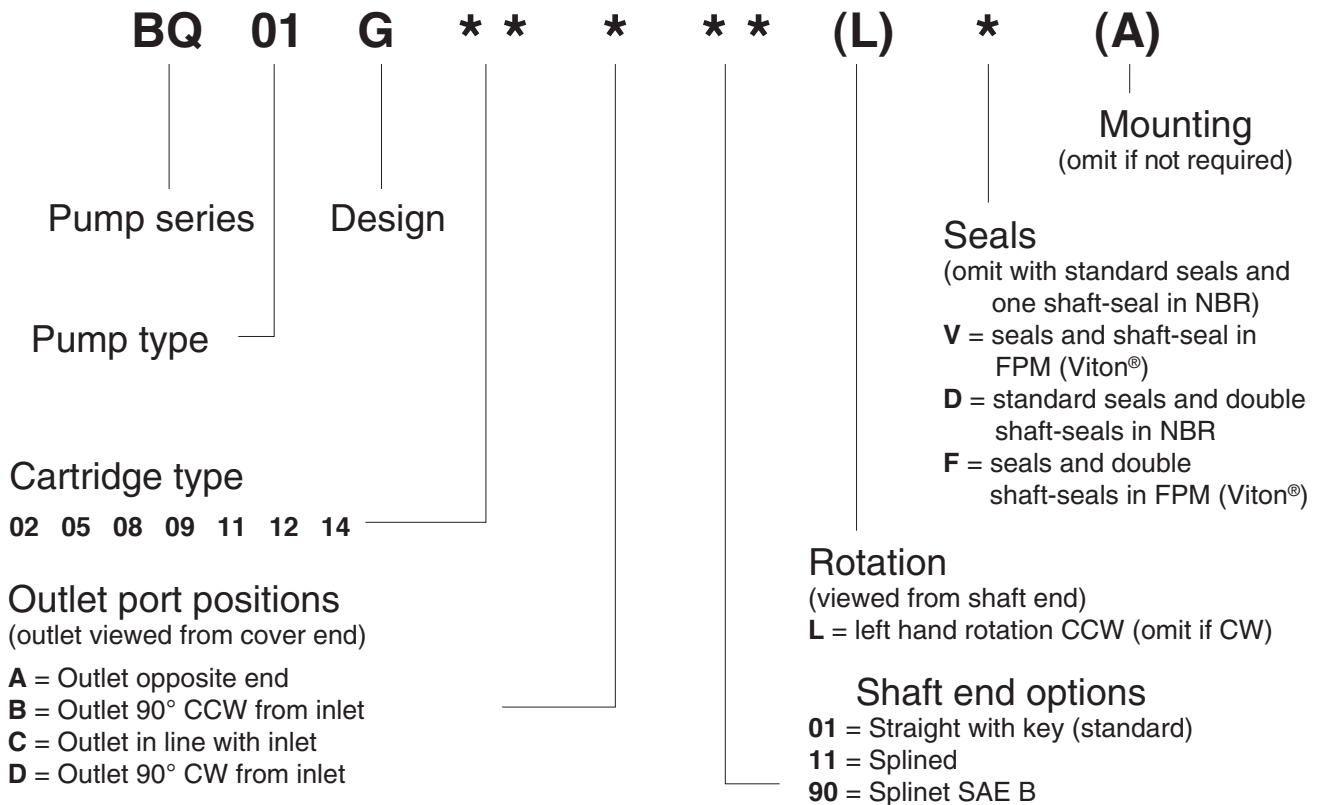
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

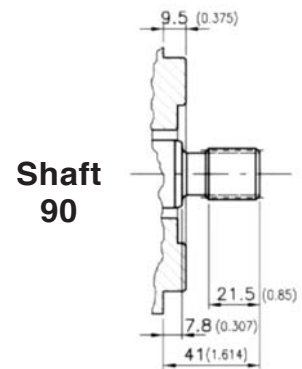
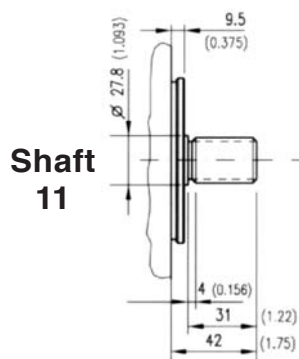
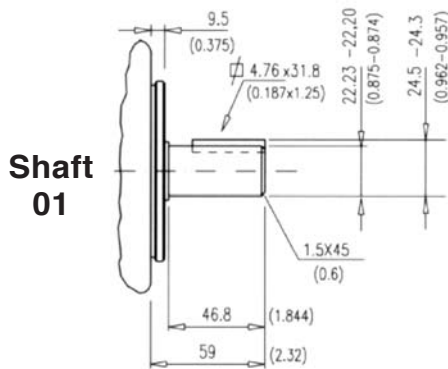


Approx. weight: 12 Kg. (26 lbs.)

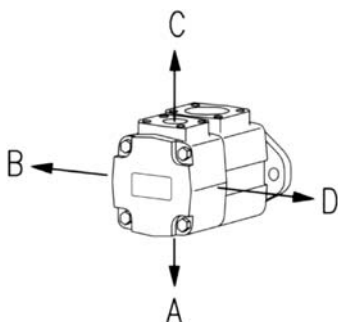
Model code breakdown



Shaft options mm (inches)



PORT ORIENTATIONS



Spline data

(Shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 13 | |
| Pitch | 16/32 | |
| Major dia. | 22.00 - 21.90 | (0.866 - 0.862) |
| Pitch dia. | 20.638 | (0.8125) |
| Minor dia. | 18.63 - 18.35 | (0.733 - 0.722) |
| Wildhaber | 11.67 - 11.70 | (0.459 - 0.461) |

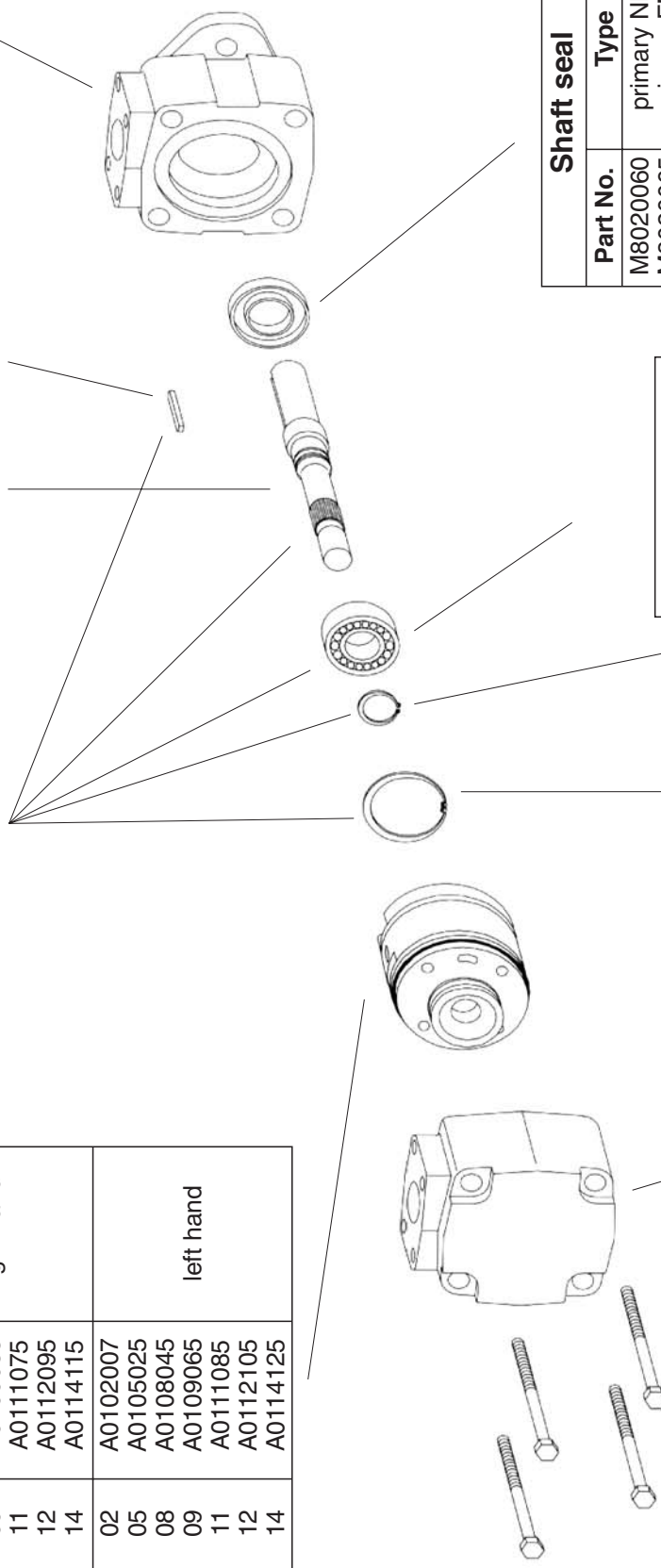
Id. codes of pump components

| Cartridge | | | |
|-----------|-------|----------|-------------|
| Series | Model | Part No. | Pump Rotat. |
| A01 | 02 | A0102002 | right hand |
| | 05 | A0105015 | |
| | 08 | A0108035 | |
| | 09 | A0109055 | |
| | 11 | A0111075 | |
| | 12 | A0112095 | |
| A01 | 14 | A0114115 | left hand |
| | 02 | A0102007 | |
| | 05 | A0105025 | |
| | 08 | A0108045 | |
| | 09 | A0109065 | |
| | 11 | A0111085 | |
| | 12 | A0112105 | |
| | 14 | A0114125 | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8010601 |
| 11 | M8010611 |
| 90 | M8010690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0101000 | M8010100 | |
| 11 | K0111000 | - | |
| 90 | K0190000 | - | |

| Body | |
|----------|----------|
| Part No. | Part No. |
| M8010010 | |



| Shaft seal | |
|------------|---------------|
| Part No. | Type |
| M8020060 | primary NBR |
| M8020065 | primary FPM |
| M8020061 | secondary NBR |
| M8020066 | secondary FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| M8010030 | |

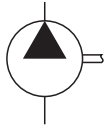
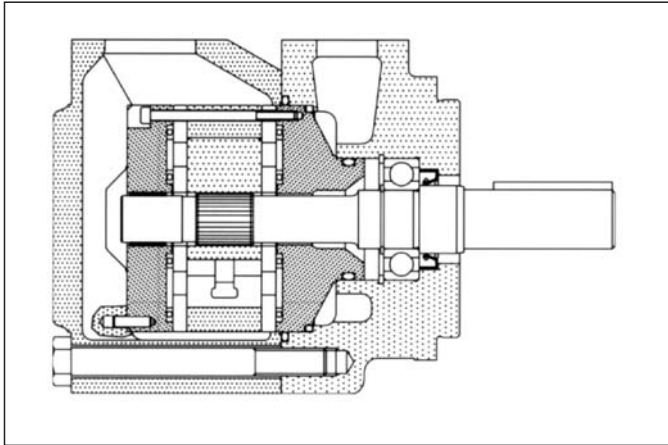
| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8010050 | |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8010040 | |

| Cover | |
|----------|----------|
| Part No. | Part No. |
| M8020120 | |

| Screw | |
|-------------------------------|----------|
| Part No. | Part No. |
| M8020420 | |
| Torque to 70 Nm (625 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8010131 | seals + 1 shaft seal | NBR |
| M8010132 | seals + 2 shaft seals | NBR |
| M8010133 | seals + 1 shaft seal | FPM (Viton®) |
| M8010134 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five versions with capacities from 47 to 79 l/min (*from 12 to 21 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 210 | (3050) | 600 | 2700 |
| A02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 210 | (3050) | 600 | 2700 |
| A02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 210 | (3050) | 600 | 2500 |
| A02-19 | 60,0 | (3.66) | 71,0 | (19) | 88,7 | (23.4) | 210 | (3050) | 600 | 2500 |
| A02-21 | 67,5 | (4.12) | 79,0 | (21) | 99,8 | (26.4) | 210 | (3050) | 600 | 2500 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (*with mineral oil*): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

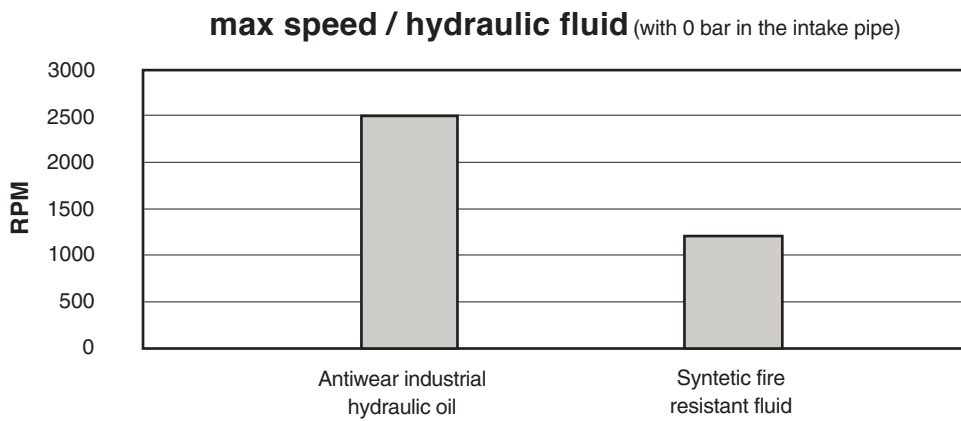
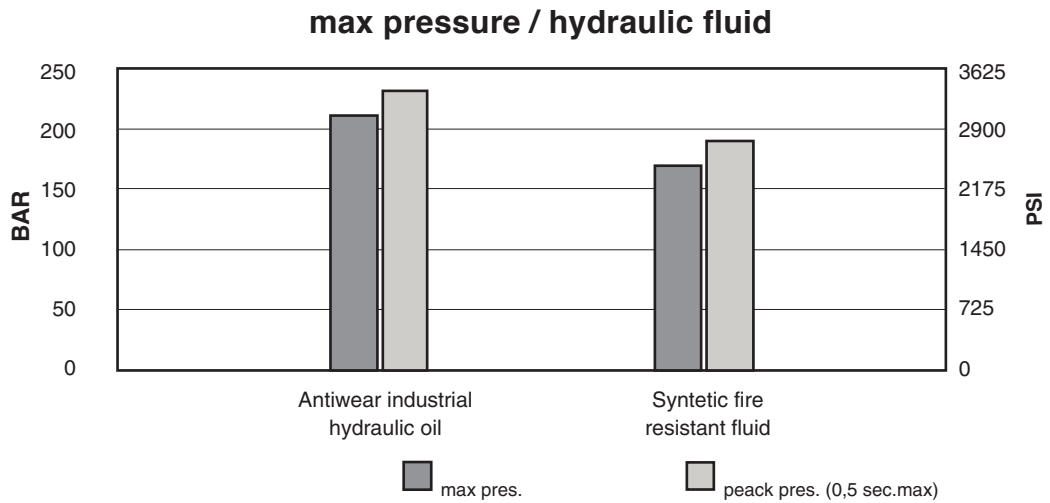
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

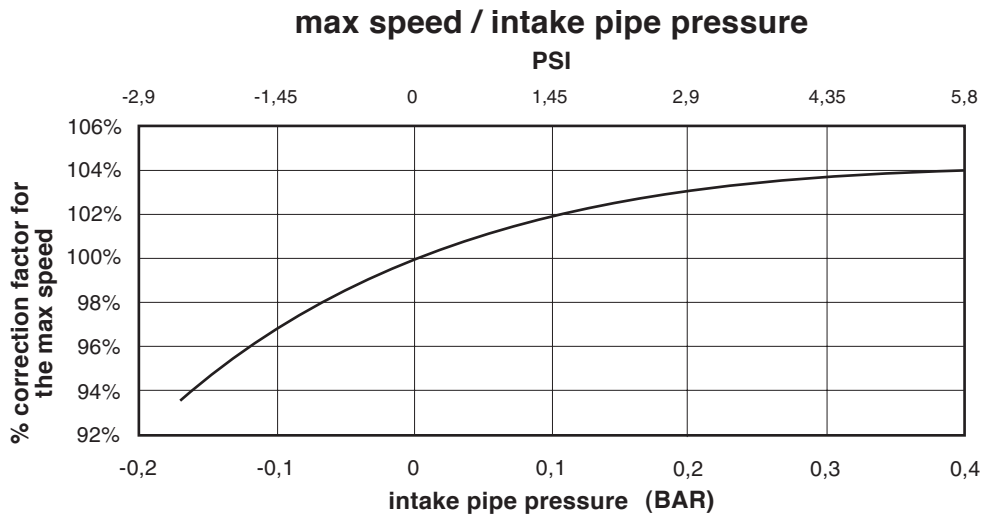
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

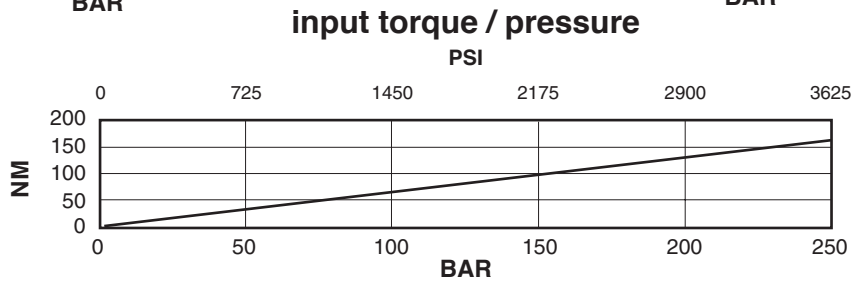
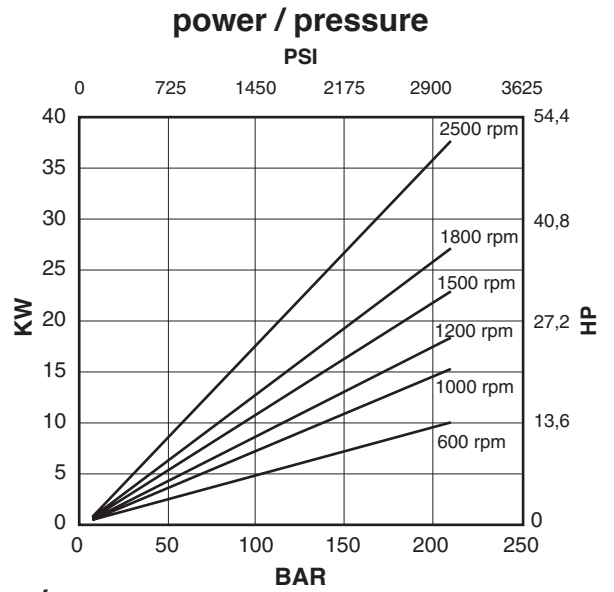
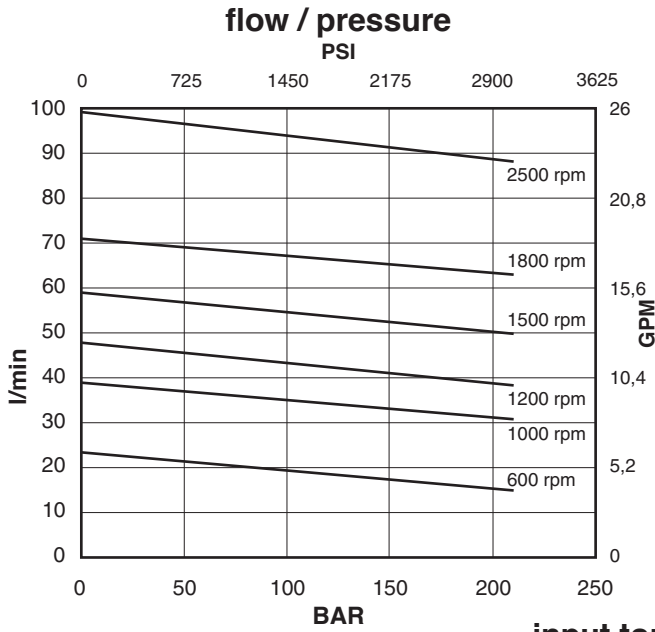
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

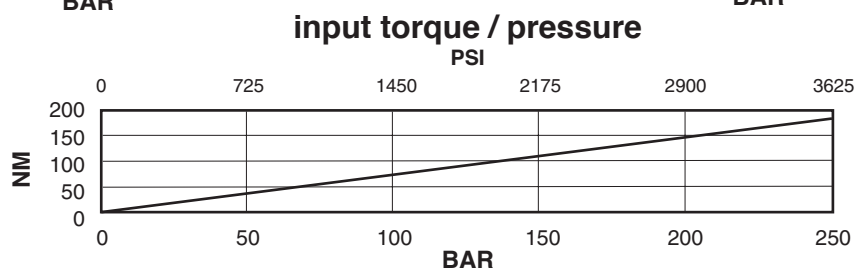
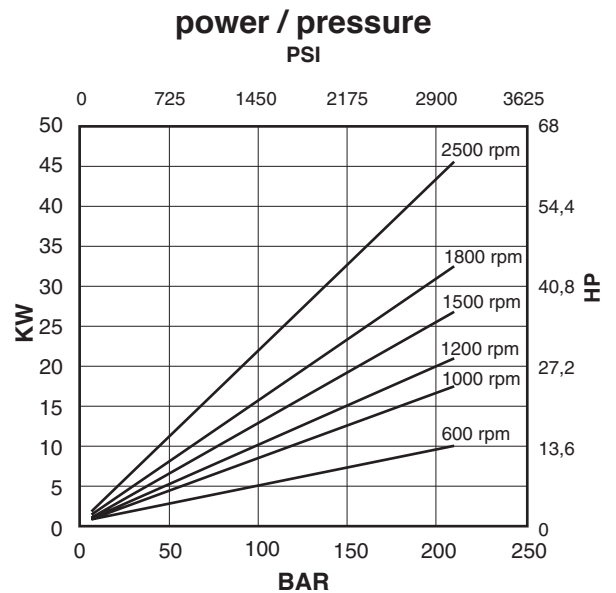
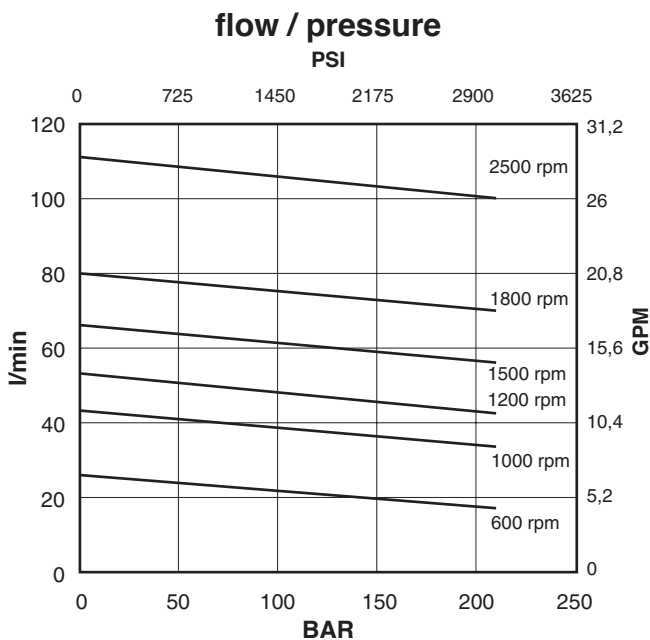


Cartridge A02-12



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

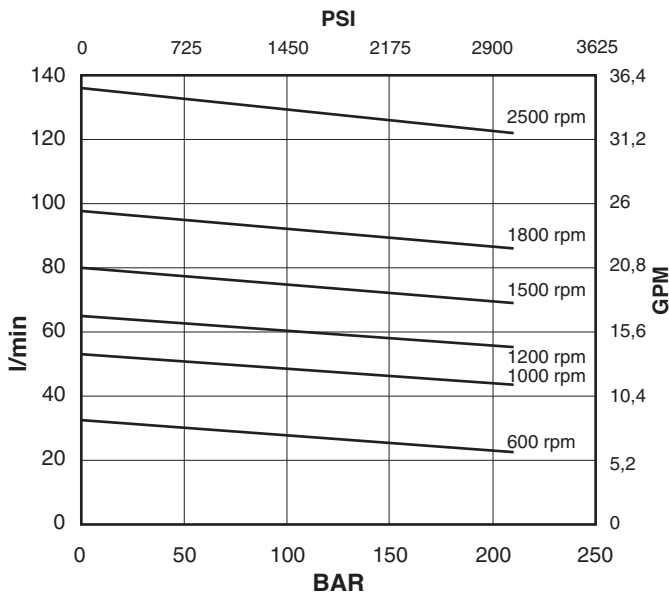
Cartridge A02-14



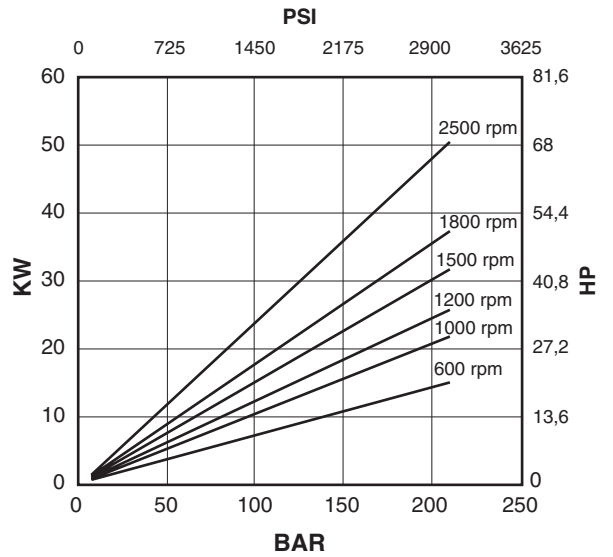
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A02-17

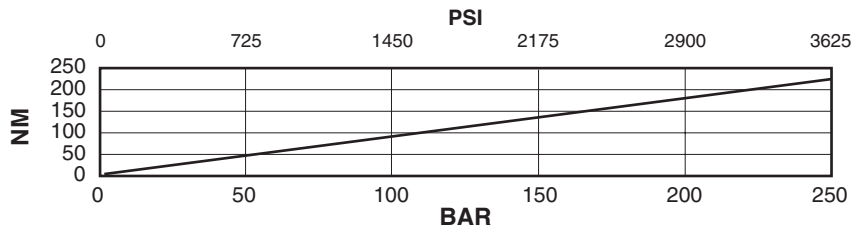
flow / pressure



power / pressure



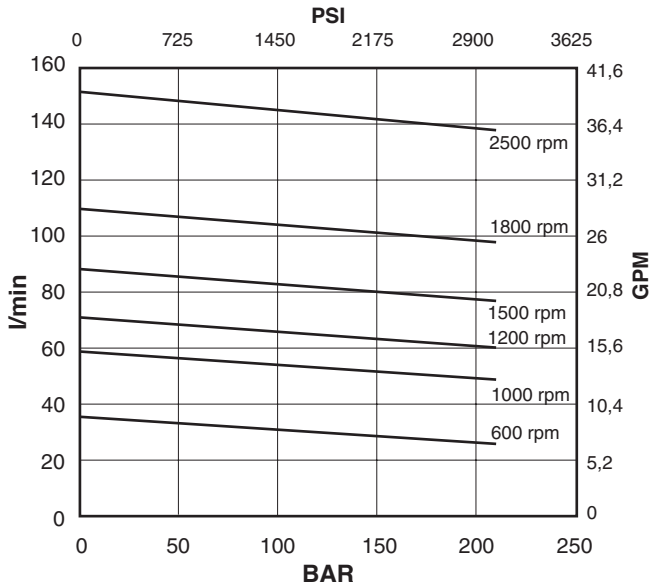
input torque / pressure



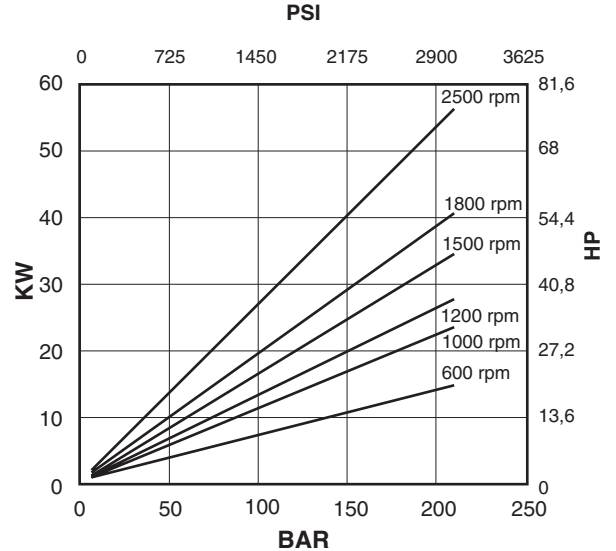
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A02-19

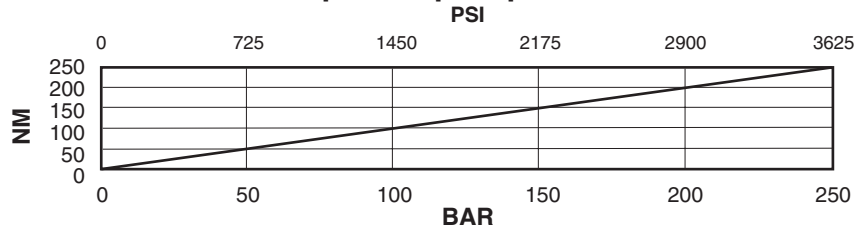
flow / pressure



power / pressure



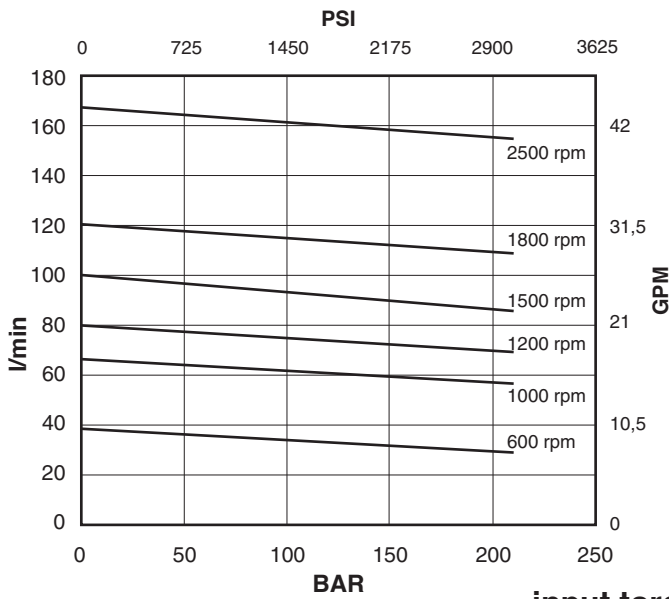
input torque / pressure



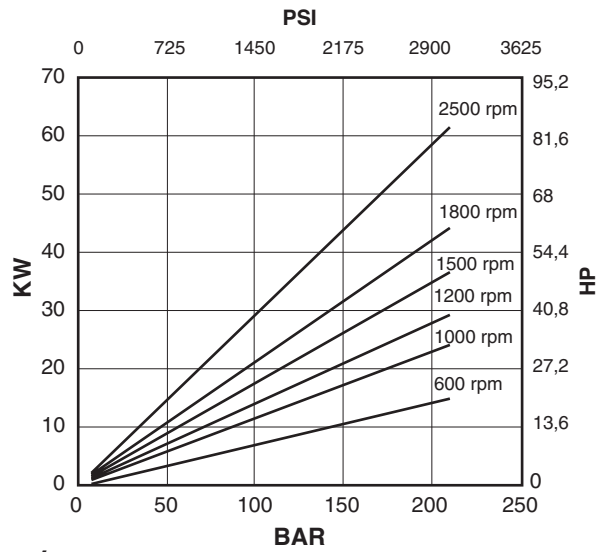
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A02-21

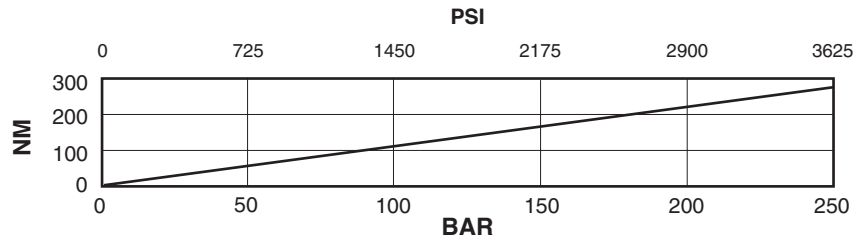
flow / pressure



power / pressure

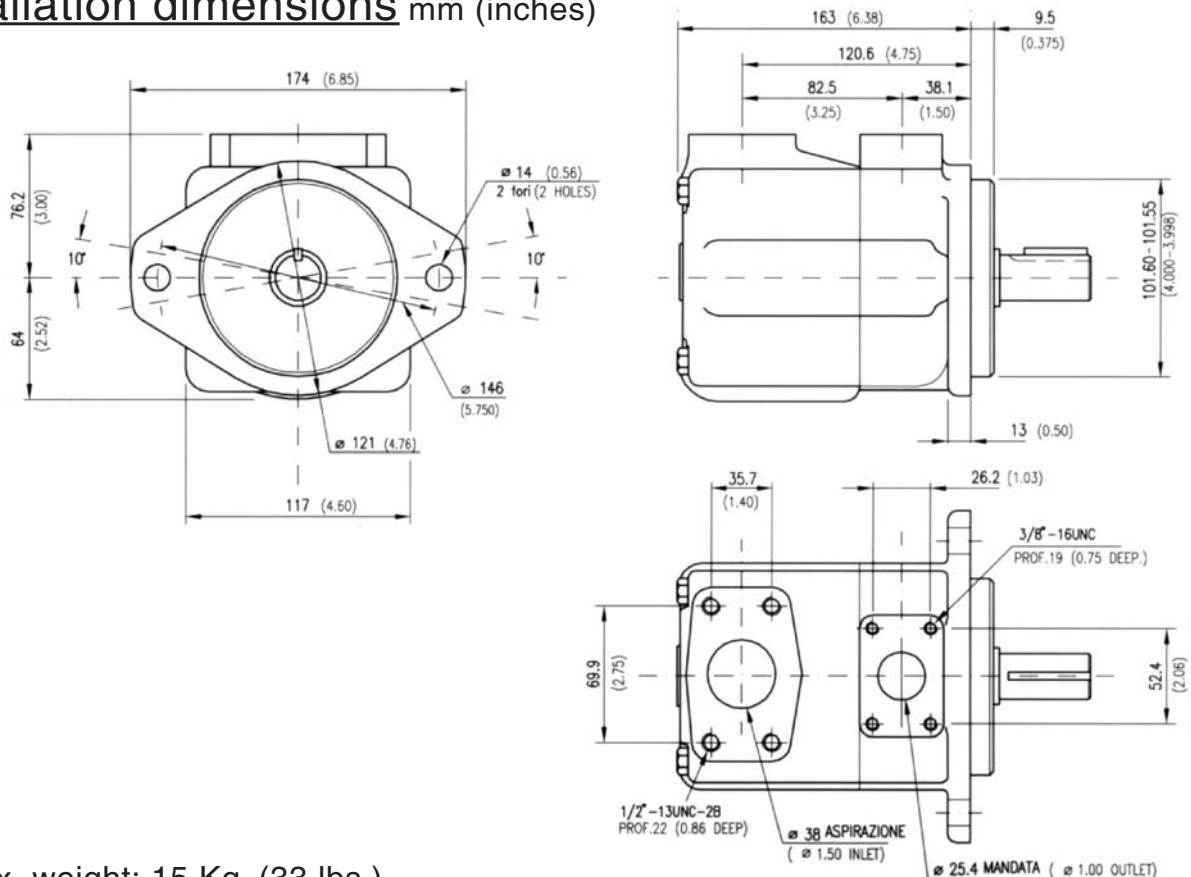


input torque / pressure



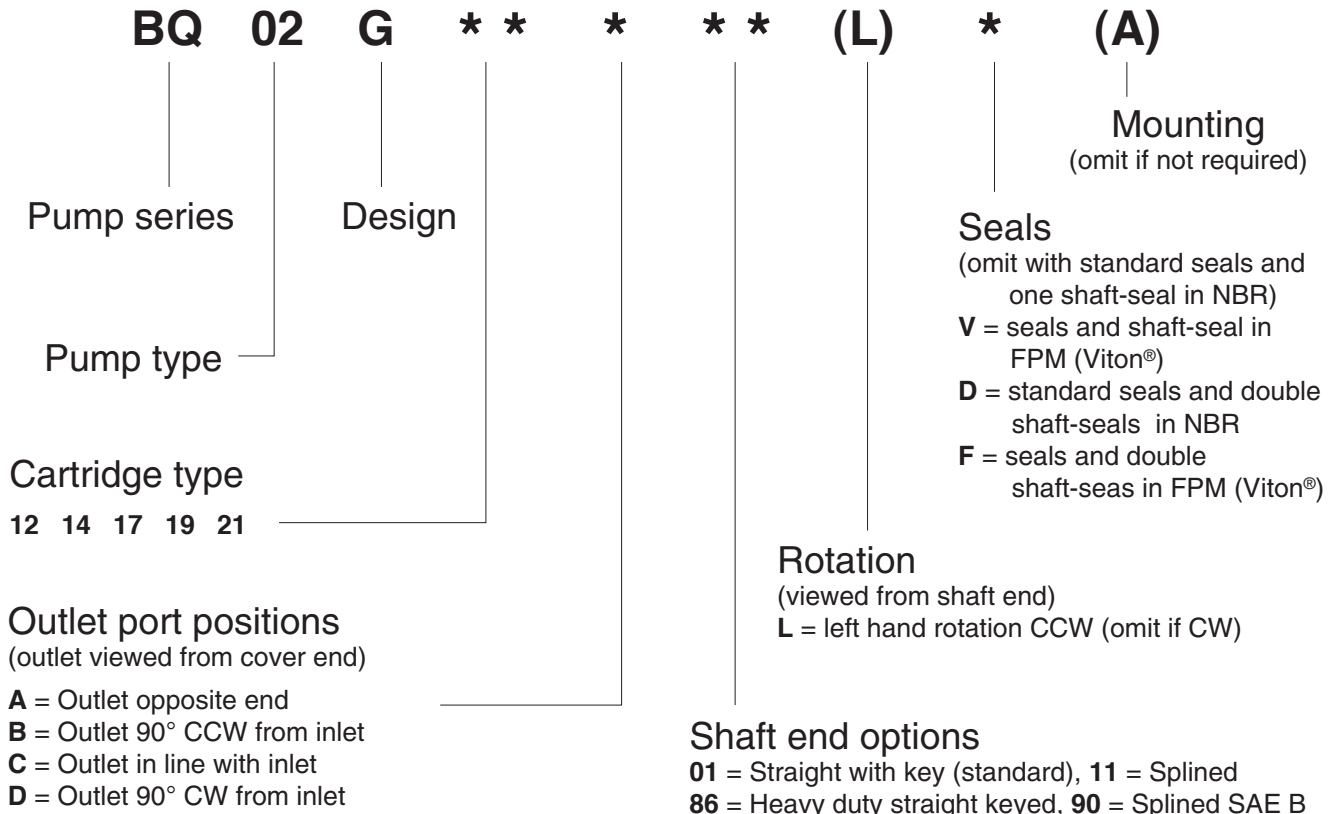
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



Approx. weight: 15 Kg. (33 lbs.)

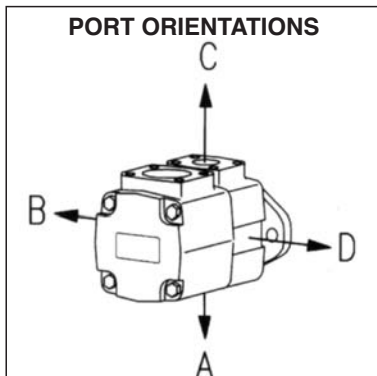
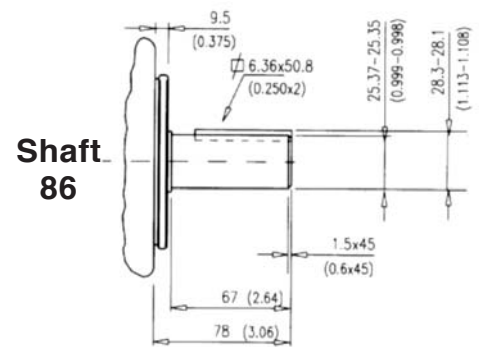
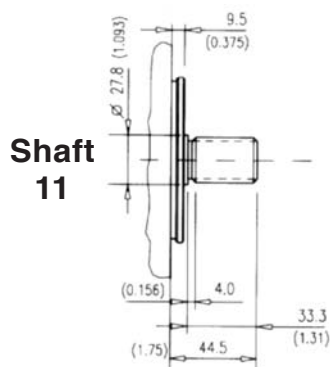
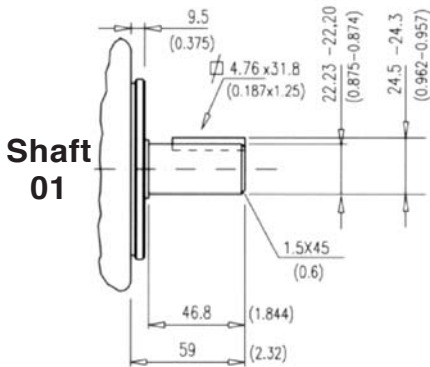
Model code breakdown



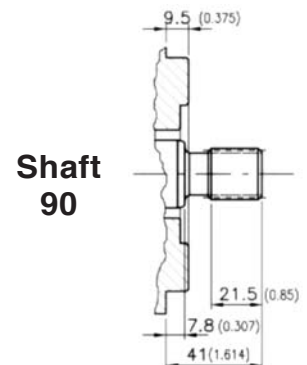
Shaft end options

01 = Straight with key (standard), **11** = Splined
86 = Heavy duty straight keyed, **90** = Splined SAE B

Shaft options mm (inches)



| | |
|-------------------------|-------------------------------|
| Spline data | |
| (Shaft 11 and shaft 90) | |
| Spline | Involute side fit (ASA B5.15) |
| Pressure angle | 30° |
| No. of teeth | 13 |
| Pitch | 16/32 |
| Major dia. | 22.00 - 21.90 (0.866 - 0.862) |
| Pitch dia. | 20.638 (0.8125) |
| Minor dia. | 18.63 - 18.35 (0.733 - 0.722) |
| Wildhaber | 11.67 - 11.70 (0.459 - 0.461) |



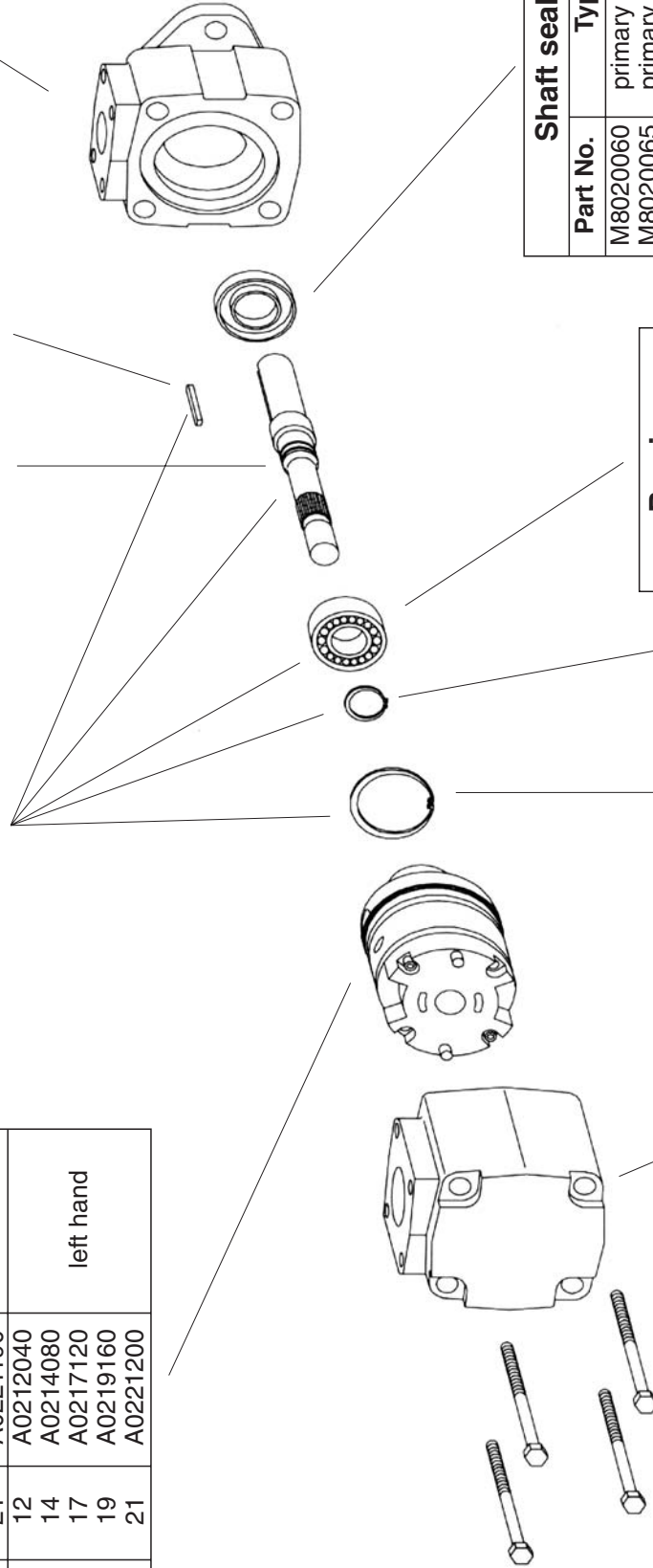
Id. codes of pump components

| Cartridge | | | |
|-----------|-------|----------|-------------|
| Series | Model | Part No. | Pump rotat. |
| A02 | 12 | A0212030 | right hand |
| | 14 | A0214070 | |
| | 17 | A0217110 | |
| | 19 | A0219150 | |
| | 21 | A0221190 | |
| A02 | 12 | A0212040 | left hand |
| | 14 | A0214080 | |
| | 17 | A0217120 | |
| | 19 | A0219160 | |
| | 21 | A0221200 | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8020601 |
| 11 | M8020611 |
| 86 | M8020686 |
| 90 | M8020690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0201000 | M8010100 | |
| 11 | K0211000 | - | |
| 86 | K0286000 | M8028600 | |
| 90 | K0290000 | - | |

| Body | |
|----------|----------|
| Part No. | Part No. |
| M8020010 | |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8020060 | primary in NBR |
| M8020065 | primary in FPM |
| M8020061 | secondary in NBR |
| M8020066 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| M8020030 | |

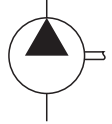
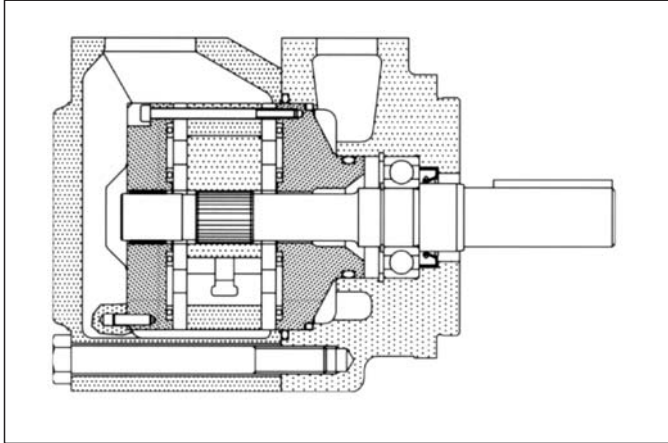
| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8020050 | |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8020040 | |

| Cover | |
|----------|----------|
| Part No. | Part No. |
| M8020020 | |

| Screw | |
|--------------------------------|----------|
| Part No. | Part No. |
| M8020070 | |
| Torque to 102 Nm (910 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8020131 | seals + 1 shaft seal | NBR |
| M8020132 | seals + 2 shaft seals | NBR |
| M8020133 | seals + 1 shaft seal | FPM (Viton®) |
| M8020134 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available from in two versions with rated capacities 90 to 106 l/min (from 24 to 28 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated Capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A03-24 | 78,3 | (4.78) | 90 | (24) | 115,3 | (30.5) | 210 | (3050) | 600 | 2500 |
| A03-28 | 91,2 | (5.56) | 106 | (28) | 131,8 | (34.8) | 210 | (3050) | 600 | 2500 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

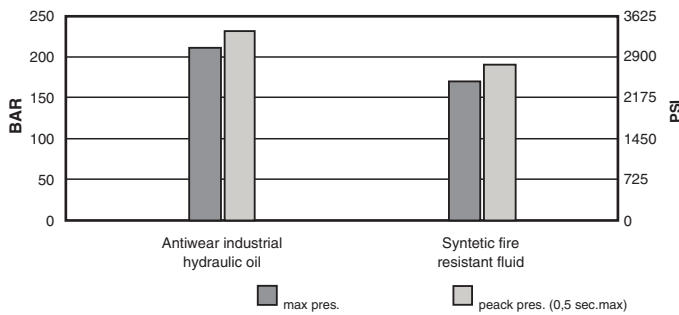
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

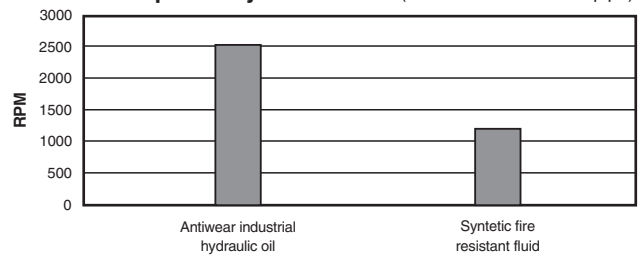
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

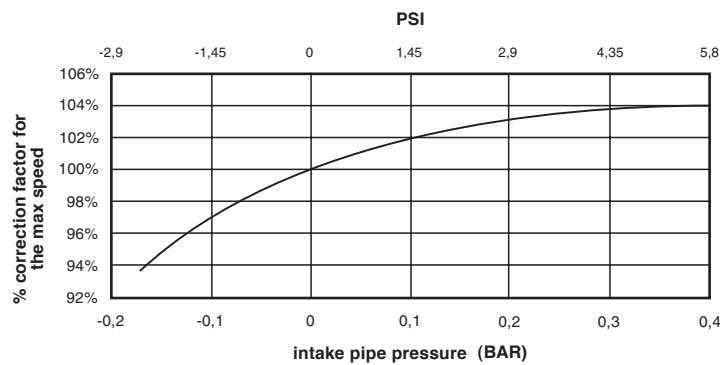


max speed / hydraulic fluid (with 0 bar in the intake pipe)



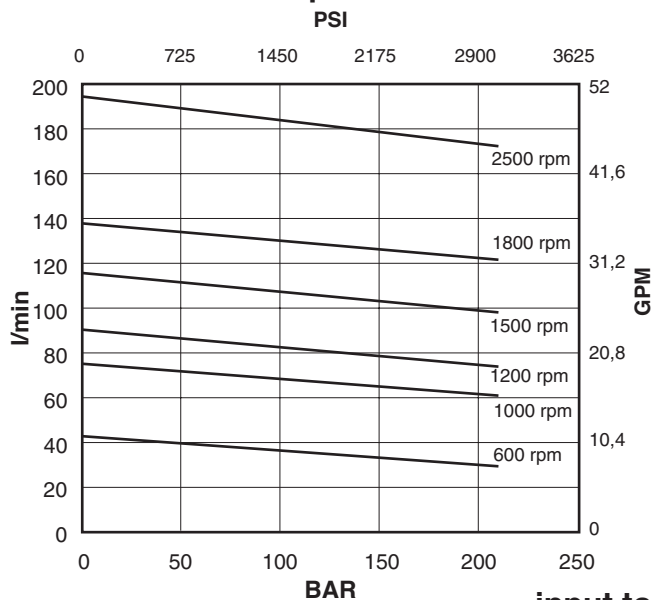
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

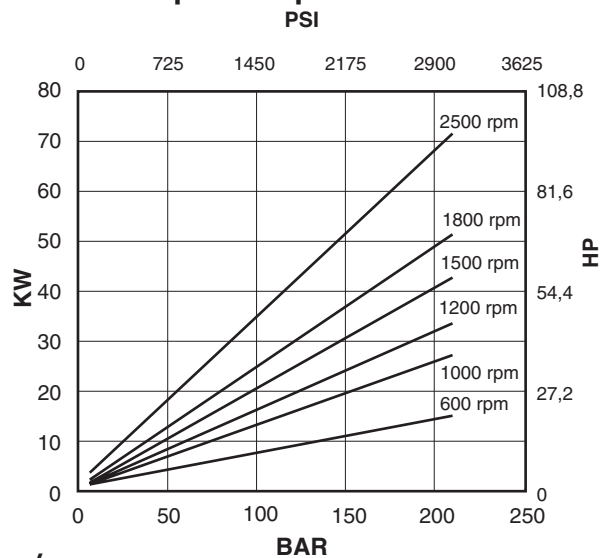


Cartridge A03-24

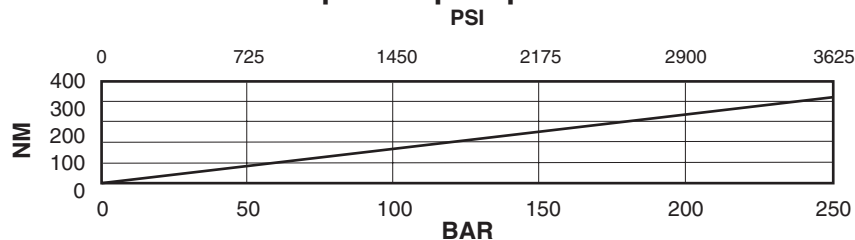
flow / pressure



power / pressure



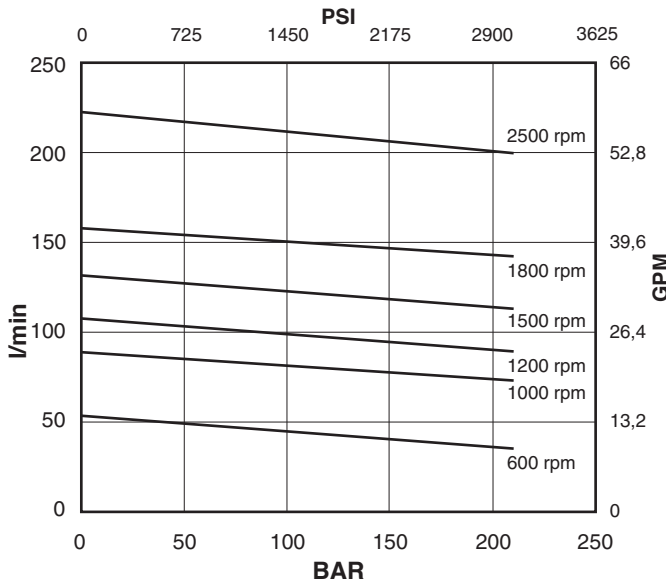
input torque / pressure



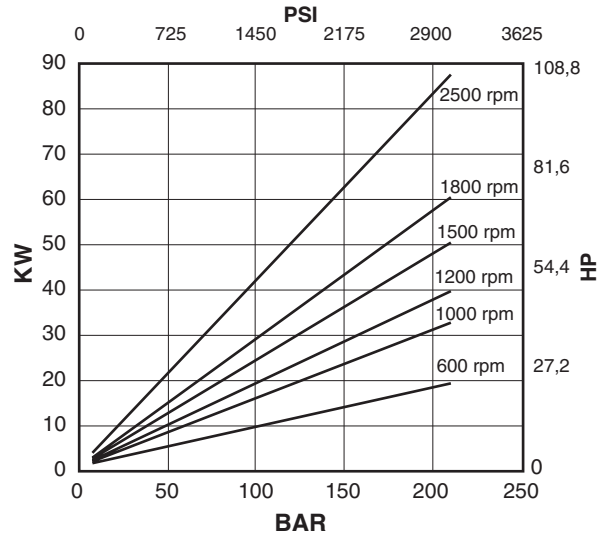
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A03-28

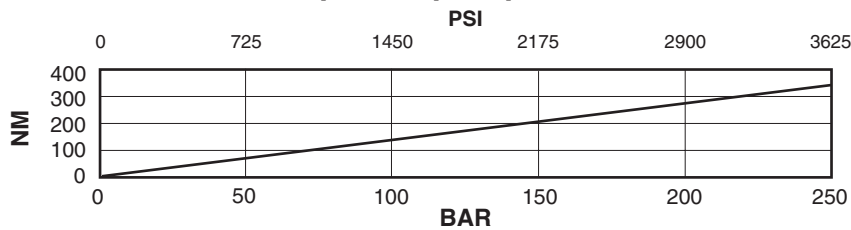
flow / pressure



power / pressure

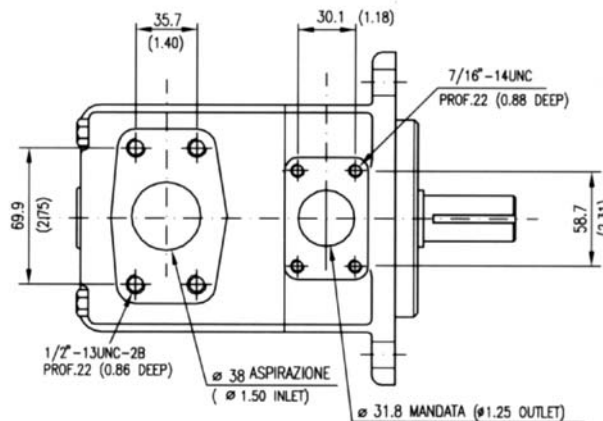
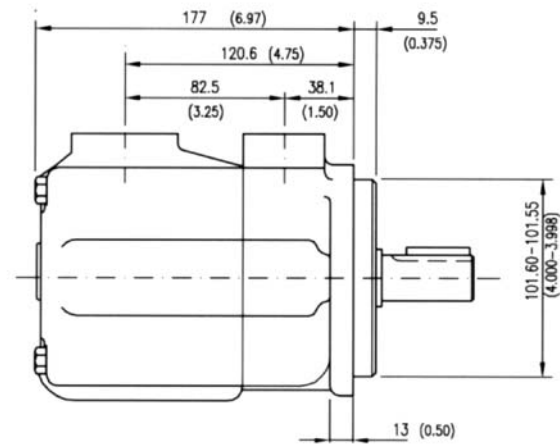
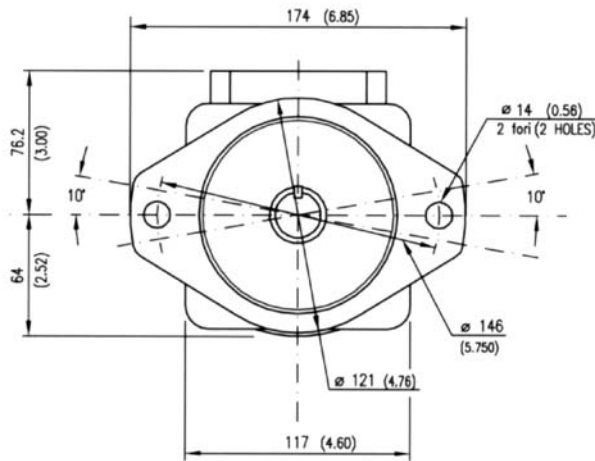


input torque / pressure



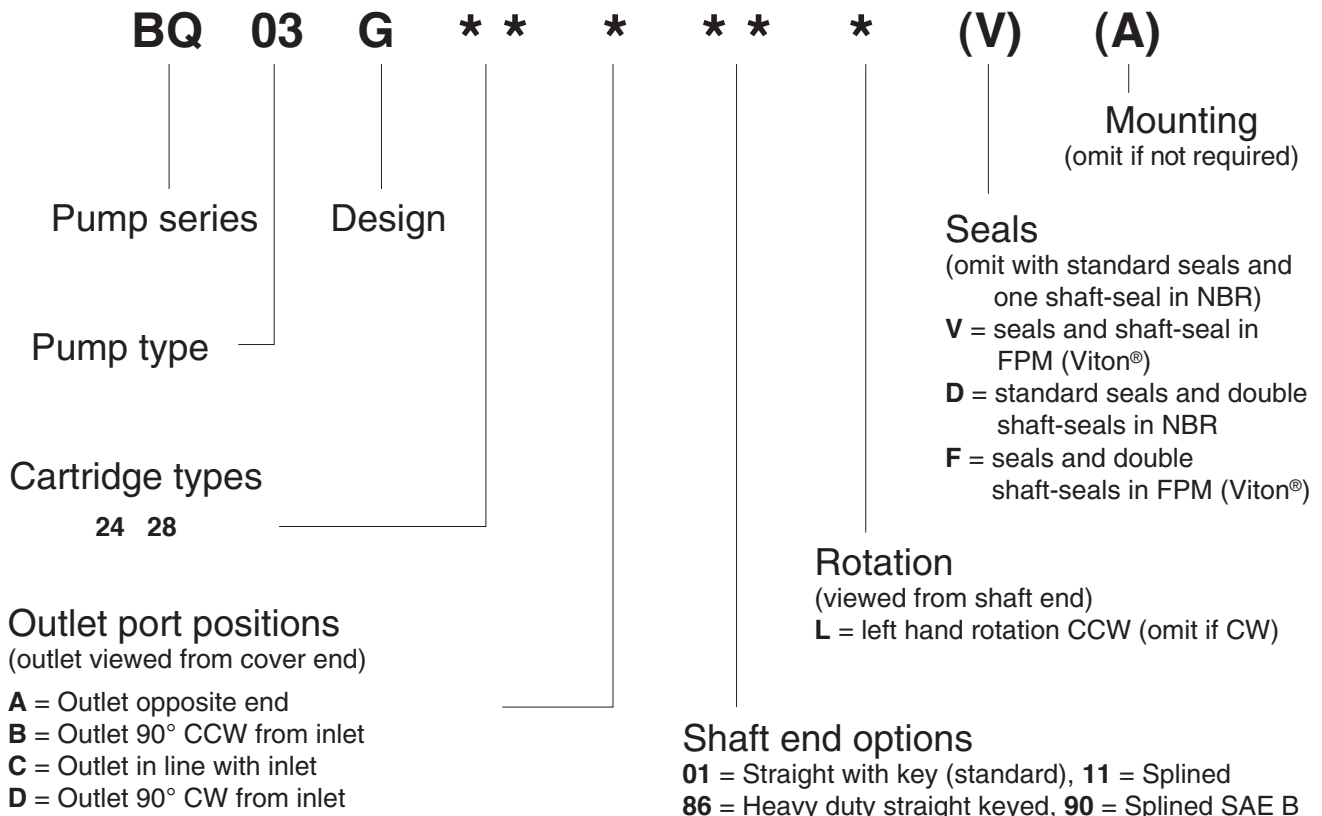
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)

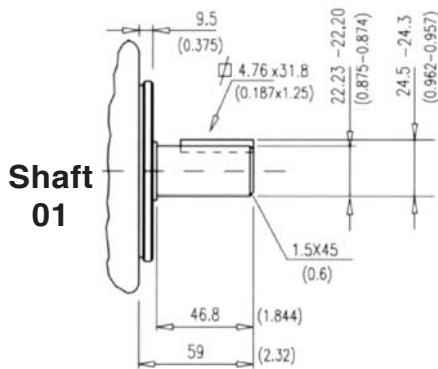


Approx. weight: 17 Kg. (37 lbs.)

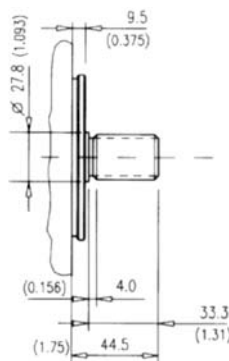
Model code breakdown



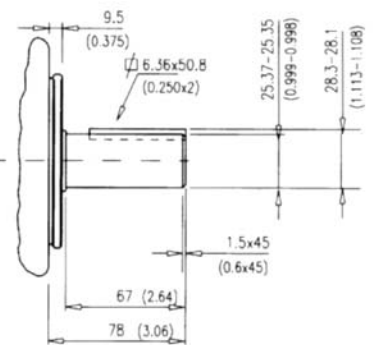
Shaft options mm (inches)



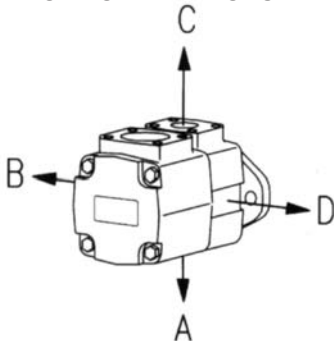
Shaft 11



Shaft 86



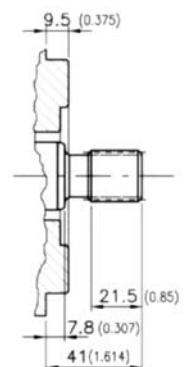
PORT ORIENTATIONS



Spline data (Shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 13 | |
| Pitch | 16/32 | |
| Major dia. | 22.00 - 21.90 | (0.866 - 0.862) |
| Pitch dia. | 20.638 | (0.8125) |
| Minor dia. | 18.63 - 18.35 | (0.733 - 0.722) |
| Wildhaber | 11.67 - 11.70 | (0.459 - 0.461) |

Shaft 90



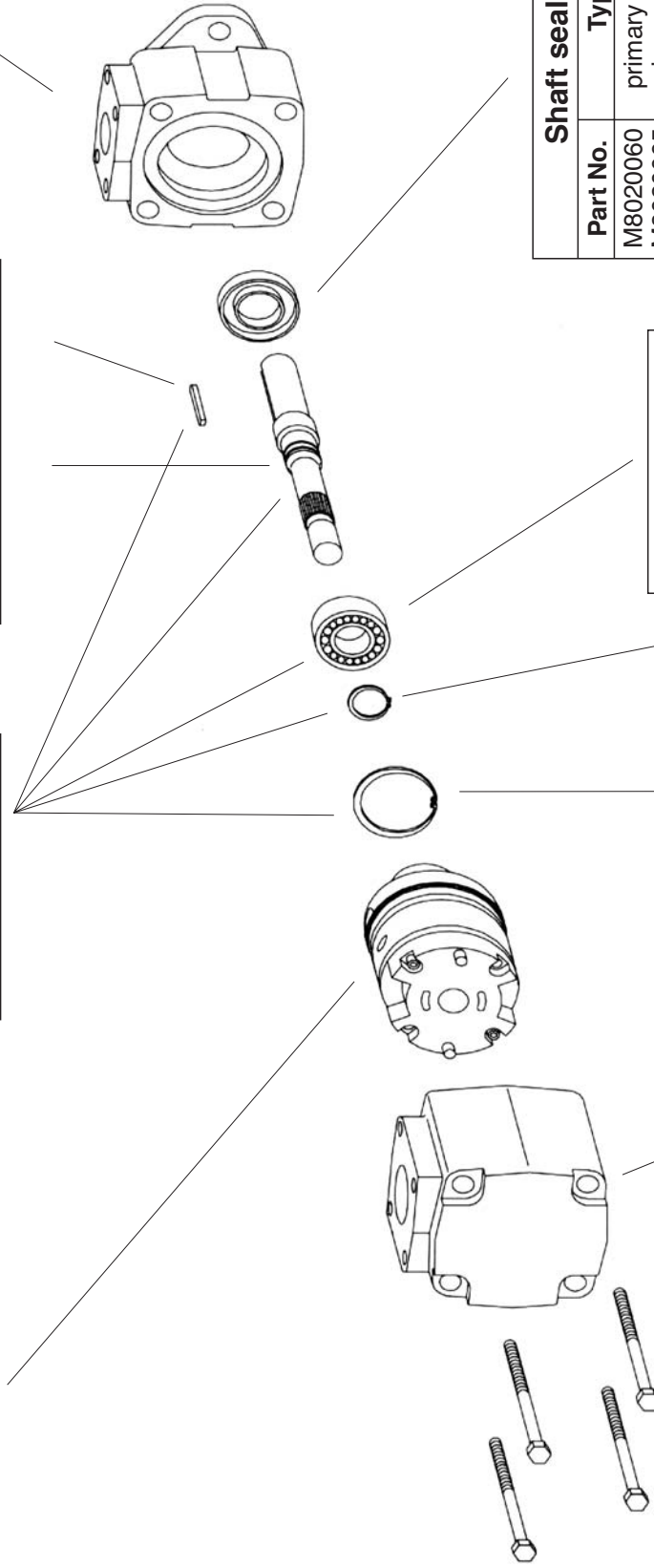
Id. codes of pump components

| Cartridge | | |
|-----------|-------|-------------|
| Series | Model | Pump rotat. |
| A03 | 24 | right hand |
| | 28 | right hand |
| A03 | 24 | left hand |
| | 28 | left hand |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8030601 |
| 11 | M8030611 |
| 86 | M8030686 |
| 90 | M8030690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0301000 | M8010100 | |
| 11 | K0311000 | - | |
| 86 | K0386000 | M8028600 | |
| 90 | K0390000 | - | |

| Body | |
|----------|----------|
| Part No. | Part No. |
| | M8030010 |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8020060 | primary in NBR |
| M8020065 | primary in FPM |
| M8020061 | secondary in NBR |
| M8020066 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| | M8020030 |

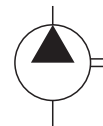
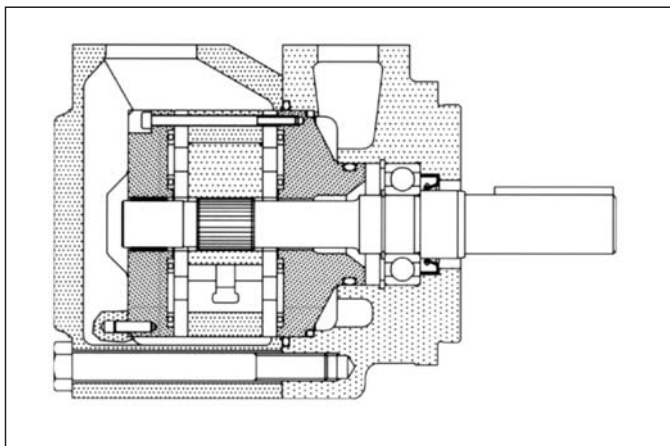
| Seeger | |
|----------|----------|
| Part No. | Part No. |
| | M8020050 |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| | M8020040 |

| Cover | |
|----------|----------|
| Part No. | Part No. |
| | M8030020 |

| Screw | |
|--------------------------------|----------|
| Part No. | Part No. |
| | M8020090 |
| Torque to 102 Nm (910 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8020131 | seals + 1 shaft seal | NBR |
| M8020132 | seals + 2 shaft seals | NBR |
| M8020133 | seals + 1 shaft seal | FPM (Viton®) |
| M8020134 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five versions with capacities from 80 to 140 l/min (*from 21 to 38 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 210 | (3050) | 600 | 2500 |
| A04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 210 | (3050) | 600 | 2500 |
| A04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 210 | (3050) | 600 | 2500 |
| A04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 210 | (3050) | 600 | 2400 |
| A04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 210 | (3050) | 600 | 2400 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (*with mineral oil*): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

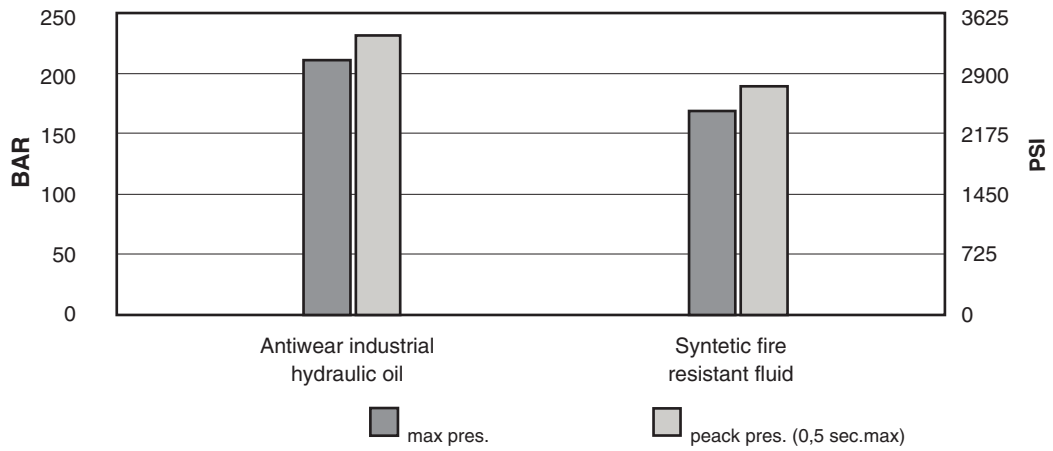
Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

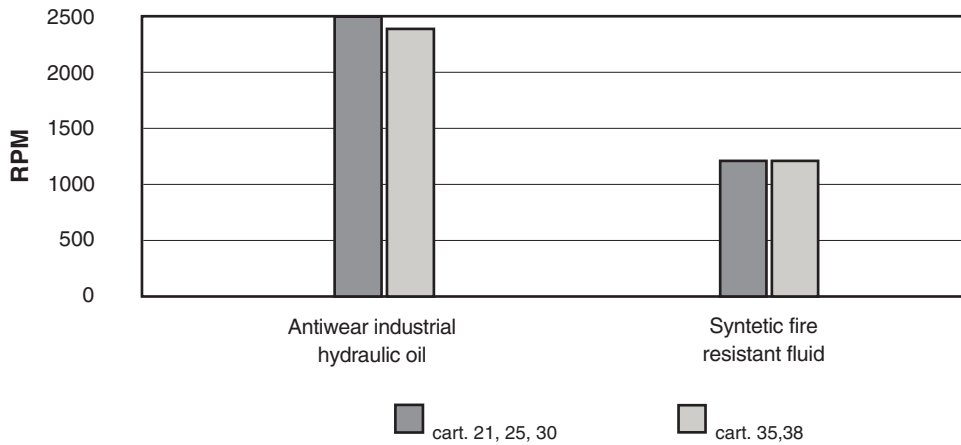
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

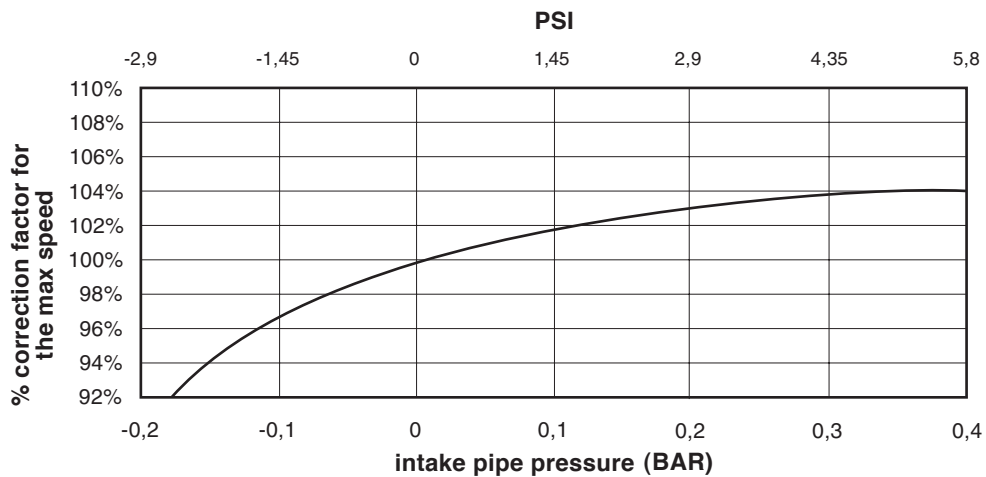


max speed / hydraulic fluid (with 0 bar in the intake pipe)

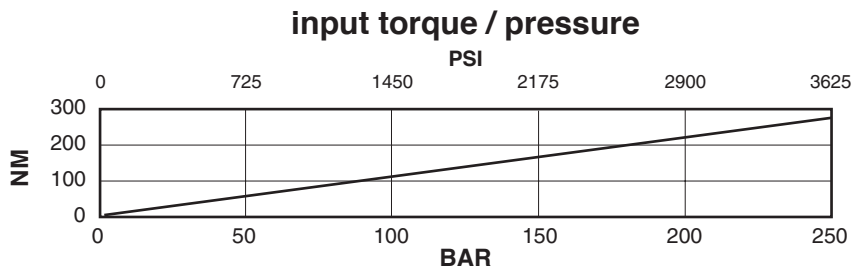
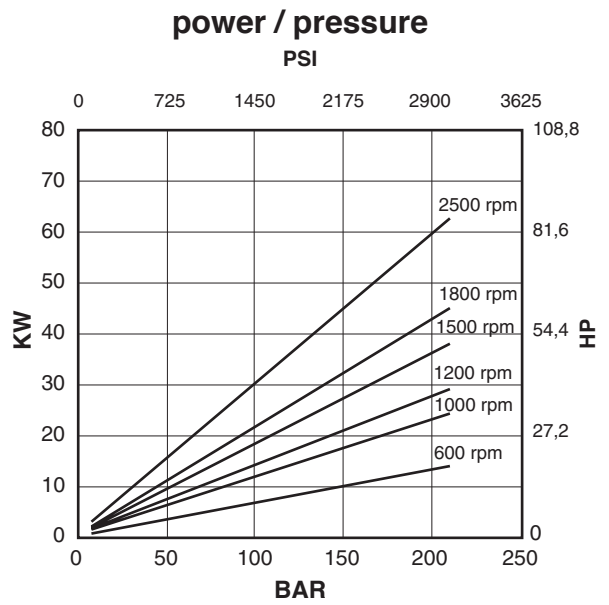
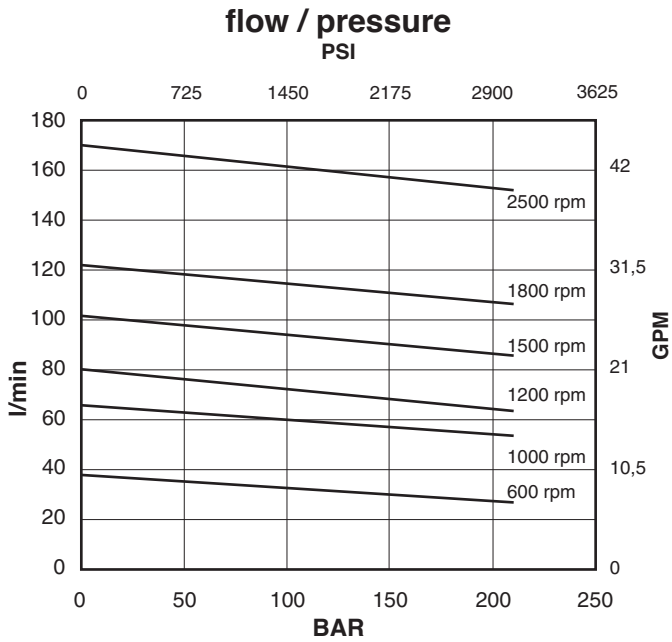


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

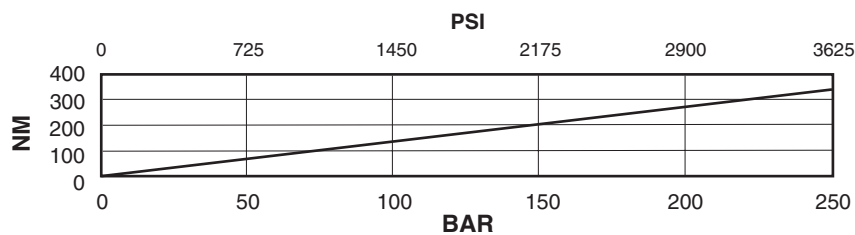
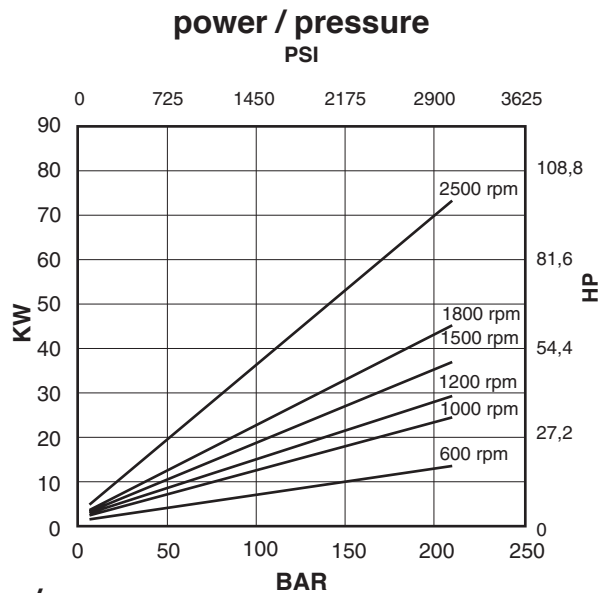
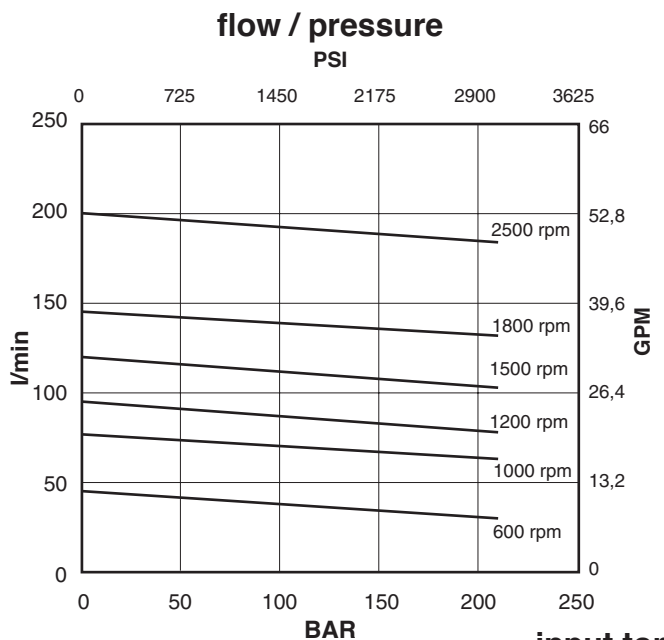


Cartridge A04-21



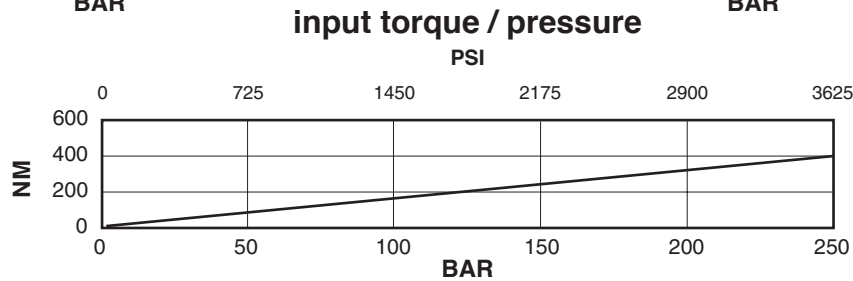
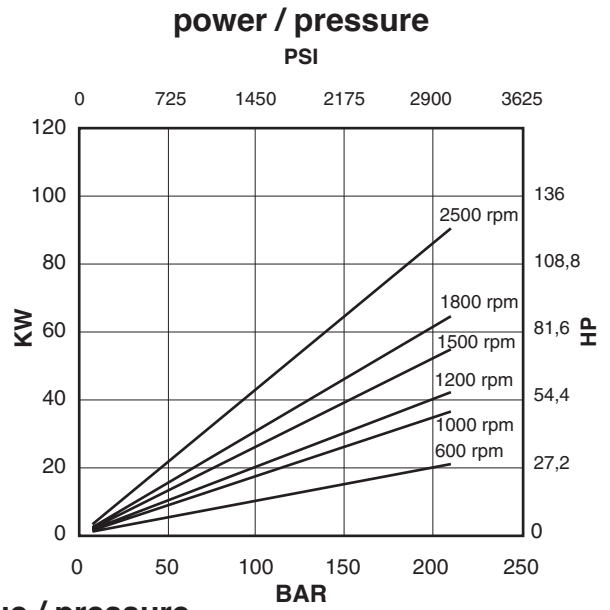
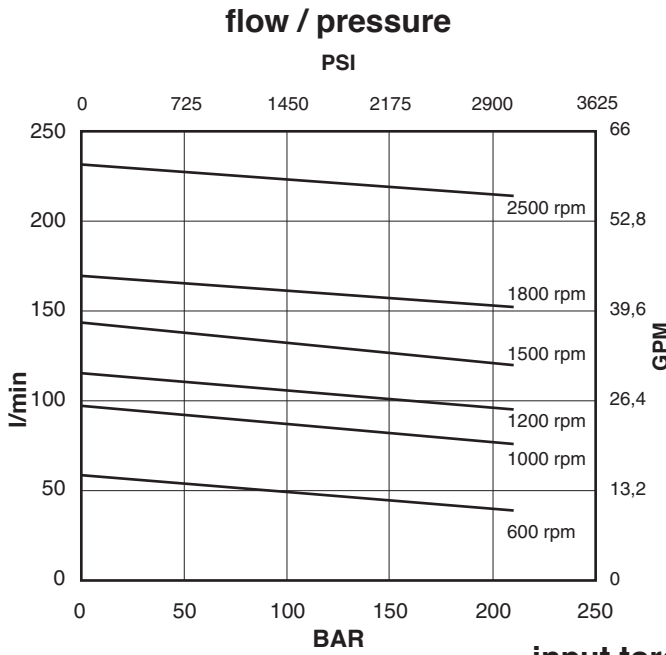
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A04-25



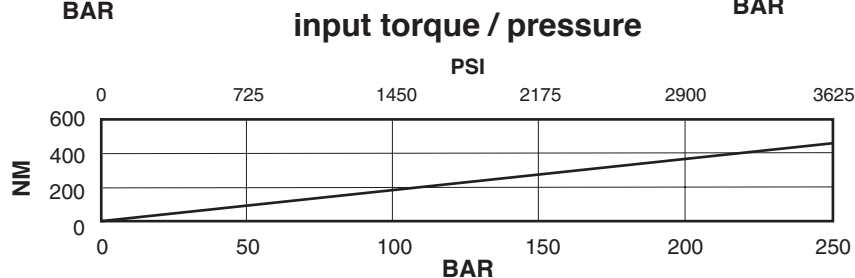
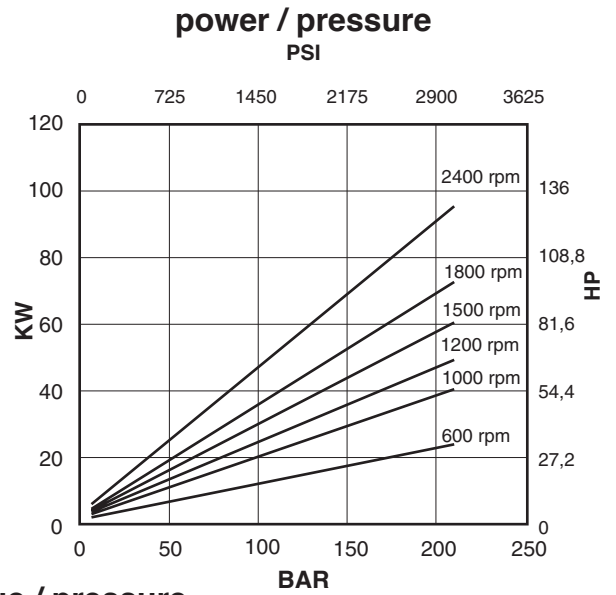
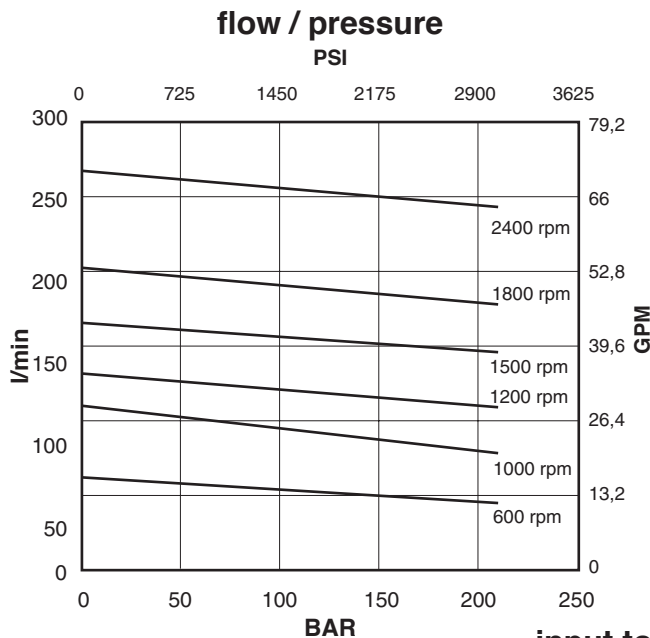
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A04-30



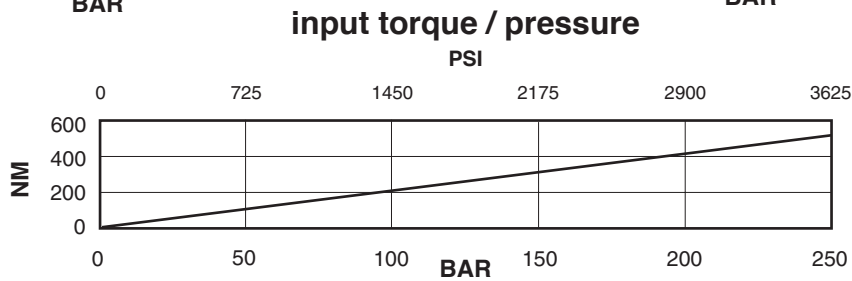
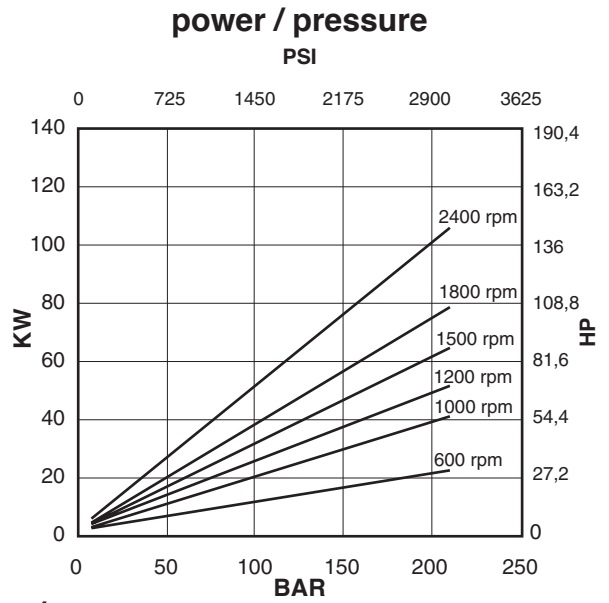
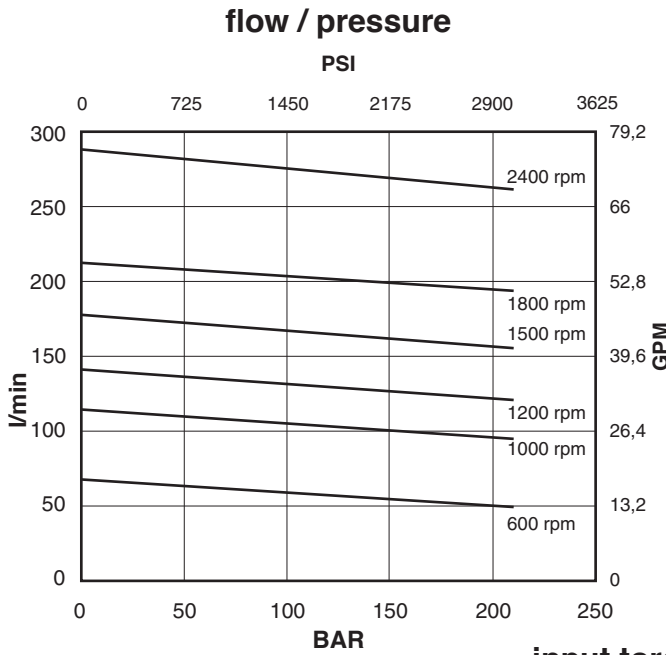
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A04-35



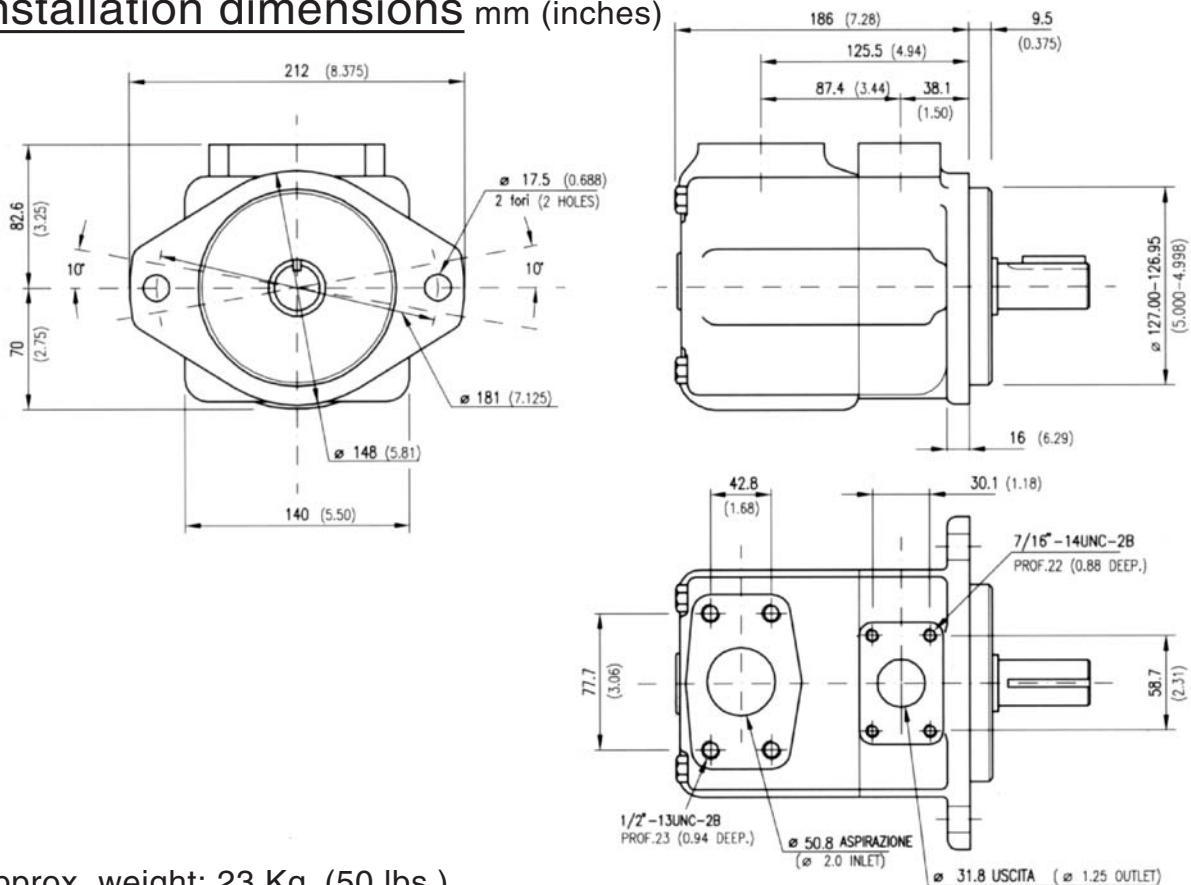
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A04-38



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

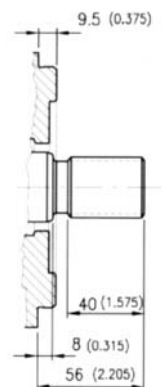
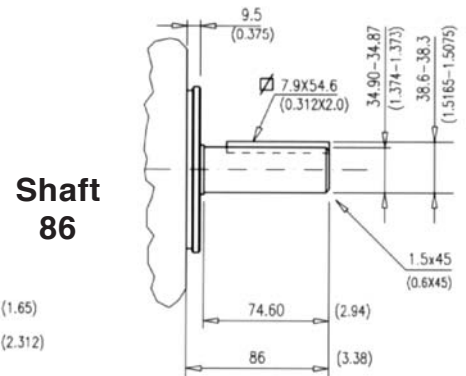
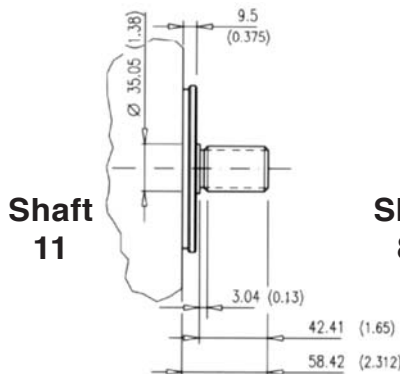
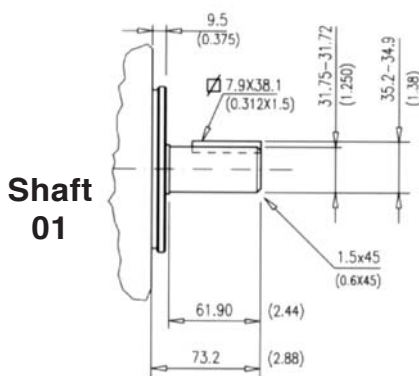


Approx. weight: 23 Kg. (50 lbs.)

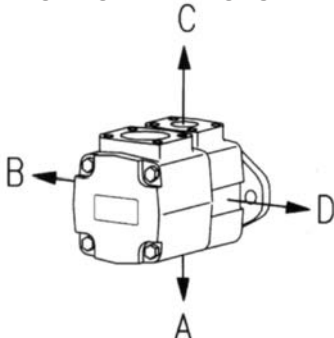
Model code breakdown

| | | | | | | | | | | |
|---|-----------|----------|----------|----------|----------|----------|----------|------------|------------------------------------|---|
| BQ | 04 | G | * | * | * | * | * | (L) | * | (A) |
| Pump series | | Design | | | | | | | Mounting (omit if not required) | |
| Pump type | | | | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) V = seals and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®) |
| Cartridge type | | | | | | | | | | Rotation (viewed from shaft end) L = left hand rotation CCW (omit if CW) |
| 21 25 30 35 38 | | | | | | | | | | Shaft end options 01 = Straight with key (standard), 11 = Splined 86 = Heavy duty straight keyed, 90 = Splined SAE C |
| Outlet port positions (outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet | | | | | | | | | | |

Shaft options mm (inches)



PORT ORIENTATIONS



Spline data (Shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |

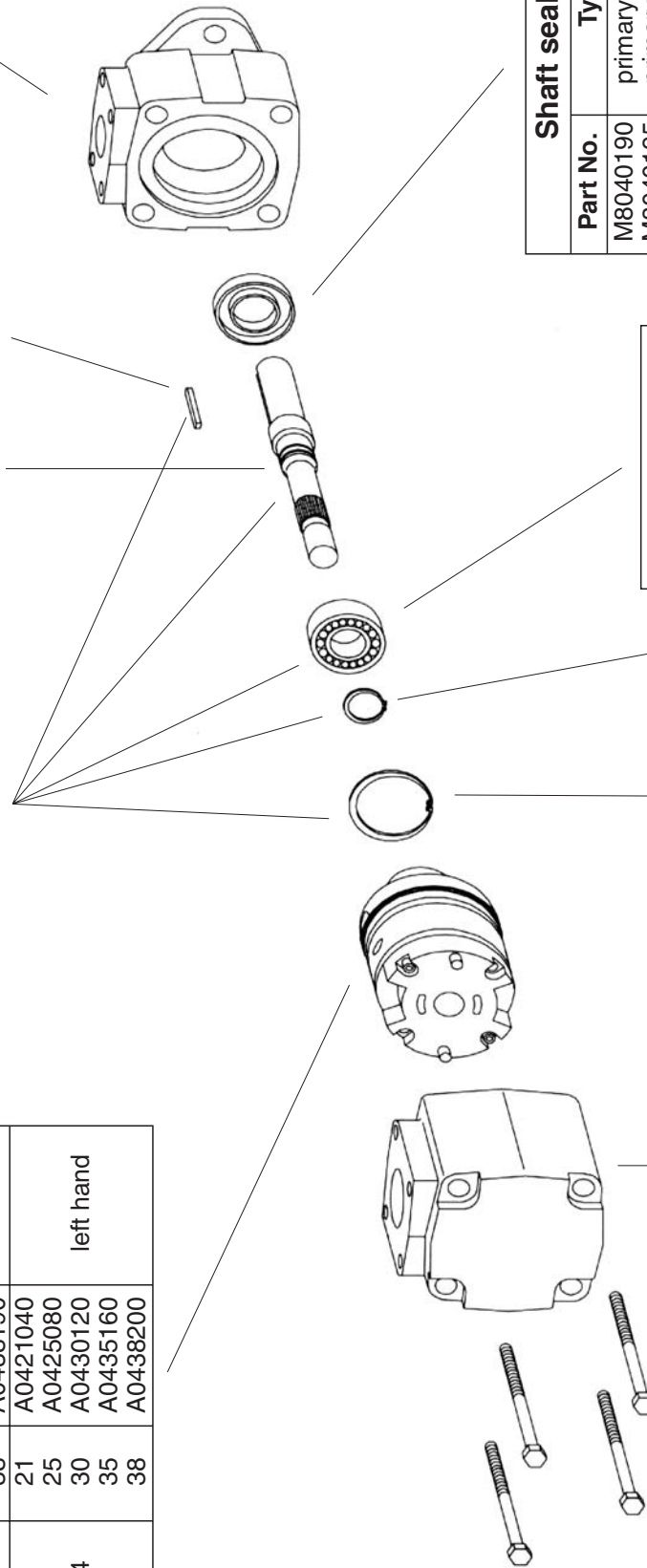
Id. codes of pump components

| Cartridge | | | |
|-----------|-------|----------|-------------|
| Series | Model | Part No. | Pump rotat. |
| A04 | 21 | A0421030 | right hand |
| | 25 | A0425070 | |
| | 30 | A0430110 | |
| | 35 | A0435150 | |
| | 38 | A0438190 | |
| A04 | 21 | A0421040 | left hand |
| | 25 | A0425080 | |
| | 30 | A0430120 | |
| | 35 | A0435160 | |
| | 38 | A0438200 | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8040601 |
| 11 | M8040611 |
| 86 | M8040686 |
| 90 | M8040690 |

| Shaft | | Key | |
|-------|----------|-----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0401000 | M80401000 | M8040100 |
| 11 | K0411000 | - | - |
| 86 | K0486000 | M80486000 | M8048600 |
| 90 | K0490000 | - | - |

| Body | |
|----------|----------|
| Part No. | Part No. |
| M8040140 | M8040140 |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8040190 | primary in NBR |
| M8040195 | primary in FPM |
| M8040191 | secondary in NBR |
| M8040196 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| M8040160 | M8040160 |

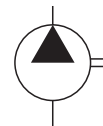
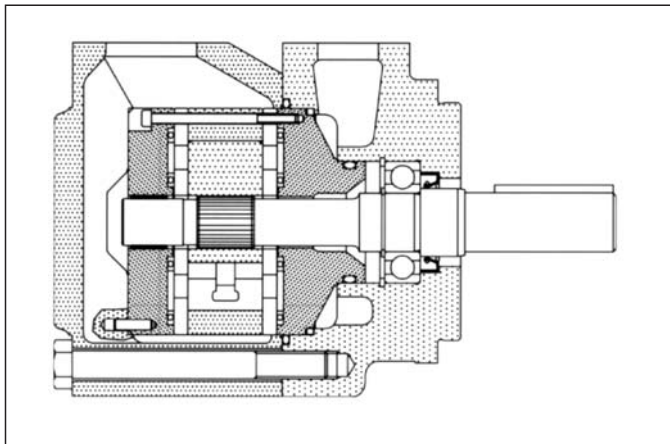
| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040180 | M8040180 |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040170 | M8040170 |

| Cover | |
|----------|----------|
| Part No. | Part No. |
| M8040150 | M8040150 |

| Screw | |
|---------------------------------|----------|
| Part No. | Part No. |
| M8040200 | M8040200 |
| Torque to 225 Nm (2010 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8040241 | seals + 1 shaft seal | NBR |
| M8040242 | seals + 2 shaft seals | NBR |
| M8040243 | seals + 1 shaft seal | FPM (Viton®) |
| M8040244 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five versions with capacities from 164 to 230 l/min (from 42 to 60 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 2200 |
| A05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 2200 |
| A05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 2200 |
| A05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 2200 |
| A05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 2200 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

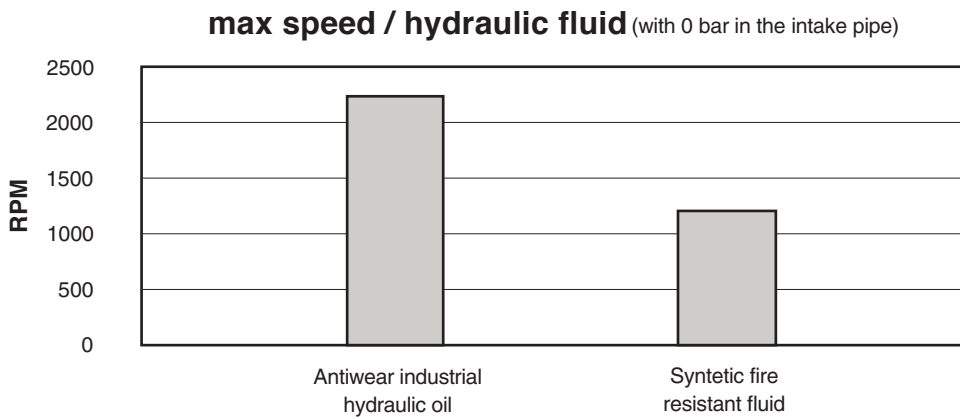
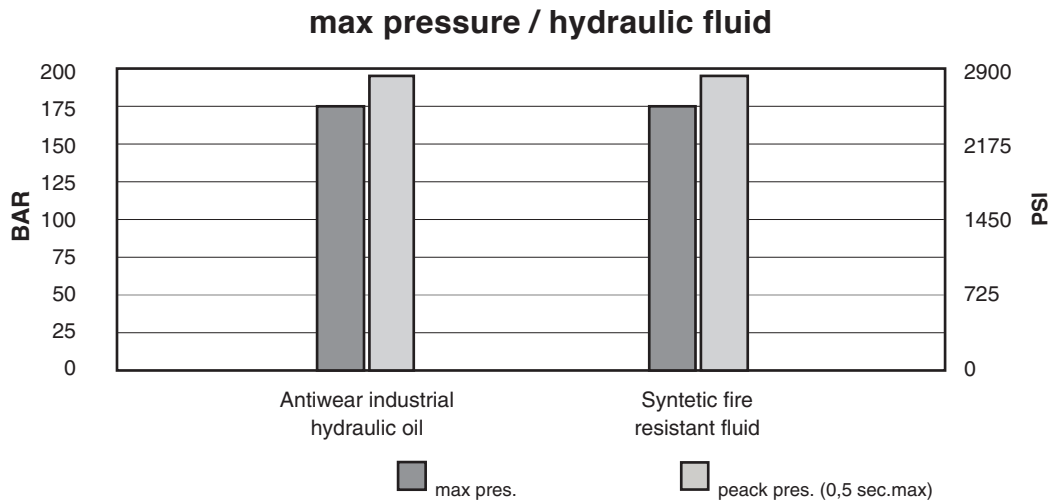
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

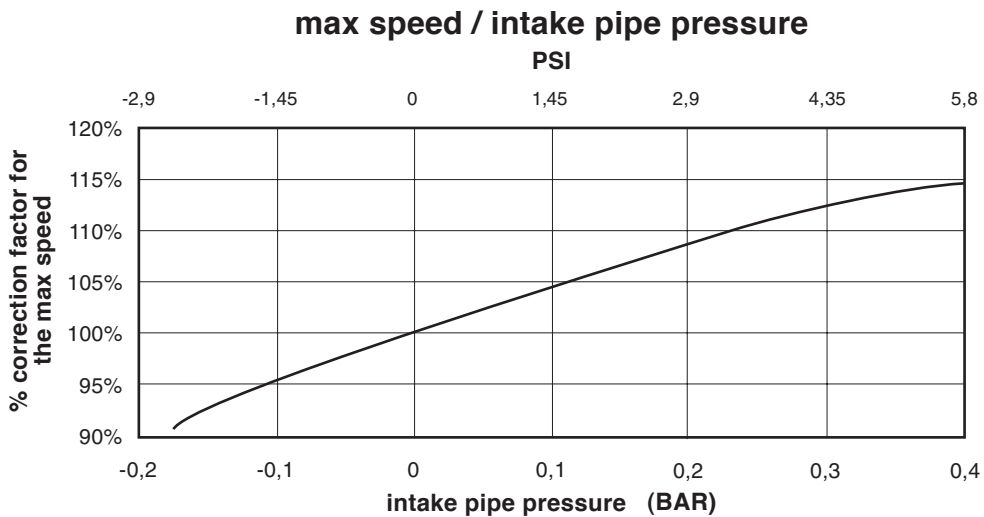
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

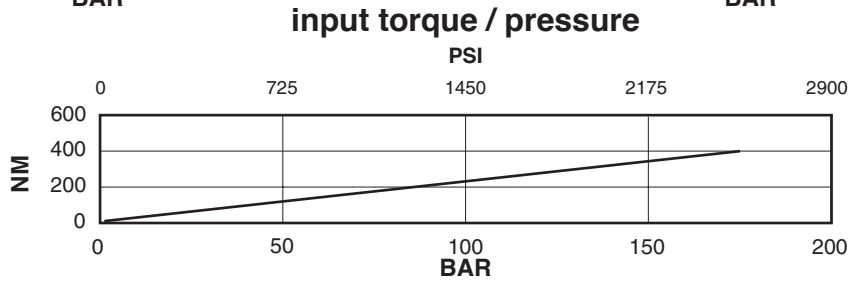
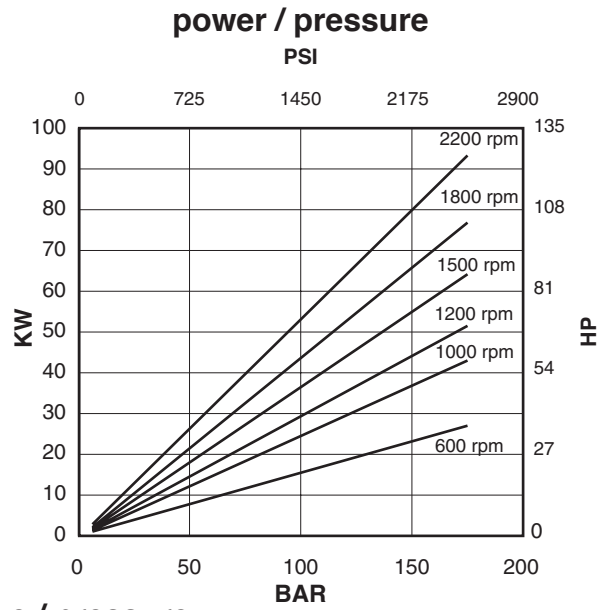
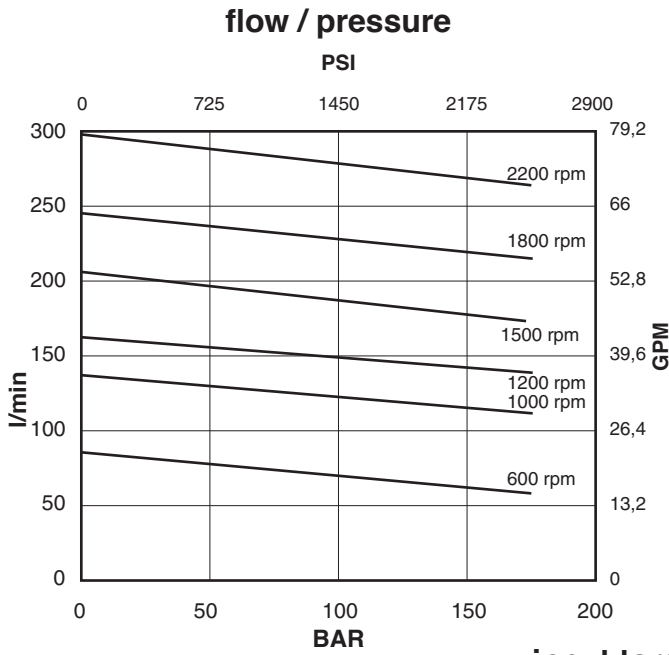
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

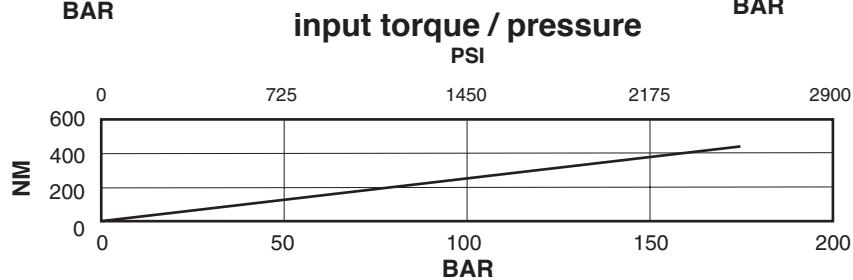
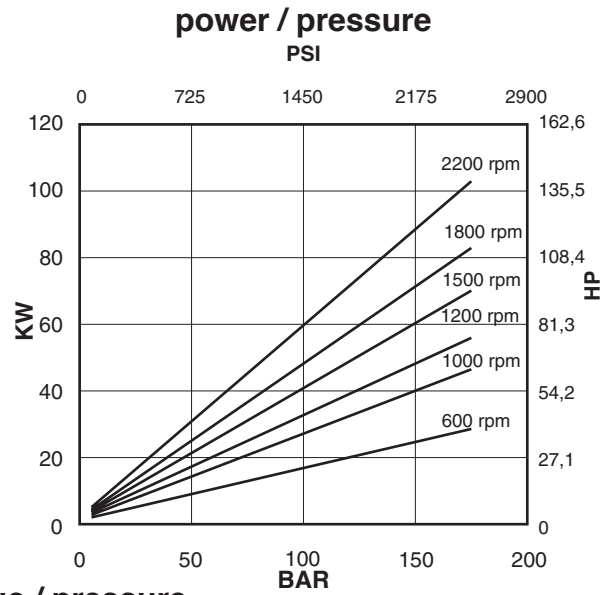
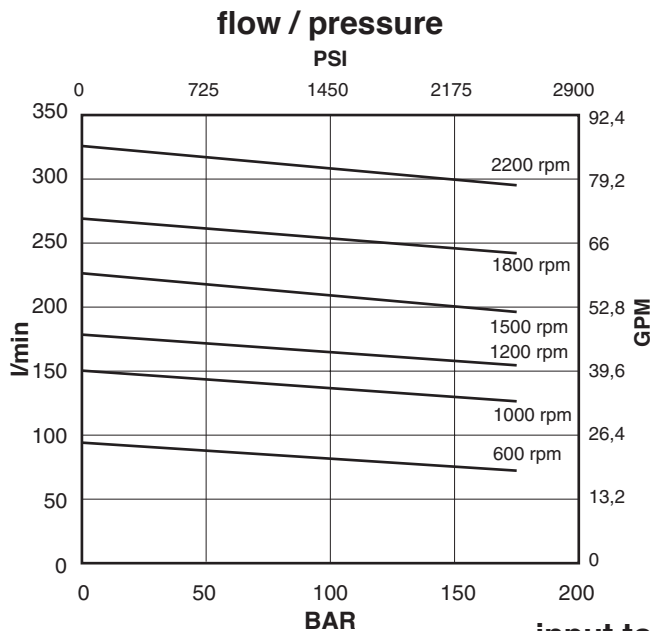


Cartridge A05-42



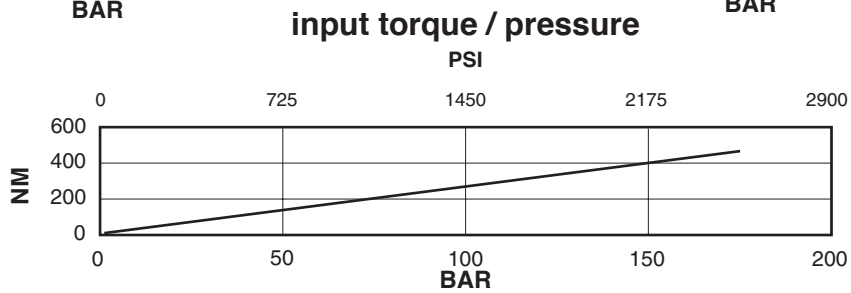
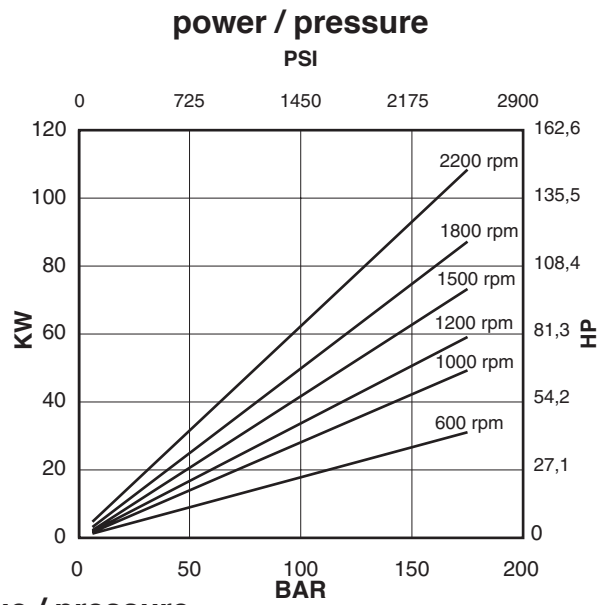
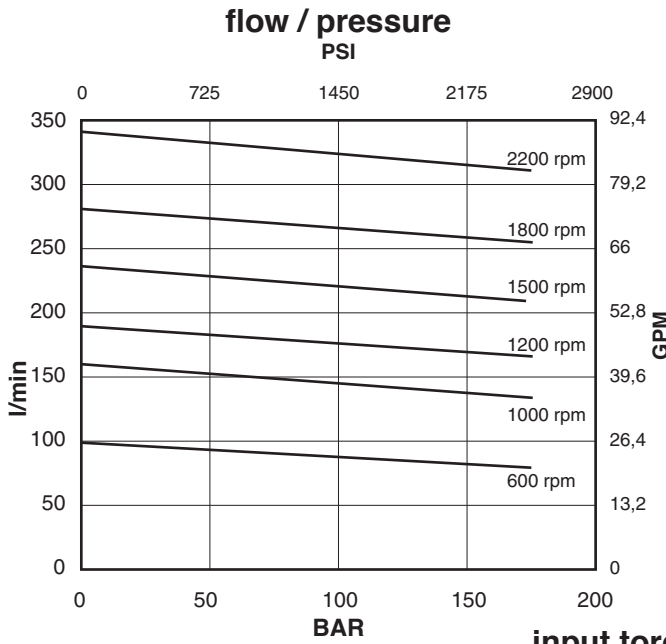
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A05-47



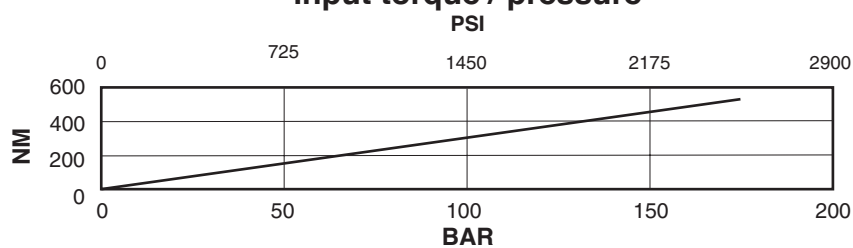
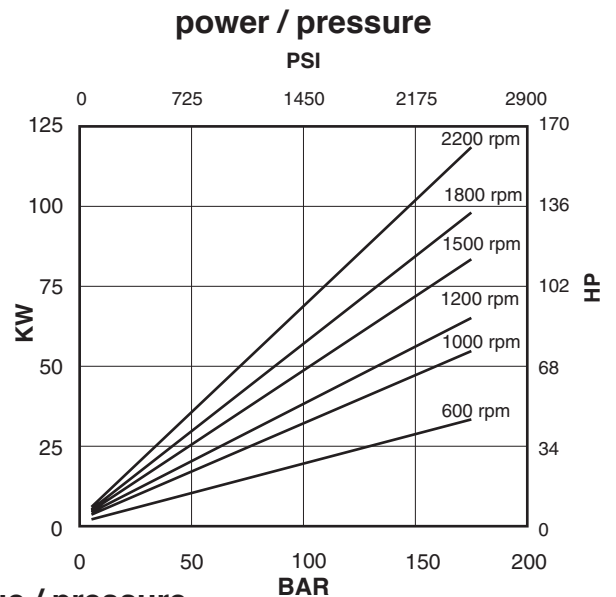
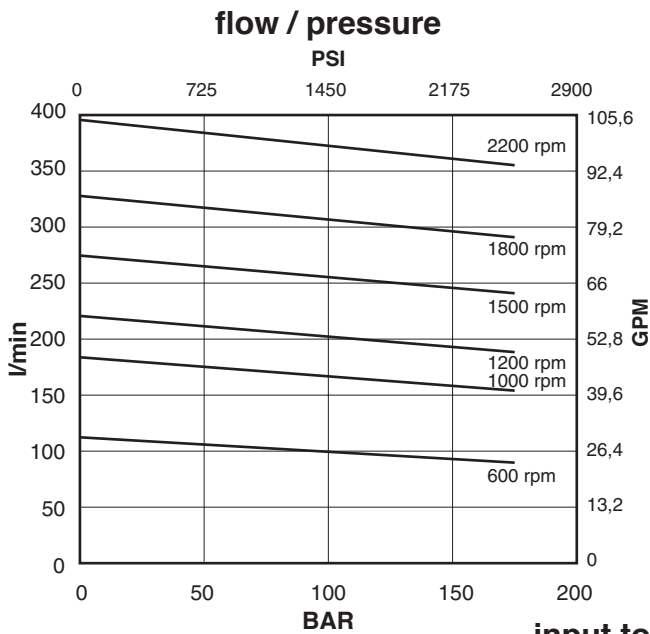
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A05-50



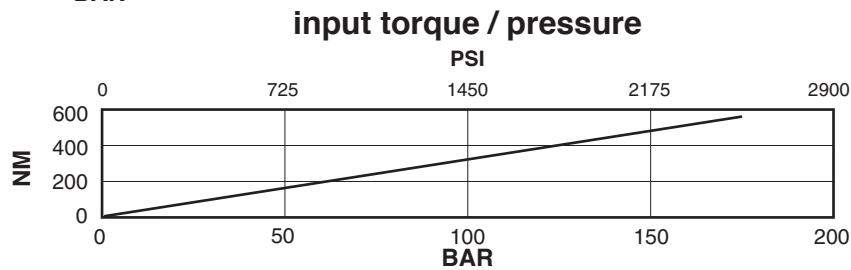
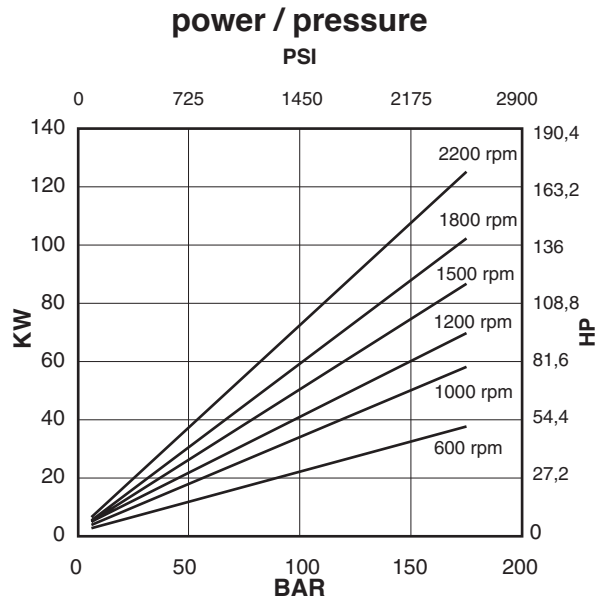
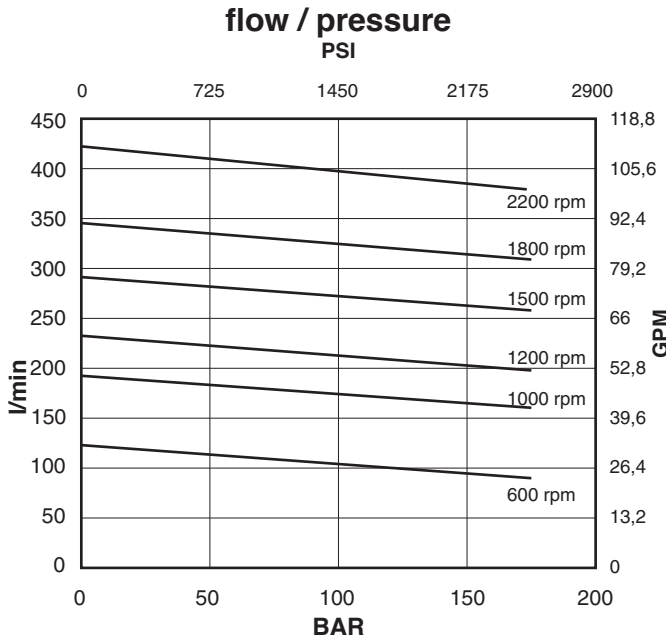
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A05-57



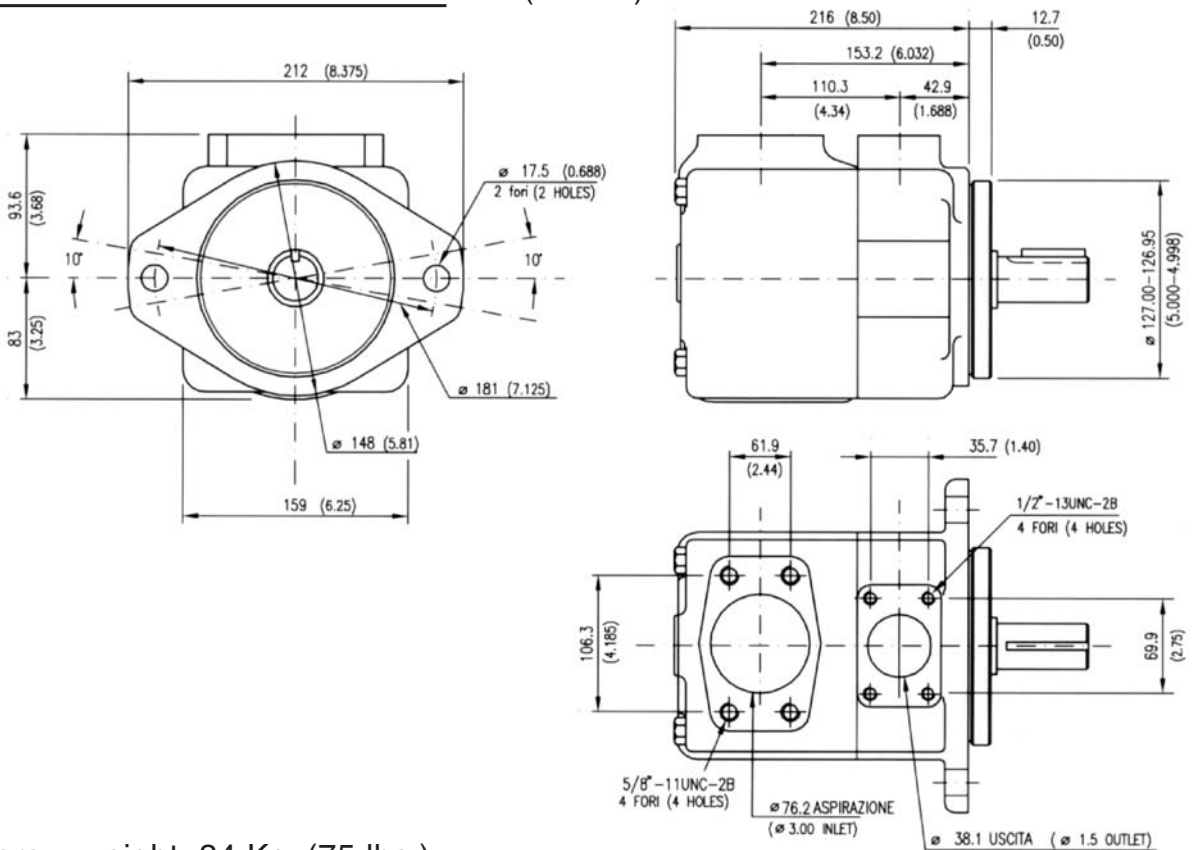
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A05-60



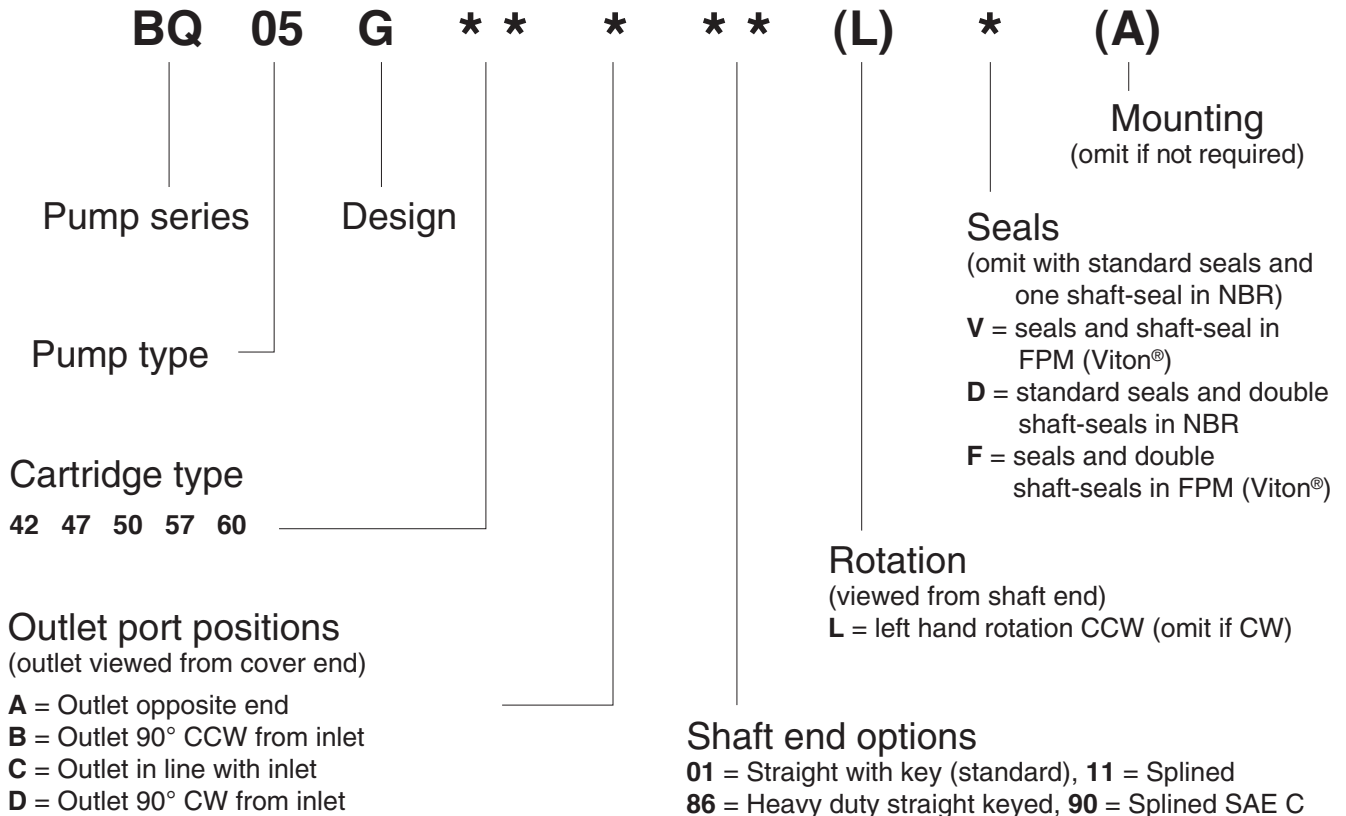
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

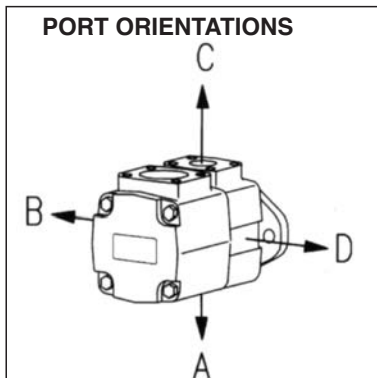
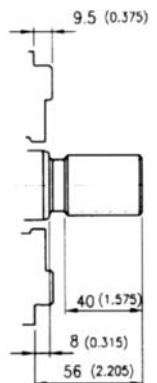
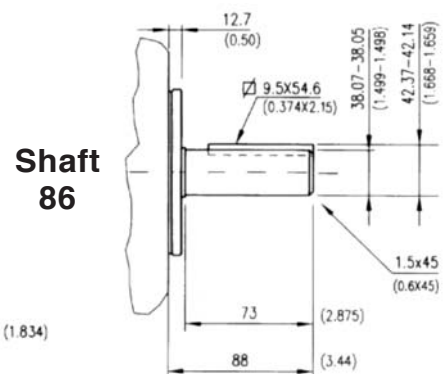
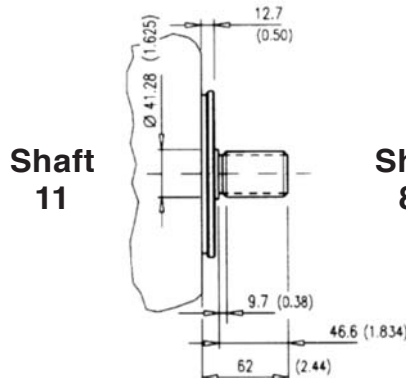
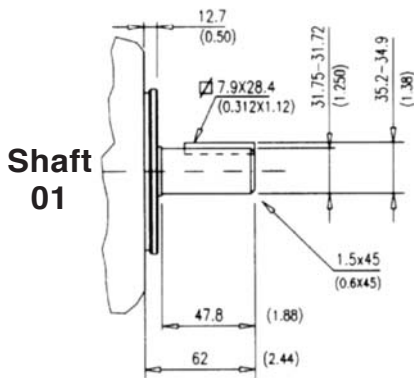


Approx. weight: 34 Kg. (75 lbs.)

Model code breakdown



Shaft options mm (inches)



| | |
|-------------------------|-------------------------------|
| Spline data | |
| (Shaft 11 and shaft 90) | |
| Spline | Involute side fit (ASA B5.15) |
| Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 |
| Major dia. | 31.60 - 31.50 (1.244 - 1.240) |
| Pitch dia. | 29.634 (1.1667) |
| Minor dia. | 26.99 - 26.66 (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 (0.617 - 0.619) |

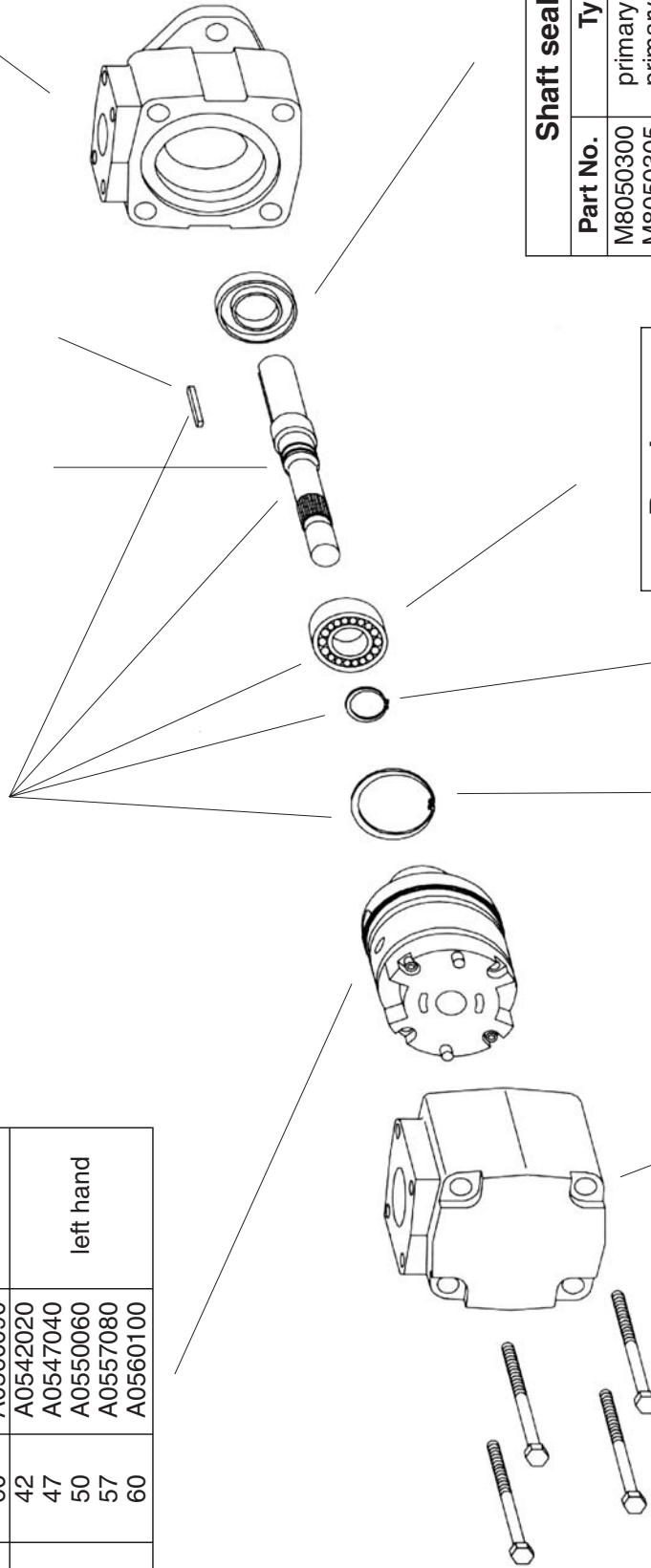
Id. codes of pump components

| Cartridge | | | |
|-----------|-------|----------|-------------|
| Series | Model | Part No. | Pump rotat. |
| A05 | 42 | A0542010 | right hand |
| | 47 | A0547030 | |
| | 50 | A0550050 | |
| | 57 | A0557070 | |
| | 60 | A0560090 | |
| A05 | 42 | A0542020 | left hand |
| | 47 | A0547040 | |
| | 50 | A0550060 | |
| | 57 | A0557080 | |
| | 60 | A0560100 | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8050601 |
| 11 | M8050611 |
| 86 | M8050686 |
| 90 | M8050690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0501000 | M8050100 | |
| 11 | K0511000 | - | |
| 86 | K0586000 | M8058600 | |
| 90 | K0590000 | - | |

| Body | |
|----------|----------|
| Part No. | Part No. |
| | M8050250 |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| | M8050270 |

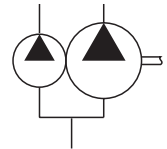
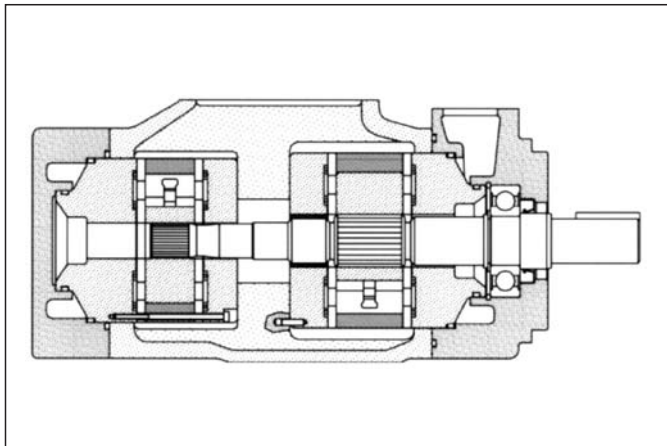
| Seeger | |
|----------|----------|
| Part No. | Part No. |
| | M8050290 |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| | M8050280 |

| Cover | |
|----------|----------|
| Part No. | Part No. |
| | M8050260 |

| Screw | |
|---------------------------------|----------|
| Part No. | Part No. |
| | M8050310 |
| Torque to 398 Nm (3550 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8050411 | seals + 1 shaft seal | NBR |
| M8050412 | seals + 2 shaft seals | NBR |
| M8050413 | seals + 1 shaft seal | FPM (Viton®) |
| M8050414 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 55 to 134 l/min (*from 14 to 35 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| A02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 210 | (3050) | 600 | 2700 |
| A02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 210 | (3050) | 600 | 2700 |
| A02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 210 | (3050) | 600 | 2500 |
| A02-19 | 60,0 | (3.66) | 71,0 | (19) | 88,7 | (23.4) | 210 | (3050) | 600 | 2500 |
| A02-21 | 67,5 | (4.12) | 79,0 | (21) | 99,8 | (26.4) | 210 | (3050) | 600 | 2500 |
| cover end | | | | | | | | | | |
| A01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| A01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| A01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| A01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| A01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| A01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| A01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (*with mineral oil*): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

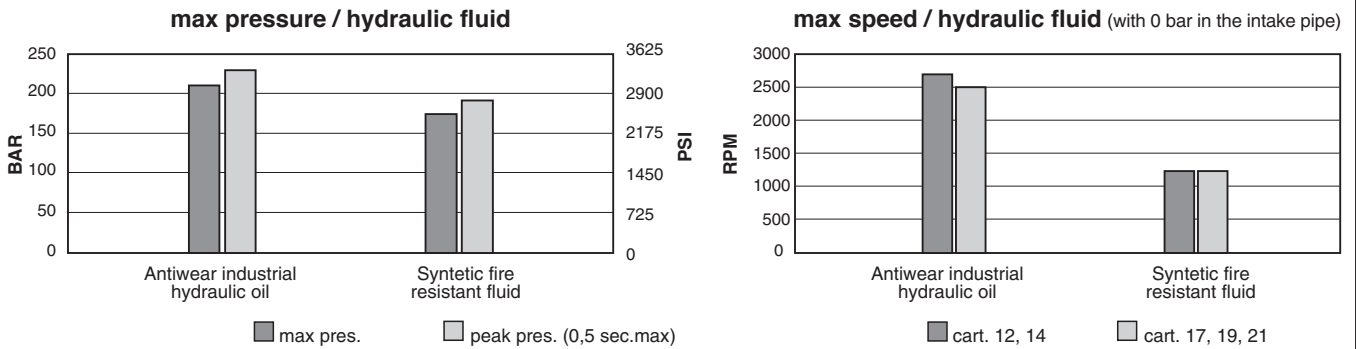
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

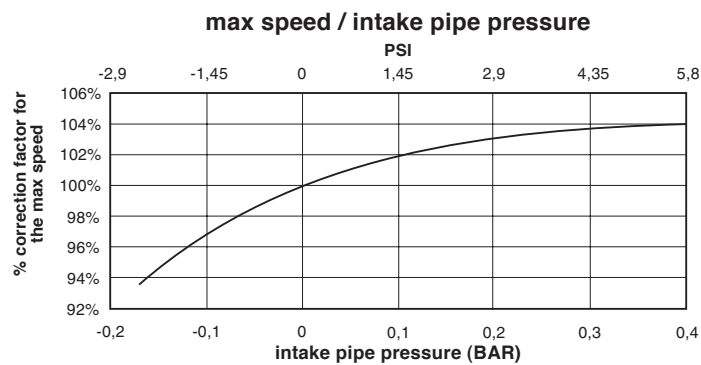
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

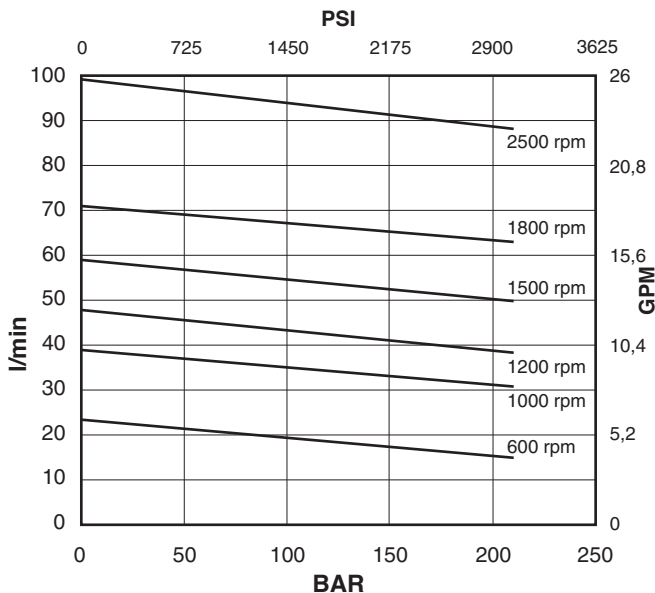
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

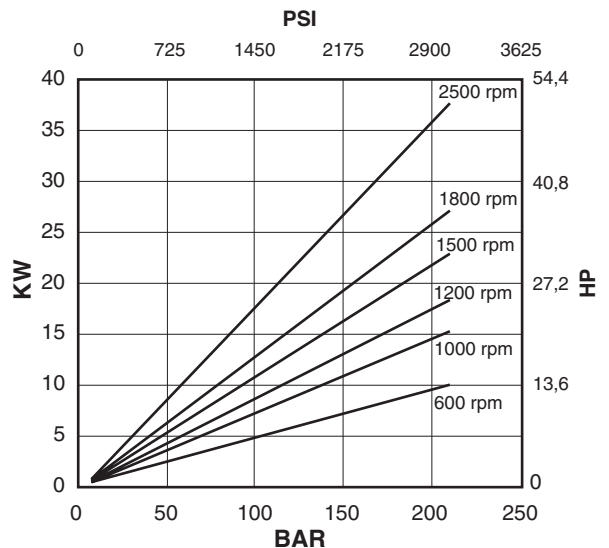


flow / pressure

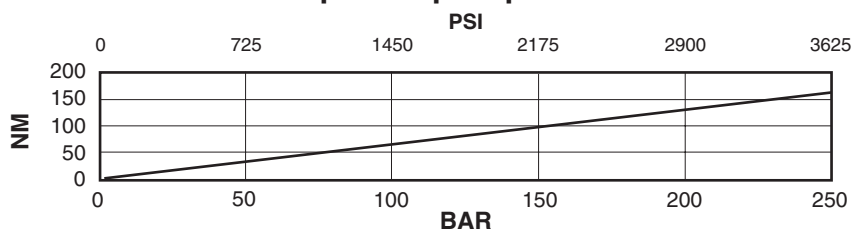


Shaft end cartridge A02-12

power / pressure

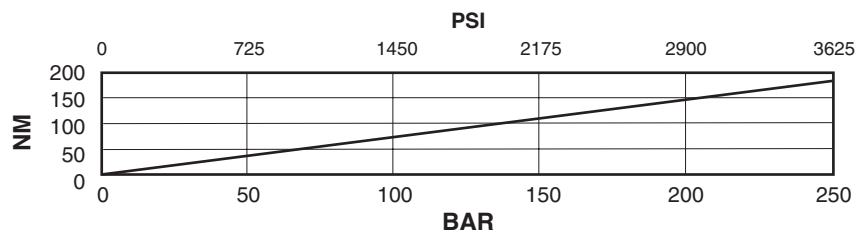
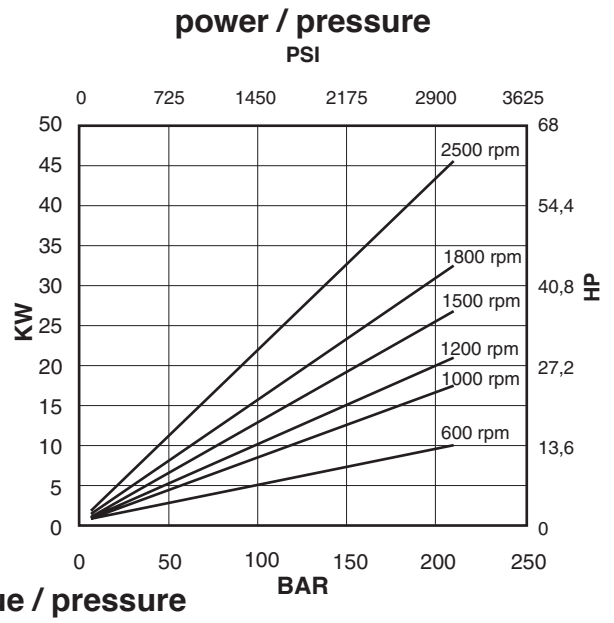
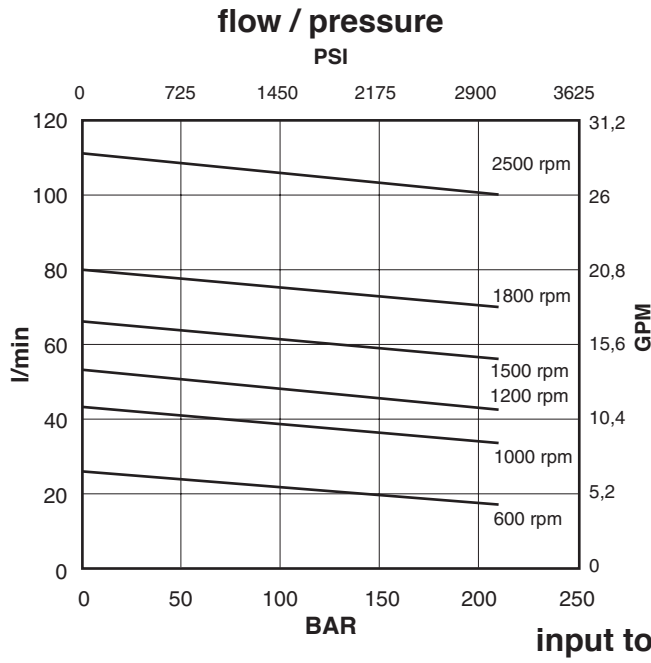


input torque / pressure



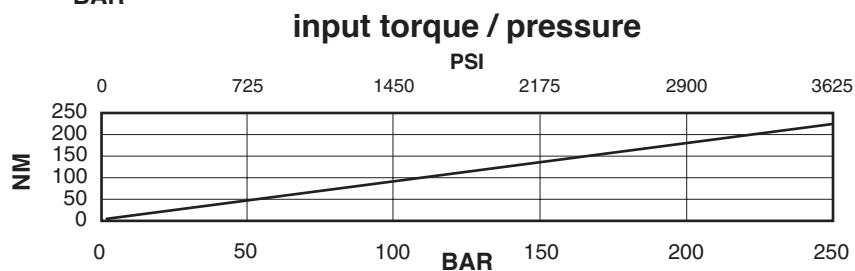
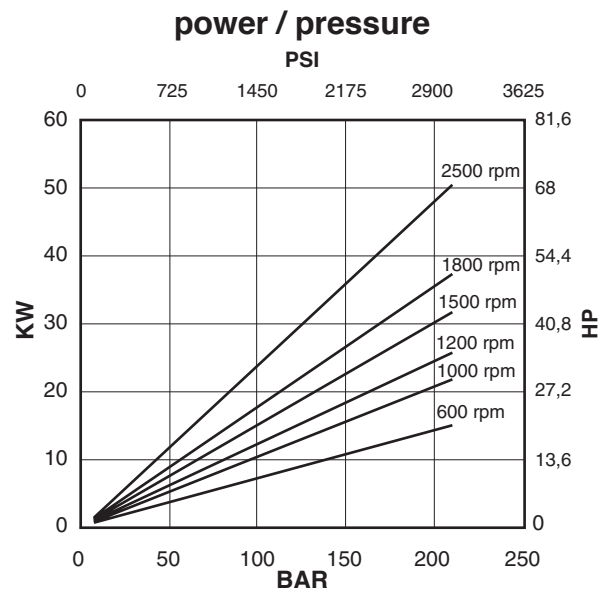
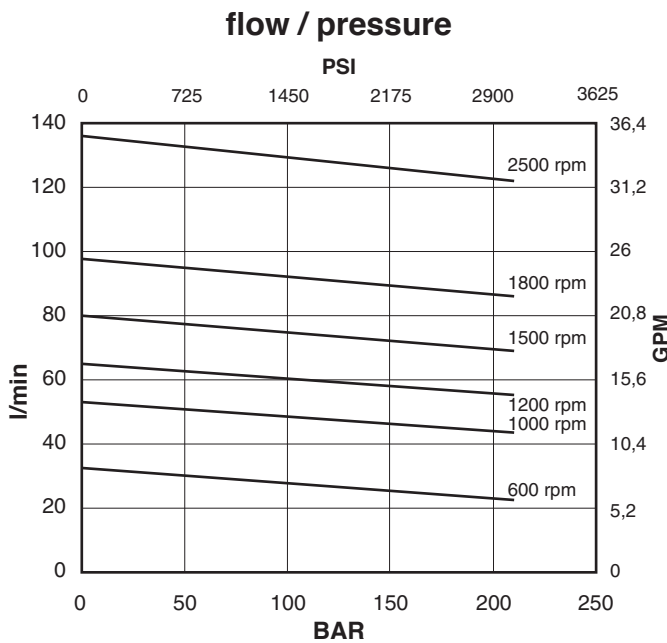
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A02-14



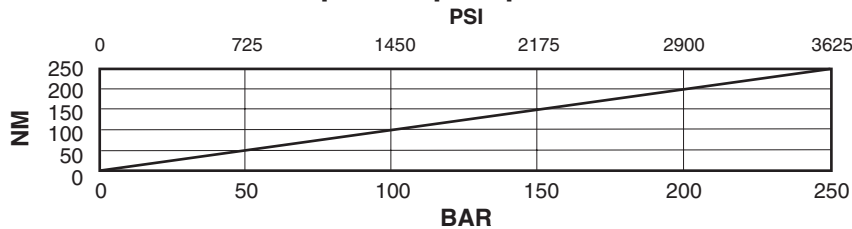
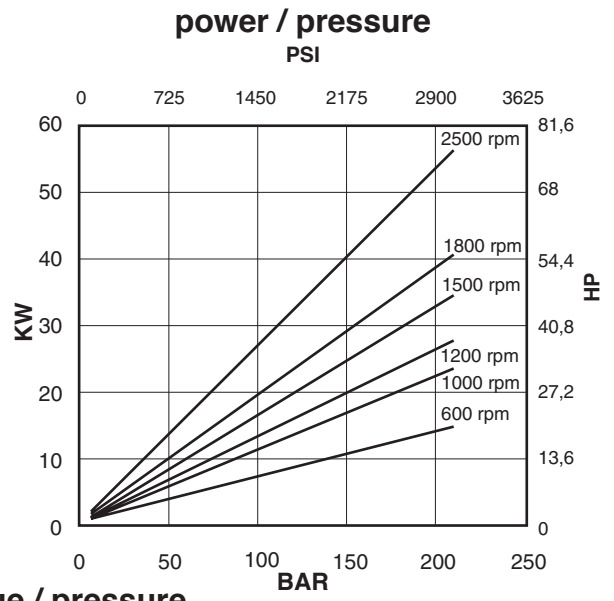
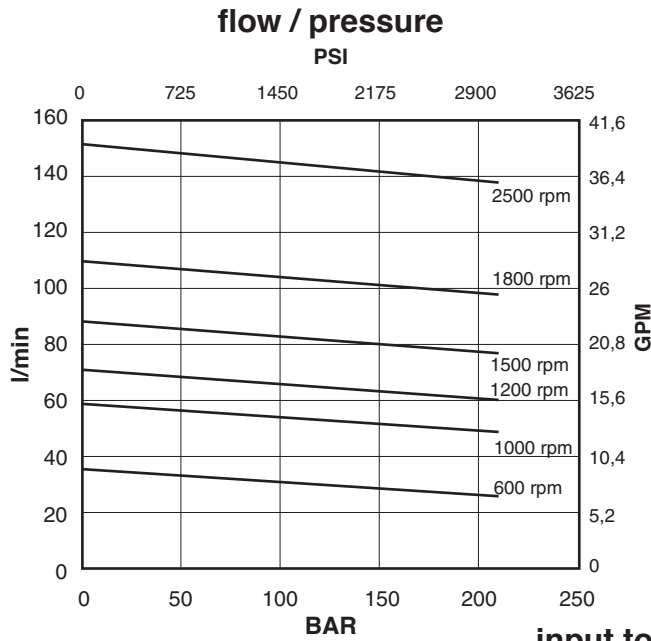
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A02-17



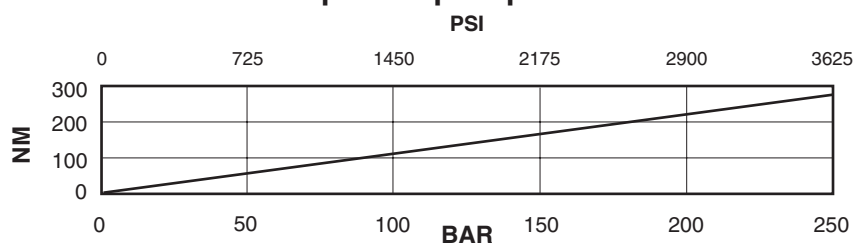
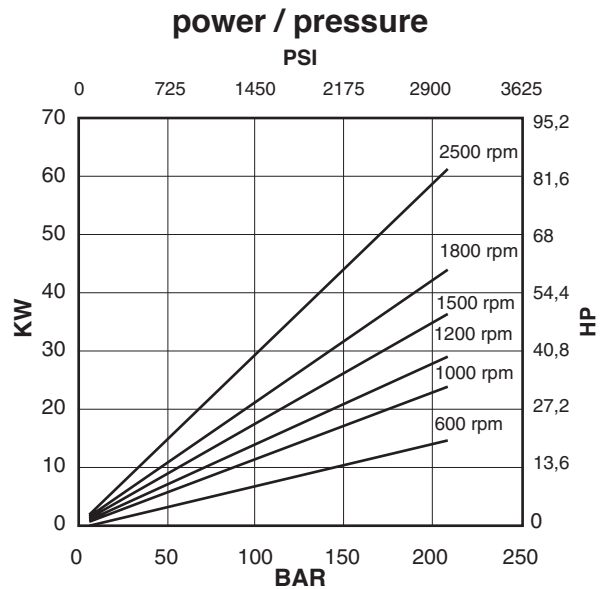
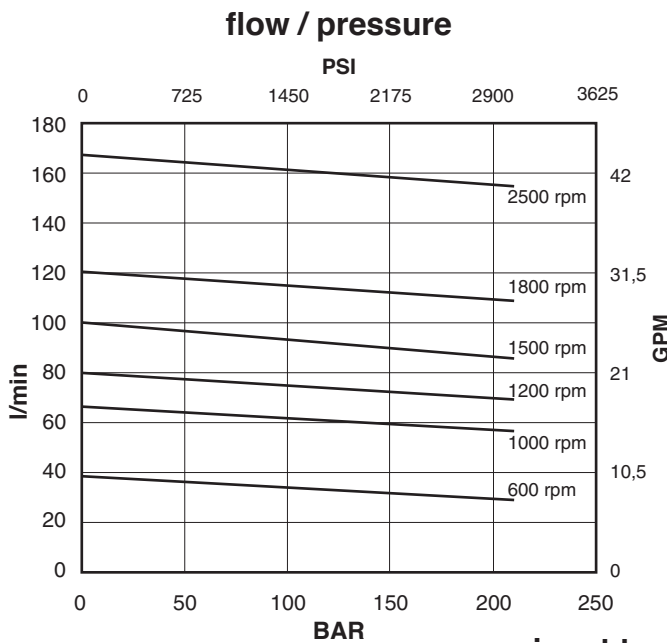
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A02-19



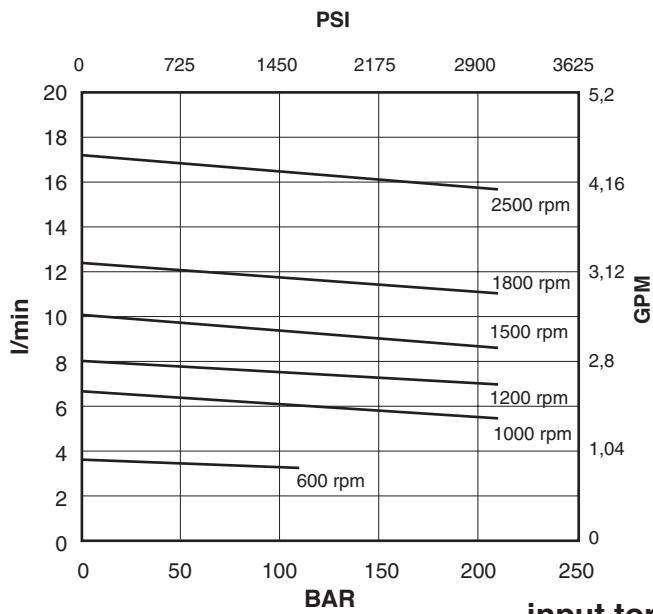
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A02-21



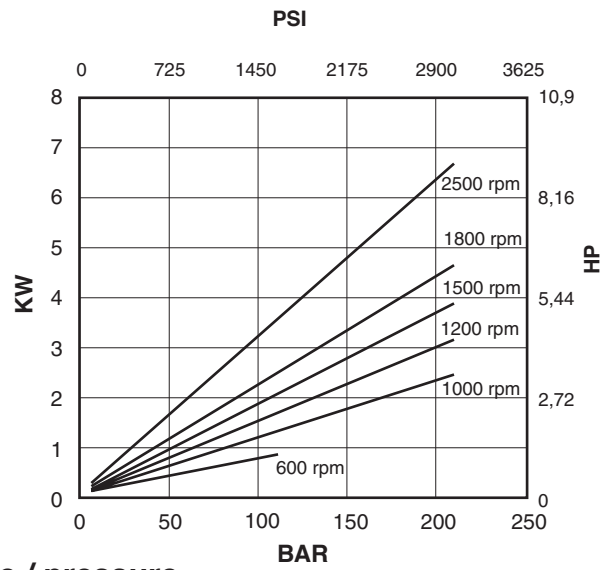
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

flow / pressure

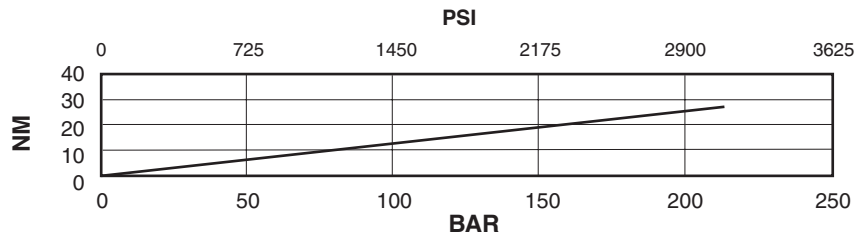


Cover end cartridge A01-02

power / pressure

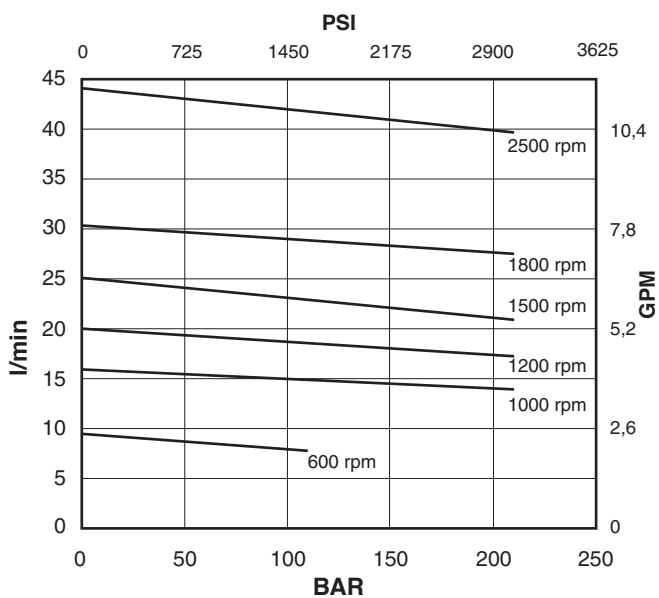


input torque / pressure



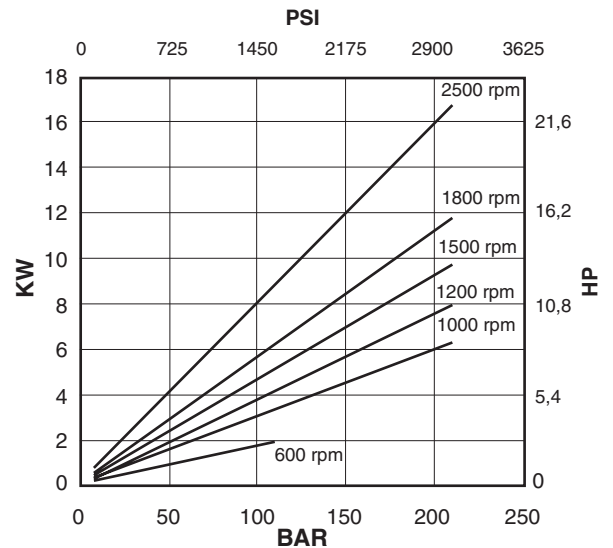
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

flow / pressure

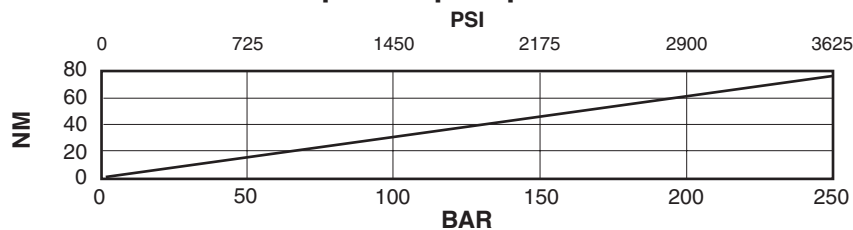


Cover end cartridge A01-05

power / pressure

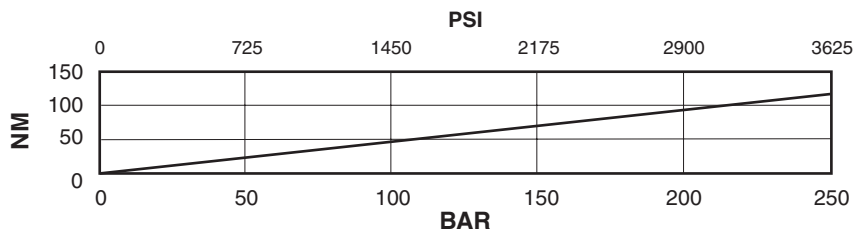
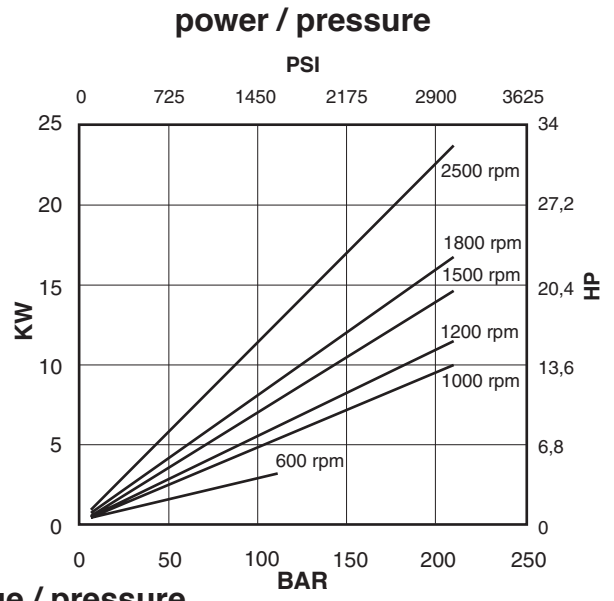
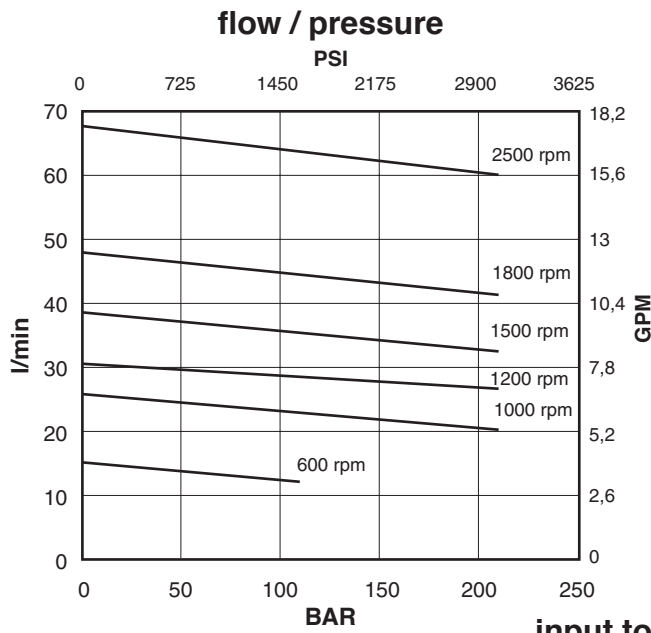


input torque / pressure



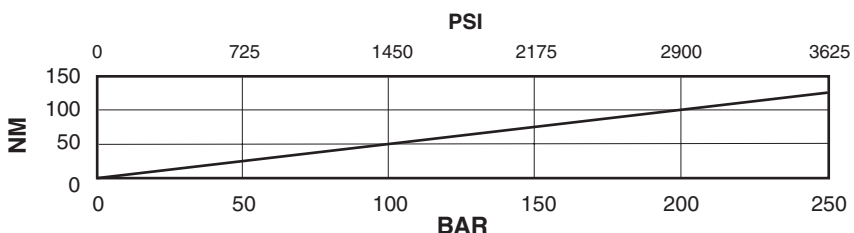
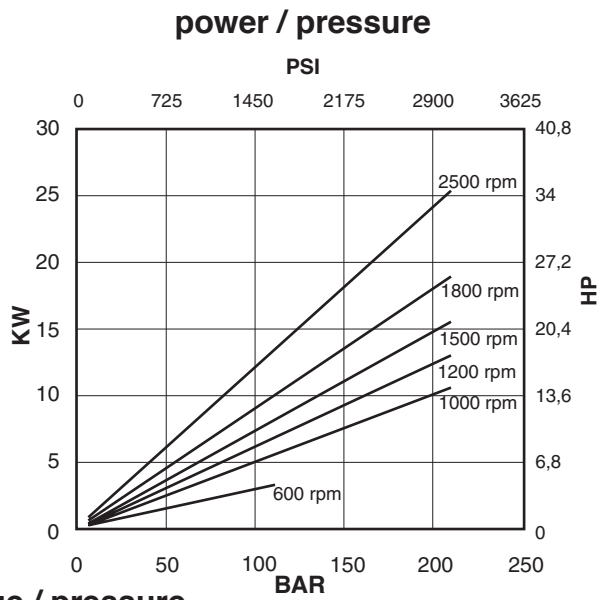
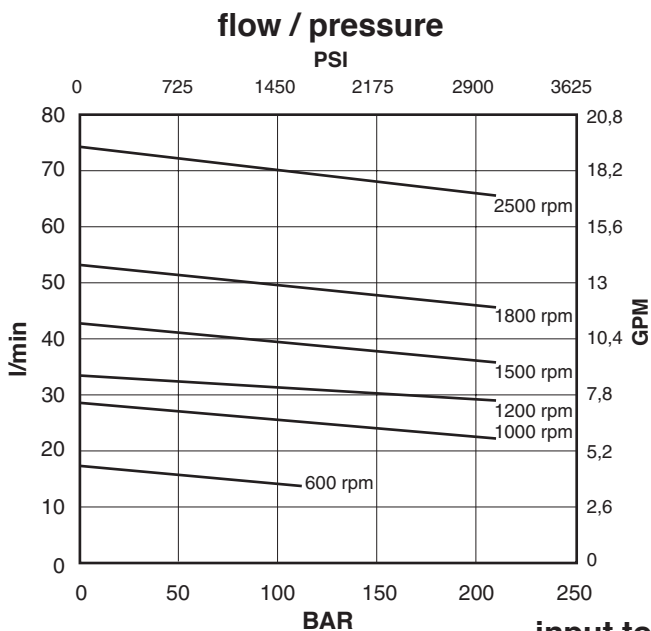
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08



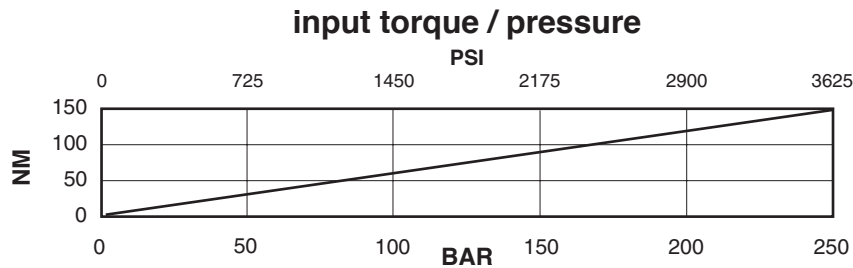
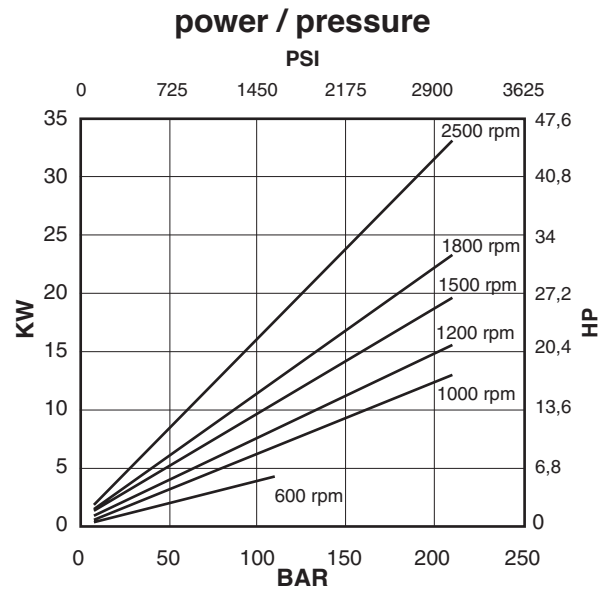
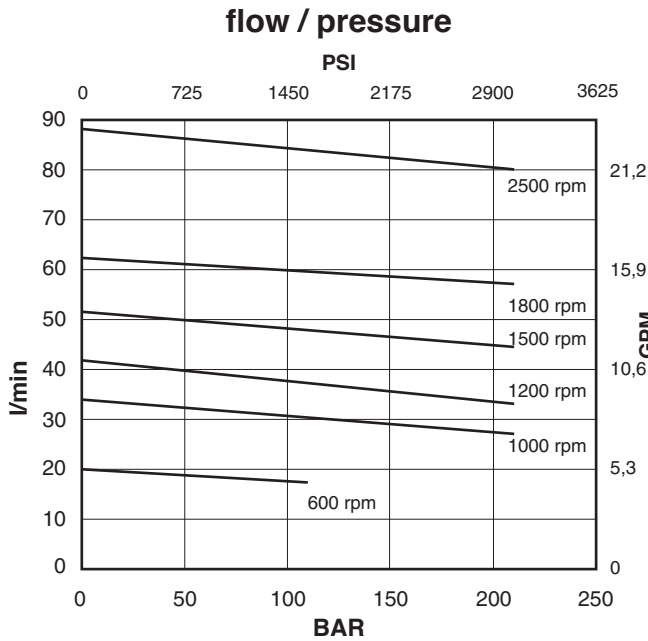
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-09



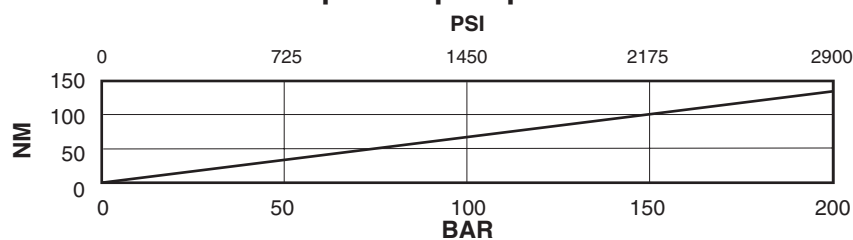
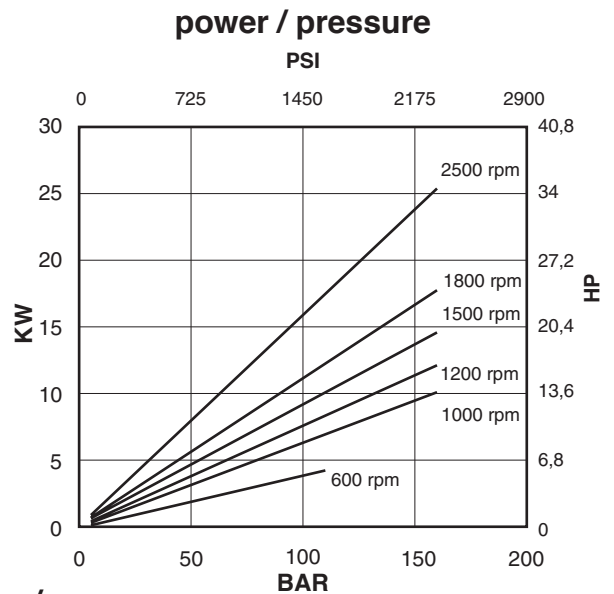
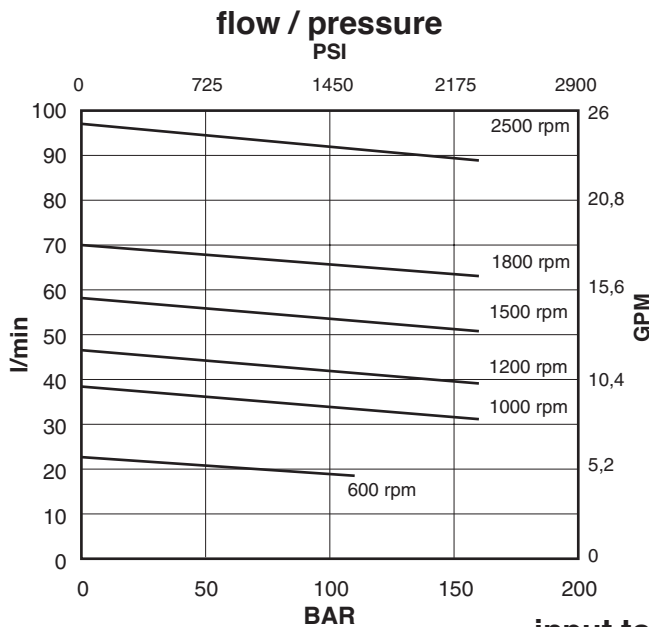
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-11



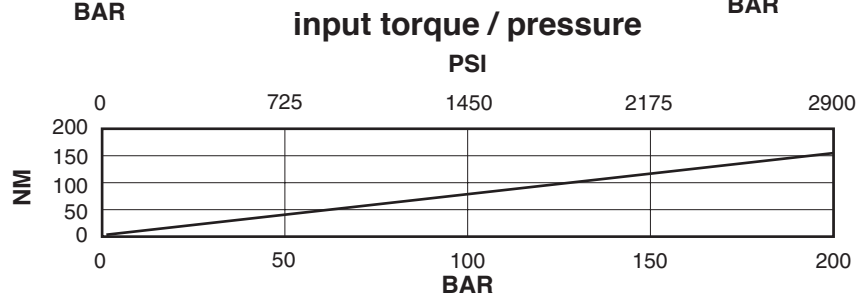
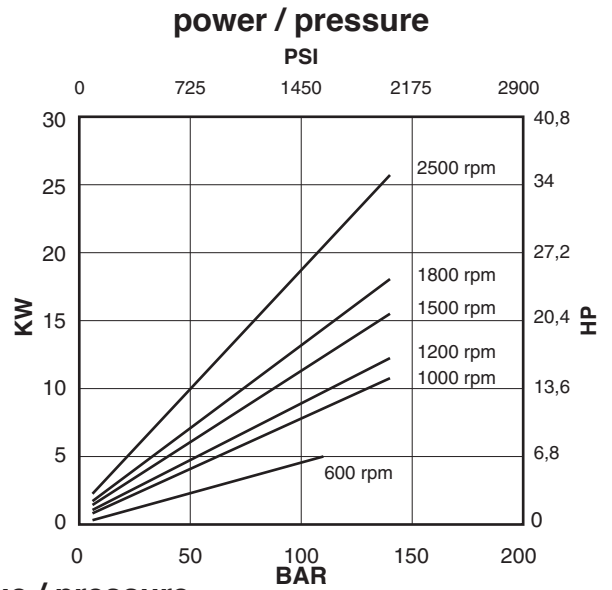
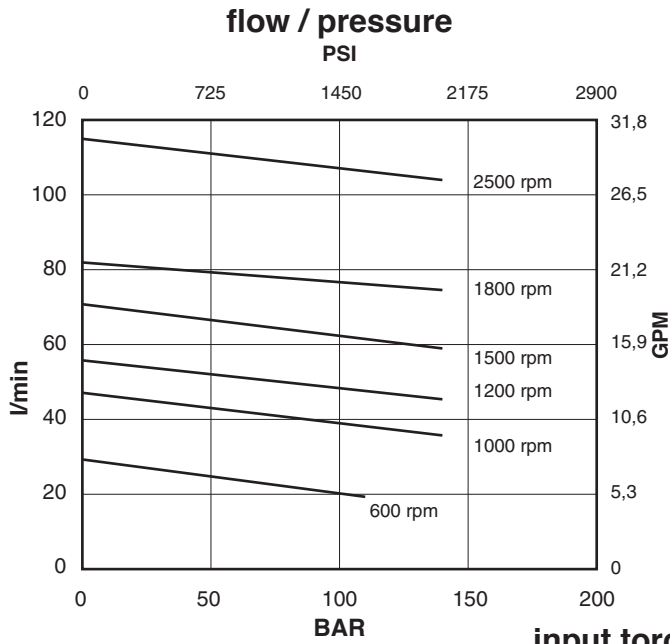
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-12



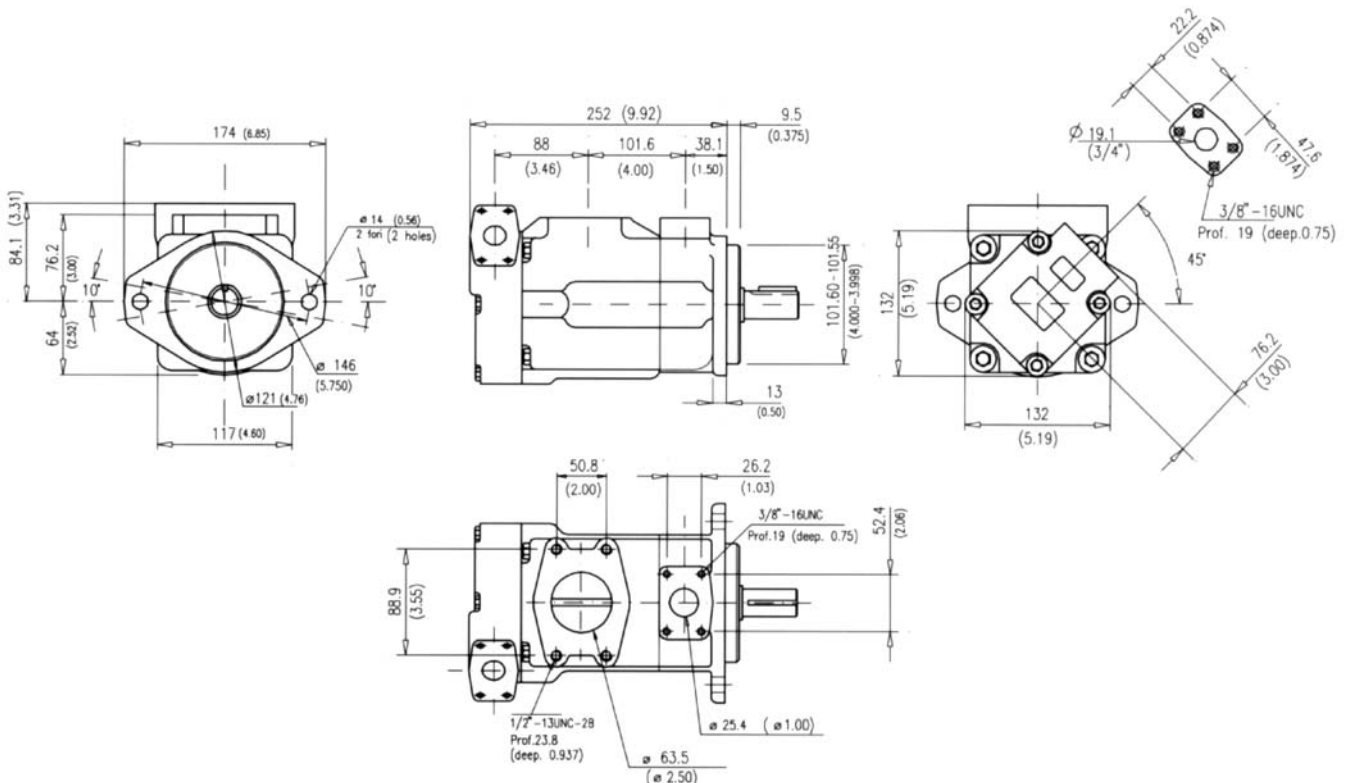
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-14



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

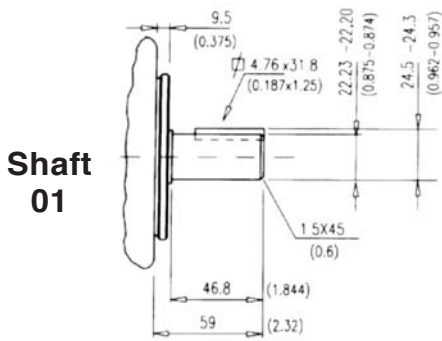


Approx. weight: 20,5 Kg. (45 lbs.)

