FIXED DISPLACEMENT HYDRAULIC VANE PUMPS

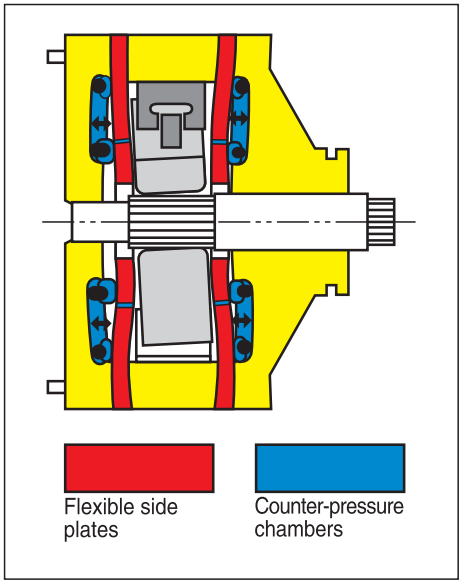
SERIE BQ

B&C HYDRAULICS

CTBQREV4E

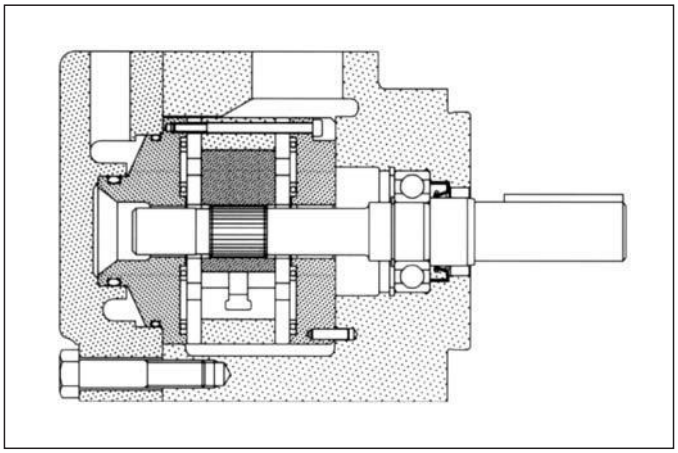
FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “BQ” SERIES

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.

contents



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)*.

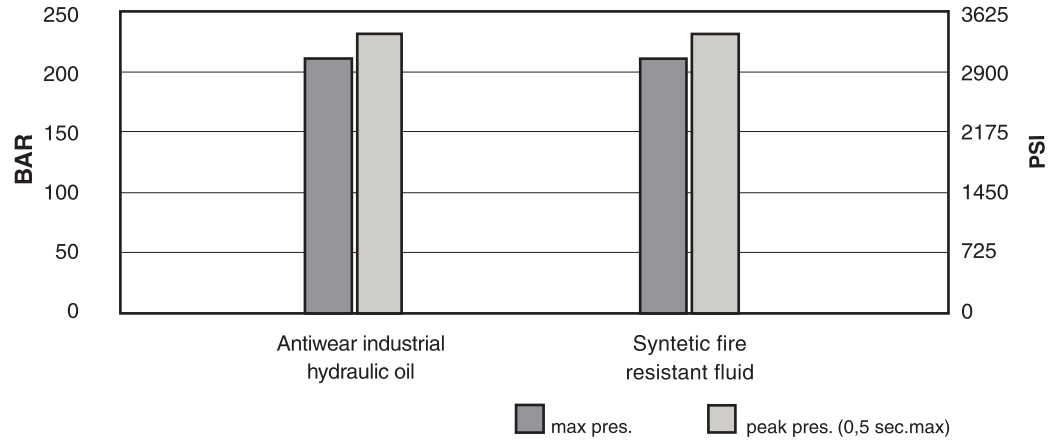
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

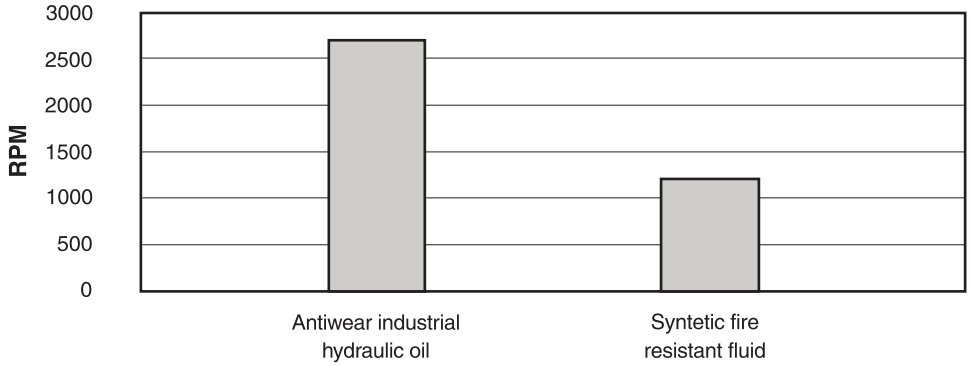
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

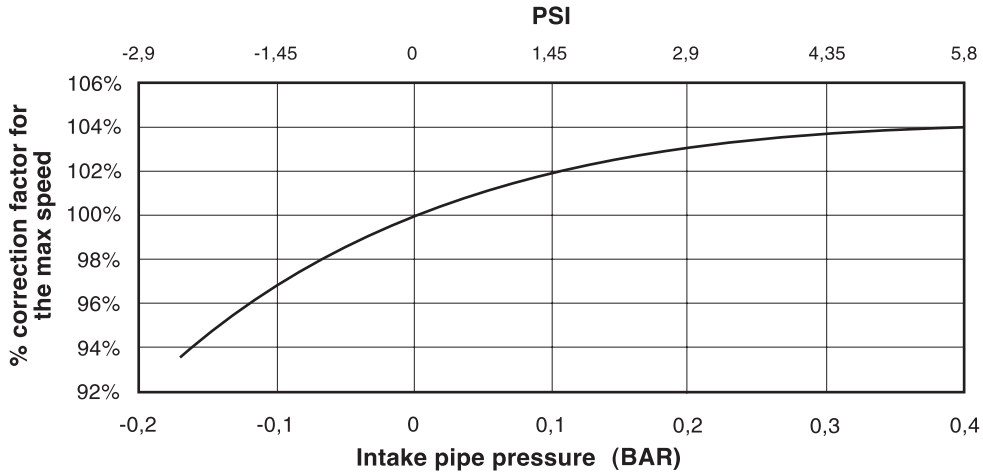


max speed / hydraulic fluid (with 0 bar in the intake pipe)



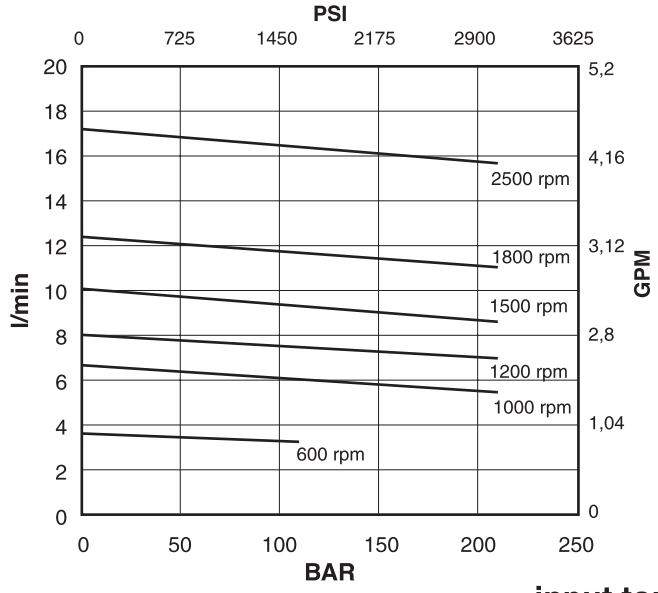
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

