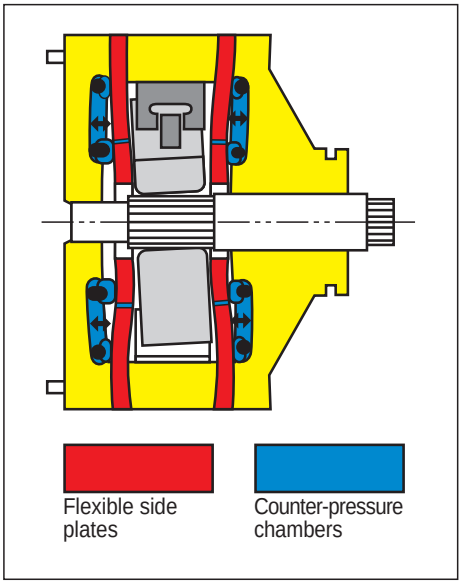


FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “BQ” SERIES

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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Single pumps BQ02 ..... pag.11

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Single pumps BQ05 ..... pag. 30

Double pumps BQ21 ..... pag. 37

Double pumps BQ31 ..... pag. 47

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Double pumps BQ42 ..... pag. 66

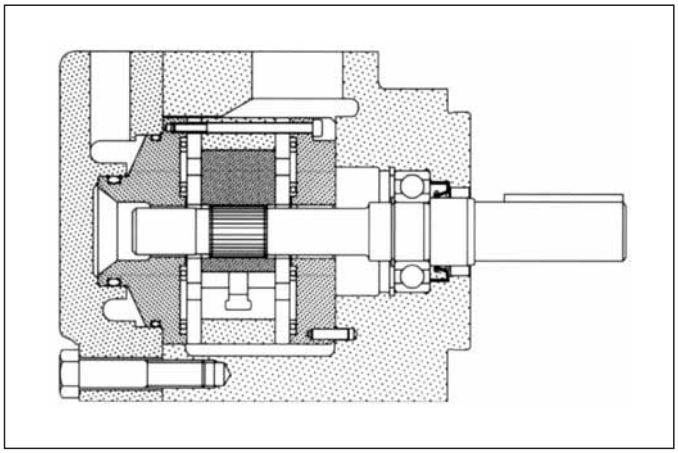
Double pumps BQ51 ..... pag. 75

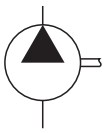
Double pumps BQ52 ..... pag. 85

Double pumps BQ54 ..... pag. 94

Id. codes of cartridge kit components..... pag. 103

Operating instructions..... pag.105





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)*.

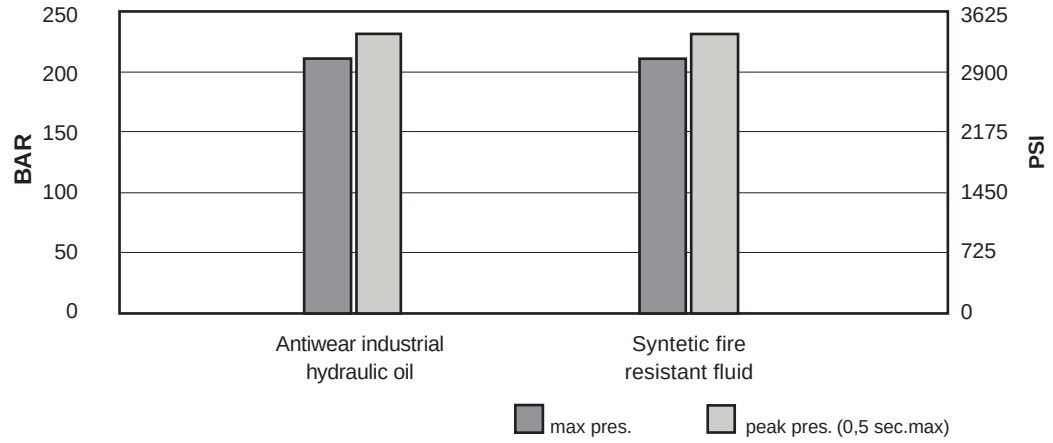
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

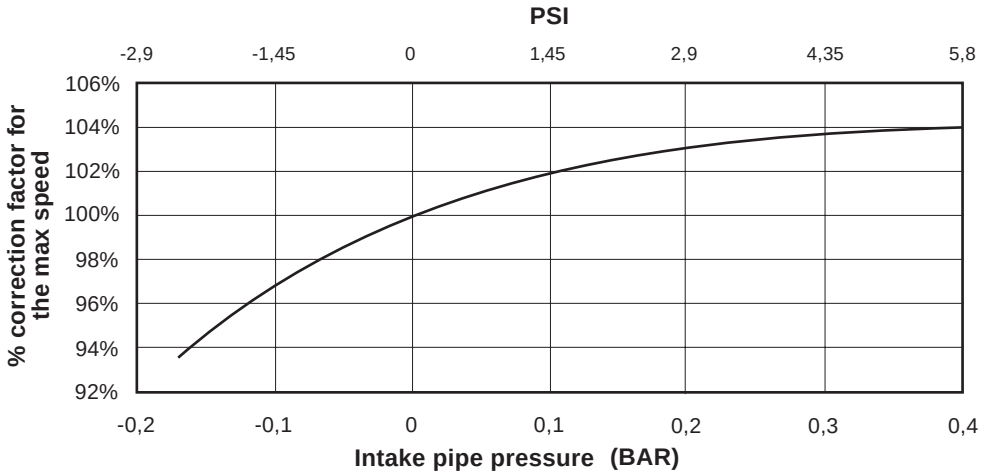


max speed / hydraulic fluid (with 0 bar in the intake pipe)



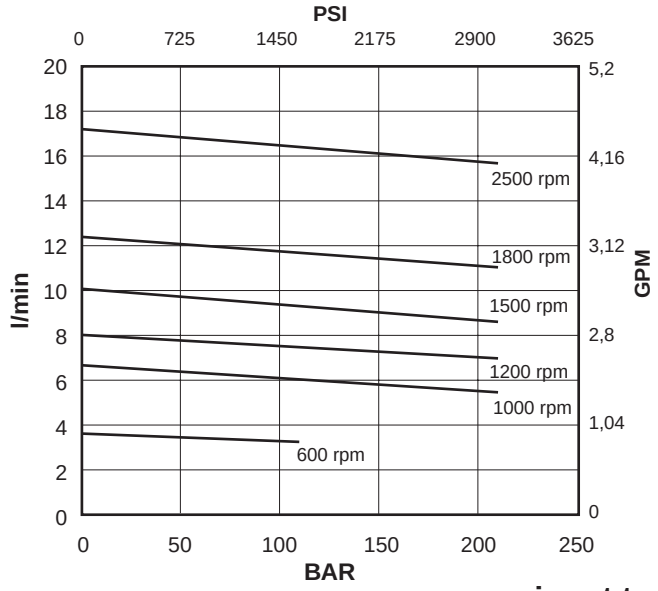
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

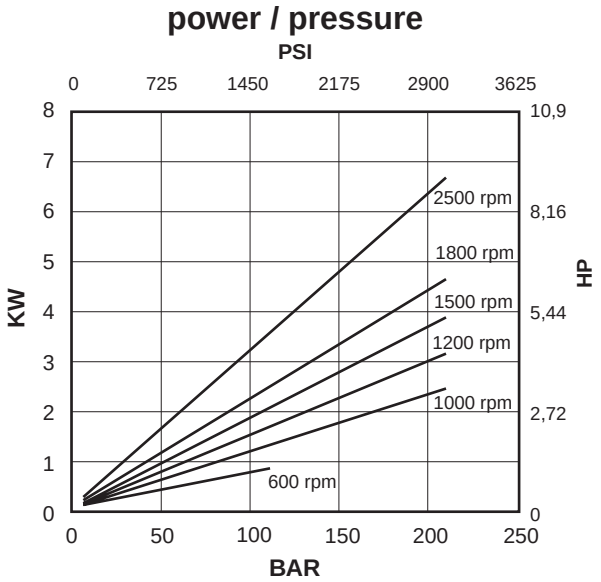


Cartridge A01-02

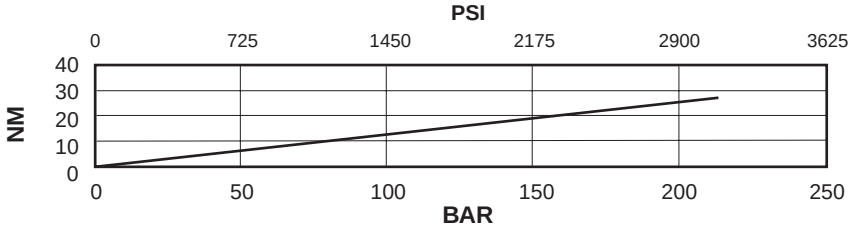
flow / pressure



power / pressure



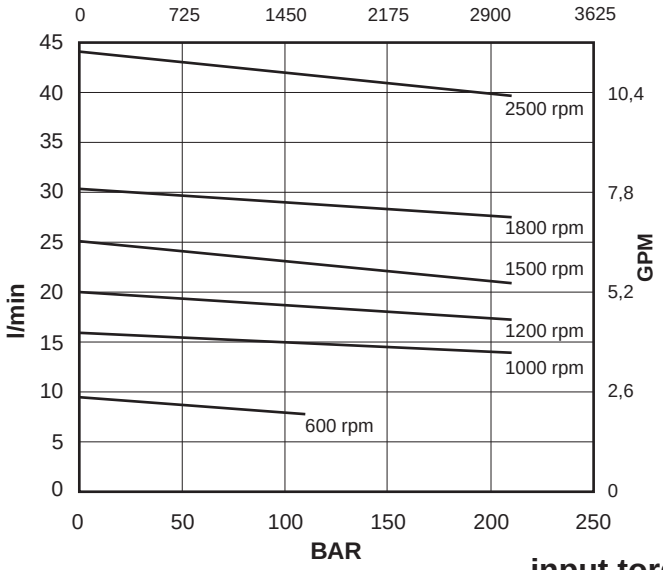
input torque / pressure



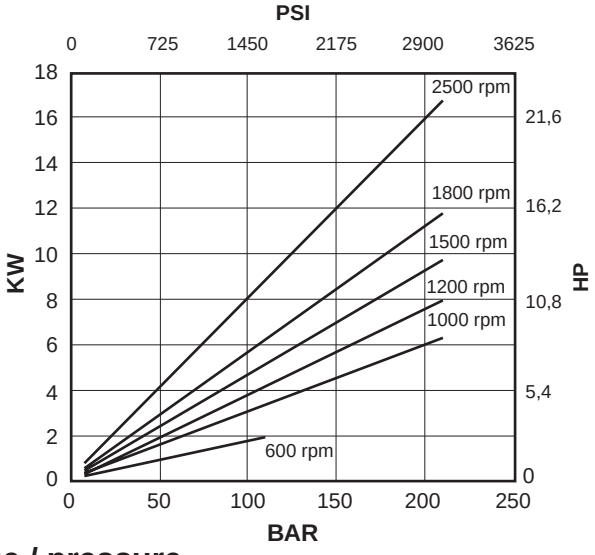
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-05

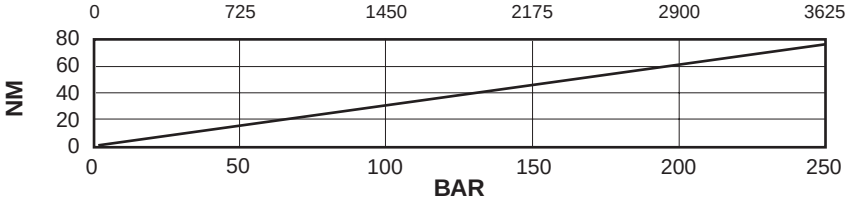
flow / pressure



power / pressure



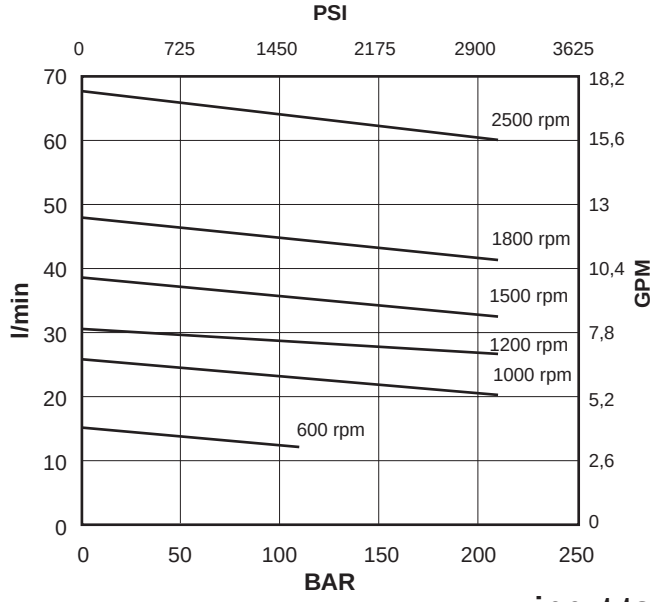
input torque / pressure



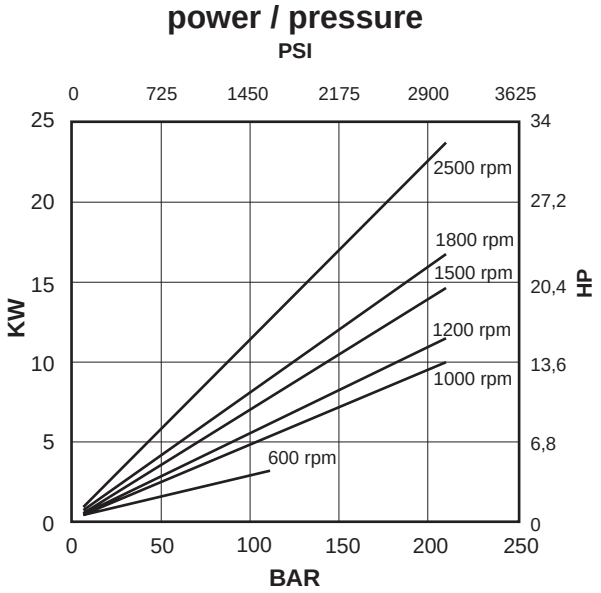
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-08

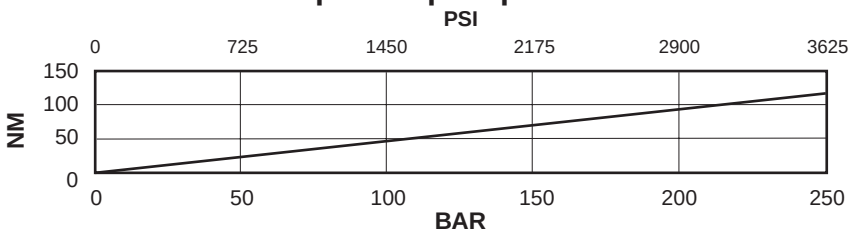
flow / pressure



power / pressure



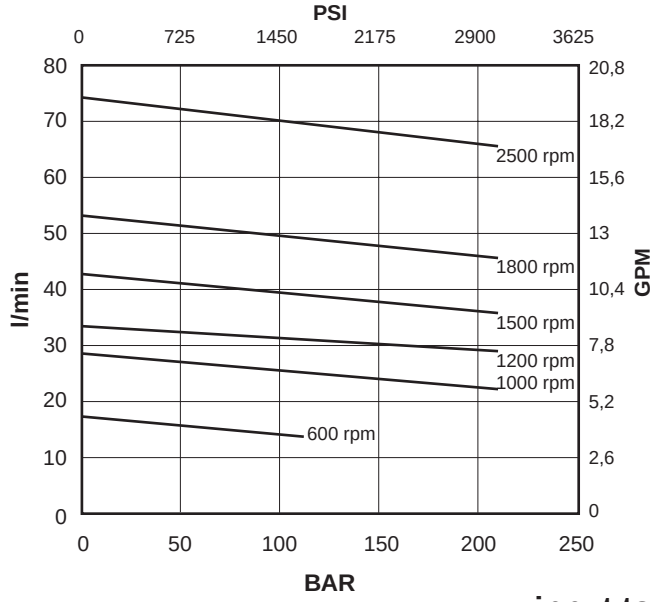
input torque / pressure



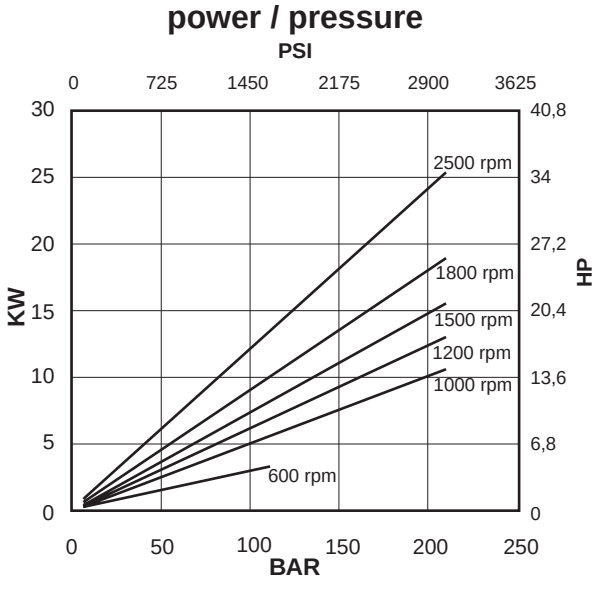
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-09

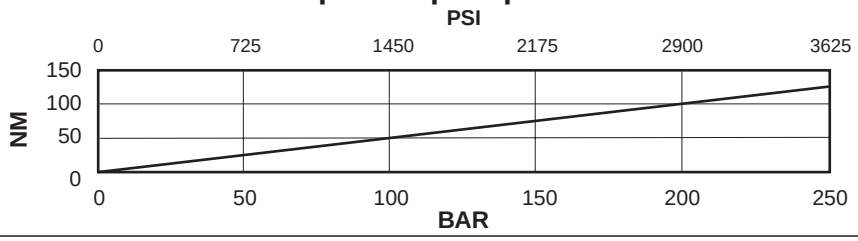
flow / pressure



power / pressure



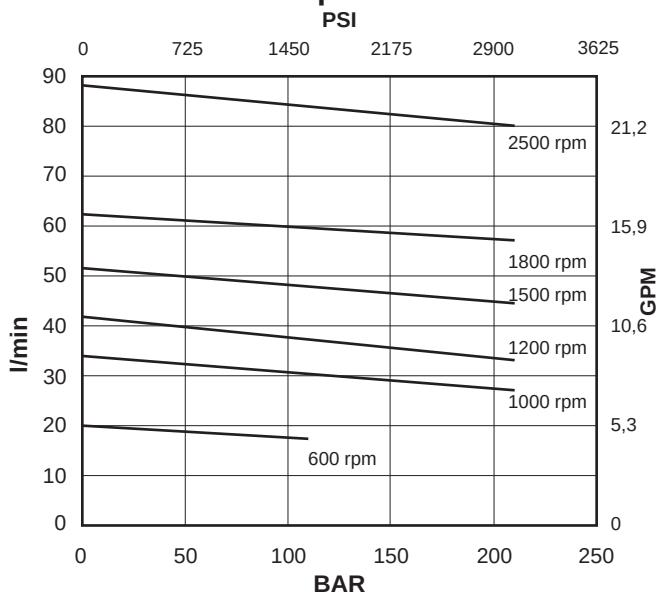
input torque / pressure



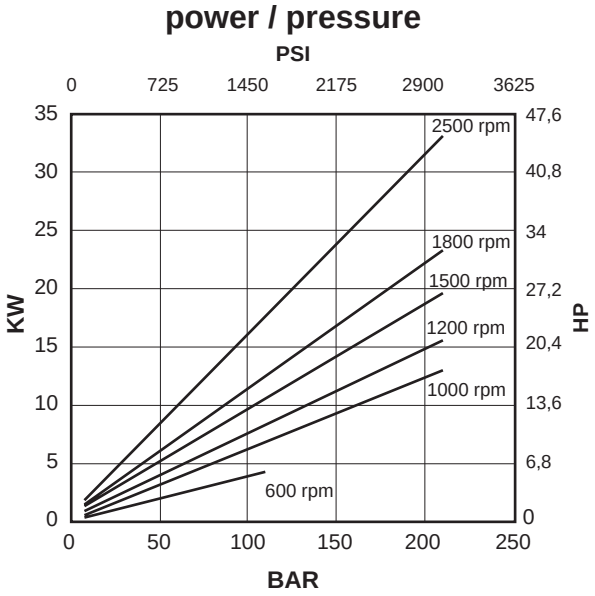
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-11

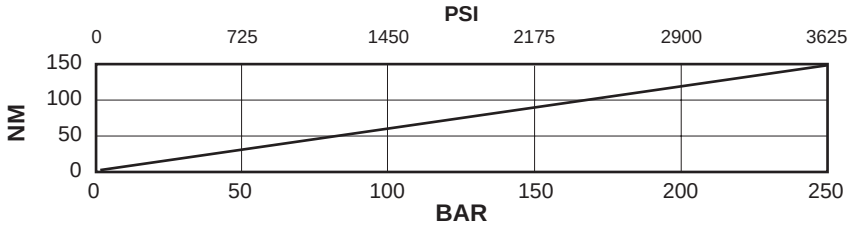
flow / pressure



power / pressure



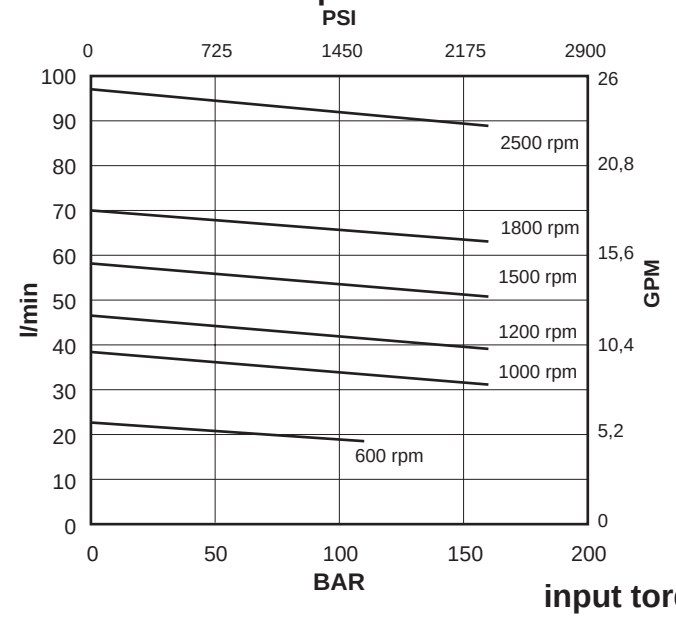
input torque / pressure



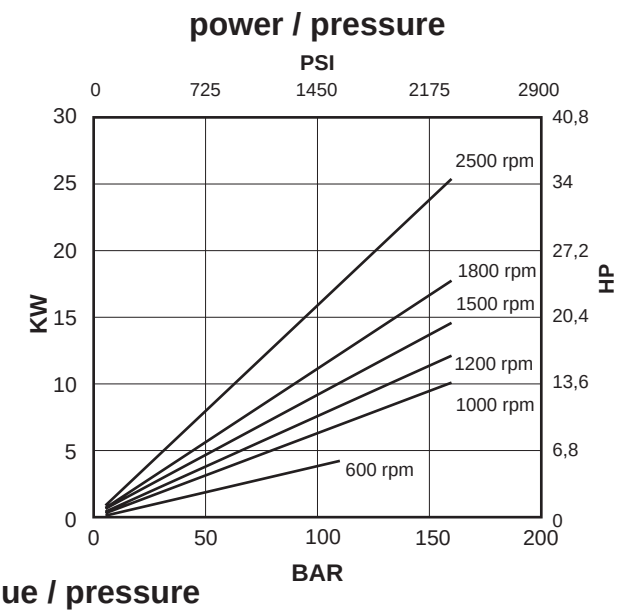
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-12

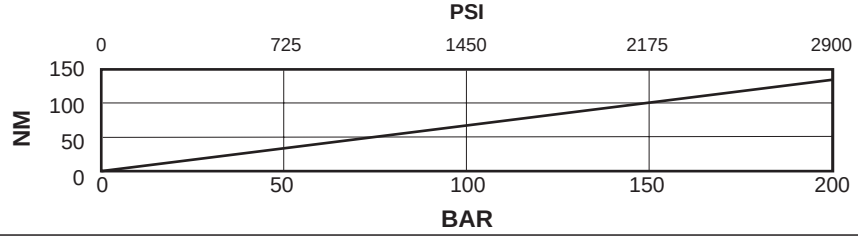
flow / pressure



power / pressure



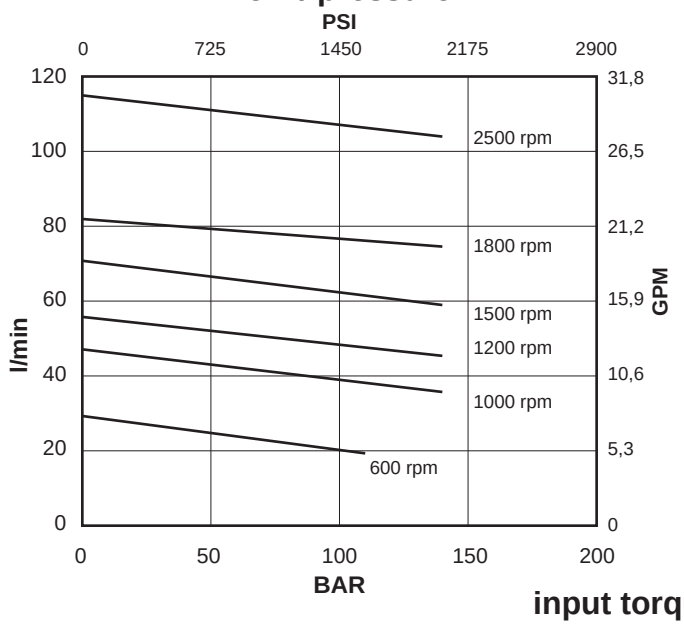
input torque / pressure



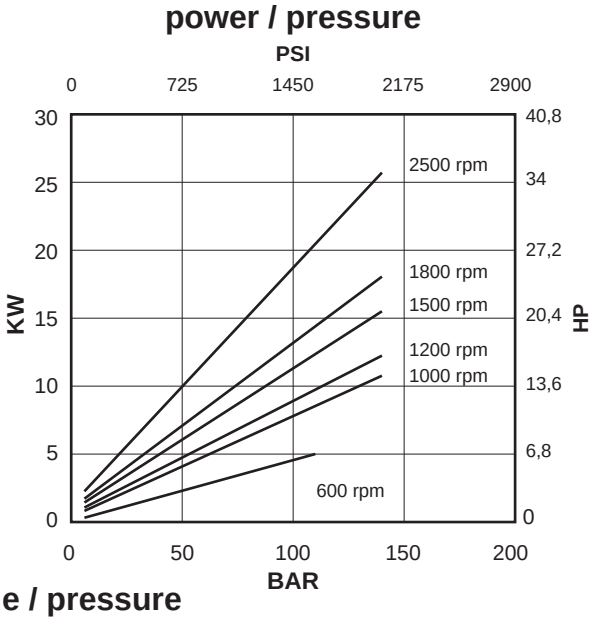
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A01-14

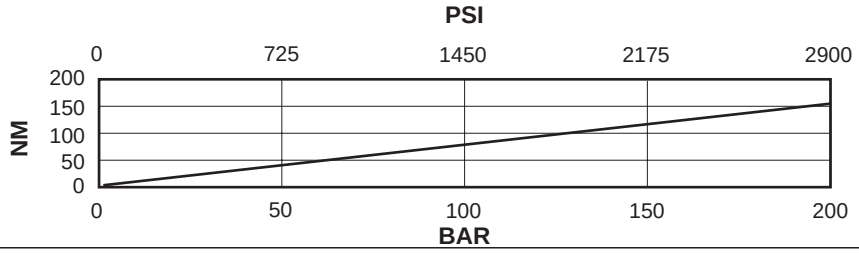
flow / pressure



power / pressure

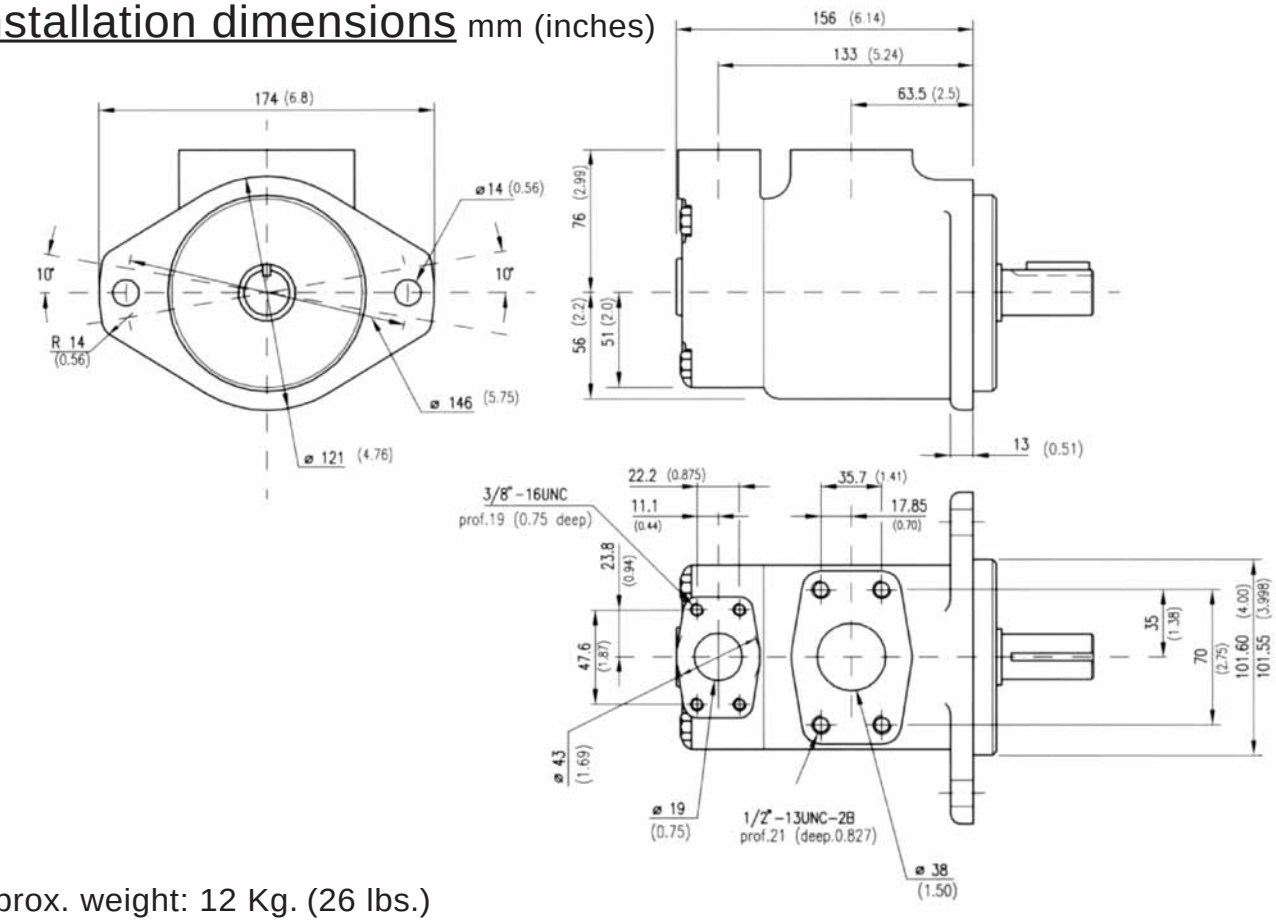


input torque / pressure



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

Installation dimensions mm (inches)



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

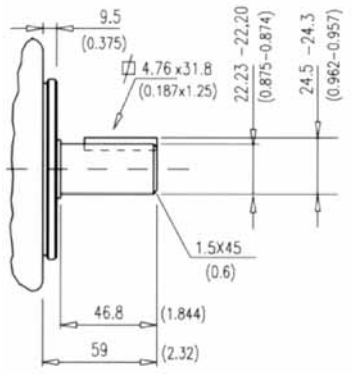
Model code breakdown

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

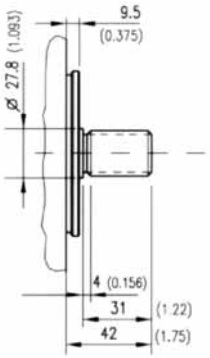
- **BQ** — Pump series
- **01** — Pump type
- **G** — Design
- ****** — Cartridge type
  02 05 08 09 11 12 14
- ***** — Outlet port positions
  (outlet viewed from cover end)
  A = Outlet opposite end
  B = Outlet 90° CCW from inlet
  C = Outlet in line with inlet
  D = Outlet 90° CW from inlet
- ****** — Shaft end options
  01 = Straight with key (standard)
  11 = Splined
  90 = Splinet 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-seals in FPM (Viton®)
- **(A)** — Mounting
  (omit if not required)

Shaft options mm (inches)

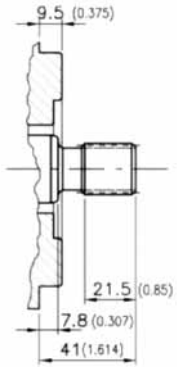
Shaft 01



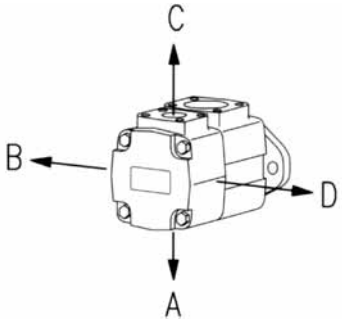
Shaft 11



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)

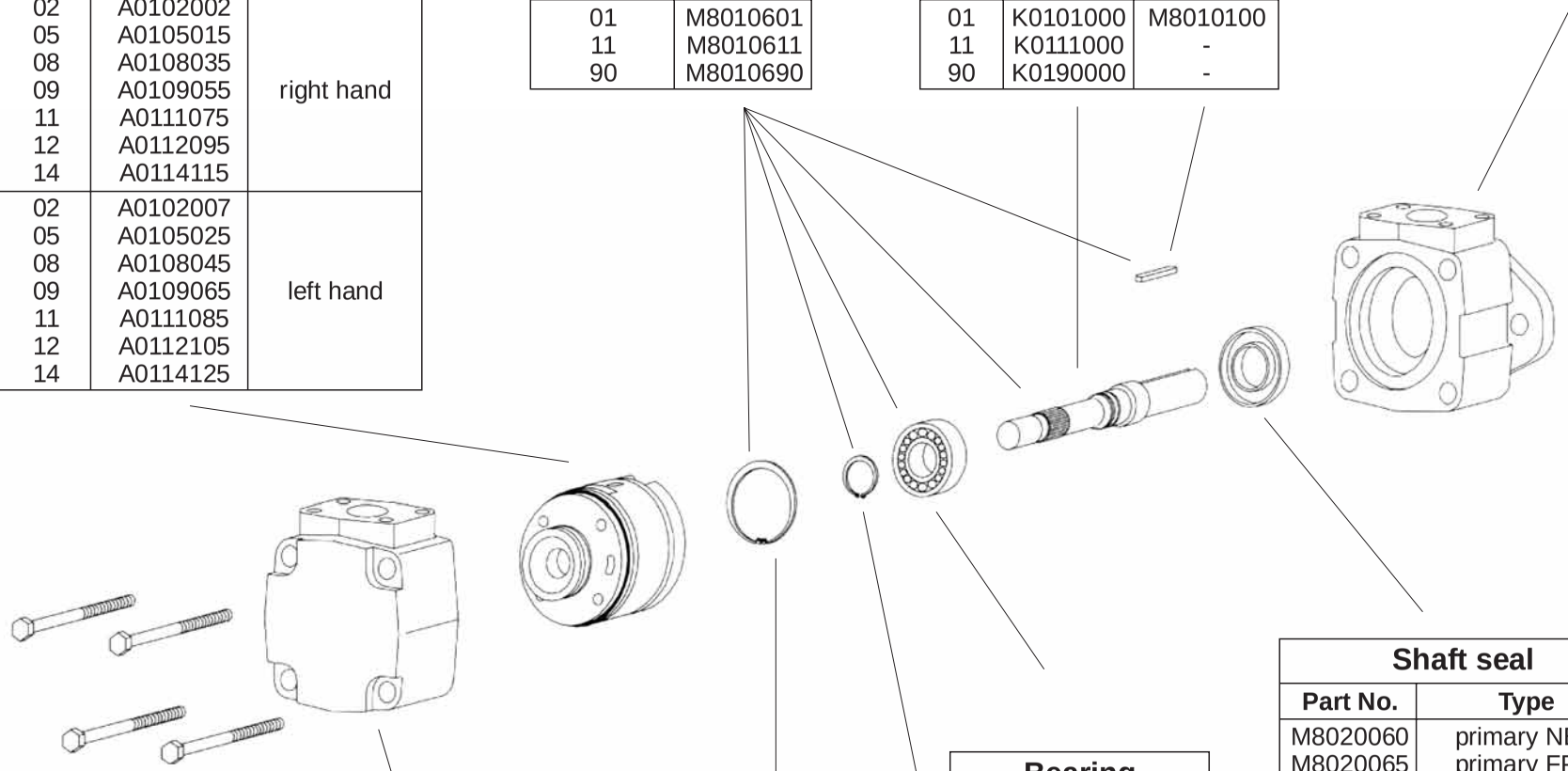
Id. codes of pump components

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

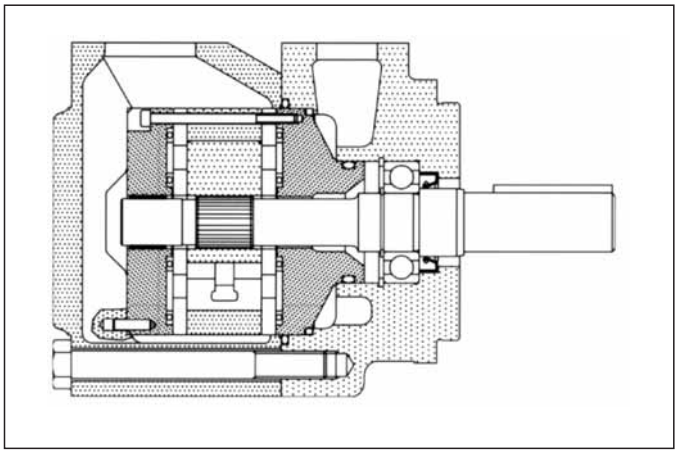
Seeger	
Part No.	M8010050

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)*.

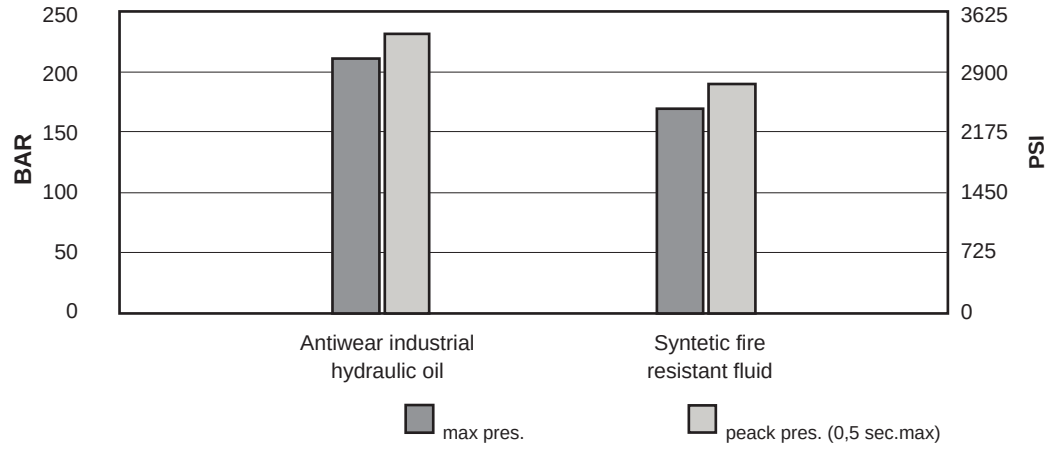
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

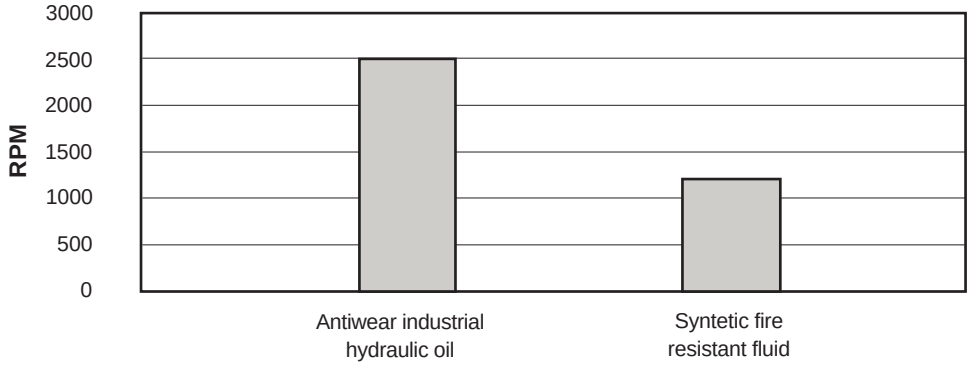
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

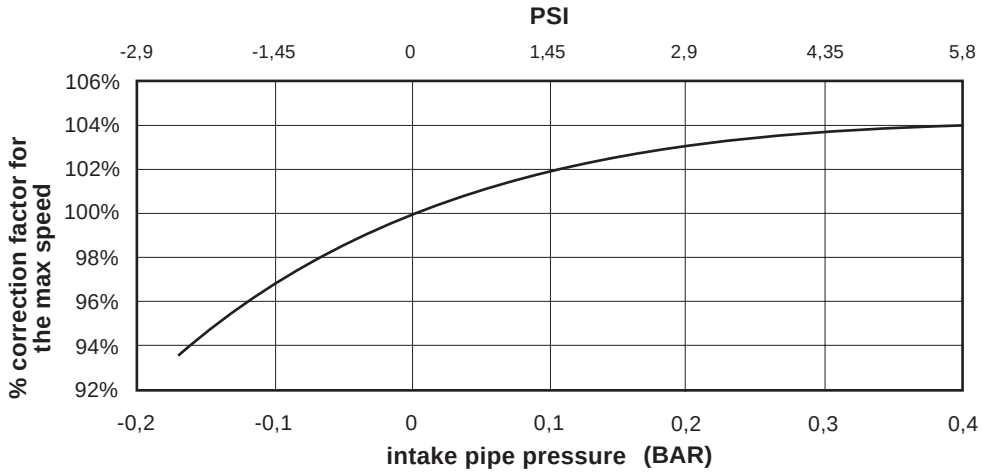


max speed / hydraulic fluid (with 0 bar in the intake pipe)



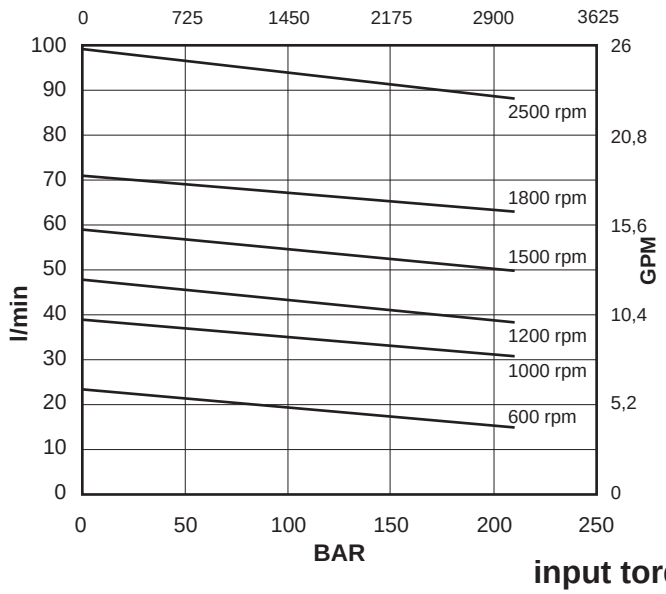
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

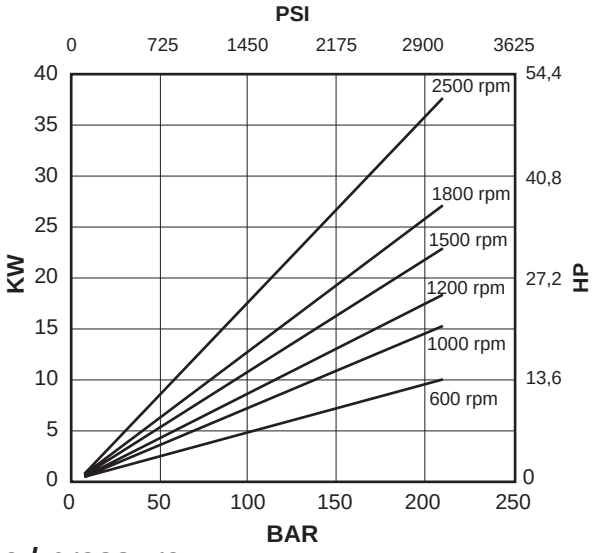


Cartridge A02-12

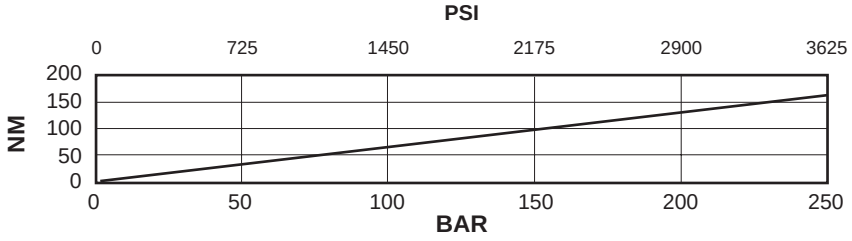
flow / pressure



power / pressure



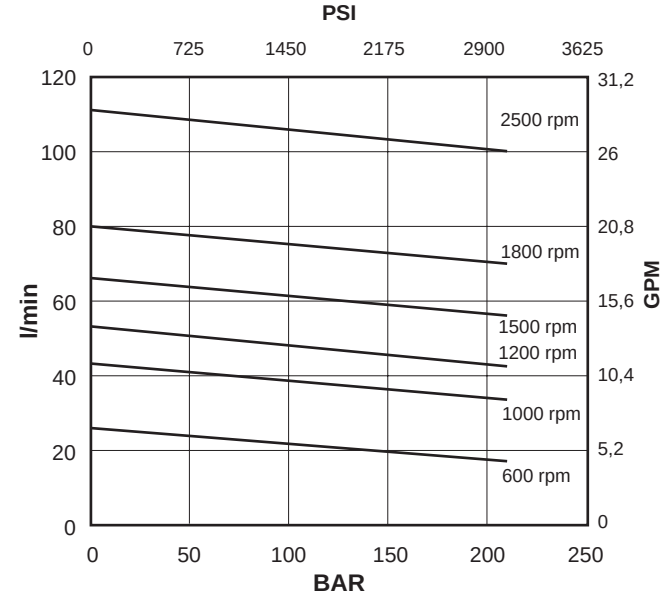
input torque / pressure



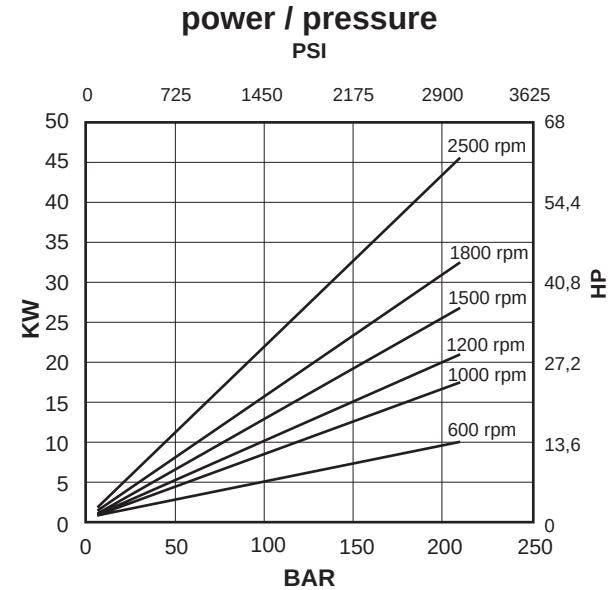
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-14