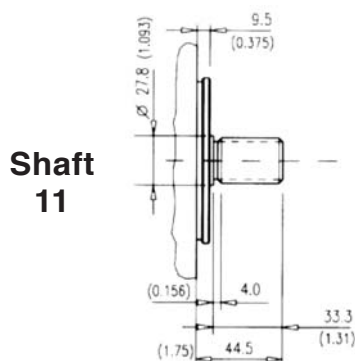
Model code breakdown

| | | | | | | | | | | | |
|--|-----------|----------|-----------|-----------|----------|----------|-----------|---|--|-------------------------------------|--|
| BQ | 21 | G | ** | ** | * | * | ** | (L) | * | (A) | |
| Pump series | | Design | | | | | | | Mounting (omit if not required) | | |
| Pump type | | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) | | | |
| Cartridge types | | | | | | | | V = seals and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®) | | | |
| -shaft end | | 12 | 14 | 17 | 19 | 21 | | | | Rotation (viewed from shaft end) | |
| -cover end | | 02 | 05 | 08 | 09 | 11 | 12 | 14 | L = left hand rotation CCW (omit if CW) | | |
| Body outlet port positions (Outlet viewed from cover end) | | | | | | | | | | | |
| A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet | | | | | | | | | | | |
| Cover outlet port positions (Outlet viewed from cover end) | | | | | | | | | | | |
| A = Outlet 135° CCW from inlet B = Outlet 45° CCW from inlet C = Outlet 45° CW from inlet D = Outlet 135° CW from inlet | | | | | | | | | | | |
| | | | | | | | | Shaft end options | | | |
| | | | | | | | | 01 = Straight with key (standard), 11 = Splined 86 = Heavy duty straight keyed, 90 = Splined SAE B | | | |

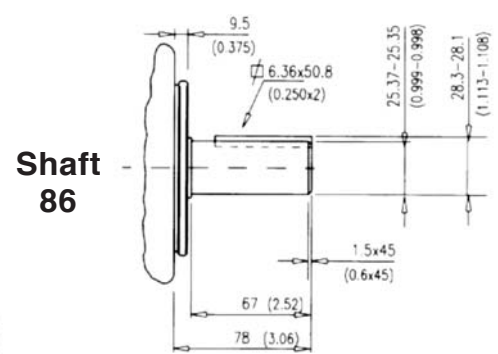
Shaft options mm (inches)



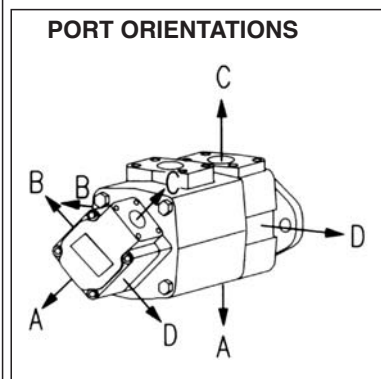
max. torque capability : 320 Nm (2800 lb.in.)



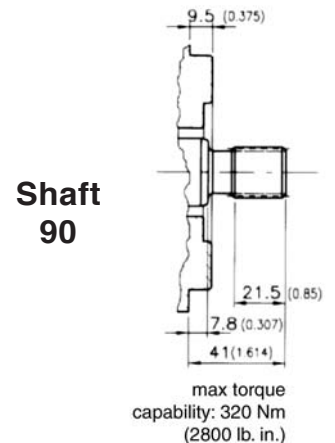
max. torque capability : 320Nm (2800 lb.in.)



max torque capability: 400 Nm (3560 lb. in.)



| | | | |
|--------------------|-------------------------------|-------------------------|--|
| Spline data | | | |
| | | (Shaft 11 and shaft 90) | |
| Spline | Involute side fit (ASA B5.15) | | |
| Pressure angle | 30° | | |
| No. of teeth | 13 | | |
| Pitch | 16/32 | | |
| Major dia. | 22.00 - 21.90 | (0.866 - 0.862) | |
| Pitch dia. | 20.638 | (0.8125) | |
| Minor dia. | 18.63 - 18.35 | (0.733 - 0.722) | |
| Wildhaber | 11.67 - 11.70 | (0.459 - 0.461) | |



max torque capability: 320 Nm (2800 lb. in.)

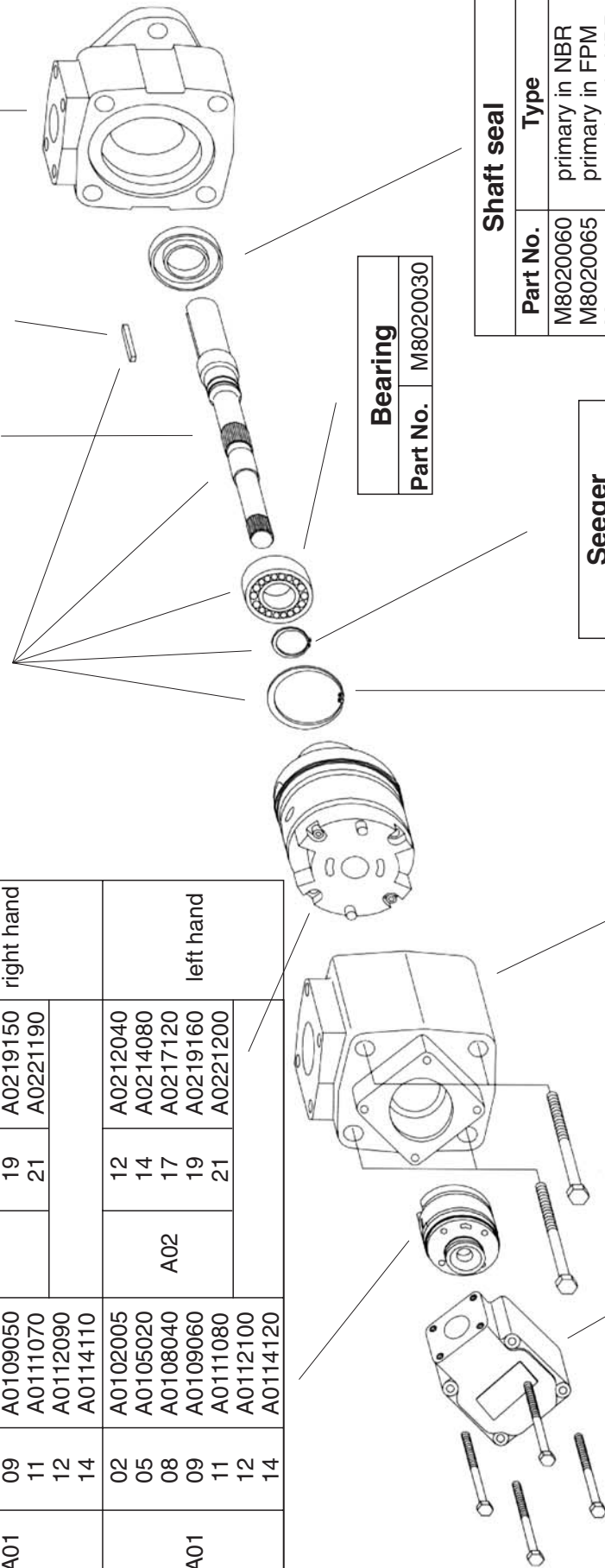
Id. codes of pump components

| Cover end | | Cartridges | | | | Pump rotation |
|-----------|-------|------------|--------|-------|----------|---------------|
| | | Shaft end | | | | |
| Series | Model | Part No. | Series | Model | Part No. | |
| A01 | 02 | A0102000 | A02 | 12 | A0212030 | right hand |
| | 05 | A0105010 | | 14 | A0214070 | |
| | 08 | A0108030 | | 17 | A0217110 | |
| | 09 | A0109050 | | 19 | A0219150 | |
| | 11 | A0111070 | | 21 | A0221190 | |
| | 12 | A0112090 | | | | |
| | 14 | A0114110 | | | | |
| A01 | 02 | A0102005 | A02 | 12 | A0212040 | left hand |
| | 05 | A0105020 | | 14 | A0214080 | |
| | 08 | A0108040 | | 17 | A0217120 | |
| | 09 | A0109060 | | 19 | A0219160 | |
| | 11 | A0111080 | | 21 | A0221200 | |
| | 12 | A0112100 | | | | |
| | 14 | A0114120 | | | | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8210601 |
| 11 | M8210611 |
| 86 | M8210686 |
| 90 | M8210690 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K2101000 |
| 11 | K2111000 |
| 86 | K2186000 |
| 90 | K2190000 |

| Body | |
|----------|----------|
| Part No. | Model |
| M8020010 | M8020010 |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8020060 | primary in NBR |
| M8020065 | primary in FPM |
| M8020061 | secondary in NBR |
| M8020066 | secondary in FPM |

| Seeger | |
|----------|----------|
| Part No. | Model |
| M8020050 | M8020050 |

| Bearing | |
|----------|----------|
| Part No. | Model |
| M8020030 | M8020030 |

| Intel body | |
|------------|----------|
| Part No. | Model |
| M8020110 | M8020110 |

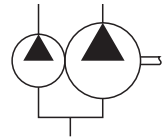
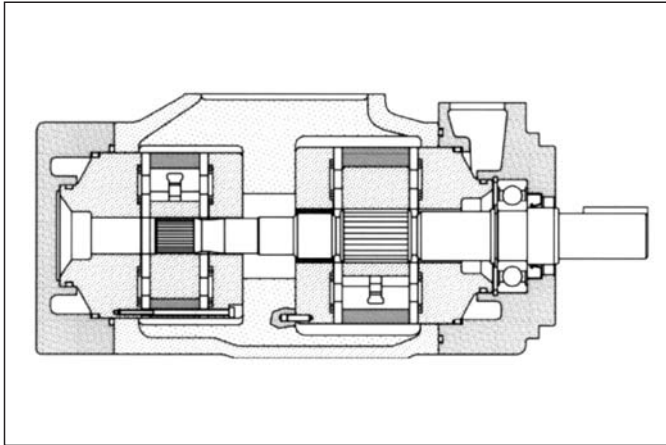
| Cover | |
|----------|----------|
| Part No. | Model |
| M8020120 | M8020120 |

| Screw | |
|-------------------------------|----------|
| Part No. | Model |
| M8020420 | M8020420 |
| Torque to 70 Nm (624 lb. in.) | |

| Screw | |
|--------------------------------|----------|
| Part No. | Model |
| M8020130 | M8020130 |
| Torque to 102 Nm (910 lb. in.) | |

| Seeger | |
|----------|----------|
| Part No. | Model |
| M8020040 | M8020040 |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8210411 | seals + 1 shaft seal | NBR |
| M8210412 | seals + 2 shaft seals | NBR |
| M8210413 | seals + 1 shaft seal | FPM (Viton®) |
| M8210414 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 98 to 161 l/min (from 26 to 42 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| A03-24 | 78,3 | (4.78) | 90 | (24) | 115,3 | (30.5) | 210 | (3050) | 600 | 2500 |
| A03-28 | 91,2 | (5.56) | 106 | (28) | 131,8 | (34.8) | 210 | (3050) | 600 | 2500 |
| cover end | | | | | | | | | | |
| A01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| A01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| A01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| A01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| A01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| A01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| A01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

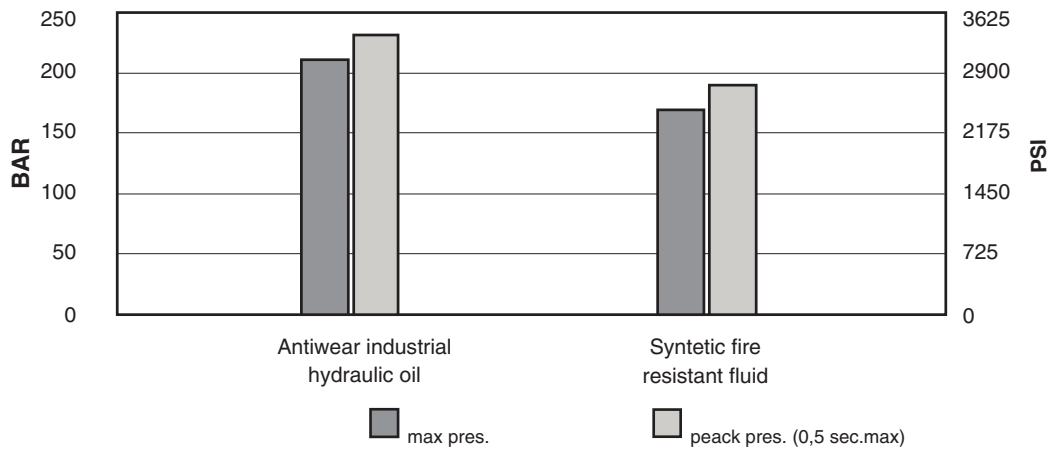
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

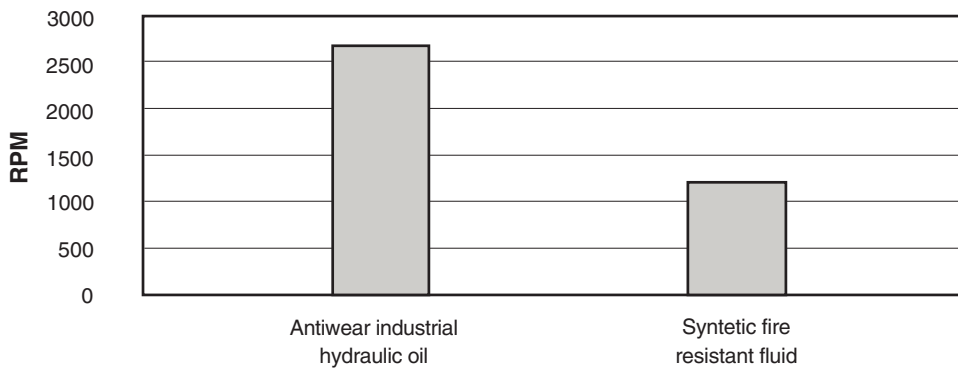
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

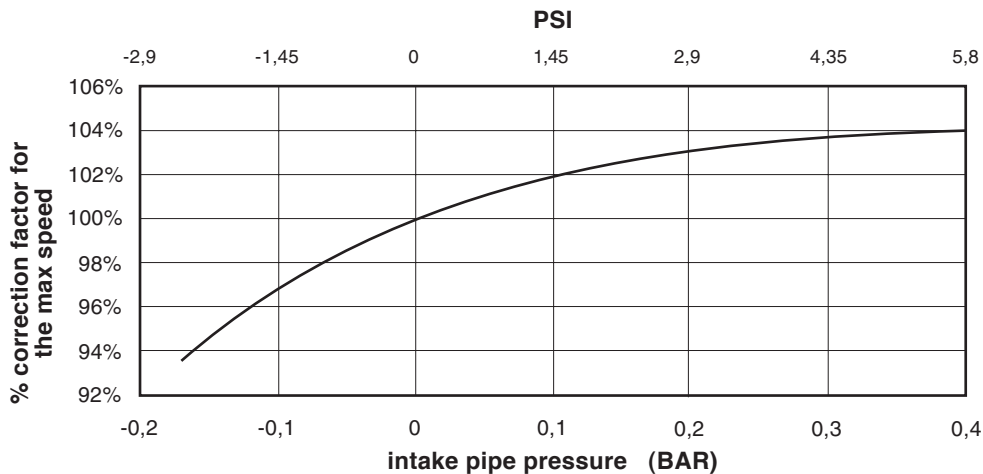


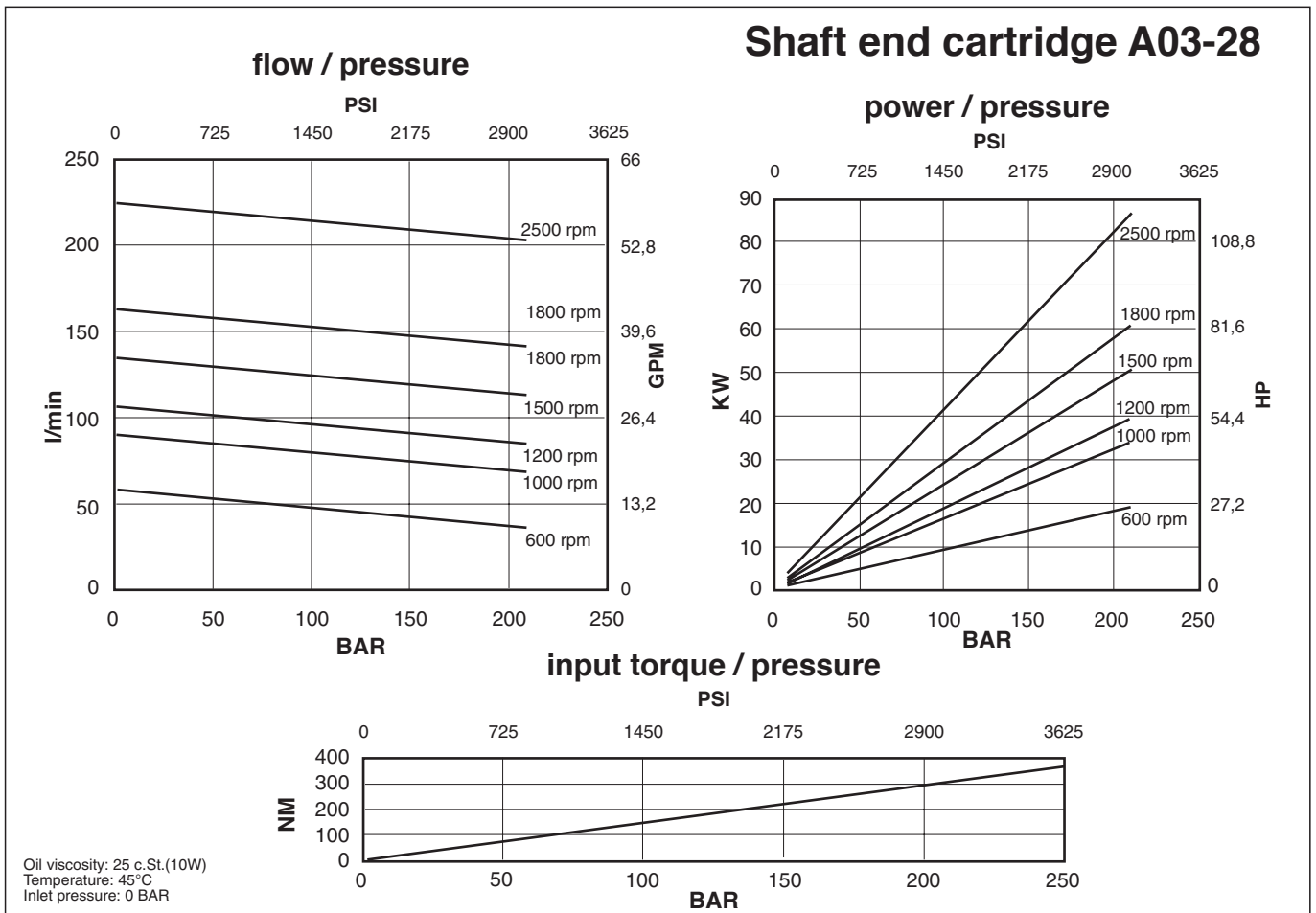
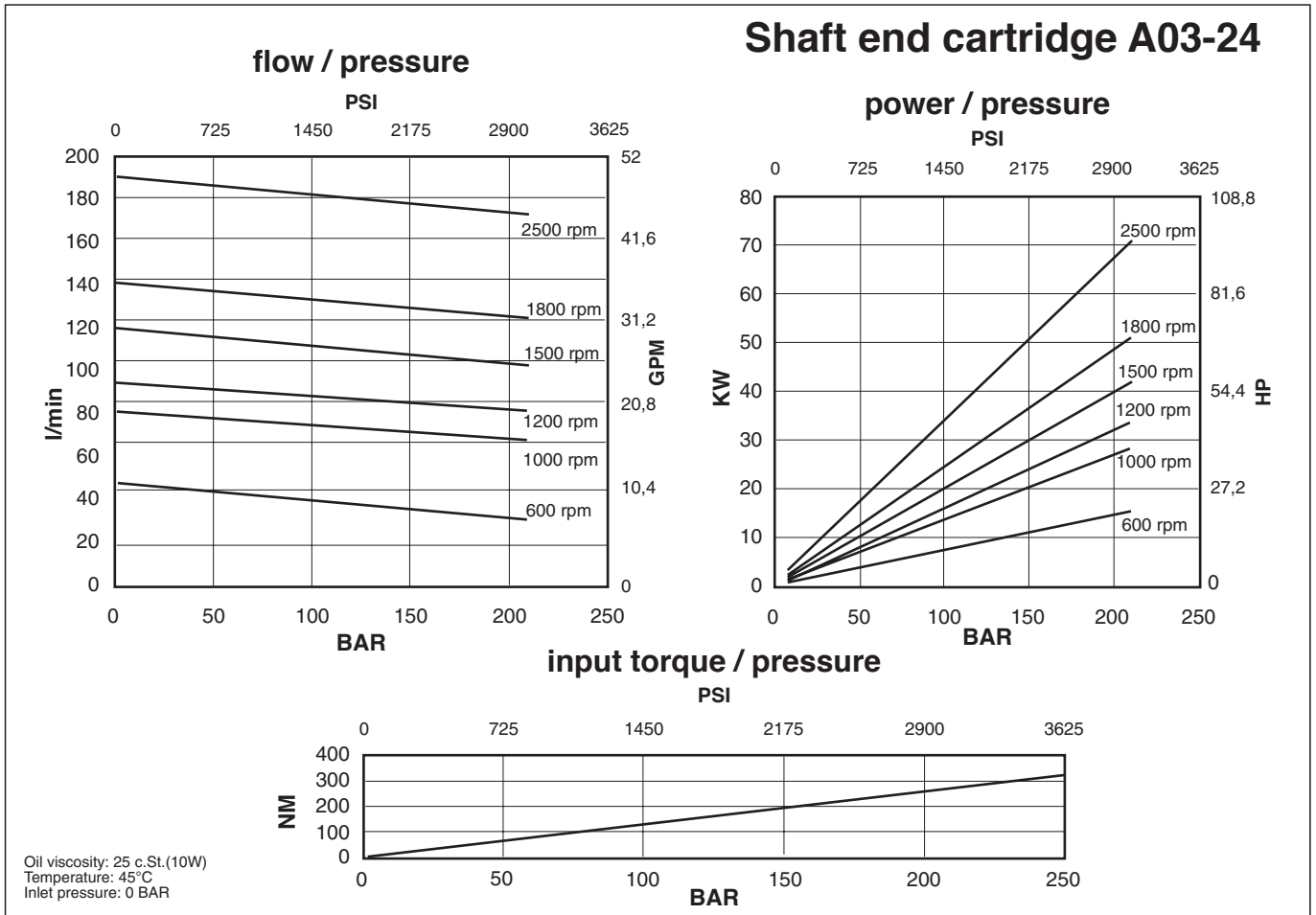
max speed / hydraulic fluid (with 0 bar in the intake pipe)



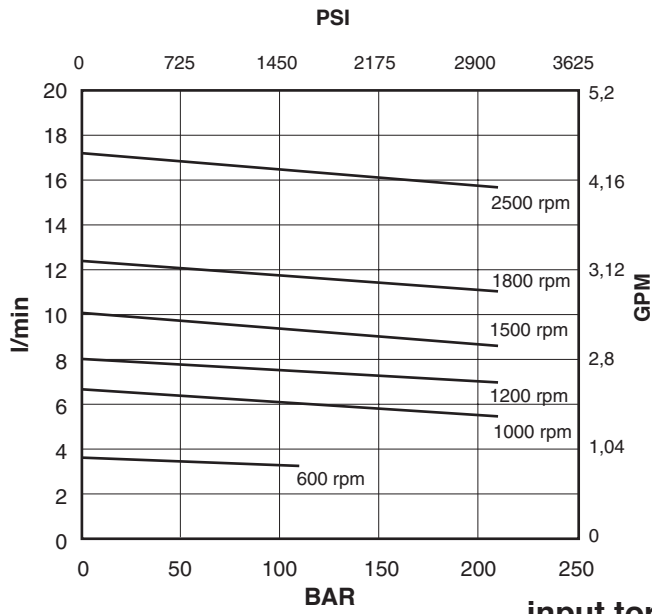
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure



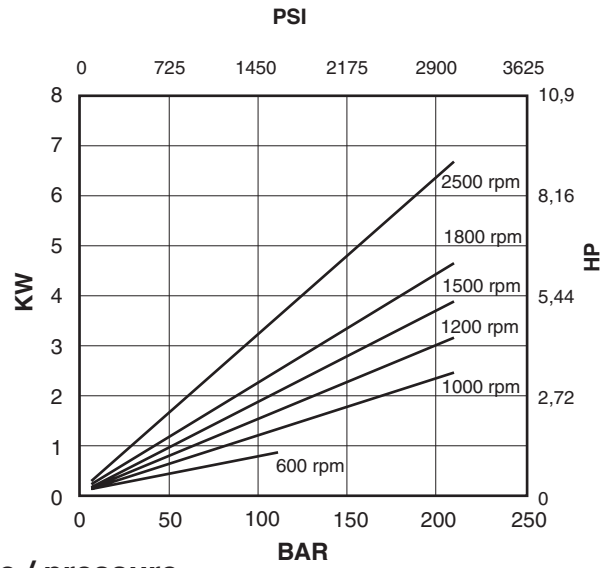


flow / pressure

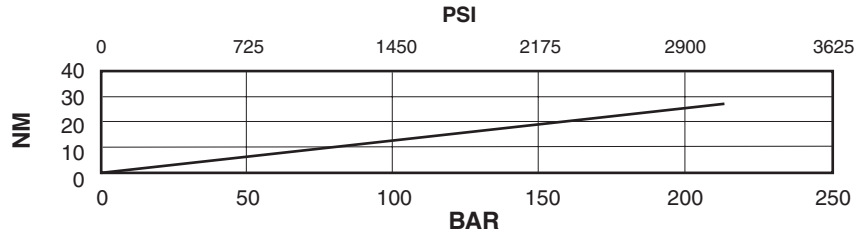


Cover end cartridge A01-02

power / pressure

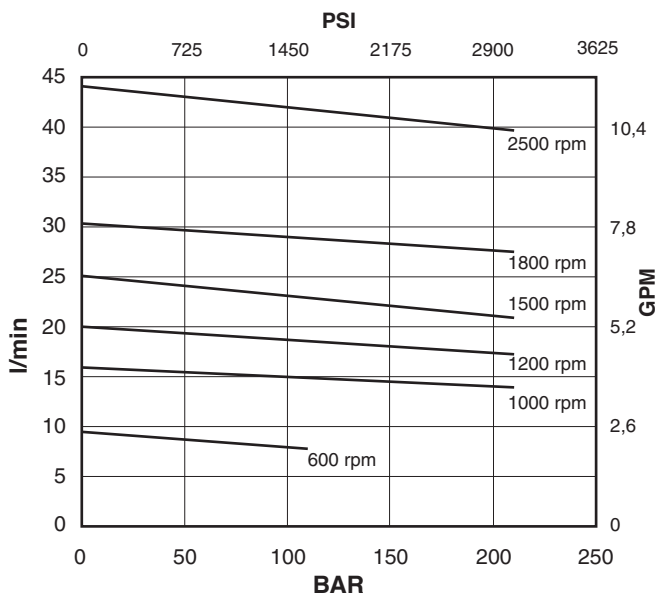


input torque / pressure



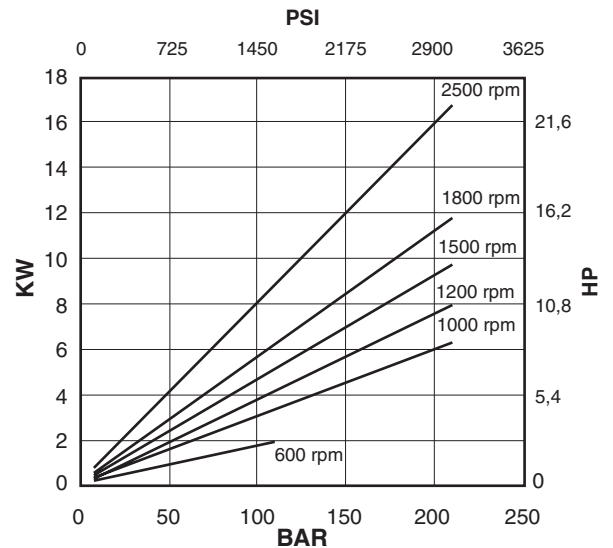
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

flow / pressure

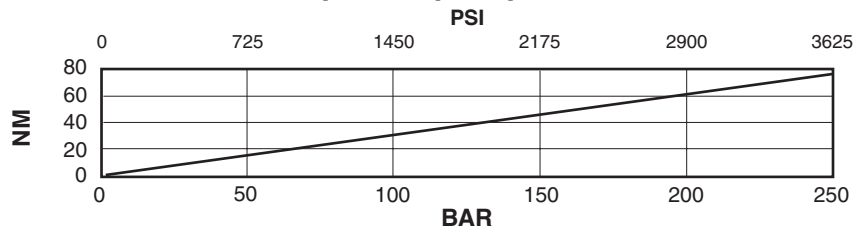


Cover end cartridge A01-05

power / pressure

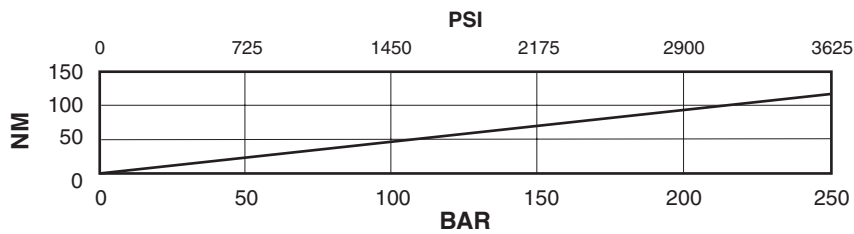
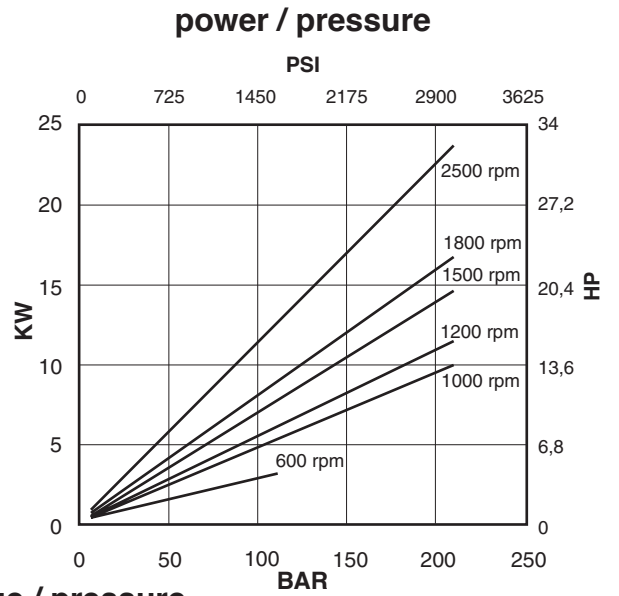
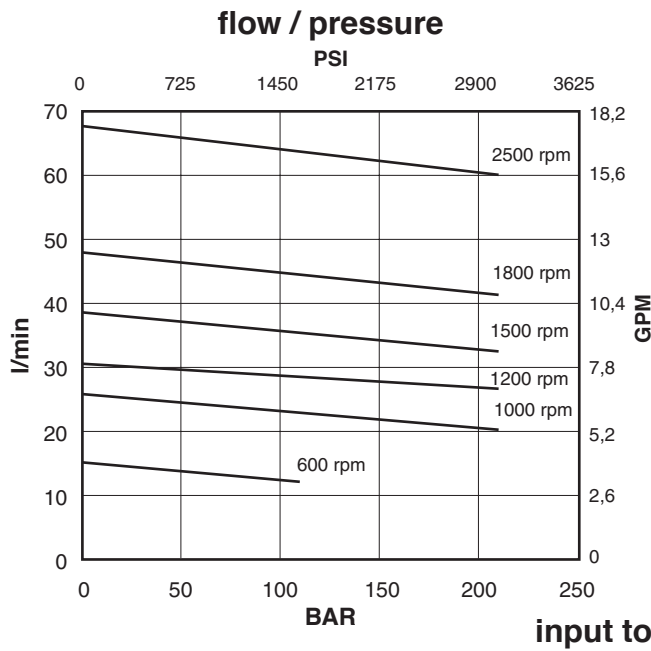


input torque / pressure



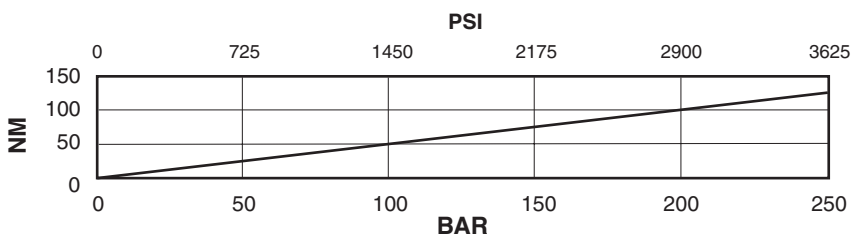
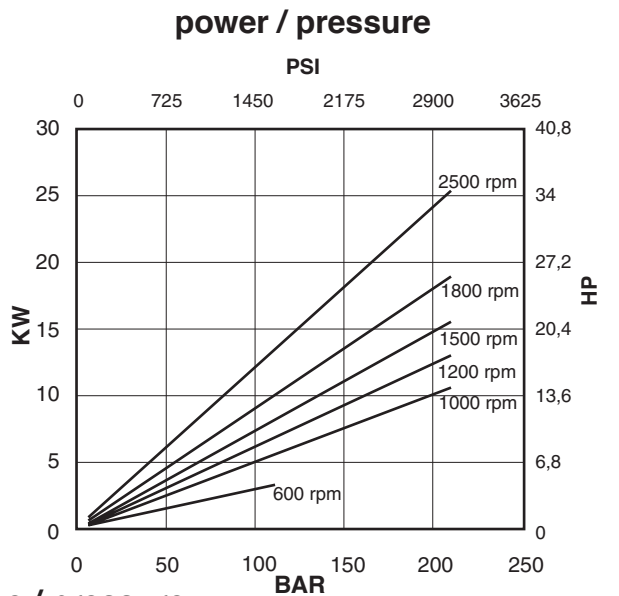
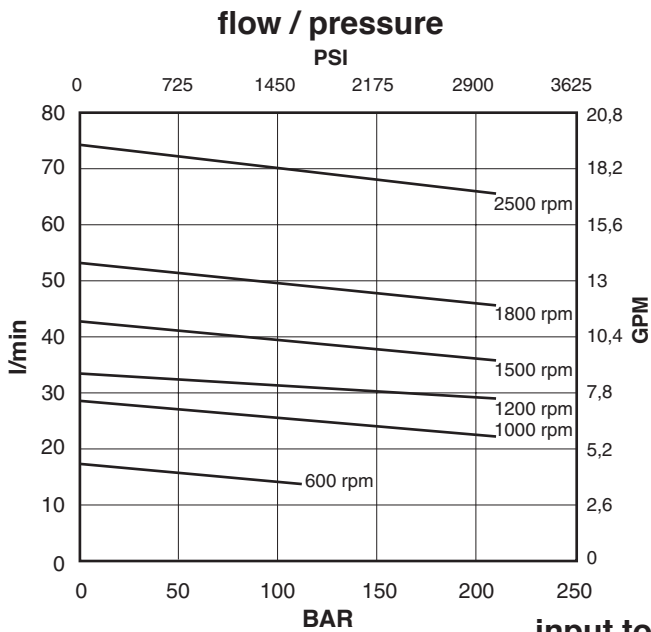
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08



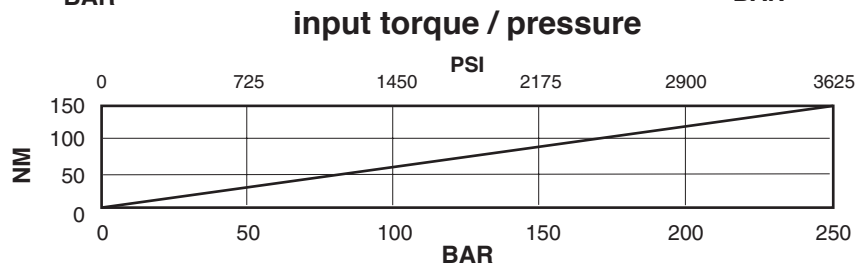
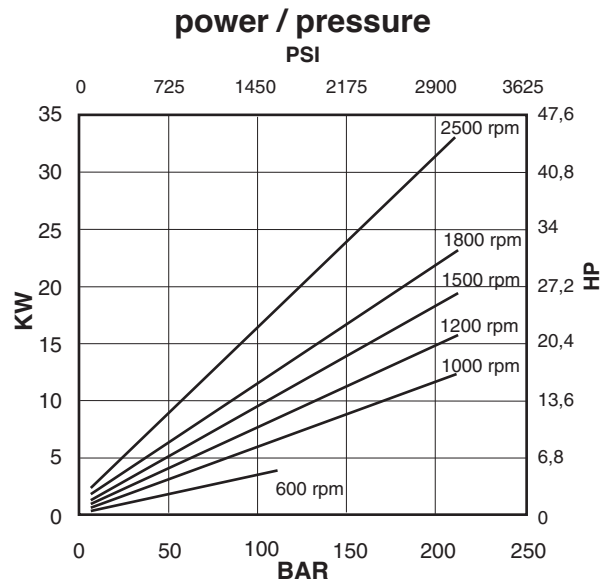
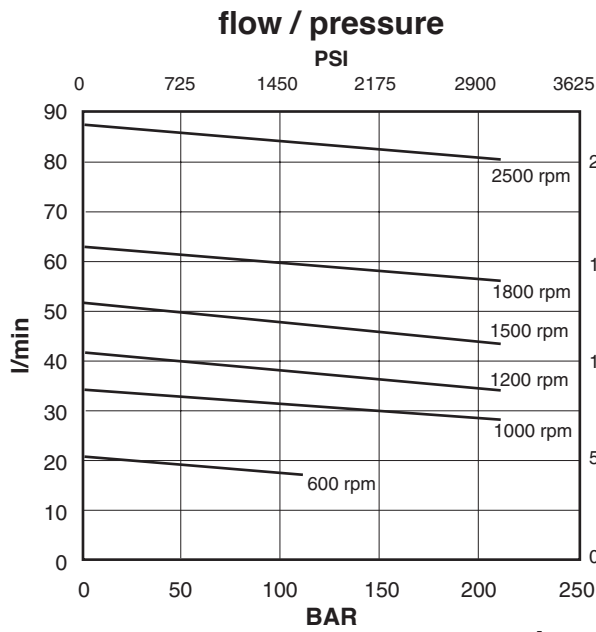
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-09



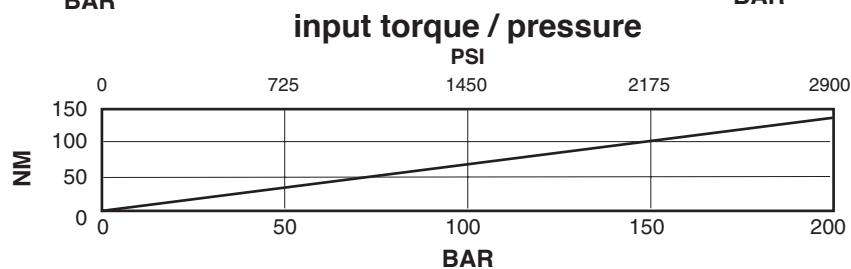
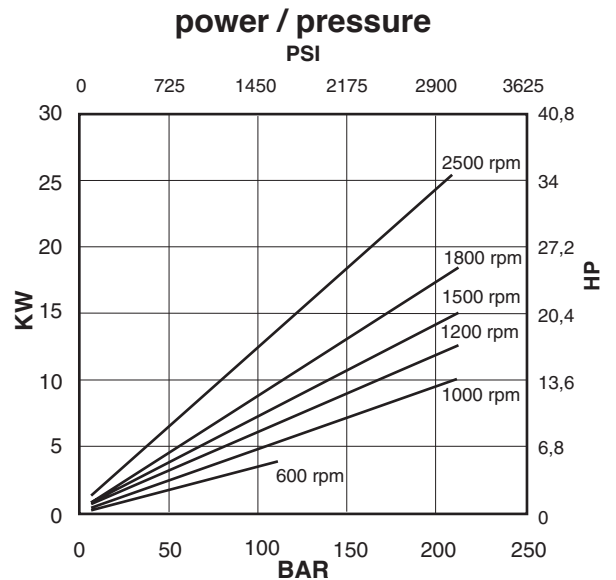
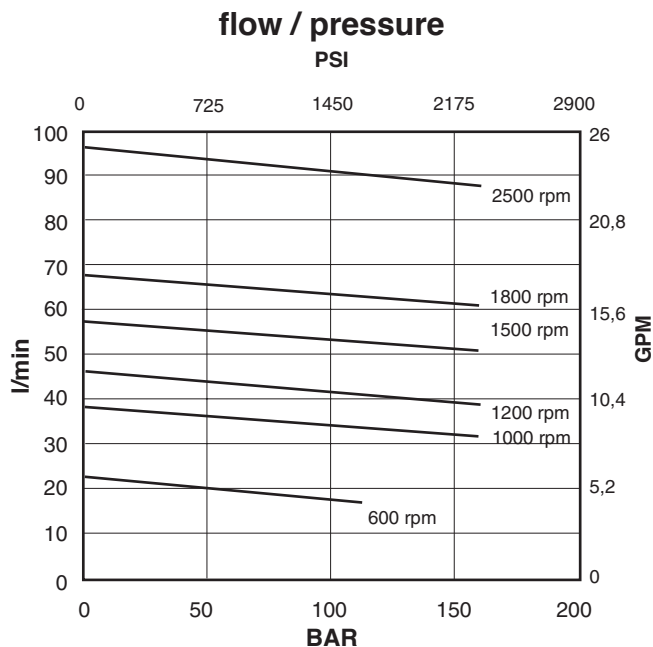
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-11



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

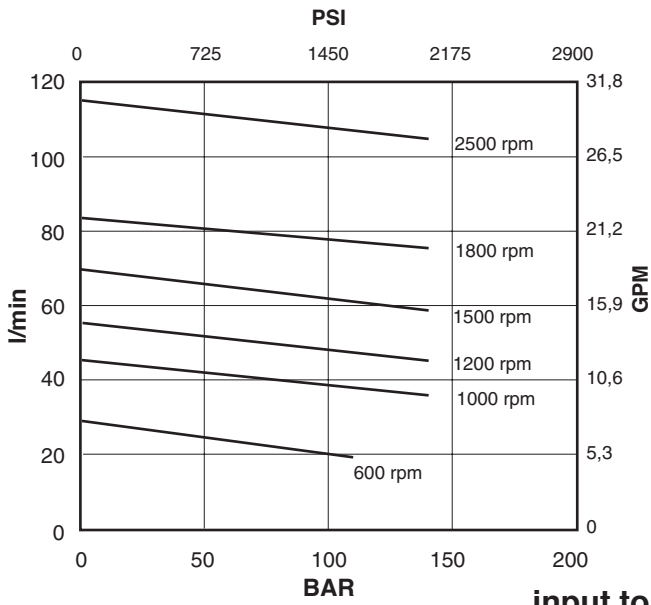
Cover end cartridge A01-12



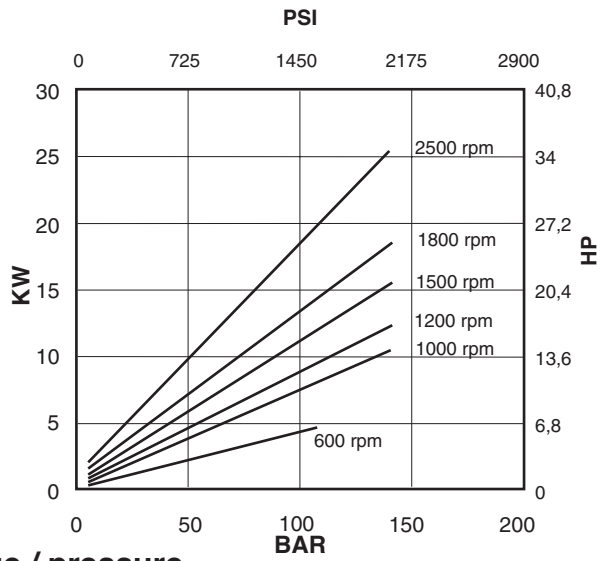
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-14

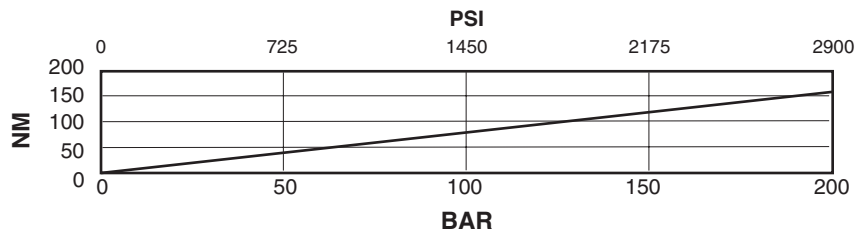
flow / pressure



power / pressure

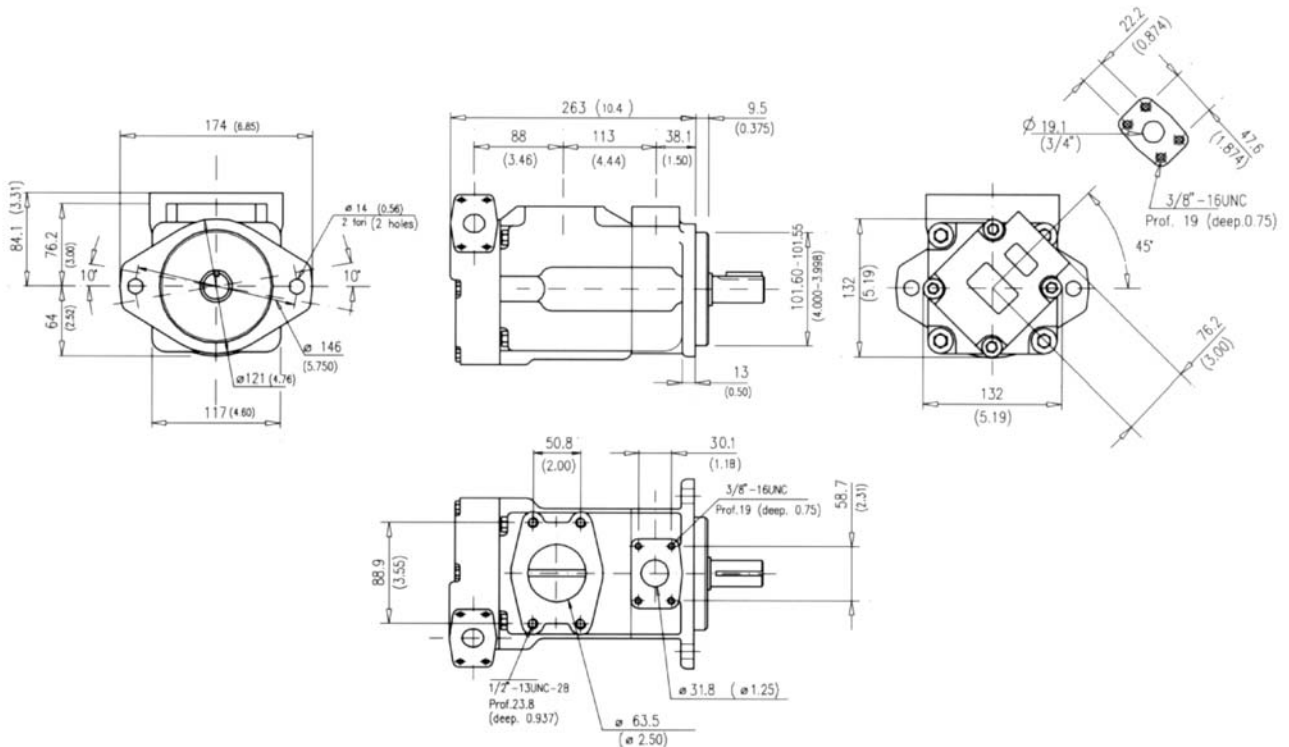


input torque / pressure



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

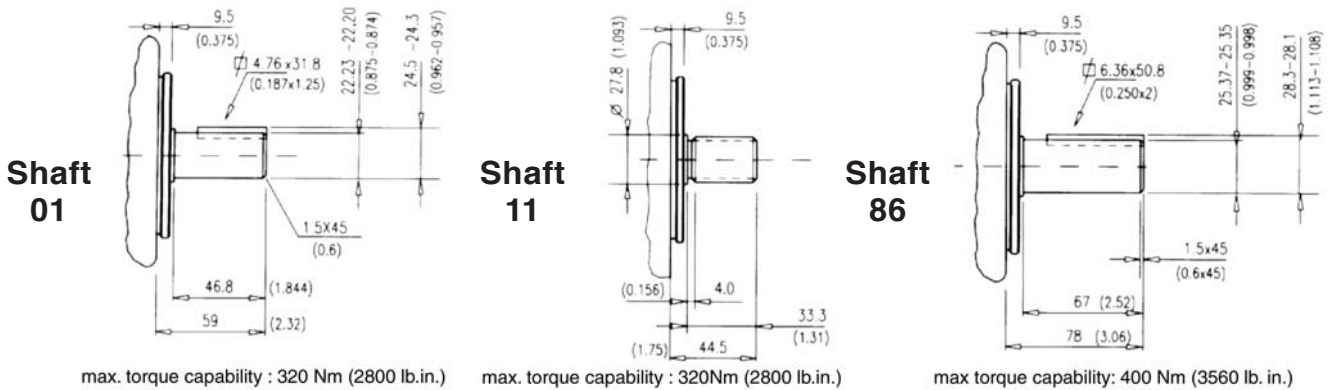


Approx. weight: 23 kg. (50 lbs.)

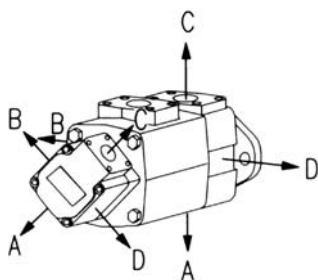
Model code breakdown

| | | | |
|--|---|--|---|
| <p>BQ 31 G ** ** * * ** (L) * (A)</p> <p>Pump series</p> <p>Design</p> <p>Pump type</p> <p>Cartridge types</p> <p>-shaft end 24 28</p> <p>-cover end 02 05 08 09 11 12 14</p> <p>Body outlet port positions (Outlet viewed from cover end)</p> <p>A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet</p> <p>Cover outlet port positions (Outlet viewed from cover end)</p> <p>A = Outlet 135° CCW from inlet B = Outlet 45° CCW from inlet C = Outlet 45° CW from inlet D = Outlet 135° CW from inlet</p> | <p>Seals (omit with standard seals and one shaft-seal in NBR)</p> <p>V = seals and shaft-seal in FPM (Viton®)</p> <p>D = standard seals and double shaft-seals in NBR</p> <p>F = seals and double shaft-seals in FPM (Viton®)</p> | <p>Rotation (viewed from shaft end)</p> <p>L = left hand rotation CCW (omit if CW)</p> | <p>Shaft end options</p> <p>01 = Straight with key (standard), 11 = Splined</p> <p>86 = Heavy duty straight keyed, 90 = Splined SAE B</p> |
|--|---|--|---|

Shaft options mm (inches)



PORT ORIENTATIONS

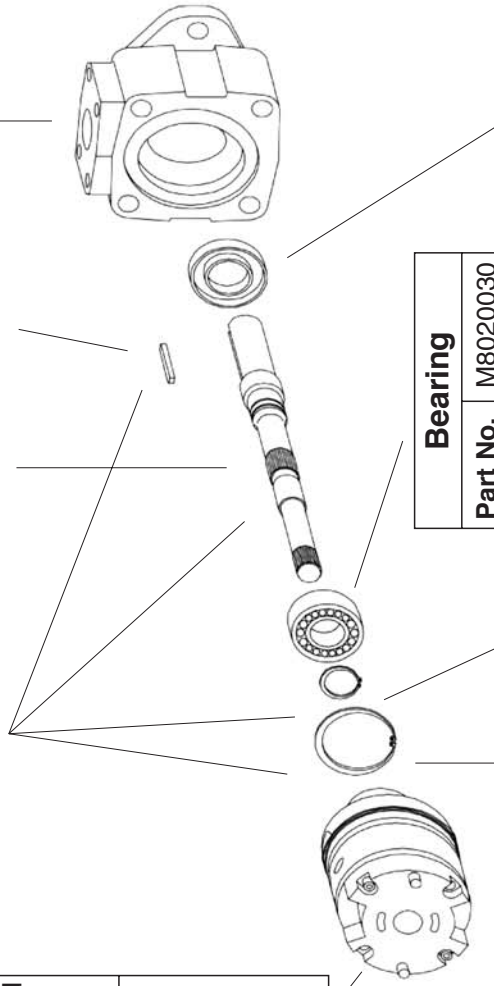


| | |
|-------------------------|-------------------------------|
| Spline data | |
| (Shaft 11 and shaft 90) | |
| Spline | Involute side fit (ASA B5.15) |
| Pressure angle | 30° |
| No. of teeth | 13 |
| Pitch | 16/32 |
| Major dia. | 22.00 - 21.90 (0.866 - 0.862) |
| Pitch dia. | 20.638 (0.8125) |
| Minor dia. | 18.63 - 18.35 (0.733 - 0.722) |
| Wildhaber | 11.67 - 11.70 (0.459 - 0.461) |

Id. codes of pump components

| Cartridges | | | | Pump rotation | |
|------------|----------|-----------|------------|---------------|----------|
| Cover end | | Shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| A01 | 02 | A0102000 | A03 | 24 | A0324030 |
| | 05 | A0105010 | | 28 | A0328070 |
| | 08 | A0108030 | right hand | | |
| | 09 | A0109050 | left hand | | |
| | 11 | A0111070 | | | |
| A01 | 12 | A0112090 | A03 | 24 | A0324040 |
| | 14 | A0114110 | | 28 | A0328080 |
| | 02 | A0102005 | right hand | | |
| | 05 | A0105020 | left hand | | |
| | 08 | A0108040 | | | |
| | 09 | A0109060 | | | |
| | 11 | A0111080 | | | |
| 12 | A0112100 | | | | |
| 14 | A0114120 | | | | |

| Shaft kit | | Shaft | | Key | | Body | |
|-----------|----------|-------|----------|----------|----------|----------|----------|
| Model | Part No. | Model | Part No. | Part No. | Part No. | Part No. | Part No. |
| 01 | M8310601 | 01 | K3101000 | M8010100 | M8030010 | | |
| 11 | M8310611 | 11 | K3111000 | - | | | |
| 86 | M8310686 | 86 | K3186000 | M8028600 | | | |
| 90 | M8310690 | 90 | K3190000 | - | | | |

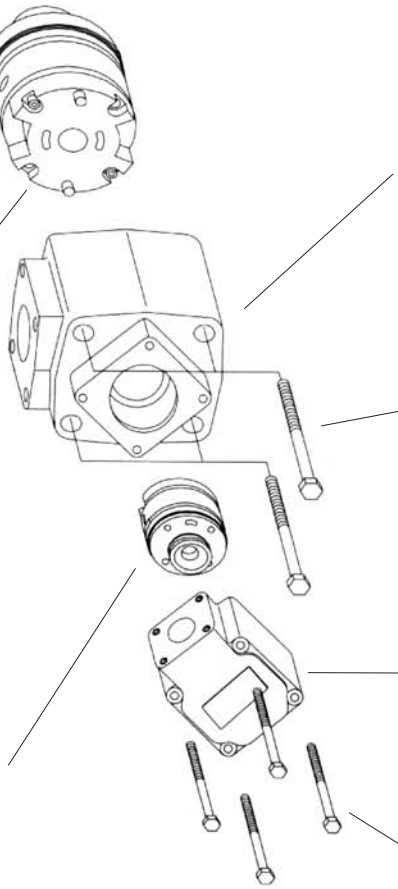


| Bearing | |
|----------|----------|
| Part No. | M8020030 |

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8020060 | primary in NBR |
| M8020065 | primary in FPM |
| M8020061 | secondary in NBR |
| M8020066 | secondary in FPM |

| Seeger | |
|----------|----------|
| Part No. | M8020050 |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8210411 | seals + 1 shaft seal | NBR |
| M8210412 | seals + 2 shaft seals | NBR |
| M8210413 | seals + 1 shaft seal | FPM (Viton®) |
| M8210414 | seals + 2 shaft seals | FPM (Viton®) |



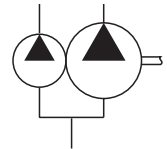
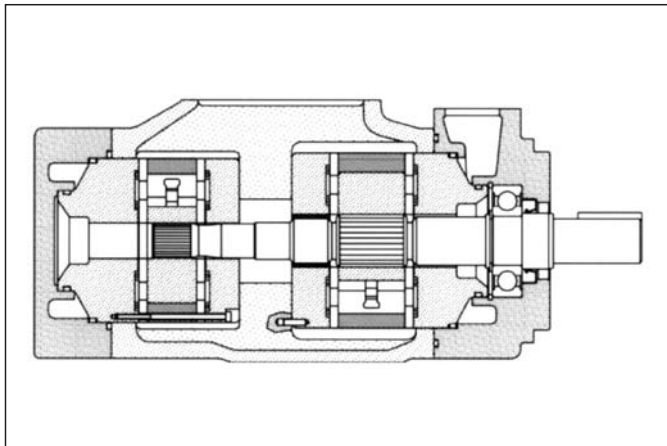
| Inlet body | |
|------------|----------|
| Part No. | M8020115 |

| Cover | |
|----------|----------|
| Part No. | M8020120 |

| Seeger | |
|----------|----------|
| Part No. | M8020040 |

| Screw | |
|--------------------------------|----------|
| Part No. | M6000130 |
| Torque to 102 Nm (910 lb. in.) | |

| Screw | |
|-------------------------------|----------|
| Part No. | M8020420 |
| Torque to 70 Nm (624 lb. in.) | |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 87 to 195 l/min (from 23 to 52 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| A04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 210 | (3050) | 600 | 2500 |
| A04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 210 | (3050) | 600 | 2500 |
| A04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 210 | (3050) | 600 | 2500 |
| A04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 210 | (3050) | 600 | 2400 |
| A04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 210 | (3050) | 600 | 2400 |
| cover end | | | | | | | | | | |
| A01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| A01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| A01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| A01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| A01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| A01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| A01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

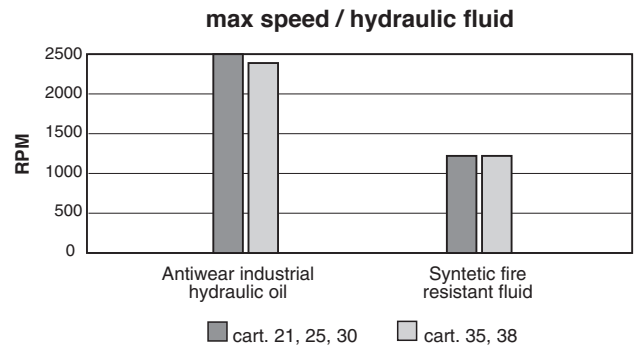
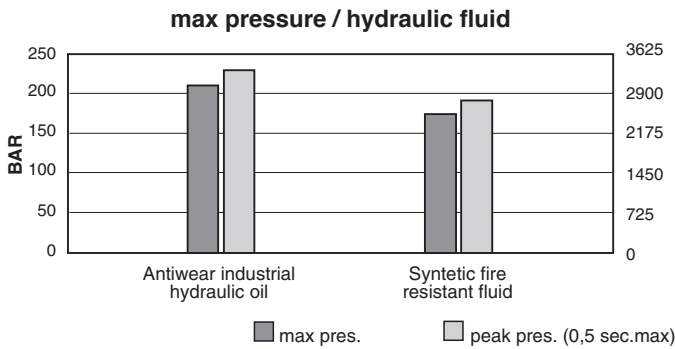
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

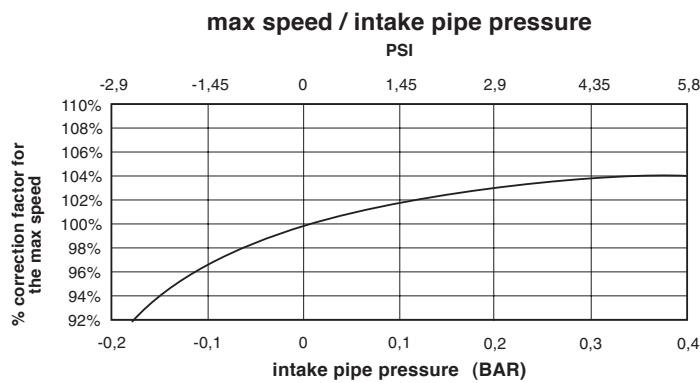
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

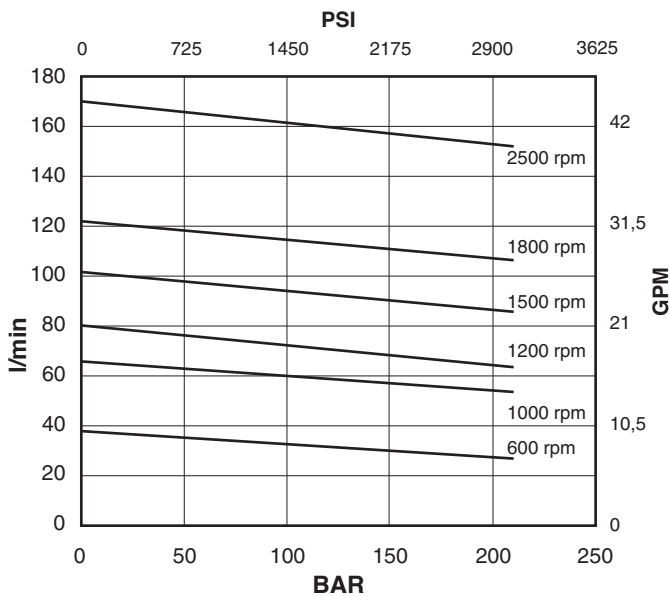
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

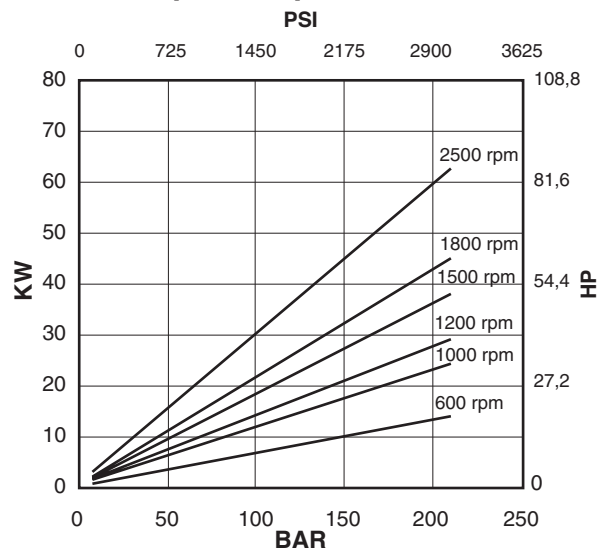


flow / pressure

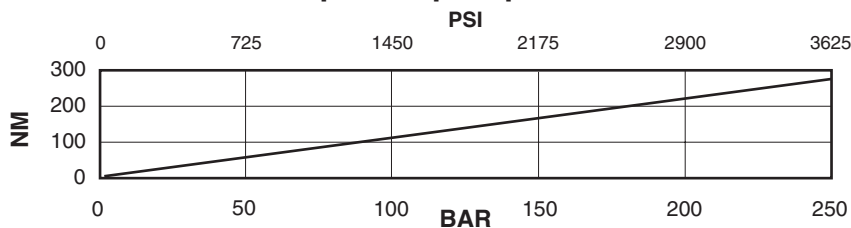


Shaft end cartridge A04-21

power / pressure

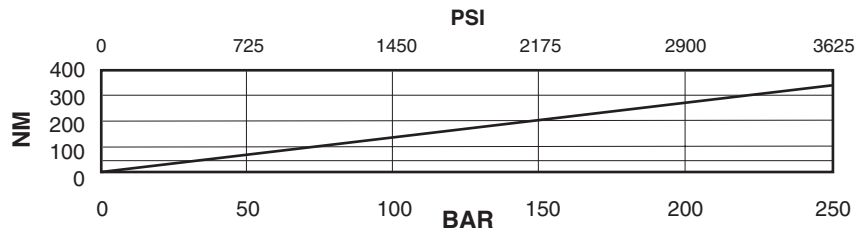
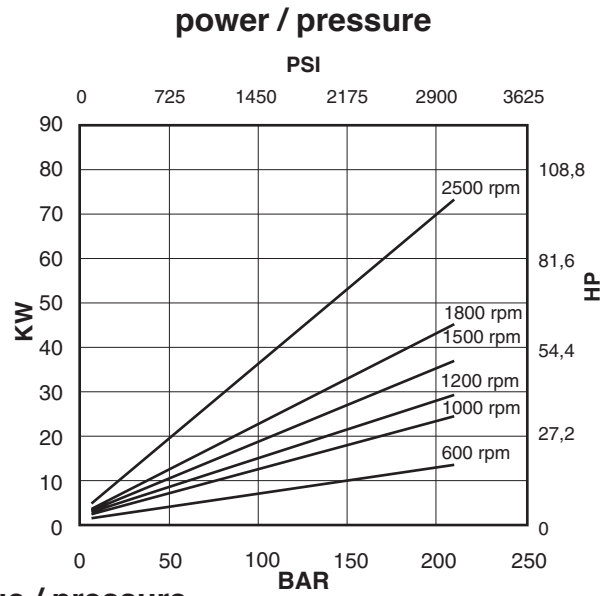
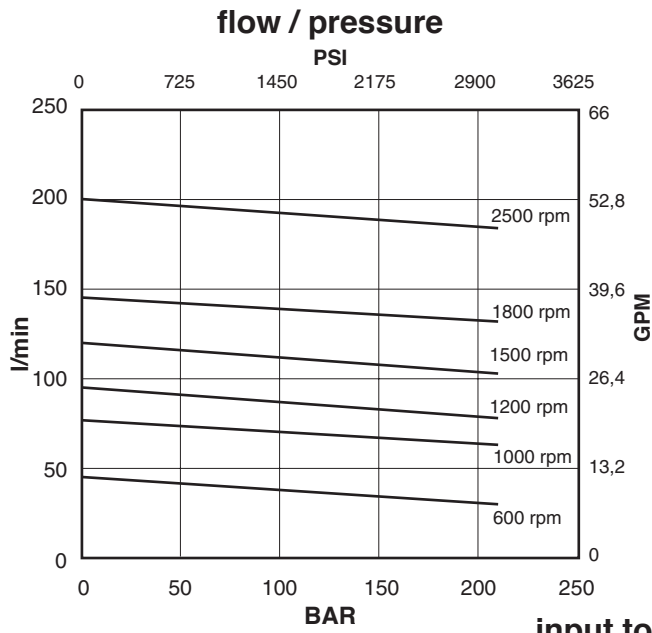


input torque / pressure



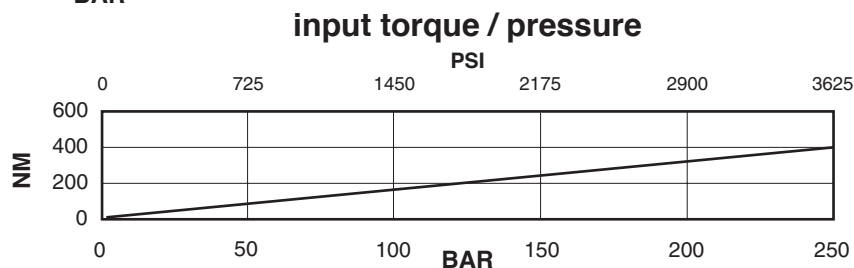
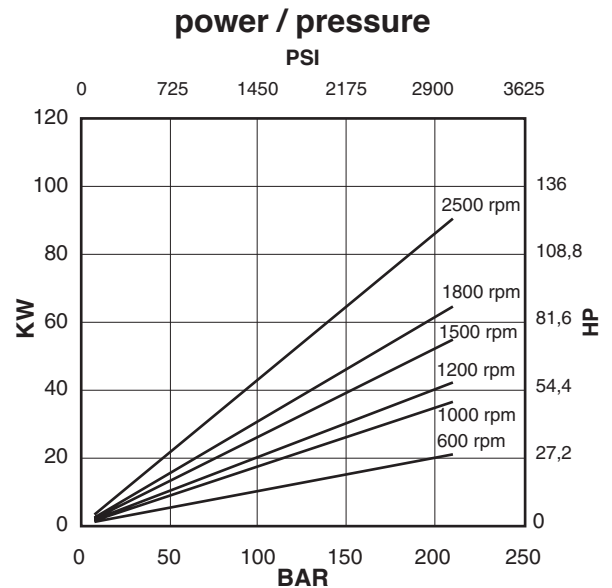
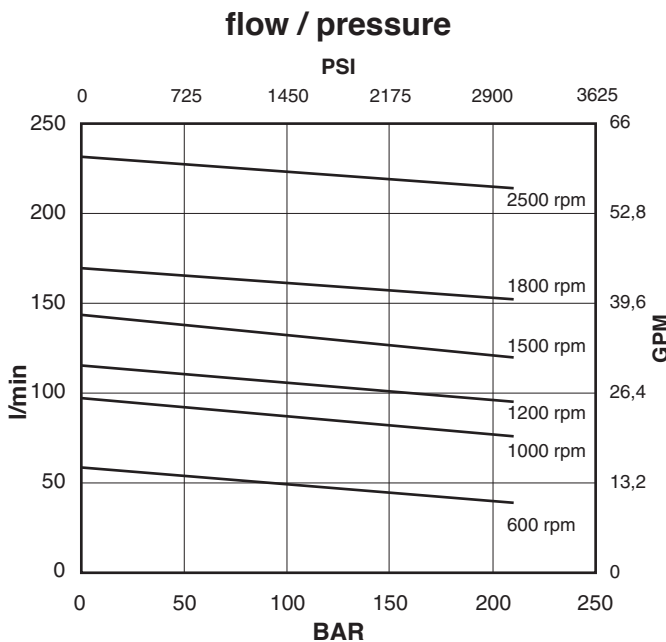
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-25



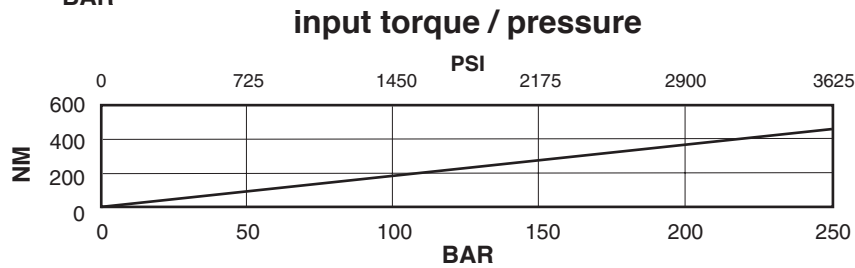
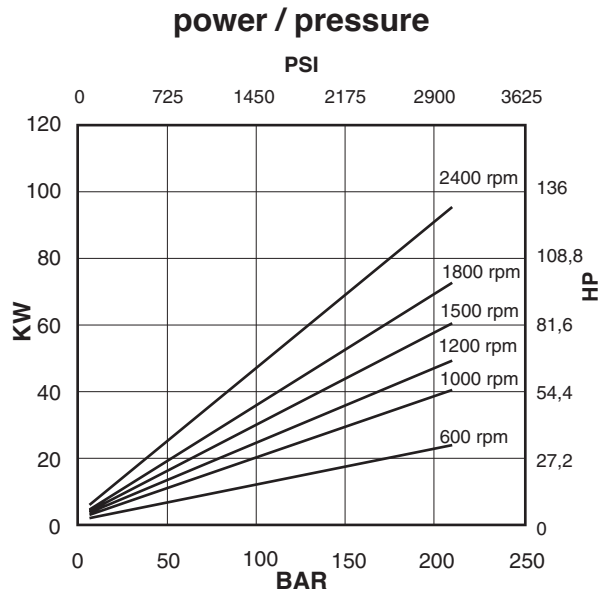
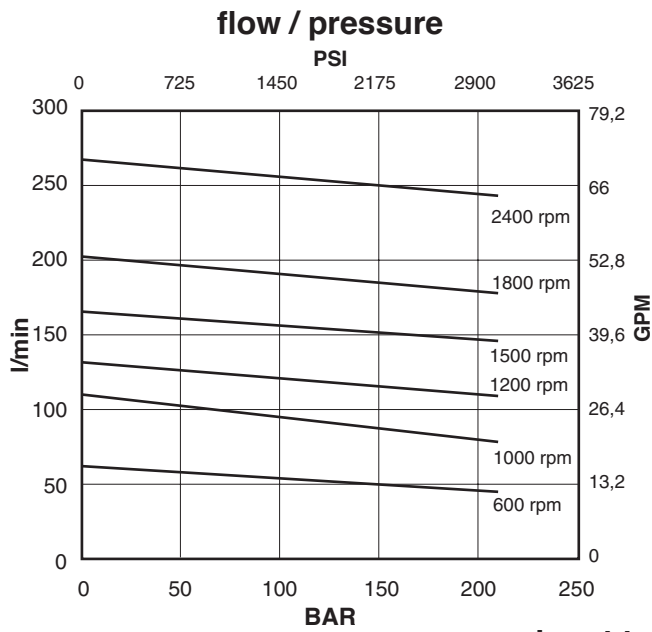
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-30



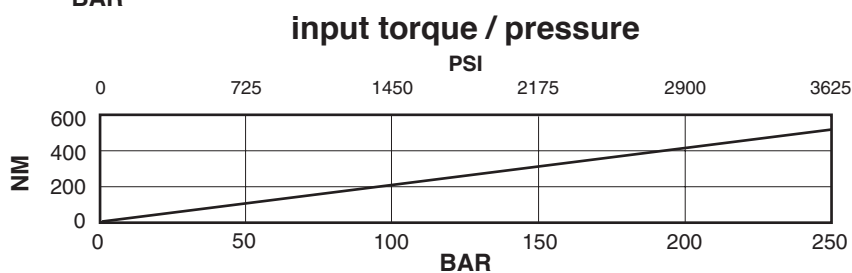
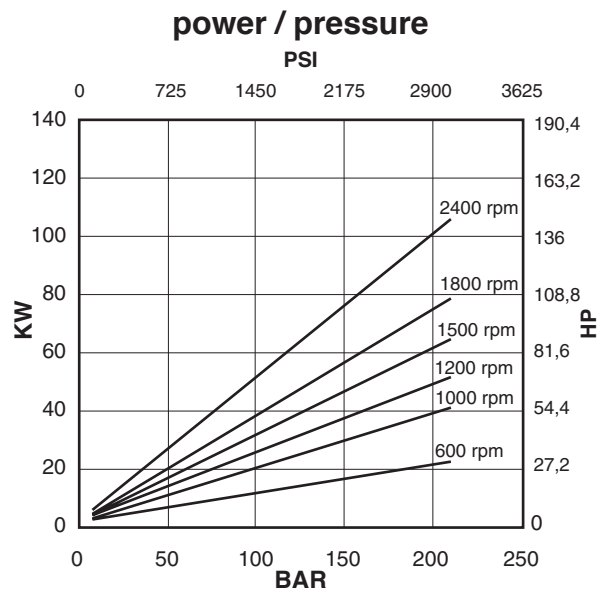
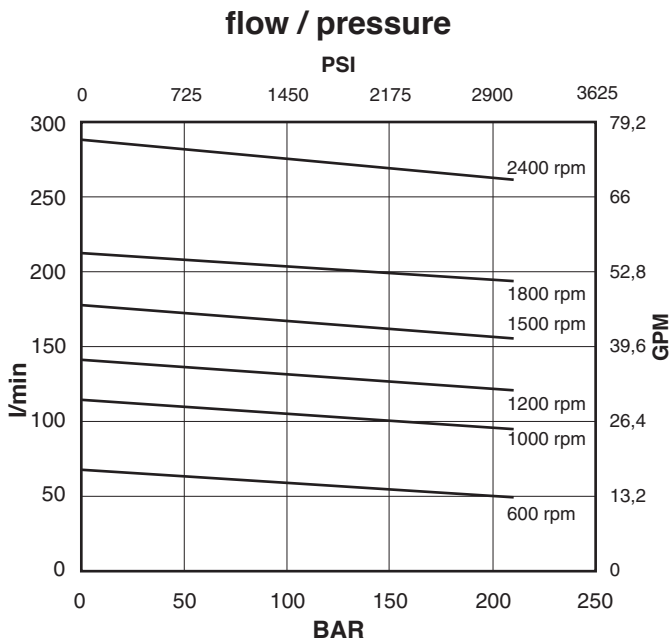
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-35



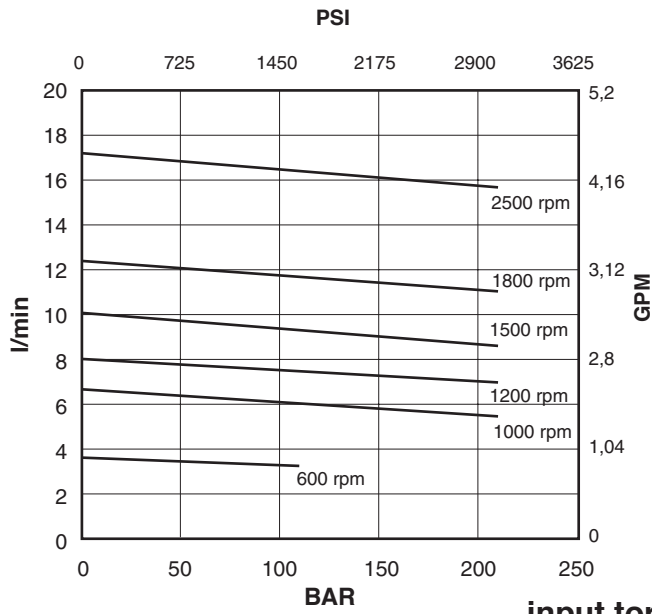
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-38



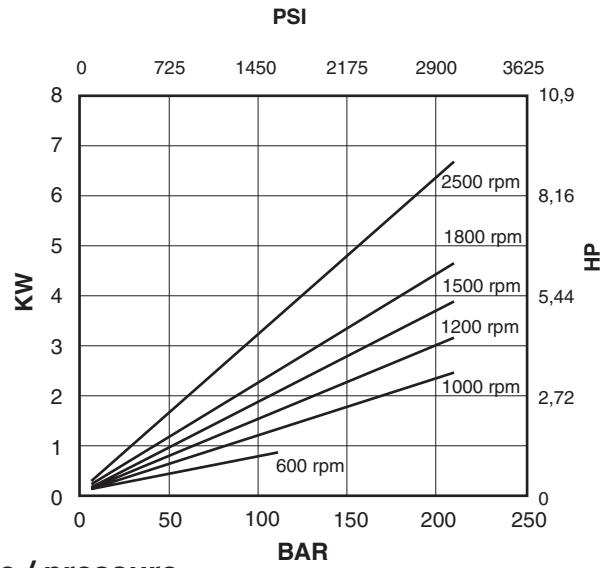
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

flow / pressure

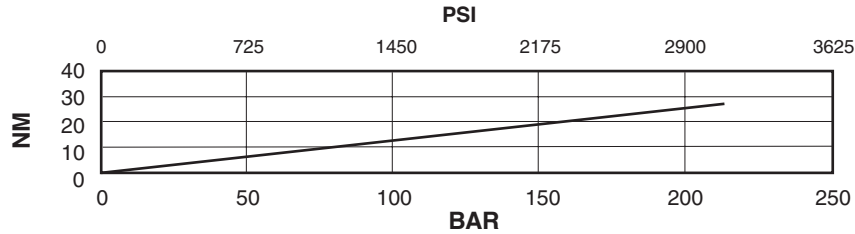


Cover end cartridge A01-02

power / pressure

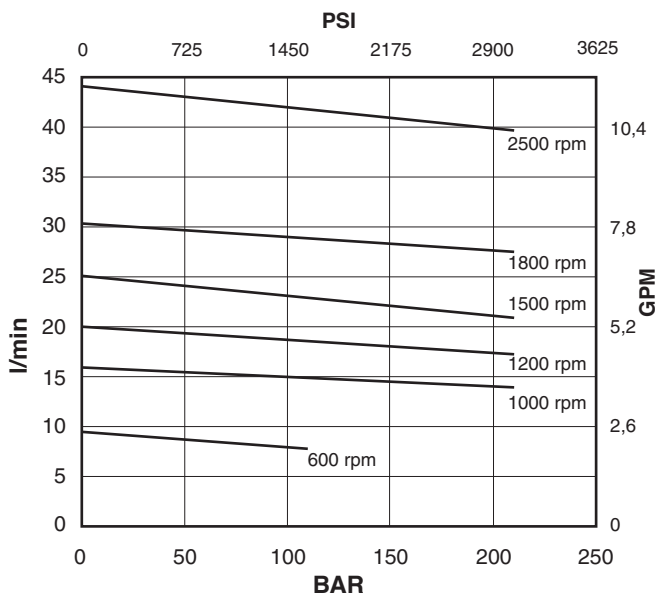


input torque / pressure



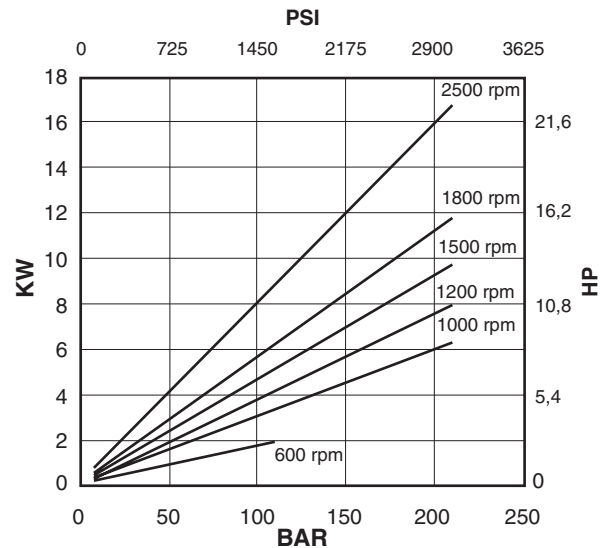
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

flow / pressure

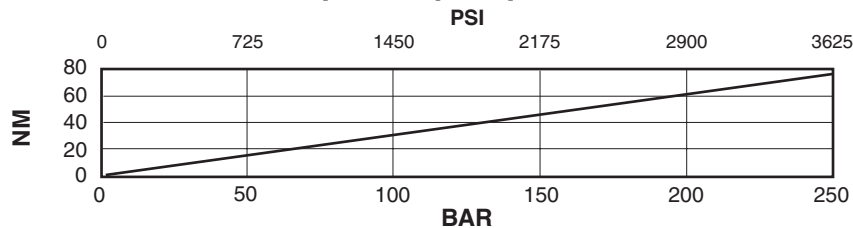


Cover end cartridge A01-05

power / pressure

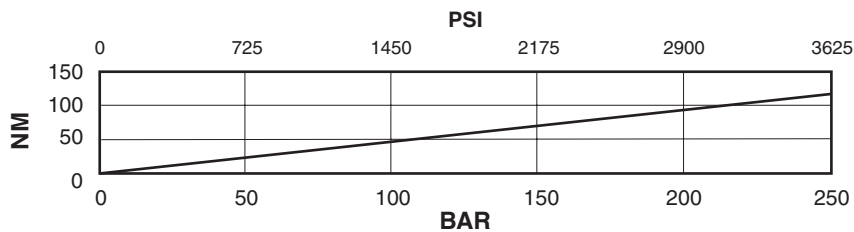
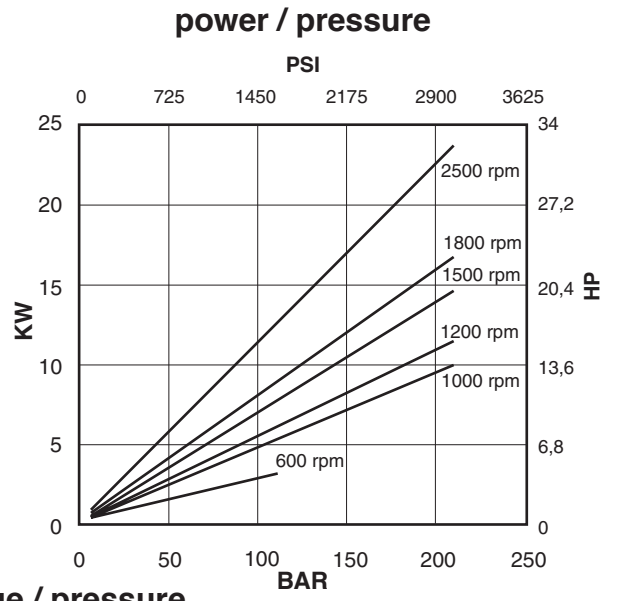
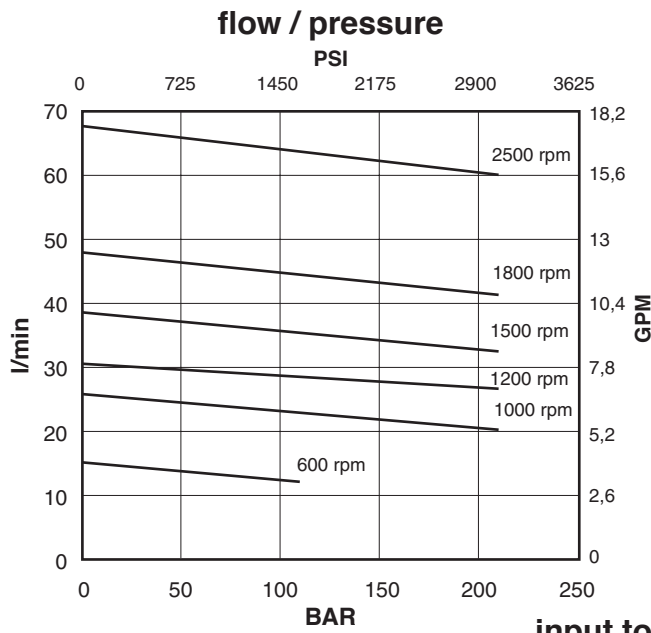


input torque / pressure



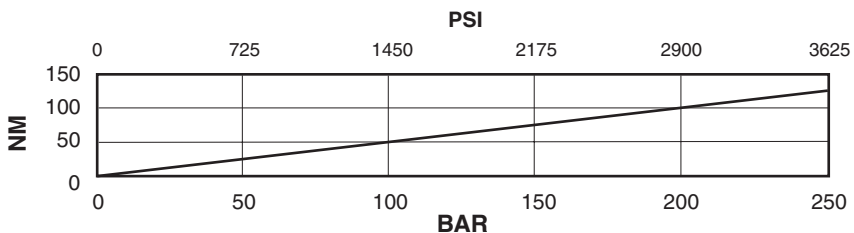
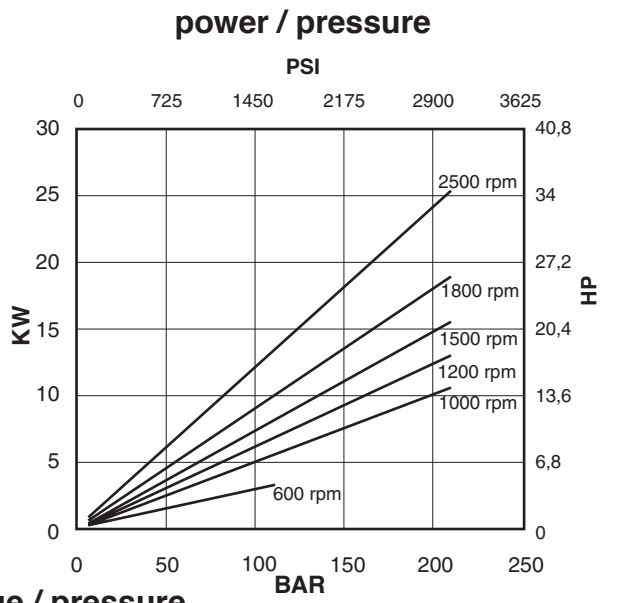
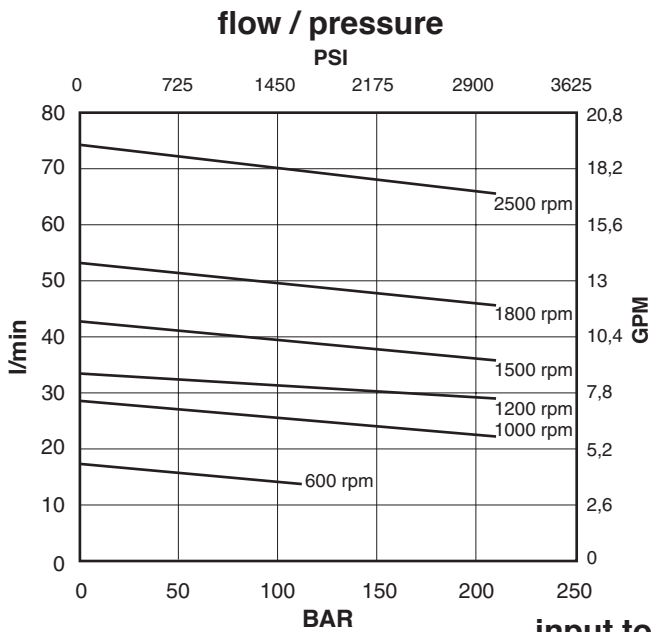
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08



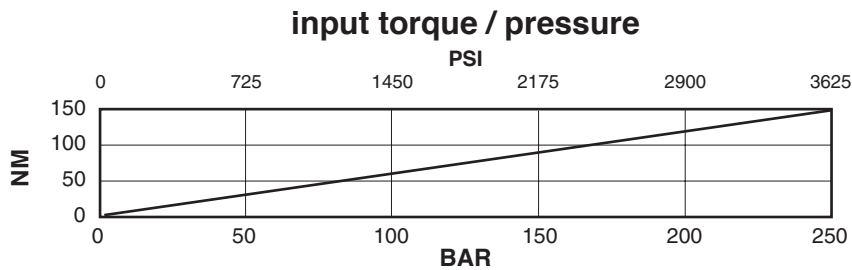
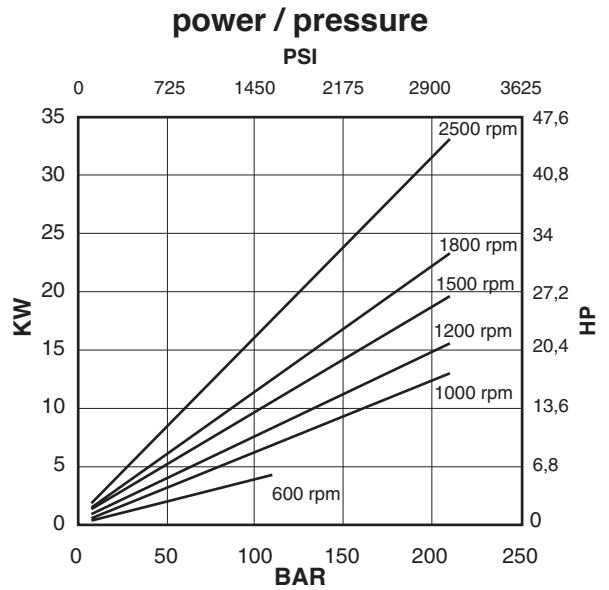
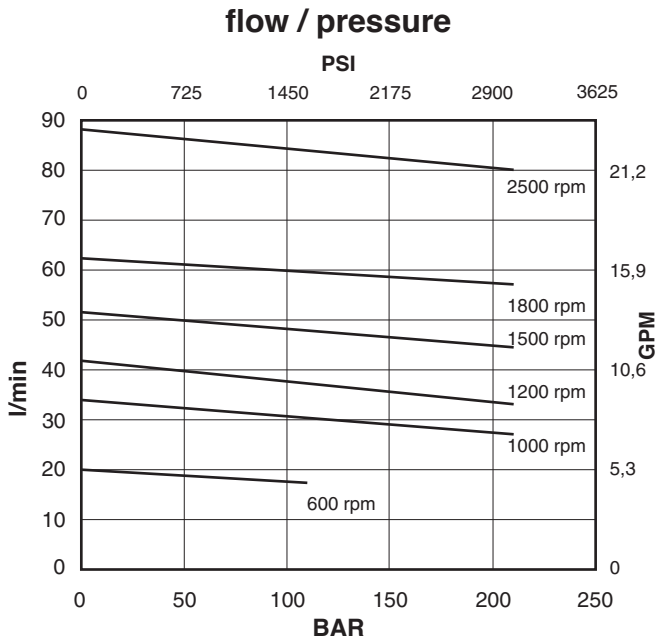
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-09



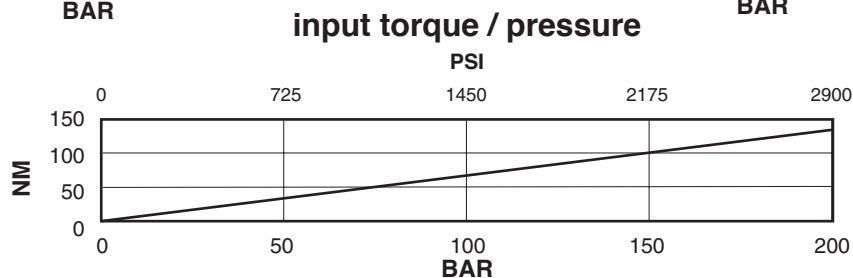
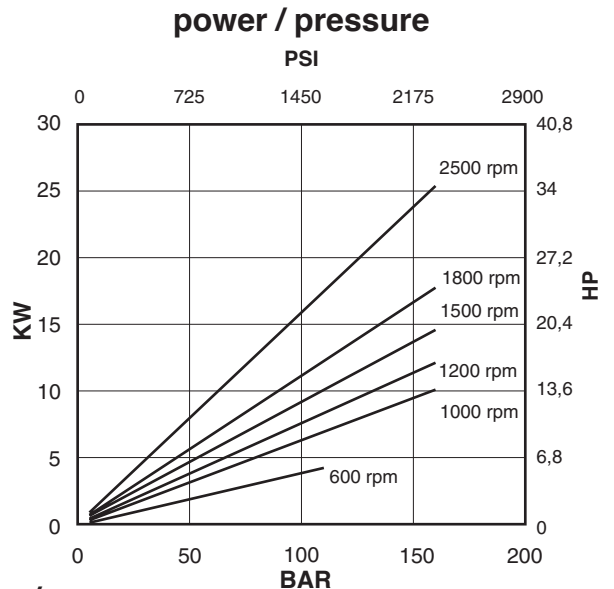
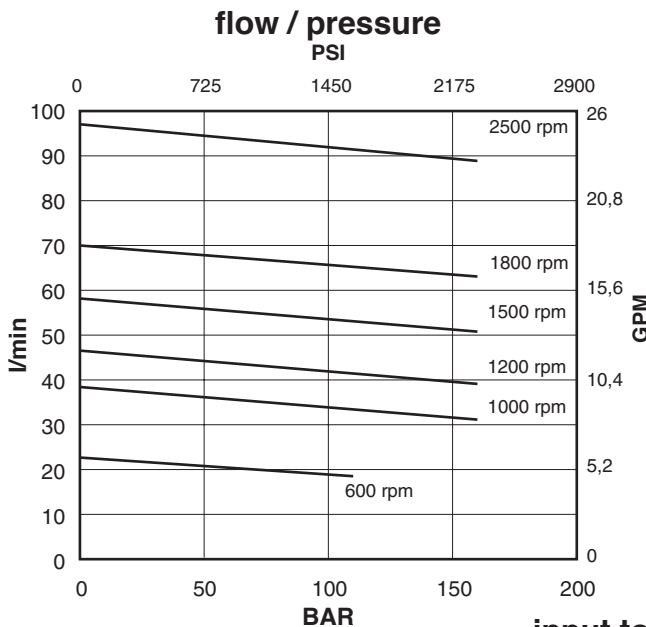
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-11



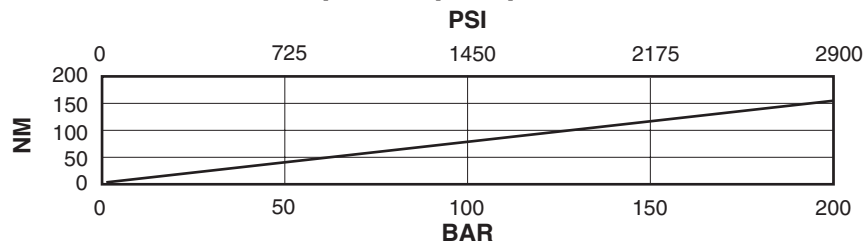
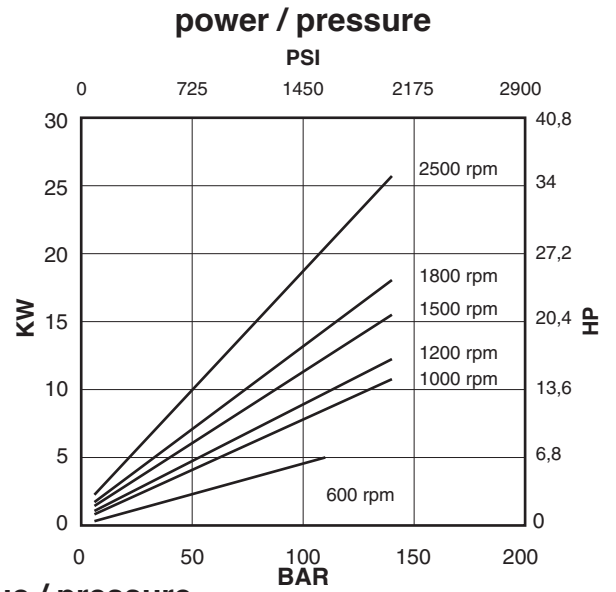
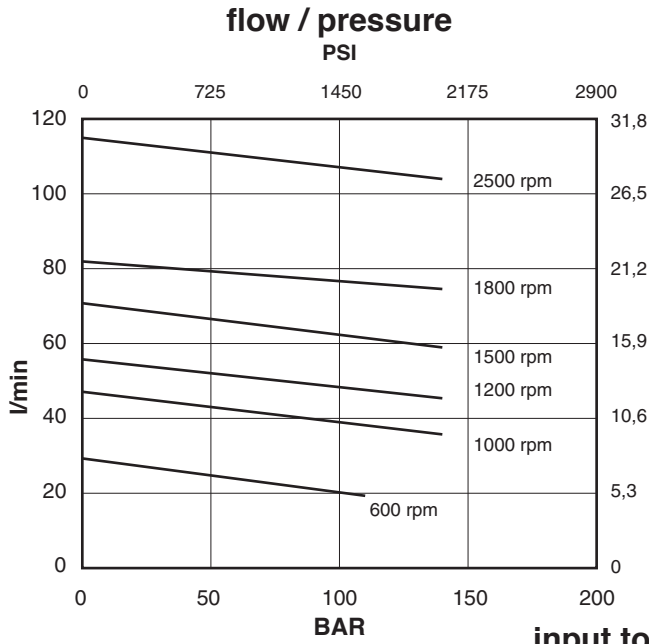
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-12



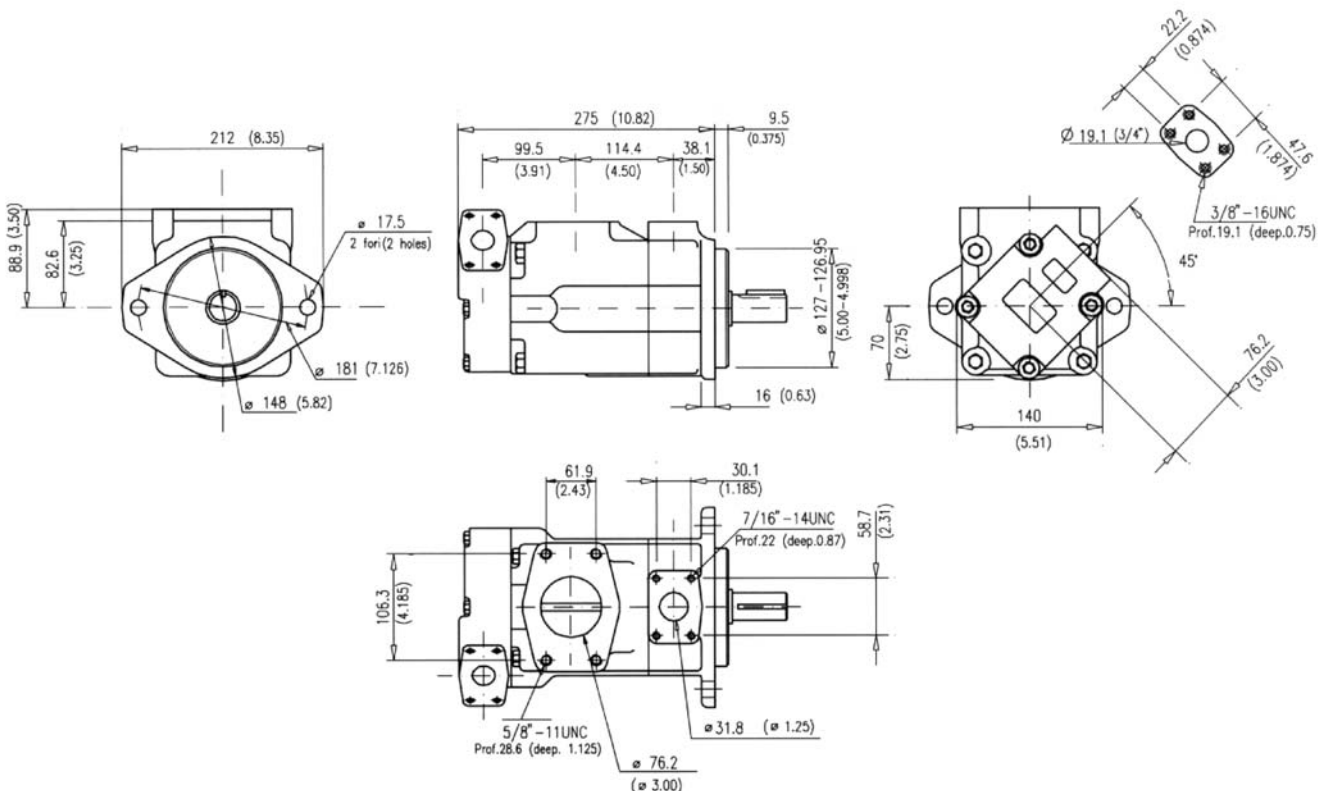
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-14



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

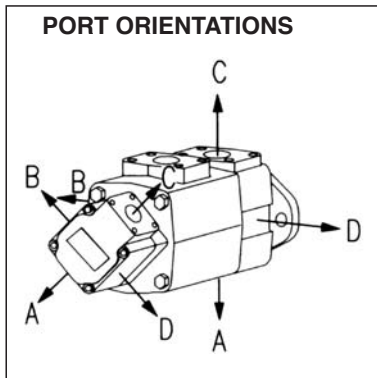
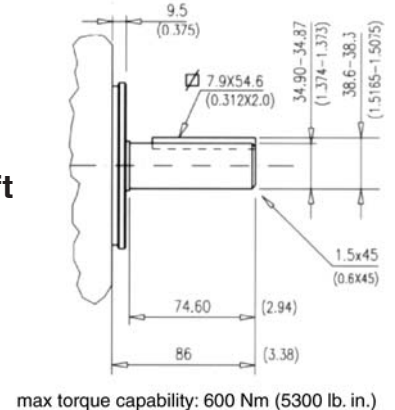
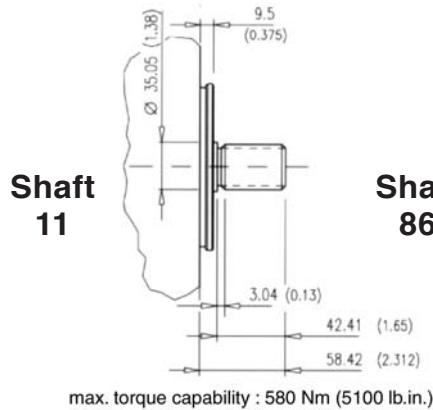
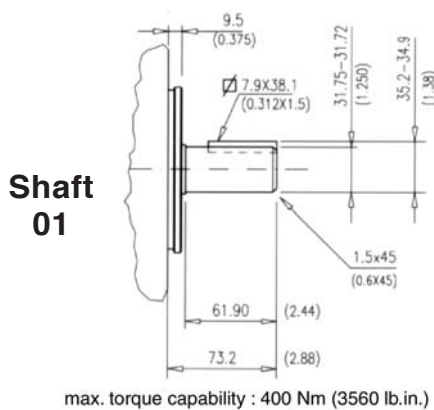


Approx. weight: 34 Kg. (75 lbs.)

Model code breakdown

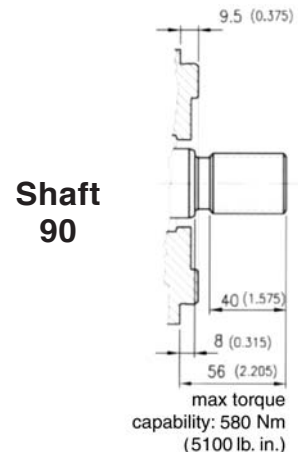
| | | | | | | | | | | |
|---|-----------|----------|-----------|-----------|----------|----------|-----------|------------|----------|------------------------------------|
| BQ | 41 | G | ** | ** | * | * | ** | (L) | * | (A) |
| Pump series | | Design | | | | | | | | Mounting (omit if not required) |
| Pump type | | | | | | | | | | |
| Cartridge types | | | | | | | | | | |
| -shaft end | 21 | 25 | 30 | 35 | 38 | | | | | |
| -cover end | 02 | 05 | 08 | 09 | 11 | 12 | 14 | | | |
| Body outlet port positions (Outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet opposite end | | | | | | | | | | |
| B = Outlet 90° CCW from inlet | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | |
| Cover outlet port positions (Outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet 135° CCW from inlet | | | | | | | | | | |
| B = Outlet 45° CCW from inlet | | | | | | | | | | |
| C = Outlet 45° CW from inlet | | | | | | | | | | |
| D = Outlet 135° CW from inlet | | | | | | | | | | |
| Seals (omit with standard seals and one shaft-seal in NBR) | | | | | | | | | | |
| V = seals and shaft-seal in FPM (Viton®) | | | | | | | | | | |
| D = standard seals and double shaft-seals in NBR | | | | | | | | | | |
| F = seals and double shaft-seals in FPM (Viton®) | | | | | | | | | | |
| Rotation (viewed from shaft end) | | | | | | | | | | |
| L = left hand rotation CCW (omit if CW) | | | | | | | | | | |
| Shaft end options | | | | | | | | | | |
| 01 = Straight with key (standard), 11 = Splined | | | | | | | | | | |
| 86 = Heavy duty straight keyed, 90 = Splined SAE C | | | | | | | | | | |

Shaft options mm (inches)



Spline data
(Shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |



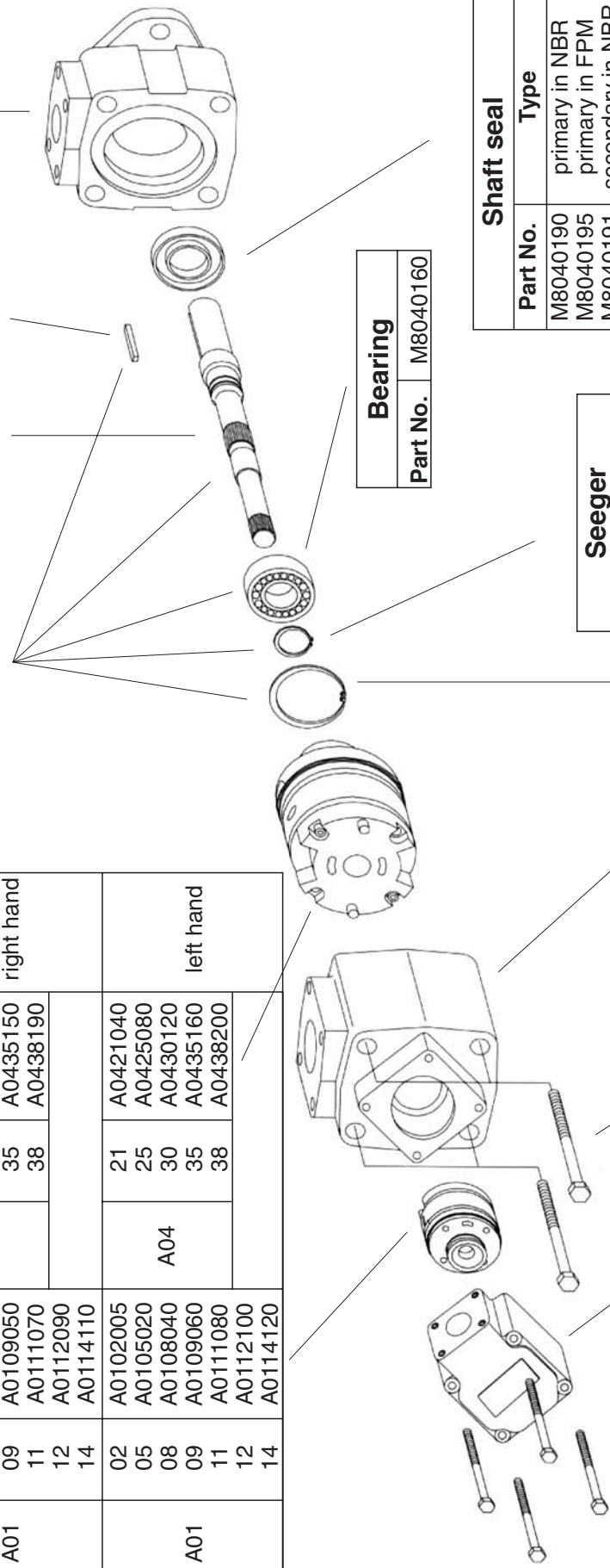
Id. codes of pump components

| Cartridges | | | | Pump rotation | |
|------------|-------|-----------|--------|---------------|----------|
| Cover end | | Shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| A01 | 02 | A0102000 | A04 | 21 | A0421030 |
| | 05 | A0105010 | | 25 | A0425070 |
| | 08 | A0108030 | | 30 | A0430110 |
| | 09 | A0109050 | | 35 | A0435150 |
| | 11 | A0111070 | | 38 | A0438190 |
| | 12 | A0112090 | | | |
| | 14 | A0114110 | | | |
| A01 | 02 | A0102005 | A04 | 21 | A0421040 |
| | 05 | A0105020 | | 25 | A0425080 |
| | 08 | A0108040 | | 30 | A0430120 |
| | 09 | A0109060 | | 35 | A0435160 |
| | 11 | A0111080 | | 38 | A0438200 |
| | 12 | A0112100 | | | |
| | 14 | A0114120 | | | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8410601 |
| 11 | M8410611 |
| 86 | M8410686 |
| 90 | M8410690 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K4101000 |
| 11 | K4111000 |
| 86 | K4186000 |
| 90 | K4190000 |

| Body | |
|----------|----------|
| Part No. | Model |
| M8040140 | M8040140 |



| Bearing | |
|----------|----------|
| Part No. | Model |
| M8040160 | M8040160 |

| Seeger | |
|----------|----------|
| Part No. | Model |
| M8040180 | M8040180 |

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8040190 | primary in NBR |
| M8040195 | primary in FPM |
| M8040191 | secondary in NBR |
| M8040196 | secondary in FPM |

| Inlet body | |
|------------|----------|
| Part No. | Model |
| M8040430 | M8040430 |

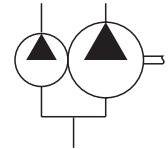
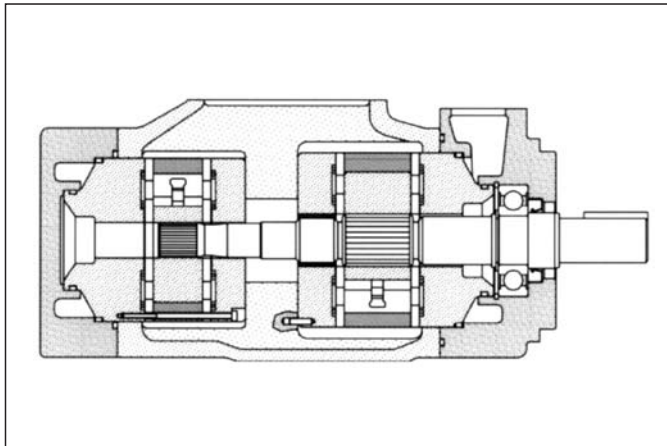
| Cover | |
|----------|----------|
| Part No. | Model |
| M8020120 | M8020120 |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8410241 | seals + 1 shaft seal | NBR |
| M8410242 | seals + 2 shaft seals | NBR |
| M8410243 | seals + 1 shaft seal | FPM (Viton®) |
| M8410244 | seals + 2 shaft seals | FPM (Viton®) |

| Seeger | |
|----------|----------|
| Part No. | Model |
| M8040170 | M8040170 |

| Screw | |
|---------------------------------|----------|
| Part No. | Model |
| M8040210 | M8040210 |
| Torque to 225 Nm (2010 lb. in.) | |

| Screw | |
|-------------------------------|----------|
| Part No. | Model |
| M8020420 | M8020420 |
| Torque to 70 Nm (624 lb. in.) | |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 127 to 219 l/min (from 33 to 59 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| A04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 210 | (3050) | 600 | 2500 |
| A04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 210 | (3050) | 600 | 2500 |
| A04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 210 | (3050) | 600 | 2500 |
| A04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 210 | (3050) | 600 | 2400 |
| A04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 210 | (3050) | 600 | 2400 |
| cover end | | | | | | | | | | |
| A02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 210 | (3050) | 600 | 2700 |
| A02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 210 | (3050) | 600 | 2700 |
| A02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 210 | (3050) | 600 | 2500 |
| A02-19 | 60,0 | (3.66) | 71,0 | (19) | 88,7 | (23.4) | 210 | (3050) | 600 | 2500 |
| A02-21 | 67,5 | (4.12) | 79,0 | (21) | 99,8 | (26.4) | 210 | (3050) | 600 | 2500 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

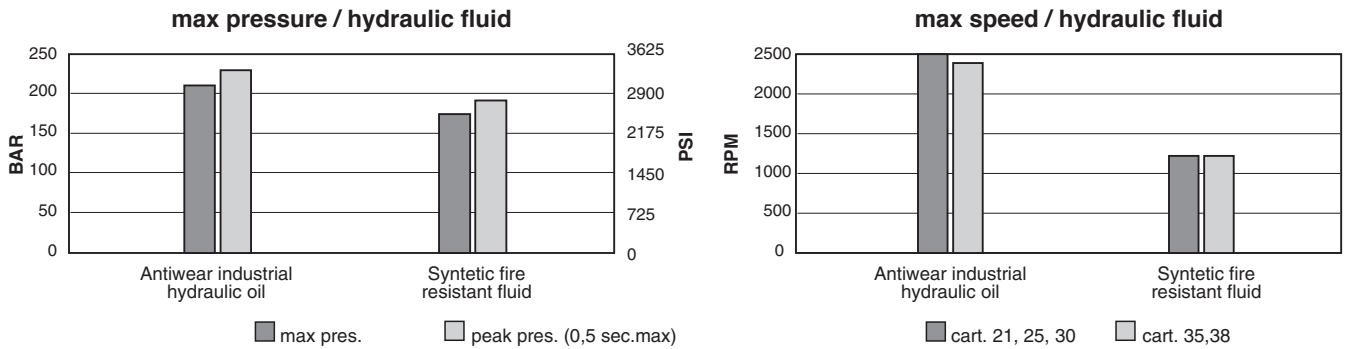
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

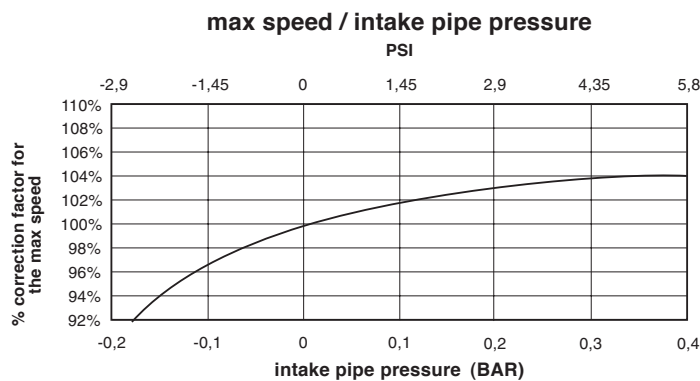
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

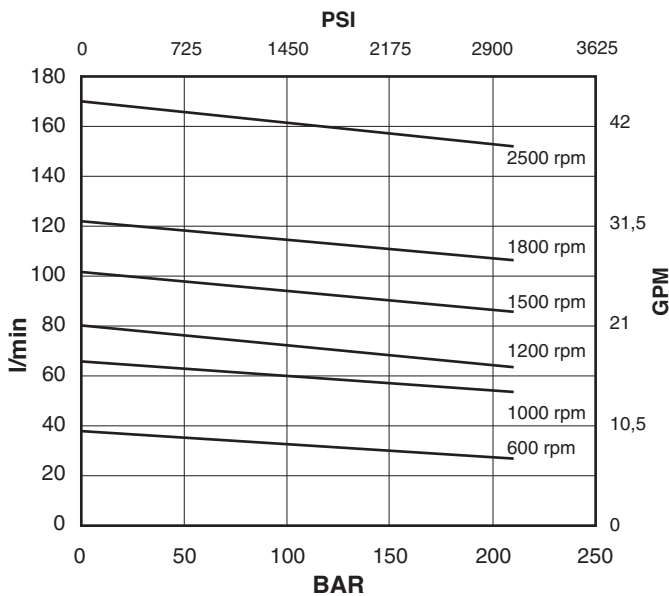
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

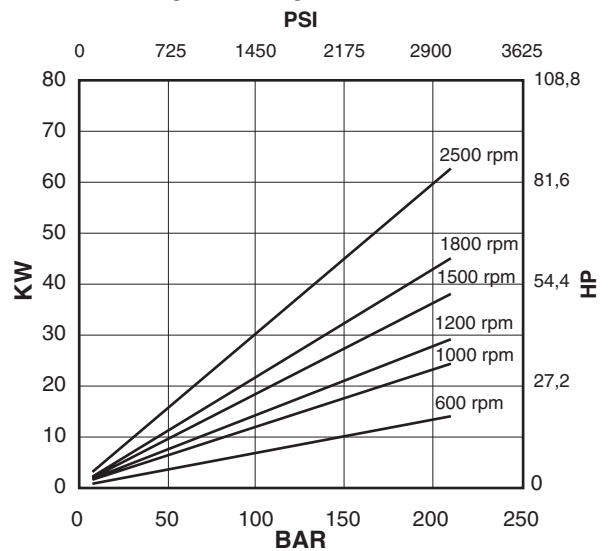


flow / pressure

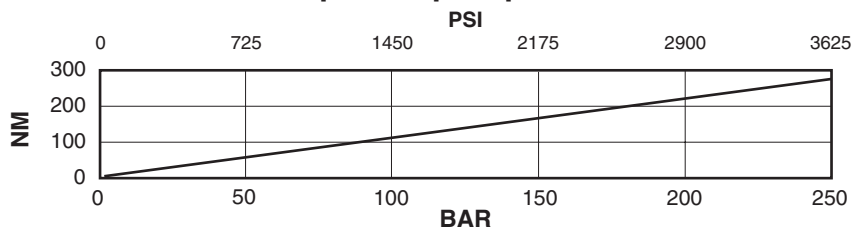


Shaft end cartridge A04-21

power / pressure

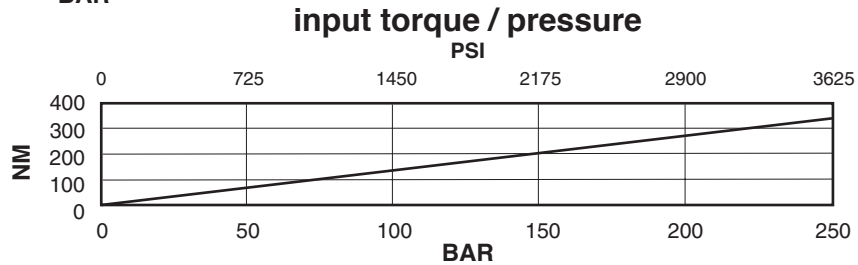
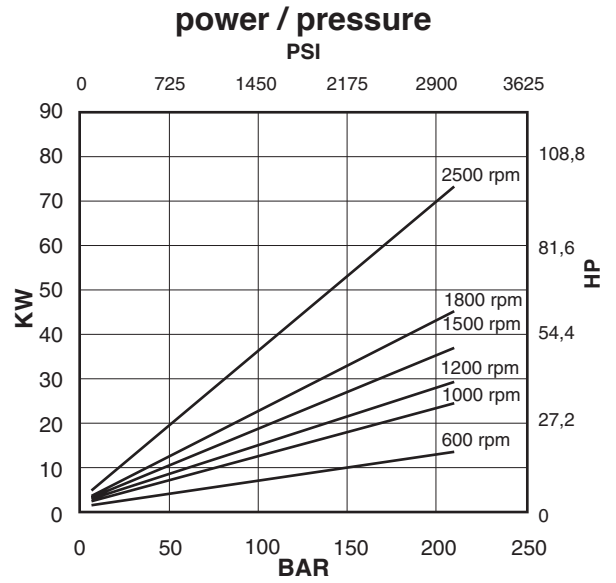
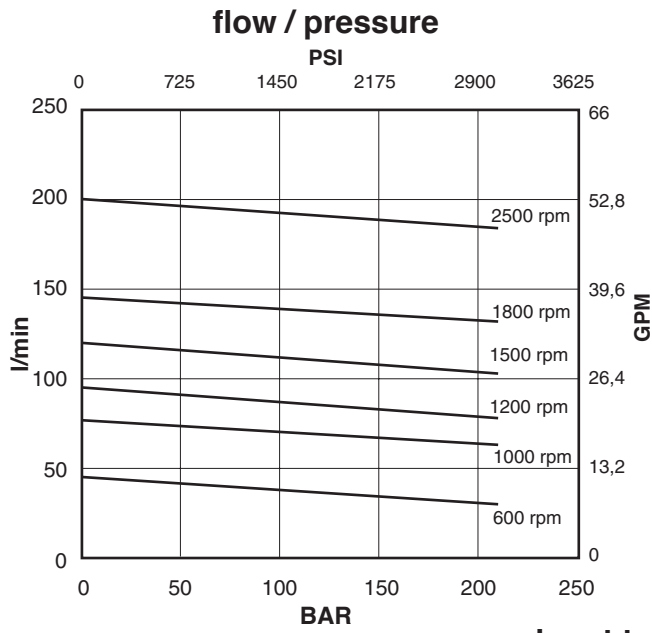


input torque / pressure



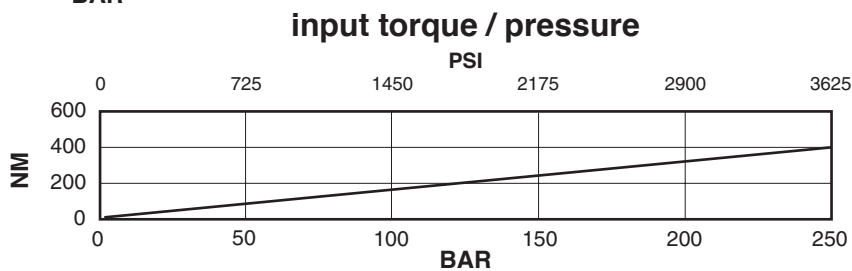
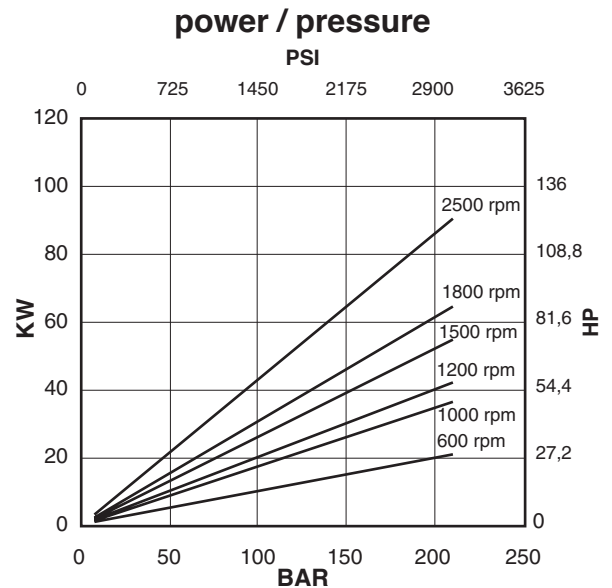
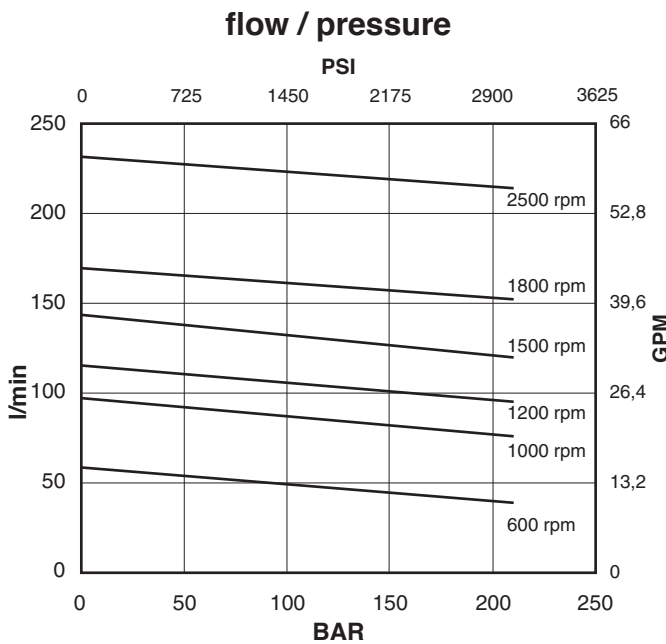
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-25



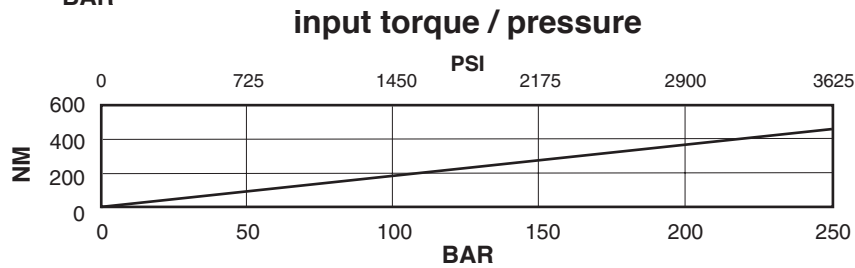
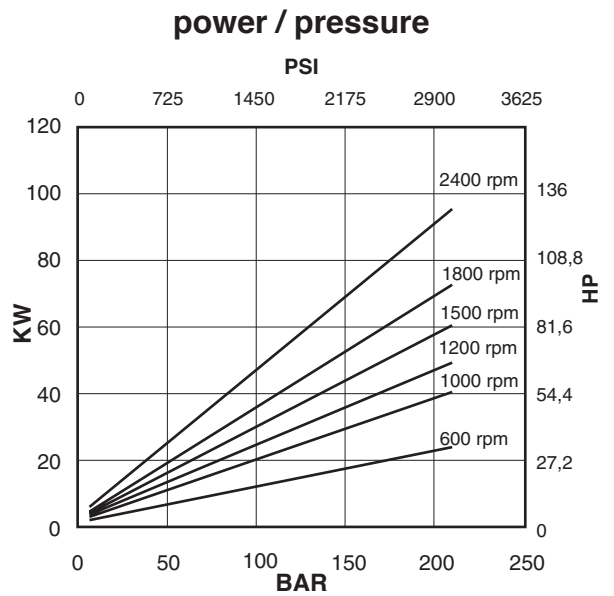
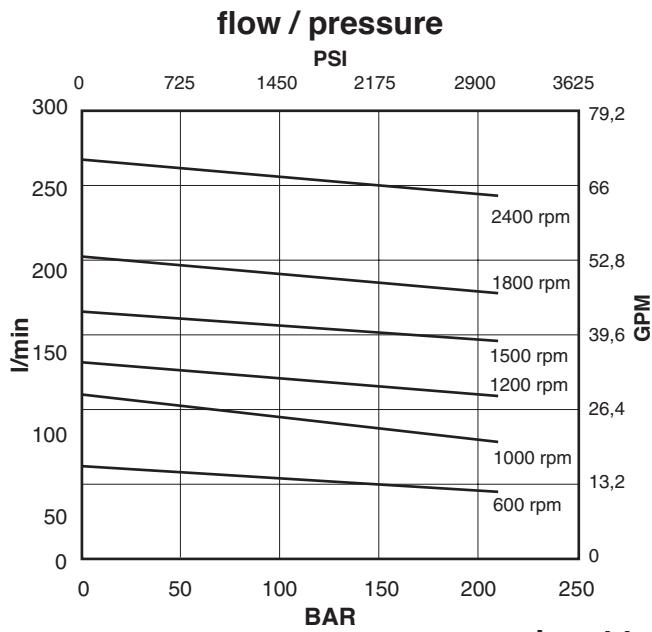
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-30



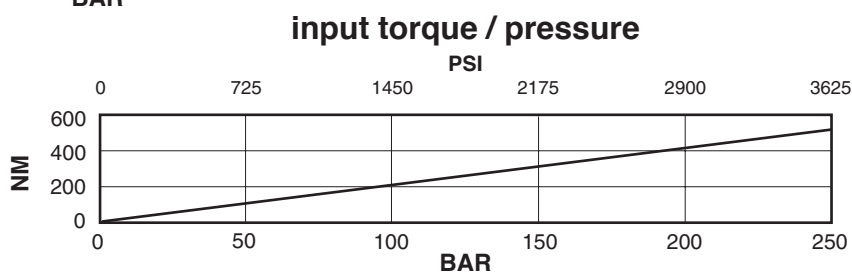
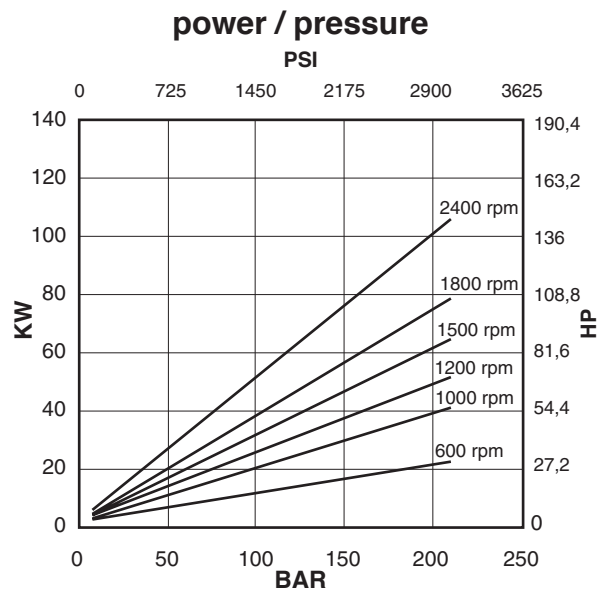
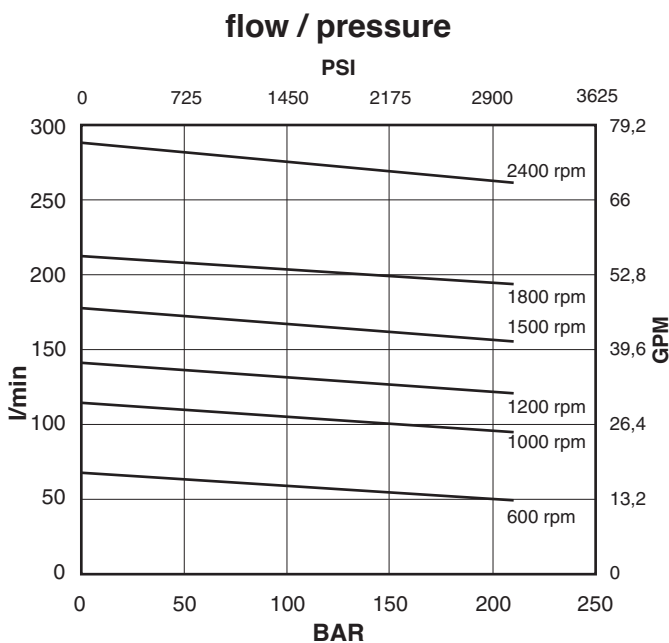
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-35



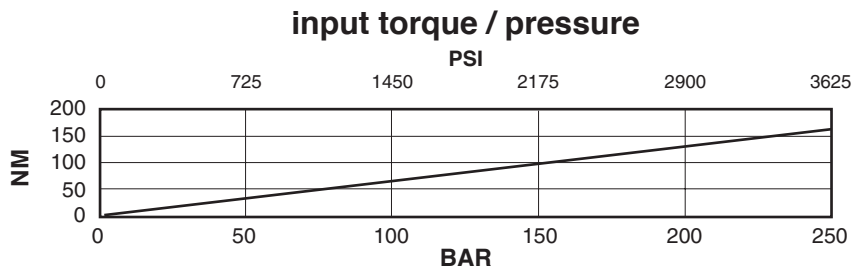
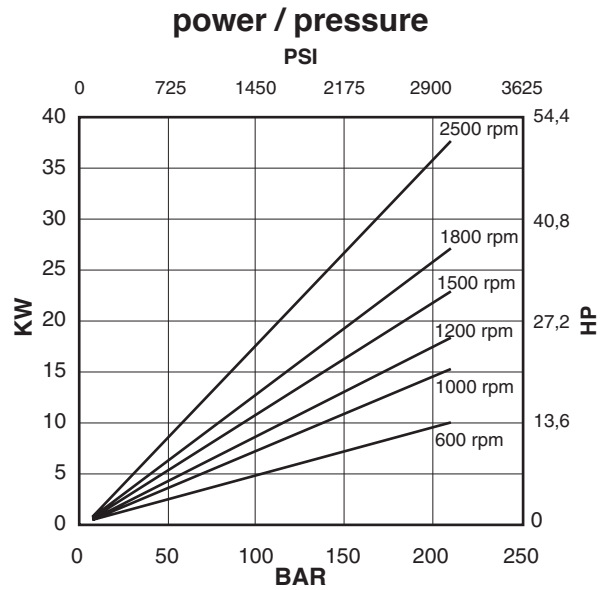
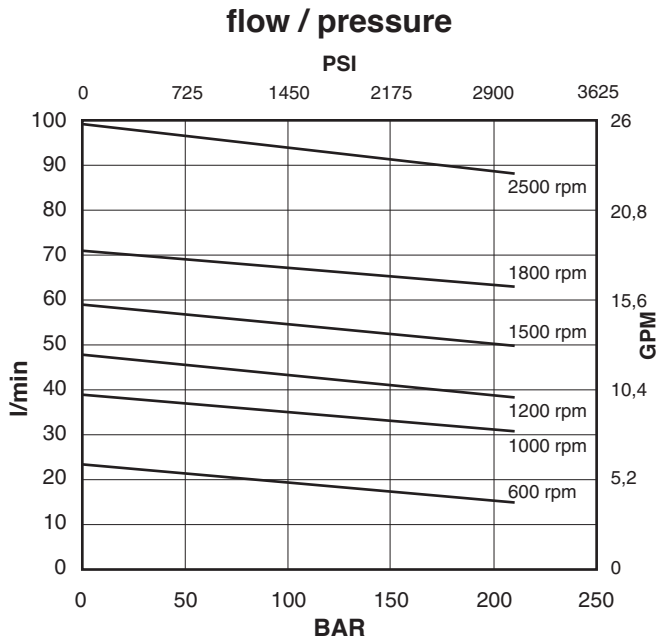
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A04-38



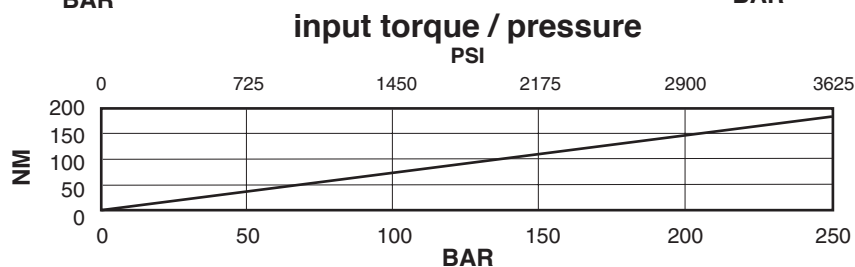
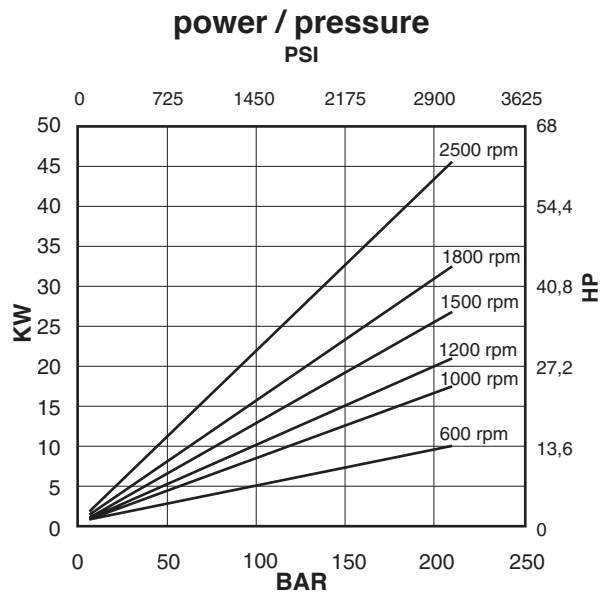
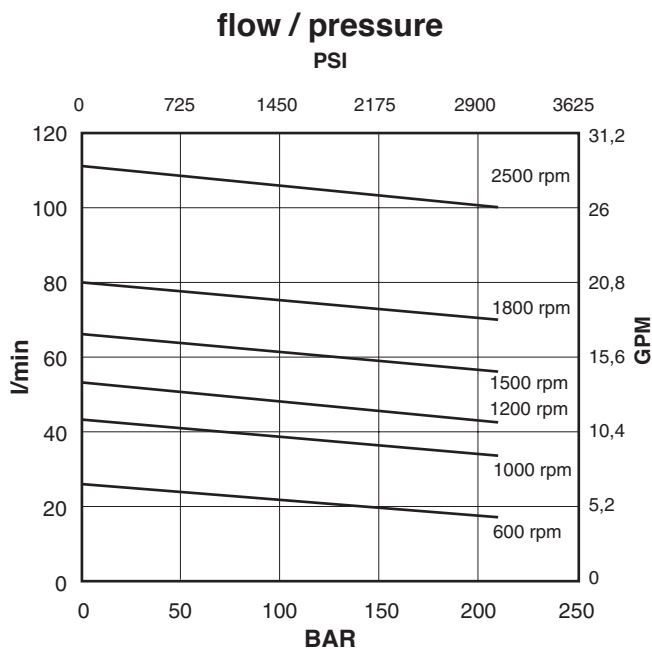
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-12



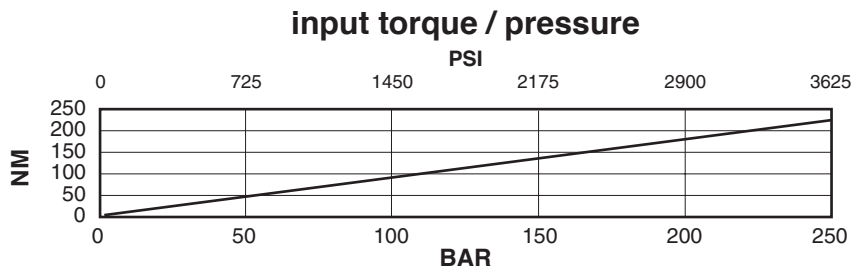
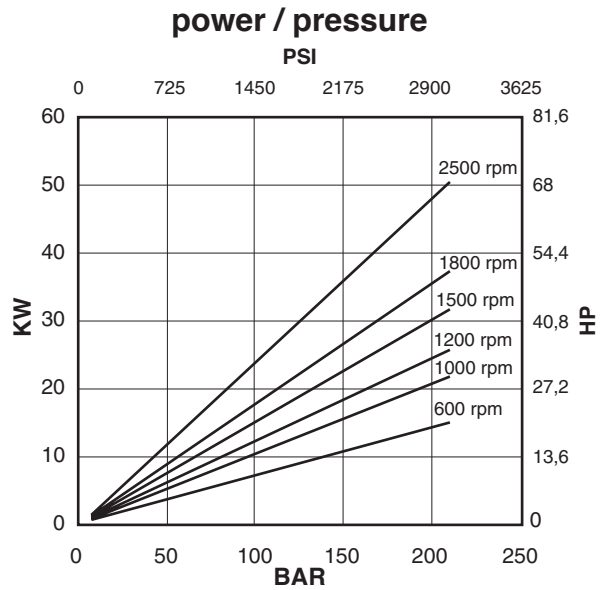
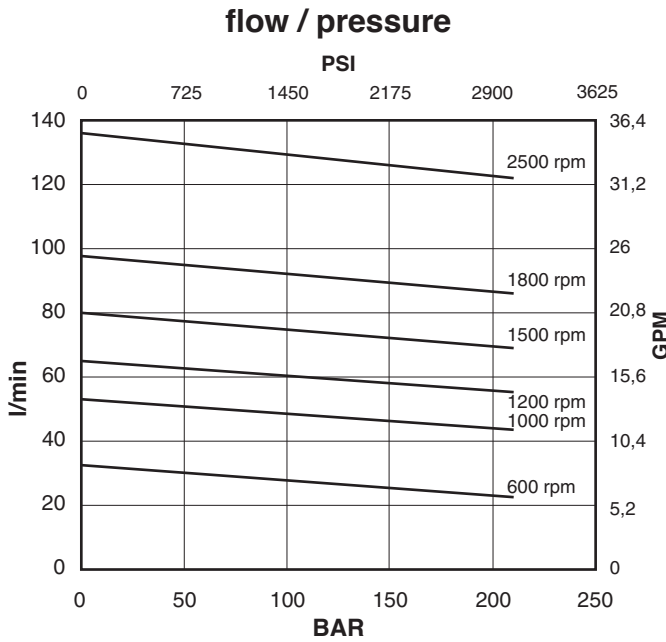
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-14



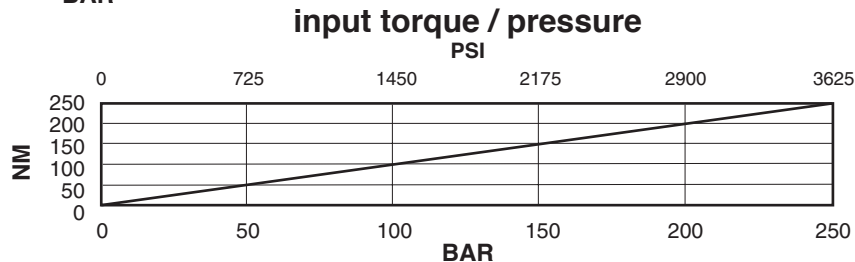
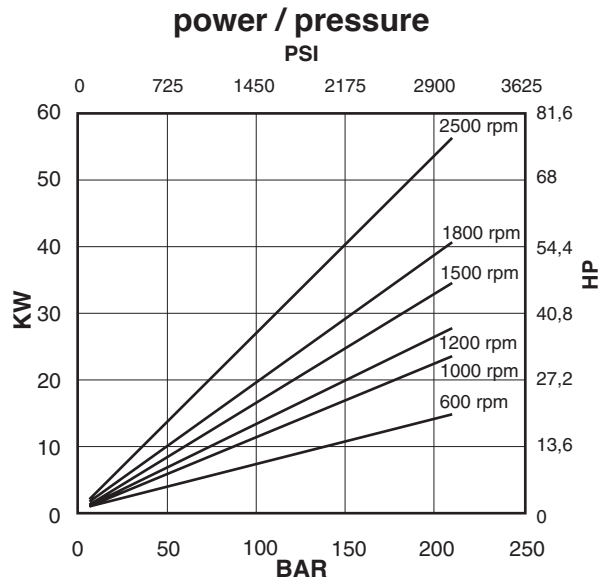
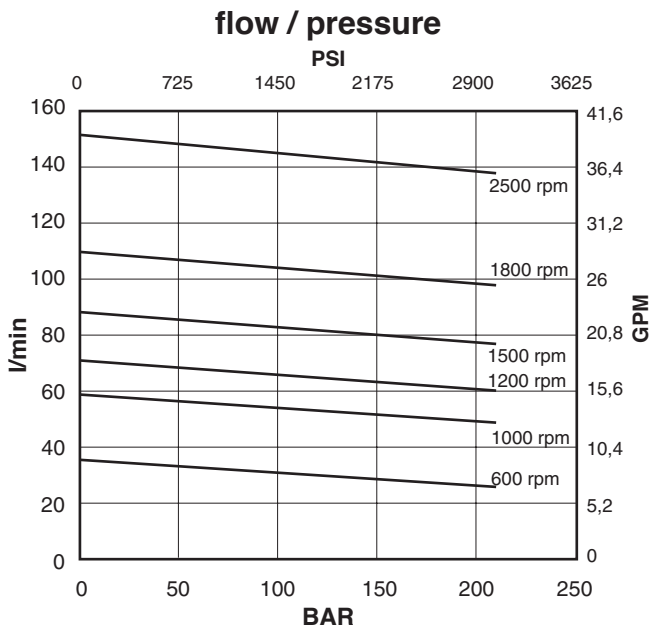
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-17



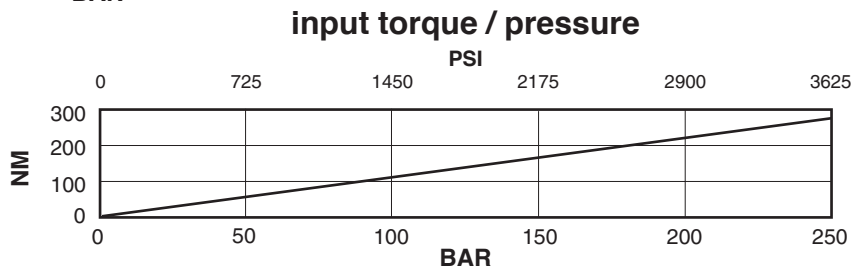
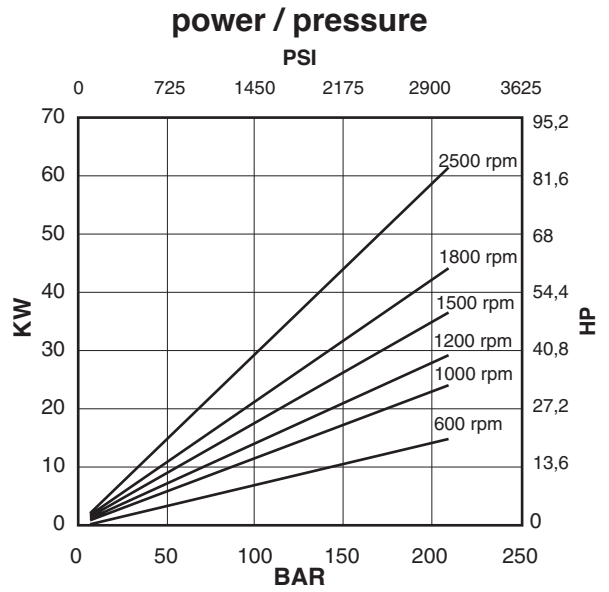
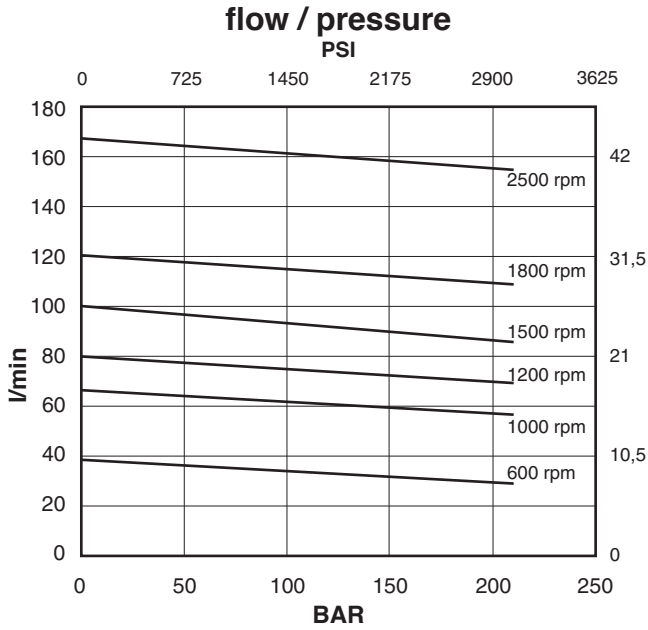
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-19



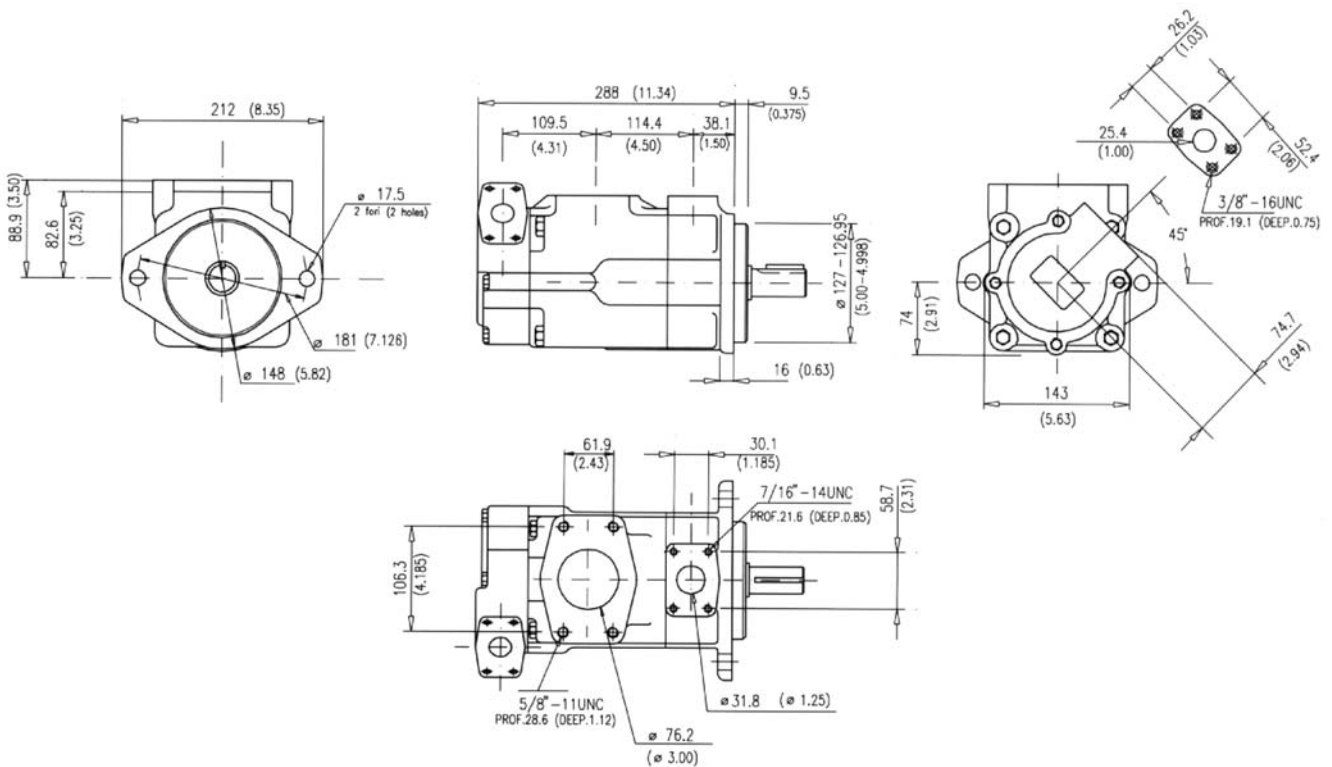
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-21



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



Approx. weight: 34,5 Kg. (76 lbs.)