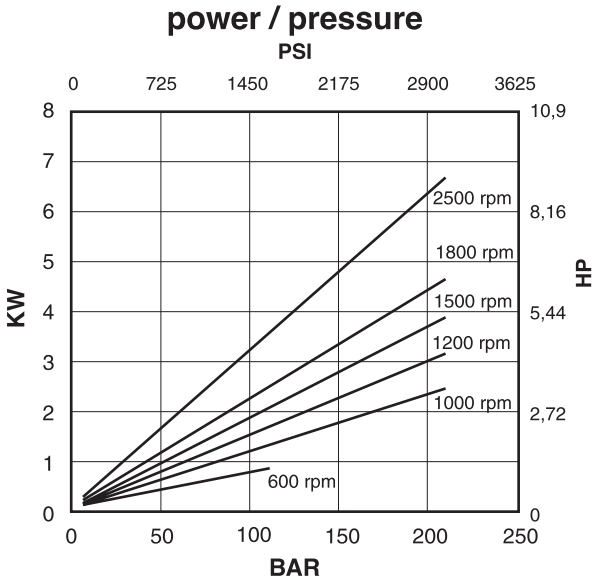


Cartridge A01-02

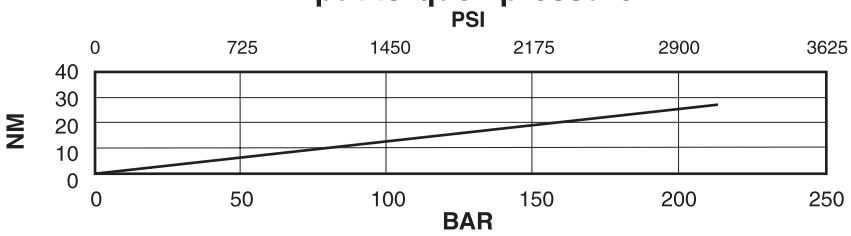
flow / pressure



power / pressure



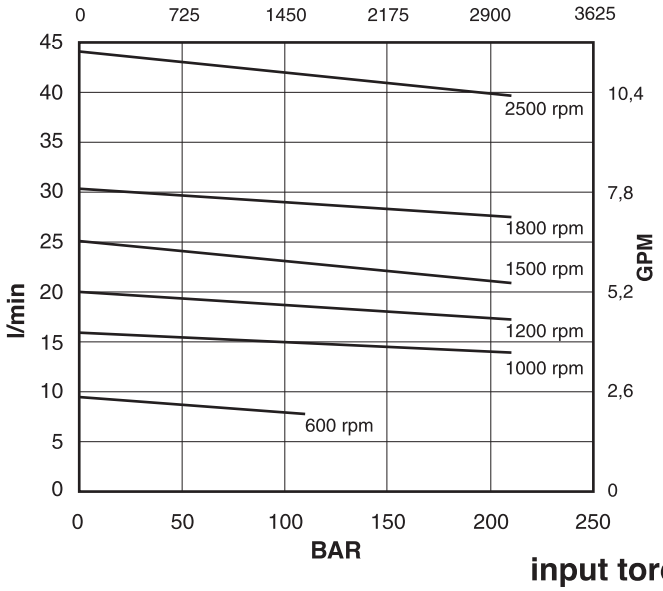
input torque / pressure



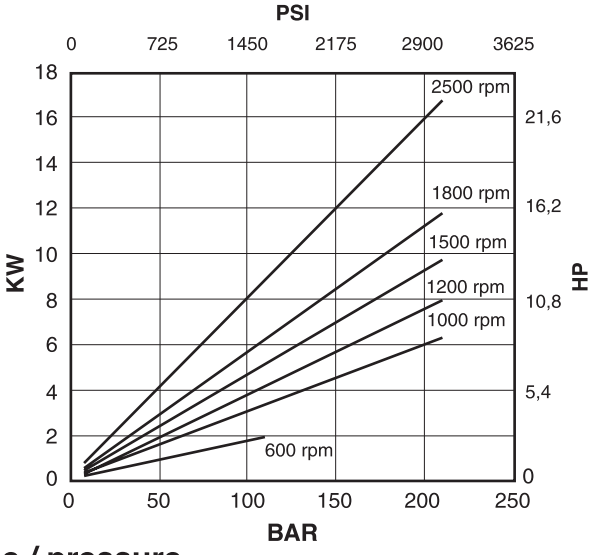
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-05

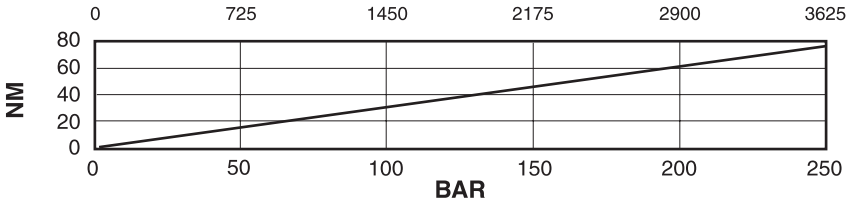
flow / pressure



power / pressure



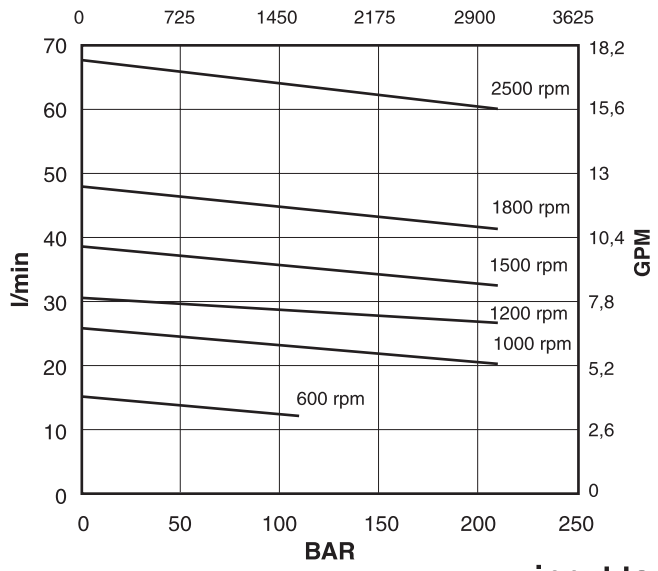
input torque / pressure



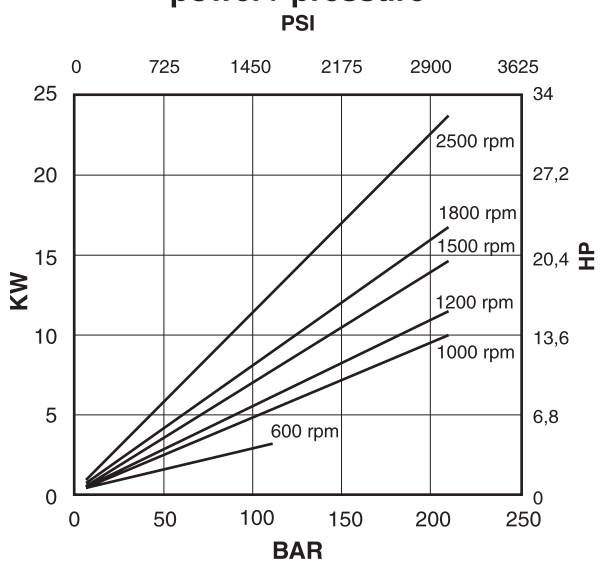
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-08

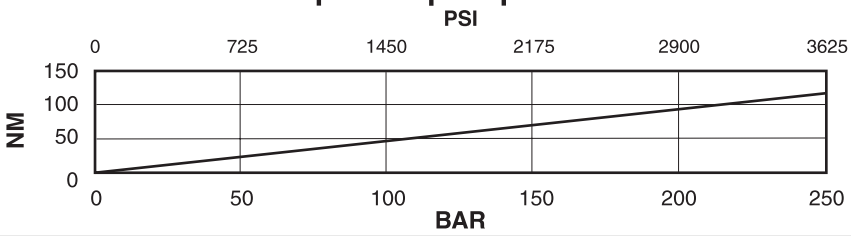
flow / pressure



power / pressure



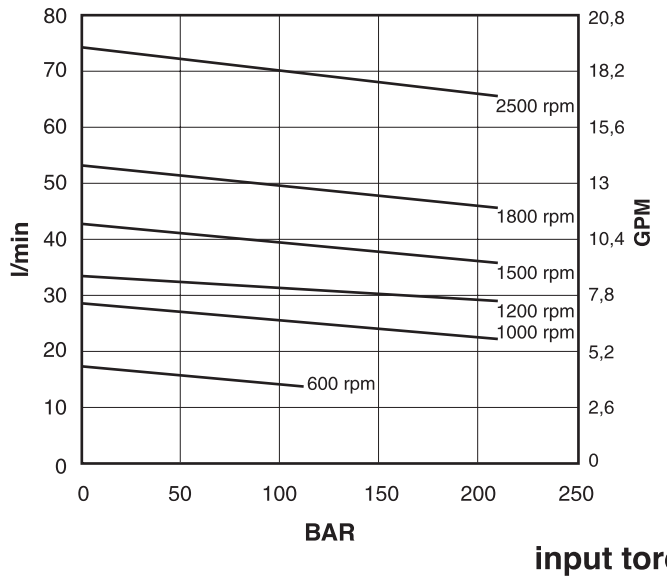
input torque / pressure



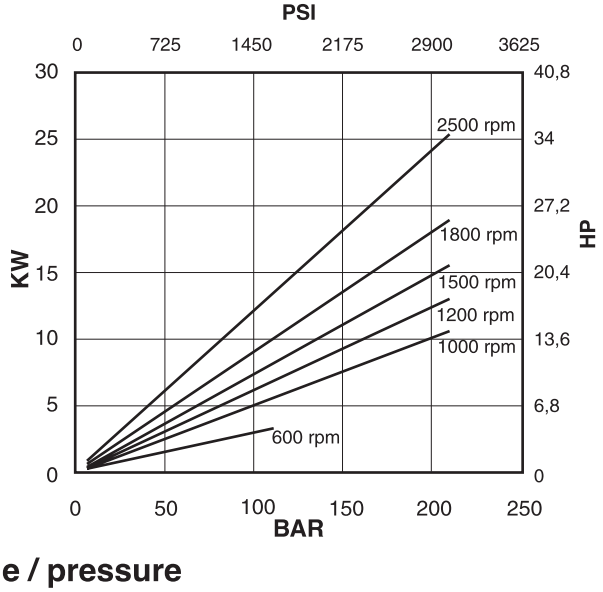
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-09