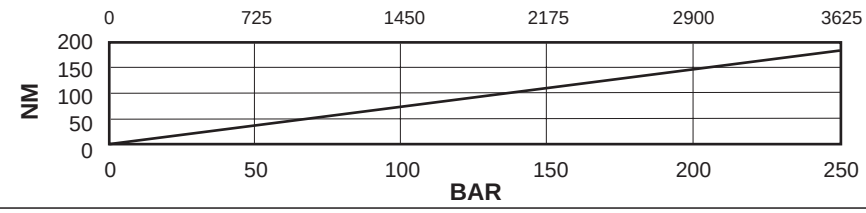
flow / pressure



power / pressure



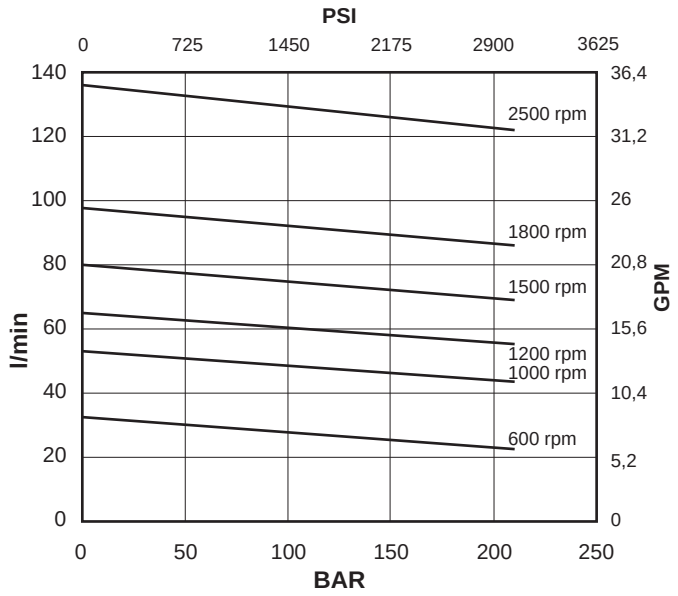
input torque / pressure



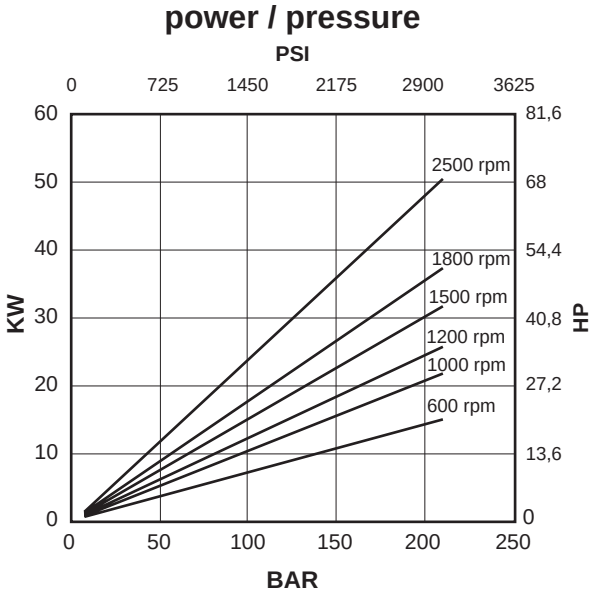
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-17

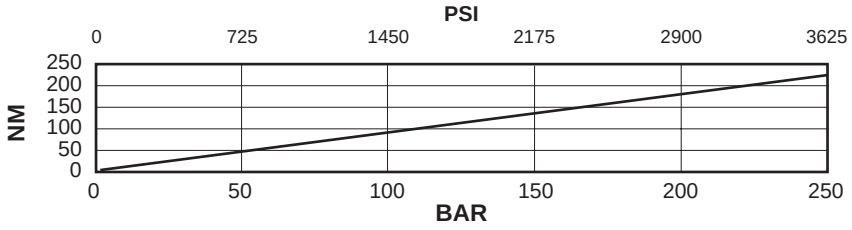
flow / pressure



power / pressure



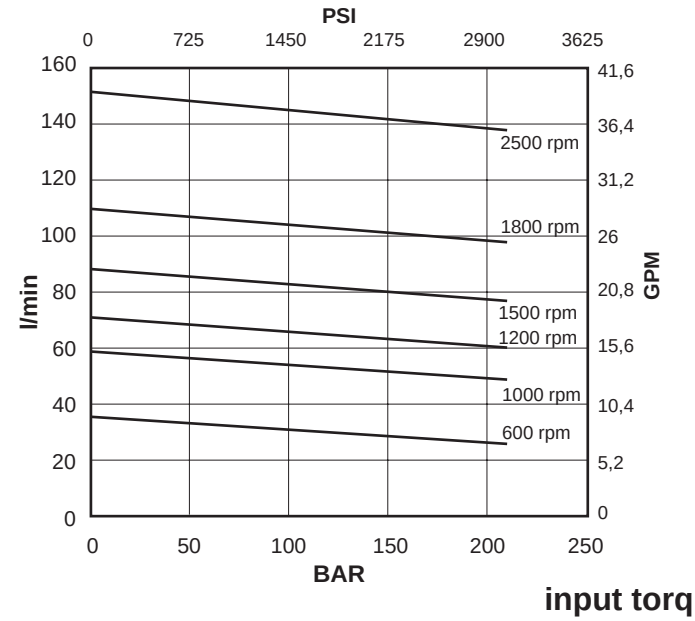
input torque / pressure



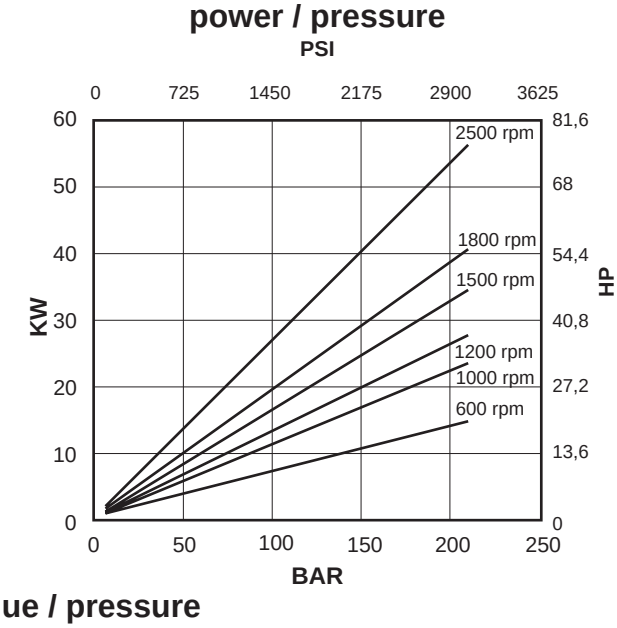
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-19

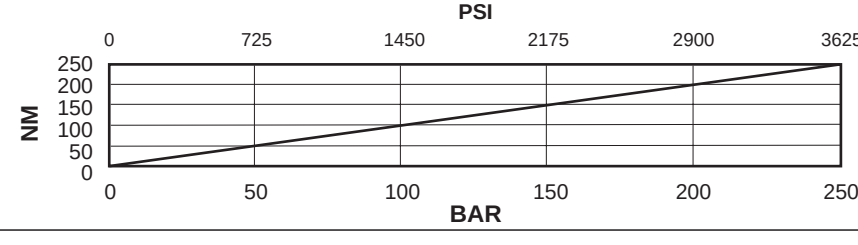
flow / pressure



power / pressure



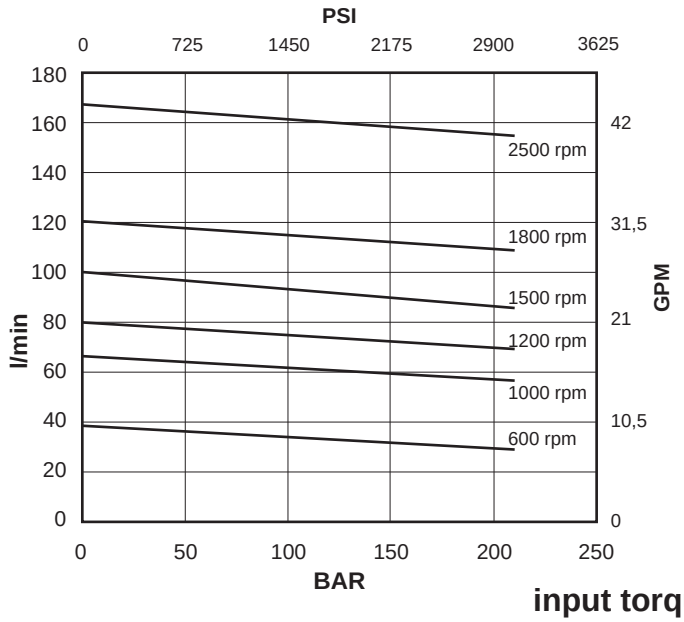
input torque / pressure



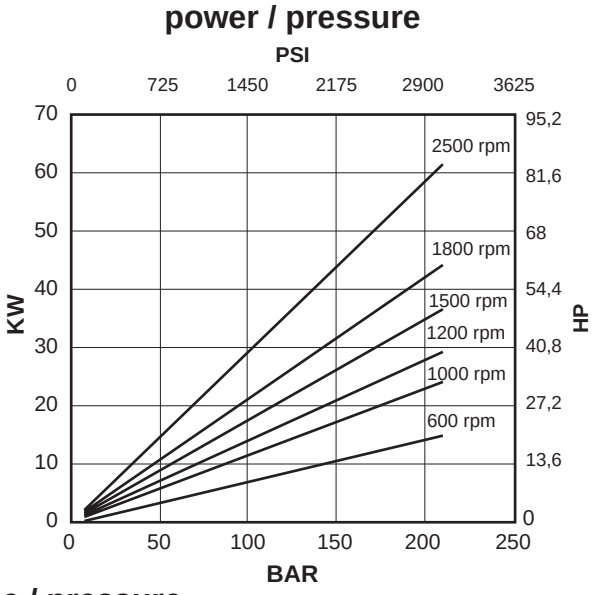
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A02-21

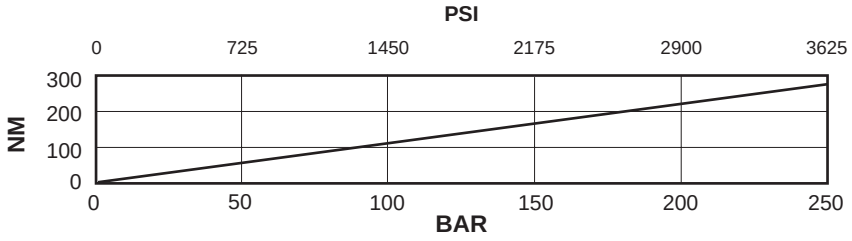
flow / pressure



power / pressure

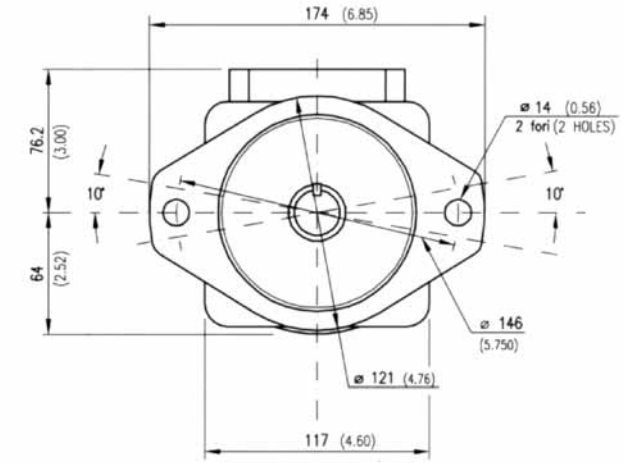


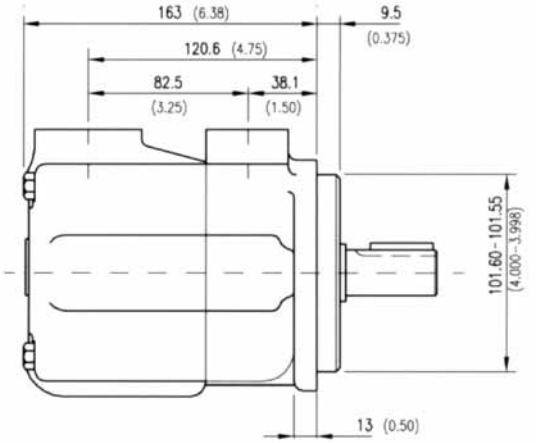
input torque / pressure

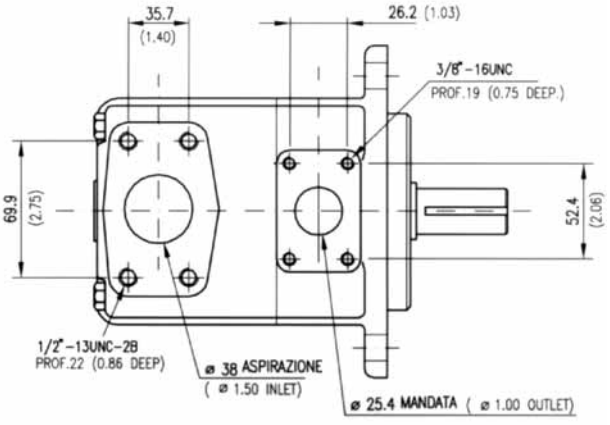


Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)







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

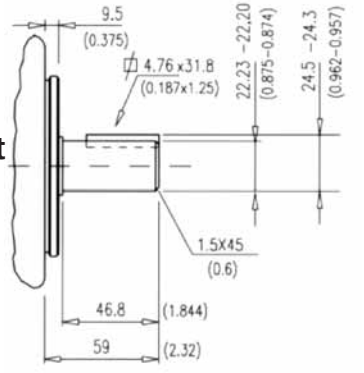
Model code breakdown

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

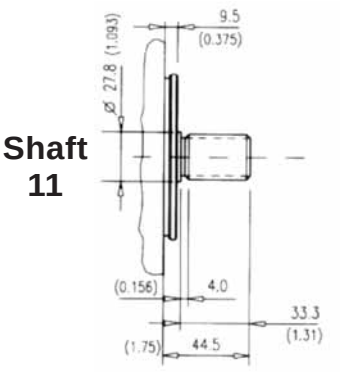
- **BQ** — Pump series
- **02** — Pump type
- **G** — Design
- ****** — Cartridge type
  12 14 17 19 21
- ***** — Outlet port positions
  (outlet viewed from cover end)
  A = Outlet opposite end
  B = Outlet 90° CCW from inlet
  C = Outlet in line with inlet
  D = Outlet 90° CW from inlet
- ****** — 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)

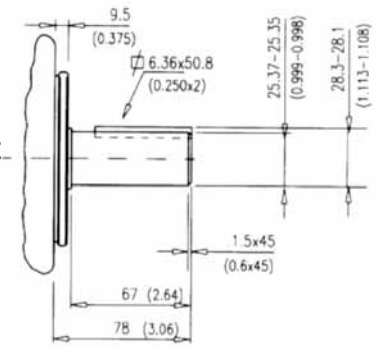
Shaft 01



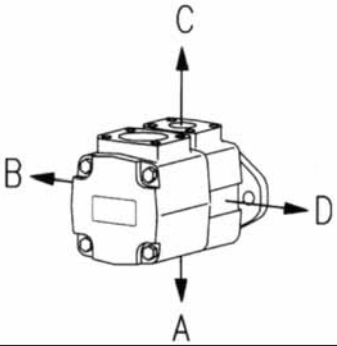
Shaft 11



Shaft 86



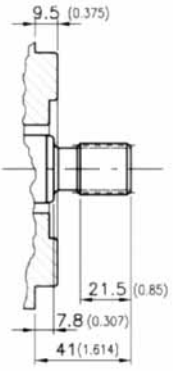
PORT ORIENTATIONS



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



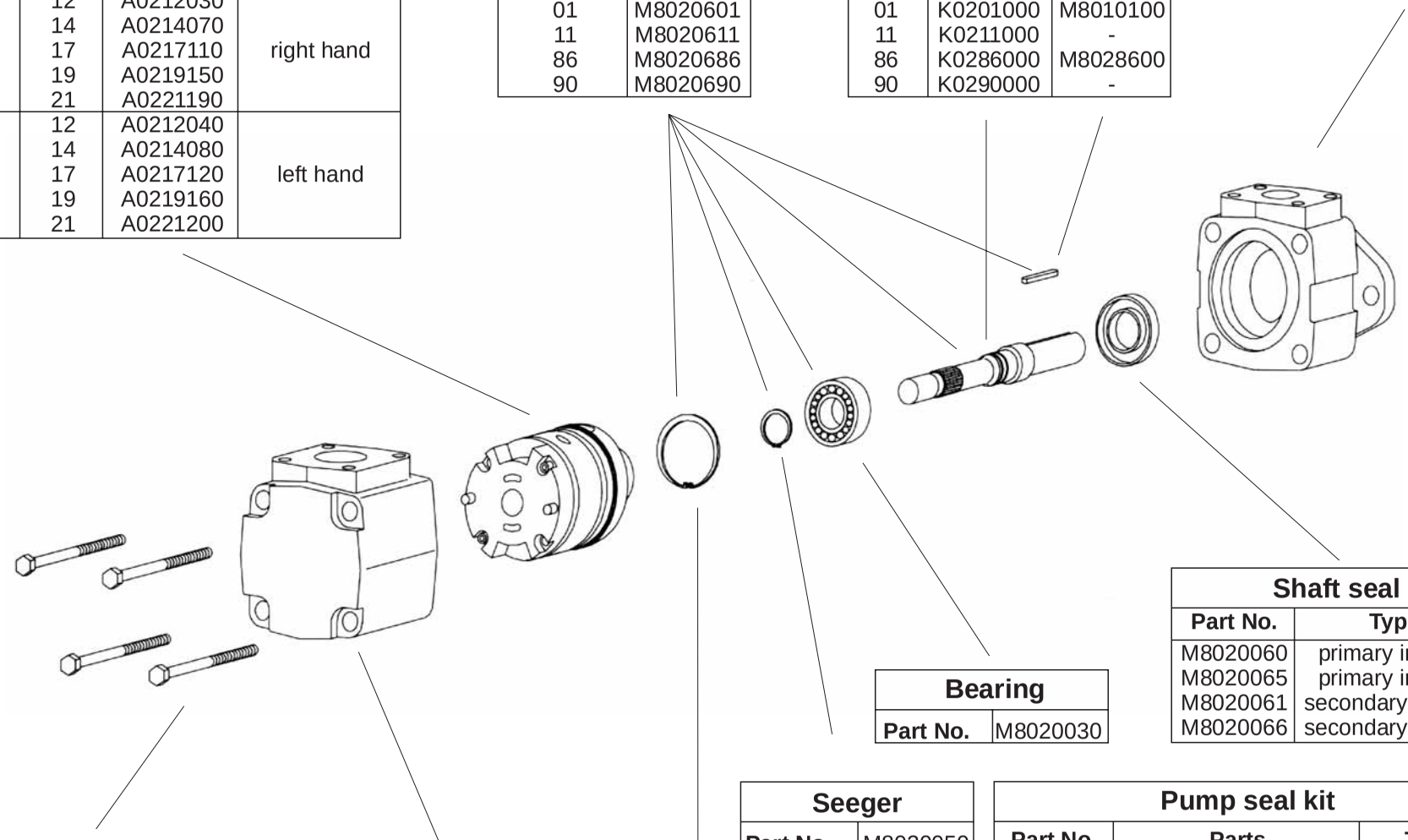
Id. codes of pump components

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.**
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

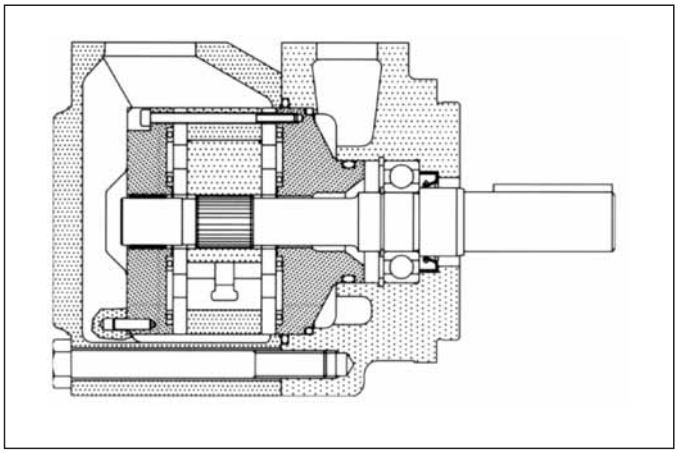
Seeger	
Part No.	M8020050

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®)

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

Cover	
Part No.	M8020020

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 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)*.

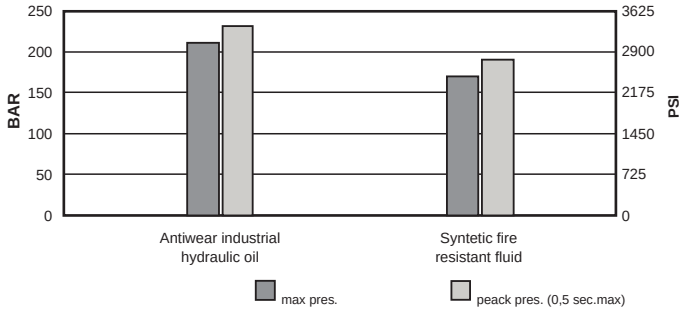
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

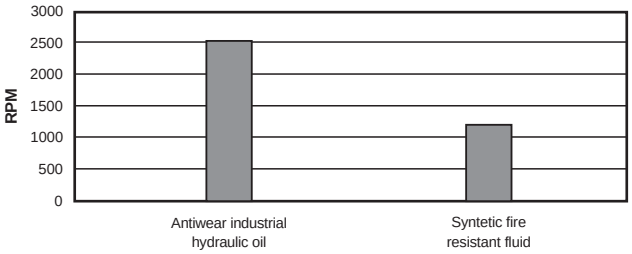
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

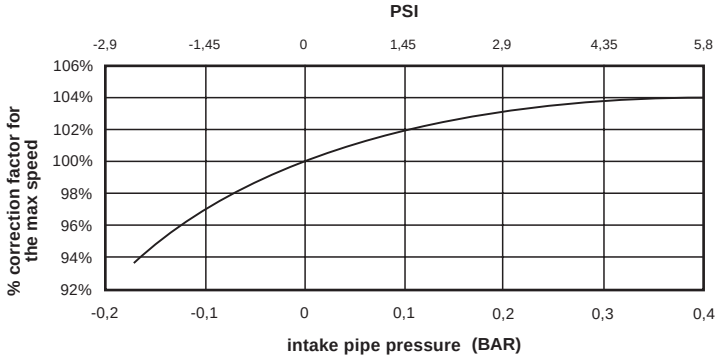


max speed / hydraulic fluid (with 0 bar in the intake pipe)



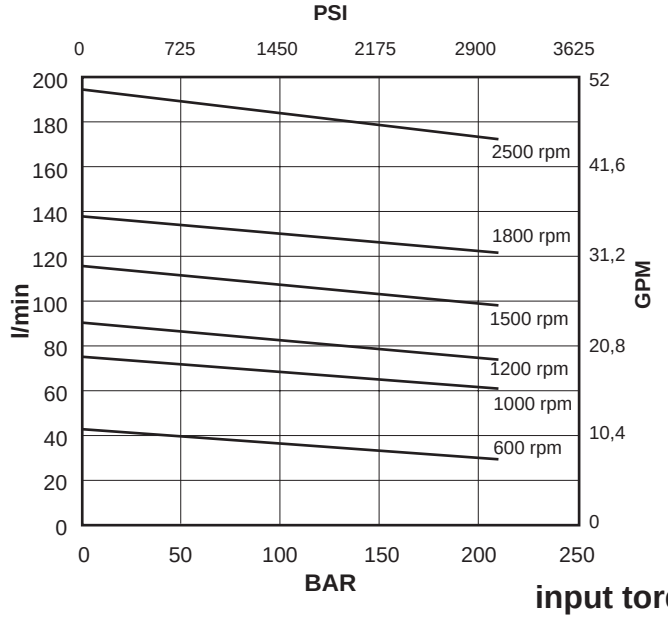
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

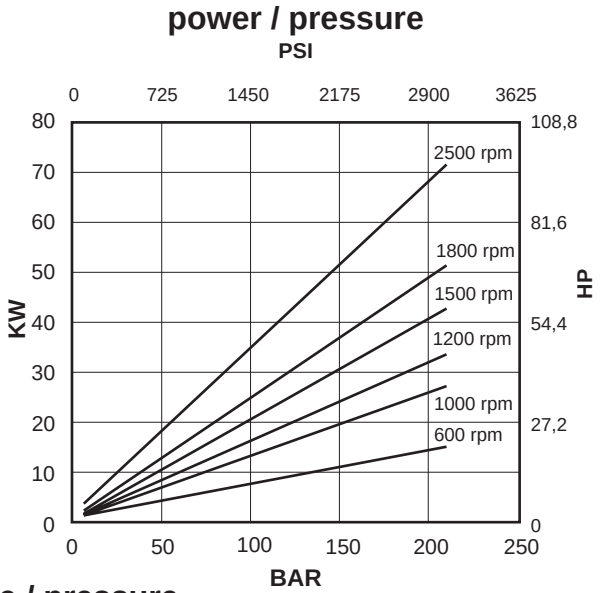


Cartridge A03-24

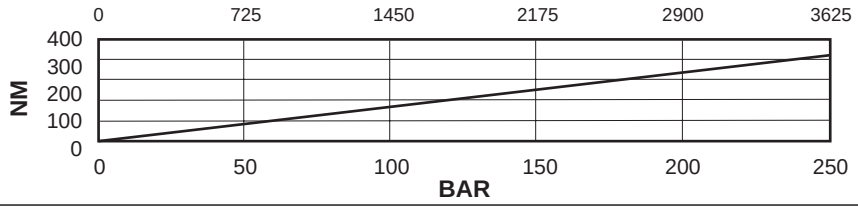
flow / pressure



power / pressure



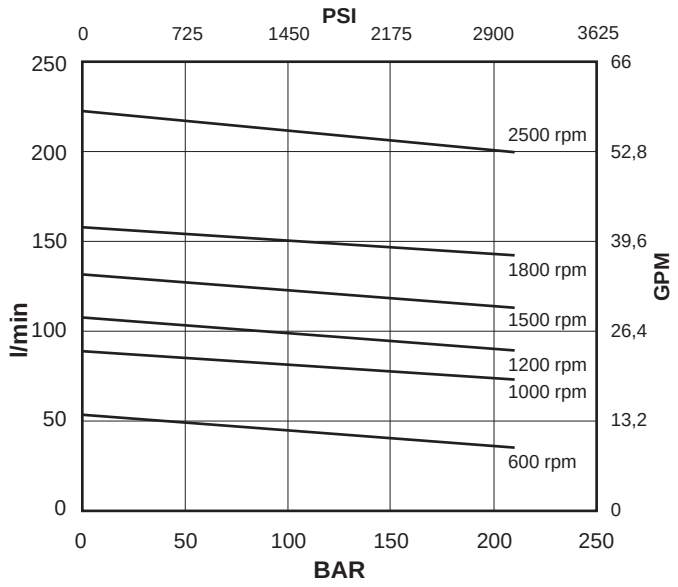
input torque / pressure



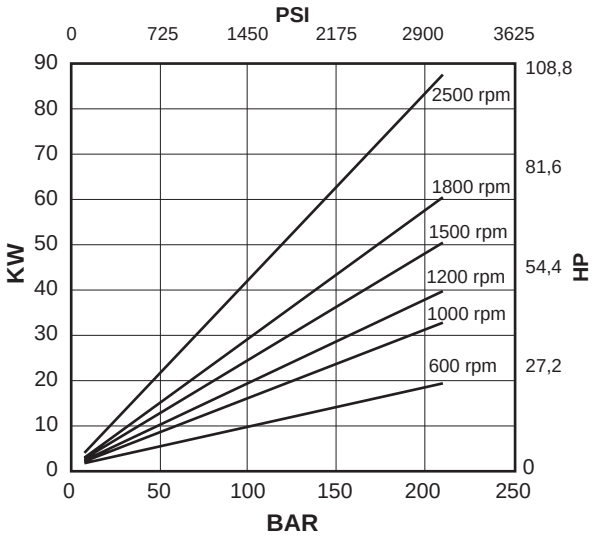
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A03-28

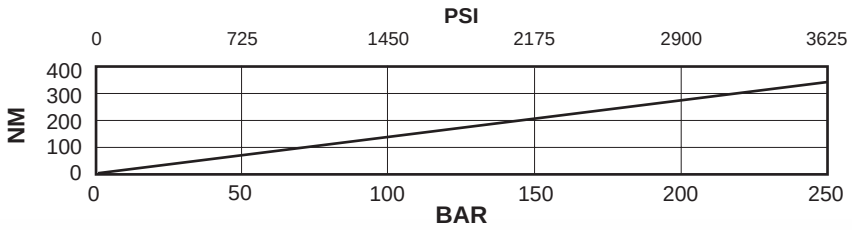
flow / pressure



power / pressure

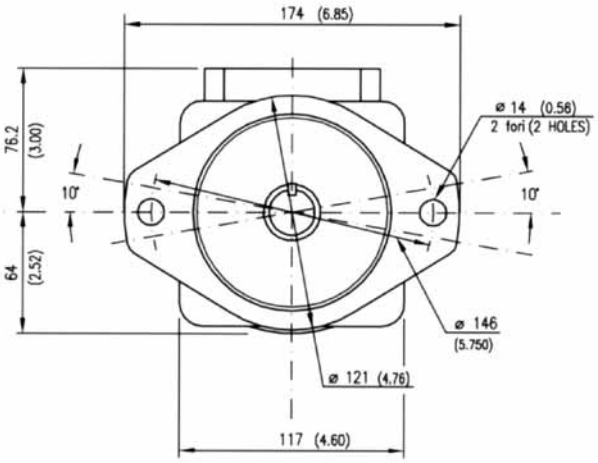


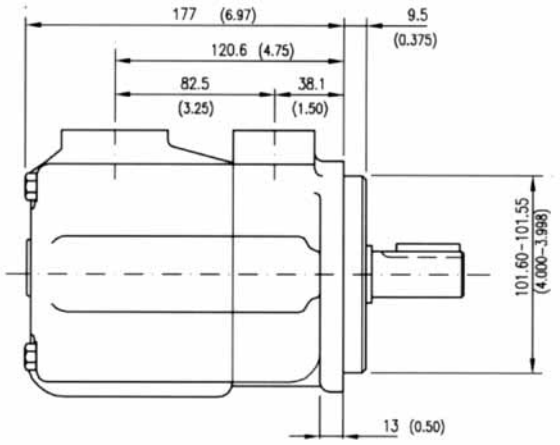
input torque / pressure

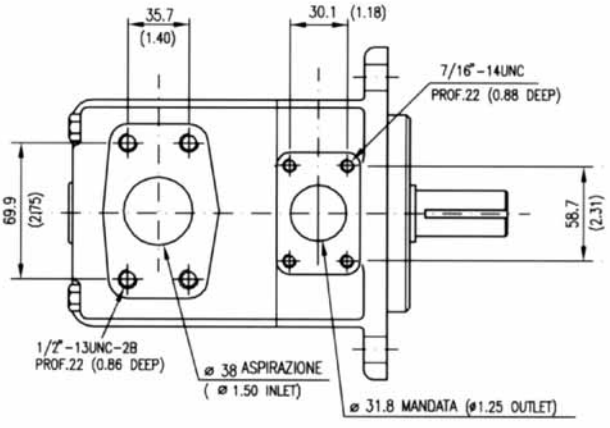


Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Installation dimensions mm (inches)







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

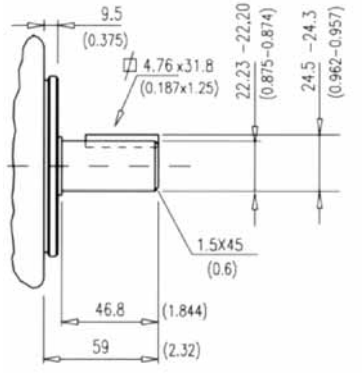
Model code breakdown

BQ 03 G ** * ** * (V) (A)

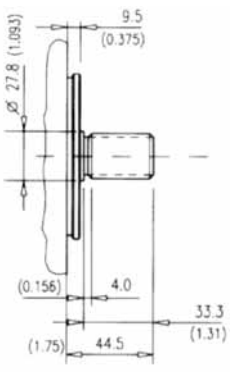
- **BQ** — Pump series
- **03** — Pump type
- **G** — Design
- ****** — Cartridge types
  24 28
- ***** — Outlet port positions
  (outlet viewed from cover end)
  A = Outlet opposite end
  B = Outlet 90° CCW from inlet
  C = Outlet in line with inlet
  D = Outlet 90° CW from inlet
- ****** — Shaft end options
  01 = Straight with key (standard), **11** = Splined
  86 = Heavy duty straight keyed, **90** = Splined SAE B
- ***** — Rotation
  (viewed from shaft end)
  L = left hand rotation CCW (omit if CW)
- **(V)** — 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®)
- **(A)** — Mounting
  (omit if not required)

Shaft options mm (inches)

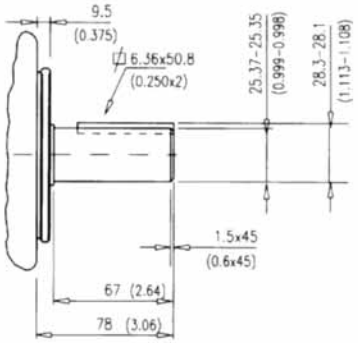
Shaft 01



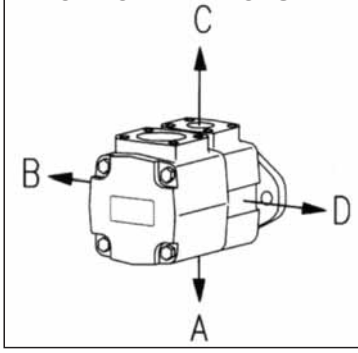
Shaft 11



Shaft 86



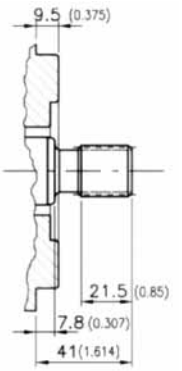
PORT ORIENTATIONS



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



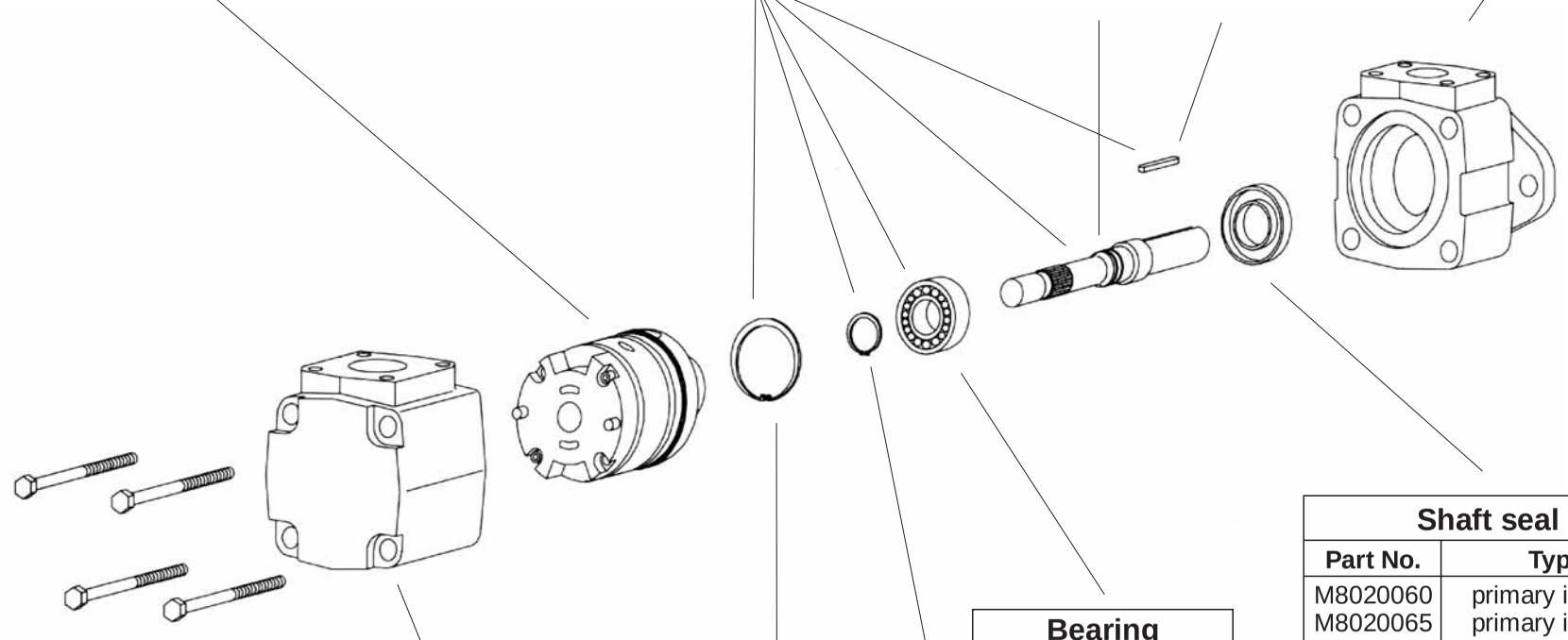
Id. codes of pump components

Cartridge			
Series	**Model**	**Part No.**	**Pump rotat.**
A03	24 28	A0324030 A0328070	right hand
A03	24 28	A0324040 A0328080	left hand

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

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

Body	
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.	M8020030

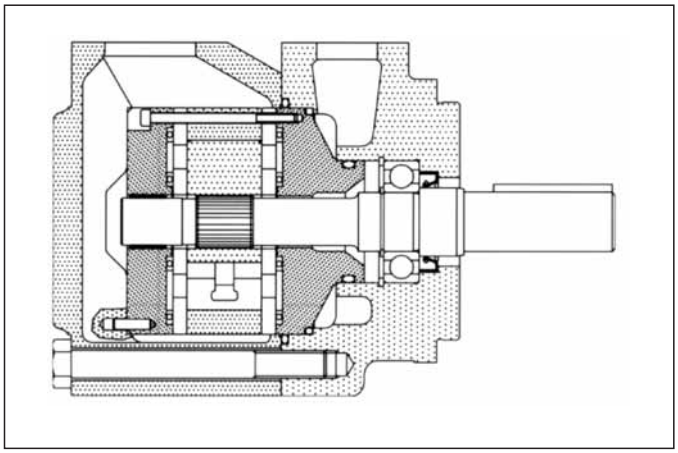
Seeger	
Part No.	M8020050

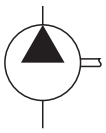
Pump seal kit		
Part No.	**Parts**	**Type**
M8020131	seals + 1 shaft seal	NBR
M8020132	seals + 2 shaft seals	NBR
M8020133	seals + 1 shaft seal	FPM (Viton®)
M8020134	seals + 2 shaft seals	FPM (Viton®)

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

Cover	
Part No.	M8030020

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 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)*.

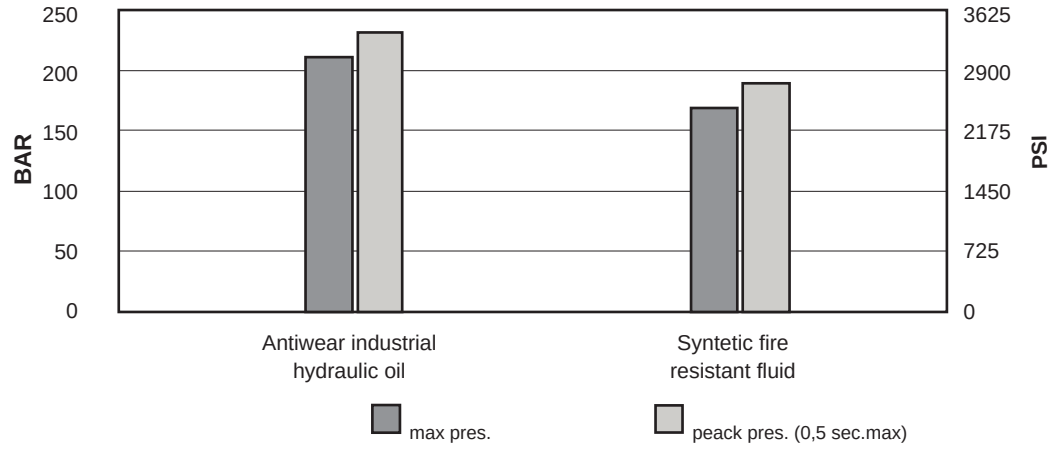
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

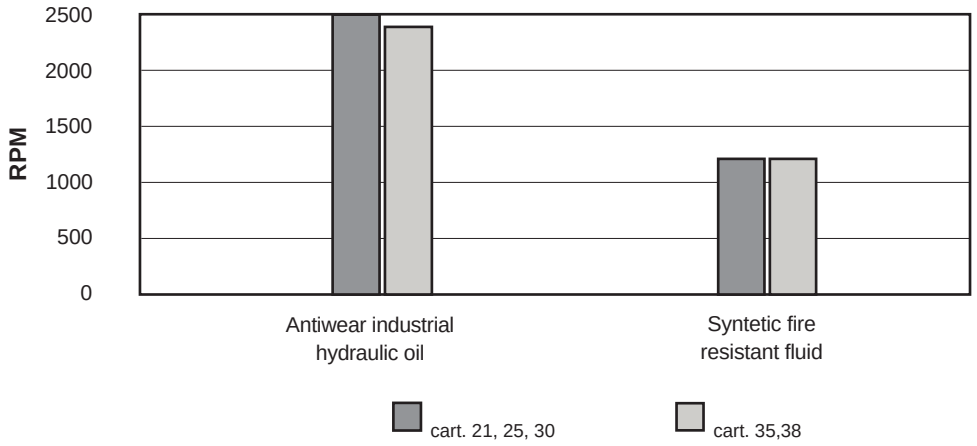
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

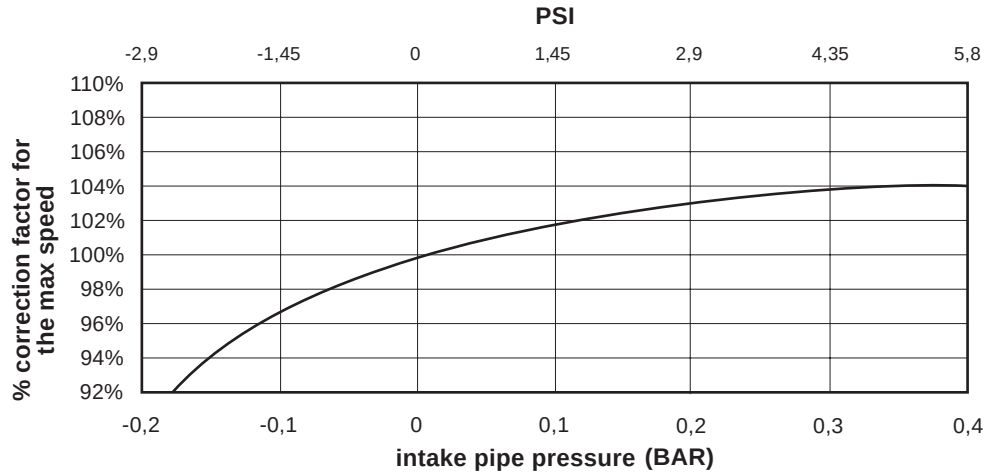


max speed / hydraulic fluid (with 0 bar in the intake pipe)



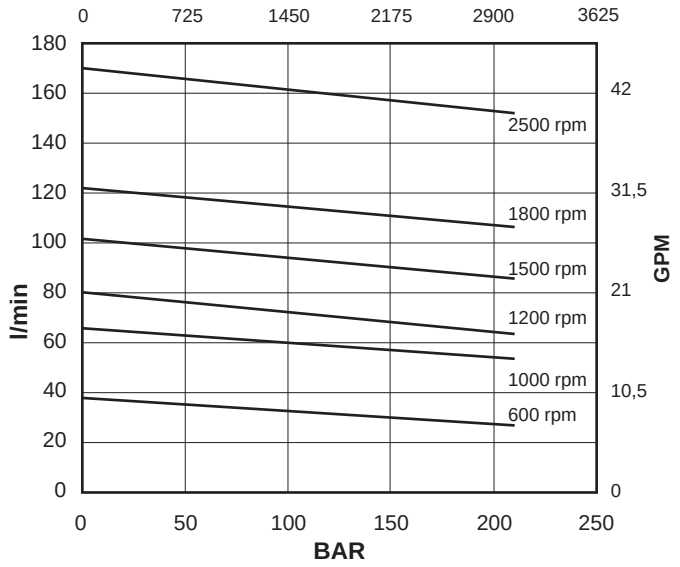
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

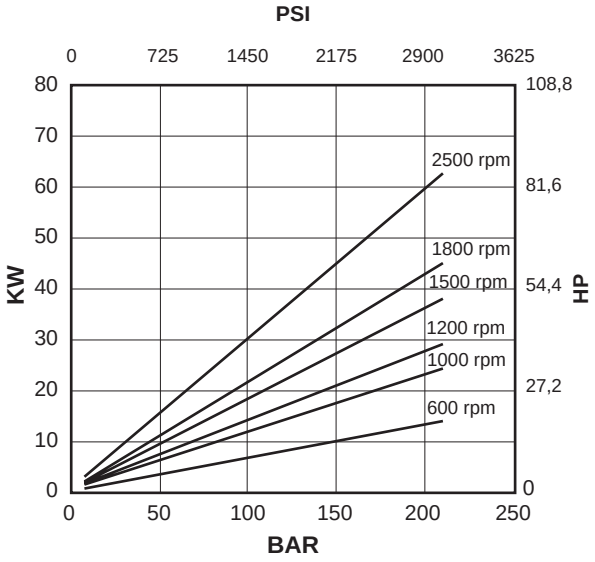


Cartridge A04-21

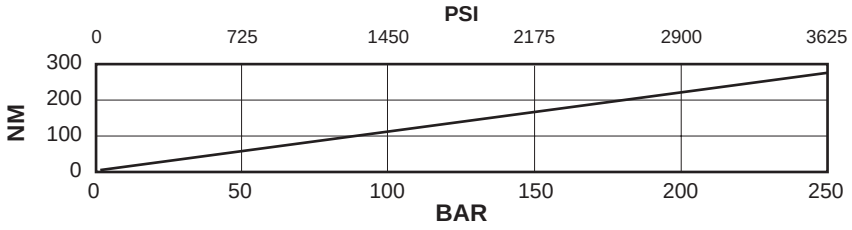
flow / pressure



power / pressure



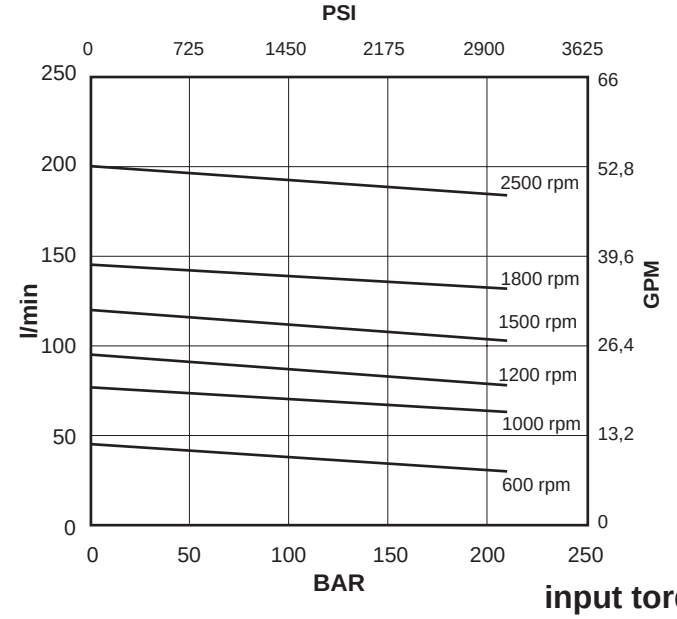
input torque / pressure



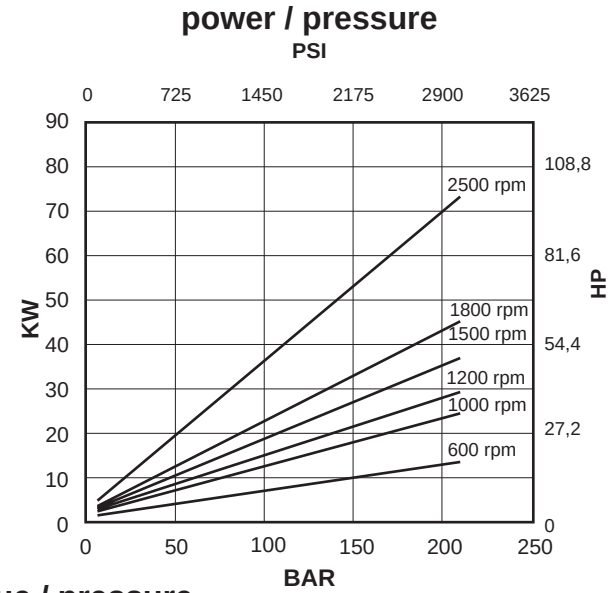
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A04-25