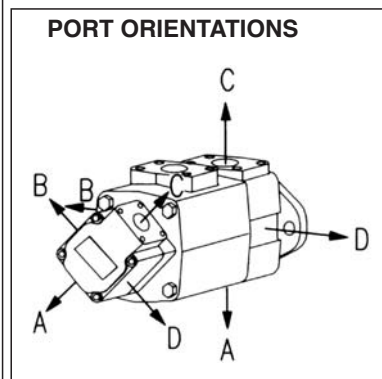
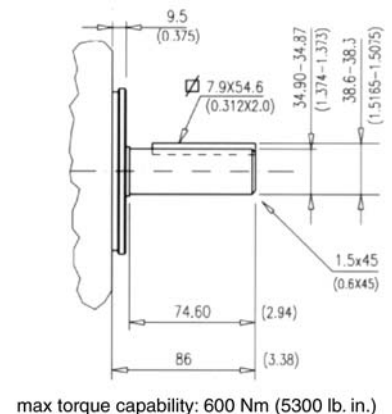
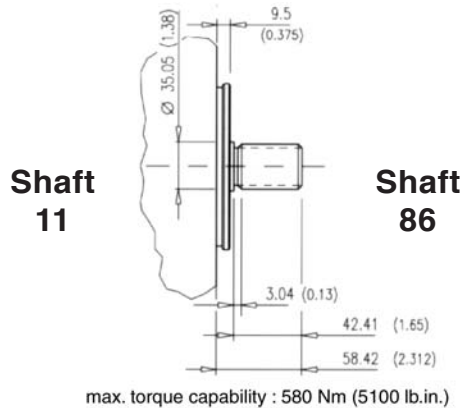
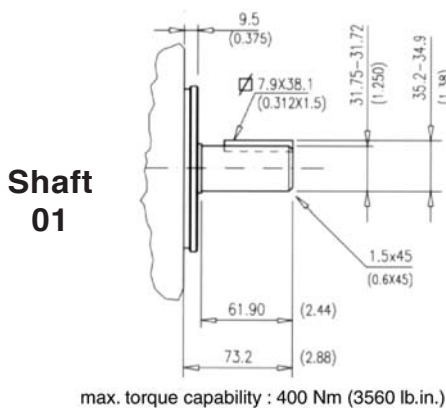
Model code breakdown

| | |
|---|---|
| <p>BQ 42 G ** ** * * ** (L) * (A)</p> <p>Pump series</p> <p>Design</p> <p>Pump type</p> <p>Cartridge types</p> <p>-shaft end 21 25 30 35 38</p> <p>-cover end 12 14 17 19 21</p> <p>Body outlet port positions (Outlet viewed from cover end)</p> <p>A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet</p> <p>Cover outlet port positions (Outlet viewed from cover end)</p> <p>A = Outlet 135° CCW from inlet B = Outlet 45° CCW from inlet C = Outlet 45° CW from inlet D = Outlet 135° CW from inlet</p> | <p>Mounting (omit if not required)</p> <p>Seals (omit with standard seals and one shaft-seal in NBR)</p> <p>V = seals and shaft-seal in FPM (Viton®)</p> <p>D = standard seals and double shaft-seals in NBR</p> <p>F = seals and double shaft-seals in FPM (Viton®)</p> <p>Rotation (viewed from shaft end)</p> <p>L = left hand rotation CCW (omit if CW)</p> |
|---|---|

Shaft end options

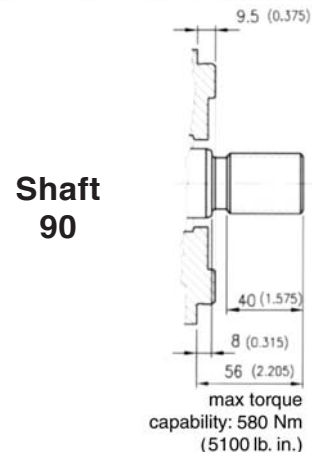
01 = Straight with key (standard), **11** = Splined
86 = Heavy duty straight keyed, **90** = Splined SAE C

Shaft options mm (inches)



Spline data
(Shaft 11 and shaft 90)

| | |
|----------------|-------------------------------|
| Spline | Involute side fit (ASA B5.15) |
| Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 |
| Major dia. | 31.60 - 31.50 (1.244 - 1.240) |
| Pitch dia. | 29.634 (1.1667) |
| Minor dia. | 26.99 - 26.66 (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 (0.617 - 0.619) |



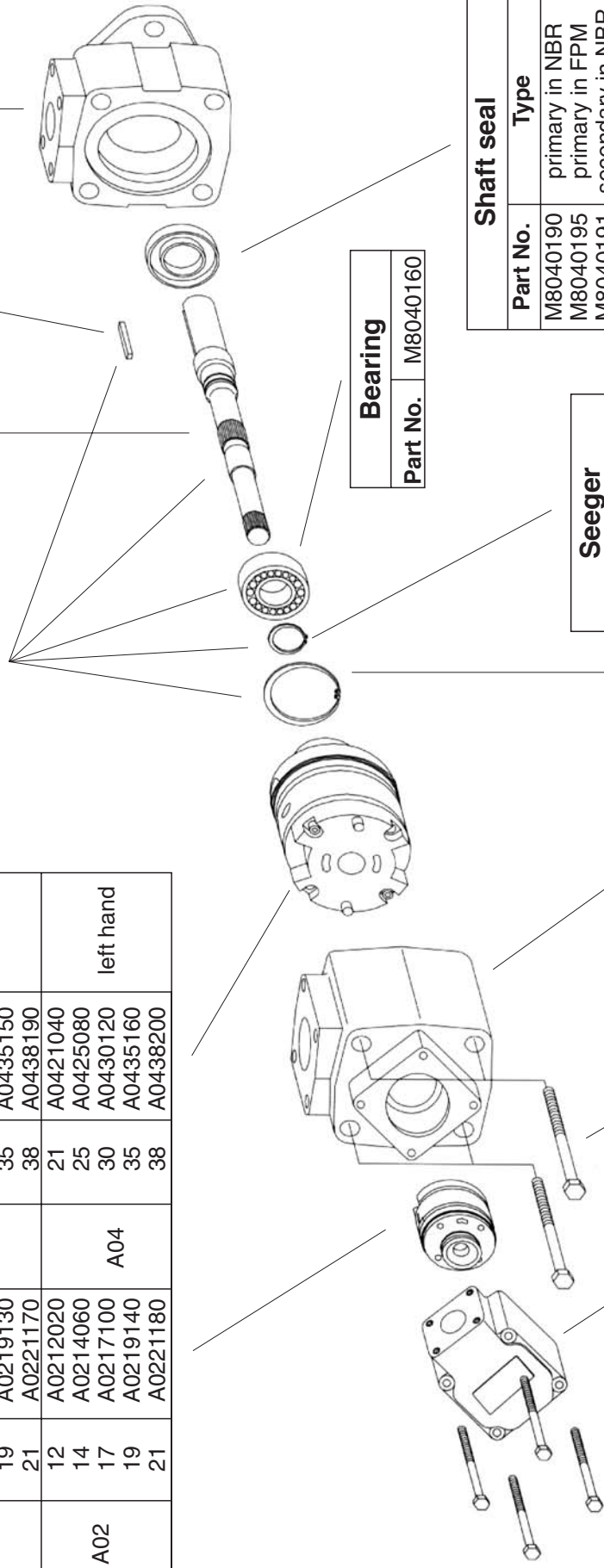
Id. codes of pump components

| Cartridges | | | | Pump rotation | |
|------------|-------|-----------|--------|---------------|----------|
| Cover end | | Shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| A02 | 12 | A0212010 | A04 | 21 | A0421030 |
| | 14 | A0214050 | | 25 | A0425070 |
| | 17 | A0217090 | | 30 | A0430110 |
| | 19 | A0219130 | | 35 | A0435150 |
| | 21 | A0221170 | | 38 | A0438190 |
| A02 | 12 | A0212020 | A04 | 21 | A0421040 |
| | 14 | A0214060 | | 25 | A0425080 |
| | 17 | A0217100 | | 30 | A0430120 |
| | 19 | A0219140 | | 35 | A0435160 |
| | 21 | A0221180 | | 38 | A0438200 |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8420601 |
| 11 | M8420611 |
| 86 | M8420686 |
| 90 | M8420690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K4201000 | M8040100 | |
| 11 | K4211000 | - | |
| 86 | K4286000 | M8048600 | |
| 90 | K4290000 | - | |

| Body | |
|----------|----------|
| Part No. | Part No. |
| M8040140 | |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8040190 | primary in NBR |
| M8040195 | primary in FPM |
| M8040191 | secondary in NBR |
| M8040196 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| M8040160 | |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040180 | |

| Inlet body | |
|------------|----------|
| Part No. | Part No. |
| M8040240 | |

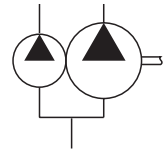
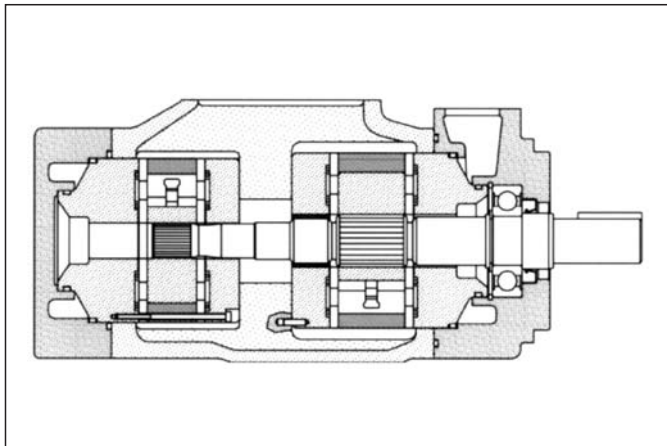
| Cover | |
|----------|----------|
| Part No. | Part No. |
| M8050350 | |

| Screw | |
|--------------------------------|----------|
| Part No. | Part No. |
| M8040230 | |
| Torque to 102 Nm (910 lb. in.) | |

| Screw | |
|---------------------------------|----------|
| Part No. | Part No. |
| M8040220 | |
| Torque to 225 Nm (2010 lb. in.) | |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040170 | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8420371 | seals + 1 shaft seal | NBR |
| M8420372 | seals + 2 shaft seals | NBR |
| M8420373 | seals + 1 shaft seal | FPM (Viton®) |
| M8420374 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 172 to 285 l/min (from 44 to 74 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum Pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| A05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 2200 |
| A05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 2200 |
| A05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 2200 |
| A05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 2200 |
| A05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 2200 |
| cover end | | | | | | | | | | |
| A01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| A01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| A01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| A01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| A01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| A01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| A01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

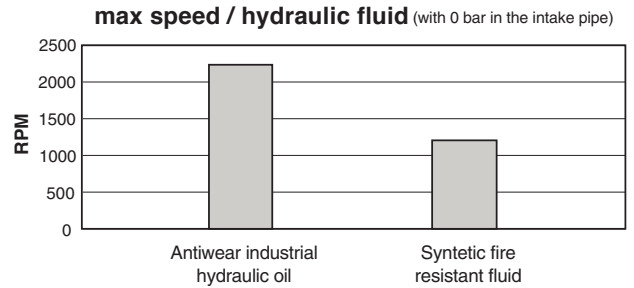
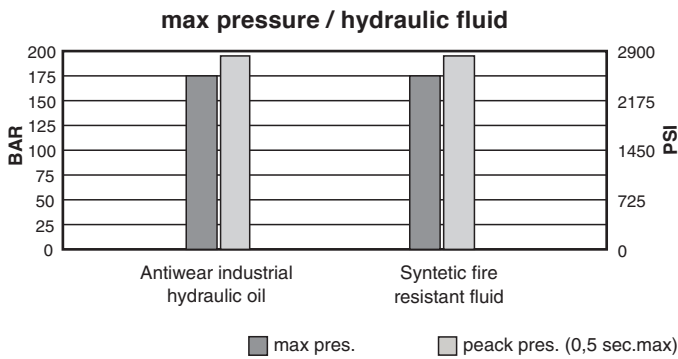
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

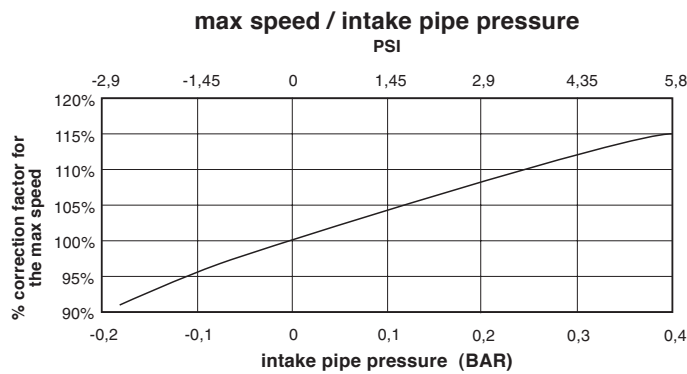
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

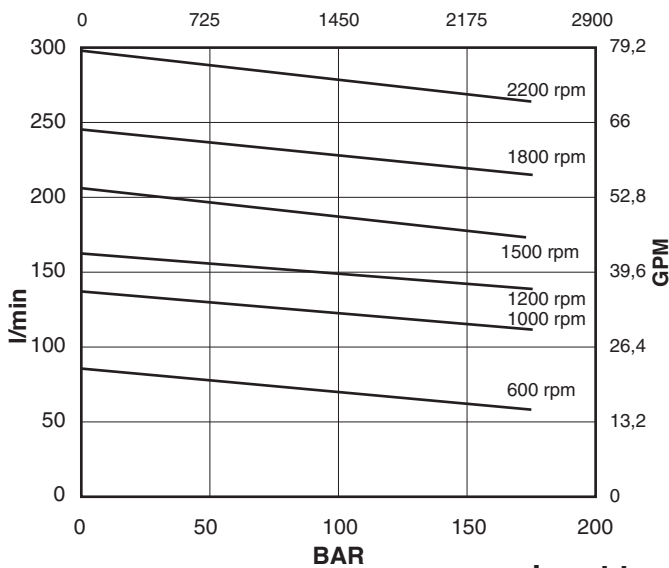
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

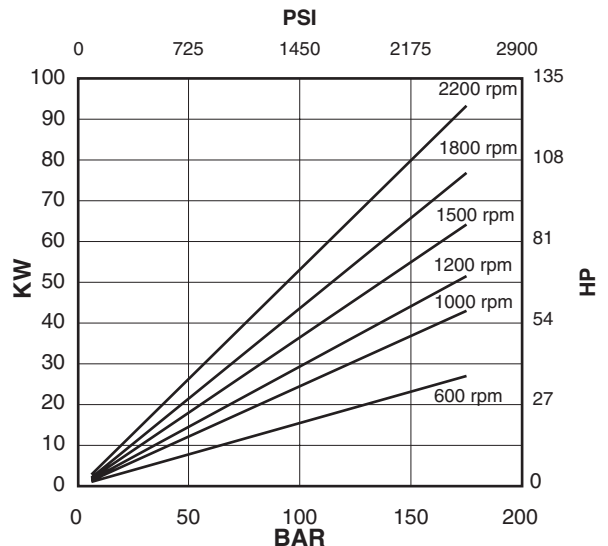


flow / pressure

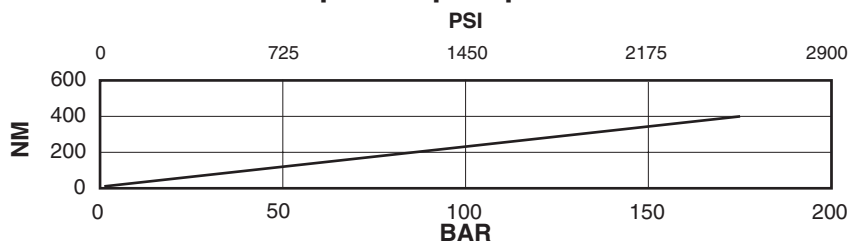


Shaft end cartridge A05-42

power / pressure

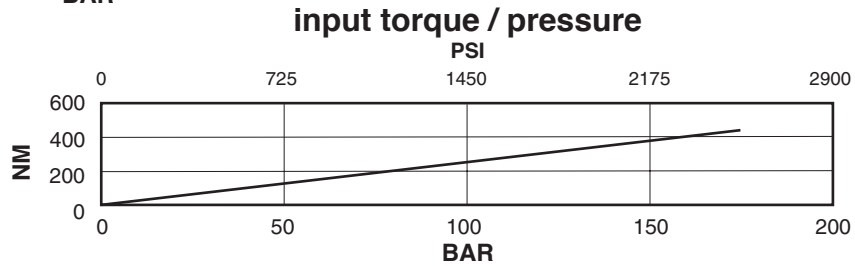
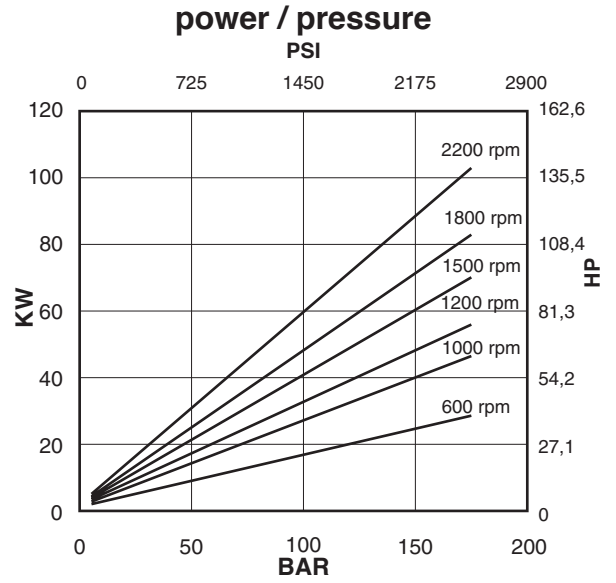
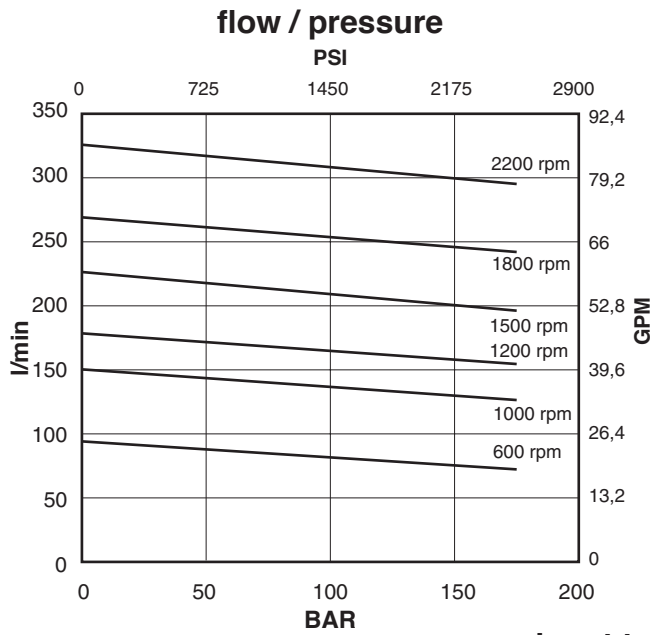


input torque / pressure



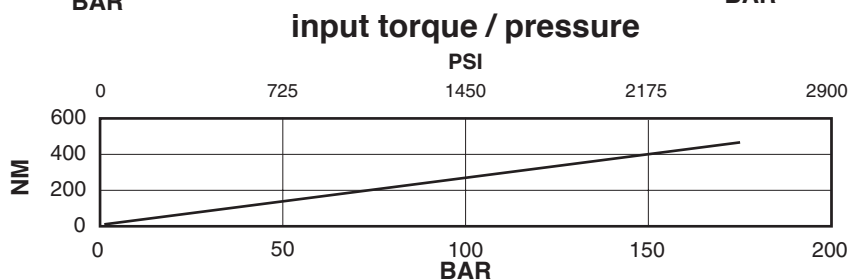
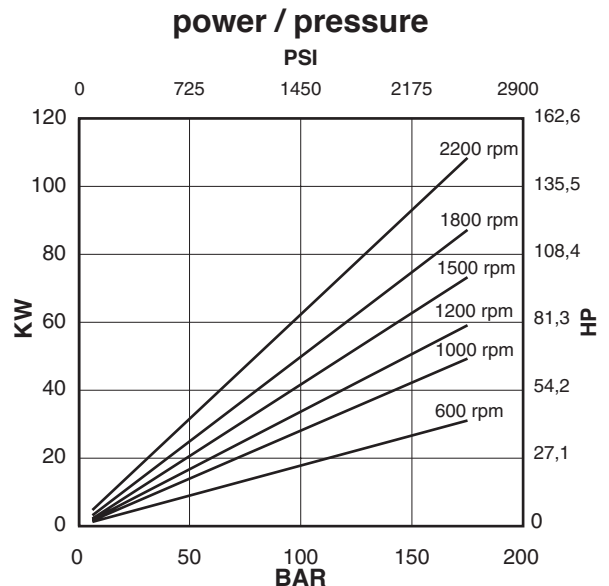
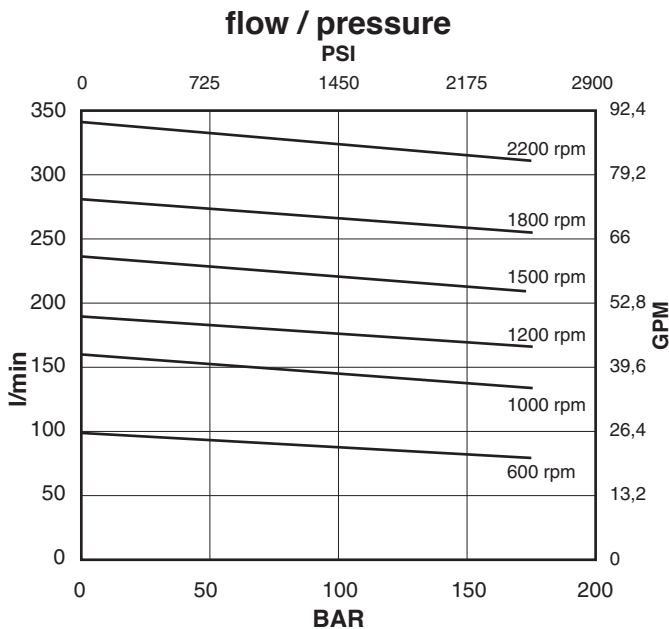
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-47



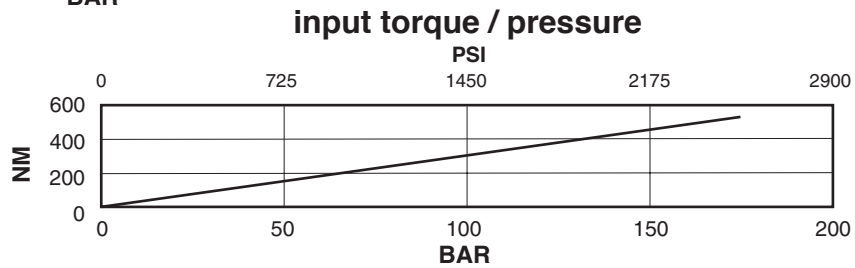
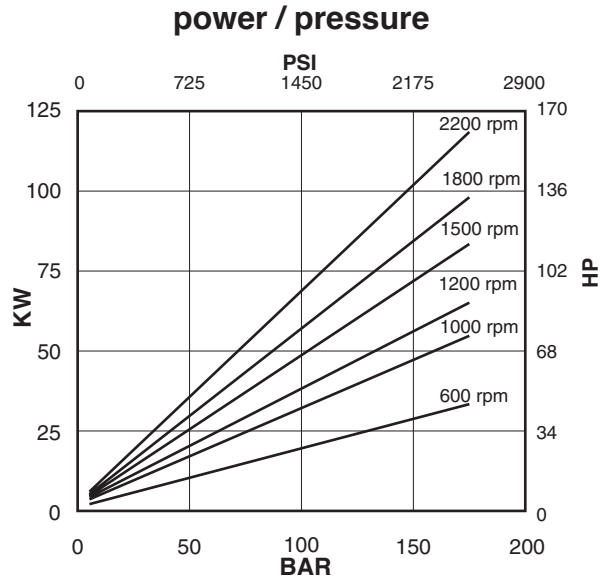
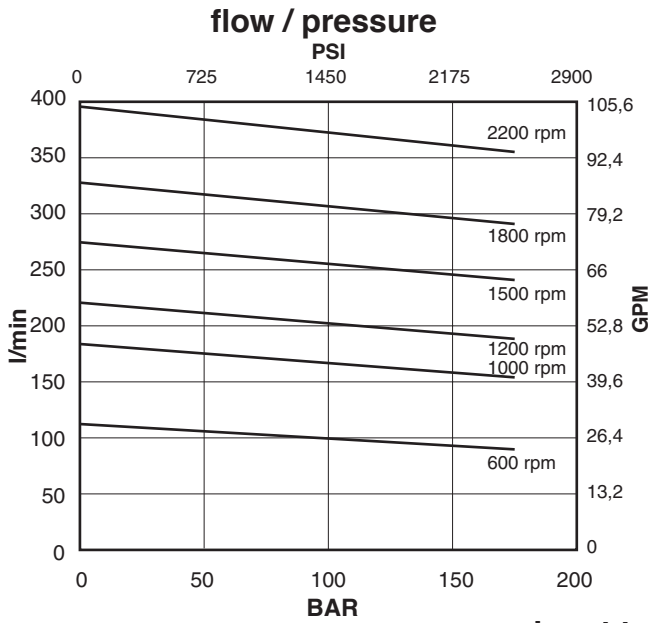
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-50



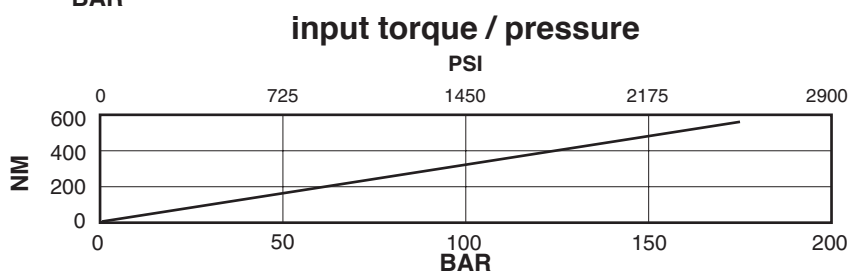
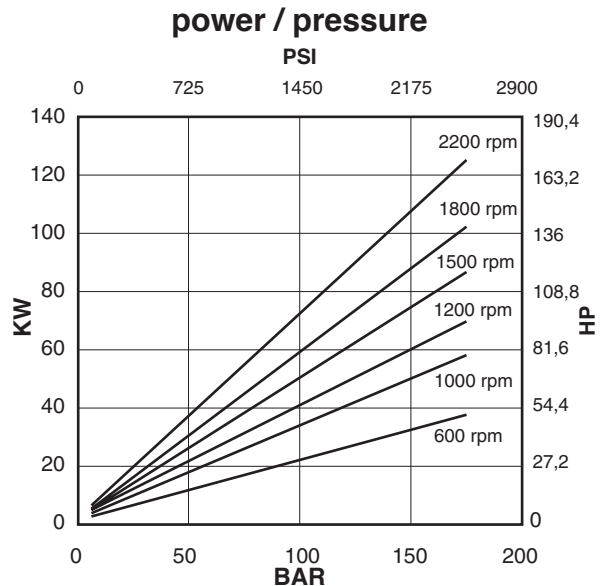
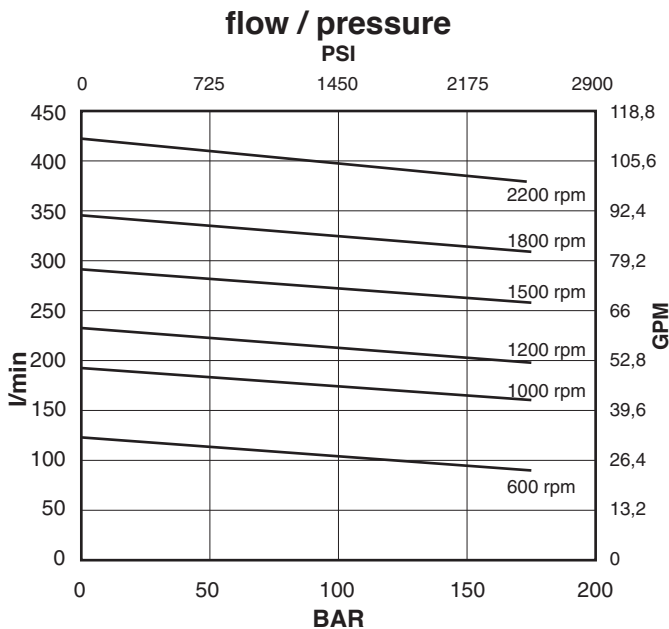
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-57



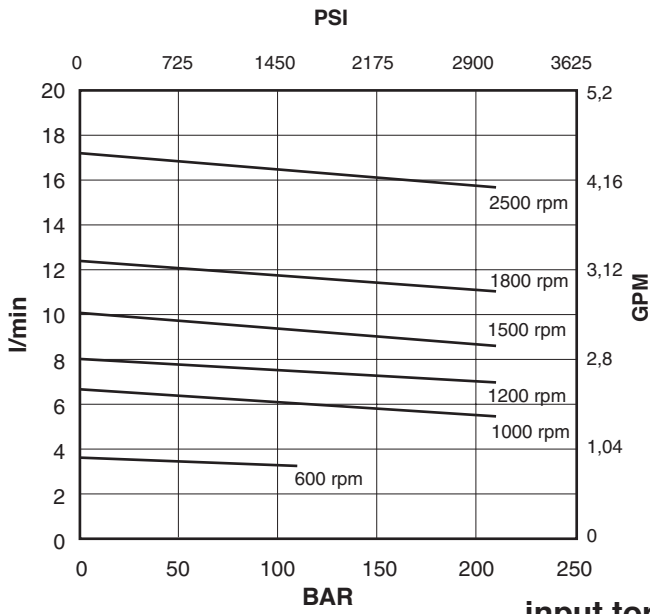
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-60



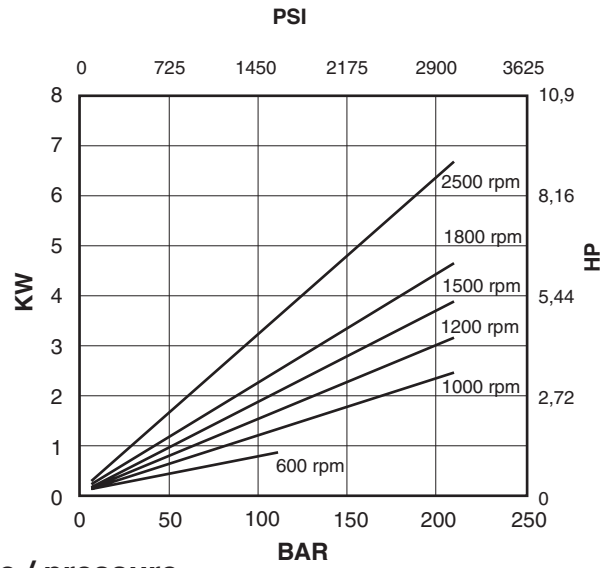
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

flow / pressure

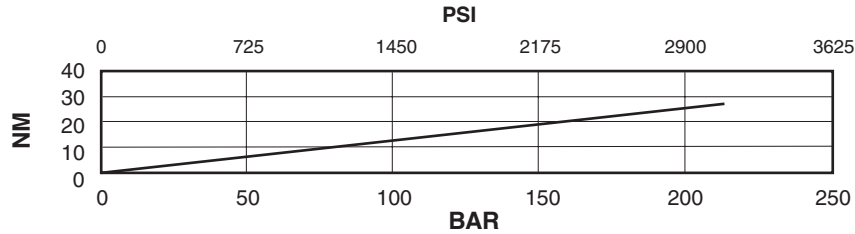


Cover end cartridge A01-02

power / pressure

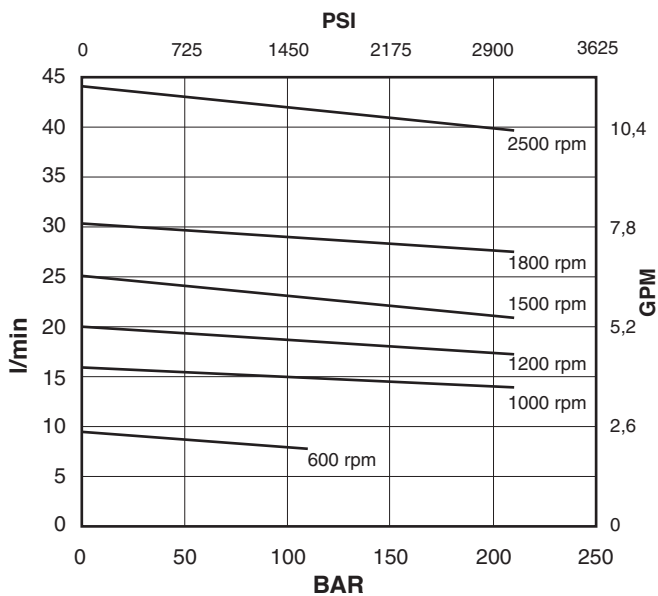


input torque / pressure



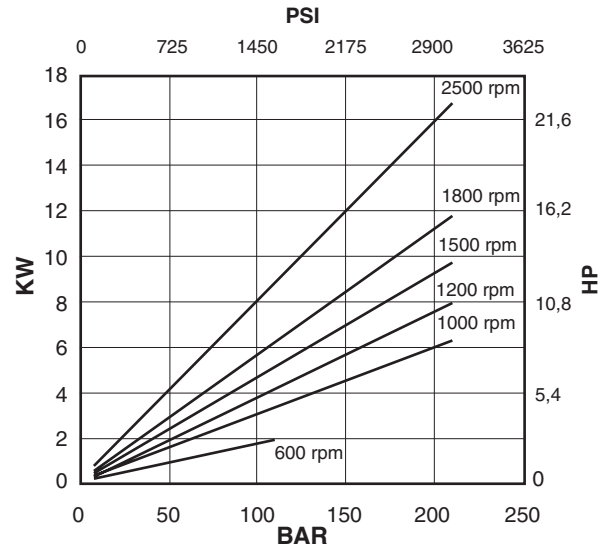
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

flow / pressure

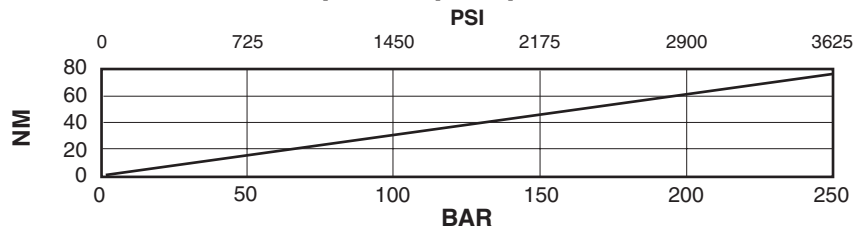


Cover end cartridge A01-05

power / pressure

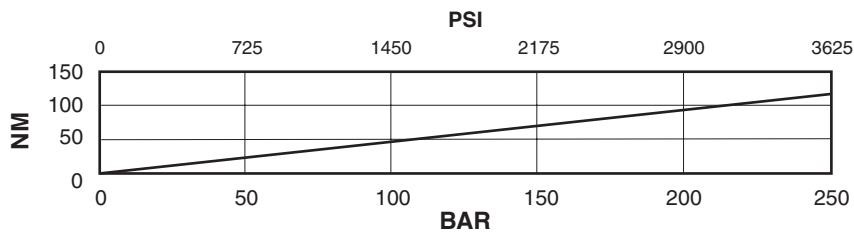
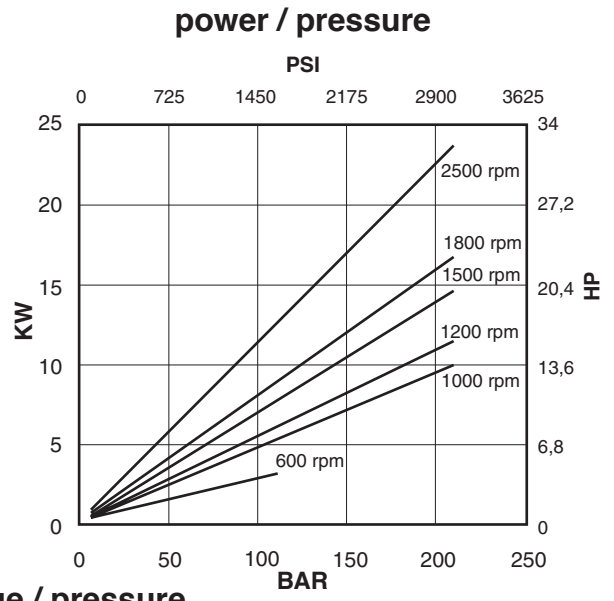
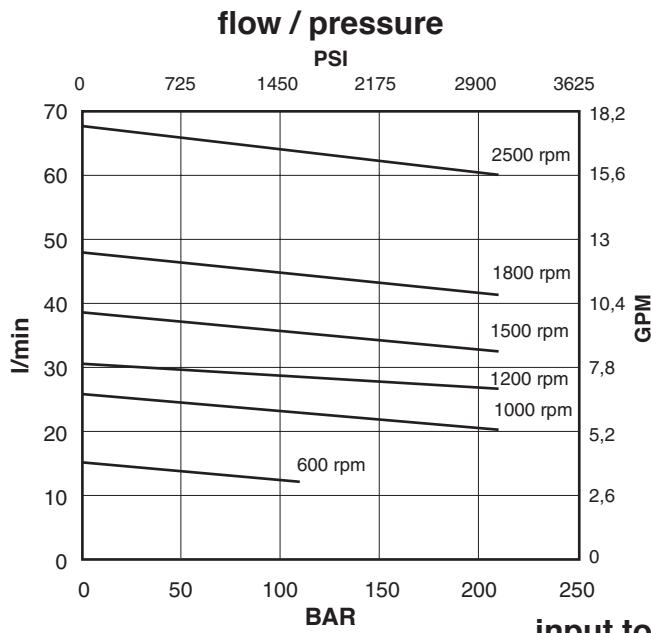


input torque / pressure



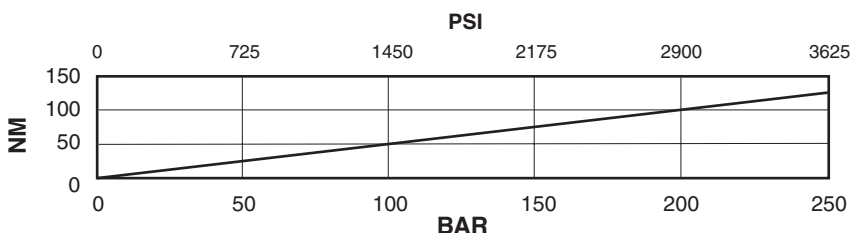
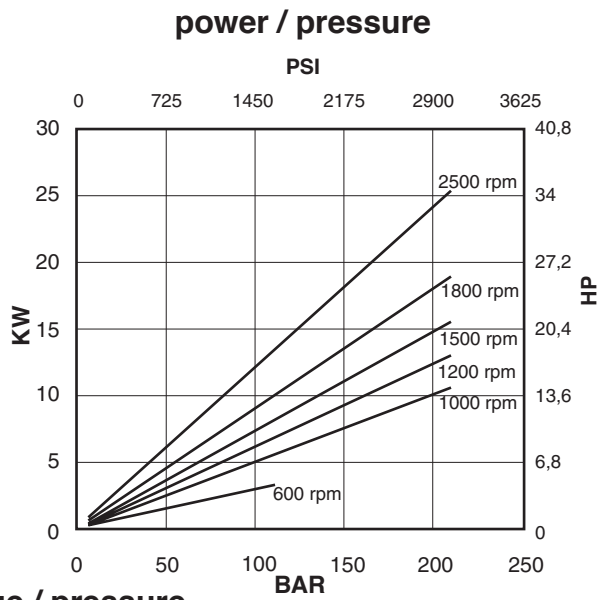
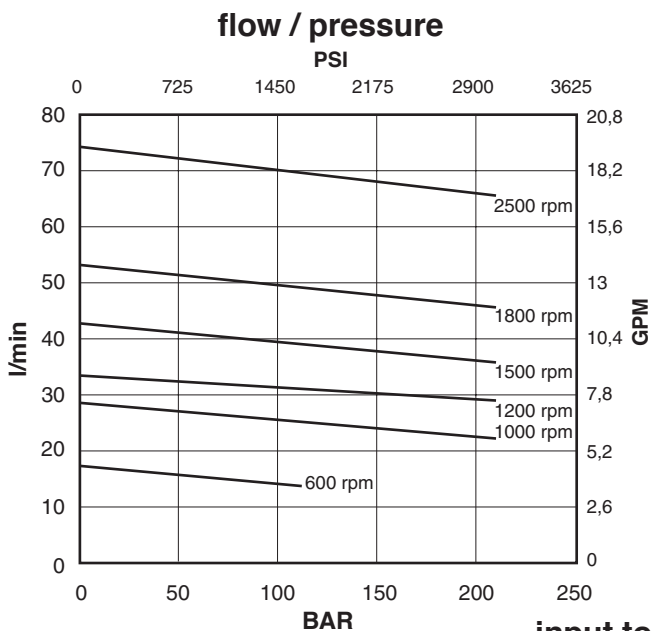
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08



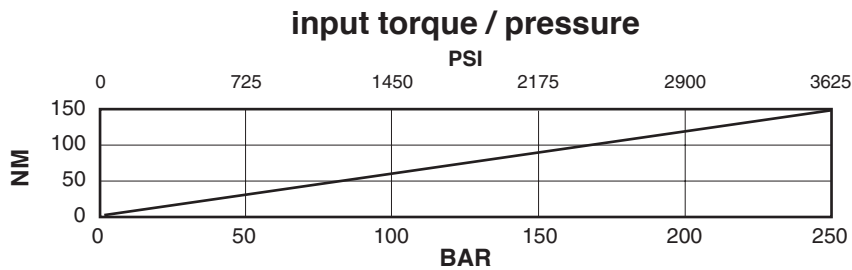
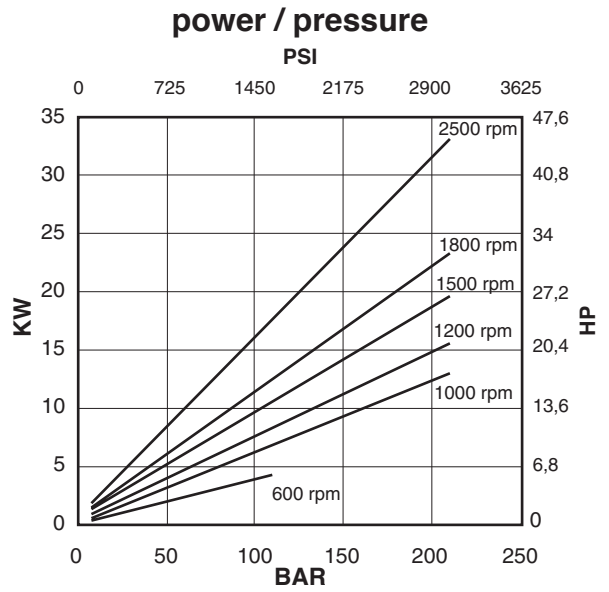
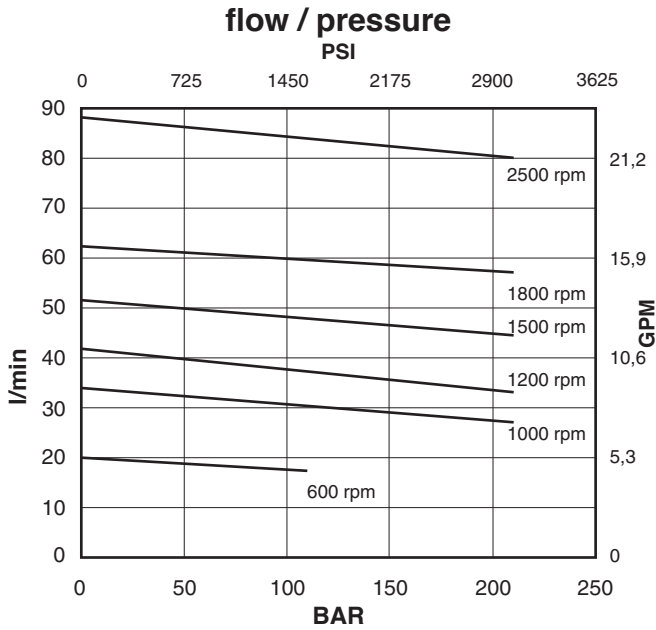
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-09



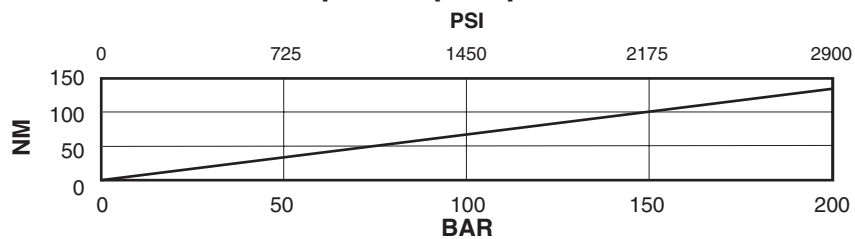
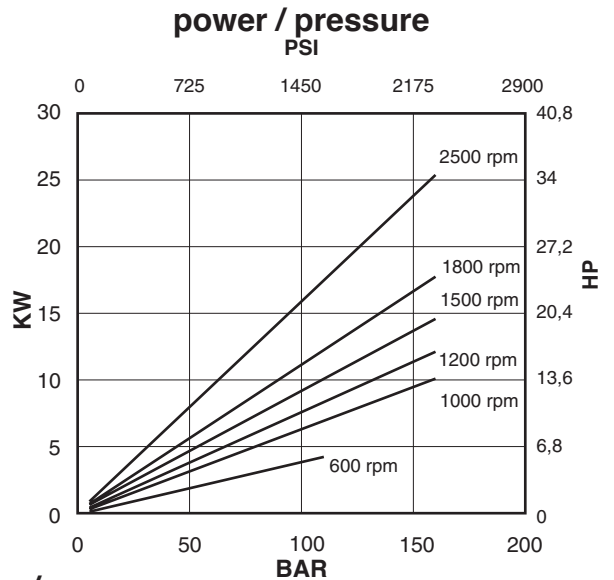
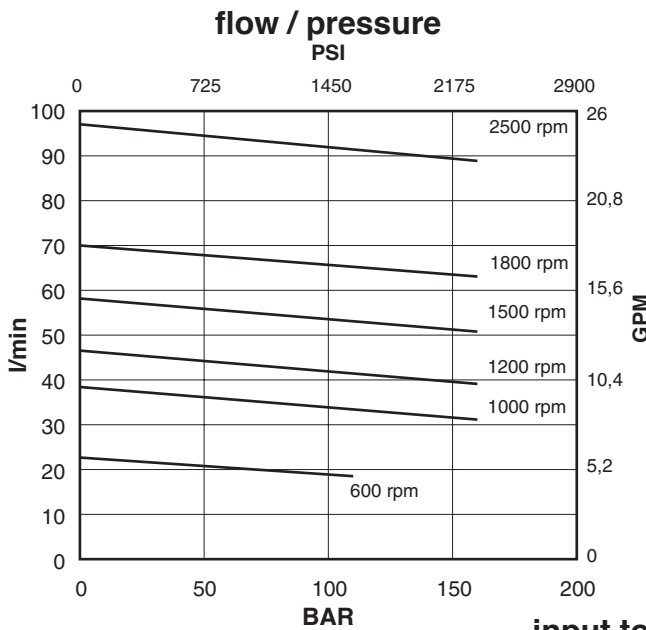
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-11



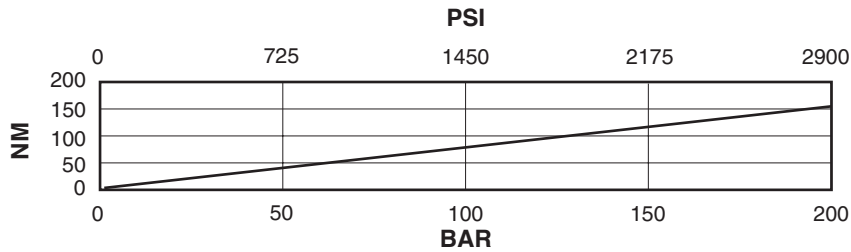
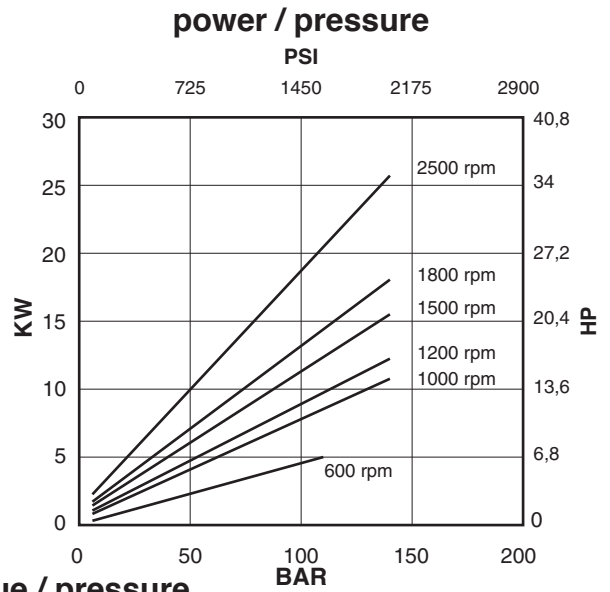
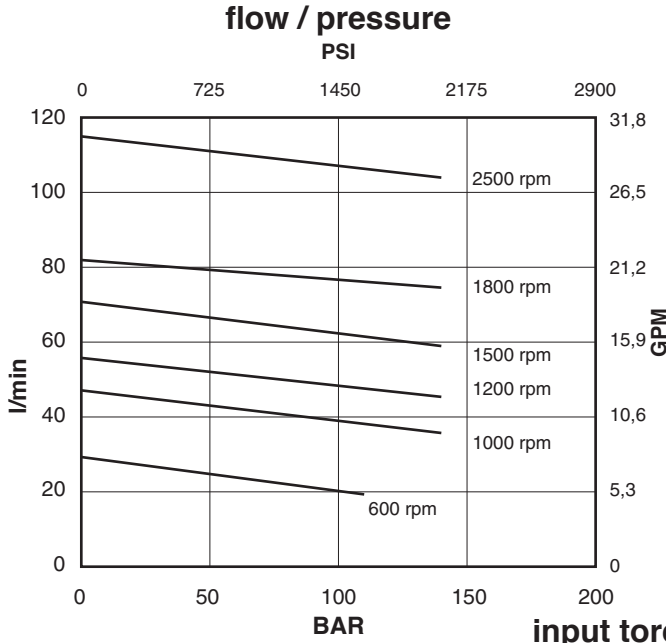
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-12



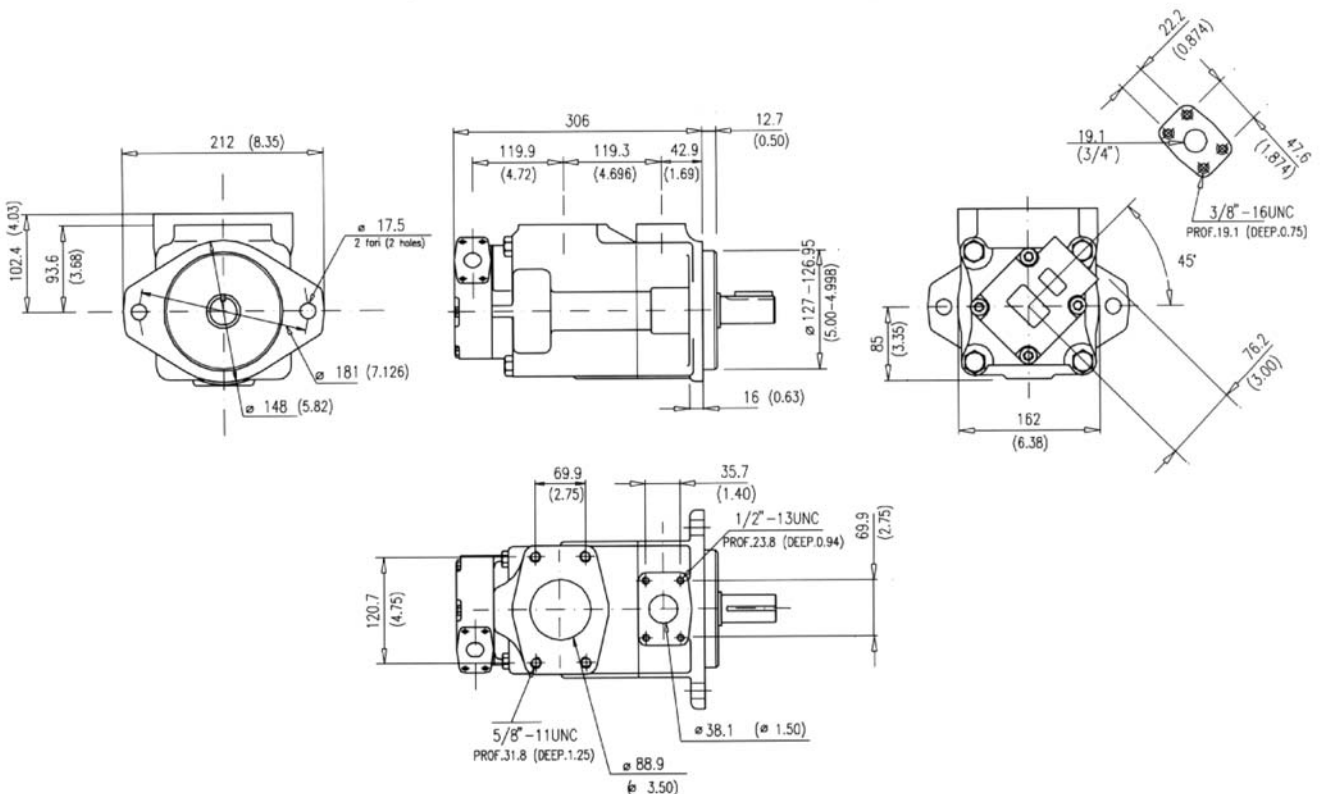
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-14



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



Approx. weight: 43 Kg. (95 lbs.)

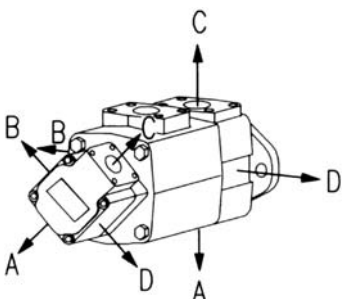
Model code breakdown

| | | | | | | | | | | |
|---|----------------------|----------|-----------|-----------|----------|----------|-----------|------------|----------|---|
| BQ | 51 | G | ** | ** | * | * | ** | (L) | * | (A) |
| Pump series | | Design | | | | | | | | Mounting (omit if not required) |
| Pump type | | | | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) |
| Cartridge types | | | | | | | | | | V = seals and shaft-seal in FPM (Viton®) |
| -shaft end | 42 47 50 57 60 | | | | | | | | | D = standard seals and double shaft-seals in NBR |
| -cover end | 02 05 08 09 11 12 14 | | | | | | | | | F = seals and double shaft-seals in FPM (Viton®) |
| Body outlet port positions (Outlet viewed from cover end) | | | | | | | | | | Rotation (viewed from shaft end) |
| A = Outlet opposite end | | | | | | | | | | L = left hand rotation CCW (omit if CW) |
| B = Outlet 90° CCW from inlet | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | |
| Cover outlet port positions (Outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet 135° CCW from inlet | | | | | | | | | | |
| B = Outlet 45° CCW from inlet | | | | | | | | | | |
| C = Outlet 45° CW from inlet | | | | | | | | | | |
| D = Outlet 135° CW from inlet | | | | | | | | | | |
| | | | | | | | | | | Shaft end options |
| | | | | | | | | | | 01 = Straight with key (standard), 11 = Splined |
| | | | | | | | | | | 86 = Heavy duty straight keyed, 90 = Splined SAE C |

Shaft options mm (inches)

| | | |
|--|--|--|
| Shaft 01 max. torque capability : 600 Nm (5300 lb.in.) | Shaft 11 max. torque capability : 820 Nm (7200 lb.in.) | Shaft 86 max. torque capability : 820 Nm (7200 lb.in.) |
|--|--|--|

PORT ORIENTATIONS



Spline data
(Shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |

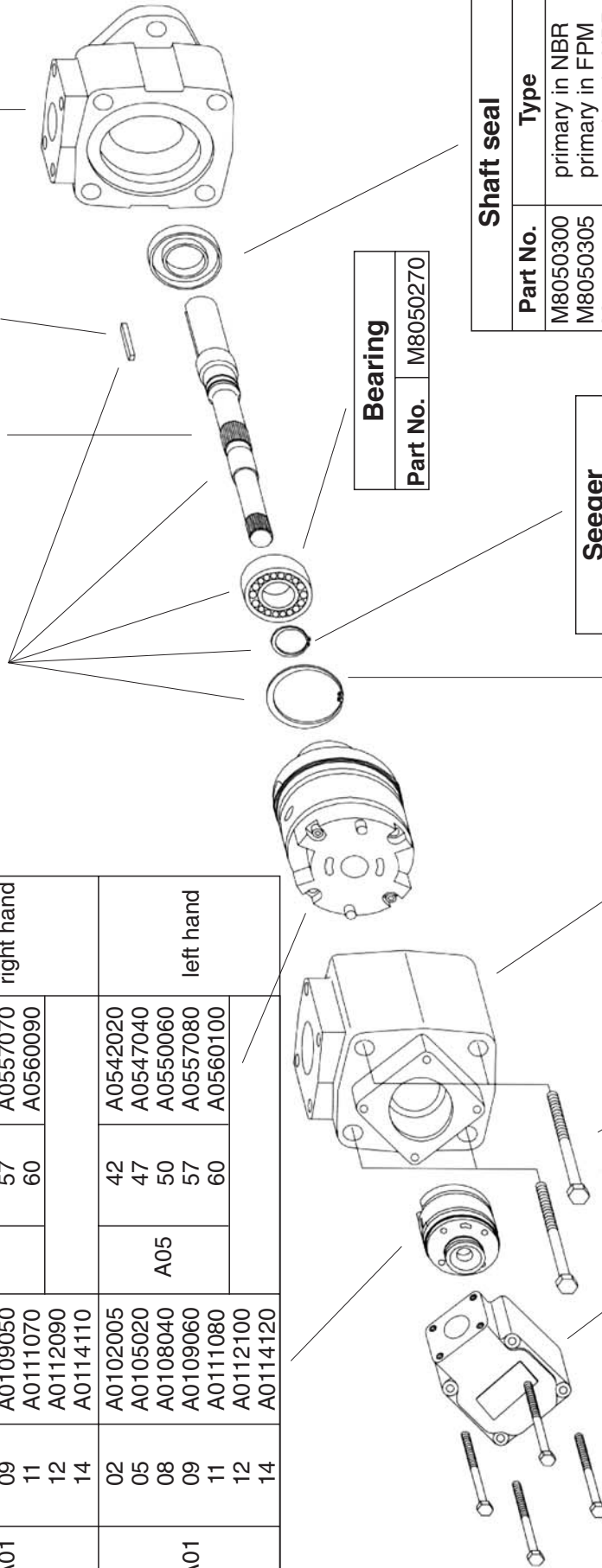
Shaft 90

max. torque capability : 820 Nm (7200 lb.in.)

Id. codes of pump components

| Cartridges | | | | Pump rotation | |
|------------|----------|-----------|-----------------------|---------------|------------|
| Cover end | | Shaft end | | | |
| Series | Model | Part No. | Series Model Part No. | | |
| A01 | 02 | A0102000 | 42 | A0542010 | right hand |
| | 05 | A0105010 | 47 | A0547030 | |
| | 08 | A0108030 | 50 | A0550050 | |
| | 09 | A0109050 | 57 | A0557070 | |
| | 11 | A0111070 | 60 | A0560090 | |
| | 12 | A0112090 | | | |
| A01 | 02 | A0102005 | 42 | A0542020 | left hand |
| | 05 | A0105020 | 47 | A0547040 | |
| | 08 | A0108040 | 50 | A0550060 | |
| | 09 | A0109060 | 57 | A0557080 | |
| | 11 | A0111080 | 60 | A0560100 | |
| | 12 | A0112100 | | | |
| 14 | A0114120 | | | | |

| Shaft kit | | Shaft | | Key | | Body | |
|-----------|----------|-------|----------|----------|----------|----------|----------|
| Model | Part No. | Model | Part No. | Part No. | Part No. | Part No. | Part No. |
| 01 | M8510601 | 01 | K5101000 | M8050100 | M8050250 | | |
| 11 | M8510611 | 11 | K5111000 | - | | | |
| 86 | M8510686 | 86 | K5186000 | M8058600 | | | |
| 90 | M8510690 | 90 | K5190000 | - | | | |



| Bearing | |
|----------|----------|
| Part No. | M8050270 |

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Seeger | |
|----------|----------|
| Part No. | M8050290 |

| Inlet body | |
|------------|----------|
| Part No. | M8050390 |

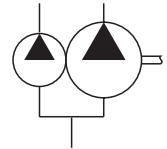
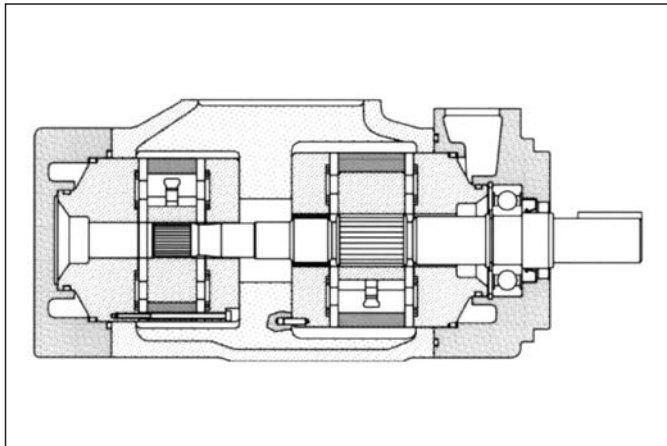
| Cover | |
|----------|----------|
| Part No. | M8020120 |

| Seeger | |
|----------|----------|
| Part No. | M8050280 |

| Screw | |
|---------------------------------|----------|
| Part No. | M8050320 |
| Torque to 398 Nm (3550 lb. in.) | |

| Screw | |
|-------------------------------|----------|
| Part No. | M8020420 |
| Torque to 70 Nm (624 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8510411 | seals + 1 shaft seal | NBR |
| M8510412 | seals + 2 shaft seals | NBR |
| M8510413 | seals + 1 shaft seal | FPM (Viton®) |
| M8510414 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 211 to 309 l/min (from 54 to 81 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| A05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 2200 |
| A05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 2200 |
| A05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 2200 |
| A05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 2200 |
| A05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 2200 |
| cover end | | | | | | | | | | |
| A02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 210 | (3050) | 600 | 2700 |
| A02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 210 | (3050) | 600 | 2700 |
| A02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 210 | (3050) | 600 | 2500 |
| A02-19 | 60,1 | (3.66) | 71,1 | (19) | 88,7 | (23.4) | 210 | (3050) | 600 | 2500 |
| A02-21 | 67,5 | (4.12) | 79,3 | (21) | 99,8 | (26.4) | 210 | (3050) | 600 | 2500 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

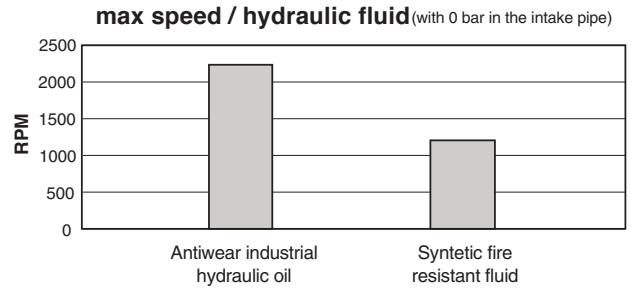
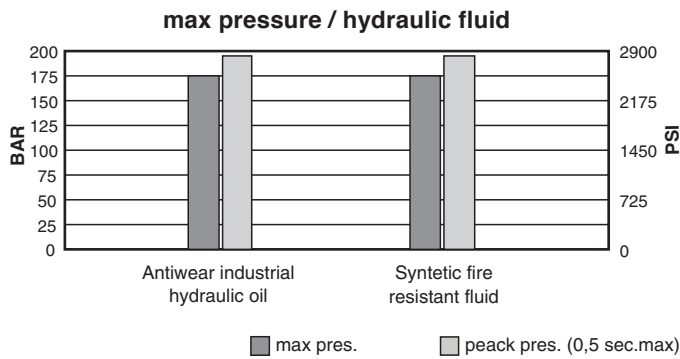
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

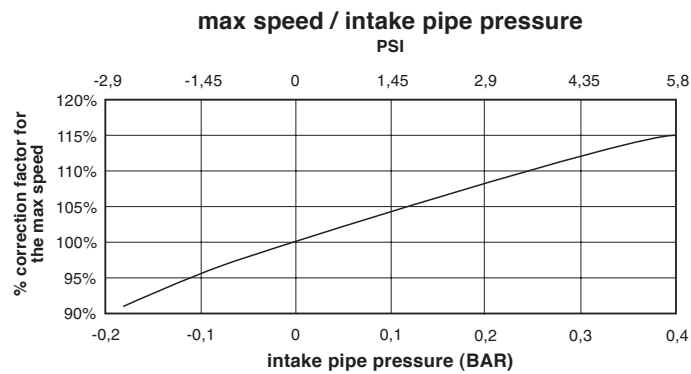
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

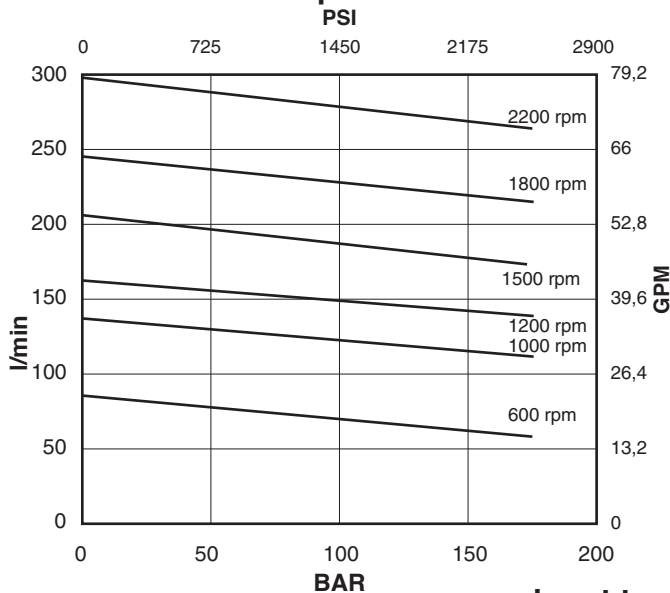
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

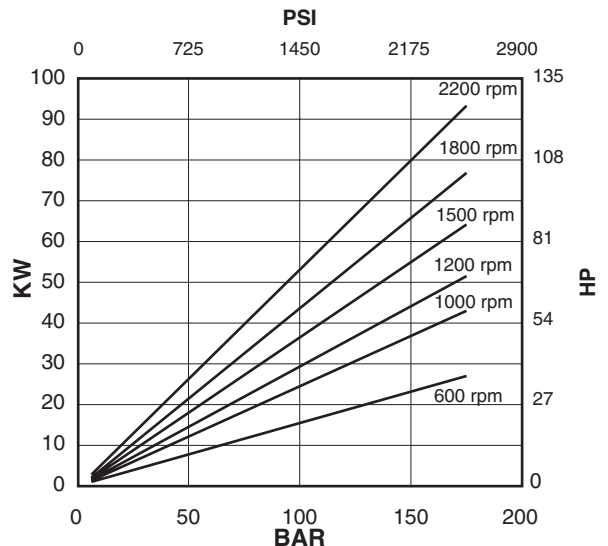


flow / pressure

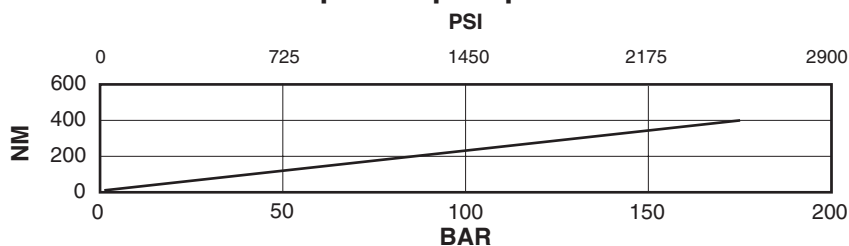


Shaft end cartridge A05-42

power / pressure

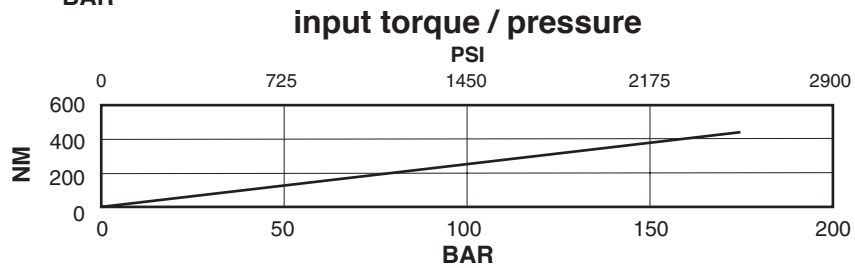
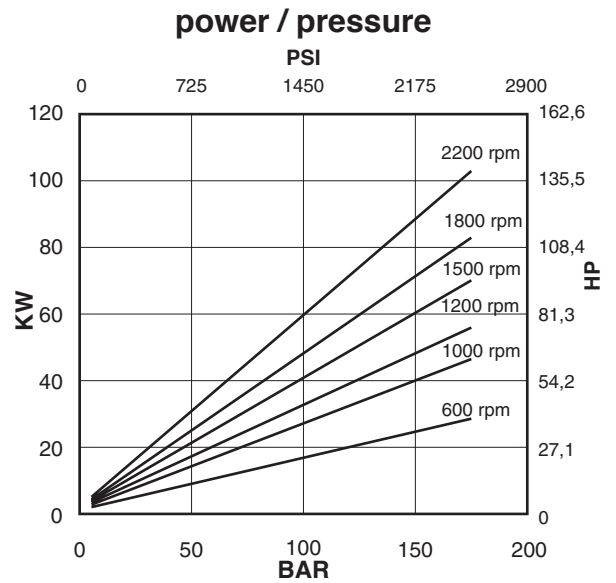
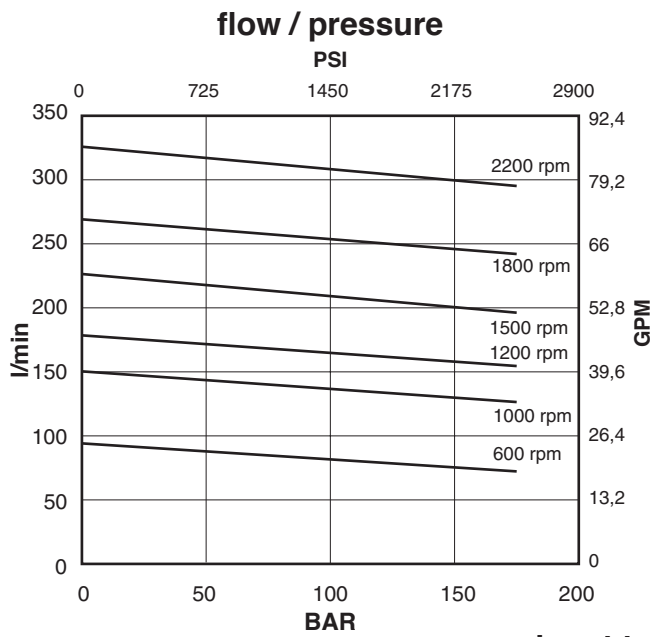


input torque / pressure



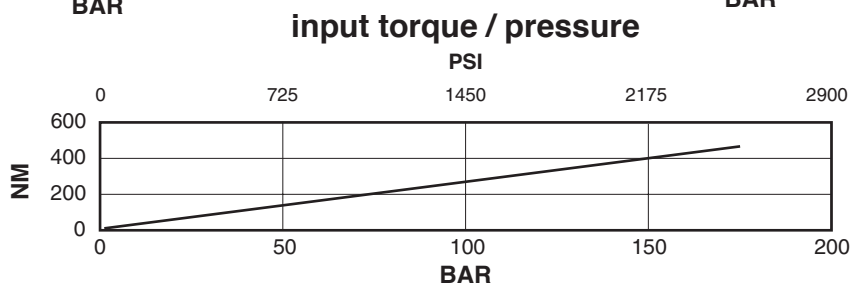
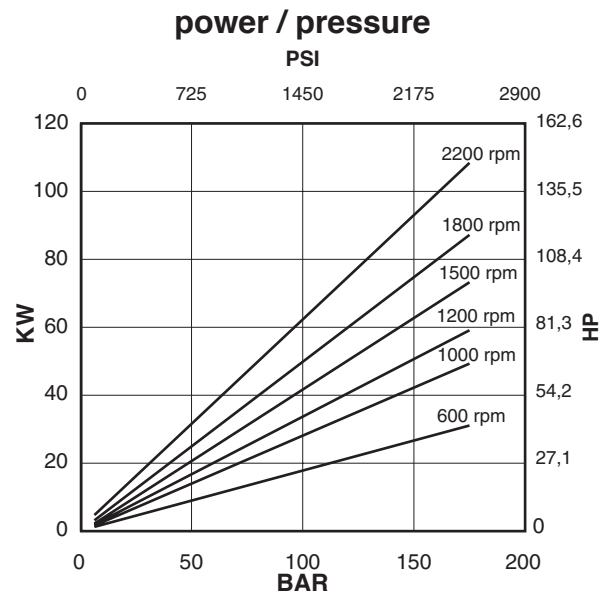
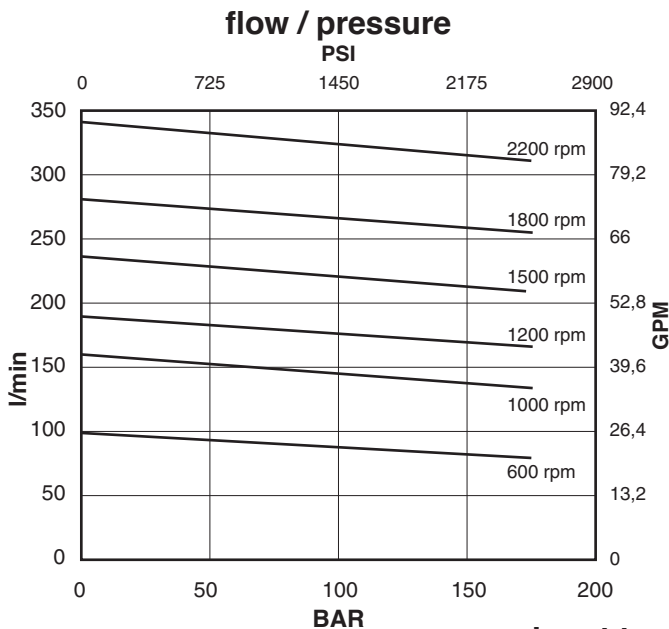
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-47



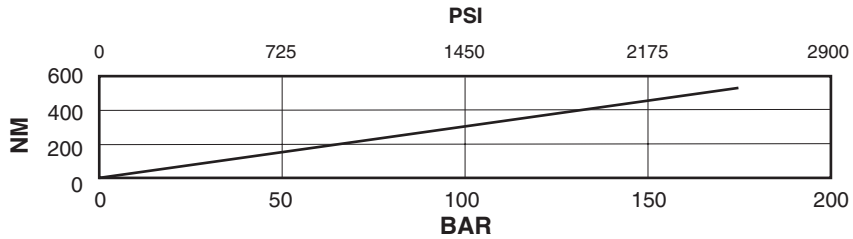
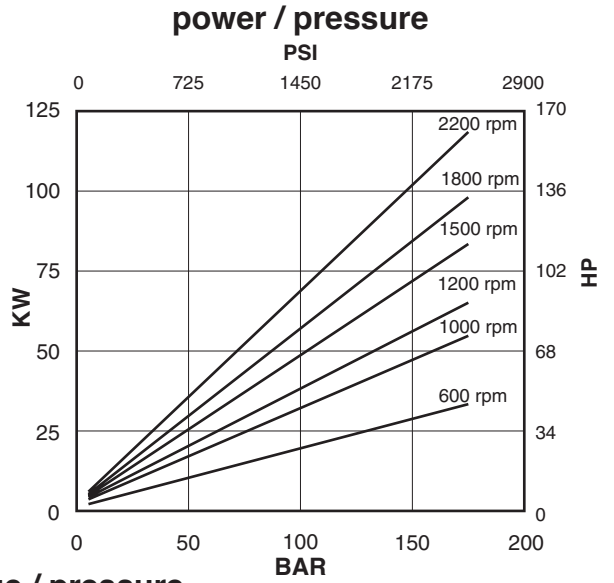
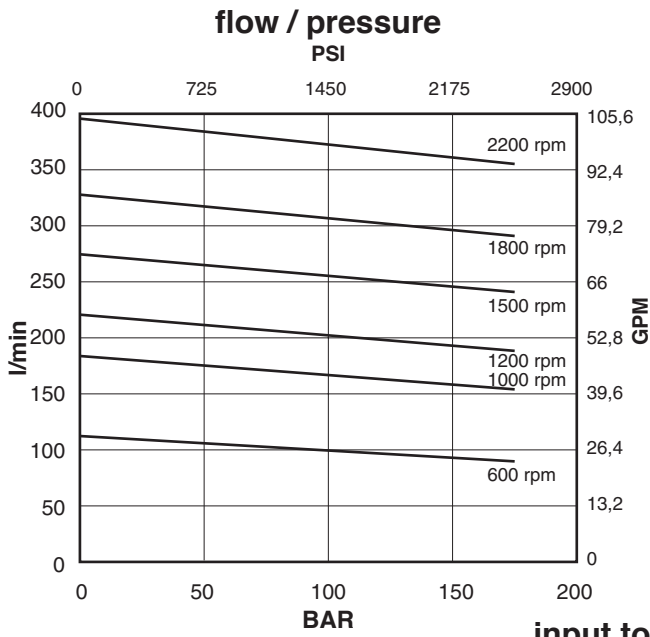
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-50



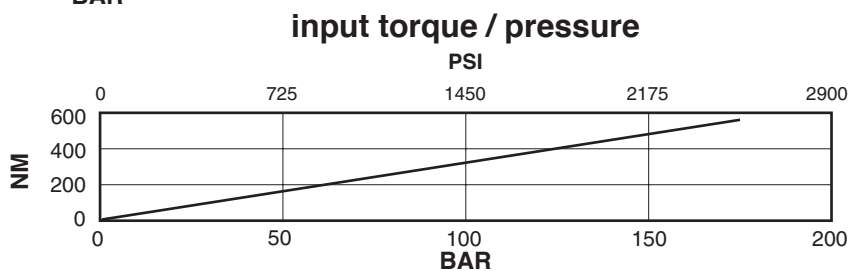
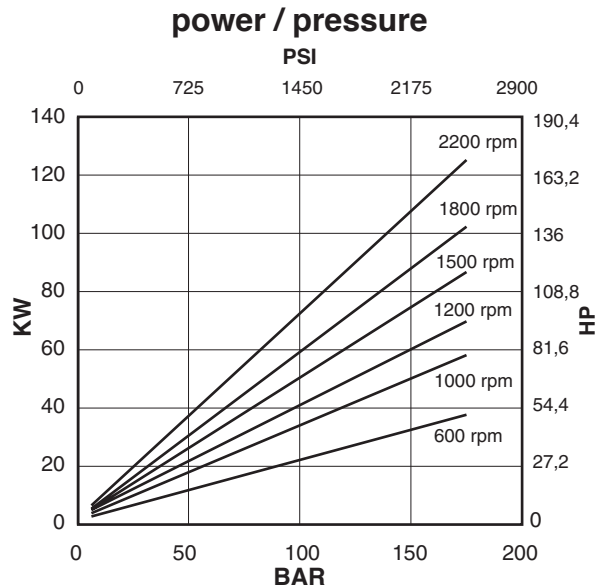
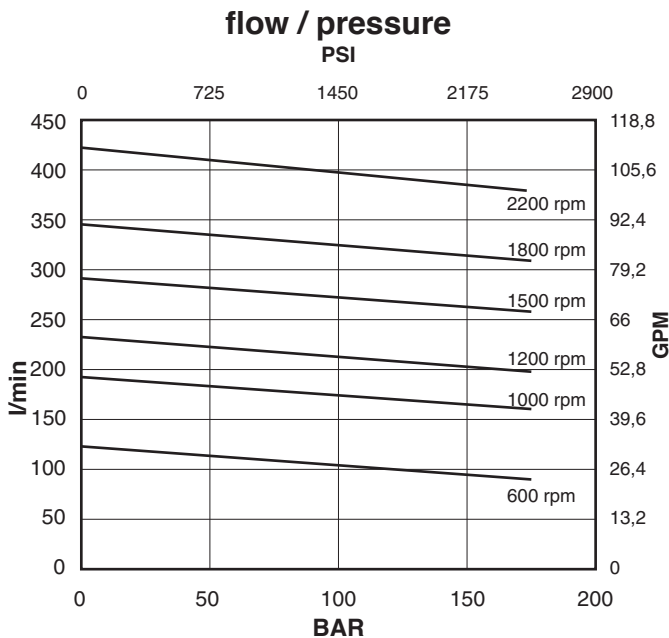
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-57



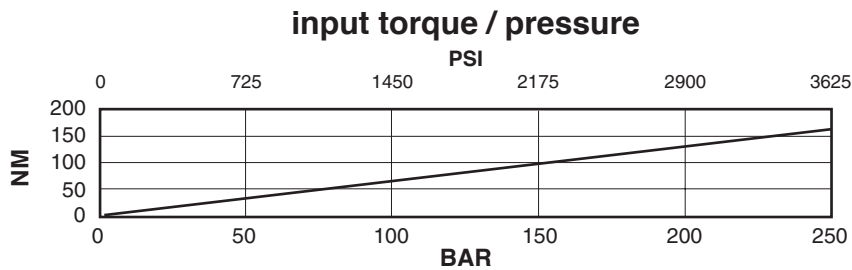
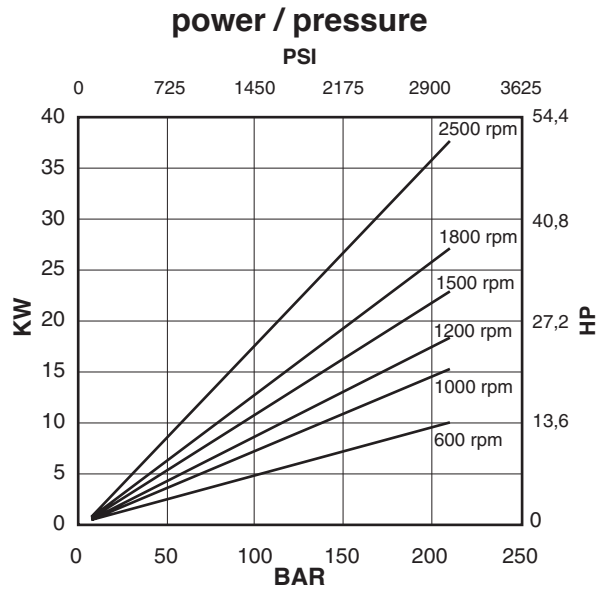
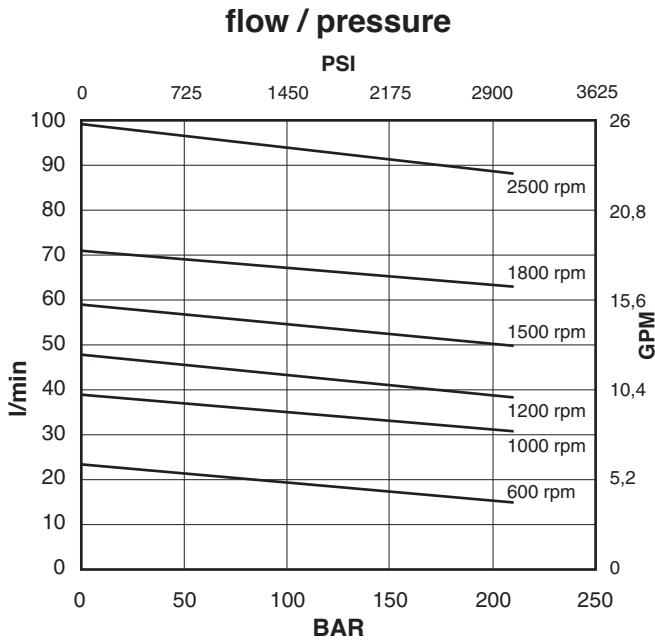
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-60



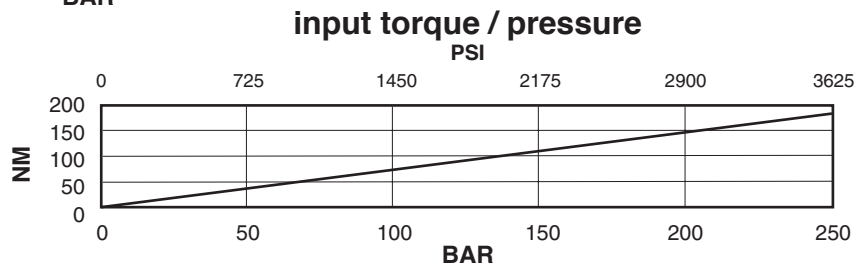
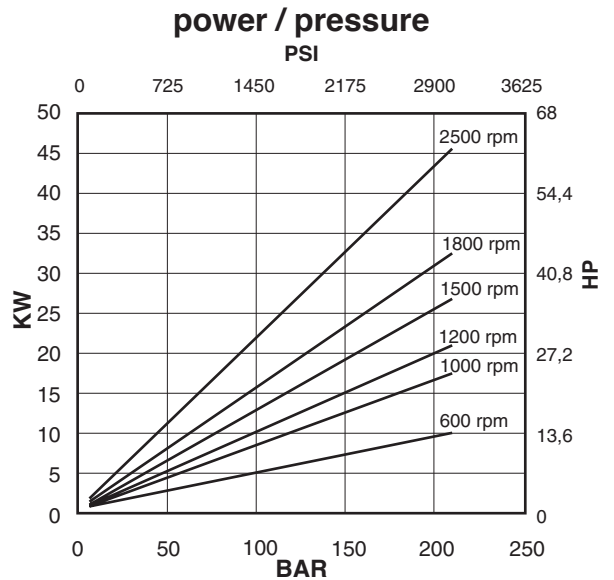
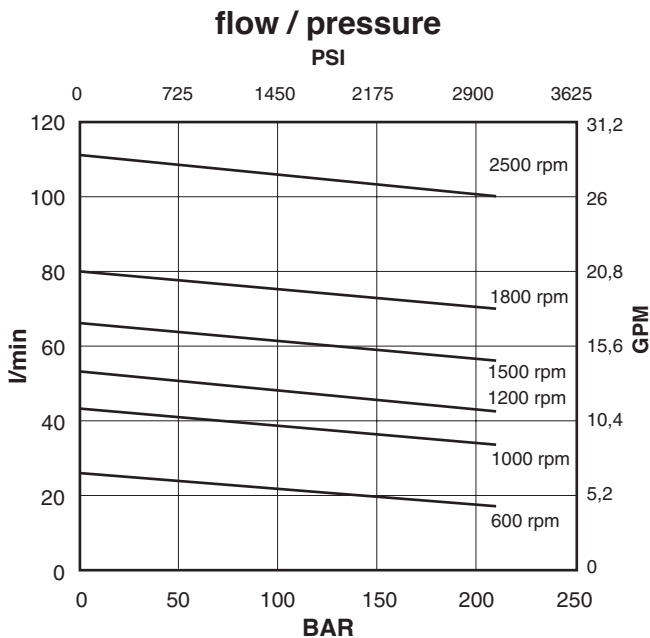
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-12



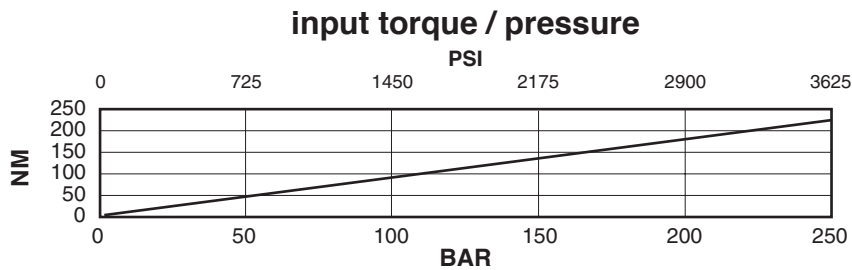
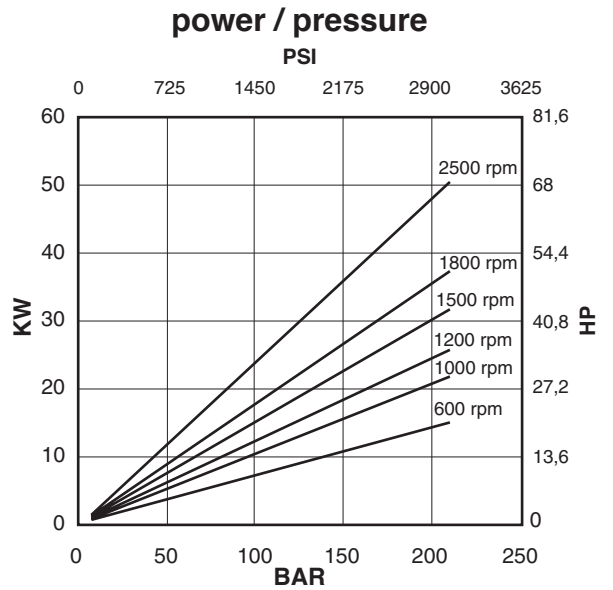
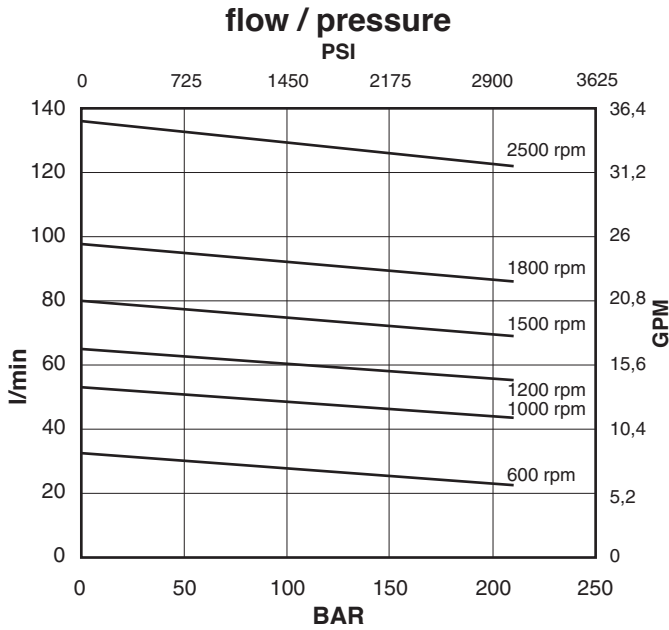
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-14



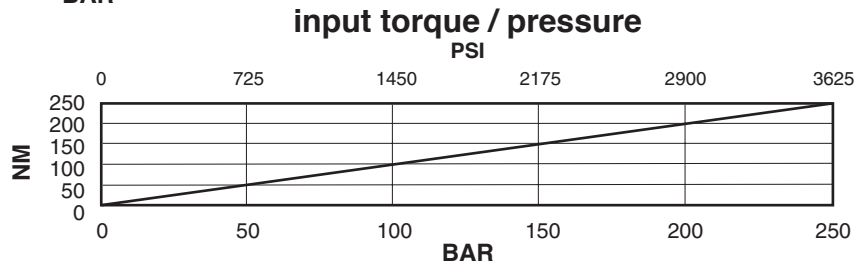
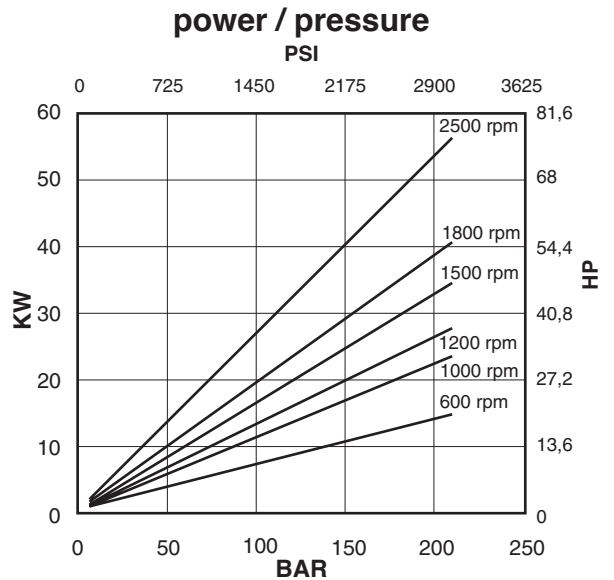
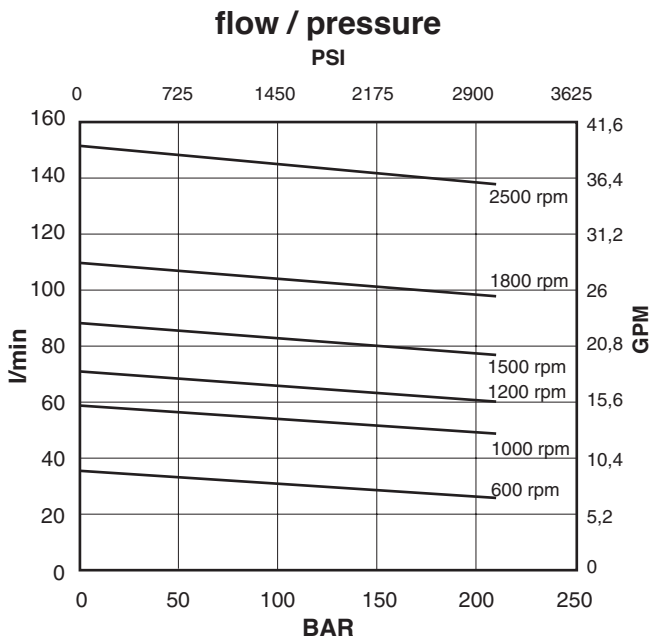
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-17



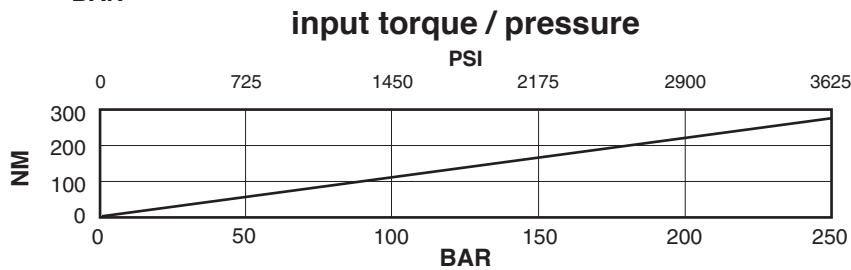
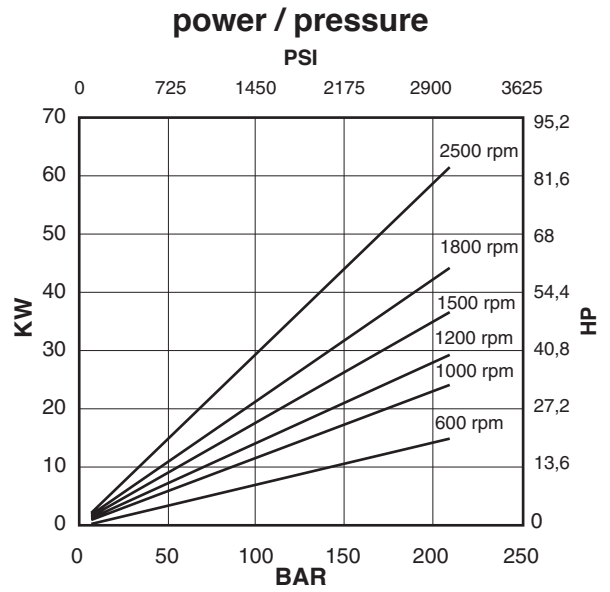
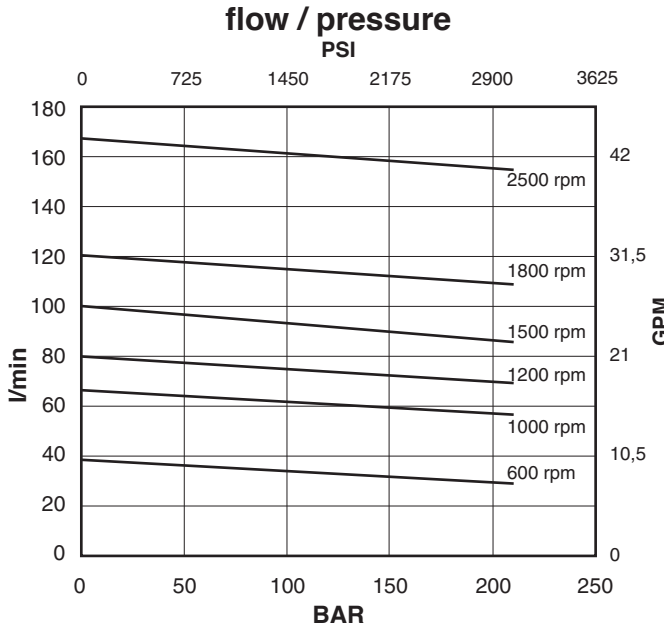
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-19



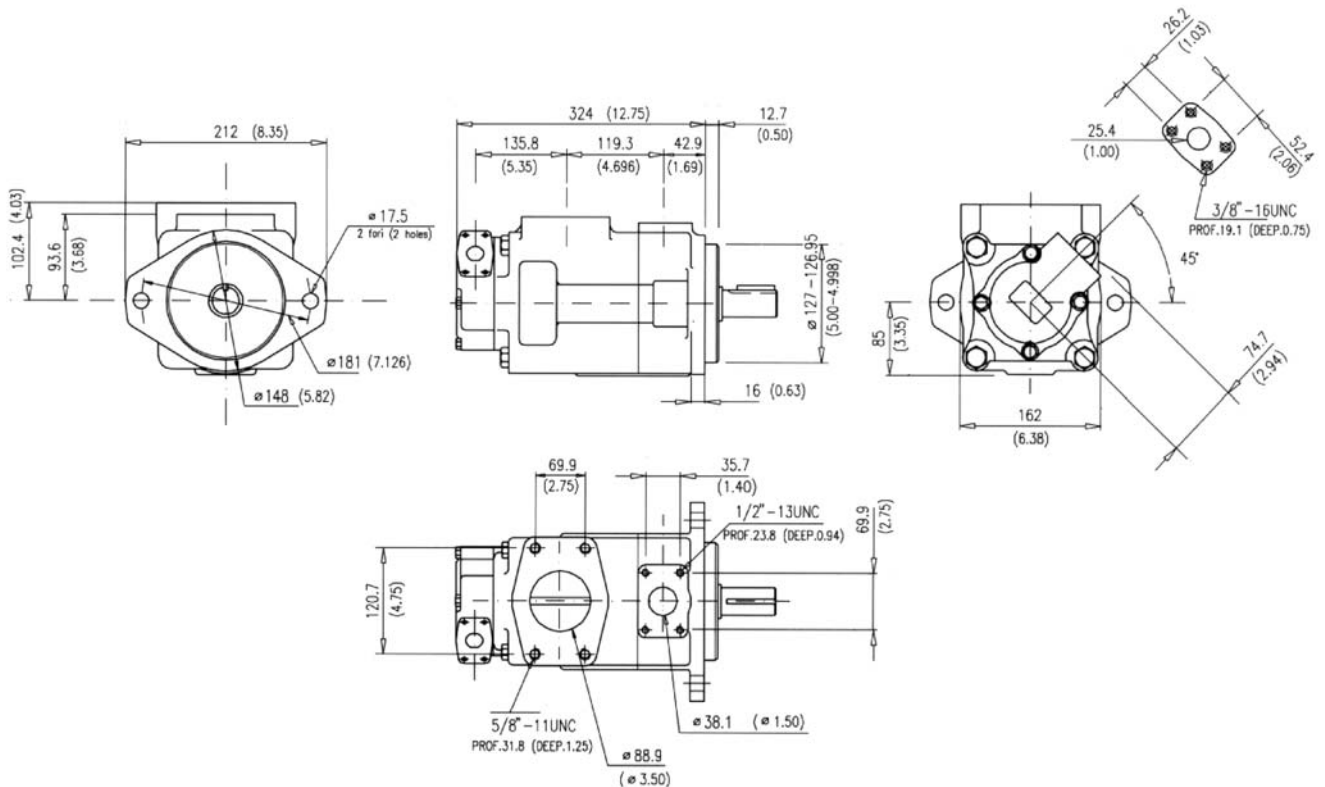
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A02-21



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



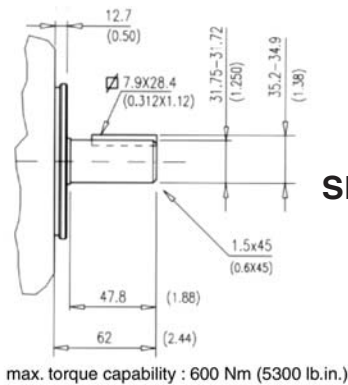
Approx. weight: 46 Kg. (101 lbs.)

Model code breakdown

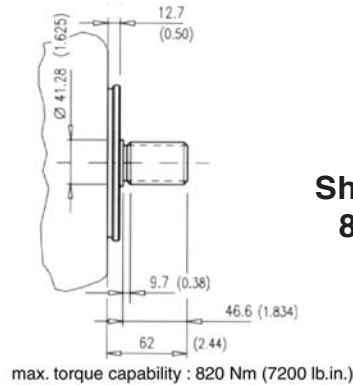
| | | | | | | | | | | |
|---|-----------|----------|-----------|-----------|----------|----------|-----------|------------|------------------------------------|---|
| BQ | 52 | G | ** | ** | * | * | ** | (L) | * | (A) |
| Pump series | | Design | | | | | | | Mounting (omit if not required) | |
| Pump type | | | | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) |
| Cartridge types | | | | | | | | | | V = seals and shaft-seal in FPM (Viton®) |
| -shaft end 42 47 50 57 60 | | | | | | | | | | D = standard seals and double shaft-seals in NBR |
| -cover end 12 14 17 19 21 | | | | | | | | | | F = seals and double shaft-seals in FPM (Viton®) |
| Body outlet port positions (Outlet viewed from cover end) | | | | | | | | | | Rotation (viewed from shaft end) |
| A = Outlet opposite end | | | | | | | | | | L = left hand rotation CCW (omit if CW) |
| B = Outlet 90° CCW from inlet | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | |
| Cover outlet port positions (Outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet 135° CCW from inlet | | | | | | | | | | |
| B = Outlet 45° CCW from inlet | | | | | | | | | | |
| C = Outlet 45° CW from inlet | | | | | | | | | | |
| D = Outlet 135° CW from inlet | | | | | | | | | | |
| | | | | | | | | | | Shaft end options |
| | | | | | | | | | | 01 = Straight with key (standard), 11 = Splined |
| | | | | | | | | | | 86 = Heavy duty straight keyed, 90 = Splined SAE C |

Shaft options mm (inches)

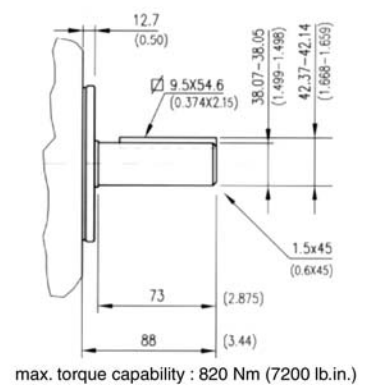
Shaft 01



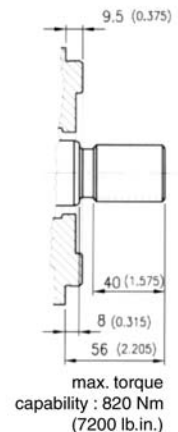
Shaft 11



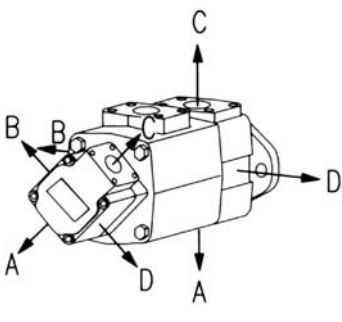
Shaft 86



Shaft 90



PORT ORIENTATIONS



Spline data
(Shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |

Id. codes of pump components

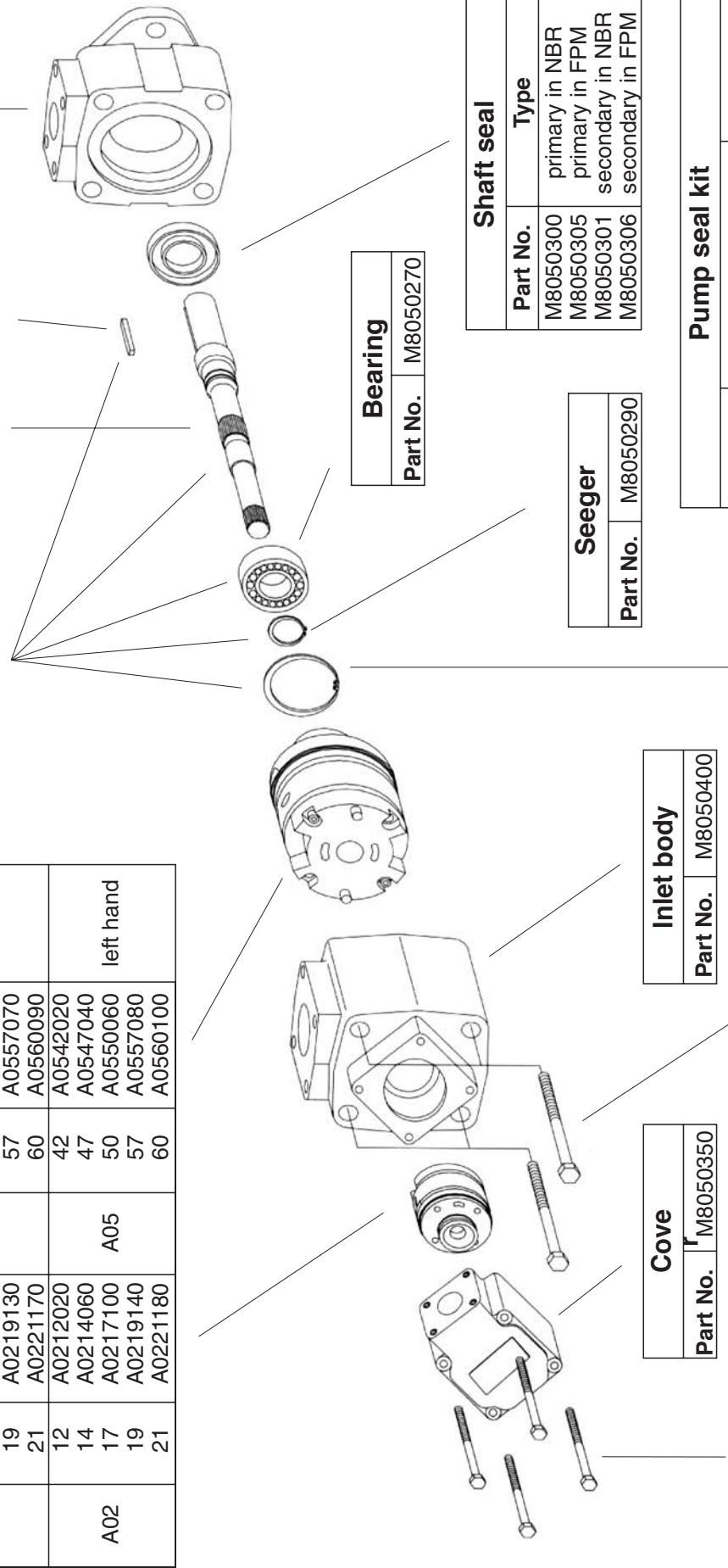
| Cartridges | | | | Pump rotation | |
|------------|-------|-----------|--------|---------------|----------|
| Cover end | | Shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| A02 | 12 | A0212010 | A05 | 42 | A0542010 |
| | 14 | A0214050 | | 47 | A0547030 |
| | 17 | A0217090 | | 50 | A0550050 |
| | 19 | A0219130 | | 57 | A0557070 |
| | 21 | A0221170 | | 60 | A0560090 |
| A02 | 12 | A0212020 | A05 | 42 | A0542020 |
| | 14 | A0214060 | | 47 | A0547040 |
| | 17 | A0217100 | | 50 | A0550060 |
| | 19 | A0219140 | | 57 | A0557080 |
| | 21 | A0221180 | | 60 | A0560100 |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8520601 |
| 11 | M8520611 |
| 86 | M8520686 |
| 90 | M8520690 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K5201000 |
| 11 | K5211000 |
| 86 | K5286000 |
| 90 | K5290000 |

| Body | |
|----------|----------|
| Part No. | M8050250 |

| Key | |
|----------|------------|
| Part No. | M8050100 |
| - | M8058600 |
| - | M805290000 |



| Bearing | |
|----------|----------|
| Part No. | M8050270 |

| Seeger | |
|----------|----------|
| Part No. | M8050290 |

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Inlet body | |
|------------|----------|
| Part No. | M8050400 |

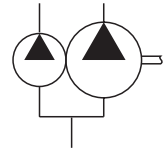
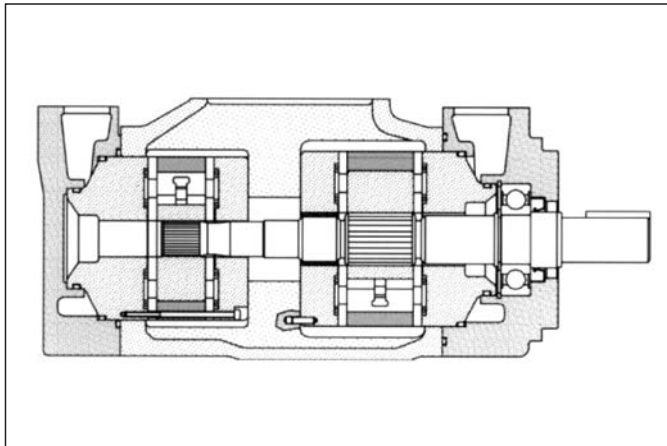
| Cove | |
|----------|----------|
| Part No. | M8050350 |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8520431 | seals + 1 shaft seal | NBR |
| M8520432 | seals + 2 shaft seals | NBR |
| M8520433 | seals + 1 shaft seal | FPM (Viton®) |
| M8520434 | seals + 2 shaft seals | FPM (Viton®) |

| Seeger | |
|----------|----------|
| Part No. | M8050280 |

| Screw | |
|---------------------------------|----------|
| Part No. | M8050330 |
| Torque to 398 Nm (3550 lb. in.) | |

| Screw | |
|--------------------------------|----------|
| Part No. | M8040230 |
| Torque to 102 Nm (910 lb. in.) | |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 244 to 370 l/min (from 63 to 98 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| A05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 2200 |
| A05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 2200 |
| A05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 2200 |
| A05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 2200 |
| A05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 2200 |
| cover end | | | | | | | | | | |
| A04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 210 | (3050) | 600 | 2500 |
| A04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 210 | (3050) | 600 | 2500 |
| A04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 210 | (3050) | 600 | 2500 |
| A04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 210 | (3050) | 600 | 2400 |
| A04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 210 | (3050) | 600 | 2400 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

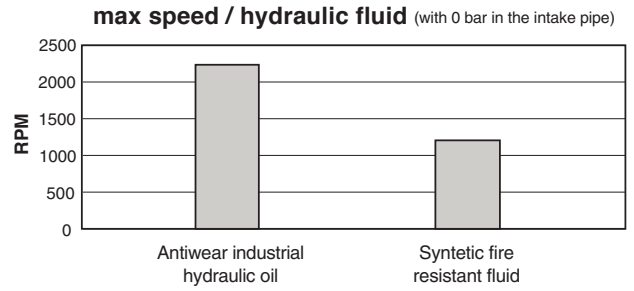
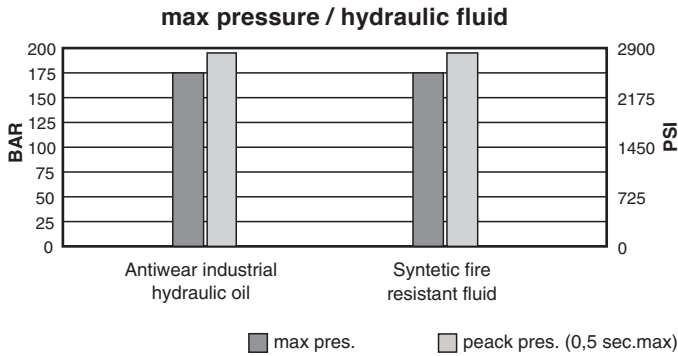
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

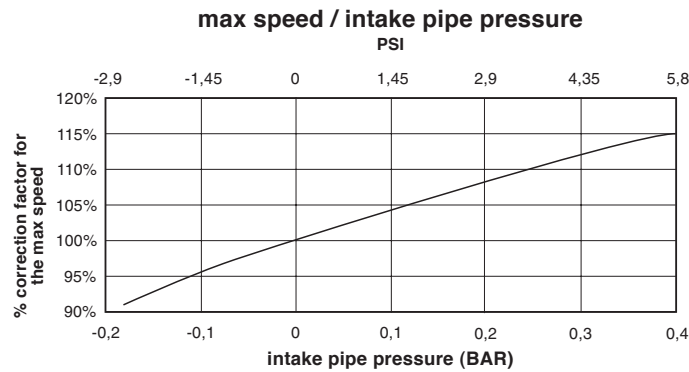
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

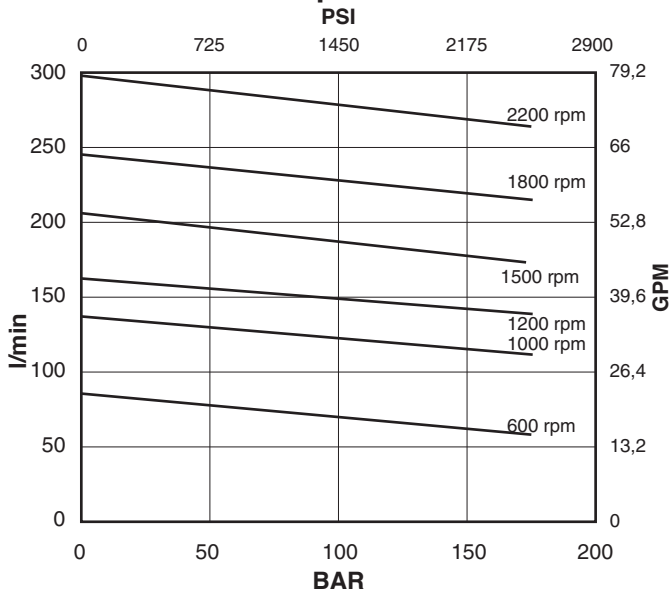
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

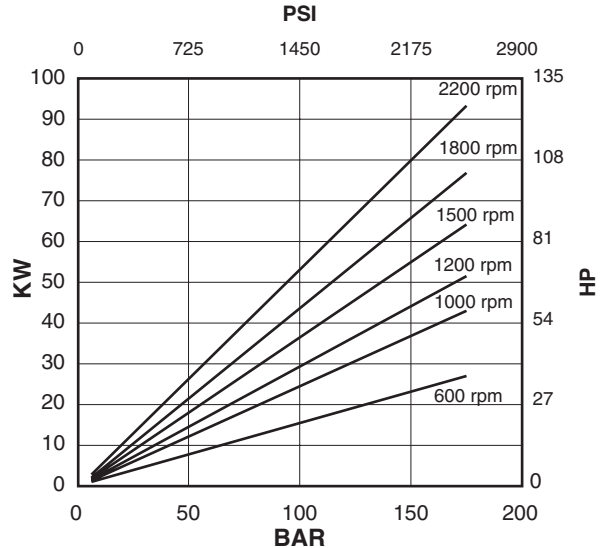


flow / pressure

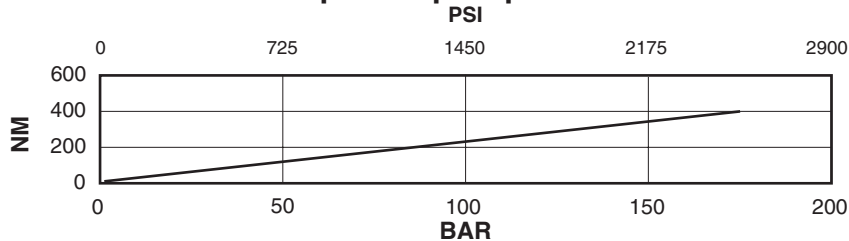


Shaft end cartridge A05-42

power / pressure

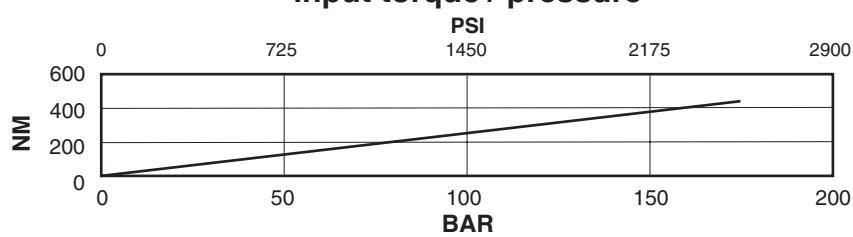
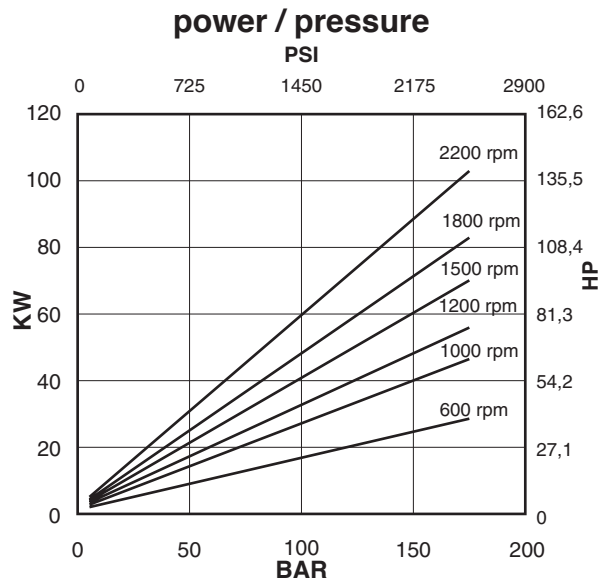
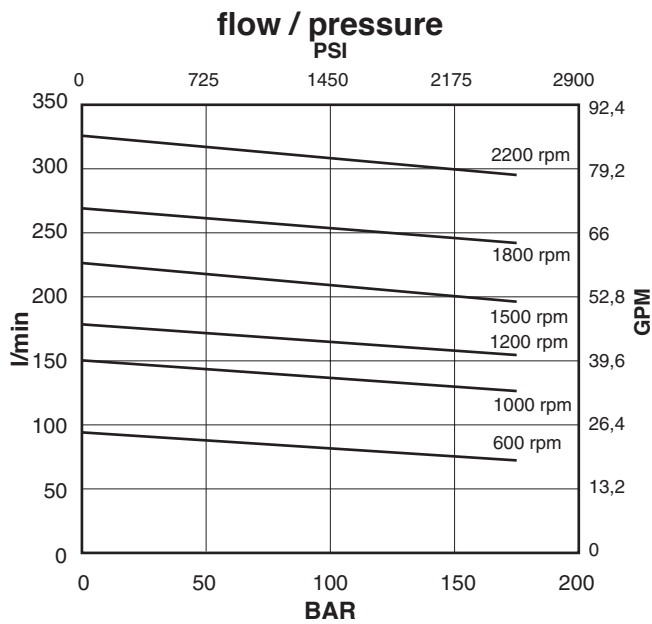


input torque / pressure



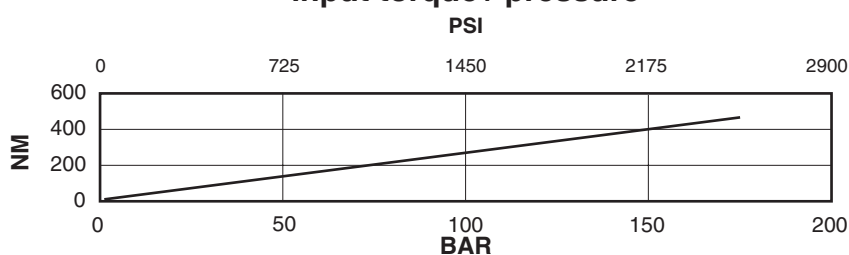
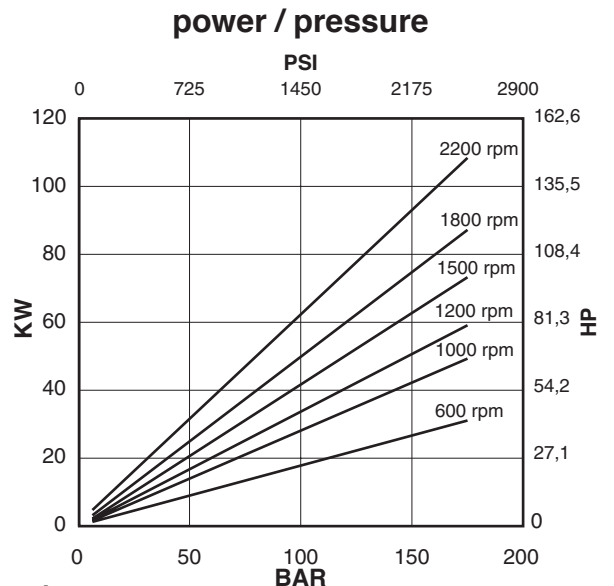
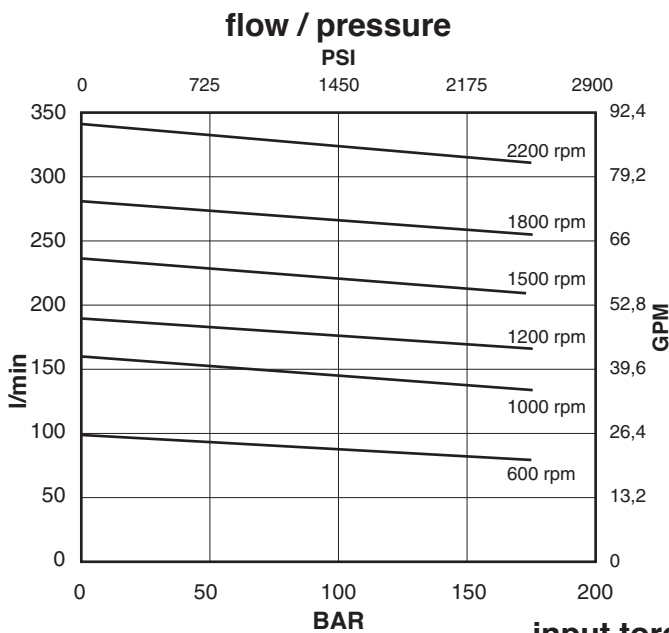
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-47



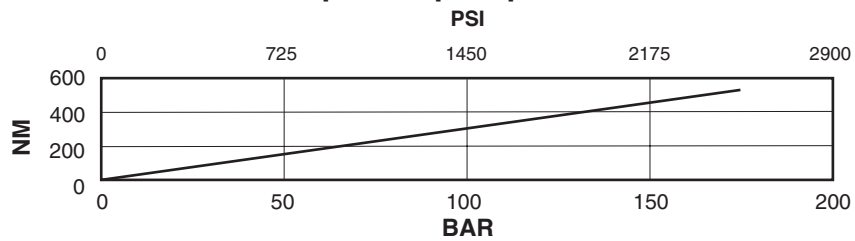
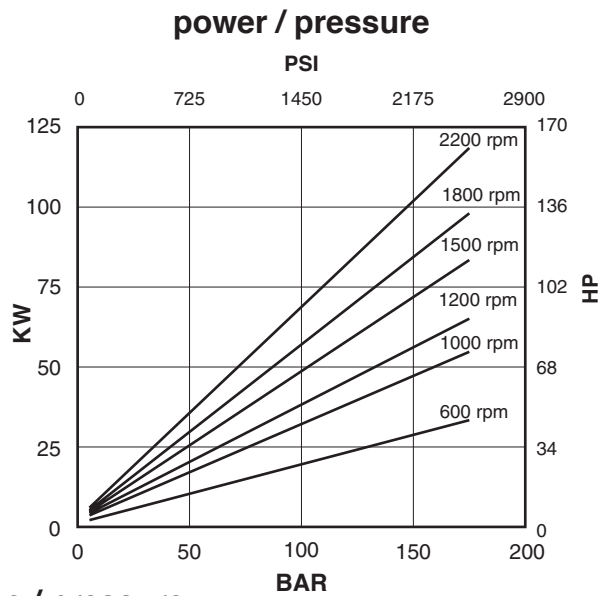
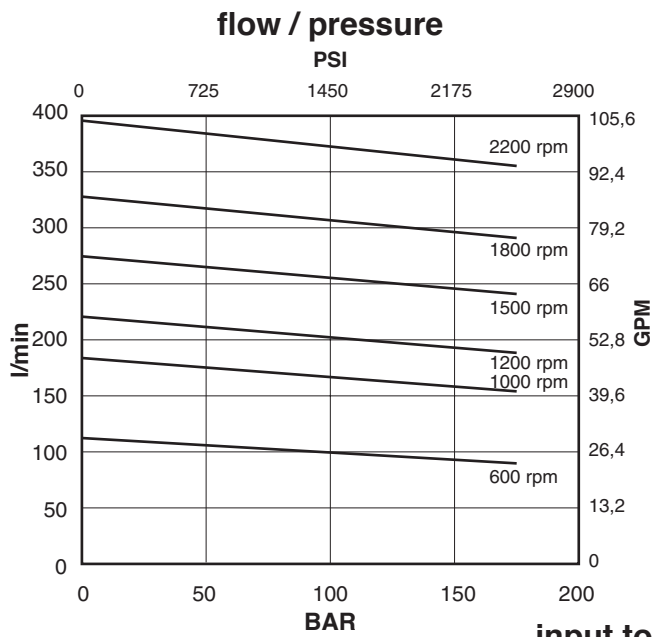
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-50



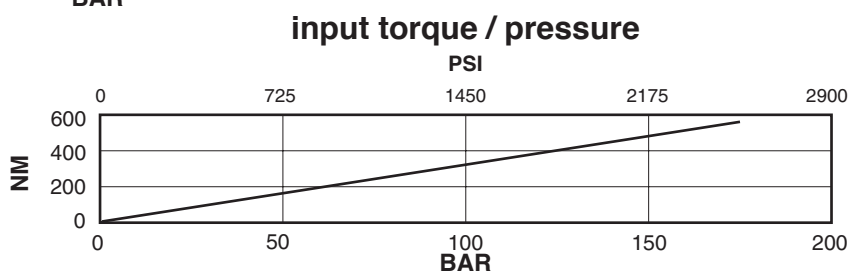
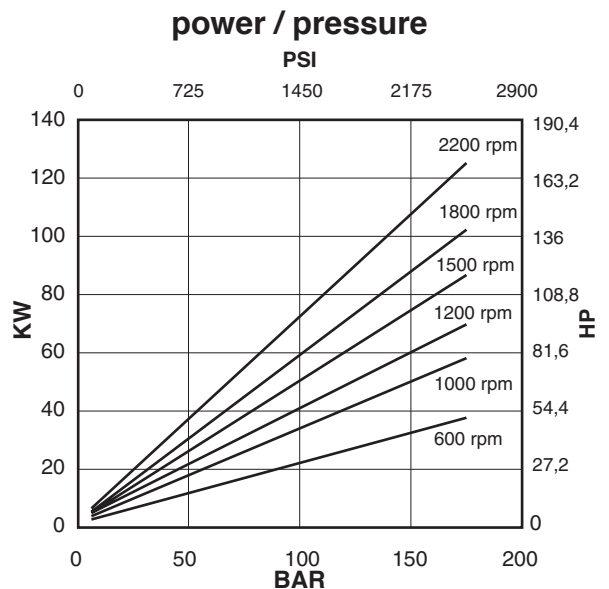
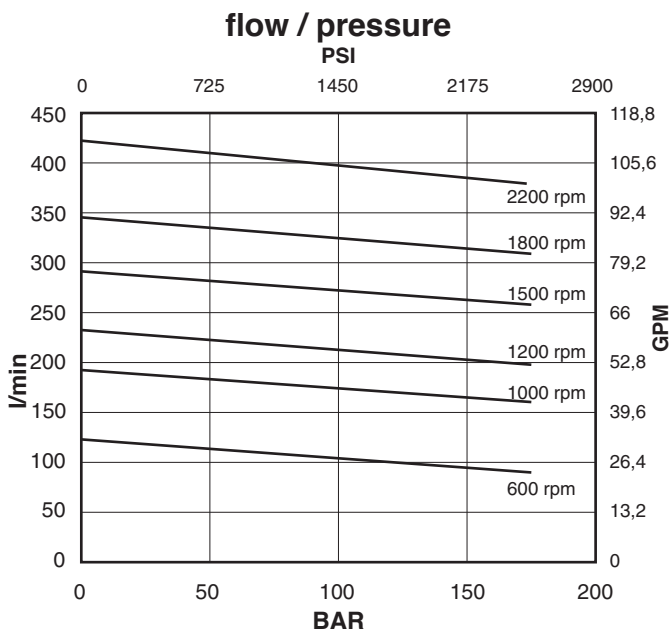
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-57



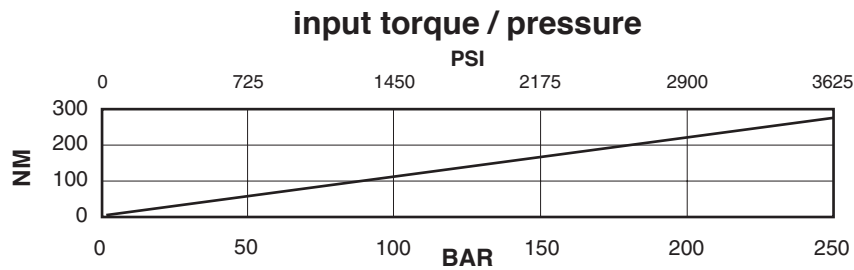
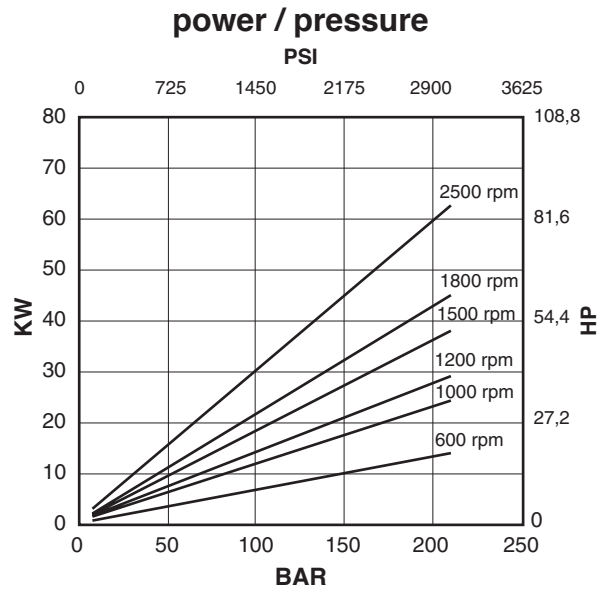
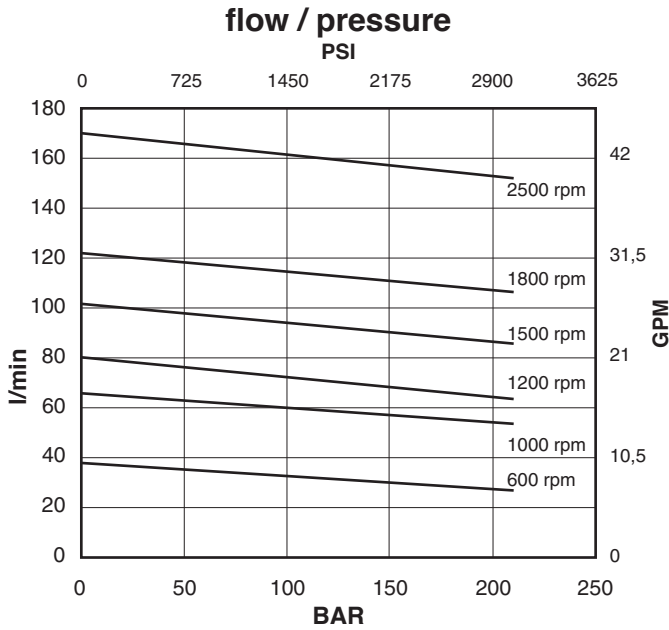
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A05-60



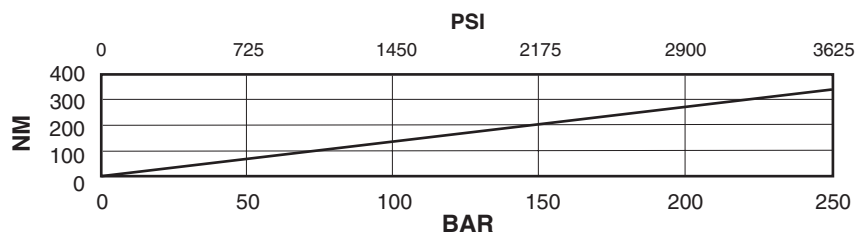
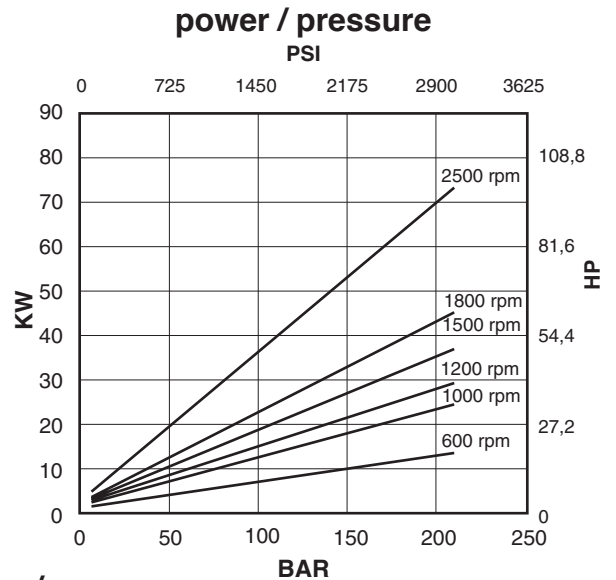
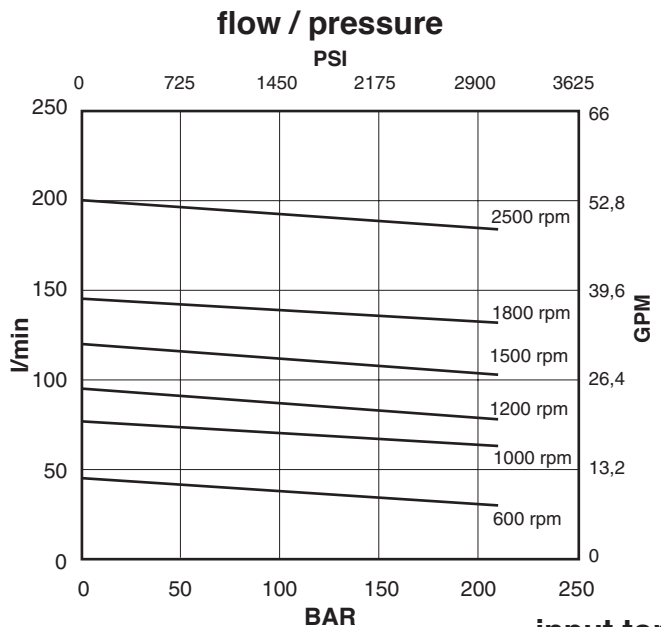
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A04-21



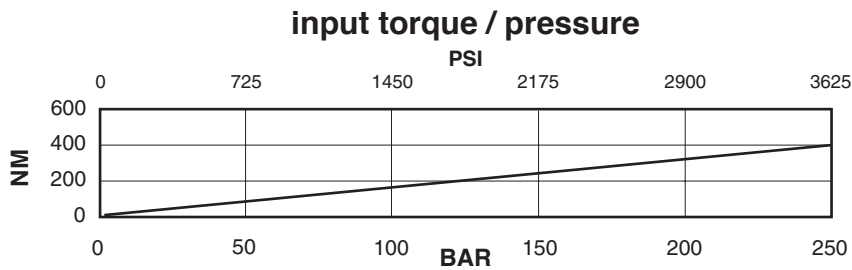
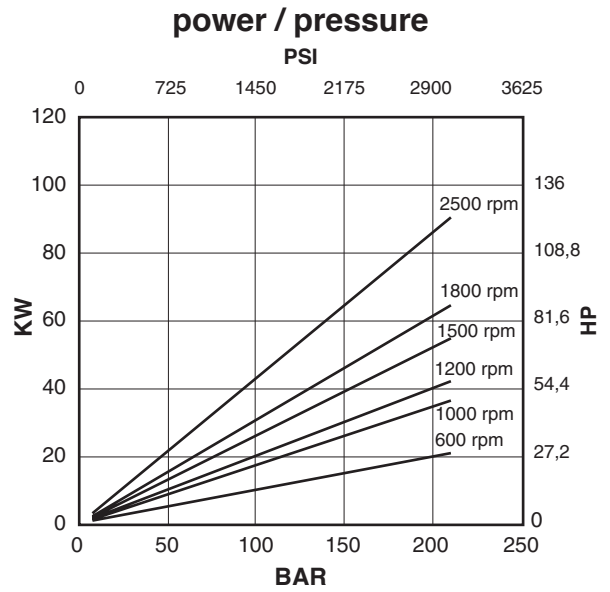
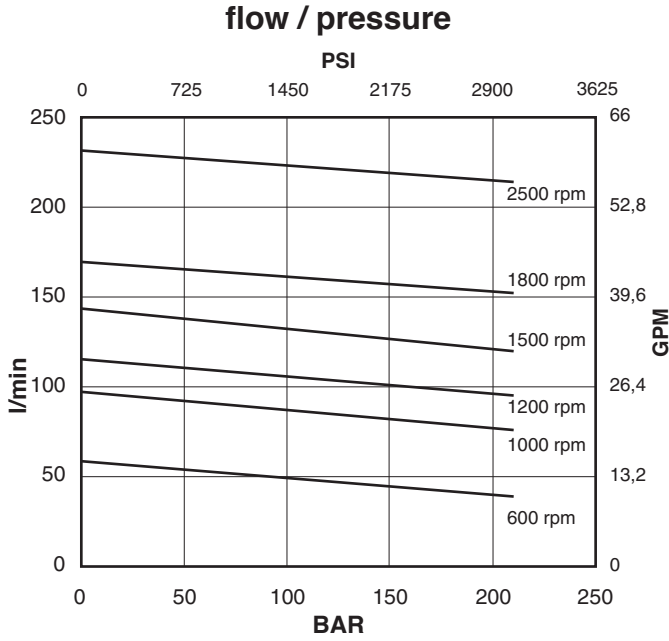
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A04-25



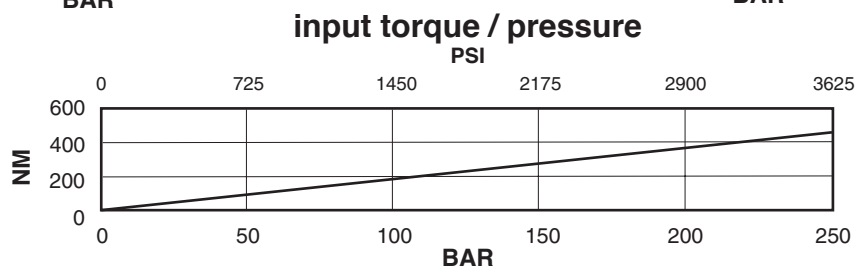
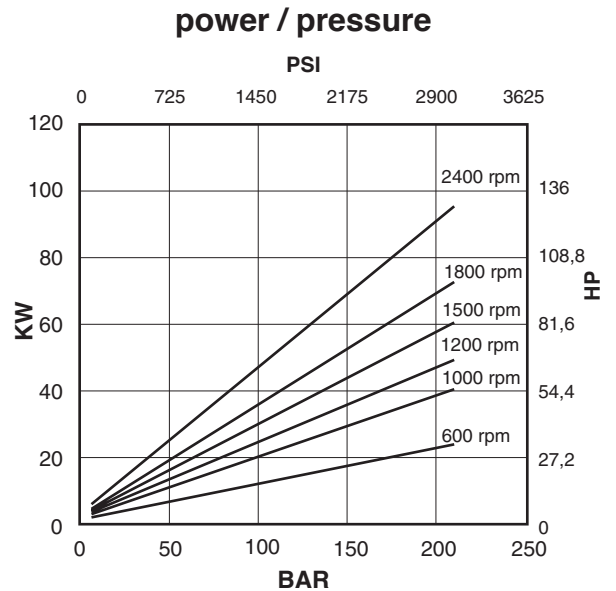
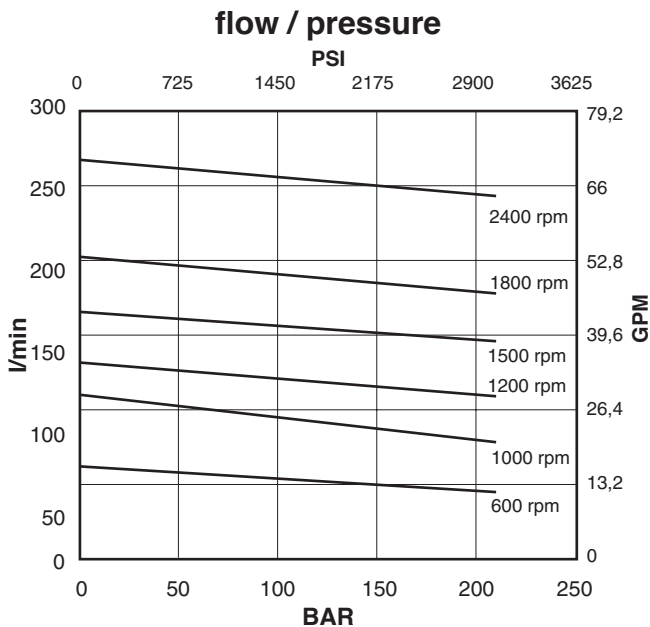
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A04-30



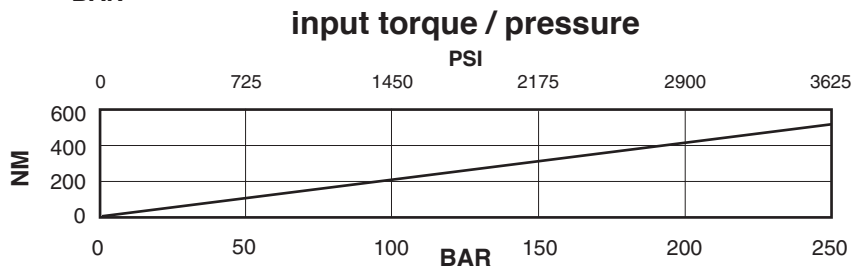
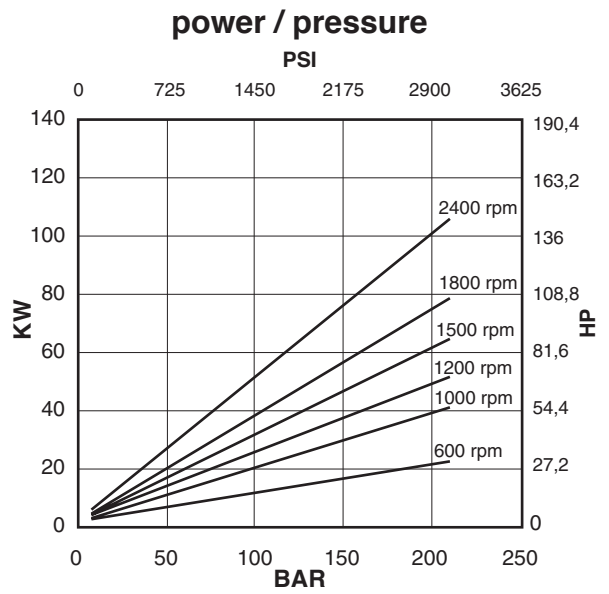
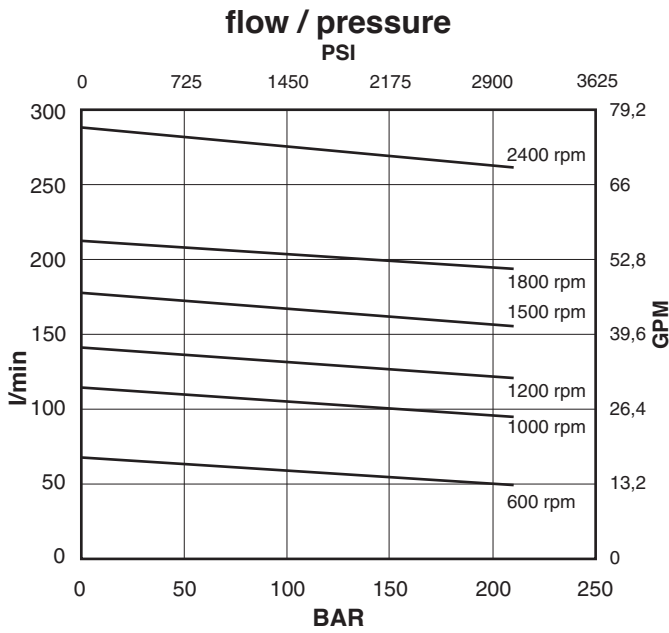
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A04-35



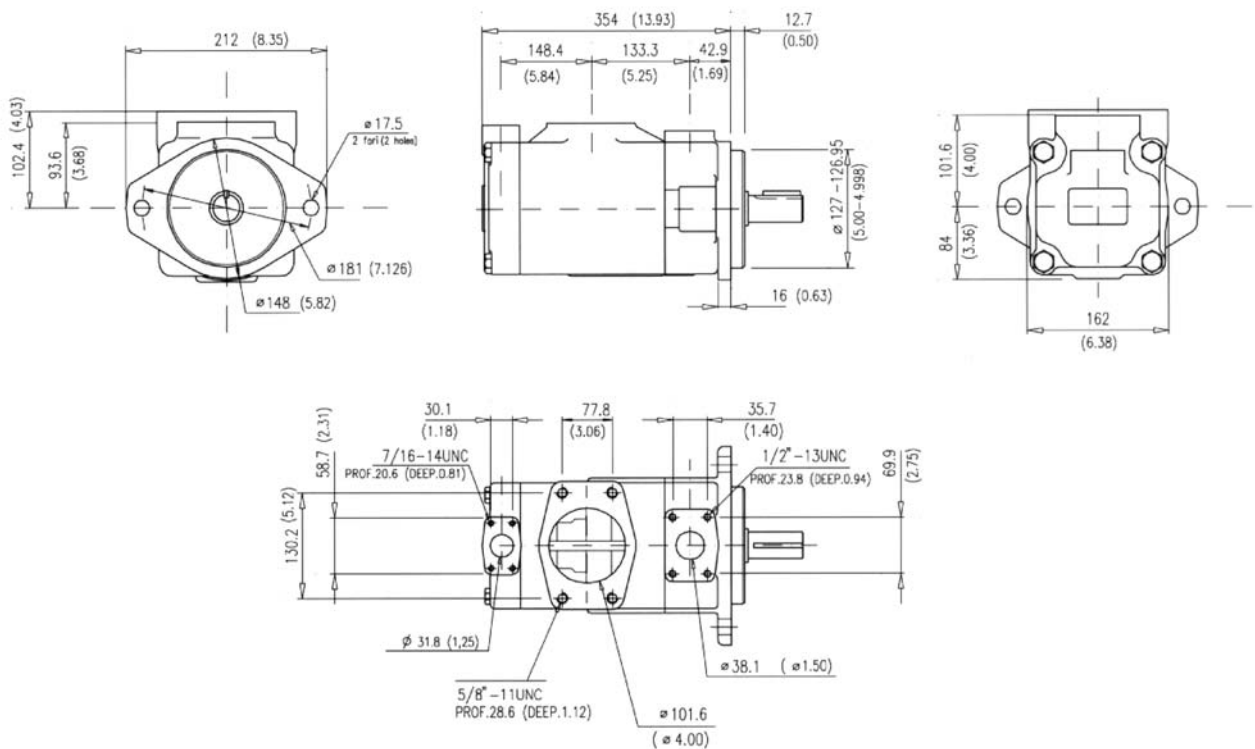
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A04-38



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



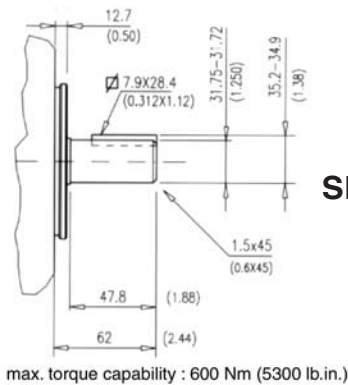
Approx. weight: 54 Kg. (118 lbs.)

Model code breakdown

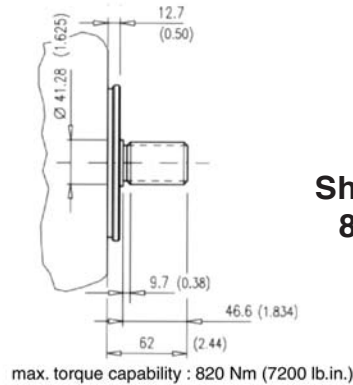
| | | | | | | | | | | |
|---|-----------|----------|-----------|-----------|----------|----------|-----------|------------|----------|--|
| BQ | 54 | G | ** | ** | * | * | ** | (L) | * | (A) |
| Pump series | | Design | | | | | | | | Mounting (omit if not required) |
| Pump type | | | | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) |
| Cartridge types | | | | | | | | | | V = seals and shaft-seal in FPM (Viton®) |
| -shaft end 42 47 50 57 60 | | | | | | | | | | D = standard seals and double shaft-seals in NBR |
| -cover end 21 25 30 35 38 | | | | | | | | | | F = seals and double shaft-seals in FPM (Viton®) |
| Body outlet port positions (Outlet viewed from cover end) | | | | | | | | | | Rotation (viewed from shaft end) |
| A = Outlet opposite end | | | | | | | | | | L = left hand rotation CCW (omit if CW) |
| B = Outlet 90° CCW from inlet | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | |
| Cover outlet port positions (Outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet opposite end | | | | | | | | | | |
| B = Outlet 90° CCW from inlet | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | |
| | | | | | | | | | | Shaft end options |
| | | | | | | | | | | 01 = Straight with key (standard), 11 = Splined |
| | | | | | | | | | | 86 = Heavy duty straight keyed, 90 = Splined SAE C |

Shaft options mm (inches)

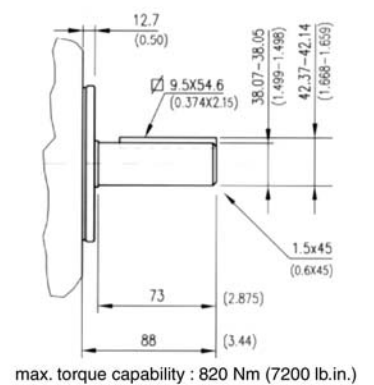
Shaft 01



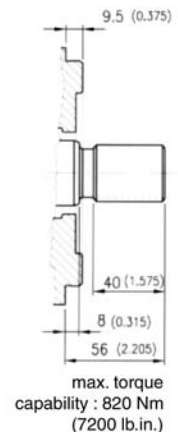
Shaft 11



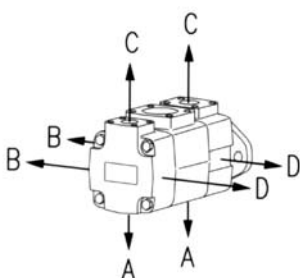
Shaft 86



Shaft 90



PORT ORIENTATIONS



Spline data (Shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |

Id. codes of pump components

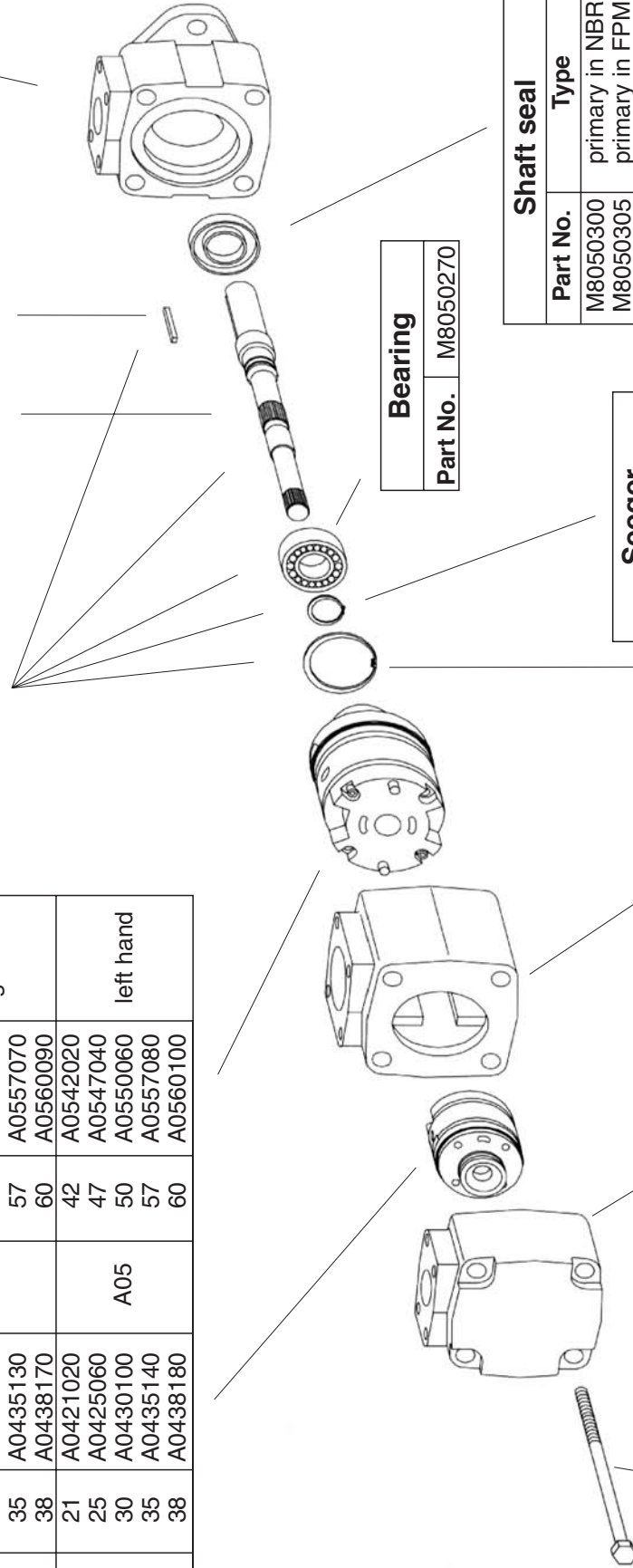
| Cartridges | | | | Pump rotation | |
|------------|-------|-----------|--------|---------------|----------|
| Cover end | | Shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| A04 | 21 | A0421010 | A05 | 42 | A0542010 |
| | 25 | A0425050 | | 47 | A0547030 |
| | 30 | A0430090 | | 50 | A0550050 |
| | 35 | A0435130 | | 57 | A0557070 |
| | 38 | A0438170 | | 60 | A0560090 |
| A04 | 21 | A0421020 | A05 | 42 | A0542020 |
| | 25 | A0425060 | | 47 | A0547040 |
| | 30 | A0430100 | | 50 | A0550060 |
| | 35 | A0435140 | | 57 | A0557080 |
| | 38 | A0438180 | | 60 | A0560100 |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8540601 |
| 11 | M8540611 |
| 86 | M8540686 |
| 90 | M8540690 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K5401000 |
| 11 | K5411000 |
| 86 | K5486000 |
| 90 | K5490000 |

| Body | |
|----------|----------|
| Part No. | M8050250 |

| Key | |
|-------|----------|
| Model | Part No. |
| 01 | M8050100 |
| 11 | - |
| 86 | M8058600 |
| 90 | - |



| Bearing | |
|----------|----------|
| Part No. | M8050270 |

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Seeger | |
|----------|----------|
| Part No. | M8050290 |

| Inlet body | |
|------------|----------|
| Part No. | M8050410 |

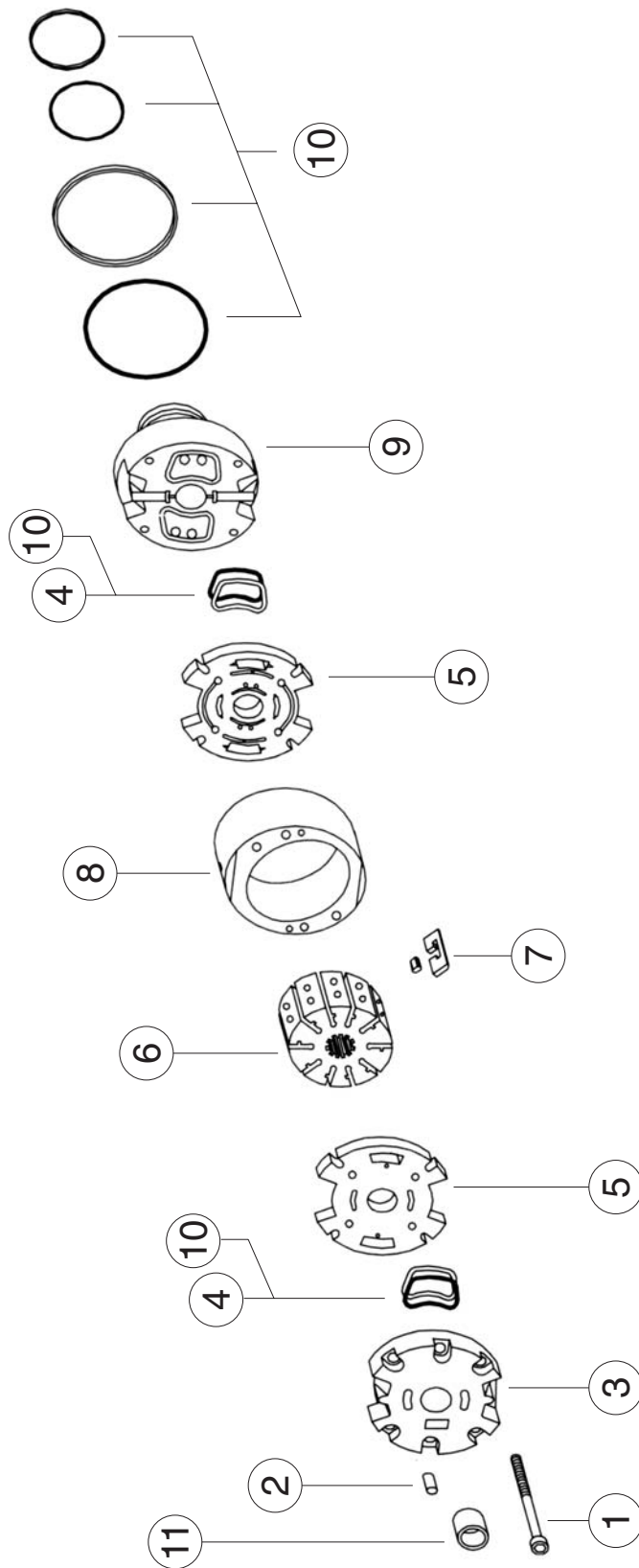
| Screw | |
|---------------------------------|----------|
| Part No. | M8050380 |
| Torque to 398 Nm (3550 lb. in.) | |

| Cover | |
|----------|----------|
| Part No. | M8050360 |

| Seeger | |
|----------|----------|
| Part No. | M8050280 |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | type |
| M8540131 | seals + 1 shaft seal | NBR |
| M8540132 | seals + 2 shaft seals | NBR |
| M8540133 | seals + 1 shaft seal | FPM (Viton®) |
| M8540134 | seals + 2 shaft seals | FPM (Viton®) |

Id. codes of cartridge kit components



| Cartridge | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--------------|------------------------|------------------------|---------------------|---------------------|---------------------|----------|---------------------------------|----------|----------------------|-------------------|---------------|
| Series Model | Screw | Pin | Inlet support plate | Seal pack (4+4 pcs) | Flex. plate (2 pcs) | Rotor | Vane and insert kit (10+10 pcs) | Ring | Outlet support plate | Seal kit (12 pcs) | Bushing (*) |
| A01 | 02 | | L7209200 | | | L7209300 | L7209300 | L7209002 | | | |
| | 05 | | L7209200 | | | L7209300 | L7209100 | L7209005 | | | |
| | 08 | | L7209200 | | | L7209300 | L7209100 | L7209008 | | | |
| | 09 | | L7209200 | | | L7209300 | L7209100 | L7209009 | | | |
| | 11 | L7200900 | L7200800 | L7201300 | L7200715 | L7200300 | L7201200 | L7201011 | L7200100 | L7201100 | L7200600 |
| 12 | 3,6 Nm (32 lb. in.) | | L7200200 | | | L7201200 | L7201200 | L7201012 | | L7202100 (FPM) | |
| 14 | | | L7200200 | | | L7200300 | L7201200 | L7201014 | | | |
| A02 | 12 | | | | | | | L7251012 | | | |
| | 14 | | | | | | | L7251014 | | | |
| | 17 | L7250900 | L7250800 | L7251300 | L7250715 | L7250300 | L7251200 | L7251017 | L7250100 | L7251100 | L7250600 |
| | 19 | 5,5 Nm (49 lb. in.) | | L7250200 | | | | L7251019 | | L7252100 (FPM) | |
| | 21 | | | L7250200 | | | | L7251021 | | | |
| A03 | 24 | L7300900 | L7250800 | L7251300 | L7250715 | L7300300 | L7301200 | L7301024 | L7250100 | L7251100 | L7250600 |
| | 28 | 5,5 Nm | | L7251300 | | | | L7301028 | | L7252100 (FPM) | |
| | 21 | | | | | | | L7351021 | | | |
| A04 | 25 | | | | | | | L7351025 | | | |
| | 30 | L7350900 | L735800 | L7350200 | L7351300 | L7350300 | L7351200 | L7351030 | L7350100 | L7351100 | L7350600 |
| | 35 | 12,6 Nm (112 lb.in) | | L7350200 | | | | L7351035 | | L7352100 (FPM) | |
| | 38 | | | | | | | L7351038 | | | |
| | 42 | | | | | | | L7451042 | | | |
| A05 | 47 | | | | | | | L7451047 | | | |
| | 50 | L7450900 | L7450800 | L7450200 | L7451300 | L7450300 | L7451200 | L7451050 | L7450100 | L7451100 | L7450600 |
| | 57 | 12,6 Nm (112 lb.in) | | L7450200 | | | | L7451057 | | L7452100 (FPM) | |
| | 60 | | | | | | | L7451060 | | | |

(*) Note: the cover end cartridge of the double pump is without bushing

Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7 psi) and with ambient temperature in the range of +30°C to +50°C. Higher speeds than those given cause a reduction in the volumetric efficiency, due to cavitation phenomena in the inlet area inside the pump. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the cartridge.

Minimum speed: In general, the min. speed for all pumps is 600 rpm. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum outlet pressure is different for each type of fluid used as can be seen from the corresponding diagrams. With optimal temperature and filtration conditions a pressure peak of +10% is permissible for a maximum time of 0.5 sec.

Mounting and drive connections: consider the following indications when preparing the installation drawings for the system:

- the pump is designed to operate with keyed shaft coupled axially and by means of a flexible coupling to the drive;
- the clearance between the keyed shaft and the corresponding sleeve coupling has to be between 0.004 and 0.030 mm;
- avoid axial and radial loads on the shaft;
- the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm;
- when mounting onto a gearbox, or other component without a flexible coupling, it is advisable to order pumps with splined shaft. In this case the clearance between splines has to be between 0.013 and 0.051 mm on the pitch diameter.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.) Inlet line tubing should have a section equal to or greater than that of the inlet port of the pump. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which has to be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The filtration requirements for individual models are given in this catalogue. The use of a filter by-pass is recommended for cold starts and should the filter become clogged. Proper maintenance of the filter element is essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, the same general conditions apply as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time:
 completely fill the pump and the inlet line with fluid;
 start the engine for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed;
 with a manometer check to ensure that the outlet pressure increases slightly;
 once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir.
 This procedure should be carefully as any residual air inside the pump can quickly cause the rotor to seize.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits.

The information provided in this catalogue is subject to change without notice



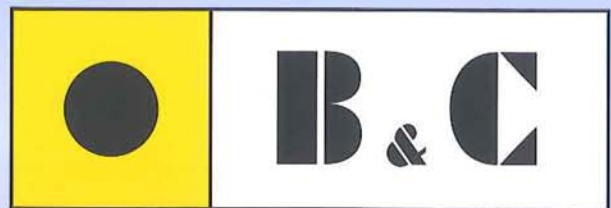
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www.bcit.it - info@bcit.it

TECHNICAL CATALOGUE



FIXED DISPLACEMENT
HYDRAULIC VANE PUMPS
BV series

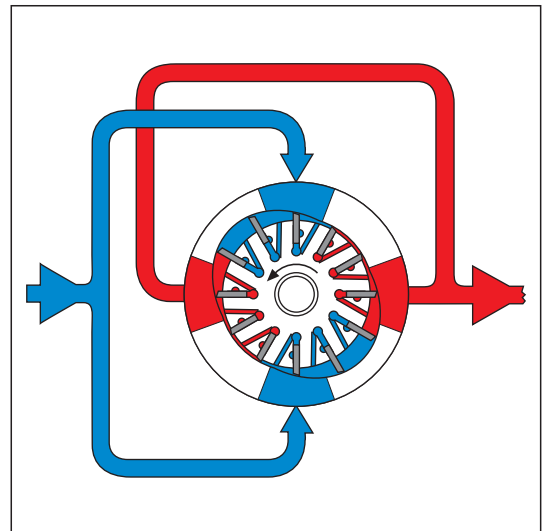


FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “BV” SERIES

Versatility, power, compactness and low running costs are the main characteristics of B&C vane pumps. All the components subject to wear are contained in a cartridge unit that can be easily removed for inspection and/or replacement without disconnecting the pump from the circuit, drastically reducing expensive machine down time.

The cartridge contains a rotor, vanes and inserts, a cam ring and two covers. During operation the rotor is driven by a splined shaft coupled to the drive unit. As the rotation speed increases, centrifugal forces, in combination with the pressure generated behind the vanes, push the vanes outwards, where they follow the profile of the cam of the ring with a sufficient contact pressure to ensure adequate hydraulic sealing. The two opposed pumping chambers formed by the elliptical profile of the cam cancel out radial loads on the shaft bearings, thereby giving them extremely long lifetimes.

The versatility of the BV series pumps enables them to meet the requirements of the most varied industrial applications. In fact, as well as their proven high reliability and excellent volumetric efficiency in all working conditions, they operate with particularly low noise levels. This is made possible by the special profile of the cam ring and the use of a 12 vane rotor that reduces the amplitude of the supply pressure pulses, thereby reducing induced vibrations (see drawing).



The BV series is available in four versions of single pump (from 8 to 230 l/min at 1200 rpm) and six versions of double pump (from 55 to 370 l/min at 1200 rpm), with maximum powers of over 300 HP. The BV series pumps are extremely compact and are supplied with ISO norm mechanical couplings and SAE norm hydraulic fittings. This makes them very easy to install and guarantees their interchangeability with other similar pumps.