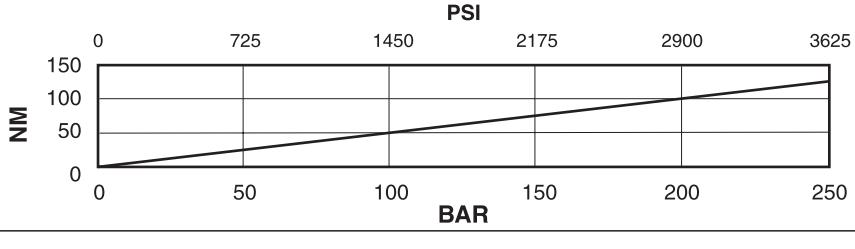
flow / pressure



power / pressure



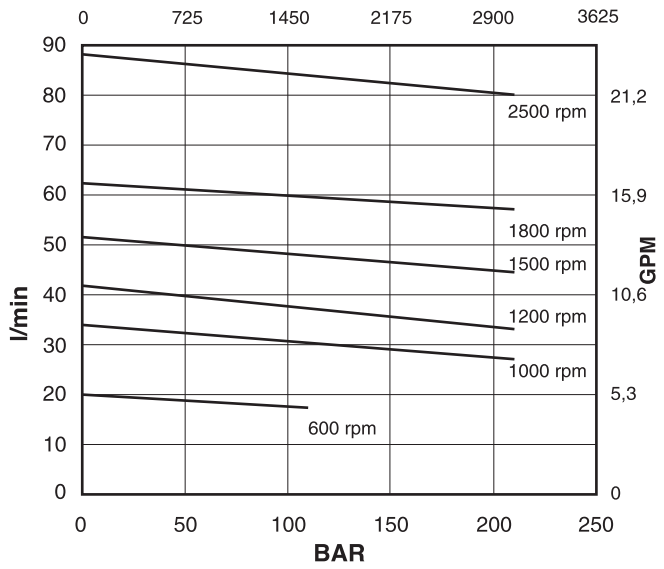
input torque / pressure



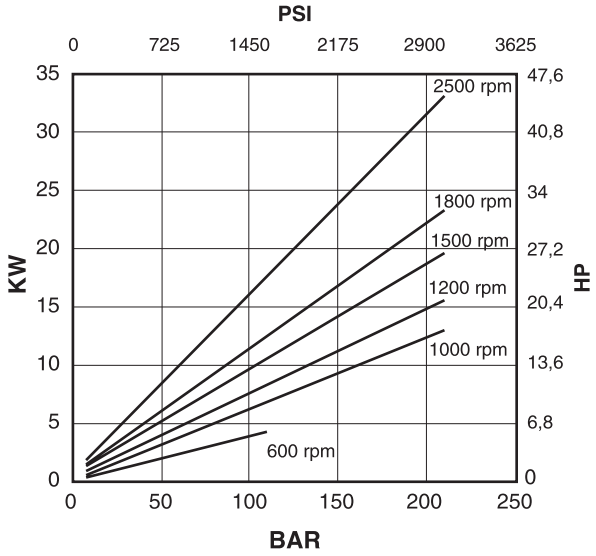
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-11

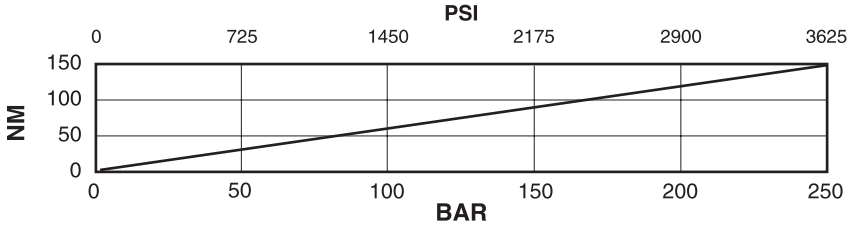
flow / pressure



power / pressure



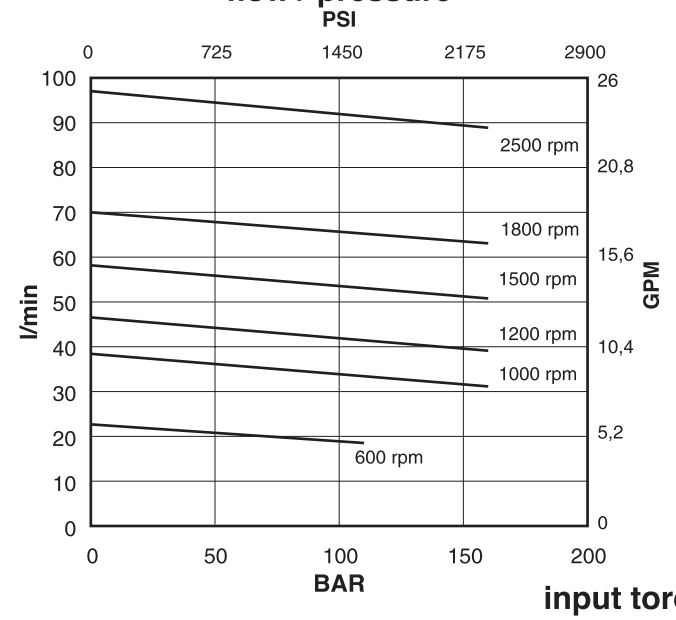
input torque / pressure



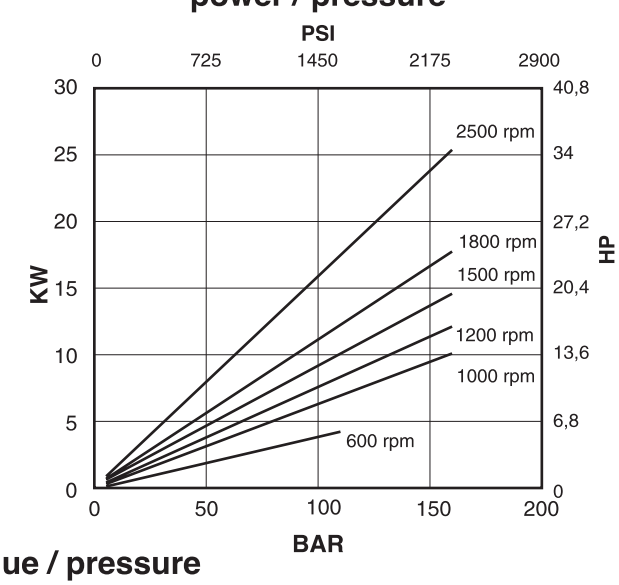
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-12