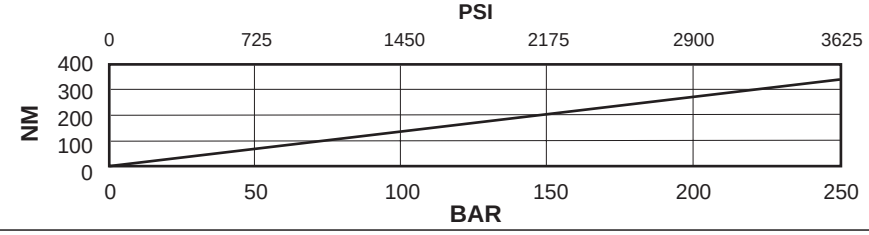
flow / pressure



power / pressure



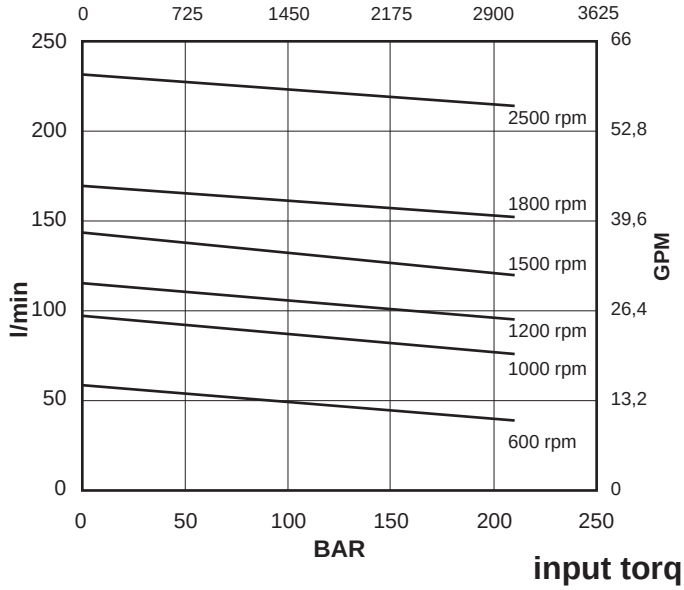
input torque / pressure



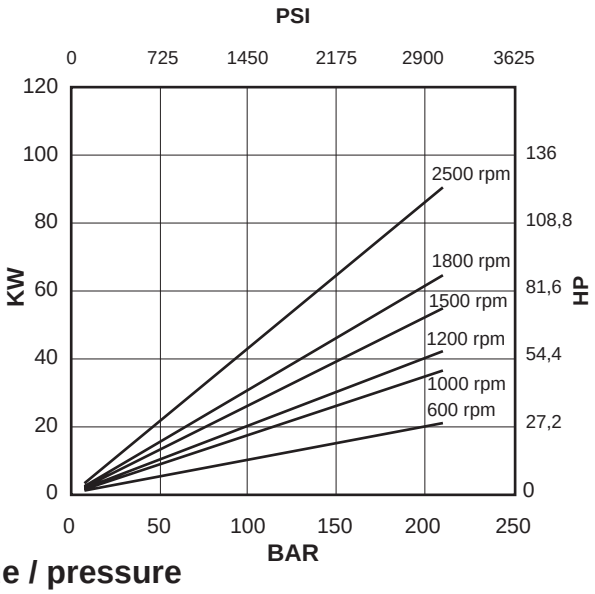
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A04-30

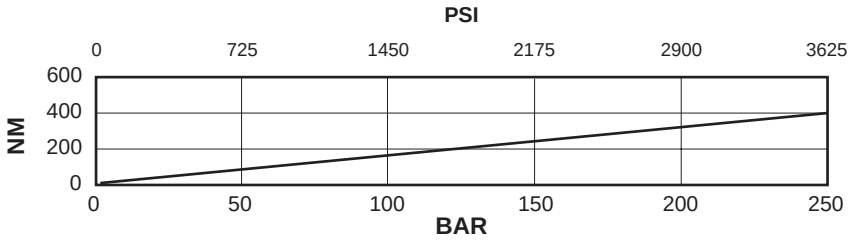
flow / pressure



power / pressure



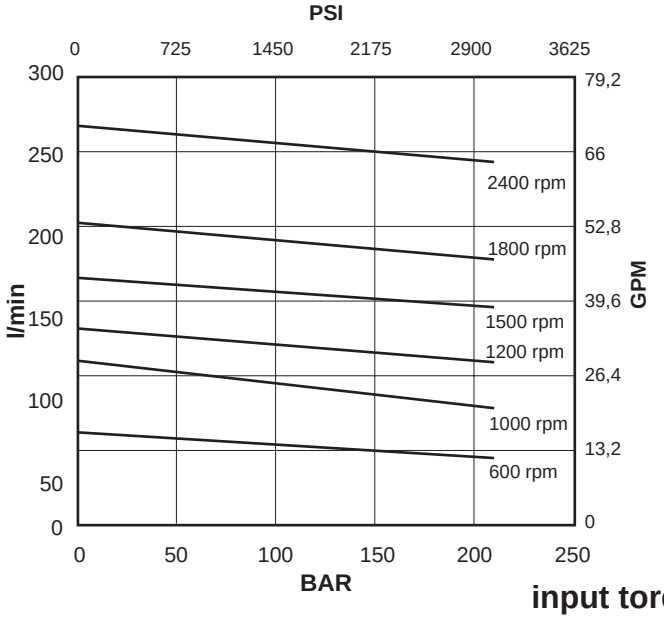
input torque / pressure



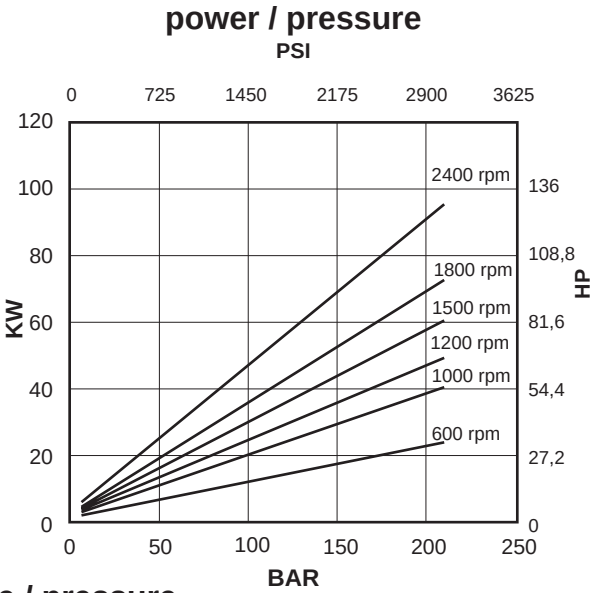
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A04-35

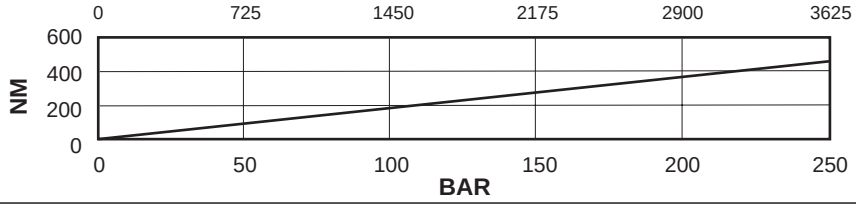
flow / pressure



power / pressure



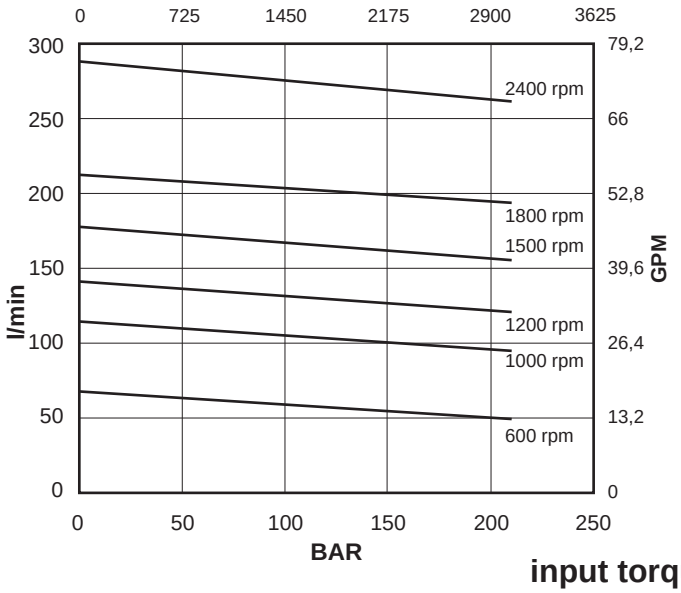
input torque / pressure



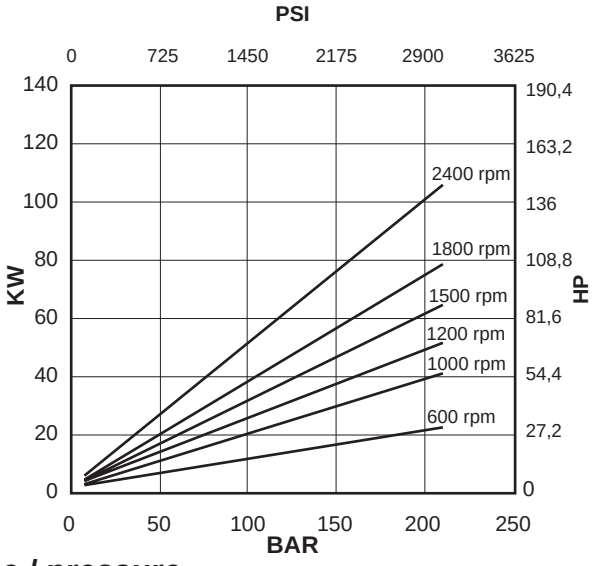
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A04-38

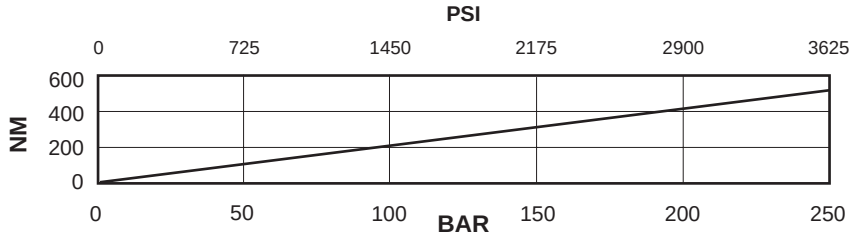
flow / pressure



power / pressure

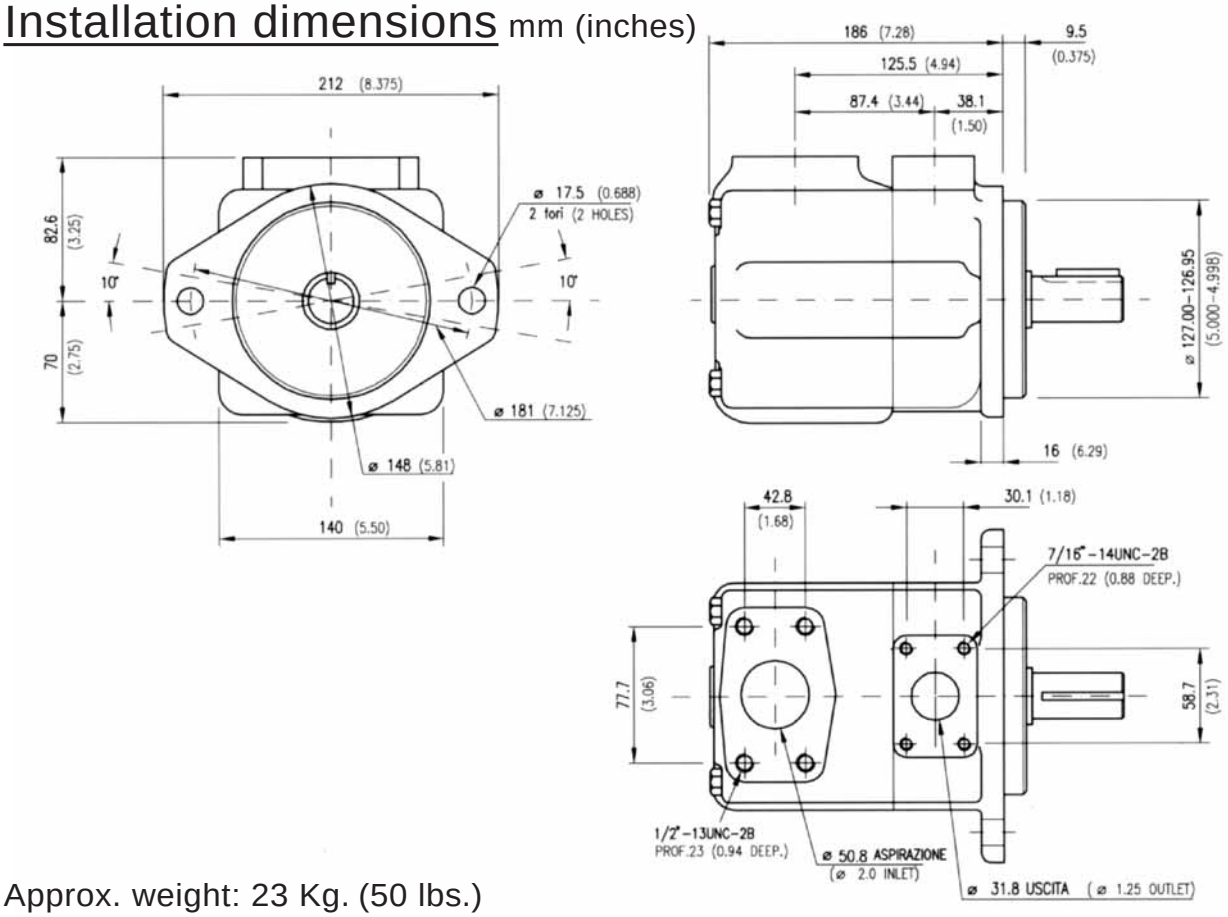


input torque / pressure



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

Installation dimensions mm (inches)



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

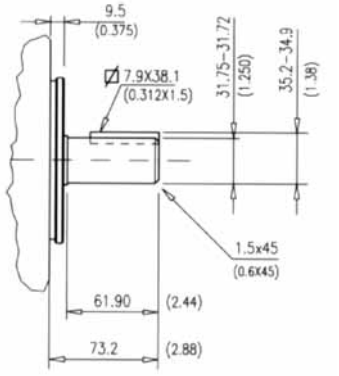
Model code breakdown

BQ 04 G ** * ** (L) * (A)

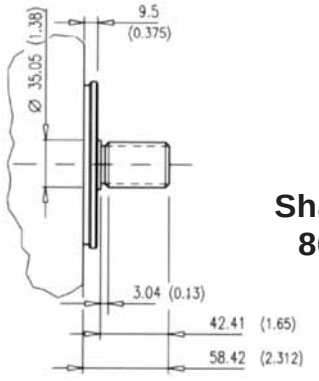
- **BQ** — Pump series
- **04** — Pump type
- **G** — Design
- ****** — Cartridge type: **21 25 30 35 38**
- ***** — Outlet port positions (outlet viewed from cover end)
  - **A** = Outlet opposite end
  - **B** = Outlet 90° CCW from inlet
  - **C** = Outlet in line with inlet
  - **D** = Outlet 90° CW from inlet
- ****** — Shaft end options
  - **01** = Straight with key (standard), **11** = Splined
  - **86** = Heavy duty straight keyed, **90** = Splined SAE C
- **(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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

Shaft options mm (inches)

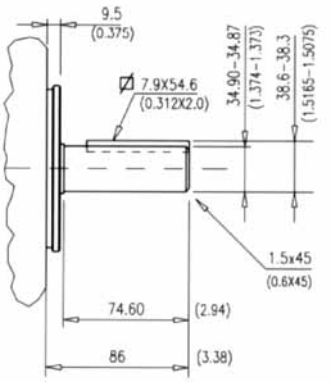
Shaft 01



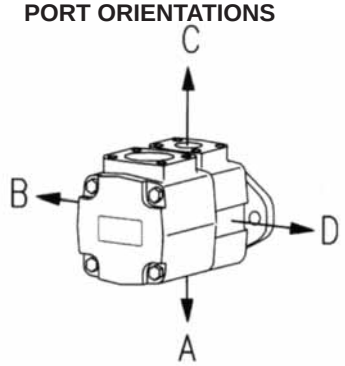
Shaft 11



Shaft 86



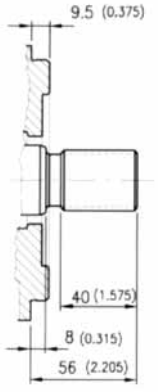
PORT ORIENTATIONS



Spline data
(Shaft 11 and shaft 90)

Spline	Involute side fit (ASA B5.15)	
Pressure angle	30°	
No. of teeth	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



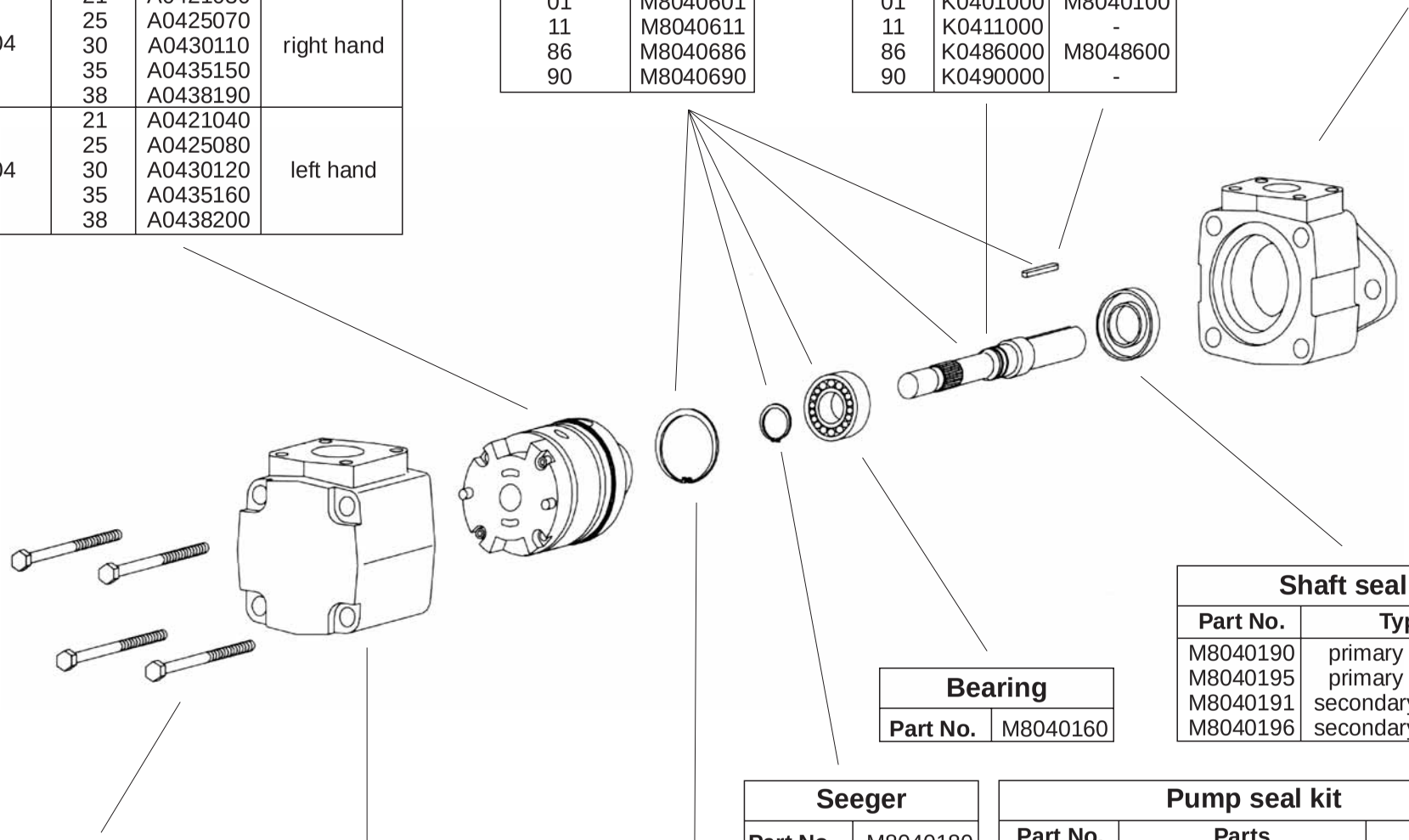
Id. codes of pump components

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.**
01	K0401000	M8040100
11	K0411000	-
86	K0486000	M8048600
90	K0490000	-

Body	
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.	M8040160

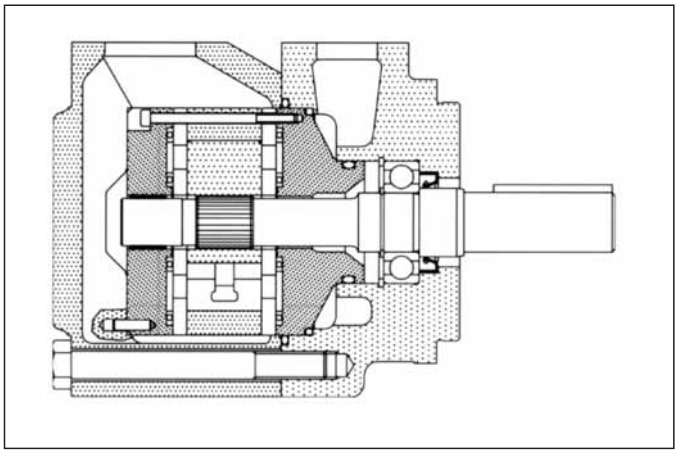
Seeger	
Part No.	M8040180

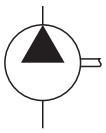
Pump seal kit		
Part No.	**Parts**	**Type**
M8040241	seals + 1 shaft seal	NBR
M8040242	seals + 2 shaft seals	NBR
M8040243	seals + 1 shaft seal	FPM (Viton®)
M8040244	seals + 2 shaft seals	FPM (Viton®)

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

Cover	
Part No.	M8040150

Seeger	
Part No.	M8040170





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)*.

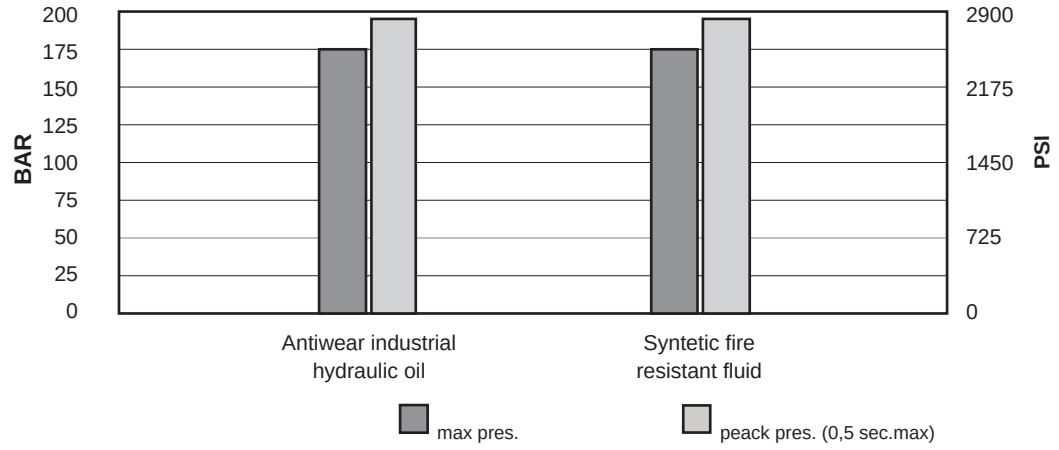
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

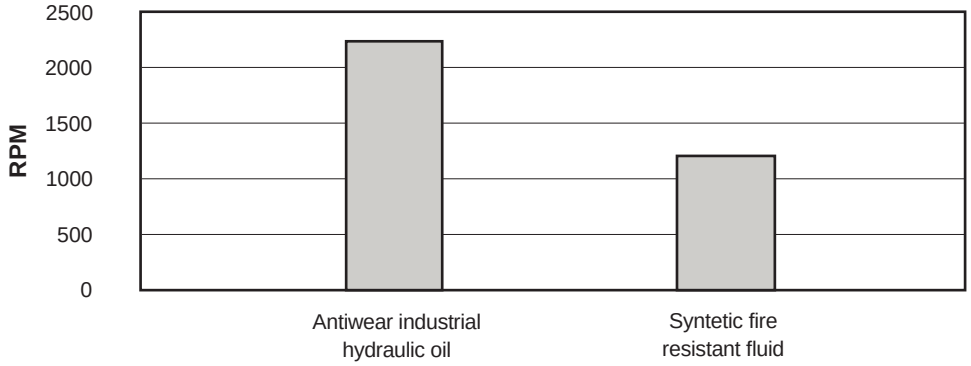
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

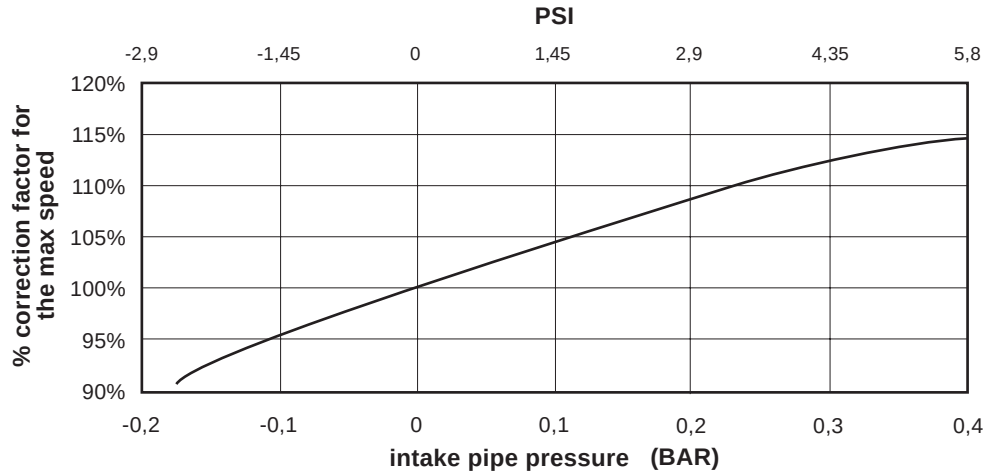


max speed / hydraulic fluid (with 0 bar in the intake pipe)



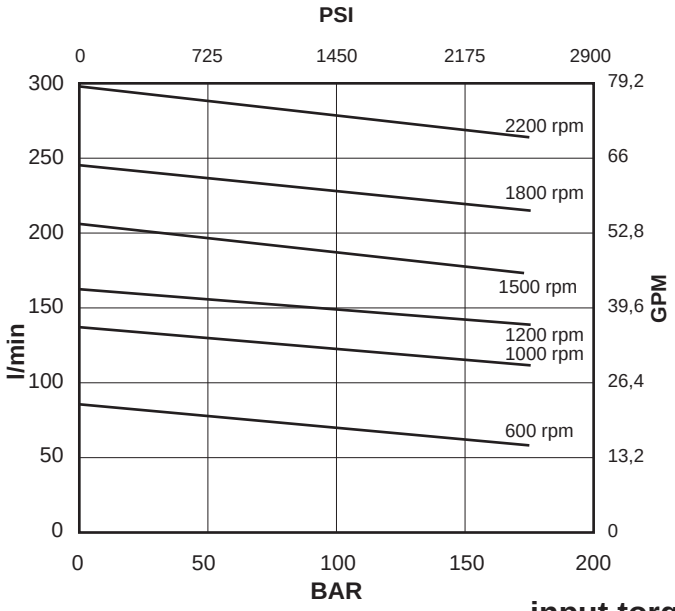
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

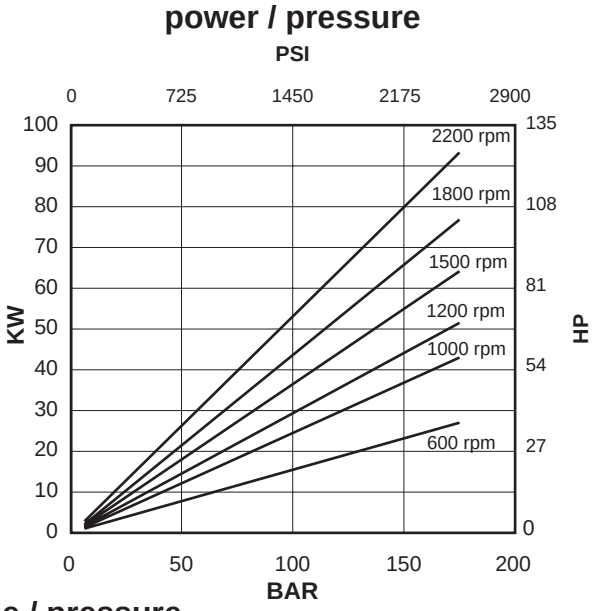


Cartridge A05-42

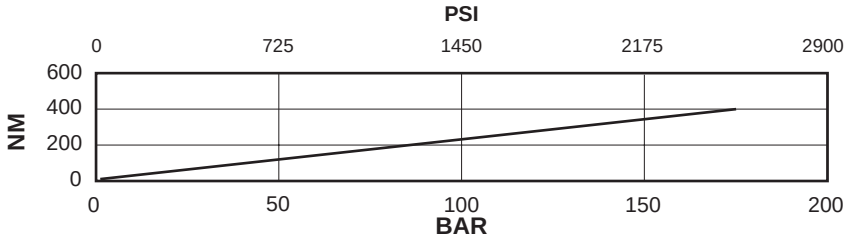
flow / pressure



power / pressure



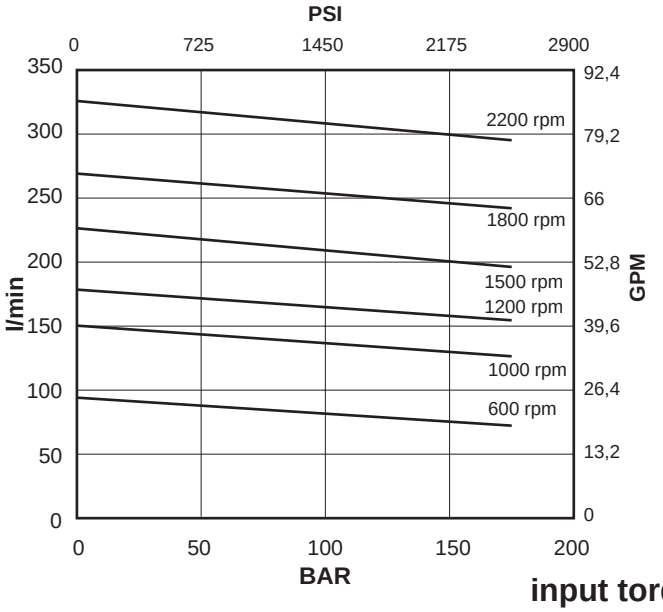
input torque / pressure



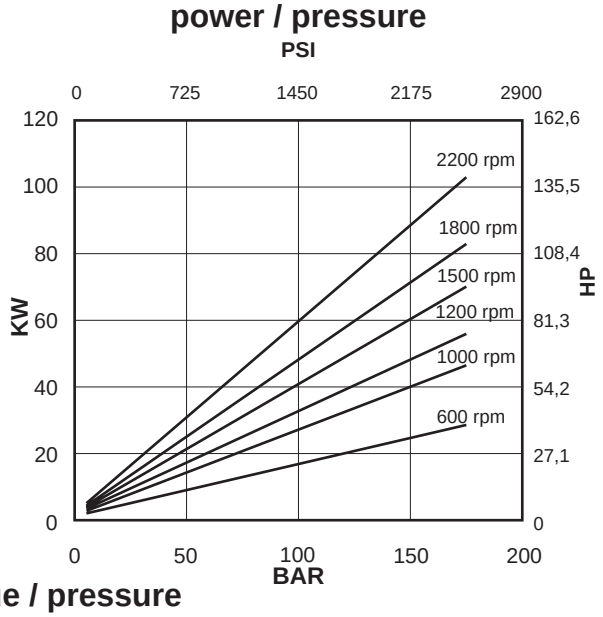
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A05-47

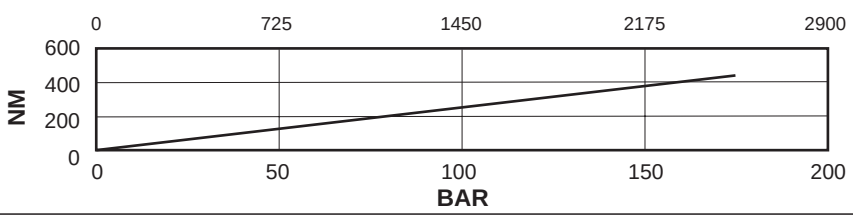
flow / pressure



power / pressure



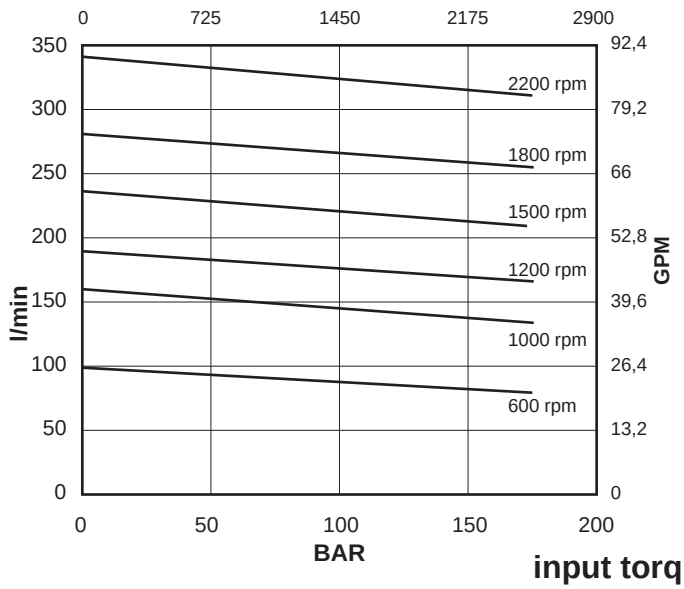
input torque / pressure



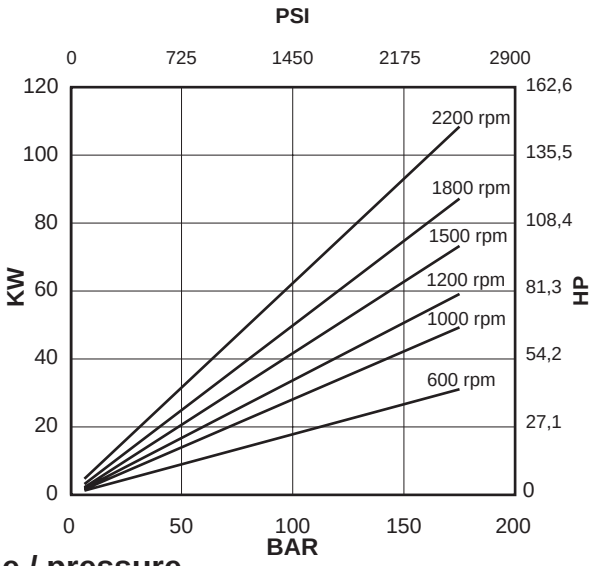
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A05-50

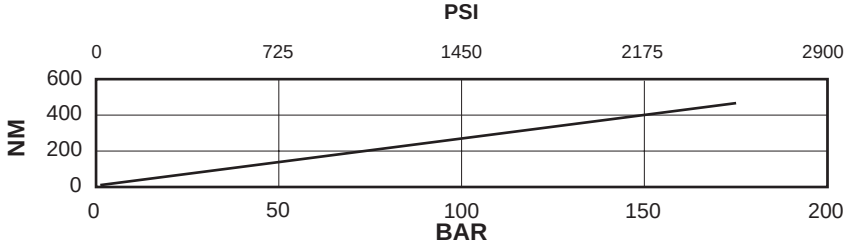
flow / pressure



power / pressure



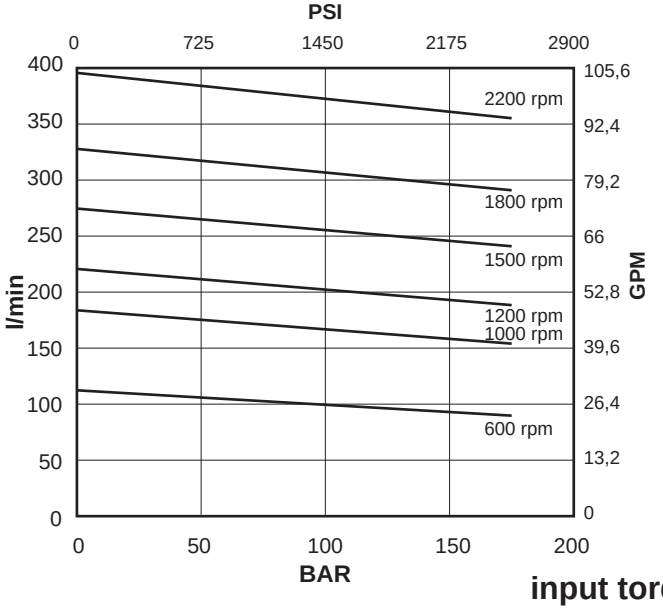
input torque / pressure



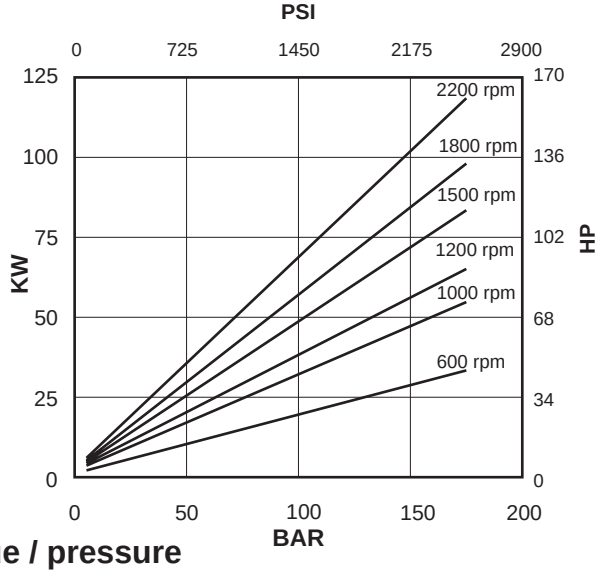
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A05-57

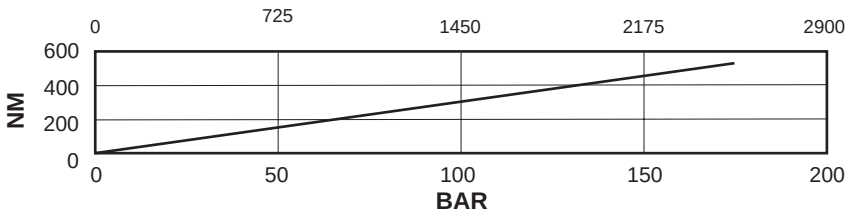
flow / pressure



power / pressure



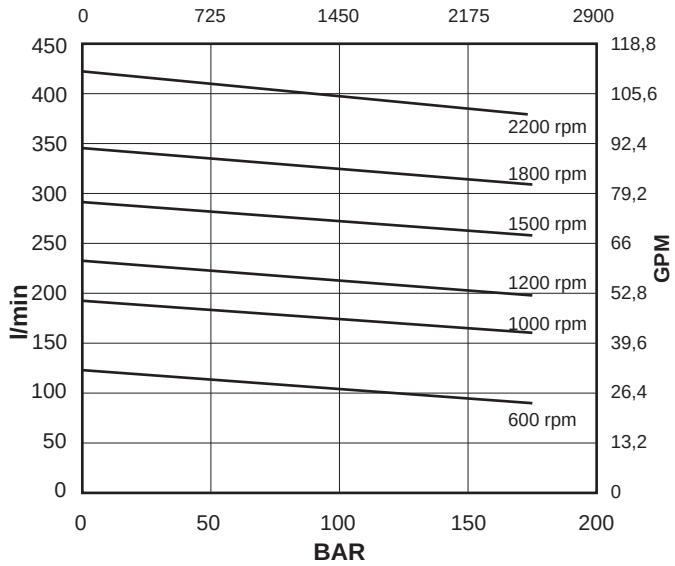
input torque / pressure



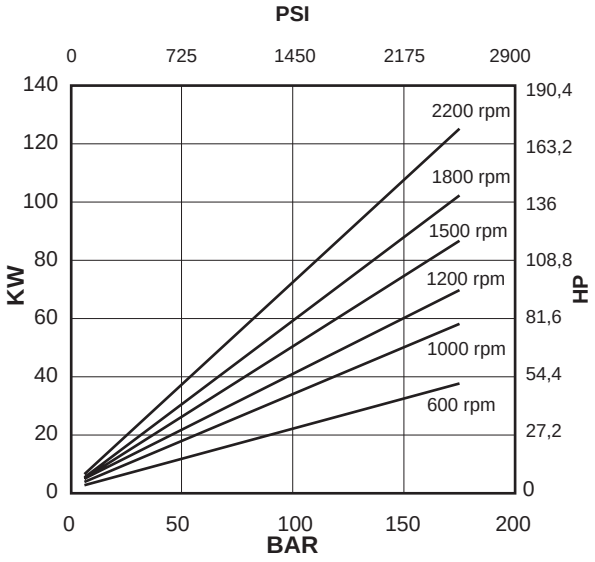
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cartridge A05-60

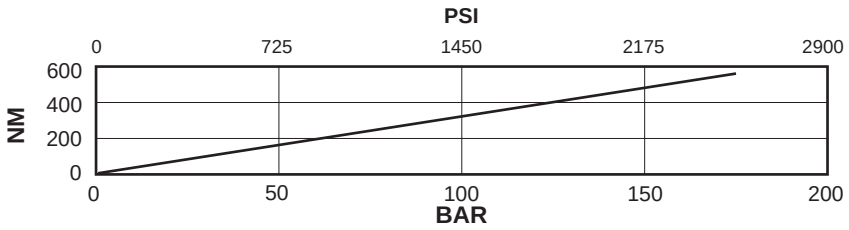
flow / pressure



power / pressure

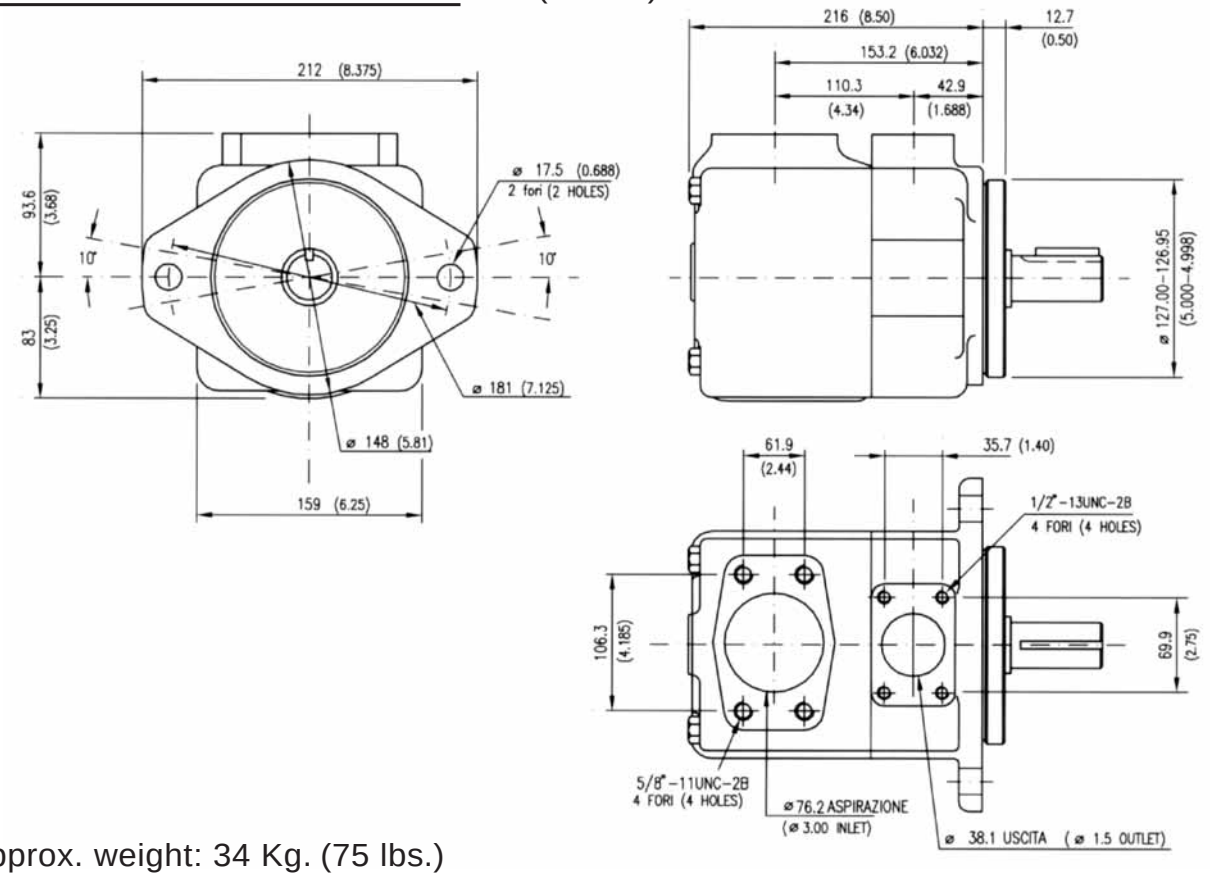


input torque / pressure



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

Installation dimensions mm (inches)



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

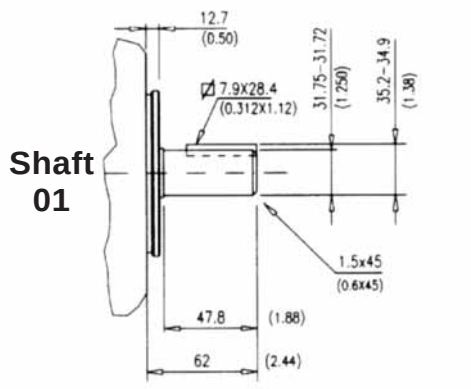
Model code breakdown

BQ 05 G ** * ** (L) * (A)

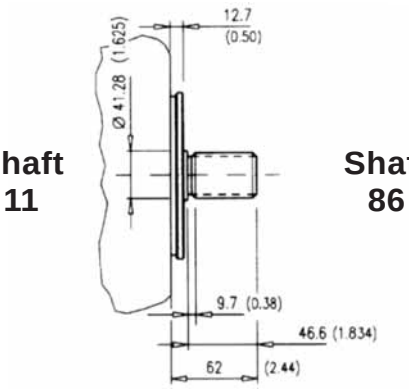
- **BQ** — Pump series
- **05** — Pump type
- **G** — Design
- ****** — Cartridge type: **42 47 50 57 60**
- ***** — Outlet port positions (outlet viewed from cover end)
  - **A** = Outlet opposite end
  - **B** = Outlet 90° CCW from inlet
  - **C** = Outlet in line with inlet
  - **D** = Outlet 90° CW from inlet
- ****** — Shaft end options
  - **01** = Straight with key (standard), **11** = Splined
  - **86** = Heavy duty straight keyed, **90** = Splined SAE C
- **(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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

Shaft options mm (inches)

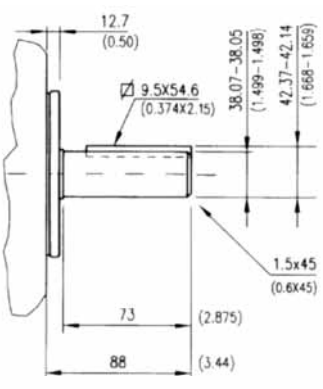
Shaft 01



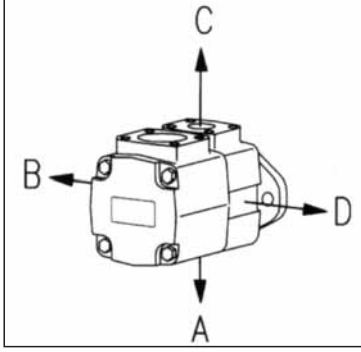
Shaft 11



Shaft 86



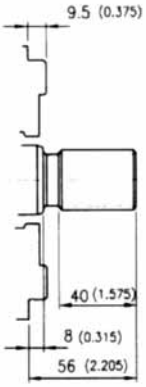
PORT ORIENTATIONS



Spline data
(Shaft 11 and shaft 90)

Spline	Involute side fit (ASA B5.15)	
Pressure angle	30°	
No. of teeth	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



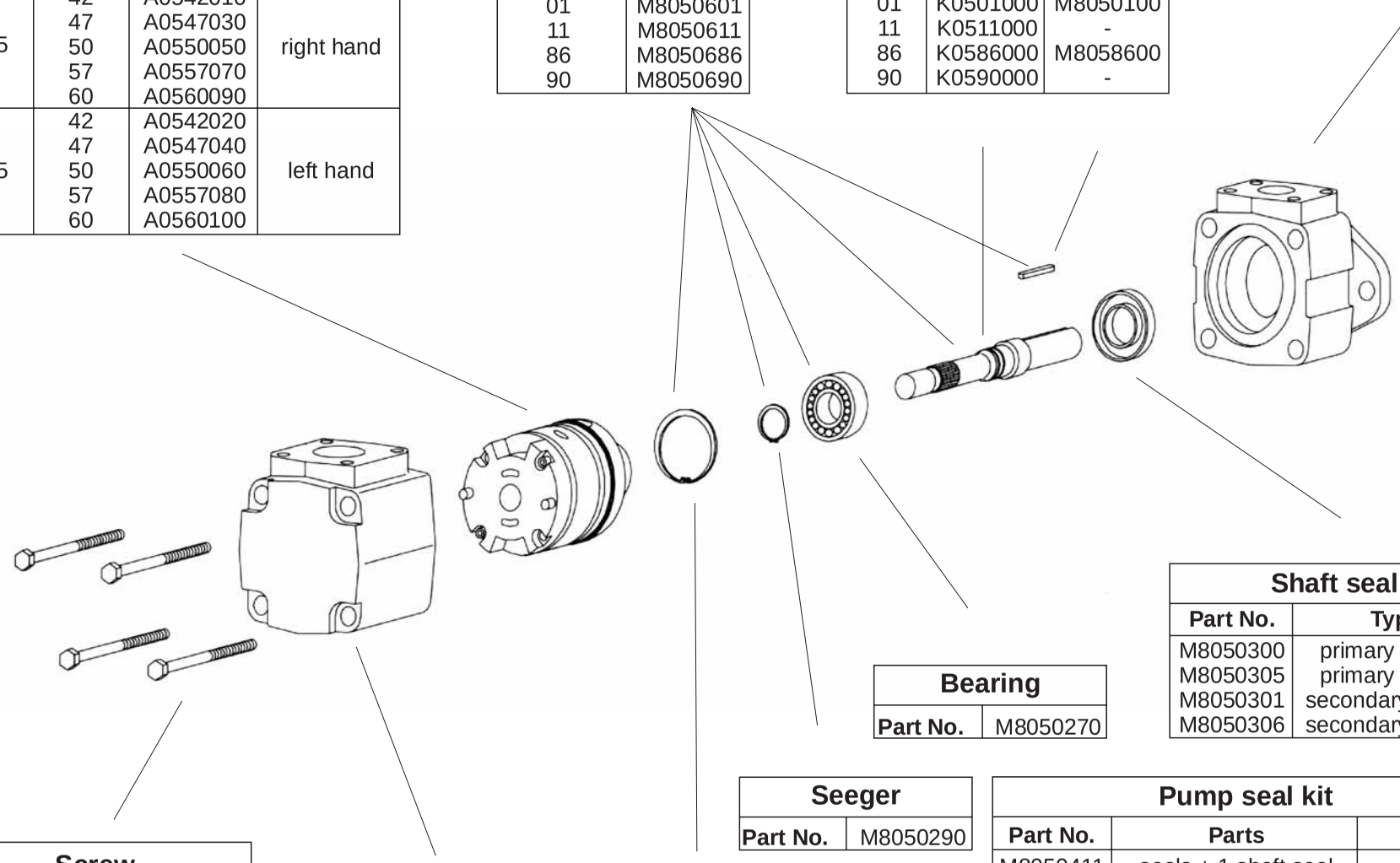
Id. codes of pump components

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.**
01	K0501000	M8050100
11	K0511000	-
86	K0586000	M8058600
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

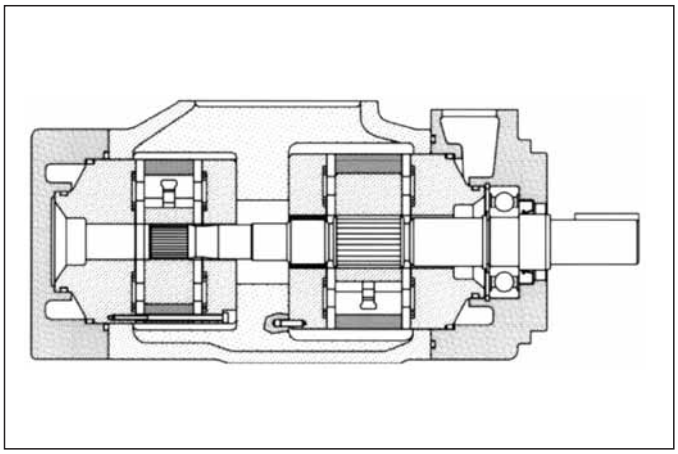
Seeger	
Part No.	M8050290

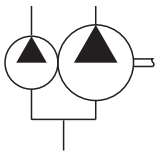
Pump seal kit		
Part No.	**Parts**	**Type**
M8050411	seals + 1 shaft seal	NBR
M8050412	seals + 2 shaft seals	NBR
M8050413	seals + 1 shaft seal	FPM (Viton®)
M8050414	seals + 2 shaft seals	FPM (Viton®)

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

Cover	
Part No.	M8050260

Seeger	
Part No.	M8050280





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	
shaft end	**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**
cover end	**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)*.