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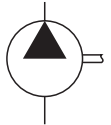
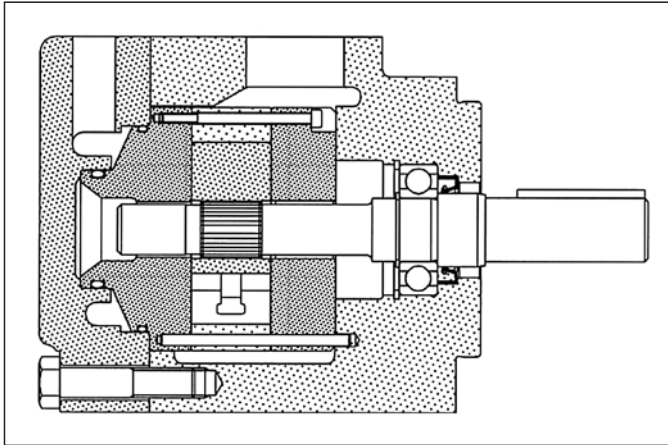
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General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in six versions with capacities from 8 to 55 l/min (*from 2 to 14 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| V01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 1800 |
| V01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 1800 |
| V01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 1800 |
| V01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 1800 |
| V01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 1800 |
| V01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 1800 |
| V01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 1800 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (*with mineral oil*): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

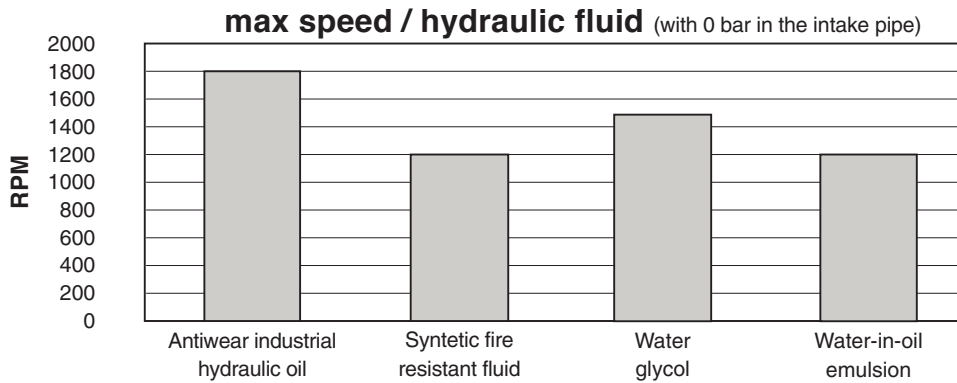
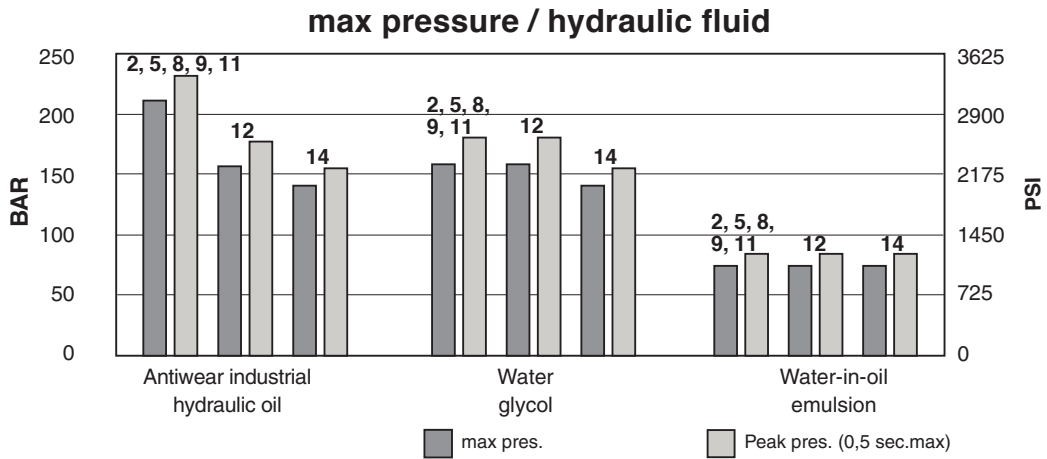
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (*-2.5 to + 20 psi*)

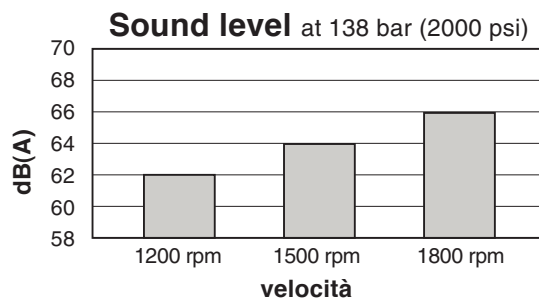
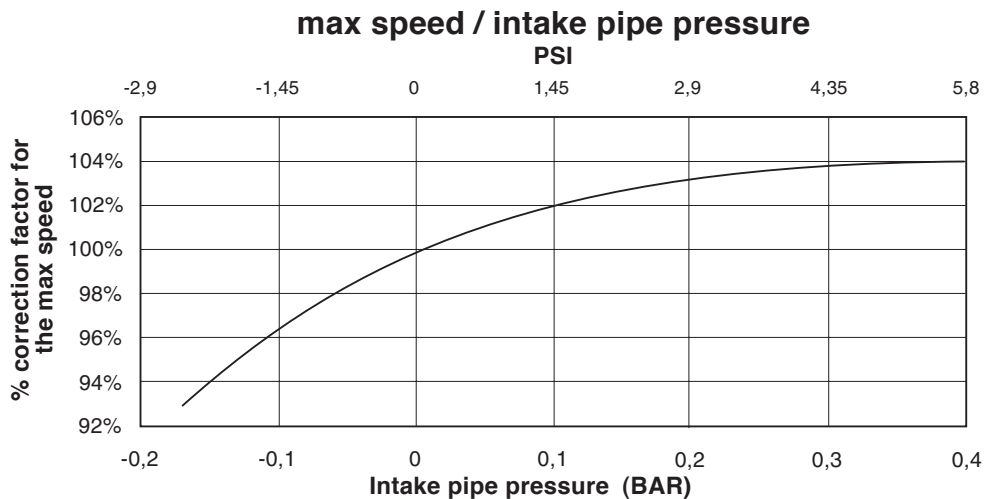
Operating temperature: with mineral oil -10°C +70°C (*+30°C to +60°C recommended*), with water based fluids +15°C to +50°C.

Drive: direct and coaxial by means of a flexible coupling.

Main operating data

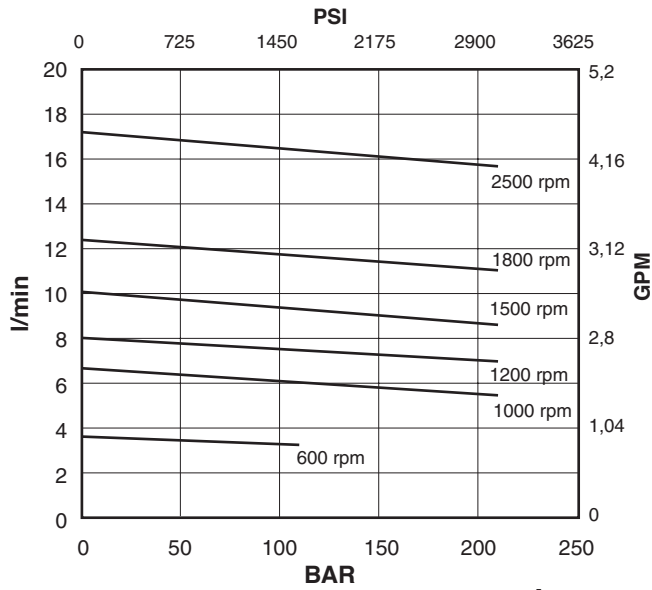


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

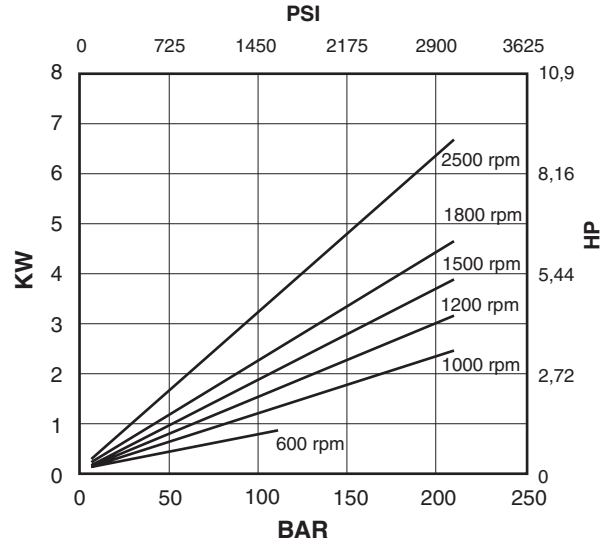


Cartridge V01-02

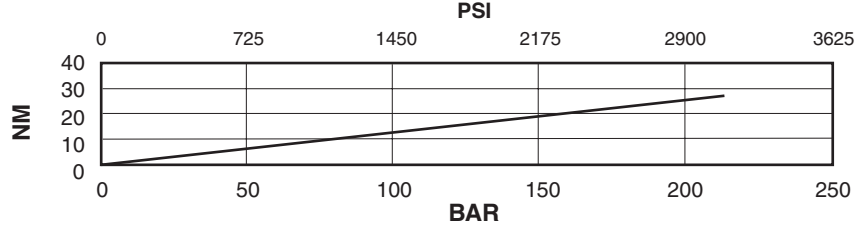
flow / pressure



power / pressure



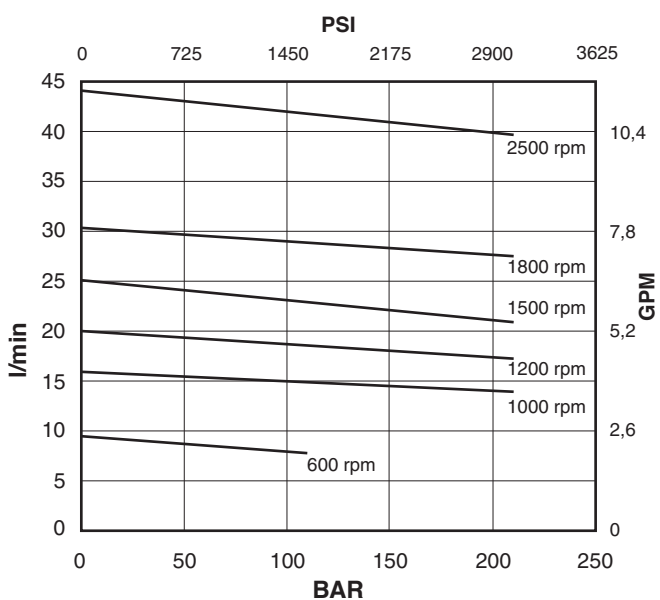
input torque / pressure



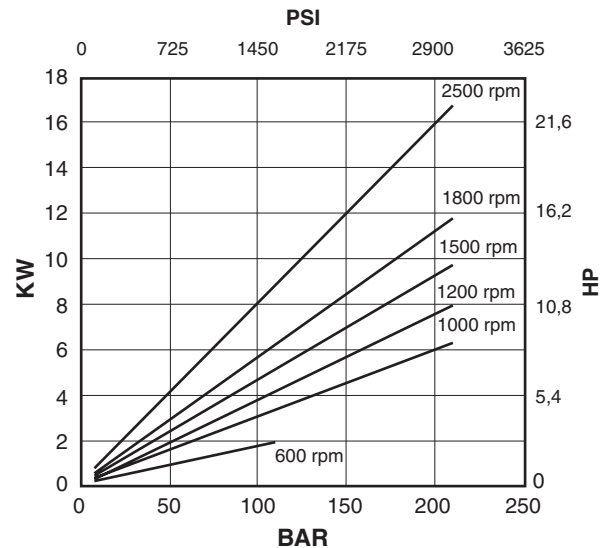
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-05

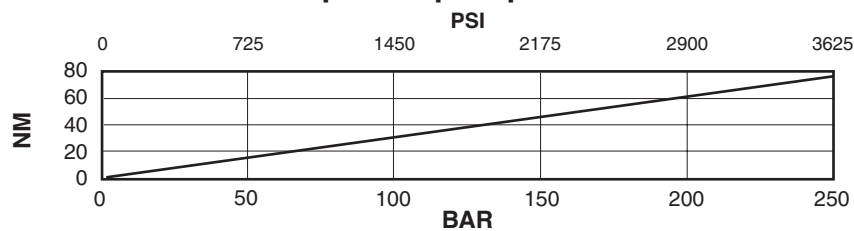
flow / pressure



power / pressure



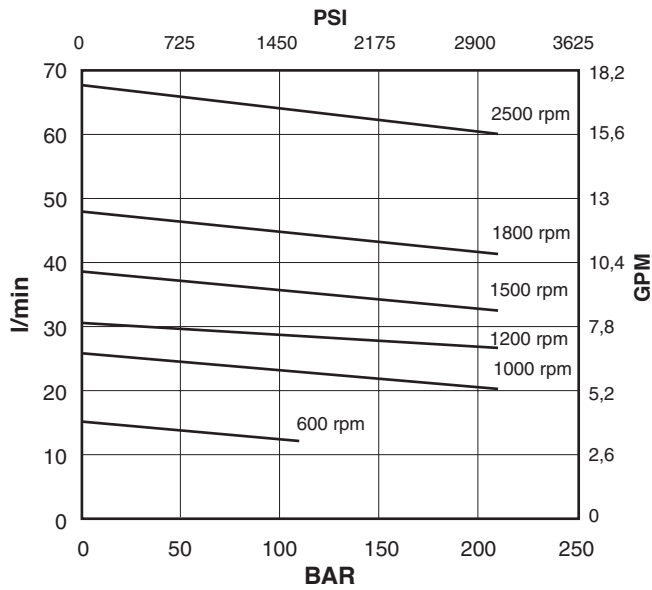
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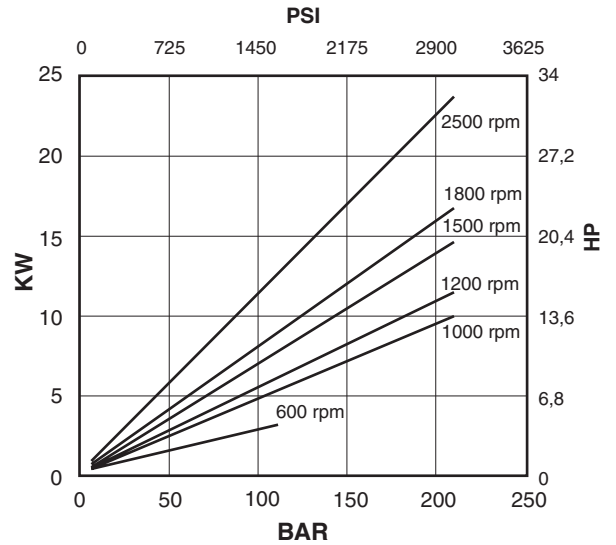
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Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-08

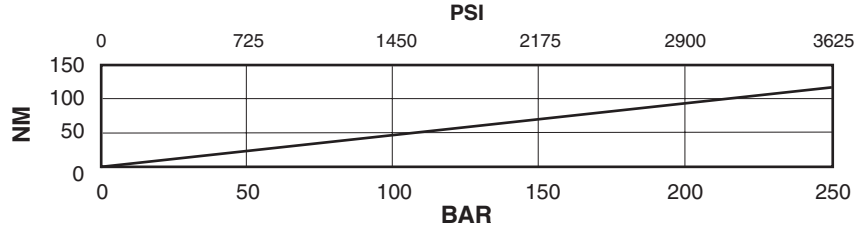
flow / pressure



power / pressure



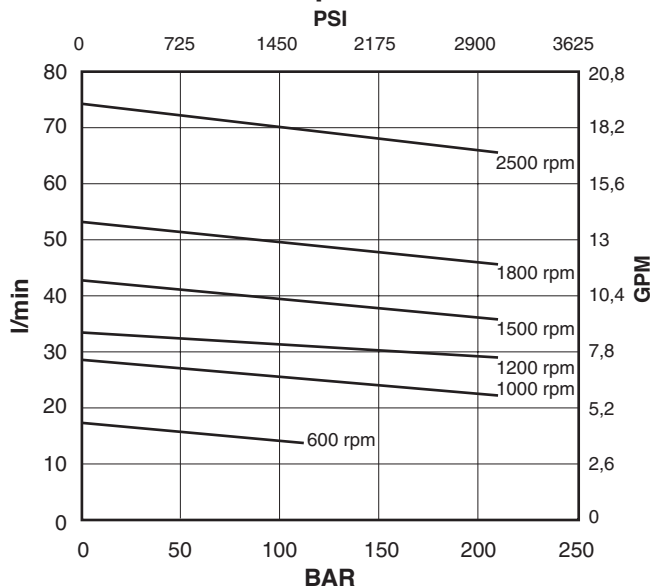
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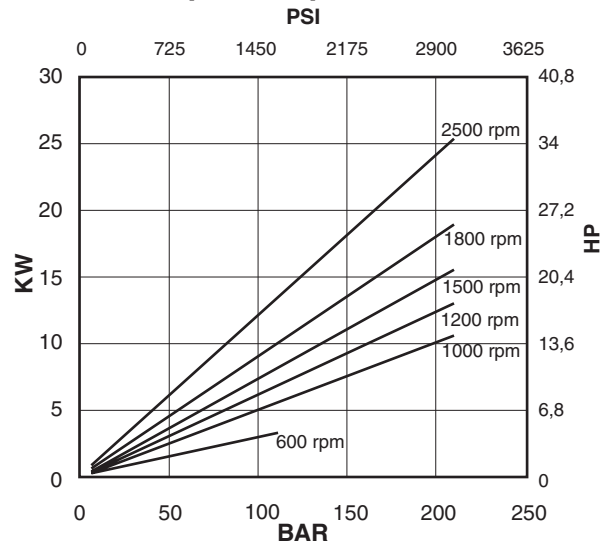
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Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-09

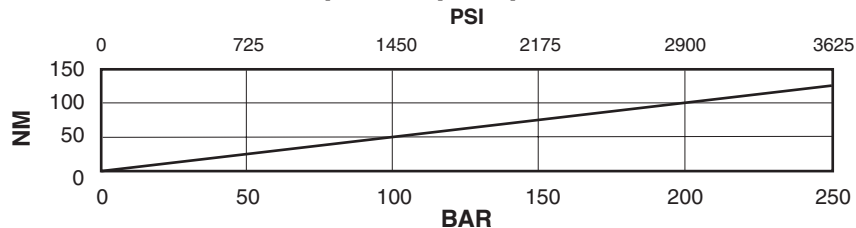
flow / pressure



power / pressure

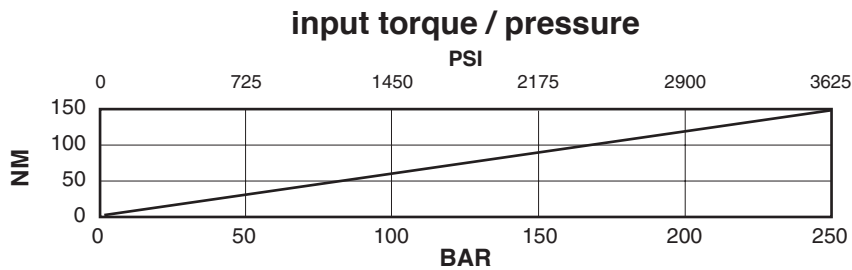
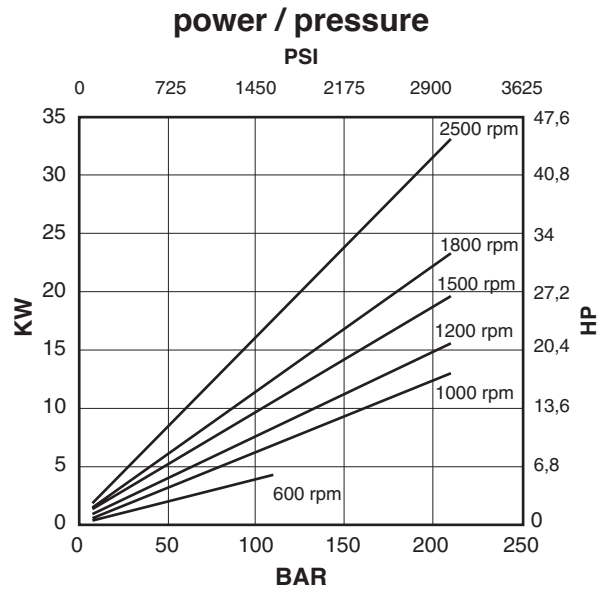
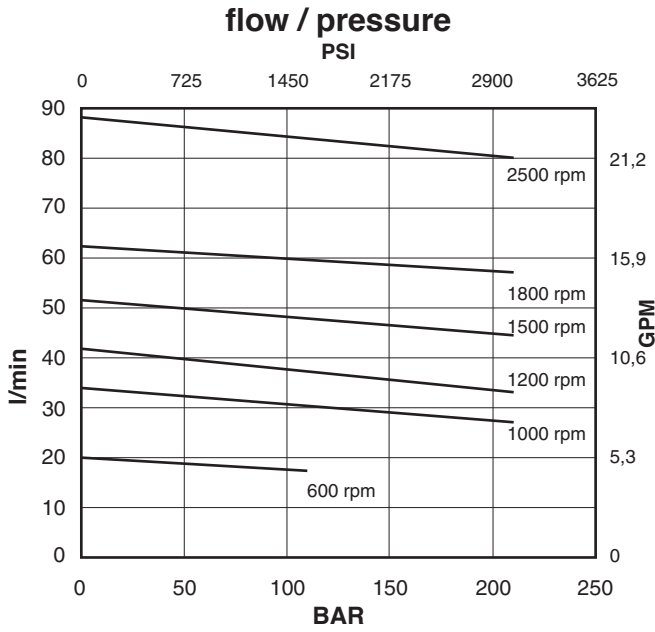


input torque / pressure



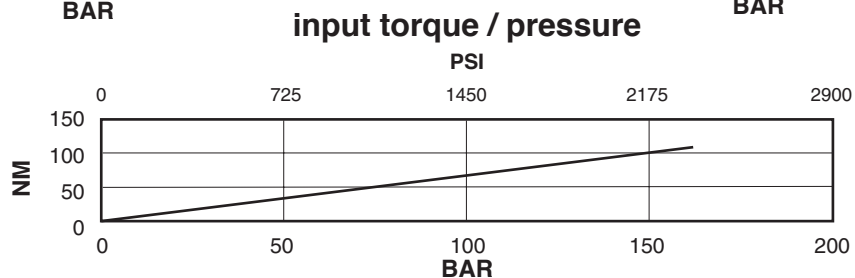
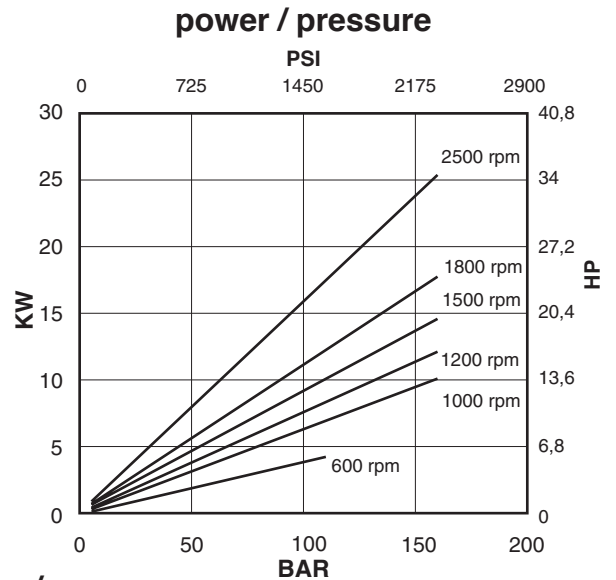
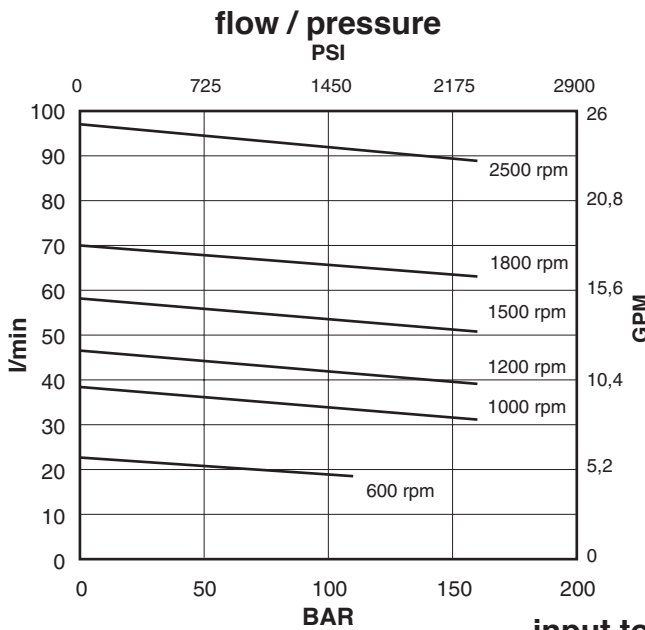
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Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-11



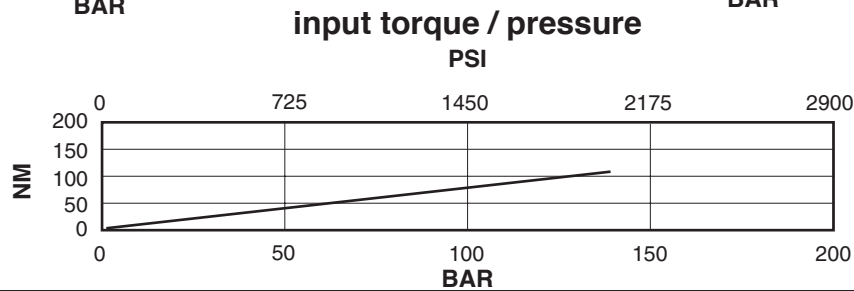
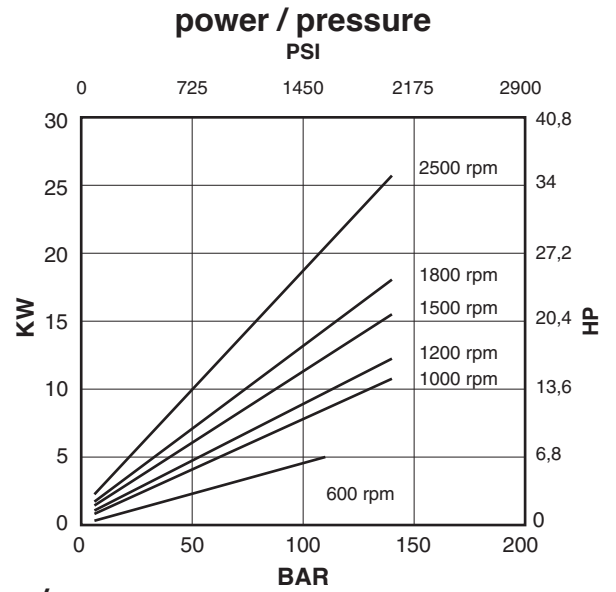
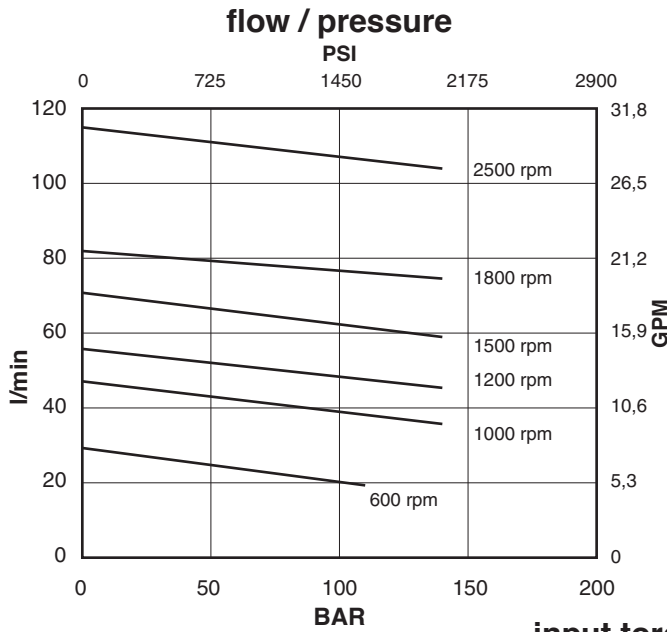
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 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V01-12



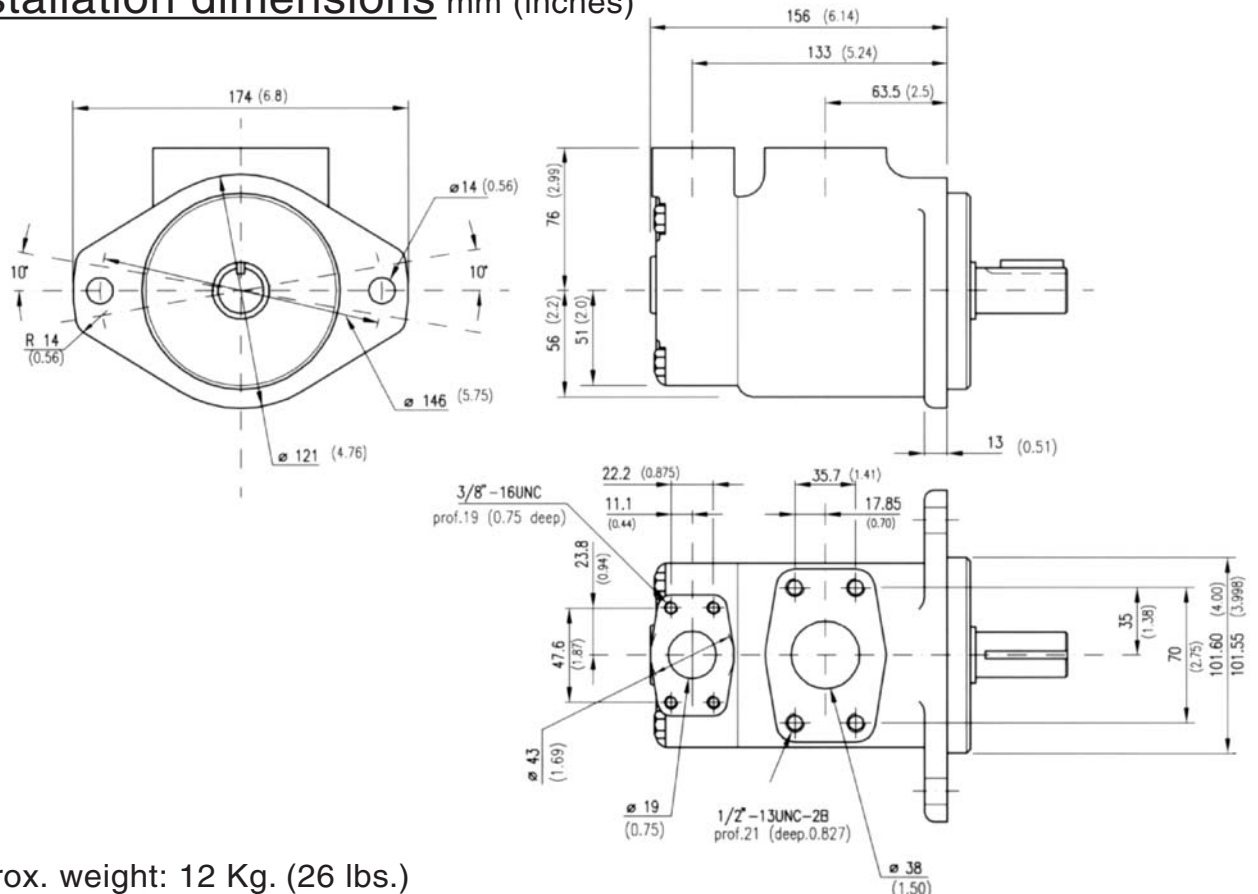
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V01-14



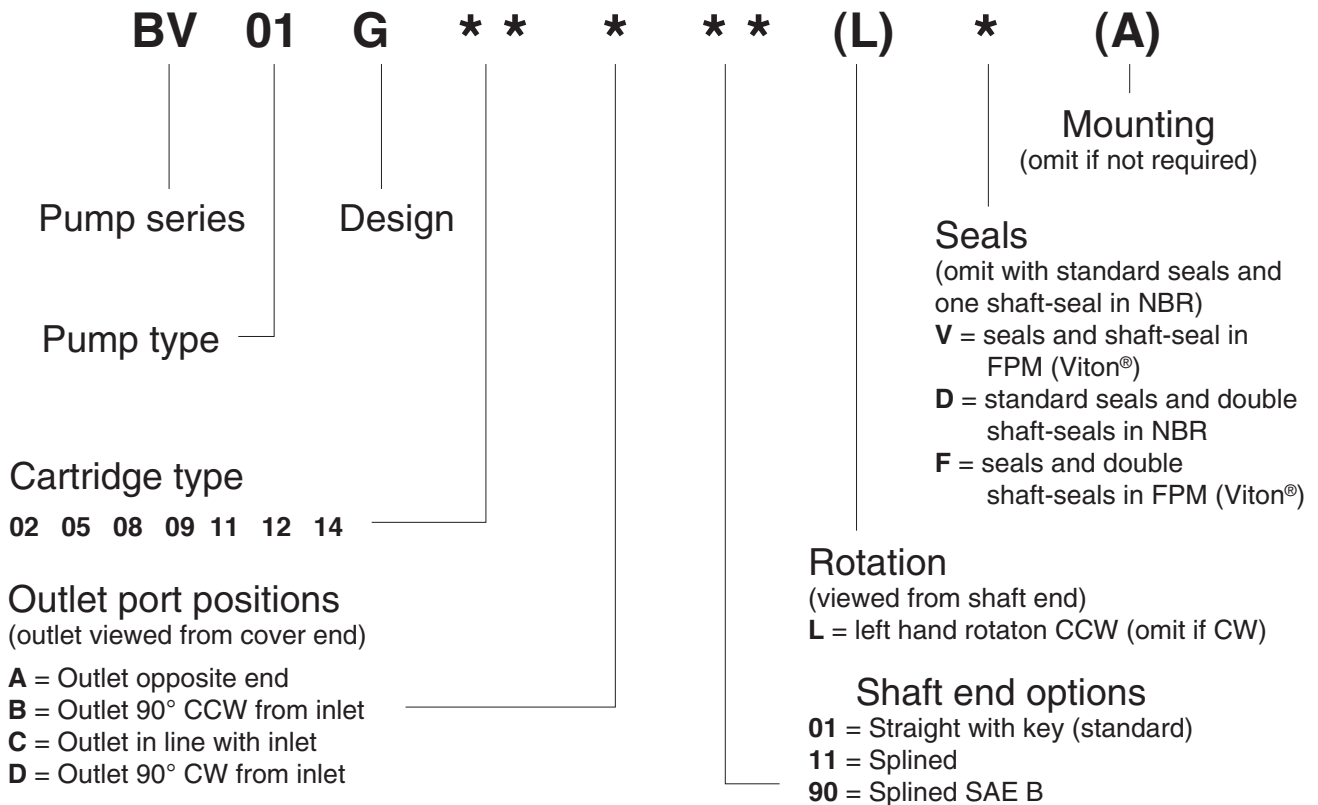
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

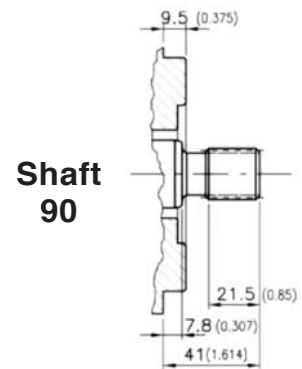
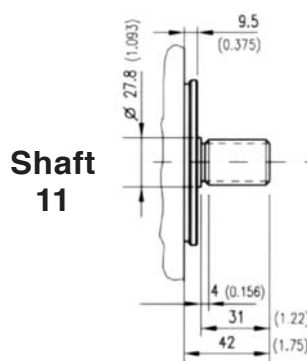
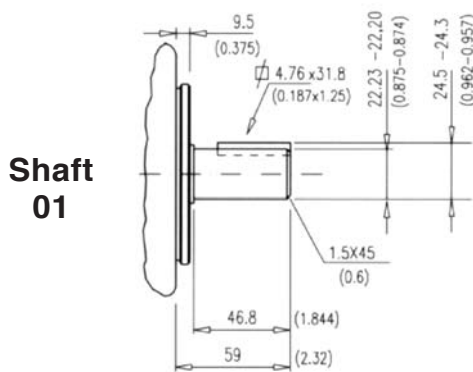


Approx. weight: 12 Kg. (26 lbs.)

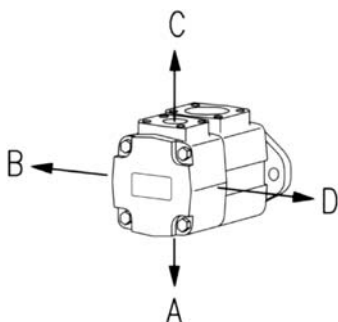
Model code breakdown



Shaft options mm (inches)



PORT ORIENTATIONS



Spline data

(shaft 11 and shaft 90)

Involute side fit (ASA B5.15)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 13 | |
| Pitch | 16/32 | |
| Major dia. | 22.00 - 21.90 | (0.866 - 0.862) |
| Pitch dia. | 20.638 | (0.8125) |
| Minor dia. | 18.63 - 18.35 | (0.733 - 0.722) |
| Wildhaber | 11.67 - 11.70 | (0.459 - 0.461) |

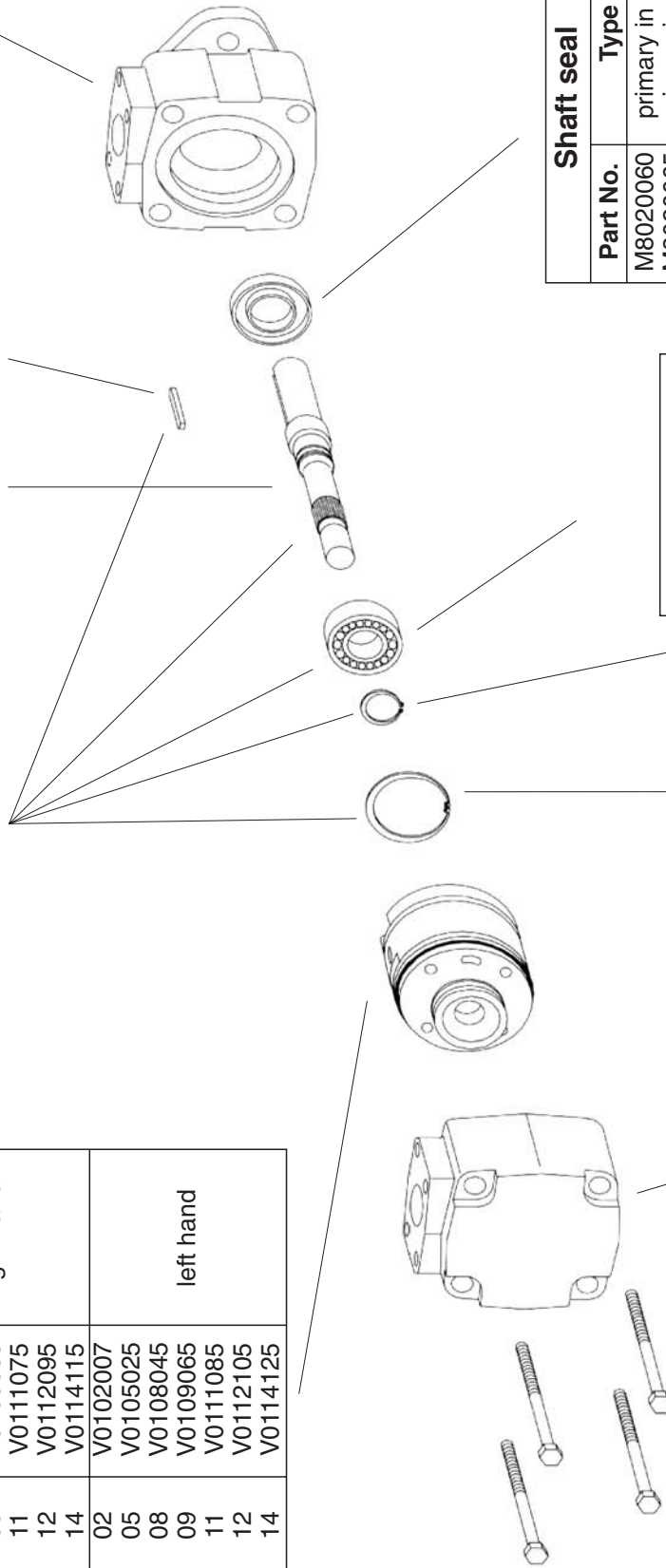
Id. codes of pump components

| Cartridge | | | |
|-----------|----------|----------|-------------|
| Series | Model | Part No. | Pump rotat. |
| V01 | 02 | V0102002 | right hand |
| | 05 | V0105015 | |
| | 08 | V0108035 | |
| | 09 | V0109055 | |
| | 11 | V0111075 | |
| | 12 | V0112095 | |
| V01 | 14 | V0114115 | left hand |
| | 02 | V0102007 | |
| | 05 | V0105025 | |
| | 08 | V0108045 | |
| | 09 | V0109065 | |
| | 11 | V0111085 | |
| 12 | V0112105 | | |
| 14 | V0114125 | | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8010601 |
| 11 | M8010611 |
| 90 | M8010690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0101000 | M8010100 | - |
| 11 | K0111000 | - | - |
| 90 | K0190000 | - | - |

| Body | |
|----------|----------|
| Part No. | M8010010 |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8020060 | primary in NBR |
| M8020065 | primary in FPM |
| M8020061 | secondary in NBR |
| M8020066 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | M8010030 |

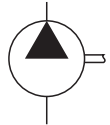
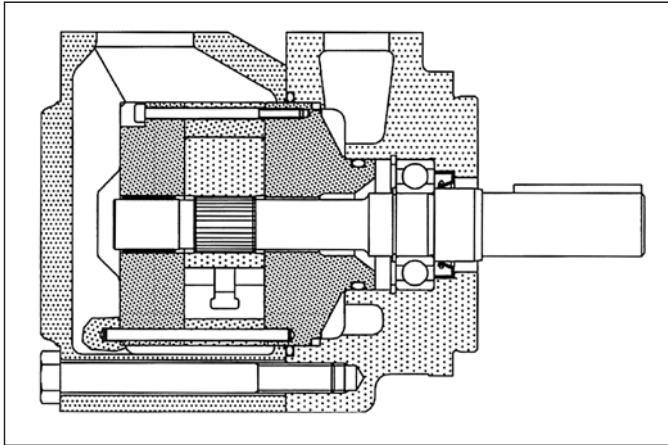
| Seeger | |
|----------|----------|
| Part No. | M8010050 |

| Seeger | |
|----------|----------|
| Part No. | M8010040 |

| Cover | |
|----------|----------|
| Part No. | M8020120 |

| Screw | |
|-------------------------------|----------|
| Part No. | M8020420 |
| Torque to 70 Nm (625 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8010500 | seals + 1 shaft seal | NBR |
| M8010501 | seals + 2 shaft seals | NBR |
| M8010503 | seals + 1 shaft seal | FPM (Viton®) |
| M8010504 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five versions with capacities from 47 to 79 l/min (*from 12 to 21 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| V02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 175 | (2538) | 600 | 1800 |
| V02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 175 | (2538) | 600 | 1800 |
| V02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 175 | (2538) | 600 | 1800 |
| V02-19 | 60,0 | (3.66) | 71,0 | (19) | 88,7 | (23.4) | 175 | (2538) | 600 | 1800 |
| V02-21 | 67,5 | (4.12) | 79,0 | (21) | 99,8 | (26.4) | 175 | (2538) | 600 | 1800 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (*with mineral oil*): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

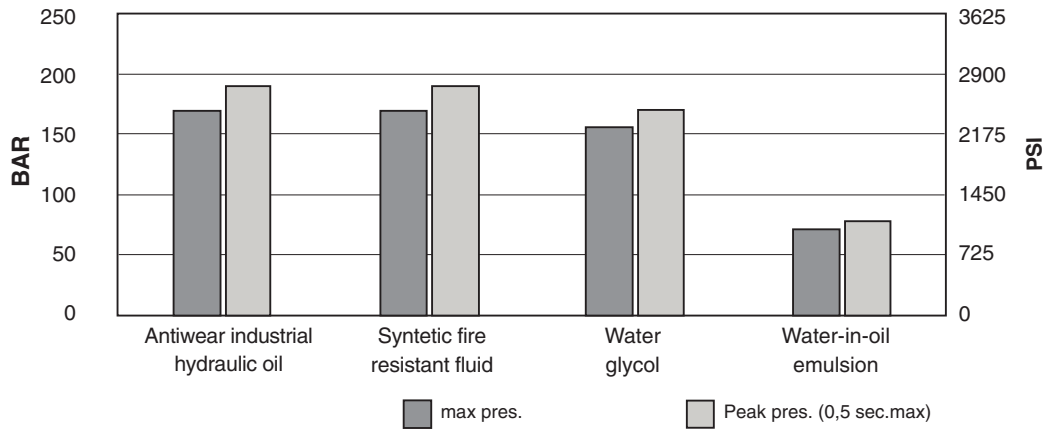
Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (*-2.5 to + 20 psi*)

Operating temperature: with mineral oil -10°C +70°C (*+30°C to +60°C recommended*), with water based fluids +15°C to +50°C.

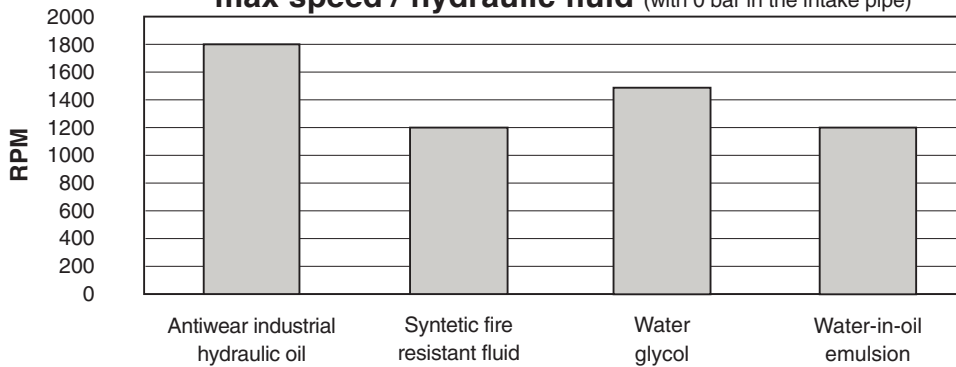
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

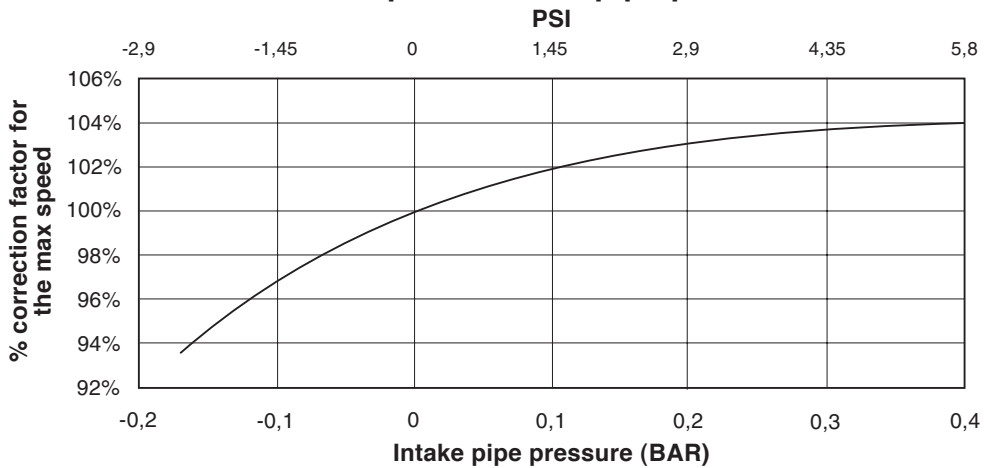


max speed / hydraulic fluid (with 0 bar in the intake pipe)

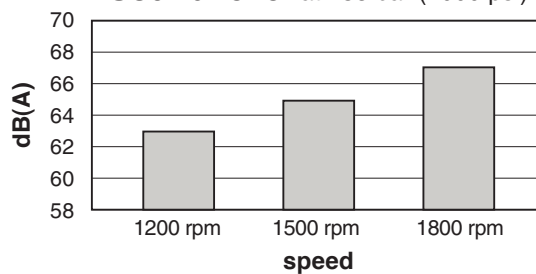


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

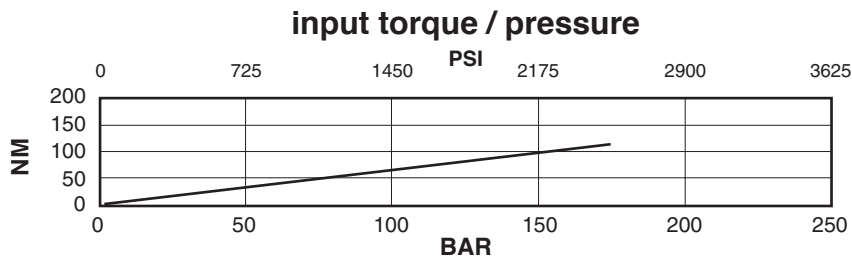
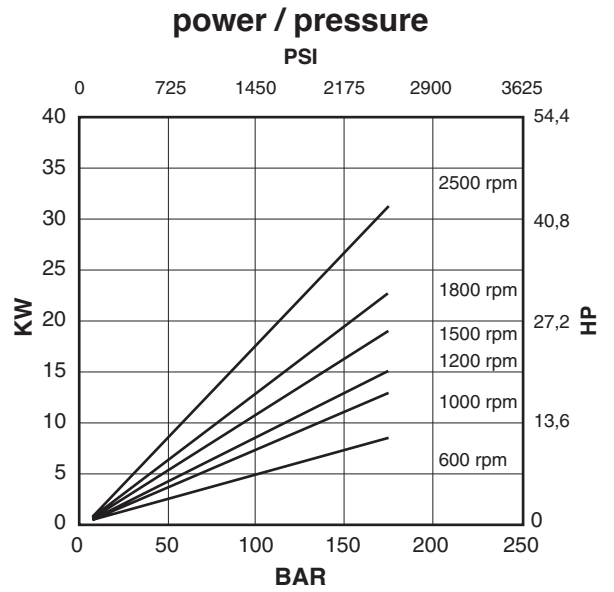
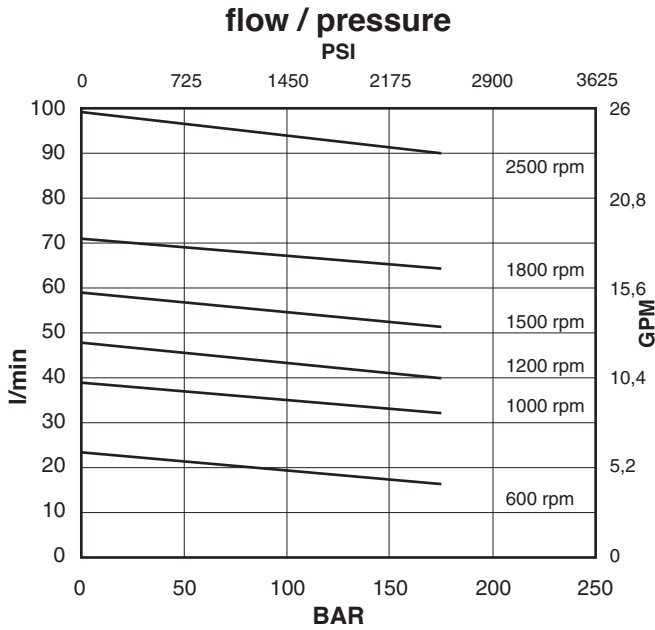
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)

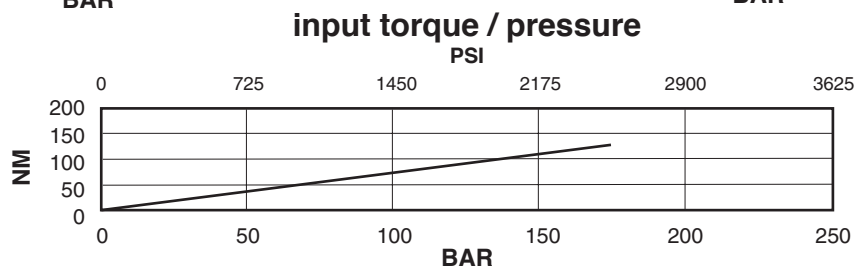
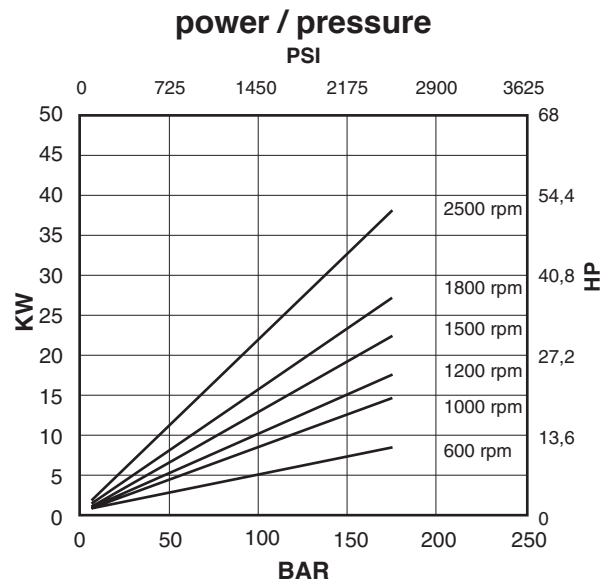
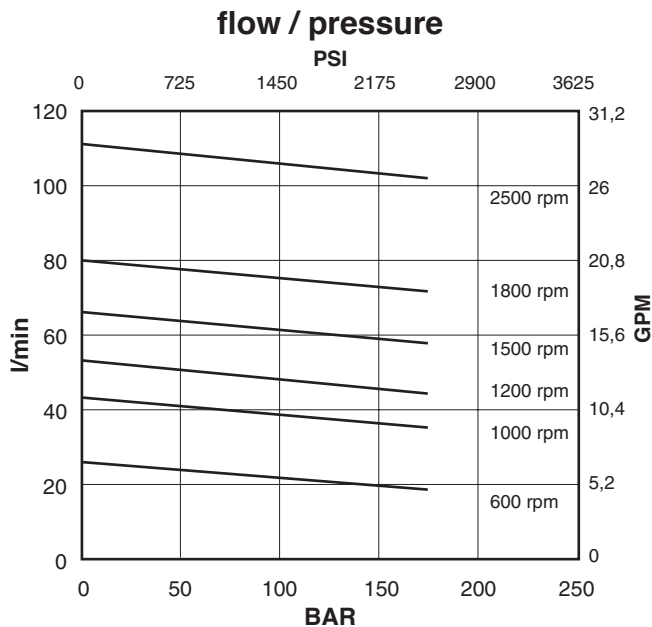


Cartridge V02-12



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

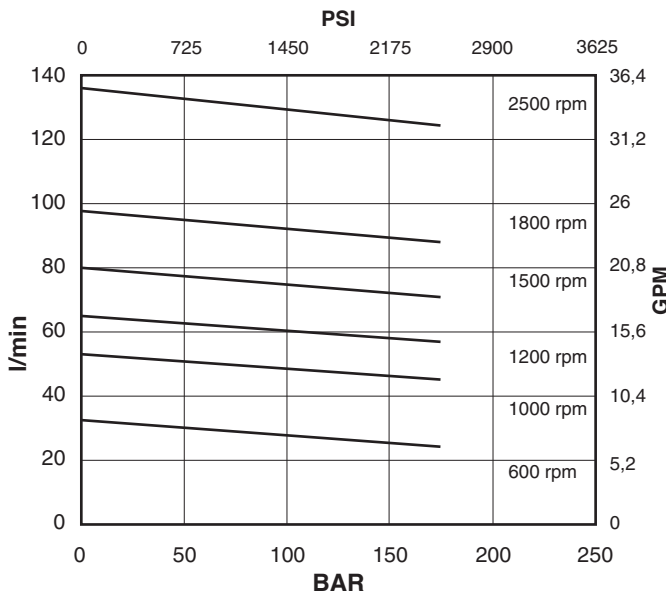
Cartridge V02-14



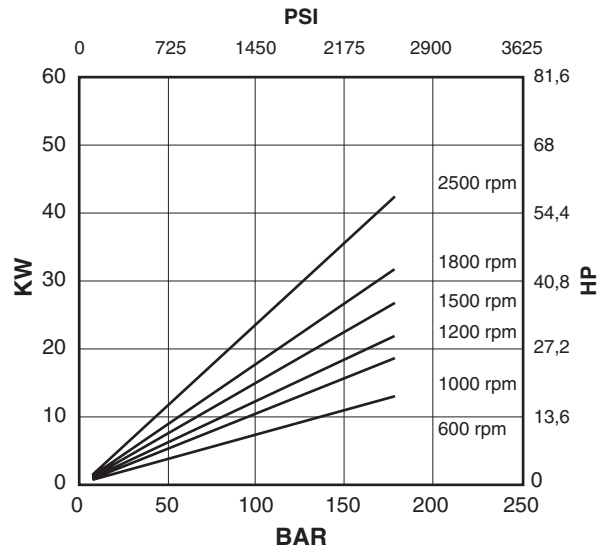
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V02-17

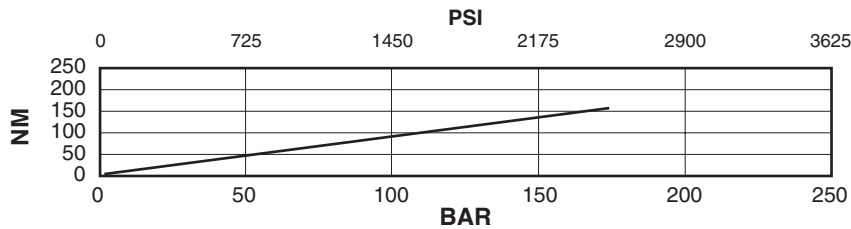
flow / pressure



power / pressure



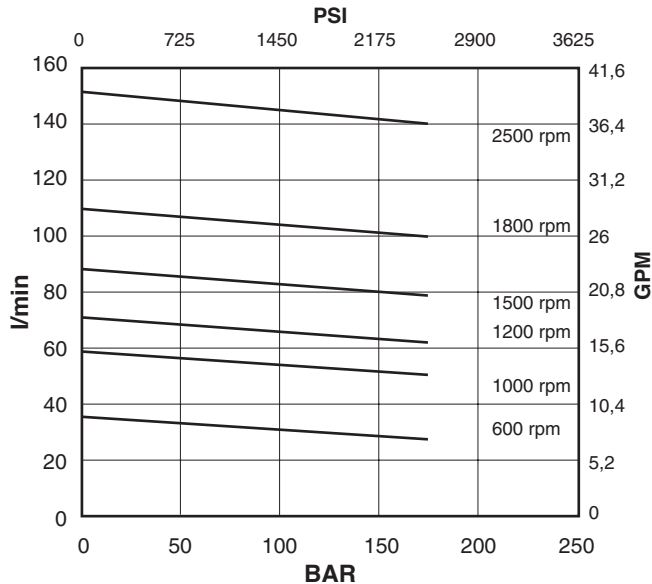
input torque / pressure



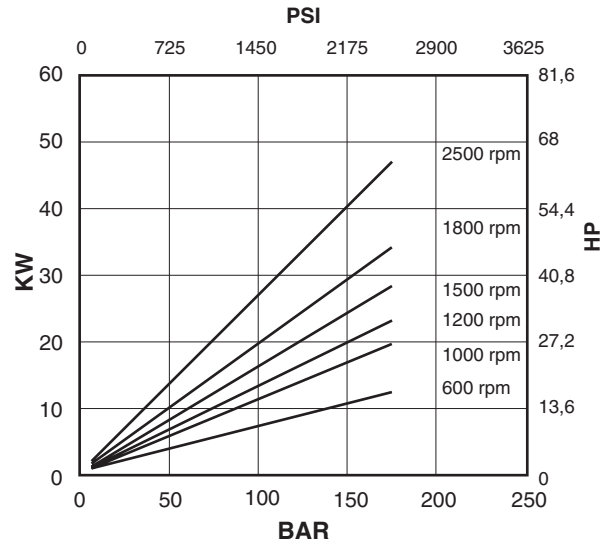
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V02-19

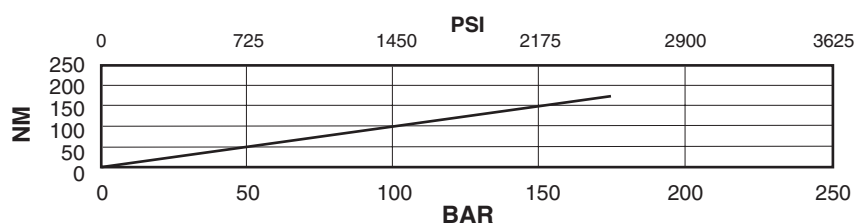
flow / pressure



power / pressure



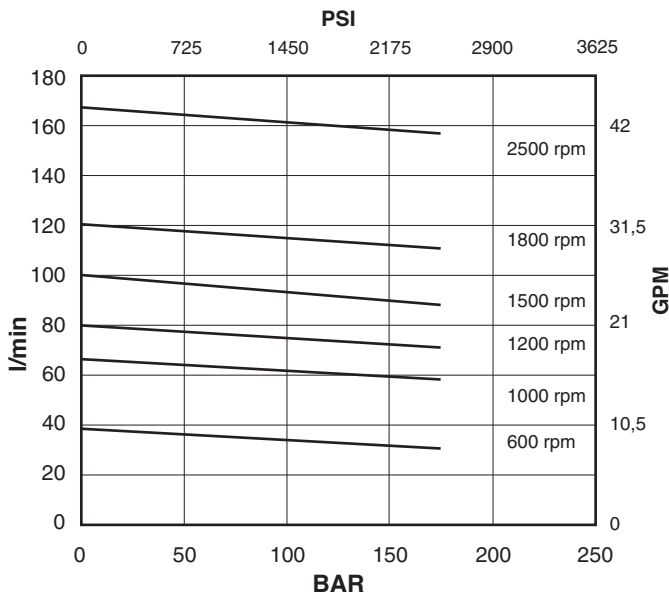
input torque / pressure



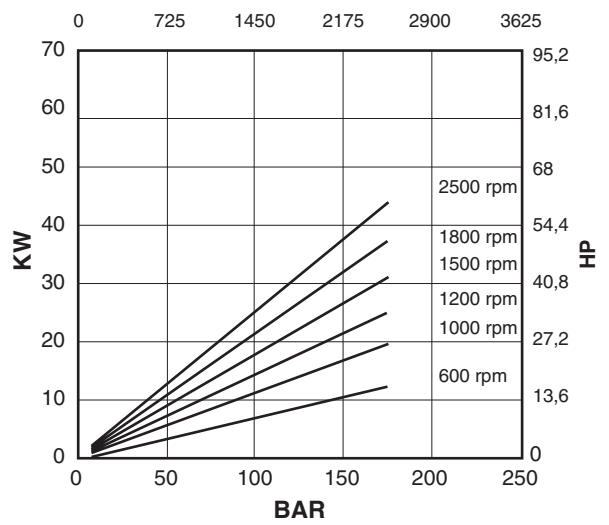
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V02-21

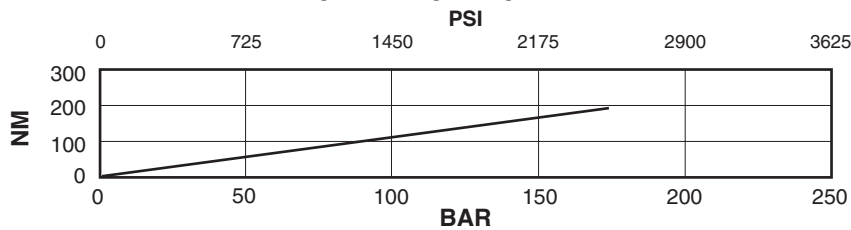
flow / pressure



power / pressure

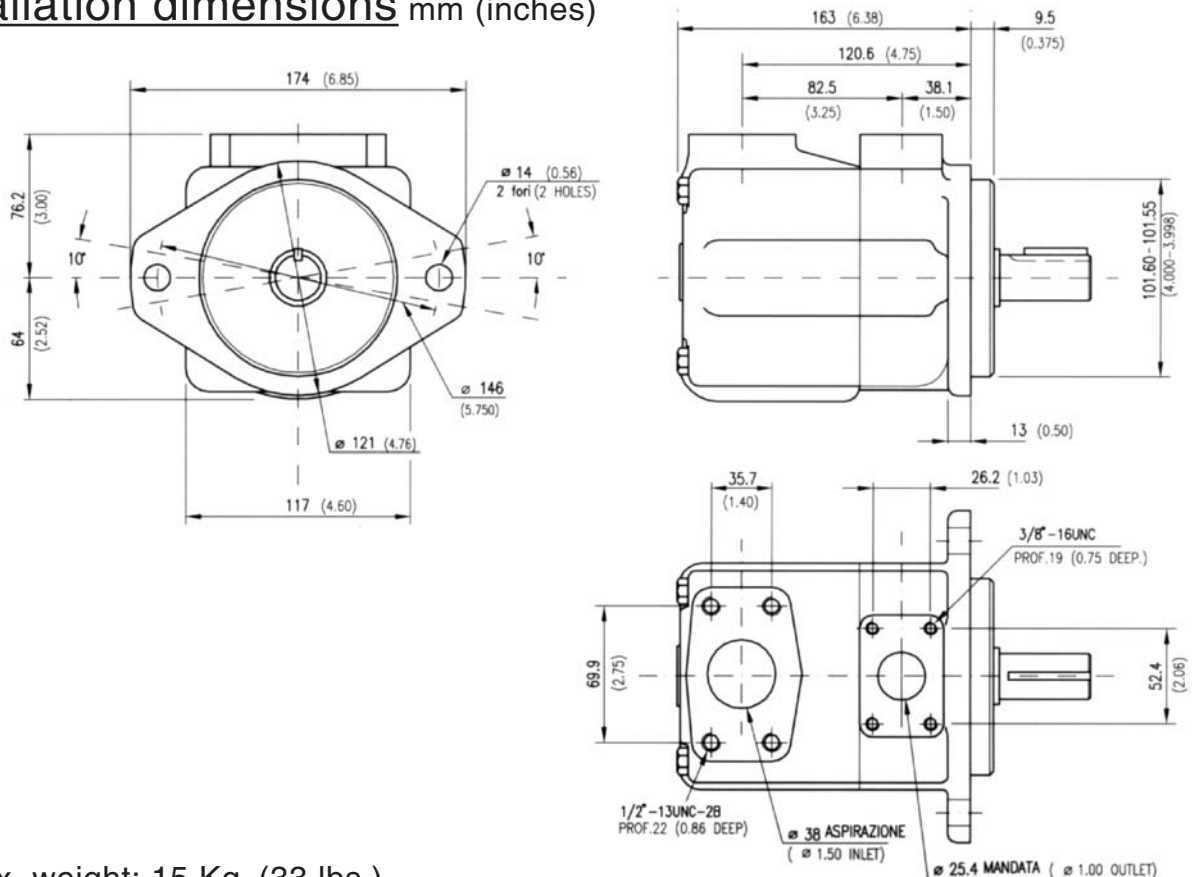


input torque / pressure



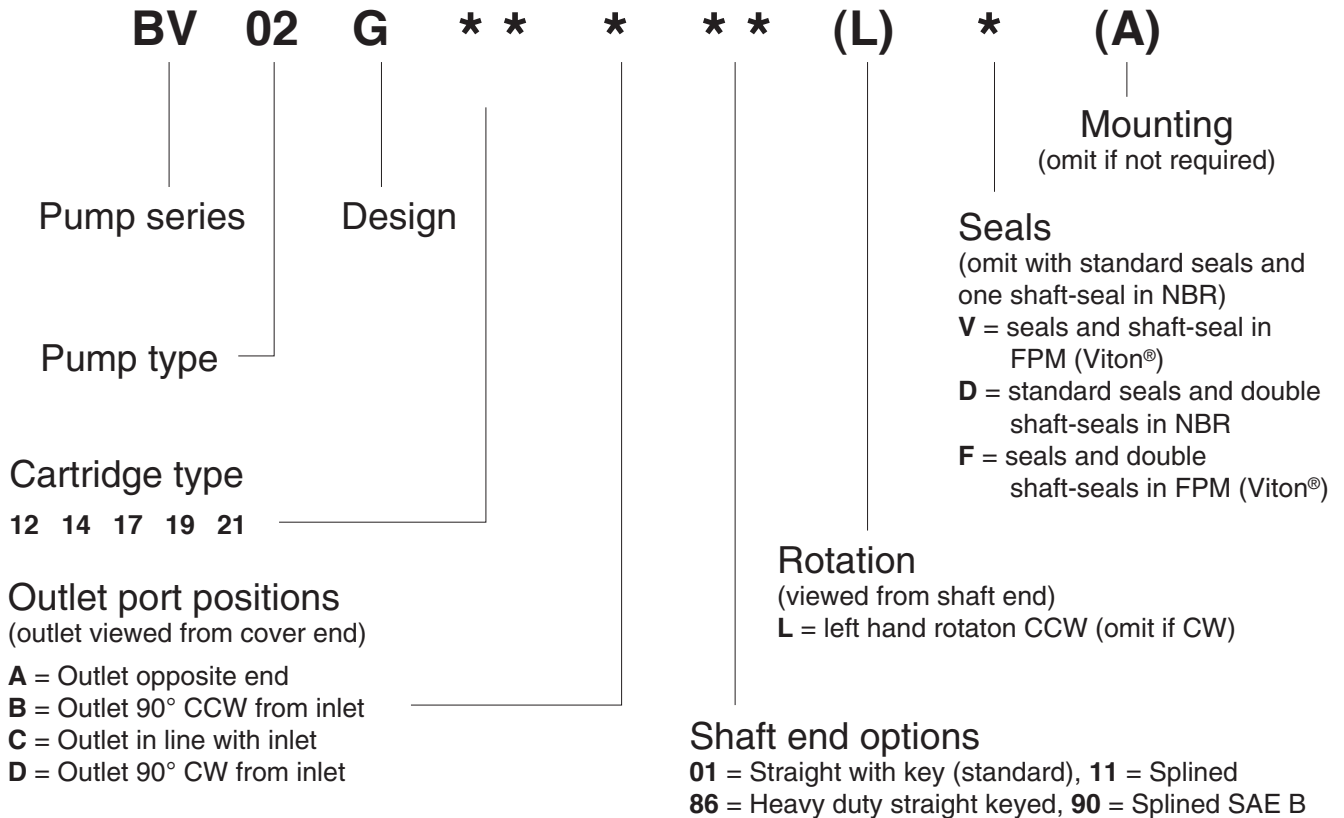
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)

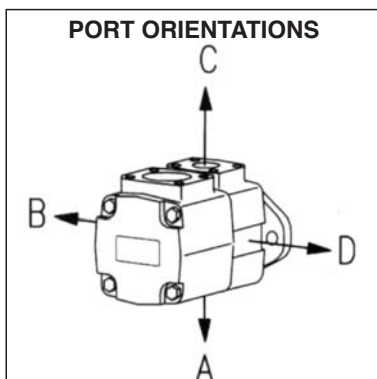
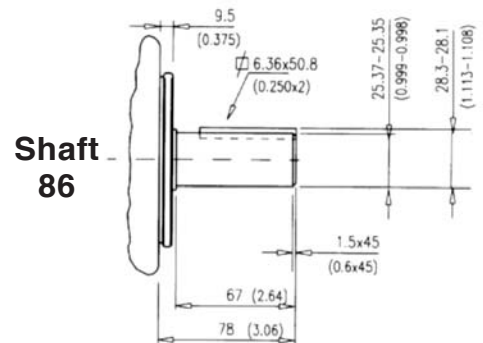
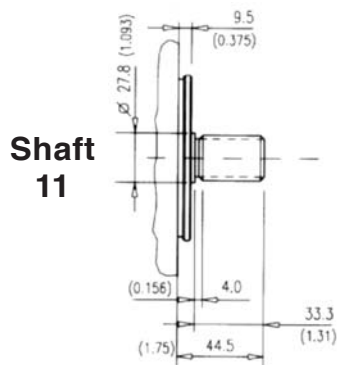
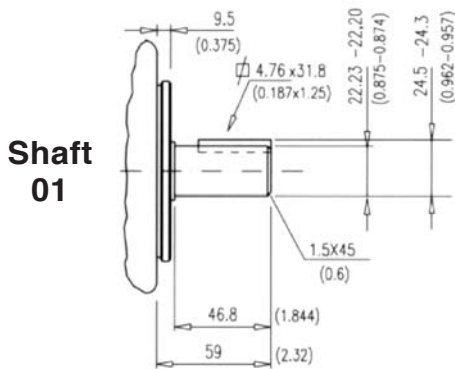


Approx. weight: 15 Kg. (33 lbs.)

Model code breakdown

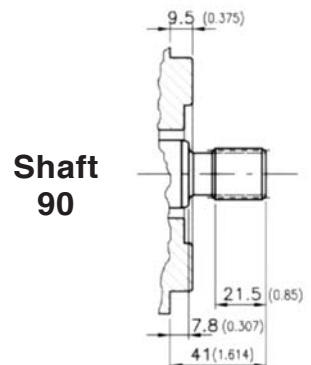


Shaft options mm (inches)



Spline data
(shaft 11 and shaft 90)
Involute side fit (ASA B5.15)

| | |
|----------------|-------------------------------|
| Spline | |
| Pressure angle | 30° |
| No. of teeth | 13 |
| Pitch | 16/32 |
| Major dia. | 22.00 - 21.90 (0.866 - 0.862) |
| Pitch dia. | 20.638 (0.8125) |
| Minor dia. | 18.63 - 18.35 (0.733 - 0.722) |
| Wildhaber | 11.67 - 11.70 (0.459 - 0.461) |



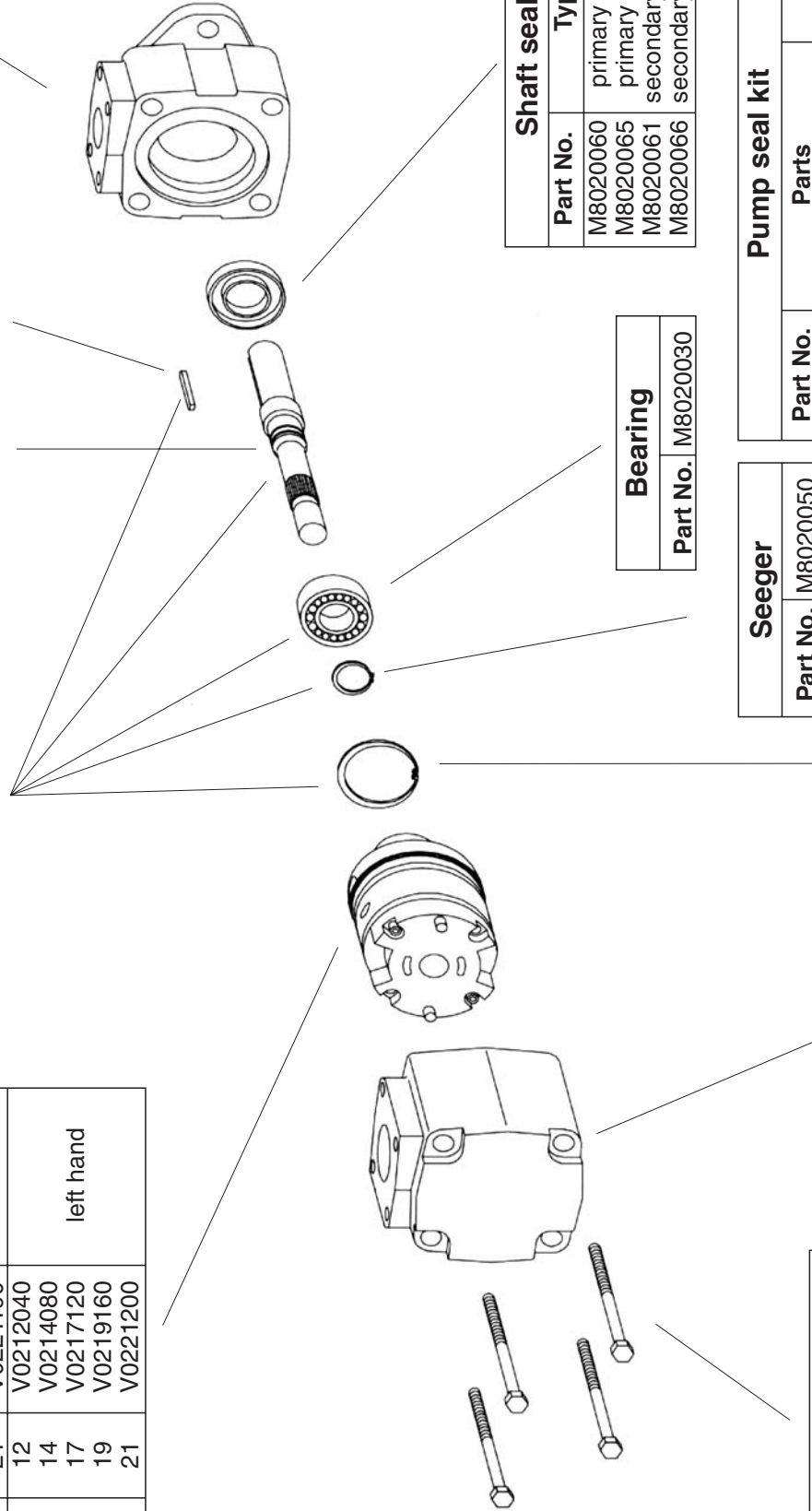
Id. codes of pump components

| Cartridge | | | |
|-----------|-------|----------|-------------|
| Series | Model | Part No. | Pump rotat. |
| V02 | 12 | V0212030 | right hand |
| | 14 | V0214070 | |
| | 17 | V0217110 | |
| | 19 | V0219150 | |
| | 21 | V0221190 | |
| V02 | 12 | V0212040 | left hand |
| | 14 | V0214080 | |
| | 17 | V0217120 | |
| | 19 | V0219160 | |
| | 21 | V0221200 | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8020601 |
| 11 | M8020611 |
| 86 | M8020686 |
| 90 | M8020690 |

| Shaft | | Key | |
|-------|----------|-----------|--|
| Model | Part No. | Codice N° | |
| 01 | K0201000 | M8010100 | |
| 11 | K0211000 | - | |
| 86 | K0286000 | M8028600 | |
| 90 | K0290000 | - | |

| Body | |
|----------|----------|
| Part No. | M8020010 |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8020060 | primary in NBR |
| M8020065 | primary in FPM |
| M8020061 | secondary in NBR |
| M8020066 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | M8020030 |

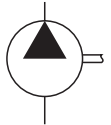
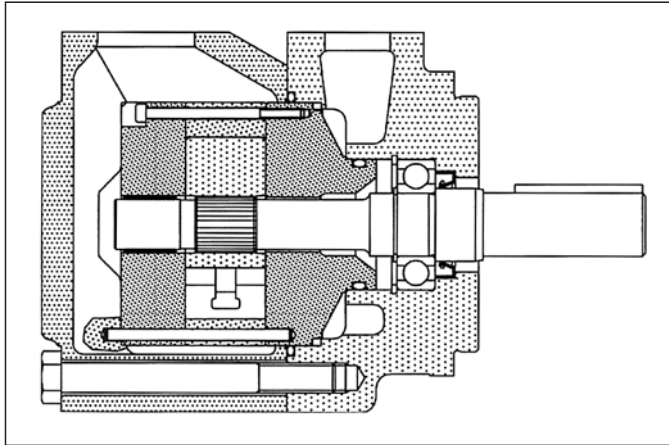
| Seeger | |
|----------|----------|
| Part No. | M8020050 |

| Seeger | |
|----------|----------|
| Part No. | M8020040 |

| Cover | |
|----------|----------|
| Part No. | M8020020 |

| Screw | |
|--------------------------------|----------|
| Part No. | M8020070 |
| Torque to 102 Nm (910 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8020500 | seals + 1 shaft seal | NBR |
| M8020501 | seals + 2 shaft seals | NBR |
| M8020503 | seals + 1 shaft seal | FPM (Viton®) |
| M8020504 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five versions with capacities from 80 to 140 l/min (*from 21 to 38 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| V04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 175 | (2538) | 600 | 1800 |
| V04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 175 | (2538) | 600 | 1800 |
| V04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 175 | (2538) | 600 | 1800 |
| V04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 175 | (2538) | 600 | 1800 |
| V04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 175 | (2538) | 600 | 1800 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (*with mineral oil*): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

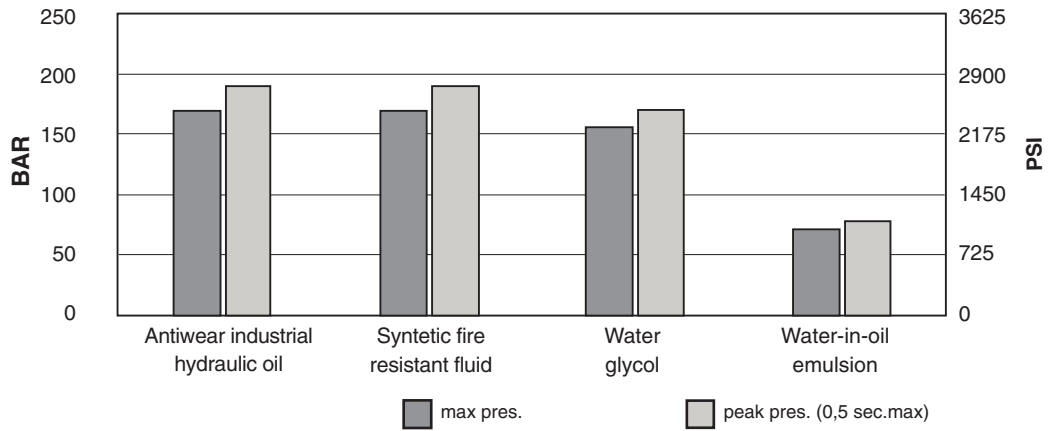
Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (*-2.5 to + 20 psi*)

Operating temperature: with mineral oil -10°C +70°C (*+30°C to +60°C recommended*), with water based fluids +15°C to +50°C.

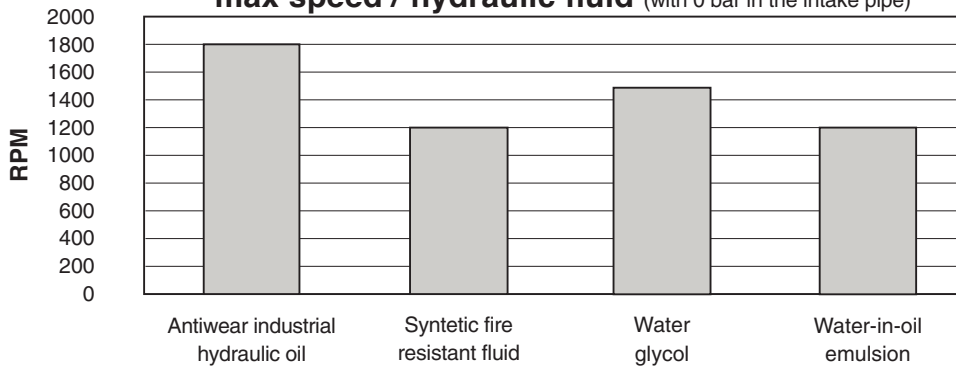
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

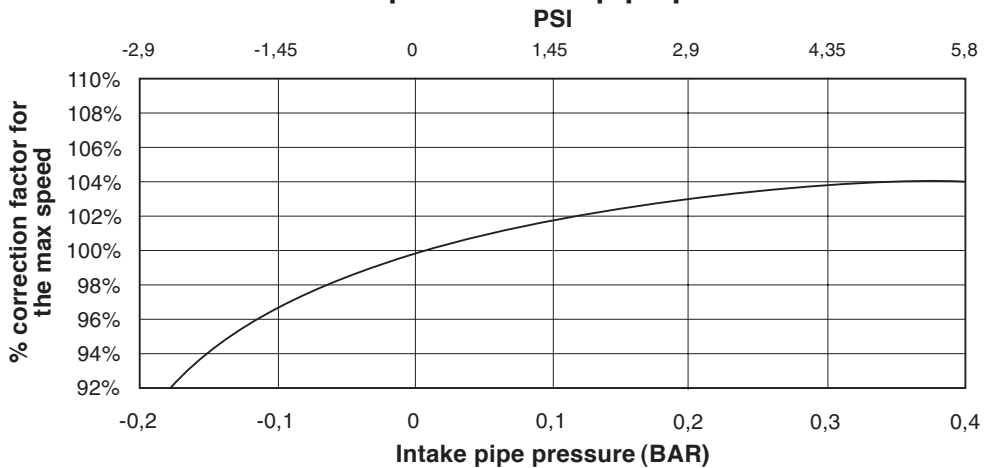


max speed / hydraulic fluid (with 0 bar in the intake pipe)

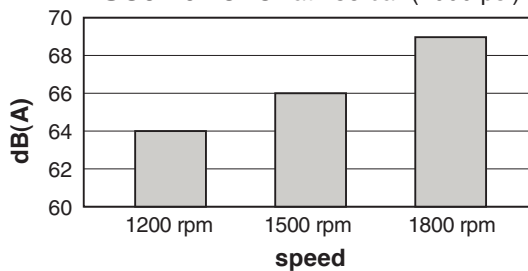


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

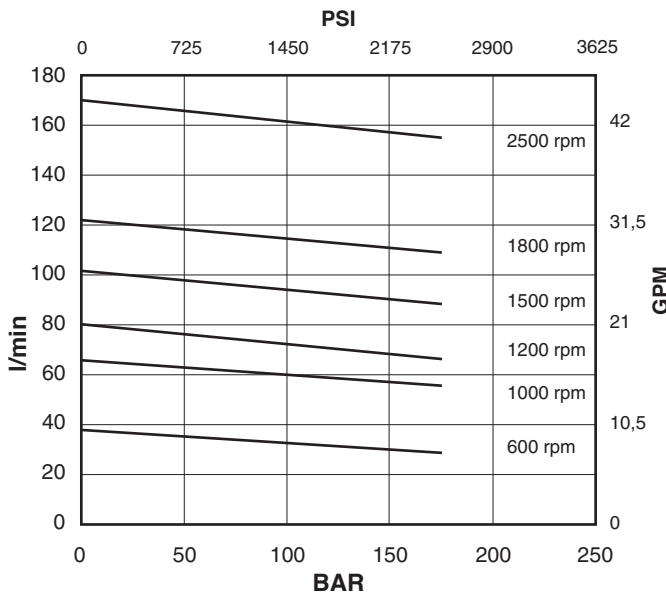


Sound level at 138 bar (2000 psi)

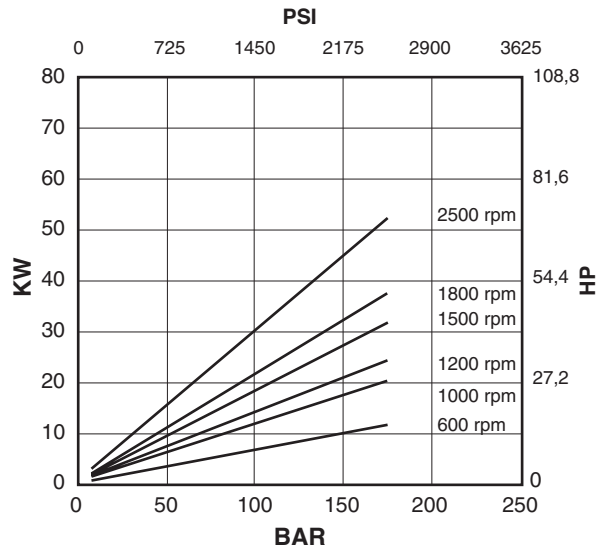


Cartridge V04-21

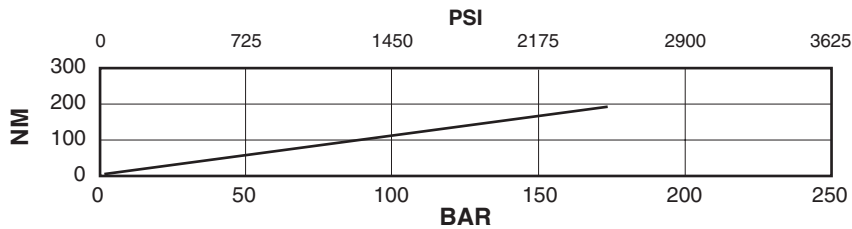
flow / pressure



power / pressure



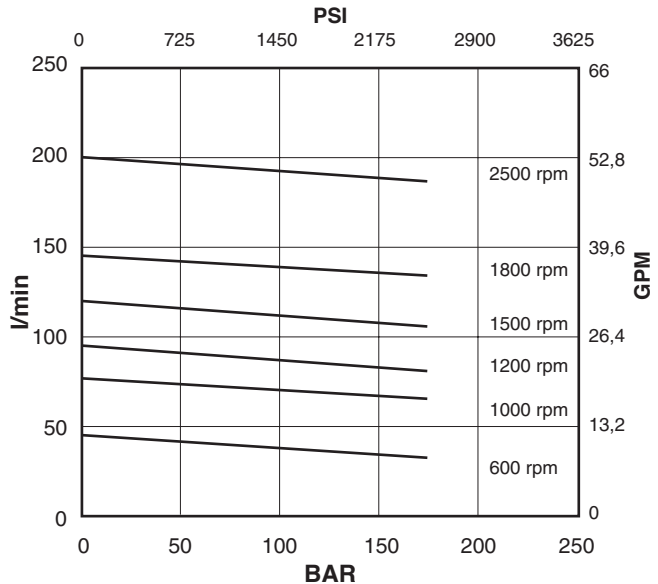
input torque / pressure



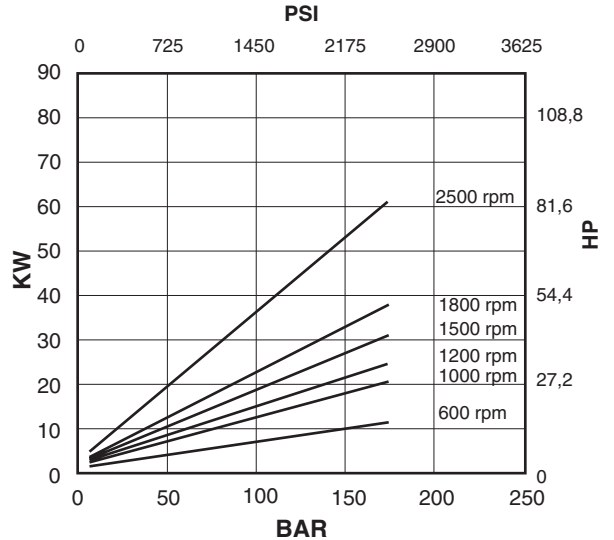
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V04-25

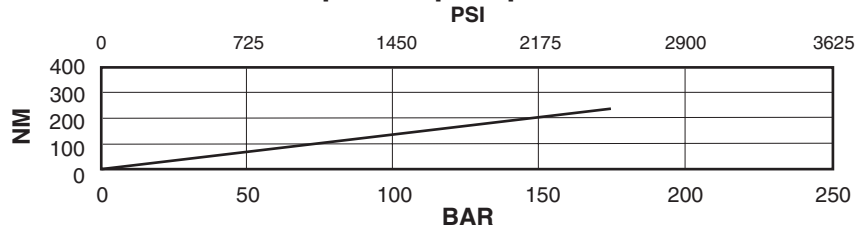
flow / pressure



power / pressure



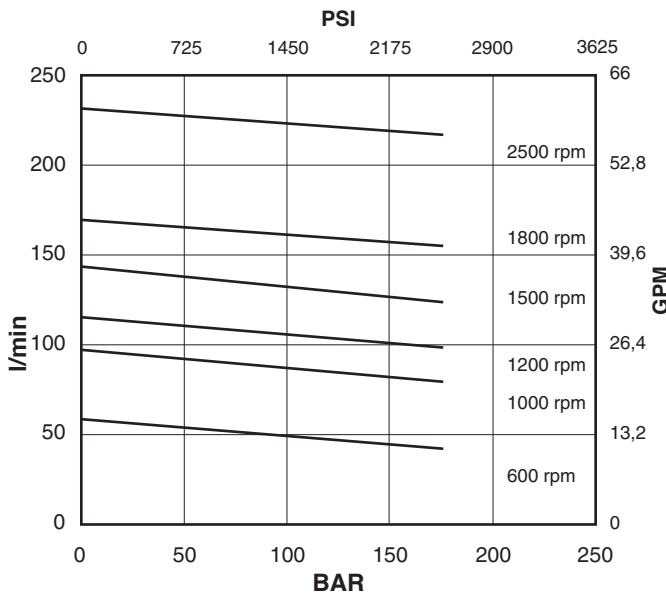
input torque / pressure



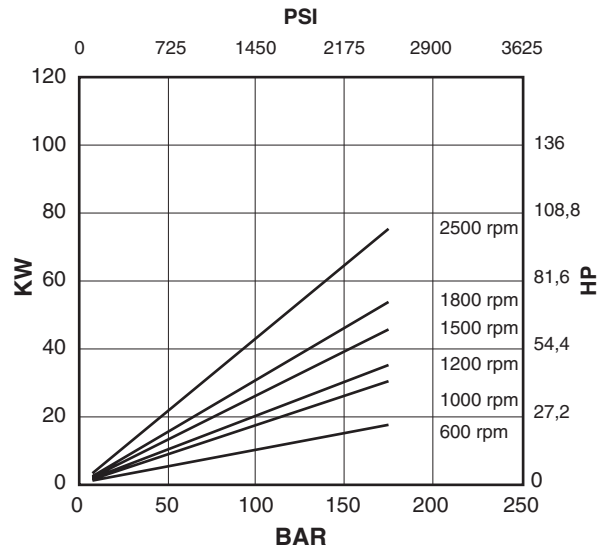
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V04-30

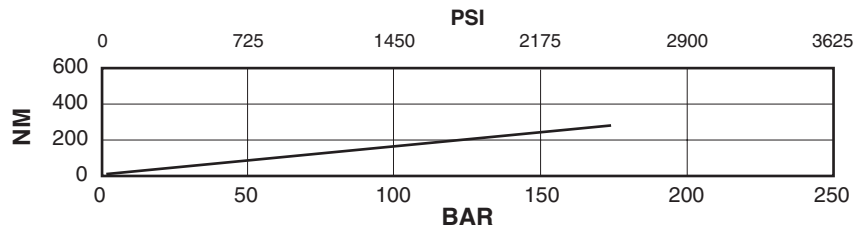
flow / pressure



power / pressure



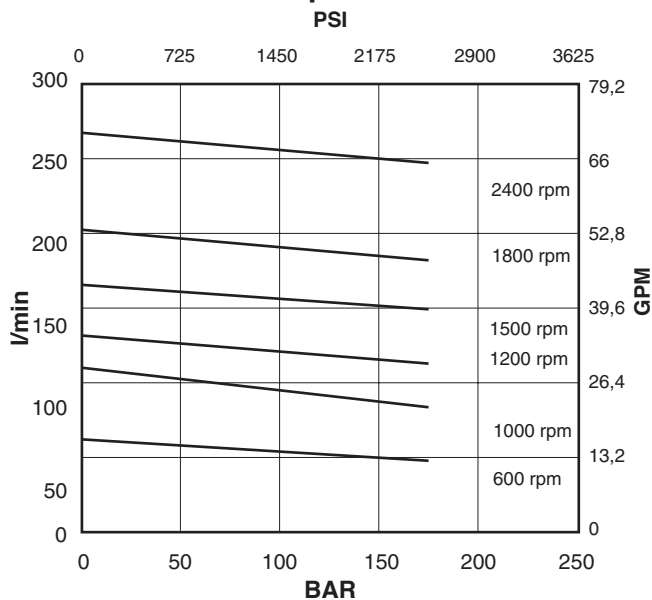
input torque / pressure



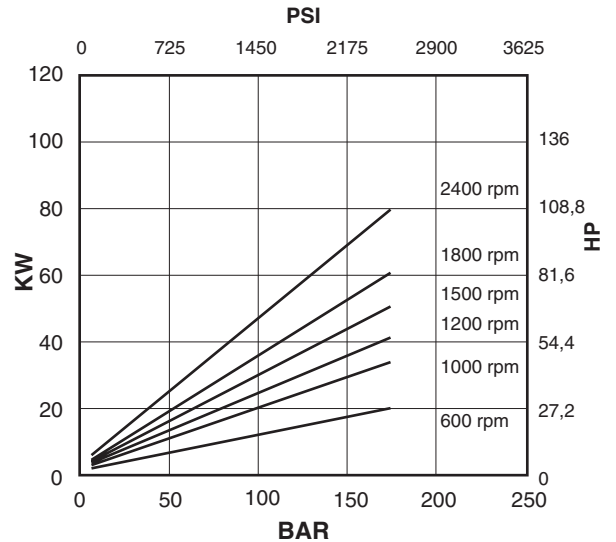
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V04-35

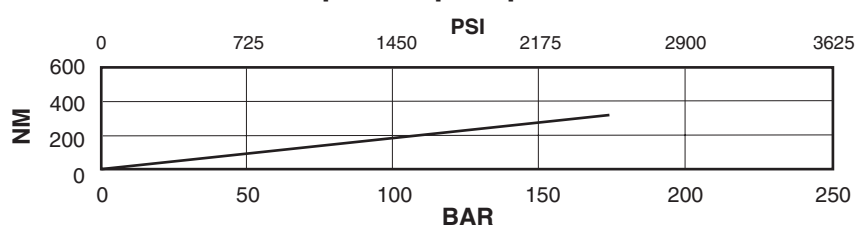
flow / pressure



power / pressure



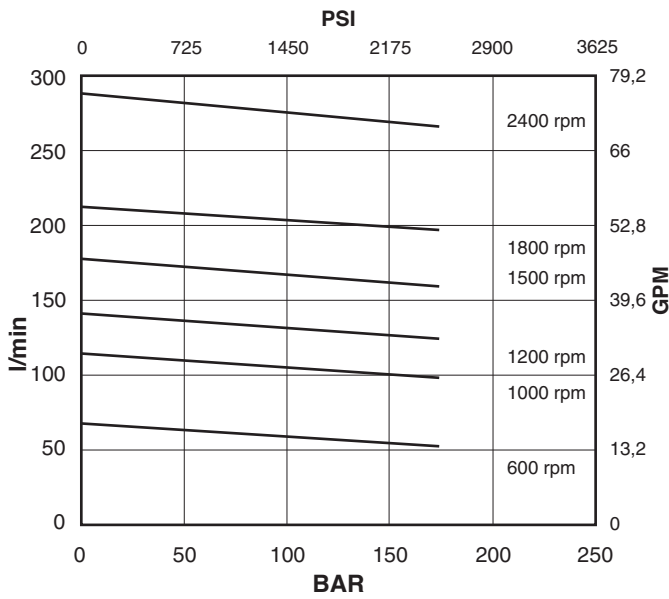
input torque / pressure



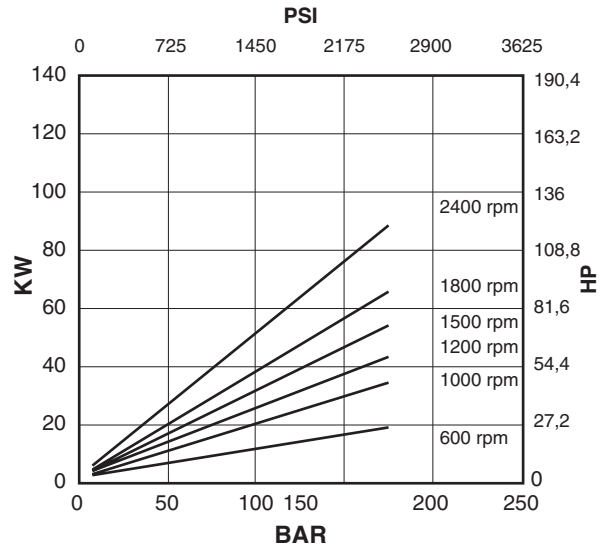
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V04-38

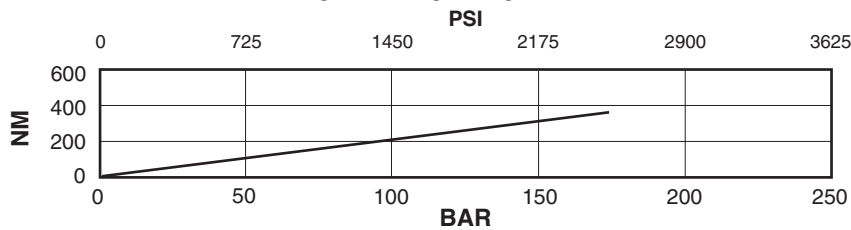
flow / pressure



power / pressure

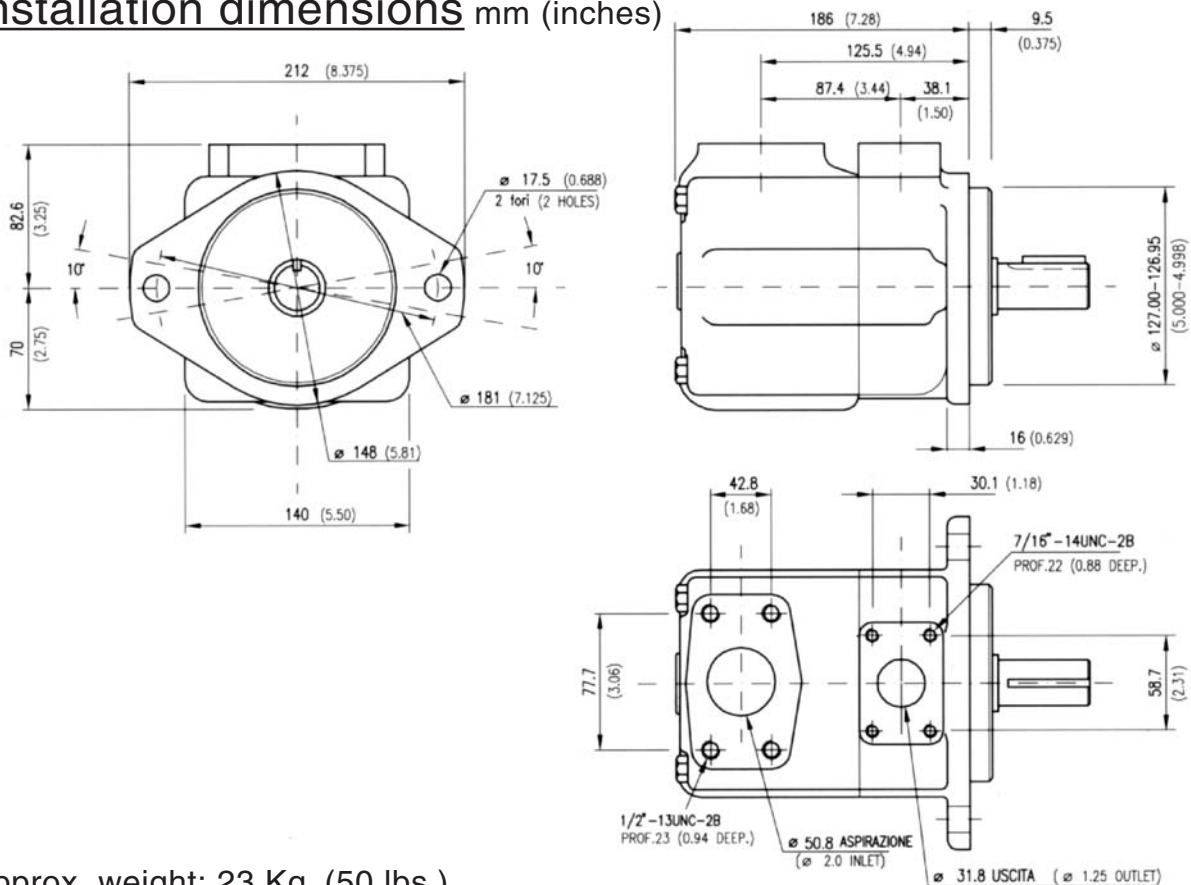


input torque / pressure



Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)

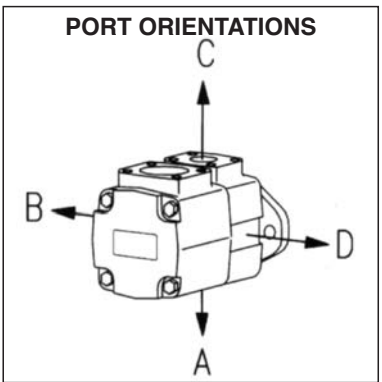
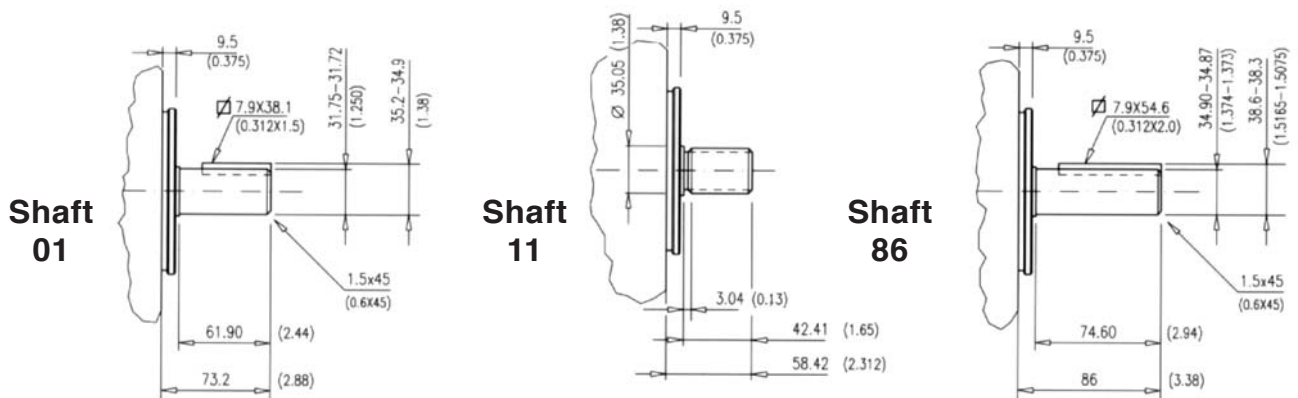


Approx. weight: 23 Kg. (50 lbs.)

Model code breakdown

| | | | | | | | |
|--|-------------------------------|---|-----------------|--|-------------------|--|-------------------|
| <p>BV 04</p> <p>Pump series</p> | <p>G</p> <p>Design</p> | <p>**</p> | <p>*</p> | <p>**</p> | <p>(L)</p> | <p>*</p> | <p>(A)</p> |
| <p>Pump type</p> | | <p>Cartridge type</p> <p>21 25 30 35 38</p> | | <p>Outlet port positions (outlet viewed from cover end)</p> <p>A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet</p> | | <p>Seals (omit with standard seals and one shaft-seal in NBR) V = seals and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®)</p> | |
| <p>Rotation (viewed from shaft end) L = left hand rotaton CCW (omit if CW)</p> | | | | | | <p>Shaft end options 01 = Straight with key (standard), 11 = Splined 86 = Heavy duty straight keyed, 90 = Splined SAE C</p> | |

Shaft options mm (inches)



Spline data
(shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |

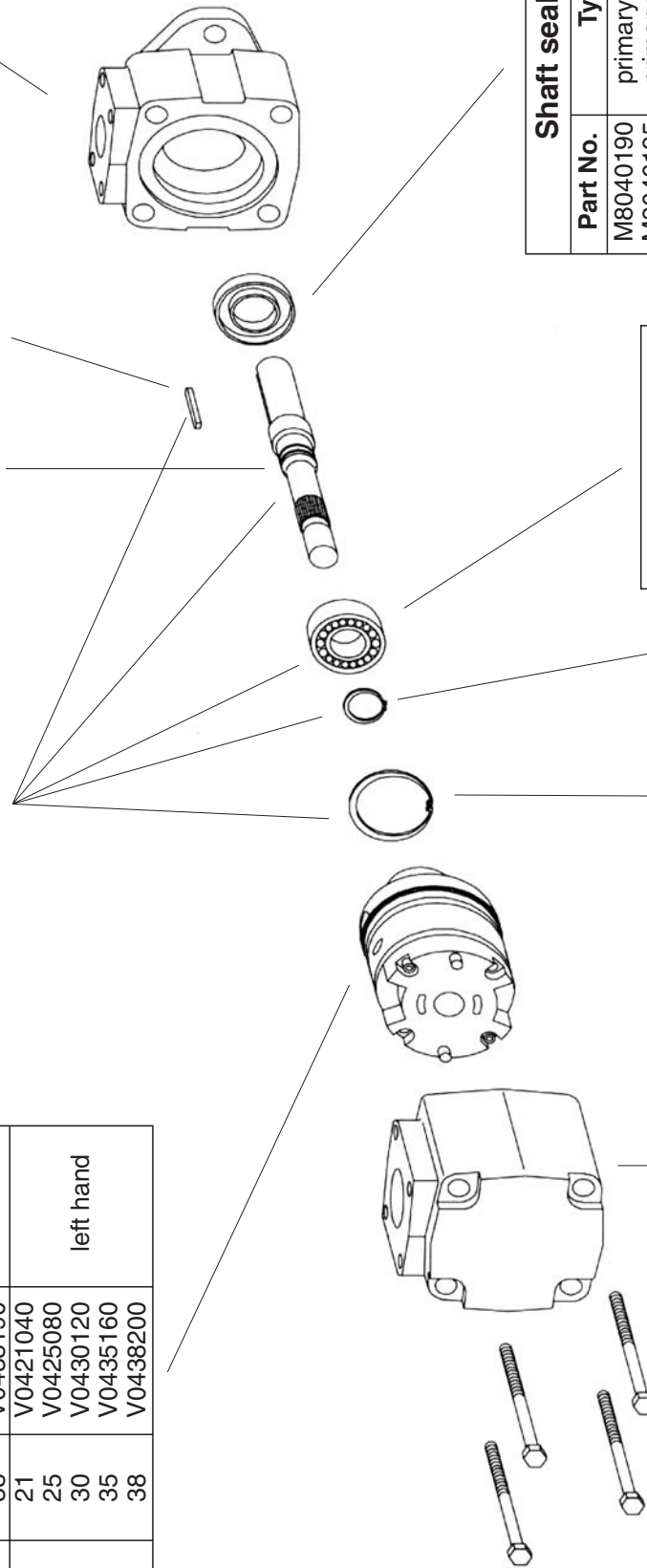
Id. codes of pump components

| Cartridge | | | |
|-----------|-------|----------|-------------|
| Series | Model | Part No. | Pump rotat. |
| V04 | 21 | V0421030 | right hand |
| | 25 | V0425070 | |
| | 30 | V0430110 | |
| | 35 | V0435150 | |
| | 38 | V0438190 | |
| V04 | 21 | V0421040 | left hand |
| | 25 | V0425080 | |
| | 30 | V0430120 | |
| | 35 | V0435160 | |
| | 38 | V0438200 | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8040601 |
| 11 | M8040611 |
| 86 | M8040686 |
| 90 | M8040690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0401000 | M8040100 | |
| 11 | K0411000 | - | |
| 86 | K0486000 | M8048600 | |
| 90 | K0490000 | - | |

| Body | |
|----------|----------|
| Part No. | Part No. |
| M8040140 | |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8040190 | primary in NBR |
| M8040195 | primary in FPM |
| M8040191 | secondary in NBR |
| M8040196 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| M8040160 | |

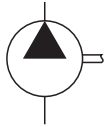
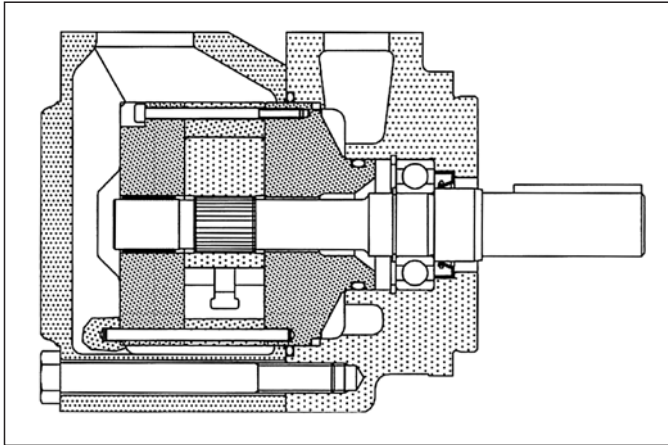
| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040180 | |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040170 | |

| Cover | |
|----------|----------|
| Part No. | Part No. |
| M8040150 | |

| Screw | |
|---------------------------------|----------|
| Part No. | Part No. |
| M8040200 | |
| Torque to 225 Nm (2010 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8040500 | seals + 1 shaft seal | NBR |
| M8040501 | seals + 2 shaft seals | NBR |
| M8040503 | seals + 1 shaft seal | FPM (Viton®) |
| M8040504 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five versions with capacities from 164 to 230 l/min (from 42 to 60 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| V05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 1800 |
| V05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 1800 |
| V05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 1800 |
| V05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 1800 |
| V05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 1800 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

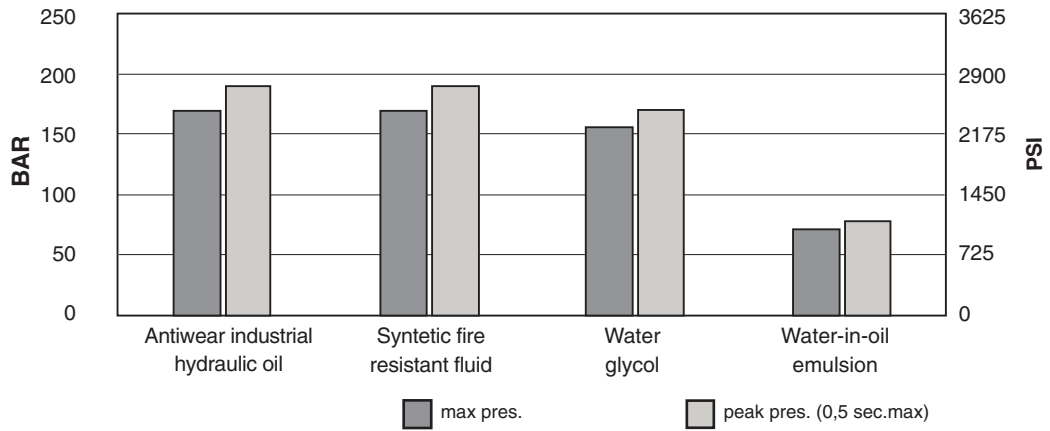
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

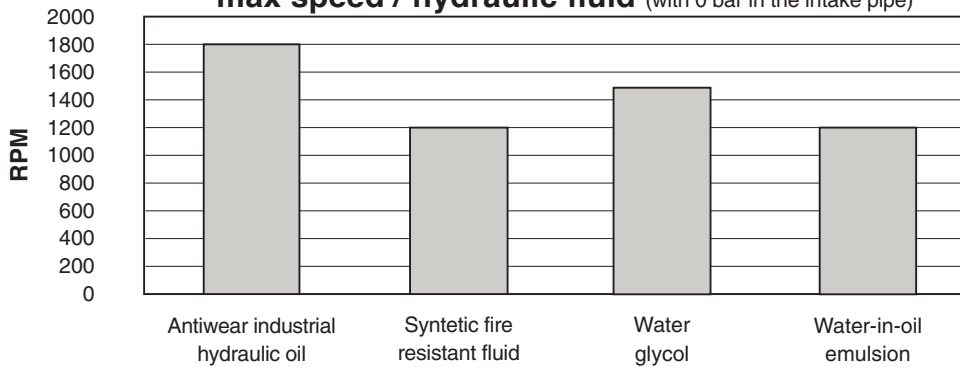
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

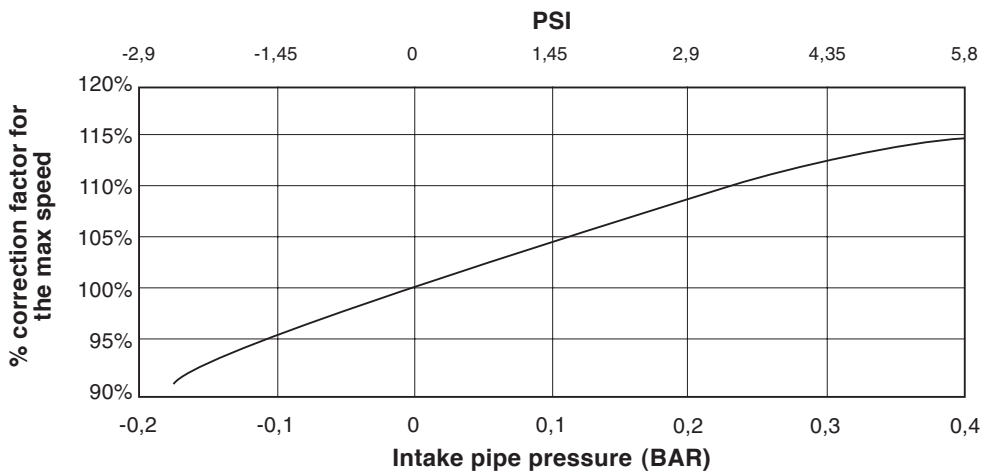


max speed / hydraulic fluid (with 0 bar in the intake pipe)

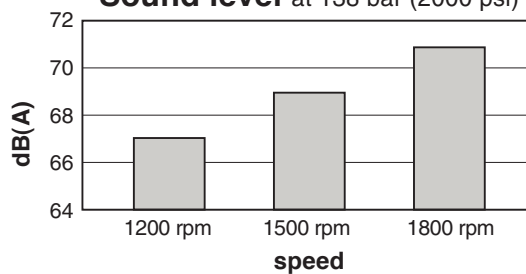


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

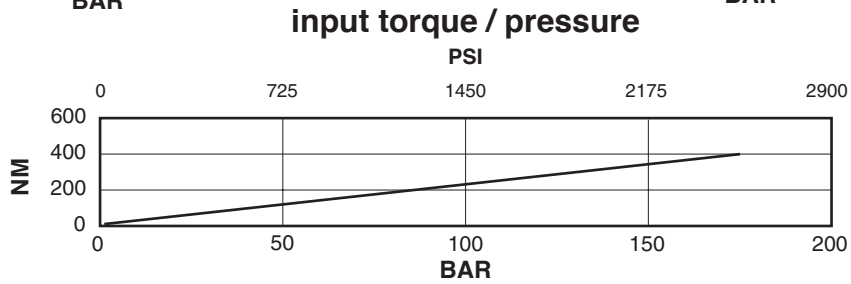
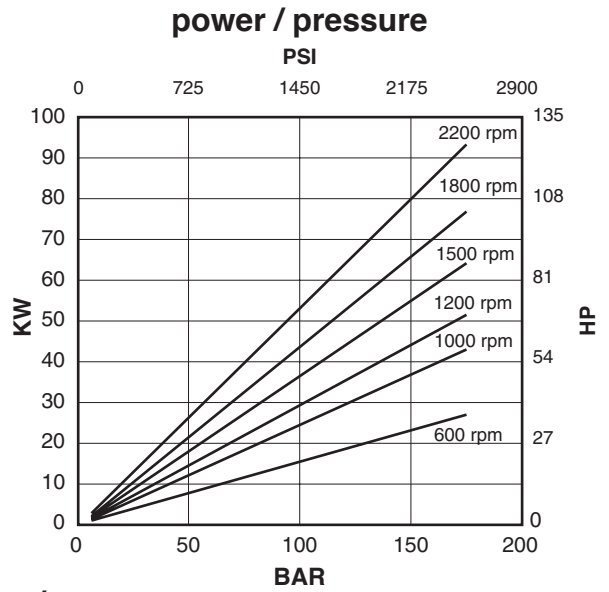
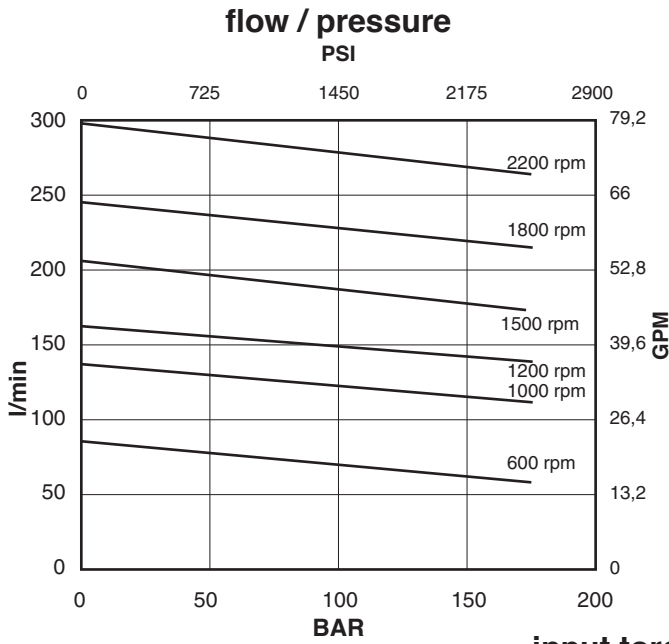
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)

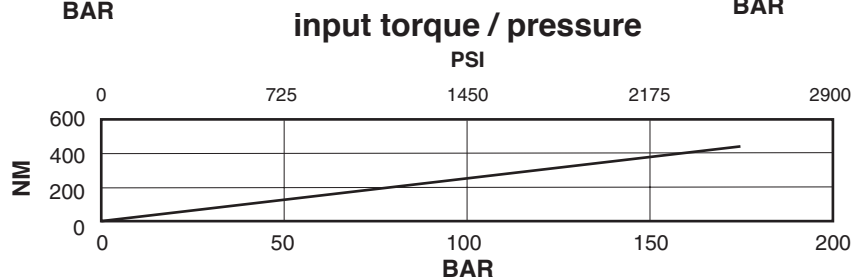
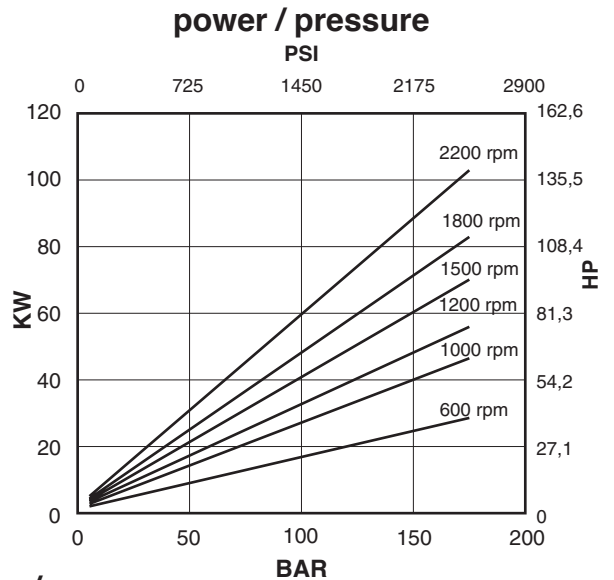
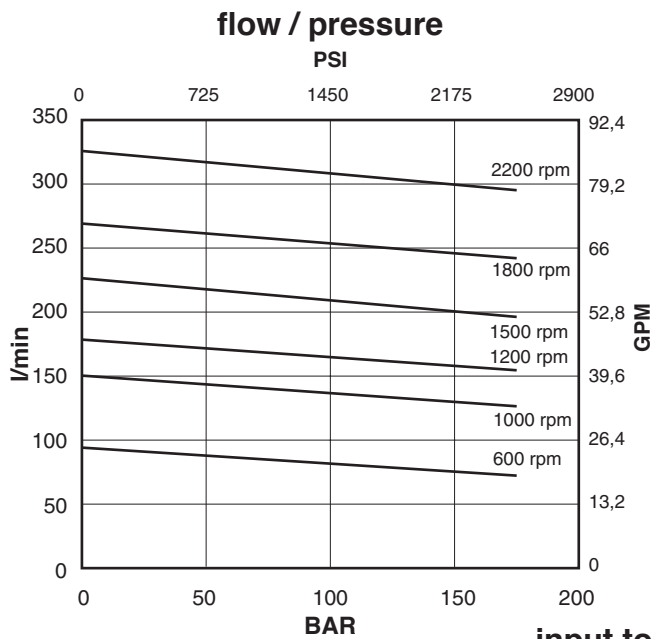


Cartridge V05-42



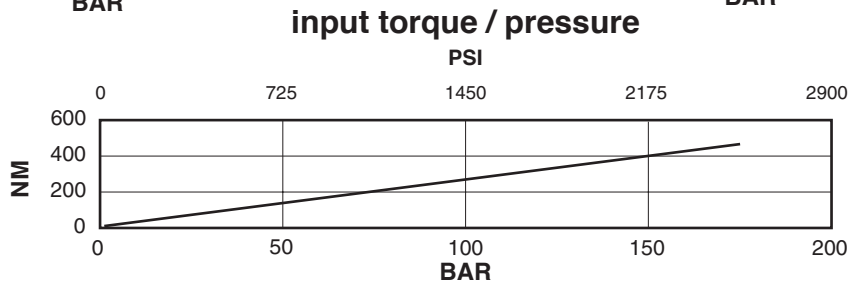
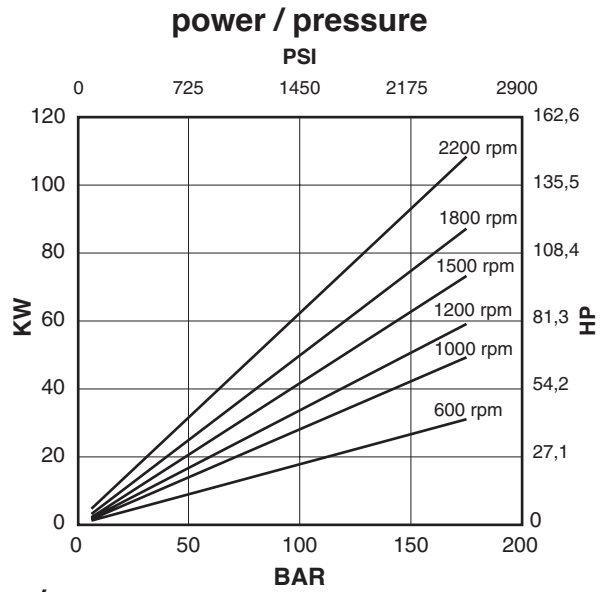
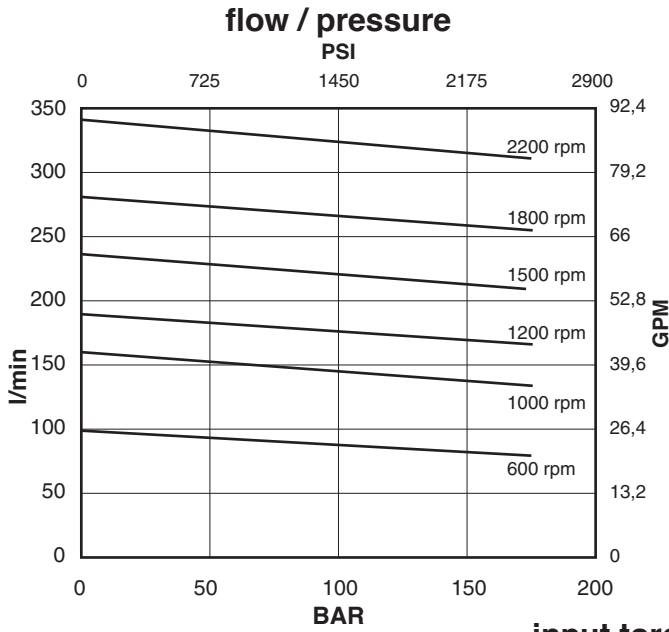
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V05-47



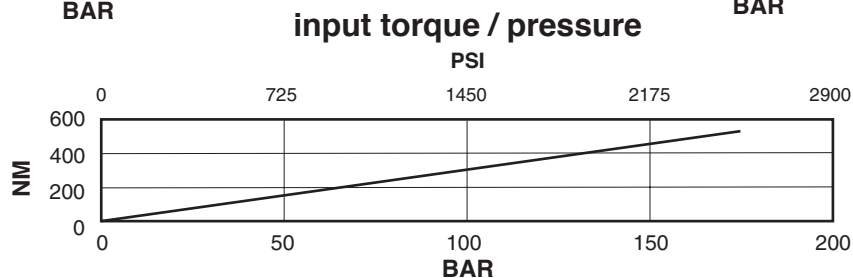
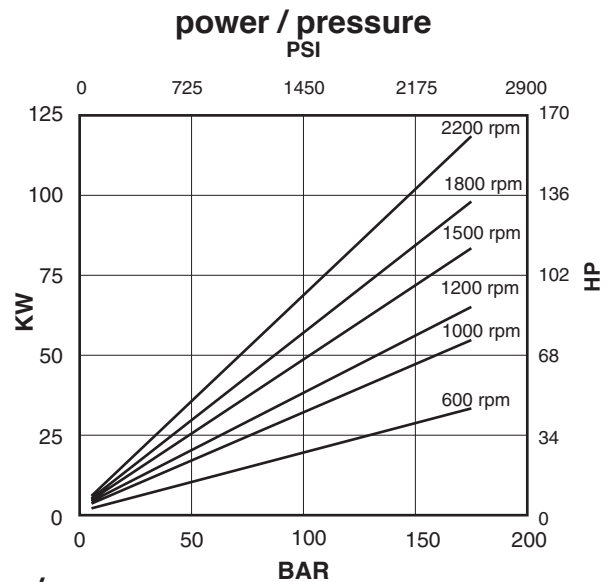
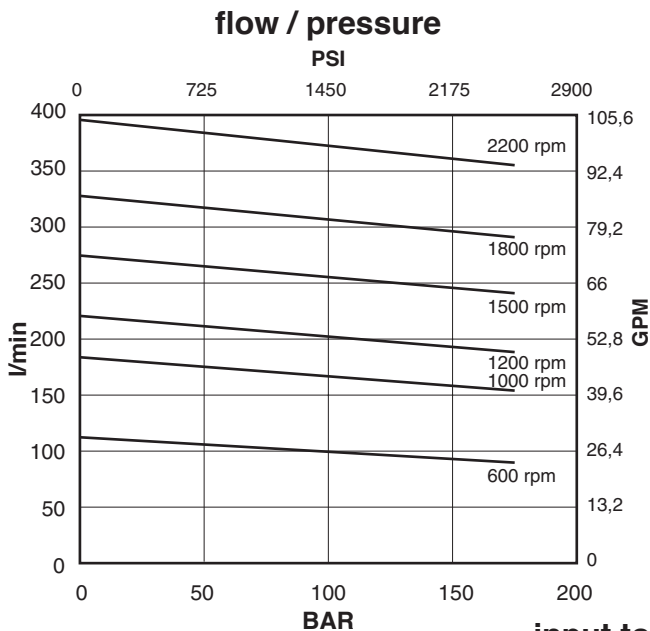
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V05-50



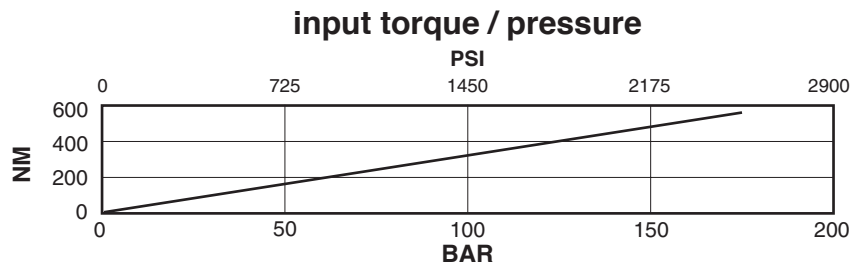
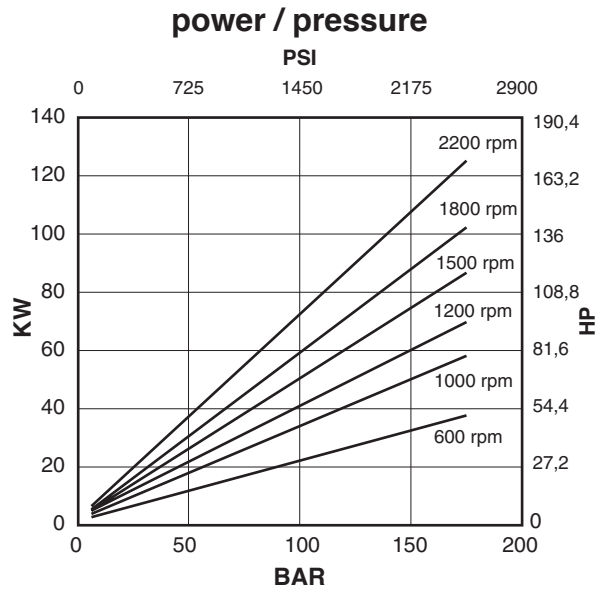
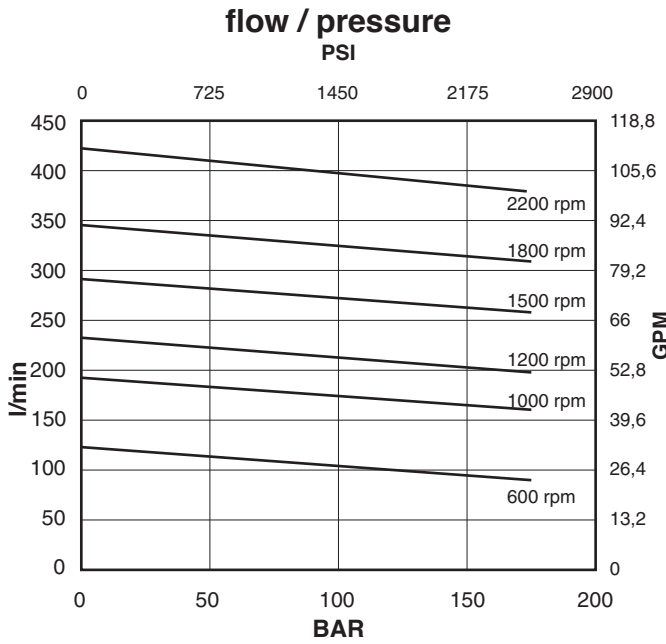
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V05-57



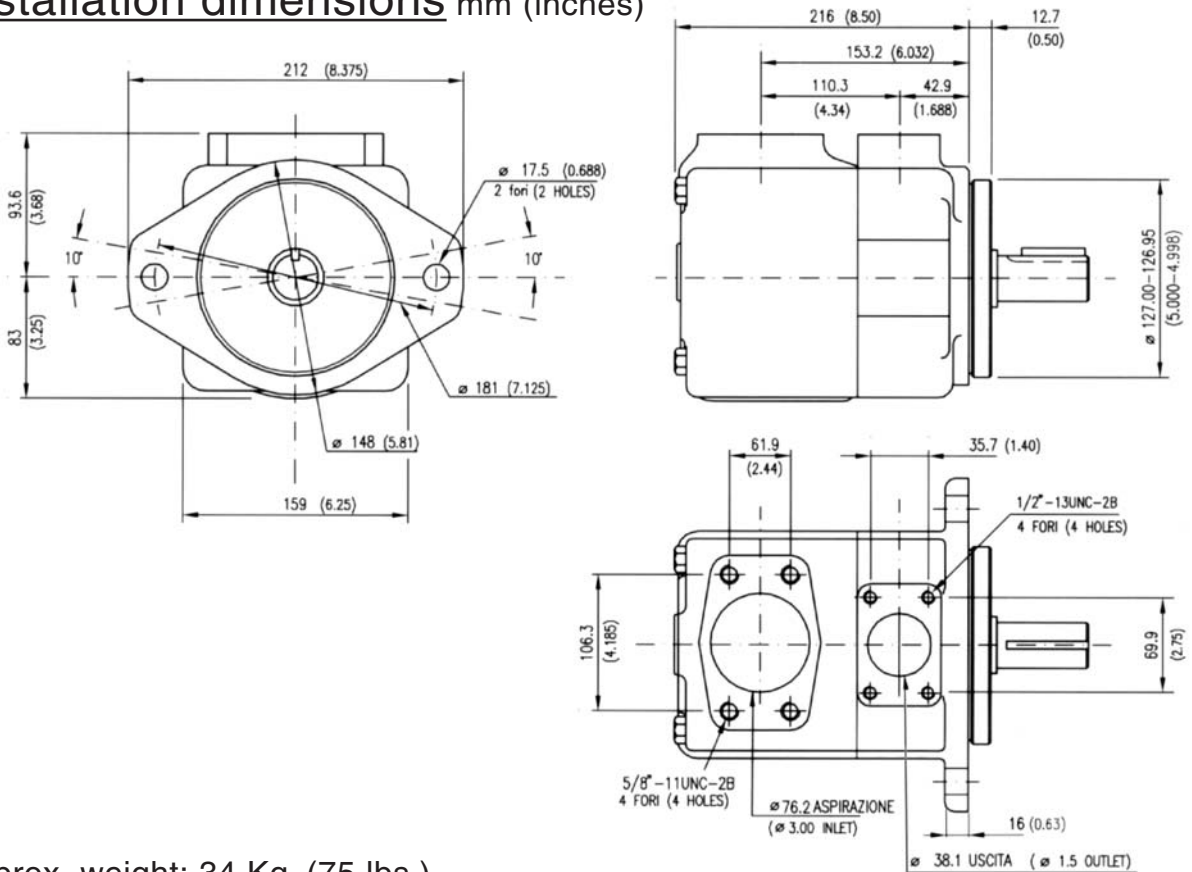
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V05-60



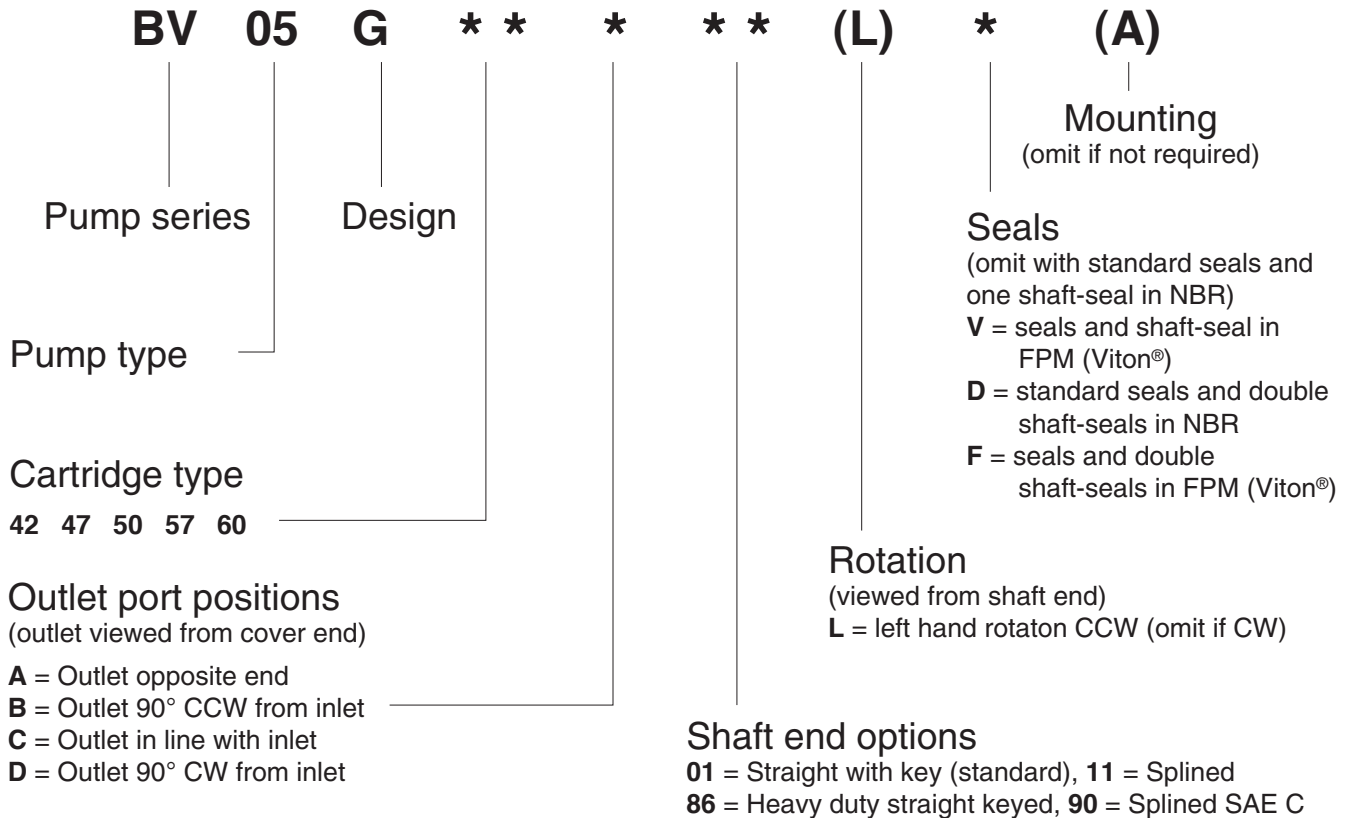
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

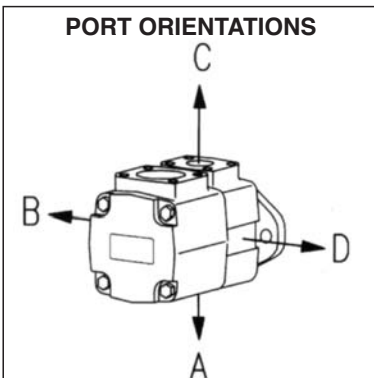
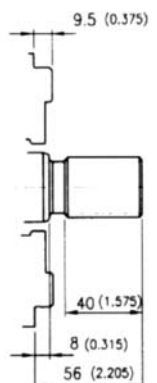
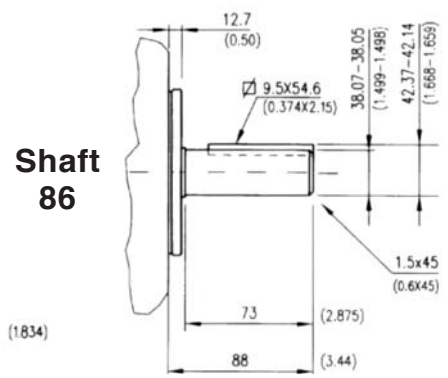
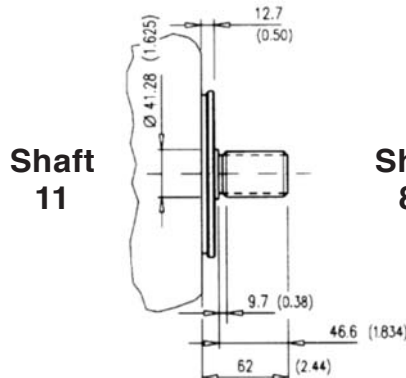
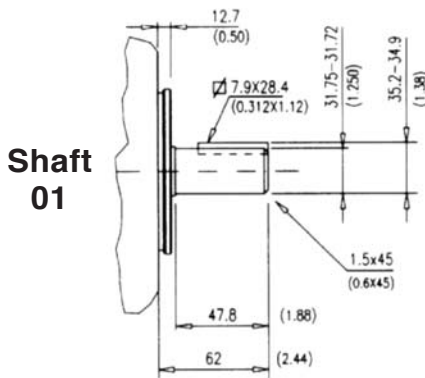


Approx. weight: 34 Kg. (75 lbs.)

Model code breakdown



Shaft options mm (inches)



Spline data
(shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |

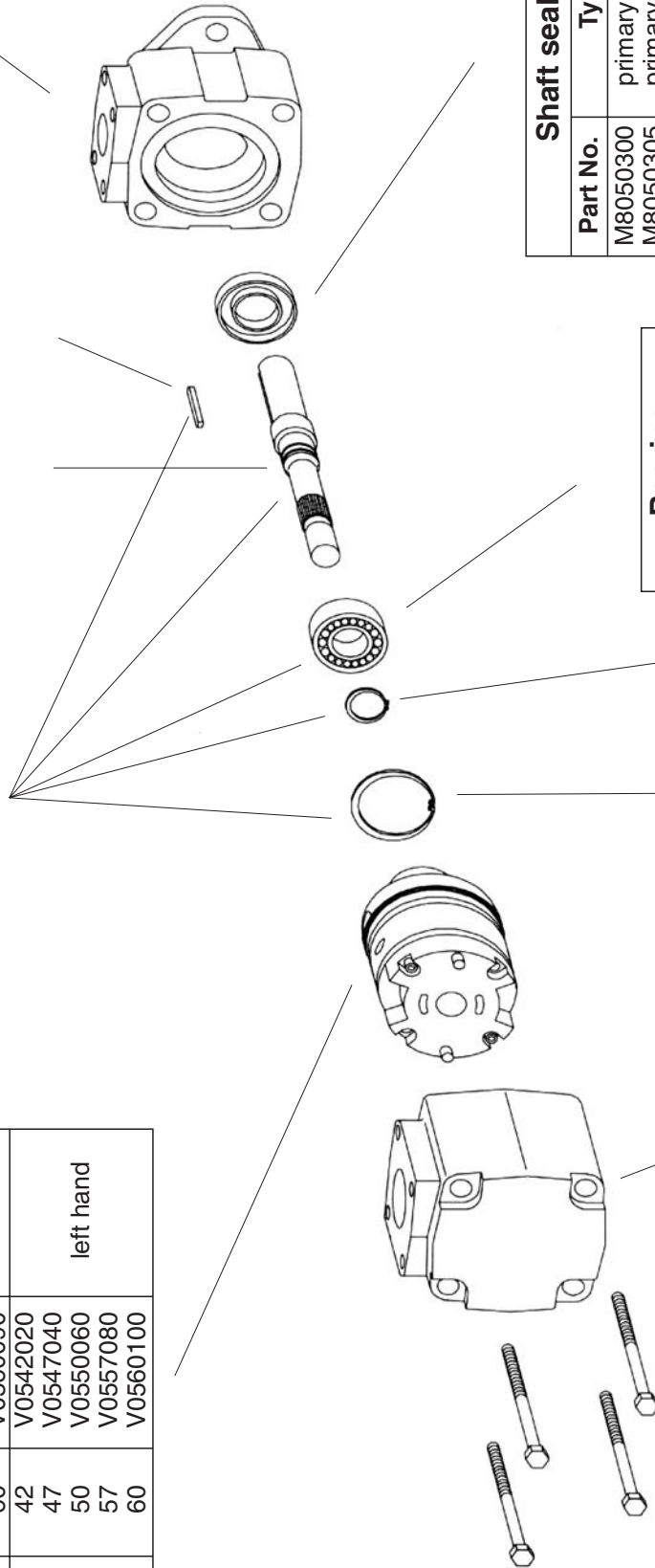
Id. codes of pump components

| Cartridge | | | |
|-----------|-------|----------|-------------|
| Series | Model | Part No. | Pump rotat. |
| V05 | 42 | V0542010 | right hand |
| | 47 | V0547030 | |
| | 50 | V0550050 | |
| | 57 | V0557070 | |
| | 60 | V0560090 | |
| V05 | 42 | V0542020 | left hand |
| | 47 | V0547040 | |
| | 50 | V0550060 | |
| | 57 | V0557080 | |
| | 60 | V0560100 | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8050601 |
| 11 | M8050611 |
| 86 | M8050686 |
| 90 | M8050690 |

| Shaft | | Key | |
|-------|----------|-----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K0501000 | M8050100 | |
| 11 | K0511000 | - | |
| 86 | K0586000 | M80586600 | |
| 90 | K0590000 | - | |

| Body | |
|----------|----------|
| Part No. | M8050250 |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | M8050270 |

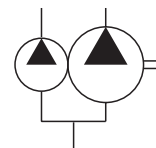
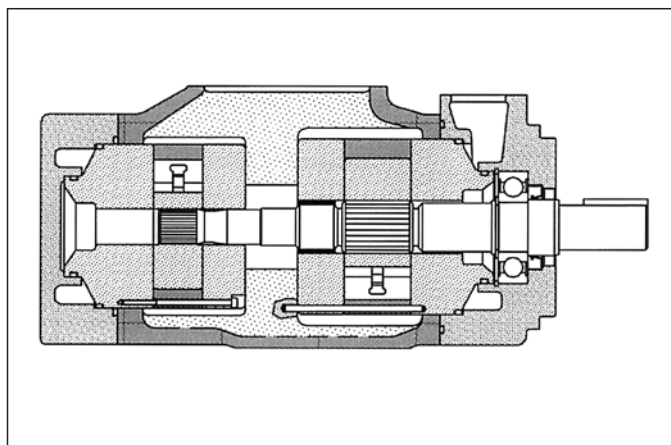
| Seeger | |
|----------|----------|
| Part No. | M8050290 |

| Seeger | |
|----------|----------|
| Part No. | M8050280 |

| Cover | |
|----------|----------|
| Part No. | M8050260 |

| Screw | |
|---------------------------------|----------|
| Part No. | M8050310 |
| Torque to 398 Nm (3550 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8050500 | seals + 1 shaft seal | NBR |
| M8050501 | seals + 2 shaft seals | NBR |
| M8050503 | seals + 1 shaft seal | FPM (Viton®) |
| M8050504 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 55 to 134 l/min (*from 14 to 35 gpm*) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| V02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 175 | (2538) | 600 | 1800 |
| V02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 175 | (2538) | 600 | 1800 |
| V02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 175 | (2538) | 600 | 1800 |
| V02-19 | 60,1 | (3.66) | 71,1 | (19) | 88,7 | (23.4) | 175 | (2538) | 600 | 1800 |
| V02-21 | 67,5 | (4.12) | 79,3 | (21) | 99,8 | (26.4) | 175 | (2538) | 600 | 1800 |
| cover end | | | | | | | | | | |
| V01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| V01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| V01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| V01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| V01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| V01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| V01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (*13 to 54 cSt. recommended*).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

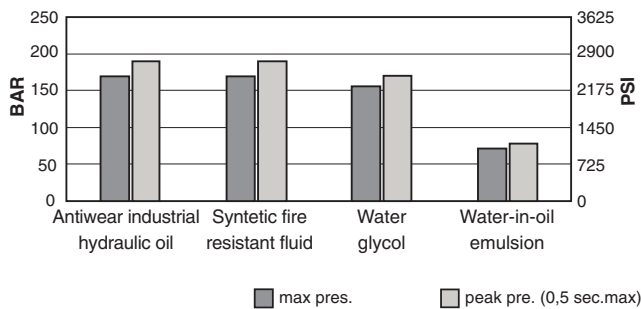
Inlet pressure: (*with mineral oil*): from -0,17 to +1,4 bar (*-2.5 to + 20 psi*)

Operating temperature: with mineral oil -10°C +70°C (*+30°C to +60°C recommended*), with water based fluids +15°C to +50°C.