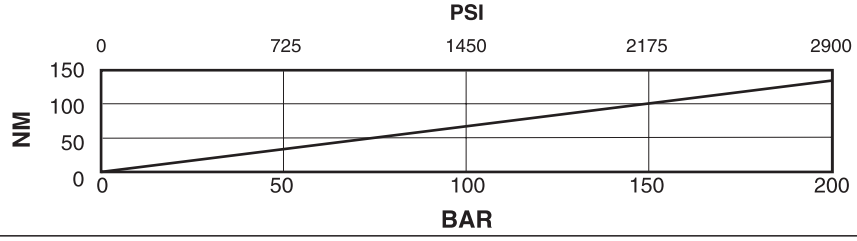
flow / pressure



power / pressure



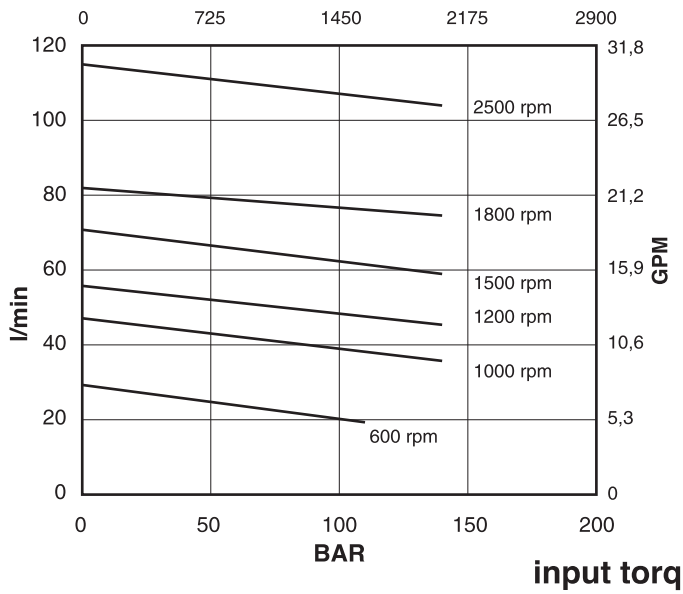
input torque / pressure



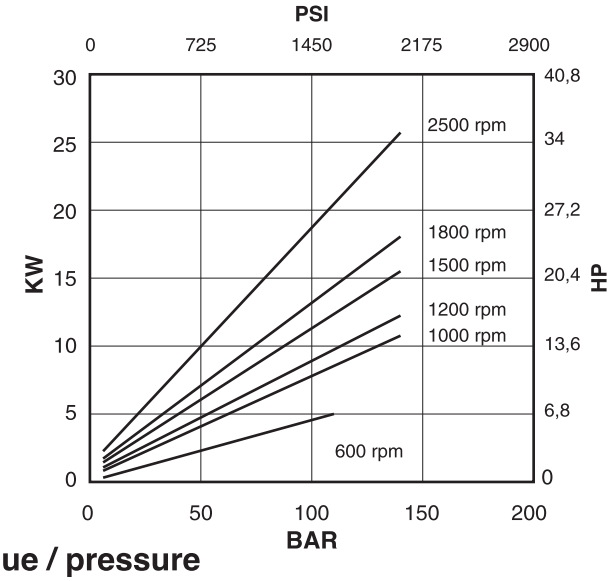
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-14

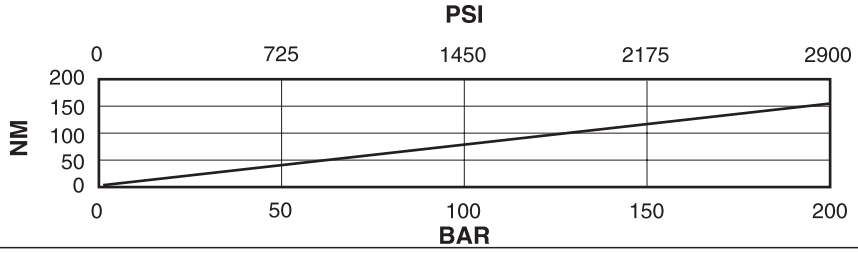
flow / pressure



power / pressure

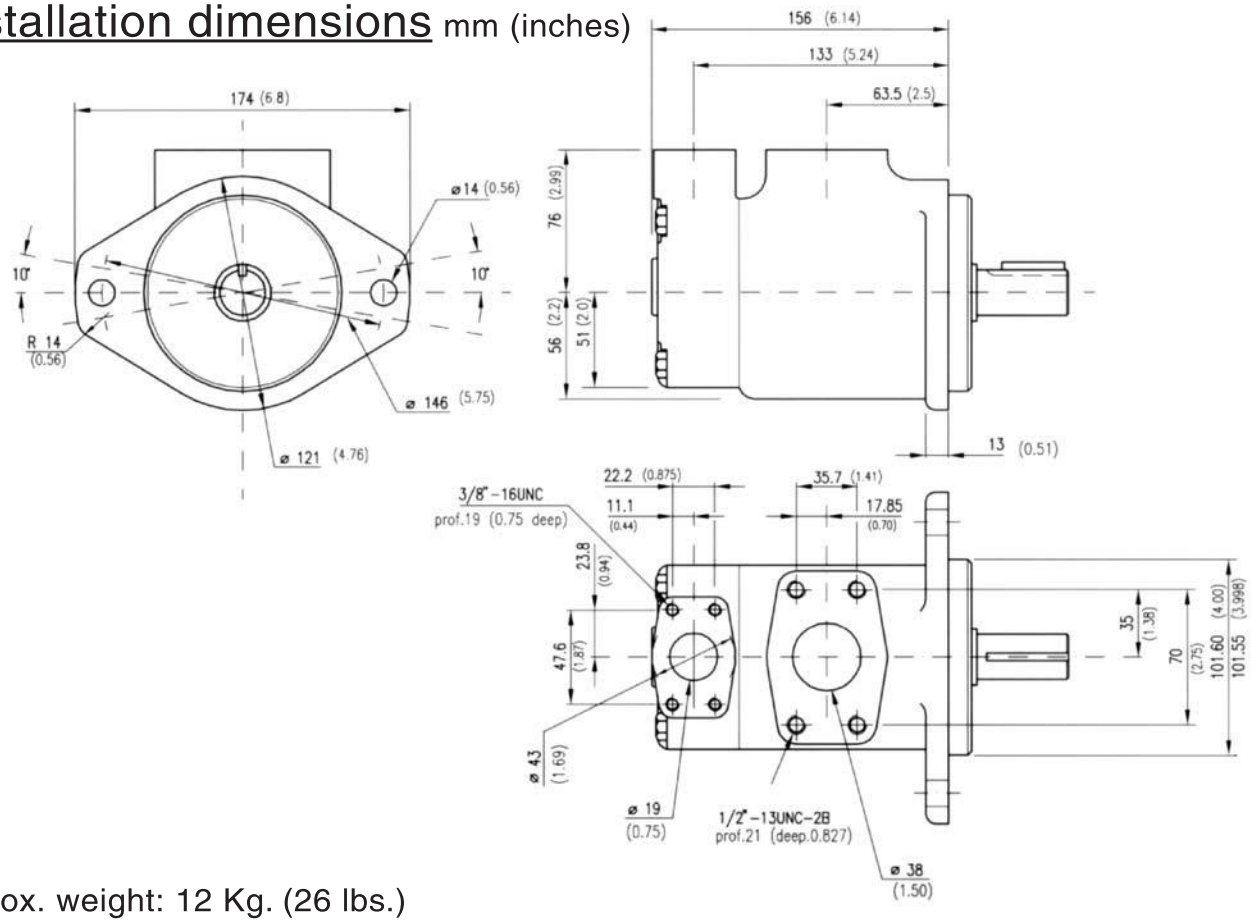


input torque / pressure



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

Installation dimensions mm (inches)



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

Model code breakdown

BQ 01 G * * * * * (L) * (A)

Pump series

Pump type

Design

Cartridge type

02 05 08 09 11 12 14

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

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®)

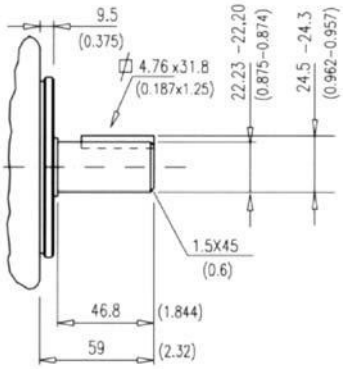
Rotation
(viewed from shaft end)
L = left hand rotation CCW (omit if CW)

Shaft end options
01 = Straight with key (standard)
11 = Splined
90 = Splinet SAE B

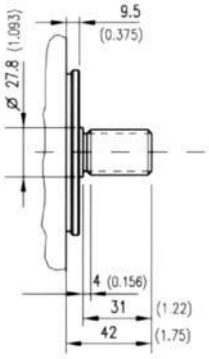
Mounting
(omit if not required)

Shaft options mm (inches)

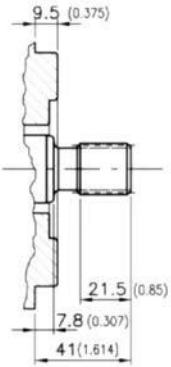
Shaft 01



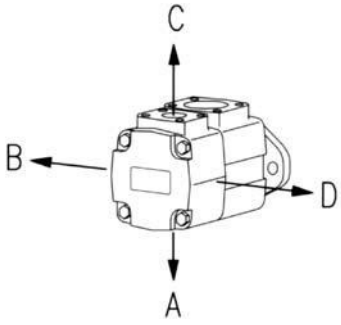
Shaft 11



Shaft 90



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)