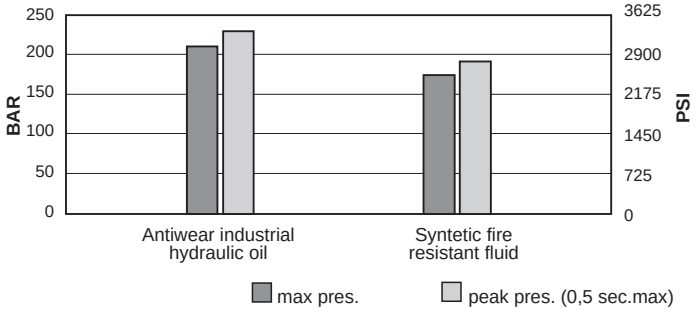
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

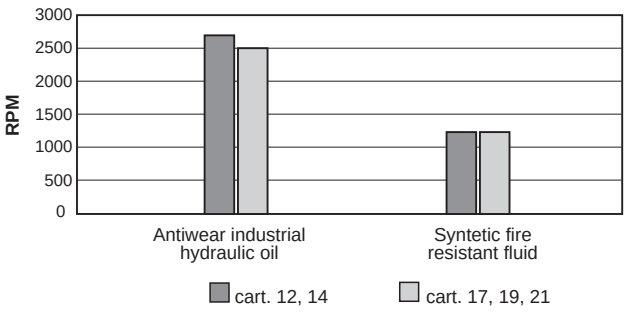
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

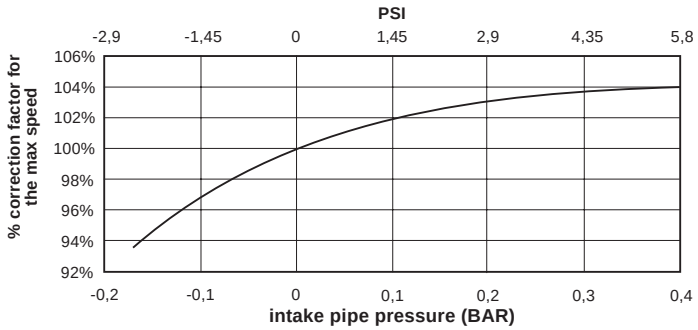


max speed / hydraulic fluid (with 0 bar in the intake pipe)



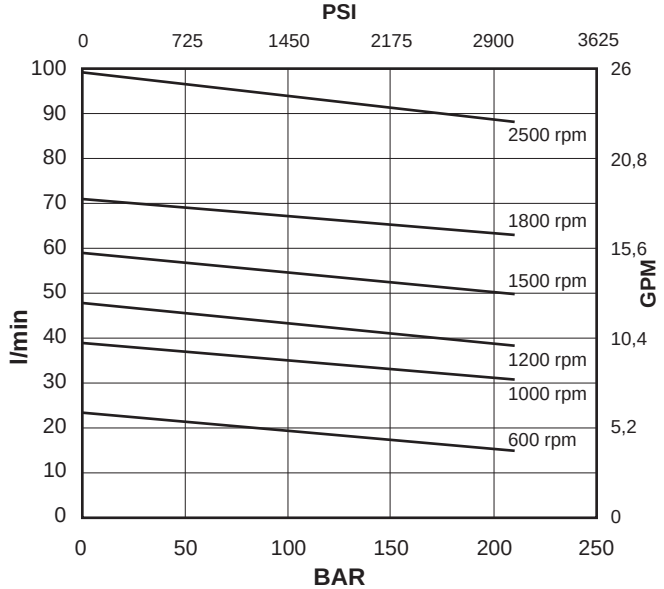
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

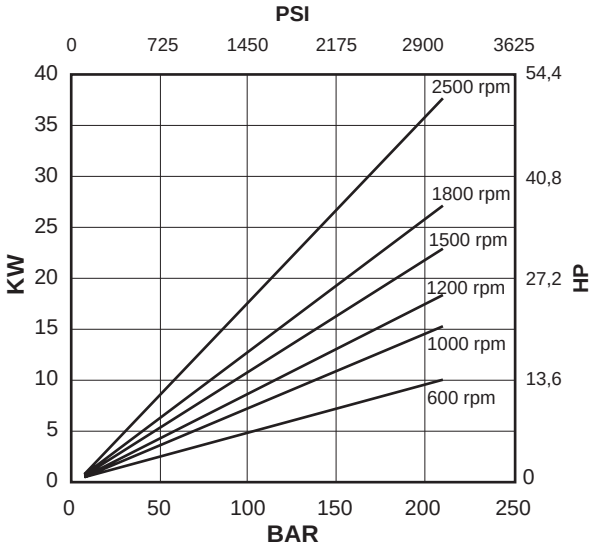


Shaft end cartridge A02-12

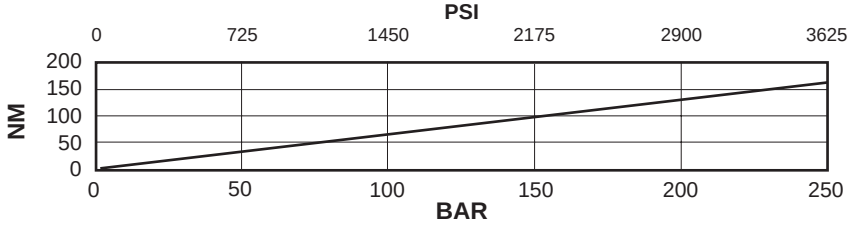
flow / pressure



power / pressure



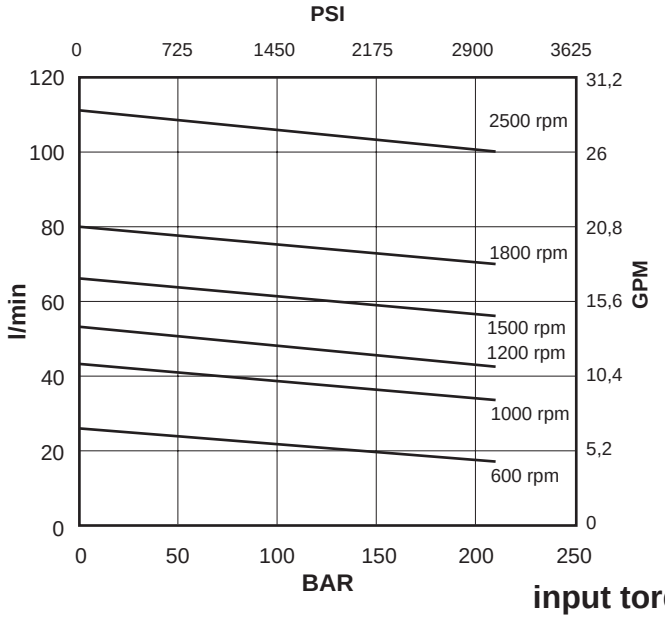
input torque / pressure



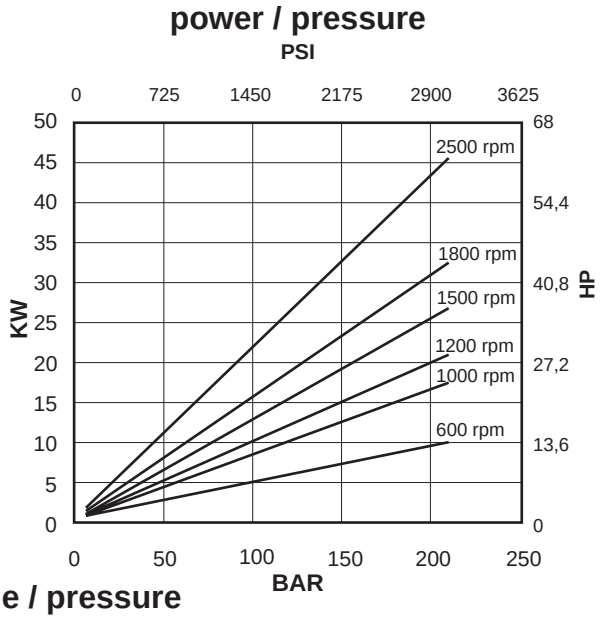
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridgeA02-14

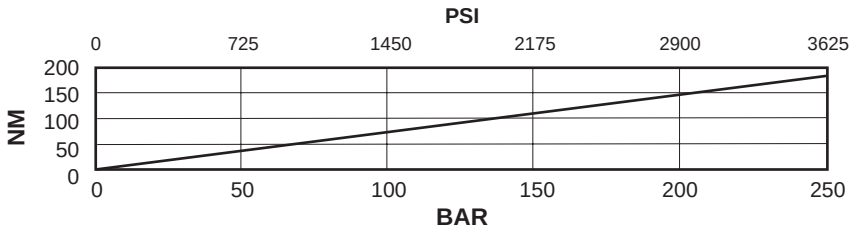
flow / pressure



power / pressure



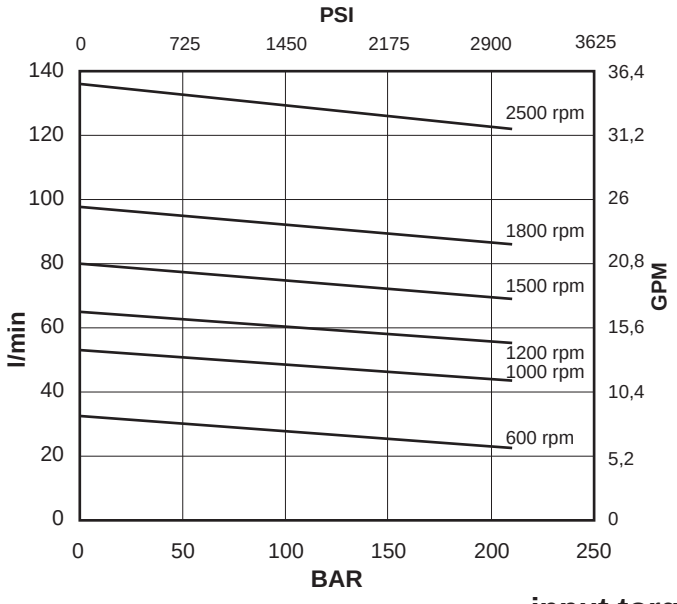
input torque / pressure



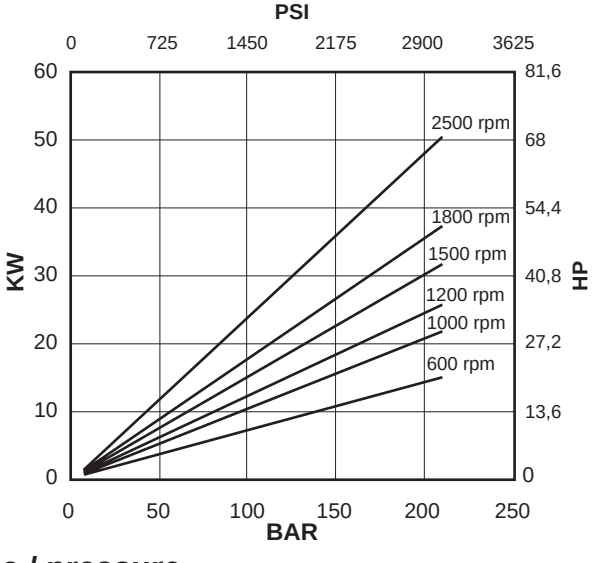
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A02-17

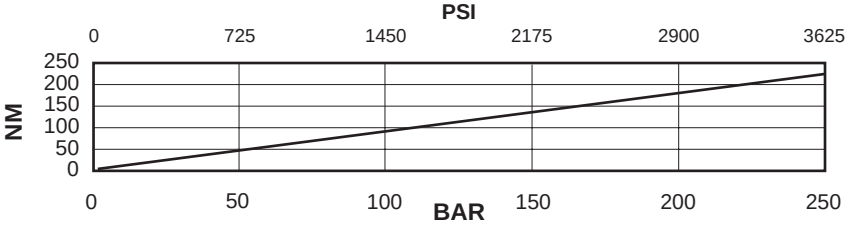
flow / pressure



power / pressure



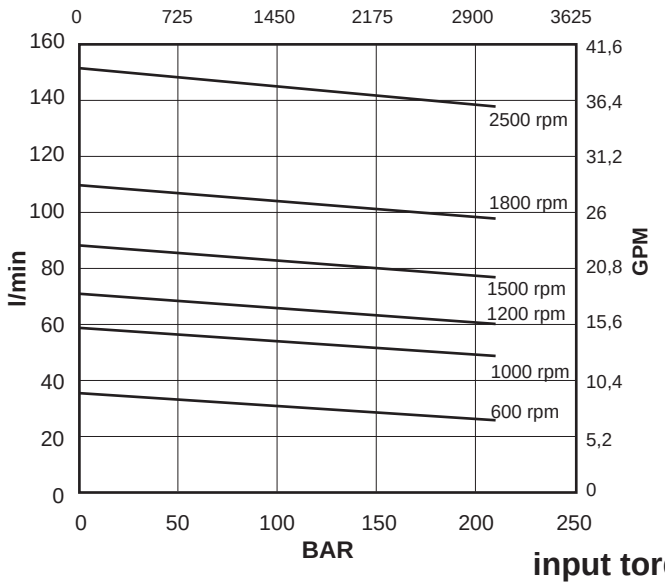
input torque / pressure



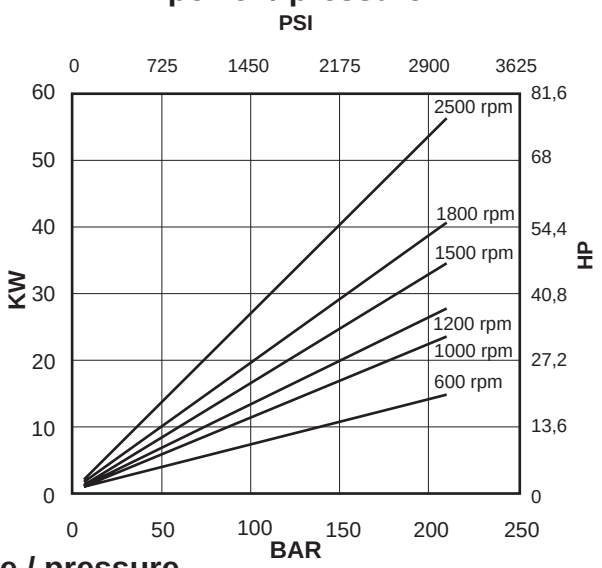
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A02-19

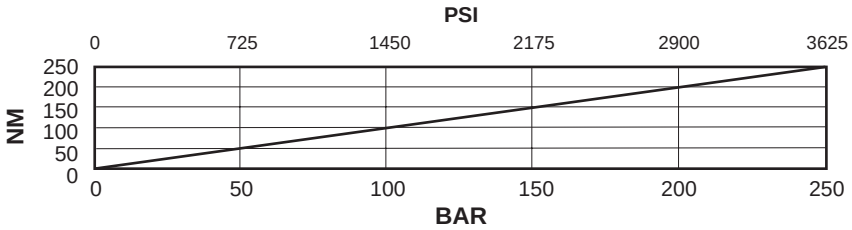
flow / pressure



power / pressure



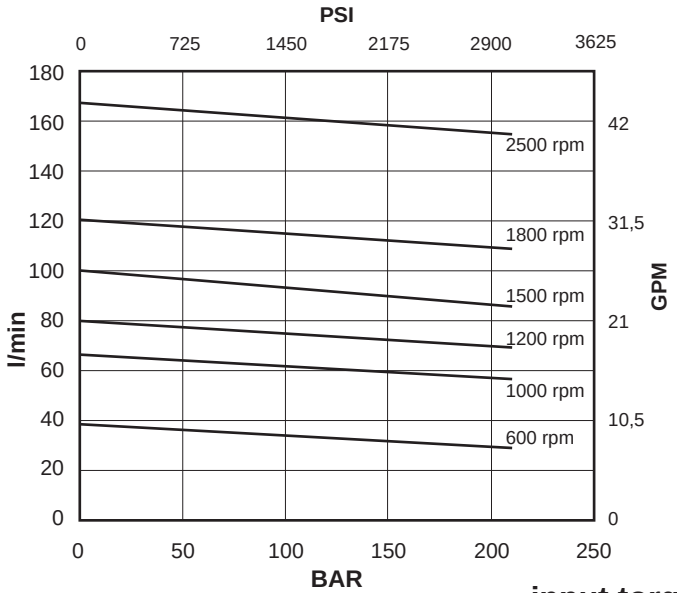
input torque / pressure



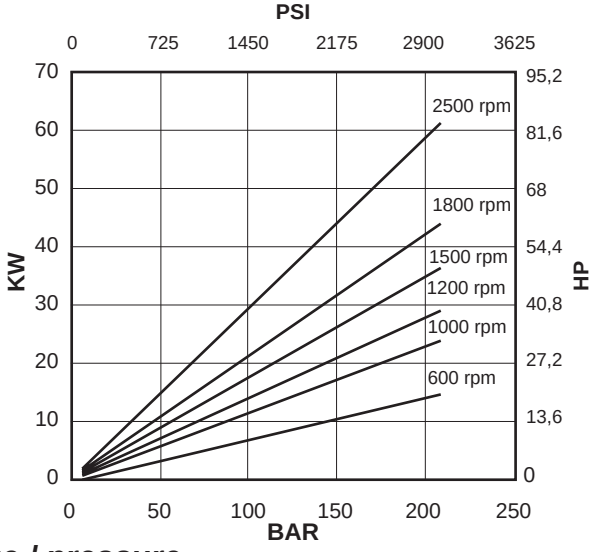
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A02-21

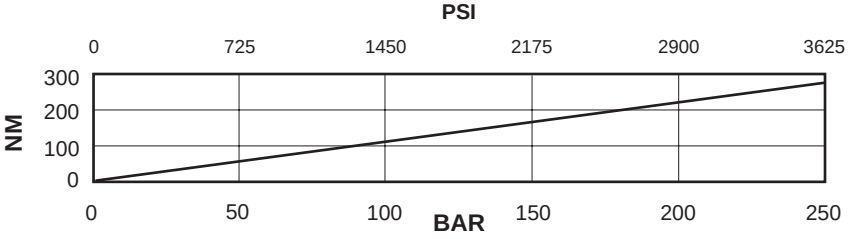
flow / pressure



power / pressure



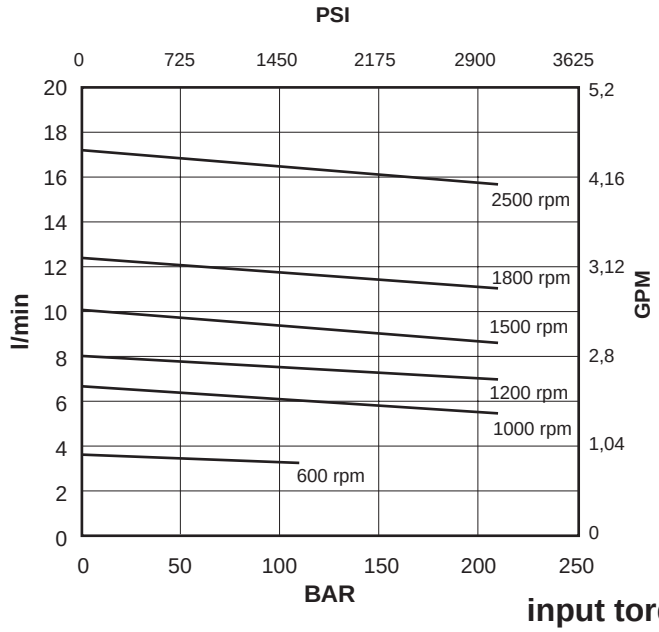
input torque / pressure



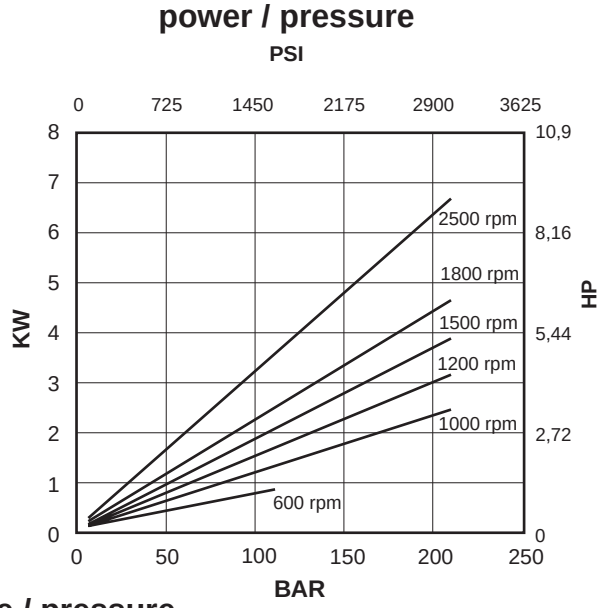
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-02

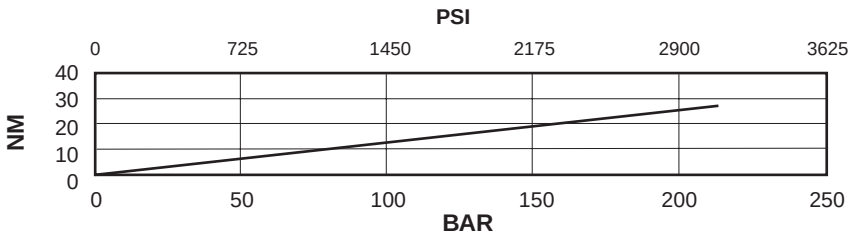
flow / pressure



power / pressure



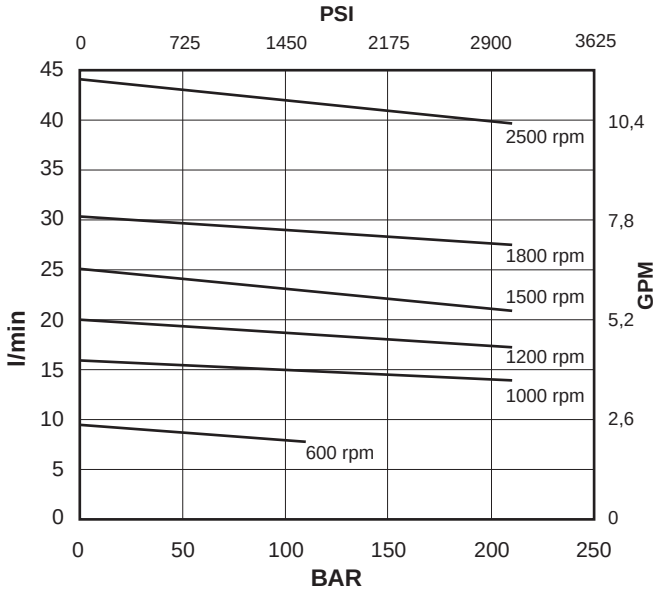
input torque / pressure



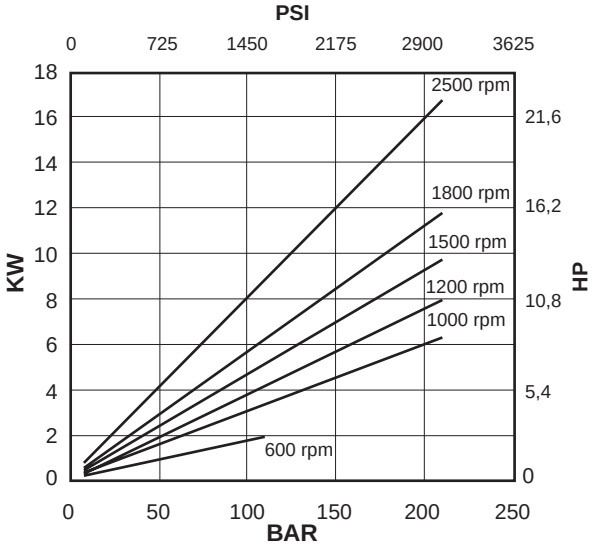
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-05

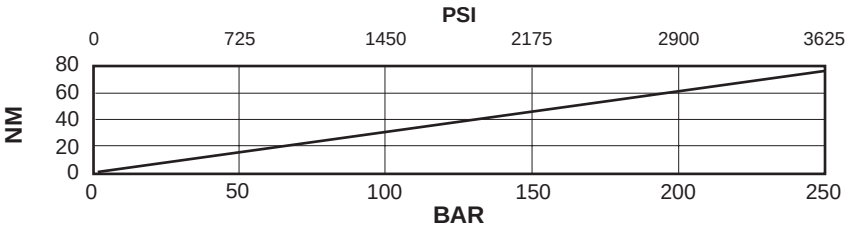
flow / pressure



power / pressure



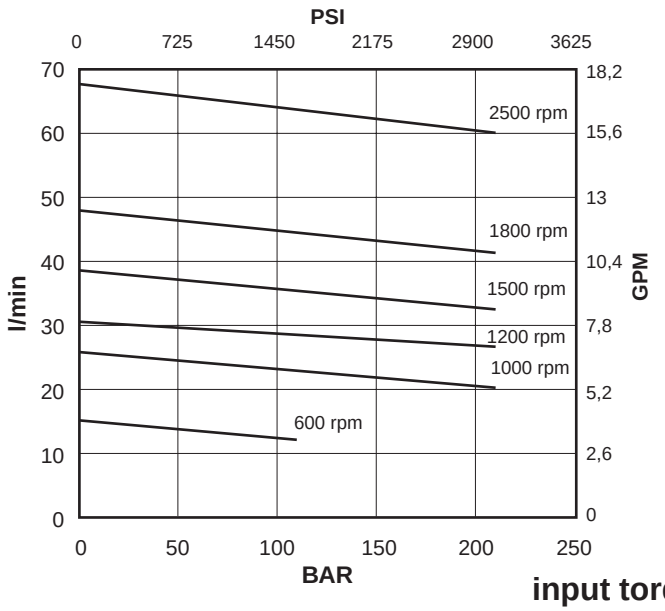
input torque / pressure



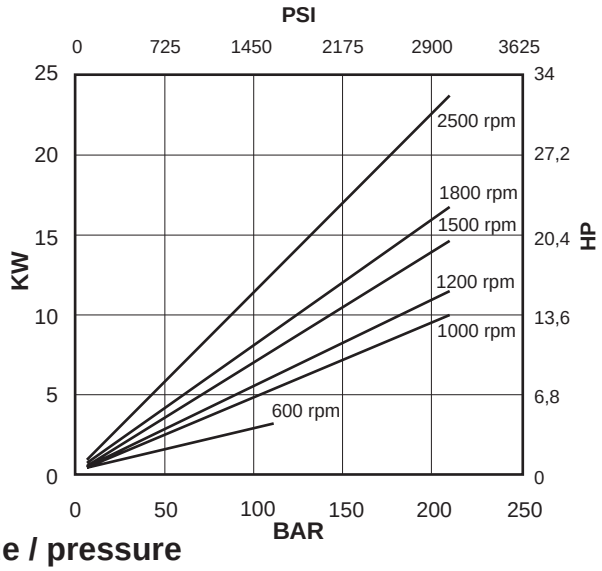
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08

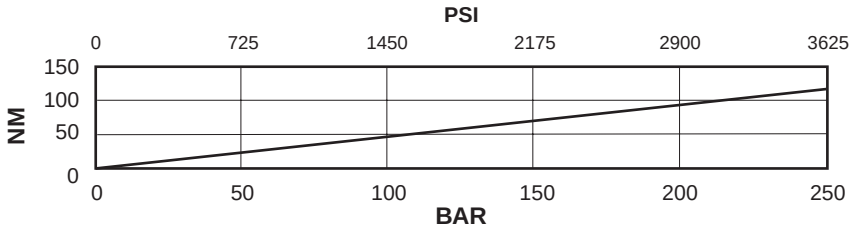
flow / pressure



power / pressure



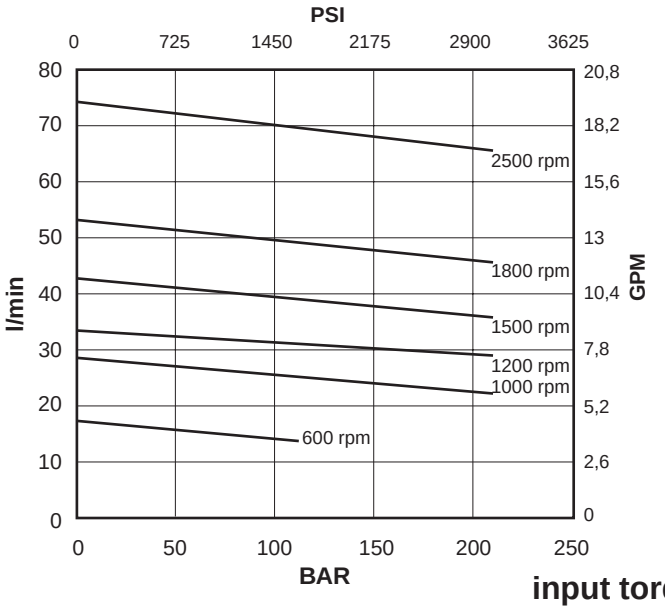
input torque / pressure



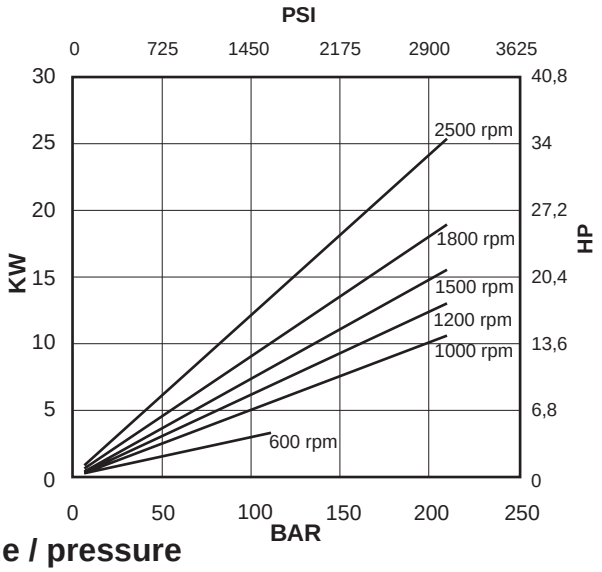
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-09

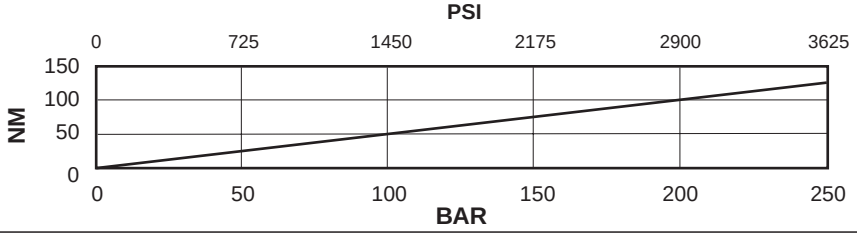
flow / pressure



power / pressure



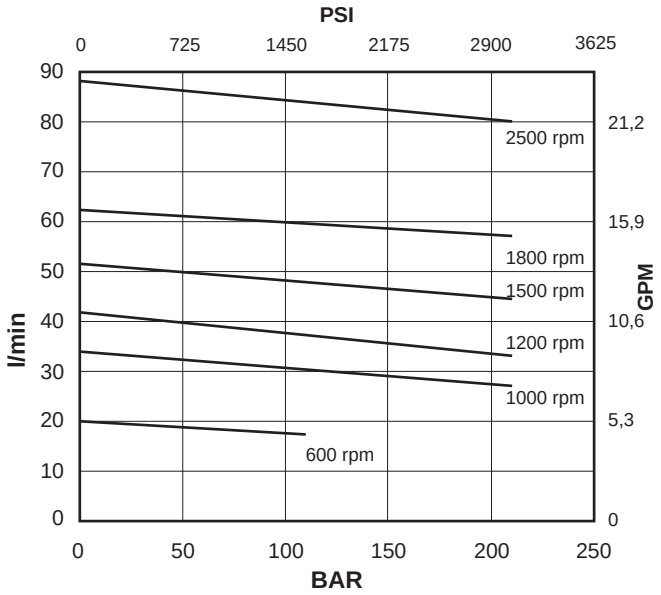
input torque / pressure



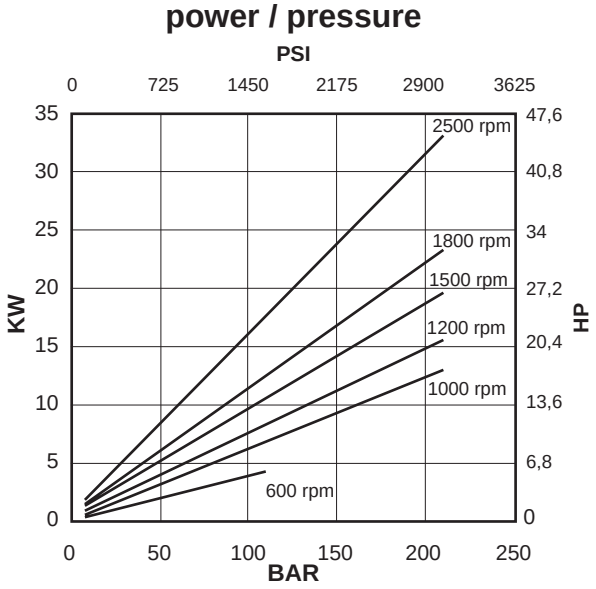
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-11

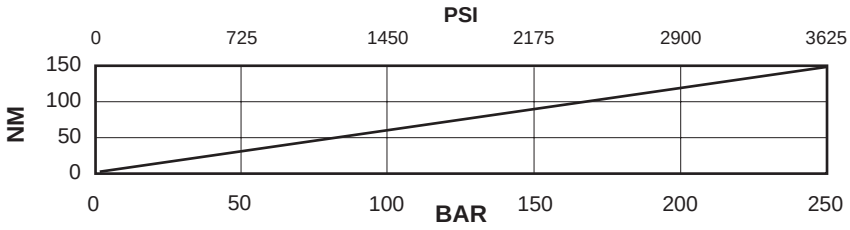
flow / pressure



power / pressure



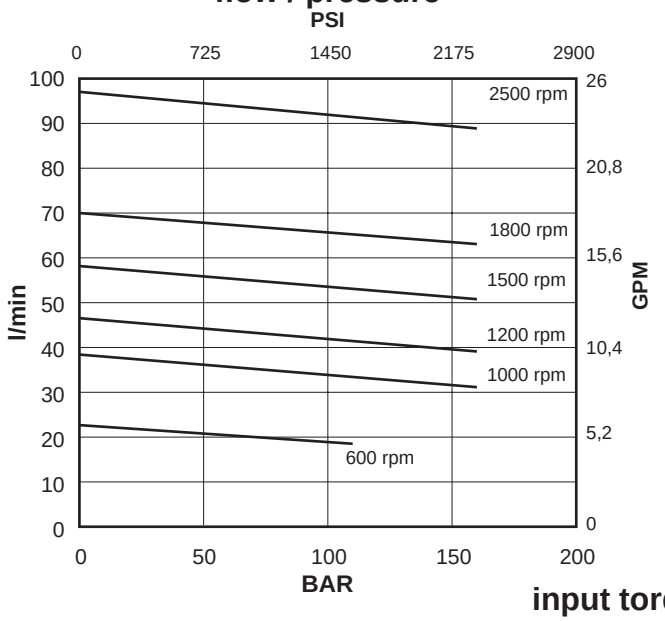
input torque / pressure



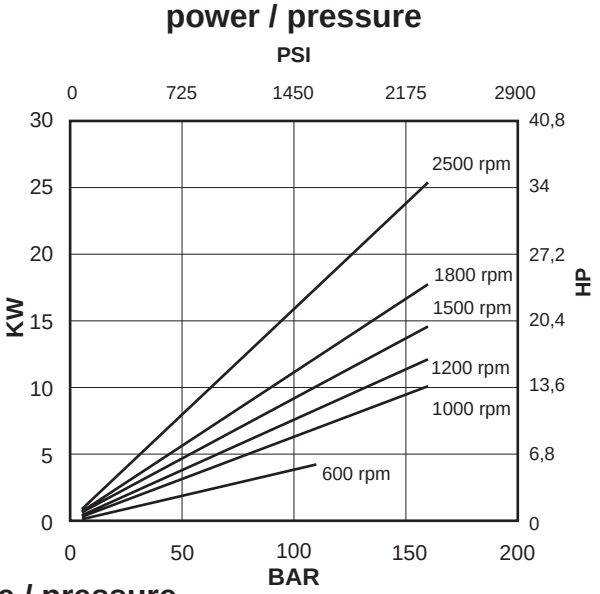
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-12

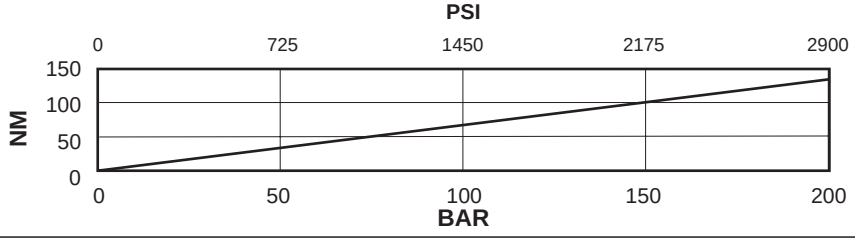
flow / pressure



power / pressure



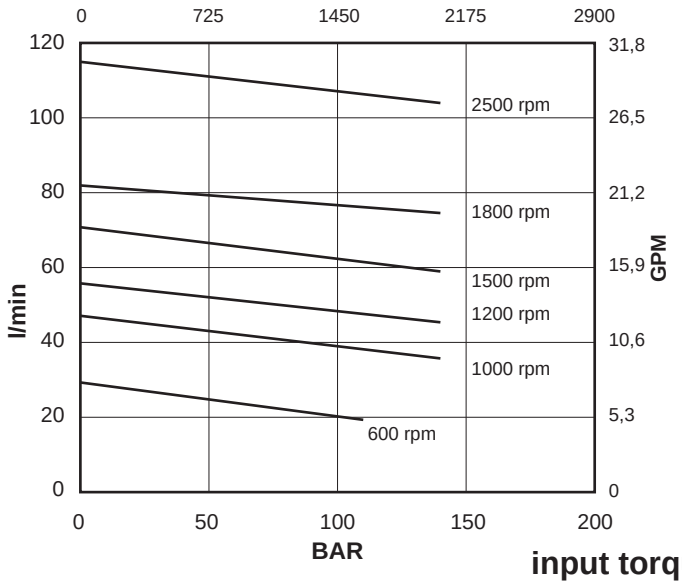
input torque / pressure



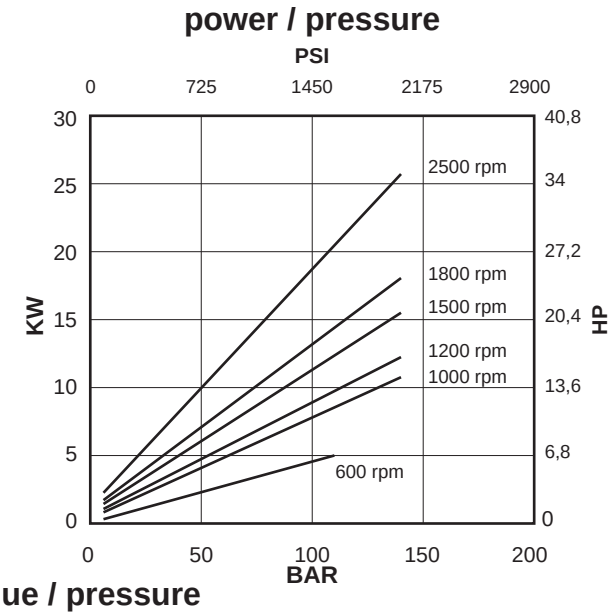
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-14

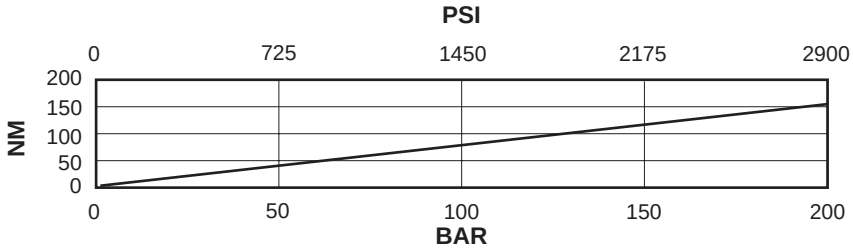
flow / pressure



power / pressure

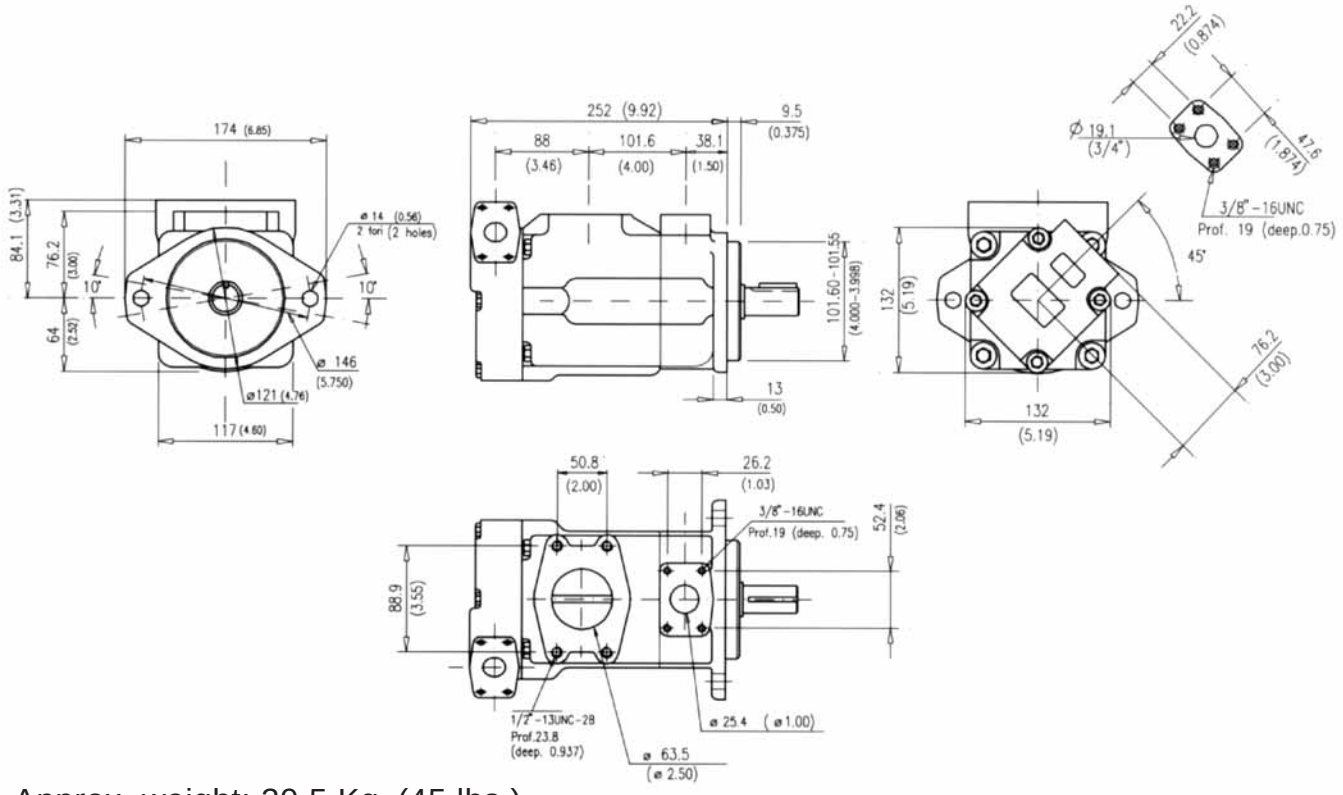


input torque / pressure



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

Installation dimensions mm (inches)



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

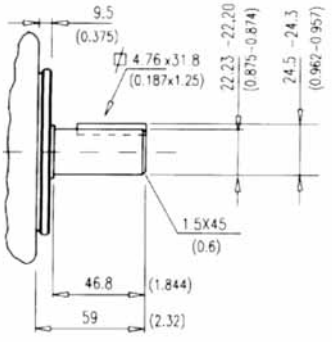
Model code breakdown

BQ 21 G ** ** * * ** (L) * (A)

- **BQ** — Pump series
- **21** — Pump type
- **G** — Design
- ****** — 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
- ****** — 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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

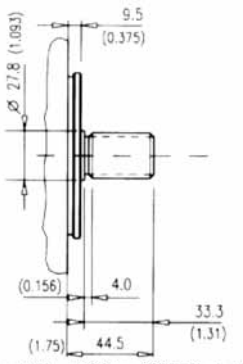
Shaft options mm (inches)

Shaft 01



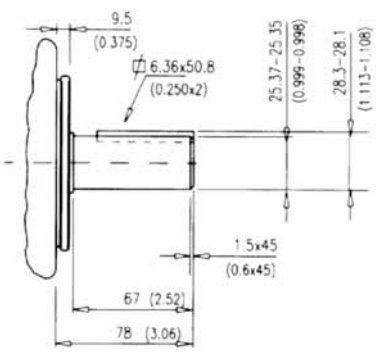
max. torque capability : 320 Nm (2800 lb.in.)