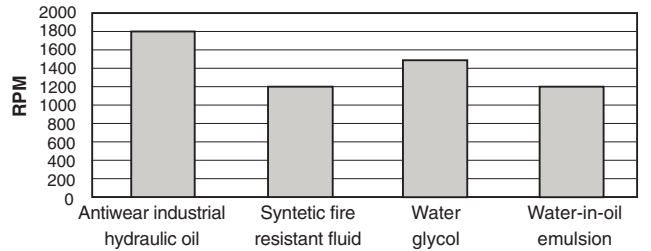
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

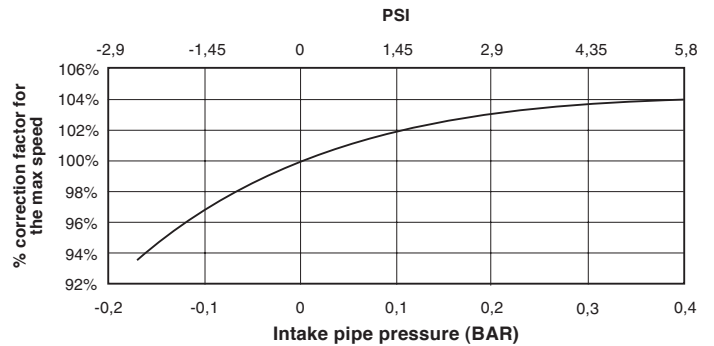


max speed / hydraulic fluid (with 0 bar in the intake pipe)

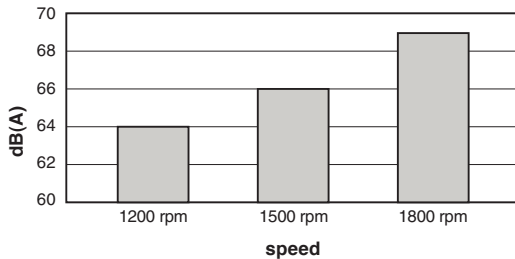


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

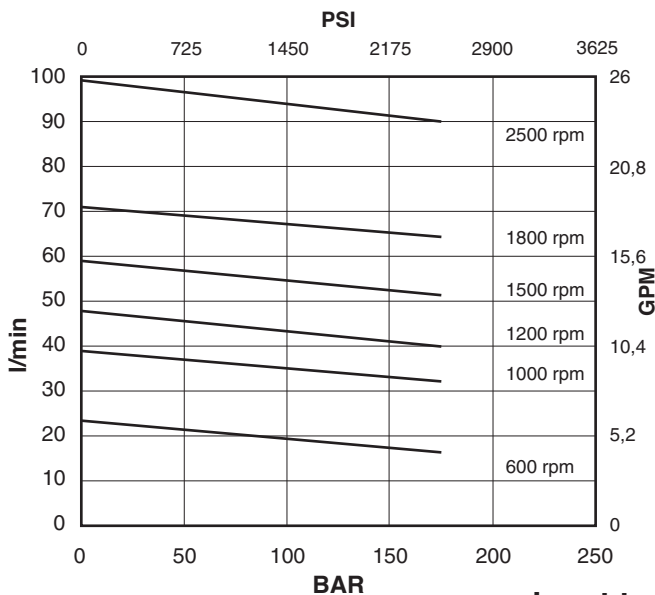
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)

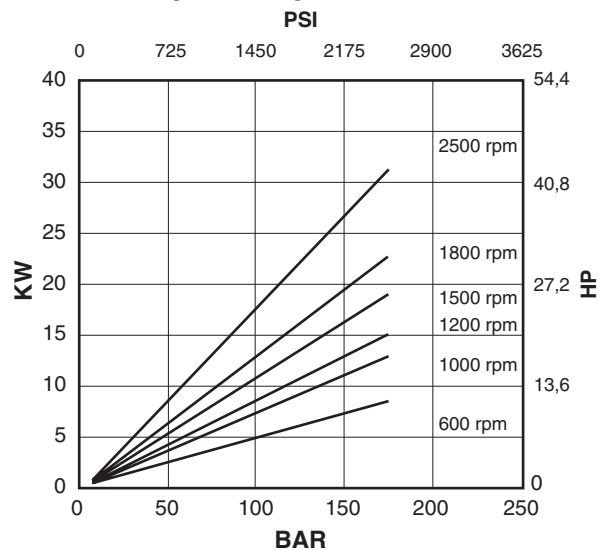


flow / pressure

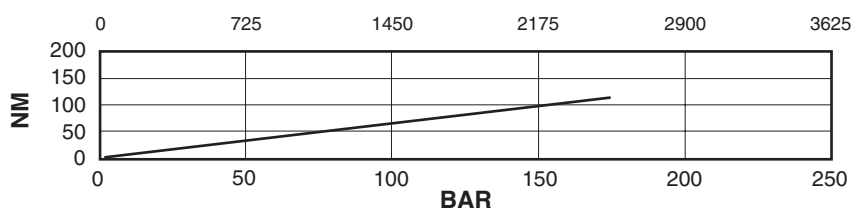


Shaft end cartridge V02-12

power / pressure



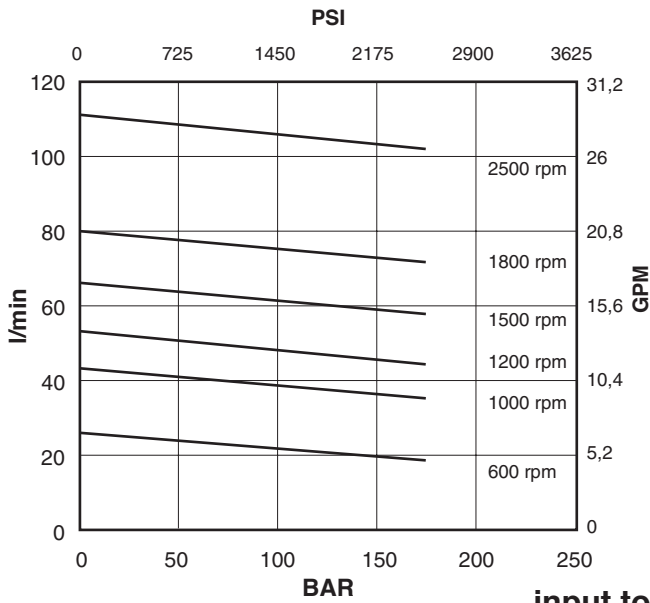
input torque / pressure



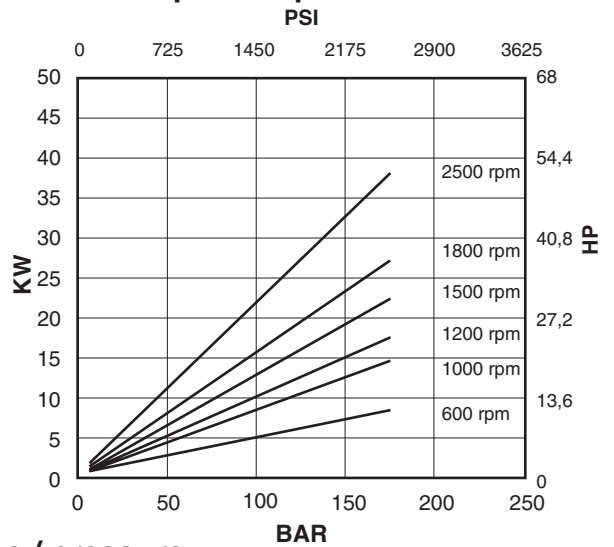
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge V02-14

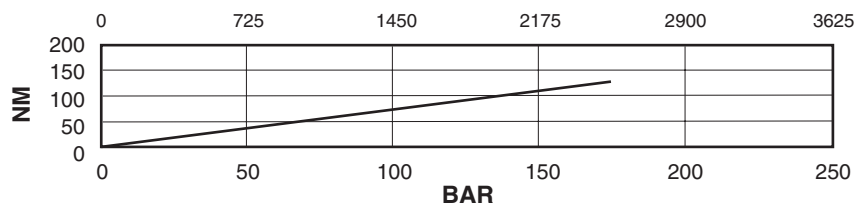
flow / pressure



power / pressure



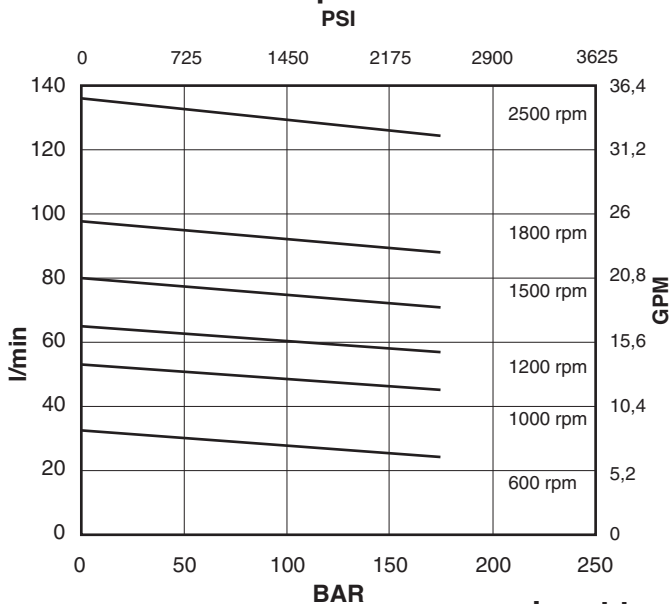
input torque / pressure



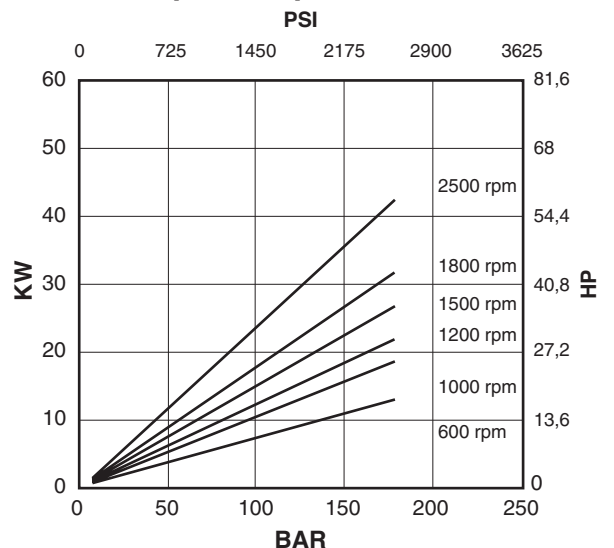
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge V02-17

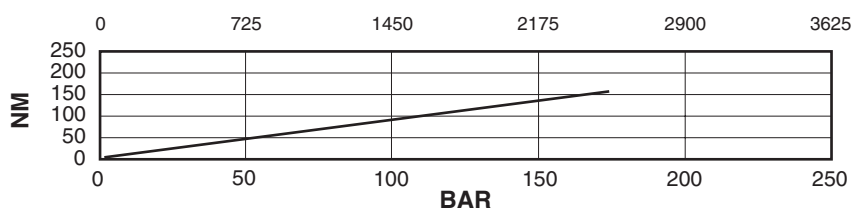
flow / pressure



power / pressure

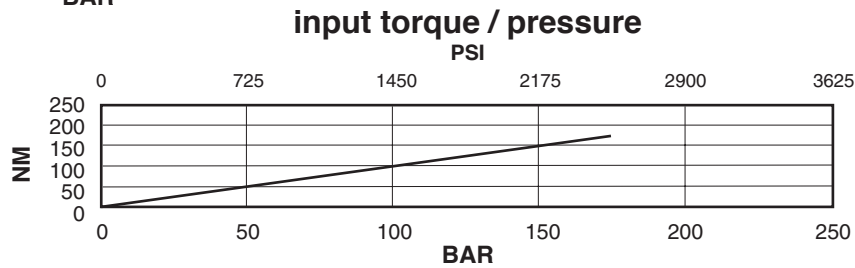
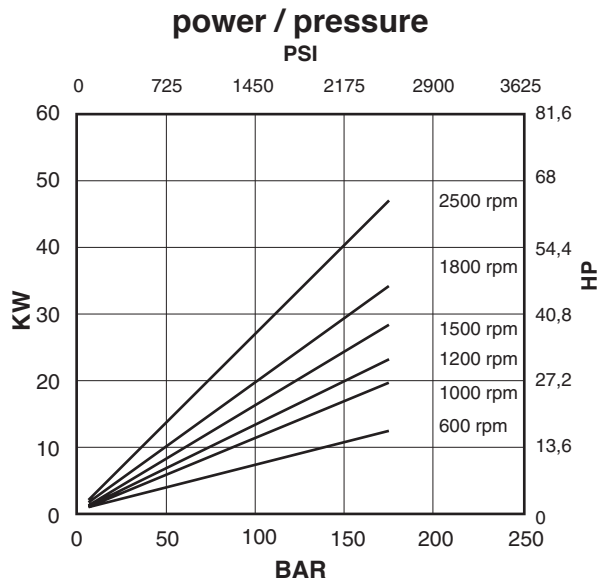
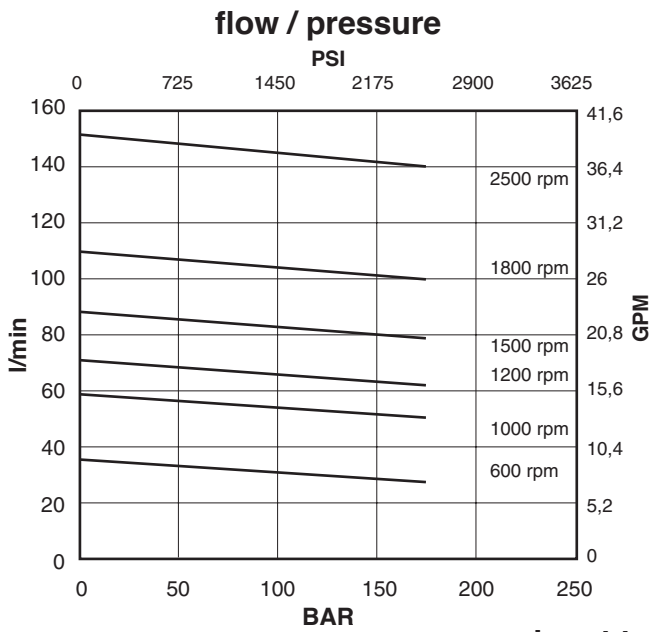


input torque / pressure



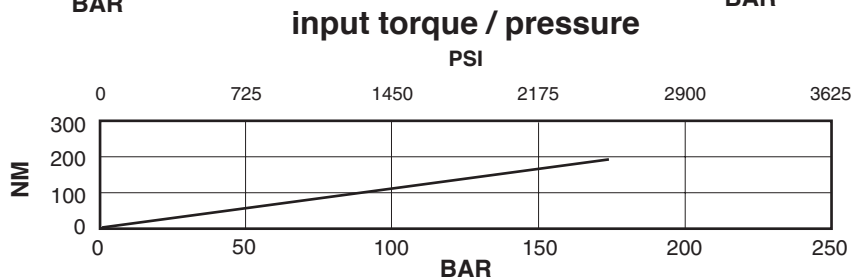
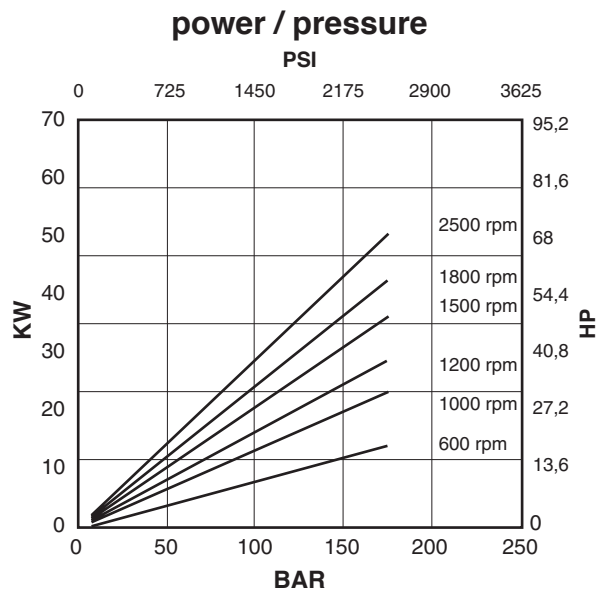
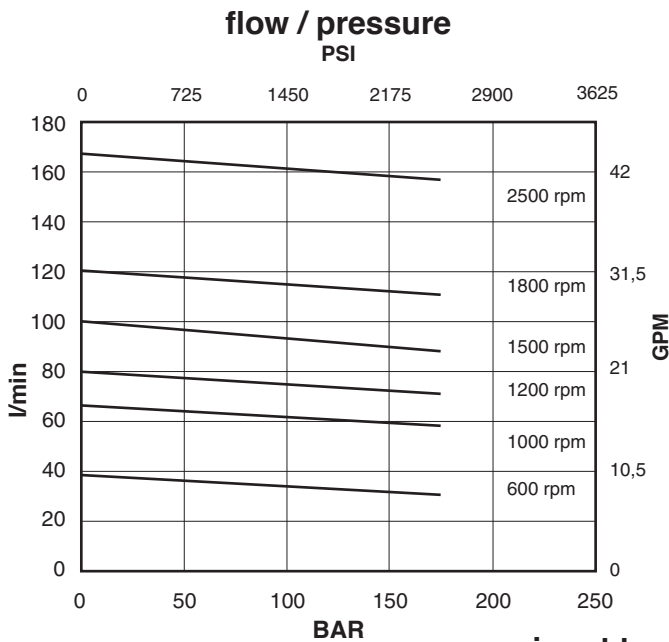
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge V02-19



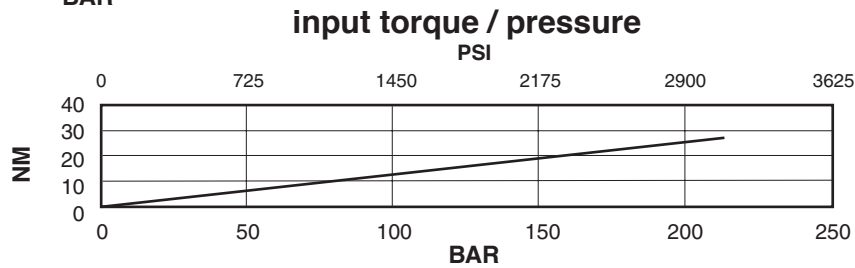
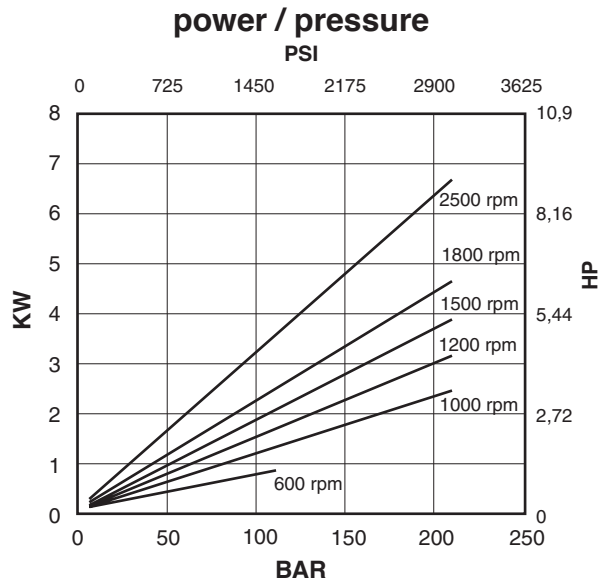
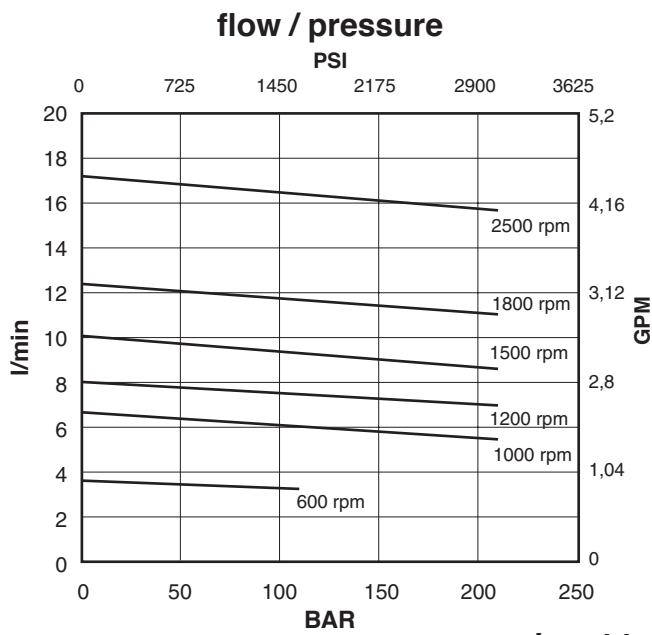
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V02-21



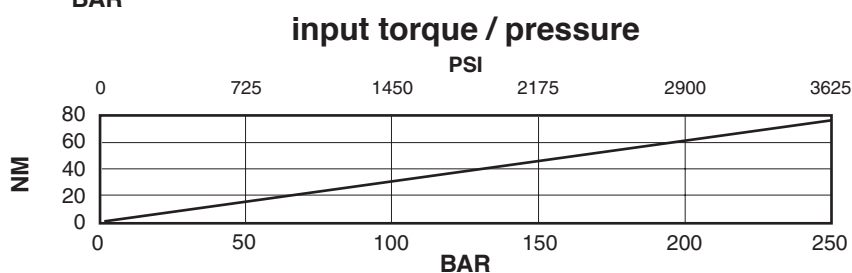
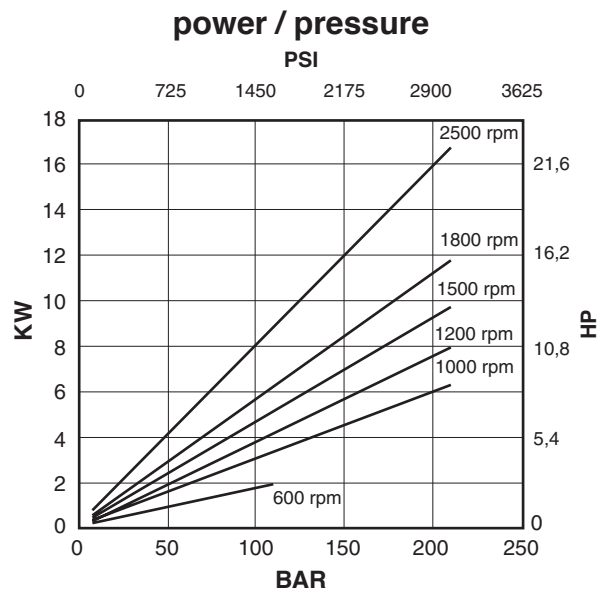
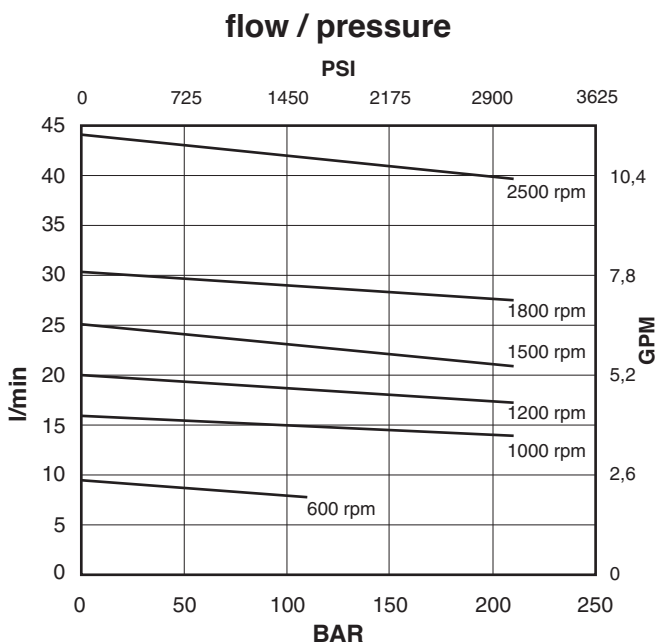
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V01-02



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

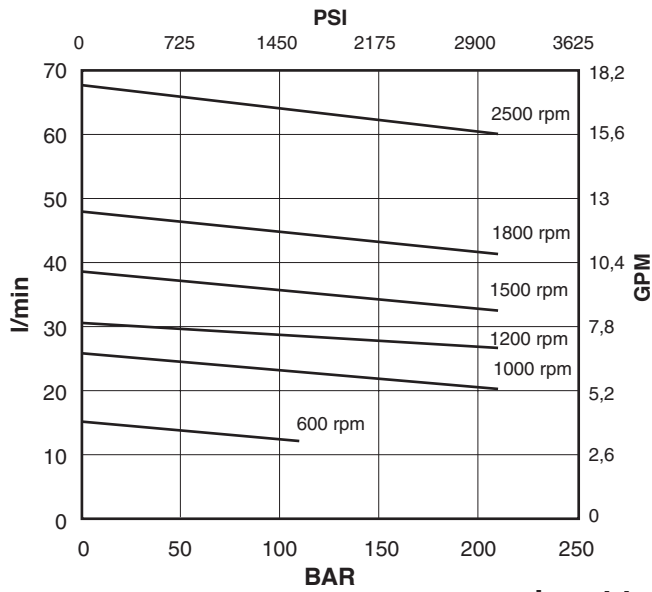
Cartridge V01-05



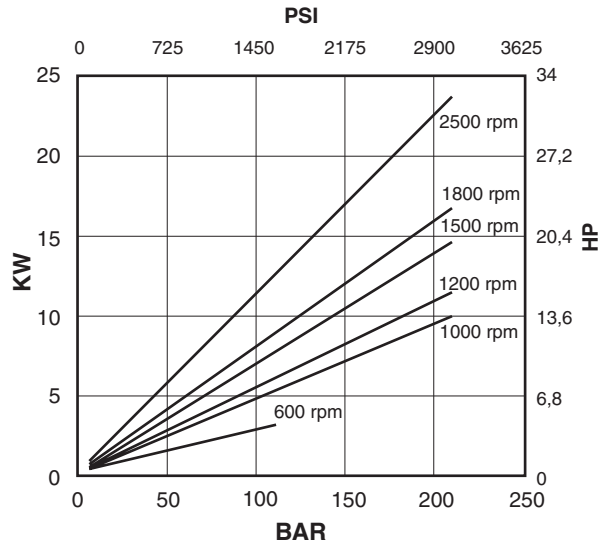
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V01-08

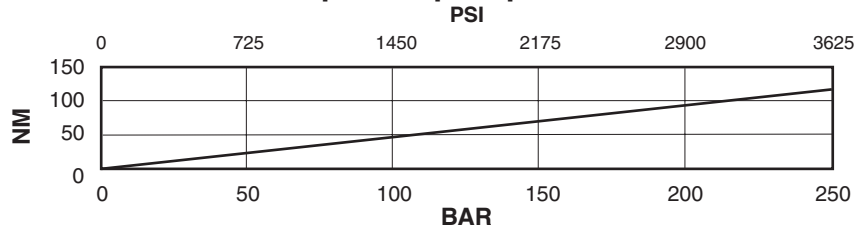
flow / pressure



power / pressure



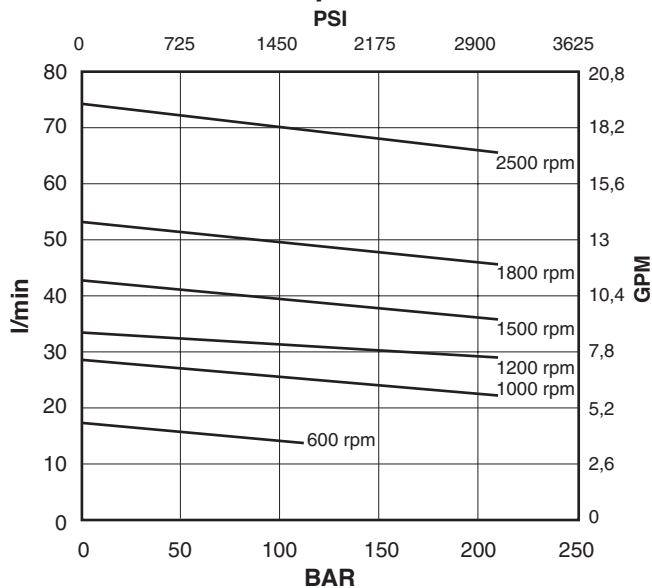
input torque / pressure



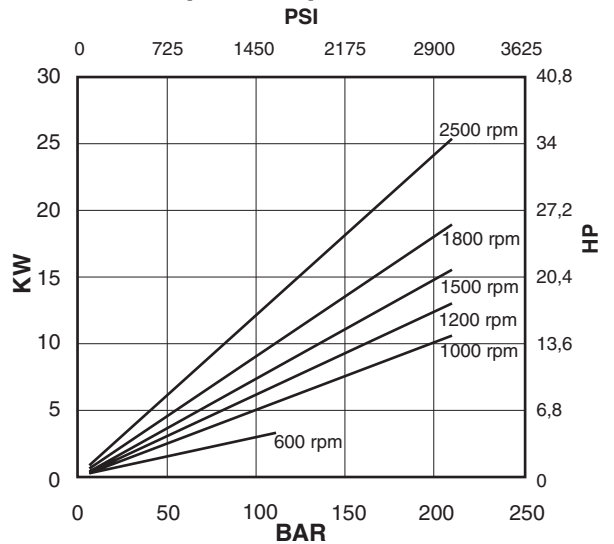
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-09

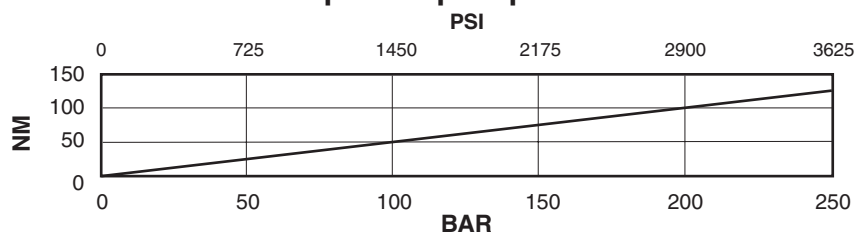
flow / pressure



power / pressure

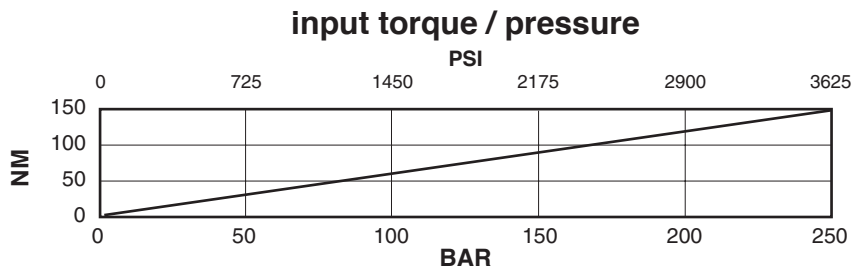
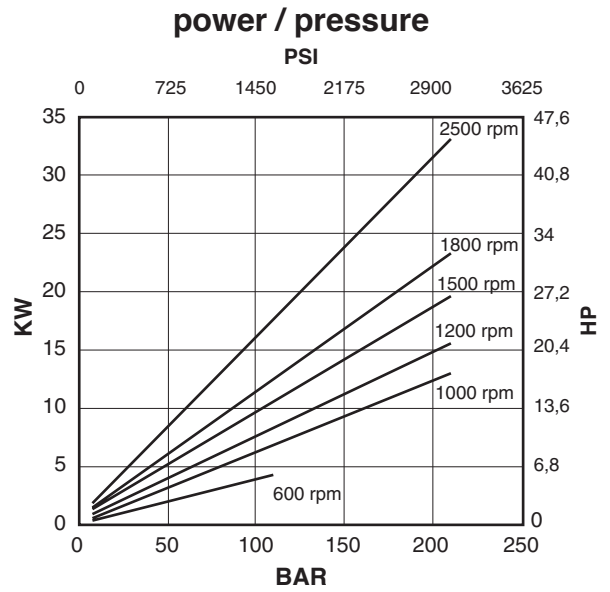
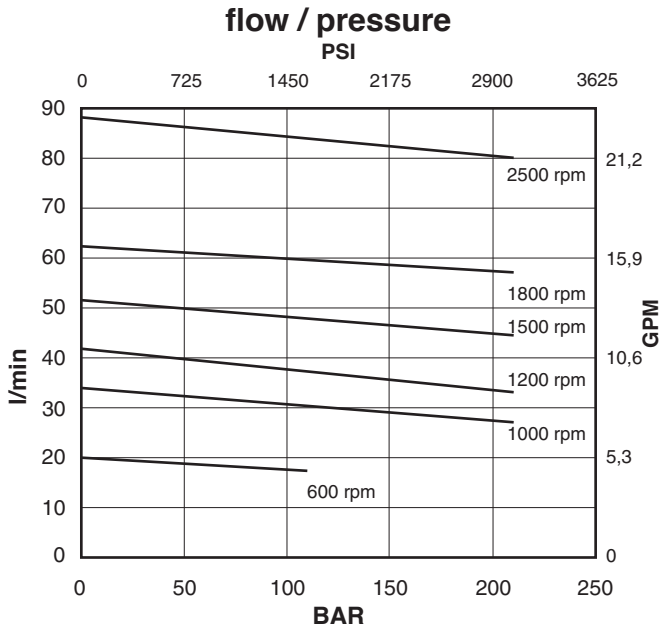


input torque / pressure



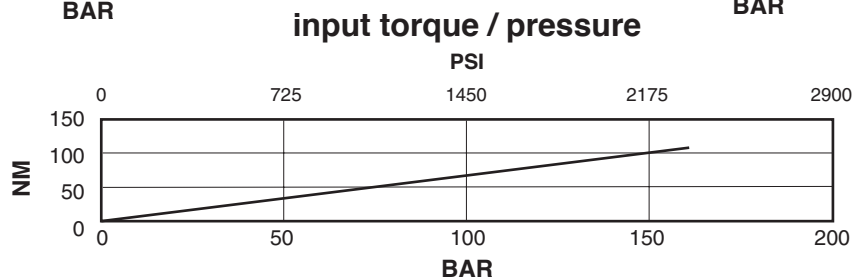
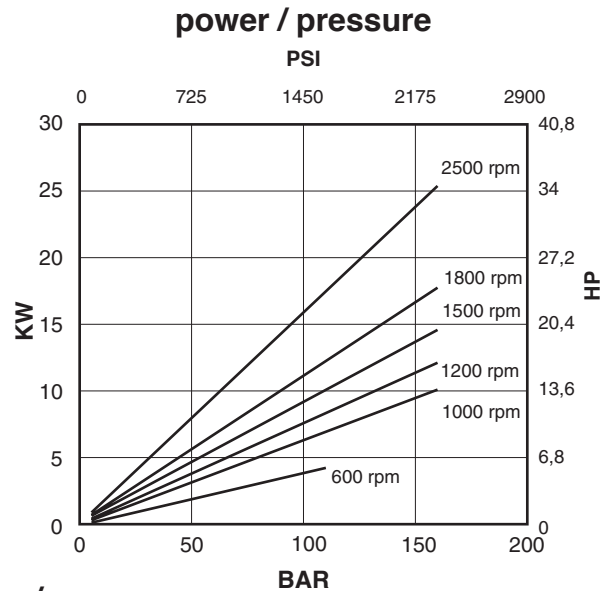
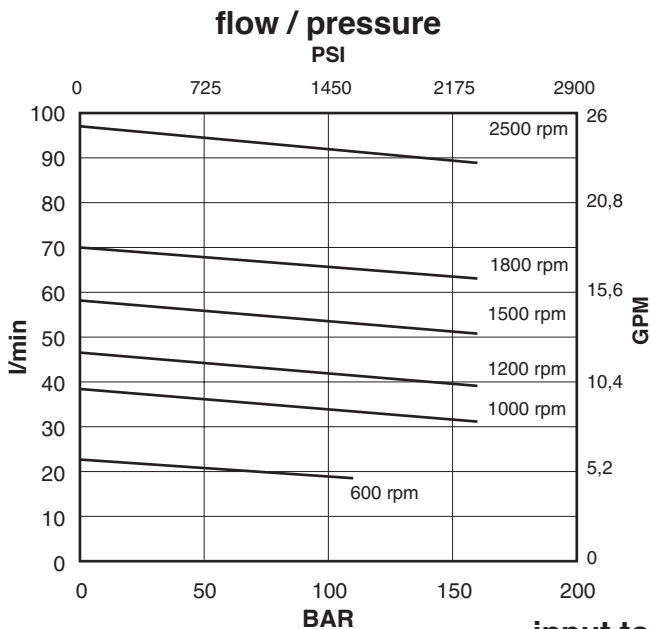
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge V01-11



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

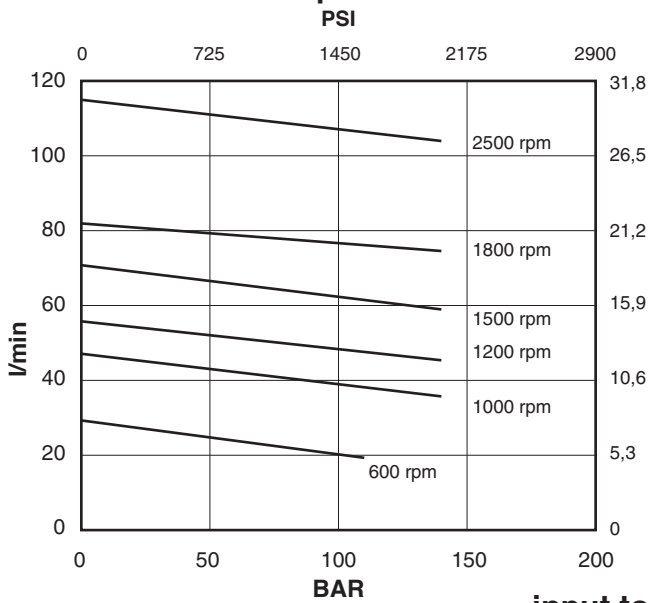
Cover end cartridge V01-12



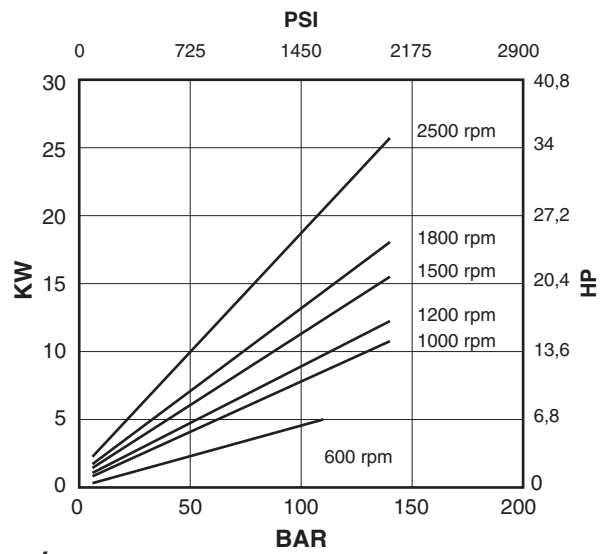
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V01-14

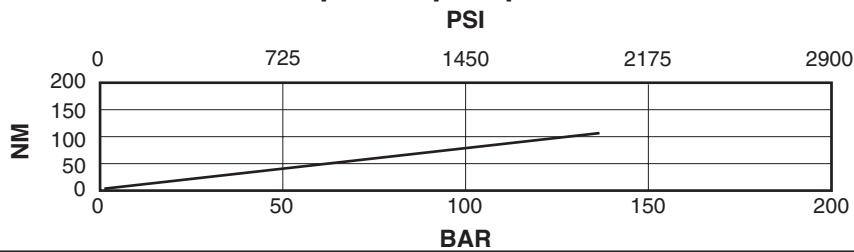
flow / pressure



power / pressure

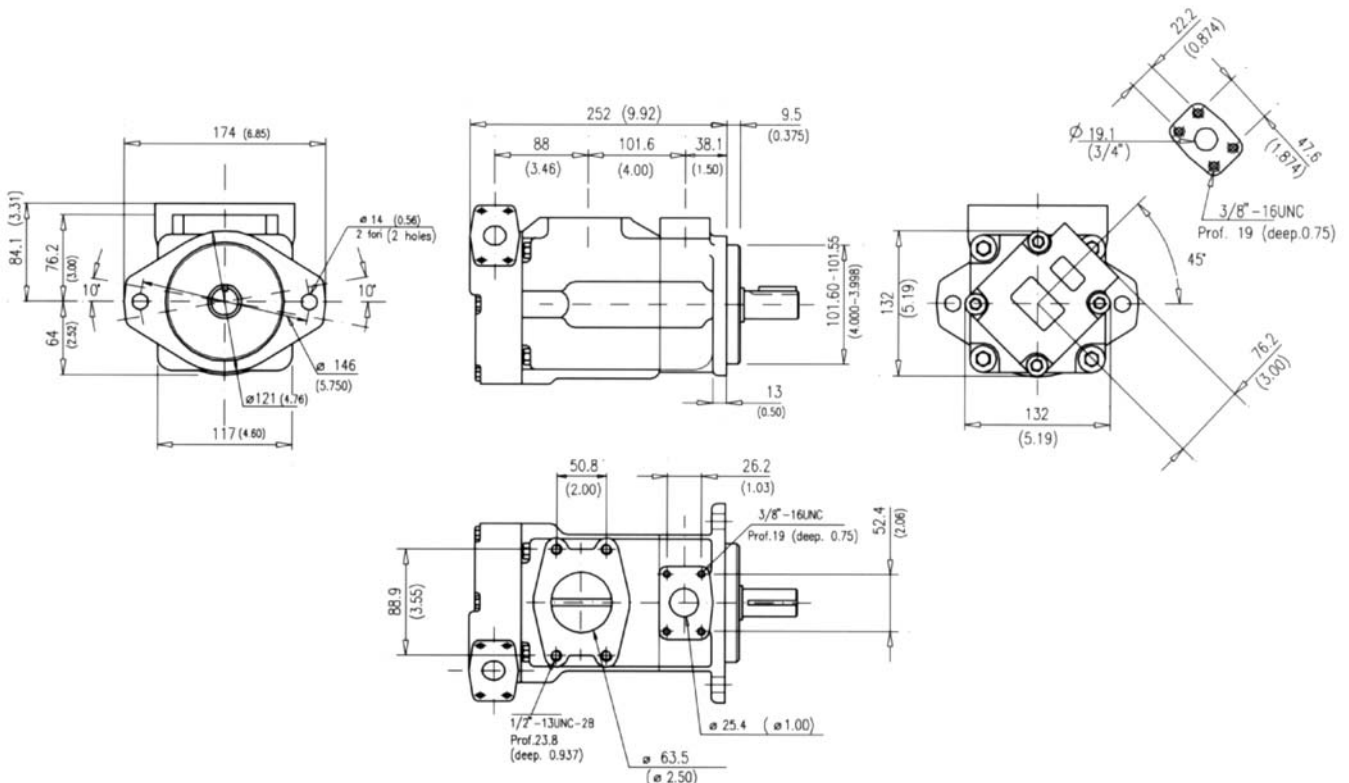


input torque / pressure



Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)

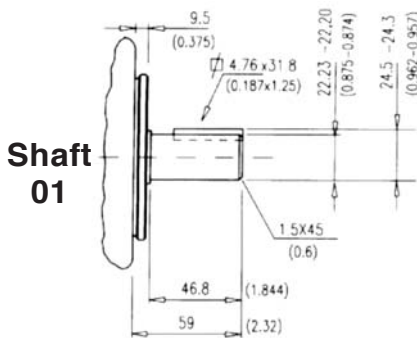


Approx. weight: 20,5 Kg. (45 lbs.)

Model code breakdown

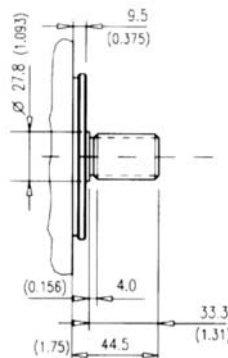
| | | | | | | | | | | |
|-------------|-----------|---------------------------|-----------|---|----------|--|-----------|--|----------|------------|
| BV | 21 | G | ** | ** | * | * | ** | (L) | * | (A) |
| Pump series | | Design | | Shaft end options | | Rotation | | Mounting (omit if not required) | | |
| Pump type | | Cartridge types | | Body outlet port positions (outlet viewed from cover end) | | Cover outlet port positions (outlet viewed from cover end) | | Seals (omit with standard seals and one shaft-seal in NBR) | | |
| | | -shaft end 12 14 17 19 21 | | -cover end 02 05 08 09 11 12 14 | | A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet | | V = seals and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®) | | |
| | | | | | | A = Outlet 135° CCW from inlet B = Outlet 45° CCW from inlet C = Outlet 45° CW from inlet D = Outlet 135° CW from inlet | | Rotation (viewed from shaft end) L = left hand rotation CCW (omit if CW) | | |

Shaft options mm (inches)



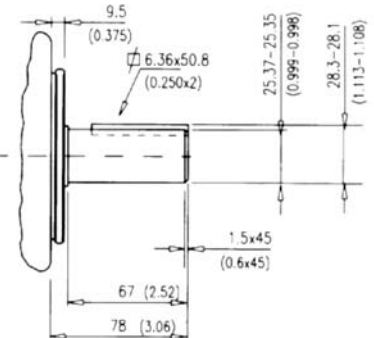
max. torque capability : 320Nm (2800 lb.in.)

Shaft 11



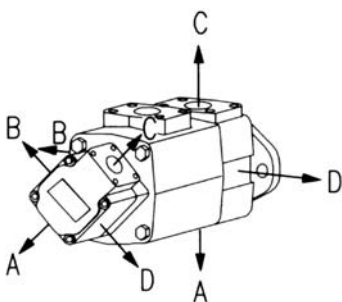
max. torque capability : 320Nm (2800 lb.in.)

Shaft 86



max torque capability: 400 Nm (3560 lb. in.)

PORT ORIENTATIONS

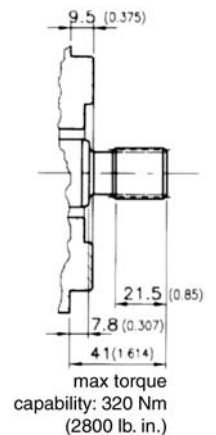


Spline data

(shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 13 | |
| Pitch | 16/32 | |
| Major dia. | 22.00 - 21.90 | (0.866 - 0.862) |
| Pitch dia. | 20.638 | (0.8125) |
| Minor dia. | 18.63 - 18.35 | (0.733 - 0.722) |
| Wildhaber | 11.67 - 11.70 | (0.459 - 0.461) |

Shaft 90

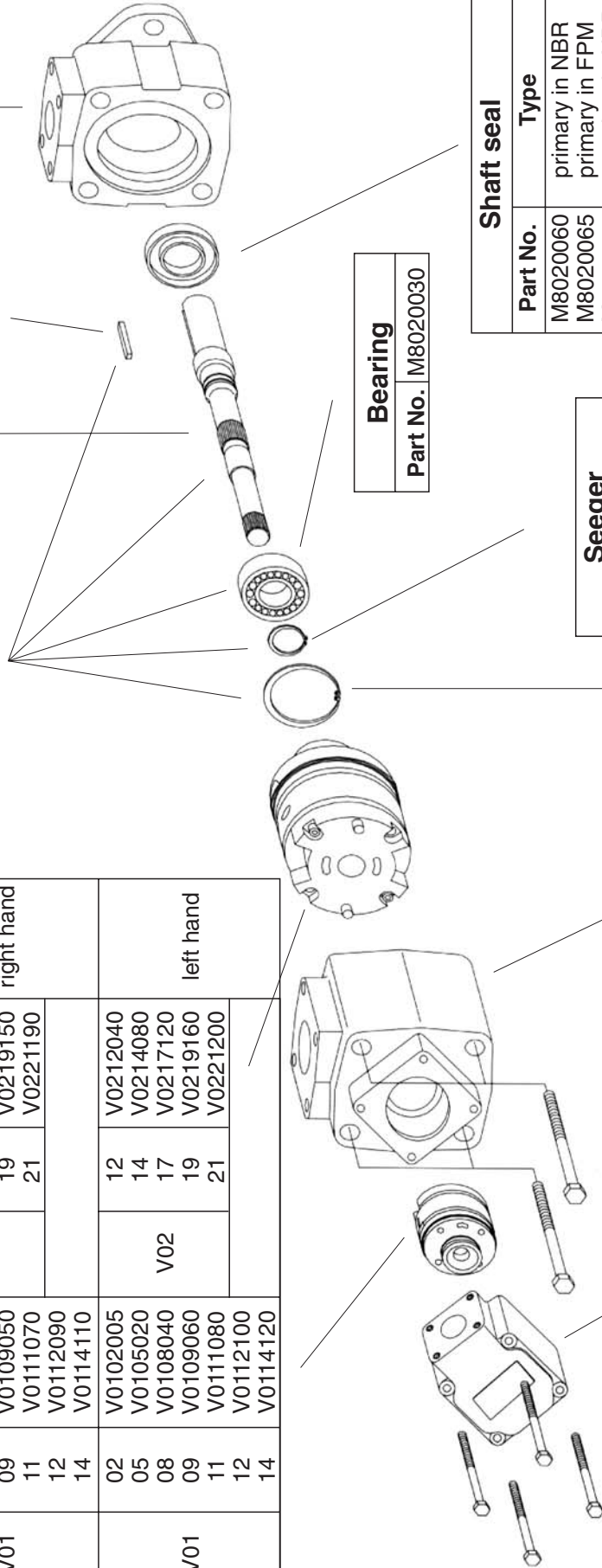


max torque capability: 320 Nm (2800 lb. in.)

Id. codes of pump components

| cover end | | Cartridges | | | | Pump rotation |
|-----------|-------|------------|--------|-------|----------|---------------|
| | | shaft end | | | | |
| Series | Model | Part No. | Series | Model | Part No. | |
| V01 | 02 | V0102000 | V02 | 12 | V0212030 | right hand |
| | 05 | V0105010 | | 14 | V0214070 | |
| | 08 | V0108030 | | 17 | V0217110 | |
| | 09 | V0109050 | | 19 | V0219150 | |
| | 11 | V0111070 | | 21 | V0221190 | |
| | 12 | V0112090 | | | | |
| | 14 | V0114110 | | | | |
| V01 | 02 | V0102005 | V02 | 12 | V0212040 | left hand |
| | 05 | V0105020 | | 14 | V0214080 | |
| | 08 | V0108040 | | 17 | V0217120 | |
| | 09 | V0109060 | | 19 | V0219160 | |
| | 11 | V0111080 | | 21 | V0221200 | |
| | 12 | V0112100 | | | | |
| | 14 | V0114120 | | | | |

| Shaft kit | | Shaft | | Key | | Body | |
|-----------|----------|-------|----------|----------|----------|----------|----------|
| Model | Part No. | Model | Part No. | Part No. | Part No. | Part No. | Part No. |
| 01 | M8210601 | 01 | K2101000 | M8010100 | M8020010 | | |
| 11 | M8210611 | 11 | K2111000 | - | | | |
| 86 | M8210686 | 86 | K2186000 | M8028600 | | | |
| 90 | M8210690 | 90 | K2190000 | - | | | |



Bearing
Part No. M8020030

Seeger
Part No. M8020050

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8020060 | primary in NBR |
| M8020065 | primary in FPM |
| M8020061 | secondary in NBR |
| M8020066 | secondary in FPM |

Inlet body
Part No. M8020110

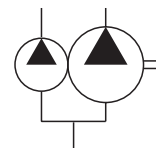
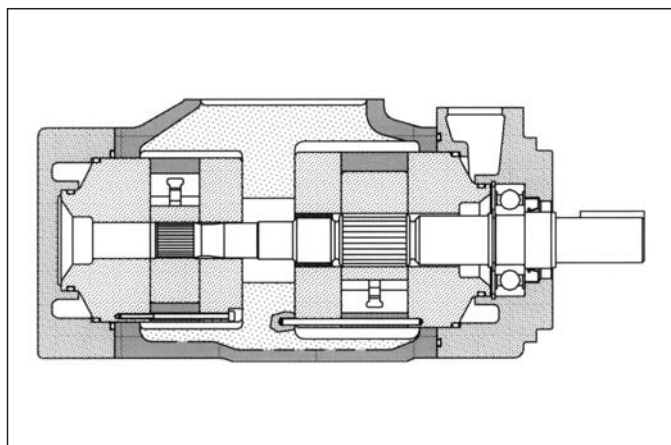
Cover
Part No. M8020120

Screw
Part No. M8020130
Torque to 102 Nm (910 lb. in.)

Screw
Part No. M8020420
Torque to 70 Nm (624 lb. in.)

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8210500 | seals + 1 shaft seal | NBR |
| M8210501 | seals + 2 shaft seals | NBR |
| M8210503 | seals + 1 shaft seal | FPM (Viton®) |
| M8210504 | seals + 2 shaft seals | FPM (Viton®) |

Seeger
Part No. M8020040



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 87 to 195 l/min (from 23 to 52 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| V04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 175 | (2538) | 600 | 1800 |
| V04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 175 | (2538) | 600 | 1800 |
| V04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 175 | (2538) | 600 | 1800 |
| V04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 175 | (2538) | 600 | 1800 |
| V04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 175 | (2538) | 600 | 1800 |
| cover end | | | | | | | | | | |
| V01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| V01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| V01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| V01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| V01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| V01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| V01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

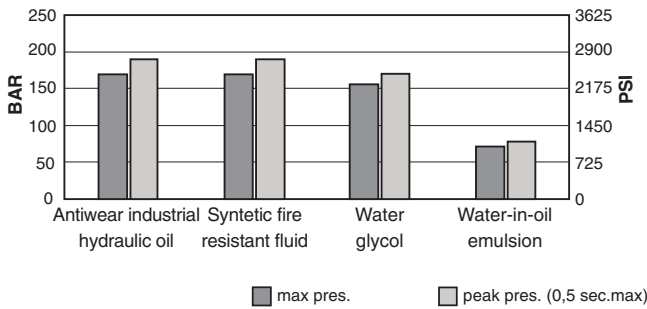
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

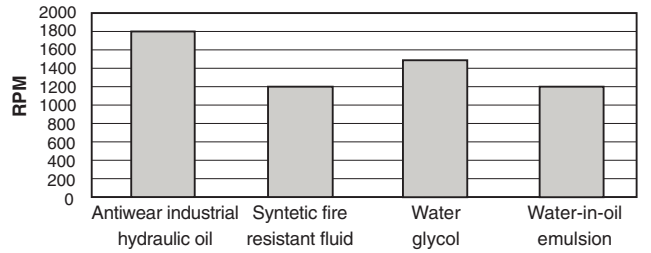
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

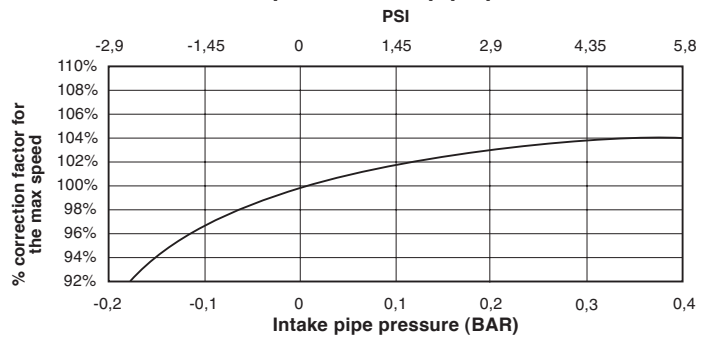


max speed / hydraulic fluid (with 0 bar in the intake pipe)

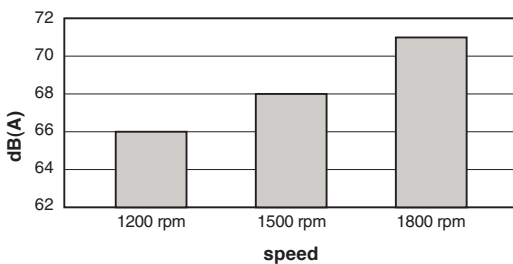


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

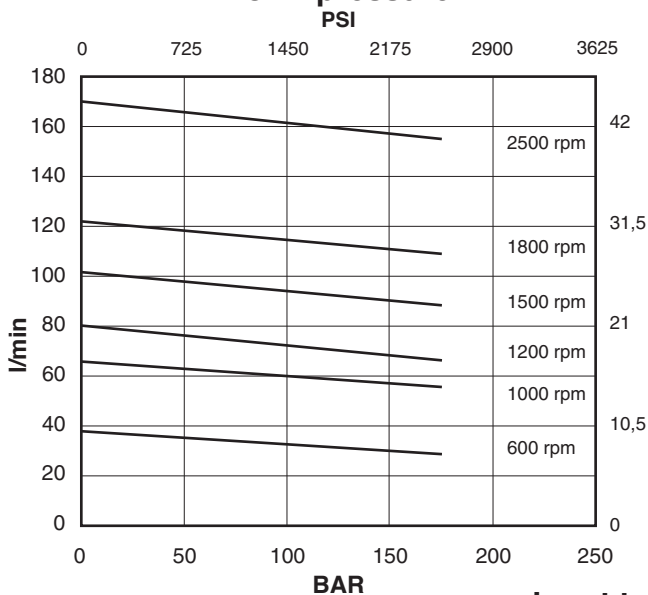


Sound level at 138 bar (2000 psi)

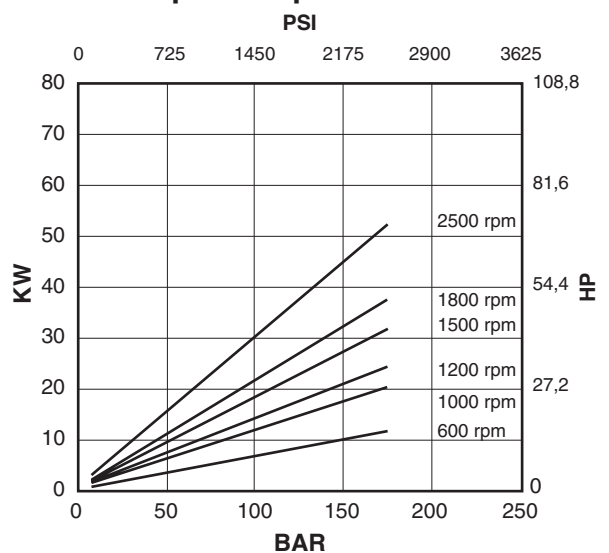


Shaft end cartridge V04-21

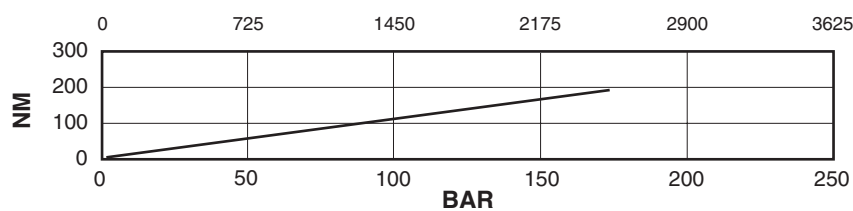
flow / pressure



power / pressure

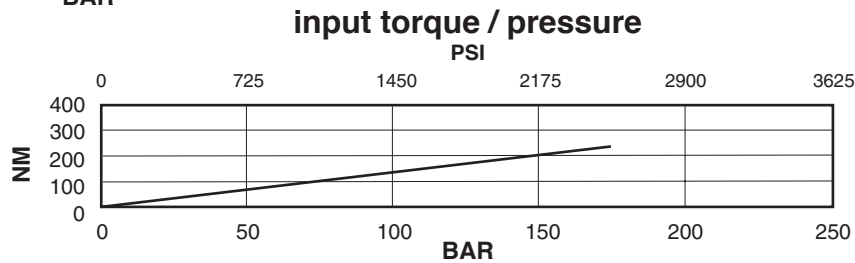
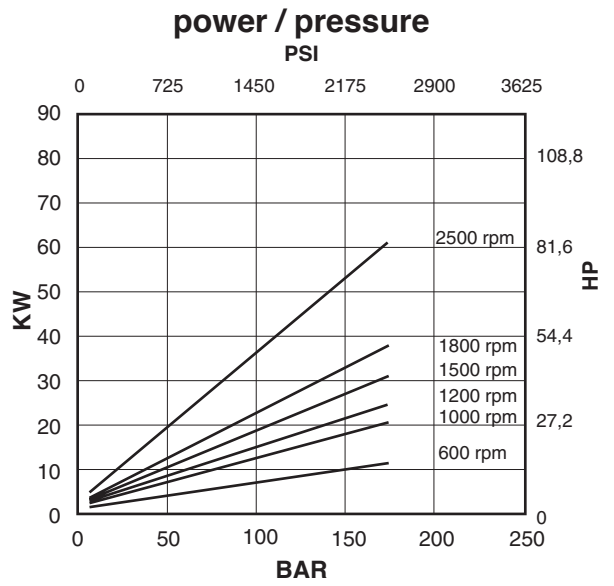
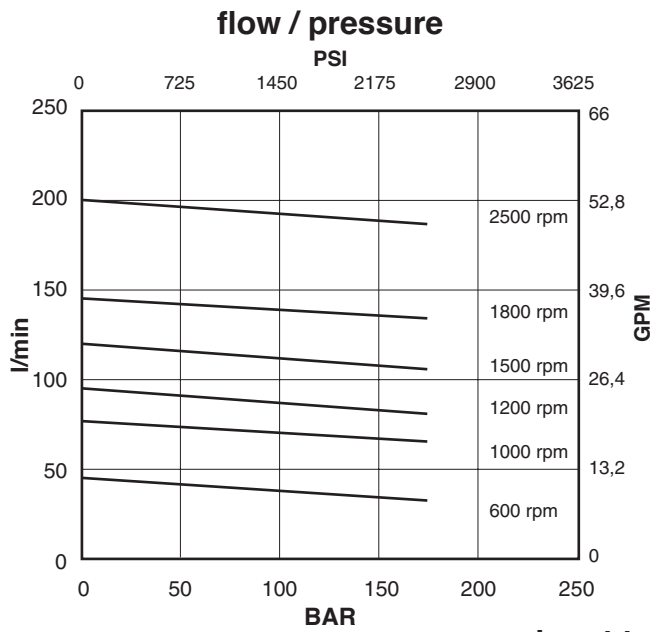


input torque / pressure



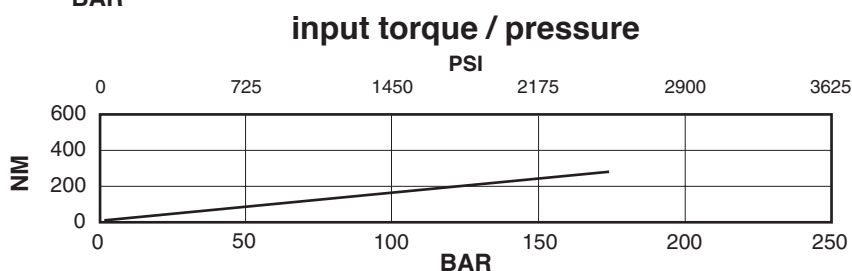
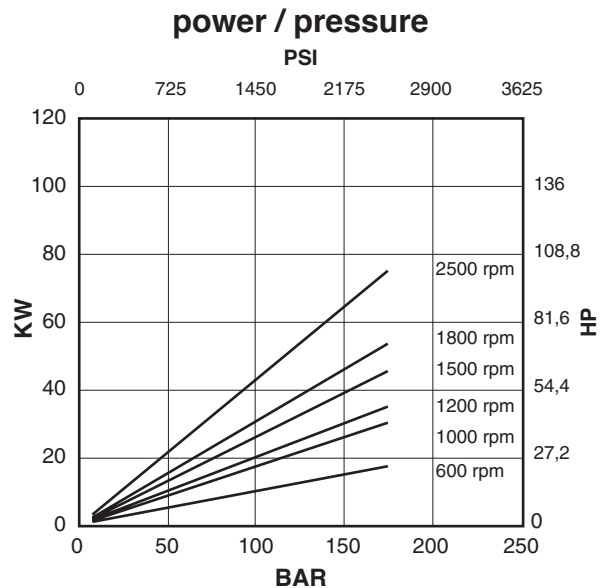
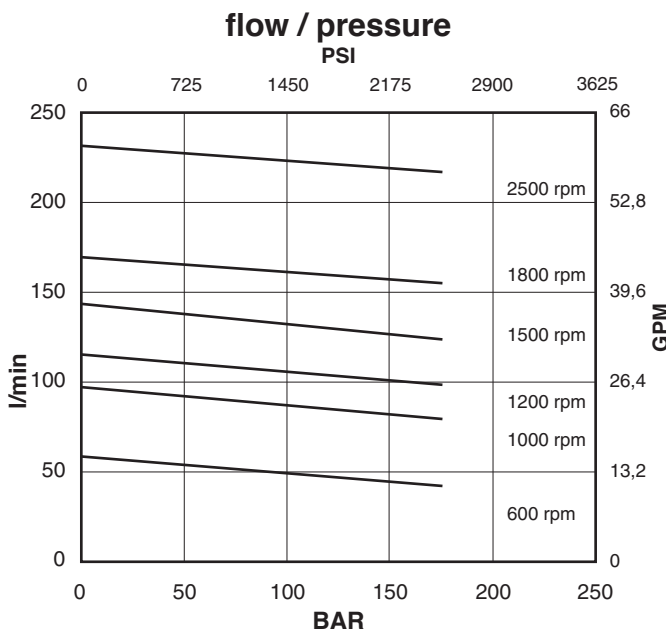
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge V04-25



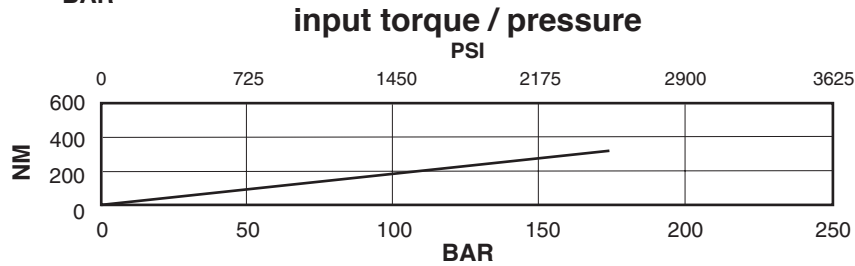
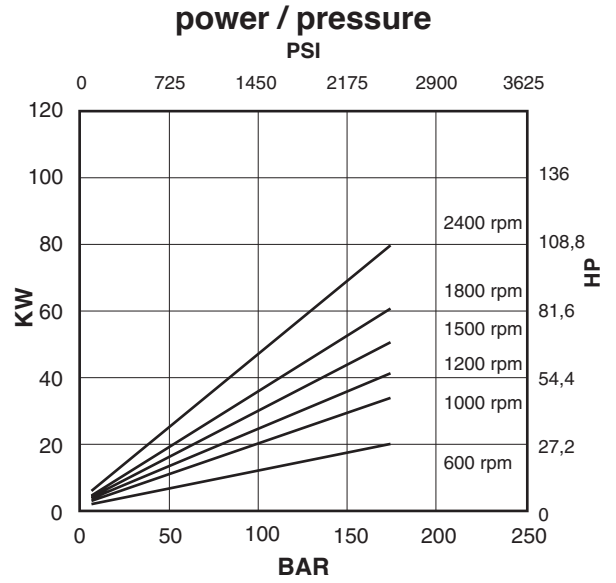
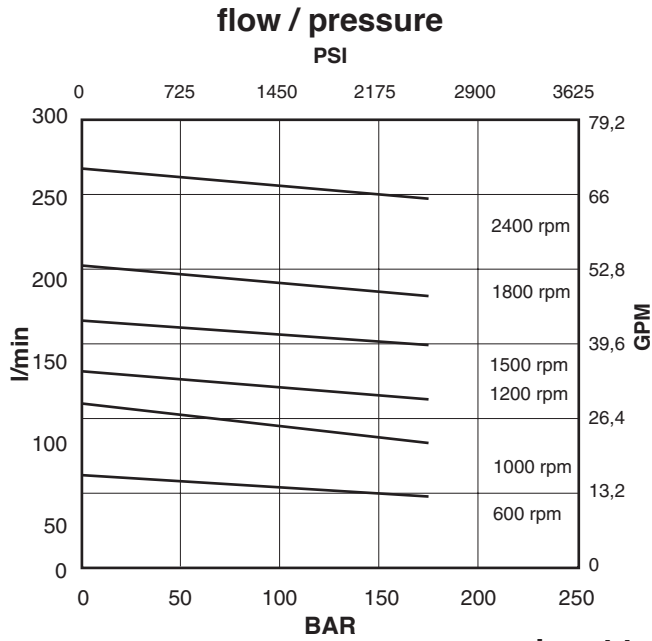
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V04-30



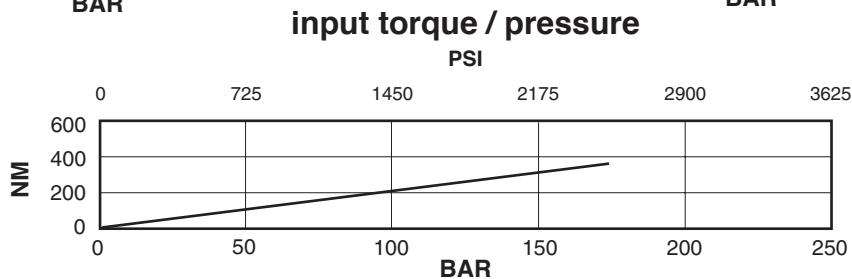
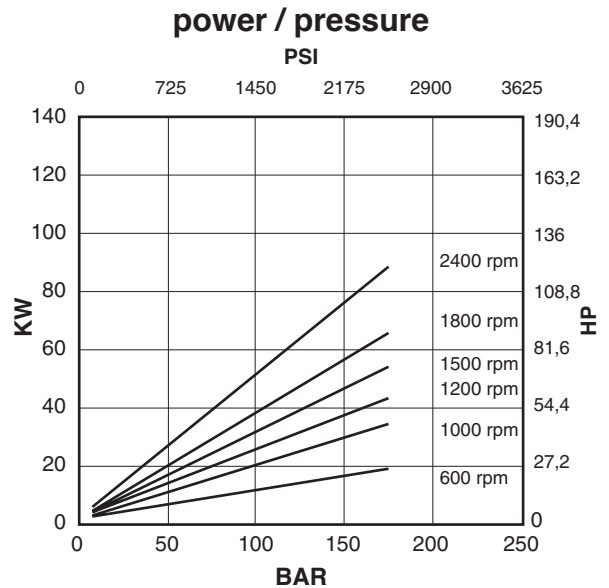
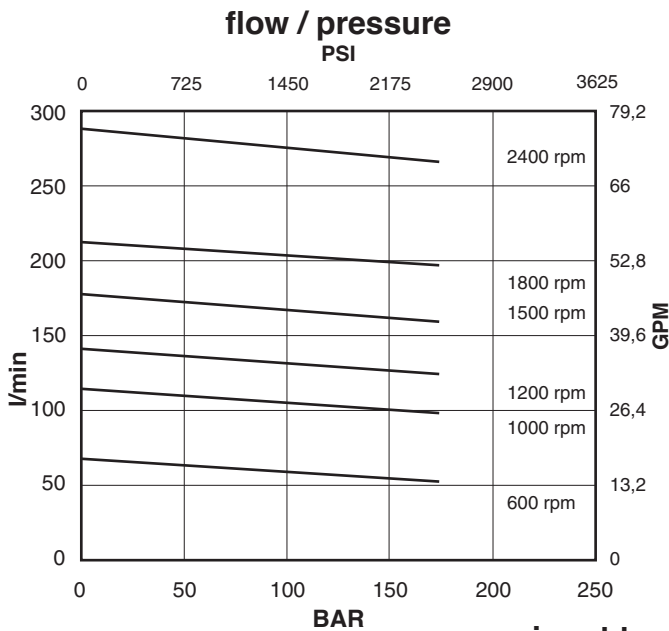
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V04-35



Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

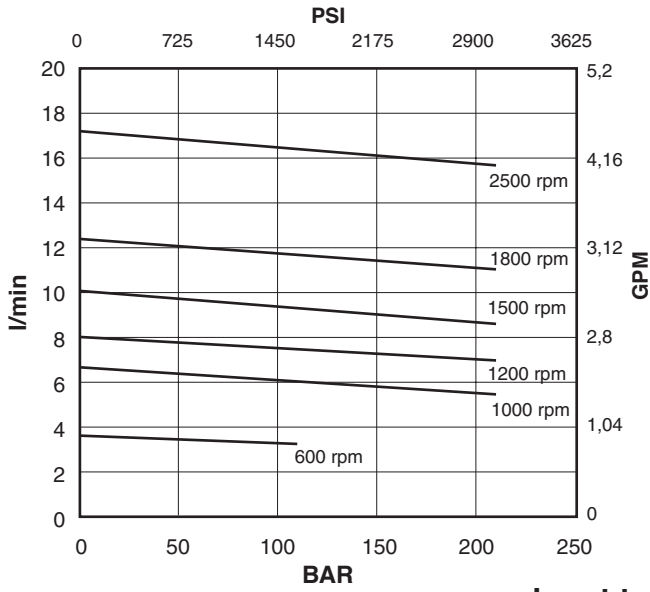
Shaft end cartridge V04-38



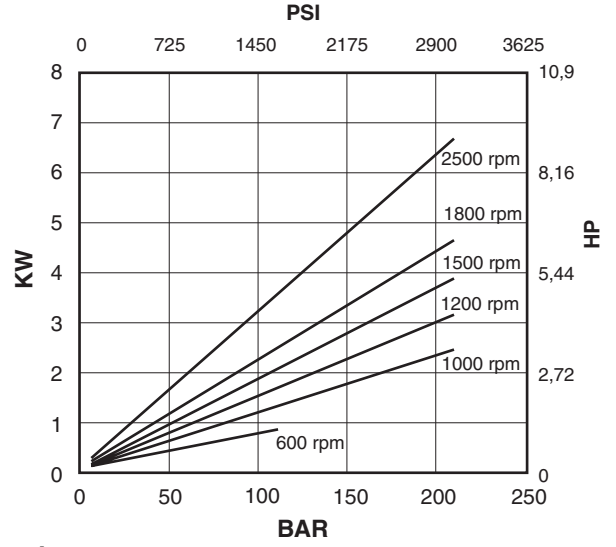
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-02

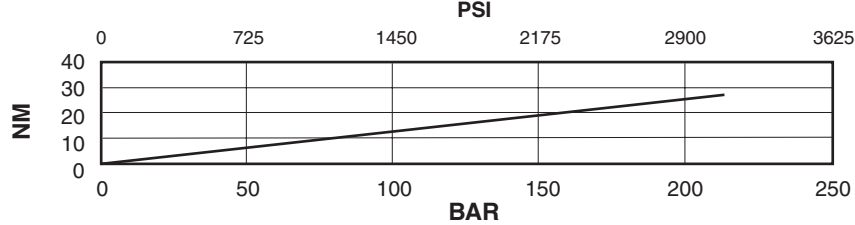
flow / pressure



power / pressure



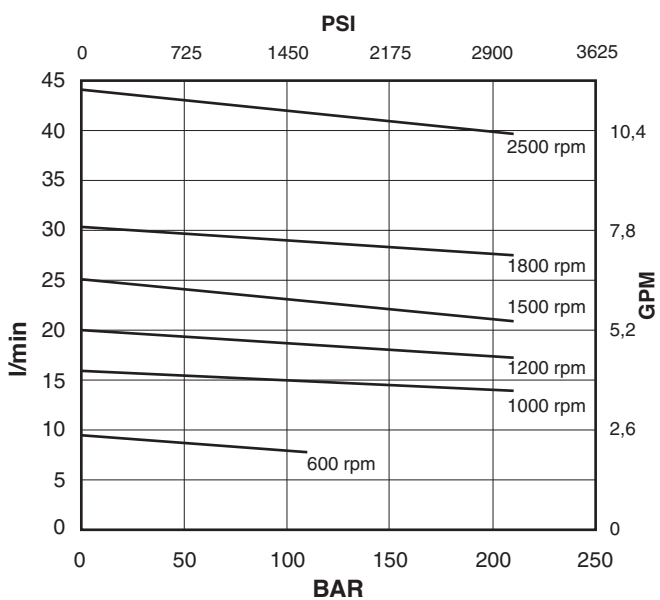
input torque / pressure



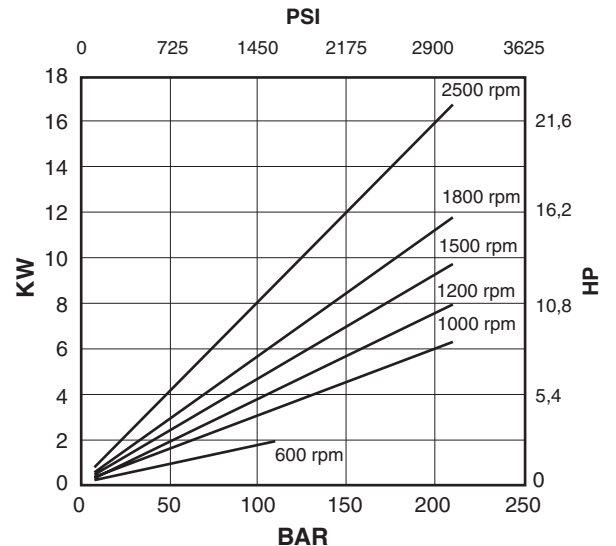
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-05

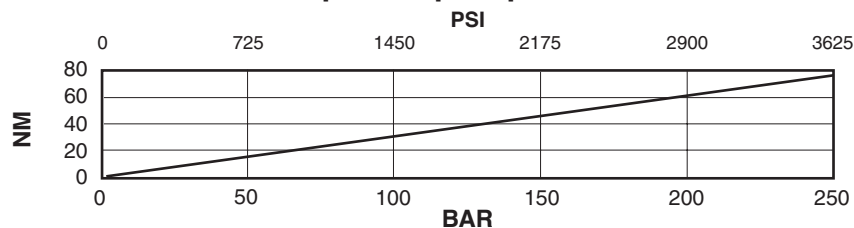
flow / pressure



power / pressure

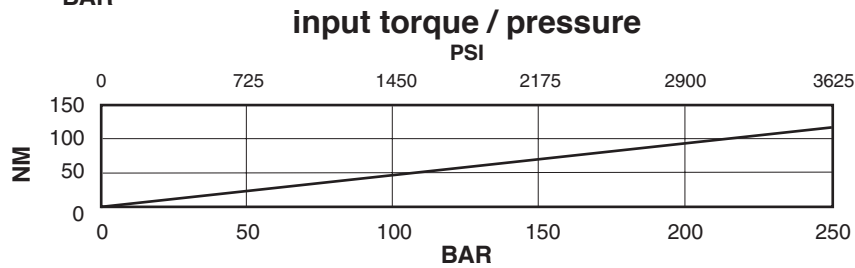
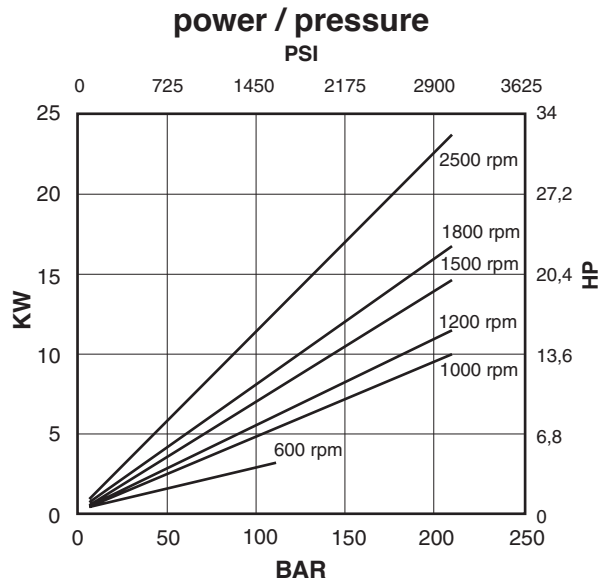
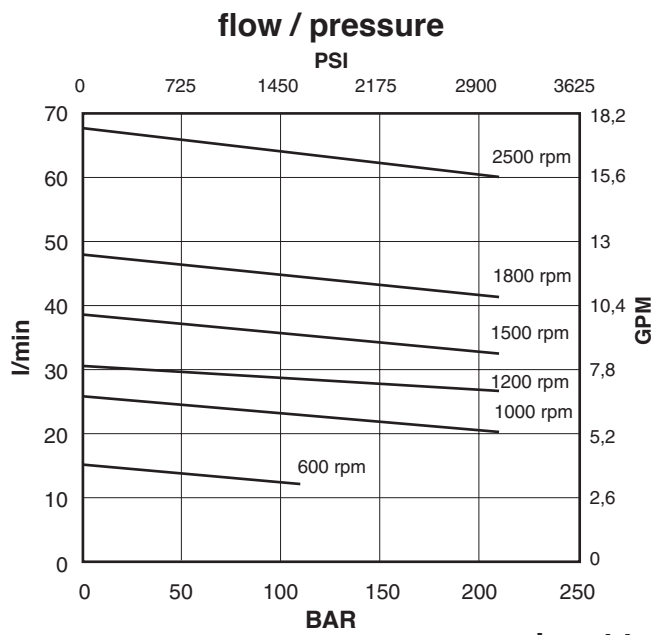


input torque / pressure



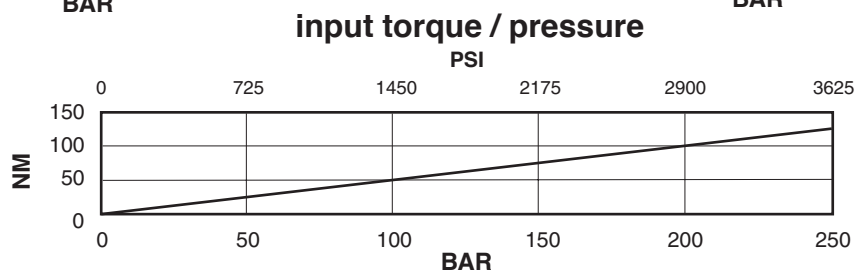
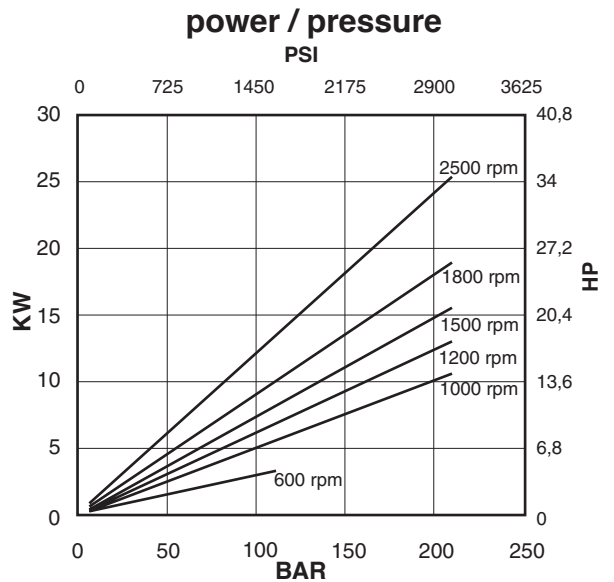
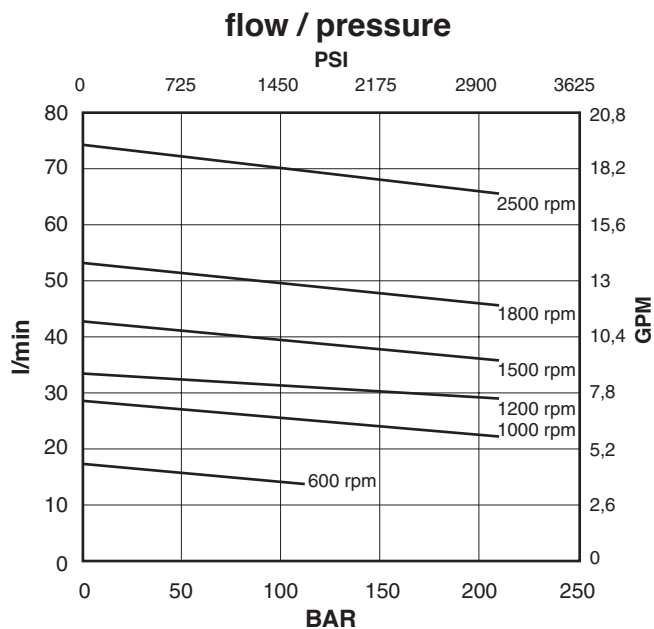
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-08



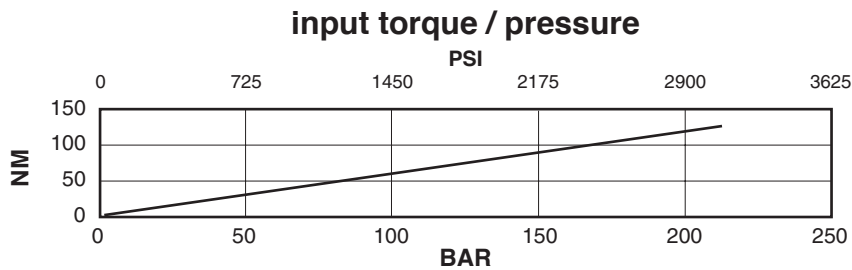
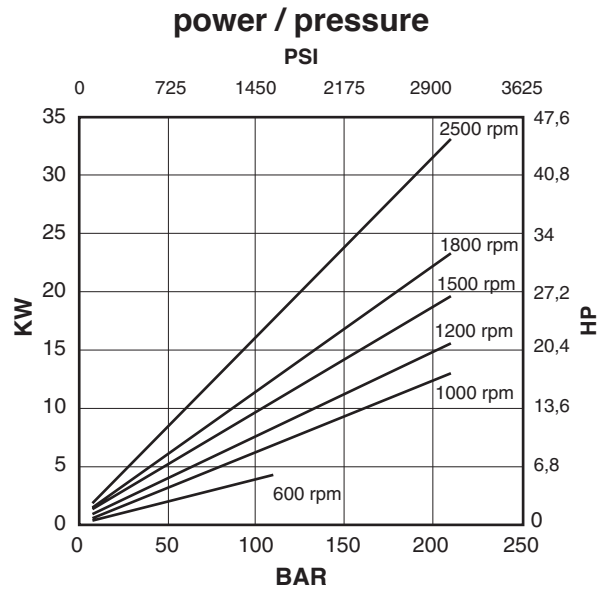
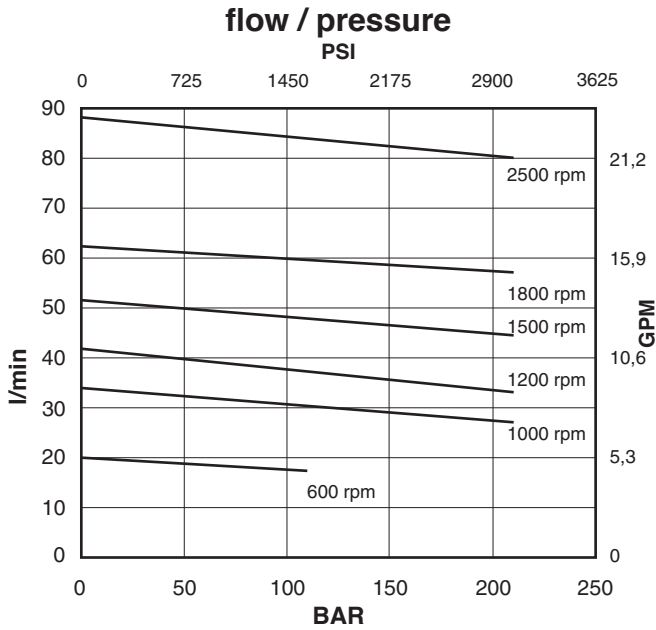
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V01-09



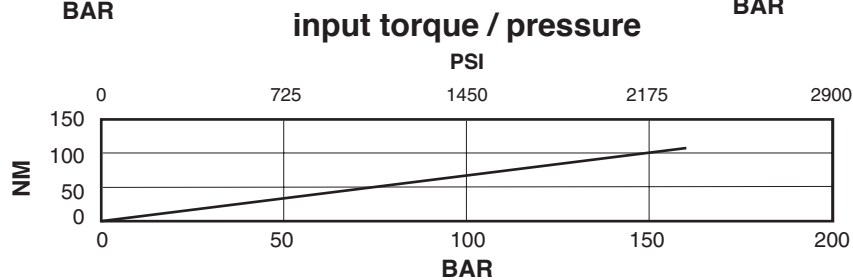
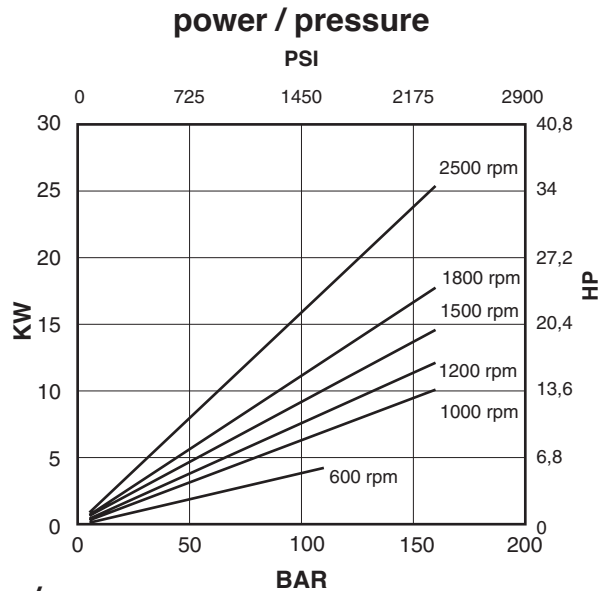
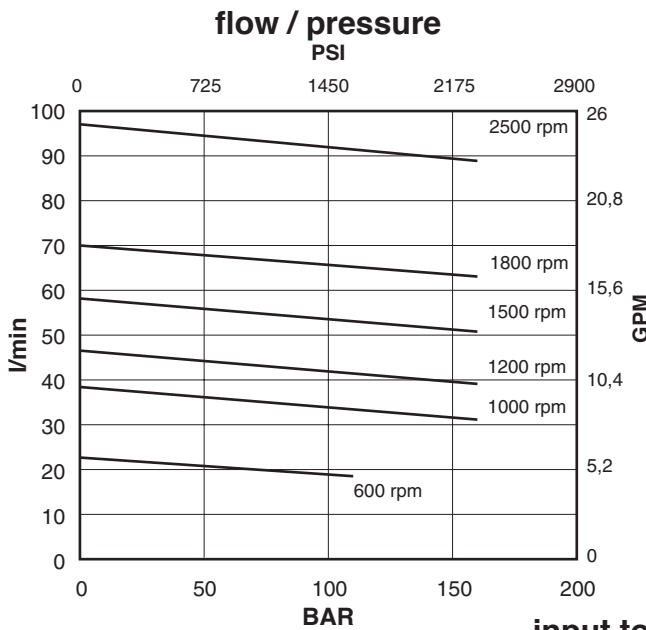
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V01-11



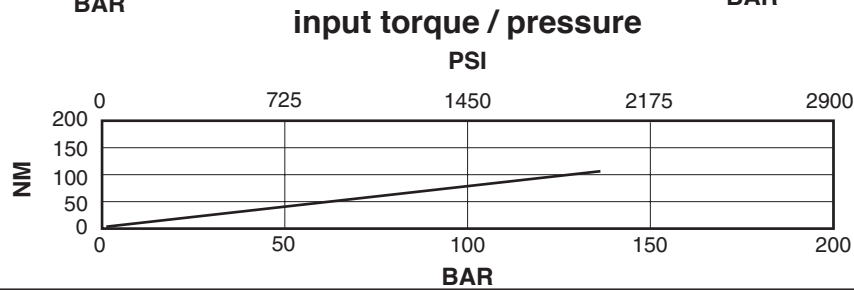
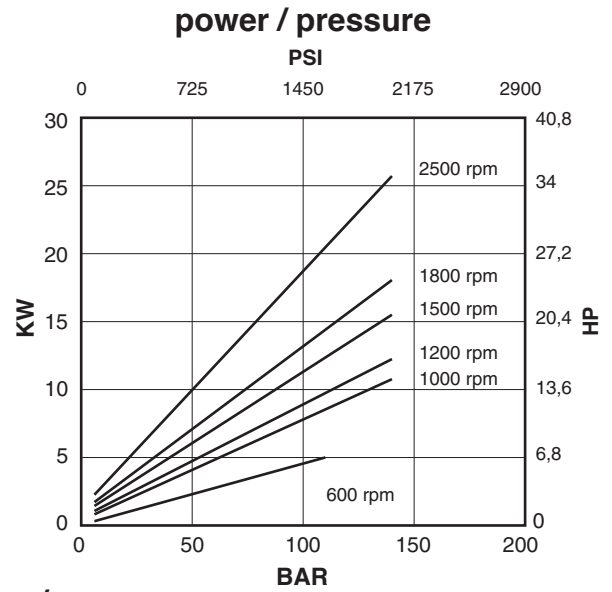
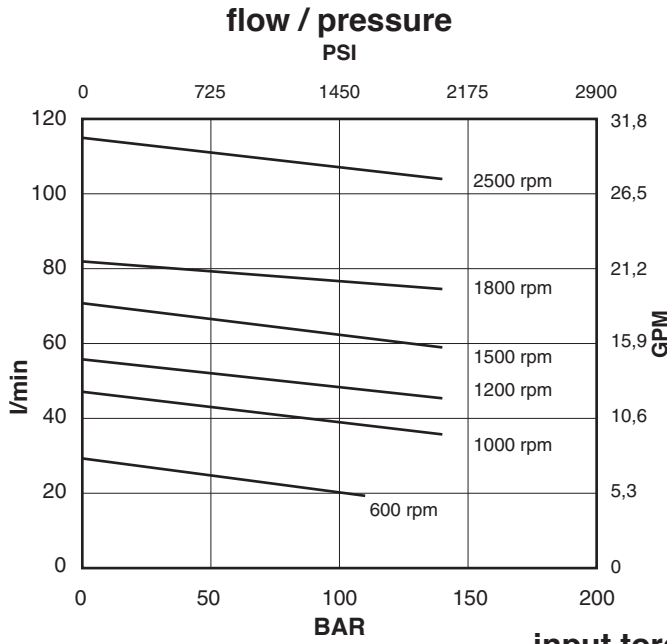
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V01-12



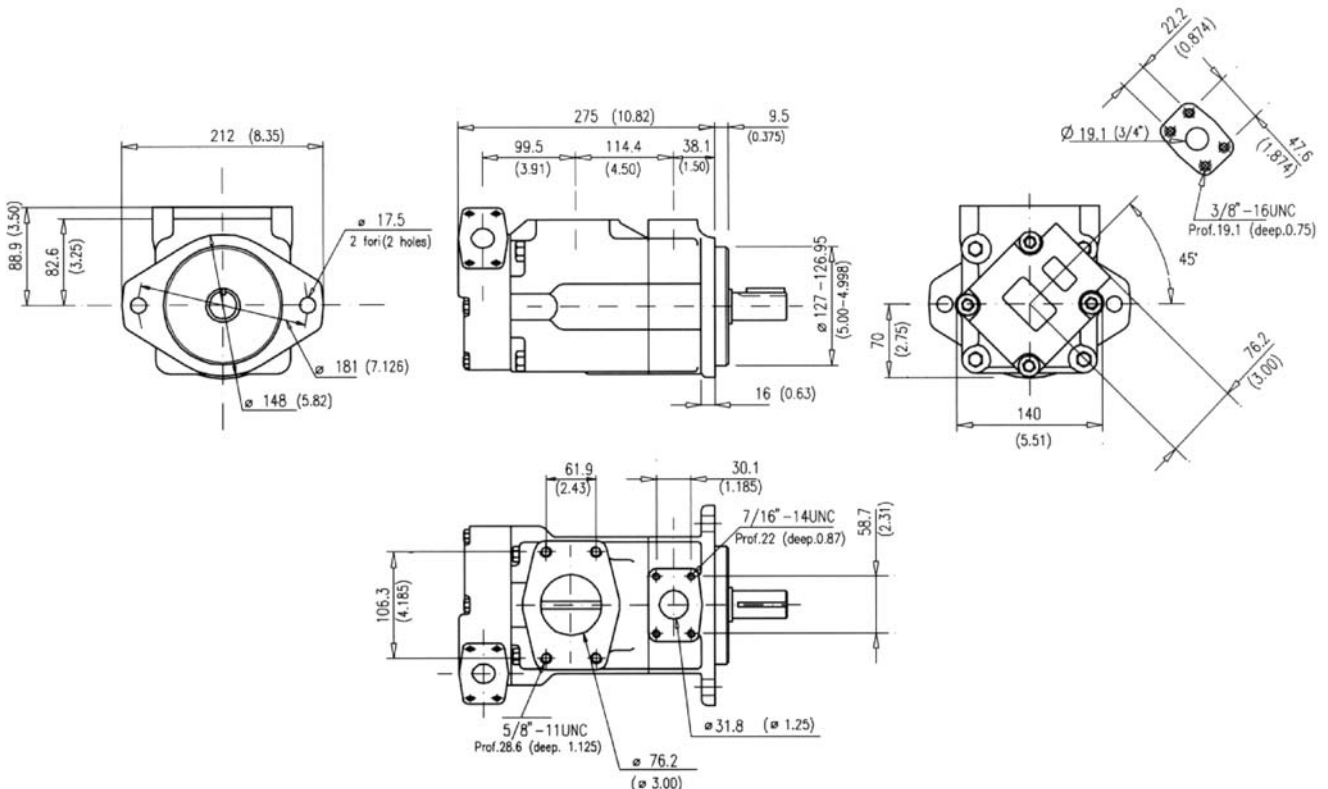
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V01-14



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



Approx. weight: 34 Kg. (75 lbs.)

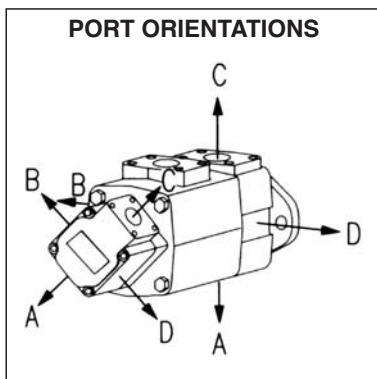
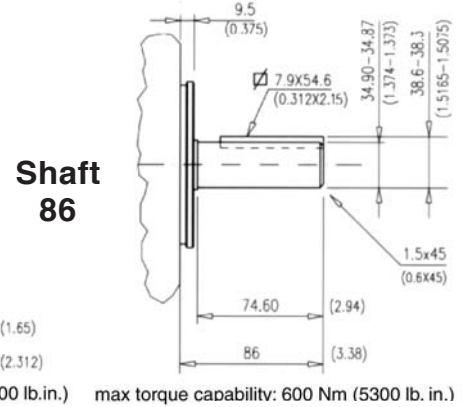
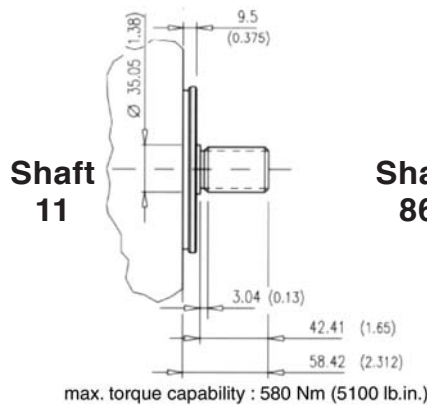
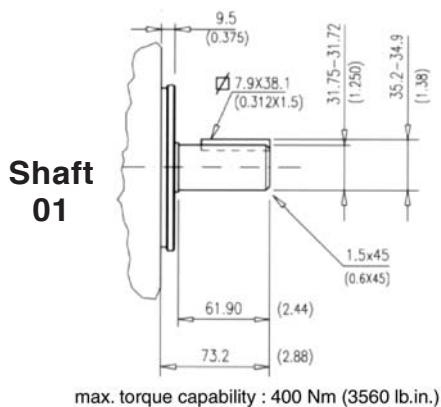
Model code breakdown

| | |
|---|---|
| <p>BV 41 G ** ** * * ** (L) * (A)</p> <p>Pump series</p> <p>Design</p> <p>Pump type</p> <p>Cartridge types</p> <p>-shaft end 21 25 30 35 38</p> <p>-cover end 02 05 08 09 11 12 14</p> <p>Body outlet port positions (outlet viewed from cover end)</p> <p>A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet</p> <p>Cover outlet port positions (outlet viewed from cover end)</p> <p>A = Outlet 135° CCW from inlet B = Outlet 45° CCW from inlet C = Outlet 45° CW from inlet D = Outlet 135° CW from inlet</p> | <p>Mounting (omit if not required)</p> <p>Seals (omit with standard seals and one shaft-seal in NBR)</p> <p>V = seals and shaft-seal in FPM (Viton®)</p> <p>D = standard seals and double shaft-seals in NBR</p> <p>F = seals and double shaft-seals in FPM (Viton®)</p> <p>Rotation (viewed from shaft end)</p> <p>L = left hand rotation CCW (omit if CW)</p> |
|---|---|

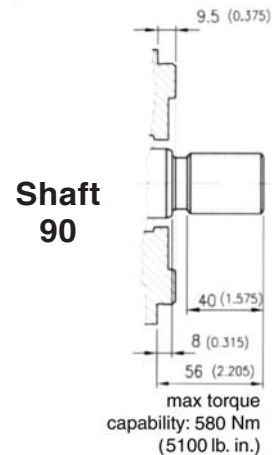
Shaft end options

01 = Straight with key (standard), **11** = Splined
86 = Heavy duty straight keyed, **90** = Splined SAE C

Shaft options mm (inches)



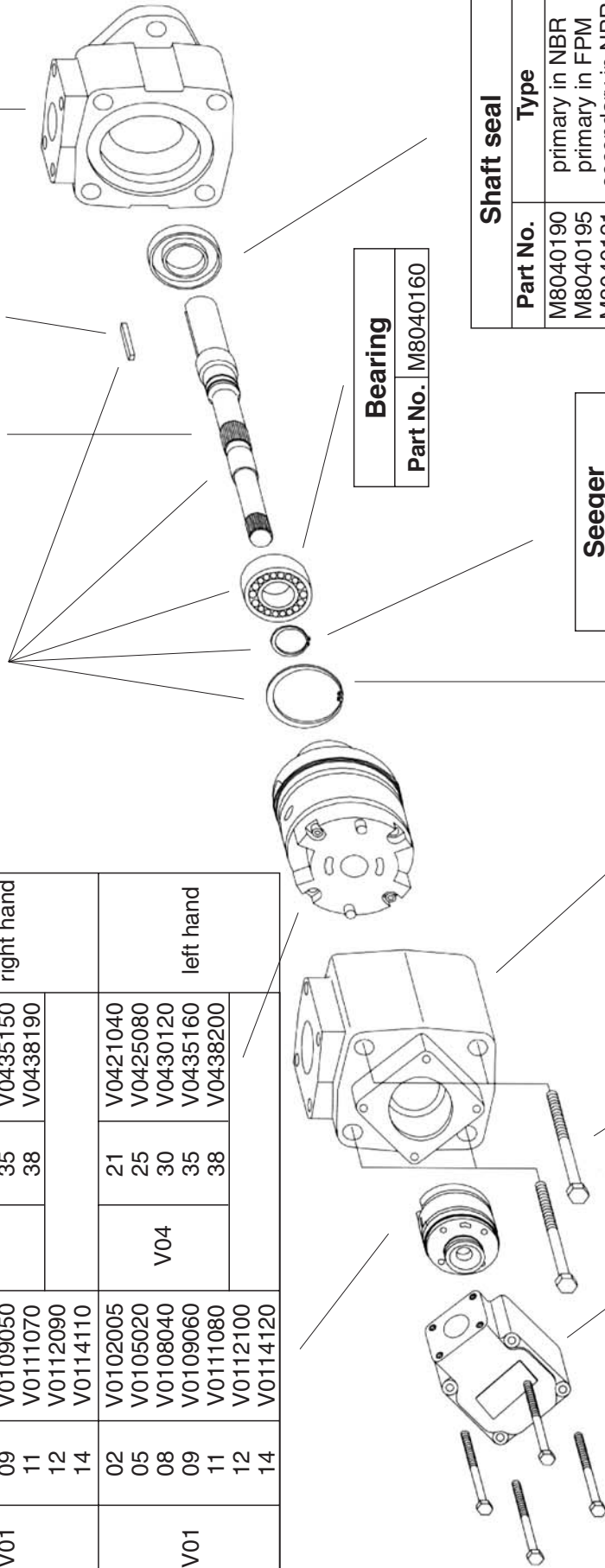
| | |
|---|-------------------------------|
| Spline data (shaft 11 and shaft 90) | |
| Involute side fit (ASA B5.15) | |
| Spline Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 |
| Major dia. | 31.60 - 31.50 (1.244 - 1.240) |
| Pitch dia. | 29.634 (1.1667) |
| Minor dia. | 26.99 - 26.66 (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 (0.617 - 0.619) |



Id. codes of pump components

| Cartridges | | | | Pump rotation | |
|------------|-------|-----------|--------|---------------|----------|
| cover end | | shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| V01 | 02 | V0102000 | V04 | 21 | V0421030 |
| | 05 | V0105010 | | 25 | V0425070 |
| | 08 | V0108030 | | 30 | V0430110 |
| | 09 | V0109050 | | 35 | V0435150 |
| | 11 | V0111070 | | 38 | V0438190 |
| | 12 | V0112090 | | | |
| | 14 | V0114110 | | | |
| V01 | 02 | V0102005 | V04 | 21 | V0421040 |
| | 05 | V0105020 | | 25 | V0425080 |
| | 08 | V0108040 | | 30 | V0430120 |
| | 09 | V0109060 | | 35 | V0435160 |
| | 11 | V0111080 | | 38 | V0438200 |
| | 12 | V0112100 | | | |
| | 14 | V0114120 | | | |

| Shaft kit | | Shaft | | Key | | Body | |
|-----------|----------|-------|----------|----------|----------|----------|----------|
| Model | Part No. | Model | Part No. | Part No. | Part No. | Part No. | Part No. |
| 01 | M8410601 | 01 | K4101000 | M8040100 | M8040140 | | |
| 11 | M8410611 | 11 | K4111000 | - | | | |
| 86 | M8410686 | 86 | K4186000 | M8048600 | | | |
| 90 | M8410690 | 90 | K4190000 | - | | | |



Bearing
Part No. M8040160

Seeger
Part No. M8040180

| Part No. | Type |
|----------|------------------|
| M8040190 | primary in NBR |
| M8040195 | primary in FPM |
| M8040191 | secondary in NBR |
| M8040196 | secondary in FPM |

Inlet body
Part No. M8040430

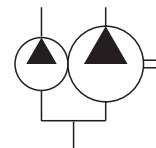
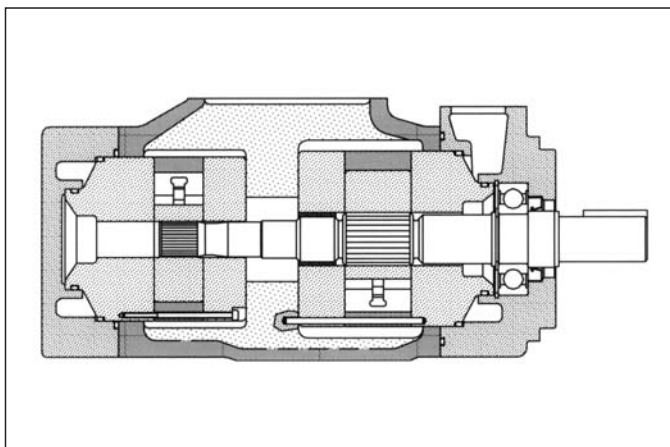
Cover
Part No. M8020120

Seeger
Part No. M8040170

Screw
Part No. M8040210
Torque to 225 Nm (2010 lb. in.)

Screw
Part No. M8020420
Torque to 70 Nm (624 lb. in.)

| Pump seal kit | |
|---------------|-----------------------|
| Part No. | Parts |
| M8410500 | seals + 1 shaft seal |
| M8410501 | seals + 2 shaft seals |
| M8410503 | seals + 1 shaft seal |
| M8410504 | seals + 2 shaft seals |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 127 to 219 l/min (from 33 to 59 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| V04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 175 | (2538) | 600 | 1800 |
| V04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 175 | (2538) | 600 | 1800 |
| V04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 175 | (2538) | 600 | 1800 |
| V04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 175 | (2538) | 600 | 1800 |
| V04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 175 | (2538) | 600 | 1800 |
| cover end | | | | | | | | | | |
| V02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 175 | (2538) | 600 | 1800 |
| V02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 175 | (2538) | 600 | 1800 |
| V02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 175 | (2538) | 600 | 1800 |
| V02-19 | 60,0 | (3.66) | 71,0 | (19) | 88,7 | (23.4) | 175 | (2538) | 600 | 1800 |
| V02-21 | 67,5 | (4.12) | 79,0 | (21) | 99,8 | (26.4) | 175 | (2538) | 600 | 1800 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

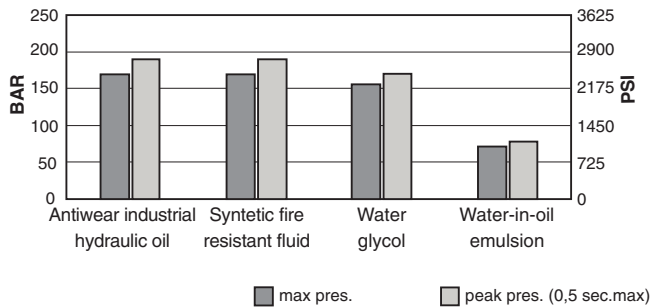
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

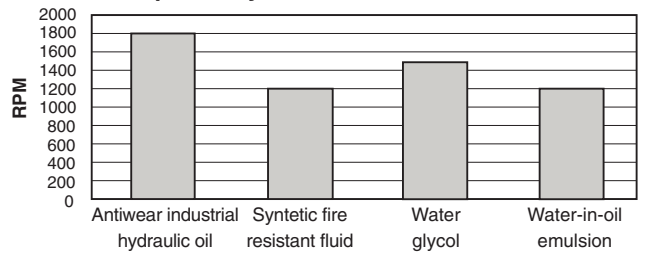
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

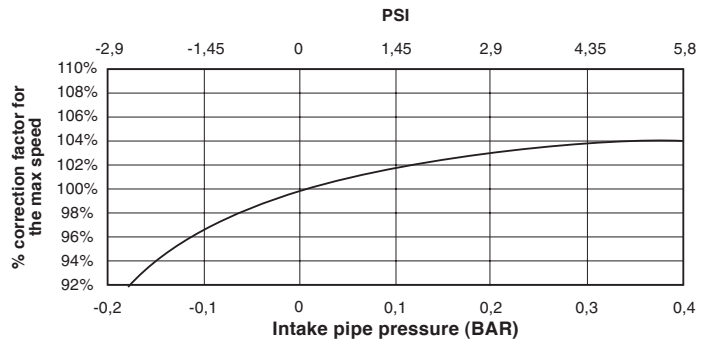


max speed / hydraulic fluid (with 0 bar in the intake pipe)

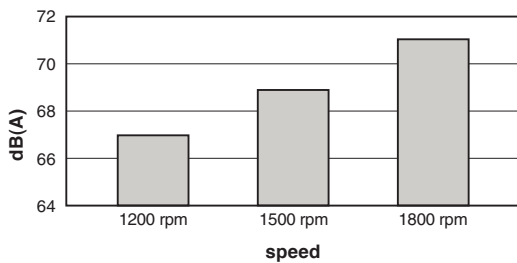


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

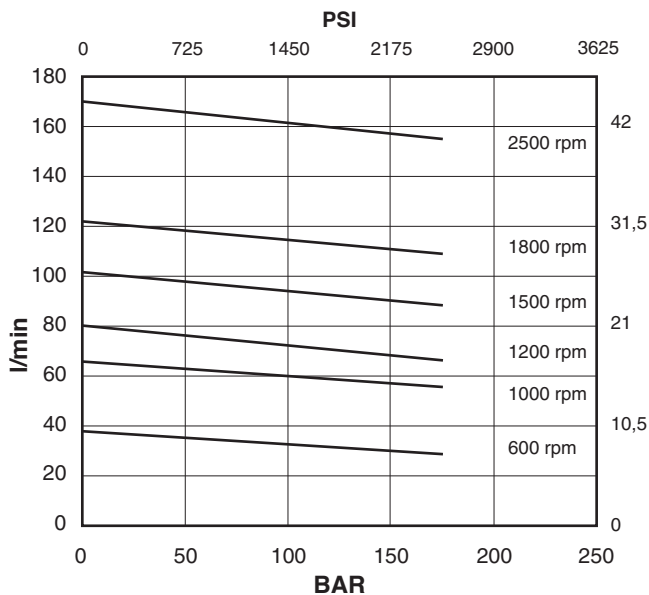
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)

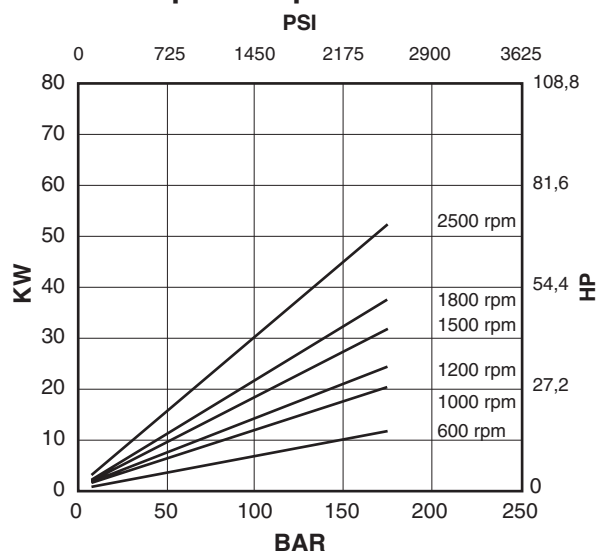


flow / pressure

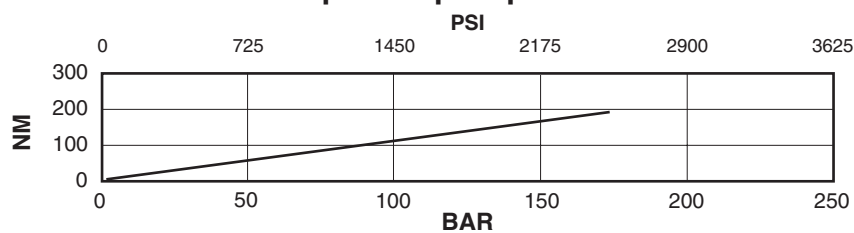


Shaft end cartridge V04-21

power / pressure



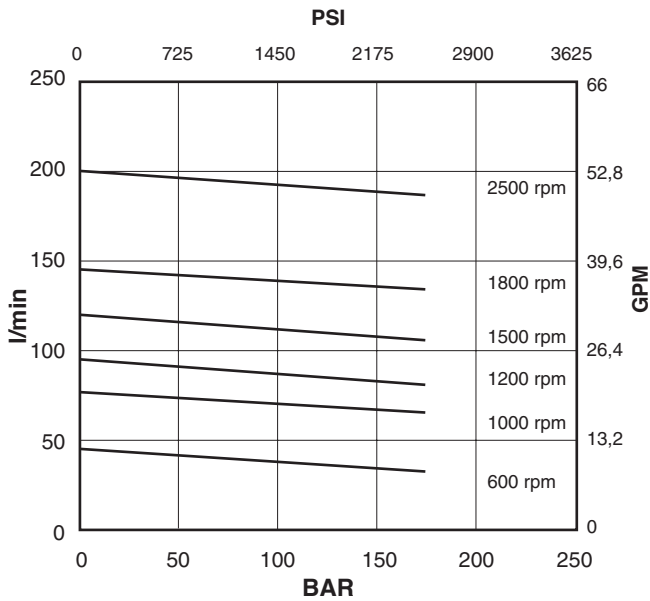
input torque / pressure



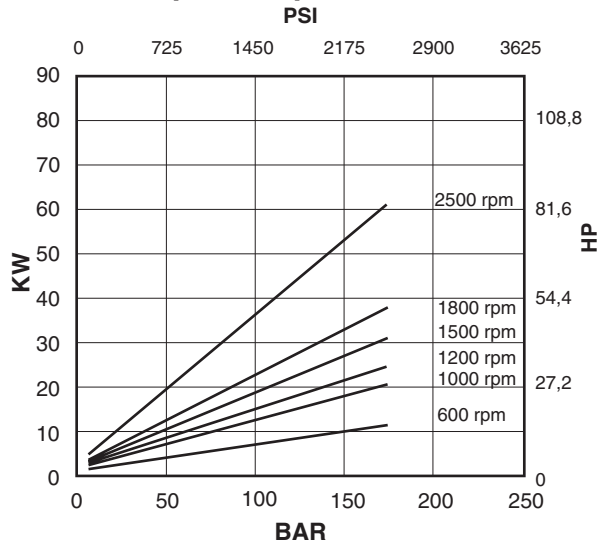
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge V04-25

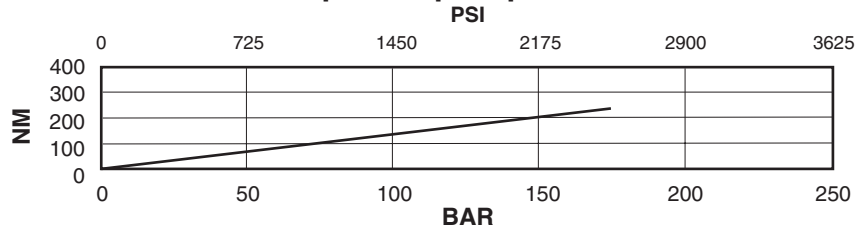
flow / pressure



power / pressure



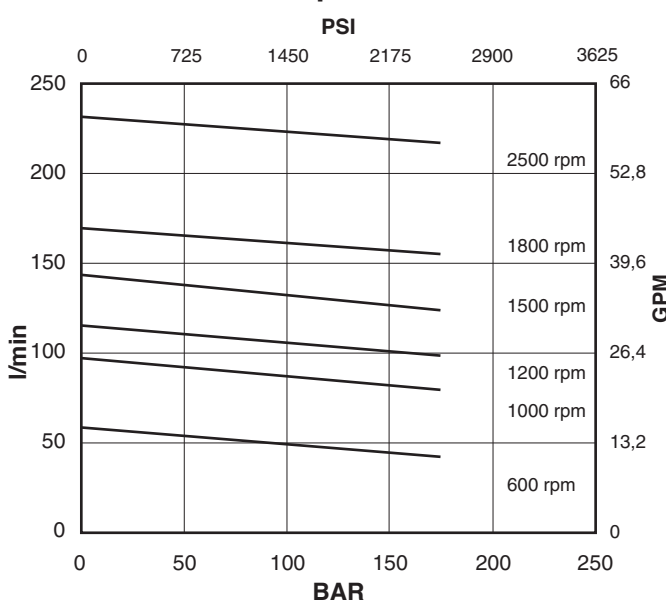
input torque / pressure



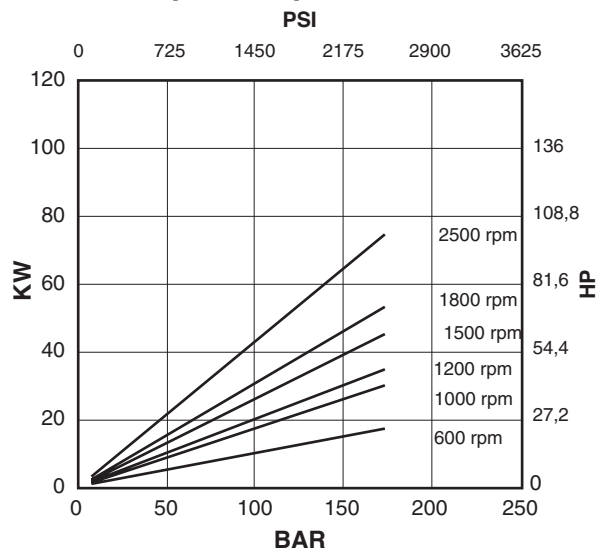
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V04-30

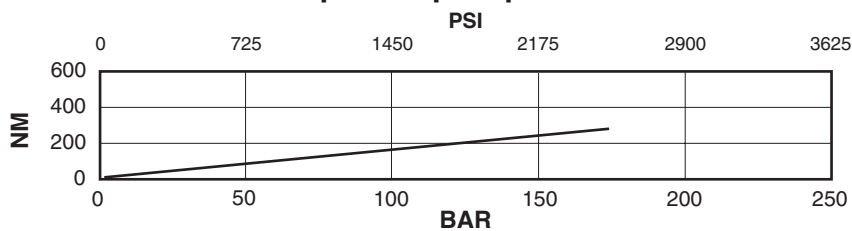
flow / pressure



power / pressure

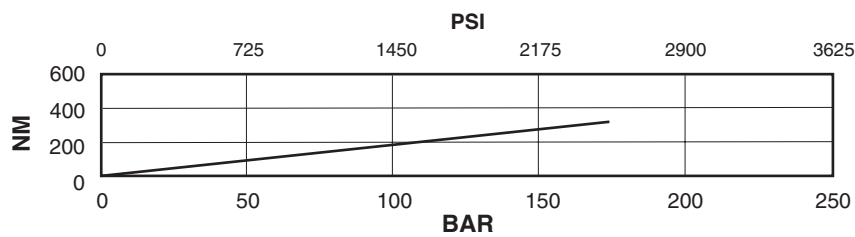
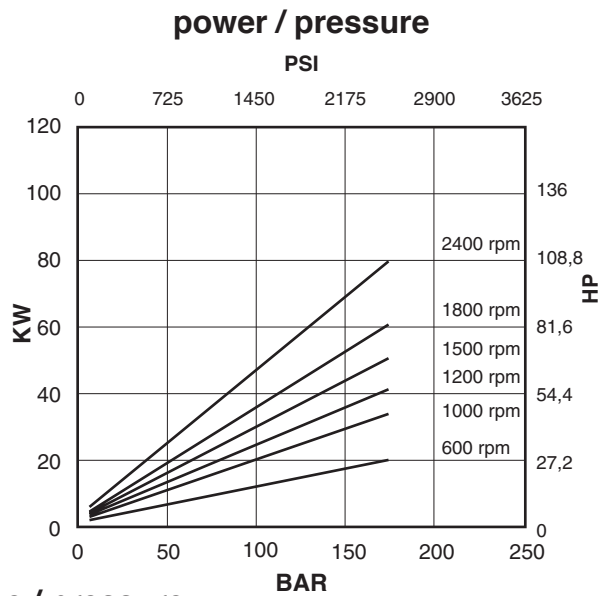
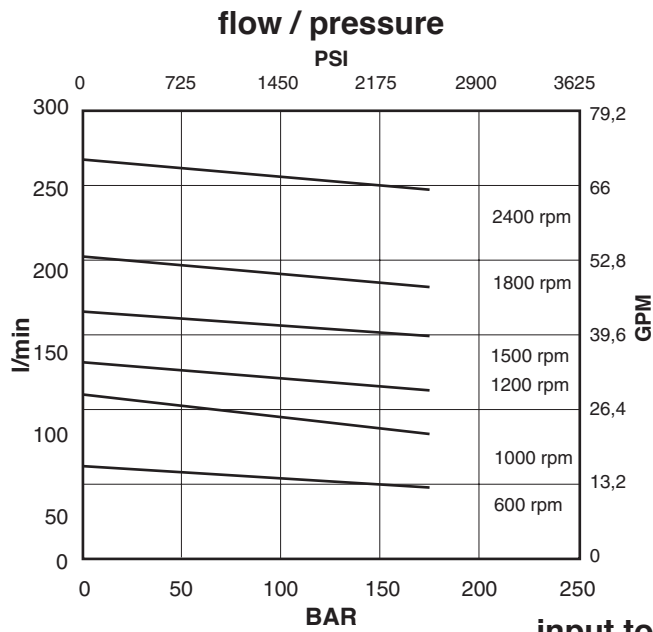


input torque / pressure



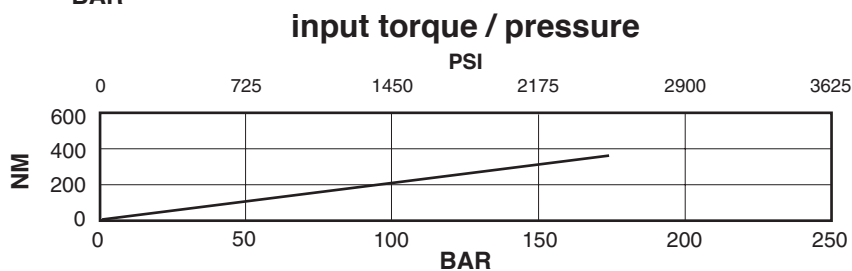
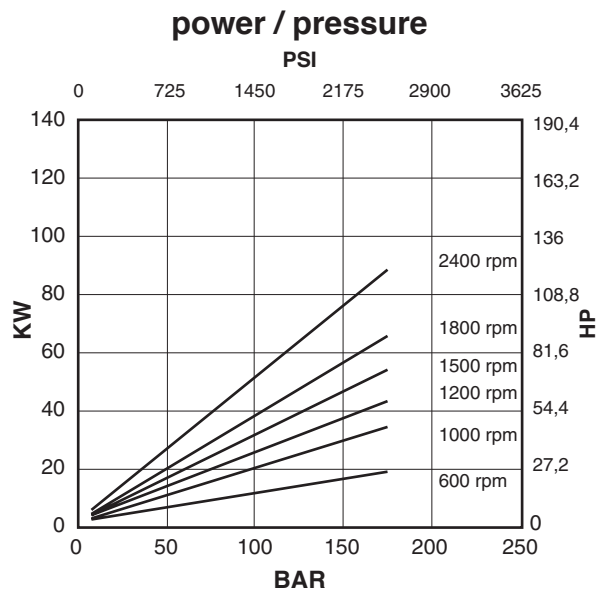
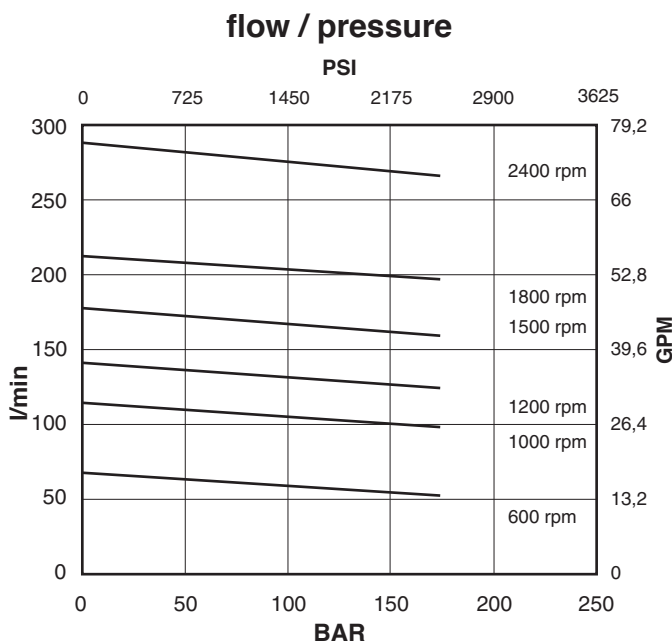
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V04-35



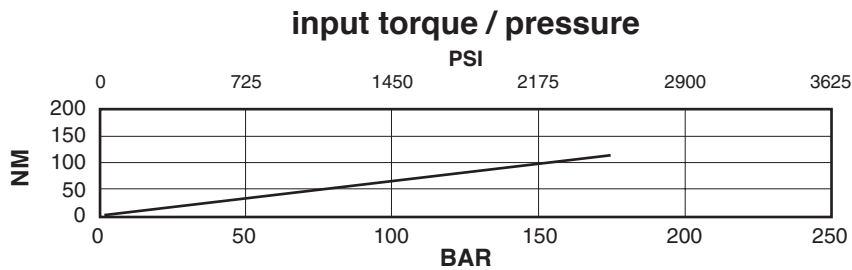
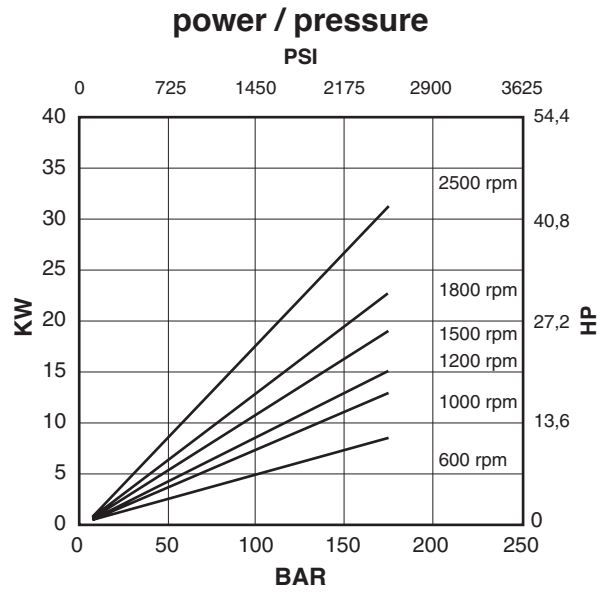
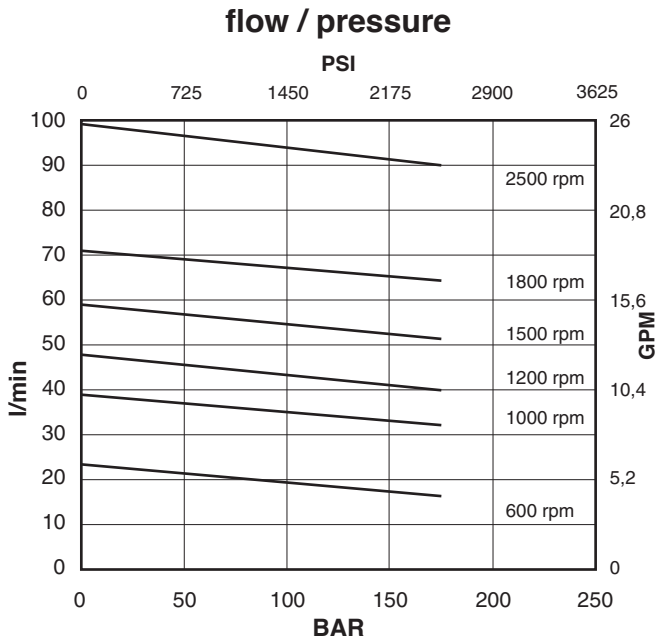
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V04-38



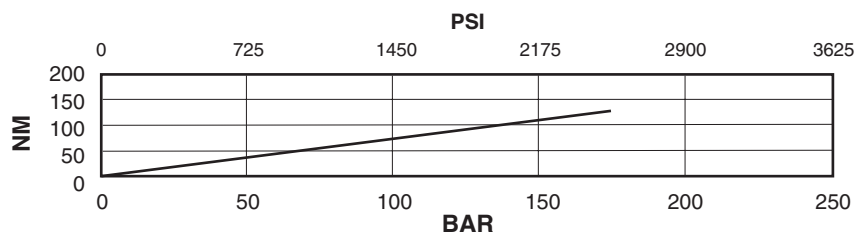
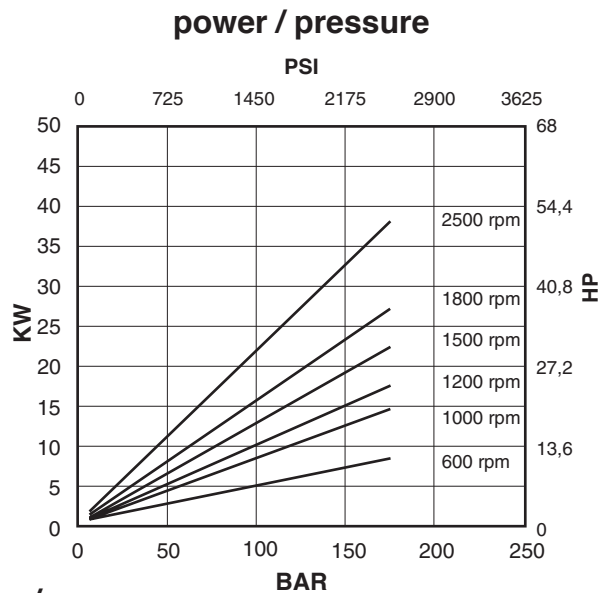
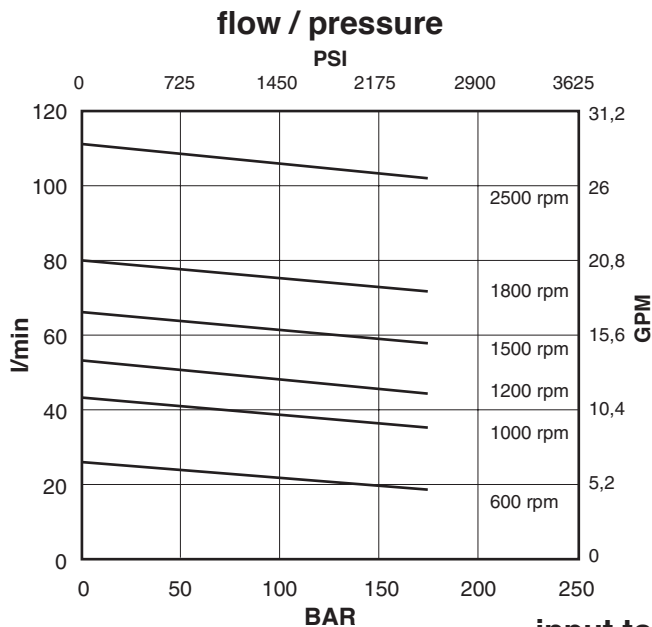
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-12



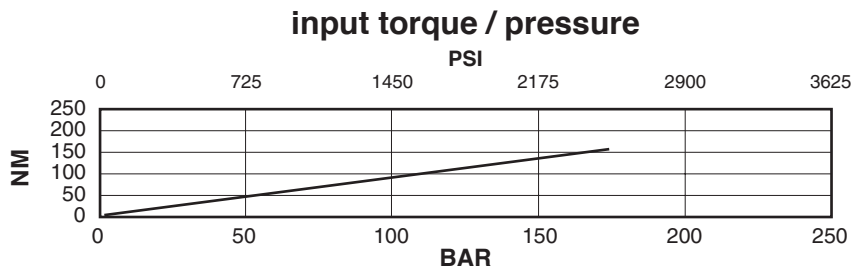
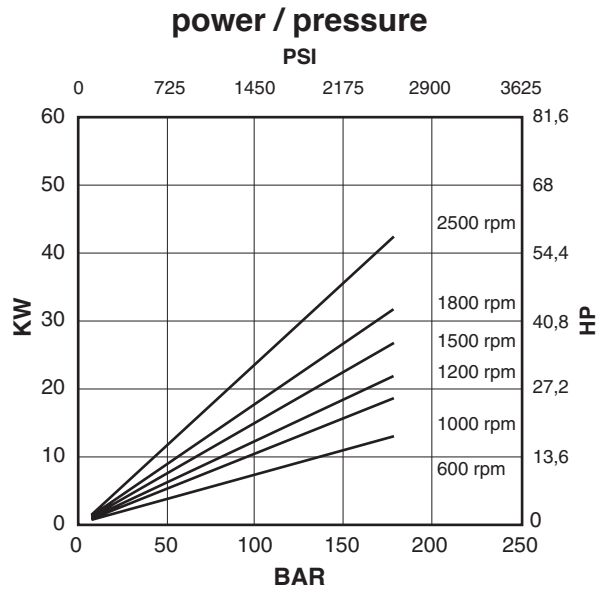
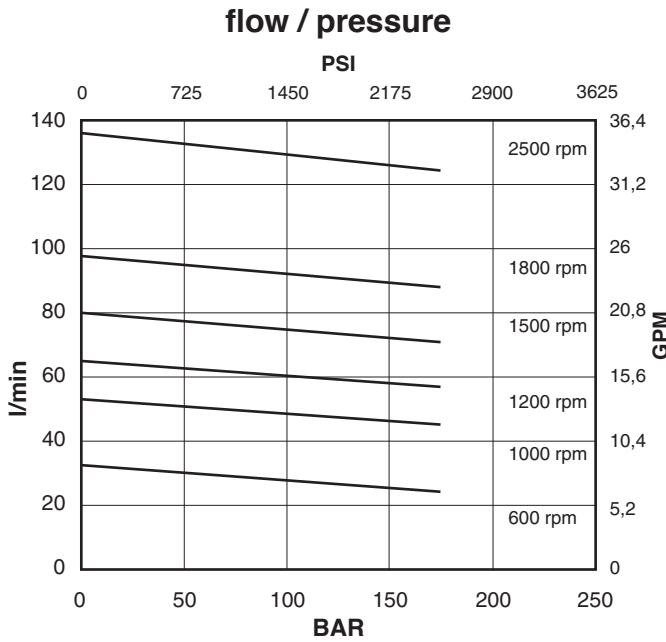
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-14



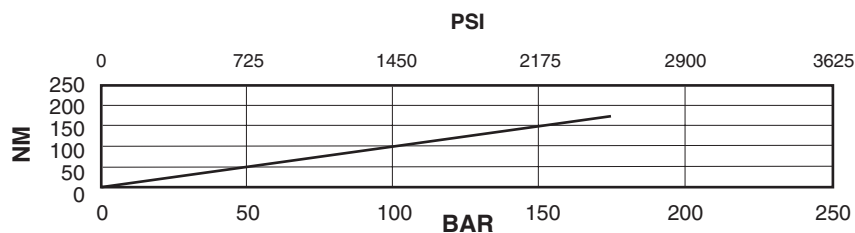
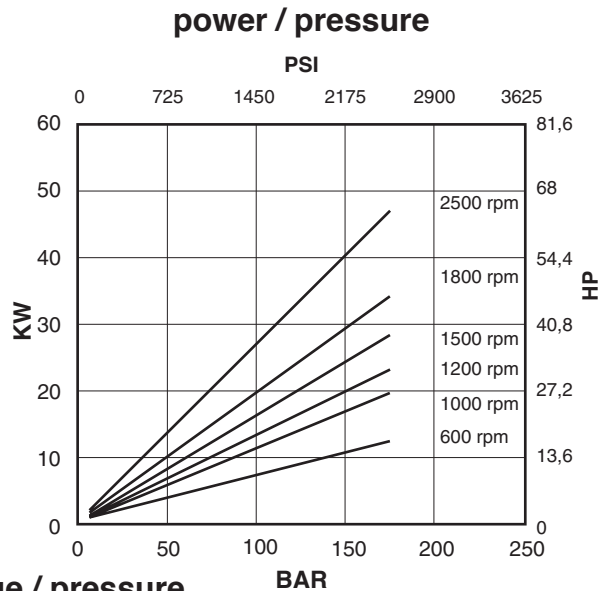
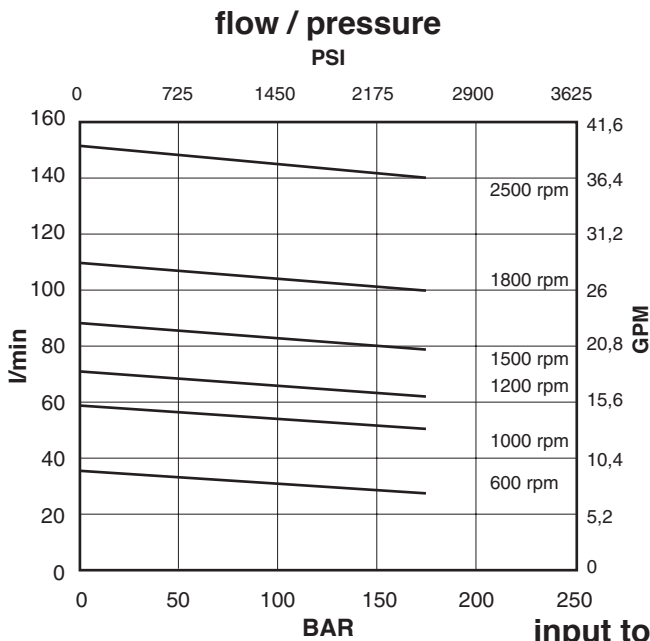
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-17



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

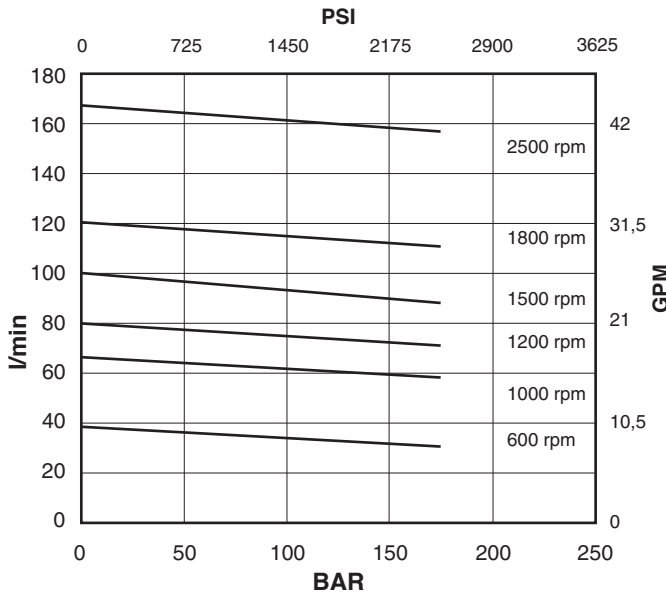
Cover end cartridge V02-19



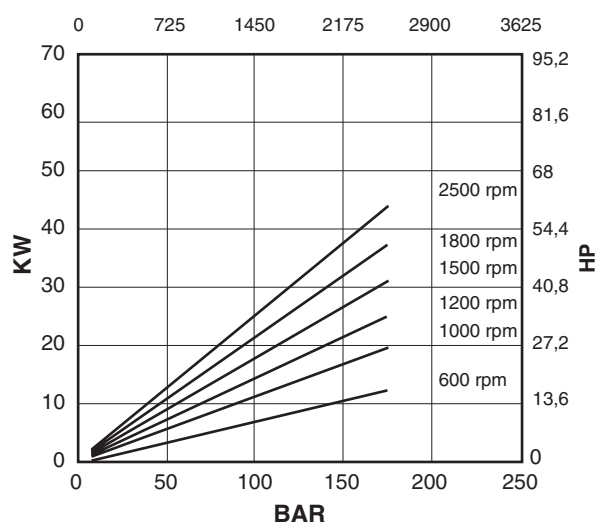
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-21

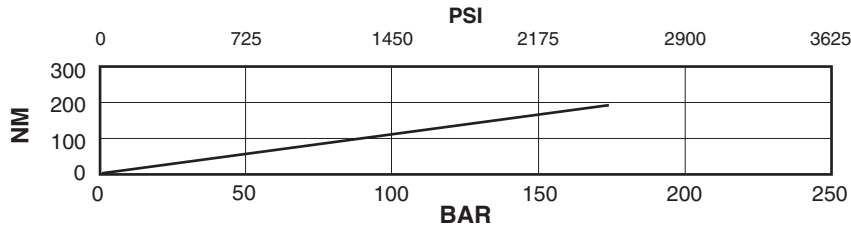
flow / pressure



power / pressure

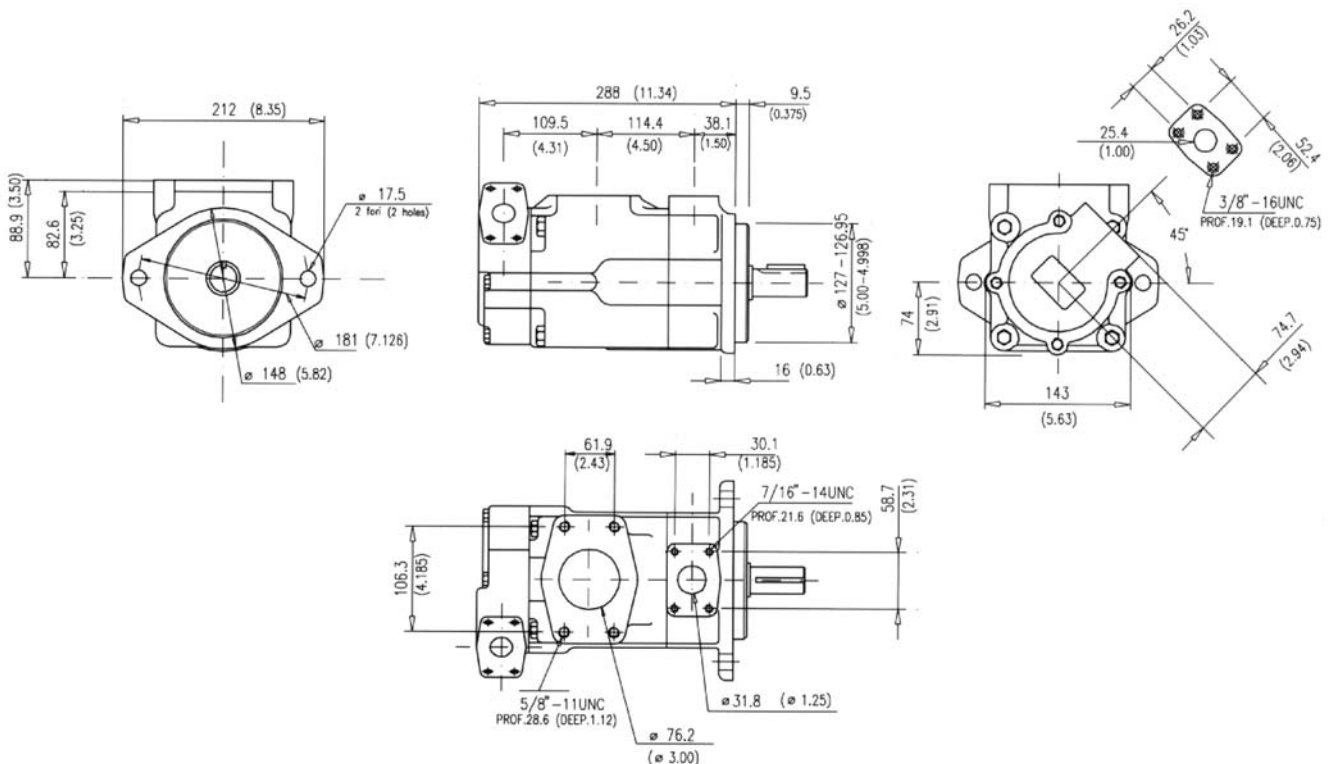


input torque / pressure



Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)

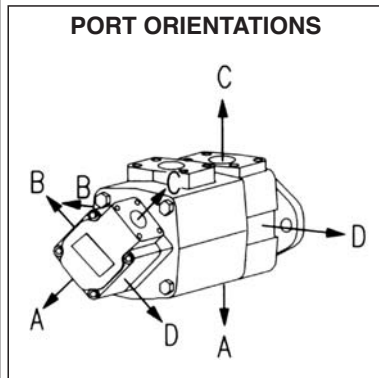
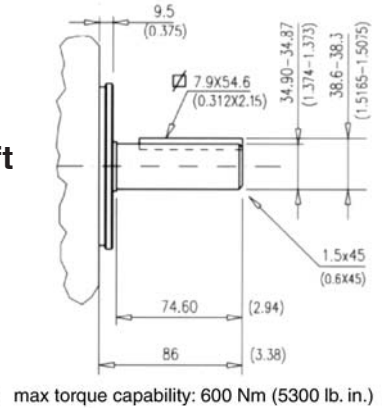
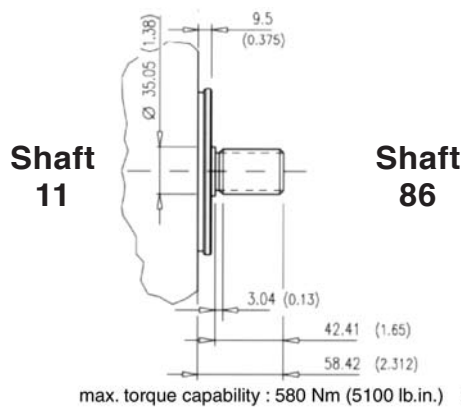
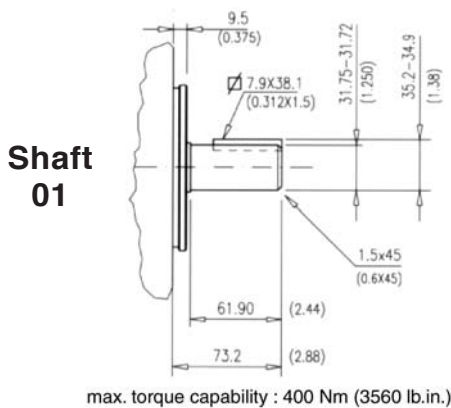


Approx. weight: 34,5 Kg. (76 lbs.)

Model code breakdown

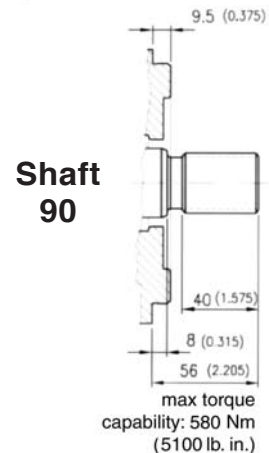
| | | | | | | | | | | |
|---|-----------|----------|-----------|-----------|----------|----------|-----------|------------|------------------------------------|--|
| BV | 42 | G | ** | ** | * | * | ** | (L) | * | (A) |
| Pump series | | Design | | | | | | | Mounting (omit if not required) | |
| Pump type | | | | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) V = seals and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®) |
| Cartridge types | | | | | | | | | | Rotation (viewed from shaft end) L = left hand rotation CCW (omit if CW) |
| -shaft end 21 25 30 35 38 | | | | | | | | | | |
| -cover end 12 14 17 19 21 | | | | | | | | | | |
| Body outlet port positions (outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet opposite end | | | | | | | | | | |
| B = Outlet 90° CCW from inlet | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | |
| Cover outlet port positions (outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet 135° CCW from inlet | | | | | | | | | | |
| B = Outlet 45° CCW from inlet | | | | | | | | | | |
| C = Outlet 45° CW from inlet | | | | | | | | | | |
| D = Outlet 135° CW from inlet | | | | | | | | | | |
| | | | | | | | | | | Shaft end options 01 = Straight with key (standard), 11 = Splined 86 = Heavy duty straight keyed, 90 = Splined SAE C |

Shaft options mm (inches)



Spline data
(shaft 11 and shaft 90)

| | | |
|----------------|-------------------------------|-----------------|
| Spline | Involute side fit (ASA B5.15) | |
| Pressure angle | 30° | |
| No. of teeth | 14 | |
| Pitch | 12/24 | |
| Major dia. | 31.60 - 31.50 | (1.244 - 1.240) |
| Pitch dia. | 29.634 | (1.1667) |
| Minor dia. | 26.99 - 26.66 | (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 | (0.617 - 0.619) |



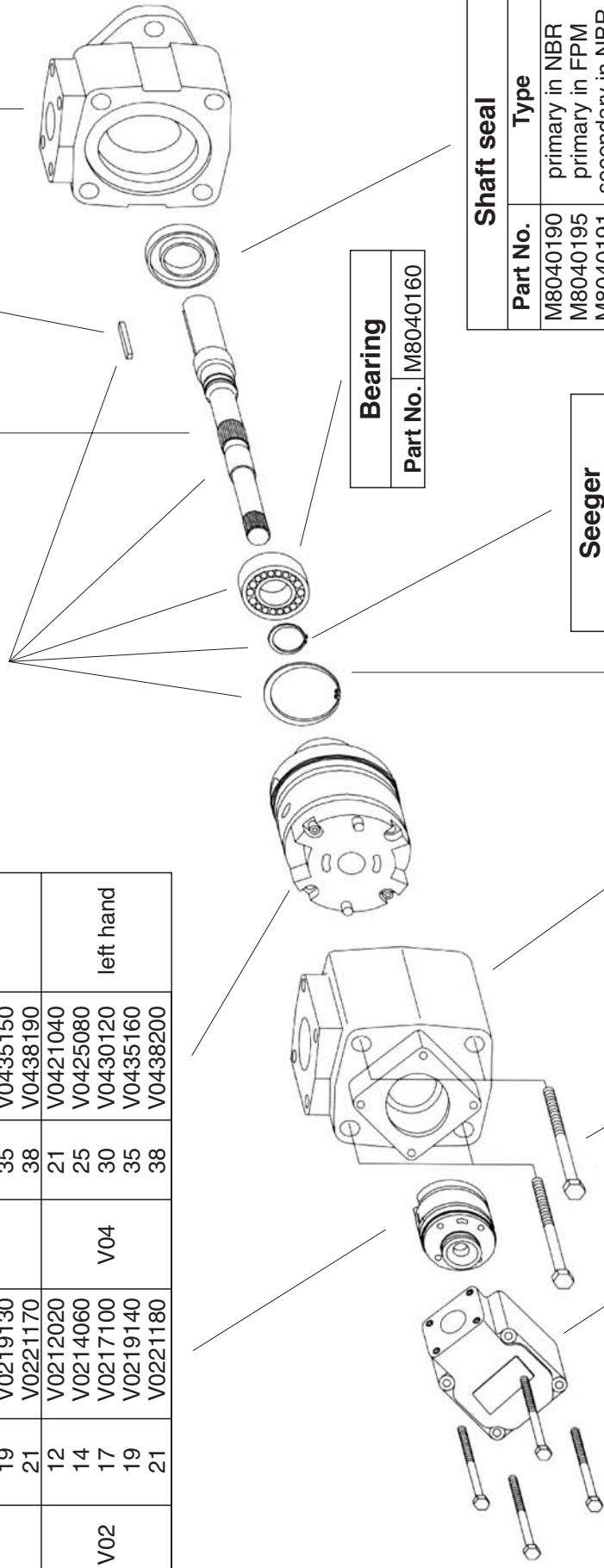
Id. codes of pump components

| Cartridges | | | | Pump rotation | |
|------------|-------|-----------|--------|---------------|----------|
| cover end | | shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| V02 | 12 | V0212010 | V04 | 21 | V0421030 |
| | 14 | V0214050 | | 25 | V0425070 |
| | 17 | V0217090 | | 30 | V0430110 |
| | 19 | V0219130 | | 35 | V0435150 |
| | 21 | V0221170 | | 38 | V0438190 |
| V02 | 12 | V0212020 | V04 | 21 | V0421040 |
| | 14 | V0214060 | | 25 | V0425080 |
| | 17 | V0217100 | | 30 | V0430120 |
| | 19 | V0219140 | | 35 | V0435160 |
| | 21 | V0221180 | | 38 | V0438200 |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8420601 |
| 11 | M8420611 |
| 86 | M8420686 |
| 90 | M8420690 |

| Shaft | | Key | |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01 | K4201000 | M8040100 | |
| 11 | K4211000 | - | |
| 86 | K4286000 | M8048600 | |
| 90 | K4290000 | - | |

| Body | |
|----------|----------|
| Part No. | Part No. |
| M8040140 | |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8040190 | primary in NBR |
| M8040195 | primary in FPM |
| M8040191 | secondary in NBR |
| M8040196 | secondary in FPM |

| Bearing | |
|----------|----------|
| Part No. | Part No. |
| M8040160 | |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040180 | |

| Intel body | |
|------------|----------|
| Part No. | Part No. |
| M8040240 | |

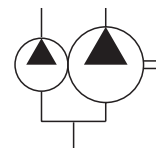
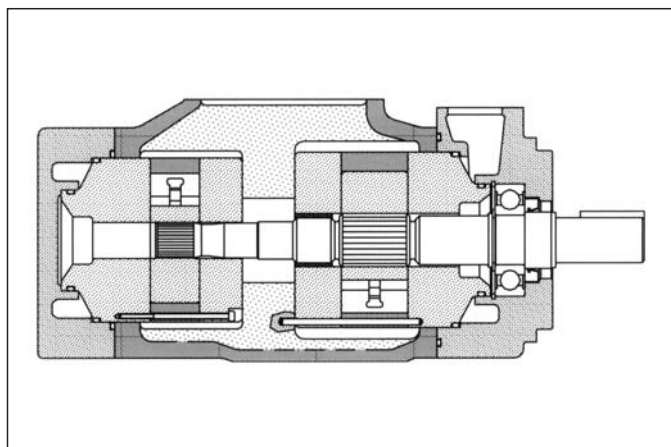
| Cover | |
|----------|----------|
| Part No. | Part No. |
| M8050350 | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8420500 | seals + 1 shaft seal | NBR |
| M8420501 | seals + 2 shaft seals | NBR |
| M8420503 | seals + 1 shaft seal | FPM (Viton®) |
| M8420504 | seals + 2 shaft seals | FPM (Viton®) |

| Seeger | |
|----------|----------|
| Part No. | Part No. |
| M8040170 | |

| Screw | |
|---------------------------------|----------|
| Part No. | Part No. |
| M8040220 | |
| Torque to 225 Nm (2010 lb. in.) | |

| Screw | |
|--------------------------------|----------|
| Part No. | Part No. |
| M8040230 | |
| Torque to 102 Nm (910 lb. in.) | |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 172 to 285 l/min (from 44 to 74 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure awith mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|---------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| V05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 1800 |
| V05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 1800 |
| V05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 1800 |
| V05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 1800 |
| V05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 1800 |
| cover end | | | | | | | | | | |
| V01-02 | 7,2 | (0.44) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| V01-05 | 18,0 | (1.10) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| V01-08 | 27,4 | (1.67) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| V01-09 | 30,1 | (1.83) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| V01-11 | 36,4 | (2.22) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| V01-12 | 39,5 | (2.41) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| V01-14 | 45,9 | (2.79) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

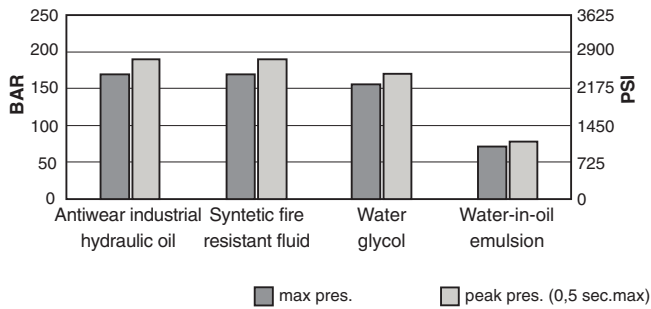
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

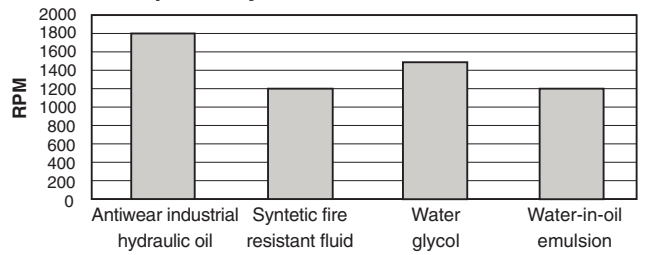
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

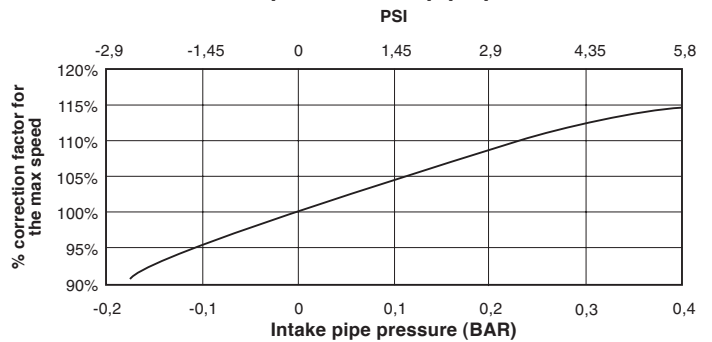


max speed / hydraulic fluid (with 0 bar in the intake pipe)

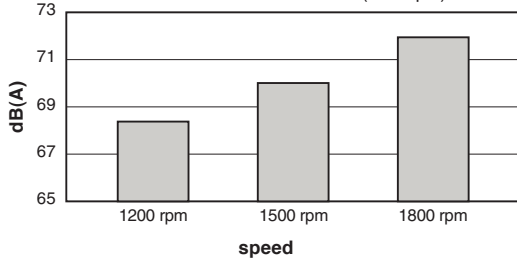


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

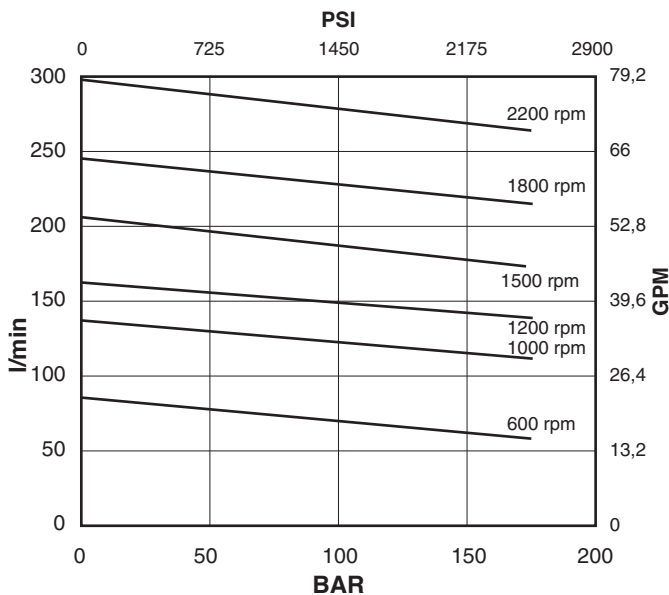
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)

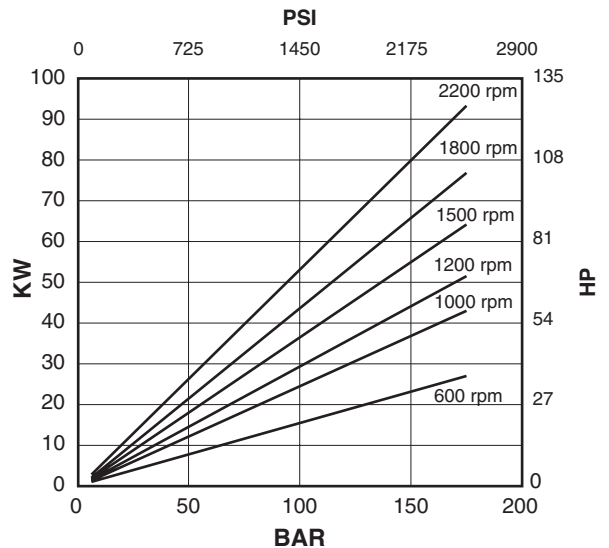


flow / pressure

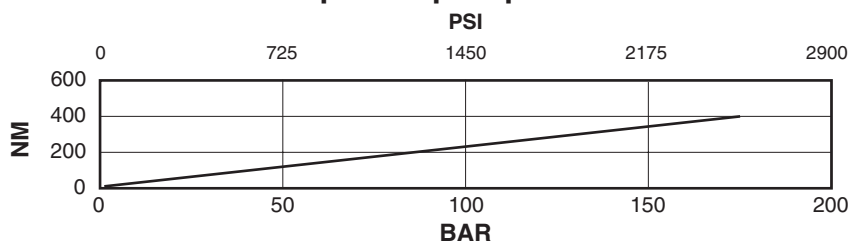


Shaft end cartridge V05-42

power / pressure

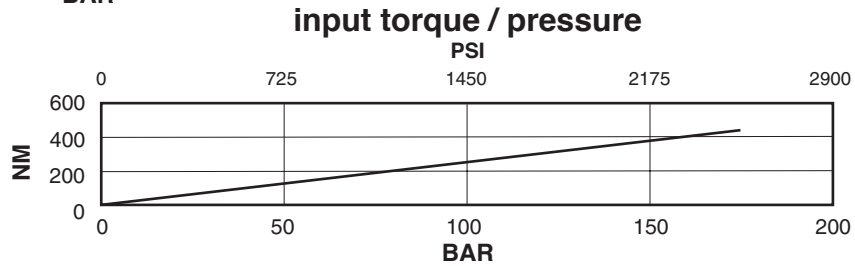
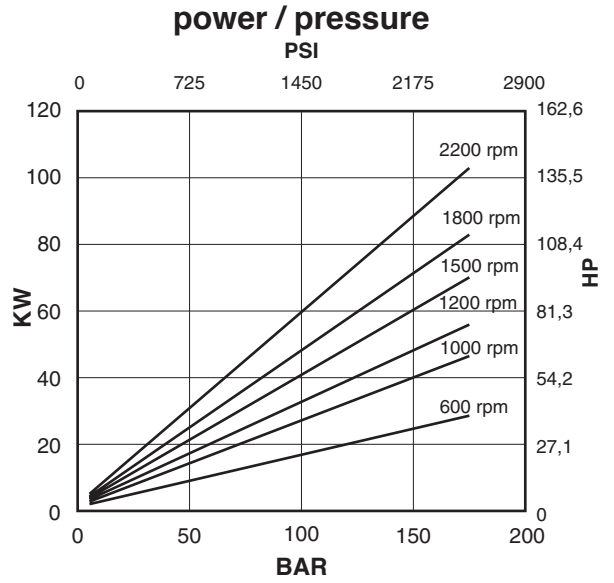
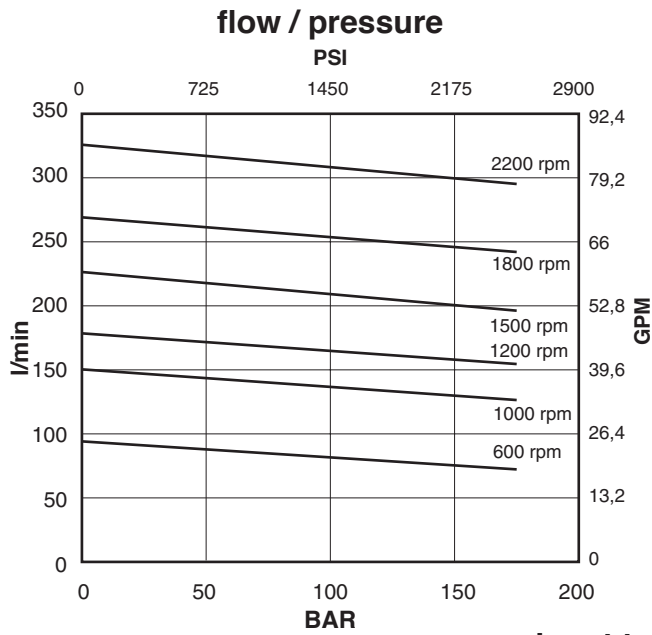


input torque / pressure



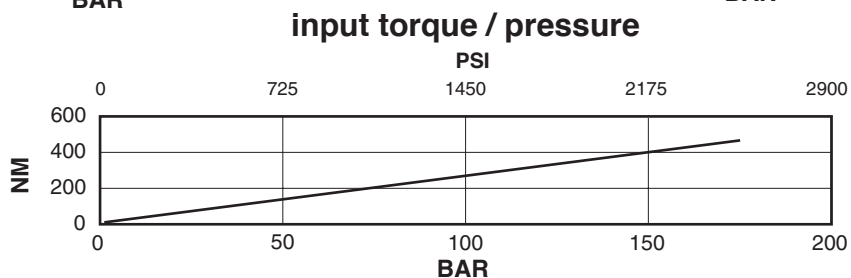
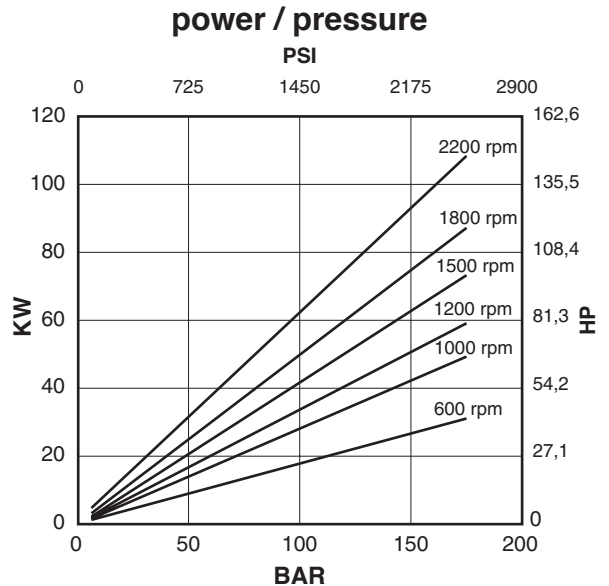
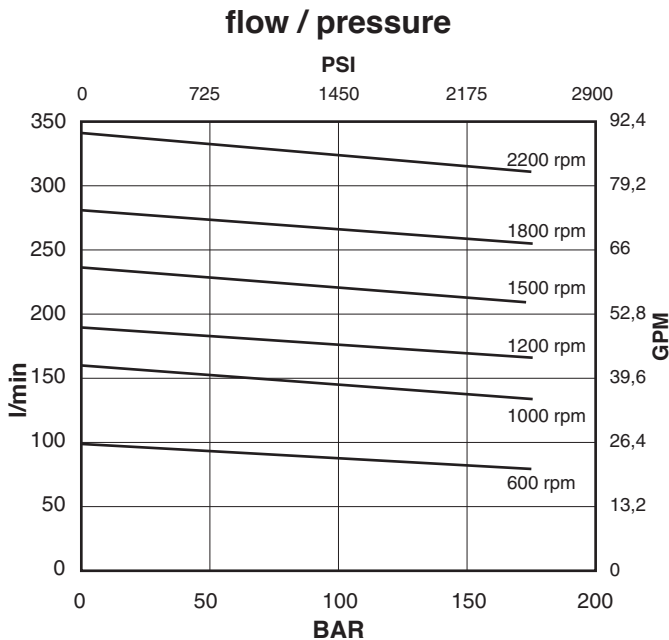
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-47



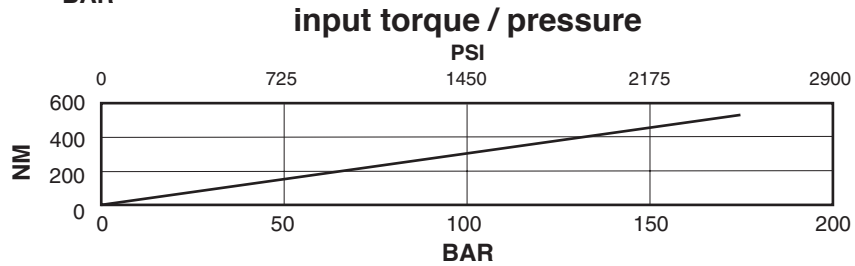
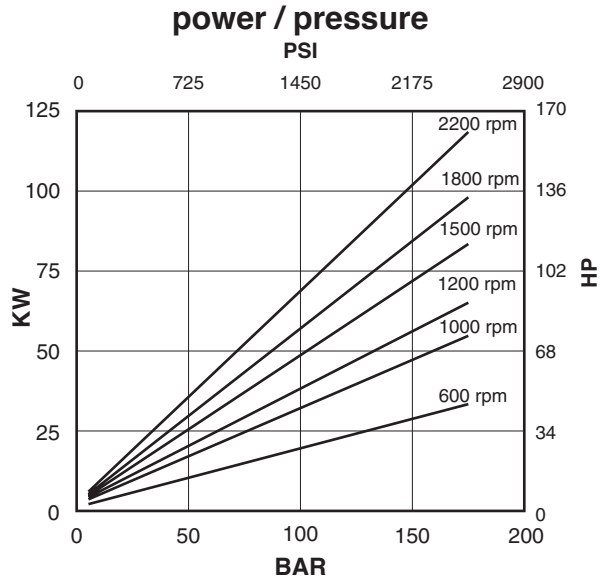
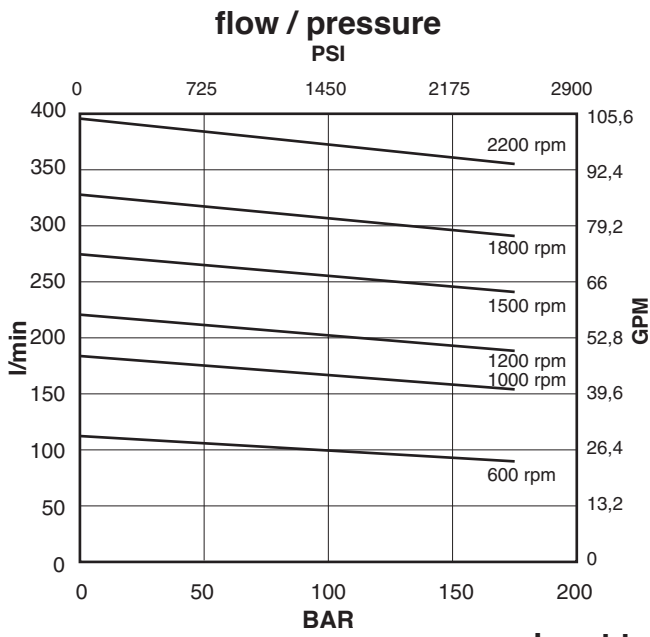
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-50



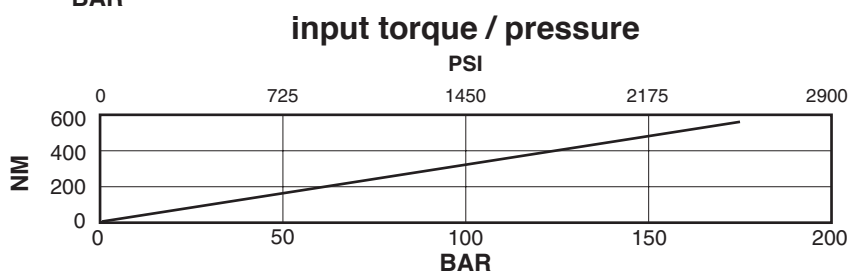
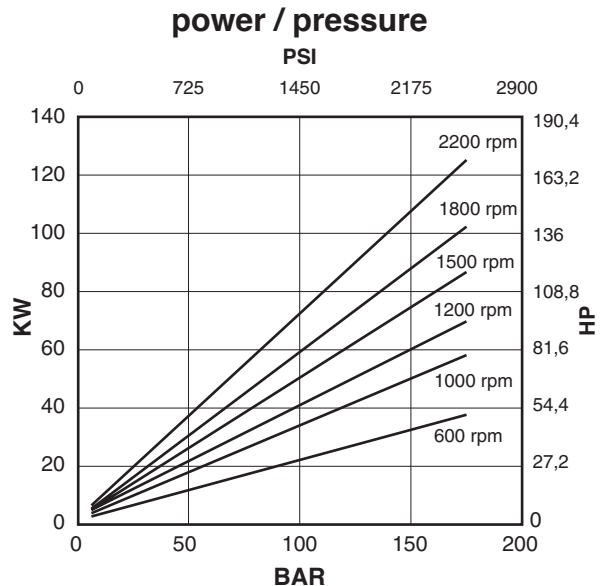
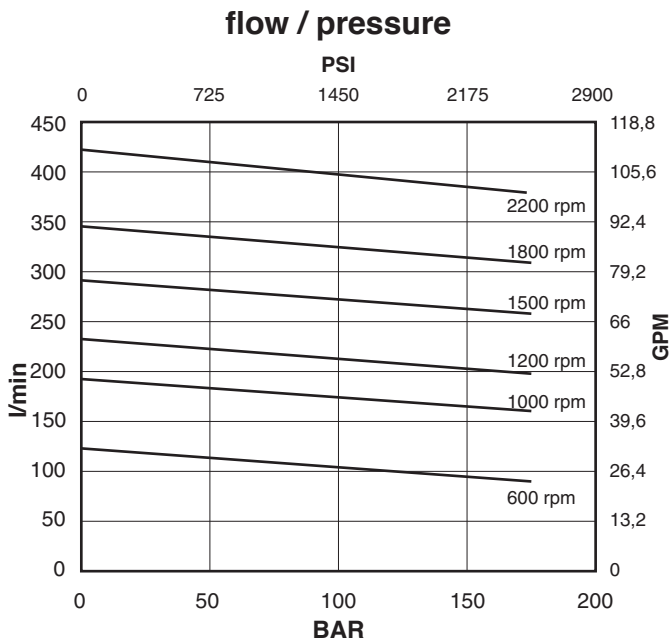
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-57



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

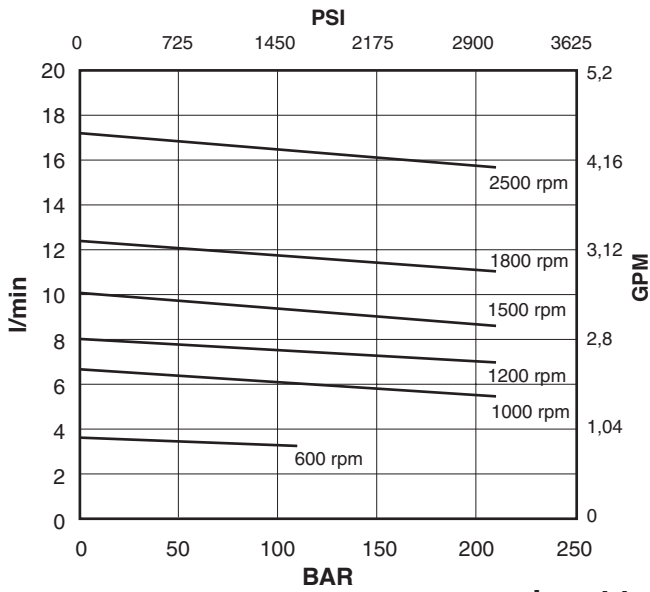
Shaft end cartridge V05-60



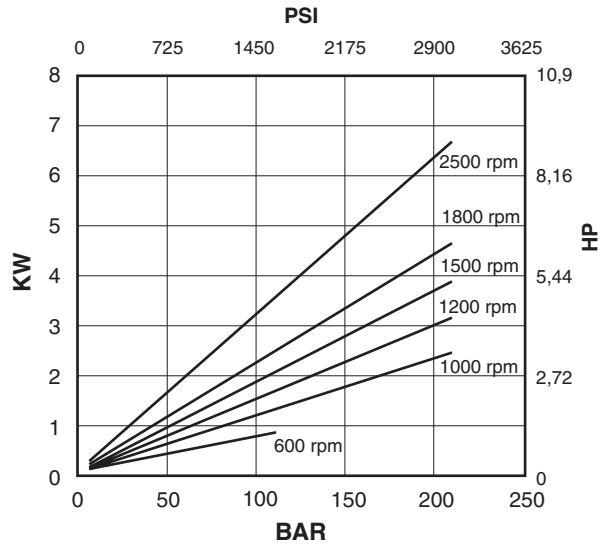
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge V01-02

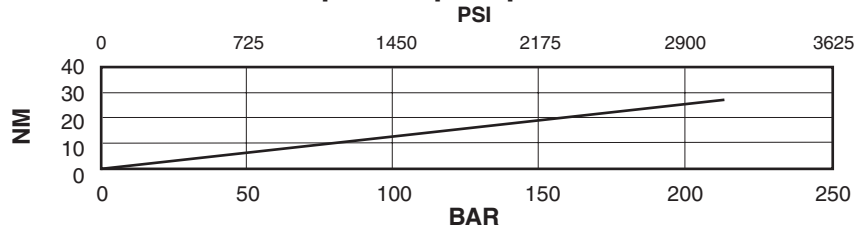
flow / pressure



power / pressure



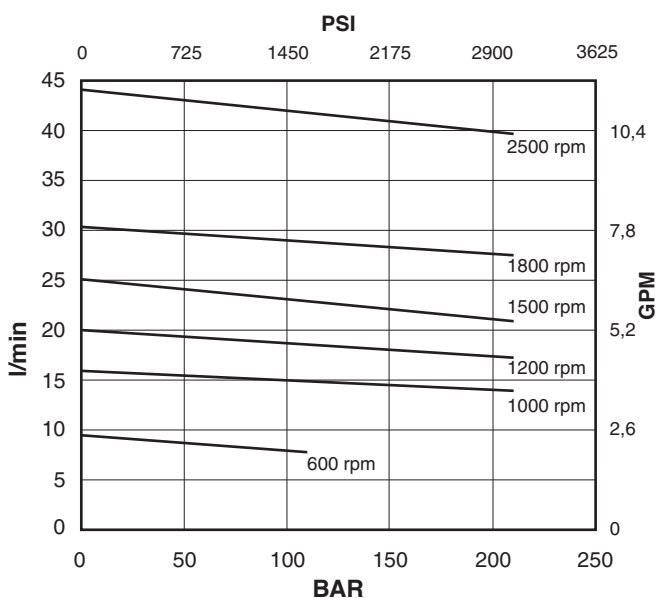
input torque / pressure



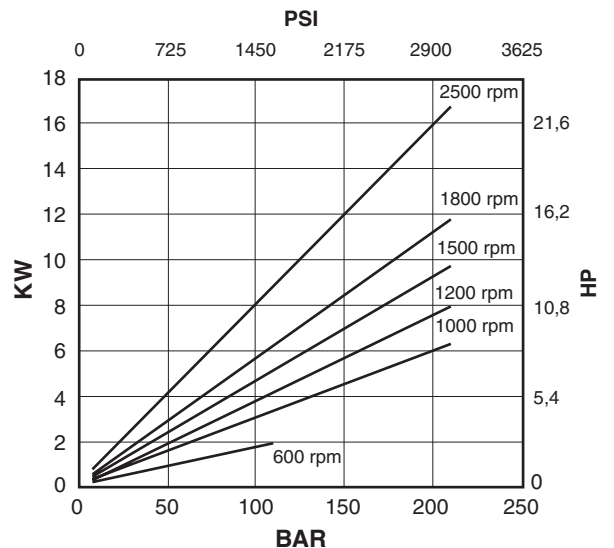
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-05

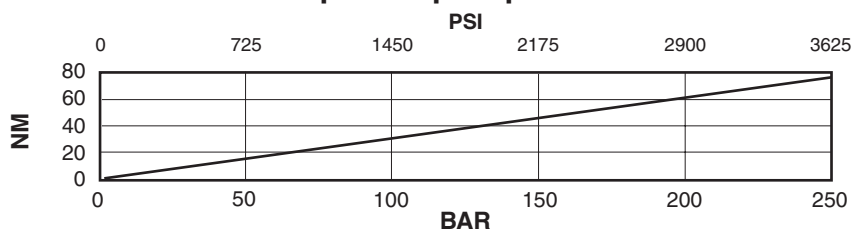
flow / pressure



power / pressure



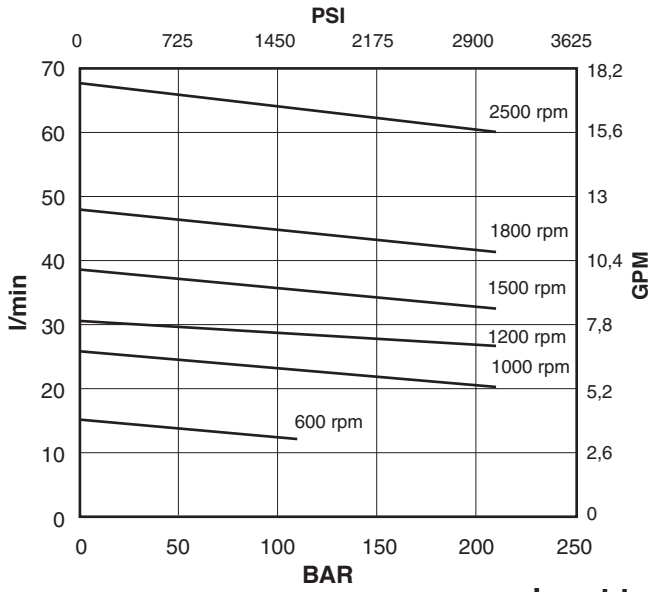
input torque / pressure



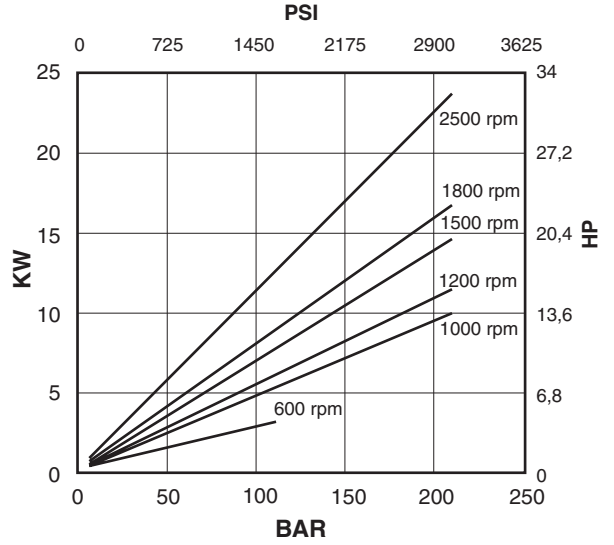
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-08

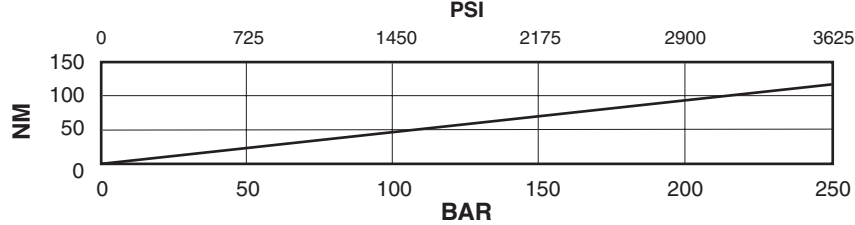
flow / pressure



power / pressure



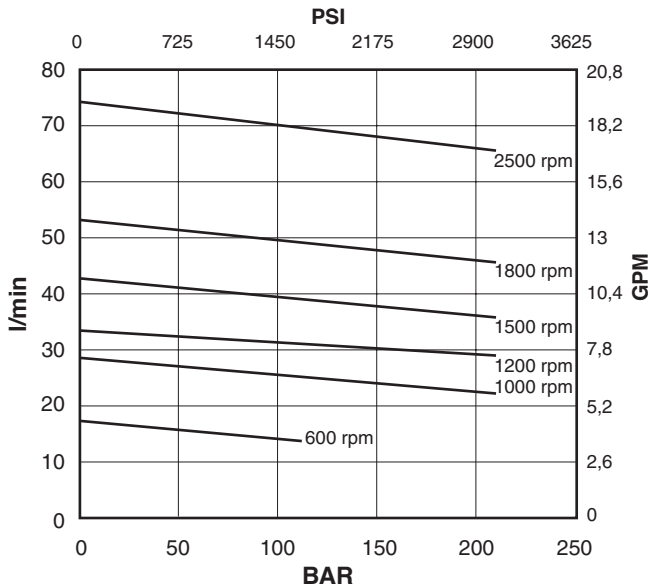
input torque / pressure



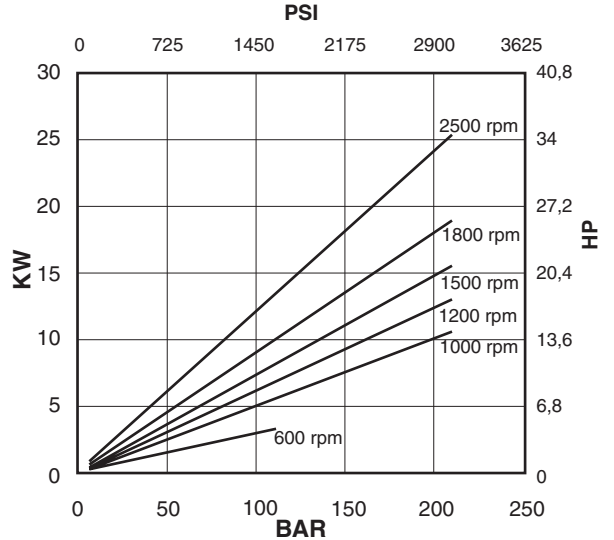
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge V01-09

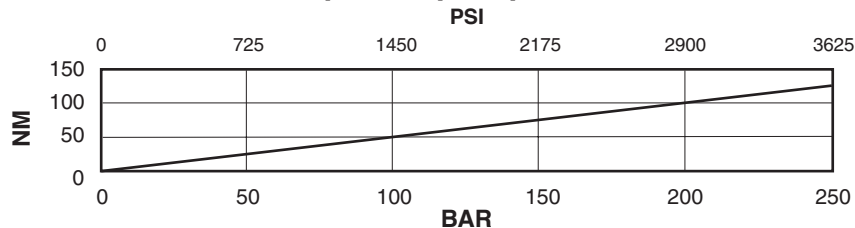
flow / pressure



power / pressure

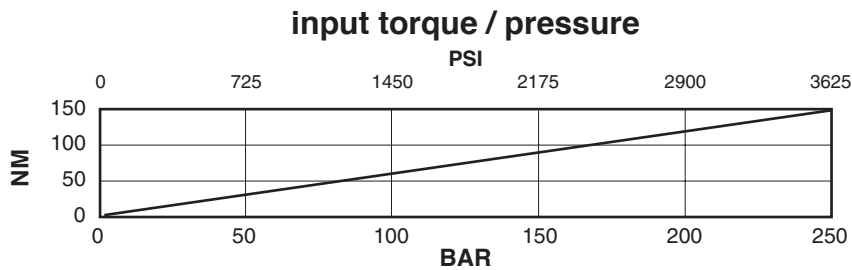
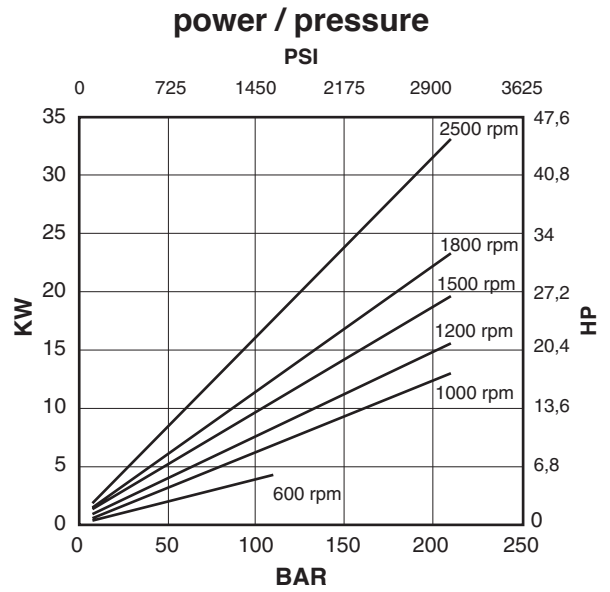
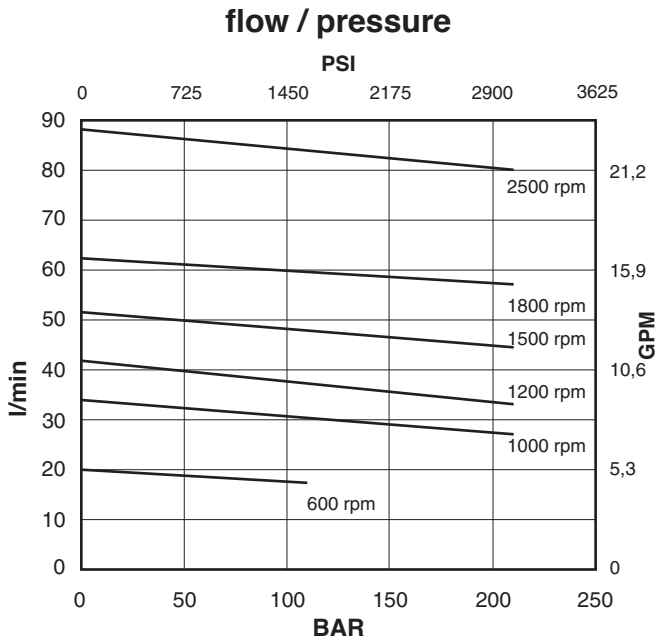


input torque / pressure



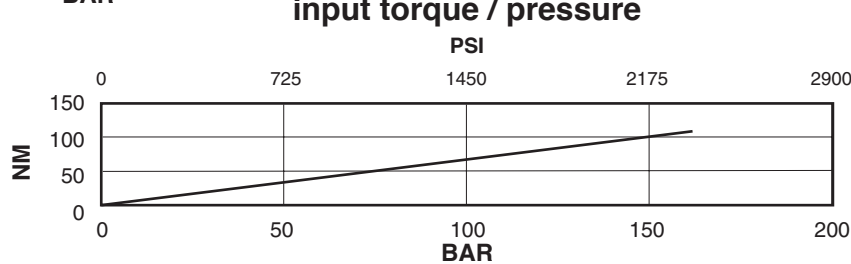
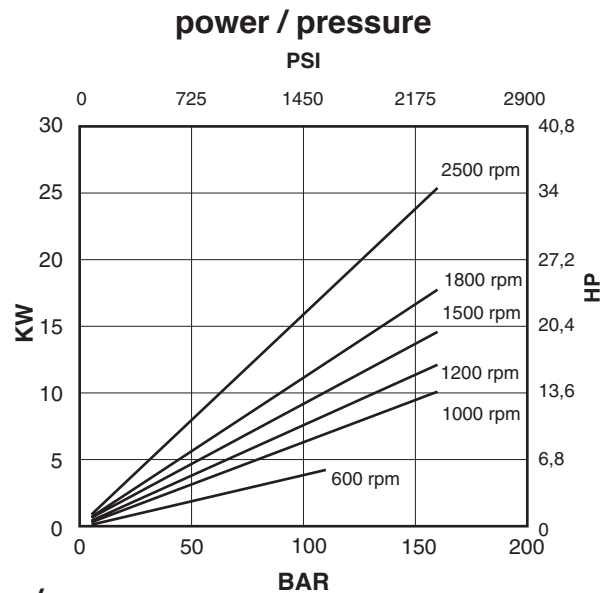
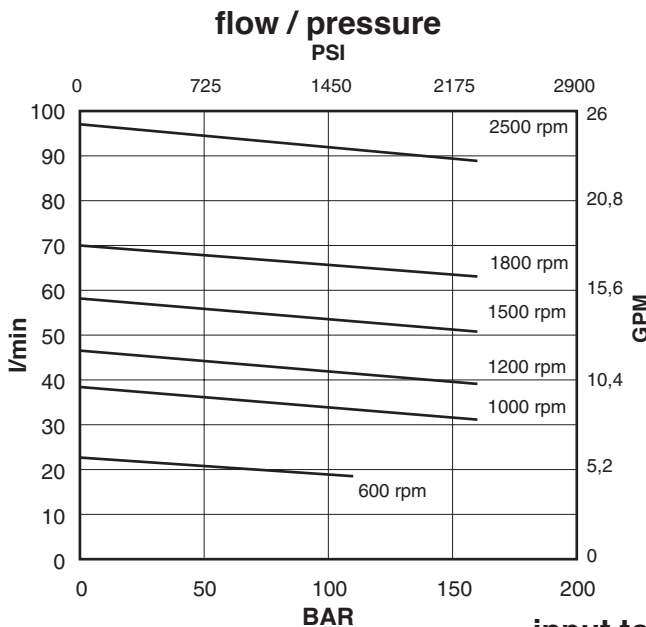
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge V01-11



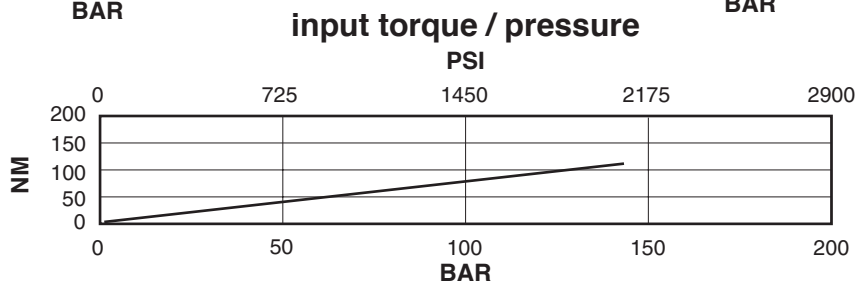
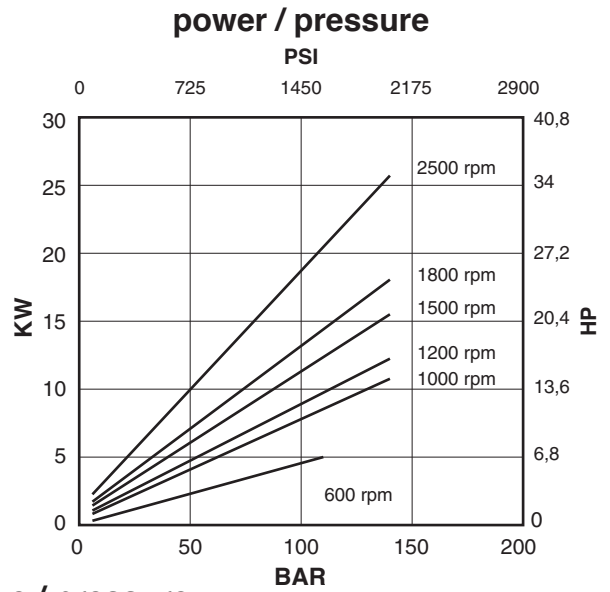
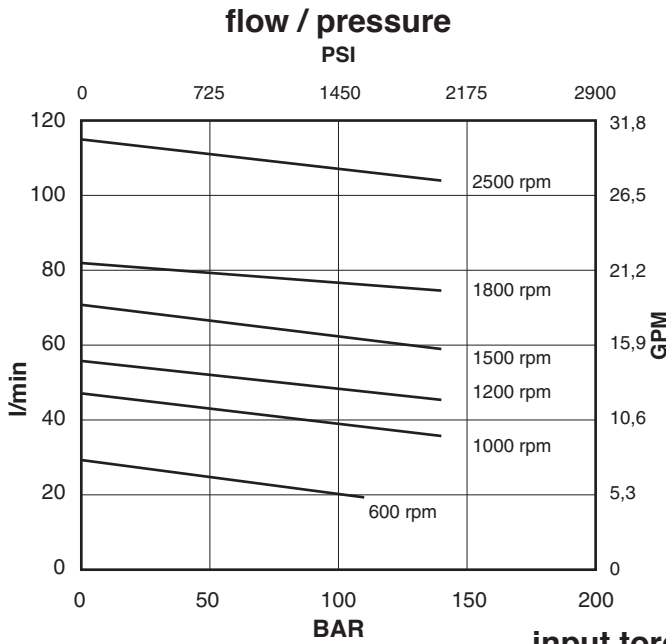
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V01-12



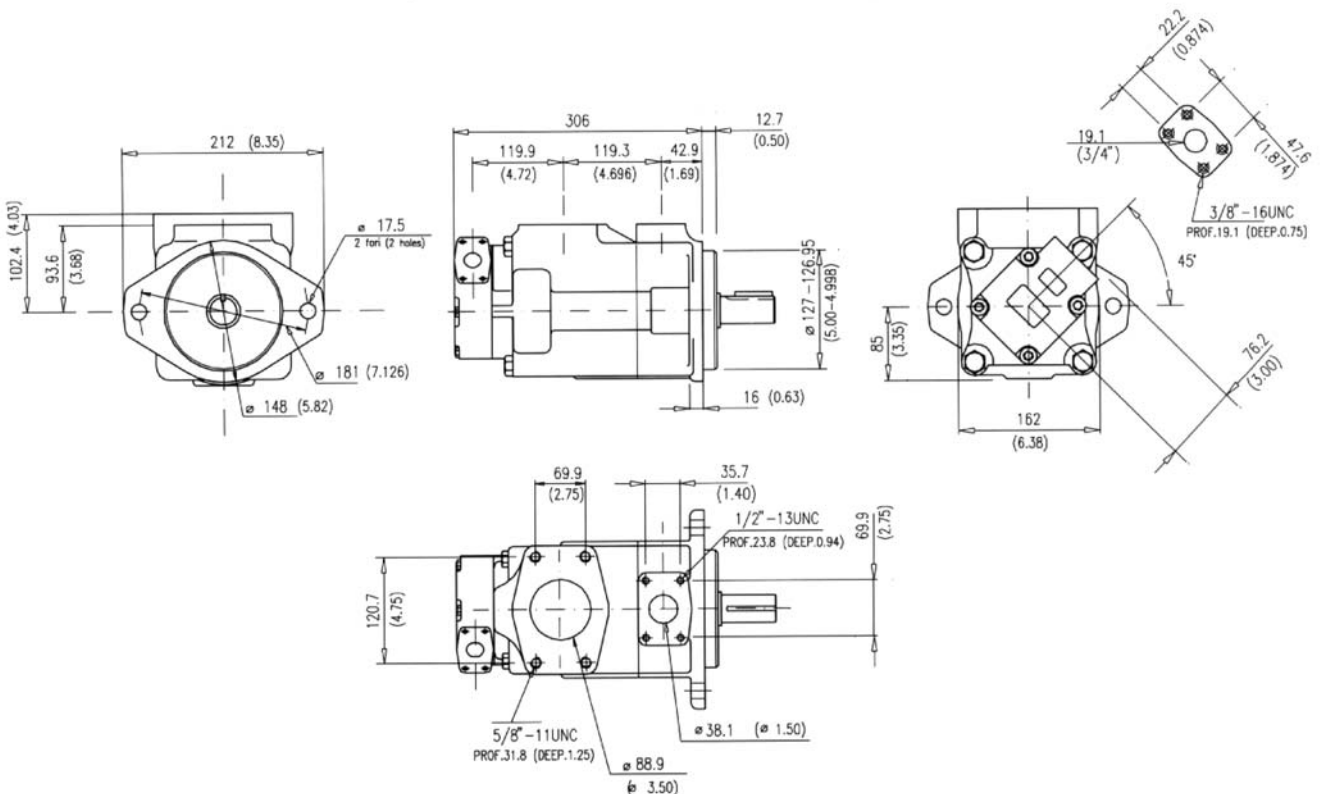
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V01-14



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

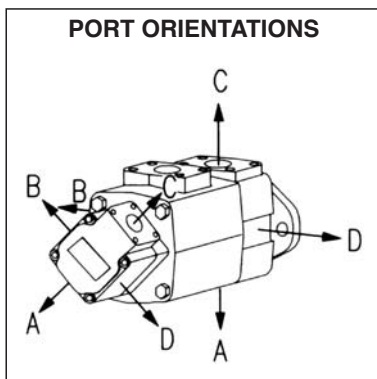
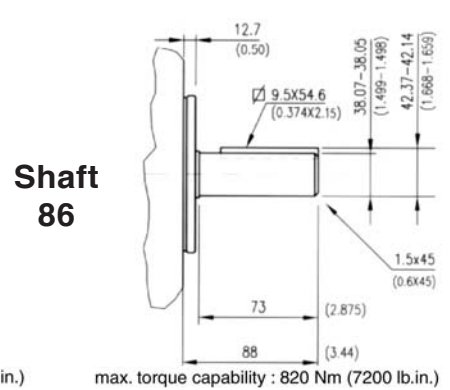
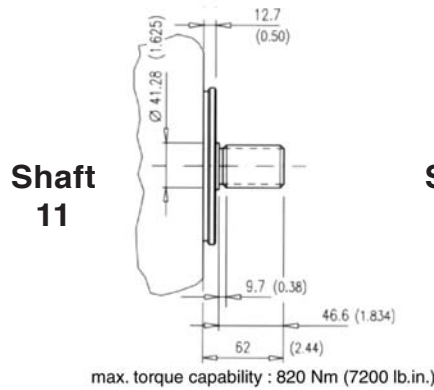
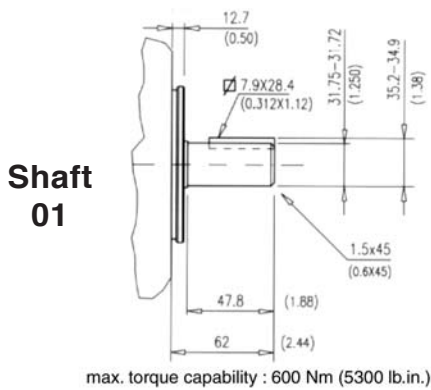


Approx. weight: 43 Kg. (95 lbs.)