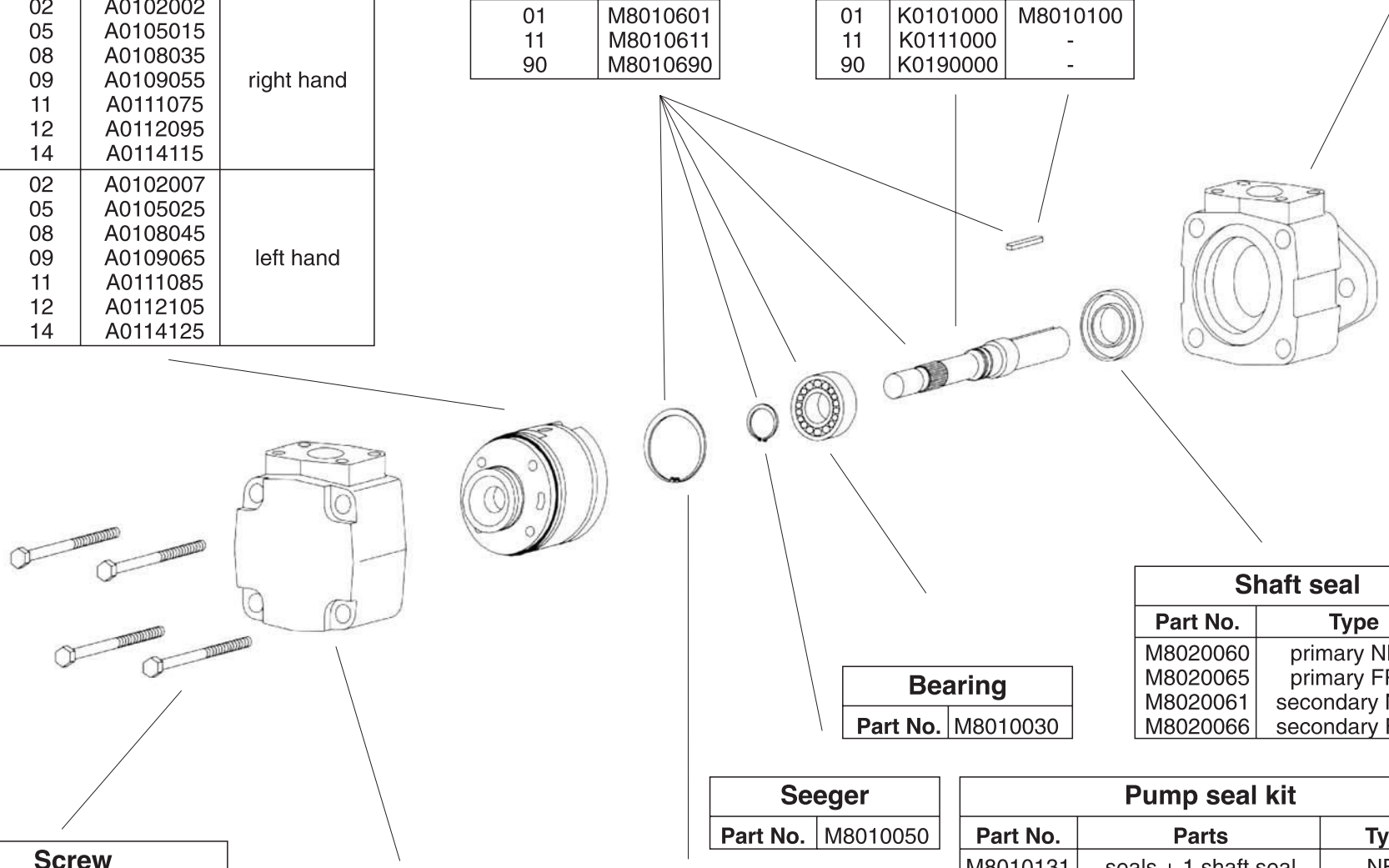
Id. codes of pump components

Cartridge			
Series	**Model**	**Part No.**	**Pump Rotat.**
A01	02	A0102002	right hand
	05	A0105015	
	08	A0108035	
	09	A0109055	
	11	A0111075	
	12	A0112095	
	14	A0114115	
A01	02	A0102007	left hand
	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.**
01	K0101000	M8010100
11	K0111000	-
90	K0190000	-

Body	
Part No.	M8010010



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

Bearing	
Part No.	M8010030

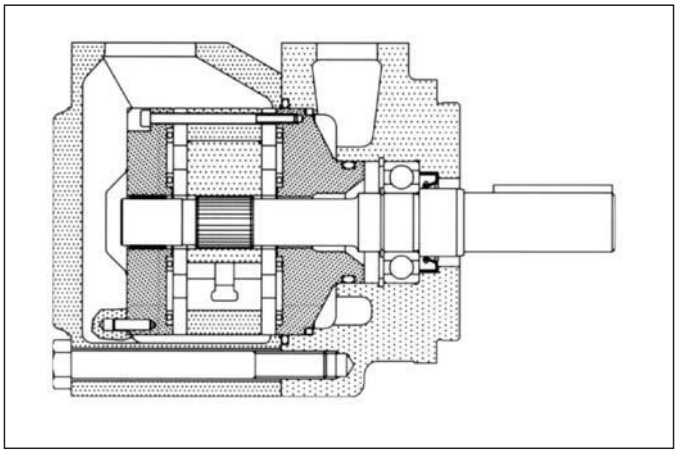
Seeger	
Part No.	M8010050

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®)

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

Cover	
Part No.	M8020120

Seeger	
Part No.	M8010040



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)*.

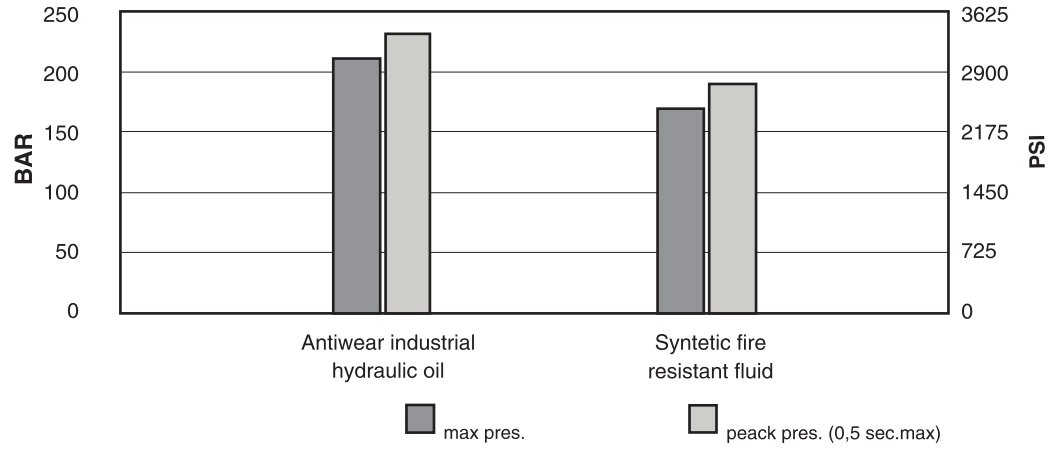
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

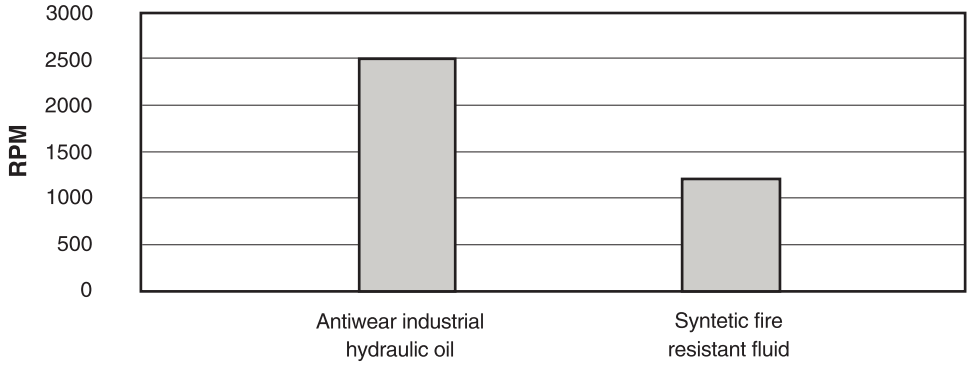
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