Shaft 11



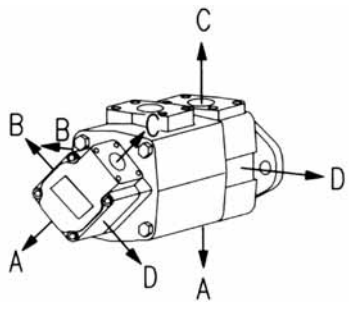
max. torque capability : 320Nm (2800 lb.in.)

Shaft 86



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

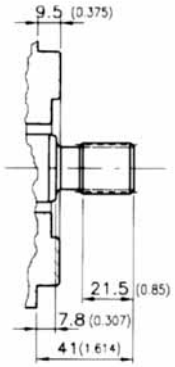
PORT ORIENTATIONS



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.)

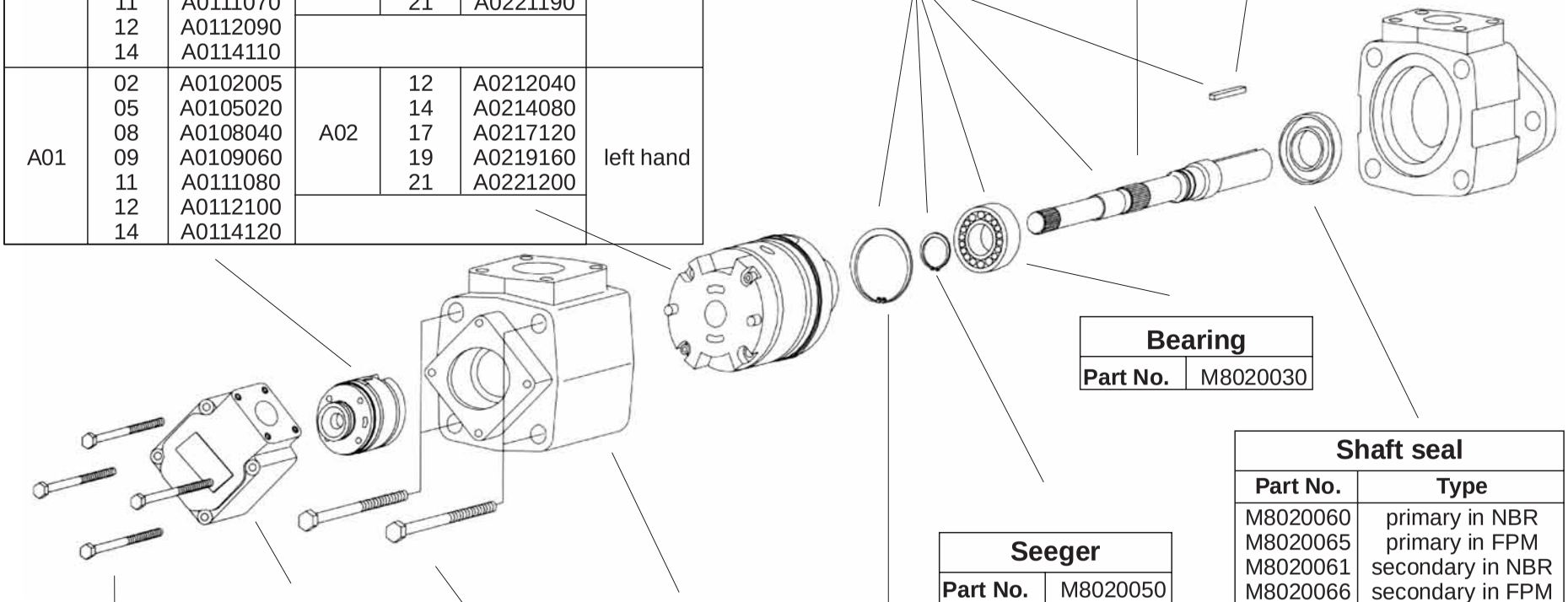
Id. codes of pump components

Cartridges						
Cover end			Shaft end			Pump rotaion
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		Key
Model	Part No.	Part No.
01	K2101000	M8010100
11	K2111000	-
86	K2186000	M8028600
90	K2190000	-

Body	
Part No.	M8020010



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

Cover	
Part No.	M8020120

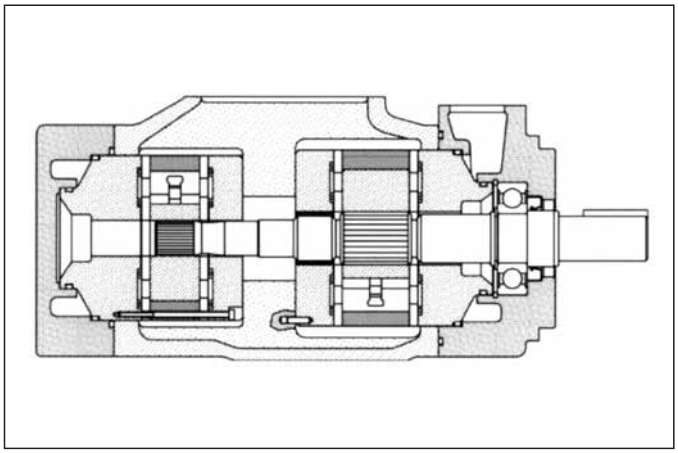
Intel body	
Part No.	M8020110

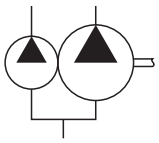
Screw	
Part No.	M8020420
Torque to 70 Nm (624 lb. in.)	

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

Seeger	
Part No.	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 ar 1200 rpm 7 bar		Rated capacity at 1500 rpm 7 bar		Maximum pressure with mineral oil		Speed range rpm	
shaft end	**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**

cover end	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)*.

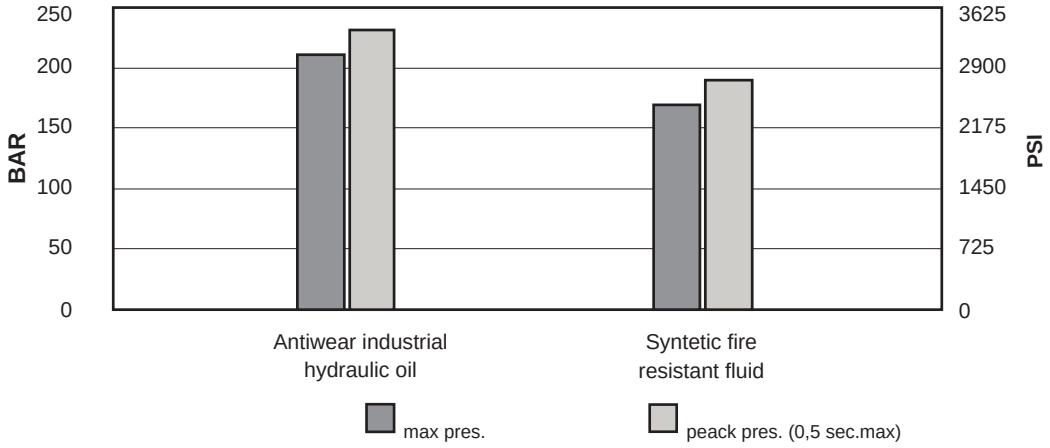
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

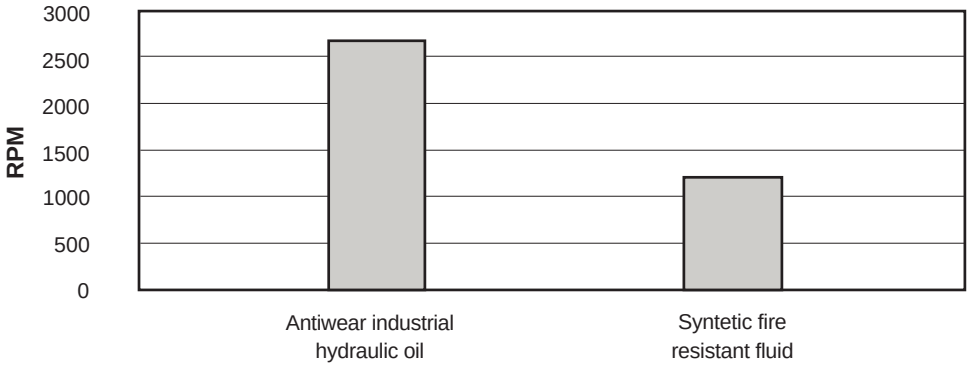
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

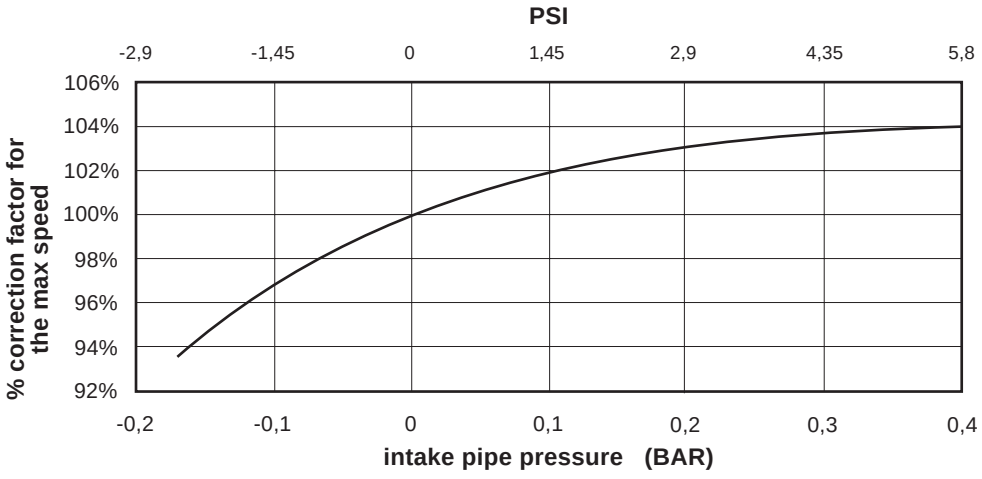


max speed / hydraulic fluid (with 0 bar in the intake pipe)



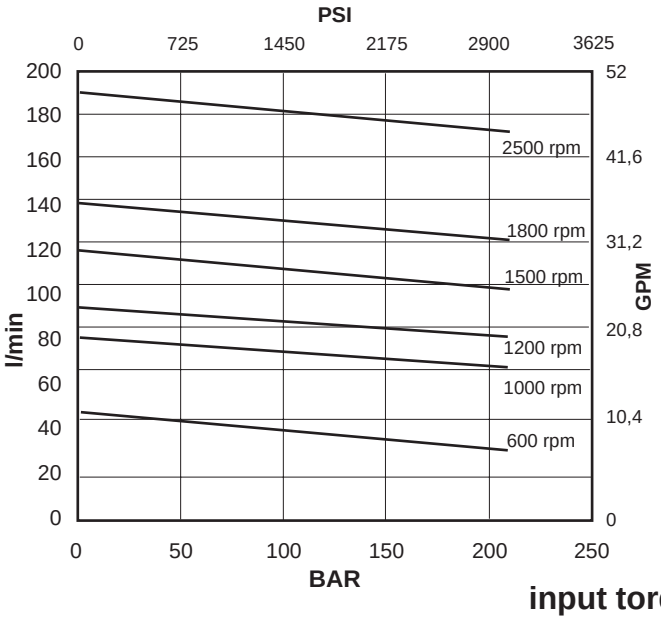
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

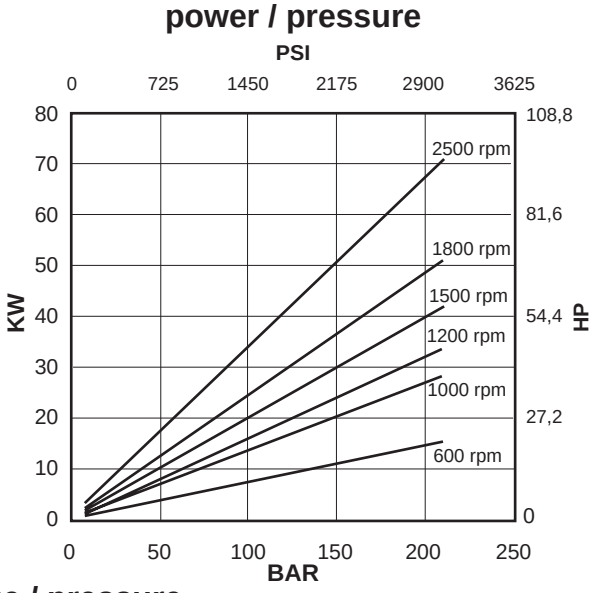


Shaft end cartridge A03-24

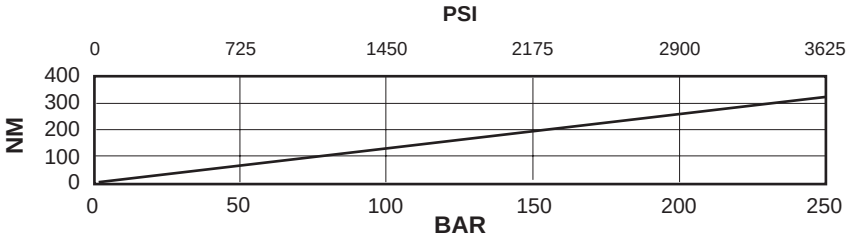
flow / pressure



power / pressure



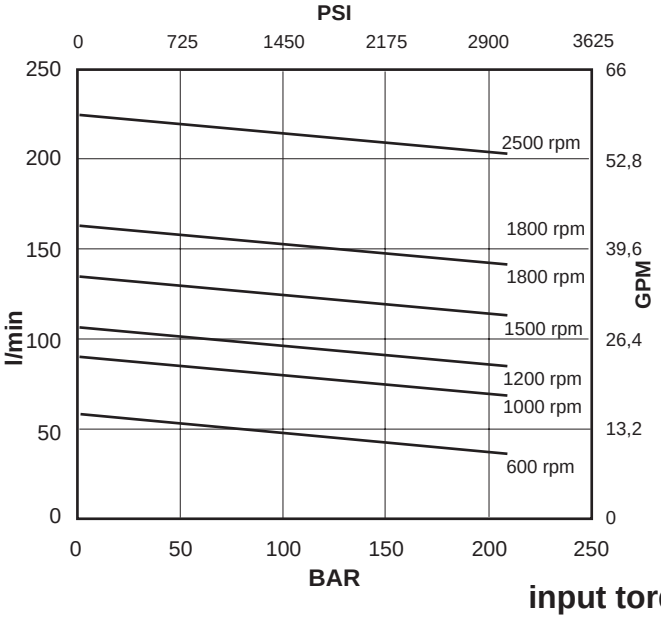
input torque / pressure



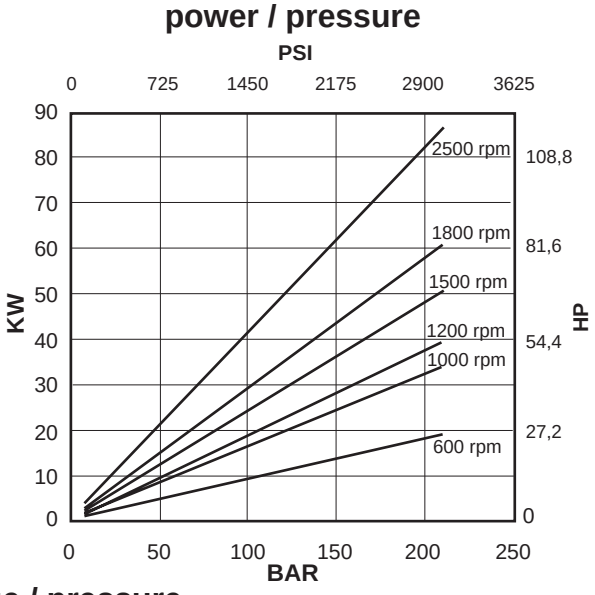
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A03-28

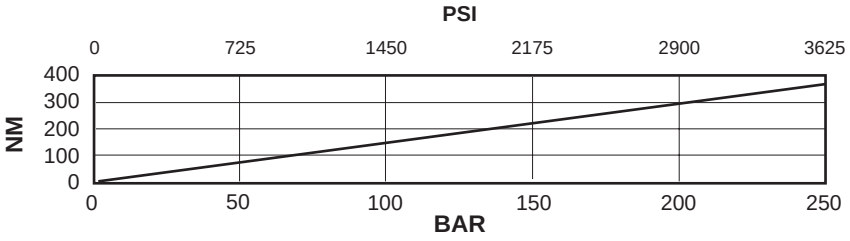
flow / pressure



power / pressure



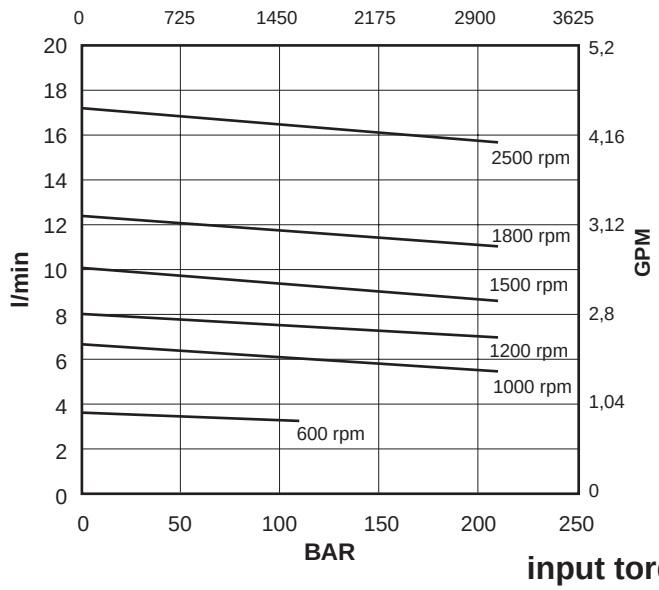
input torque / pressure



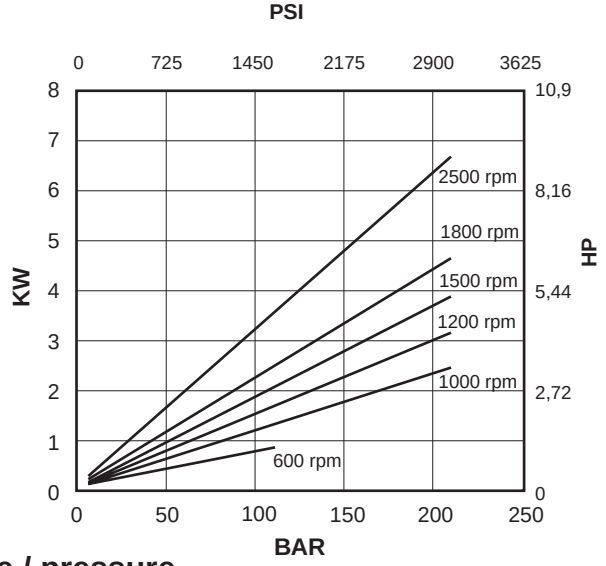
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-02

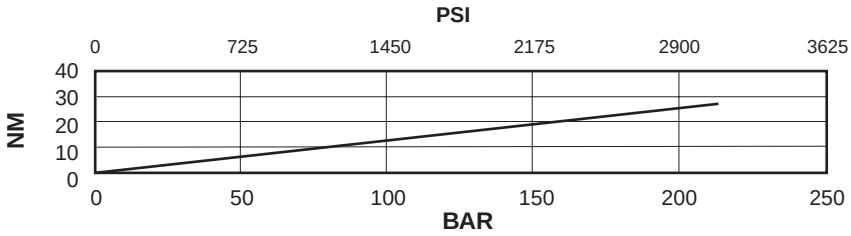
flow / pressure



power / pressure



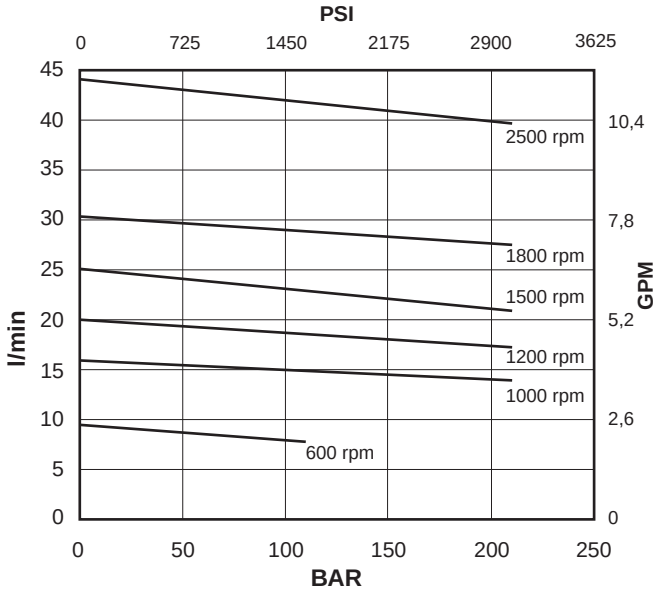
input torque / pressure



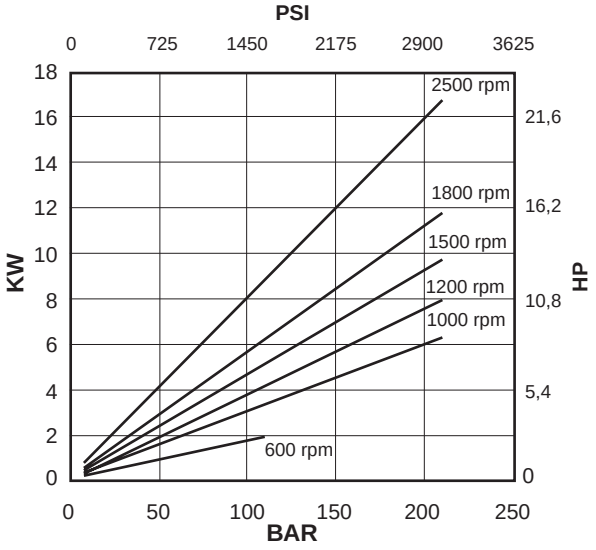
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-05

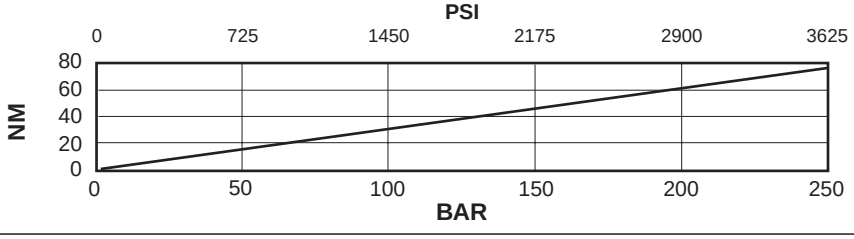
flow / pressure



power / pressure



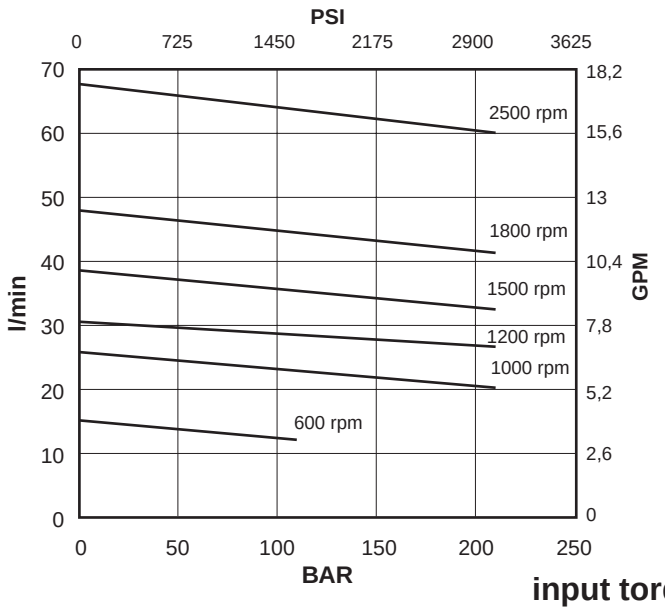
input torque / pressure



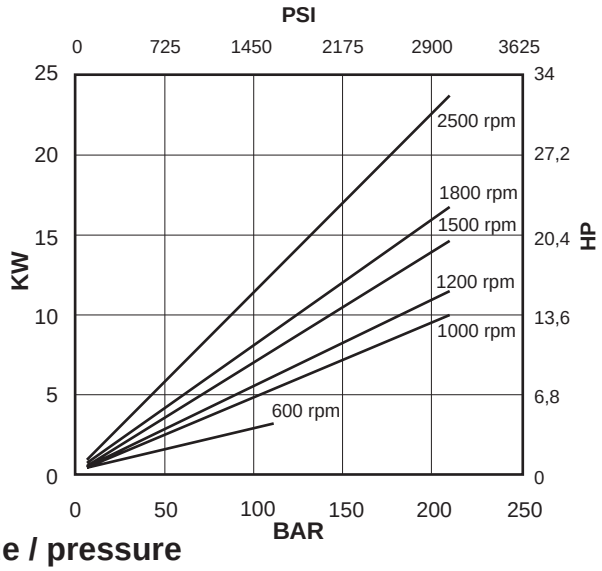
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08

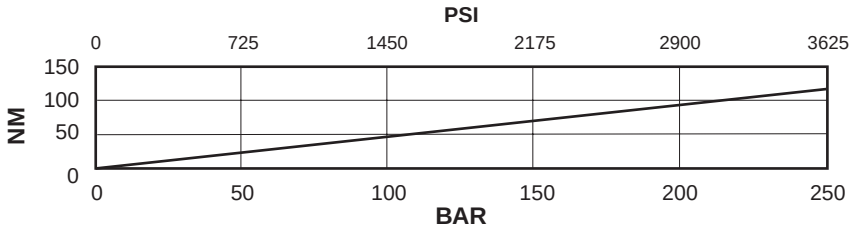
flow / pressure



power / pressure



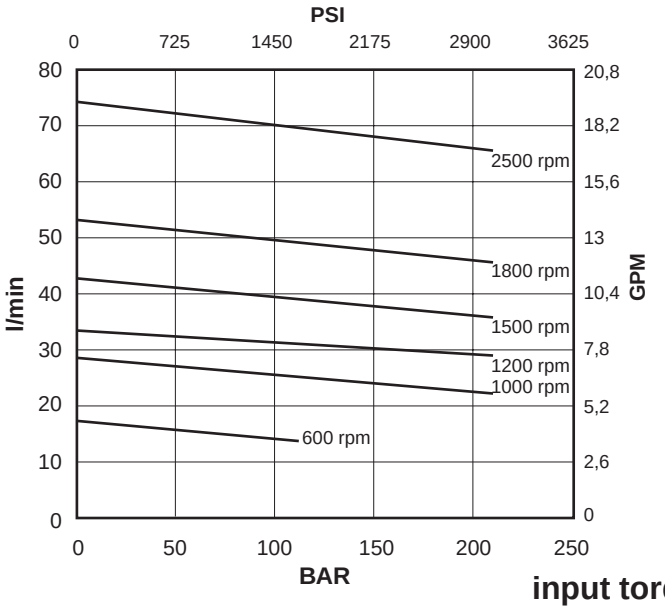
input torque / pressure



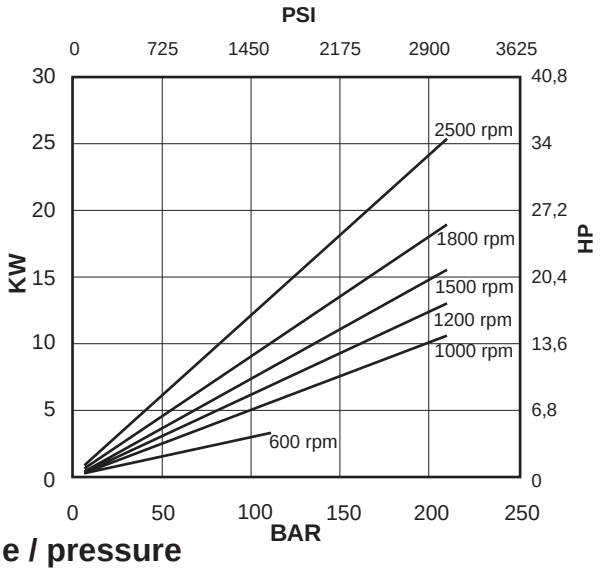
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-09

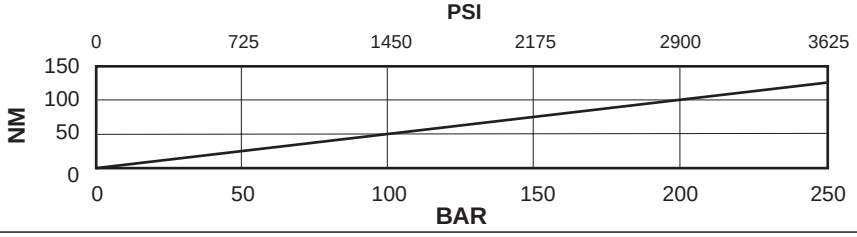
flow / pressure



power / pressure



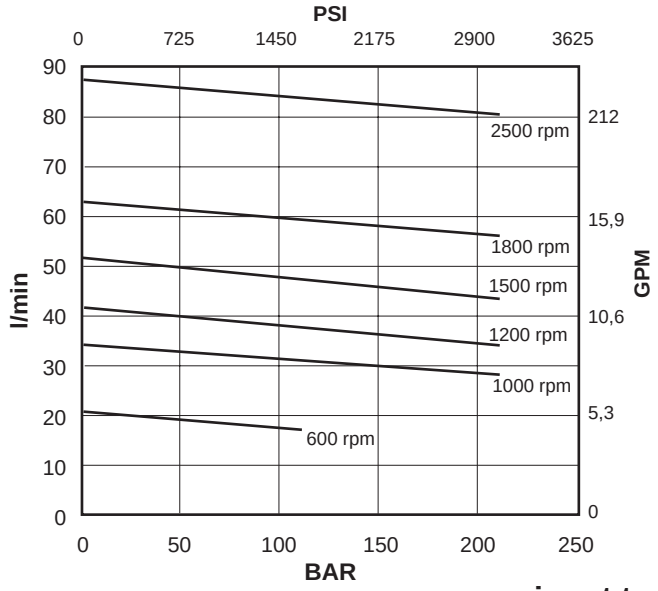
input torque / pressure



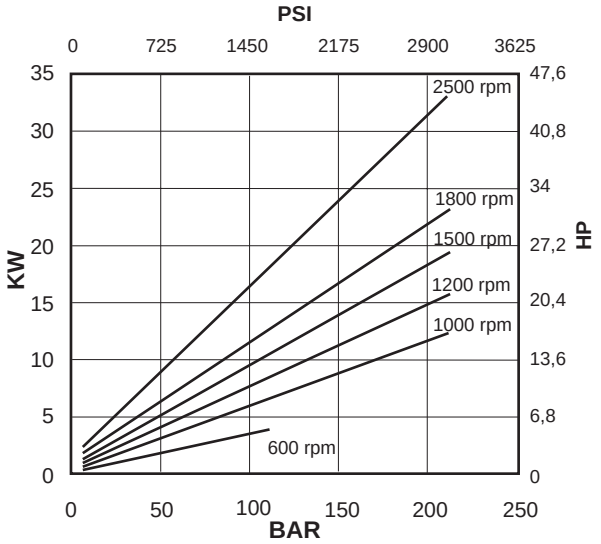
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-11

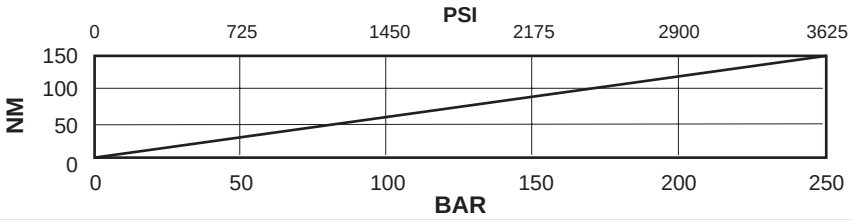
flow / pressure



power / pressure



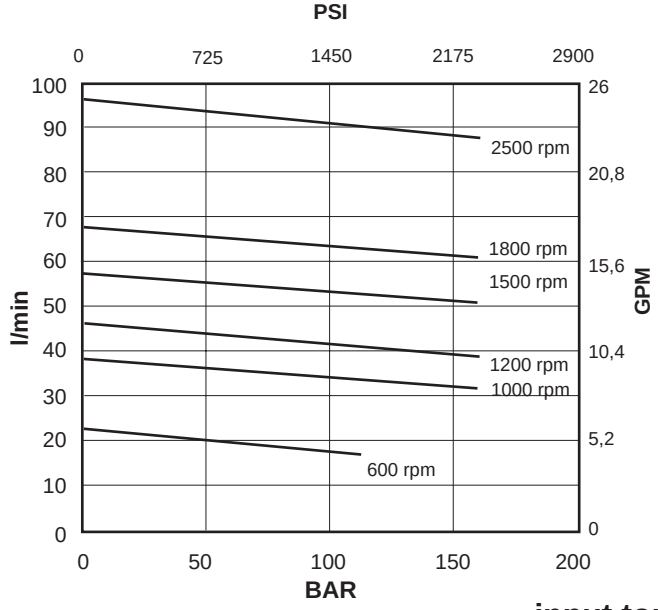
input torque / pressure



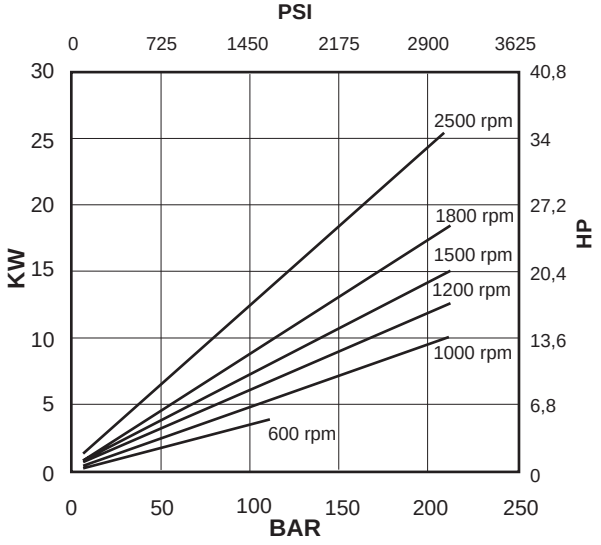
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-12

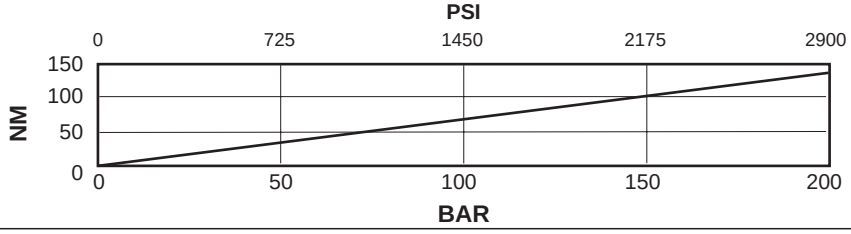
flow / pressure



power / pressure



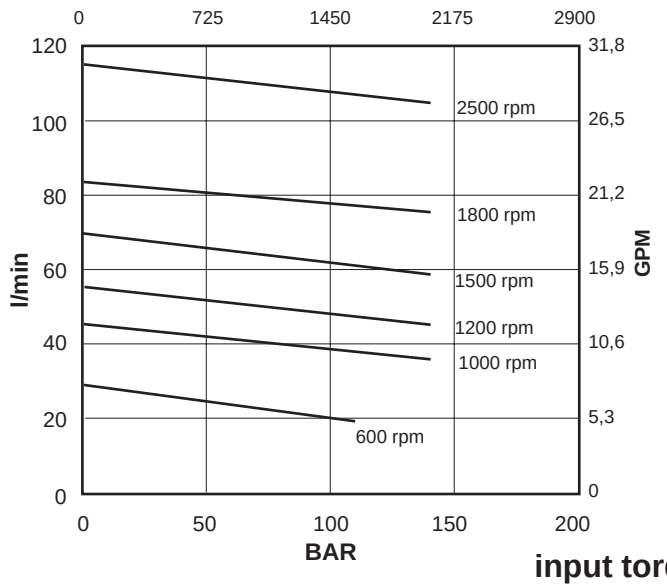
input torque / pressure



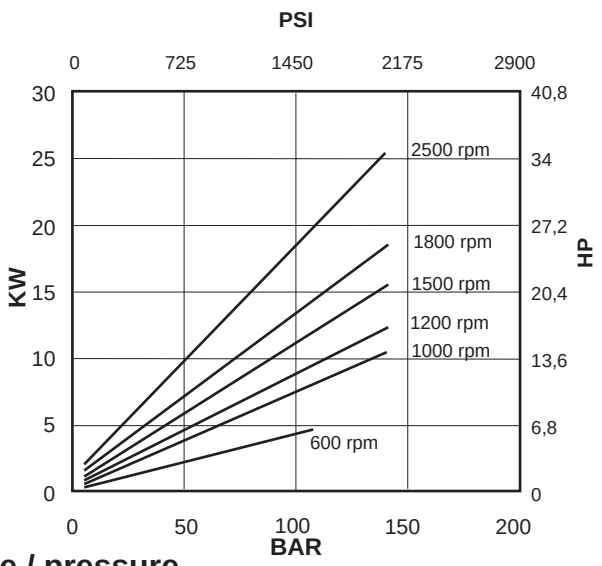
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-14

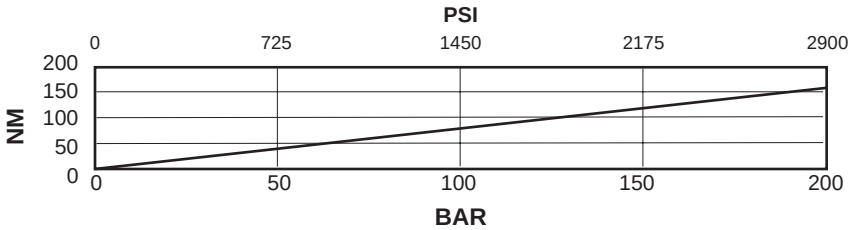
flow / pressure



power / pressure

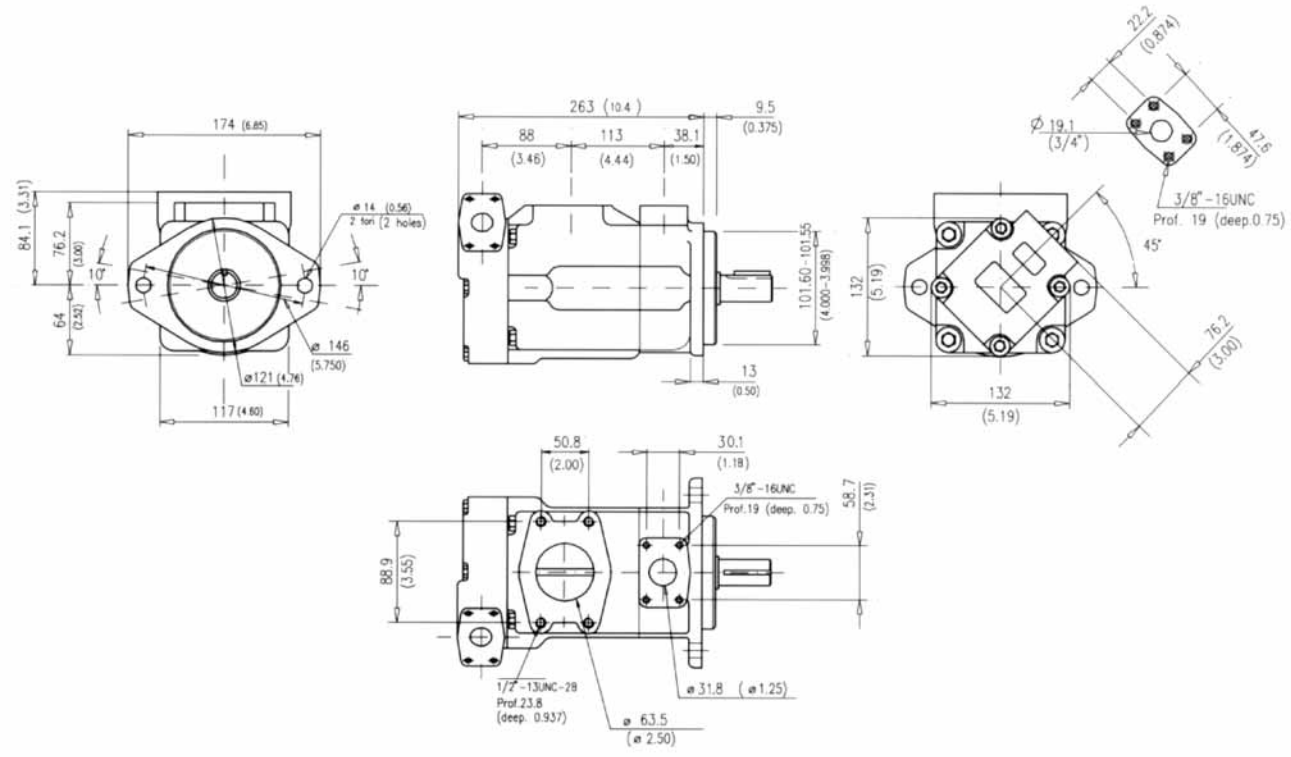


input torque / pressure



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

Installation dimensions mm (inches)



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

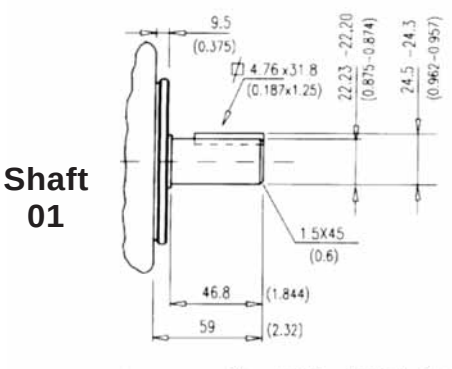
Model code breakdown

BQ 31 G ** ** * * ** (L) * (A)

- **BQ 31** — Pump series / Pump type
- **G** — Design
- ****** — 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
- ***** — 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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

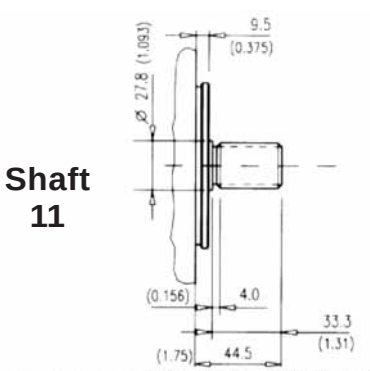
Shaft options mm (inches)

Shaft 01



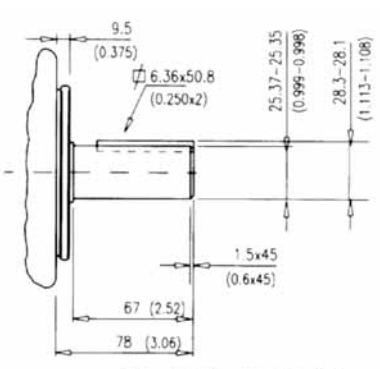
max. torque capability : 320 Nm (2800 lb.in.)

Shaft 11



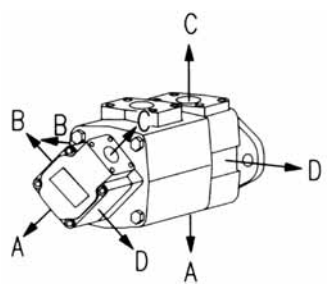
max. torque capability : 320Nm (2800 lb.in.)

Shaft 86



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

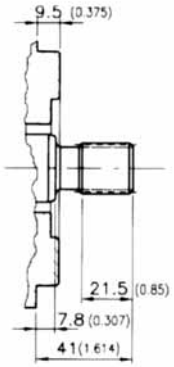
PORT ORIENTATIONS



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.)