Model code breakdown

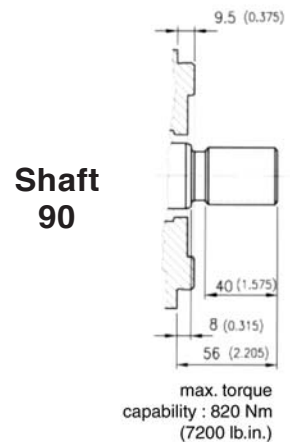
| | | | | | | | | | | | |
|---|-----------|----------|-----------|-----------|----------|----------|--|------------|------------------------------------|------------|--|
| BV | 51 | G | ** | ** | * | * | ** | (L) | * | (A) | |
| Pump series | | Design | | | | | | | Mounting (omit if not required) | | |
| Pump type | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) V = seals and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®) | | | | |
| Cartridge types | | | | | | | Rotation (viewed from shaft end) L = left hand rotation CCW (omit if CW) | | | | |
| -shaft end 42 47 50 57 60 | | | | | | | | | | | |
| -cover end 02 05 08 09 11 12 14 | | | | | | | | | | | |
| Body outlet port positions (outlet viewed from cover end) | | | | | | | | | | | |
| A = Outlet opposite end | | | | | | | | | | | |
| B = Outlet 90° CCW from inlet | | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | | |
| Cover outlet port positions (outlet viewed from cover end) | | | | | | | | | | | |
| A = Outlet 135° CCW from inlet | | | | | | | | | | | |
| B = Outlet 45° CCW from inlet | | | | | | | | | | | |
| C = Outlet 45° CW from inlet | | | | | | | | | | | |
| D = Outlet 135° CW from inlet | | | | | | | | | | | |
| | | | | | | | Shaft end options 01 = Straight with key (standard), 11 = Splined 86 = Heavy duty straight keyed, 90 = Splined SAE C | | | | |

Shaft options mm (inches)



Spline data
(shaft 11 and shaft 90)
Involute side fit (ASA B5.15)

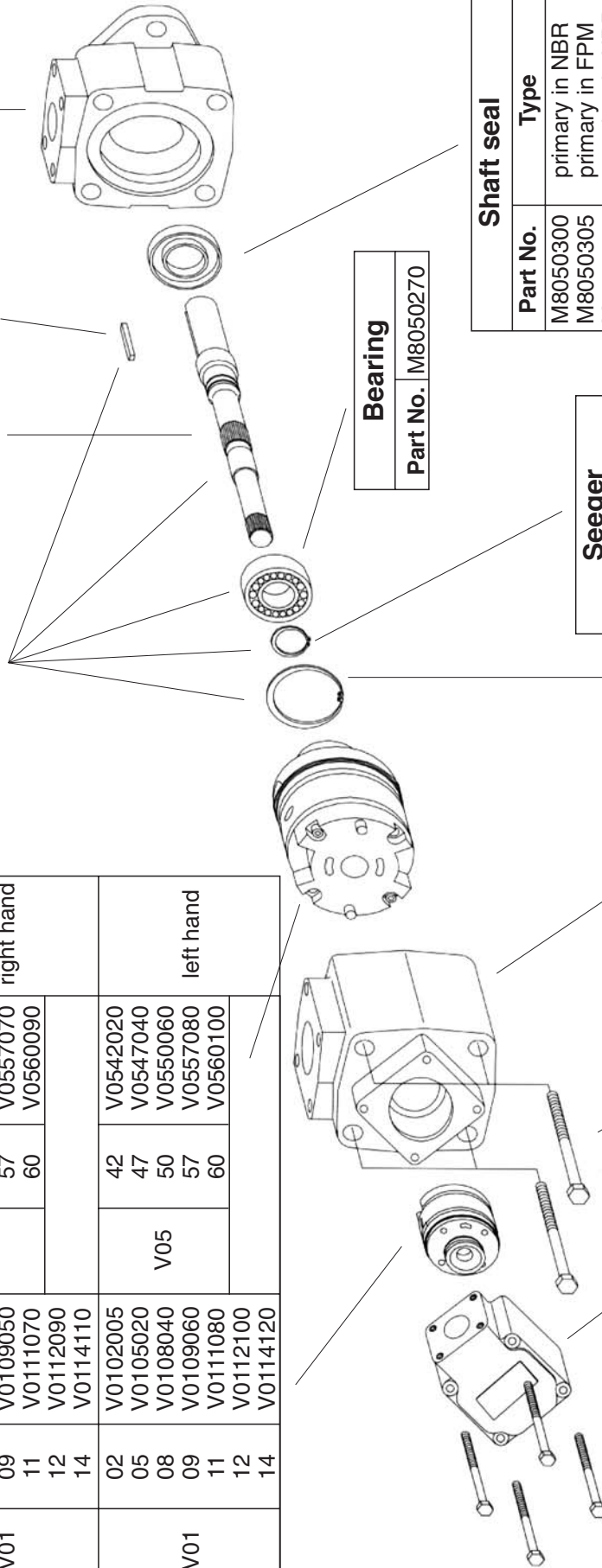
| | |
|----------------|-------------------------------|
| Spline | |
| Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 |
| Major dia. | 31.60 - 31.50 (1.244 - 1.240) |
| Pitch dia. | 29.634 (1.1667) |
| Minor dia. | 26.99 - 26.66 (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 (0.617 - 0.619) |



Id. codes of pump components

| cover end | | Cartridges | | | | Pump rotation |
|-----------|-------|------------|--------|-------|----------|---------------|
| | | shaft end | | | | |
| Series | Model | Part No. | Series | Model | Part No. | |
| V01 | 02 | V0102000 | V05 | 42 | V0542010 | right hand |
| | 05 | V0105010 | | 47 | V0547030 | |
| | 08 | V0108030 | | 50 | V0550050 | |
| | 09 | V0109050 | | 57 | V0557070 | |
| | 11 | V0111070 | | 60 | V0560090 | |
| | 12 | V0112090 | | | | |
| | 14 | V0114110 | | | | |
| V01 | 02 | V0102005 | V05 | 42 | V0542020 | left hand |
| | 05 | V0105020 | | 47 | V0547040 | |
| | 08 | V0108040 | | 50 | V0550060 | |
| | 09 | V0109060 | | 57 | V0557080 | |
| | 11 | V0111080 | | 60 | V0560100 | |
| | 12 | V0112100 | | | | |
| | 14 | V0114120 | | | | |

| Shaft kit | | Shaft | | Key | | Body | |
|-----------|----------|-------|----------|----------|----------|----------|----------|
| Model | Part No. | Model | Part No. | Part No. | Part No. | Part No. | Part No. |
| 01 | M8510601 | 01 | K5101000 | M8050100 | | M8050250 | |
| 11 | M8510611 | 11 | K5111000 | - | | | |
| 86 | M8510686 | 86 | K5186000 | M8058600 | | | |
| 90 | M8510690 | 90 | K5190000 | - | | | |



| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Bearing | |
|----------|--|
| Part No. | |
| M8050270 | |

| Seeger | |
|----------|--|
| Part No. | |
| M8050290 | |

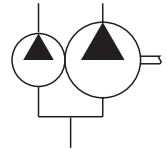
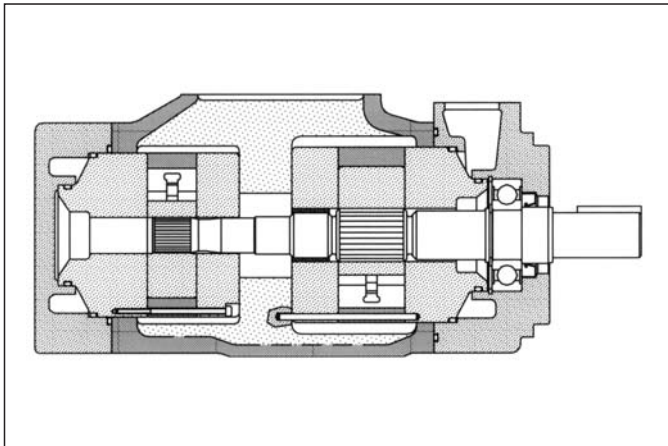
| Inlet body | |
|------------|--|
| Part No. | |
| M8050390 | |

| Cover | |
|----------|--|
| Part No. | |
| M8020120 | |

| Screw | |
|---------------------------------|--|
| Part No. | |
| M8050320 | |
| Torque to 398 Nm (3550 lb. in.) | |

| Screw | |
|-------------------------------|--|
| Part No. | |
| M8020420 | |
| Torque to 70 Nm (624 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8510500 | seals + 1 shaft seal | NBR |
| M8510501 | seals + 2 shaft seals | NBR |
| M8510503 | seals + 1 shaft seal | FPM (Viton®) |
| M8510504 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 211 to 309 l/min (from 54 to 81 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| V05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 1800 |
| V05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 1800 |
| V05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 1800 |
| V05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 1800 |
| V05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 1800 |
| cover end | | | | | | | | | | |
| V02-12 | 40,1 | (2.45) | 46,9 | (12) | 58,8 | (15.5) | 175 | (2538) | 600 | 1800 |
| V02-14 | 45,4 | (2.77) | 52,7 | (14) | 65,7 | (17.4) | 175 | (2538) | 600 | 1800 |
| V02-17 | 55,2 | (3.37) | 64,2 | (17) | 80,2 | (21.2) | 175 | (2538) | 600 | 1800 |
| V02-19 | 60,0 | (3.66) | 71,0 | (19) | 88,7 | (23.4) | 175 | (2538) | 600 | 1800 |
| V02-21 | 67,5 | (4.12) | 79,0 | (21) | 99,8 | (26.4) | 175 | (2538) | 600 | 1800 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

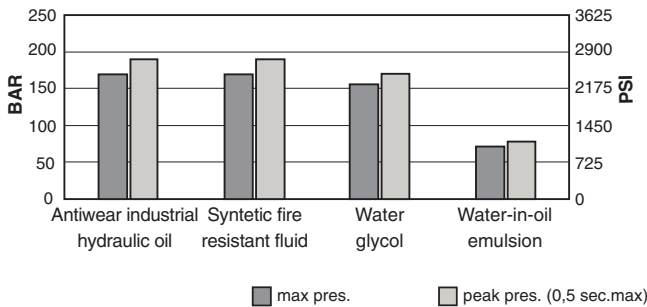
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

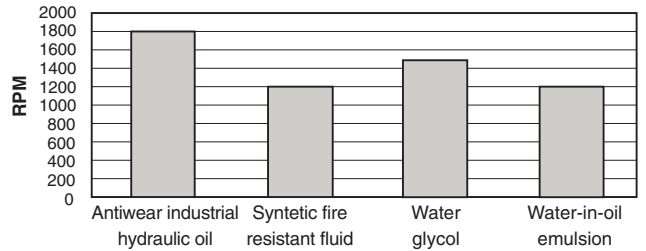
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

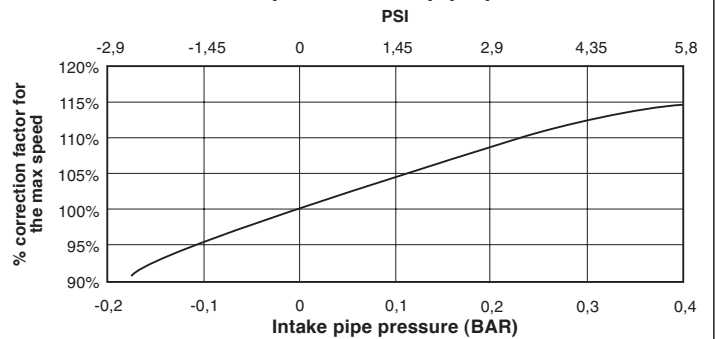


max speed / hydraulic fluid (with 0 bar in the intake pipe)

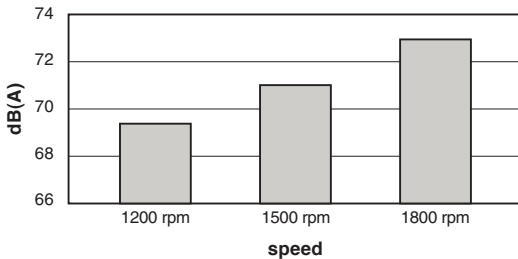


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

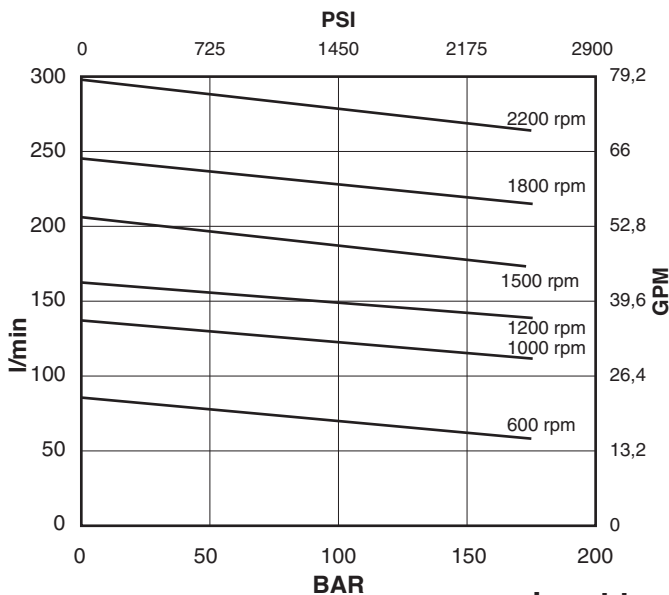
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)

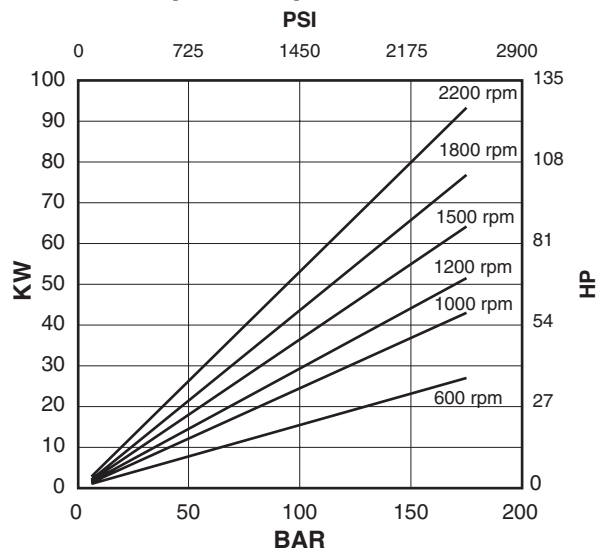


flow / pressure

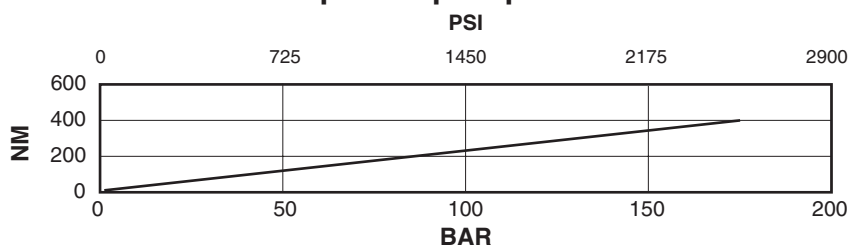


Shaft end cartridge V05-42

power / pressure

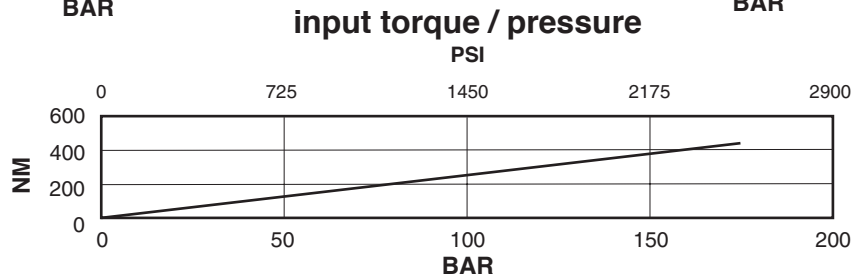
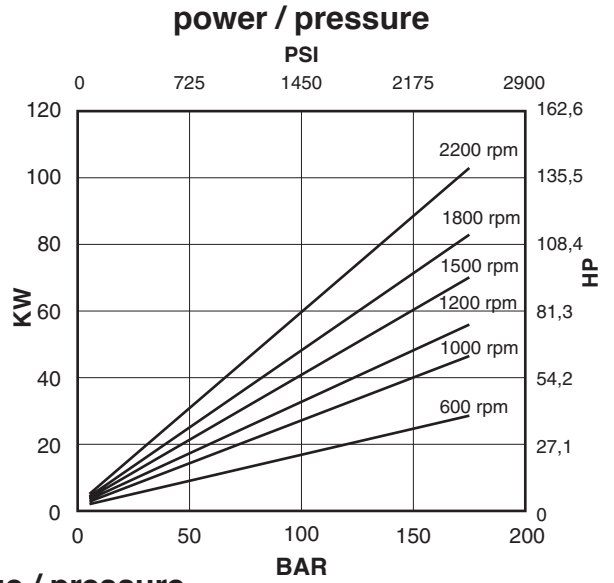
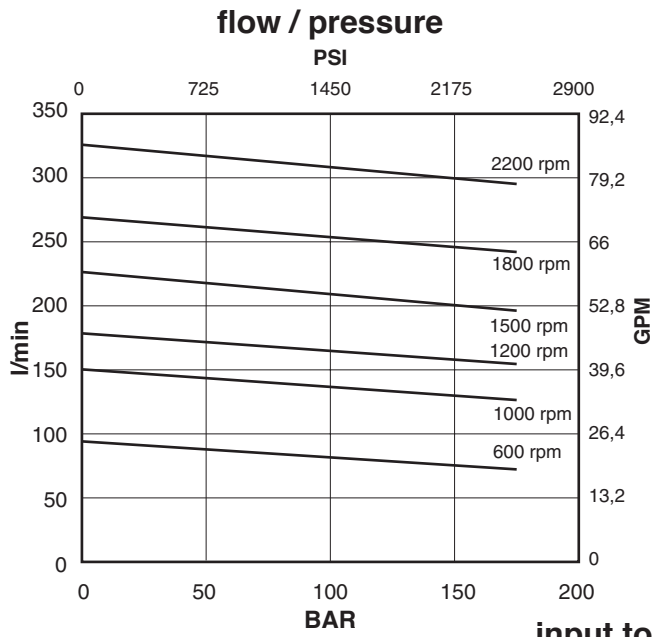


input torque / pressure



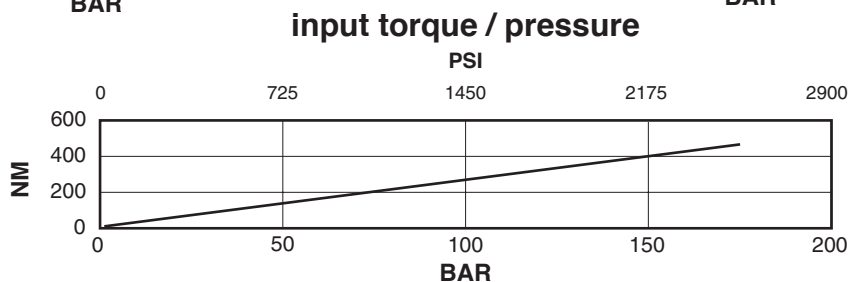
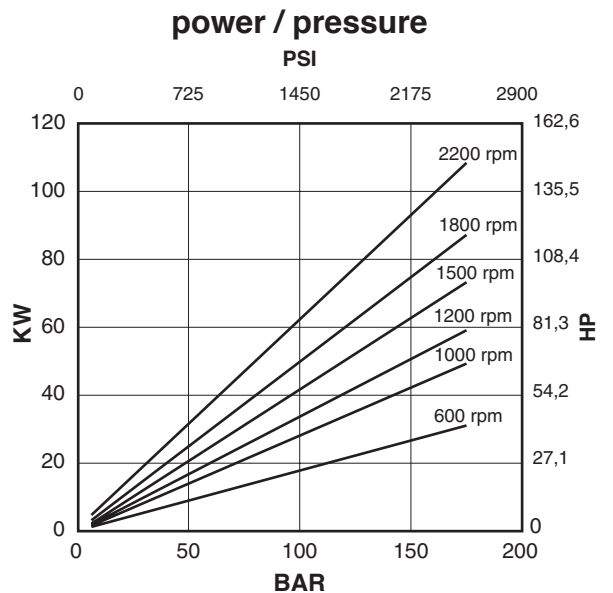
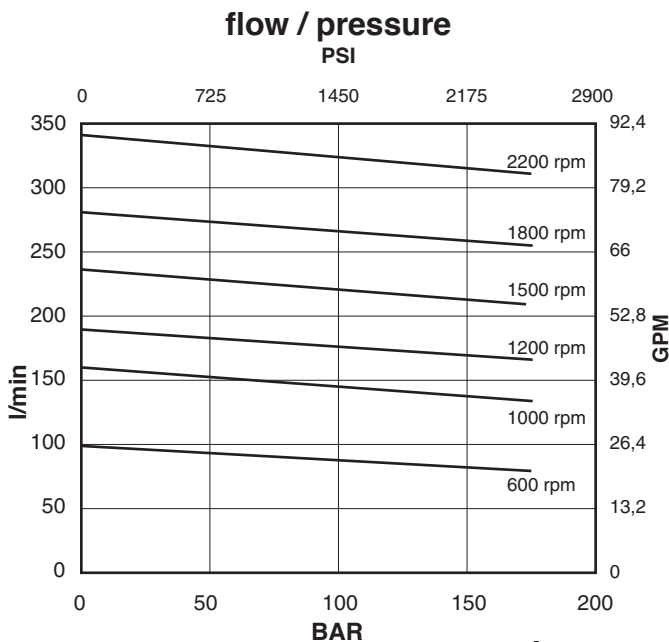
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge V05-47



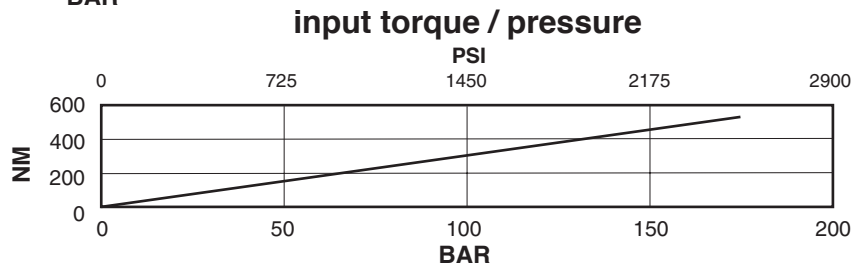
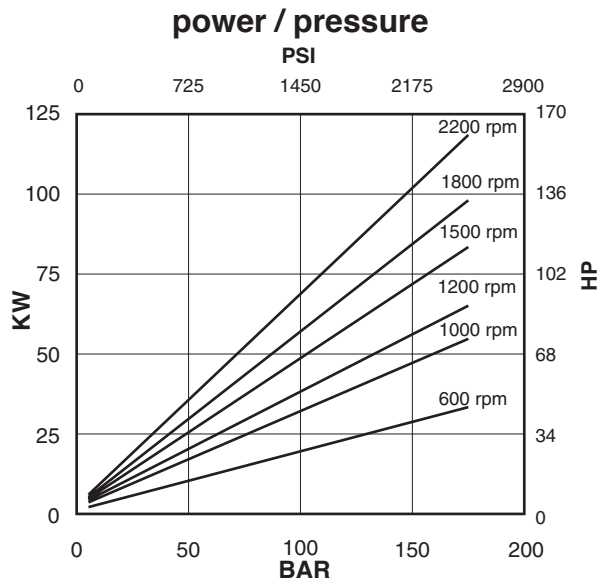
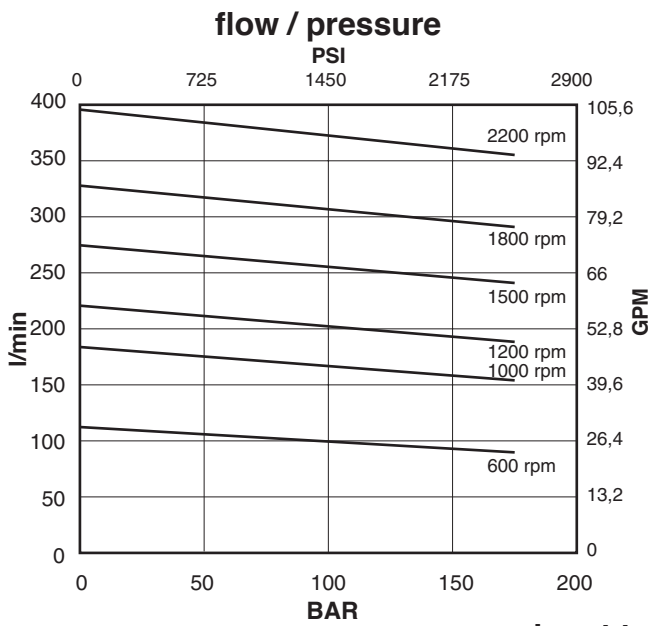
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-50



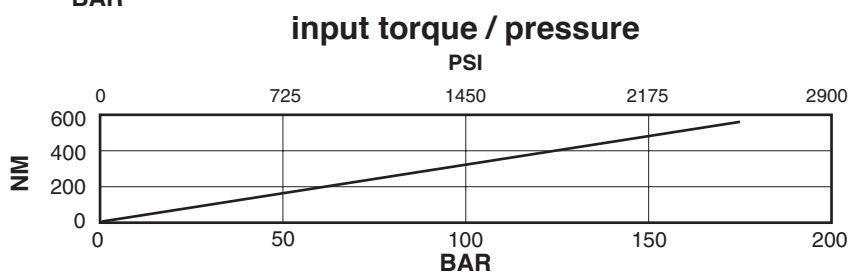
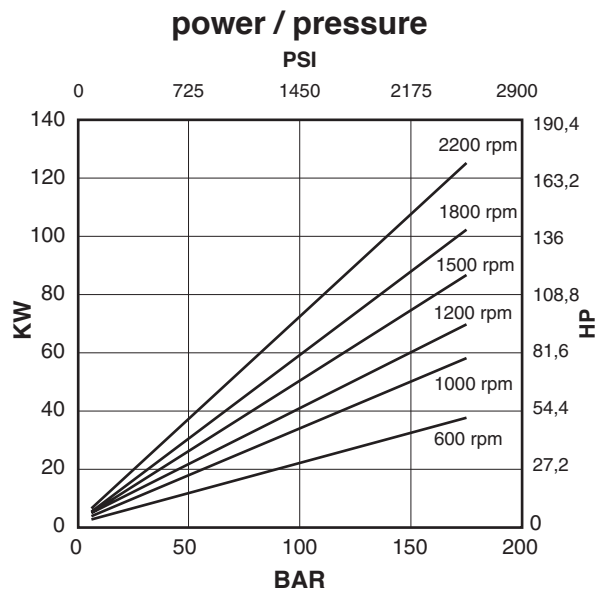
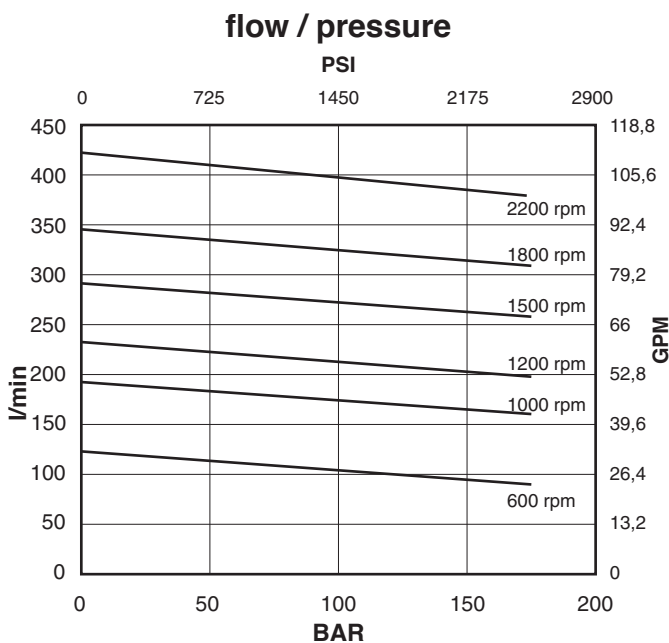
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-57



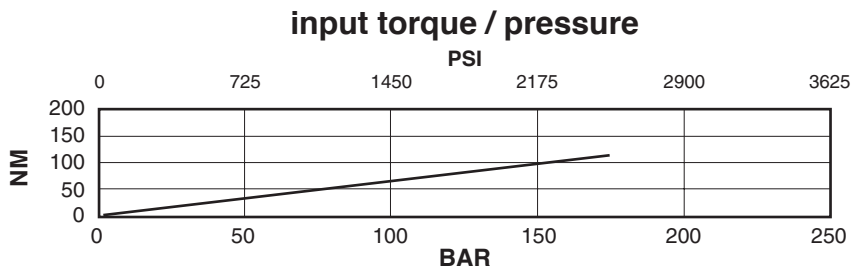
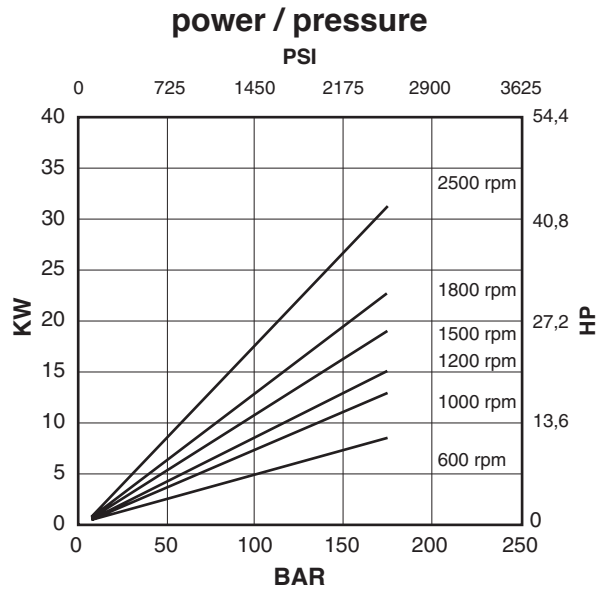
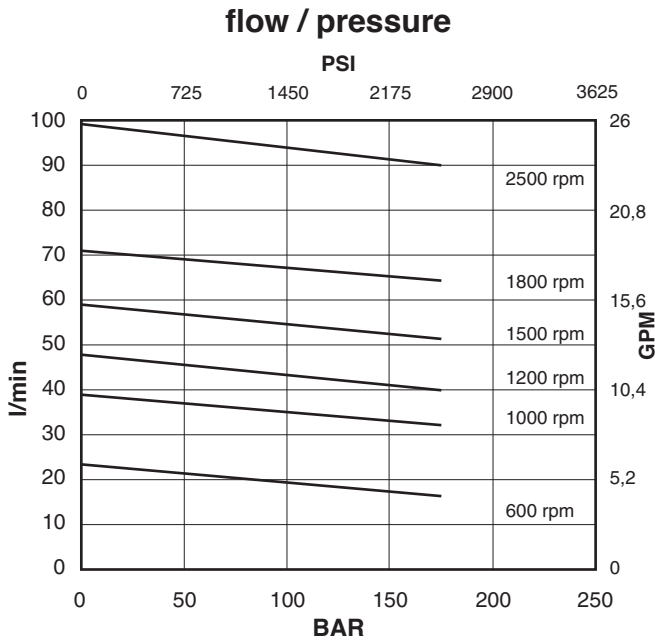
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-60



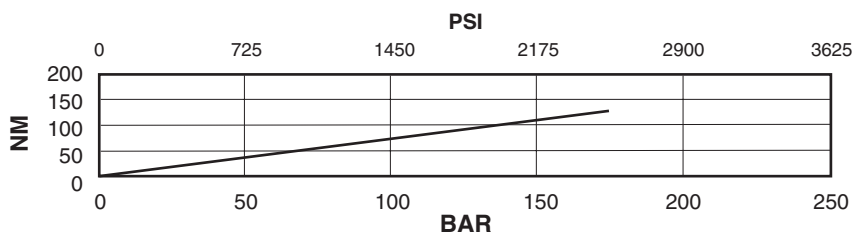
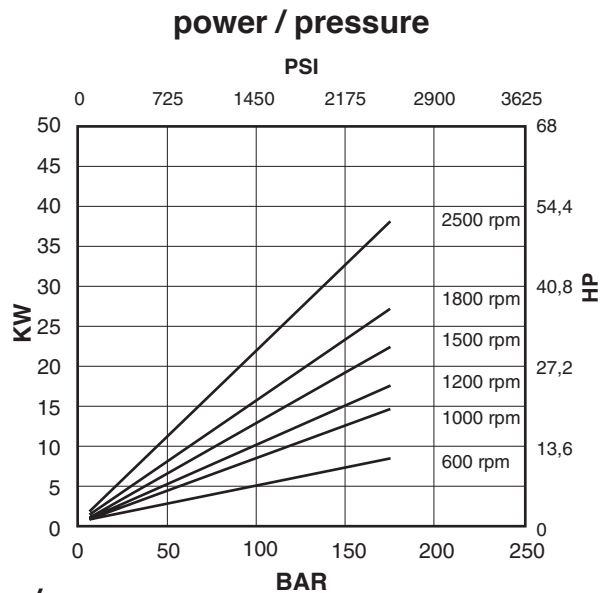
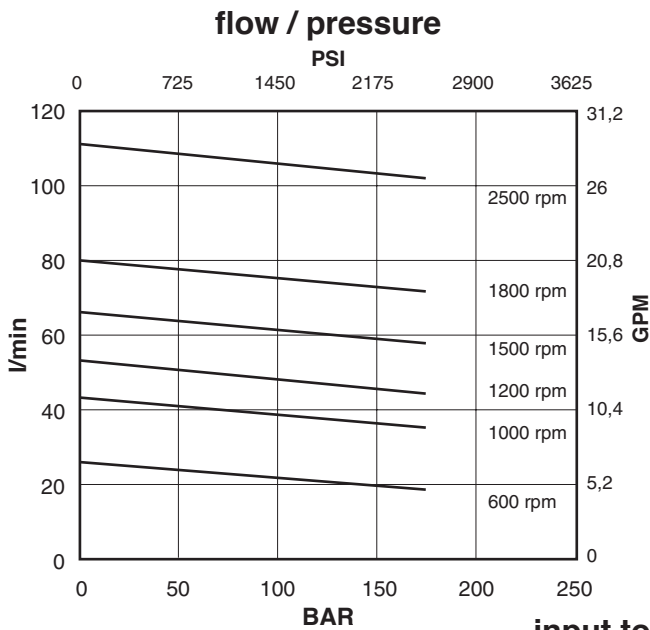
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-12



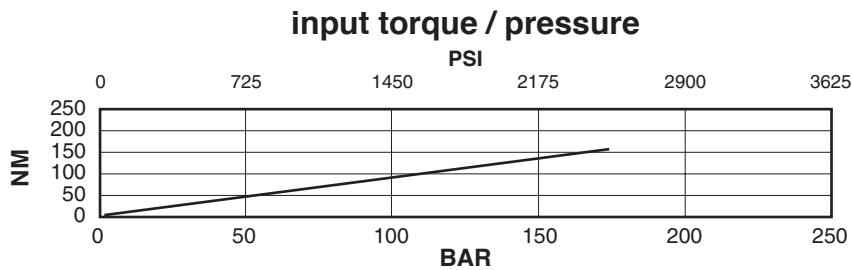
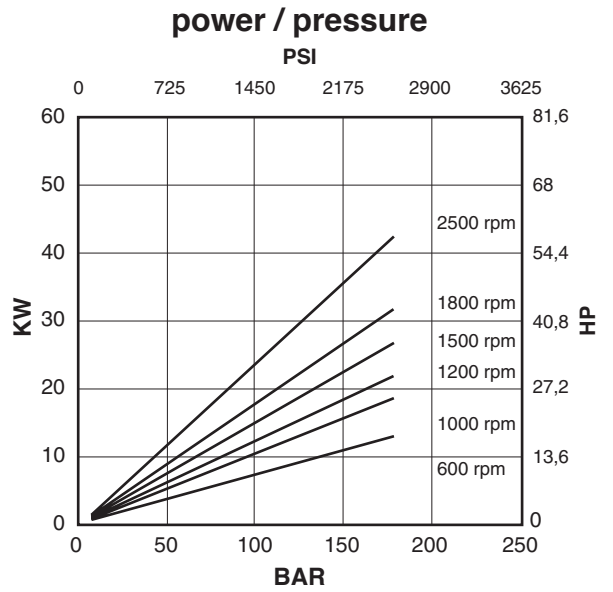
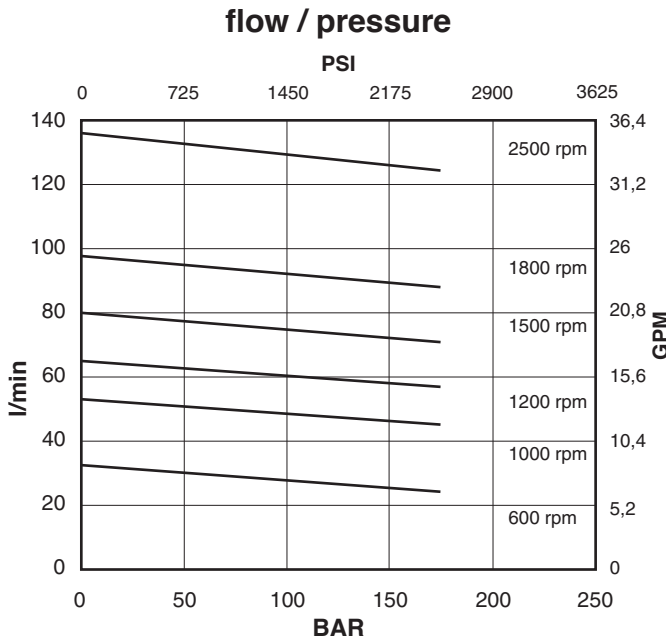
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-14



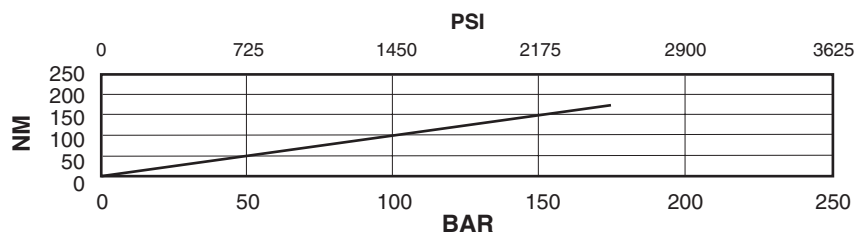
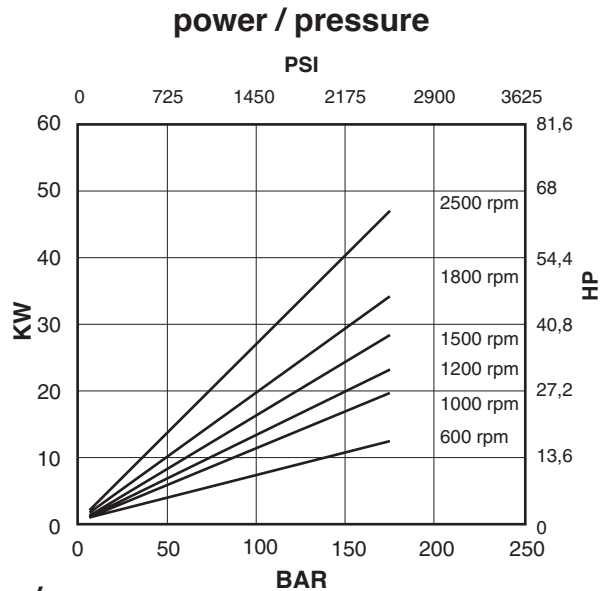
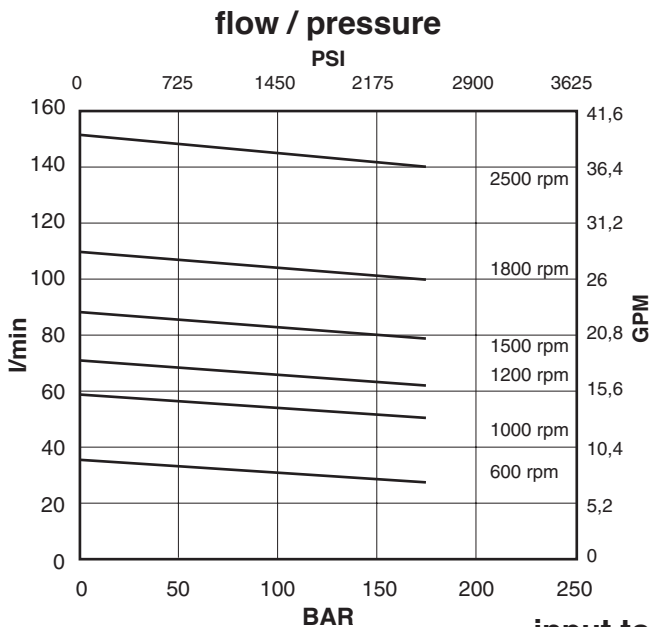
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-17



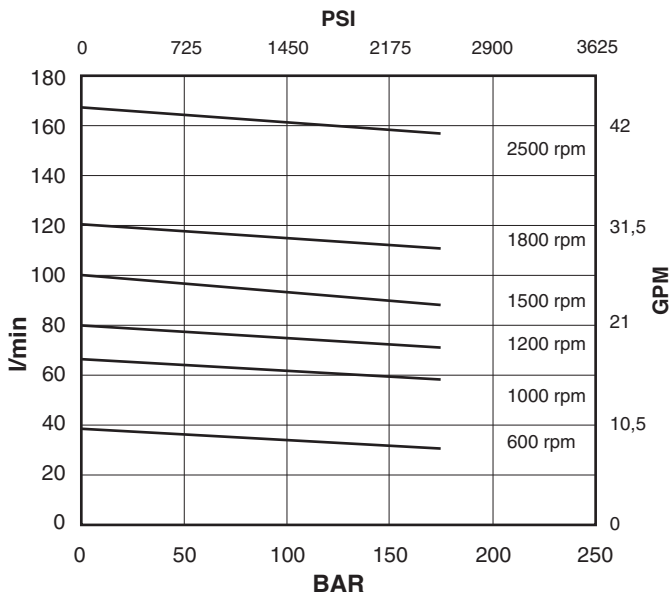
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V02-19



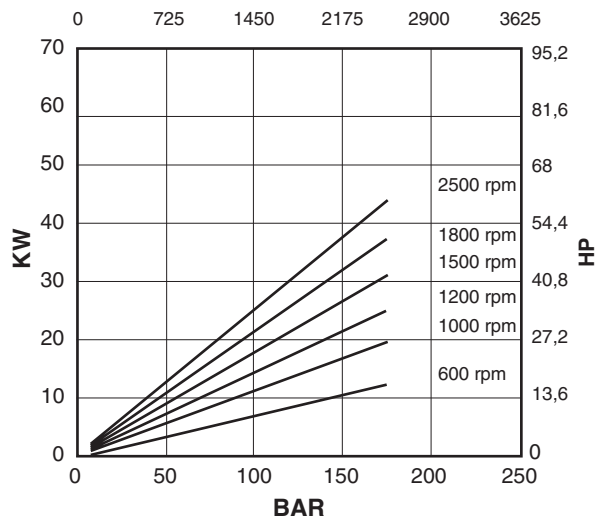
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

flow / pressure

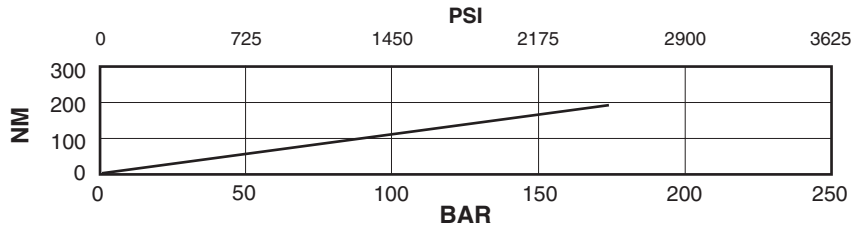


Cover end cartridge V02-21

power / pressure

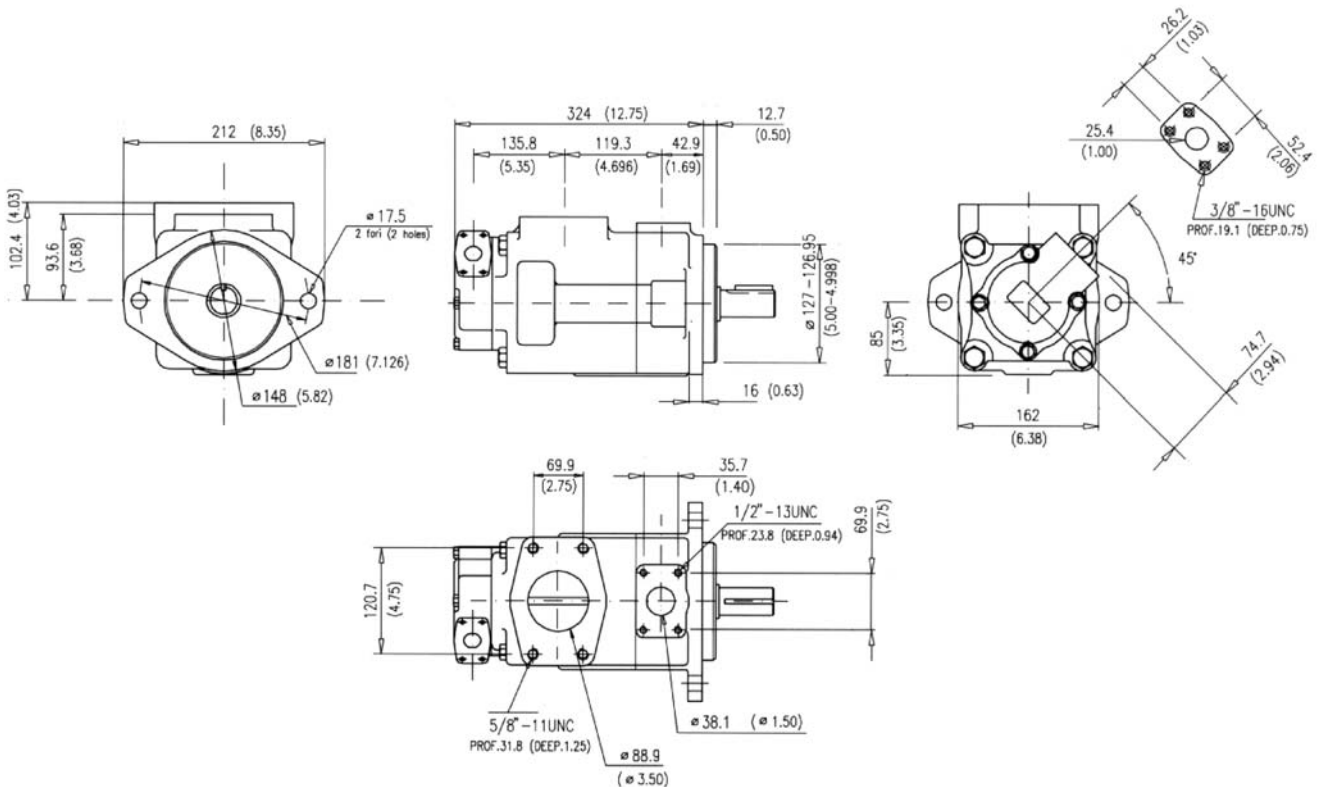


input torque / pressure



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

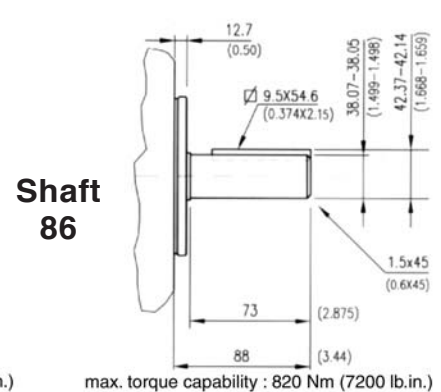
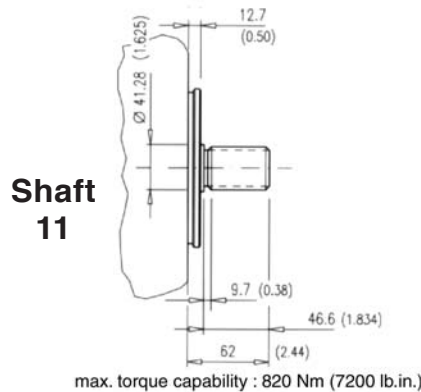
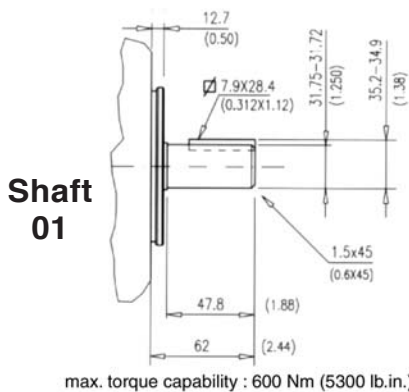


Approx. weight: 46 Kg. (101 lbs.)

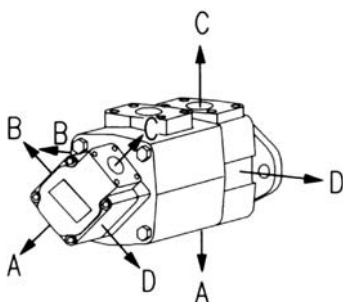
Model code breakdown

| | | | | | | | | | | |
|---|-----------|----------|-----------|-----------|----------|----------|---|---|------------------------------------|------------|
| BV | 52 | G | ** | ** | * | * | ** | (L) | * | (A) |
| Pump series | | Design | | | | | | Rotation (viewed from shaft end) L = left hand rotaton CCW (omit if CW) | Mounting (omit if not required) | |
| Pump type | | | | | | | Seals (omit with standard seals and one shaft-seal in NBR) V = seals and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®) | | | |
| Cartridge types | | | | | | | | | | |
| -shaft end 42 47 50 57 60 | | | | | | | | | | |
| -cover end 12 14 17 19 21 | | | | | | | | | | |
| Body outlet port positions (outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet opposite end | | | | | | | | | | |
| B = Outlet 90° CCW from inlet | | | | | | | | | | |
| C = Outlet in line with inlet | | | | | | | | | | |
| D = Outlet 90° CW from inlet | | | | | | | | | | |
| Cover outlet port positions (outlet viewed from cover end) | | | | | | | | | | |
| A = Outlet 135° CCW from inlet | | | | | | | | | | |
| B = Outlet 45° CCW from inlet | | | | | | | | | | |
| C = Outlet 45° CW from inlet | | | | | | | | | | |
| D = Outlet 135° CW from inlet | | | | | | | | | | |
| | | | | | | | Shaft end options | | | |
| | | | | | | | 01 = Straight with key (standard), 11 = Splined | | | |
| | | | | | | | 86 = Heavy duty straight keyed, 90 = Splined SAE C | | | |

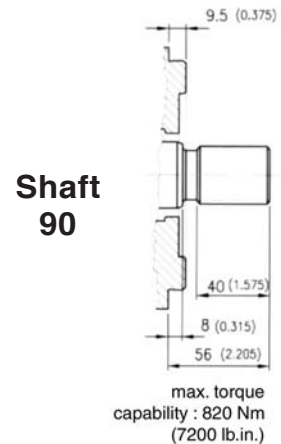
Shaft options mm (inches)



PORT ORIENTATIONS



| | |
|---|-------------------------------|
| Spline data (shaft 11 and shaft 90) | |
| Spline | Involute side fit (ASA B5.15) |
| Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 |
| Major dia. | 31.60 - 31.50 (1.244 - 1.240) |
| Pitch dia. | 29.634 (1.1667) |
| Minor dia. | 26.99 - 26.66 (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 (0.617 - 0.619) |



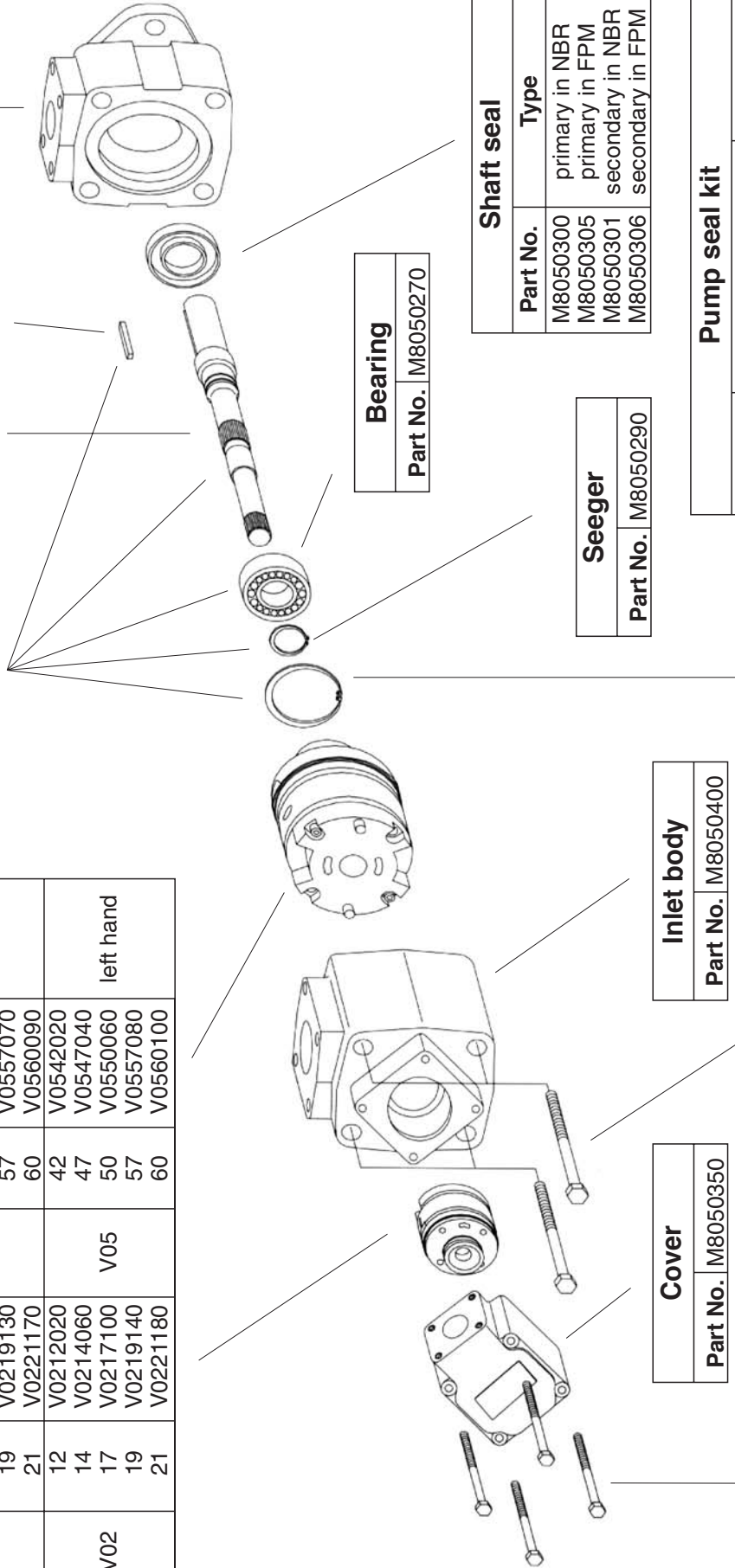
Id. codes of pump components

| Cartridges | | | | Pump rotation | | |
|------------|-----------|----------|-----------|---------------|----------|------------|
| Series | cover end | | shaft end | | | |
| | Model | Part No. | Series | Model | Part No. | |
| V02 | 12 | V0212010 | V05 | 42 | V0542010 | right hand |
| | 14 | V0214050 | | 47 | V0547030 | |
| | 17 | V0217090 | | 50 | V0550050 | |
| | 19 | V0219130 | | 57 | V0557070 | |
| V02 | 21 | V0221170 | V05 | 60 | V0560090 | left hand |
| | 12 | V0212020 | | 42 | V0542020 | |
| | 14 | V0214060 | | 47 | V0547040 | |
| | 17 | V0217100 | | 50 | V0550060 | |
| | 19 | V0219140 | | 57 | V0557080 | |
| 21 | V0221180 | 60 | V0560100 | | | |

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8520601 |
| 11 | M8520611 |
| 86 | M8520686 |
| 90 | M8520690 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K5201000 |
| 11 | K5211000 |
| 86 | K5286000 |
| 90 | K5290000 |

| Body | |
|----------|----------|
| Part No. | M8050250 |



| Bearing | |
|----------|----------|
| Part No. | M8050270 |

| Seeger | |
|----------|----------|
| Part No. | M8050290 |

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Inlet body | |
|------------|----------|
| Part No. | M8050400 |

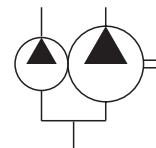
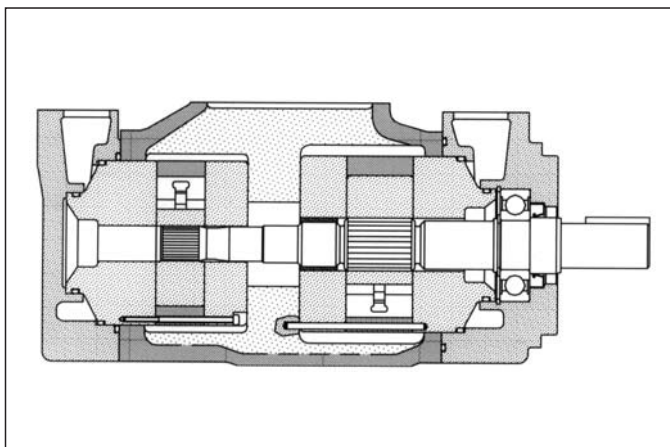
| Cover | |
|----------|----------|
| Part No. | M8050350 |

| Screw | |
|--------------------------------|----------|
| Part No. | M8040230 |
| Torque to 102 Nm (910 lb. in.) | |

| Screw | |
|---------------------------------|----------|
| Part No. | M8050330 |
| Torque to 398 Nm (3550 lb. in.) | |

| Seeger | |
|----------|----------|
| Part No. | M8050280 |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8520500 | seals + 1 shaft seal | NBR |
| M8520501 | seals + 2 shaft seals | NBR |
| M8520503 | seals + 1 shaft seal | FPM (Viton®) |
| M8520504 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the cartridges used and the speed of rotation. The pump is available in several versions with rated capacities from 244 to 370 l/min (from 63 to 98 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | |
| V05-42 | 138,6 | (8.46) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 1800 |
| V05-47 | 153,5 | (9.4) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 1800 |
| V05-50 | 162,2 | (9.9) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 1800 |
| V05-57 | 183,4 | (11.2) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 1800 |
| V05-60 | 193,4 | (11.8) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 1800 |
| cover end | | | | | | | | | | |
| V04-21 | 69,0 | (4.2) | 79,5 | (21) | 101,4 | (26.8) | 175 | (2538) | 600 | 1800 |
| V04-25 | 81,6 | (5) | 94,0 | (25) | 120,1 | (31.7) | 175 | (2538) | 600 | 1800 |
| V04-30 | 97,7 | (6) | 113,8 | (30) | 141,2 | (37.3) | 175 | (2538) | 600 | 1800 |
| V04-35 | 112,7 | (6.9) | 131,6 | (35) | 167,2 | (44.1) | 175 | (2538) | 600 | 1800 |
| V04-38 | 121,6 | (7.4) | 139,9 | (38) | 177,3 | (46.8) | 175 | (2538) | 600 | 1800 |

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

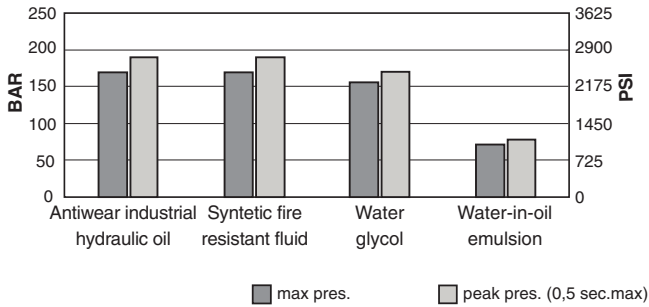
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

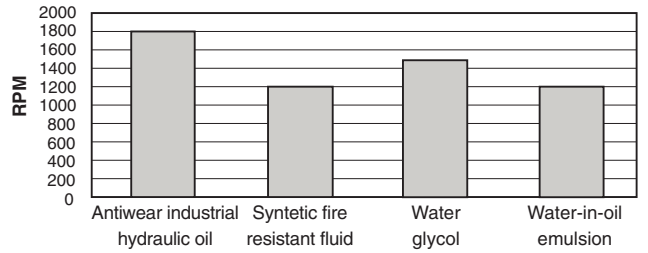
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

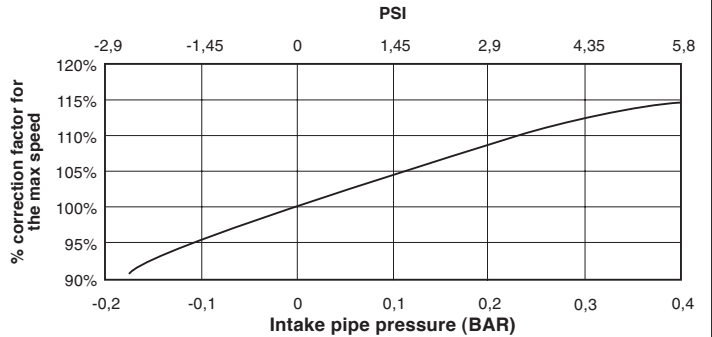


max speed / hydraulic fluid (with 0 bar in the intake pipe)

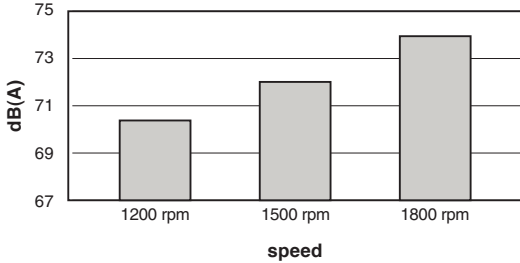


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

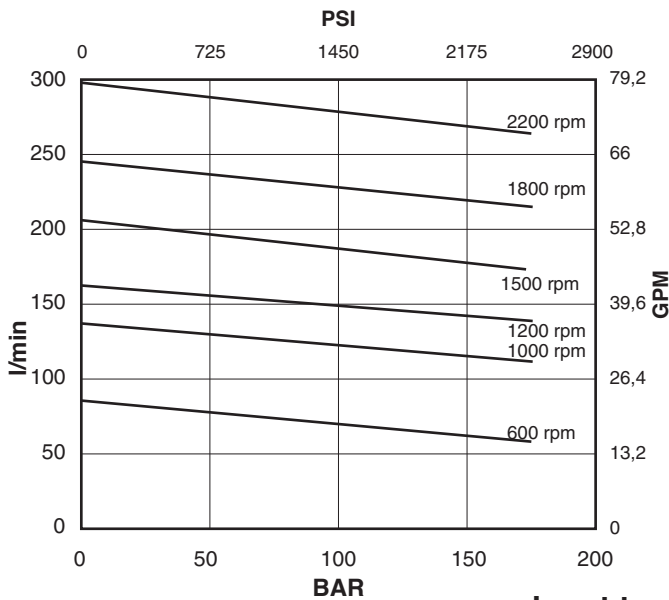
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)

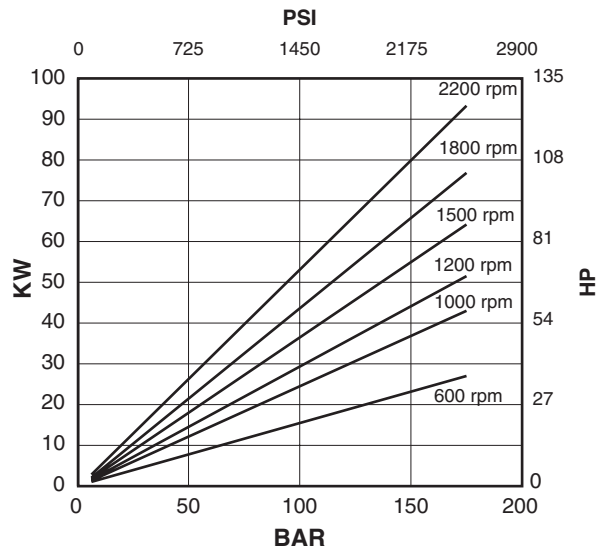


flow / pressure

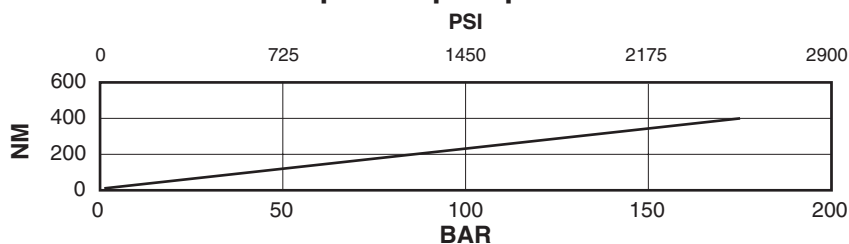


Shaft end cartridge V05-42

power / pressure

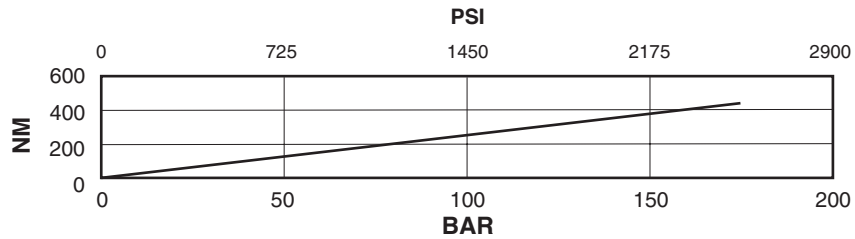
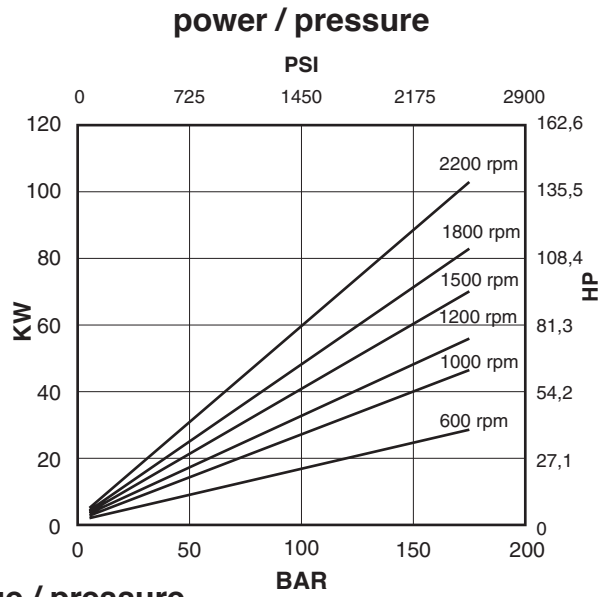
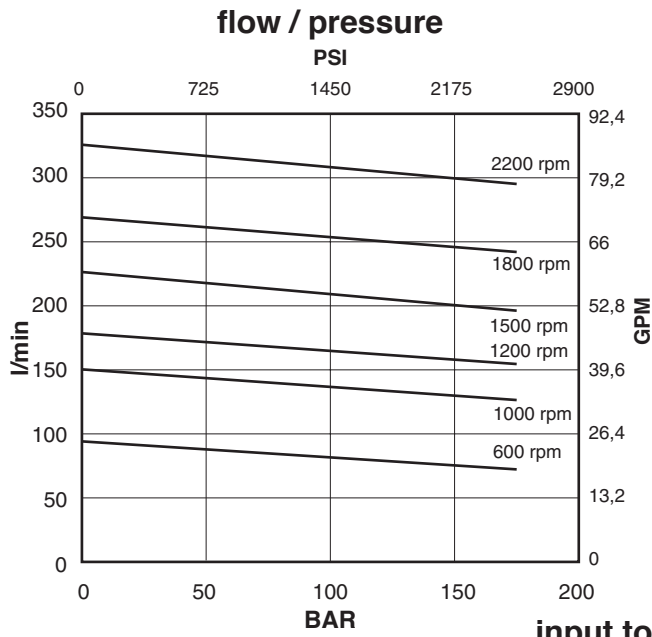


input torque / pressure



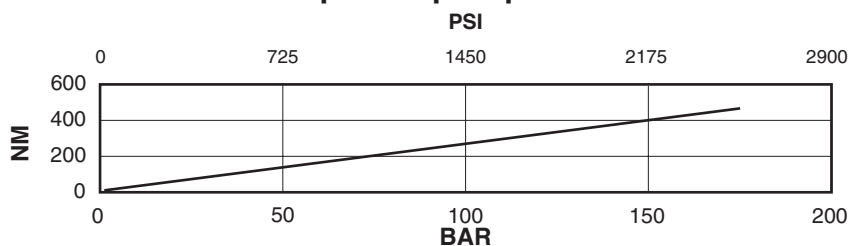
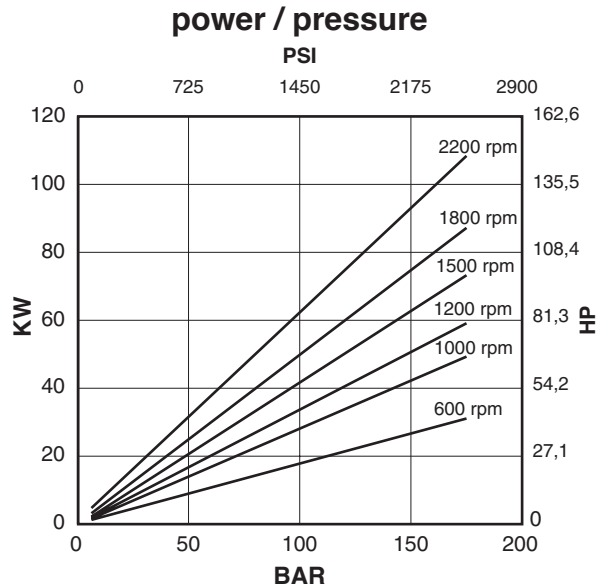
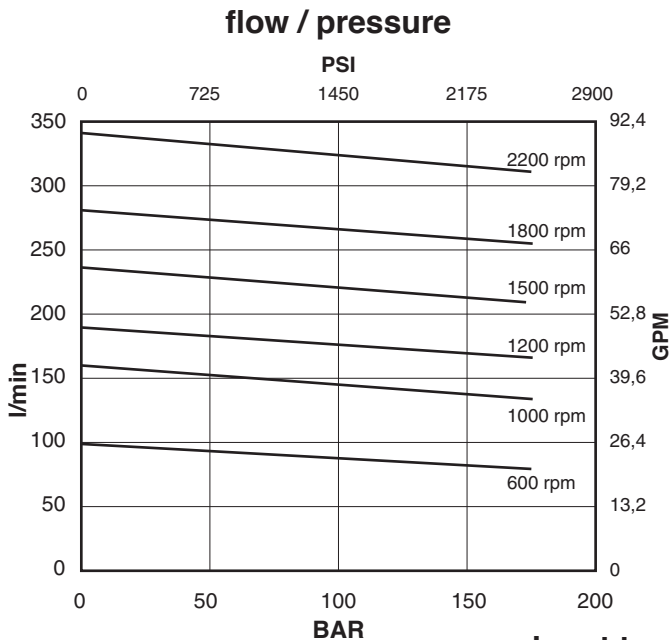
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge V05-47



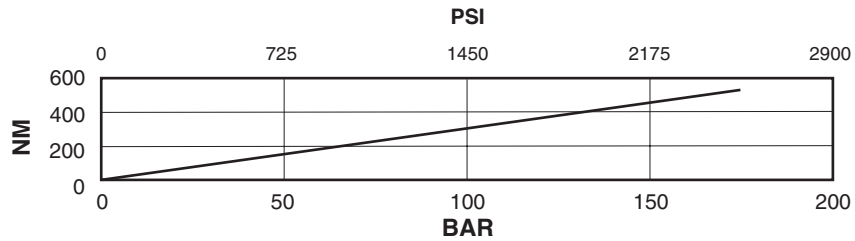
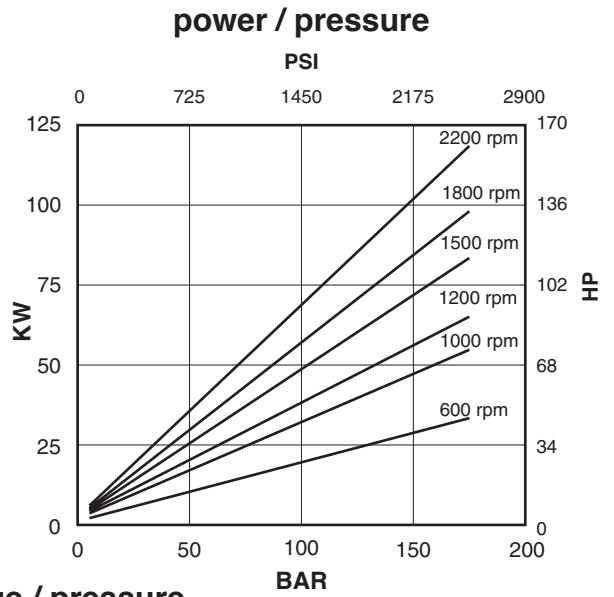
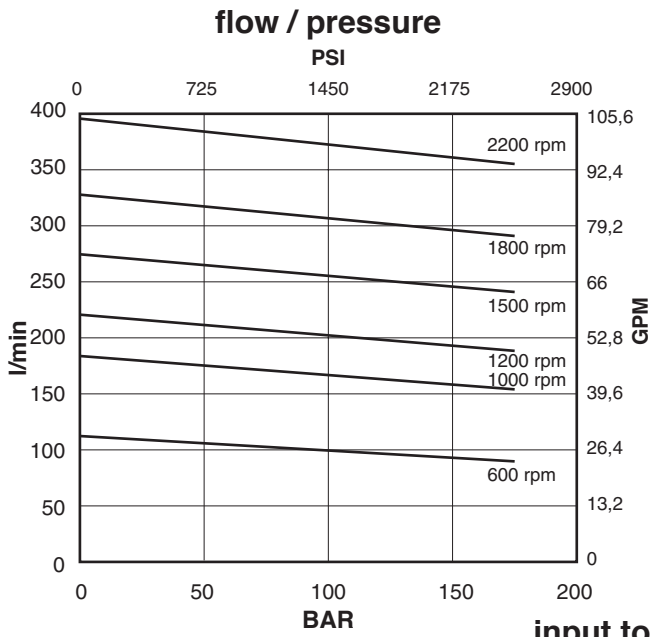
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-50



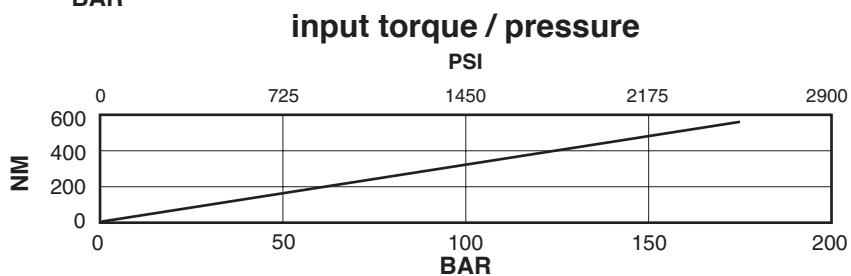
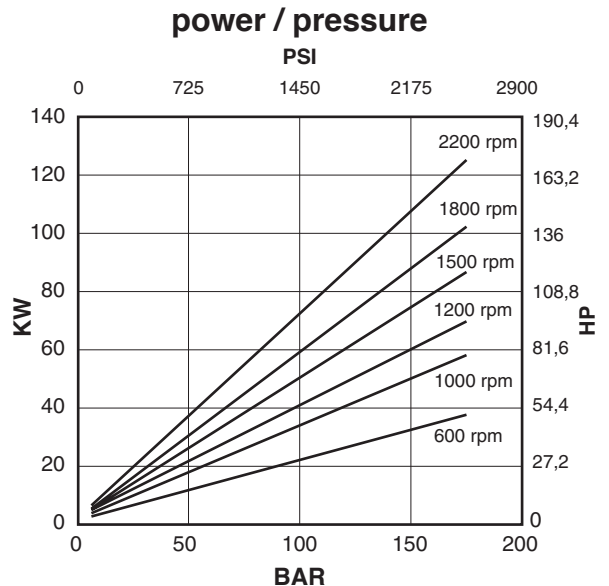
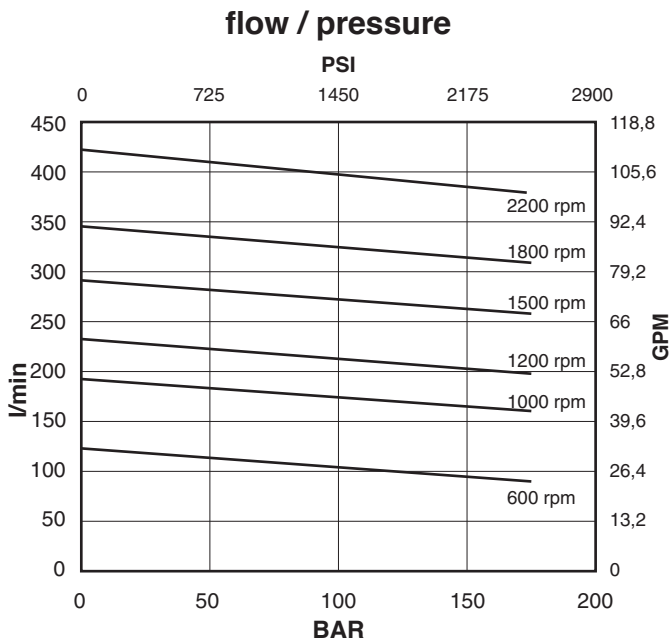
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-57



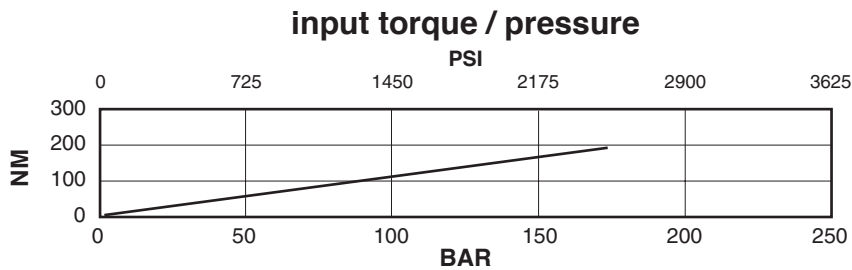
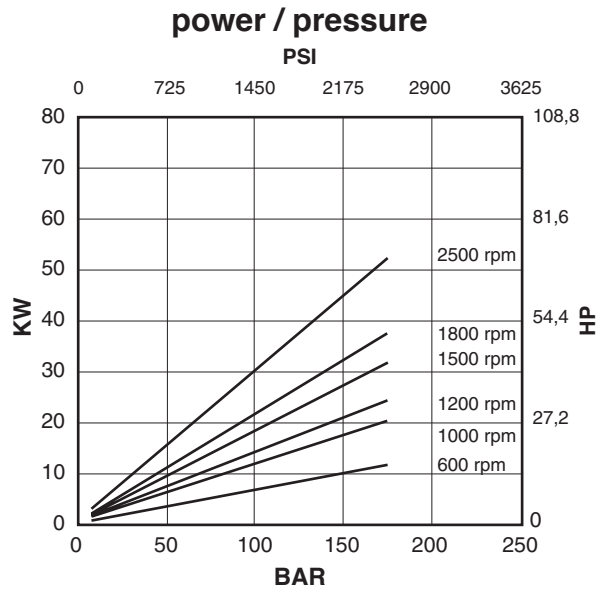
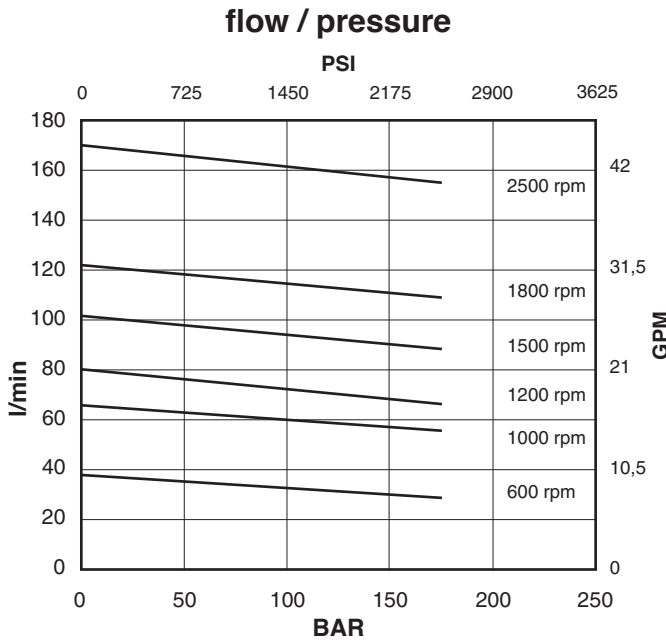
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge V05-60



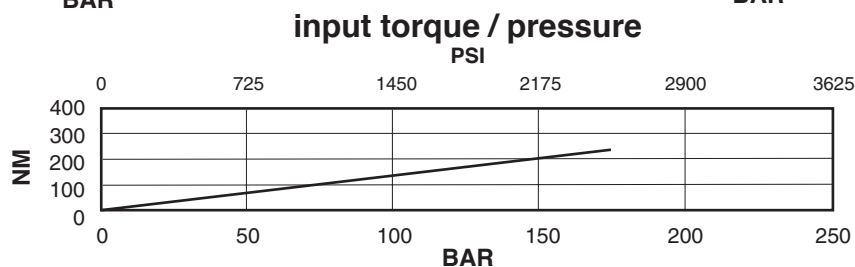
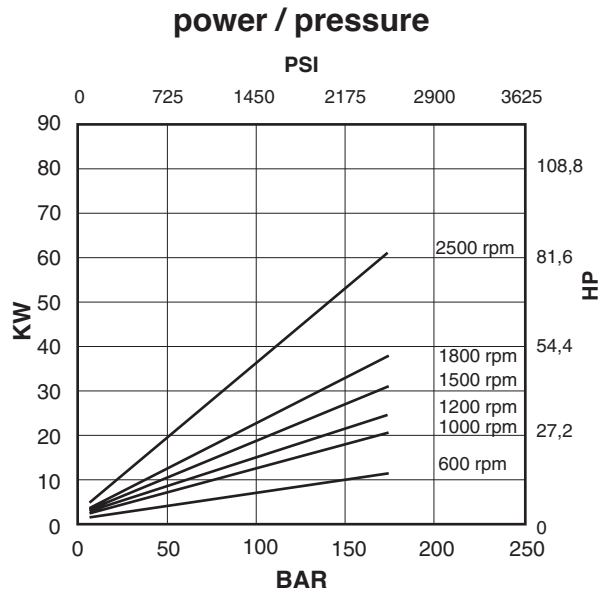
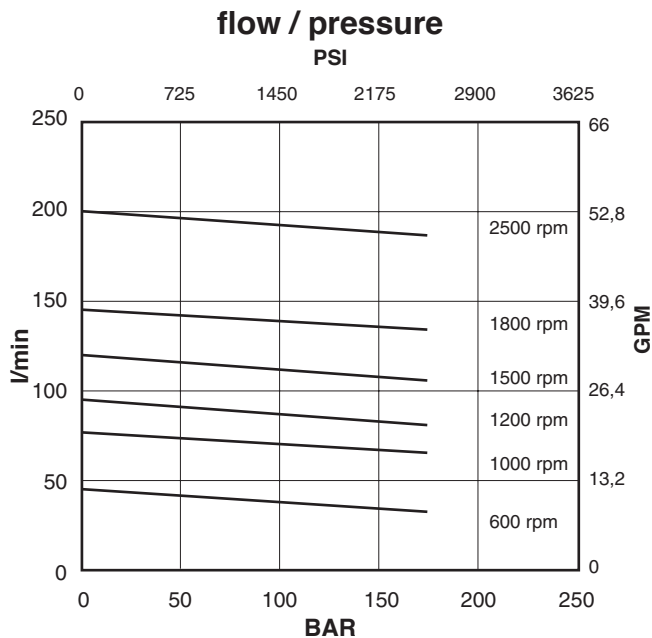
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V04-21



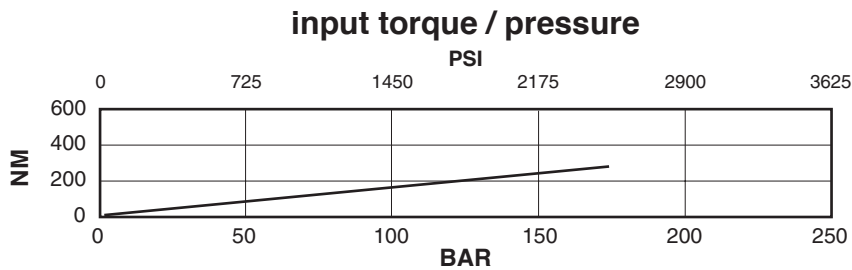
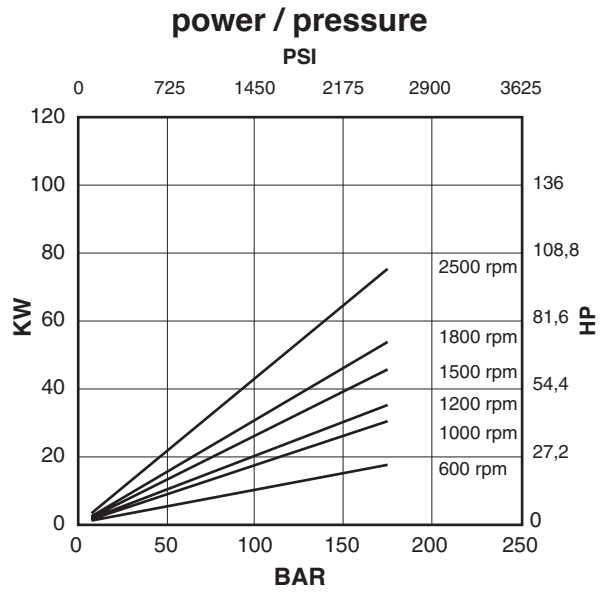
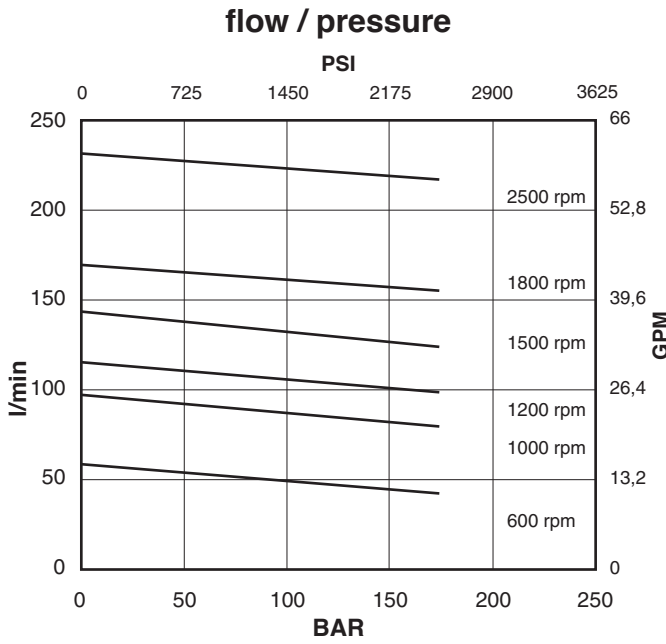
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V04-25



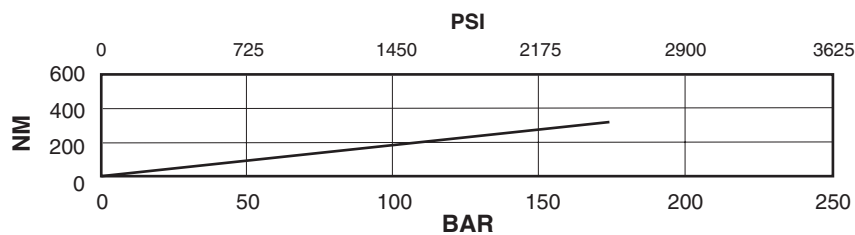
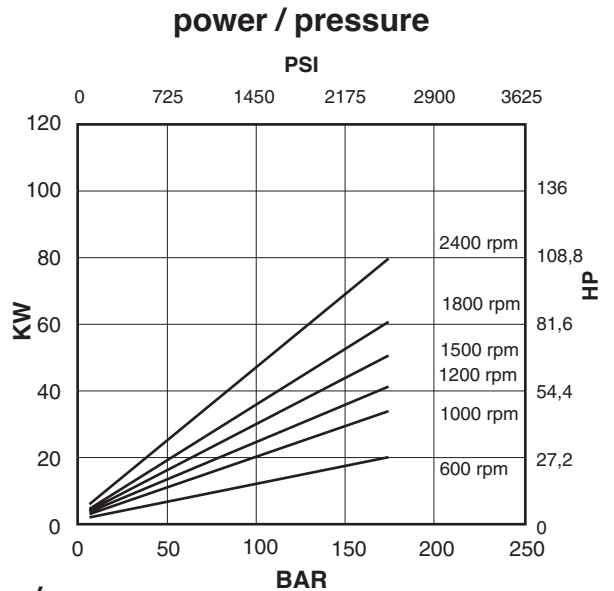
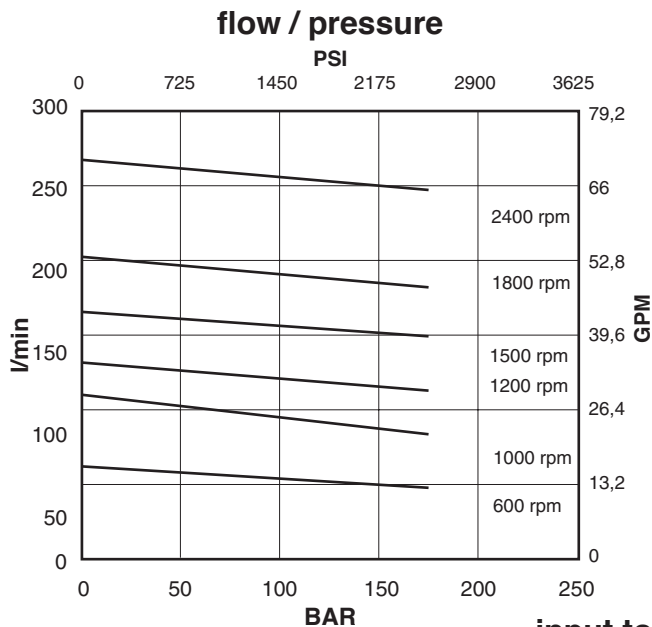
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V04-30



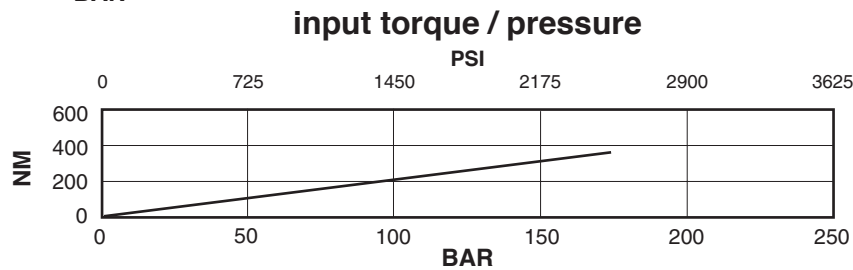
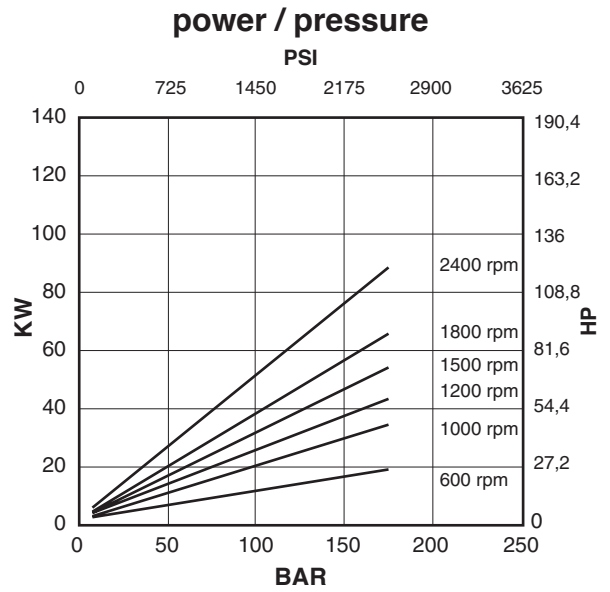
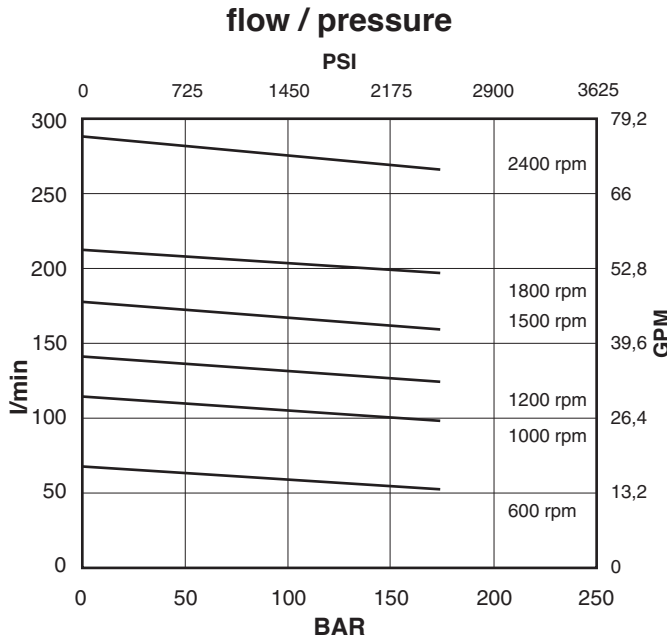
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V04-35



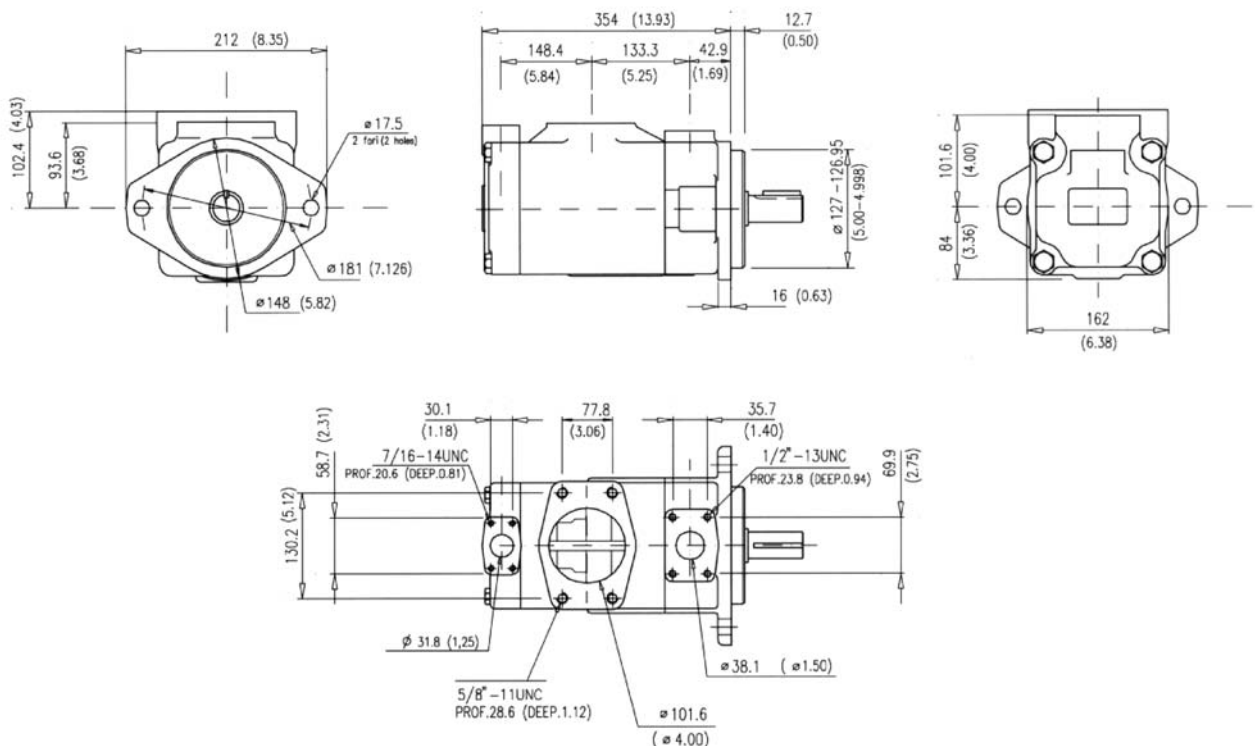
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge V04-38



Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)

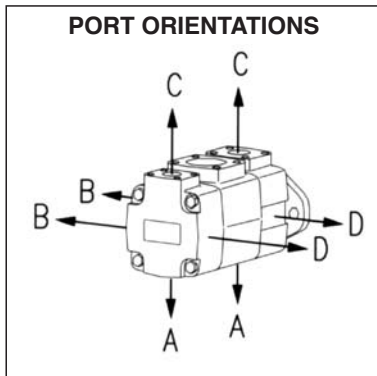
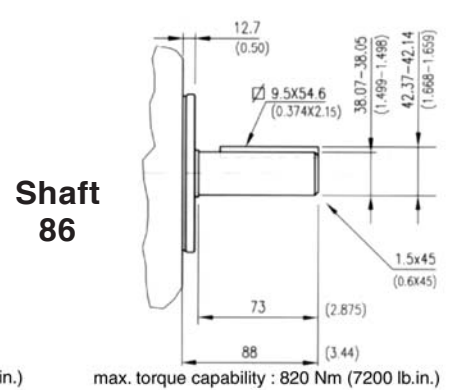
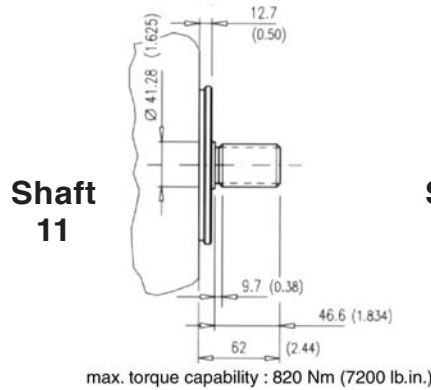
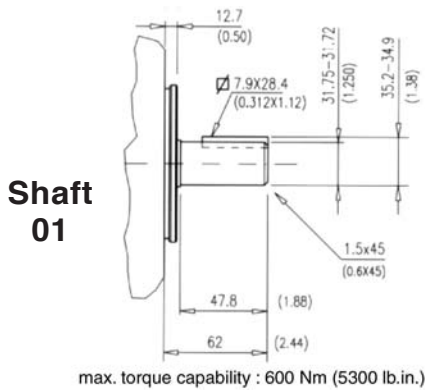


Approx. weight: 54 Kg. (118 lbs.)

Model code breakdown

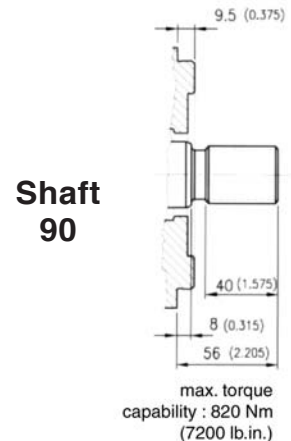
| | | |
|--|---|---|
| <p>BV 54 G ** ** * * ** (L) * (A)</p> <p>Pump series</p> <p>Design</p> <p>Pump type</p> <p>Cartridge types</p> <p>-shaft end 42 47 50 57 60</p> <p>-cover end 21 25 30 35 38</p> <p>Body outlet port positions (outlet viewed from cover end)</p> <p>A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet</p> <p>Cover outlet port positions (outlet viewed from cover end)</p> <p>A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet</p> | <p>Mounting (omit if not required)</p> <p>Seals (omit with standard seals and one shaft-seal in NBR)</p> <p>V = seals and shaft-seal in FPM (Viton®)</p> <p>D = standard seals and double shaft-seals in NBR</p> <p>F = seals and double shaft-seals in FPM (Viton®)</p> <p>Rotation (viewed from shaft end)</p> <p>L = left hand rotation CCW (omit if CW)</p> | <p>Shaft end options</p> <p>01 = Straight with key (standard), 11 = Splined</p> <p>86 = Heavy duty straight keyed, 90 = Splined SAE C</p> |
|--|---|---|

Shaft options mm (inches)



Spline data
(shaft 11 and shaft 90)

| | |
|-------------------------------|-------------------------------|
| Involute side fit (ASA B5.15) | |
| Spline Pressure angle | 30° |
| No. of teeth | 14 |
| Pitch | 12/24 |
| Major dia. | 31.60 - 31.50 (1.244 - 1.240) |
| Pitch dia. | 29.634 (1.1667) |
| Minor dia. | 26.99 - 26.66 (1.0627 - 1.05) |
| Wildhaber | 15.68 - 15.73 (0.617 - 0.619) |



| Cartridges | | | | | |
|------------|-------|----------|-----------|----------|----------|
| cover end | | | shaft end | | |
| Series | Model | Part No. | Series | Model | Part No. |
| V04 | 21 | V0421010 | V05 | 42 | V0542010 |
| | 25 | V0425050 | | 47 | V0547030 |
| | 30 | V0430090 | | 50 | V0550050 |
| | 35 | V0435130 | | 57 | V0557070 |
| | 38 | V0438170 | 60 | V0560090 | |
| V04 | 21 | V0421020 | V05 | 42 | V0542020 |
| | 25 | V0425060 | | 47 | V0547040 |
| | 30 | V0430100 | | 50 | V0550060 |
| | 35 | V0435140 | | 57 | V0557080 |
| | 38 | V0438180 | 60 | V0560100 | |

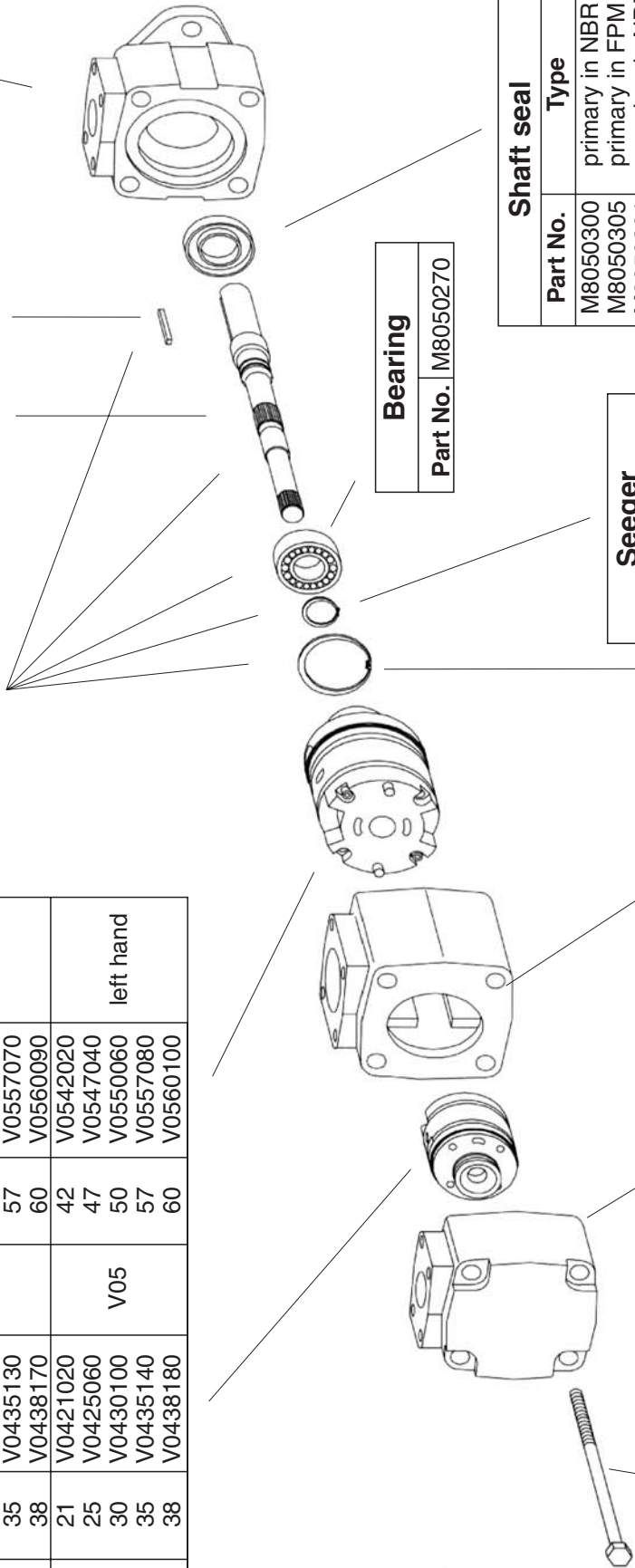
Pump rotation
right hand
left hand

| Shaft kit | |
|-----------|----------|
| Model | Part No. |
| 01 | M8540601 |
| 11 | M8540611 |
| 86 | M8540686 |
| 90 | M8540690 |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 01 | K5401000 |
| 11 | K5411000 |
| 86 | K5486000 |
| 90 | K5490000 |

| Body | |
|----------|----------|
| Part No. | M8050250 |

| Key | |
|----------|----------|
| Part No. | M8050100 |



| Screw | |
|----------|----------|
| Part No. | M8050380 |

Torque to 398 Nm (3550 lb. in.)

| Cover | |
|----------|----------|
| Part No. | M8050360 |

| Seeger | |
|----------|----------|
| Part No. | M8050280 |

| Inlet body | |
|------------|----------|
| Part No. | M8050410 |

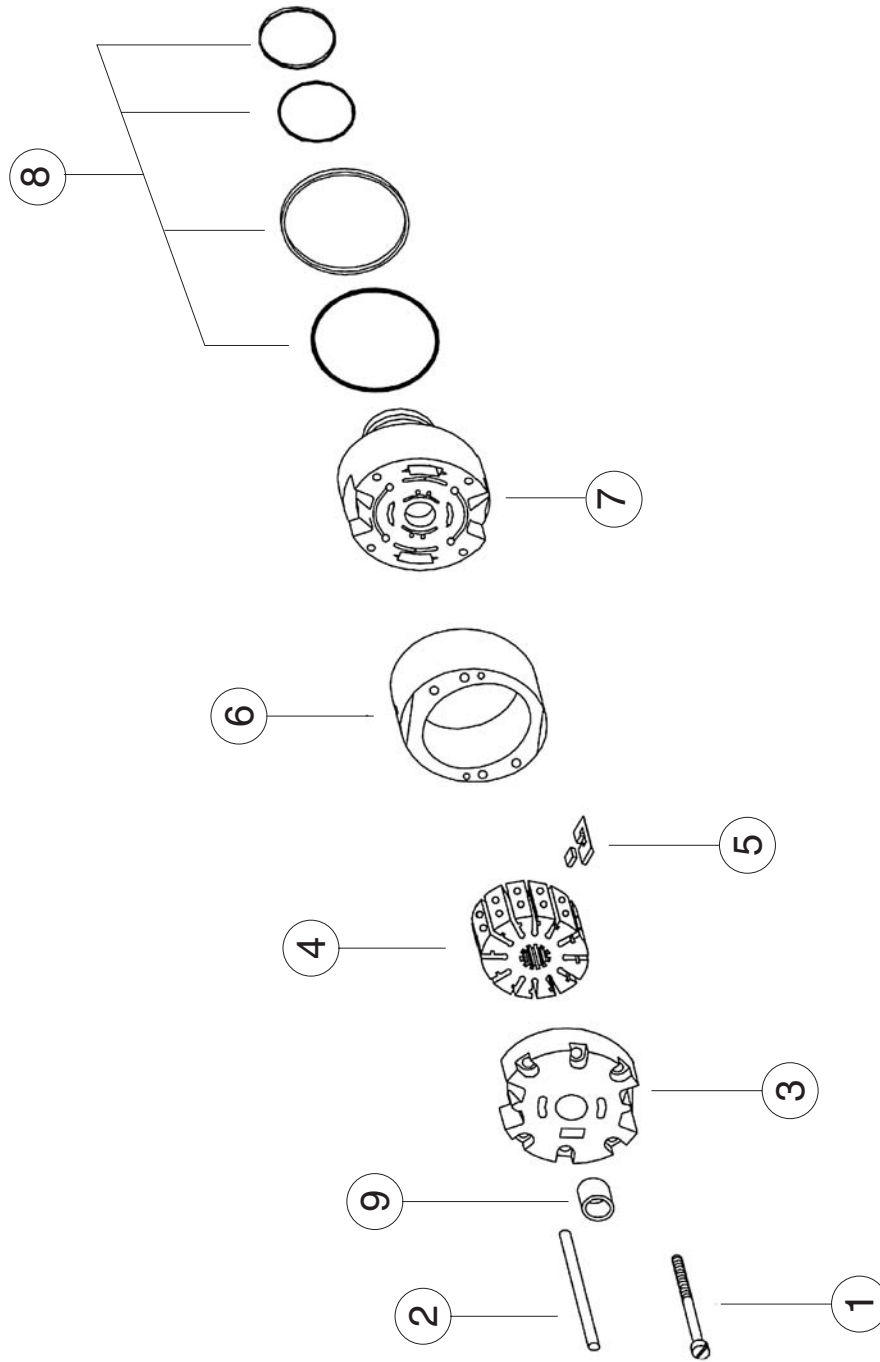
| Seeger | |
|----------|----------|
| Part No. | M8050290 |

| Bearing | |
|----------|----------|
| Part No. | M8050270 |

| Shaft seal | |
|------------|------------------|
| Part No. | Type |
| M8050300 | primary in NBR |
| M8050305 | primary in FPM |
| M8050301 | secondary in NBR |
| M8050306 | secondary in FPM |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| Part No. | Parts | Type |
| M8540500 | seals + 1 shaft seal | NBR |
| M8540501 | seals + 2 shaft seals | NBR |
| M8540503 | seals + 1 shaft seal | FPM (Viton®) |
| M8540504 | seals + 2 shaft seals | FPM (Viton®) |

Id. codes of cartridge kit components



| Cartridge | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------------|-------|------------------------|---------------------|----------|----------------------------------|----------|----------------------|-------------------|---------------|
| Series Model | Screw | Pin | Inlet support plate | Rotor | Vane and insert kit (12+12 pcs.) | Ring | Outlet support plate | Seal kit (4 pcs.) | Bushing (*) |
| V01 | 02 | | L6209200 | L6209300 | L6209100 | L7209002 | | | |
| | 05 | | L6209200 | L6209300 | L6209100 | L7209005 | | | |
| | 08 | | L6209200 | L6209300 | L6209100 | L7209008 | | | |
| | 09 | | L6209200 | L6209300 | L6209100 | L7209009 | L6200100 | L6201100 | L6200600 |
| V02 | 11 | L6200900 | L6200200 | L6200300 | L6201200 | L7201011 | | L6202100 (FPM) | |
| | 12 | 3,6 Nm (32 lb. in.) | L6200200 | L6200300 | L6201200 | L7201012 | | | |
| | 14 | | L6200200 | L6200300 | L6201200 | L7201014 | | | |
| | 17 | L6250900 | L6250800 | L6250200 | L6250300 | L6251012 | L6250100 | L6251100 | L7250600 |
| V04 | 19 | 5,5 Nm (49 lb. in.) | | | | L6251017 | | L6252100 (FPM) | |
| | 21 | | | | | L6251019 | | | |
| | 21 | | | | | L6251021 | | | |
| | 25 | | | | | L6351021 | | | |
| V05 | 30 | L6350900 | L6350800 | L6350200 | L6350300 | L6351025 | L6350100 | L6351100 | L7350600 |
| | 35 | 12,6 Nm (112 lb.in) | | | | L6351030 | | L6352100 (FPM) | |
| | 38 | | | | | L6351035 | | | |
| | 42 | | | | | L6351038 | | | |
| V05 | 47 | | | | | L6451042 | | | |
| | 50 | L6450900 | L6450800 | L6450200 | L6450300 | L6451047 | L6450100 | L6451100 | L7450600 |
| | 57 | 12,6 Nm (112 lb.in) | | | | L6451050 | | L6452100 (FPM) | |
| | 60 | | | | | L6451057 | | | |

(*) Note: The cover end cartridge of the double pump is without bushing.

Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7 psi) and with ambient temperature in the range of +30°C to +50°C. Higher speeds than those given cause a reduction in the volumetric efficiency, due to cavitation phenomena in the inlet area inside the pump. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the cartridge.

Minimum speed: In general, the min. speed for all pumps is 600 rpm. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum outlet pressure is different for each type of fluid used as can be seen from the corresponding diagrams. With optimal temperature and filtration conditions a pressure peak of +10% is permissible for a maximum time of 0.5 sec.

Mounting and drive connections: consider the following indications when preparing the installation drawings for the system:

- the pump is designed to operate with keyed shaft coupled axially and by means of a flexible coupling to the drive;
- the clearance between the keyed shaft and the corresponding sleeve coupling has to be between 0.004 and 0.030 mm;
- avoid axial and radial loads on the shaft;
- the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm;
- when mounting onto a gearbox, or other component without a flexible coupling, it is advisable to order pumps with splined shaft. In this case the clearance between splines has to be between 0.013 and 0.051 mm on the pitch diameter.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.) Inlet line tubing should have a section equal to or greater than that of the inlet port of the pump. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which has to be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The filtration requirements for individual models are given in this catalogue. The use of a filter by-pass is recommended for cold starts and should the filter become clogged. Proper maintenance of the filter element is essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, the same general conditions apply as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time:

- completely fill the pump and the inlet line with fluid;
 - start the engine for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed;
 - with a manometer check to ensure that the outlet pressure increases slightly;
 - once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir.
- This procedure should be carefully as any residual air inside the pump can quickly cause the rotor to seize.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits.

The information provided in this catalogue is subject to change without notice

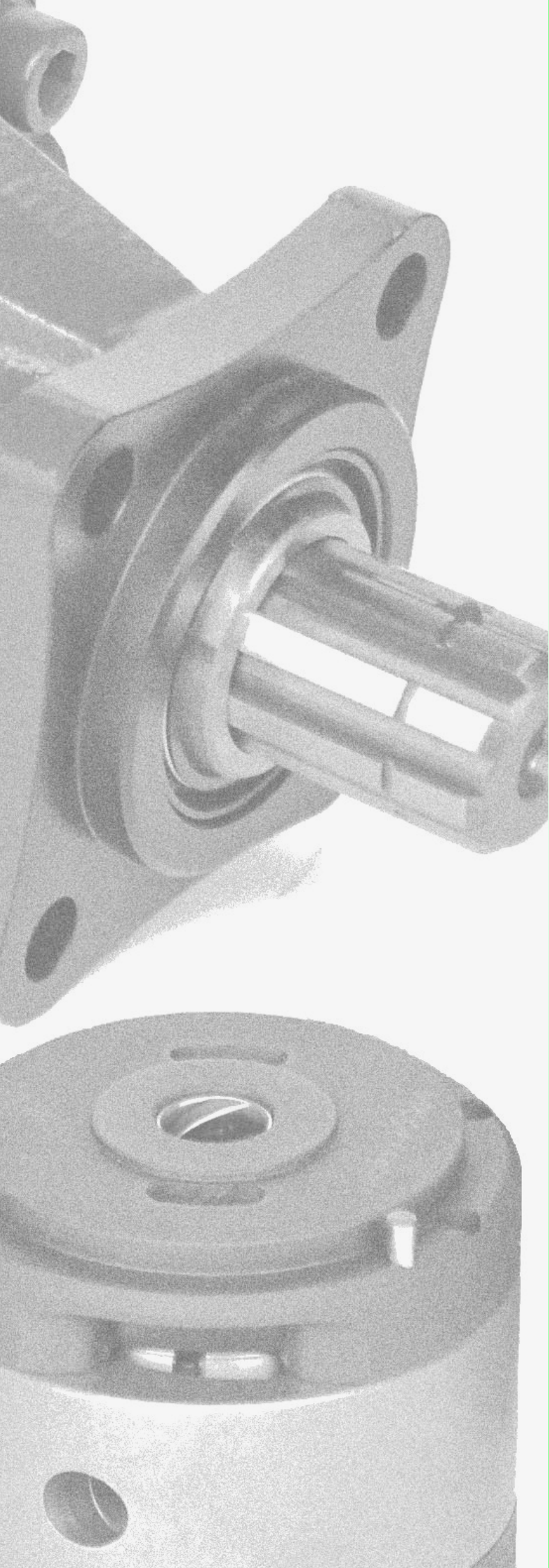


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TECHNICAL CATALOGUE



**FIXED DISPLACEMENT
HYDRAULIC VANE PUMP**

HD series



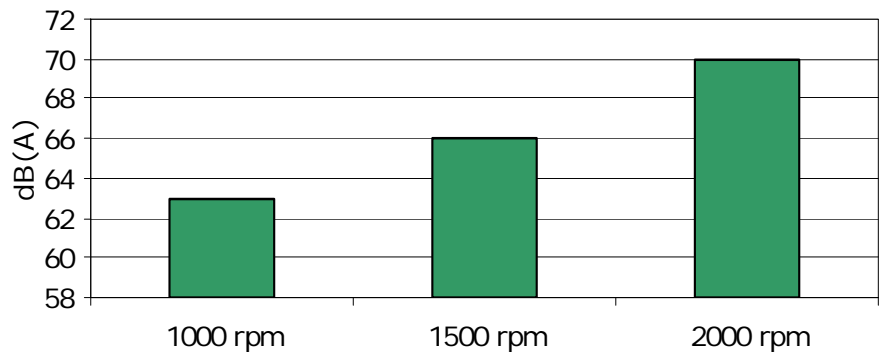
HIGH PRESSURE HYDRAULIC VANE PUMPS HD SERIES

The design of the HD series vane pumps makes them particularly suitable for application on trucks, especially garbage compactors. All the components subject to wear are contained in a cartridge unit that can be easily removed for inspection and/or replacement without disconnecting the pump from the circuit, drastically reducing expensive machine downtime. The special design of the double-lip vanes renders the HD series pumps particularly suitable for applications requiring high pressure levels and very low noise emissions. Furthermore, the two opposed pumping chambers formed by the elliptical profile of the cam cancel out radial loads, dramatically reducing vibrations and considerably increasing the pump lifetime. In addition to reliability, HD pump guarantees continuous high volumetric efficiency during its whole service time. That avoids having to compensate the typical efficiency loss of other kinds of pump, increasing the truck engine

RPM, which causes higher fuel consumption and therefore air pollution. Such characteristics, along with an extremely low noise-level, make the HD pumps environmentally friendly, in line with the latest ecological trend. The HD series is available with single pump (from

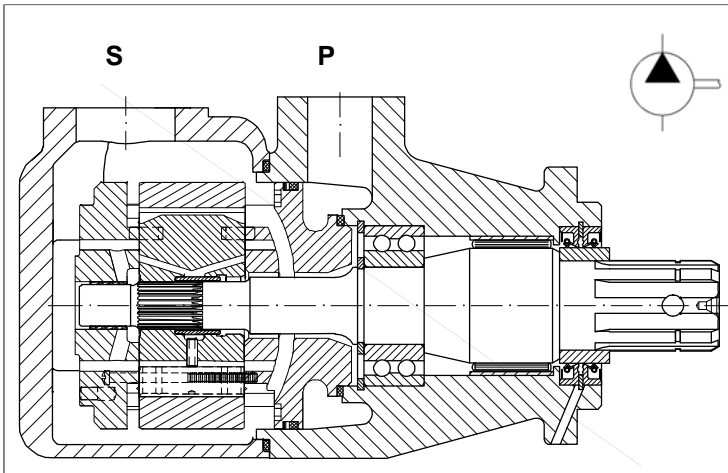
11 to 99 l/min at 1000 rpm) and double pump (from 22 to 200 l/min at 1000 rpm) with maximum powers of over 126 kW at the max pressure and speed. The pumps are extremely compact and are supplied with different types of either ISO or UNI norm mounting for the direct coupling with PTO and SAE norm hydraulic fittings. That, together with the possibility to orientate the inlet and outlet ports, makes the HD pumps very easy to install and guarantees their interchangeability with other types of pumps.

HD03 sound level



Contents

| | |
|------------------------------|---------|
| Single pump HD03 | pag. 5 |
| Double pump HD33..... | pag. 13 |
| Operating instructions | pag. 21 |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in 13 different displacements with flows from 16 to 150 l/min (from 4 to 40 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|--------|--------------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| 03 | 10,8 | (0.66) | 12,93 | (3.42) | 16,2 | (4.29) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 05 | 17,2 | (1.05) | 20,60 | (5.45) | 25,8 | (6.83) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 06 | 21,3 | (1.30) | 25,52 | (6.75) | 31,9 | (8.44) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 08 | 26,4 | (1.61) | 31,64 | (8.37) | 39,6 | (10.48) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 10 | 34,1 | (2.08) | 40,86 | (10.81) | 51,1 | (13.52) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 12 | 37,1 | (2.26) | 44,45 | (11.76) | 55,6 | (14.71) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 14 | 46,0 | (2.81) | 55,11 | (14.58) | 69,0 | (18.25) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 17 | 58,3 | (3.56) | 69,85 | (18.48) | 87,4 | (23.12) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 20 | 63,8 | (3.89) | 76,47 | (20.23) | 95,7 | (25.32) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 22 | 70,3 | (4.29) | 84,26 | (22.29) | 105,4 | (27.88) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 25 | 79,3 | (4.84) | 95,03 | (25.14) | 118,9 | (31.46) | 275 | (4000) | 240 | (3500) | 400 - 2500 |
| 28 | 88,8 | (5.42) | 106,41 | (28.15) | 133,2 | (35.24) | 210 | (3000) | 160 | (2300) | 400 - 2500 |
| 31 | 100,0 | (6.10) | 119,83 | (31.70) | 150,0 | (39.68) | 210 | (3000) | 160 | (2300) | 400 - 2500 |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recomm.). Choose 30 c.St. for max life-time. *Viscosity index:* 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

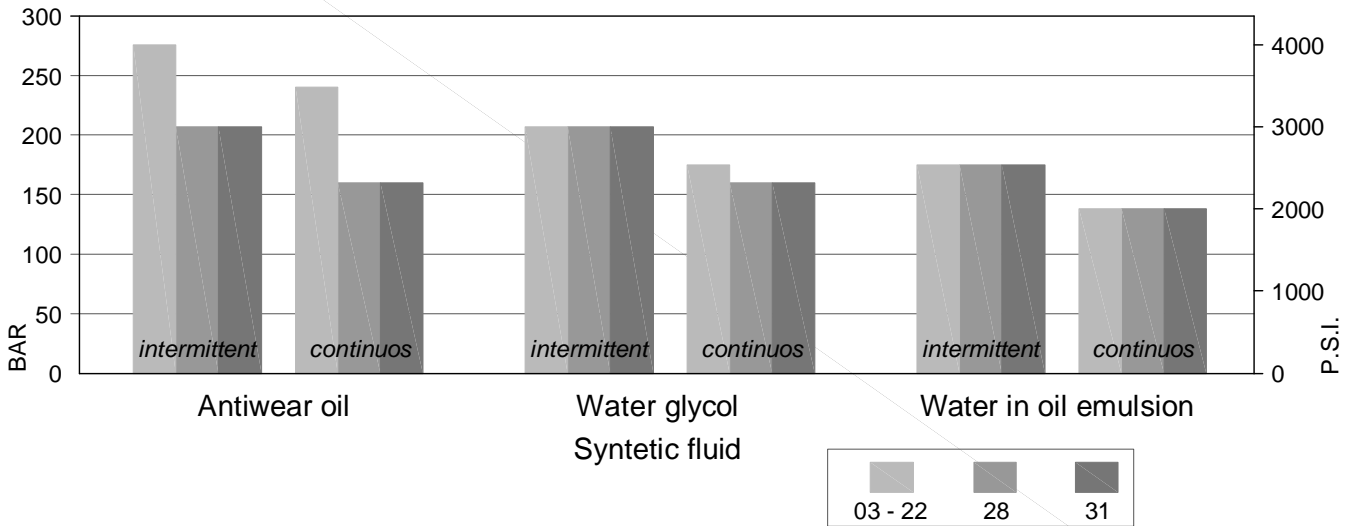
Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

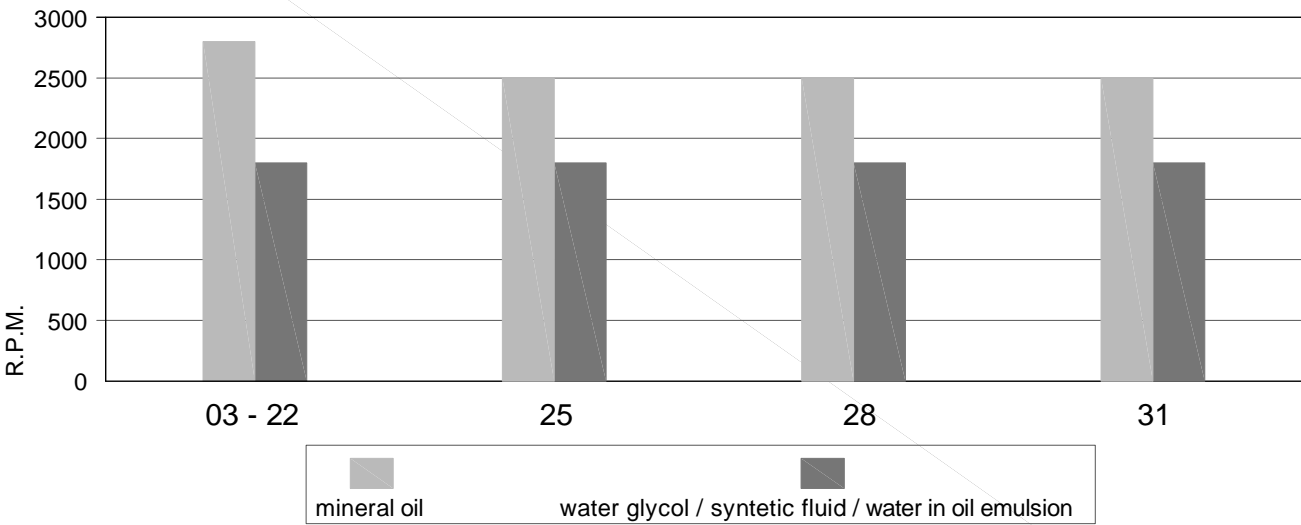
Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data

max pressure / fluid type



max speed / fluid type



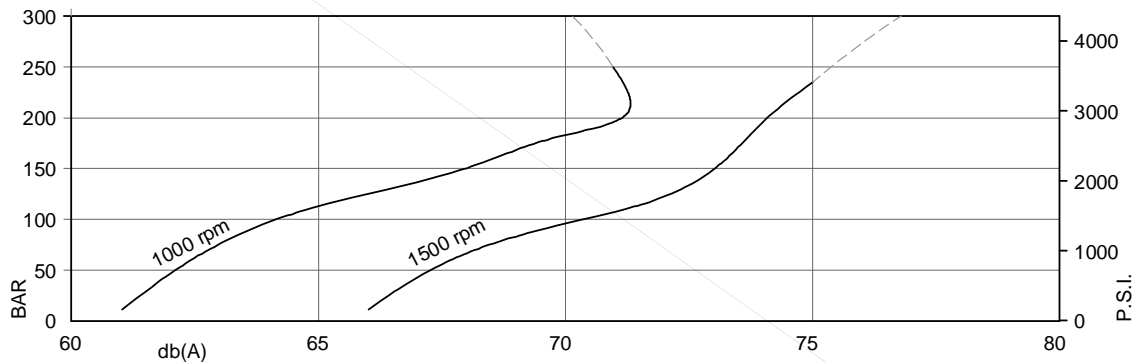
min. allowable inlet pressure / rotation speed (abs. bar)*

| Speed r.p.m. | from 03 to 10 | 12 | 14 | 17 | 20 | 22 | 25 | 28 | 31 |
|--------------|---------------|------|------|------|------|------|------|------|------|
| 2800 | 1.00 | 1.00 | 1.00 | 1.03 | 1.03 | 1.05 | | | |
| 2500 | 0.90 | 0.92 | 0.95 | 0.95 | 0.95 | 0.98 | 1.05 | 1.08 | 1.11 |
| 2300 | 0.80 | 0.85 | 0.85 | 0.90 | 0.90 | 0.90 | 0.95 | 0.98 | 1.0 |
| 2200 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | 0.90 | 0.95 | 0.98 | 0.90 |
| 2100 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.90 | 0.90 | 0.85 |
| 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

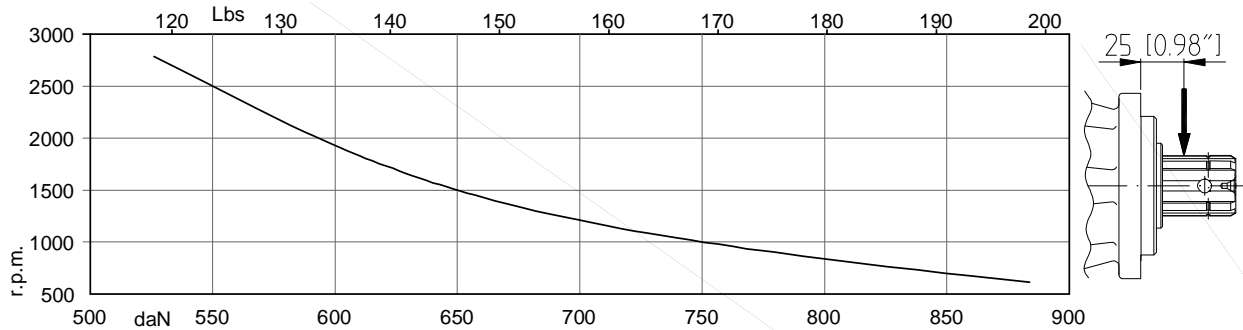
* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).
 Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data

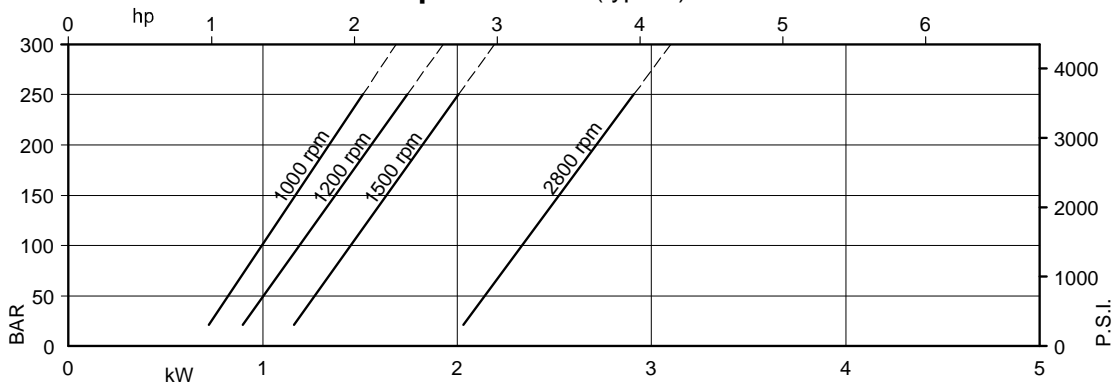
noise level (model 22, with fluid viscosity 32 c.St., inlet 0.9bar abs.)



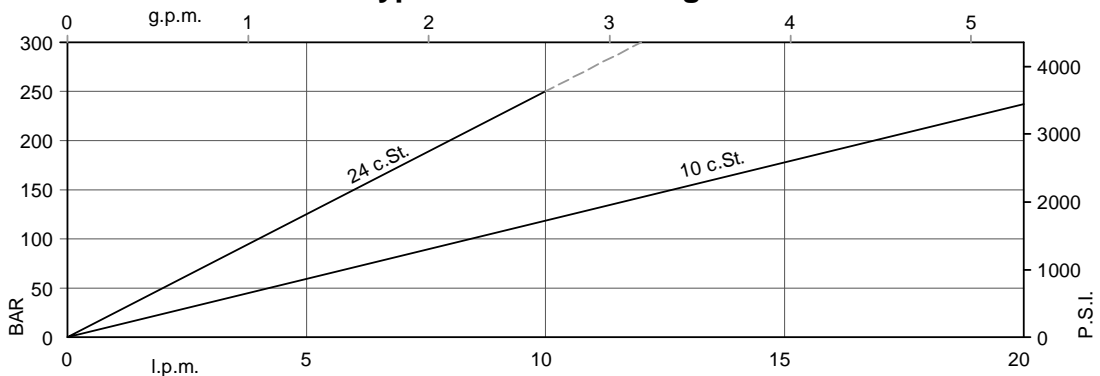
allowable radial load (positioned 25 mm from flange surface)



power loss (typical)



Typical internal leakage *



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Specific operating data

Typical: 24 c.St. (115 SUS)

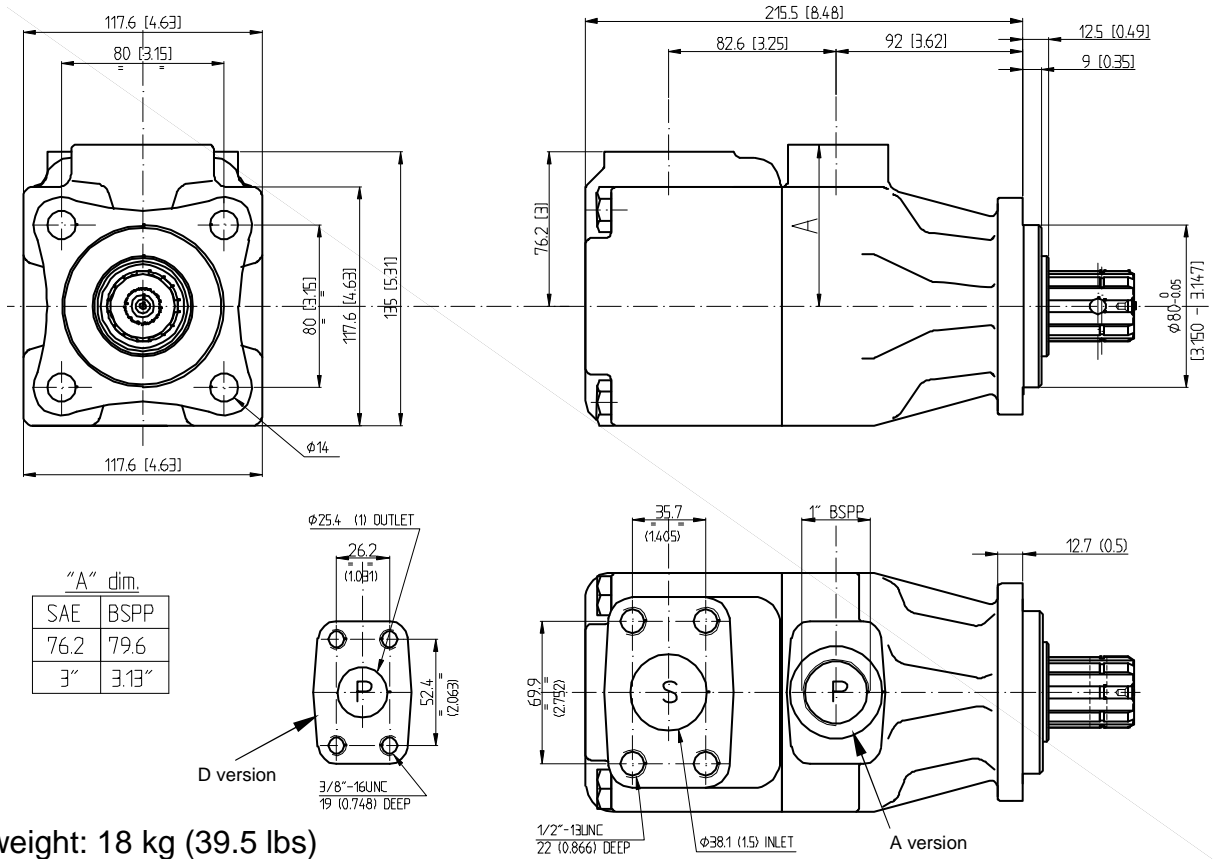
| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|------------------|------------------------|----------------------|-----------|---------|---------|----------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 03 | 10,8 | (0.66) | 1000 | - | - | - | - | 1.00 | - | - |
| | | | 1200 | - | - | - | - | 1.05 | - | - |
| | | | 1500 | 10,7 | (2.84) | - | - | 1.30 | 5.30 | - |
| | | | 1800 | 13,6 | (3.61) | - | - | 1.55 | 8.45 | - |
| 05 | 17,2 | (1.05) | 1000 | 11,7 | (3.09) | - | - | 1.10 | 5.10 | - |
| | | | 1200 | 15,1 | (3.99) | - | - | 1.14 | 8.17 | - |
| | | | 1500 | 20,3 | (5.37) | 15,8 | (4.18) | 1.40 | 7.50 | 12.2 |
| | | | 1800 | 25,1 | (6.65) | 21,0 | (5.56) | 1.68 | 12.0 | 14.4 |
| 06 | 21,3 | (1.30) | 1000 | 15,80 | (4.18) | 11,30 | (2.99) | 1.10 | 6.00 | 10.00 |
| | | | 1200 | 19,73 | (5.22) | 15,61 | (4.13) | 1.19 | 7.13 | 11.86 |
| | | | 1500 | 26,50 | (7.01) | 22,00 | (5.82) | 1.50 | 8.90 | 14.70 |
| | | | 1800 | 32,51 | (8.60) | 28,39 | (7.51) | 1.76 | 10.50 | 17.33 |
| 08 | 26,4 | (1.61) | 1000 | 20,90 | (5.53) | 16,40 | (4.34) | 1.20 | 7.20 | 12.10 |
| | | | 1200 | 25,86 | (6.84) | 21,74 | (5.75) | 1.26 | 8.51 | 14.29 |
| | | | 1500 | 34,10 | (9.02) | 29,60 | (7.83) | 1.60 | 10.70 | 17.70 |
| | | | 1800 | 41,66 | (11.02) | 37,54 | (9.93) | 1.87 | 12.58 | 20.98 |
| 10 | 34,1 | (2.08) | 1000 | 28,60 | (7.57) | 24,10 | (6.38) | 1.30 | 8.90 | 15.10 |
| | | | 1200 | 35,08 | (9.28) | 30,96 | (8.19) | 1.37 | 10.61 | 17.96 |
| | | | 1500 | 45,70 | (12.09) | 41,20 | (10.90) | 1.70 | 13.40 | 22.30 |
| | | | 1800 | 55,53 | (14.69) | 51,41 | (13.60) | 2.03 | 15.72 | 26.47 |
| 12 | 37,1 | (2.26) | 1000 | 31,60 | (8.36) | 27,10 | (7.17) | 1.30 | 9.60 | 16.30 |
| | | | 1200 | 38,67 | (10.23) | 34,55 | (9.14) | 1.41 | 11.42 | 19.38 |
| | | | 1500 | 50,20 | (13.28) | 45,70 | (12.09) | 1.70 | 14.40 | 24.10 |
| | | | 1800 | 60,90 | (16.11) | 56,78 | (15.02) | 2.09 | 16.95 | 28.62 |
| 14 | 46,0 | (2.81) | 1000 | 40,50 | (10.71) | 36,00 | (9.52) | 1.40 | 11.70 | 19.90 |
| | | | 1200 | 49,33 | (13.05) | 45,21 | (11.96) | 1.53 | 13.85 | 23.62 |
| | | | 1500 | 63,50 | (16.80) | 59,00 | (15.61) | 1.90 | 17.60 | 29.50 |
| | | | 1800 | 76,92 | (20.35) | 72,80 | (19.26) | 2.27 | 20.58 | 34.97 |
| 17 | 58,3 | (3.56) | 1000 | 52,80 | (13.97) | 48,30 | (12.78) | 1.60 | 14.50 | 24.80 |
| | | | 1200 | 64,07 | (16.95) | 59,95 | (15.86) | 1.70 | 17.19 | 29.47 |
| | | | 1500 | 82,00 | (21.69) | 77,50 | (20.50) | 2.10 | 21.90 | 36.90 |
| | | | 1800 | 99,04 | (26.20) | 94,92 | (25.11) | 2.52 | 25.60 | 43.76 |
| 20 | 63,8 | (3.89) | 1000 | 58,30 | (15.42) | 53,80 | (14.23) | 1.60 | 15.80 | 27.00 |
| | | | 1200 | 70,69 | (18.70) | 66,57 | (17.61) | 1.77 | 18.68 | 32.09 |
| | | | 1500 | 90,20 | (23.86) | 85,70 | (22.67) | 2.20 | 23.80 | 40.20 |
| | | | 1800 | 108,90 | (28.81) | 103,65 | (27.42) | 2.63 | 27.84 | 47.68 |
| 22 | 70,3 | (4.29) | 1000 | 64,80 | (17.14) | 60,30 | (15.95) | 1.70 | 17.30 | 29.60 |
| | | | 1200 | 78,47 | (20.76) | 74,35 | (19.67) | 1.86 | 20.46 | 35.18 |
| | | | 1500 | 100,00 | (26.46) | 95,50 | (25.26) | 2.30 | 26.10 | 44.10 |
| | | | 1800 | 120,58 | (31.90) | 116,46 | (30.81) | 2.76 | 30.49 | 52.32 |
| 25 ¹⁾ | 79,3 | (4.84) | 1000 | 73,80 | (19.52) | 69,30 | (18.33) | 1.80 | 19.30 | 33.20 |
| | | | 1200 | 89,25 | (23.61) | 85,13 | (22.52) | 1.99 | 22.90 | 39.47 |
| | | | 1500 | 113,50 | (30.03) | 109,00 | (28.84) | 2.50 | 29.20 | 49.50 |
| | | | 1800 | 136,76 | (36.18) | 132,64 | (35.09) | 2.95 | 34.16 | 58.75 |
| 28 ¹⁾ | 88,8 | (5.42) | 1000 | 83,30 | (22.04) | 80,10 ²⁾ | (21.19) ²⁾ | 1.90 | 21.90 | 32.50 ²⁾ |
| | | | 1200 | 100,62 | (26.62) | 97,75 ²⁾ | (25.86) ²⁾ | 2.11 | 25.49 | 37.77 ²⁾ |
| | | | 1500 | 127,70 | (33.78) | 124,50 ²⁾ | (32.94) ²⁾ | 2.80 | 32.70 | 48.50 ²⁾ |
| | | | 1800 | 153,85 | (40.70) | 150,97 ²⁾ | (39.94) ²⁾ | 3.14 | 38.04 | 56.42 ²⁾ |
| 31 ¹⁾ | 100,0 | (6.10) | 1000 | 94,50 | (25.00) | 91,30 ²⁾ | (24.15) ²⁾ | 2.00 | 24.40 | 36.40 ²⁾ |
| | | | 1200 | 114,04 | (30.17) | 111,17 ²⁾ | (29.41) ²⁾ | 2.26 | 28.53 | 42.34 ²⁾ |
| | | | 1500 | 144,50 | (38.23) | 141,30 ²⁾ | (37.38) ²⁾ | 2.80 | 36.50 | 54.40 ²⁾ |
| | | | 1800 | 173,99 | (46.03) | 171,12 ²⁾ | (45.27) ²⁾ | 3.37 | 42.61 | 63.28 ²⁾ |

- Internal leakage exceeding 50% of the theoretical flow

1) 2500 r.p.m. max.

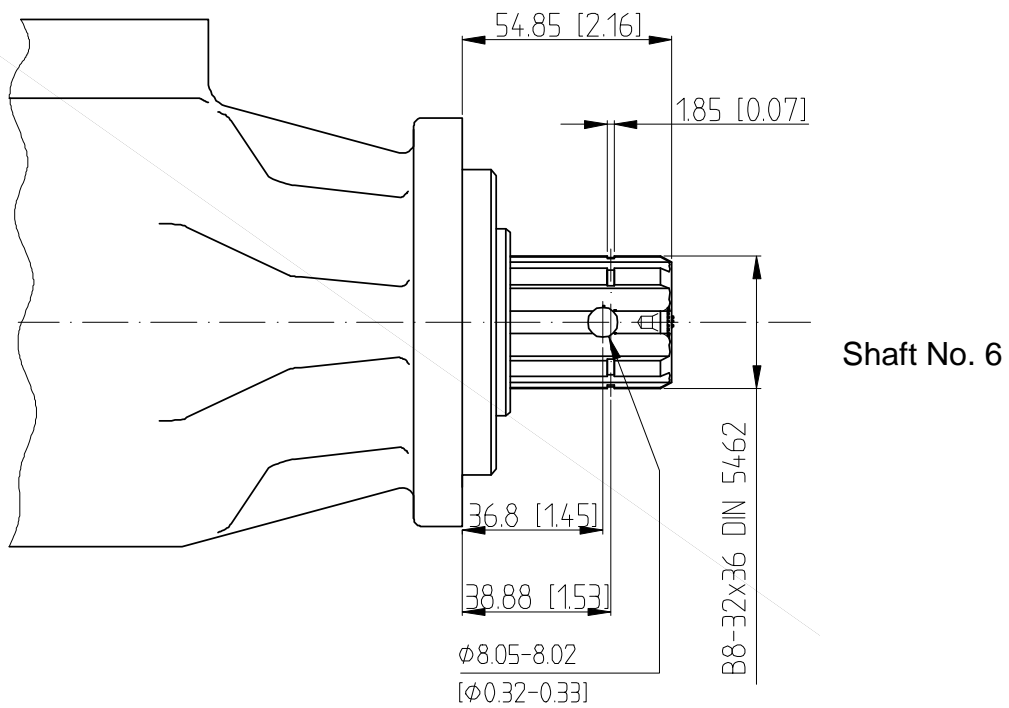
2) 210 bar (3000 p.s.i.) max. int.

Installation dimensions mm [inches]



Approx weight: 18 kg (39.5 lbs)

Shaft options mm [inches]



Model code breakdown

HD 03 G ** * * ** * *

Pump series

Pump type

Design

Cartridge model

03 05 06 08 10 12 14 17 20 22 25 28 31

Shaft end options

6 = Keyed B8 32x36 DIN 5462

Port dimensions

(Look at dimensions sec.)

A = Outlet 1"BSPP

D = Outlet 1" Sae 4 threads

Seals

1 = NBR

Port orientations

(Compared to the outlet)

00 = Inlet opposite

01 = Inlet inline

02 = Inlet 90°CW (viewed from shaft-end)

03 = Inlet 90°CCW (viewed from shaft-end)

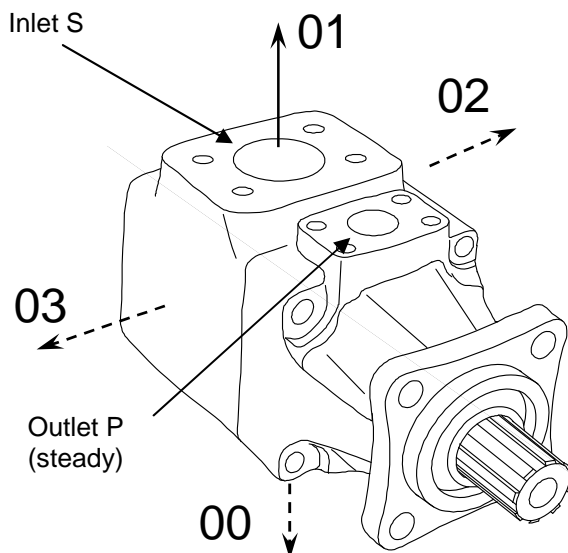
Pump rotation

(viewed from shaft-end)

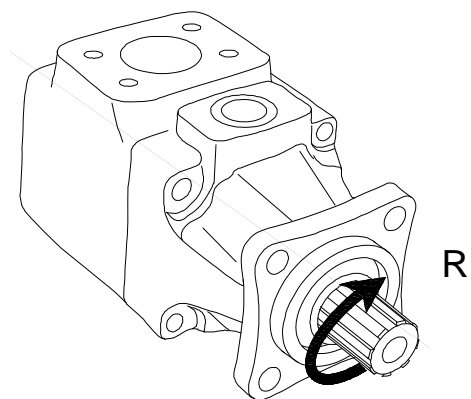
R = Right hand rotation CW

L = Left hand rotation CCW

Port orientations



Pump rotation



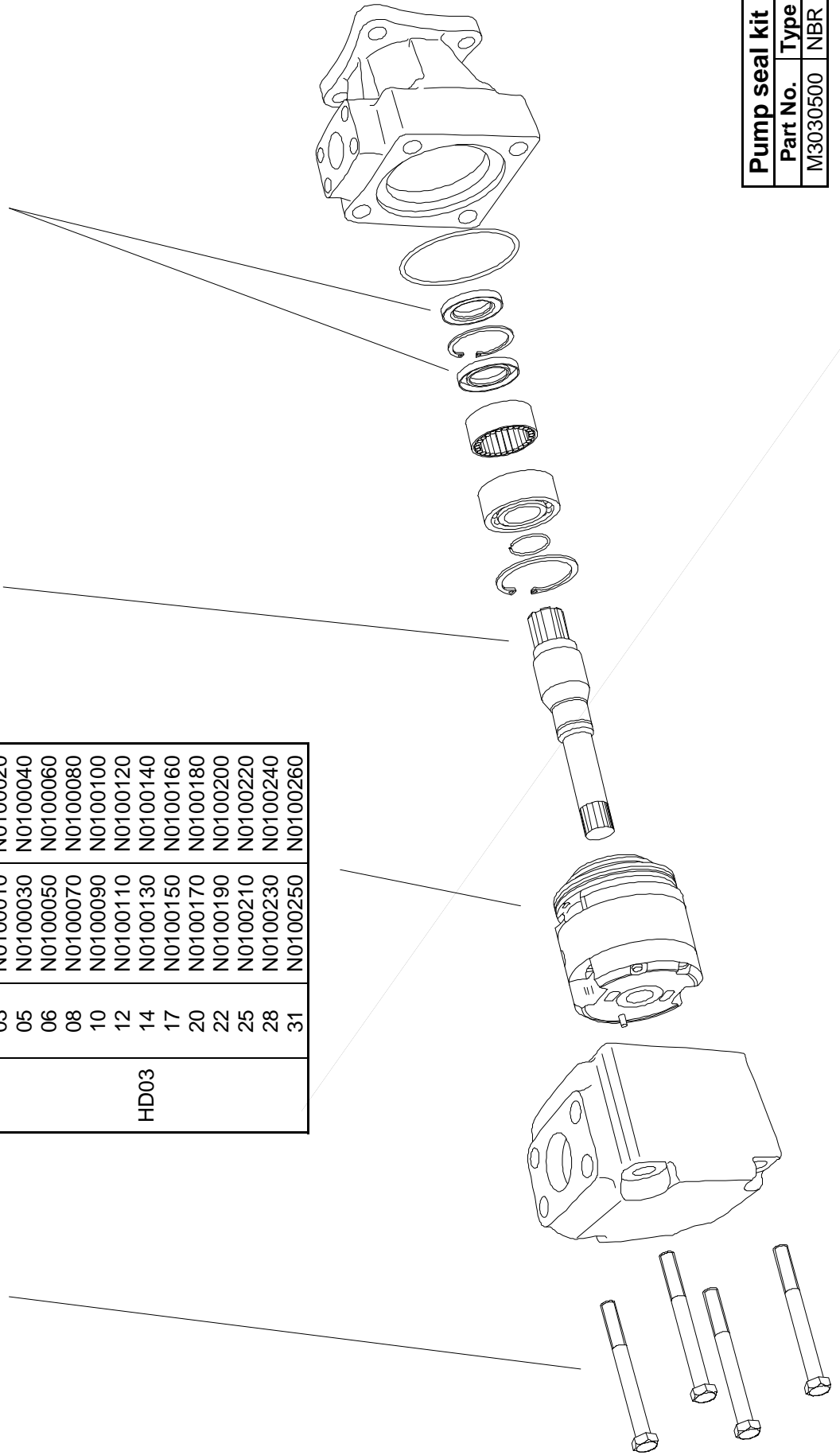
Id. codes of pump components

| Screw | |
|--------------------------------|----------|
| Part No. | M3002070 |
| Torque at 159 Nm (1418 lb.in.) | |

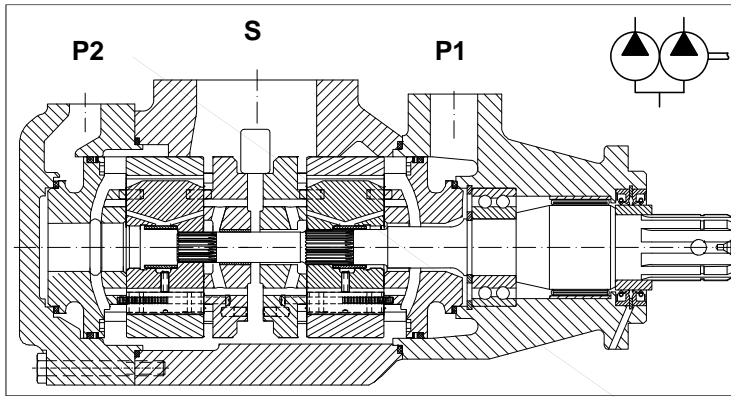
| Type | Cartridge | | |
|------|------------|---------------|----------|
| | Model | Pump rotation | |
| | Right hand | Left hand | |
| HD03 | 03 | N0100010 | N0100020 |
| | 05 | N0100030 | N0100040 |
| | 06 | N0100050 | N0100060 |
| | 08 | N0100070 | N0100080 |
| | 10 | N0100090 | N0100100 |
| | 12 | N0100110 | N0100120 |
| | 14 | N0100130 | N0100140 |
| | 17 | N0100150 | N0100160 |
| | 20 | N0100170 | N0100180 |
| | 22 | N0100190 | N0100200 |
| | 25 | N0100210 | N0100220 |
| | 28 | N0100230 | N0100240 |
| | 31 | N0100250 | N0100260 |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3020061 | NBR |

| Shaft | |
|-------|----------|
| Model | Part No. |
| 06 | K6036000 |



| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3030500 | NBR |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with total flow from 32 to 300 l/min (from 8 to 80 gpm) at 1500 rpm and pressure 0 bar.