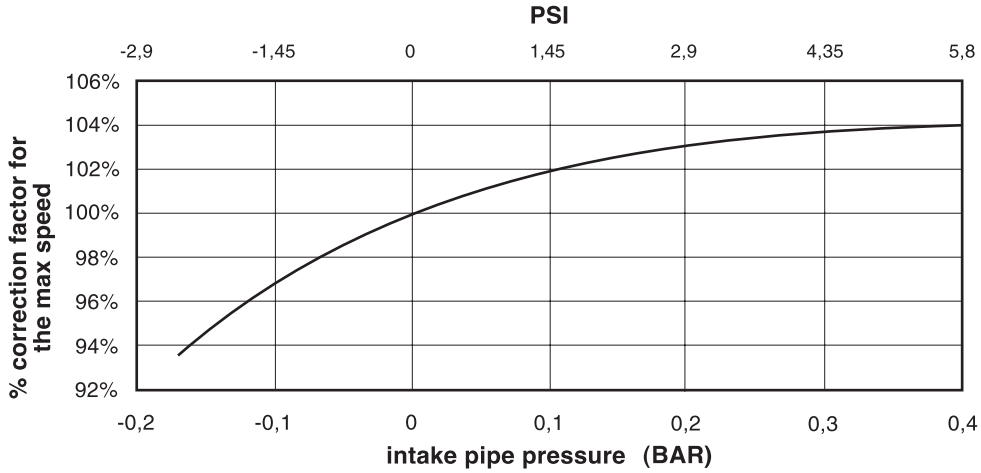


max speed / hydraulic fluid (with 0 bar in the intake pipe)



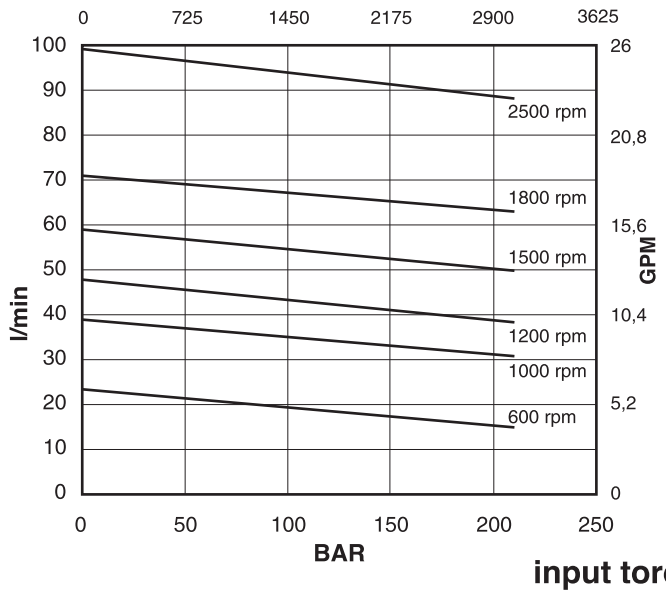
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

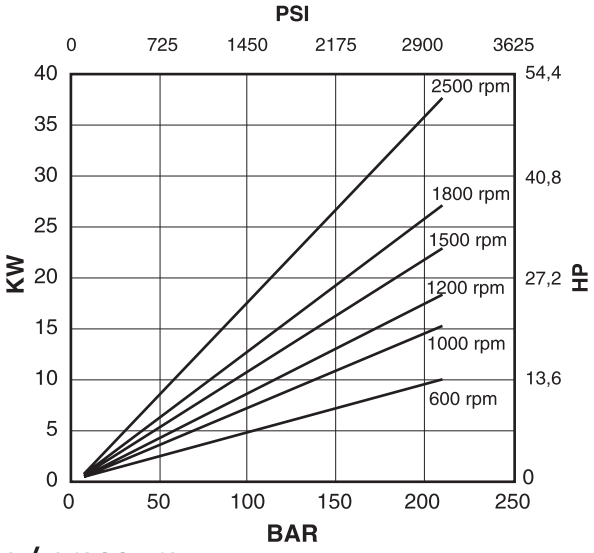


Cartridge A02-12

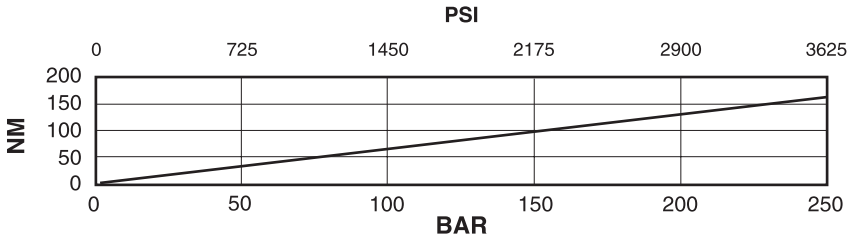
flow / pressure



power / pressure



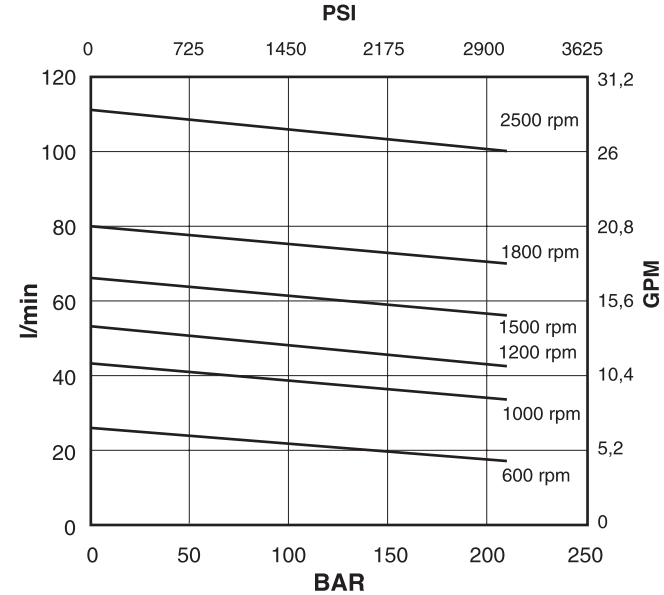
input torque / pressure



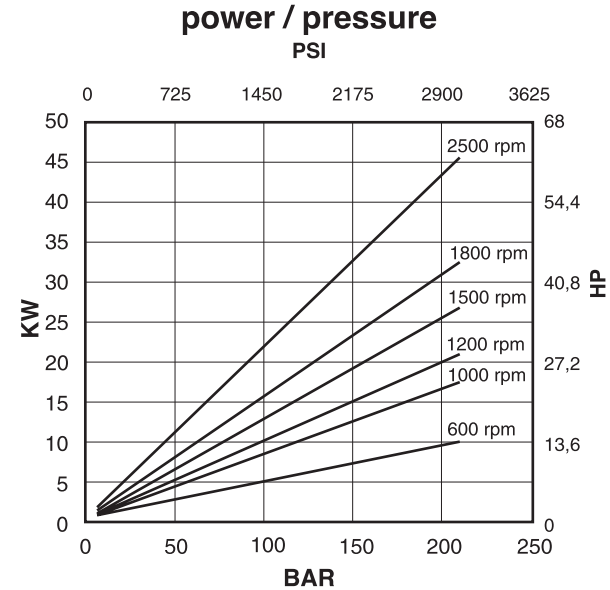
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-14