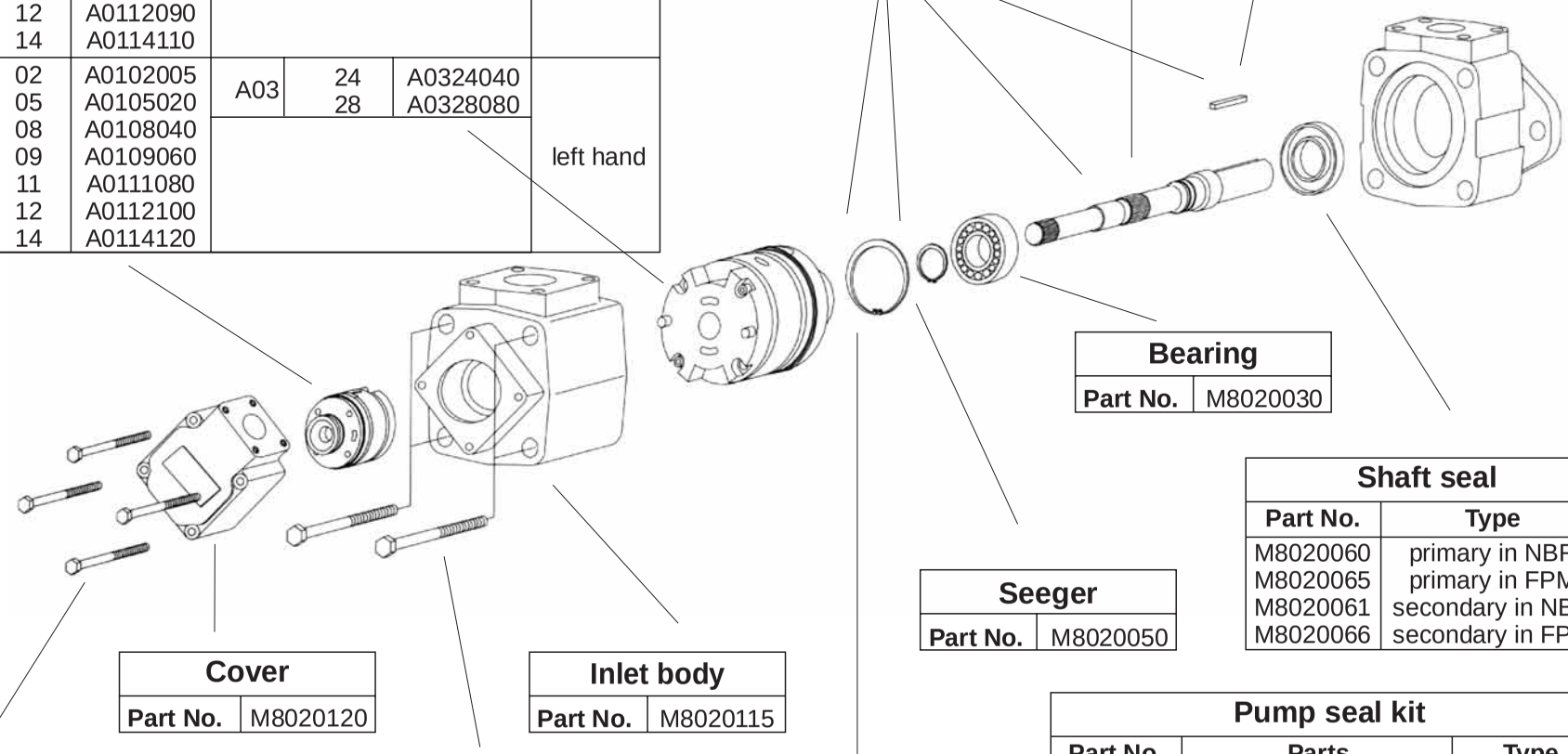
Id. codes of pump components

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

Shaft kit	
Model	Part No.
01	M8310601
11	M8310611
86	M8310686
90	M8310690

Shaft		Key
Model	Part No.	Part No.
01	K3101000	M8010100
11	K3111000	-
86	K3186000	M8028600
90	K3190000	-

Body	
Part No.	M8030010



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

Cover	
Part No.	M8020120

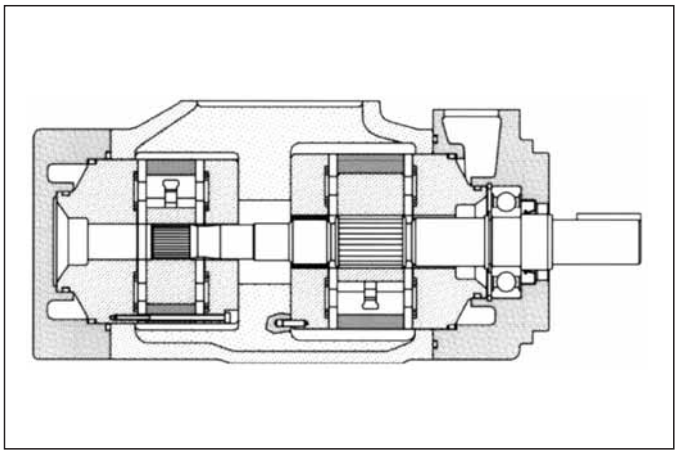
Inlet body	
Part No.	M8020115

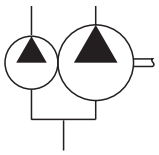
Pump seal kit		
Part No.	Parts	Type
M8210411	seals + 1 shaft seal	NBR
M8210412	seals + 2 shaft seals	NBR
M8210413	seals + 1 shaft seal	FPM (Viton®)
M8210414	seals + 2 shaft seals	FPM (Viton®)

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

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

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	
shaft end	**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**
cover end	**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)*.

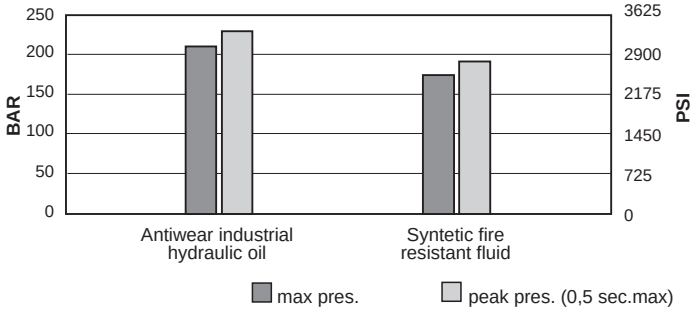
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

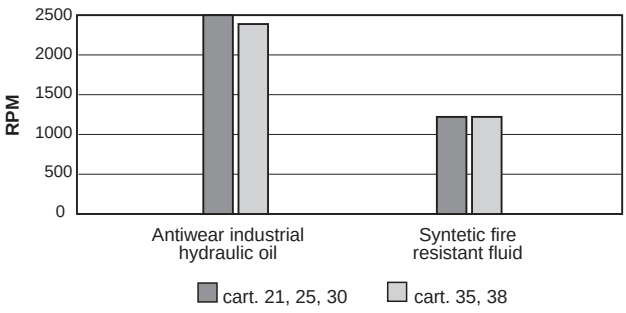
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

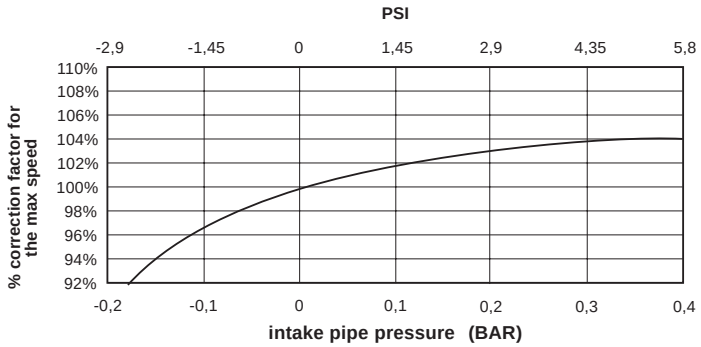


max speed / hydraulic fluid



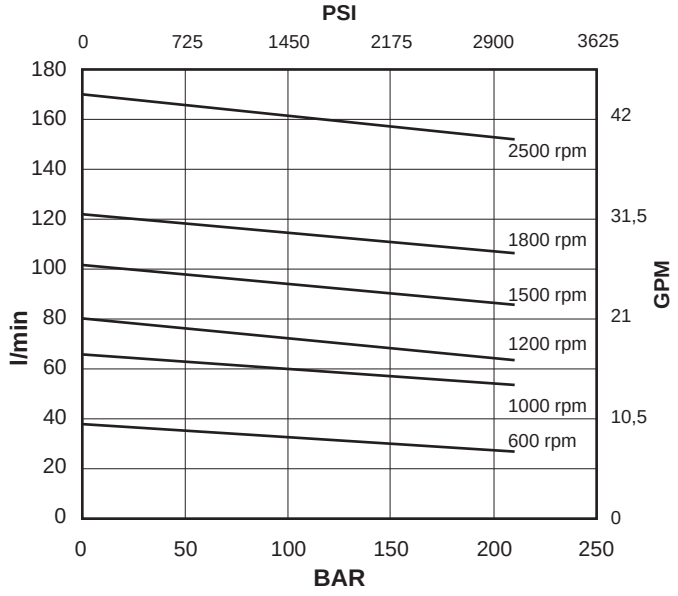
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

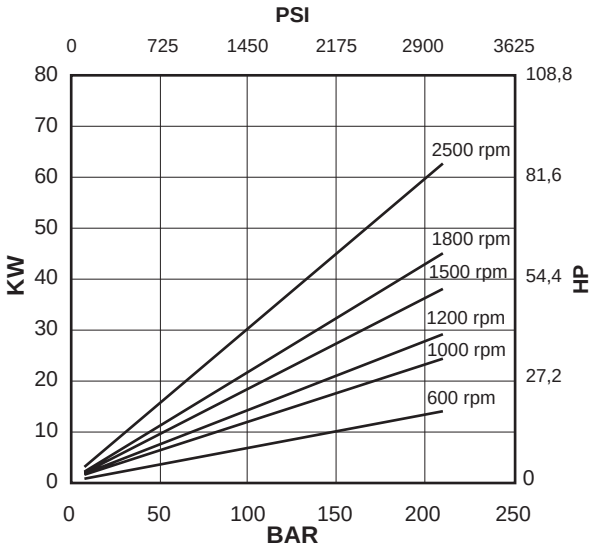


Shaft end cartridge A04-21

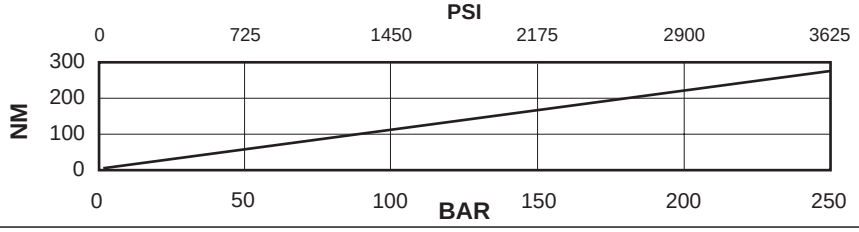
flow / pressure



power / pressure



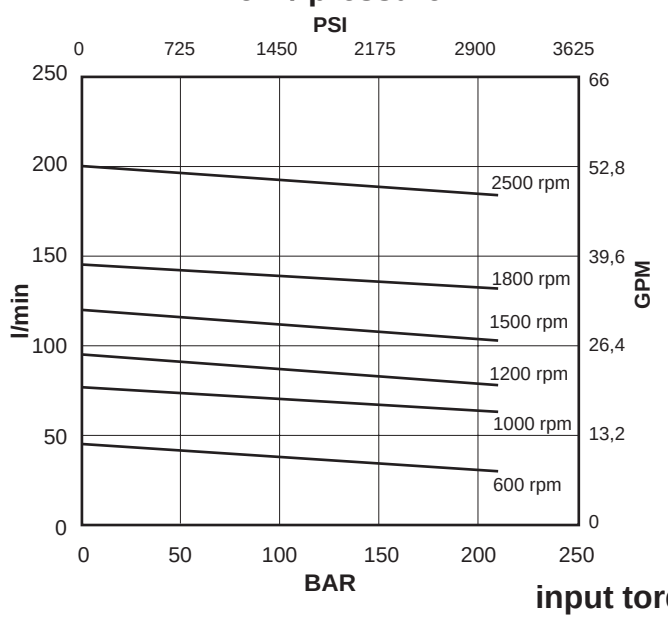
input torque / pressure



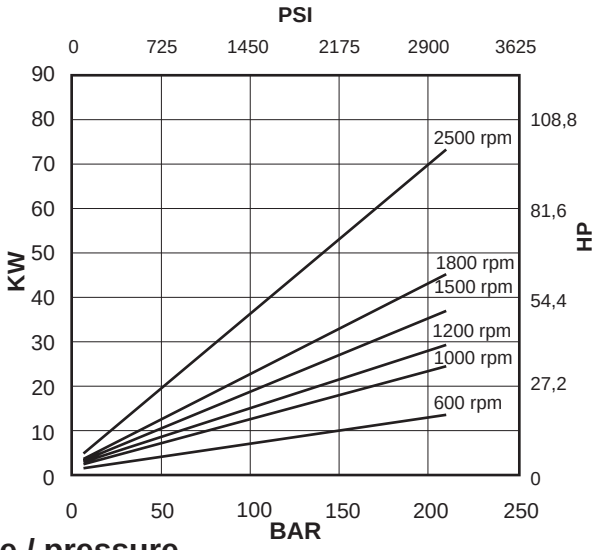
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-25

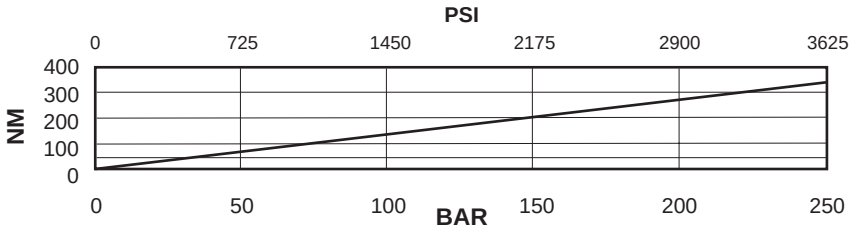
flow / pressure



power / pressure



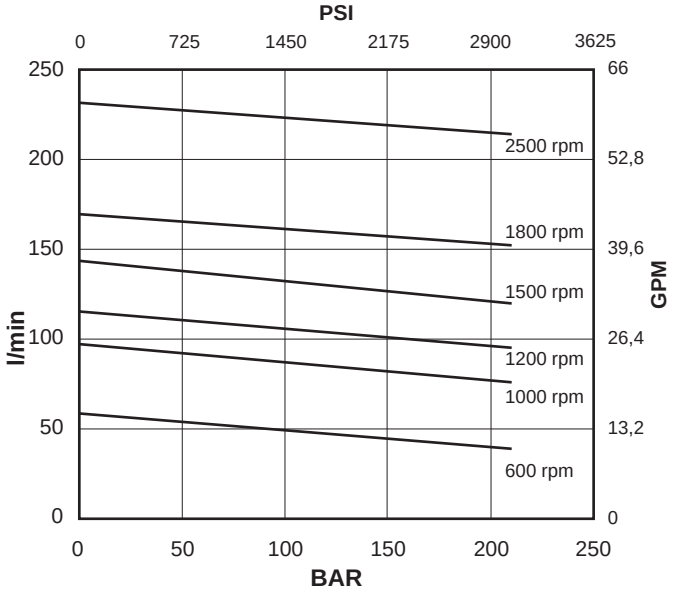
input torque / pressure



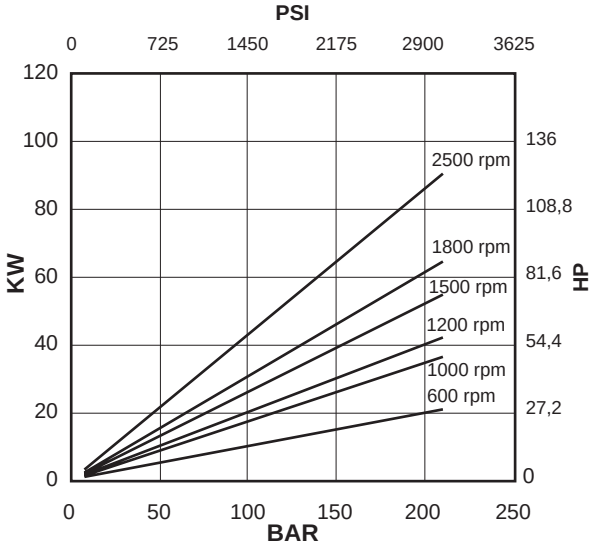
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-30

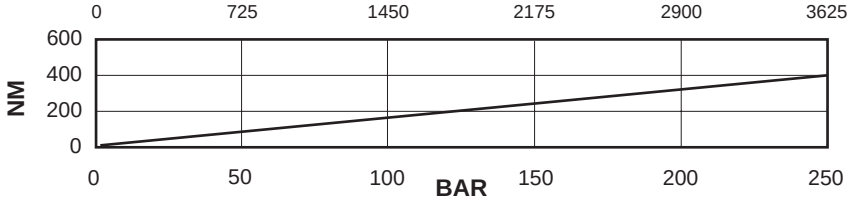
flow / pressure



power / pressure



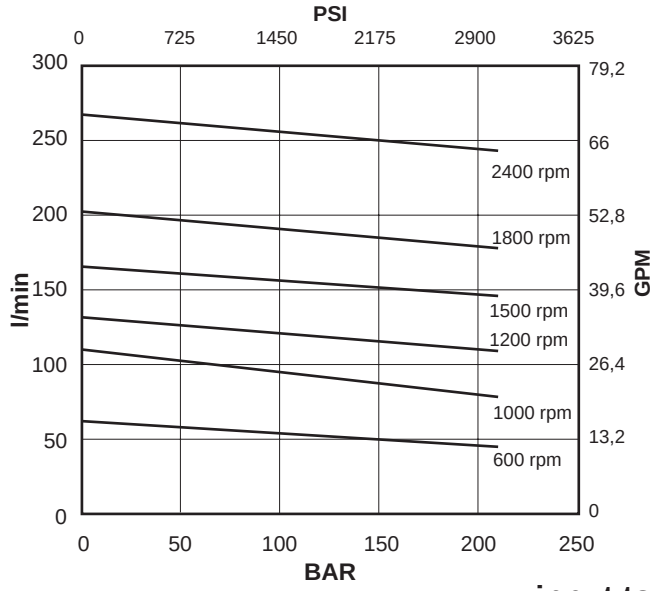
input torque / pressure



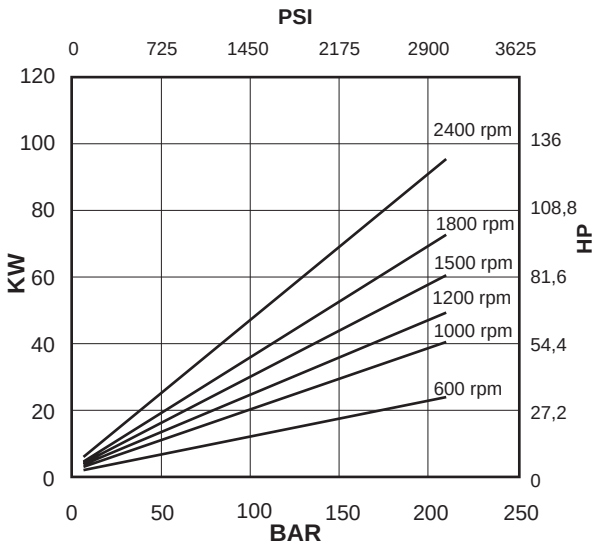
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-35

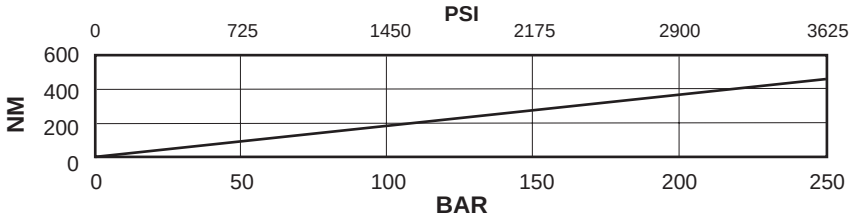
flow / pressure



power / pressure



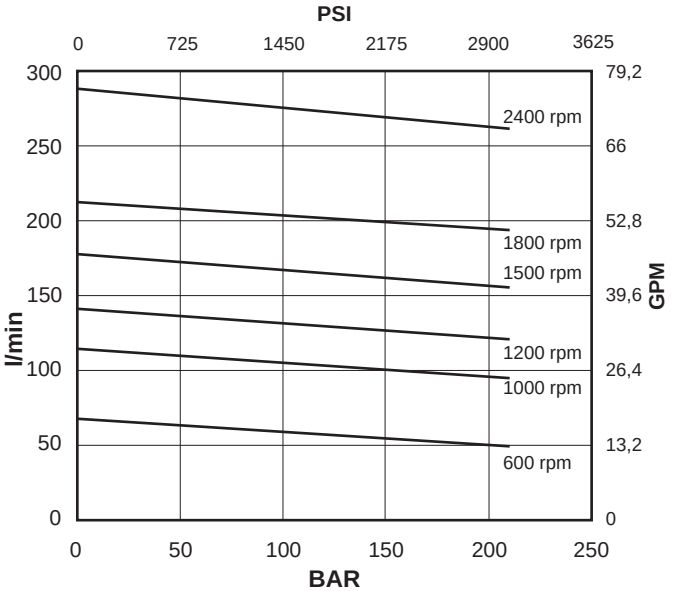
input torque / pressure



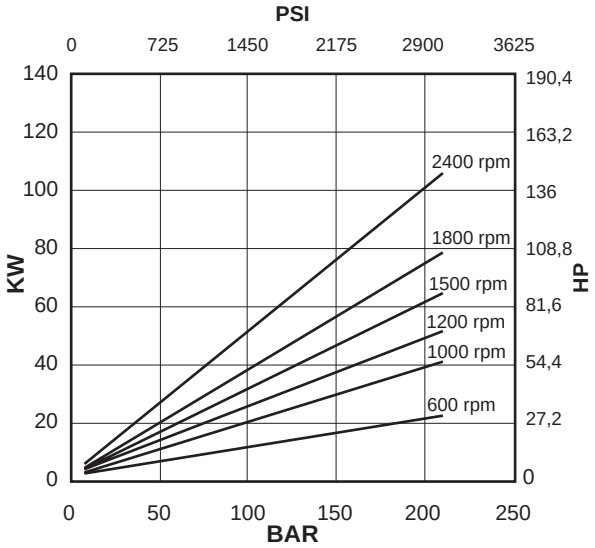
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-38

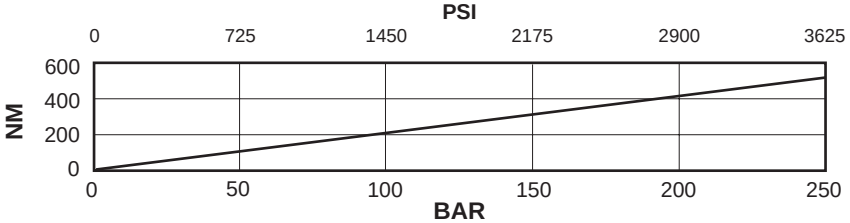
flow / pressure



power / pressure



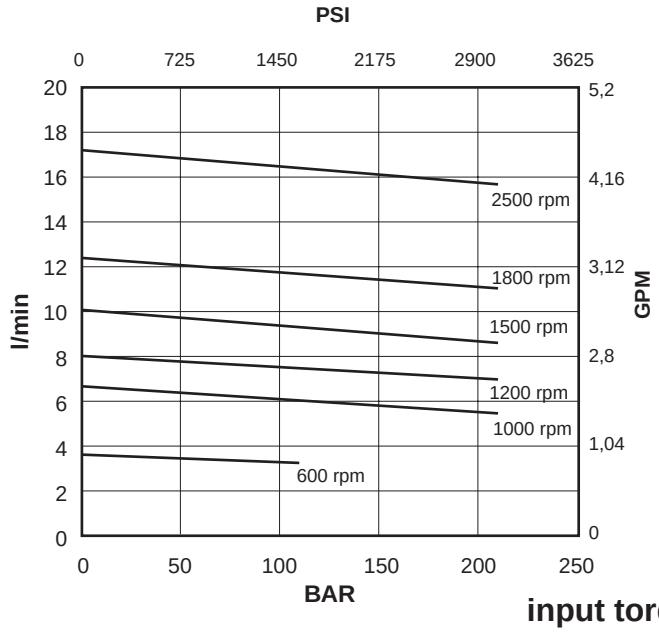
input torque / pressure



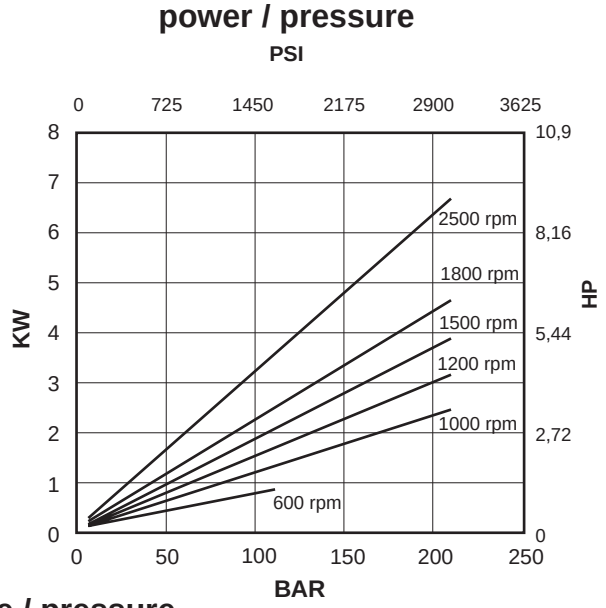
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-02

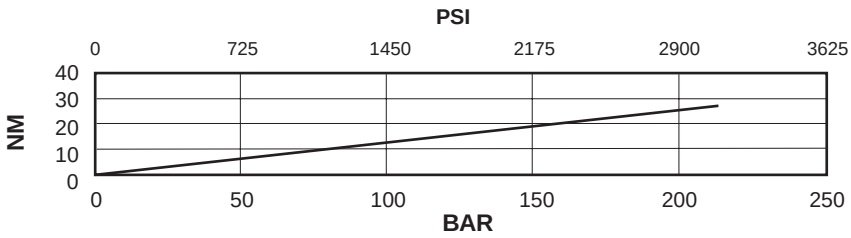
flow / pressure



power / pressure



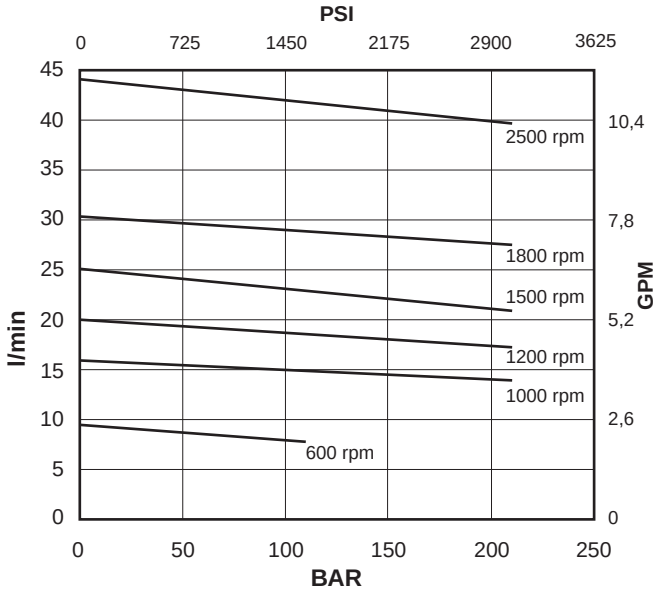
input torque / pressure



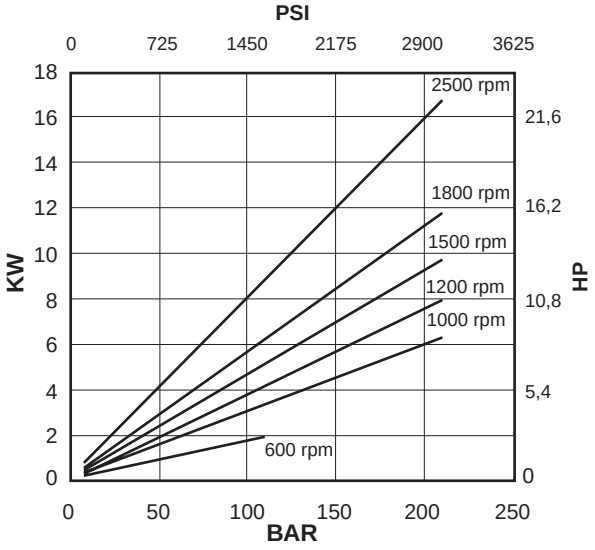
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-05

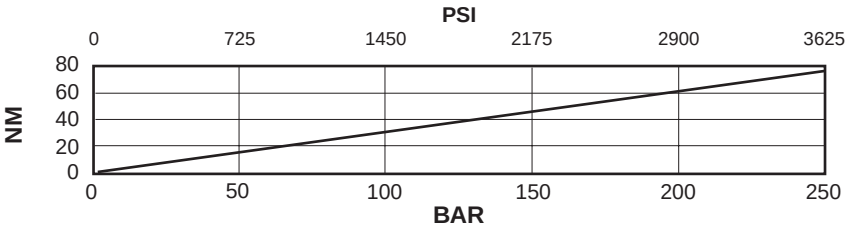
flow / pressure



power / pressure



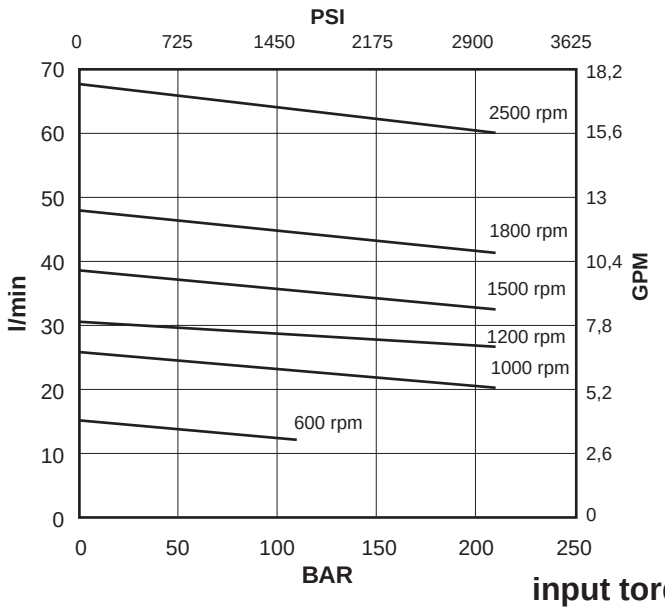
input torque / pressure



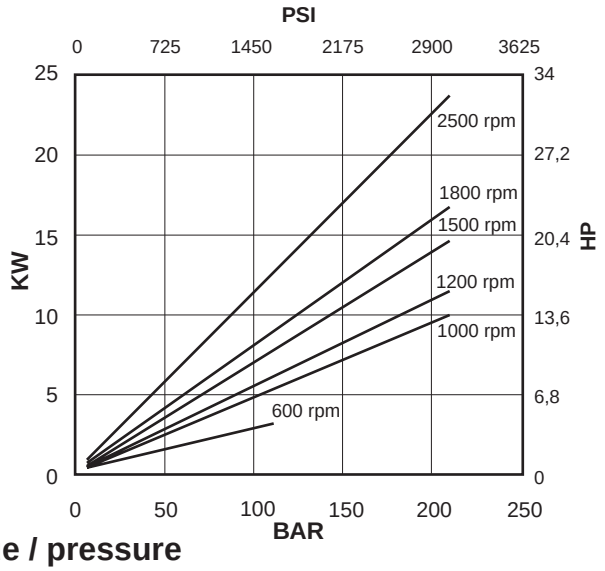
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08

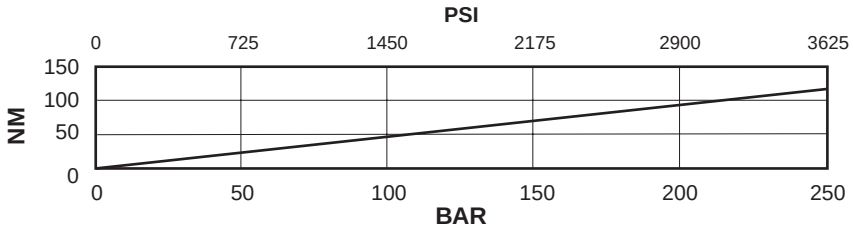
flow / pressure



power / pressure



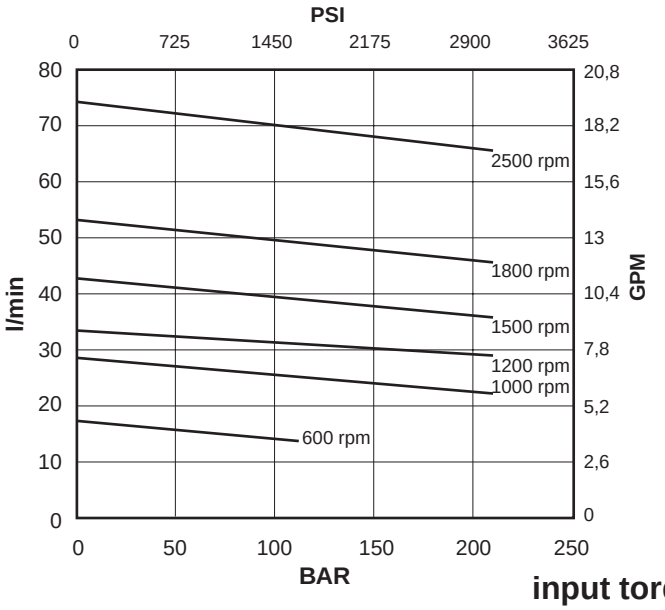
input torque / pressure



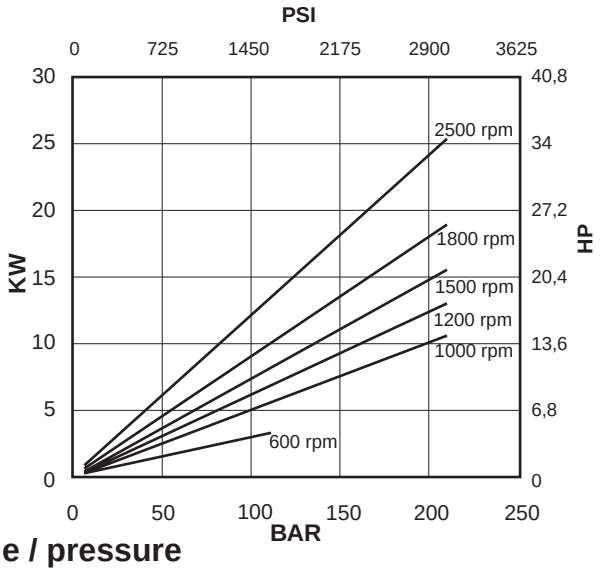
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-09

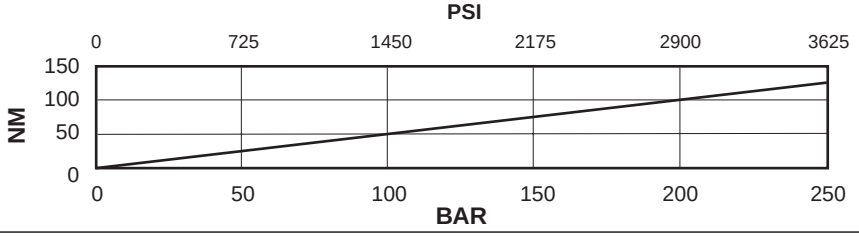
flow / pressure



power / pressure



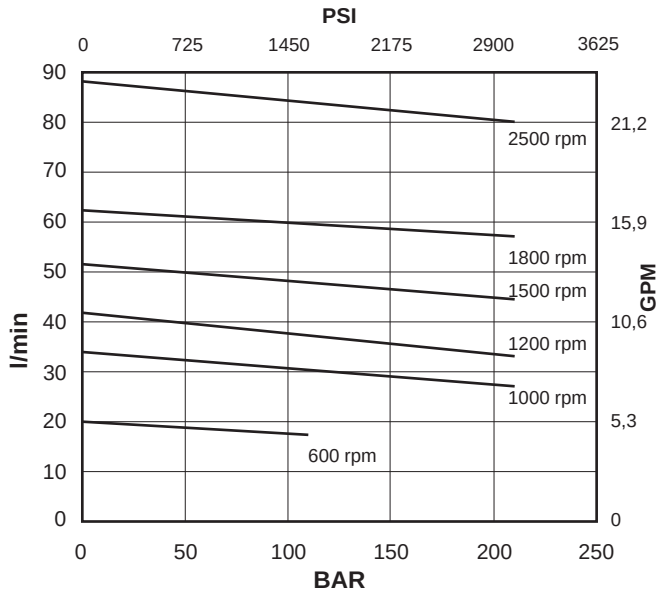
input torque / pressure



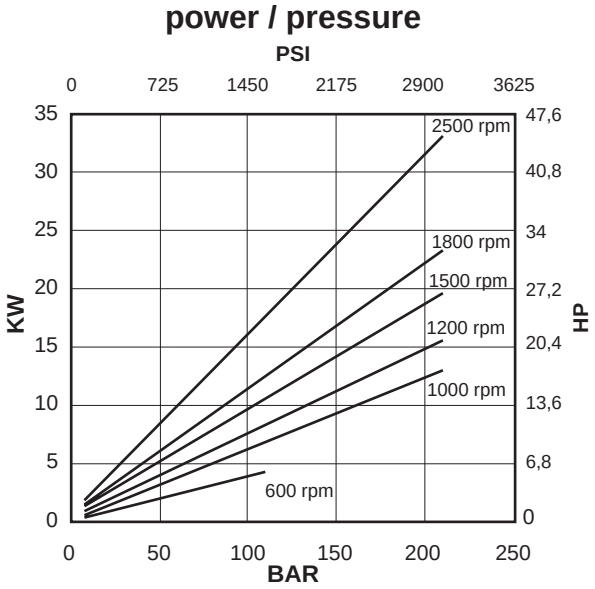
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-11

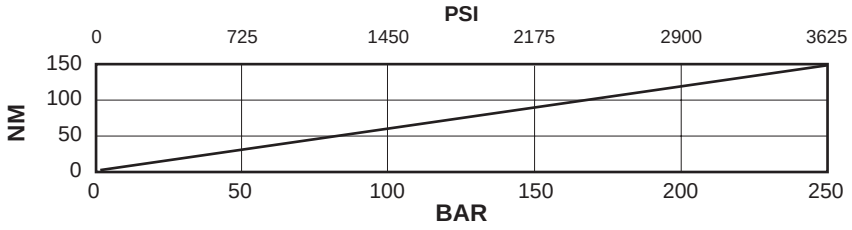
flow / pressure



power / pressure



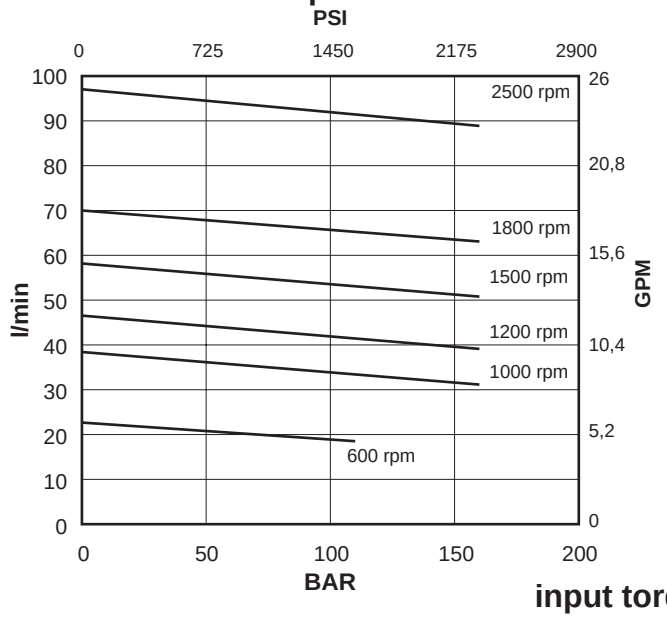
input torque / pressure



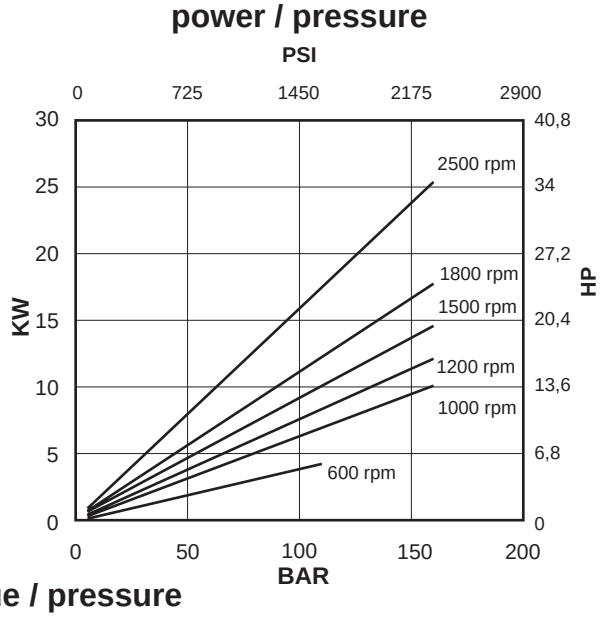
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-12

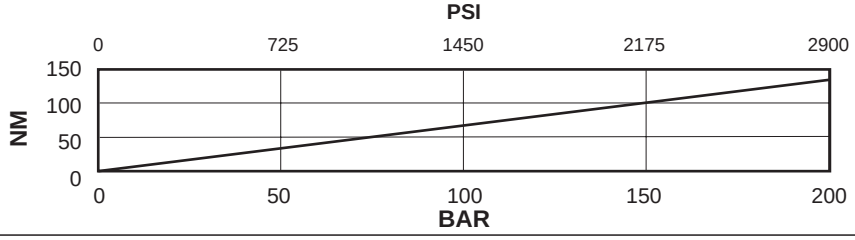
flow / pressure



power / pressure



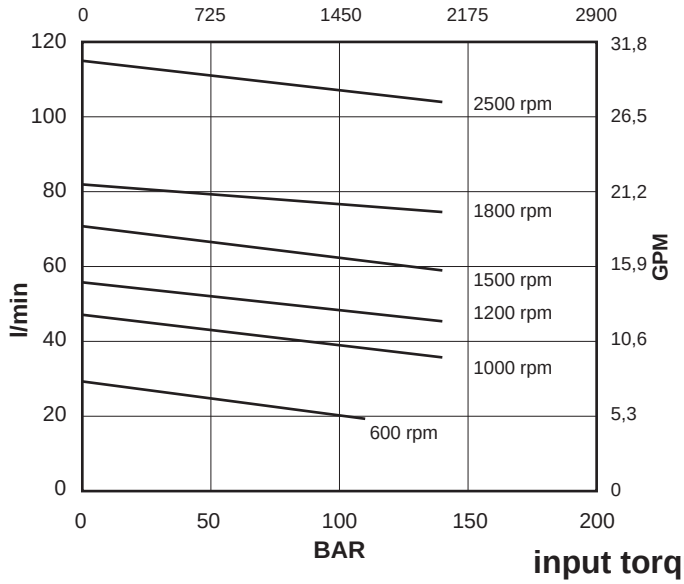
input torque / pressure



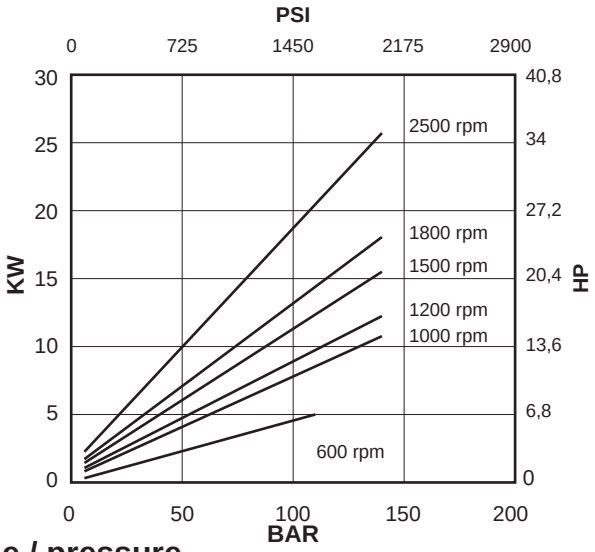
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-14

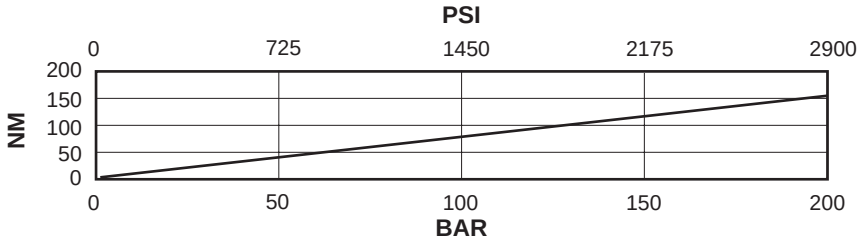
flow / pressure



power / pressure

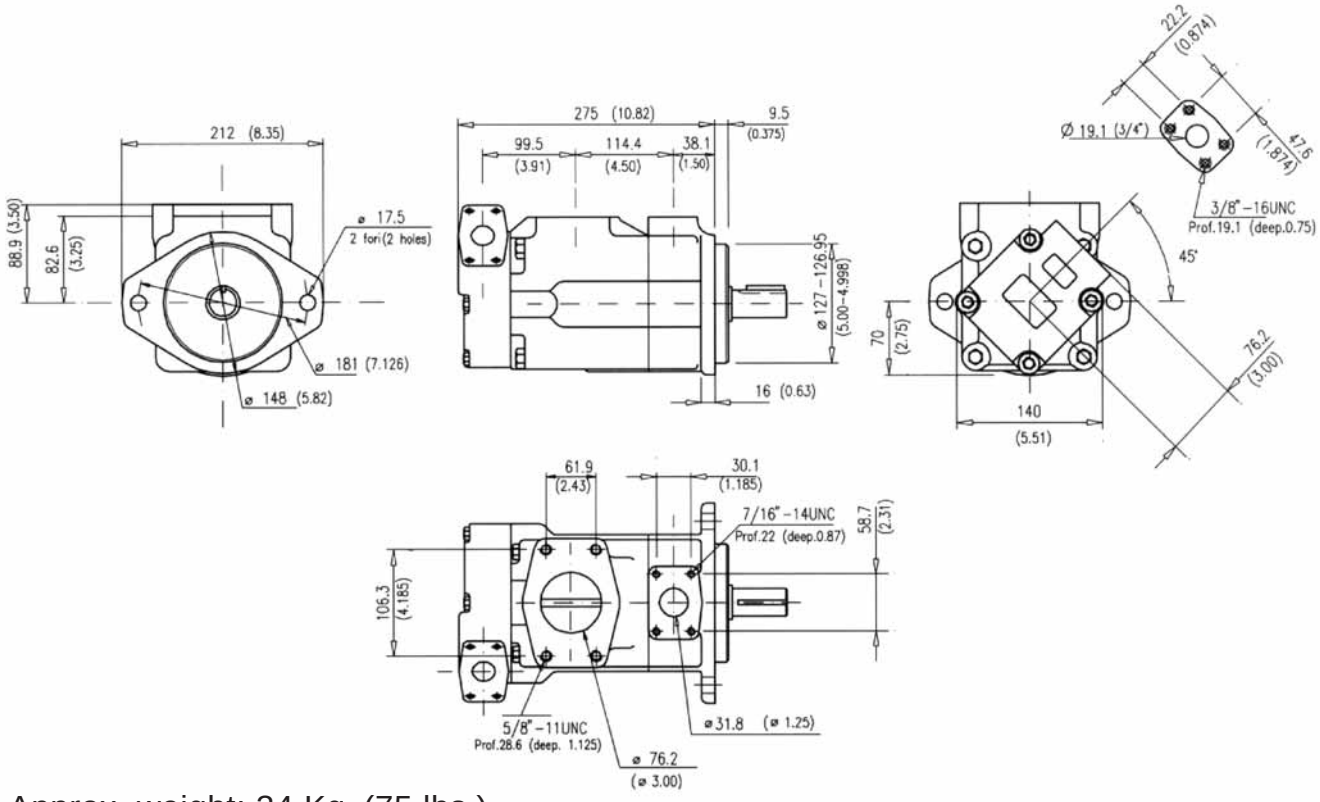


input torque / pressure



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

Installation dimensions mm (inches)



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

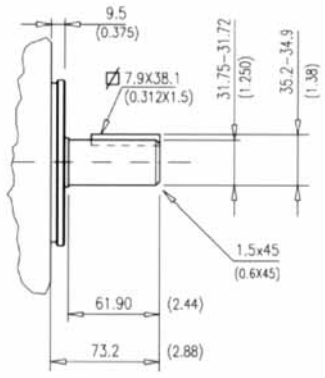
Model code breakdown

BQ 41 G ** ** * * ** (L) * (A)

- **BQ 41** — Pump series / Pump type
- **G** — Design
- ****** — 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
- ****** — Shaft end options
  - **01** = Straight with key (standard), **11** = Splined
  - **86** = Heavy duty straight keyed, **90** = Splined SAE C
- **(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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

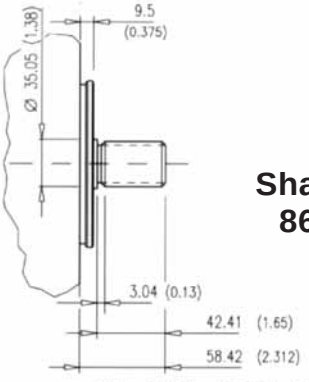
Shaft options mm (inches)

Shaft 01



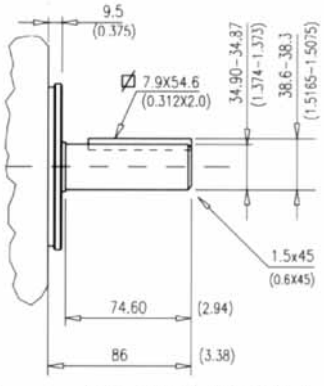
max. torque capability : 400 Nm (3560 lb.in.)