Technical characteristics (P1 and P2 sections)

| Cartridge model | Geometric displacement | | Rated capacity at 0 bar | | | | Maximum pressure | | | | Speed range rpm |
|-----------------|------------------------|----------------------|-------------------------|---------|----------|---------|------------------|--------|------------|--------|--------------------|
| | | | 1200 rpm | | 1500 rpm | | intermittent | | continuous | | |
| | ml/rev. | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | bar | (psi) | |
| 03 | 10,8 | (0.66) | 12,93 | (3.42) | 16,2 | (4.29) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 05 | 17,2 | (1.05) | 20,60 | (5.45) | 25,8 | (6.83) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 06 | 21,3 | (1.30) | 25,52 | (6.75) | 31,9 | (8.44) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 08 | 26,4 | (1.61) | 31,64 | (8.37) | 39,6 | (10.48) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 10 | 34,1 | (2.08) | 40,86 | (10.81) | 51,1 | (13.52) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 12 | 37,1 | (2.26) | 44,45 | (11.76) | 55,6 | (14.71) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 14 | 46,0 | (2.81) | 55,11 | (14.58) | 69,0 | (18.25) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 17 | 58,3 | (3.56) | 69,85 | (18.48) | 87,4 | (23.12) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 20 | 63,8 | (3.89) | 76,47 | (20.23) | 95,7 | (25.32) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 22 | 70,3 | (4.29) | 84,26 | (22.29) | 105,4 | (27.88) | 275 | (4000) | 240 | (3500) | 400 - 2800 |
| 25 | 79,3 | (4.84) | 95,03 | (25.14) | 118,9 | (31.46) | 275 | (4000) | 240 | (3500) | 400 - 2500 |
| 28 | 88,8 | (5.42) | 106,41 | (28.15) | 133,2 | (35.24) | 210 | (3000) | 160 | (2300) | 400 - 2500 |
| 31 | 100,0 | (6.10) | 119,83 | (31.70) | 150,0 | (39.68) | 210 | (3000) | 160 | (2300) | 400 - 2500 |

Hydraulic fluids: antiwear petroleum base, synthetic fluid, water glycols and invert emulsions.

Viscosity range / Viscosity index: with antiwear petroleum base, from 10 to 2000 cSt. (10 to 108 cSt. recommended). Other fluids from 18 to 2000 c.St. (18 to 108 c.St. recomm.). Choose 30 c.St. for max life-time. *Viscosity index:* 90° min.

Filtration: to maintain contamination level to ISO 18/14 or NAS 1638 class 8.

Filters: for the inlet, use strainer with mesh not less than 149 micron abs. (omit strainer with application requiring cold start or when using fire resistant fluids); for the return line - 25 micron abs. or better.

Water contamination level: max 0.10% for mineral oil. With other fluids, max 0.05%

Intermittent pressure: typically the working time permitted at such pressure is < 30% of the duty cycle. With duty cycles longer than 15 minutes, please contact the technical office of B&C.

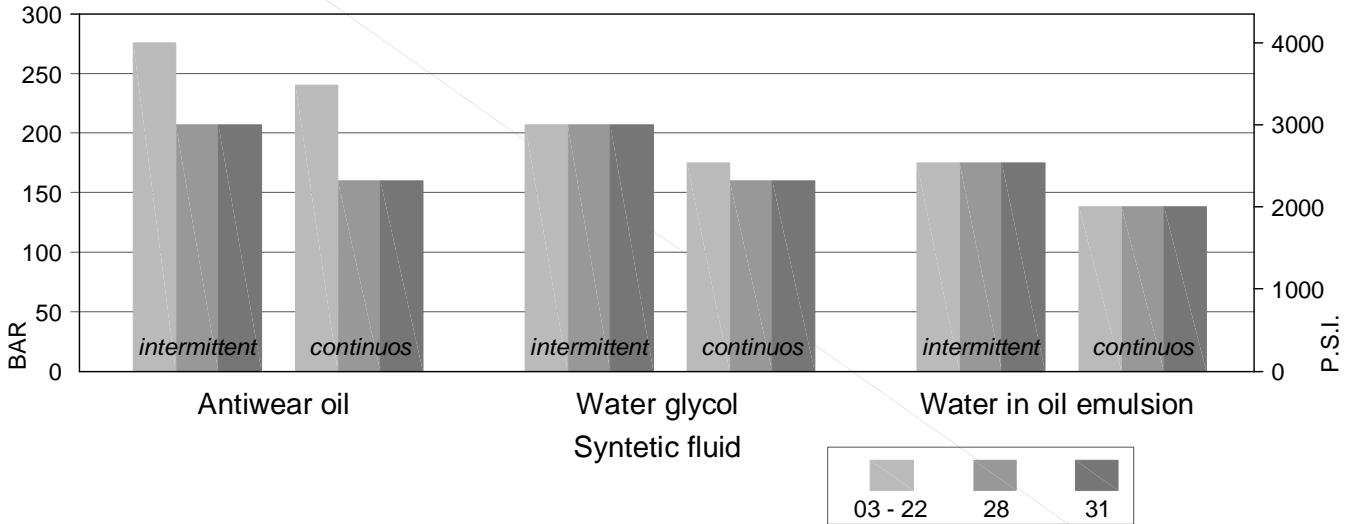
Minimum inlet pressure: (with mineral oil 10-65 c.St.): 0,8 bar abs. (3 psi abs.). In the biggest displacements of each series and with the highest speeds, is required an higher inlet pressure. Please consult the specific section for details. In case of tandem pump, supply the inlet port with the highest pressure requested among the pump stages.

Operating temperature: with "antiwear petroleum base" the permitted temperature is: from -18 to +100° C; with water glycol and "water in oil emulsion": from +10 to +50°C; with syntetic fluid: from -18 to +70°C; with rapeseed and esters: from -20 to + 70°C. During cold start the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

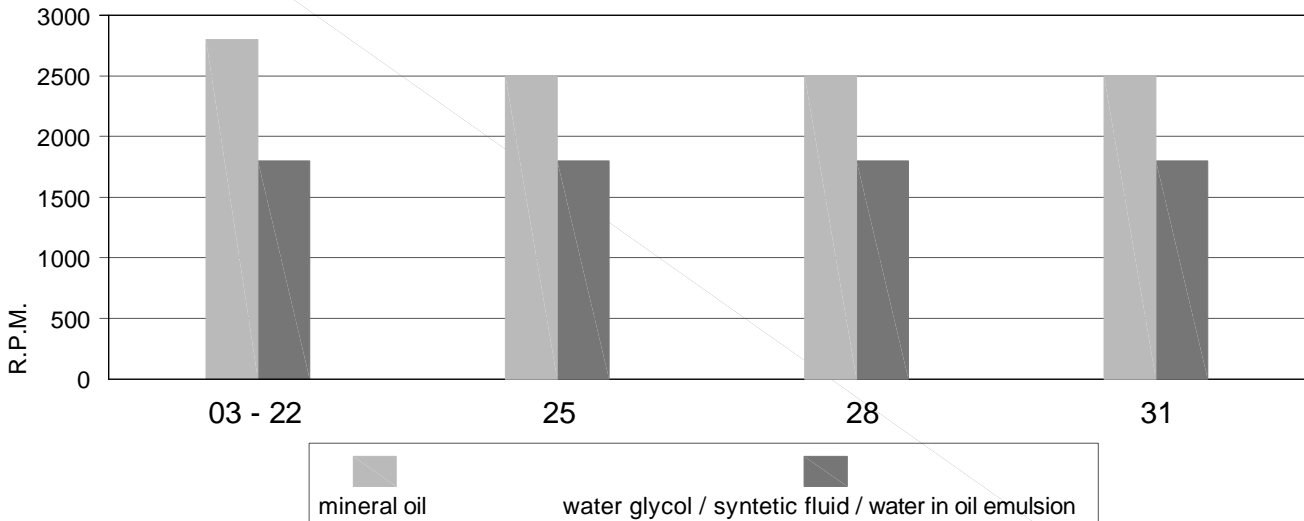
Drive: direct and coaxial by means of a flexible coupling. Low axial and radial loads allowed. Consult specific section for more detail.

Main operating data

max pressure / fluid type



max speed / fluid type



min. allowable inlet pressure / rotation speed (abs. bar)*

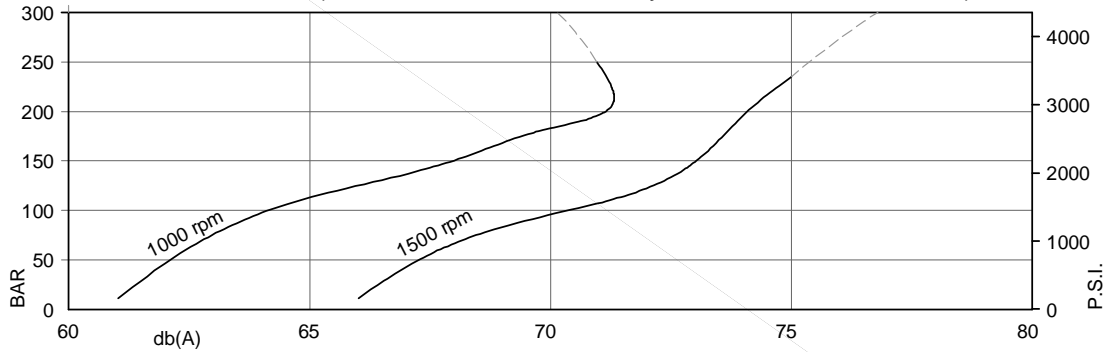
| Speed r.p.m. | from 03 to 10 | 12 | 14 | 17 | 20 | 22 | 25 | 28 | 31 |
|--------------|---------------|------|------|------|------|------|------|------|------|
| 2800 | 1.00 | 1.00 | 1.00 | 1.03 | 1.03 | 1.05 | | | |
| 2500 | 0.90 | 0.92 | 0.95 | 0.95 | 0.95 | 0.98 | 1.05 | 1.08 | 1.11 |
| 2300 | 0.80 | 0.85 | 0.85 | 0.90 | 0.90 | 0.90 | 0.95 | 0.98 | 1.0 |
| 2200 | 0.80 | 0.80 | 0.80 | 0.85 | 0.85 | 0.90 | 0.95 | 0.98 | 0.90 |
| 2100 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.85 | 0.90 | 0.90 | 0.85 |
| 1800 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1500 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| 1200 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |

* measured inside the inlet flange; with petroleum base fluid (visc. 10 to 65 cSt.).

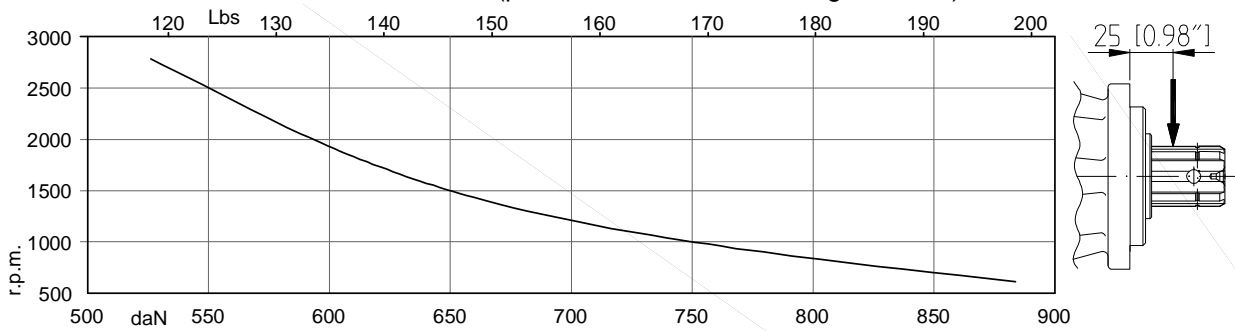
Multiply the abs. pressure by 1.25 when using water-glycol or "water in oil emulsion", by 1.35 with synthetic fluids, and by 1.1 with ester or rapeseed base.

Main operating data

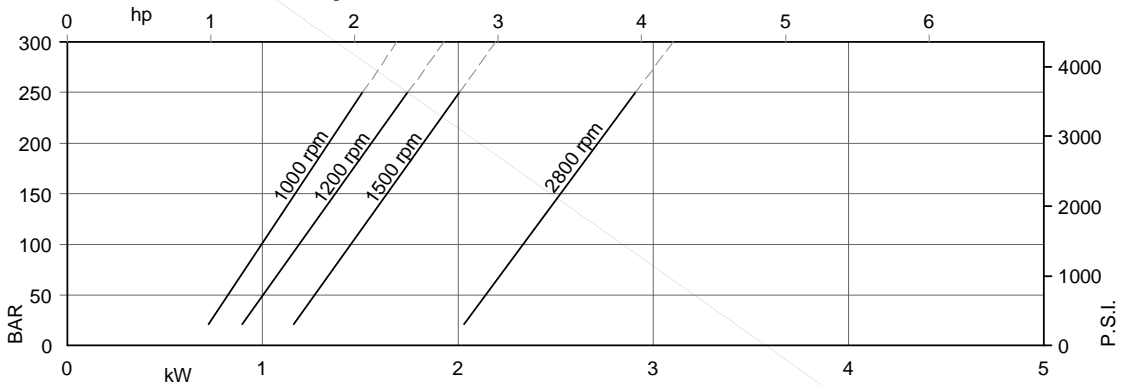
noise level (model 22, with fluid viscosity 32 c.St., inlet 0.9bar abs.)



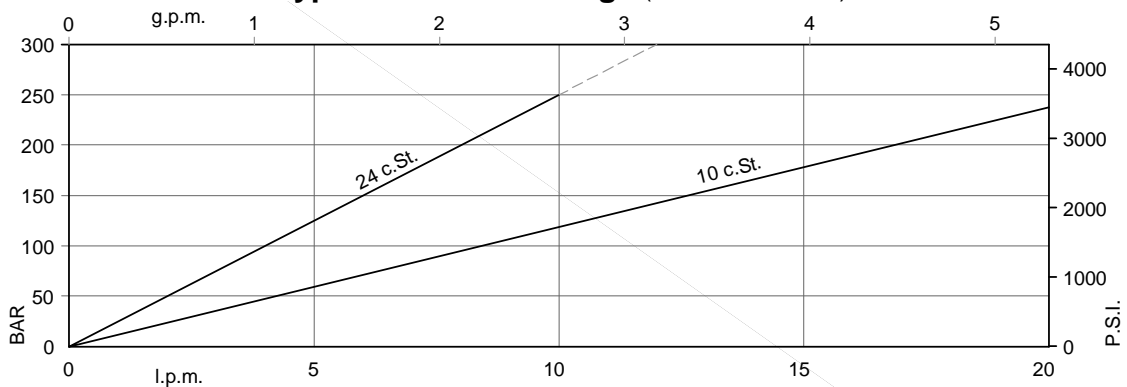
allowable radial load (positioned 25 mm from flange surface)



power loss (typical for each section)



Typical internal leakage (for each section) *



* If the internal leakage is more than 50% of the theoretical flow, do not operate the pump

Specific operating data (P1 or P2 section)

Typical: 24 c.St. (115 SUS)

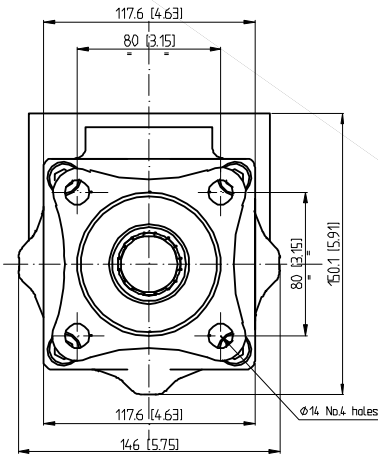
| Cartridge model | Geometric displacement | | Speed rpm | 140 bar | | 240 bar | | Input power (kW) | | |
|------------------|------------------------|----------------------|-----------|---------|---------|----------------------|-----------------------|------------------|--------------------|---------------------|
| | ml/rev. | (in ³ /r) | | l/min | (gpm) | l/min | (gpm) | 7 bar (100 psi) | 140 bar (2000 psi) | 240 bar (3500 psi) |
| 03 | 10,8 | (0.66) | 1000 | - | - | - | - | 1.00 | - | - |
| | | | 1200 | - | - | - | - | 1.05 | - | - |
| | | | 1500 | 10,7 | (2.84) | - | - | 1.30 | 5.30 | - |
| | | | 1800 | 13,6 | (3.61) | - | - | 1.55 | 8.45 | - |
| 05 | 17,2 | (1.05) | 1000 | 11,7 | (3.09) | - | - | 1.10 | 5.10 | - |
| | | | 1200 | 15,1 | (3.99) | - | - | 1.14 | 8.17 | - |
| | | | 1500 | 20,3 | (5.37) | 15,8 | (4.18) | 1.40 | 7.50 | 12.2 |
| | | | 1800 | 25,1 | (6.65) | 21,0 | (5.56) | 1.68 | 12.0 | 14.4 |
| 06 | 21,3 | (1.30) | 1000 | 15,80 | (4.18) | 11,30 | (2.99) | 1.10 | 6.00 | 10.00 |
| | | | 1200 | 19,73 | (5.22) | 15,61 | (4.13) | 1.19 | 7.13 | 11.86 |
| | | | 1500 | 26,50 | (7.01) | 22,00 | (5.82) | 1.50 | 8.90 | 14.70 |
| | | | 1800 | 32,51 | (8.60) | 28,39 | (7.51) | 1.76 | 10.50 | 17.33 |
| 08 | 26,4 | (1.61) | 1000 | 20,90 | (5.53) | 16,40 | (4.34) | 1.20 | 7.20 | 12.10 |
| | | | 1200 | 25,86 | (6.84) | 21,74 | (5.75) | 1.26 | 8.51 | 14.29 |
| | | | 1500 | 34,10 | (9.02) | 29,60 | (7.83) | 1.60 | 10.70 | 17.70 |
| | | | 1800 | 41,66 | (11.02) | 37,54 | (9.93) | 1.87 | 12.58 | 20.98 |
| 10 | 34,1 | (2.08) | 1000 | 28,60 | (7.57) | 24,10 | (6.38) | 1.30 | 8.90 | 15.10 |
| | | | 1200 | 35,08 | (9.28) | 30,96 | (8.19) | 1.37 | 10.61 | 17.96 |
| | | | 1500 | 45,70 | (12.09) | 41,20 | (10.90) | 1.70 | 13.40 | 22.30 |
| | | | 1800 | 55,53 | (14.69) | 51,41 | (13.60) | 2.03 | 15.72 | 26.47 |
| 12 | 37,1 | (2.26) | 1000 | 31,60 | (8.36) | 27,10 | (7.17) | 1.30 | 9.60 | 16.30 |
| | | | 1200 | 38,67 | (10.23) | 34,55 | (9.14) | 1.41 | 11.42 | 19.38 |
| | | | 1500 | 50,20 | (13.28) | 45,70 | (12.09) | 1.70 | 14.40 | 24.10 |
| | | | 1800 | 60,90 | (16.11) | 56,78 | (15.02) | 2.09 | 16.95 | 28.62 |
| 14 | 46,0 | (2.81) | 1000 | 40,50 | (10.71) | 36,00 | (9.52) | 1.40 | 11.70 | 19.90 |
| | | | 1200 | 49,33 | (13.05) | 45,21 | (11.96) | 1.53 | 13.85 | 23.62 |
| | | | 1500 | 63,50 | (16.80) | 59,00 | (15.61) | 1.90 | 17.60 | 29.50 |
| | | | 1800 | 76,92 | (20.35) | 72,80 | (19.26) | 2.27 | 20.58 | 34.97 |
| 17 | 58,3 | (3.56) | 1000 | 52,80 | (13.97) | 48,30 | (12.78) | 1.60 | 14.50 | 24.80 |
| | | | 1200 | 64,07 | (16.95) | 59,95 | (15.86) | 1.70 | 17.19 | 29.47 |
| | | | 1500 | 82,00 | (21.69) | 77,50 | (20.50) | 2.10 | 21.90 | 36.90 |
| | | | 1800 | 99,04 | (26.20) | 94,92 | (25.11) | 2.52 | 25.60 | 43.76 |
| 20 | 63,8 | (3.89) | 1000 | 58,30 | (15.42) | 53,80 | (14.23) | 1.60 | 15.80 | 27.00 |
| | | | 1200 | 70,69 | (18.70) | 66,57 | (17.61) | 1.77 | 18.68 | 32.09 |
| | | | 1500 | 90,20 | (23.86) | 85,70 | (22.67) | 2.20 | 23.80 | 40.20 |
| | | | 1800 | 108,90 | (28.81) | 103,65 | (27.42) | 2.63 | 27.84 | 47.68 |
| 22 | 70,3 | (4.29) | 1000 | 64,80 | (17.14) | 60,30 | (15.95) | 1.70 | 17.30 | 29.60 |
| | | | 1200 | 78,47 | (20.76) | 74,35 | (19.67) | 1.86 | 20.46 | 35.18 |
| | | | 1500 | 100,00 | (26.46) | 95,50 | (25.26) | 2.30 | 26.10 | 44.10 |
| | | | 1800 | 120,58 | (31.90) | 116,46 | (30.81) | 2.76 | 30.49 | 52.32 |
| 25 ¹⁾ | 79,3 | (4.84) | 1000 | 73,80 | (19.52) | 69,30 | (18.33) | 1.80 | 19.30 | 33.20 |
| | | | 1200 | 89,25 | (23.61) | 85,13 | (22.52) | 1.99 | 22.90 | 39.47 |
| | | | 1500 | 113,50 | (30.03) | 109,00 | (28.84) | 2.50 | 29.20 | 49.50 |
| | | | 1800 | 136,76 | (36.18) | 132,64 | (35.09) | 2.95 | 34.16 | 58.75 |
| 28 ¹⁾ | 88,8 | (5.42) | 1000 | 83,30 | (22.04) | 80,10 ²⁾ | (21.19) ²⁾ | 1.90 | 21.90 | 32.50 ²⁾ |
| | | | 1200 | 100,62 | (26.62) | 97,75 ²⁾ | (25.86) ²⁾ | 2.11 | 25.49 | 37.77 ²⁾ |
| | | | 1500 | 127,70 | (33.78) | 124,50 ²⁾ | (32.94) ²⁾ | 2.80 | 32.70 | 48.50 ²⁾ |
| | | | 1800 | 153,85 | (40.70) | 150,97 ²⁾ | (39.94) ²⁾ | 3.14 | 38.04 | 56.42 ²⁾ |
| 31 ¹⁾ | 100,0 | (6.10) | 1000 | 94,50 | (25.00) | 91,30 ²⁾ | (24.15) ²⁾ | 2.00 | 24.40 | 36.40 ²⁾ |
| | | | 1200 | 114,04 | (30.17) | 111,17 ²⁾ | (29.41) ²⁾ | 2.26 | 28.53 | 42.34 ²⁾ |
| | | | 1500 | 144,50 | (38.23) | 141,30 ²⁾ | (37.38) ²⁾ | 2.80 | 36.50 | 54.40 ²⁾ |
| | | | 1800 | 173,99 | (46.03) | 171,12 ²⁾ | (45.27) ²⁾ | 3.37 | 42.61 | 63.28 ²⁾ |

- Internal leakage exceeding 50% of the theoretical flow

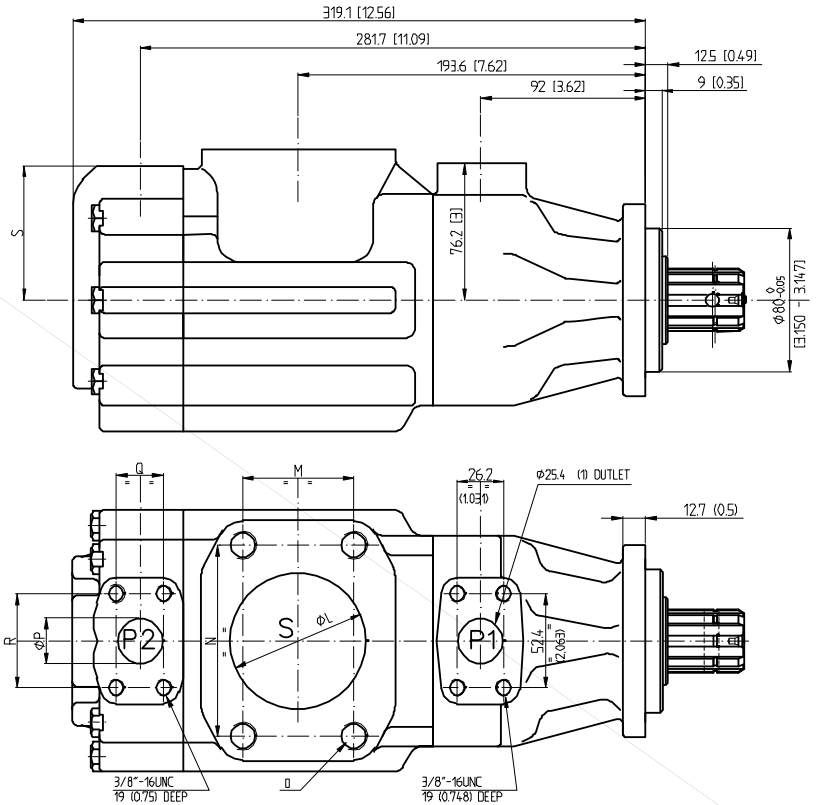
1) 2500 r.p.m. max.

2) 210 bar (3000 p.s.i.) max. int.

Installation dimensions mm [inches]

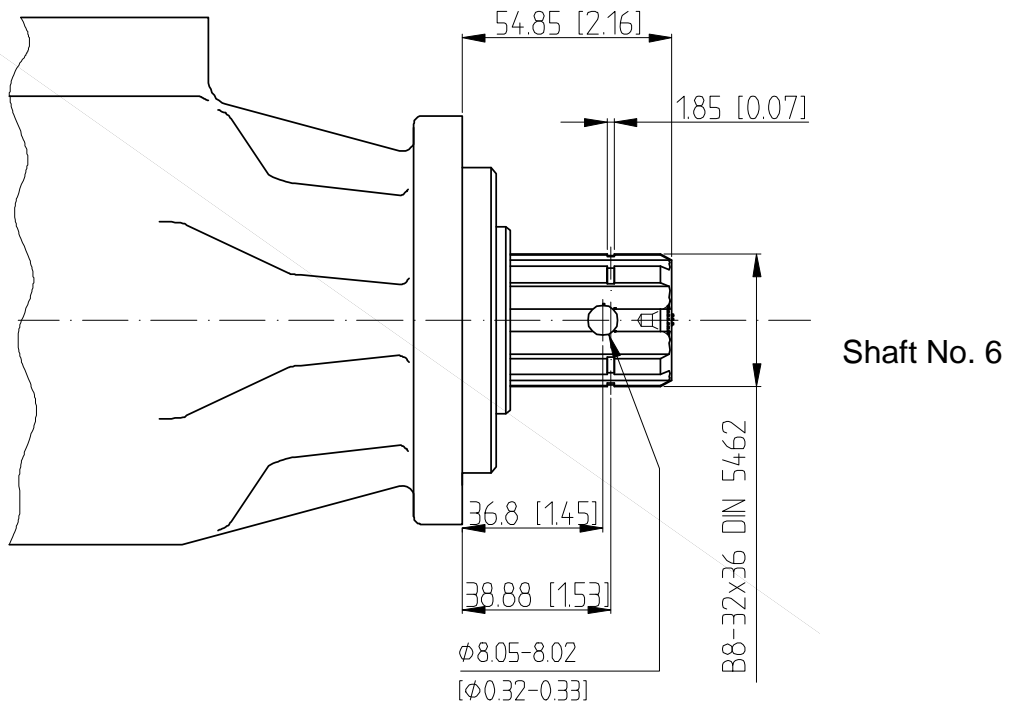


| CONF. | L | M | N | D | P | Q | R | S | |
|-------|----|------|------|-------|-----------------------|------|------|------|------|
| A | mm | 76.2 | 61.9 | 106.4 | 5/8"-11UNC Prof. 28 | 25.4 | 26.2 | 52.4 | 74.7 |
| | in | 3 | 2.44 | 4.19 | 5/8"-11UNC Prof. 1.1" | 1 | 1.03 | 2.06 | 2.94 |
| B | mm | 76.2 | 61.9 | 106.4 | 5/8"-11UNC Prof. 28 | 19 | 22.2 | 47.7 | 76.2 |
| | in | 3 | 2.44 | 4.19 | 5/8"-11UNC Prof. 1.1" | 0.75 | 0.88 | 1.88 | 3 |
| C | mm | 63.5 | 50.8 | 88.9 | 1/2"-13UNC Prof. 24 | 25.4 | 26.2 | 52.4 | 74.7 |
| | in | 2.5 | 2 | 3.5 | 1/2"-13UNC Prof. 9.4 | 1 | 1.03 | 2.06 | 2.94 |
| D | mm | 63.5 | 50.8 | 88.9 | 1/2"-13UNC Prof. 24 | 19 | 22.4 | 47.7 | 76.2 |
| | in | 2.5 | 2 | 3.5 | 1/2"-13UNC Prof. 9.4 | 0.75 | 0.88 | 1.88 | 3 |

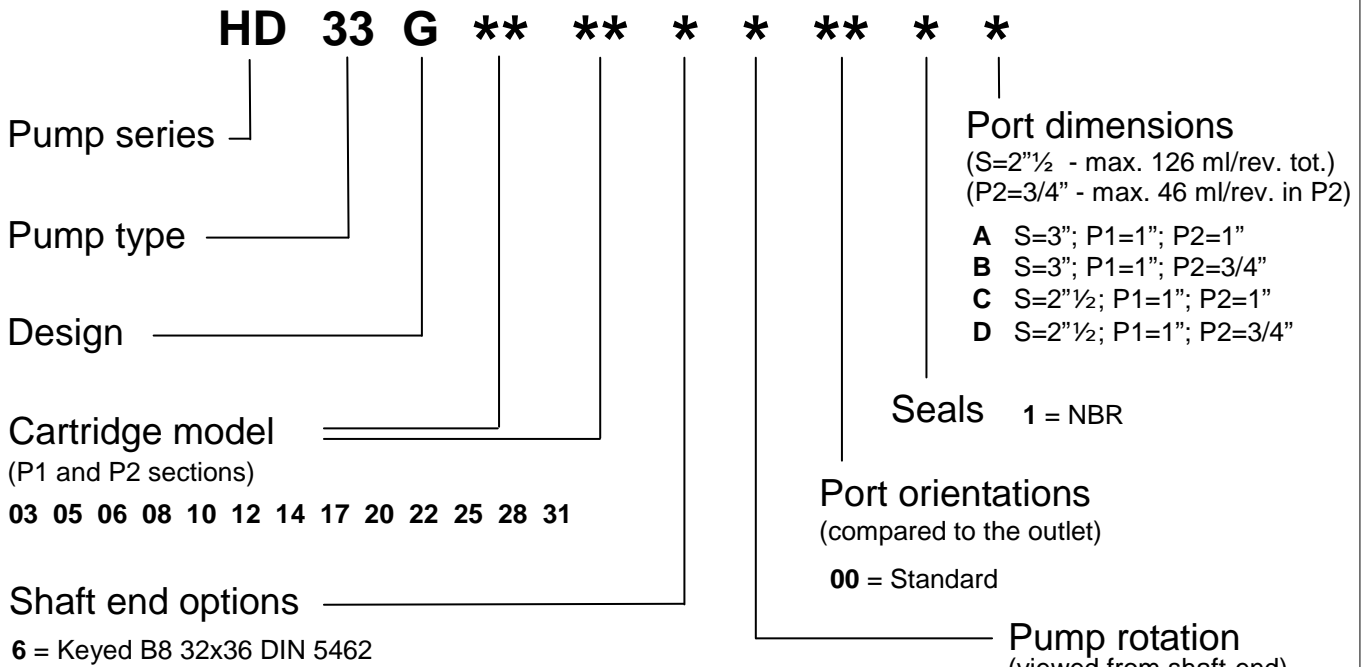


Approx weight: 27.2 kg (59.6 lbs)

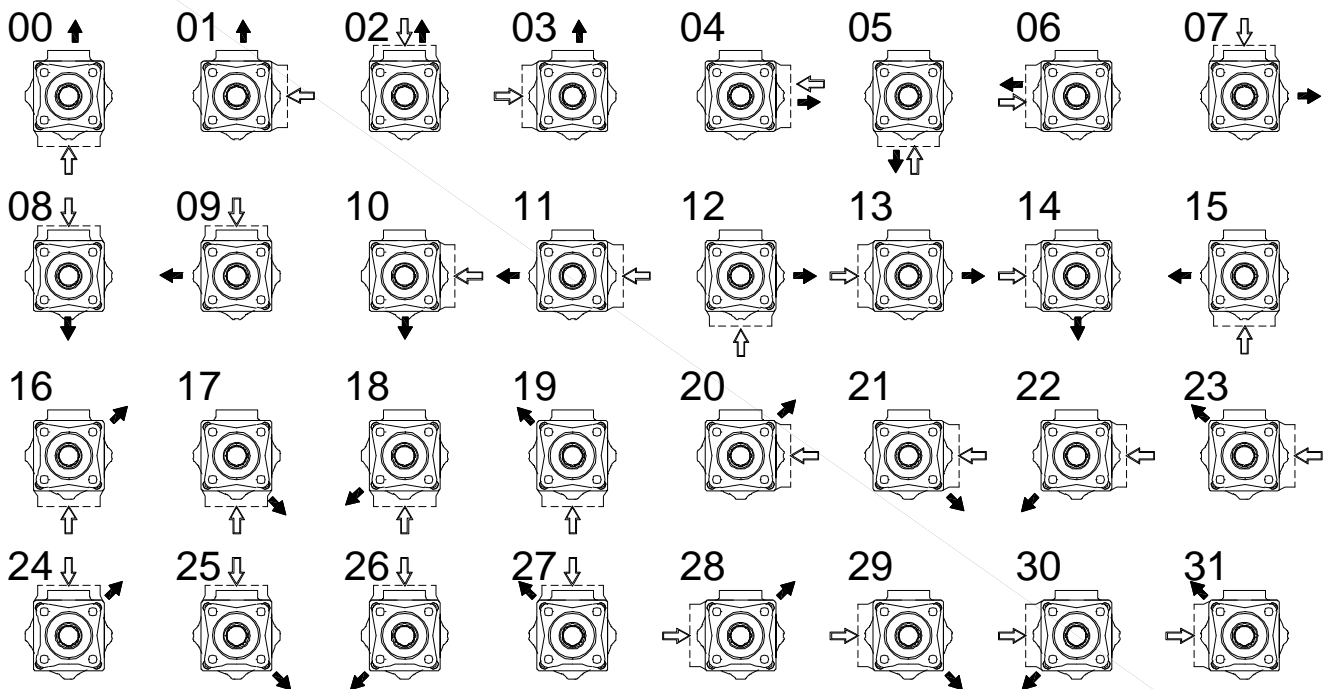
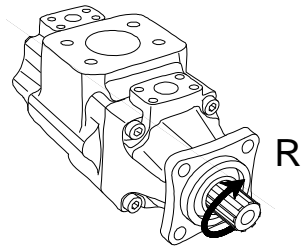
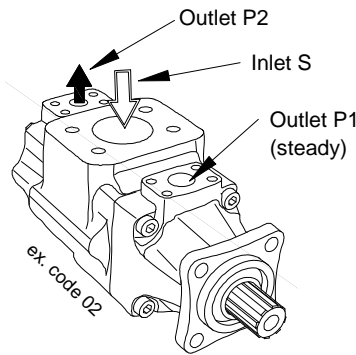
Shaft options mm [inches]



Model code breakdown



Port orientations



Id. codes of pump components

| Rear cartridge | | | |
|----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| HD33 | 03 | N0400270 | N0400280 |
| | 05 | N0400290 | N0400300 |
| | 06 | N0400310 | N0400320 |
| | 08 | N0400330 | N0400340 |
| | 10 | N0400350 | N0400360 |
| | 12 | N0400370 | N0400380 |
| | 14 | N0400390 | N0400400 |
| | 17 | N0400410 | N0400420 |
| | 20 | N0400430 | N0400440 |
| | 22 | N0400450 | N0400460 |
| | 25 | N0400470 | N0400480 |
| | 28 | N0400490 | N0400500 |
| | 31 | N0400510 | N0400520 |

| Front cartridge | | | |
|-----------------|-------|---------------|-----------|
| Type | Model | Pump rotation | |
| | | Right hand | Left hand |
| HD33 | 03 | N0400010 | N0400020 |
| | 05 | N0400030 | N0400040 |
| | 06 | N0400050 | N0400060 |
| | 08 | N0400070 | N0400080 |
| | 10 | N0400090 | N0400100 |
| | 12 | N0400110 | N0400120 |
| | 14 | N0400130 | N0400140 |
| | 17 | N0400150 | N0400160 |
| | 20 | N0400170 | N0400180 |
| | 22 | N0400190 | N0400200 |
| | 25 | N0400210 | N0400220 |
| | 28 | N0400230 | N0400240 |
| | 31 | N0400250 | N0400260 |

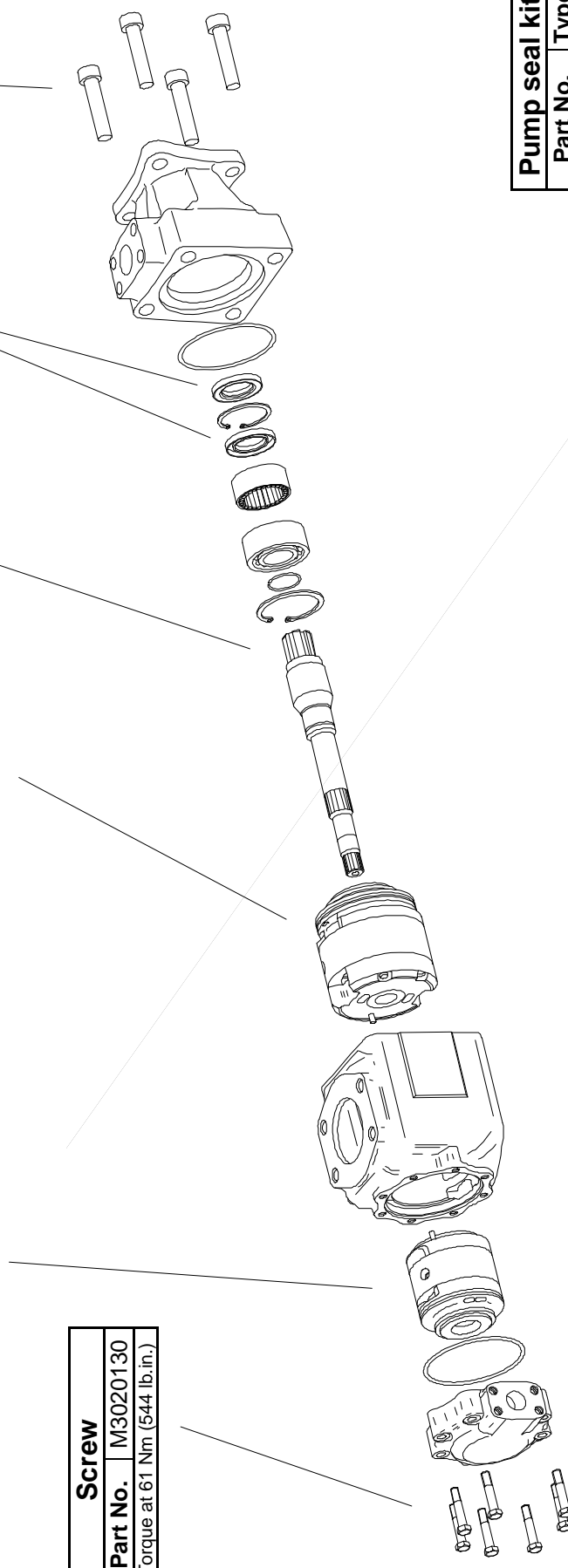
| Shaft | |
|-------|----------|
| Model | Part No. |
| 6 | K6336000 |

| Screw | |
|--------------------------------|----------|
| Part No. | M3020140 |
| Torque at 159 Nm (1418 lb.in.) | |

| Shaft seal | |
|------------|------|
| Part No. | type |
| M3020061 | NBR |

| Screw | |
|------------------------------|----------|
| Part No. | M3020130 |
| Torque at 61 Nm (544 lb.in.) | |

| Pump seal kit | |
|---------------|------|
| Part No. | Type |
| M3033500 | NBR |



Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7psi), fluid viscosity between 10 to 65 cSt., and ambient temperature in the range of +30°C to +50°C. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the cartridge.

Minimum speed: In general, the min. speed for all pumps is 400 rpm. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum continuous outlet pressure is different for each type of fluid used as can be seen from the corresponding diagrams. If fluid viscosity, pump speed and contamination level are respected, an intermittent pressure of +15% is permissible for a maximum time of 80% of the duty cycle lasting 15 minutes. For longer duty cycles, please consult our technical office.

Mounting and drive connections: consider the following indications when preparing the installation drawings:

Pump with keyed shaft: the pump with keyed shaft has to be coupled axially and by means of a flexible coupling to the drive; the clearance between the keyed shaft and the corresponding sleeve coupling has to be between 0.004 and 0.030 mm; avoid axial and radial loads on the shaft; the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm.

Pump with splined shaft: the female spline must be hardened (30 to 45 R.C.) and should be free to float to find its own center; the clearance between splines has to be between 0.013 and 0.051 mm on the pitch diameter; the max angular misalignment between the two spline axes must be less than ± 0.05 per 25 mm radius. The coupling spline must be lubricated with grease or similar lubricant.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.) Inlet line tubing must have the sections that permits a fluid velocity between 0.5 and 1.9 m/sec. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which must be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The use of a filter by-pass is recommended for cold starts and should avoid the filter become clogged. Proper maintenance of the filter elements are essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, apply the same general conditions as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time: completely fill the pump and the inlet line with fluid; start the motor at lower speed for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed; with a manometer check to ensure that the outlet pressure increases slightly; once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir. This procedure should be carefully applied because any residual air inside the pump can quickly cause the rotor to seize. After long stops (>1 week) the start up procedure must be repeated.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits. Make sure the fluid viscosity is within the limits, by consulting the specific pump model in this catalogue.

Vertical installation: The pump cannot work in vertical position (vertical shaft), unless the hydraulic circuit is equipped by devices to fill the pump completely before each starting.

The information provided in this catalogue is subject to change without notice

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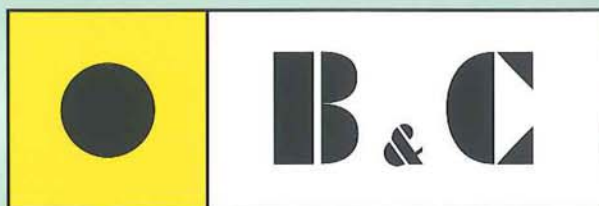
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www.bcit.it - info@bcit.it



TECHNICAL CATALOGUE



**FIXED DISPLACEMENT
HYDRAULIC VANE PUMPS**

HQ series



FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “HQ” SERIES

The design of the HQ series vane pumps makes them particularly suitable for application on trucks, especially garbage compactors.

All the components subject to wear are contained in a cartridge unit that can be easily removed for inspection and/or replacement without disconnecting the pump from the circuit, drastically reducing expensive machine downtime.

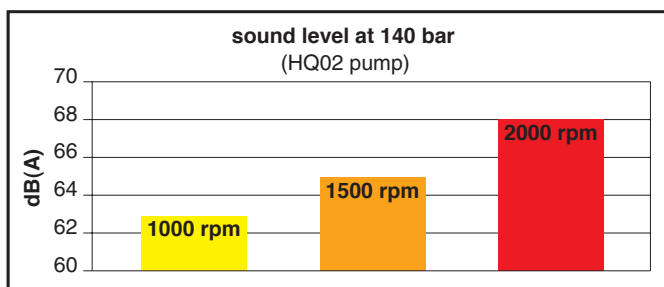
The special design of the inner flexible plates of the cartridge enables any thermal expansion in the rotor to be compensated for and to adequately cope with any sudden change in pressure.

Furthermore, the two opposed pumping chambers formed by the elliptical profile of the cam cancel out radial loads, dramatically reducing vibrations and considerably increasing the pump lifetime.

In addition to reliability, HQ pump guarantees continuous high volumetric efficiency during its whole servicetime. That avoids having to compensate the typical efficiency loss of other kinds of pump, increasing the truck engine RPM, which causes higher fuel consumption and therefore air pollution.

Such characteristics, along with an extremely low noise-level, make the HQ pump environmentally friendly, in line with the latest ecological trend.

The HQ series is available in 2 versions of single pump (from 39 to 88 l/min at 1000 rpm) and two versions of double pump (from 46 to 134 l/min at 1000 rpm) with maximum powers of over 103 kW. The pumps are extremely compact and are supplied with different types of either ISO or UNI norm mounting for the direct coupling with PTO and SAE norm hydraulic fittings. That, together with the possibility to orientate the inlet and outlet ports, makes the HQ pumps very easy to install and guarantees their interchangeability with other types of pumps.



contents

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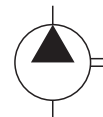
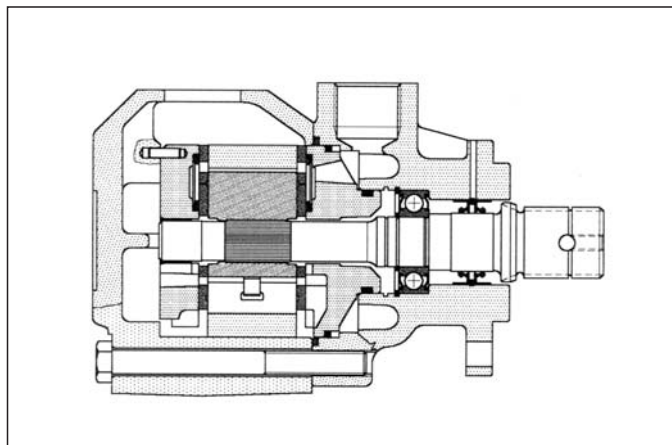
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Operating instructions..... pag. 35



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five different displacements from 39 to 66 l/min (from 10 to 17 gpm) at 1000 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A02-12 | 40,1 | (2.45) | 39,1 | (10.0) | 46,9 | (12) | 58,8 | (15.5) | 210 | (3050) | 600 | 2700 |
| A02-14 | 45,4 | (2.77) | 43,9 | (11.7) | 52,7 | (14) | 65,7 | (17.4) | 210 | (3050) | 600 | 2700 |
| A02-17 | 55,2 | (3.37) | 53,5 | (14.2) | 64,2 | (17) | 80,2 | (21.2) | 210 | (3050) | 600 | 2500 |
| A02-19 | 60,1 | (3.66) | 59,2 | (15.8) | 71,1 | (19) | 88,7 | (23.4) | 210 | (3050) | 600 | 2500 |
| A02-21 | 67,5 | (4.12) | 65,8 | (17.5) | 79,3 | (21) | 99,8 | (26.4) | 210 | (3050) | 600 | 2500 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

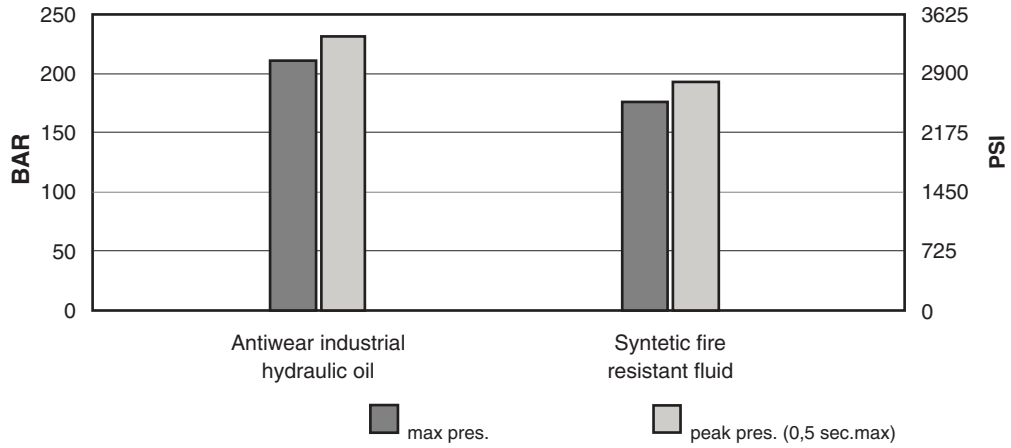
Inlet pressure (with mineral oil): from -0,17 to +0,35 bar (-2.5 + 5 psi)

Operating temperature: with mineral oil -10°C to +70°C (+30°C to +60°C recommended).

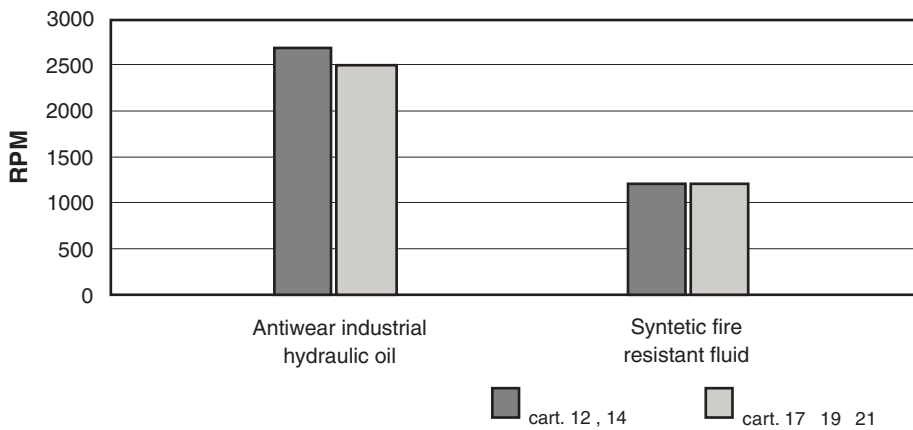
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

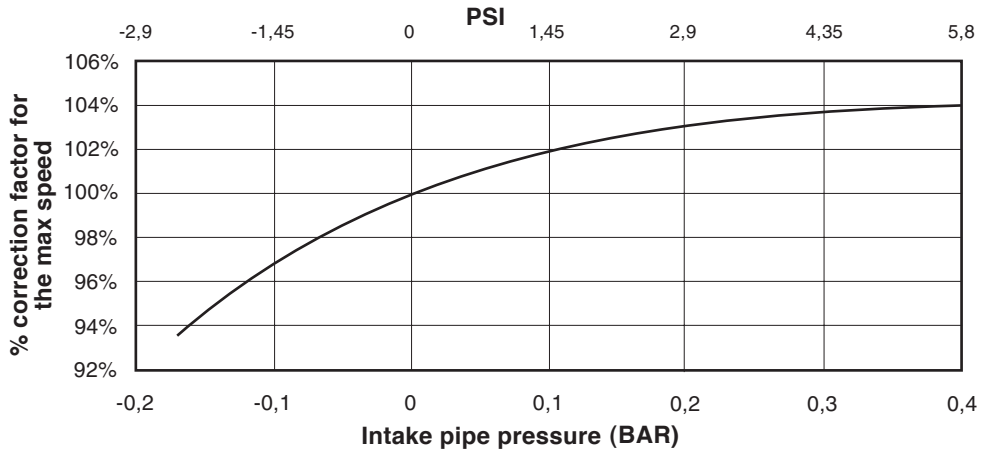


max speed / hydraulic fluid (with 0 bar in the intake pipe)

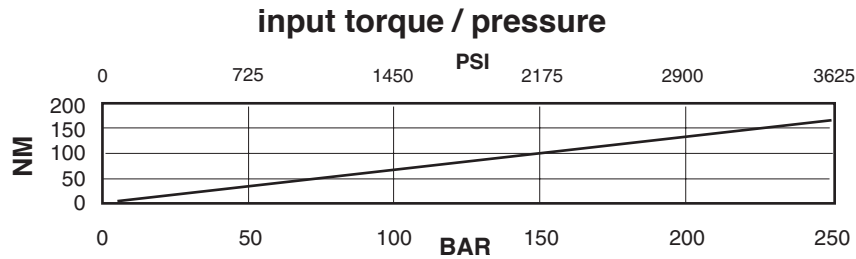
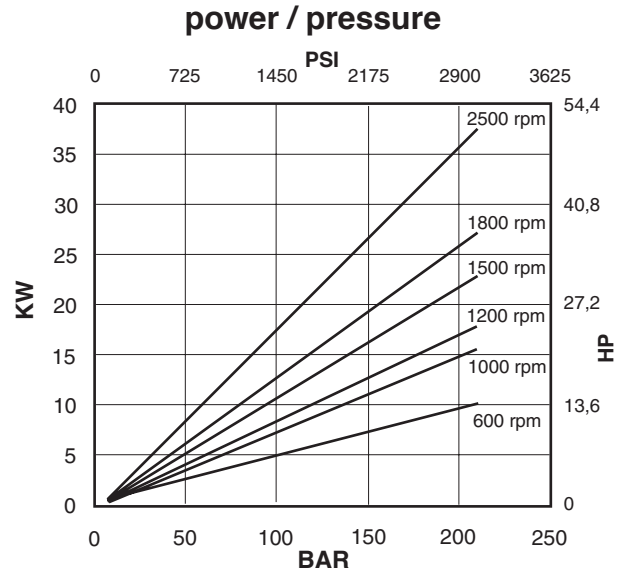
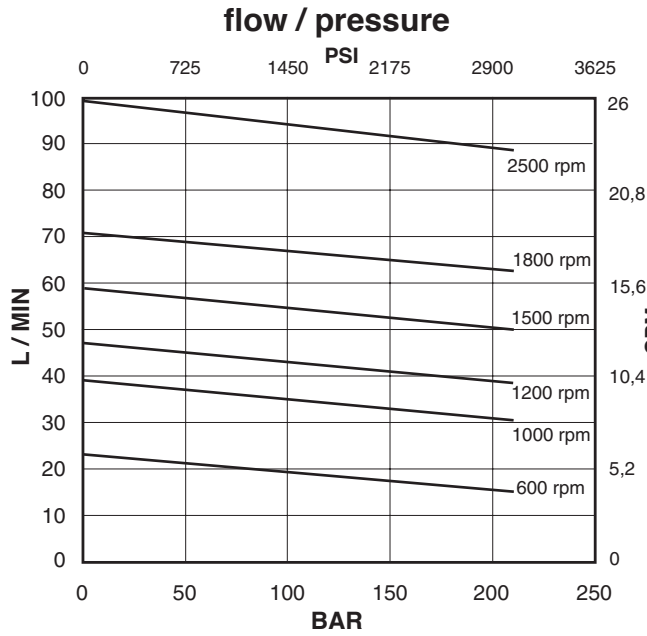


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.

max speed / intake pipe pressure

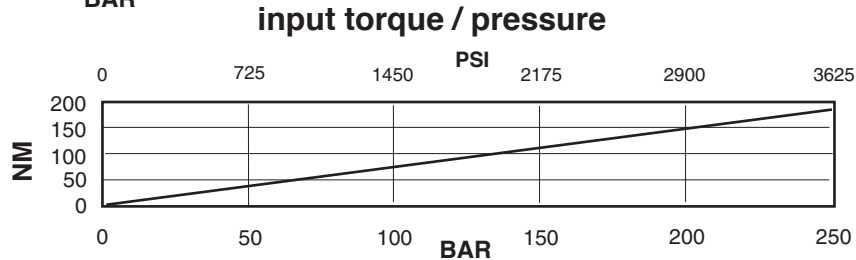
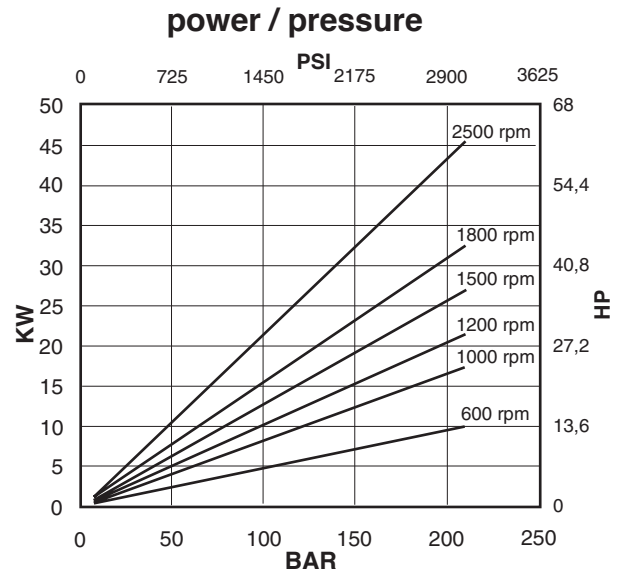
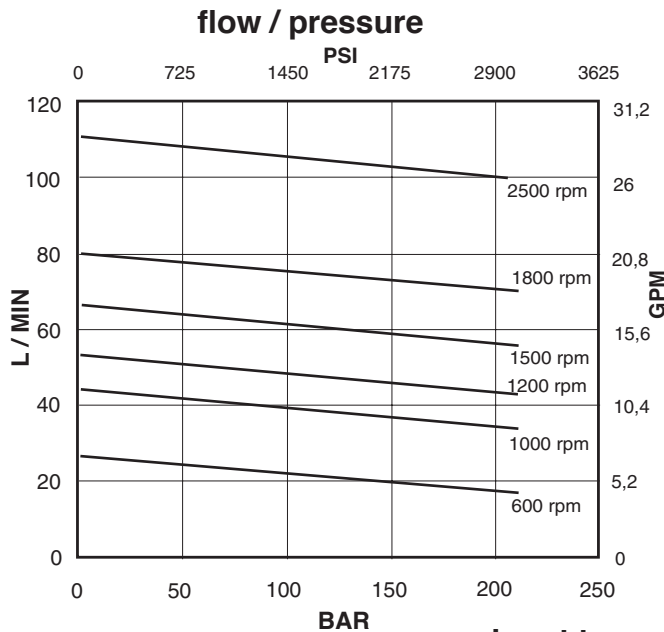


Cartridge A02-12



Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

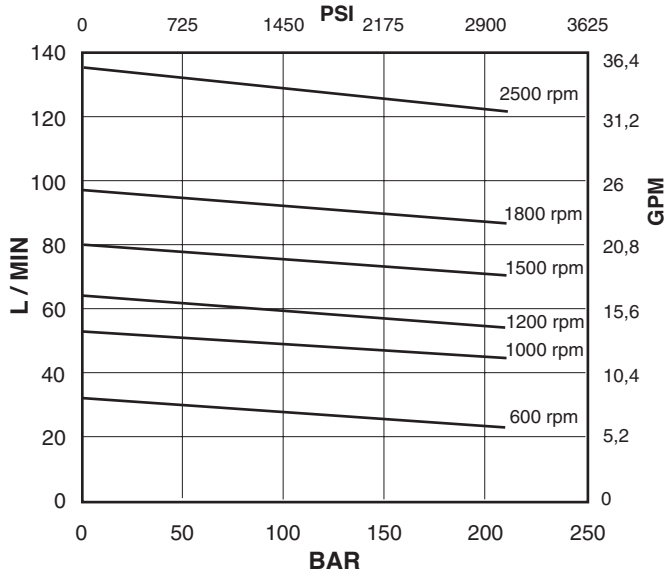
Cartridge A02-14



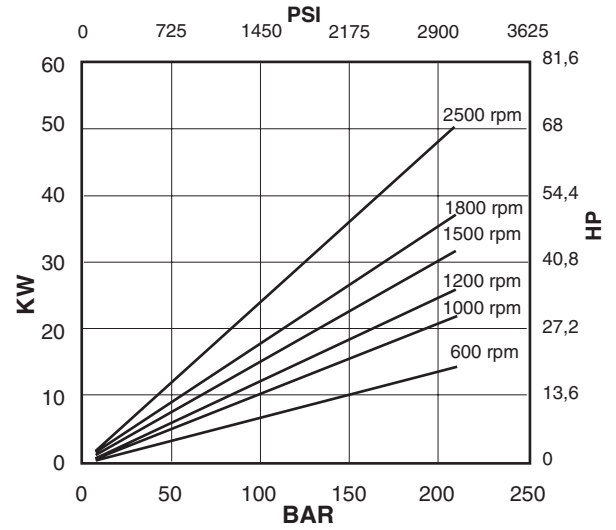
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A02-17

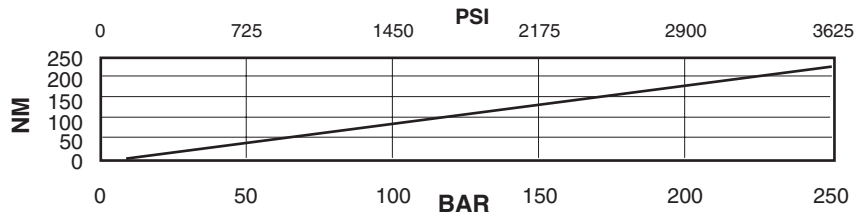
flow / pressure



power / pressure



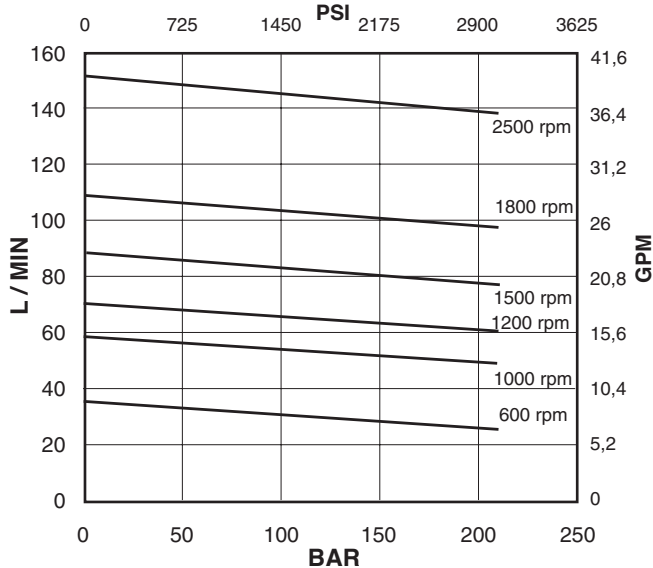
input torque / pressure



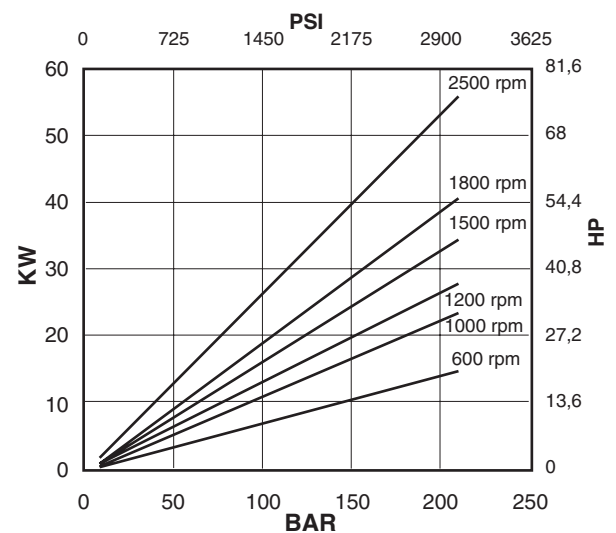
Oil viscosity: 25 c.St. (10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-19

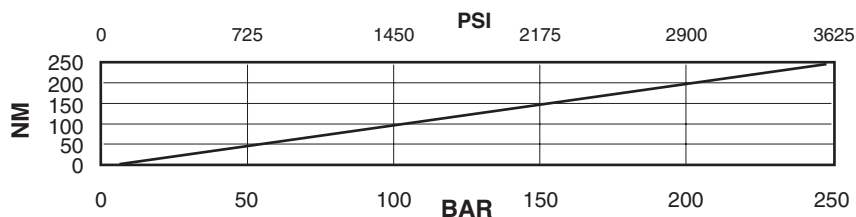
flow / pressure



power / pressure



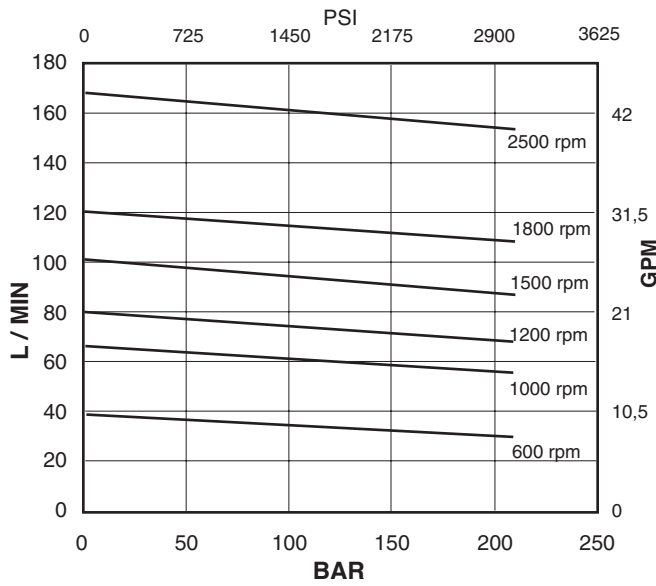
input torque / pressure



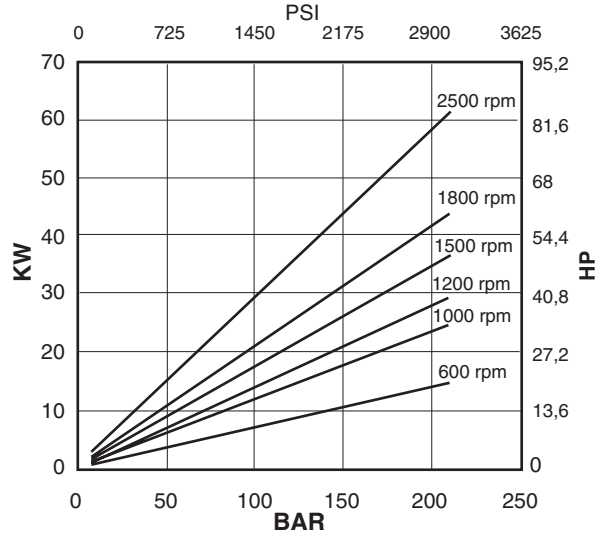
Oil viscosity: 25 c.St. (10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-21

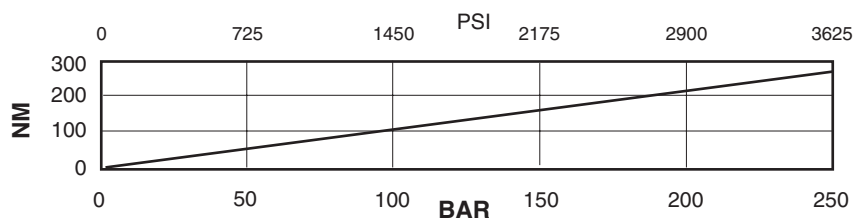
flow / pressure



power / pressure

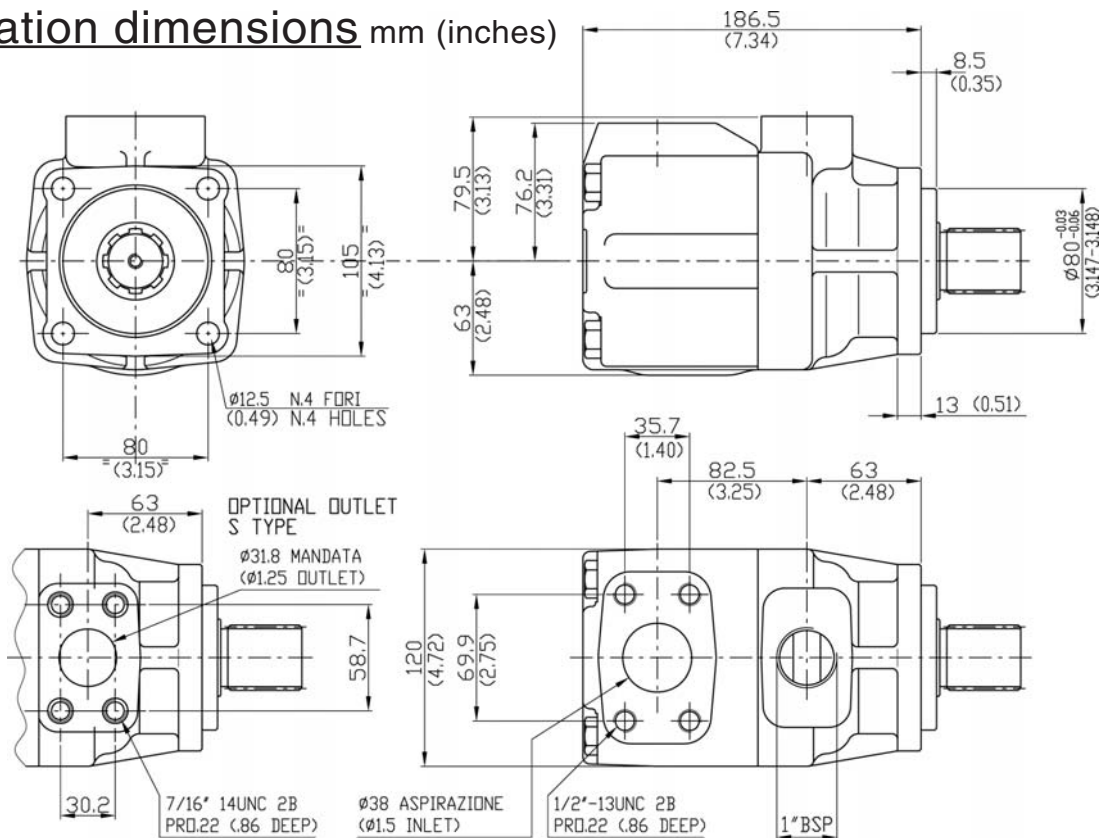


input torque / pressure



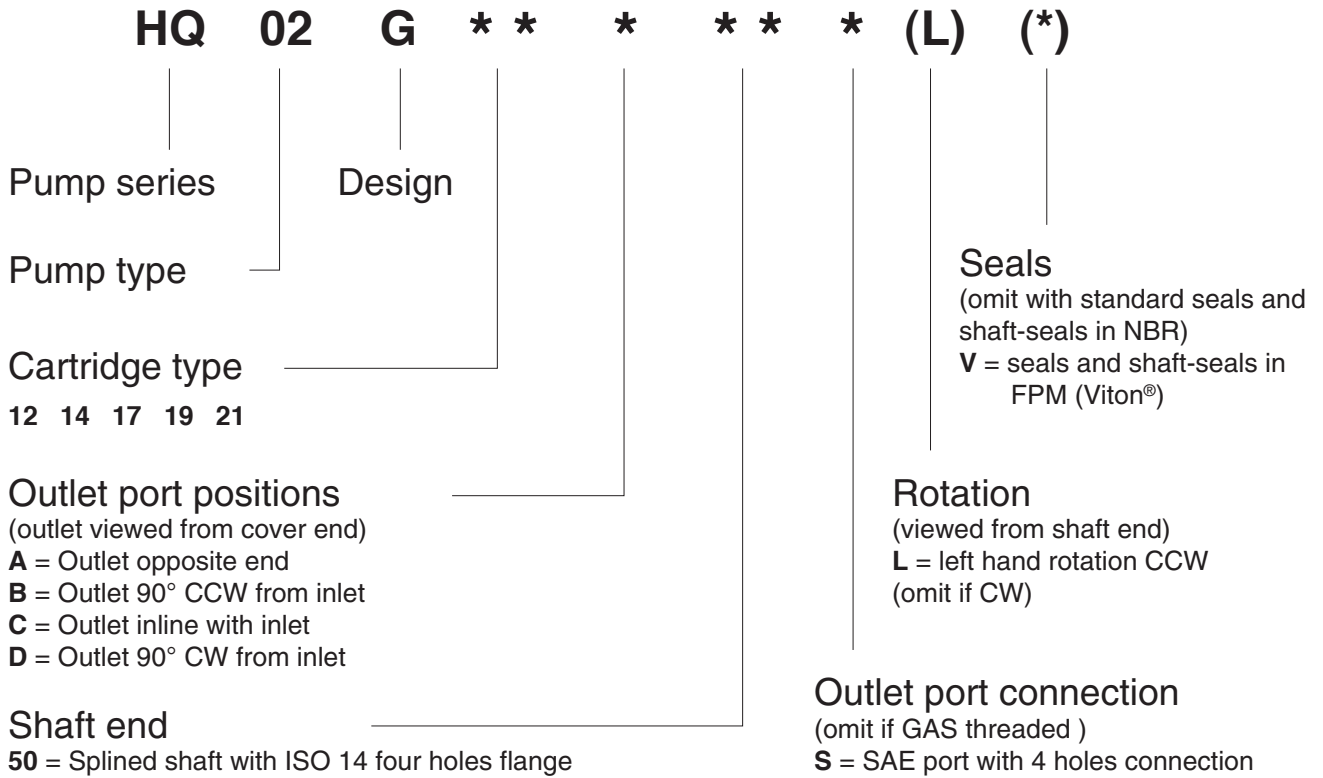
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



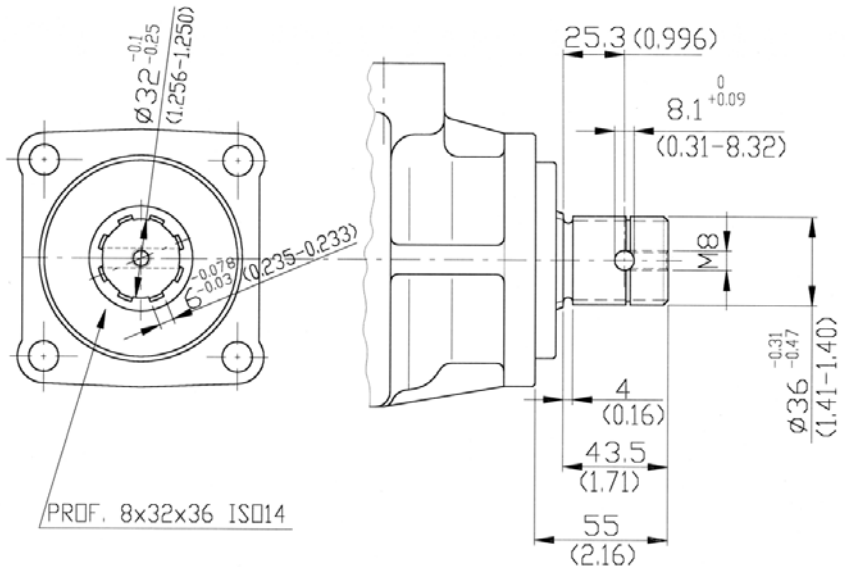
Approx. weight: 14,8 kg. (33 lbs.)

Model code breakdown

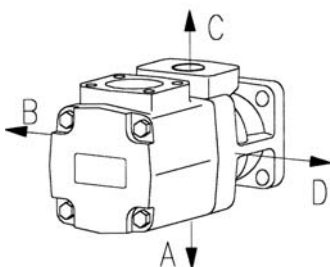


Shaft mm (inches)

Shaft 50



PORT ORIENTATIONS



Id. codes of pump components

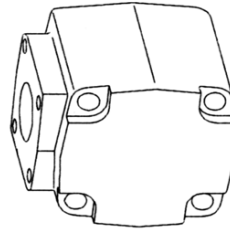
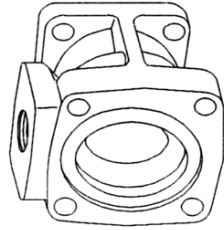
| Cartridge | | PART NO. | PUMP ROTAT. |
|-----------|-------|----------|-------------|
| Series | Model | | |
| A02 | 12 | A0212030 | right hand |
| | 14 | A0214070 | |
| | 17 | A0217110 | |
| | 19 | A0219150 | |
| | 21 | A0221190 | |
| A02 | 12 | A0212040 | left hand |
| | 14 | A0214080 | |
| | 17 | A0217120 | |
| | 19 | A0219160 | |
| | 21 | A0221200 | |

| Shaft kit | |
|-----------|----------|
| Model | 50 |
| PART NO. | M6025000 |

| Seeger | |
|----------|----------|
| PART NO. | M6000010 |

| Shaft | |
|----------|----------|
| Model | 50 |
| PART NO. | K0250000 |

| Body | |
|----------|----------|
| Model | STD |
| PART NO. | M8020016 |
| | S |
| | M8020017 |



| Bearing | |
|----------|----------|
| PART NO. | M8020030 |

| Shaft seal | |
|------------|----------|
| PART NO. | M8020060 |
| Type | NBR |
| | M8020065 |
| | FPM |

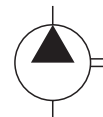
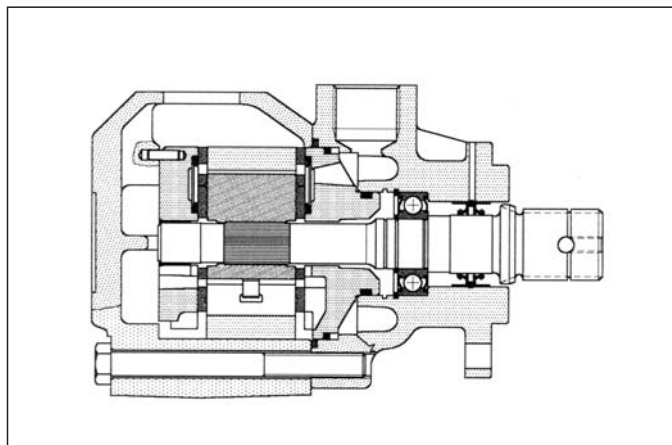
| Seeger | |
|----------|----------|
| PART NO. | M8020050 |

| Screw | |
|--------------------------------|----------|
| PART NO. | M8020070 |
| Torque to 102 Nm (910 lb. in.) | |

| Cover | |
|----------|----------|
| PART NO. | M8020020 |

| Seeger | |
|----------|----------|
| PART NO. | M8020040 |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| PART NO. | Parts | Type |
| M6025500 | seals + 2 shaft seals | NBR |
| M6025510 | seals + 2 shaft seals | FPM (Viton®) |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in two different displacements from 75 to 88 l/min (from 20 to 23 gpm) at 1000 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A03-24 | 78,3 | (4.78) | 75,0 | (20.0) | 90 | (24) | 115,3 | (30.5) | 210 | (3050) | 600 | 2500 |
| A03-28 | 91,2 | (5.56) | 88,3 | (23.3) | 106 | (28) | 131,8 | (34.8) | 210 | (3050) | 600 | 2500 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

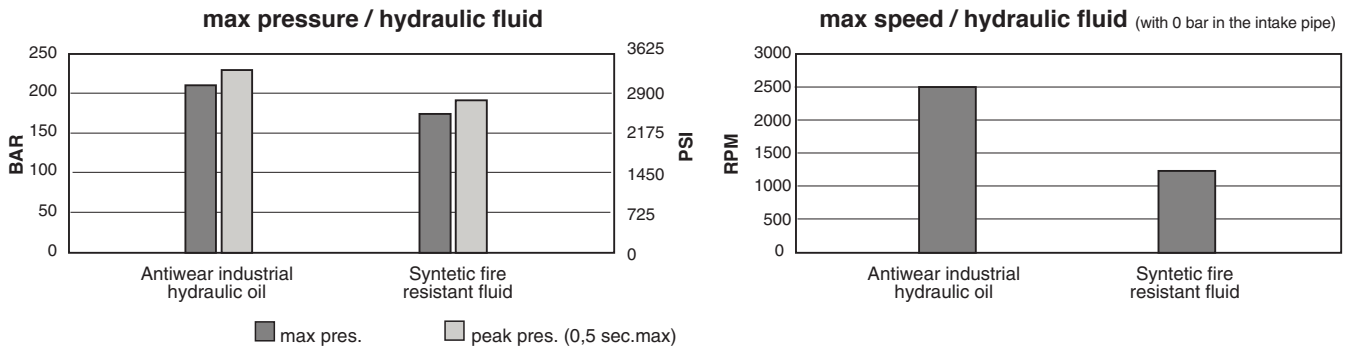
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure (with mineral oil): from -0,17 to +0,35 bar (-2.5 + 5 psi)

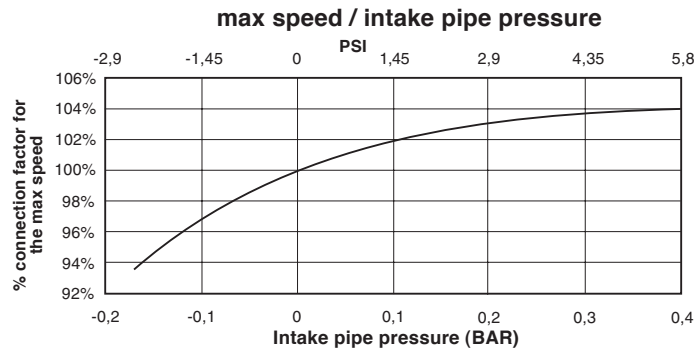
Operating temperature: with mineral oil -10°C to +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

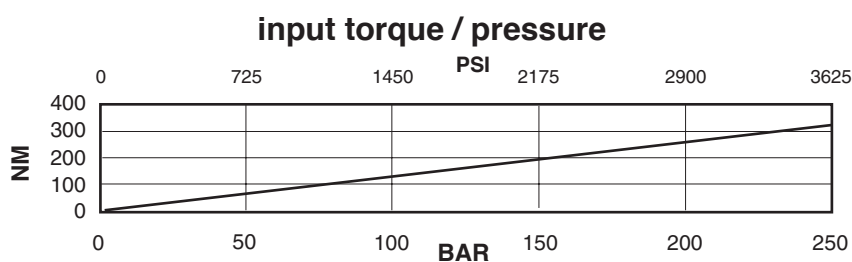
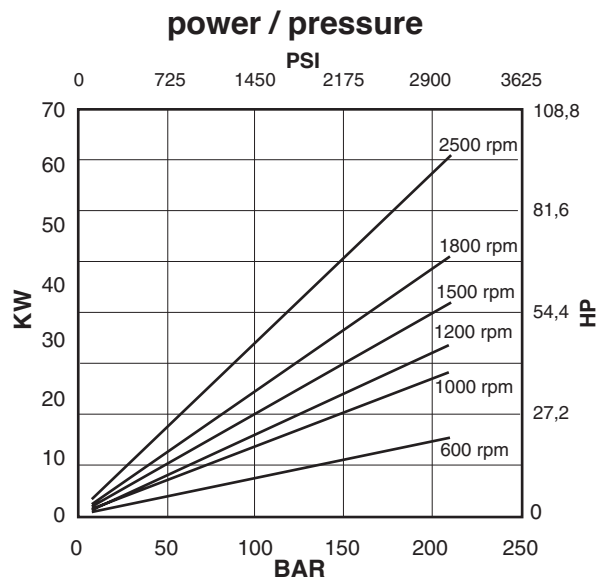
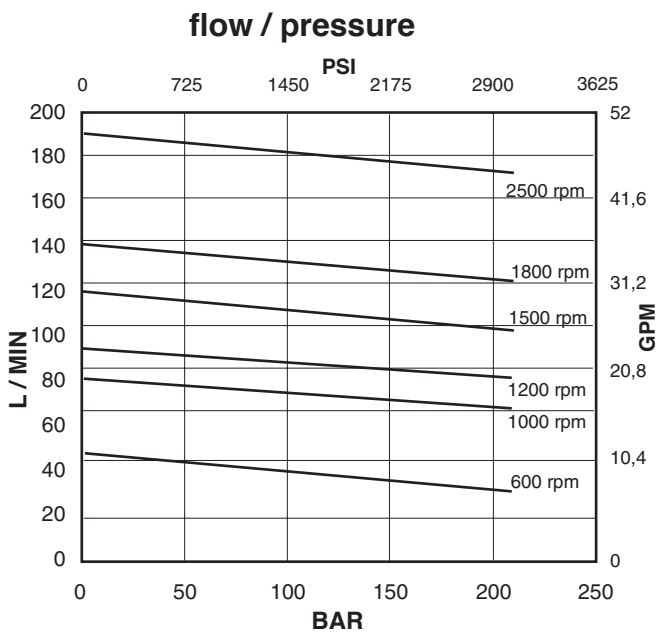
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.



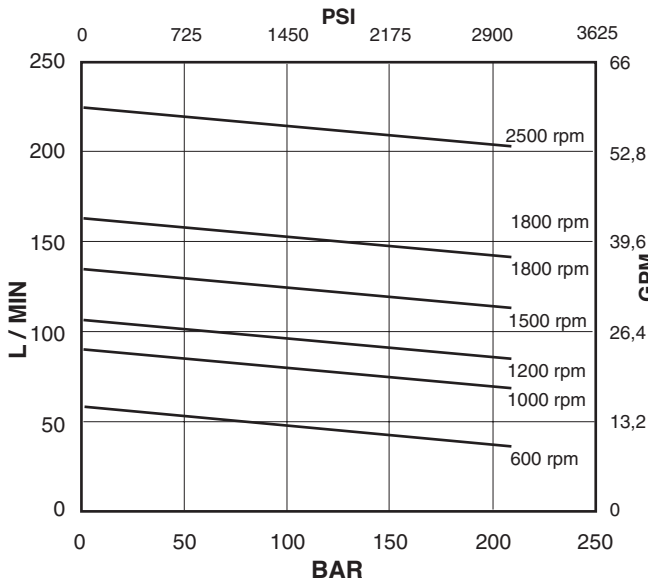
Cartridge A03-24



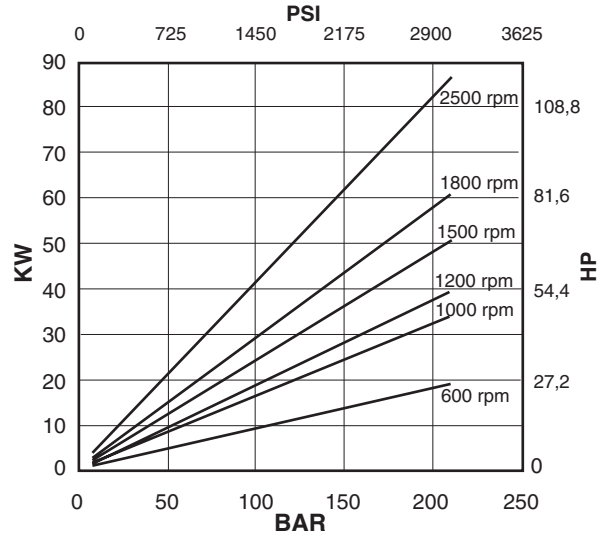
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cartridge A03-28

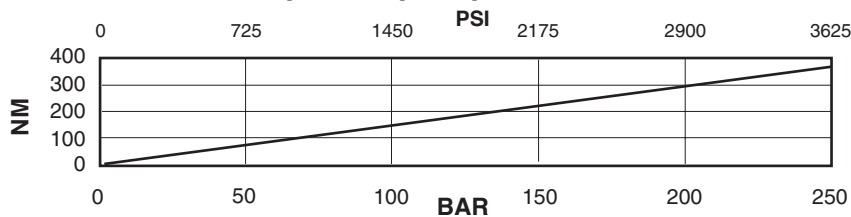
flow / pressure



power / pressure

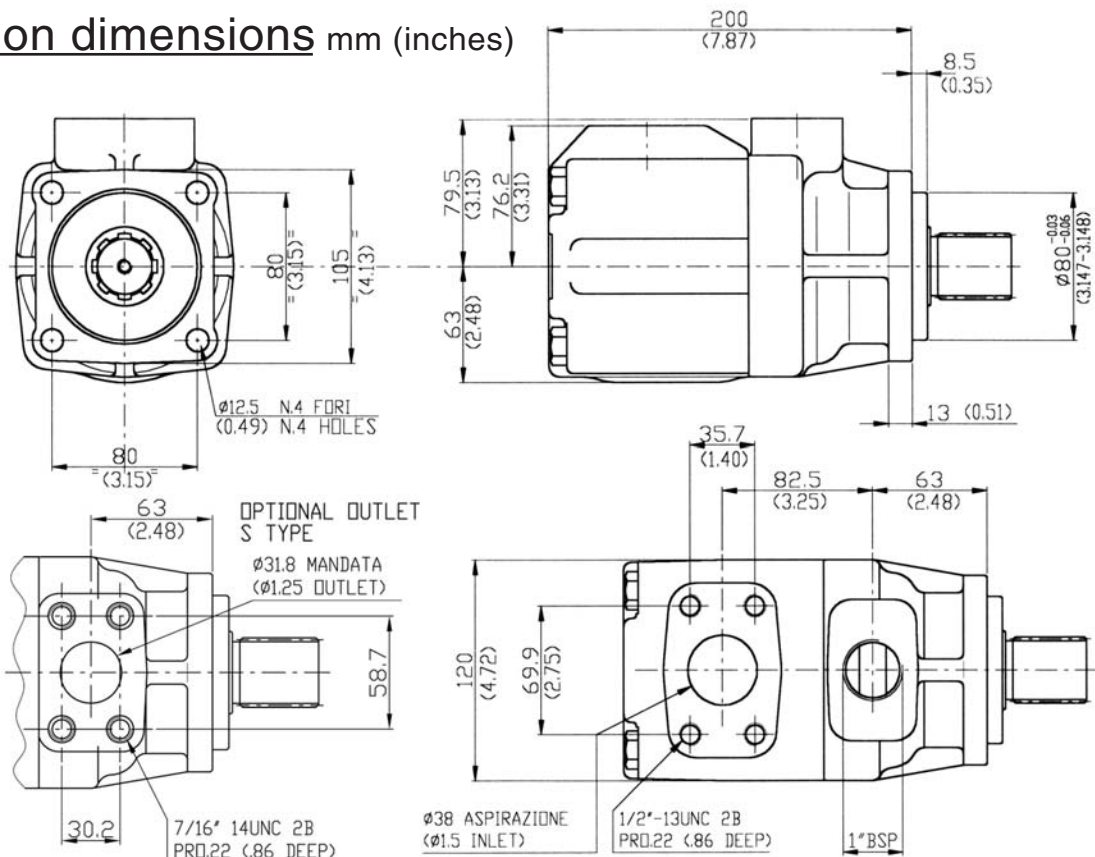


input torque / pressure



Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Installation dimensions mm (inches)



Approx. weight: 17 kg. (37 lbs.)

Model code breakdown

HQ 03 G * * * * * (L) (*)

Pump series

Design

Pump type

Cartridge type

24 28

Outlet port positions

(outlet viewed from cover end)

A = Outlet opposite end

B = Outlet 90° CCW from inlet

C = Outlet inline with inlet

D = Outlet 90° CW from inlet

Shaft end

50 = Splined shaft with ISO 14 four holes flange

Seals

(omit with standard seals and shaft-seals in NBR)

V = seals and shaft-seals in FPM (Viton®)

Rotation

(viewed from shaft end)

L = left hand rotation CCW

(omit if CW)

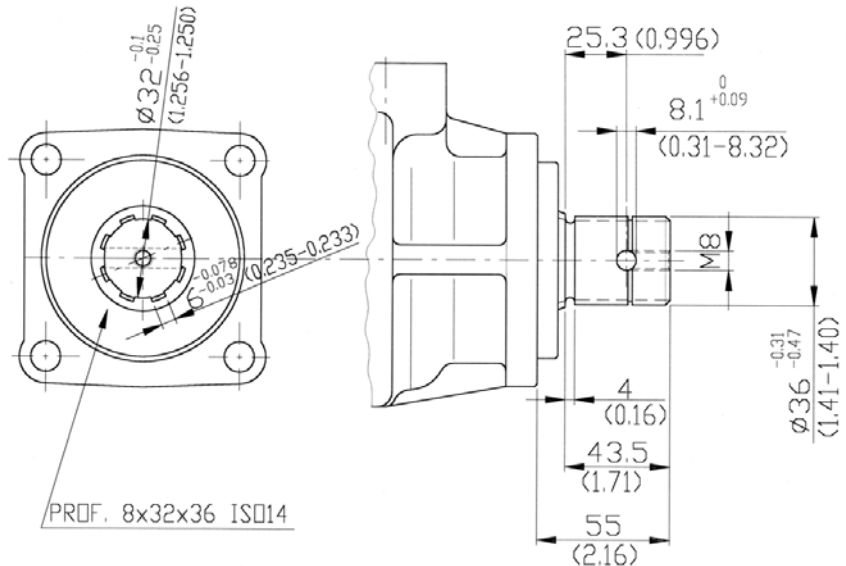
Outlet port connection

(omit if GAS threaded)

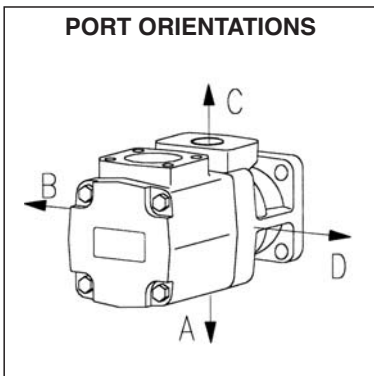
S = SAE port with 4 holes connection

Shaft mm (inches)

Shaft
50



PORT ORIENTATIONS





Id. codes of pump components

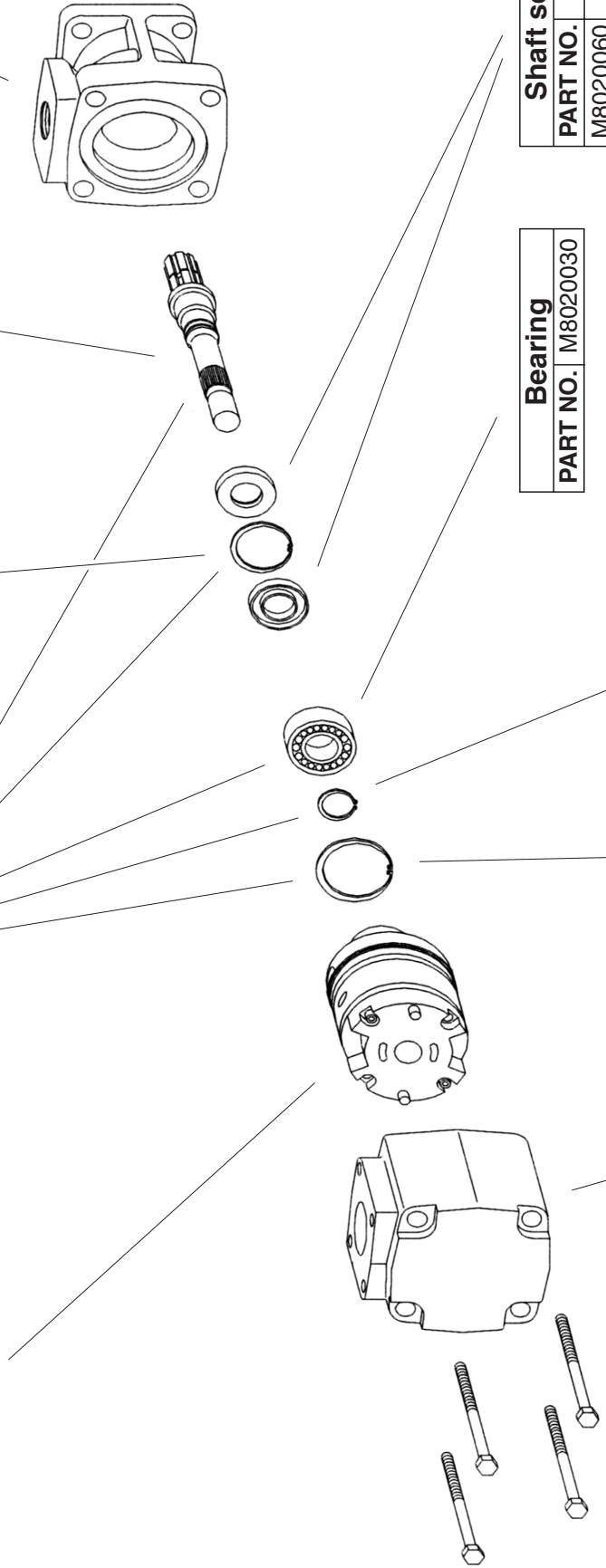
| cartridge | | |
|-----------|-------|----------------------|
| Series | Model | PART NO. PUMP ROTAT. |
| A03 | 24 | A0324030 |
| | 28 | A0328070 |
| A03 | 24 | A0324040 |
| | 28 | A0328080 |

| Shaft kit | |
|-----------|----------|
| Model | PART NO. |
| 50 | M6035000 |

| Seeger | |
|----------|----------|
| PART NO. | M6000010 |
| | |

| Shaft | |
|-------|----------|
| Model | PART NO. |
| 50 | K0350000 |

| Body | |
|-------|----------|
| Model | PART NO. |
| STD | M8020016 |
| S | M8020017 |



| Shaft seal | |
|------------|------|
| PART NO. | Type |
| M8020060 | NBR |
| M8020065 | FPM |

| Bearing | |
|----------|----------|
| PART NO. | M8020030 |
| | |

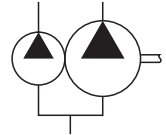
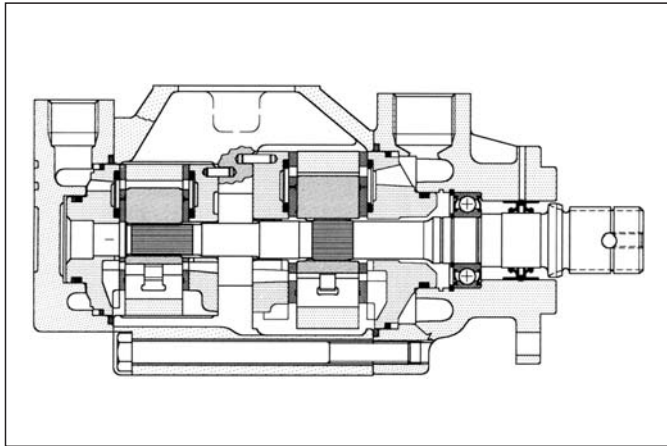
| Seeger | |
|----------|----------|
| PART NO. | M8020050 |
| | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| PART NO. | Parts | Type |
| M6025500 | seals + 2 shaft seals | NBR |
| M6025510 | seals + 2 shaft seals | FPM (Viton®) |

| Seeger | |
|----------|----------|
| PART NO. | M8020040 |
| | |

| Cover | |
|----------|----------|
| PART NO. | M8030020 |
| | |

| Screw | |
|--------------------------------|----------|
| PART NO. | M8020090 |
| Torque to 102 Nm (910 lb. in.) | |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with rated capacities from 46 to 111 l/min (from 12 to 29 gpm) at 1000 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | | | |
| A02-12 | 40,1 | (2.45) | 39,1 | (10.0) | 46,9 | (12) | 58,8 | (15.5) | 210 | (3050) | 600 | 2700 |
| A02-14 | 45,4 | (2.77) | 43,9 | (11.7) | 52,7 | (14) | 65,7 | (17.4) | 210 | (3050) | 600 | 2700 |
| A02-17 | 55,2 | (3.37) | 53,5 | (14.2) | 64,2 | (17) | 80,2 | (21.2) | 210 | (3050) | 600 | 2500 |
| A02-19 | 60,1 | (3.66) | 59,2 | (15.8) | 71,1 | (19) | 88,7 | (23.4) | 210 | (3050) | 600 | 2500 |
| A02-21 | 67,5 | (4.12) | 65,8 | (17.5) | 79,3 | (21) | 99,8 | (26.4) | 210 | (3050) | 600 | 2500 |
| cover end | | | | | | | | | | | | |
| A01-02 | 7,2 | (0.44) | 6,9 | (1.7) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| A01-05 | 18,1 | (1.10) | 17,3 | (4.2) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| A01-08 | 27,4 | (1.67) | 26,5 | (6.7) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| A01-09 | 30,1 | (1.83) | 29,2 | (7.5) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| A01-11 | 36,4 | (2.22) | 35,3 | (9.2) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| A01-12 | 39,5 | (2.41) | 39,1 | (10.0) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| A01-14 | 45,9 | (2.79) | 45,8 | (11.7) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

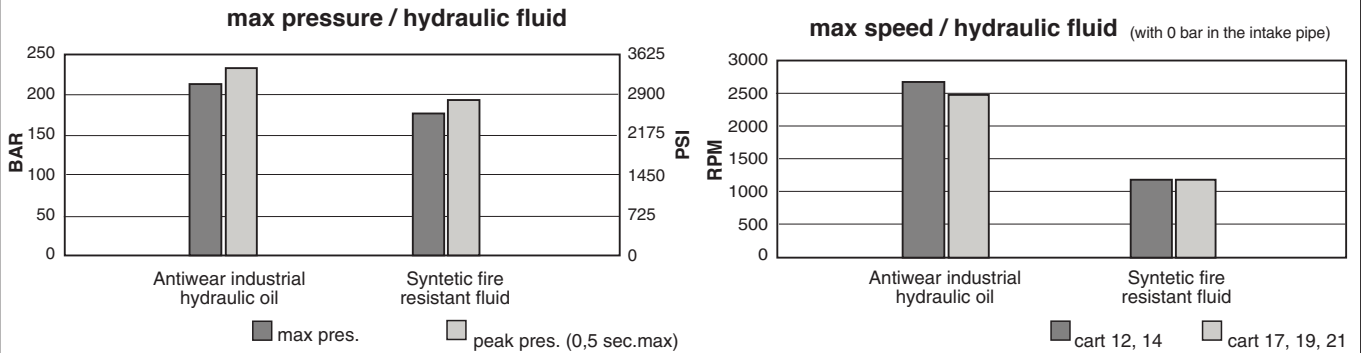
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure (with mineral oil): from -0,17 to +0,35 bar (-2.5 + 5 psi)

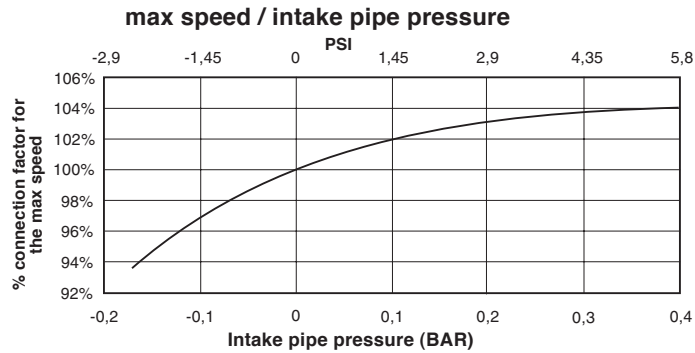
Operating temperature: with mineral oil -10°C to +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

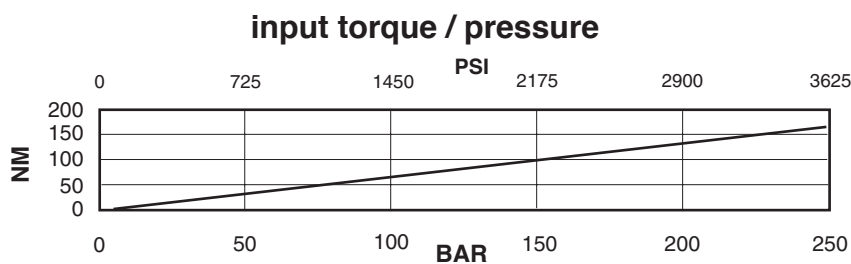
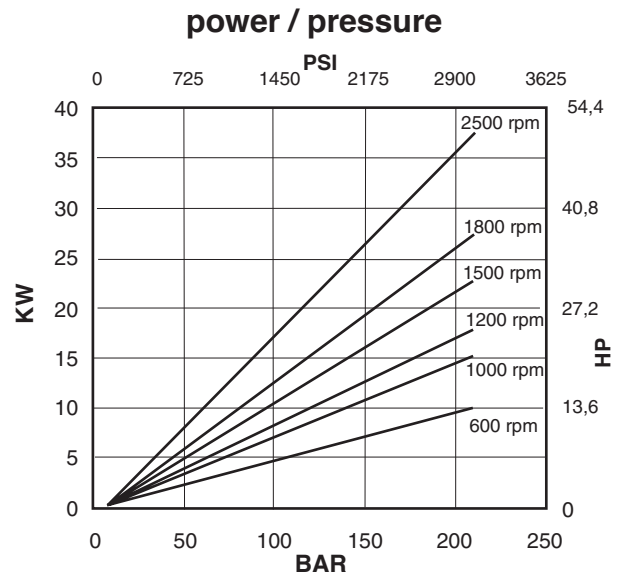
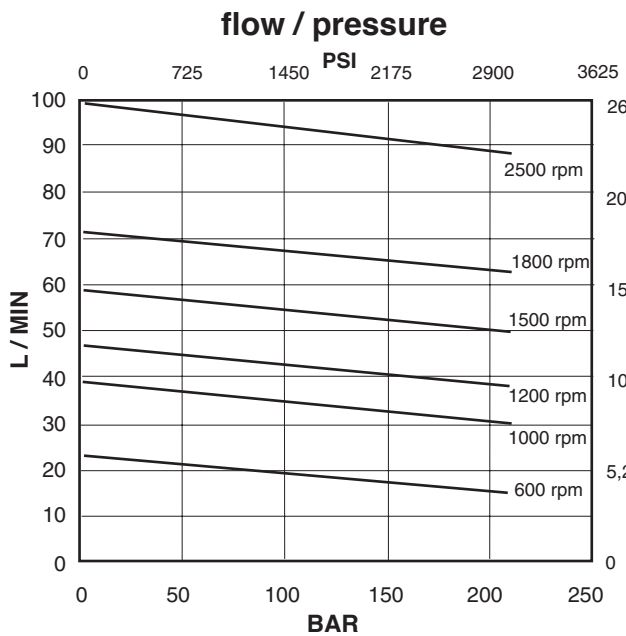
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.

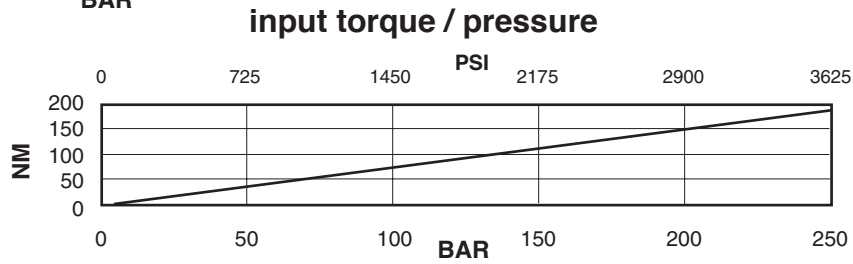
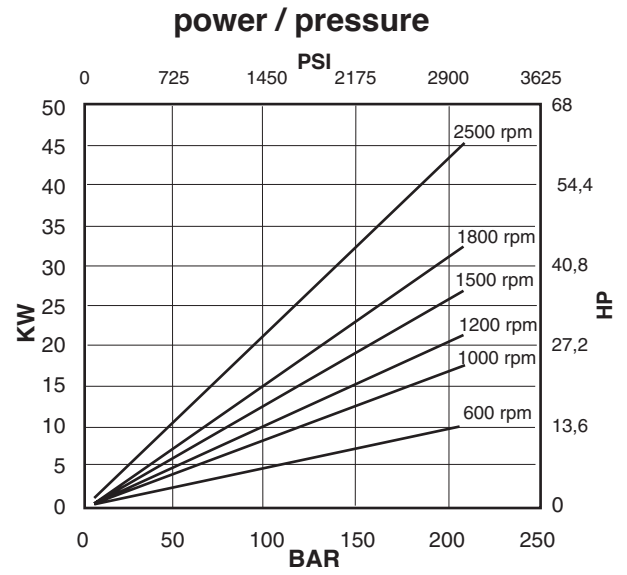
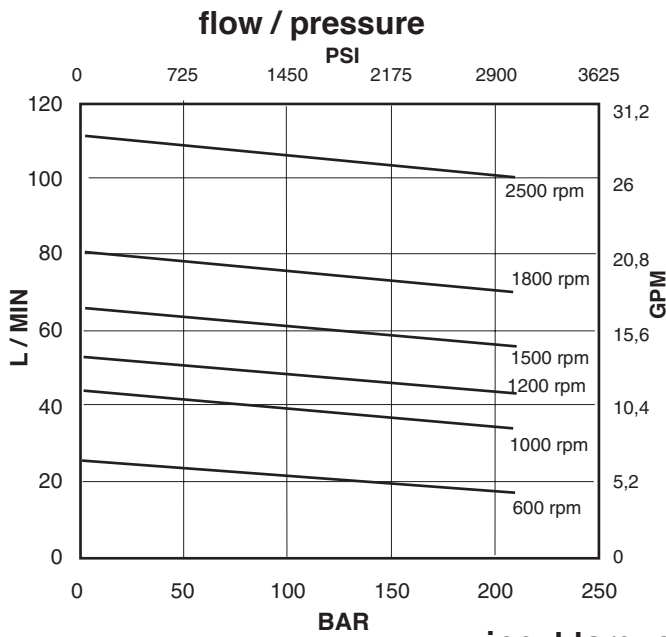


Shaft end cartridge A02-12



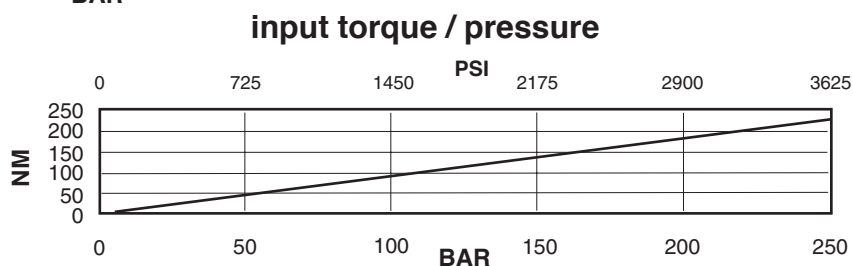
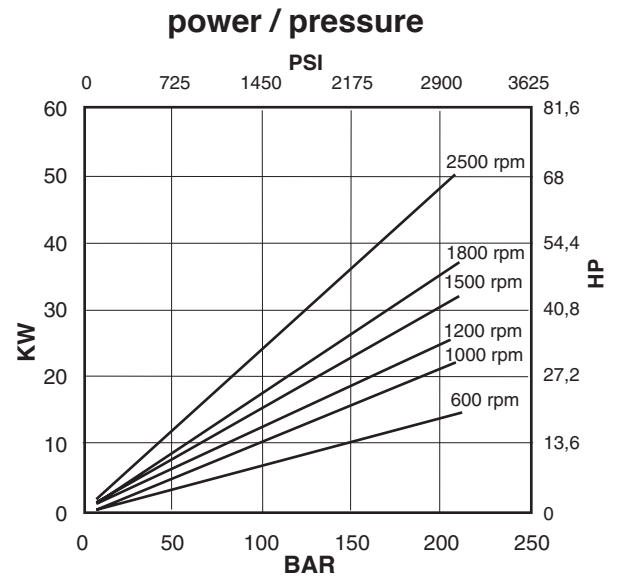
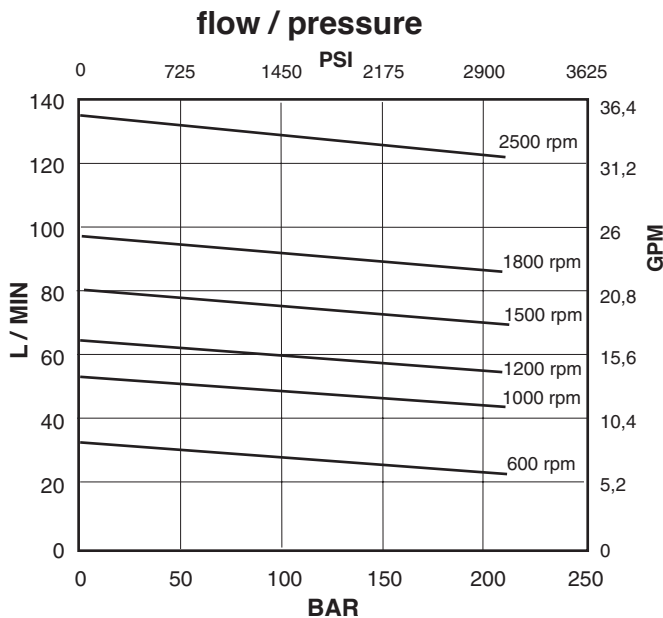
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A02-14



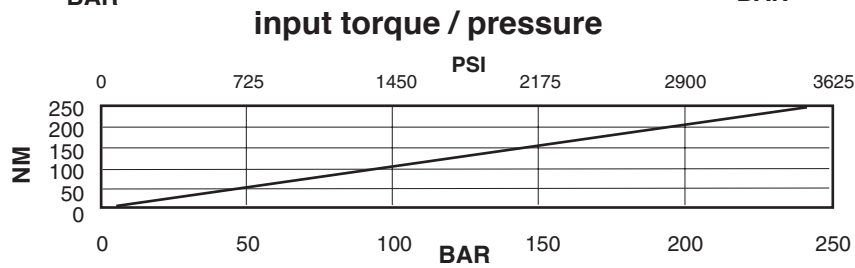
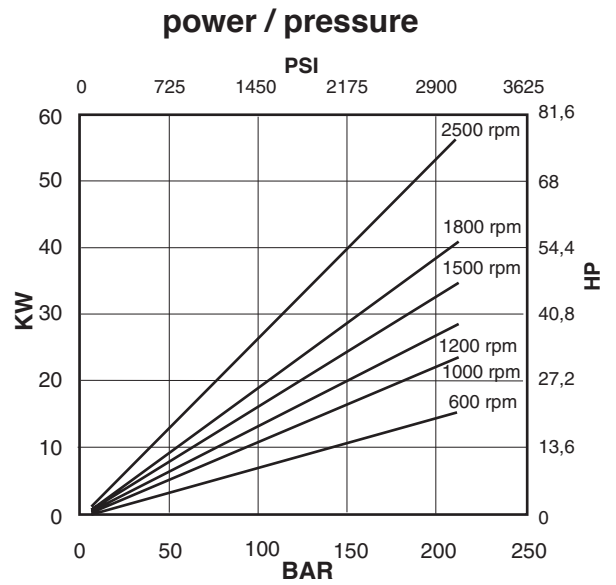
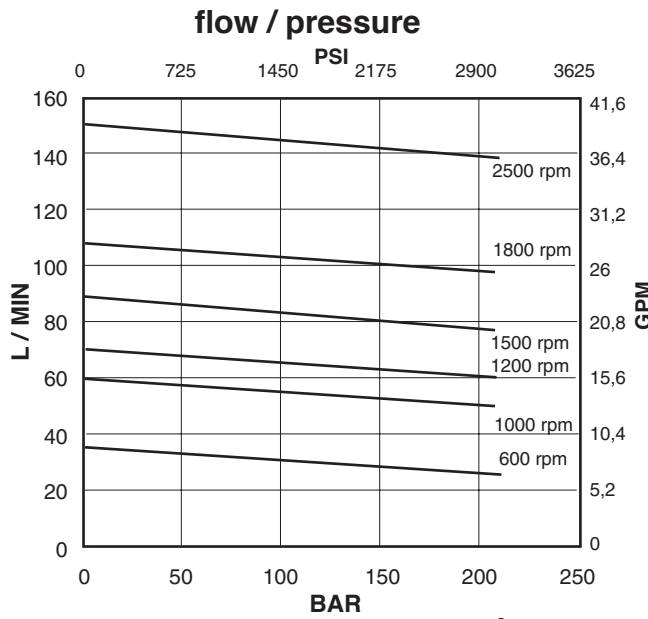
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A02-17



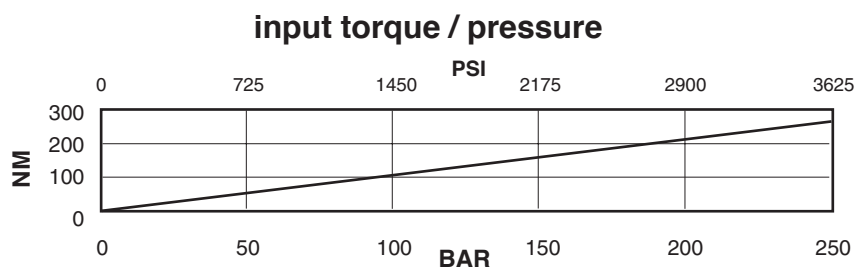
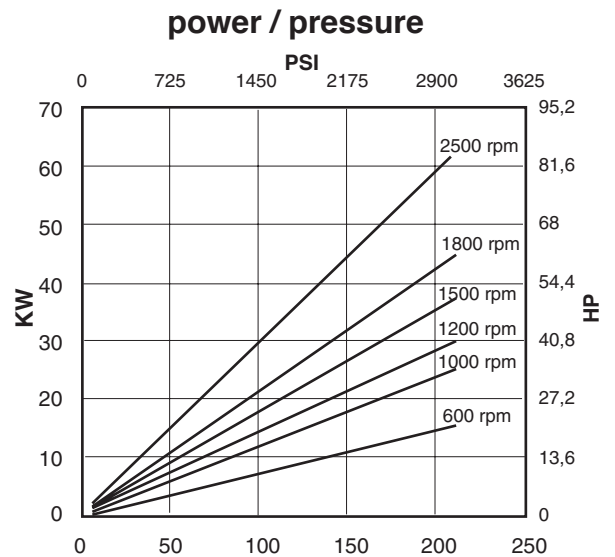
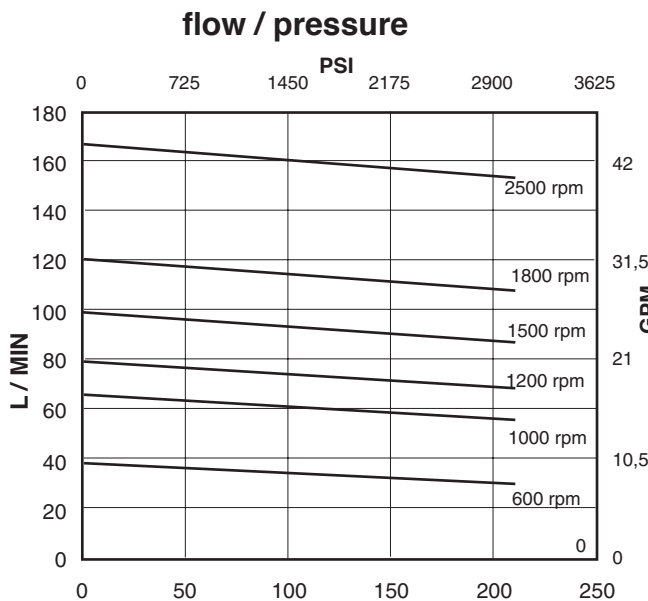
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A02-19



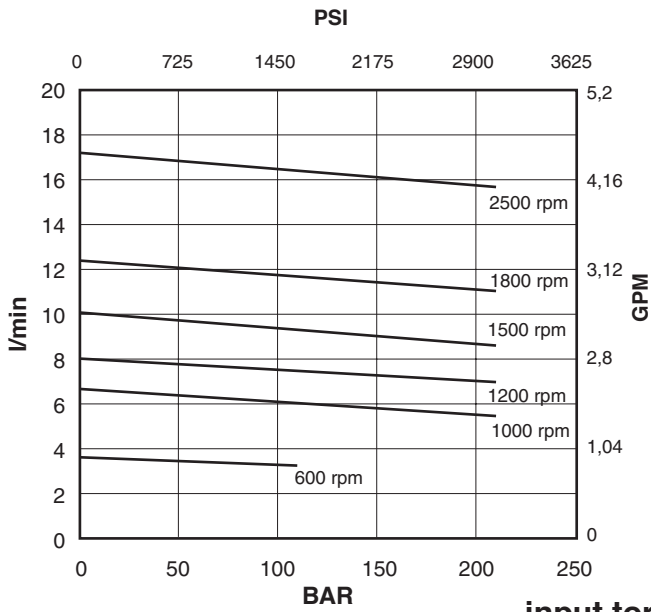
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Shaft end cartridge A02-21



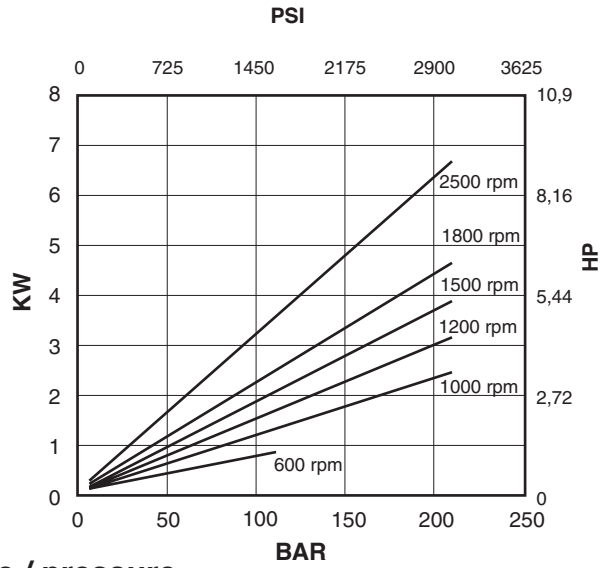
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

flow / pressure

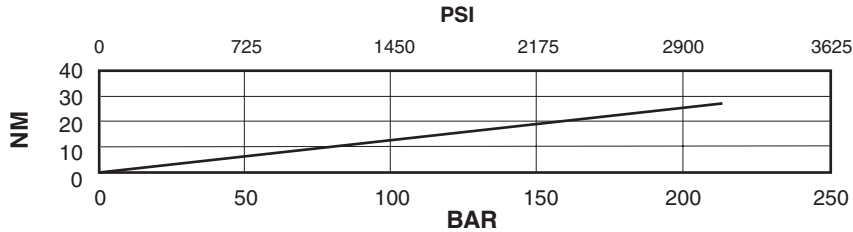


Cover end cartridge A01-02

power / pressure

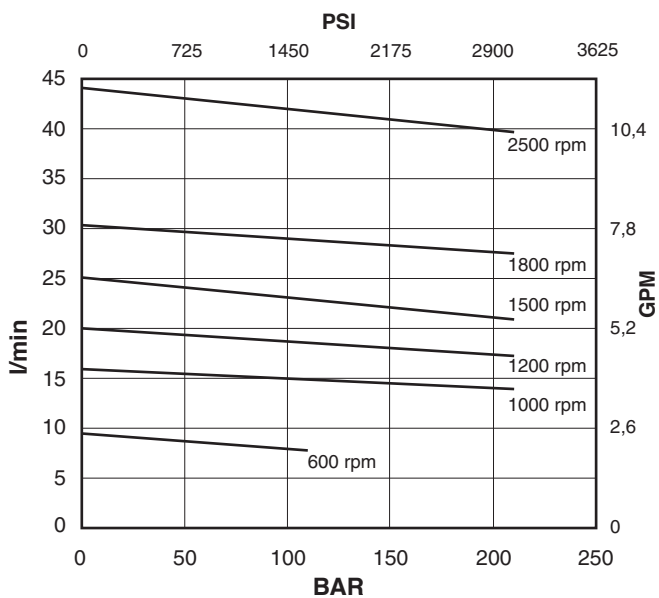


input torque / pressure



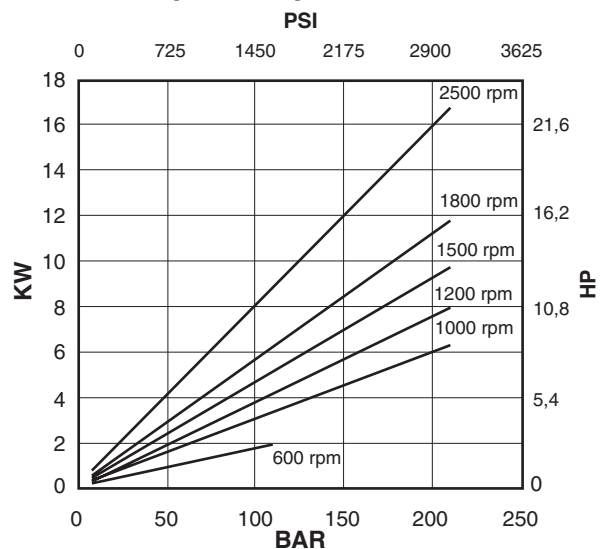
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

flow / pressure

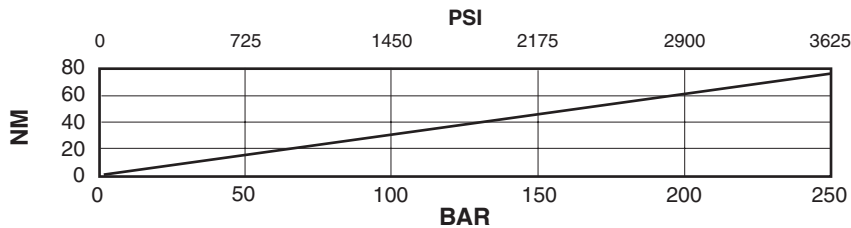


Cover end cartridge A01-05

power / pressure

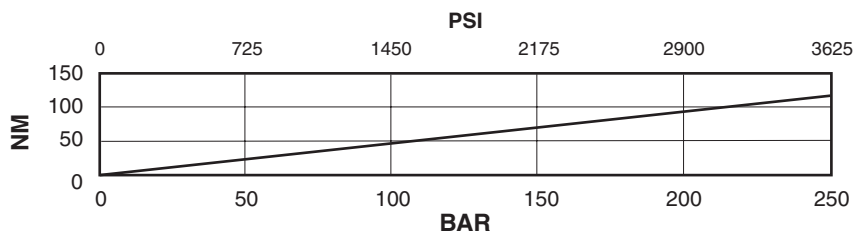
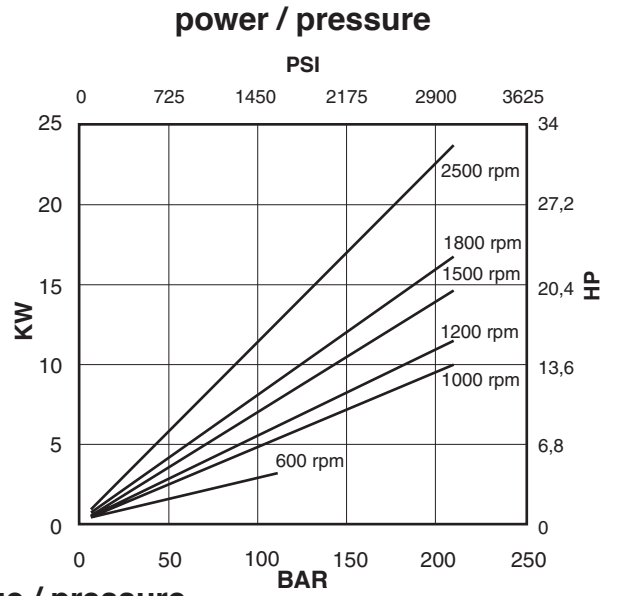
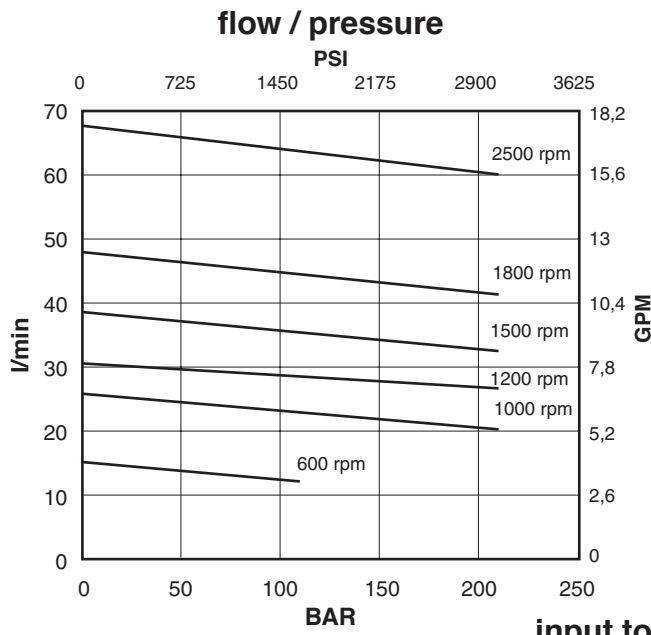


input torque / pressure



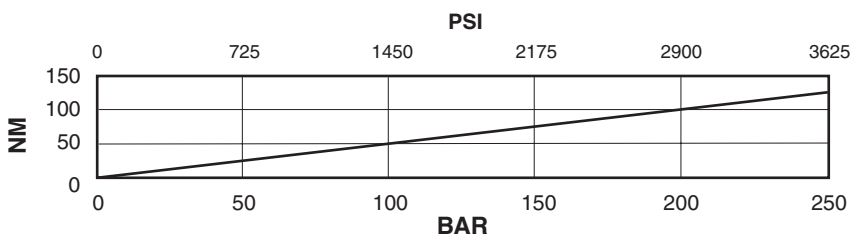
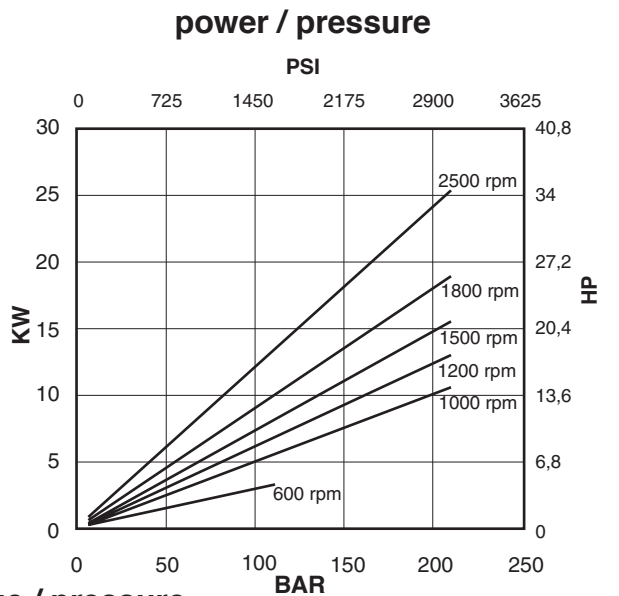
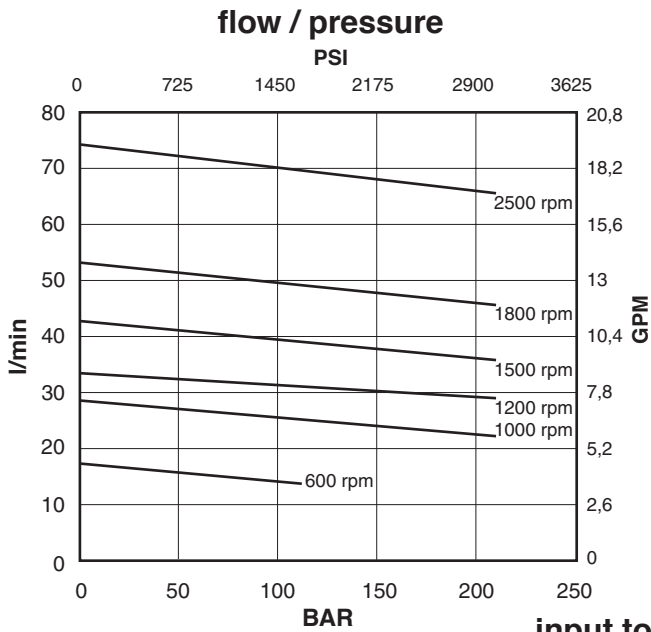
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08



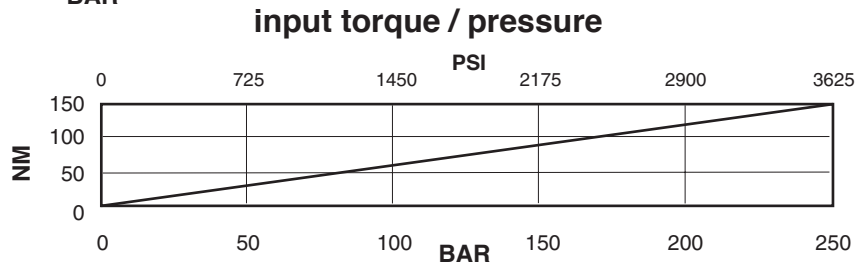
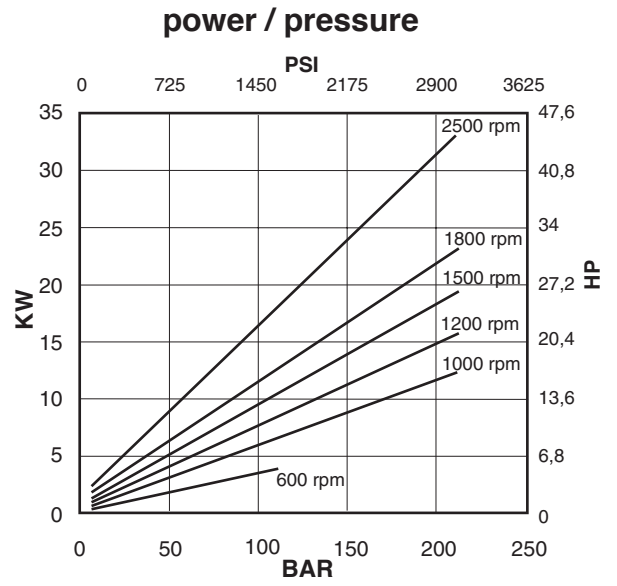
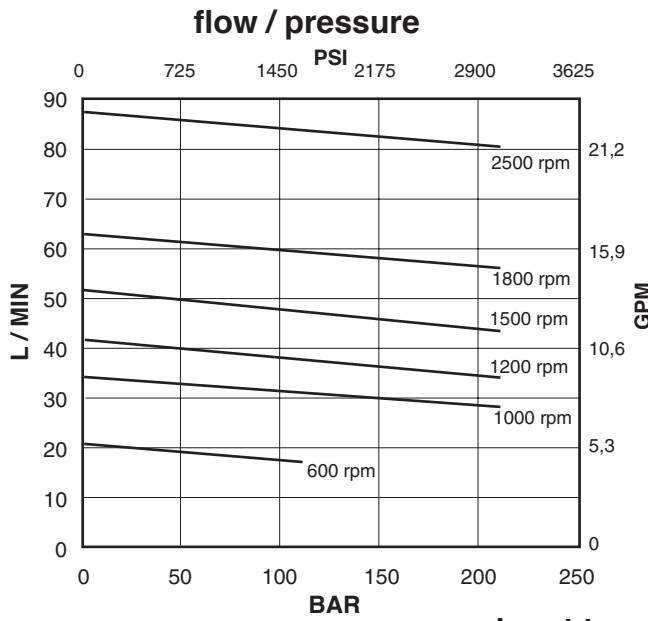
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-09



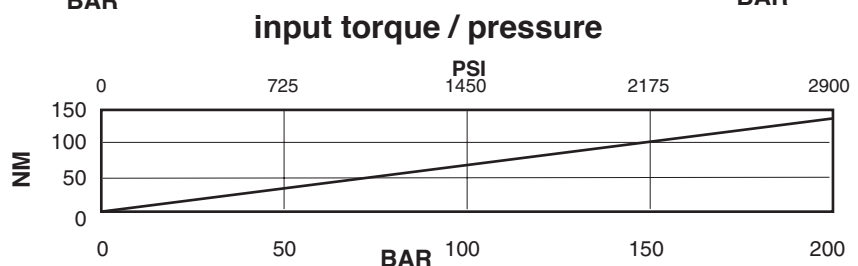
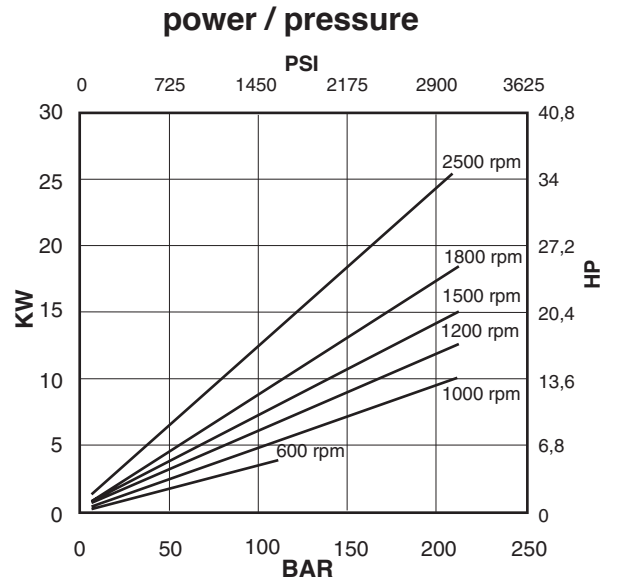
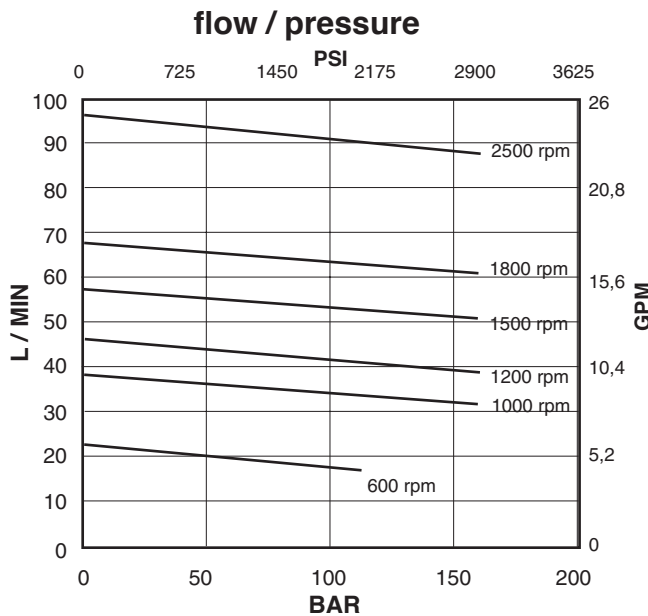
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-11



Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-12



Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Model code breakdown

HQ 21 G * * * * * (L) (*)

Pump series

Design

Pump type

Cartridge types

- shaft end 12 14 17 19 21

- cover end 02 05 08 09 11 12 14

Body outlet port positions

(outlet viewed from cover end)

A = Outlet opposite end

B = Outlet 90° CCW from inlet

C = Outlet in line with inlet

D = Outlet 90° CW from inlet

Cover outlet port positions

(outlet viewed from cover end)

A = Outlet 135° CCW from inlet

B = Outlet 45° CCW from inlet

C = Outlet 45° CW from inlet

D = Outlet 135° CW from inlet

Seals

(omit with standard seals and shaft-seals in NBR)

V = seals and shaft-seals in FPM (Viton®)

Rotation

(viewed from shaft end)

L = left hand rotation CCW

(omit if CW)

Outlet port connection

(omit if GAS threaded)

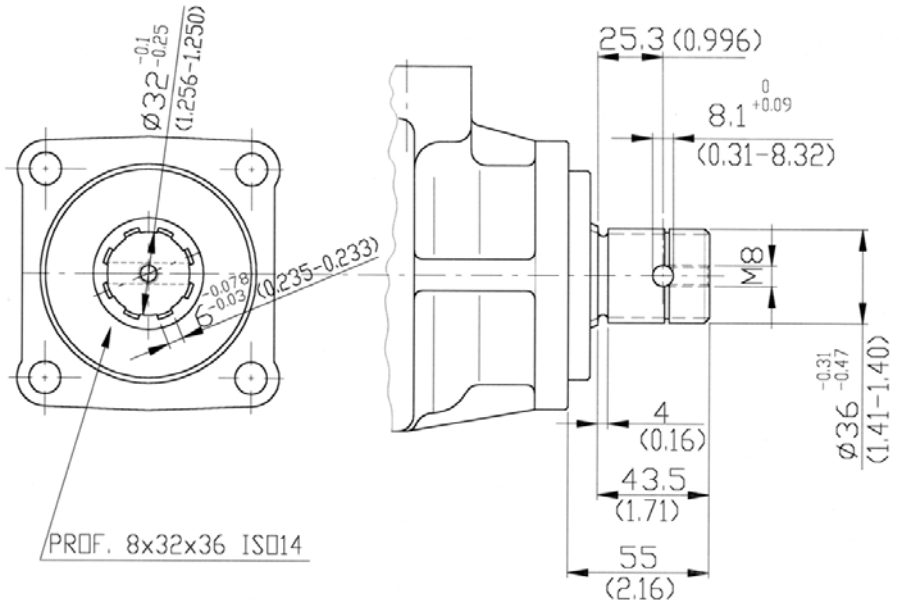
S = SAE port with 4 holes connection

Shaft end

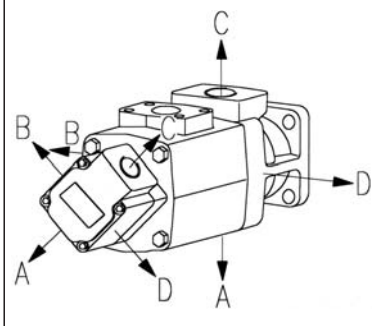
50 = Splined shaft with ISO 14 four holes flange

Shaft mm (inches)

Shaft
50



PORT ORIENTATIONS





Id. codes of pump components

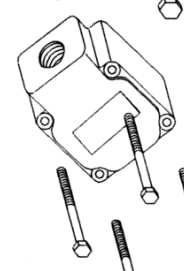
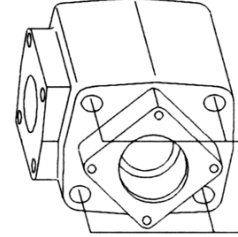
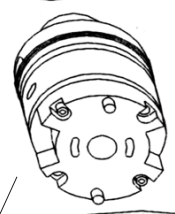
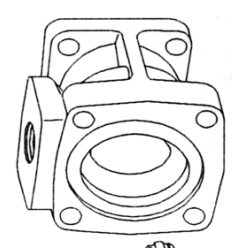
| Cartridges | | | | Pump rotation | |
|------------|-------|-----------|--------|---------------|----------|
| Cover end | | Shaft end | | | |
| Series | Model | Part No. | Series | Model | Part No. |
| A01 | 02 | A0102000 | A02 | 12 | A0212030 |
| | 05 | A0105010 | | 14 | A0214070 |
| | 08 | A0108030 | | 17 | A0217110 |
| | 09 | A0109050 | | 19 | A0219150 |
| | 11 | A0111070 | | 21 | A0221190 |
| | 12 | A0112090 | | | |
| | 14 | A0114110 | | | |
| A01 | 02 | A0102005 | A02 | 12 | A0212040 |
| | 05 | A0105020 | | 14 | A0214080 |
| | 08 | A0108040 | | 17 | A0217120 |
| | 09 | A0109060 | | 19 | A0219160 |
| | 11 | A0111080 | | 21 | A0221200 |
| | 12 | A0112100 | | | |
| | 14 | A0114120 | | | |

| Body | |
|-------|----------|
| Model | PART NO. |
| STD | M8020016 |
| S | M8020017 |

| Shaft | |
|-------|----------|
| Model | PART NO. |
| 50 | K2150000 |

| Seeger | |
|----------|----------|
| PART NO. | M6000010 |

| Shaft kit | |
|-----------|----------|
| Model | PART NO. |
| 50 | M6215000 |



| Shaft seal | |
|------------|------|
| PART NO. | Type |
| M8020060 | NBR |
| M8020065 | FPM |

| Bearing | |
|----------|----------|
| PART NO. | M8020030 |

| Seeger | |
|----------|----------|
| PART NO. | M8020050 |

| Cover | |
|-------|----------|
| Model | PART NO. |
| STD | M8020121 |
| S | M8020120 |

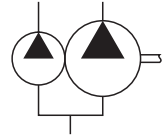
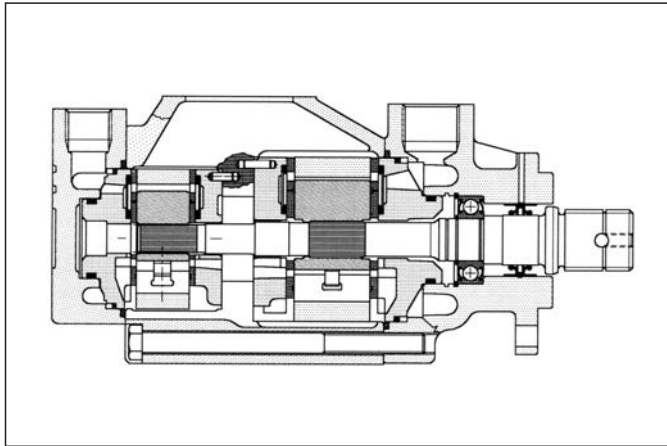
| Inlet body | |
|------------|----------|
| PART NO. | M8020110 |

| Screw | |
|--------------------------------|----------|
| PART NO. | M8020130 |
| Torque to 102 Nm (910 lb. in.) | |

| Screw | |
|-------------------------------|----------|
| PART NO. | M8020420 |
| Torque to 70 Nm (624 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| PART NO. | Parts | Type |
| M6215500 | seals + 2 shaft seals | NBR |
| M6215510 | seals + 2 shaft seals | FPM (Viton®) |

| Seeger | |
|----------|----------|
| PART NO. | M8020040 |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in several versions with rated capacities from 82 to 134 l/min (from 22 to 35 gpm) at 1000 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|------------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| shaft end | | | | | | | | | | | | |
| A03-24 | 78,3 | (4.78) | 75,0 | (20.0) | 90 | (24) | 115,3 | (30.5) | 210 | (3050) | 600 | 2500 |
| A03-28 | 91,2 | (5.56) | 88,3 | (23.3) | 106 | (28) | 131,8 | (34.8) | 210 | (3050) | 600 | 2500 |
| cover end | | | | | | | | | | | | |
| A01-02 | 7,2 | (0.44) | 6,9 | (1.7) | 8,3 | (2) | 10,4 | (2.8) | 210 | (3050) | 600 | 2700 |
| A01-05 | 18,1 | (1.10) | 17,3 | (4.2) | 20,8 | (5) | 26,1 | (6.9) | 210 | (3050) | 600 | 2700 |
| A01-08 | 27,4 | (1.67) | 26,5 | (6.7) | 31,8 | (8) | 39,4 | (10.4) | 210 | (3050) | 600 | 2700 |
| A01-09 | 30,1 | (1.83) | 29,2 | (7.5) | 35,1 | (9) | 44,1 | (11.7) | 210 | (3050) | 600 | 2700 |
| A01-11 | 36,4 | (2.22) | 35,3 | (9.2) | 42,4 | (11) | 52,6 | (13.9) | 210 | (3050) | 600 | 2700 |
| A01-12 | 39,5 | (2.41) | 39,1 | (10.0) | 46,9 | (12) | 58,7 | (15.5) | 160 | (2300) | 600 | 2700 |
| A01-14 | 45,9 | (2.79) | 45,8 | (11.7) | 54,9 | (14) | 69,6 | (18.4) | 140 | (2030) | 600 | 2700 |

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

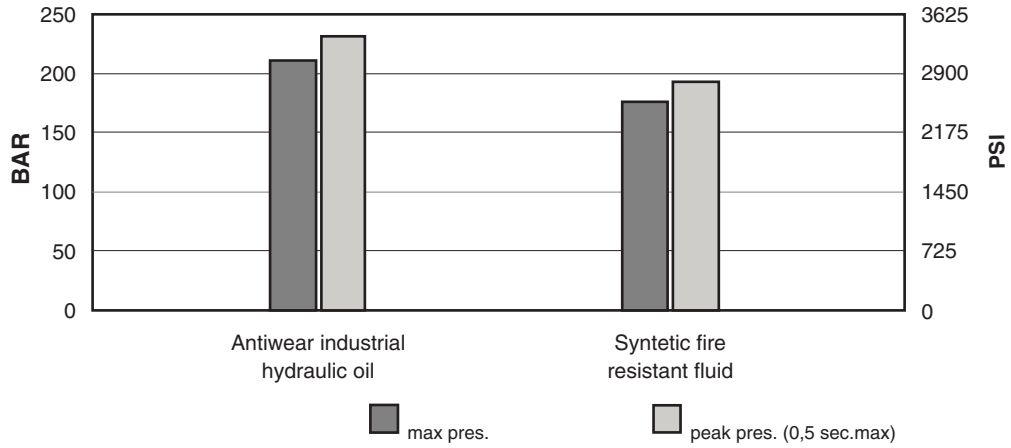
Inlet pressure (with mineral oil): from -0,17 to +0,35 bar (-2.5 + 5 psi)

Operating temperature: with mineral oil -10°C to +70°C (+30°C to +60°C recommended).

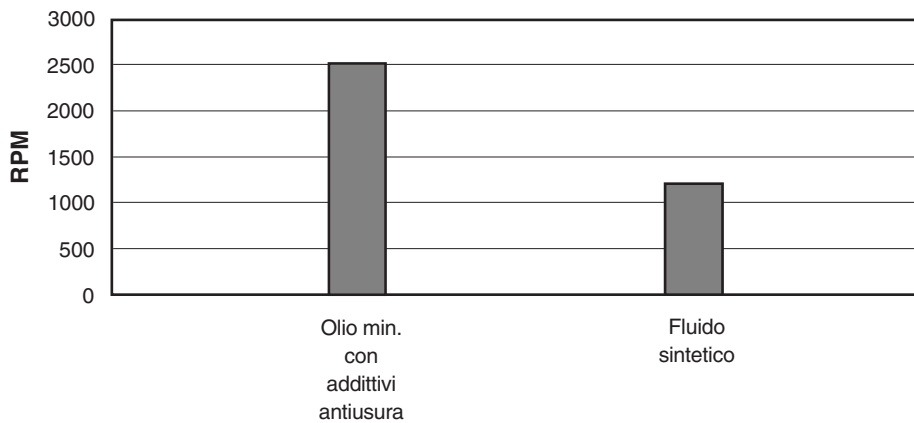
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

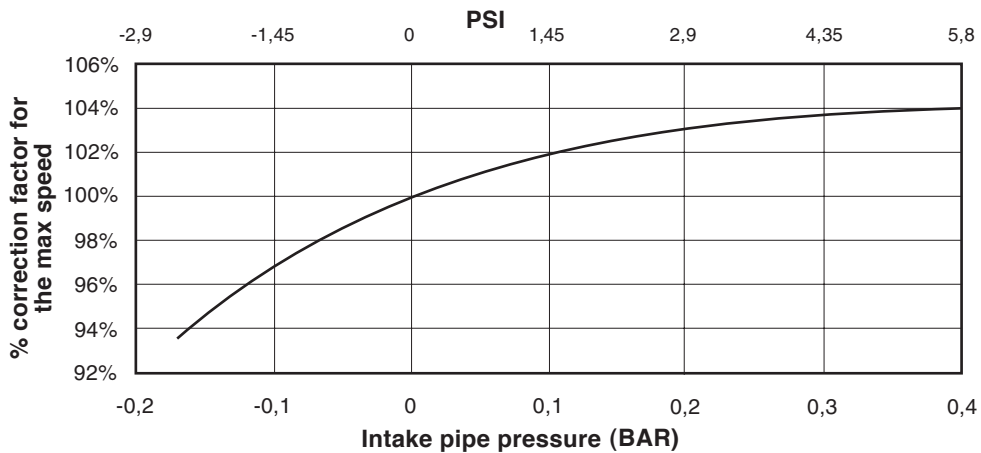


max speed / hydraulic fluid (with 0 bar in the intake pipe)



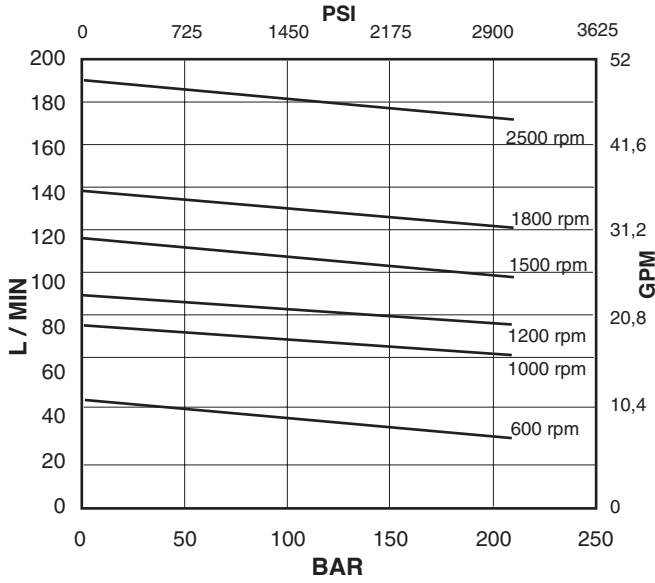
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.

max speed / intake pipe pressure

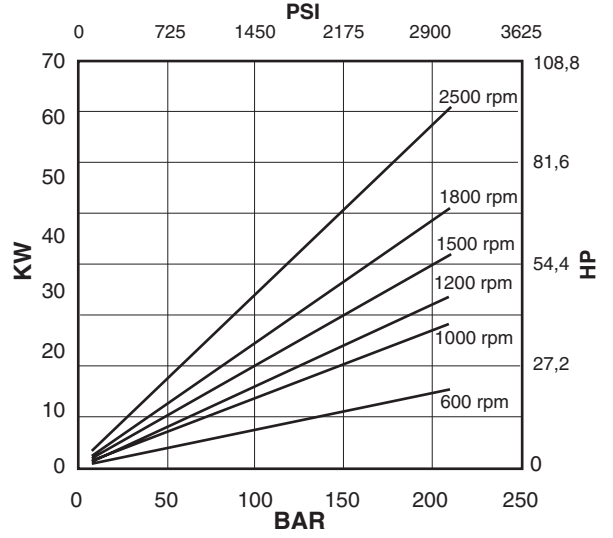


Shaft end cartridge A03-24

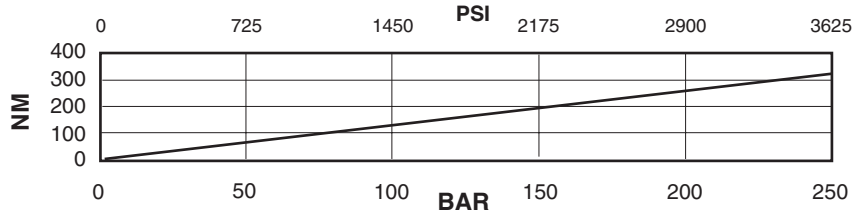
flow / pressure



power / pressure



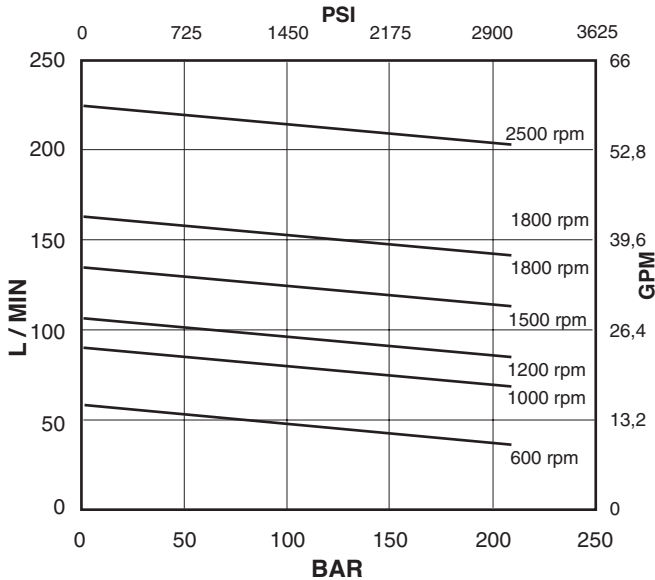
input torque / pressure



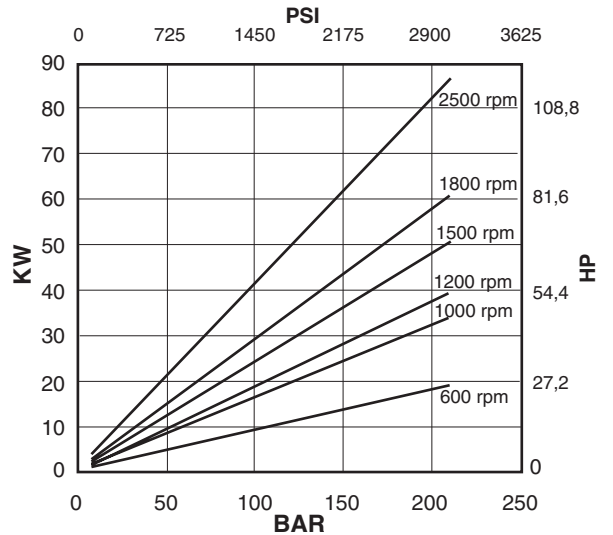
Oil viscosity: 25 c.St. (10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A03-28

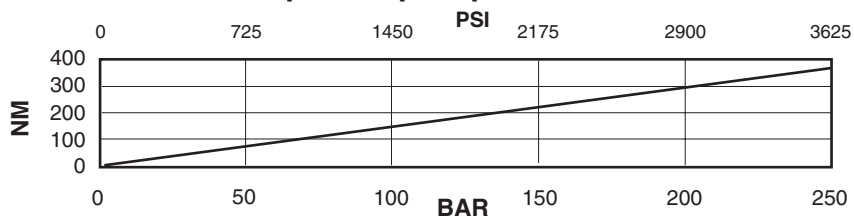
flow / pressure



power / pressure

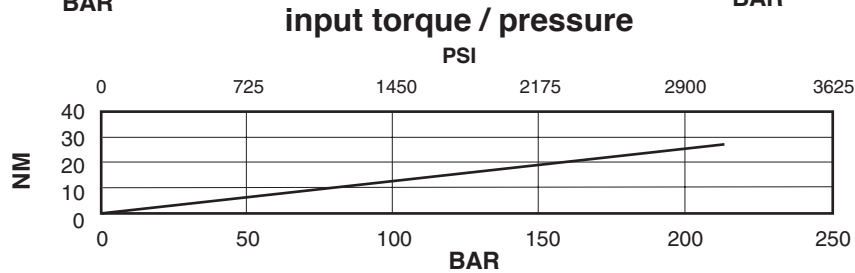
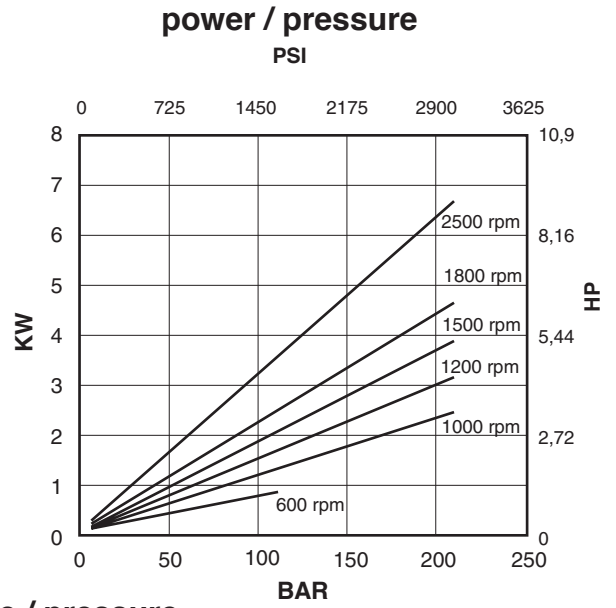
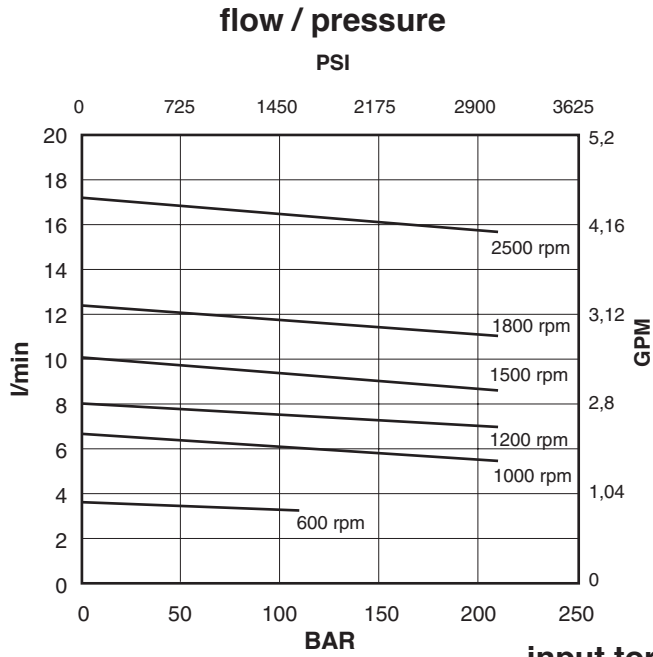


input torque / pressure



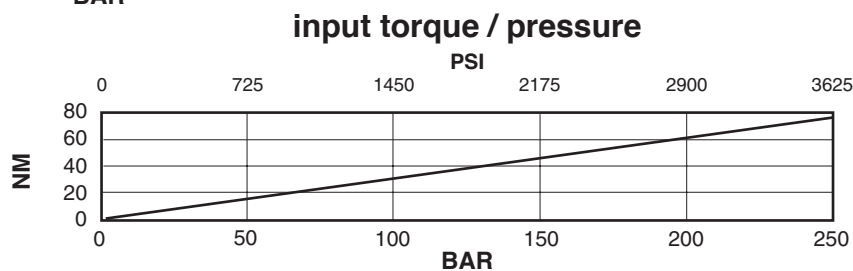
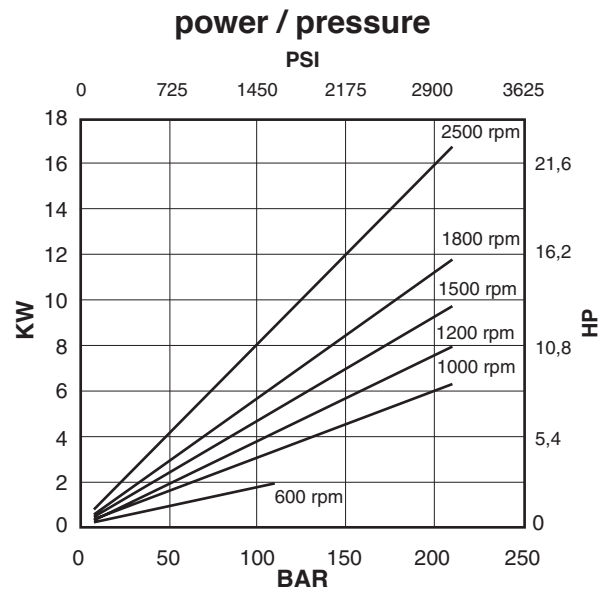
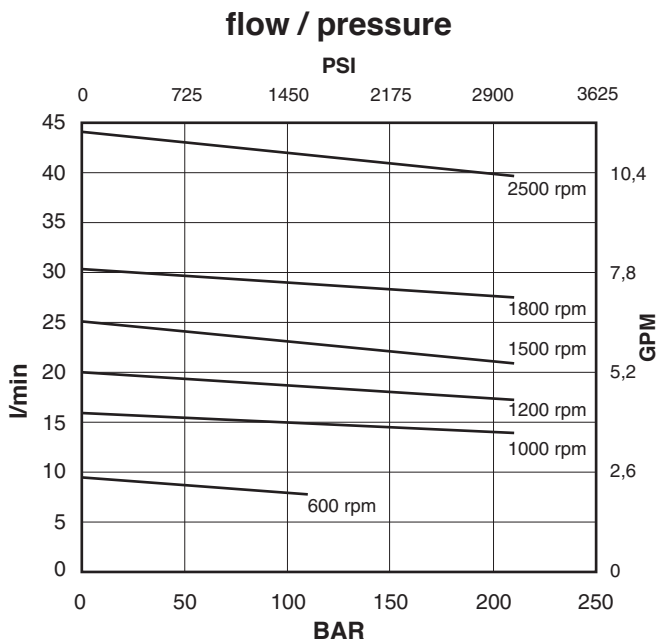
Oil viscosity: 25 c.St. (10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-02



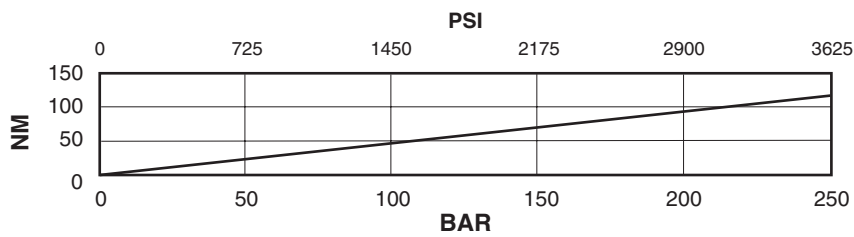
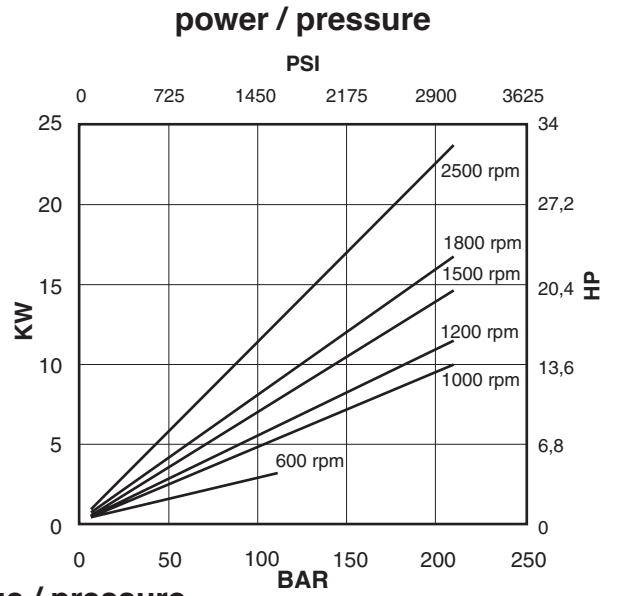
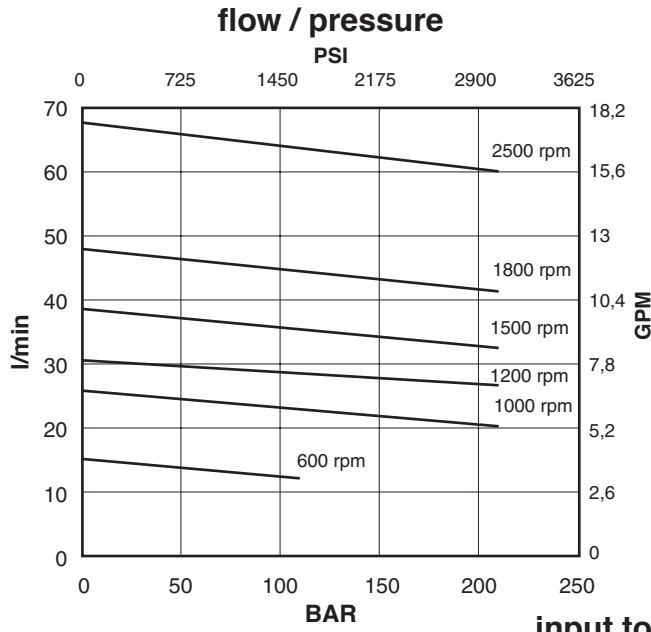
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-05



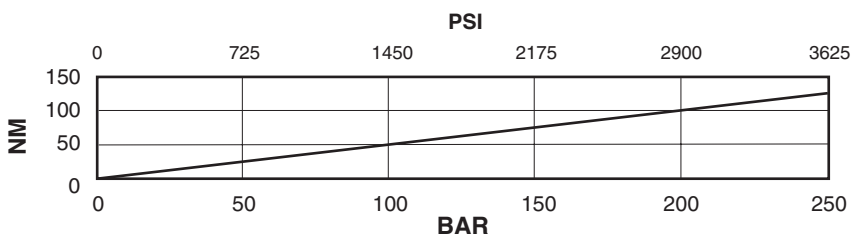
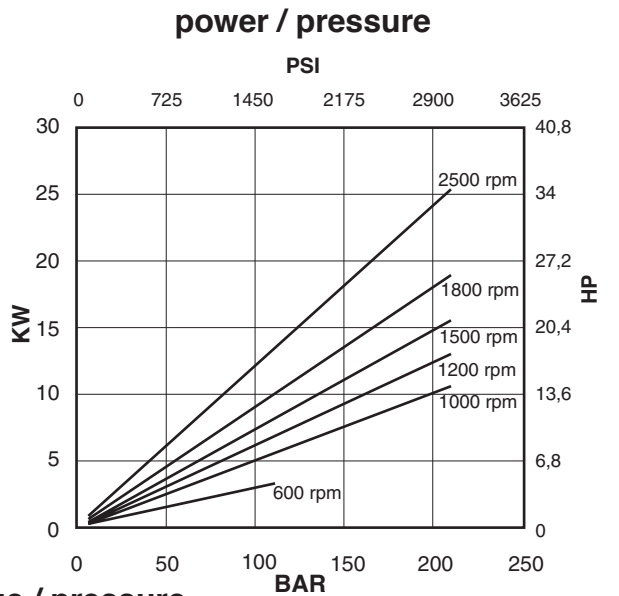
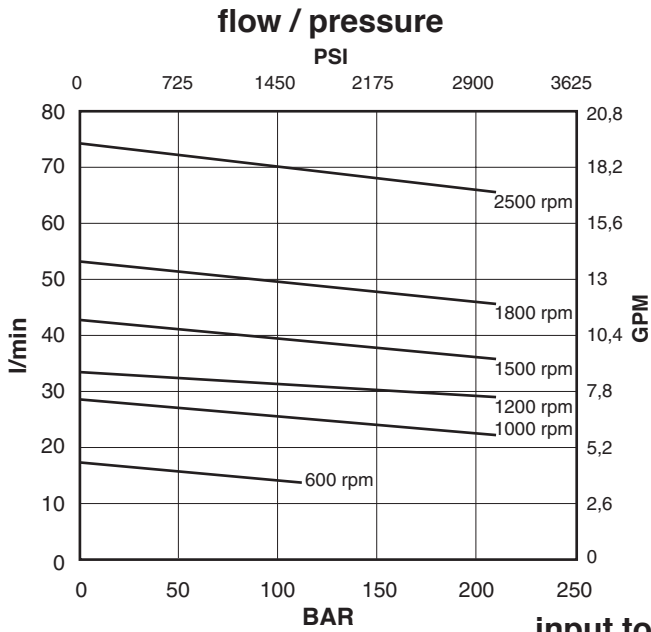
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-08



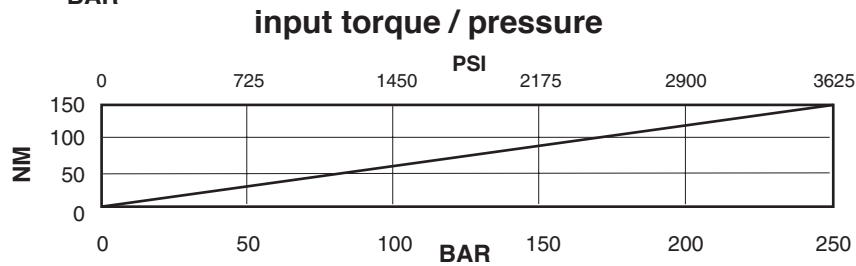
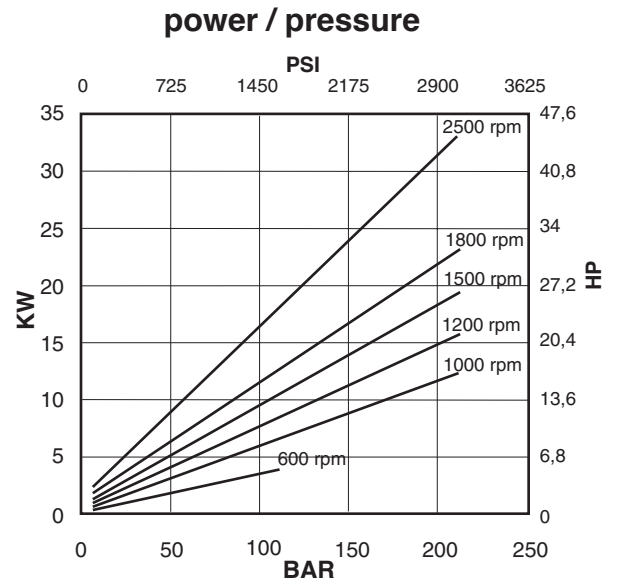
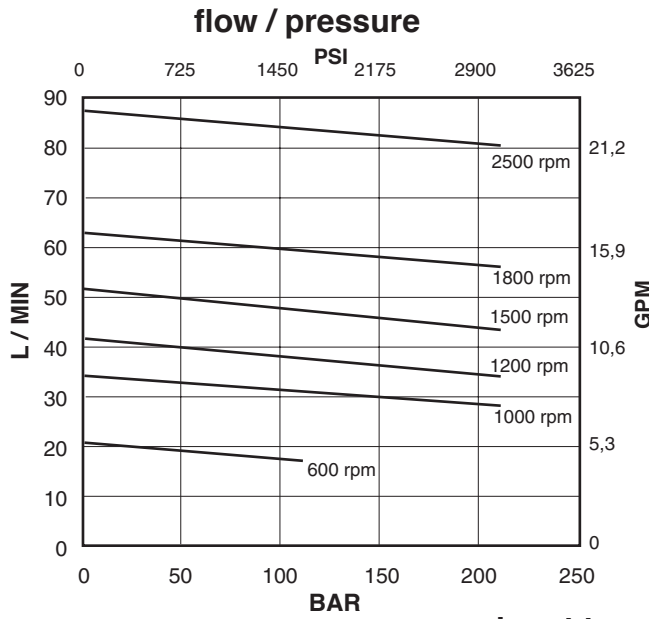
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-09



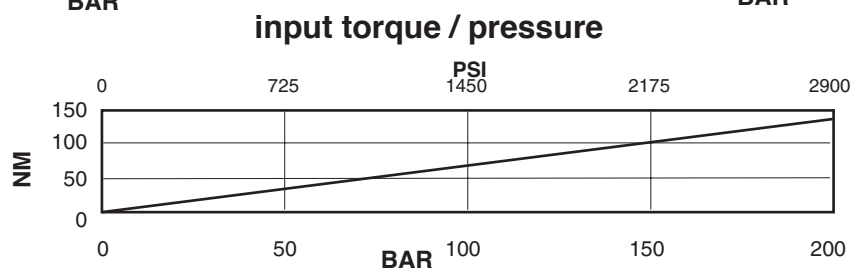
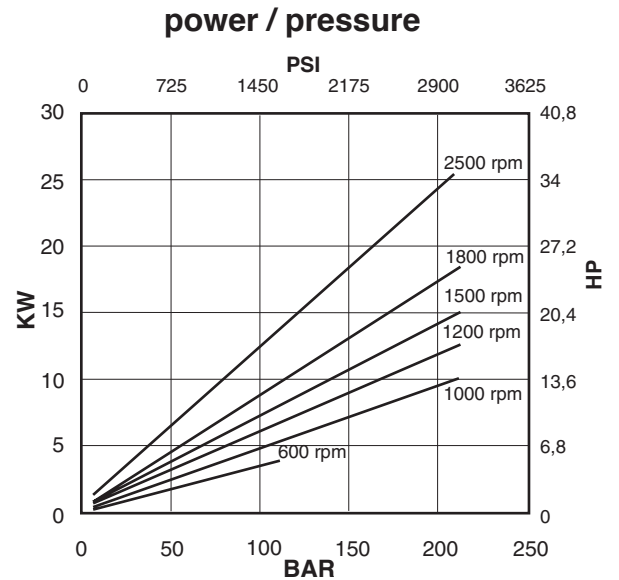
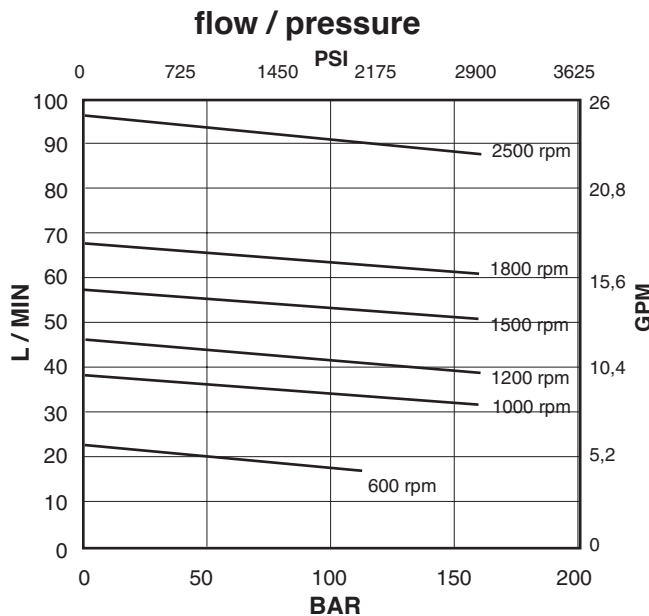
Oil viscosity: 25 c.St.(10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-11



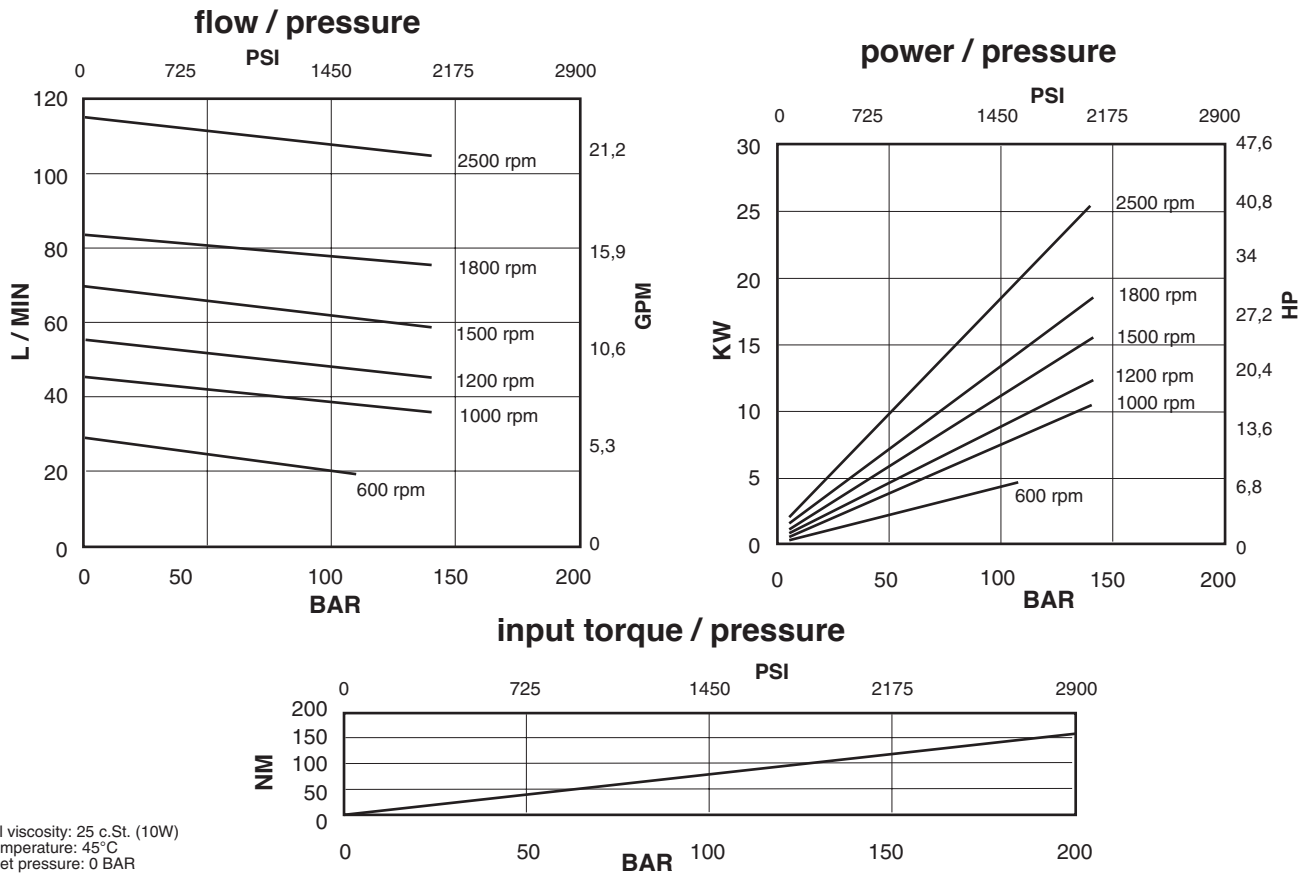
Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-12

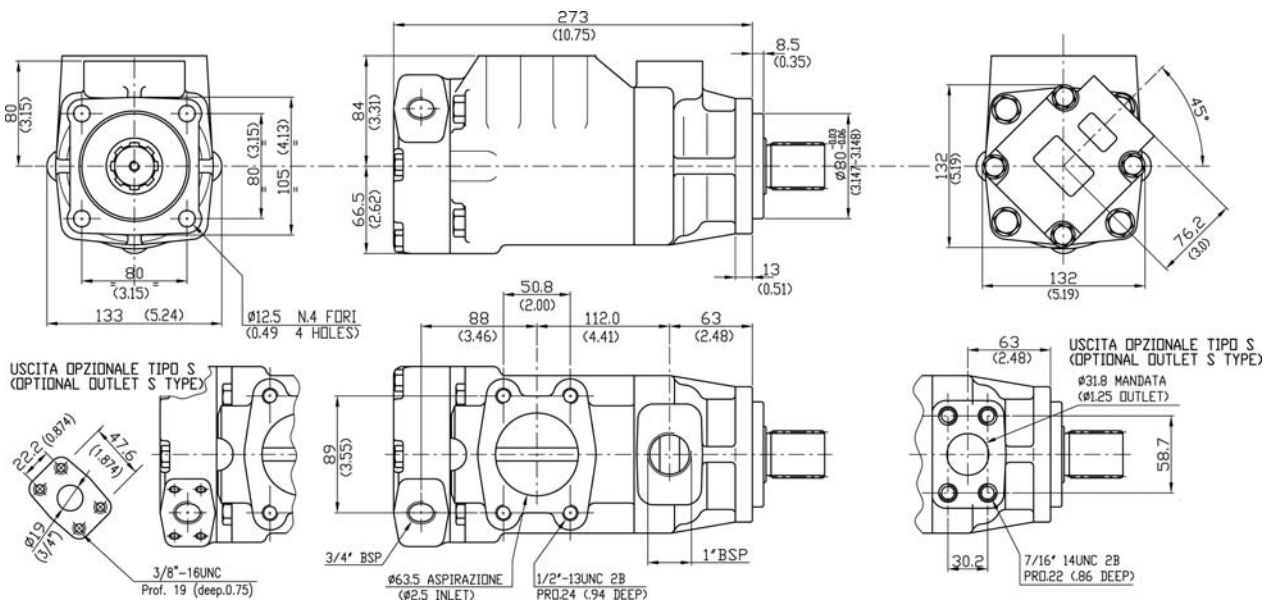


Oil viscosity: 25 c.St. (10W)
 Temperature: 45°C
 Inlet pressure: 0 BAR

Cover end cartridge A01-14



Installation dimensions mm (inches)



Approx. weight: 22,7 kg. (50 lbs.)