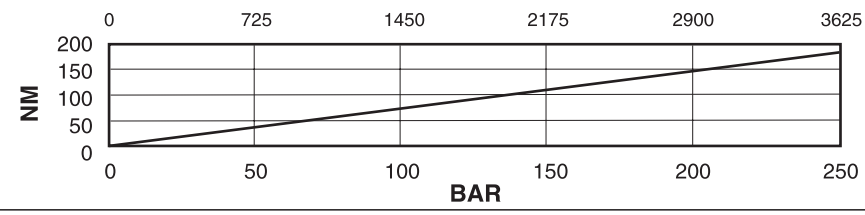
flow / pressure



power / pressure



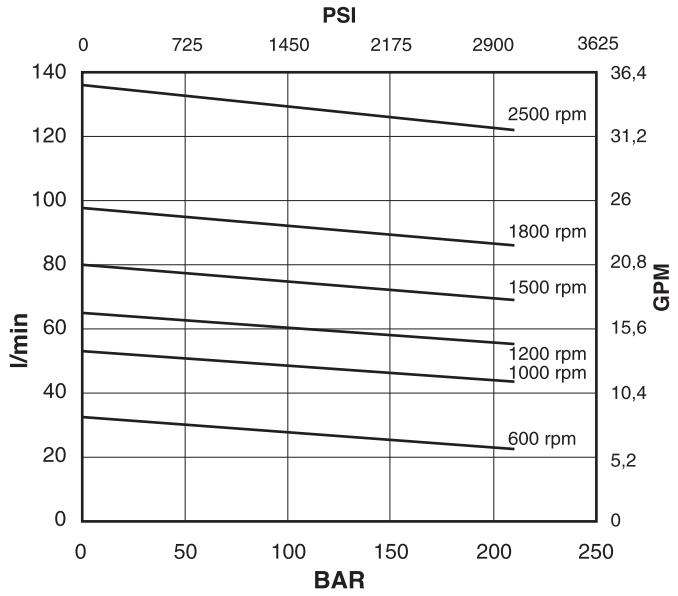
input torque / pressure



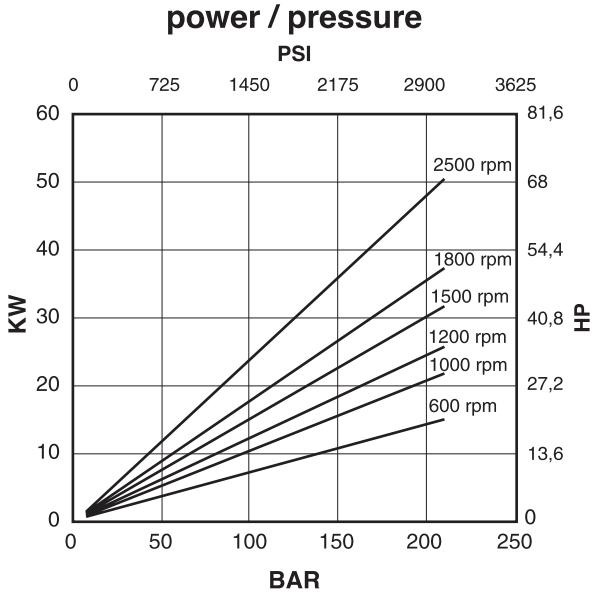
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-17

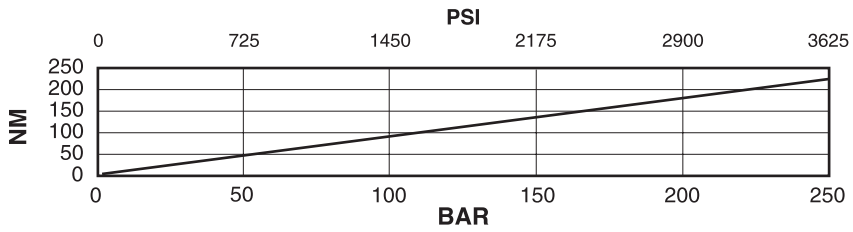
flow / pressure



power / pressure



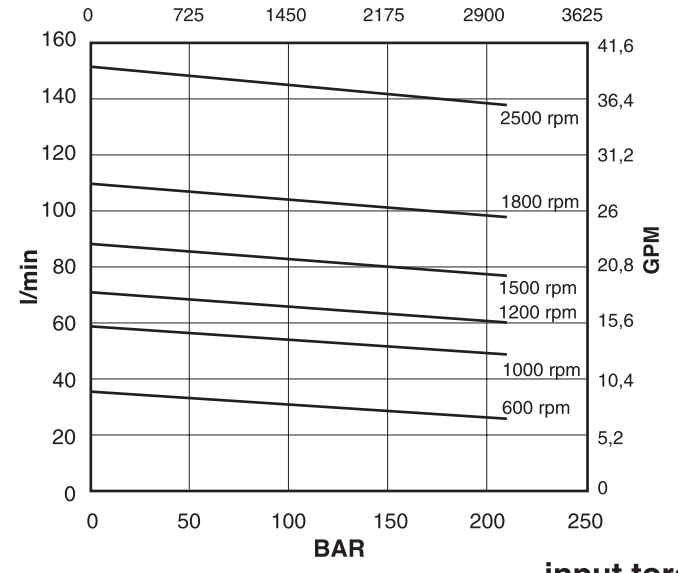
input torque / pressure



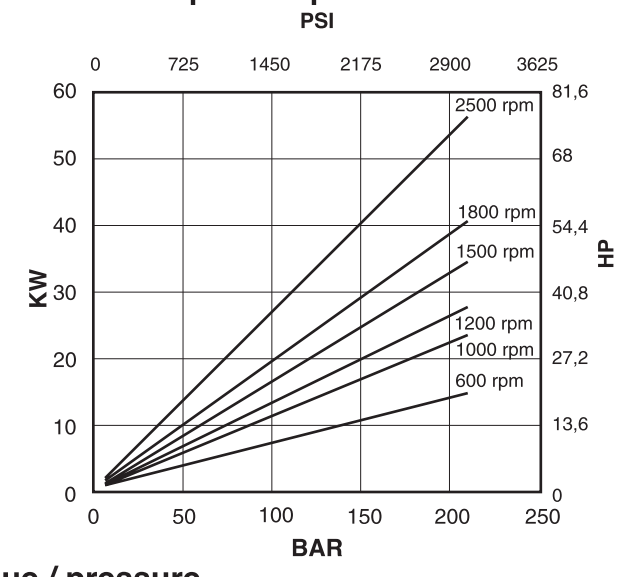
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-19

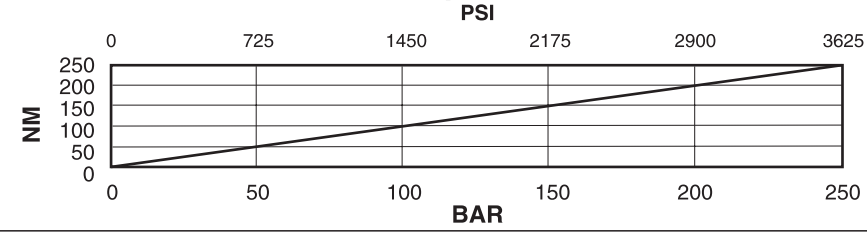
flow / pressure



power / pressure



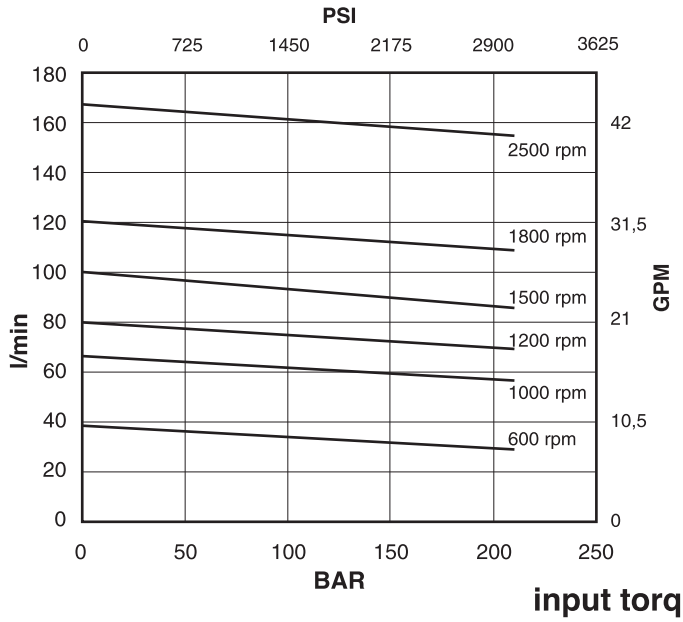
input torque / pressure



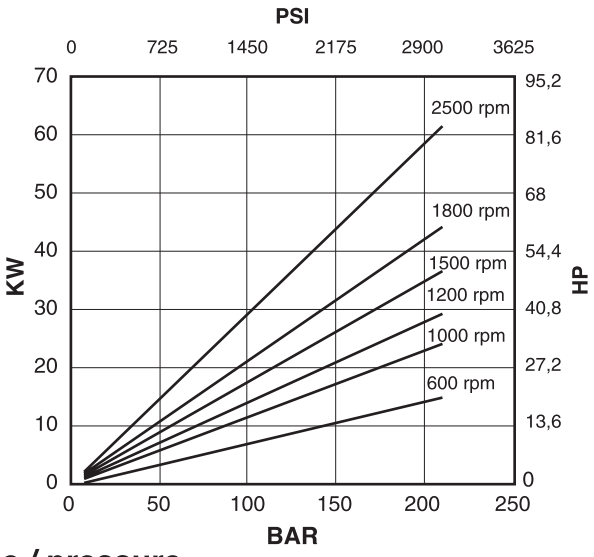
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-21