Shaft 11



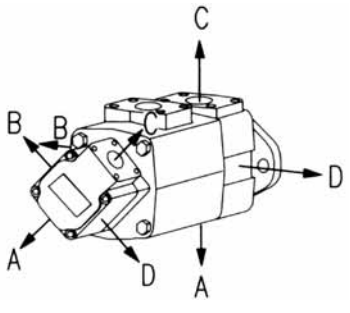
max. torque capability : 580 Nm (5100 lb.in.)

Shaft 86



max torque capability: 600 Nm (5300 lb. in.)

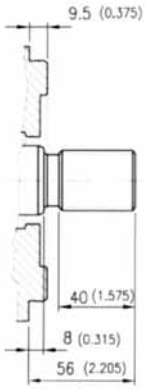
PORT ORIENTATIONS



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: 580 Nm (5100 lb. in.)

Id. codes of pump components

Cartridges

Cover end			Shaft end			Pump rotation
Series	Model	Part No.	Series	Model	Part No.	
A01	02	A0102000	A04	21	A0421030	right hand
	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	left hand
	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

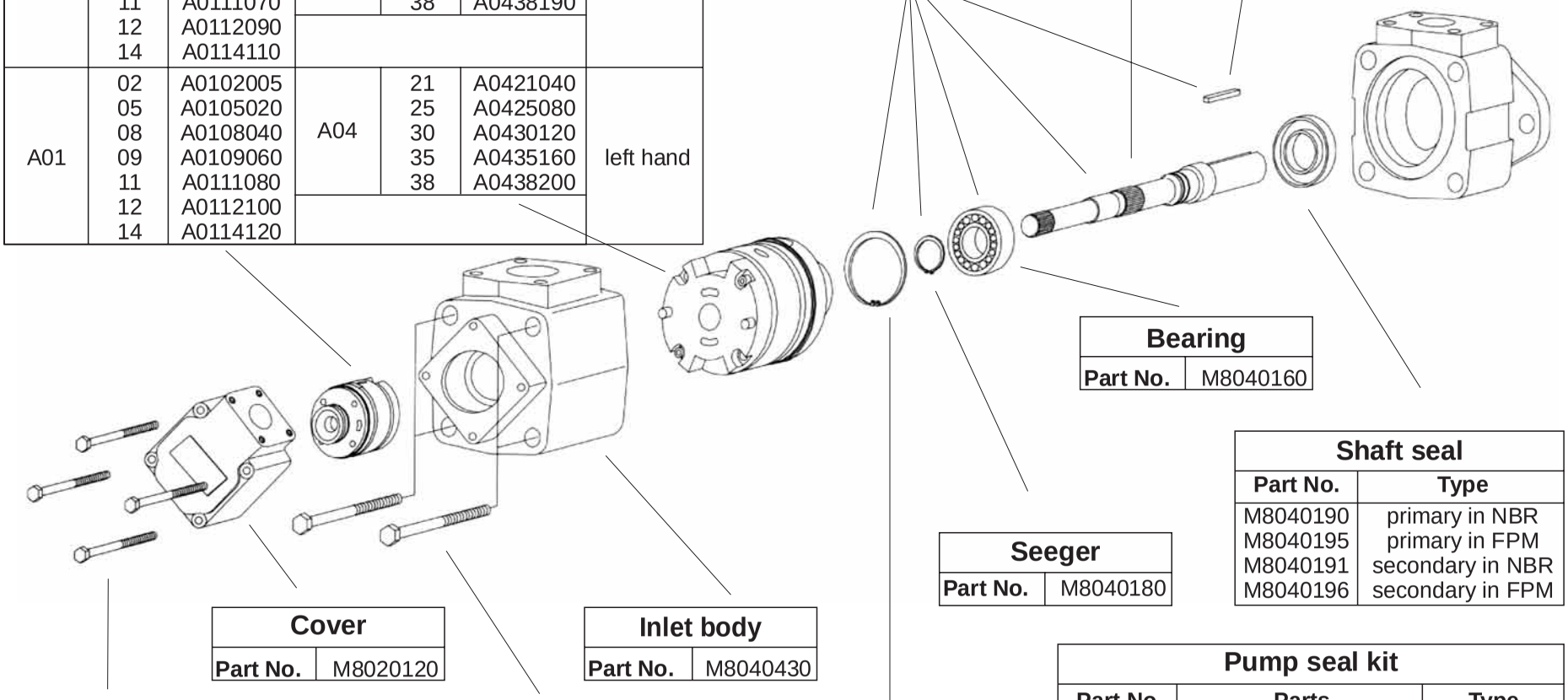
Model	Part No.
01	K4101000
11	K4111000
86	K4186000
90	K4190000

Key

Part No.
M8040100
-
M8048600
-

Body

Part No.	M8040140



Bearing

Part No.	M8040160

Shaft seal

Part No.	Type
M8040190	primary in NBR
M8040195	primary in FPM
M8040191	secondary in NBR
M8040196	secondary in FPM

Seeger

Part No.	M8040180

Cover

Part No.	M8020120

Inlet body

Part No.	M8040430

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®)

Screw

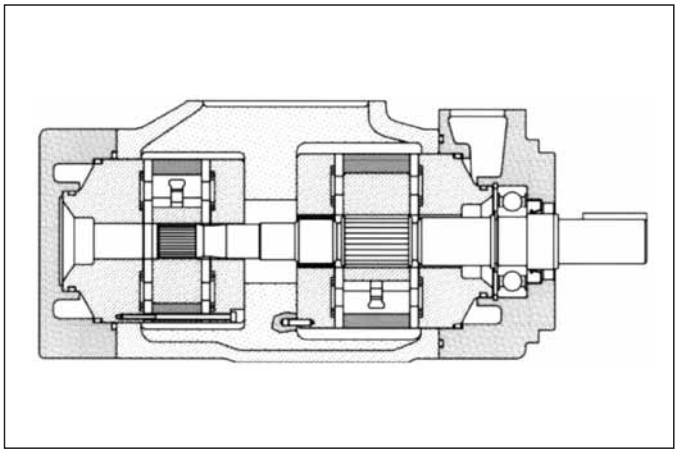
Part No.	M8020420
Torque to 70 Nm (624 lb. in.)	

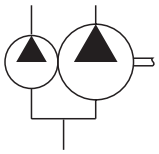
Screw

Part No.	M8040210
Torque to 225 Nm (2010 lb. in.)	

Seeger

Part No.	M8040170





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	
shaft end	**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**
cover end	**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)*.

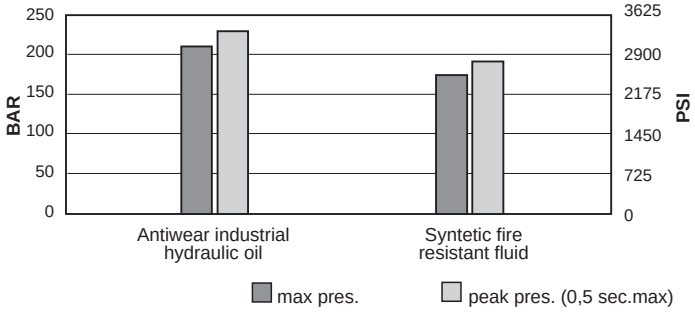
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

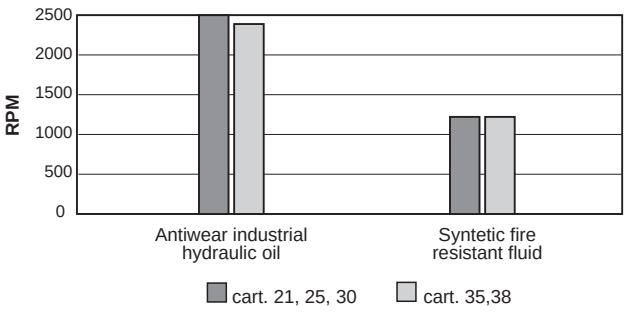
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

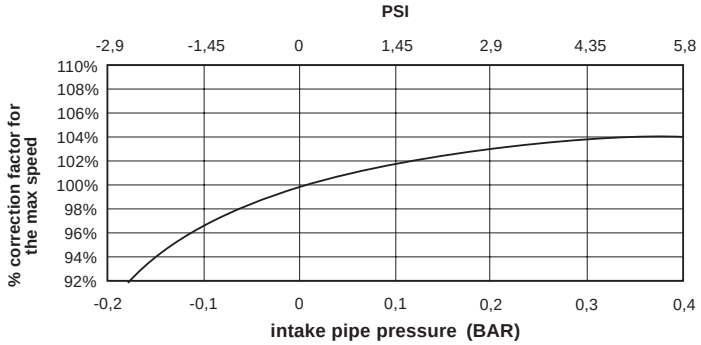


max speed / hydraulic fluid



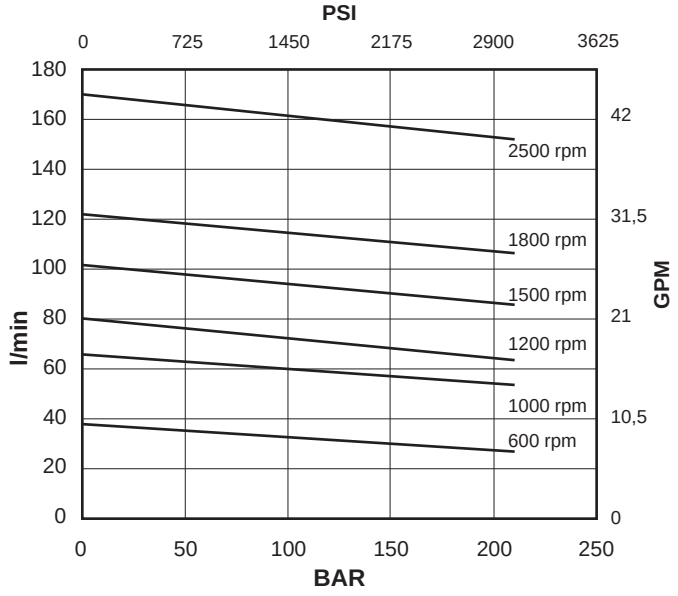
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

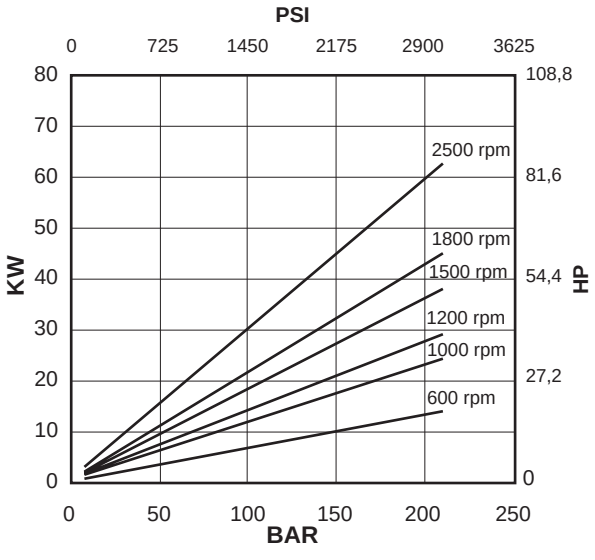


Shaft end cartridge A04-21

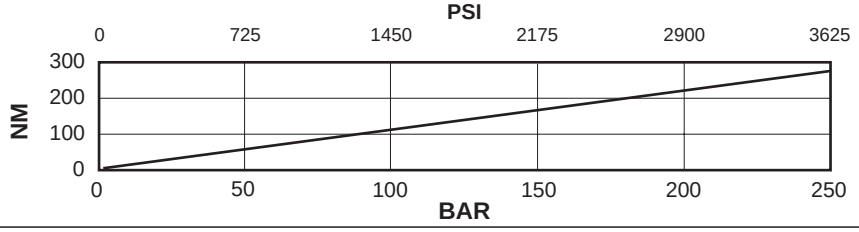
flow / pressure



power / pressure



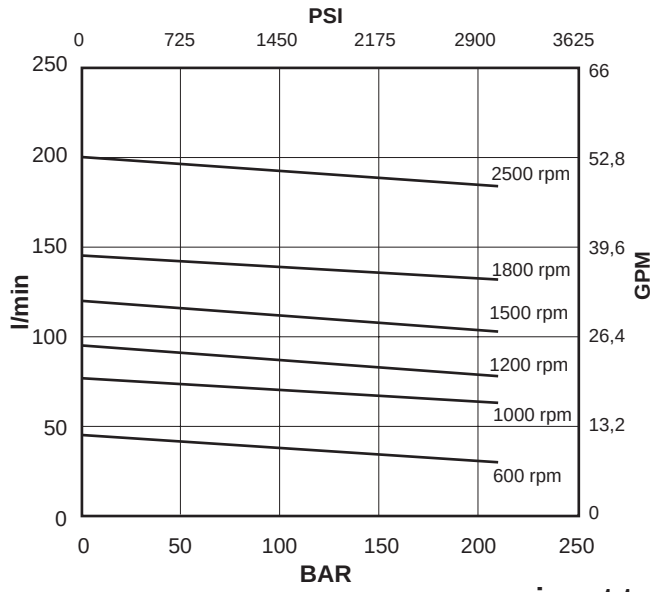
input torque / pressure



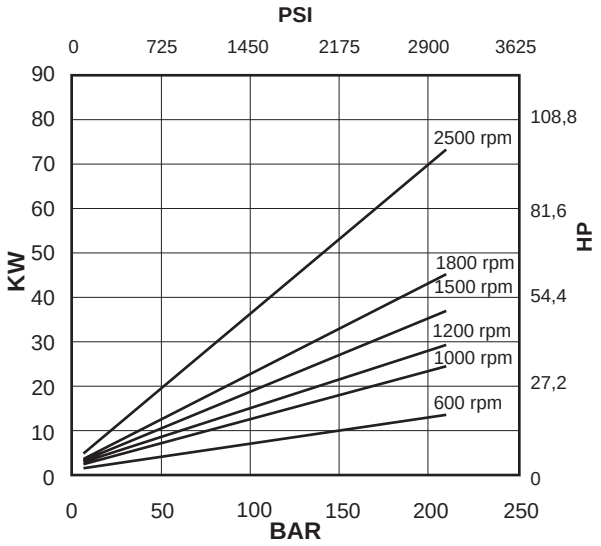
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-25

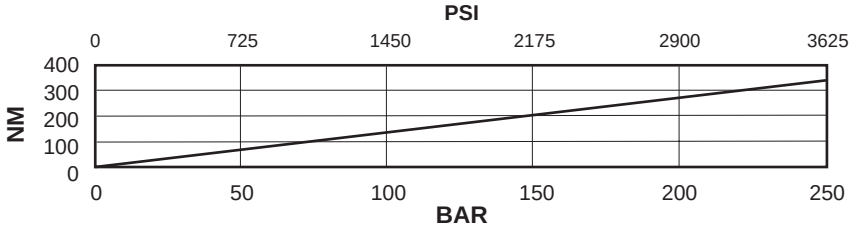
flow / pressure



power / pressure



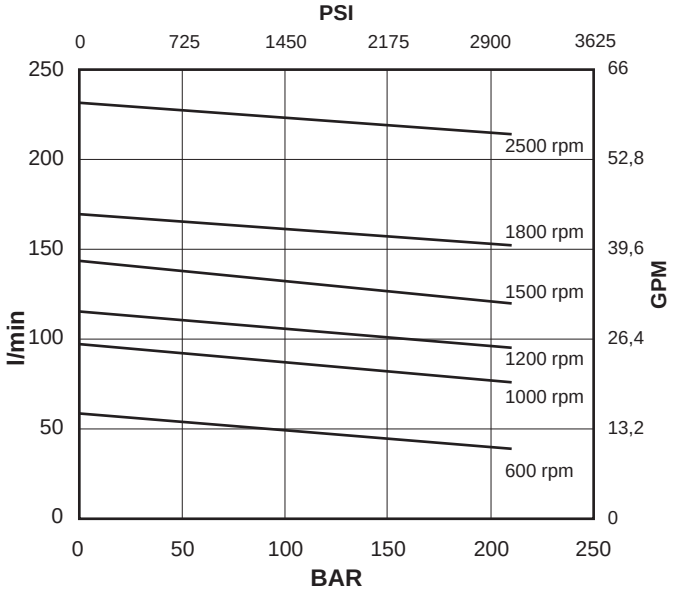
input torque / pressure



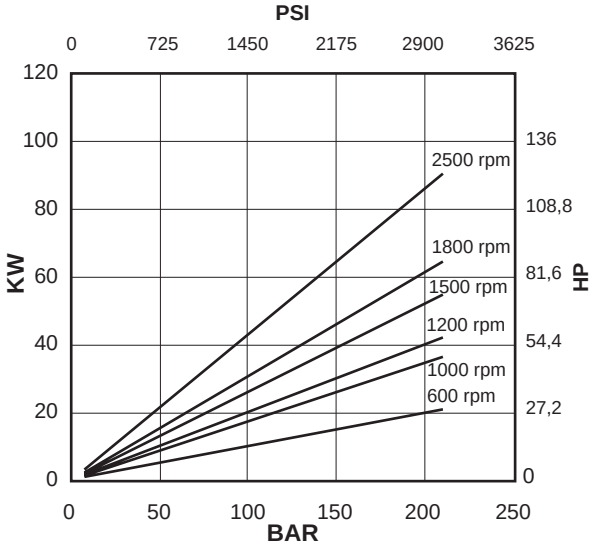
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-30

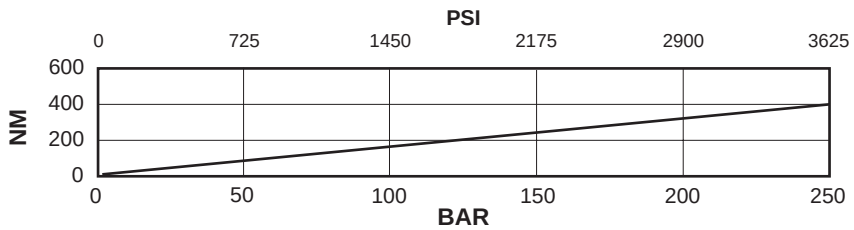
flow / pressure



power / pressure



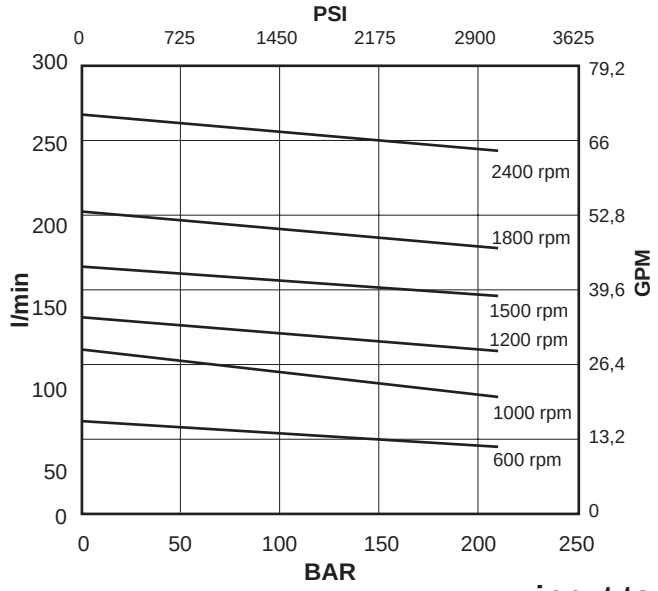
input torque / pressure



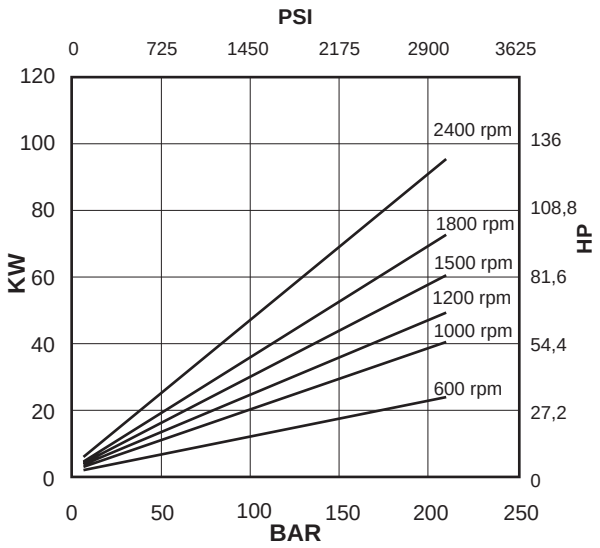
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-35

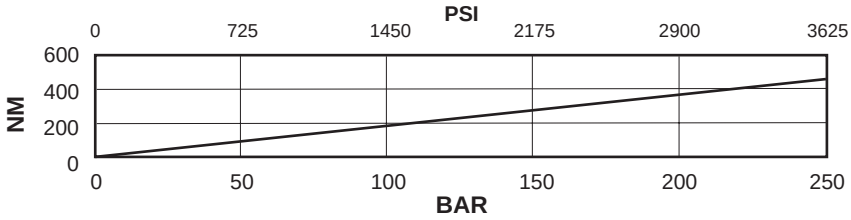
flow / pressure



power / pressure



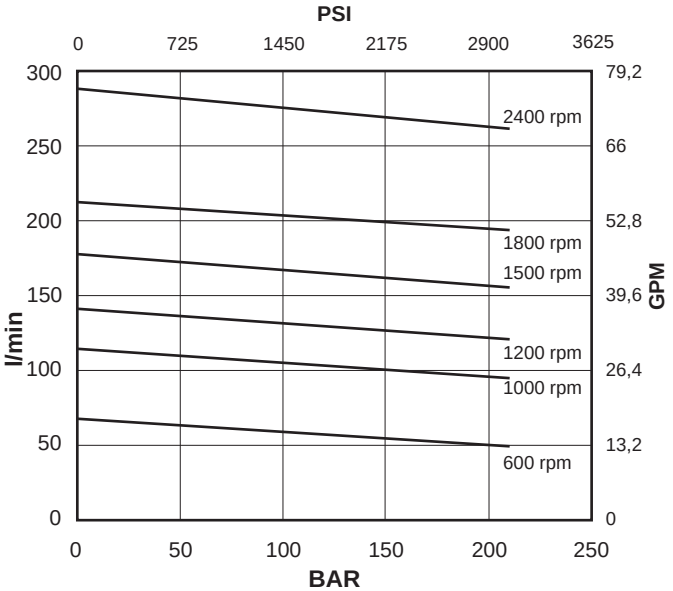
input torque / pressure



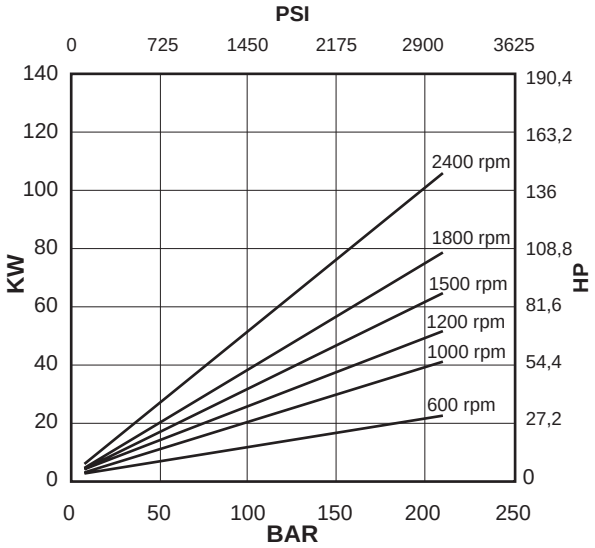
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A04-38

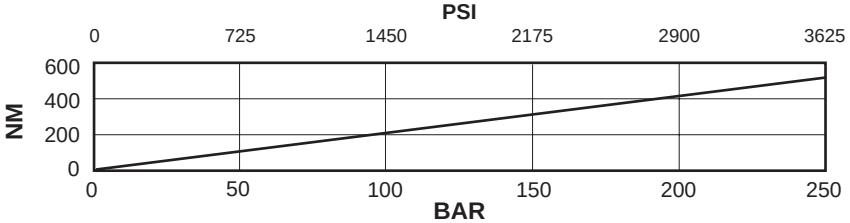
flow / pressure



power / pressure



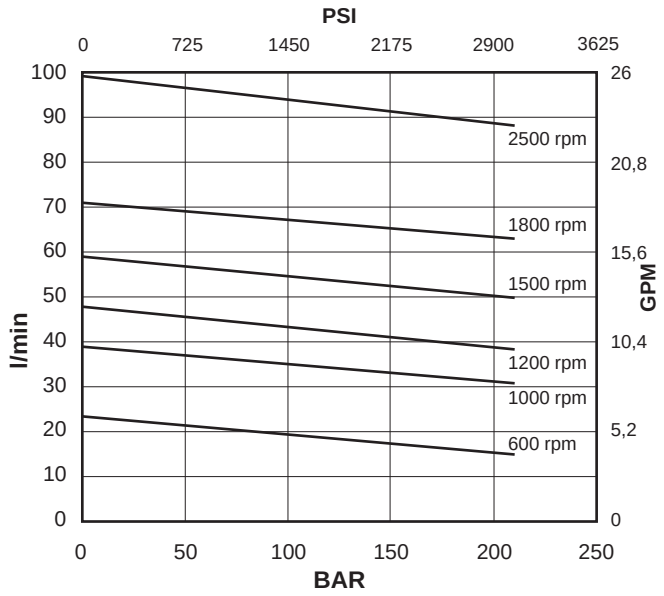
input torque / pressure



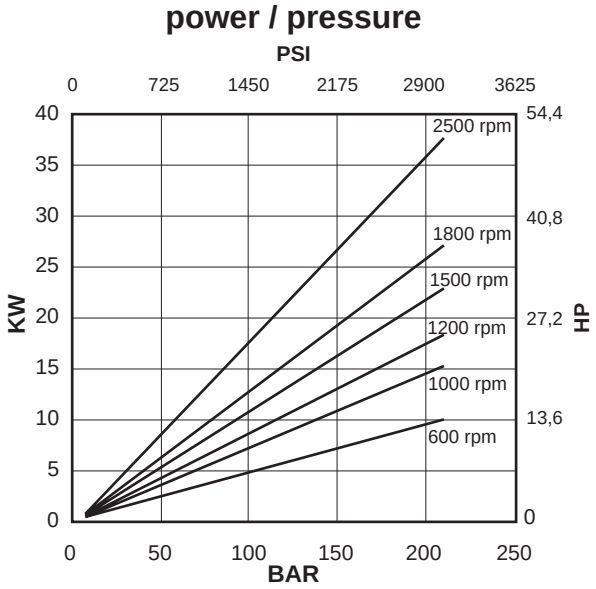
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-12

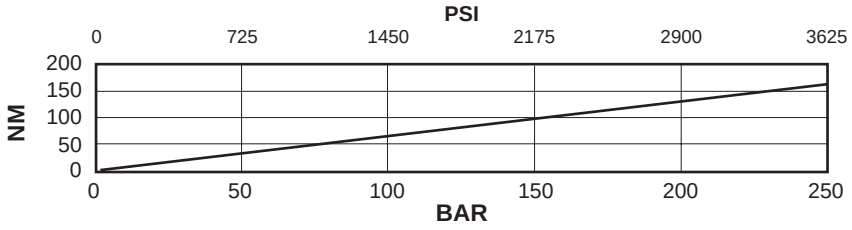
flow / pressure



power / pressure



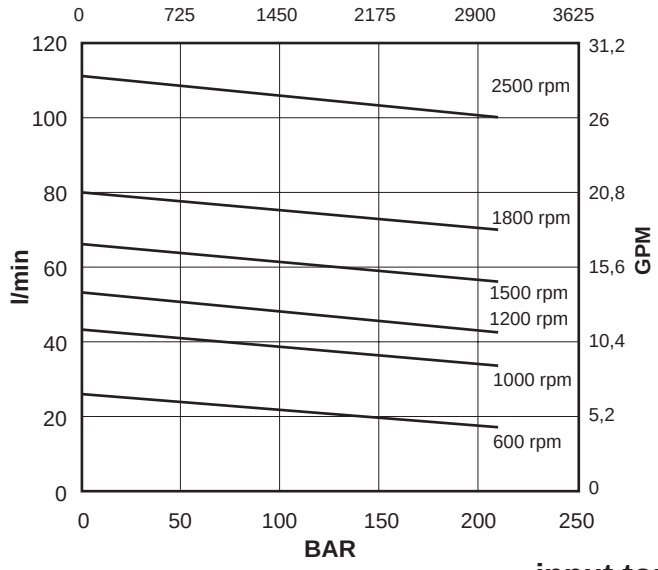
input torque / pressure



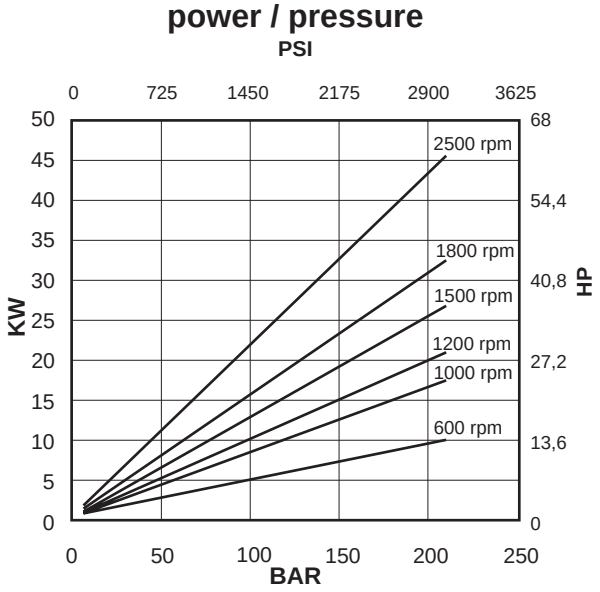
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-14

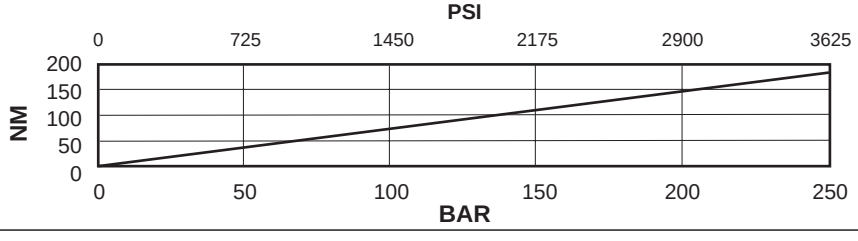
flow / pressure



power / pressure



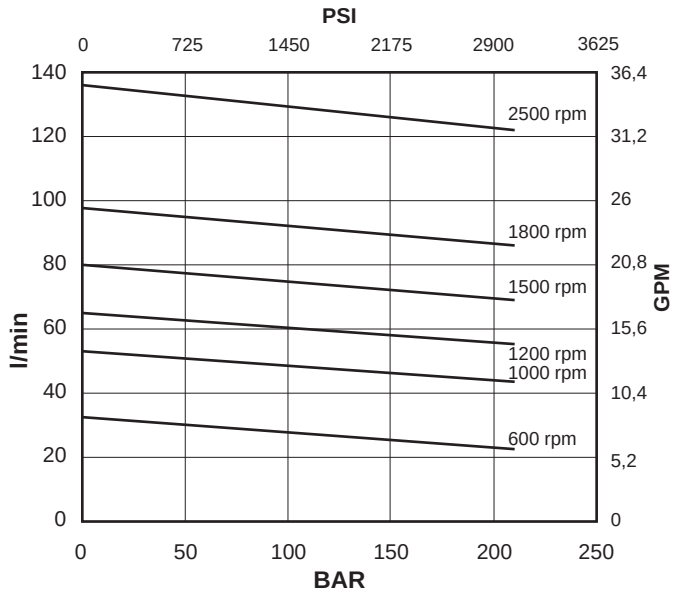
input torque / pressure



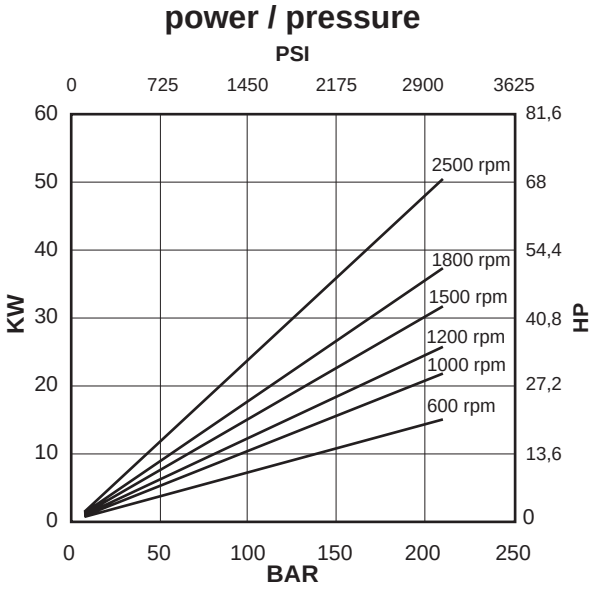
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-17

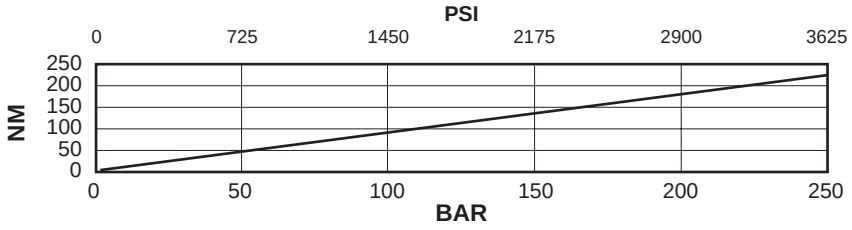
flow / pressure



power / pressure



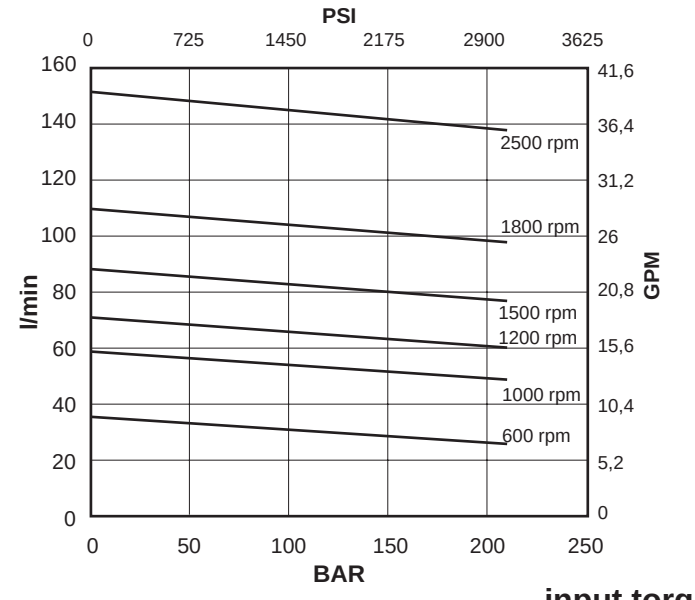
input torque / pressure



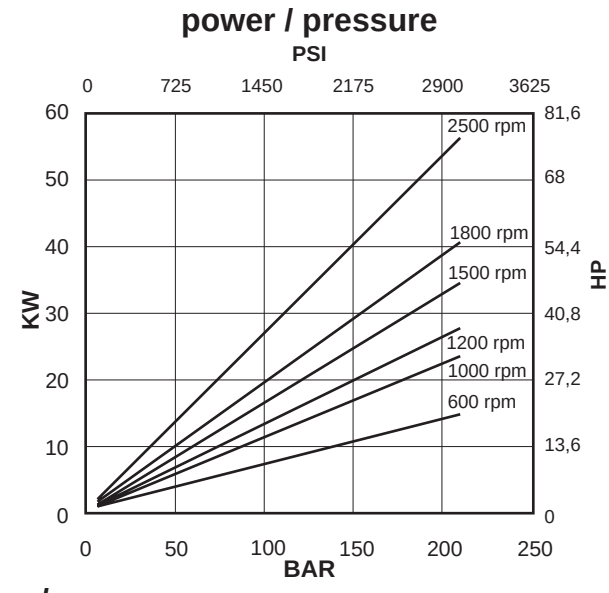
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-19

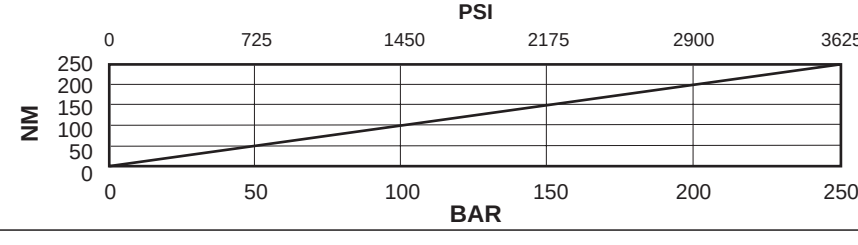
flow / pressure



power / pressure



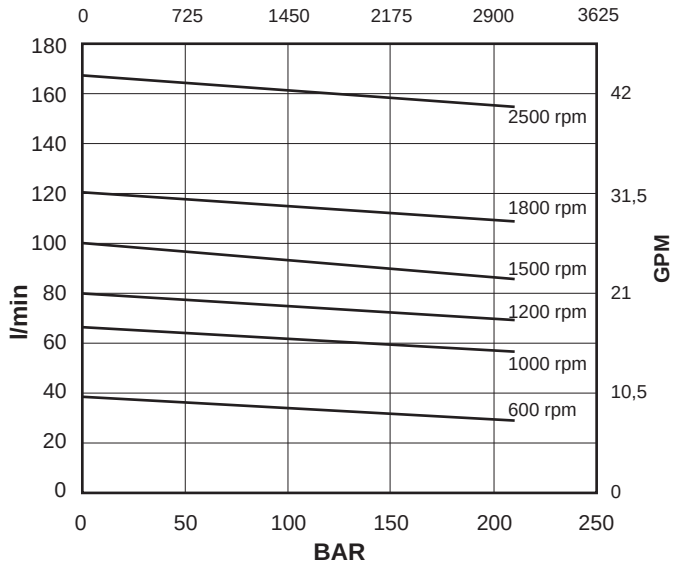
input torque / pressure



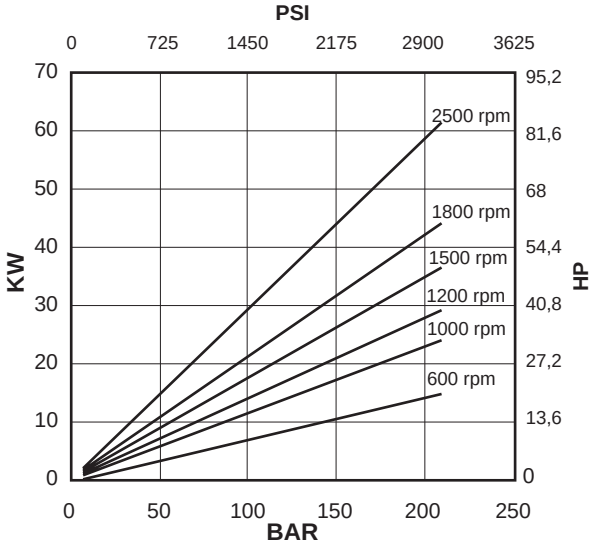
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-21

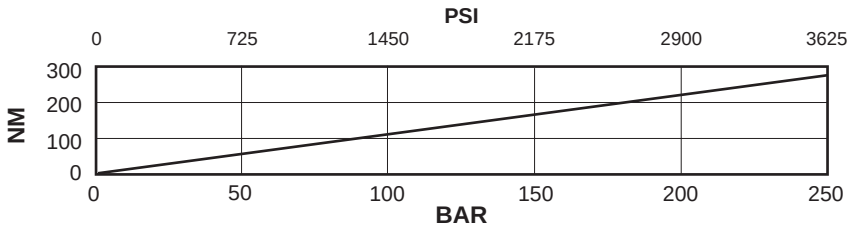
flow / pressure



power / pressure

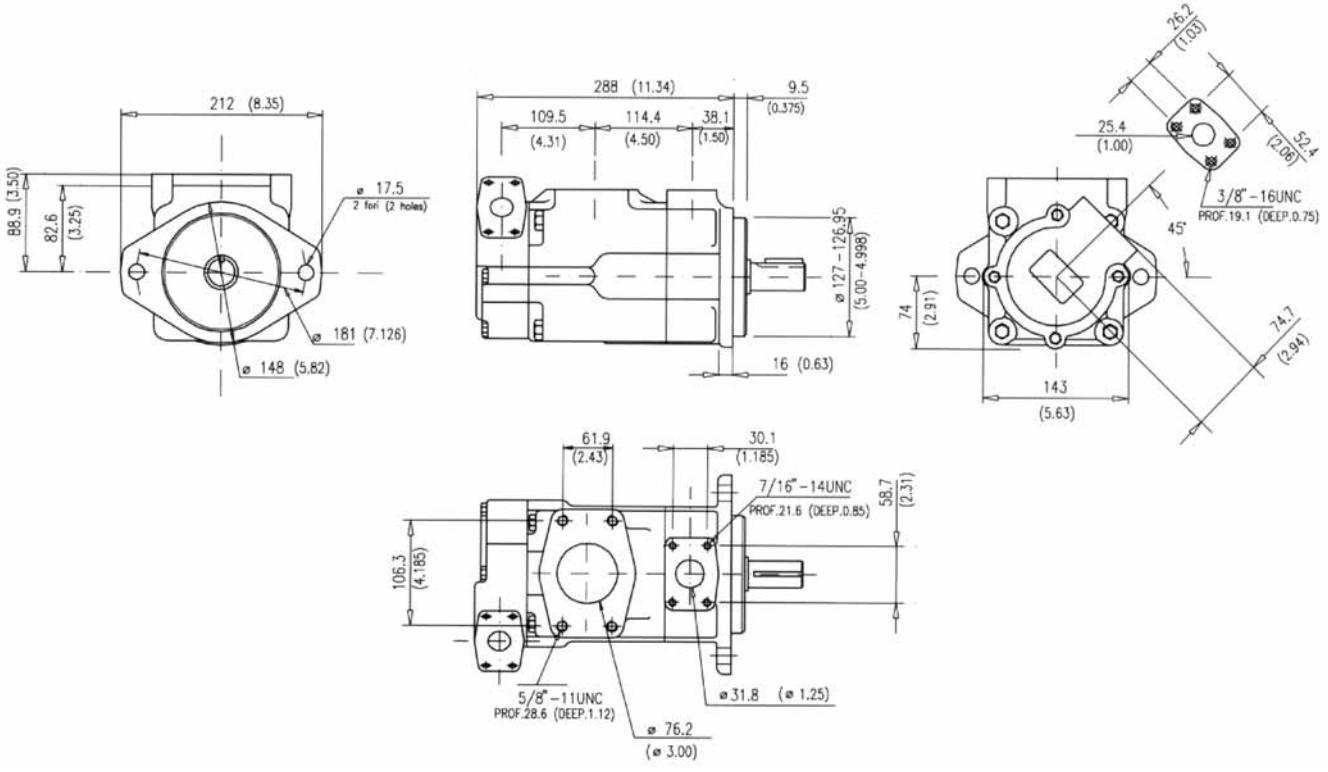


input torque / pressure



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

Installation dimensions mm (inches)



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

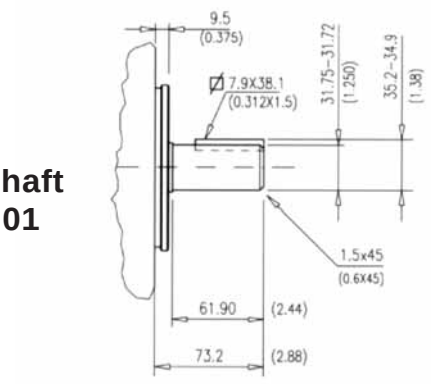
Model code breakdown

BQ 42 G ** ** * * ** (L) * (A)

- **BQ** — Pump series
- **42** — Pump type
- **G** — Design
- ****** — Cartridge types
  - **-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
- **(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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

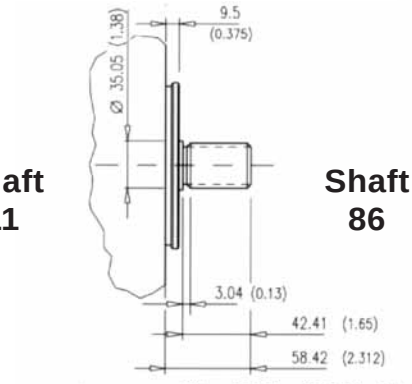
Shaft options mm (inches)

Shaft 01



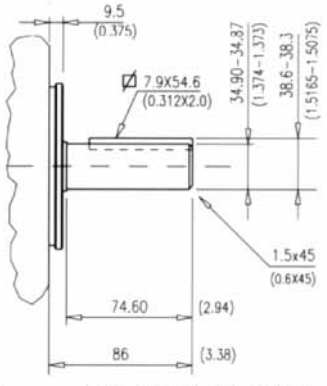
max. torque capability : 400 Nm (3560 lb.in.)

Shaft 11



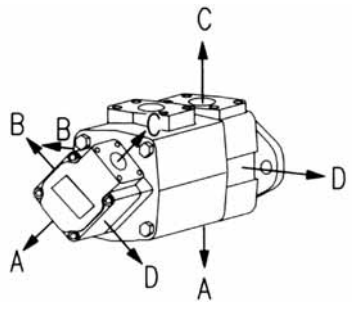
max. torque capability : 580 Nm (5100 lb.in.)

Shaft 86



max torque capability: 600 Nm (5300 lb. in.)

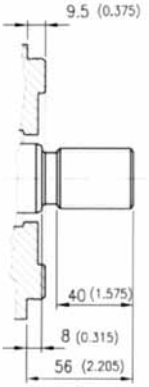
PORT ORIENTATIONS



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: 580 Nm (5100 lb. in.)