Model code breakdown

HQ 31 G * * * * * (L) (*)

Pump series

Design

Pump type

Cartridge types

- shaft end 24 28

- cover end 02 05 08 09 11 12 14

Body outlet port positions

(outlet viewed from cover end)

- A = Outlet opposite end
- B = Outlet 90° CCW from inlet
- C = Outlet in line with inlet
- D = Outlet 90° CW from inlet

Cover outlet port positions

(outlet viewed from cover end)

- A = Outlet 135° CCW from inlet
- B = Outlet 45° CCW from inlet
- C = Outlet 45° CW from inlet
- D = Outlet 135° CW from inlet

Seals

((mit with standard seals and shaft-seals in NBR)

V = seals and shaft-seals in FPM (Viton®)

Rotation

(viewed from shaft end)

L = left hand rotation CCW
(omit if CW)

Outlet port connection

(omit if GAS threaded)

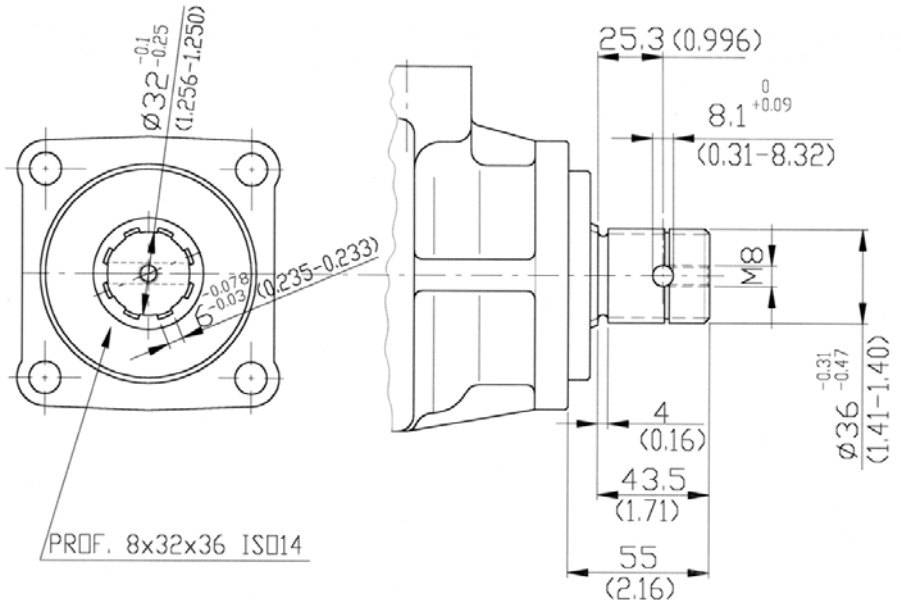
S = SAE port with 4 holes connection

Shaft end

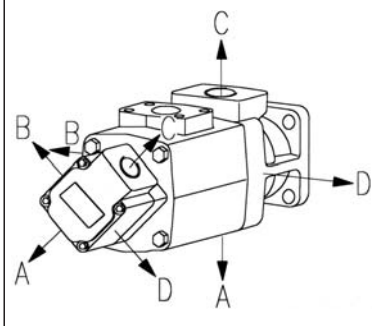
50 = Splined shaft with ISO 14 four holes flange

Shaft mm (inches)

Shaft
50



PORT ORIENTATIONS



Id. codes of pump components

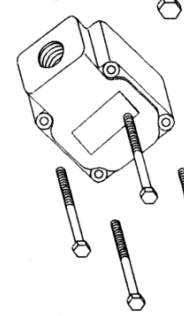
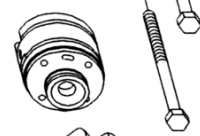
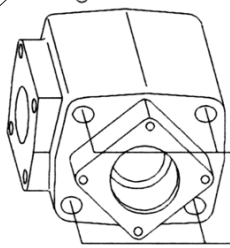
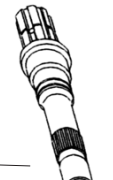
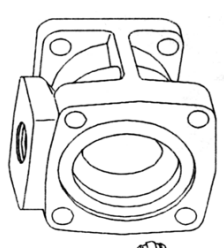
| Cartridges | | | | Pump rotation | | | | |
|------------|----------|-----------|------------|---------------|----------|-----|----|----------|
| Cover end | | Shaft end | | | | | | |
| Series | Model | Part No. | Series | Model | Part No. | | | |
| A01 | 02 | A0102000 | A03 | 24 | A0324030 | | | |
| | 05 | A0105010 | | 28 | A0328070 | | | |
| | 08 | A0108030 | right hand | | | | | |
| | 09 | A0109050 | | | | | | |
| | 11 | A0111070 | | | | | | |
| | 12 | A0112090 | | | | | | |
| 14 | A0114110 | left hand | | | | | | |
| A01 | 02 | | | | A0102005 | A03 | 24 | A0324040 |
| | 05 | | | | A0105020 | | 28 | A0328080 |
| | 08 | | | | A0108040 | | | |
| | 09 | A0109060 | | | | | | |
| | 11 | A0111080 | | | | | | |
| | 12 | A0112100 | | | | | | |
| 14 | A0114120 | | | | | | | |

| Body | |
|-------|----------|
| Model | PART NO. |
| STD | M8020016 |
| S | M8020017 |

| Shaft | |
|-------|----------|
| Model | PART NO. |
| 50 | K3150000 |

| Seeger | |
|----------|----------|
| PART NO. | M6000010 |

| Shaft kit | |
|-----------|----------|
| Model | PART NO. |
| 50 | M6315000 |



| Shaft seal | |
|------------|------|
| PART NO. | Type |
| M8020060 | NBR |
| M8020065 | FPM |

| Bearing | |
|----------|----------|
| PART NO. | M8020030 |

| Seeger | |
|----------|----------|
| PART NO. | M8020050 |

| Inlet body | |
|------------|----------|
| PART NO. | M8020115 |

| Cover | |
|-------|----------|
| Model | PART NO. |
| STD | M8020121 |
| S | M8020120 |

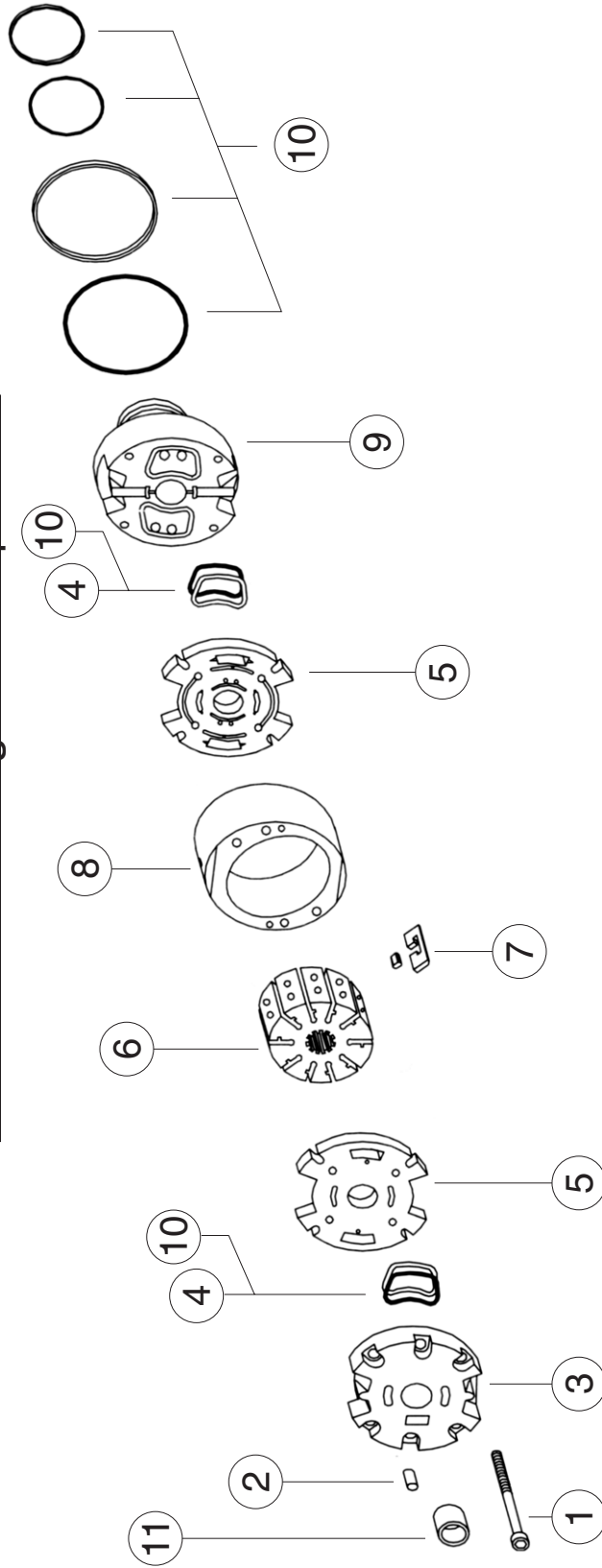
| Screw | |
|--------------------------------|----------|
| PART NO. | M6000130 |
| Torque to 102 Nm (910 lb. in.) | |

| Screw | |
|-------------------------------|----------|
| PART NO. | M8020420 |
| Torque to 70 Nm (624 lb. in.) | |

| Pump seal kit | | |
|---------------|-----------------------|--------------|
| PART NO. | Parts | Type |
| M6215500 | seals + 2 shaft seals | NBR |
| M6215510 | seals + 2 shaft seals | FPM (Viton®) |

| Seeger | |
|----------|----------|
| PART NO. | M8020040 |

Id. codes of cartridge kit components



| Cartridge Series Model | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|------------------------|------------------------|------------------------|---------------------|----------------------|--------------------------|----------|----------------------------------|----------|----------------------|--------------------|--------------|
| | Screw | Pin | Inlet support plate | Seal pack (4+4 pcs.) | Flex. plate kit (2 pcs.) | Rotor | Vane and insert kit (10+10 pcs.) | Ring | Outlet support plate | Seal kit (12 pcs.) | Bushing (*) |
| A01 | 02 | | L7209200 | | | L7209300 | L7209100 | L7209002 | | | |
| | 05 | | L7209200 | | | L7209300 | L7209100 | L7209005 | | | |
| | 08 | | L7209200 | | | L7209300 | L7209100 | L7209008 | | | |
| | 09 | L7200900 | L7200800 | L7209200 | L7201300 | L7209300 | L7209100 | L7209009 | L7200100 | L7201100 | L7200600 |
| | 11 | 3,6 Nm (82 lb. in.) | | L7200200 | | L7200300 | L7201200 | L7201011 | | L7202100 (FPM) | |
| | 12 | | | L7200200 | | L7200300 | L7201200 | L7201012 | | | |
| A02 | 14 | | L7200200 | | | L7200300 | L7201200 | L7201014 | | | |
| | 12 | | | | | | | L7251012 | | | |
| | 14 | | | | | | | L7251014 | | | |
| 17 | L7250900 | L7250800 | L7250200 | L7251300 | L7250715 | L7250300 | L7251200 | L7251017 | L7250100 | L7251100 | L7250600 |
| 19 | 5,5 Nm (49 lb. in.) | | | | | | | L7251019 | | L7252100 (FPM) | |
| 21 | | | | | | | | L7251021 | | | |
| A03 | 24 | L7300900 | L7250200 | L7251300 | L7250715 | L7300300 | L7301200 | L7301024 | L7250100 | L7251100 | L7250600 |
| | 28 | 5,5 Nm | | | | | | L7301028 | | L7252100 (FPM) | L7250600 |

(*) Note: the cover end cartridge of the double pump is without bushing.

Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7 psi) and with ambient temperature in the range of +30°C to +50°C. Higher speeds than those given cause a reduction in the volumetric efficiency, due to cavitation phenomena in the inlet area inside the pump. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the cartridge.

Minimum speed: In general, the min. speed for all pumps is 600 rpm. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum outlet pressure is different for each type of fluid used as can be seen from the corresponding diagrams. With optimal temperature and filtration conditions a pressure peak of +10% is permissible for a maximum time of 0.5 sec.

Mounting and drive connections: consider the following indications when preparing the installation drawings for the system:

- avoid axial and radial loads on the shaft;
- the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm;
- when mounting onto a gearbox, or other component without a flexible coupling, it is advisable to check the clearance between splines that has to be between 0.013 and 0.051 mm on the pitch diameter.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.) Inlet line tubing should have a section equal to or greater than that of the inlet port of the pump. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which has to be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The filtration requirements for individual models are given in this catalogue. The use of a filter bypass is recommended for cold starts and should the filter become clogged. Proper maintenance of the filter element is essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, the same general conditions apply as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time:
 completely fill the pump and the inlet line with fluid;
 start the engine for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed;
 with a manometer check to ensure that the outlet pressure increases slightly;
 once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir.
 This procedure should be carefully as any residual air inside the pump can quickly cause the rotor to seize.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits.

The information provided in this catalogue is subject to change without notice



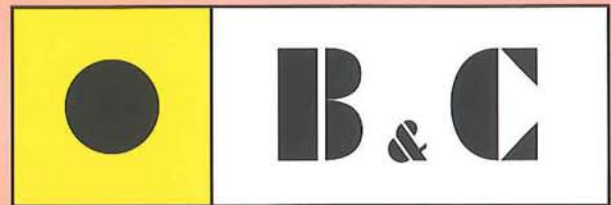
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TECHNICAL CATALOGUE



**THRU DRIVE
HYDRAULIC VANE PUMPS
*TQ/TV series***



THRU-DRIVE HYDRAULIC VANE PUMPS “TQ/TV” SERIES

Thru-drive pumps save installation space and cost by eliminating double shaft extension electric motors or by reducing the number of motors and drive couplings.

Furthermore thru-drive models provide valuable circuit design flexibility, such as having the vane pump coupled with other types of pumps, both fixed and variable displacement, on a single input drive.

The B&C thru-drive pumps are available in TQ and TV versions.

The ten vane TQ type is particularly suitable for applications subject to sudden peaks of pressure, while the twelve vane TV model is specifically designed to meet very low noise requirements.

The table below shows the main technical characteristics of both TQ and TV versions. More detailed technical information is available on the catalogues of the standard BQ and BV pumps.

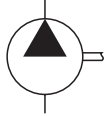
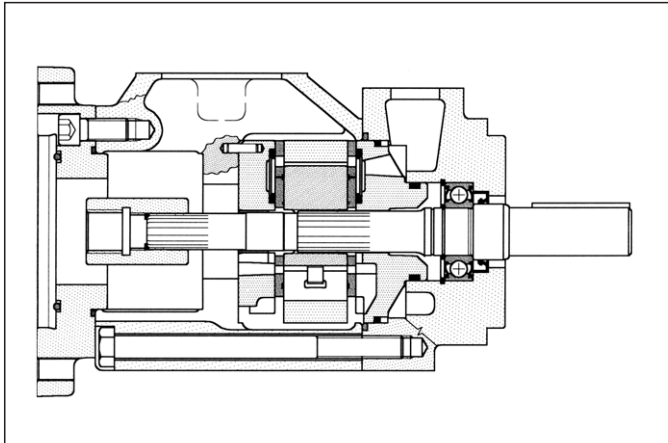
Technical characteristics

oil viscosity: 25 c.St. (10W), temperature: 45°C, inlet pressure: 0 BAR

| Pump type | Geometric displacement | | Rated capacity at 1200 rpm 7 bar | | TQ series | | | TV series | | |
|-----------|------------------------|----------------------|----------------------------------|-------|-----------------------------------|--------|-----------|-----------------------------------|--------|-----------|
| | | | | | Maximum pressure with mineral oil | | Max speed | Maximum pressure with mineral oil | | Max speed |
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | bar | (psi) | rpm | bar | (psi) | rpm |
| 02 | 40,1 | (2.45) | 46,9 | (12) | 210 | (3050) | 2700 | 175 | (2538) | 1800 |
| | 45,4 | (2.77) | 52,7 | (14) | 210 | (3050) | 2700 | 175 | (2538) | 1800 |
| | 55,2 | (3.37) | 64,2 | (17) | 210 | (3050) | 2500 | 175 | (2538) | 1800 |
| | 60,0 | (3.66) | 71,0 | (19) | 210 | (3050) | 2500 | 175 | (2538) | 1800 |
| | 67,5 | (4.12) | 79,0 | (21) | 210 | (3050) | 2500 | 175 | (2538) | 1800 |
| 04 | 69,0 | (4.2) | 79,5 | (21) | 210 | (3050) | 2500 | 175 | (2538) | 1800 |
| | 81,6 | (5) | 94,0 | (25) | 210 | (3050) | 2500 | 175 | (2538) | 1800 |
| | 97,7 | (6) | 113,8 | (30) | 210 | (3050) | 2500 | 175 | (2538) | 1800 |
| | 112,7 | (6.9) | 131,6 | (35) | 210 | (3050) | 2400 | 175 | (2538) | 1800 |
| | 121,6 | (7.4) | 139,9 | (38) | 210 | (3050) | 2400 | 175 | (2538) | 1800 |
| 05 | 138,6 | (8.46) | 164 | (42) | 175 | (2538) | 2200 | 175 | (2538) | 1800 |
| | 153,5 | (9.4) | 180 | (47) | 175 | (2538) | 2200 | 175 | (2538) | 1800 |
| | 162,2 | (9.9) | 189 | (50) | 175 | (2538) | 2200 | 175 | (2538) | 1800 |
| | 183,4 | (11.2) | 217 | (57) | 175 | (2538) | 2200 | 175 | (2538) | 1800 |
| | 193,4 | (11.8) | 230 | (60) | 175 | (2538) | 2200 | 175 | (2538) | 1800 |

contents

| | |
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| Single pumps TQ02..... | pag. 3 |
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| Single pumps TQ05..... | pag. 13 |
| Single pumps TV02..... | pag. 18 |
| Single pumps TV04..... | pag. 23 |
| Single pumps TV05..... | pag. 28 |
| Operating instructions..... | pag. 33 |



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five different displacements from 47 to 79 L/min (from 12 to 21 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A02-12 | 40,1 | (2.45) | 39,1 | (10.0) | 46,9 | (12) | 58,8 | (15.5) | 210 | (3050) | 600 | 2700 |
| A02-14 | 45,4 | (2.77) | 43,9 | (11.7) | 52,7 | (14) | 65,7 | (17.4) | 210 | (3050) | 600 | 2700 |
| A02-17 | 55,2 | (3.37) | 53,5 | (14.2) | 64,2 | (17) | 80,2 | (21.2) | 210 | (3050) | 600 | 2500 |
| A02-19 | 60,1 | (3.66) | 59,2 | (15.8) | 71,1 | (19) | 88,7 | (23.4) | 210 | (3050) | 600 | 2500 |
| A02-21 | 67,5 | (4.12) | 65,8 | (17.5) | 79,3 | (21) | 99,8 | (26.4) | 210 | (3050) | 600 | 2500 |

For detailed technical informations please refer to BQ Series catalogue

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

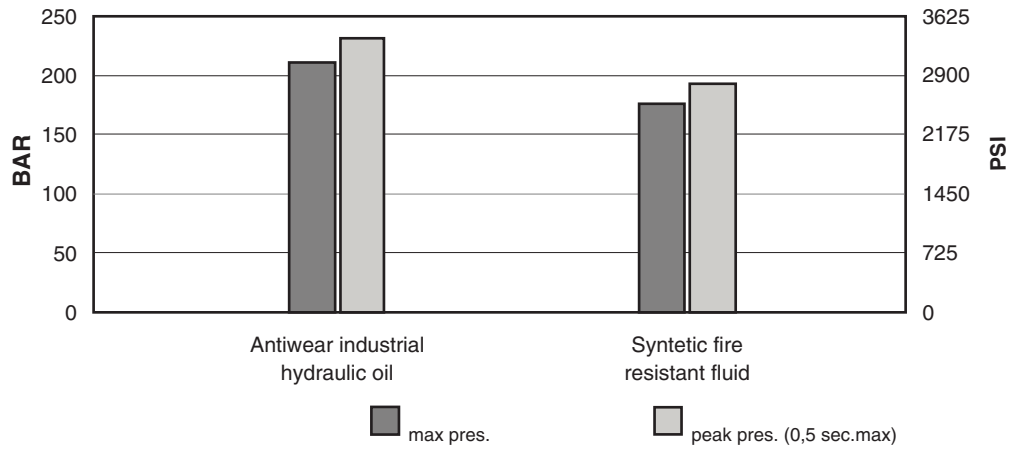
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

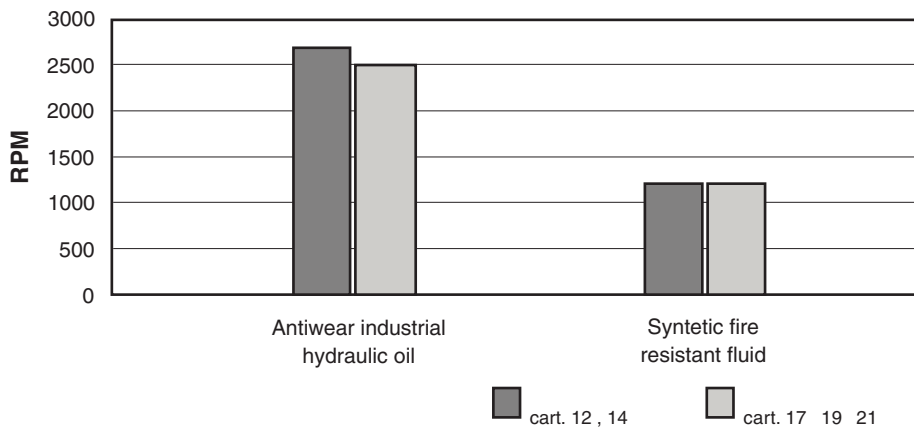
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

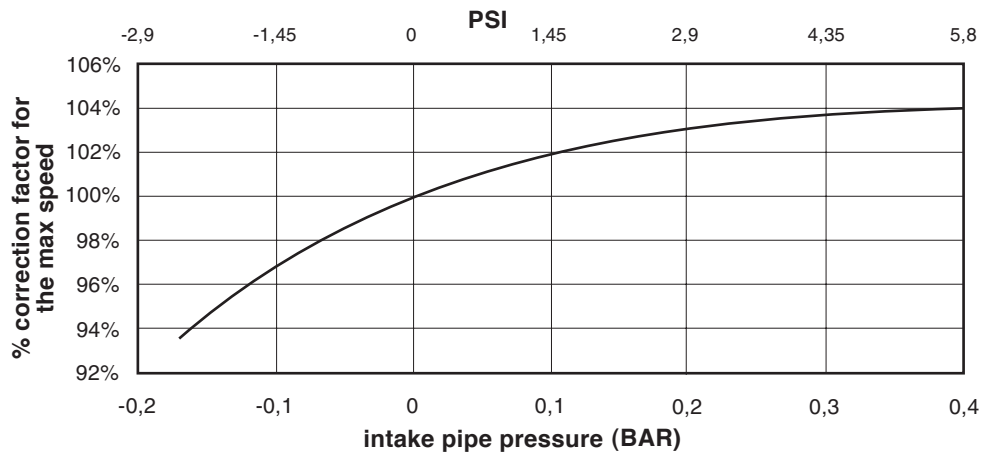


max speed / hydraulic fluid (with 0 bar in the intake pipe)

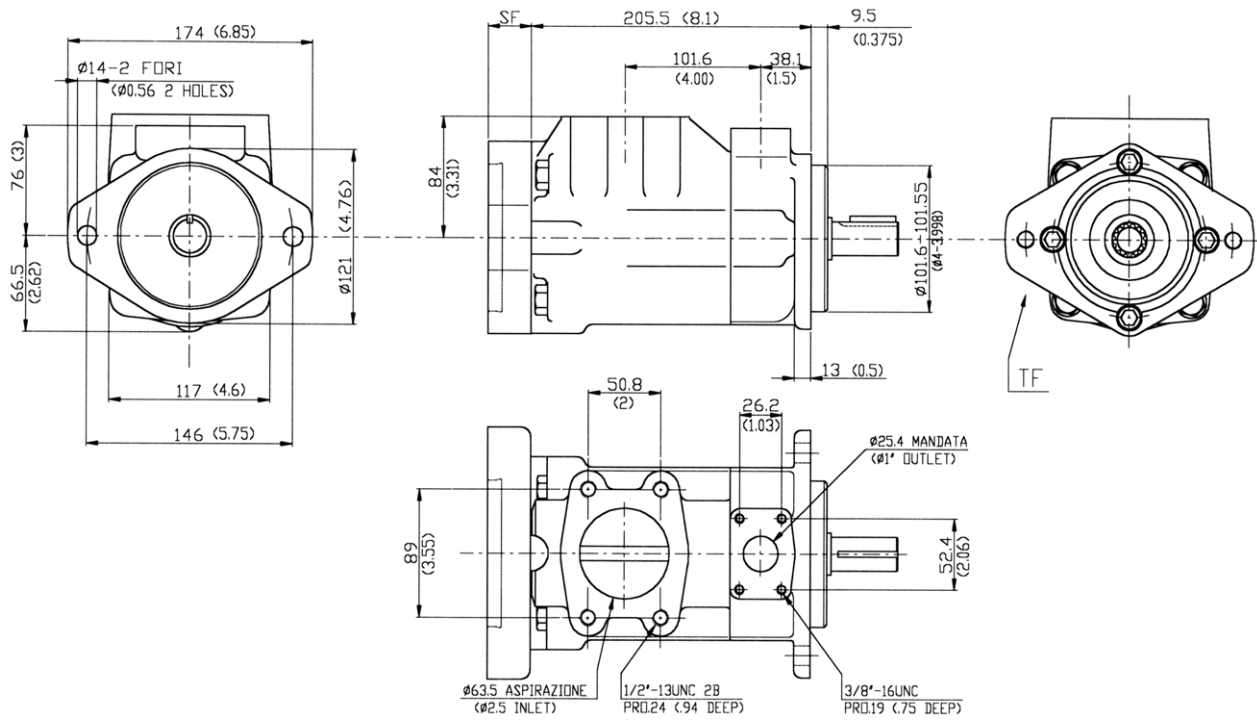


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.

max speed / intake pipe pressure



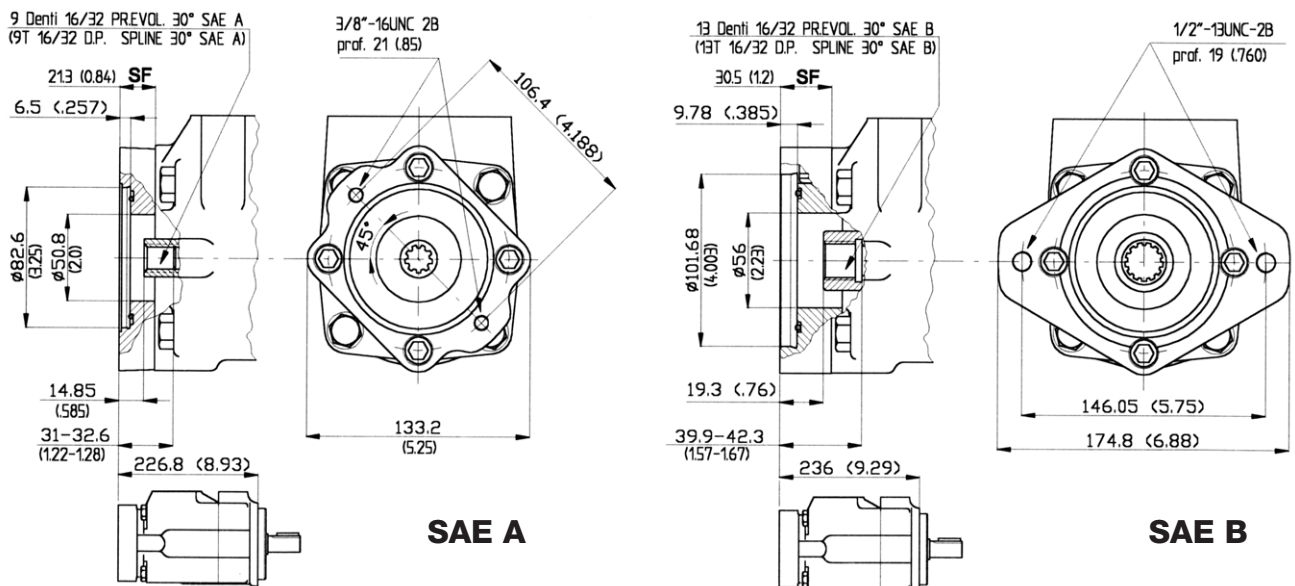
Installation dimensions mm (inches)



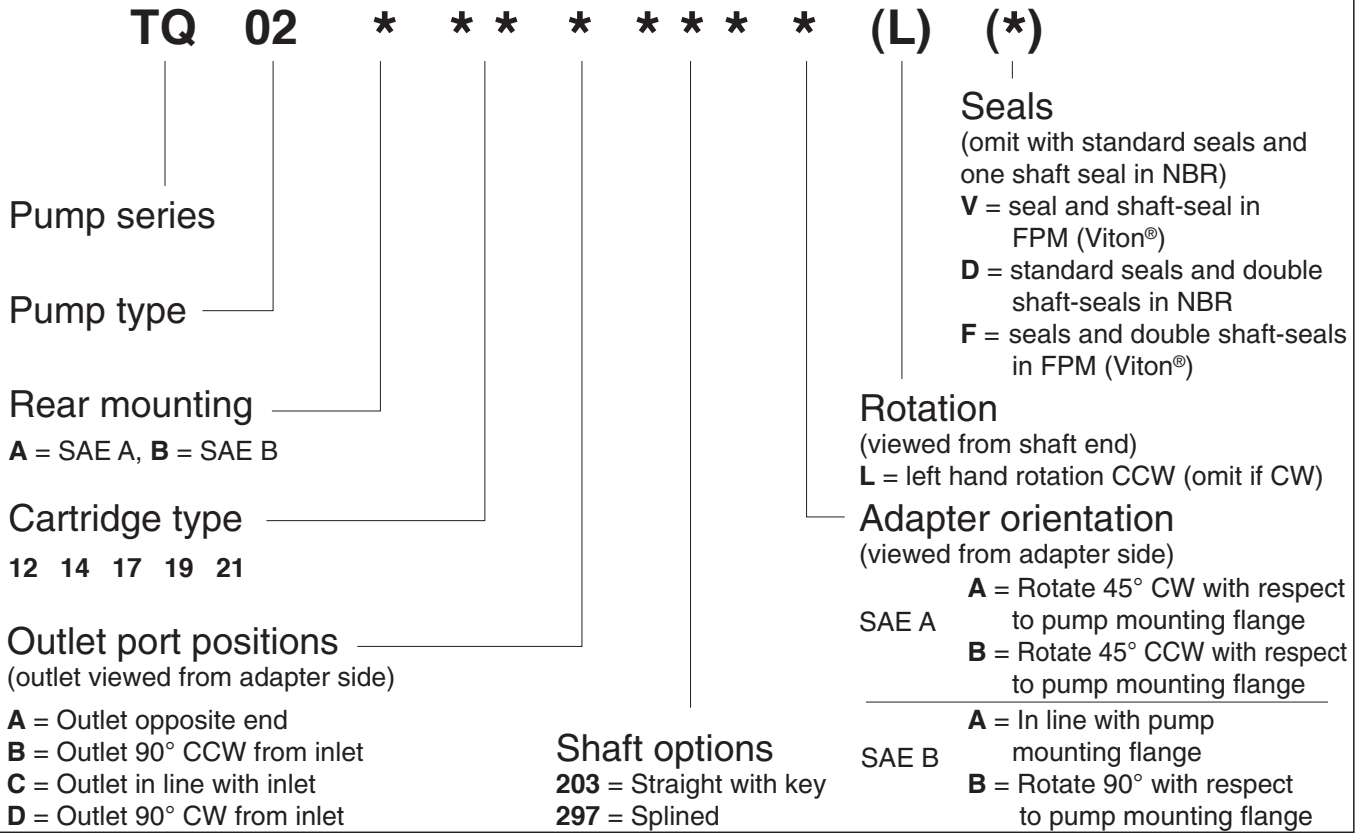
Approx. weight: 19,4 kg. (43 lbs.)

Rear mountings mm (inches)

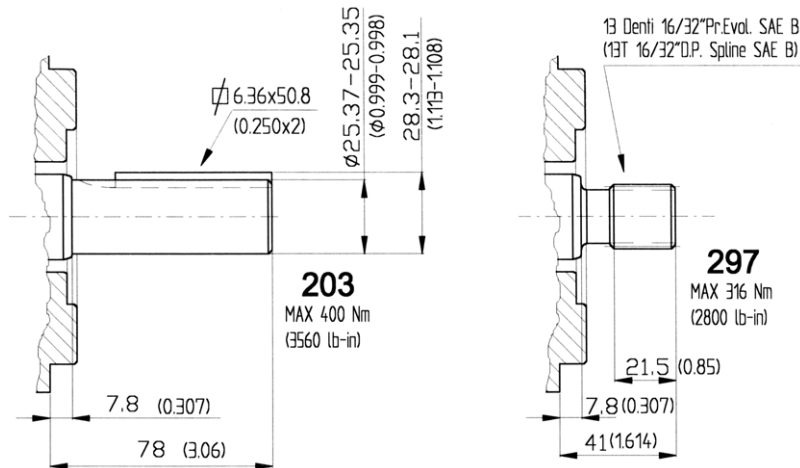
Different types of coupling with other pumps are also available. Please contact our Technical Dept. for detailed information.



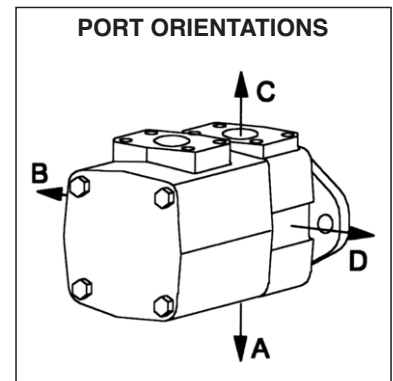
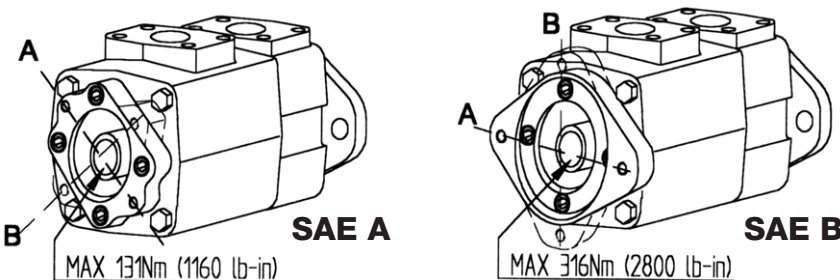
Model code breakdown



Shaft options mm (inches)



Adapter plate orientations



Id. codes of pump components

| Model | Coupling | Seeger | Coupling kit (seeger+coupling) |
|-------|----------|----------|-----------------------------------|
| TQ02B | M7002000 | M7061170 | M7012000 |
| TQ02A | M7001000 | M7061160 | M7011000 |

★ "O" ring
PART NO. | M7061050

Adapter plate
PART NO. | M8060200

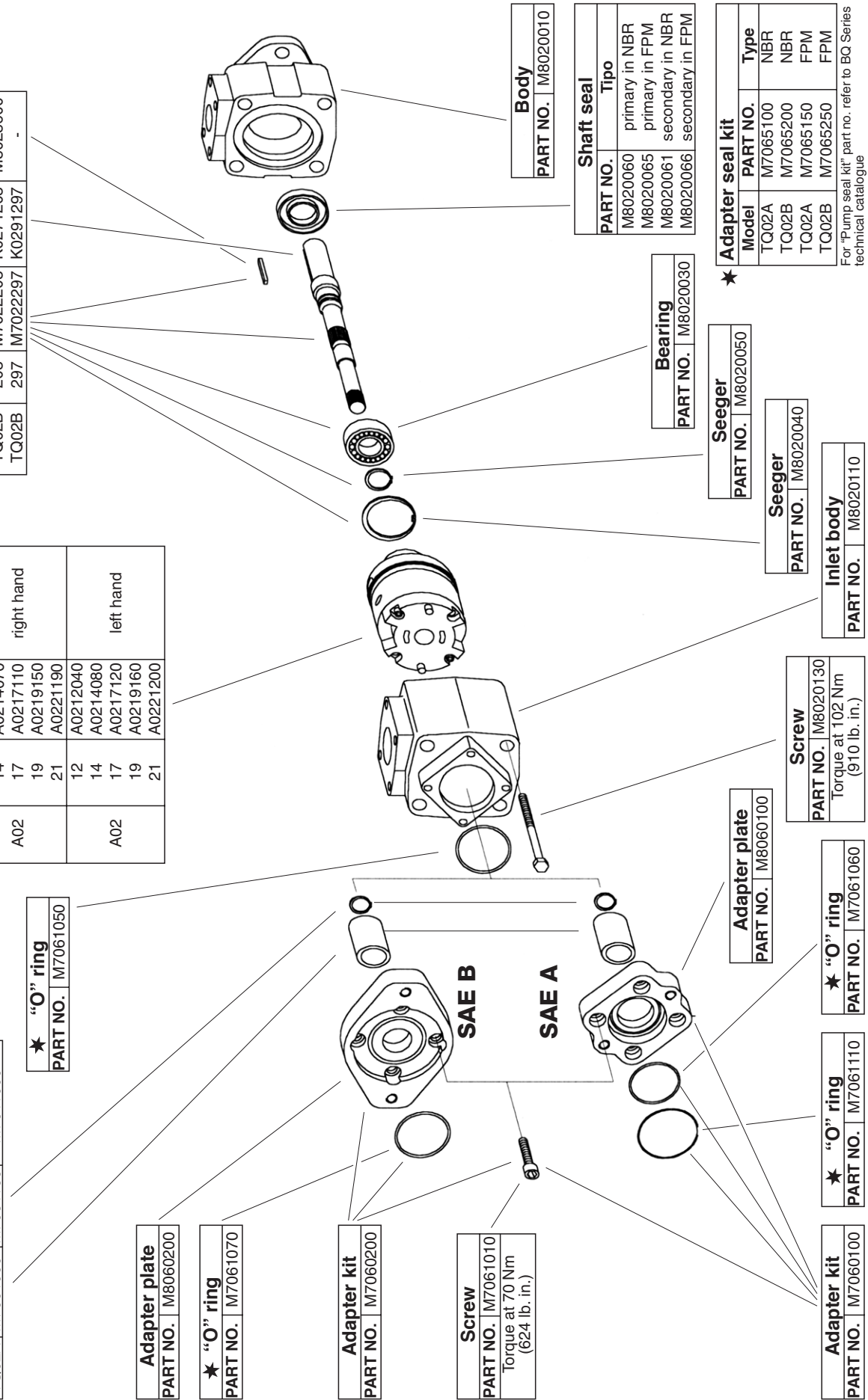
★ "O" ring
PART NO. | M7061070

Adapter kit
PART NO. | M7060200

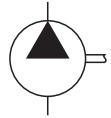
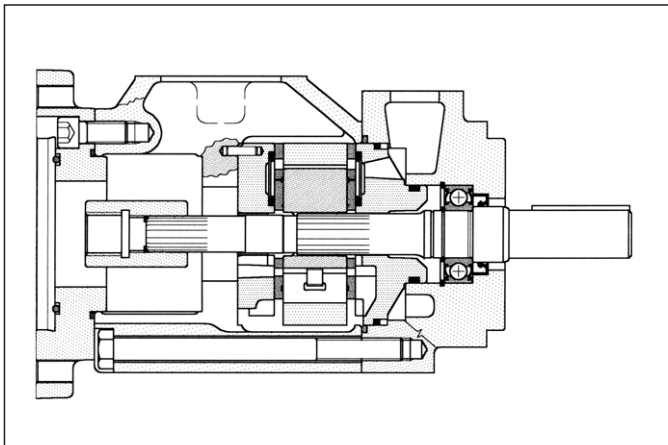
Screw
PART NO. | M7061010
Torque at 70 Nm
(624 lb. in.)

| Series | Cartridge | | PUMP ROTAT. |
|--------|-----------|----------|-------------|
| | Model | PART NO. | |
| A02 | 12 | A0212030 | right hand |
| | 14 | A0214070 | |
| | 17 | A0217110 | |
| | 19 | A0219150 | |
| | 21 | A0221190 | |
| A02 | 12 | A0212040 | left hand |
| | 14 | A0214080 | |
| | 17 | A0217120 | |
| | 19 | A0219160 | |
| | 21 | A0221200 | |

| Pump | Model | Kit | Shaft | Key |
|-------|-------|----------|----------|----------|
| TQ02A | 203 | M7021203 | K0270203 | M8028600 |
| TQ02A | 297 | M7021297 | K0290297 | - |
| TQ02B | 203 | M7022203 | K0271203 | M8028600 |
| TQ02B | 297 | M7022297 | K0291297 | - |



For "Pump seal kit" part no. refer to BQ Series technical catalogue



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five different displacements from 80 to 140 l/min (from 21 to 38 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A04-21 | 69,0 | (4.2) | 66,3 | (17,5) | 79,5 | (21) | 101,4 | (26.8) | 210 | (3050) | 600 | 2500 |
| A04-25 | 81,6 | (5) | 78,3 | (20.8) | 94,0 | (25) | 120,1 | (31.7) | 210 | (3050) | 600 | 2500 |
| A04-30 | 97,7 | (6) | 94,8 | (25.0) | 113,8 | (30) | 141,2 | (37.3) | 210 | (3050) | 600 | 2500 |
| A04-35 | 112,7 | (6.9) | 109,7 | (29.2) | 131,6 | (35) | 167,2 | (44.1) | 210 | (3050) | 600 | 2400 |
| A04-38 | 121,6 | (7.4) | 116,6 | (31.7) | 139,9 | (38) | 177,3 | (46.8) | 210 | (3050) | 600 | 2400 |

For detailed technical informations please refer to BQ Series catalogue

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

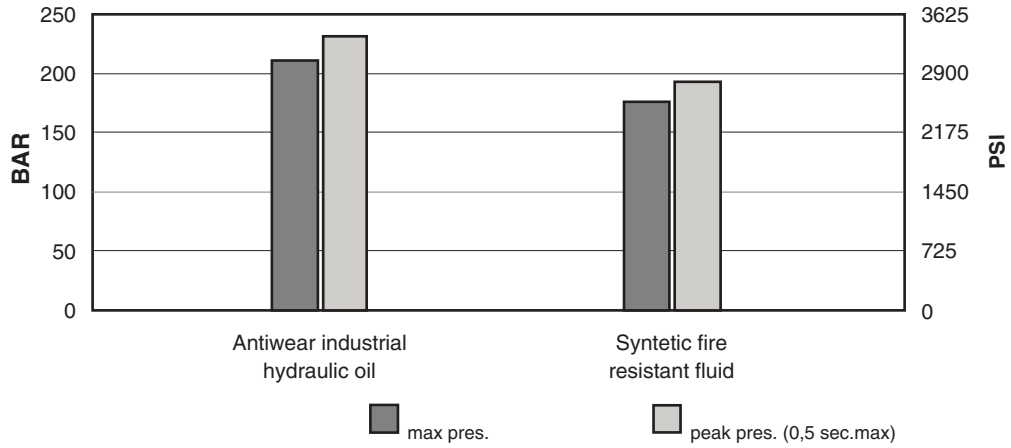
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

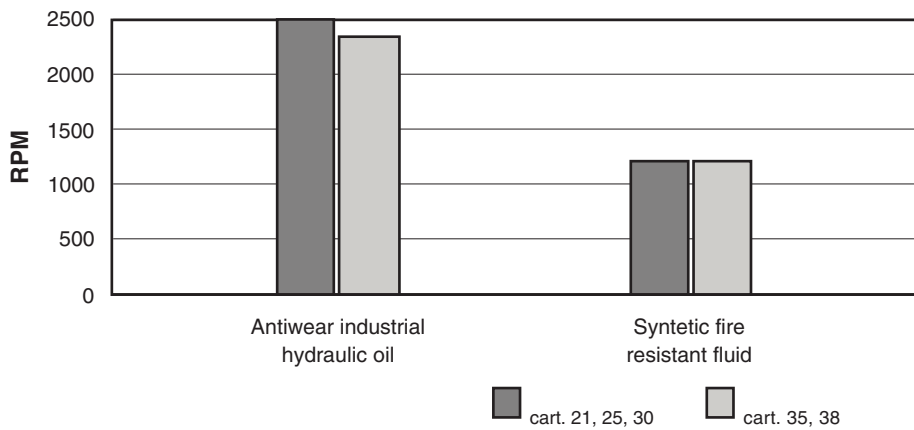
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

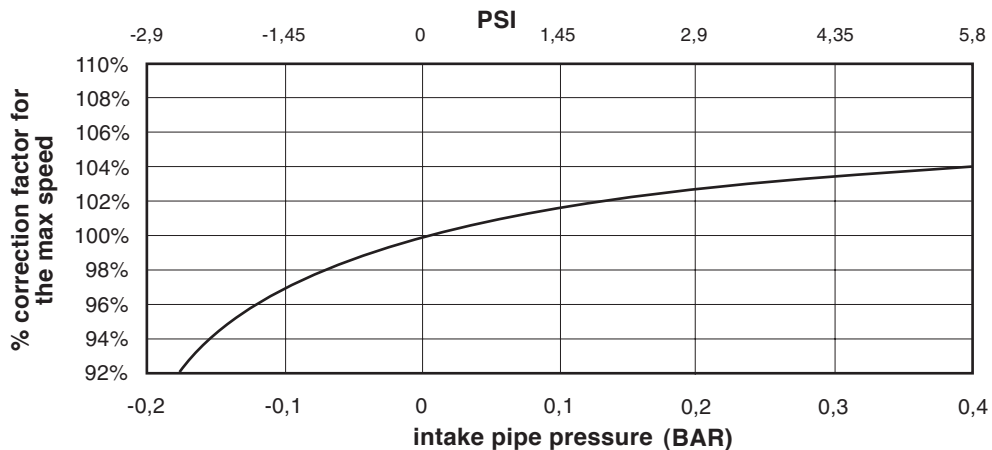


max speed / hydraulic fluid (with 0 bar in the intake pipe)

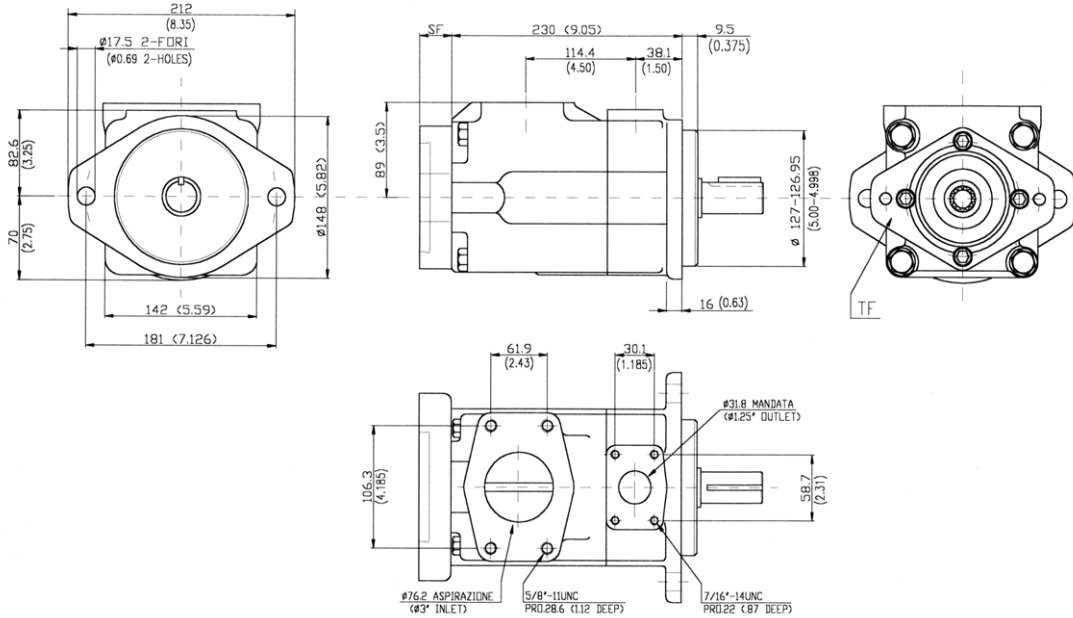


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.

max speed / intake pipe pressure



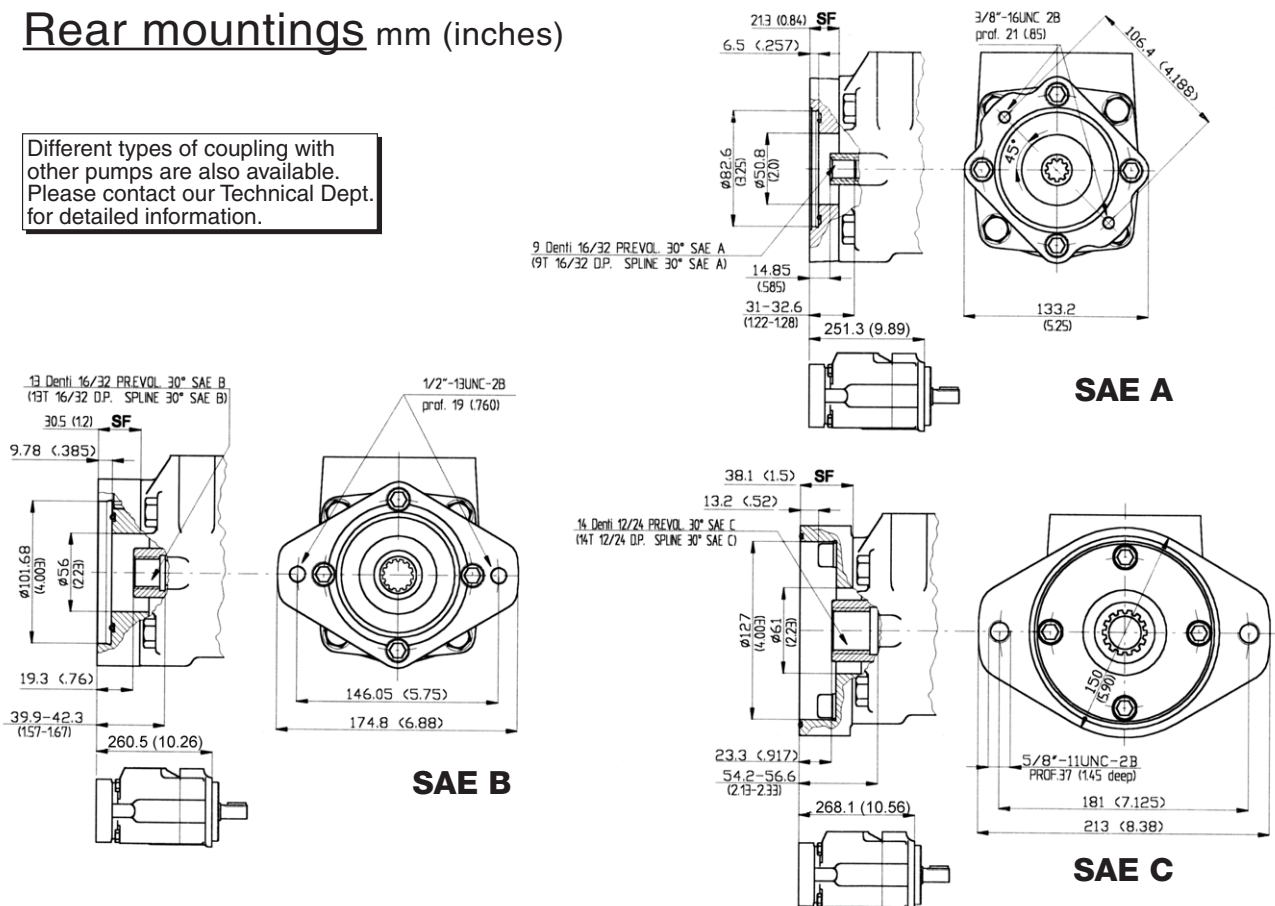
Installation dimensions mm (inches)



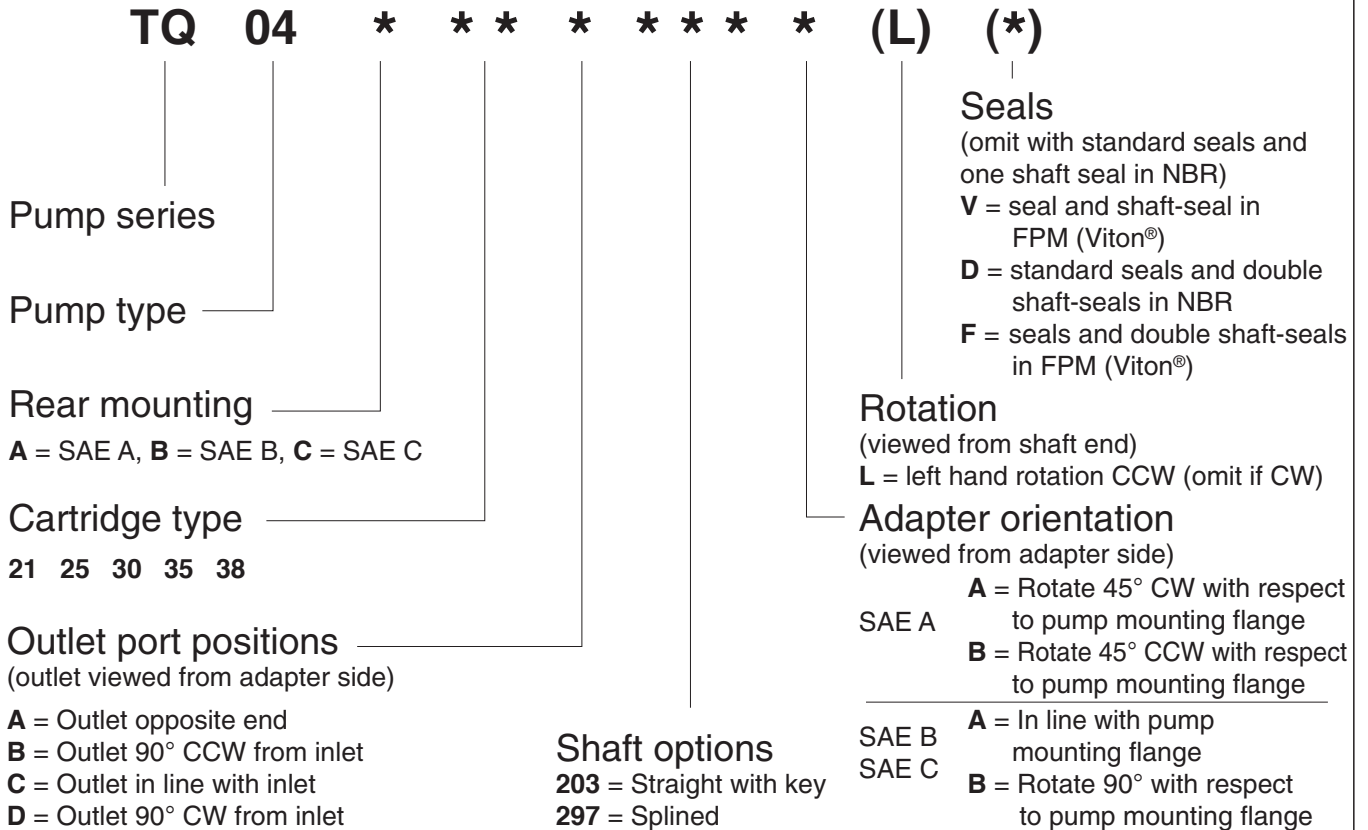
Approx. weight: 28,7 kg. (63 lbs.)

Rear mountings mm (inches)

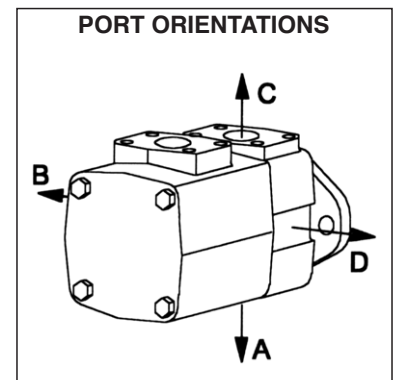
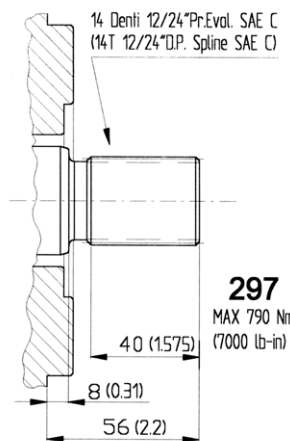
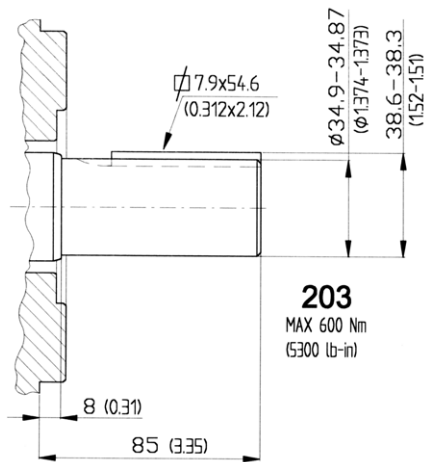
Different types of coupling with other pumps are also available. Please contact our Technical Dept. for detailed information.



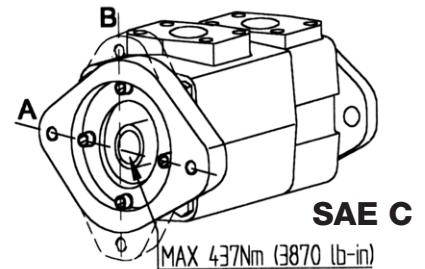
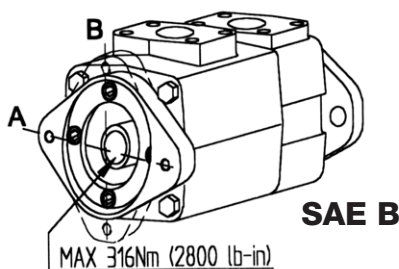
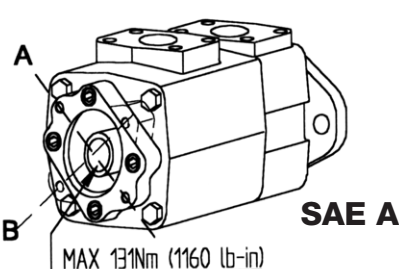
Model code breakdown

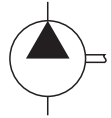
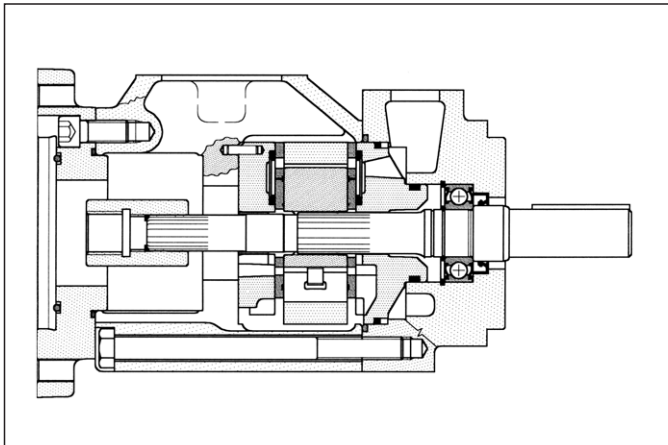


Shaft options mm (inches)



Adapter plate orientations





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five different displacements from 164 to 230 l/min (from 42 to 60 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| A05-42 | 138,6 | (8.46) | 136,7 | (35.0) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 2200 |
| A05-47 | 153,5 | (9.4) | 150,0 | (39.2) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 2200 |
| A05-50 | 162,2 | (9.9) | 157,5 | (41.7) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 2200 |
| A05-57 | 183,4 | (11.2) | 180,8 | (47.5) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 2200 |
| A05-60 | 193,4 | (11.8) | 191,7 | (50.0) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 2200 |

For detailed technical informations please refer to BQ Series catalogue

Hydraulic fluids: mineral oils, phosphate ester based fluids.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

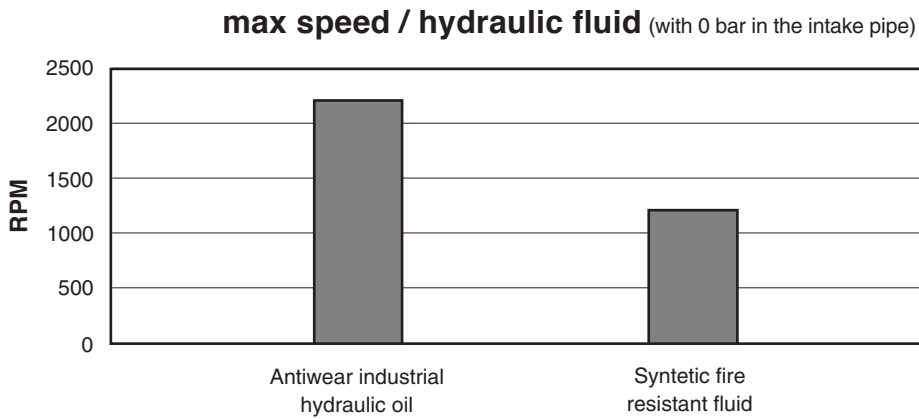
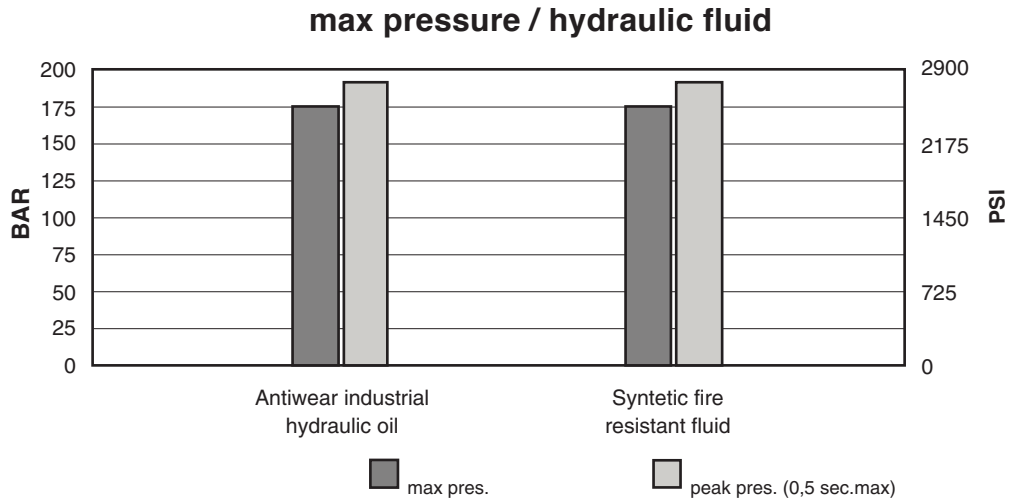
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

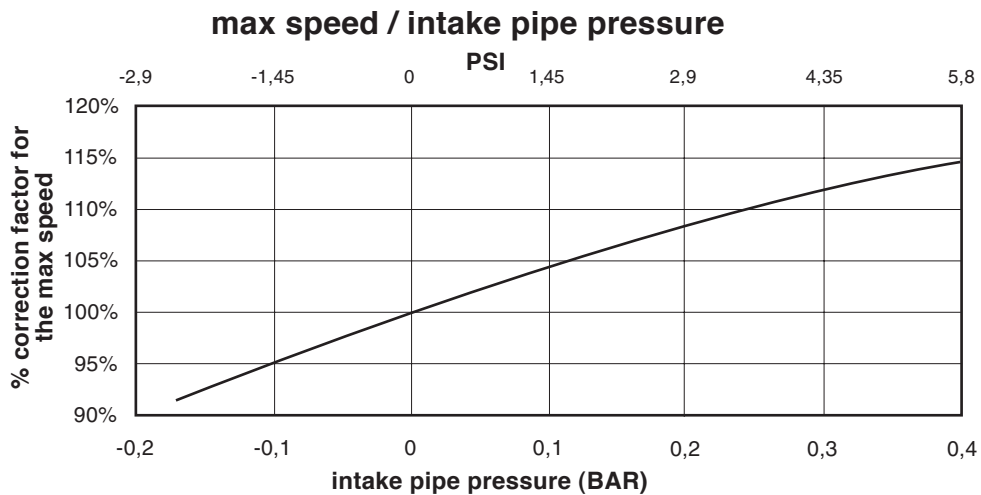
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended).

Drive: direct and coaxial by means of a flexible coupling.

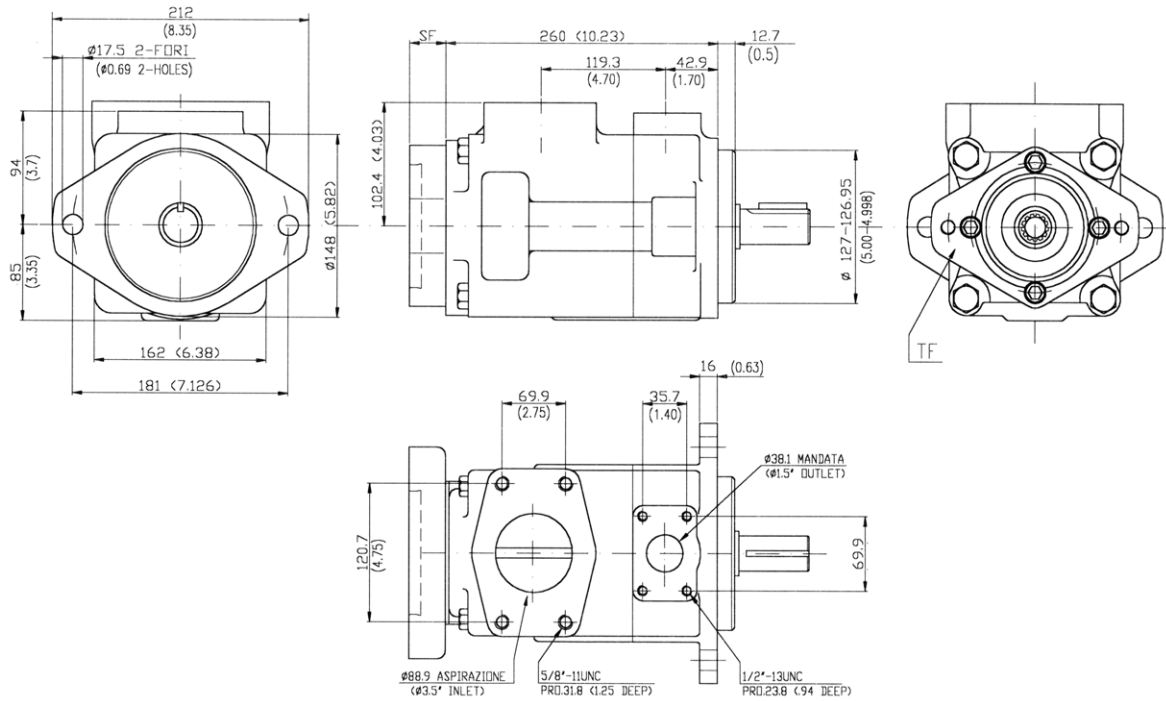
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.



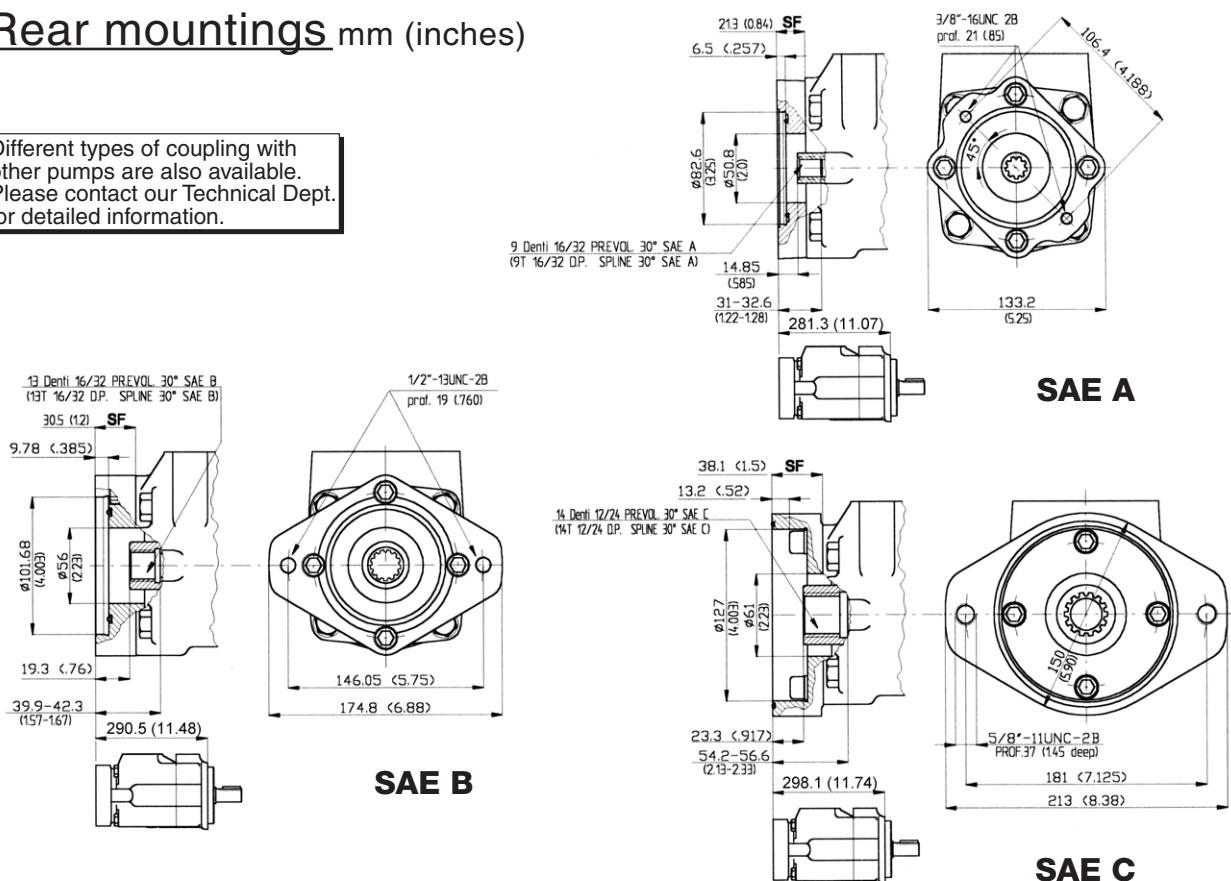
Installation dimensions mm (inches)



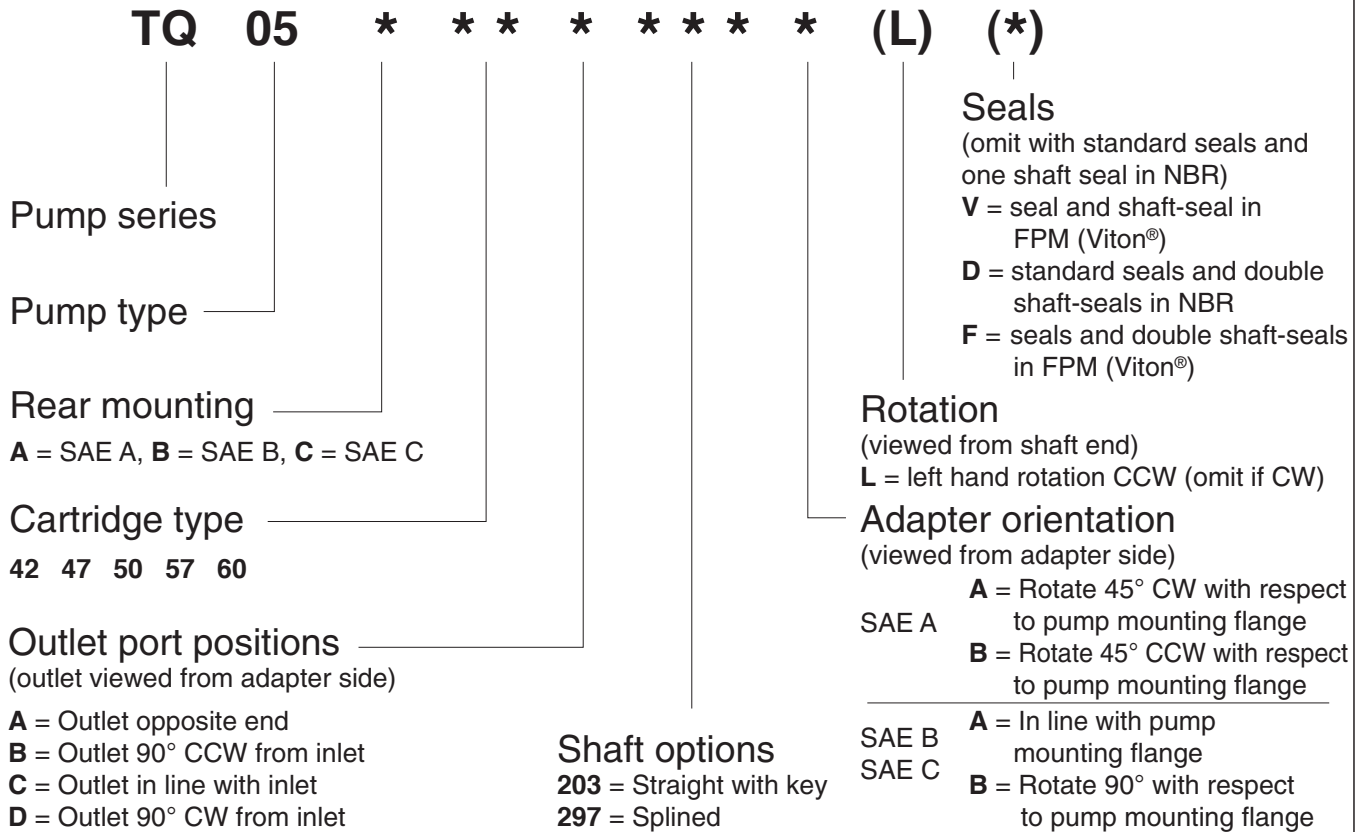
Approx. weight: 38,1 kg. (84 lbs.)

Rear mountings mm (inches)

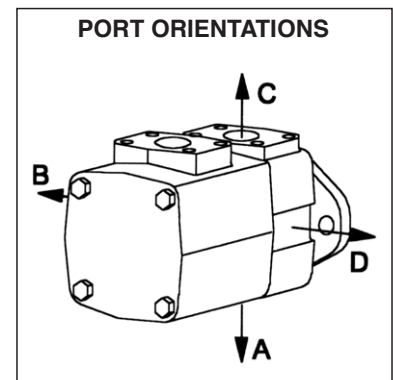
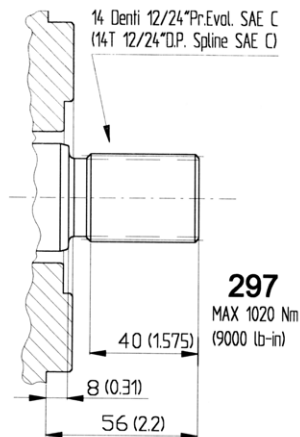
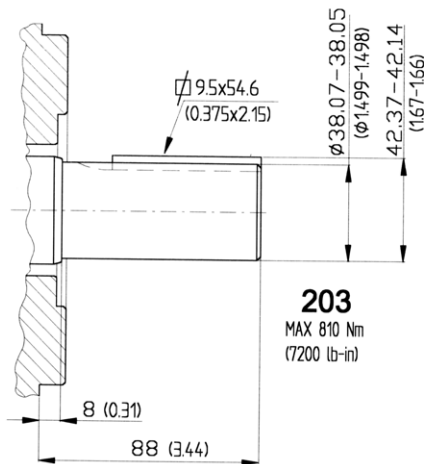
Different types of coupling with other pumps are also available. Please contact our Technical Dept. for detailed information.



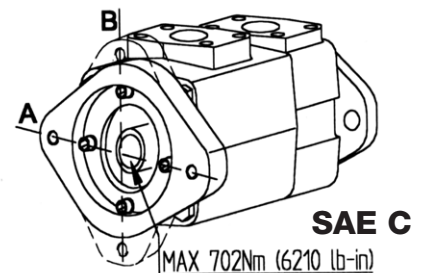
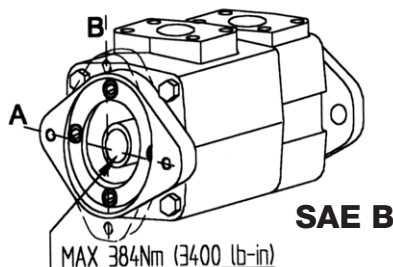
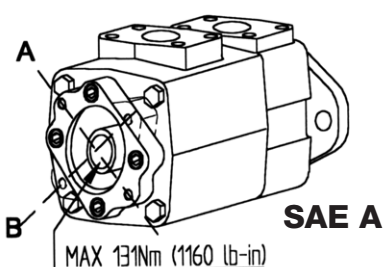
Model code breakdown



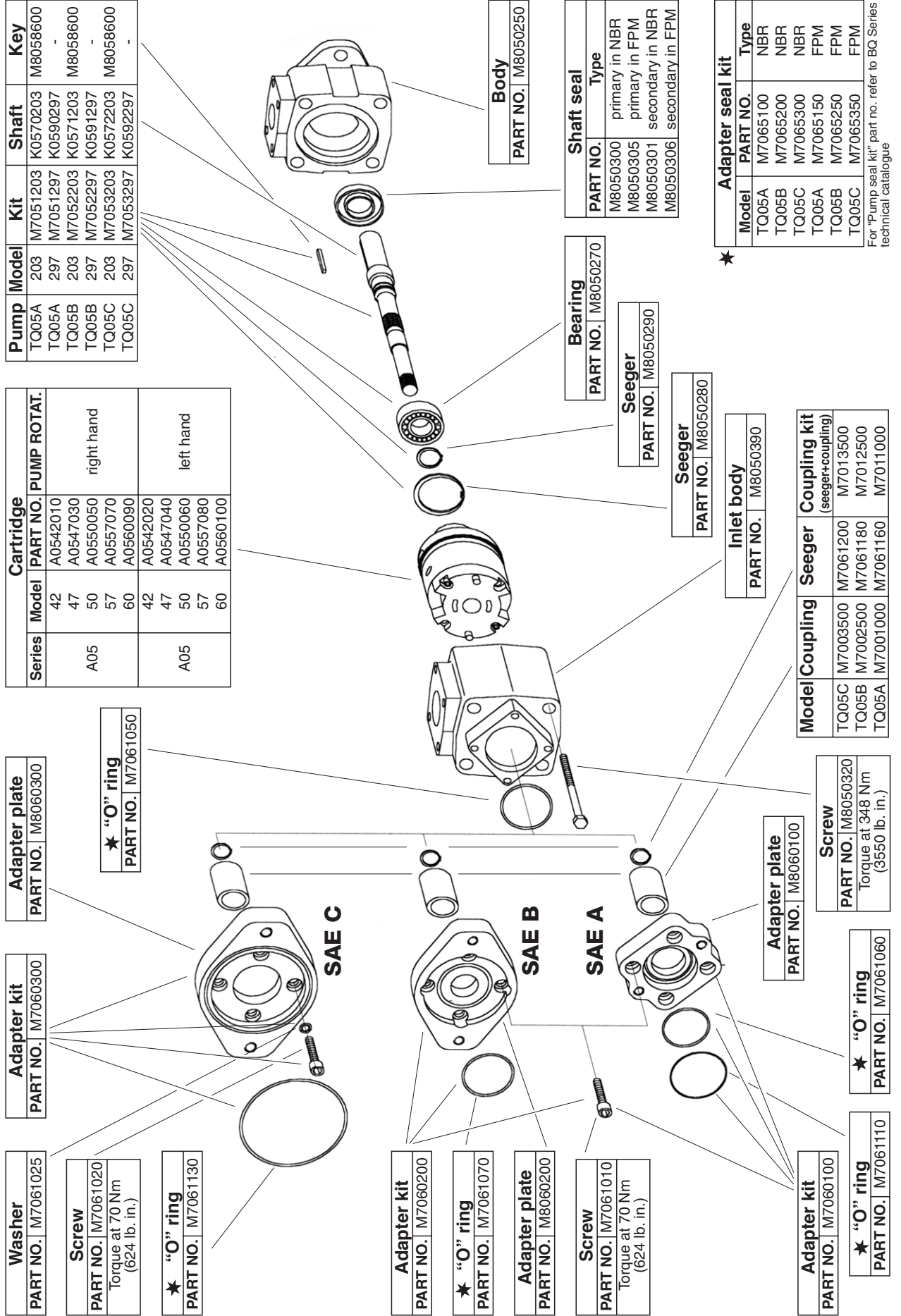
Shaft options mm (inches)

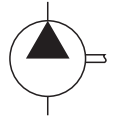
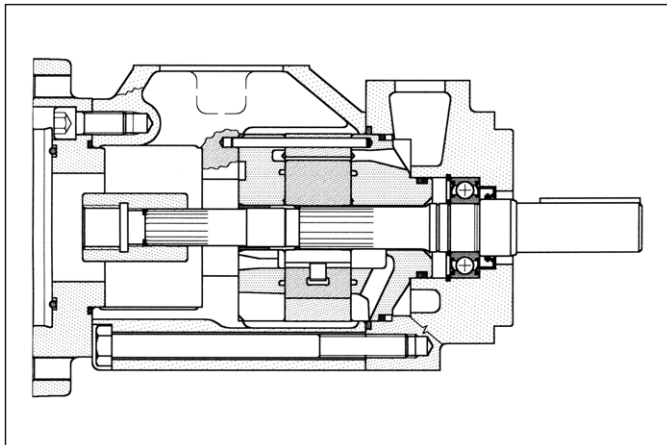


Adapter plate orientations



Id. codes of pump components





General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five different displacements from 47 to 79 L/min (from 12 to 21 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| V02-12 | 40,1 | (2.45) | 39,1 | (10.0) | 46,9 | (12) | 58,8 | (15.5) | 175 | (2538) | 600 | 1800 |
| V02-14 | 45,4 | (2.77) | 43,9 | (11.7) | 52,7 | (14) | 65,7 | (17.4) | 175 | (2538) | 600 | 1800 |
| V02-17 | 55,2 | (3.37) | 53,5 | (14.2) | 64,2 | (17) | 80,2 | (21.2) | 175 | (2538) | 600 | 1800 |
| V02-19 | 60,1 | (3.66) | 59,2 | (15.8) | 71,1 | (19) | 88,7 | (23.4) | 175 | (2538) | 600 | 1800 |
| V02-21 | 67,5 | (4.12) | 65,8 | (17.5) | 79,3 | (21) | 99,8 | (26.4) | 175 | (2538) | 600 | 1800 |

For detailed technical informations please refer to BV Series catalogue

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

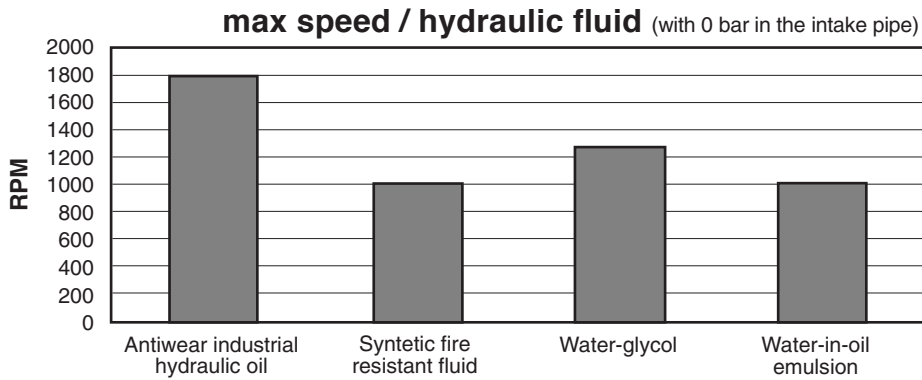
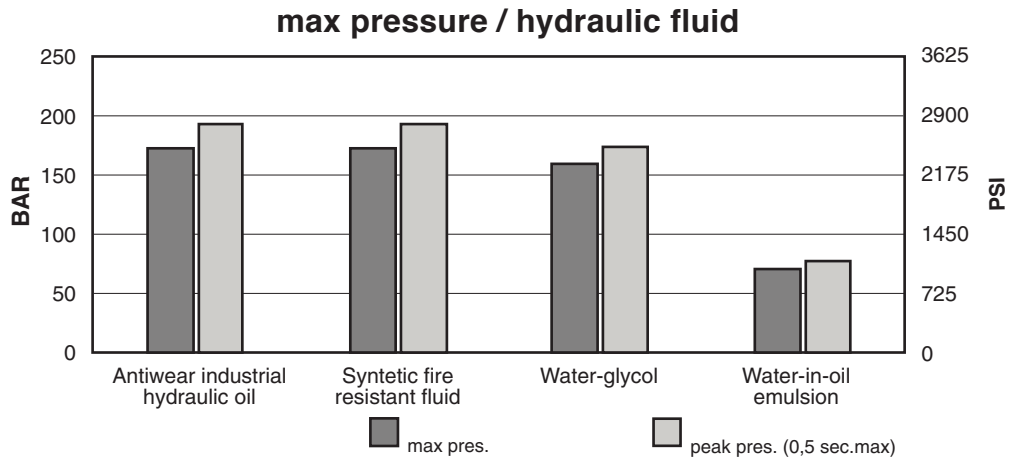
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

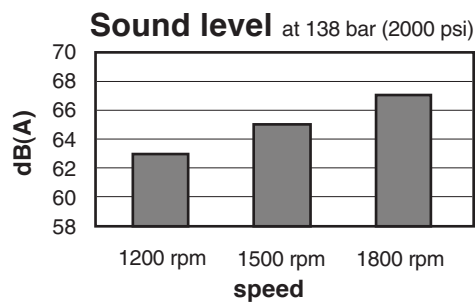
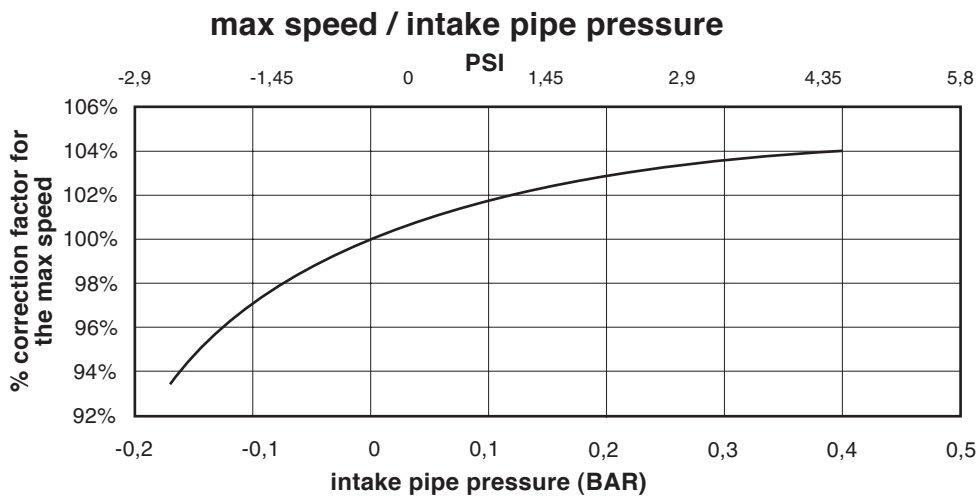
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

Drive: direct and coaxial by means of a flexible coupling.

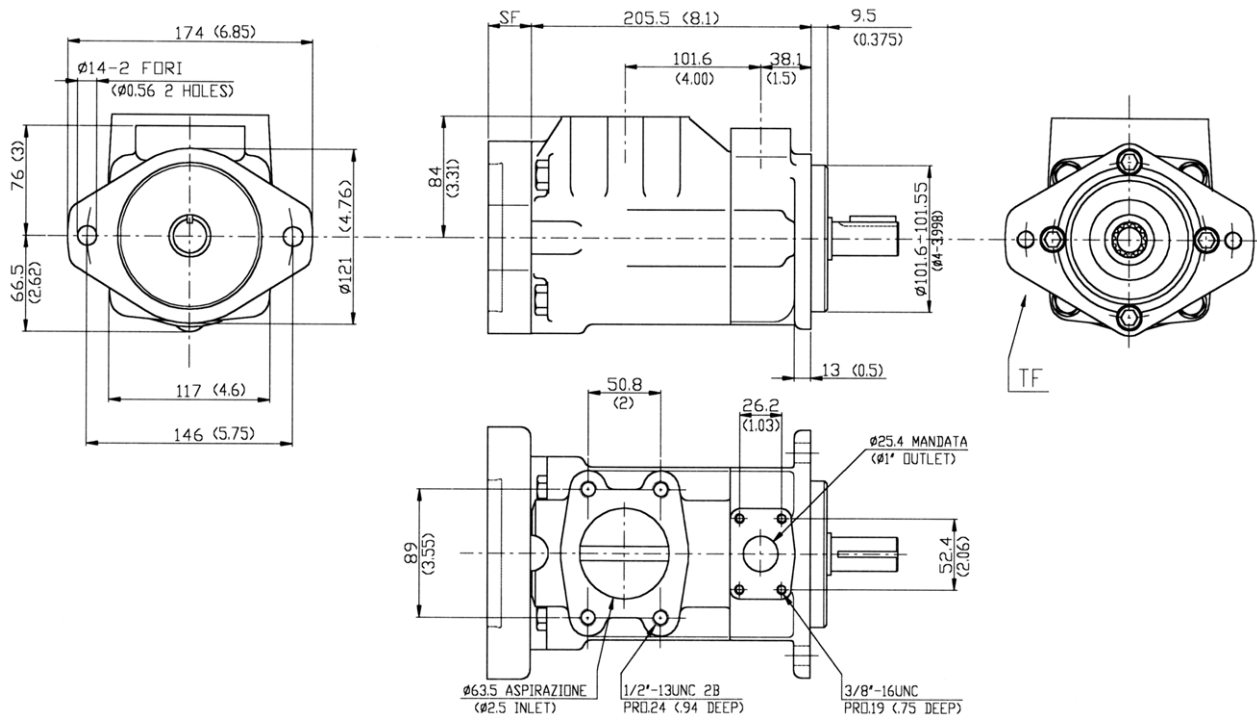
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.



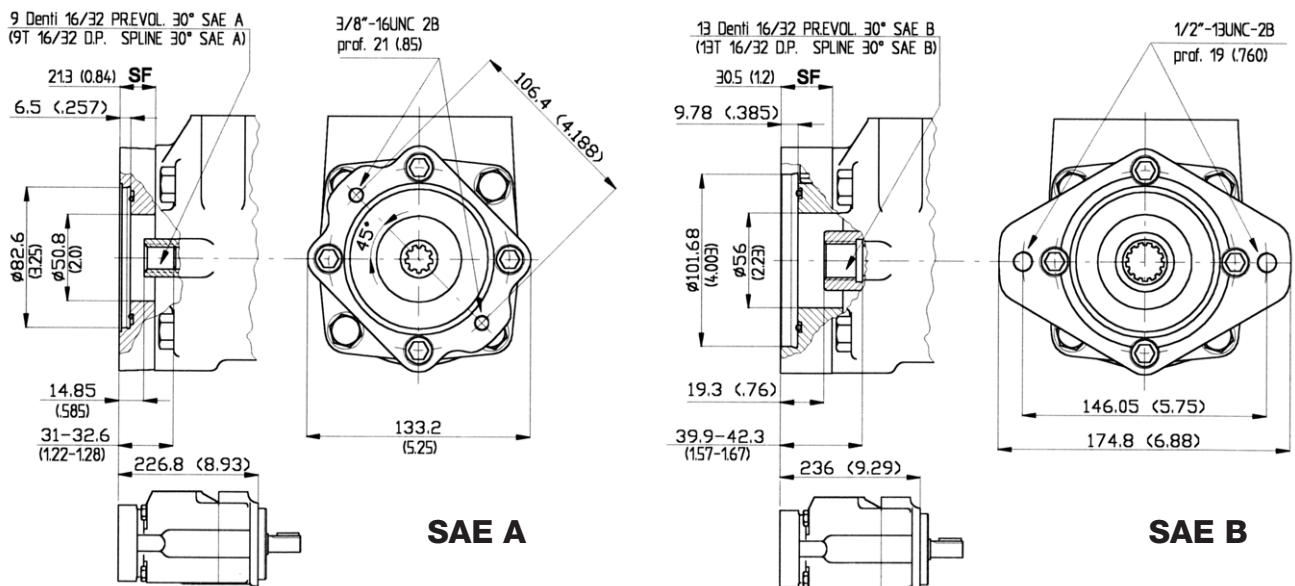
Installation dimensions mm (inches)



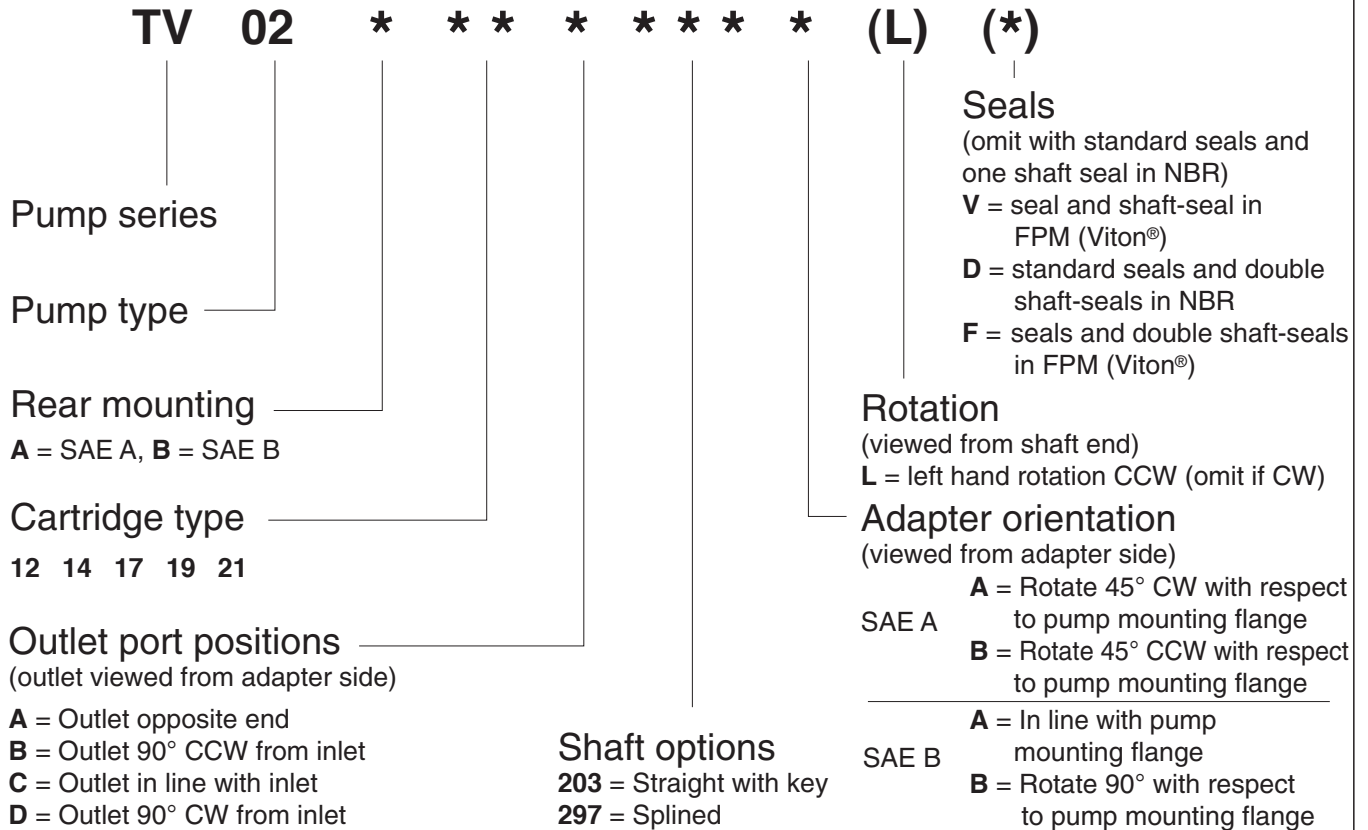
Approx. weight: 19,4 kg. (43 lbs.)

Rear mountings mm (inches)

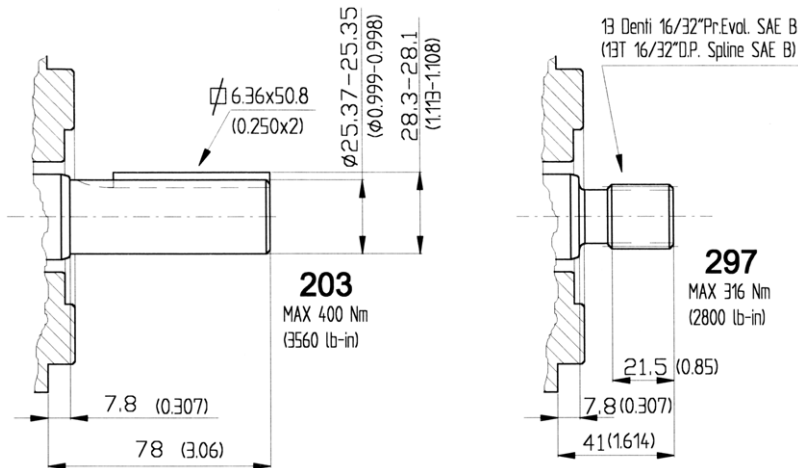
Different types of coupling with other pumps are also available. Please contact our Technical Dept. for detailed information.



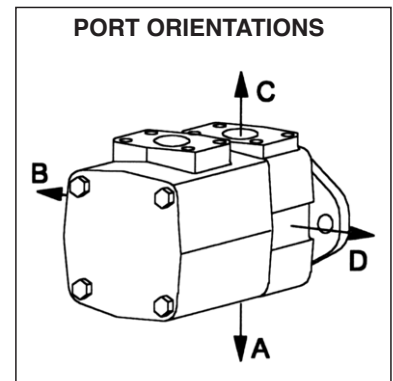
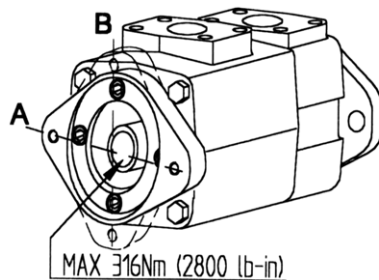
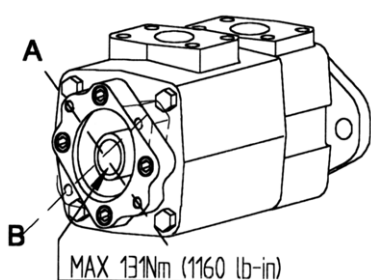
Model code breakdown



Shaft options mm (inches)



Adapter plate orientations



Id. codes of pump components

| Model | Coupling | Seeger | Coupling kit (seeger-coupling) |
|-------|----------|----------|-----------------------------------|
| TQ02B | M7002000 | M7061170 | M7012000 |
| TQ02A | M7001000 | M7061160 | M7011000 |

★ "O" ring
PART NO. | M7061050

Adapter plate
PART NO. | M8060200

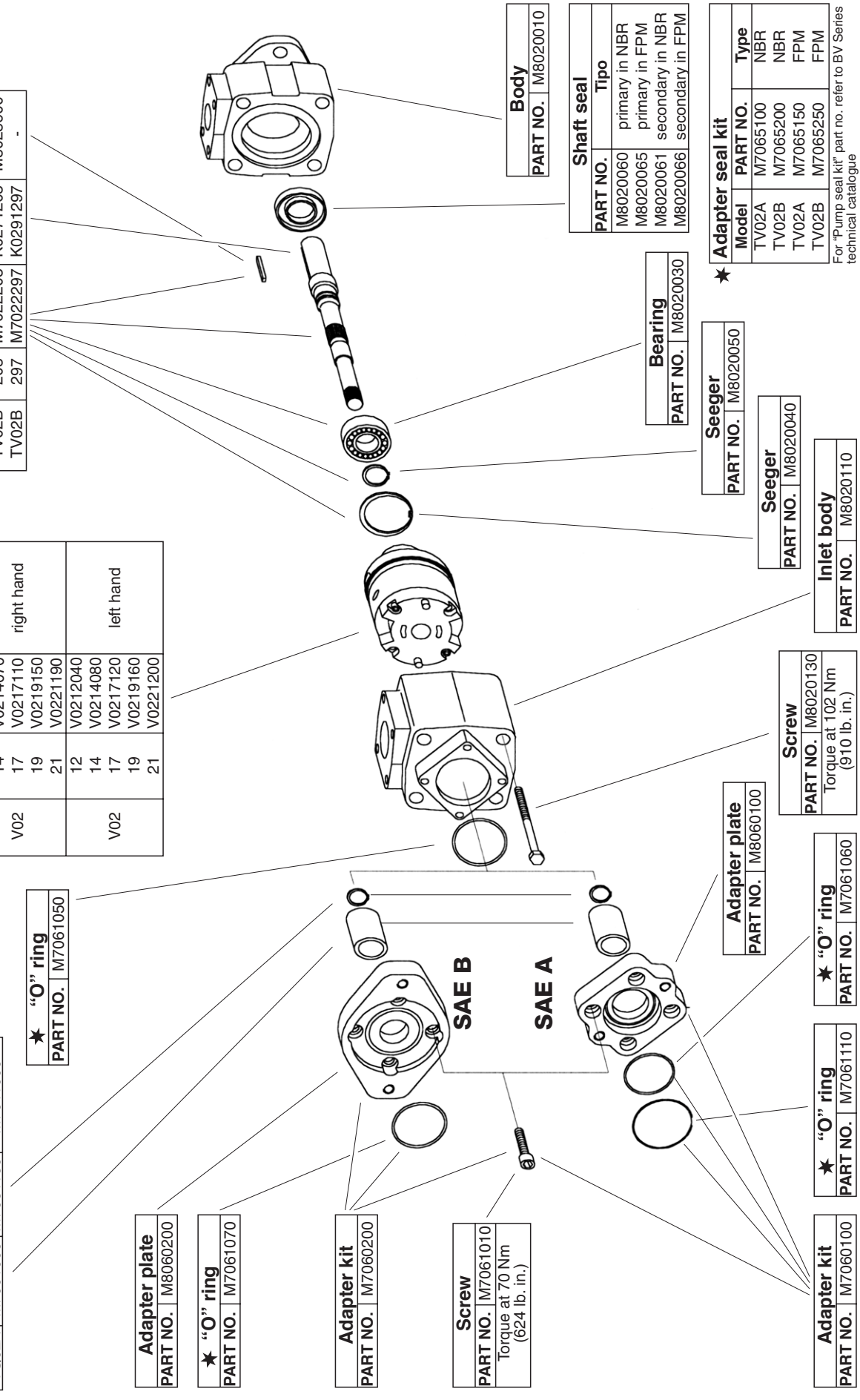
★ "O" ring
PART NO. | M7061070

Adapter kit
PART NO. | M7060200

Screw
PART NO. | M7061010
Torque at 70 Nm
(624 lb. in.)

| Series | | Cartridge | | PUMP ROTAT. |
|--------|----------|-----------|----------|-------------|
| Model | PART NO. | Model | PART NO. | |
| V02 | 12 | V0212030 | | right hand |
| | 14 | V0214070 | | |
| | 17 | V0217110 | | |
| | 19 | V0219150 | | |
| V02 | 21 | V0221190 | | left hand |
| | 12 | V0212040 | | |
| | 14 | V0214080 | | |
| | 17 | V0217120 | | |
| | 19 | V0219160 | | |
| | 21 | V0221200 | | |

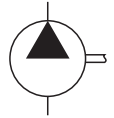
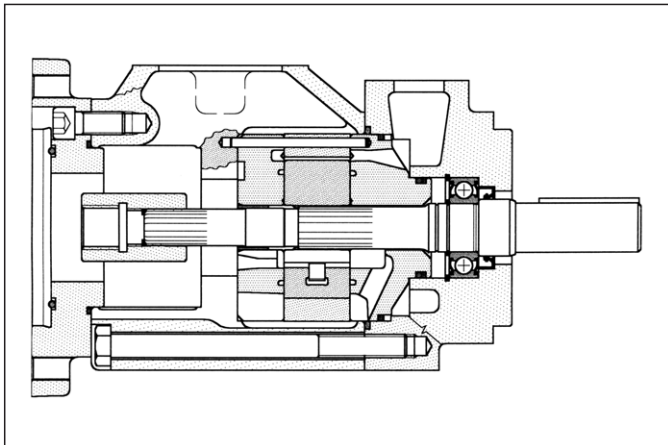
| Pump | Model | Kit | Shaft | Key |
|-------|-------|----------|----------|----------|
| TV02A | 203 | M7021203 | K0270203 | M8028600 |
| TV02A | 297 | M7021297 | K0290297 | - |
| TV02B | 203 | M7022203 | K0271203 | M8028600 |
| TV02B | 297 | M7022297 | K0291297 | - |



★ **Adapter seal kit**

| Model | PART NO. | Type |
|-------|----------|------|
| TV02A | M7065100 | NBR |
| TV02B | M7065200 | NBR |
| TV02A | M7065150 | FPM |
| TV02B | M7065250 | FPM |

For "Pump seal kit" part no. refer to BV Series technical catalogue



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five different displacements from 80 to 140 l/min (from 21 to 38 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| V04-21 | 69,0 | (4.2) | 66,3 | (17.5) | 79,5 | (21) | 101,4 | (26.8) | 175 | (2538) | 600 | 1800 |
| V04-25 | 81,6 | (5) | 78,3 | (20.8) | 94,0 | (25) | 120,1 | (31.7) | 175 | (2538) | 600 | 1800 |
| V04-30 | 97,7 | (6) | 94,8 | (25.0) | 113,8 | (30) | 141,2 | (37.3) | 175 | (2538) | 600 | 1800 |
| V04-35 | 112,7 | (6.9) | 109,7 | (29.2) | 131,6 | (35) | 167,2 | (44.1) | 175 | (2538) | 600 | 1800 |
| V04-38 | 121,6 | (7.4) | 116,6 | (31.7) | 139,9 | (38) | 177,3 | (46.8) | 175 | (2538) | 600 | 1800 |

For detailed technical informations please refer to BV Series catalogue

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

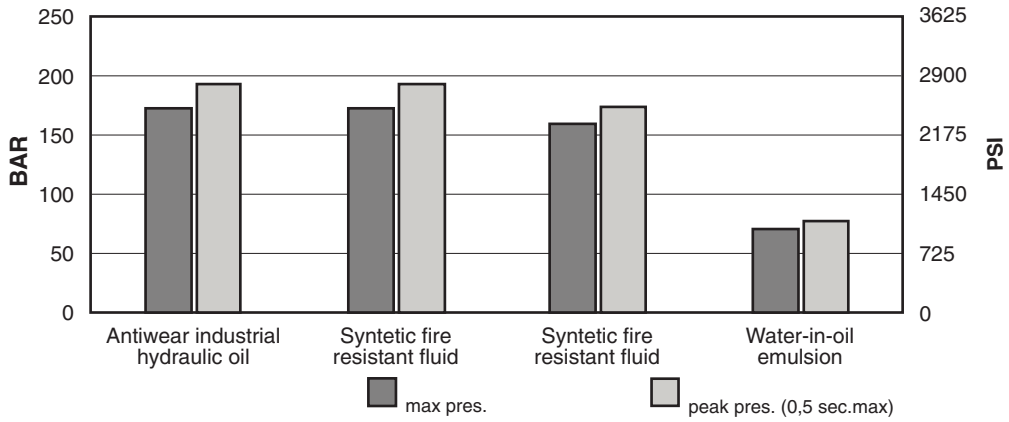
Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

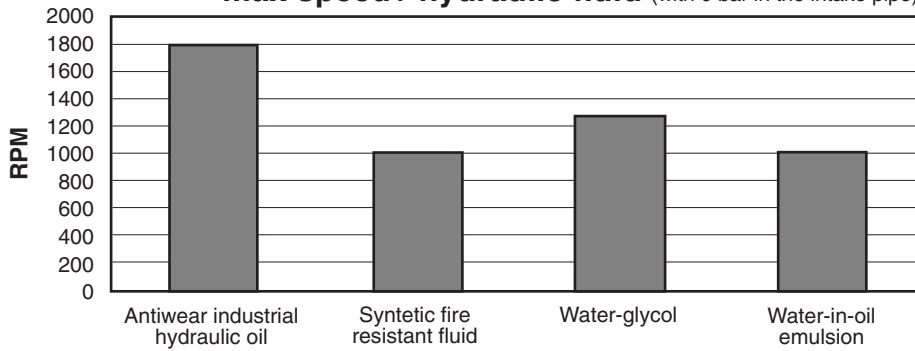
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

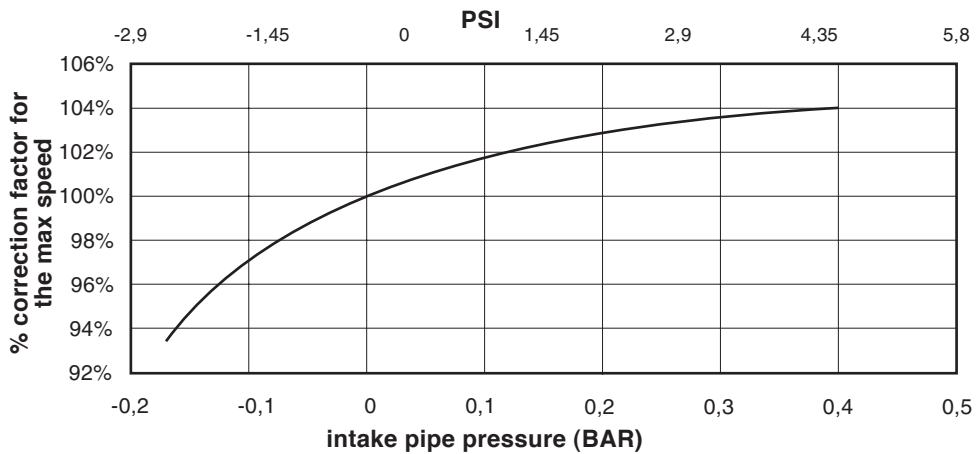


max speed / hydraulic fluid (with 0 bar in the intake pipe)

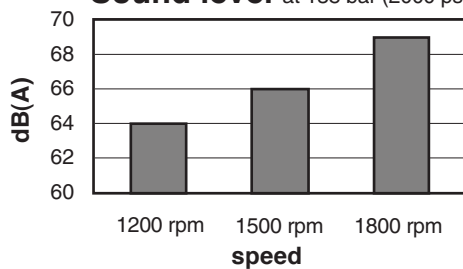


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.

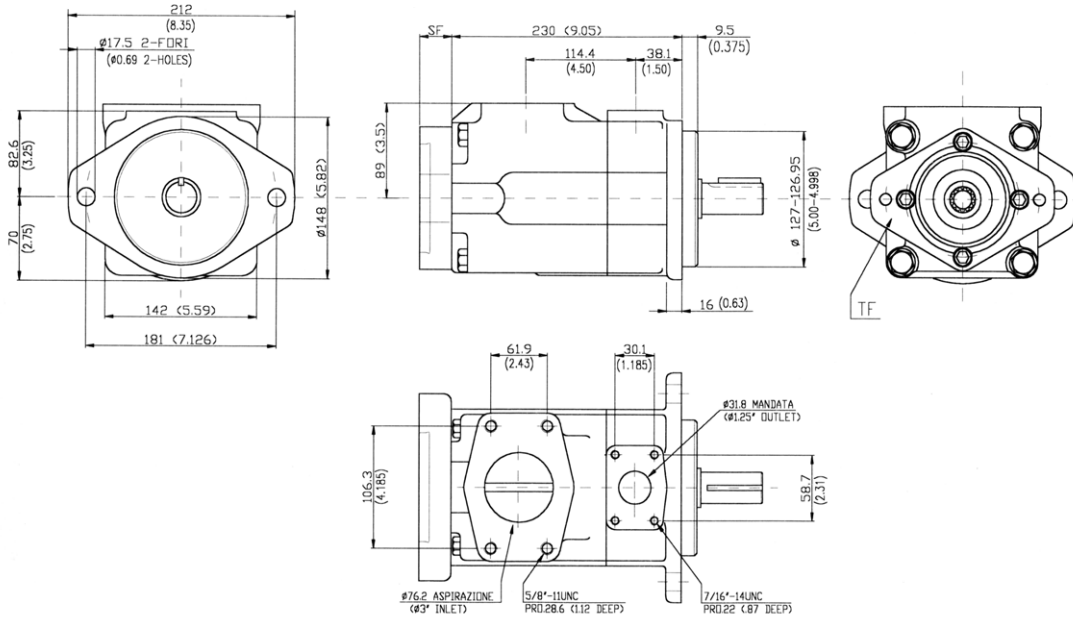
max speed / intake pipe pressure



Sound level at 138 bar (2000 psi)



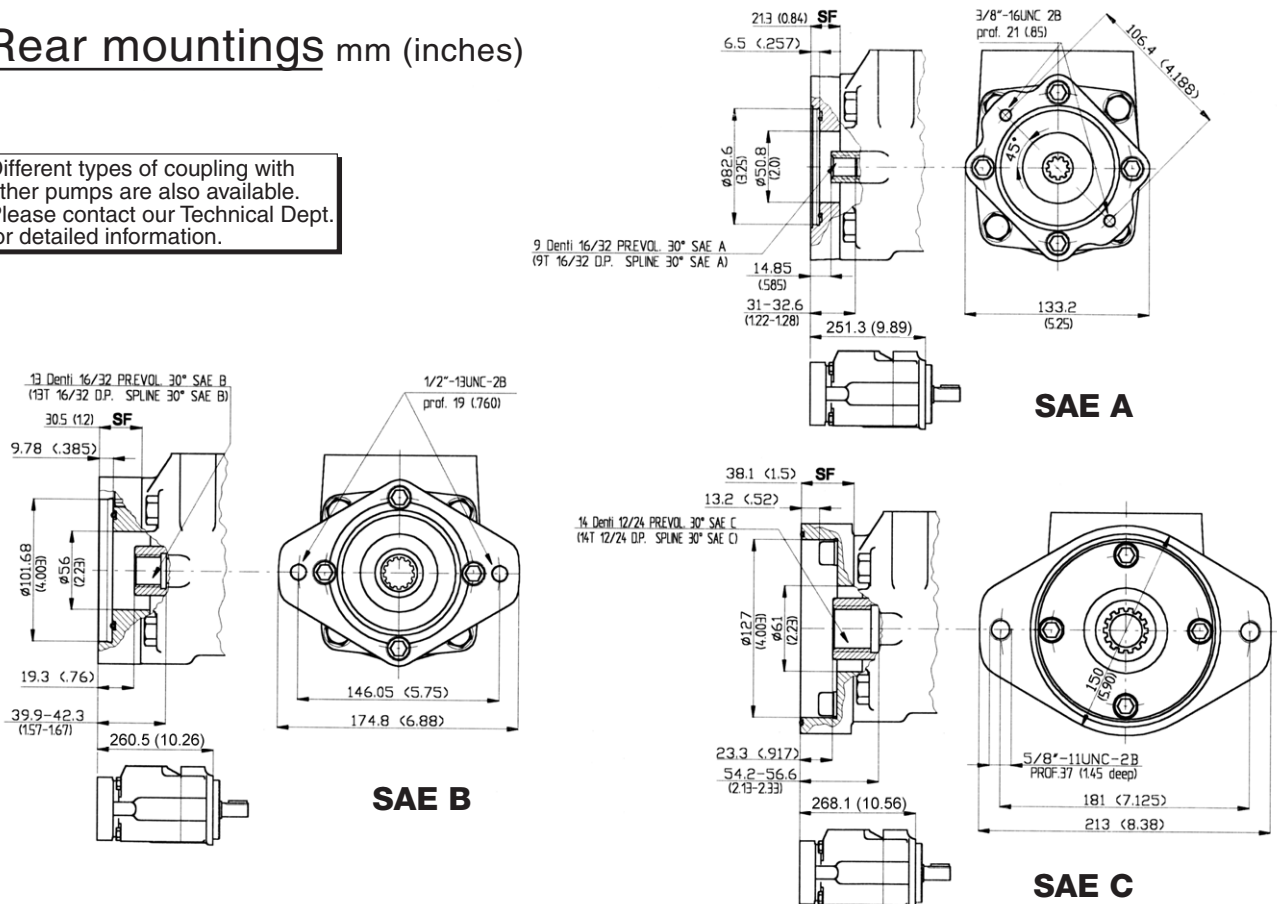
Installation dimensions mm (inches)



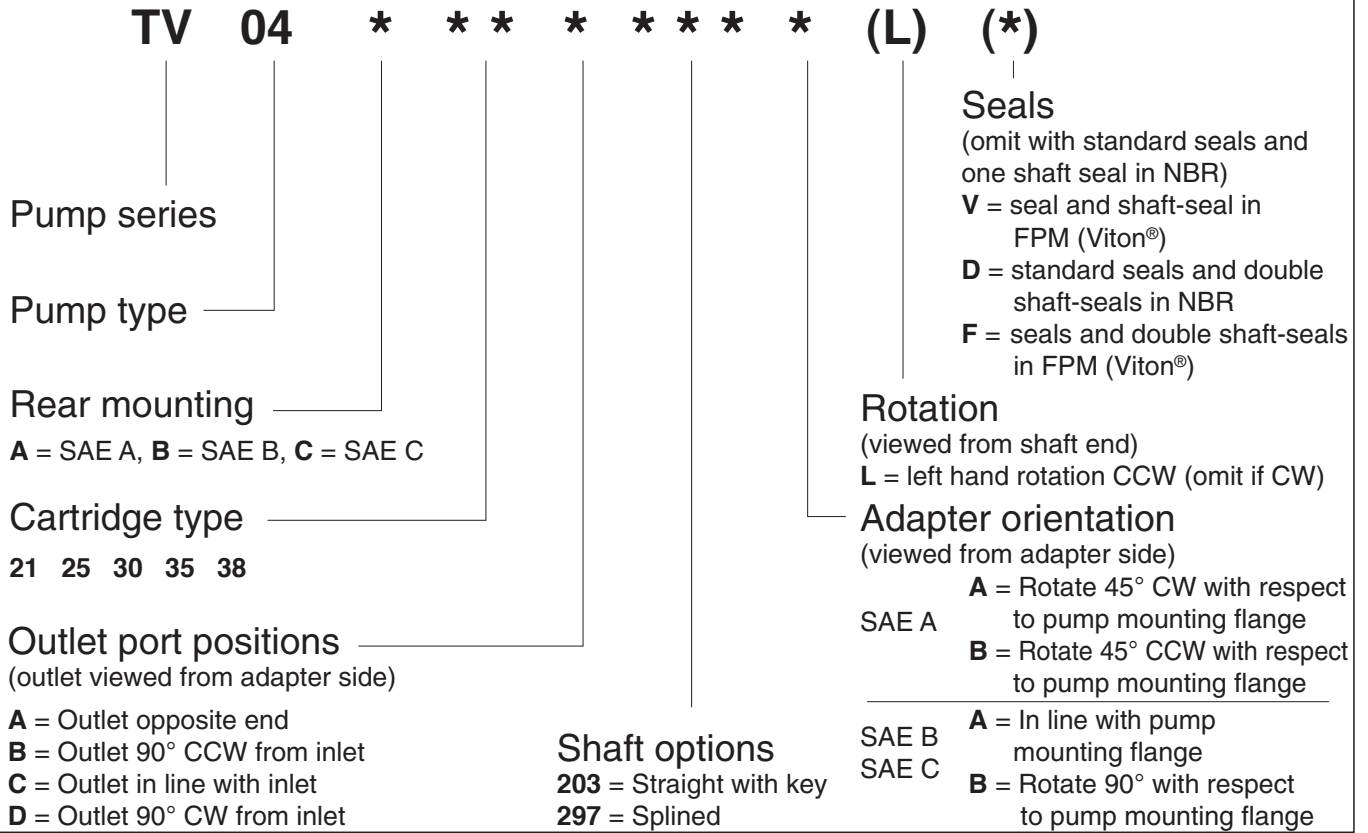
Approx. weight: 28,7 kg. (63 lbs.)

Rear mountings mm (inches)

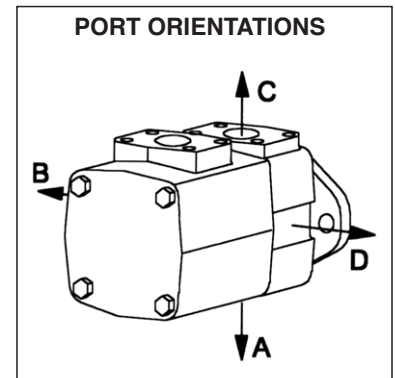
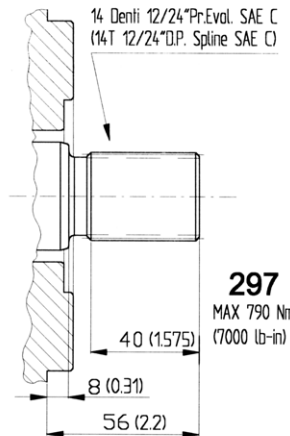
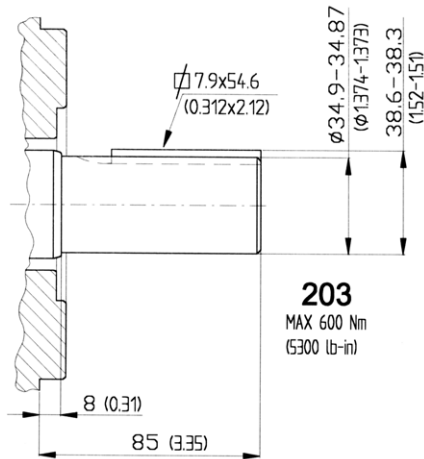
Different types of coupling with other pumps are also available. Please contact our Technical Dept. for detailed information.



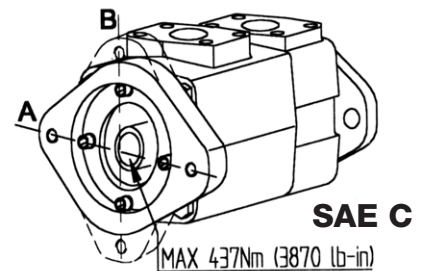
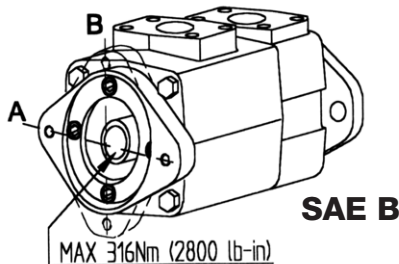
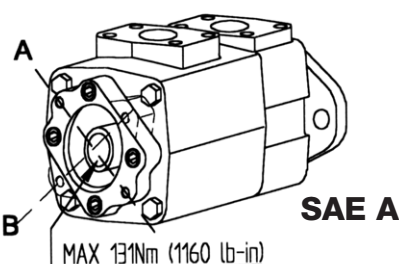
Model code breakdown



Shaft options mm (inches)



Adapter plate orientations



Id. codes of pump components

| Pump | Model | Kit | Shaft | Key |
|-------|-------|----------|----------|----------|
| TV04A | 203 | M7041203 | K0470203 | M8048600 |
| TV04A | 297 | M7041297 | K0490297 | - |
| TV04B | 203 | M7042203 | K0471203 | M8048600 |
| TV04B | 297 | M7042297 | K0491297 | - |
| TV04C | 203 | M7043203 | K0472203 | M8048600 |
| TV04C | 297 | M7043297 | K0492297 | - |

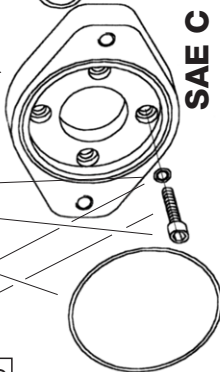
| Series | Model | Cartridge | |
|--------|-------|-----------|-------------|
| | | PART NO. | PUMP ROTAT. |
| V04 | 21 | V0421030 | right hand |
| | 25 | V0425070 | |
| | 30 | V0430110 | |
| | 35 | V0435150 | |
| V04 | 38 | V0438190 | |
| | 21 | V0421040 | left hand |
| | 25 | V0425080 | |
| | 30 | V0430120 | |
| V04 | 35 | V0435160 | |
| | 38 | V0438200 | |

| | |
|----------------------|---------------------|
| Adapter plate | PART NO. M8060300 |
| ★ "O" ring | PART NO. M7061050 |

| | |
|--------------------|---------------------|
| Adapter kit | PART NO. M7060300 |
|--------------------|---------------------|

| | |
|-------------------|---|
| Washer | PART NO. M7061025 |
| Screw | PART NO. M7061020 Torque at 70 Nm (624 lb. in.) |
| ★ "O" ring | PART NO. M7061130 |

| | |
|-------------------|---------------------|
| ★ "O" ring | PART NO. M7061070 |
|-------------------|---------------------|

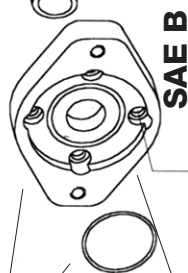


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|--------------------|---------------------|
| Adapter kit | PART NO. M7060200 |
|--------------------|---------------------|

| | |
|-------------------|---------------------|
| ★ "O" ring | PART NO. M7061070 |
|-------------------|---------------------|

| | |
|----------------------|---------------------|
| Adapter plate | PART NO. M8060200 |
|----------------------|---------------------|

| | |
|--------------|---|
| Screw | PART NO. M7061010 Torque at 70 Nm (624 lb. in.) |
|--------------|---|



| | |
|----------------------|---------------------|
| Adapter plate | PART NO. M8060100 |
|----------------------|---------------------|

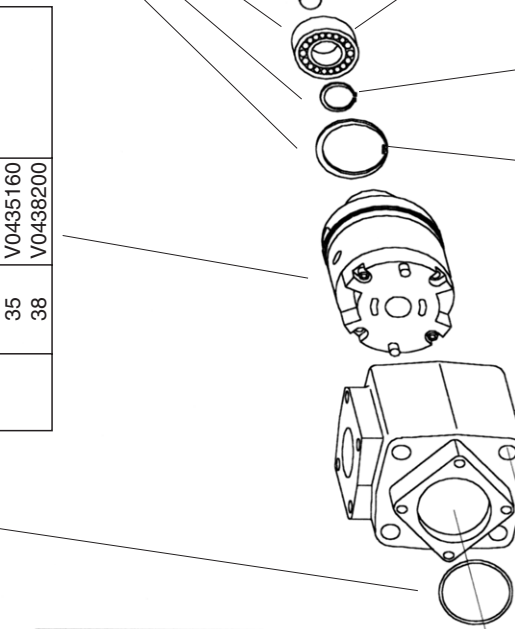
| | |
|--------------------|---------------------|
| Adapter kit | PART NO. M7060100 |
|--------------------|---------------------|

| | |
|-------------------|---------------------|
| ★ "O" ring | PART NO. M7061110 |
|-------------------|---------------------|

| | |
|-------------------|---------------------|
| ★ "O" ring | PART NO. M7061060 |
|-------------------|---------------------|

| | |
|--------------|---|
| Screw | PART NO. M8040210 Torque at 225 Nm (2010 lb. in.) |
|--------------|---|

| Model | Coupling | Seeger | Coupling kit (seeger+coupling) |
|-------|----------|----------|-----------------------------------|
| TV04C | M7003000 | M7061190 | M7013000 |
| TV04B | M7002500 | M7061180 | M7012500 |
| TV04A | M7001000 | M7061160 | M7011000 |



| | |
|----------------|---------------------|
| Bearing | PART NO. M8040160 |
|----------------|---------------------|

| | |
|---------------|---------------------|
| Seeger | PART NO. M8040180 |
|---------------|---------------------|

| | |
|---------------|---------------------|
| Seeger | PART NO. M8040170 |
|---------------|---------------------|

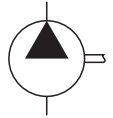
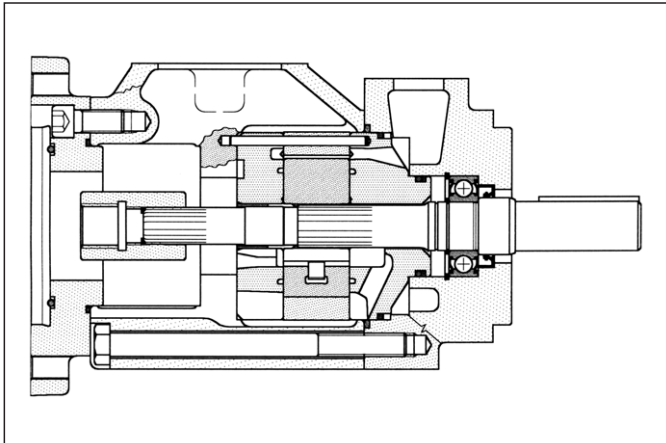
| | |
|-------------------|---------------------|
| Inlet body | PART NO. M8040430 |
|-------------------|---------------------|

| PART NO. | Shaft seal | Type |
|----------|------------------|------|
| M8040190 | primary in NBR | |
| M8040195 | primary in FPM | |
| M8040191 | secondary in NBR | |
| M8040196 | secondary in FPM | |

| | |
|-------------|---------------------|
| Body | PART NO. M8040140 |
|-------------|---------------------|

| Model | Adapter seal kit | Part NO. | Type |
|-------|------------------|----------|------|
| TV04A | M7065100 | NBR | |
| TV04B | M7065200 | NBR | |
| TV04C | M7065300 | NBR | |
| TV04A | M7065150 | FPM | |
| TV04B | M7065250 | FPM | |
| TV04C | M7065350 | FPM | |

★ For "Pump seal kit" part no. refer to BV Series technical catalogue



General description

Fixed displacement vane pump, hydraulically balanced, with capacity determined by the type of cartridge used and the speed of rotation. The pump is available in five different displacements from 164 to 230 l/min (from 42 to 60 gpm) at 1200 rpm and 7 bar.

Technical characteristics

| Cartridge model | Geometric displacement | | Rated capacity at 1000 rpm 7 bar | | Rated capacity at 1200 rpm 7 bar | | Rated capacity at 1500 rpm 7 bar | | Maximum pressure with mineral oil | | Speed range rpm | |
|-----------------|------------------------|----------------------|-------------------------------------|--------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
| | cm ³ /g | (in ³ /r) | l/min | (gpm) | l/min | (gpm) | l/min | (gpm) | bar | (psi) | min | max |
| V05-42 | 138,6 | (8.46) | 136,7 | (35.0) | 164 | (42) | 203,4 | (53.7) | 175 | (2538) | 600 | 1800 |
| V05-47 | 153,5 | (9.4) | 150,0 | (39.2) | 180 | (47) | 222,7 | (58.8) | 175 | (2538) | 600 | 1800 |
| V05-50 | 162,2 | (9.9) | 157,5 | (41.7) | 189 | (50) | 234 | (61.8) | 175 | (2538) | 600 | 1800 |
| V05-57 | 183,4 | (11.2) | 180,8 | (47.5) | 217 | (57) | 267 | (71.2) | 175 | (2538) | 600 | 1800 |
| V05-60 | 193,4 | (11.8) | 191,7 | (50.0) | 230 | (60) | 285 | (75.3) | 175 | (2538) | 600 | 1800 |

For detailed technical informations please refer to BV Series catalogue

Hydraulic fluids: antiwear high quality mineral oils or fire resistant fluid having same lubrication capacities of the mineral oil.

Viscosity range (with mineral oil): from 13 to 860 cSt. (13 to 54 cSt. recommended).

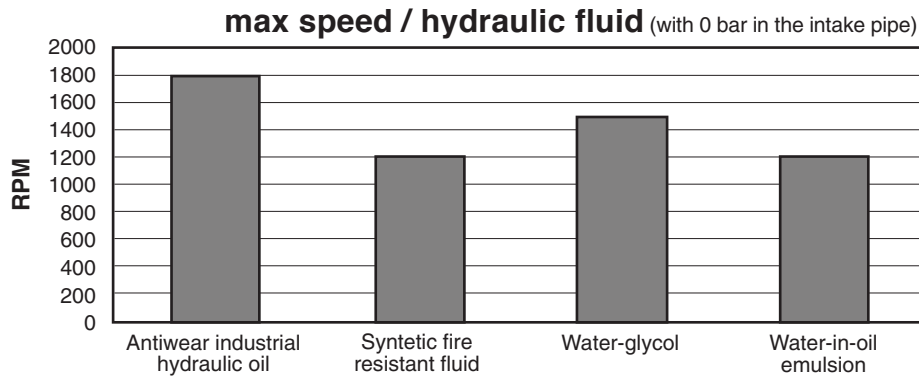
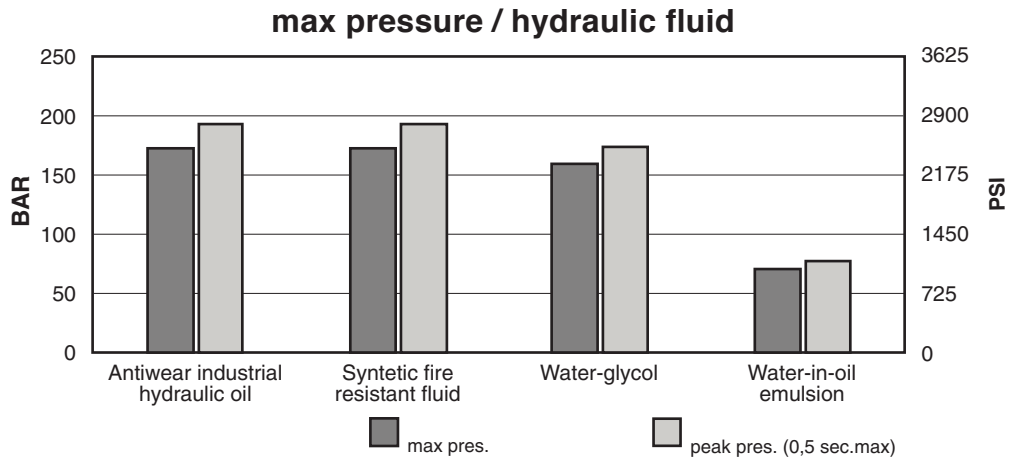
Filtration: for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

Inlet pressure: (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

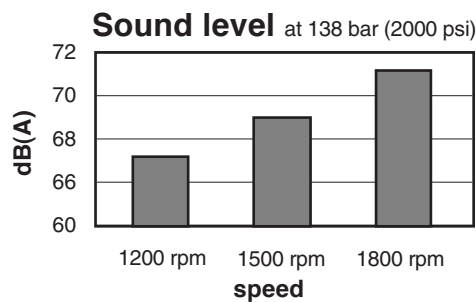
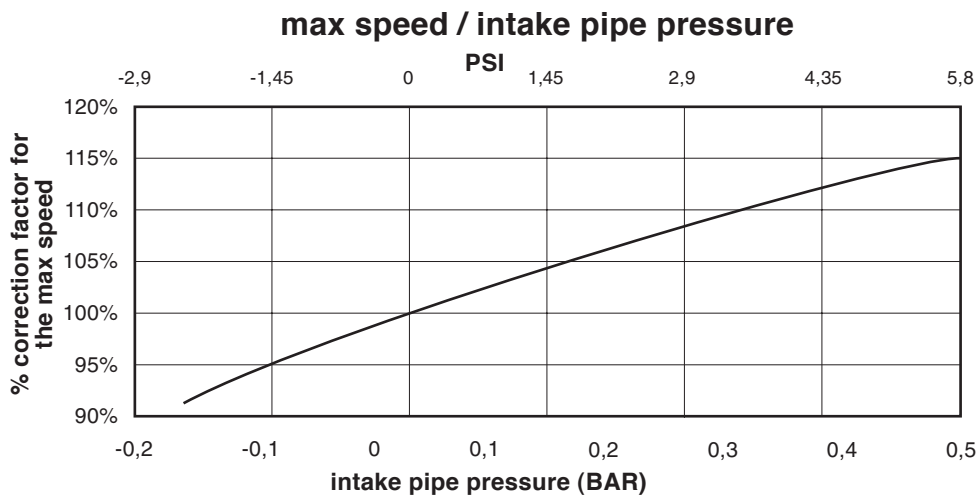
Operating temperature: with mineral oil -10°C +70°C (+30°C to +60°C recommended), with water based fluids +15°C to +50°C.

Drive: direct and coaxial by means of a flexible coupling.

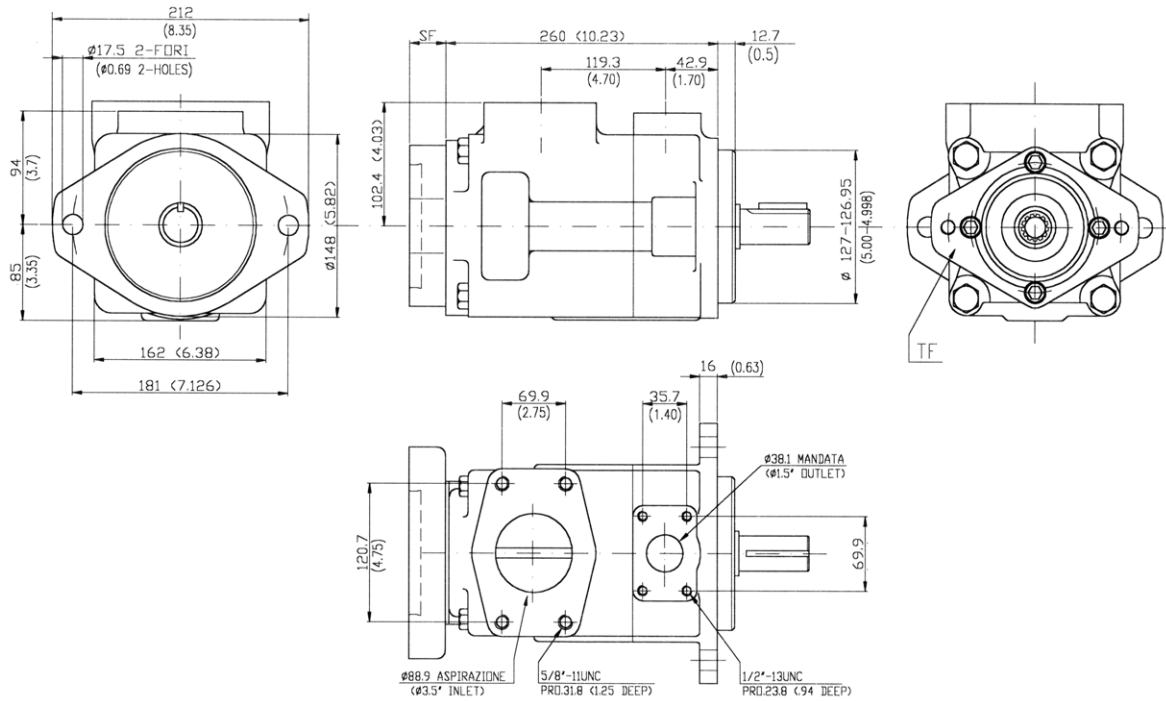
Main operating data



If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed.



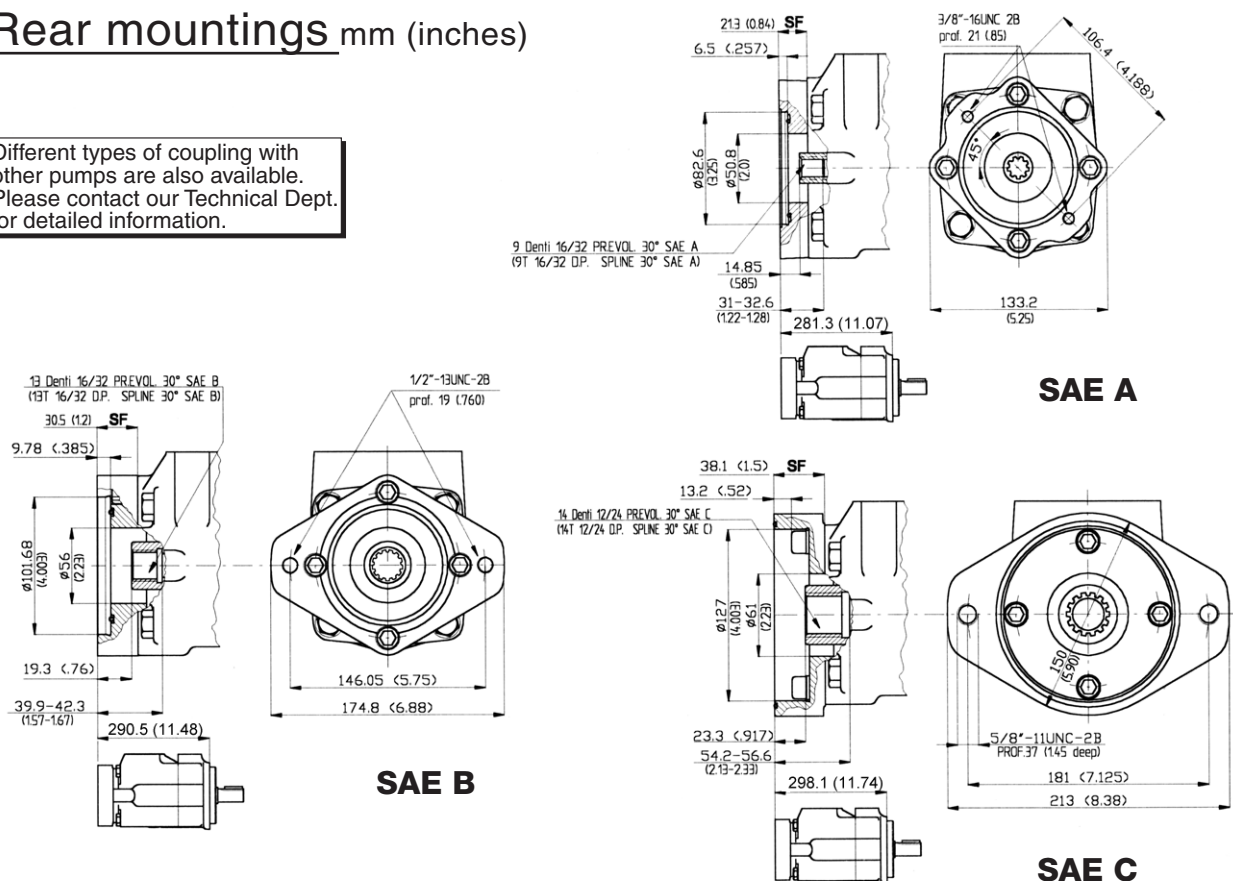
Installation dimensions mm (inches)



Approx. weight: 38,1 kg. (84 lbs.)

Rear mountings mm (inches)

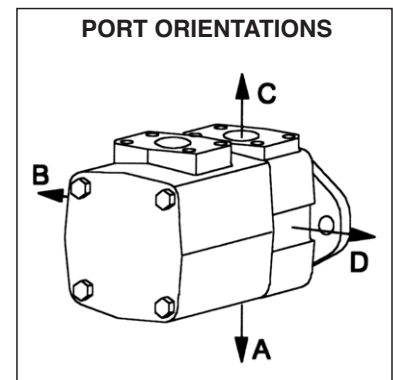
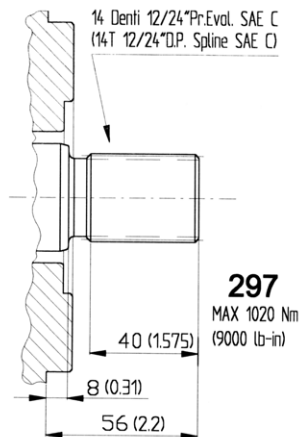
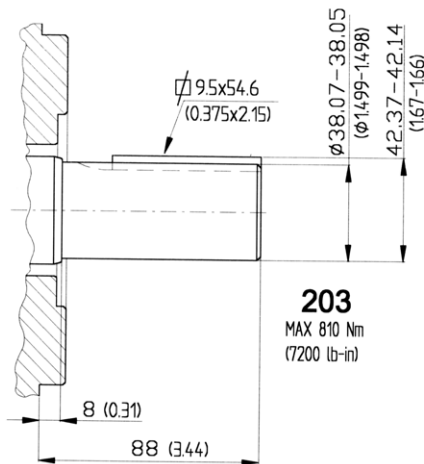
Different types of coupling with other pumps are also available. Please contact our Technical Dept. for detailed information.



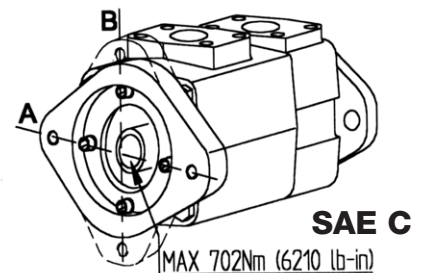
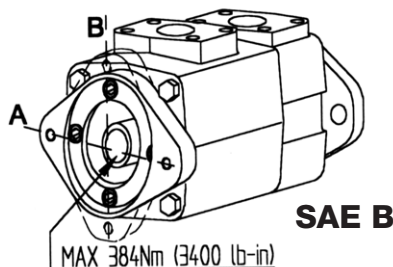
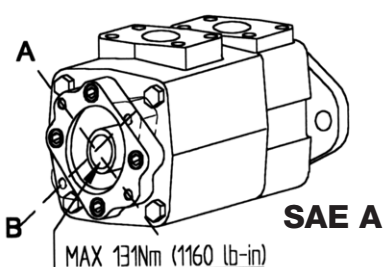
Model code breakdown

| | | |
|--|--|---|
| <p>TV 05</p> <p>Pump series</p> <p>Pump type</p> <p>Rear mounting</p> <p>A = SAE A, B = SAE B, C = SAE C</p> <p>Cartridge type</p> <p>42 47 50 57 60</p> <p>Outlet port positions</p> <p>(outlet viewed from adapter side)</p> <p>A = Outlet opposite end B = Outlet 90° CCW from inlet C = Outlet in line with inlet D = Outlet 90° CW from inlet</p> | <p>* * * * *</p> <p>Shaft options</p> <p>203 = Straight with key 297 = Splined</p> | <p>(L) (*)</p> <p>Seals</p> <p>(omit with standard seals and one shaft seal in NBR)</p> <p>V = seal and shaft-seal in FPM (Viton®) D = standard seals and double shaft-seals in NBR F = seals and double shaft-seals in FPM (Viton®)</p> <p>Rotation</p> <p>(viewed from shaft end)</p> <p>L = left hand rotation CCW (omit if CW)</p> <p>Adapter orientation</p> <p>(viewed from adapter side)</p> <p>SAE A</p> <p>A = Rotate 45° CW with respect to pump mounting flange B = Rotate 45° CCW with respect to pump mounting flange</p> <p>SAE B SAE C</p> <p>A = In line with pump mounting flange B = Rotate 90° with respect to pump mounting flange</p> |
|--|--|---|

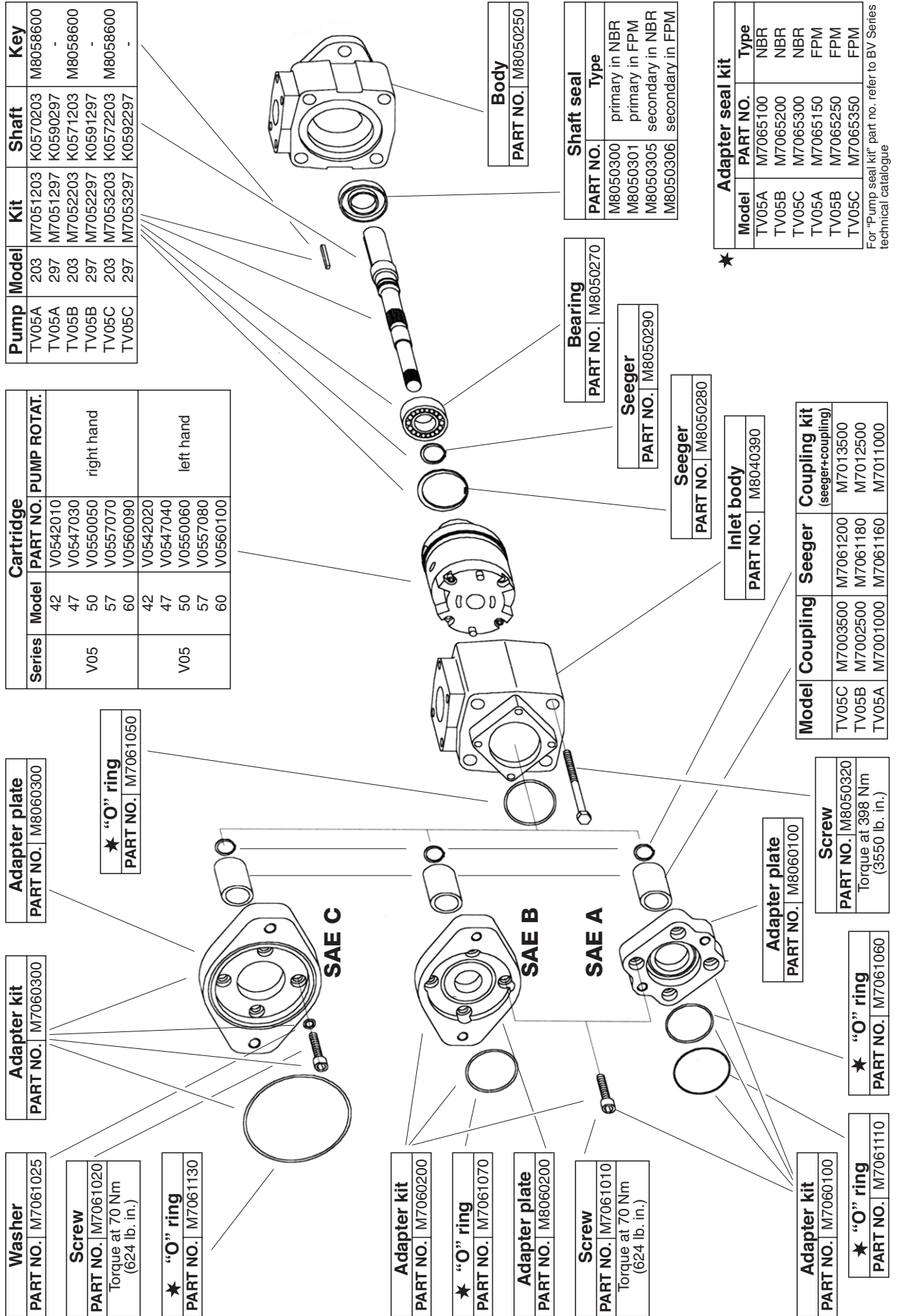
Shaft options mm (inches)



Adapter plate orientations



Id. codes of pump components



Operating instructions

Maximum speed: the maximum speeds given in this catalogue are valid for an atmospheric pressure of 1 bar (14.7 psi) and with ambient temperature in the range of +30°C to +50°C. Higher speeds than those given cause a reduction in the volumetric efficiency, due to cavitation phenomena in the inlet area inside the pump. Sustained excess speed causes a rapid deterioration of the internal components reducing the lifetime of the cartridge.

Minimum speed: In general, the min. speed for all pumps is 600 rpm. However, it is possible to operate at lower speeds with certain pump configurations and with appropriate operating temperatures.

Inlet pressure: the inlet pressure, measured at the inlet port, should remain within the prescribed limits. Note that pressures lower than minimum limit cause cavitation and pressures above the maximum limit cause abnormal loads on the shaft and the bearings. In both cases this causes a significant reduction in the lifetime of the cartridge.

Maximum outlet pressure: the maximum outlet pressure is different for each type of fluid used as can be seen from the corresponding diagrams. With optimal temperature and filtration conditions a pressure peak of +10% is permissible for a maximum time of 0.5 sec.

Mounting and drive connections: consider the following indications when preparing the installation drawings for the system:

- the pump is designed to operate with keyed shaft coupled axially and by means of a flexible coupling to the drive;
- the clearance between the keyed shaft and the corresponding sleeve coupling has to be between 0.004 and 0.030 mm;
- avoid axial and radial loads on the shaft;
- the mounting flange has to be perpendicular to the drive shaft, with a maximum error of 0.18 mm every 100 mm;
- when mounting onto a gearbox, or other component without a flexible coupling, it is advisable to order pumps with splined shaft. In this case the clearance between splines has to be between 0.013 and 0.051 mm on the pitch diameter.
- The clearance between splines, of the pump installed on the rear mounting side has to be between 0,015 and 0,065 mm on the pitch diameter.

Hydraulic circuit: always install a pressure relief valve on the supply line to prevent the pressure from exceeding the allowed maximum. Normally, it is set in accordance with the weakest component in the system. (In the case where it is the pump, set the valve to a pressure 15% higher than the maximum pressure rating of the pump.)

Inlet line tubing should have a section equal to or greater than that of the inlet port of the pump. It is advisable to keep the tube connecting the pump to the reservoir as short possible. Particular care has to be taken with the inlet line which has to be hermetically sealed to avoid entraining air into the circuit; this varies the characteristics of the hydraulic fluid causing the operating parts to become damaged.

Filtration: the inlet line filter must have a flow rate capacity that is higher than that of the pump at its maximum operating speed. The filtration requirements for individual models are given in this catalogue. The use of a filter bypass is recommended for cold starts and should the filter become clogged. Proper maintenance of the filter element is essential for the correct operation of the entire system. In normal conditions replace the filter element after the first 50 hours of operation. Subsequently, replace it at least every 500 hours. Regarding the filter on the return line, the same general conditions apply as for the inlet line and it should be positioned in an accessible location for ease of maintenance.

Tank: if possible, the reservoir should be positioned above the pump. Otherwise, ensure that the minimum level of the fluid contained in it is higher than the pump inlet line opening. It is important to avoid draining the inlet line with the pump at standstill. The opening of the return line into the reservoir must remain below the minimum level of the fluid in the reservoir. It must not be positioned too close to the opening of the inlet line to avoid the possibility of any air bubbles passing into the inlet line. Baffles inside the reservoir may be useful in avoiding the problem. Rapid temperature changes can cause condensation on the underside of the lid of the reservoir with the formation of droplets of water that can fall into the oil. To avoid this problem it is recommended that the lid should have small vents so that the air space in the reservoir is ventilated. The vents have to be screened, though, to prevent the entry of dust or the sudden expulsion of fluid.

Start-up: use the following procedure when the pump is started-up for the first time:
 completely fill the pump and the inlet line with fluid;
 start the engine for approximately one second a number of times at regular intervals of approximately 2 or 3 seconds until the noise level reduces, thereby confirming that it has been primed;
 with a manometer check to ensure that the outlet pressure increases slightly;
 once the pump has been primed, maintain low pressure levels activating all parts of the circuit a number of times until air bubbles disappear completely from the return line to the reservoir.
 This procedure should be carefully as any residual air inside the pump can quickly cause the rotor to seize.

Cold starting: when starting the pump, especially with low ambient temperatures, operate with moderate speed and pressure until the average temperature in the entire circuit is within the given limits.

The information provided in this catalogue is subject to change without notice



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