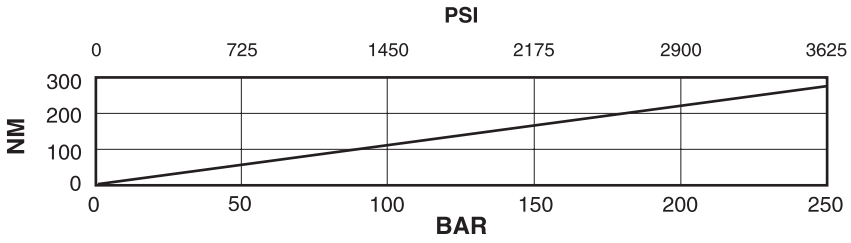
flow / pressure



power / pressure

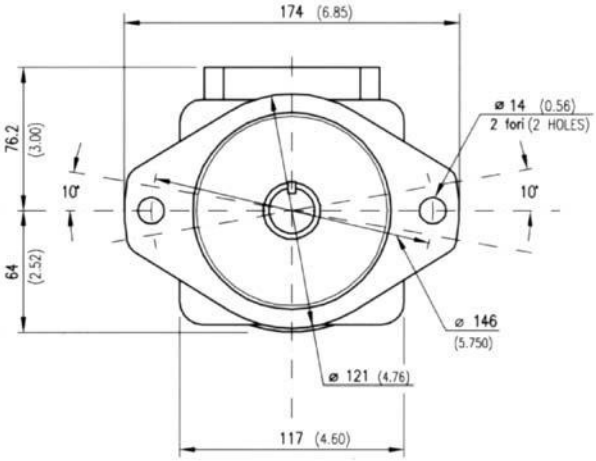


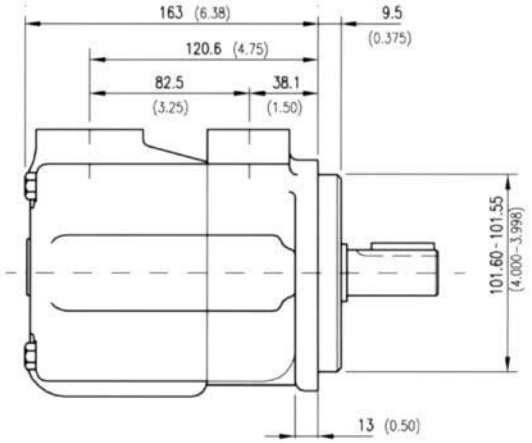
input torque / pressure

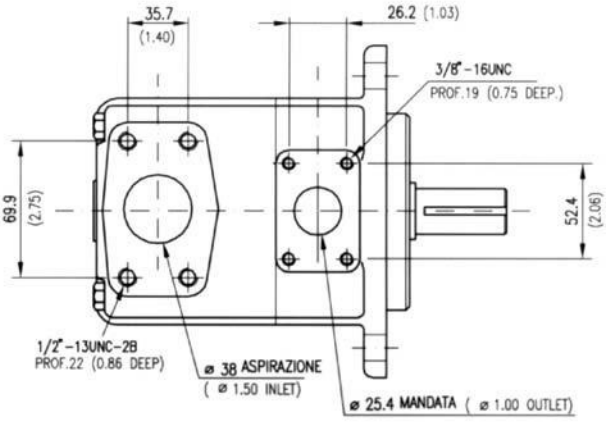


Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)







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

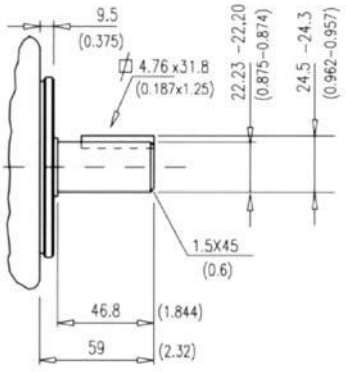
Model code breakdown

BQ 02 G * * * * * (L) * (A)

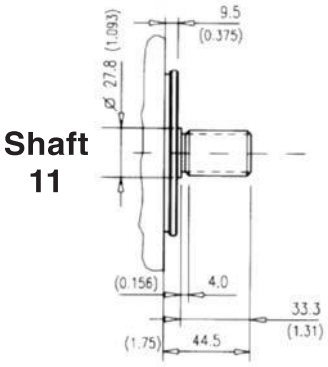
- **BQ** — Pump series
- **02** — Pump type
- **G** — Design
- *** *** — Cartridge type
  12 14 17 19 21
- ***** — Outlet port positions
  (outlet viewed from cover end)
  A = Outlet opposite end
  B = Outlet 90° CCW from inlet
  C = Outlet in line with inlet
  D = Outlet 90° CW from inlet
- ***** — Shaft end options
  01 = Straight with key (standard), **11** = Splined
  86 = Heavy duty straight keyed, **90** = Splined SAE B
- **(L)** — Rotation
  (viewed from shaft end)
  L = left hand rotation CCW (omit if CW)
- ***** — 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-seas in FPM (Viton®)
- **(A)** — Mounting
  (omit if not required)

Shaft options mm (inches)

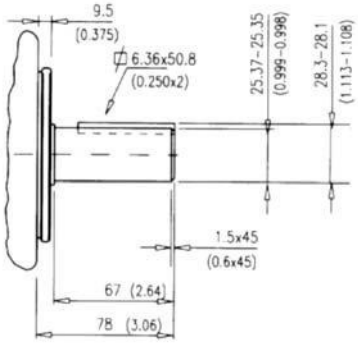
Shaft 01



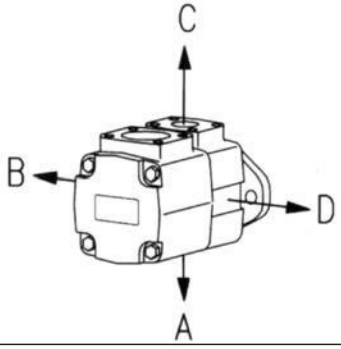
Shaft 11



Shaft 86



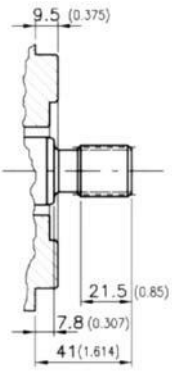
PORT ORIENTATIONS

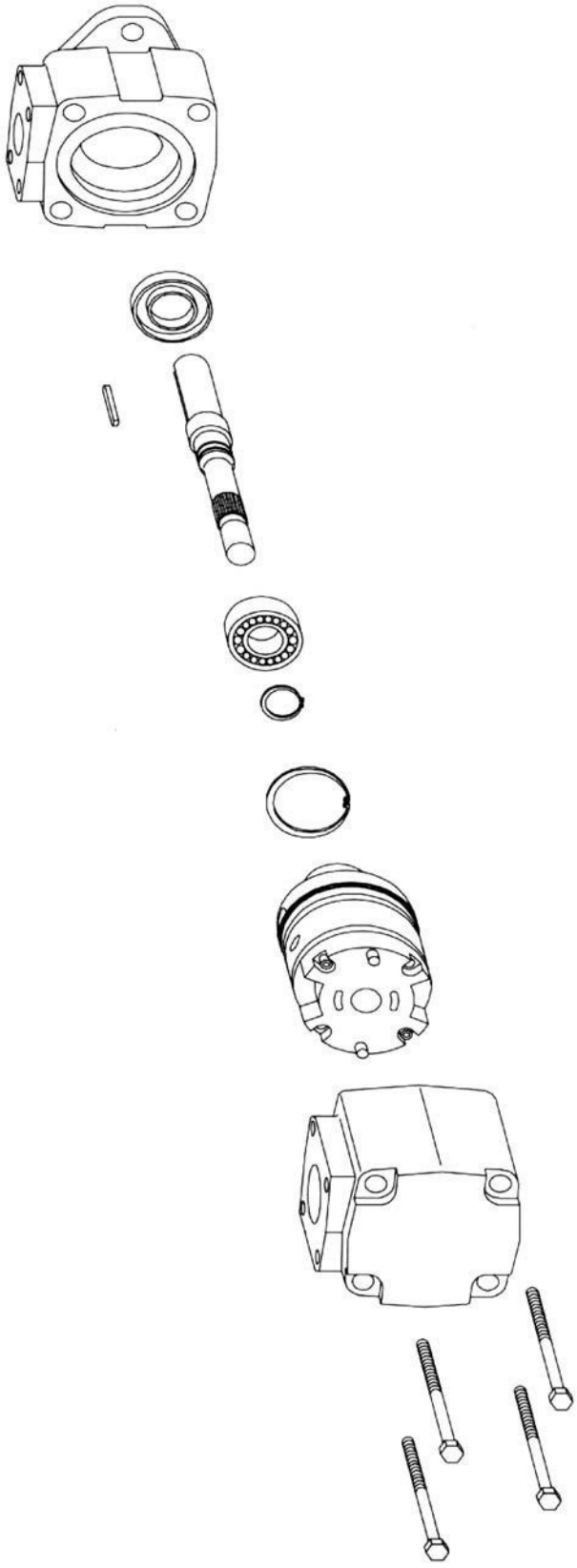


Spline data
(Shaft 11 and shaft 90)

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





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OFFENDING COMMAND: ~

STACK:

-savelevel-