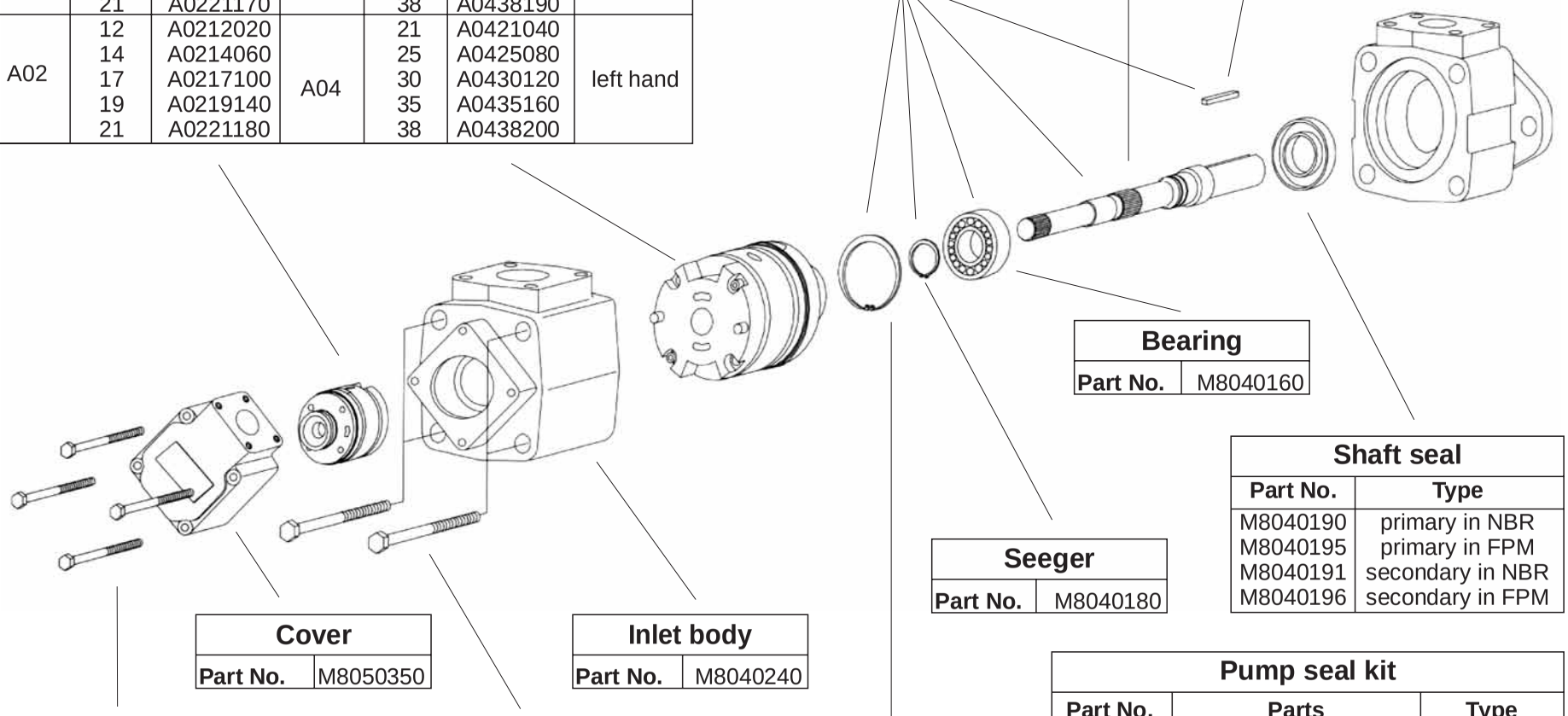
Id. codes of pump components

Cartridges						
Cover end			Shaft end			Pump rotation
Series	Model	Part No.	Series	Model	Part No.	
A02	12	A0212010	A04	21	A0421030	right hand
	14	A0214050		25	A0425070	
	17	A0217090		30	A0430110	
	19	A0219130		35	A0435150	
	21	A0221170		38	A0438190	
A02	12	A0212020	A04	21	A0421040	left hand
	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.
01	K4201000	M8040100
11	K4211000	-
86	K4286000	M8048600
90	K4290000	-

Body	
Part No.	M8040140



Bearing	
Part No.	M8040160

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

Seeger	
Part No.	M8040180

Cover	
Part No.	M8050350

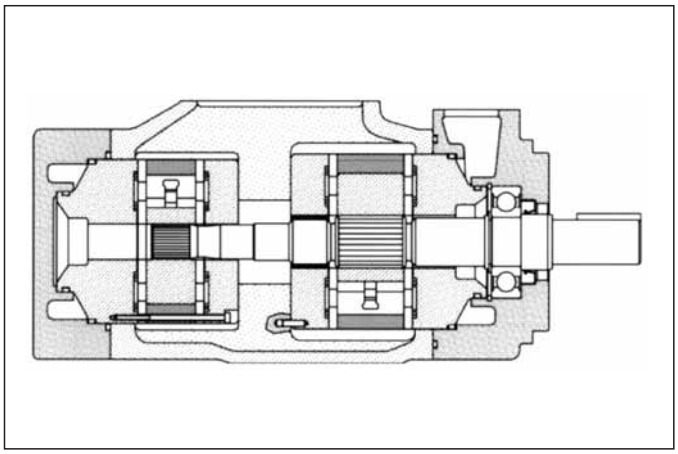
Inlet body	
Part No.	M8040240

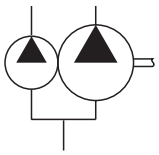
Pump seal kit		
Part No.	Parts	Type
M8420371	seals + 1 shaft seal	NBR
M8420372	seals + 2 shaft seals	NBR
M8420373	seals + 1 shaft seal	FPM (Viton®)
M8420374	seals + 2 shaft seals	FPM (Viton®)

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

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

Seeger	
Part No.	M8040170





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	
shaft end	**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**
cover end	**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).*

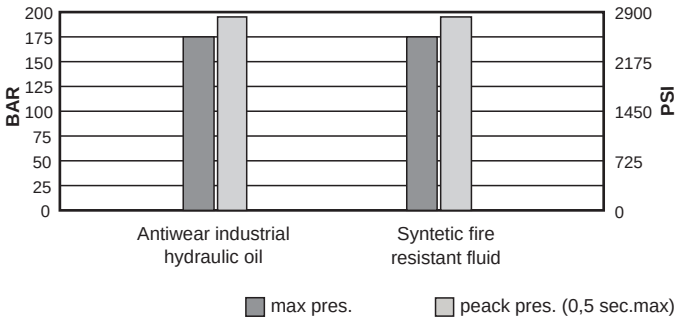
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

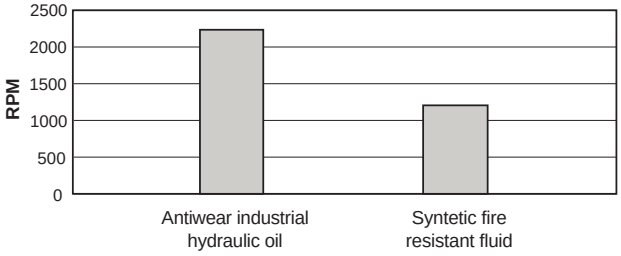
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

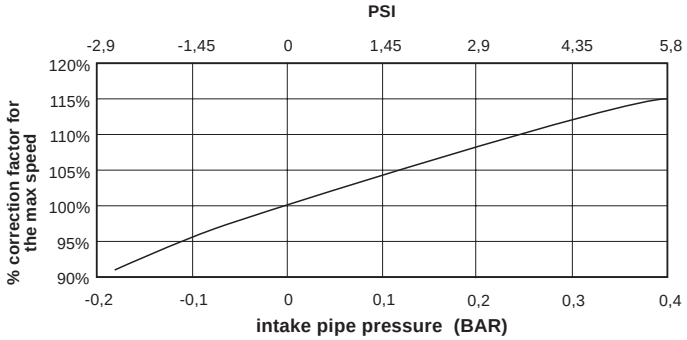


max speed / hydraulic fluid (with 0 bar in the intake pipe)



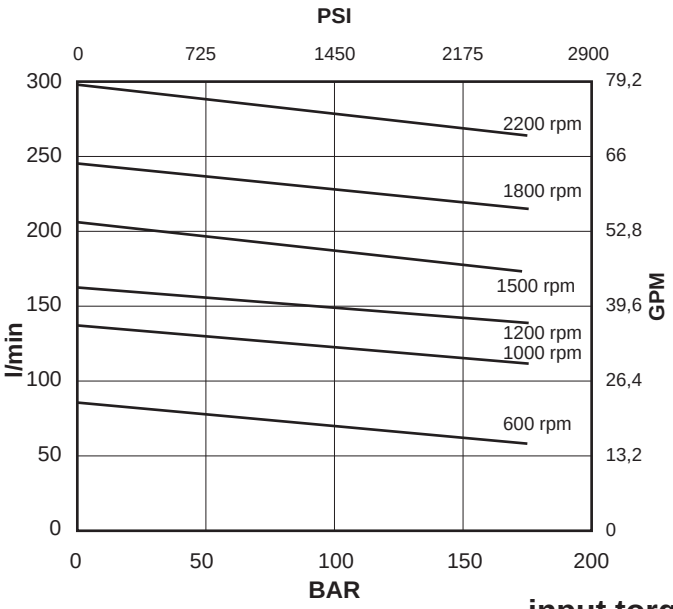
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

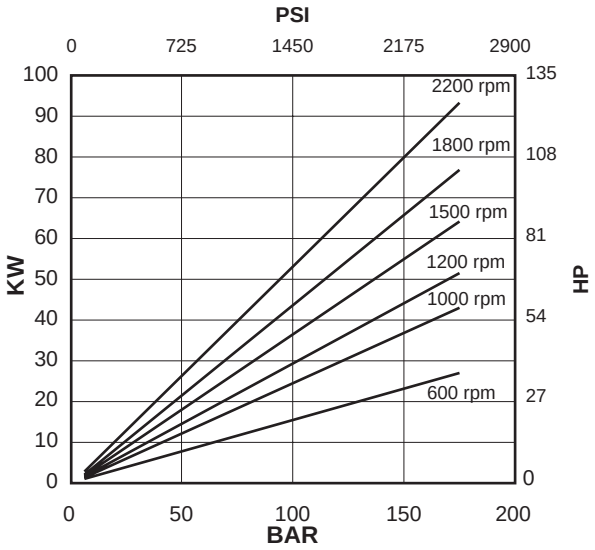


Shaft end cartridge A05-42

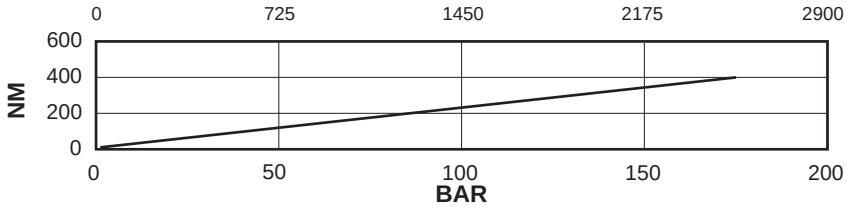
flow / pressure



power / pressure



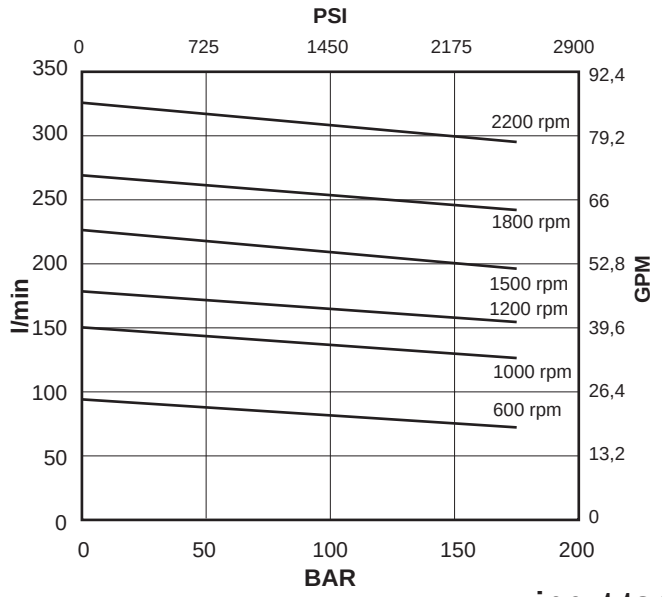
input torque / pressure



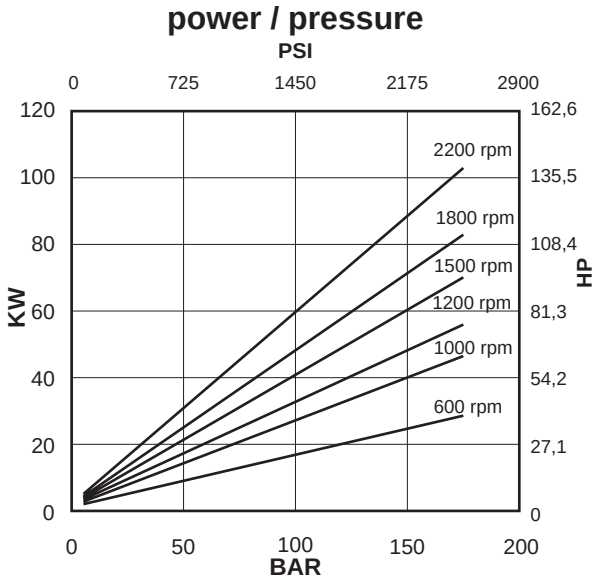
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-47

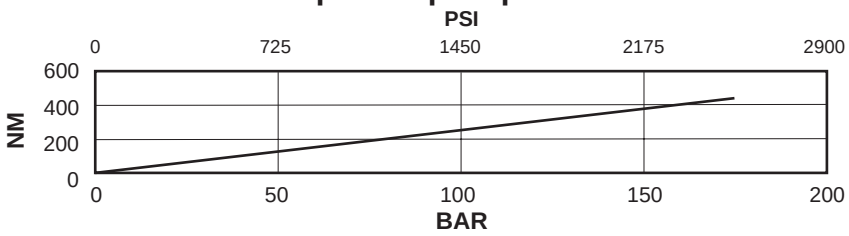
flow / pressure



power / pressure



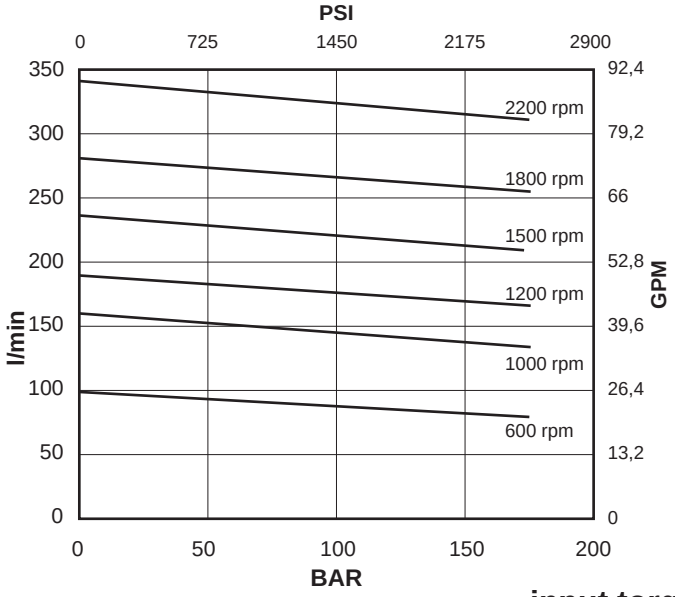
input torque / pressure



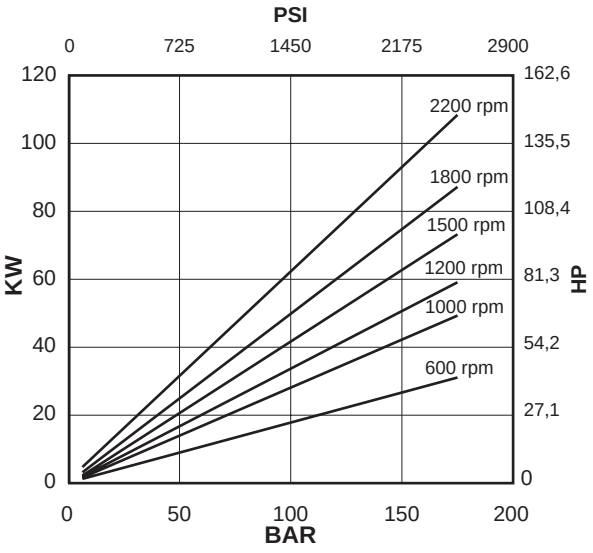
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-50

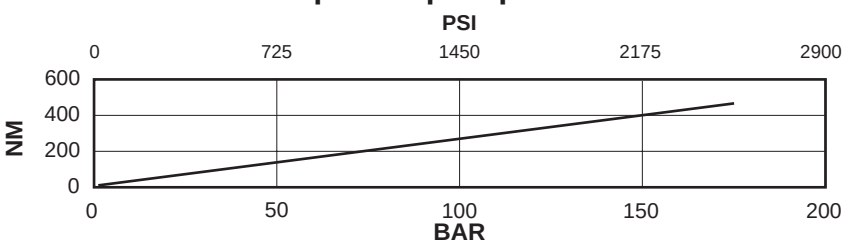
flow / pressure



power / pressure



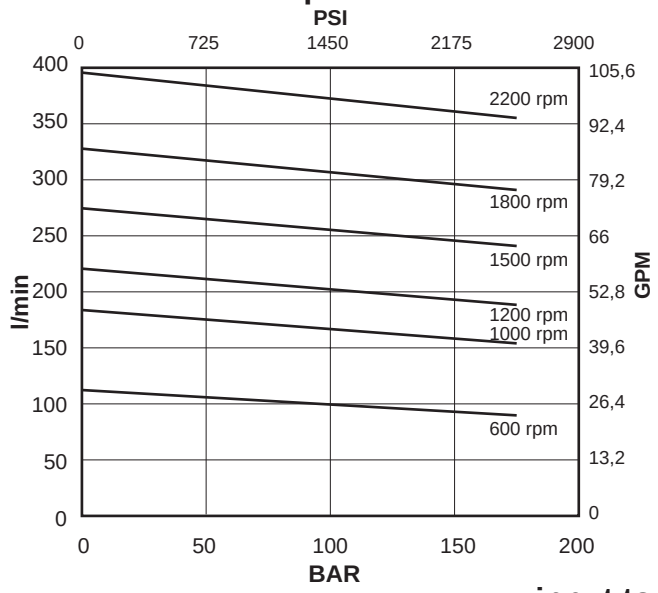
input torque / pressure



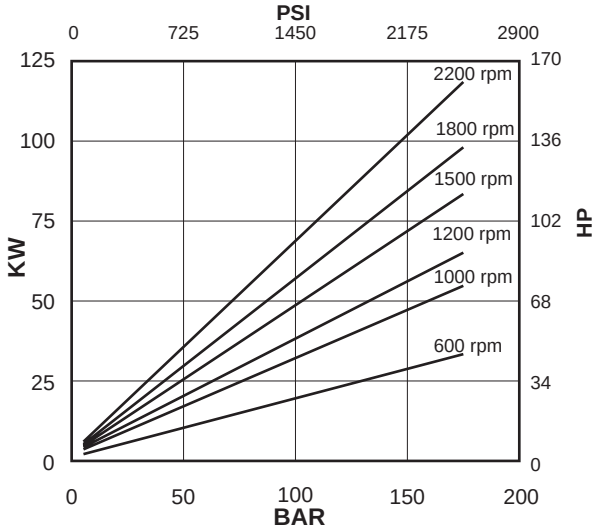
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-57

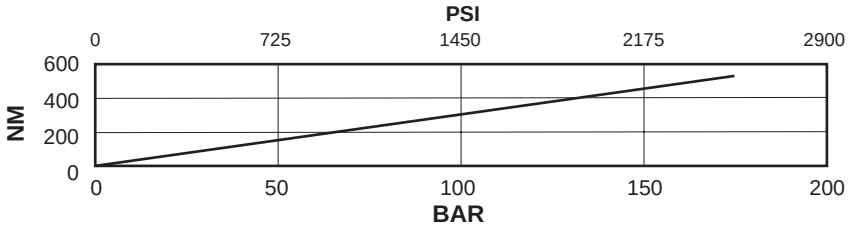
flow / pressure



power / pressure



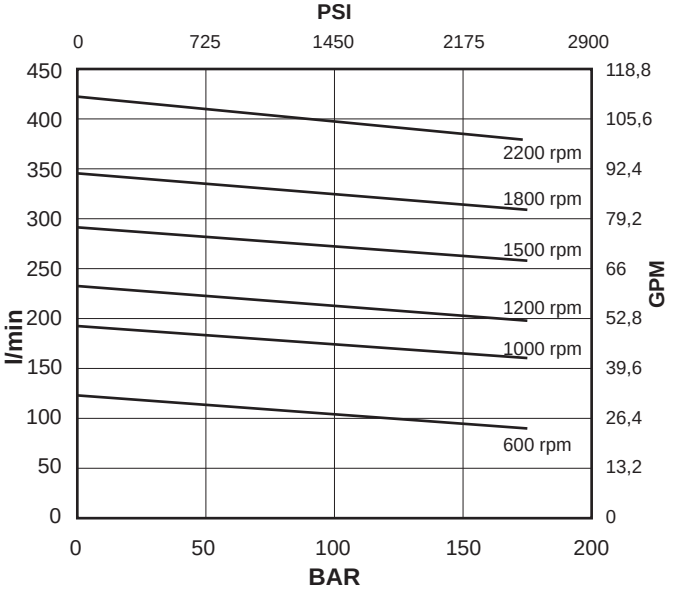
input torque / pressure



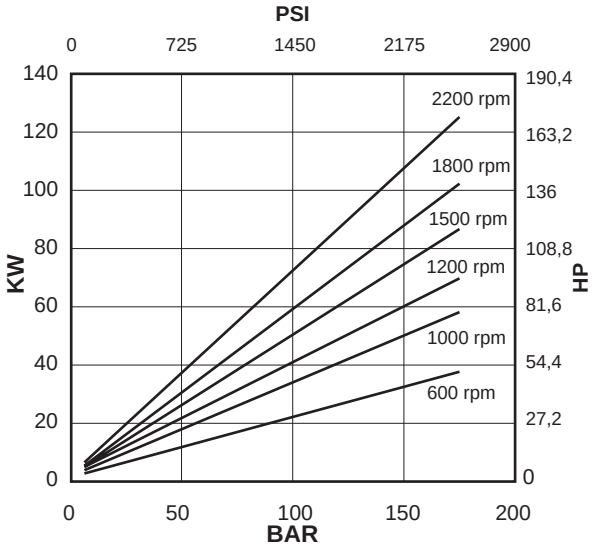
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-60

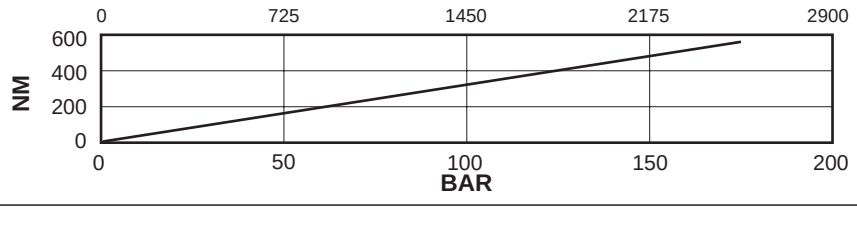
flow / pressure



power / pressure



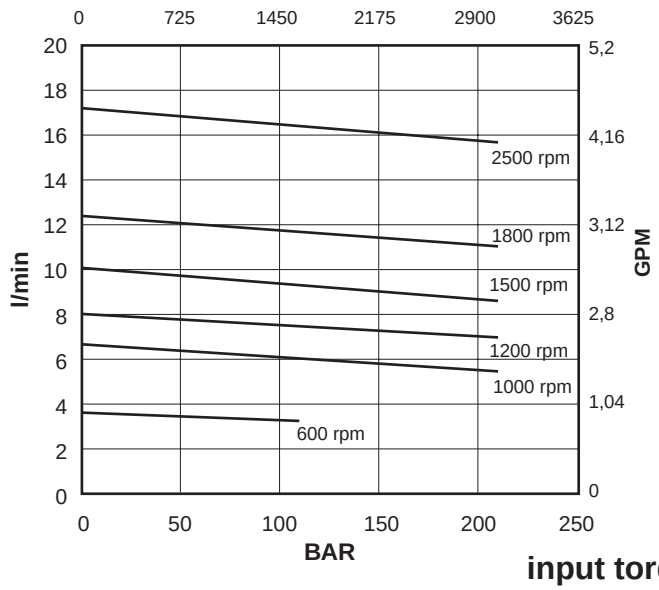
input torque / pressure



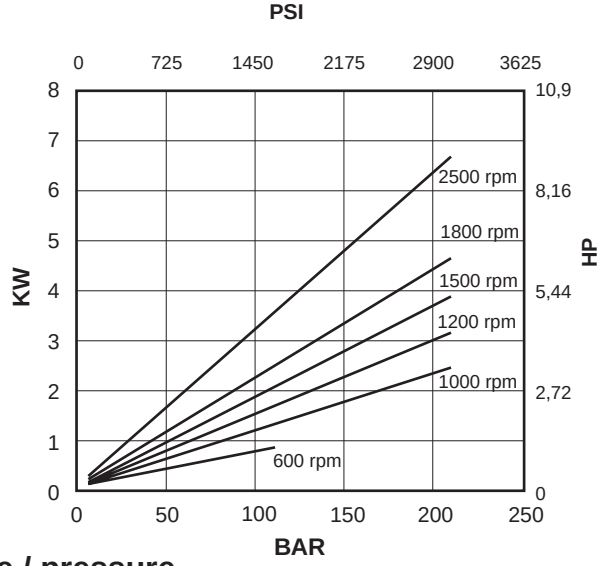
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-02

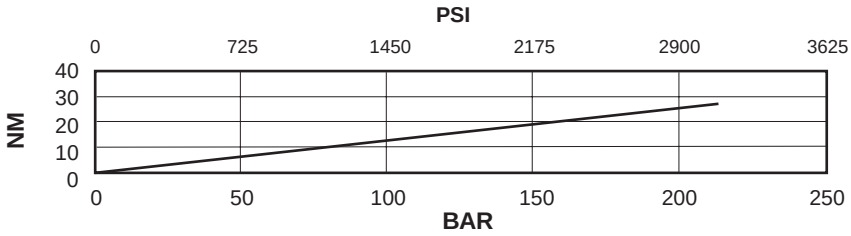
flow / pressure



power / pressure



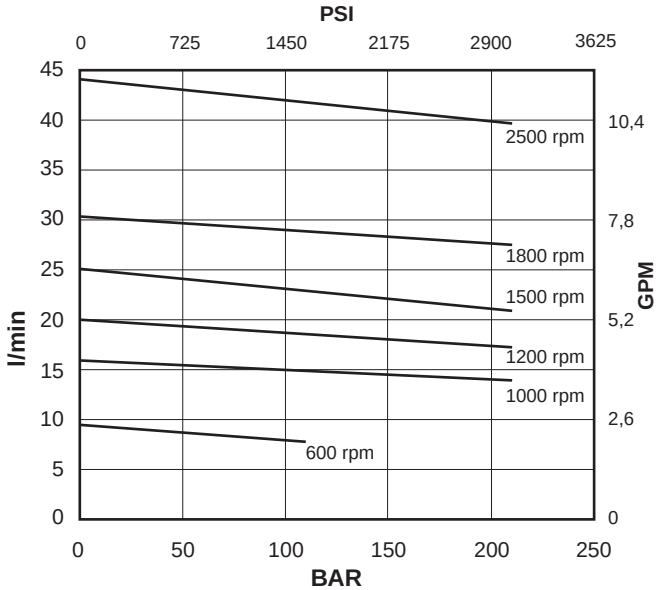
input torque / pressure



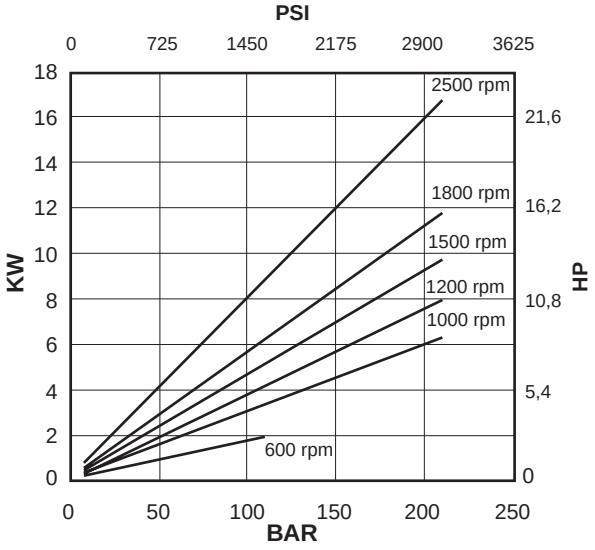
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-05

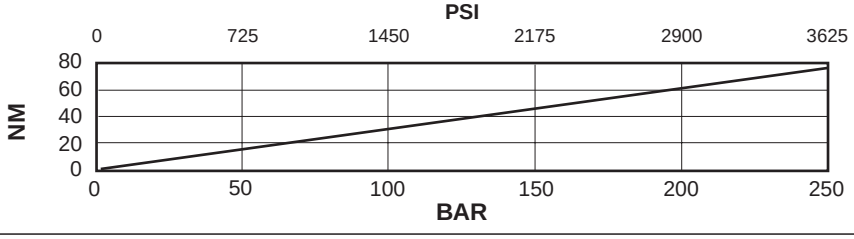
flow / pressure



power / pressure



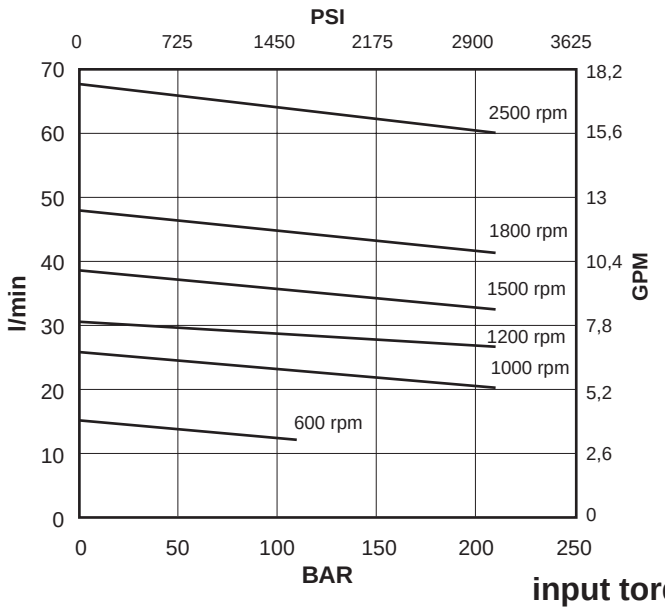
input torque / pressure



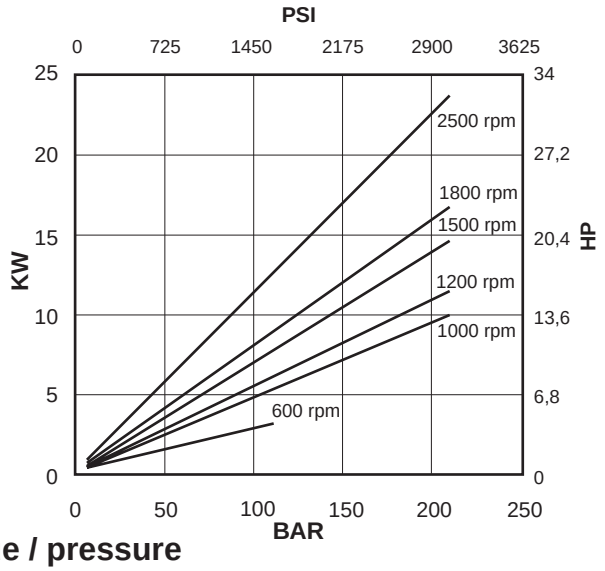
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-08

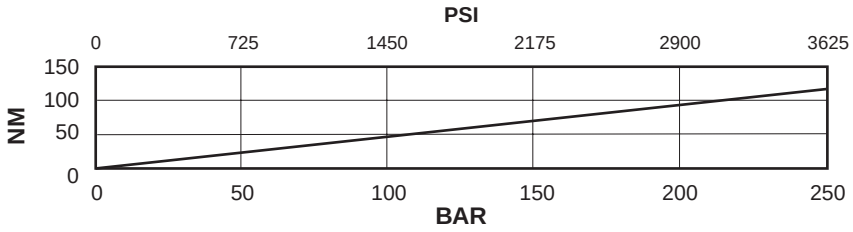
flow / pressure



power / pressure



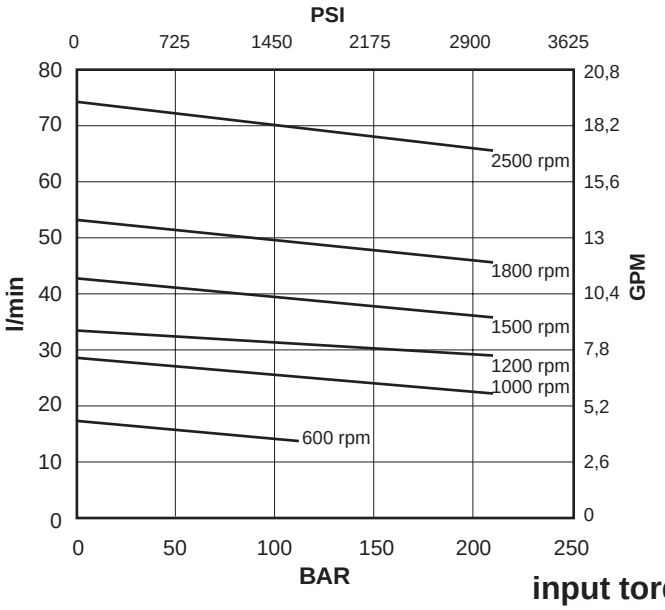
input torque / pressure



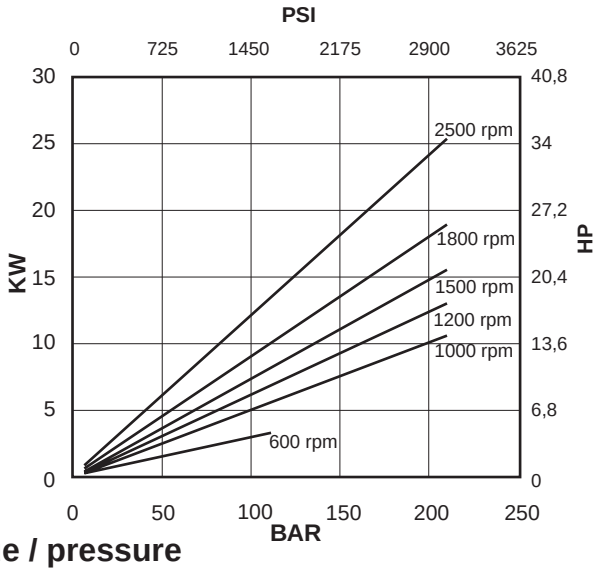
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-09

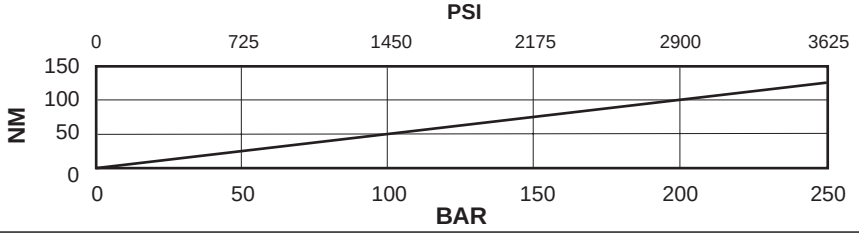
flow / pressure



power / pressure



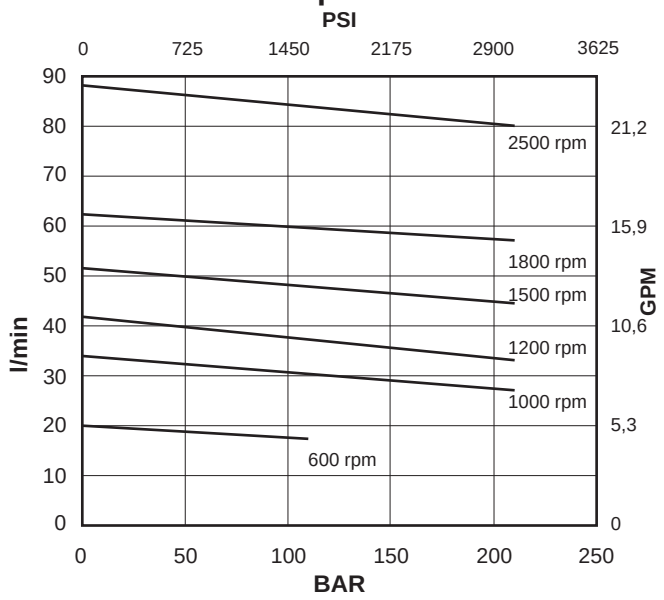
input torque / pressure



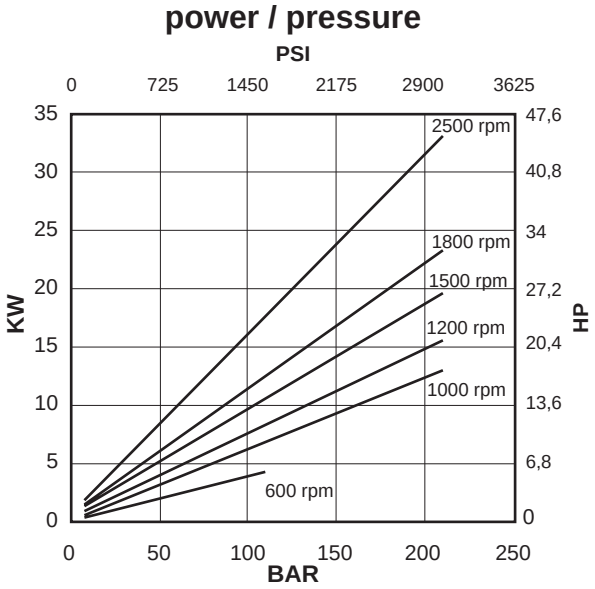
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-11

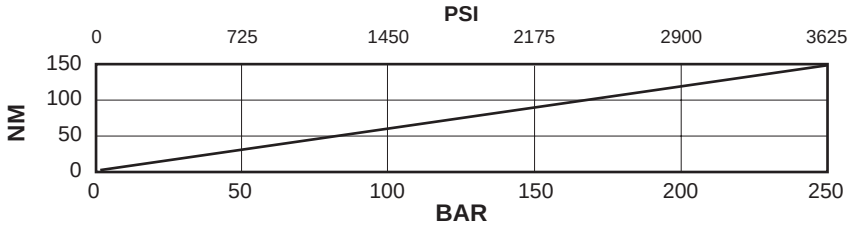
flow / pressure



power / pressure



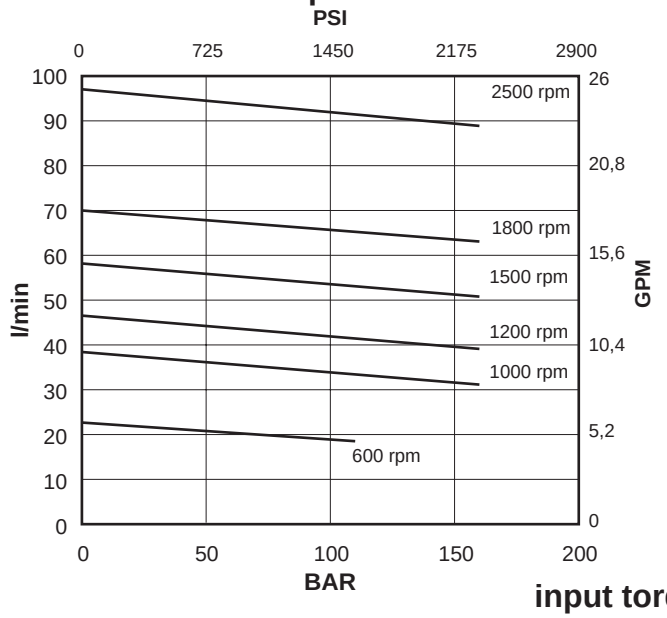
input torque / pressure



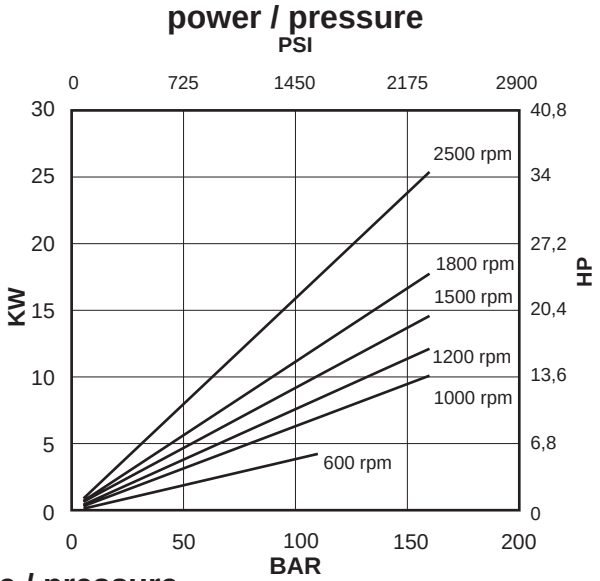
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-12

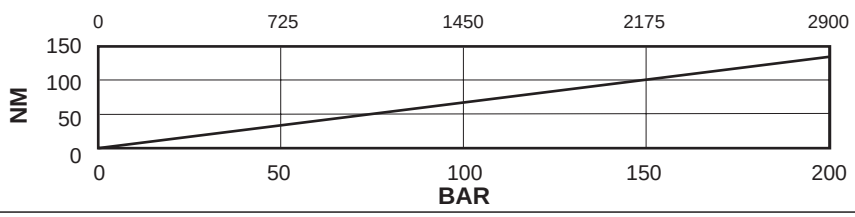
flow / pressure



power / pressure



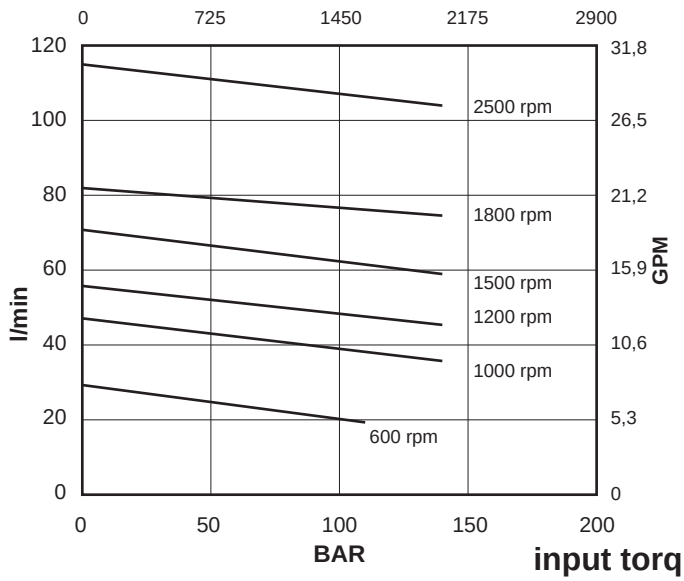
input torque / pressure



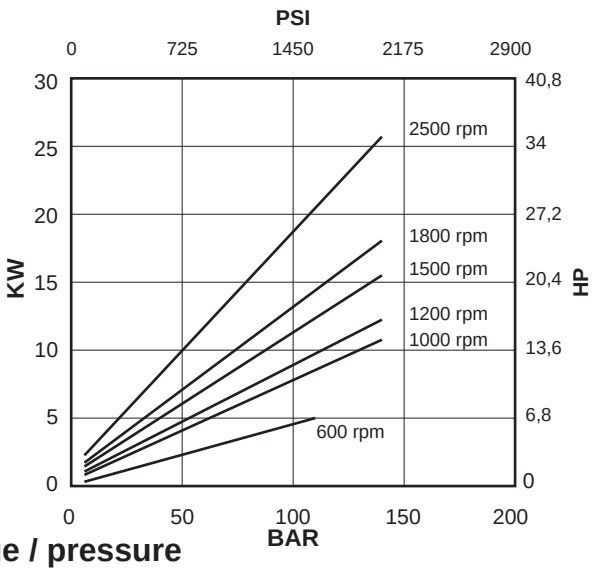
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A01-14

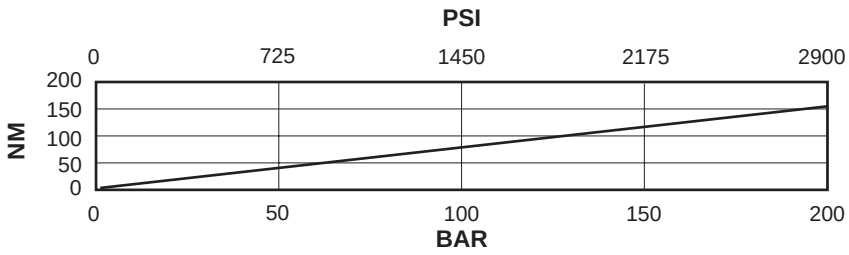
flow / pressure



power / pressure

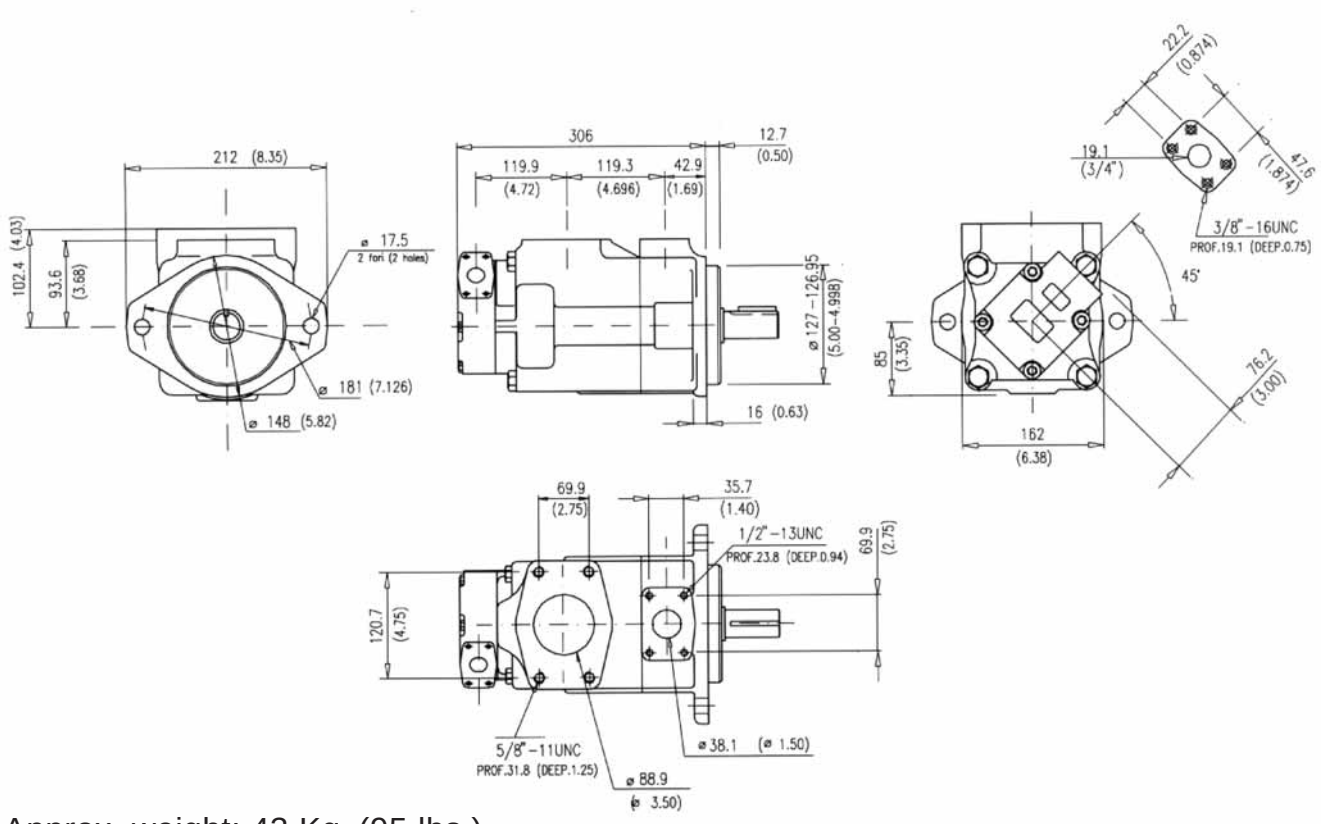


input torque / pressure



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

Installation dimensions mm (inches)



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

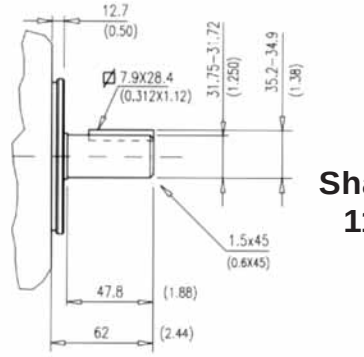
Model code breakdown

BQ 51 G ** ** * * ** (L) * (A)

- **BQ** — Pump series
- **51** — Pump type
- **G** — Design
- ****** — Cartridge types
  - **-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
- **(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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

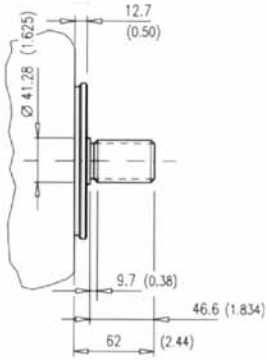
Shaft options mm (inches)

Shaft 01



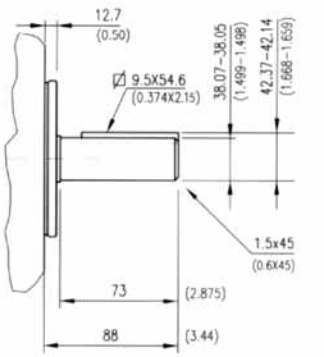
max. torque capability : 600 Nm (5300 lb.in.)

Shaft 11



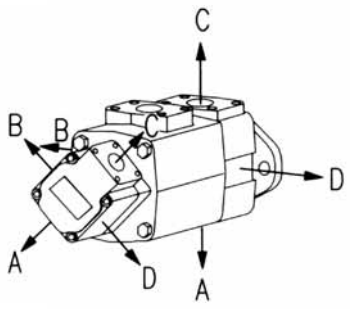
max. torque capability : 820 Nm (7200 lb.in.)

Shaft 86



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

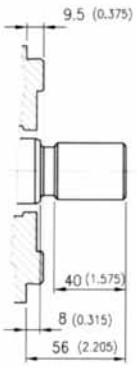
PORT ORIENTATIONS



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.)

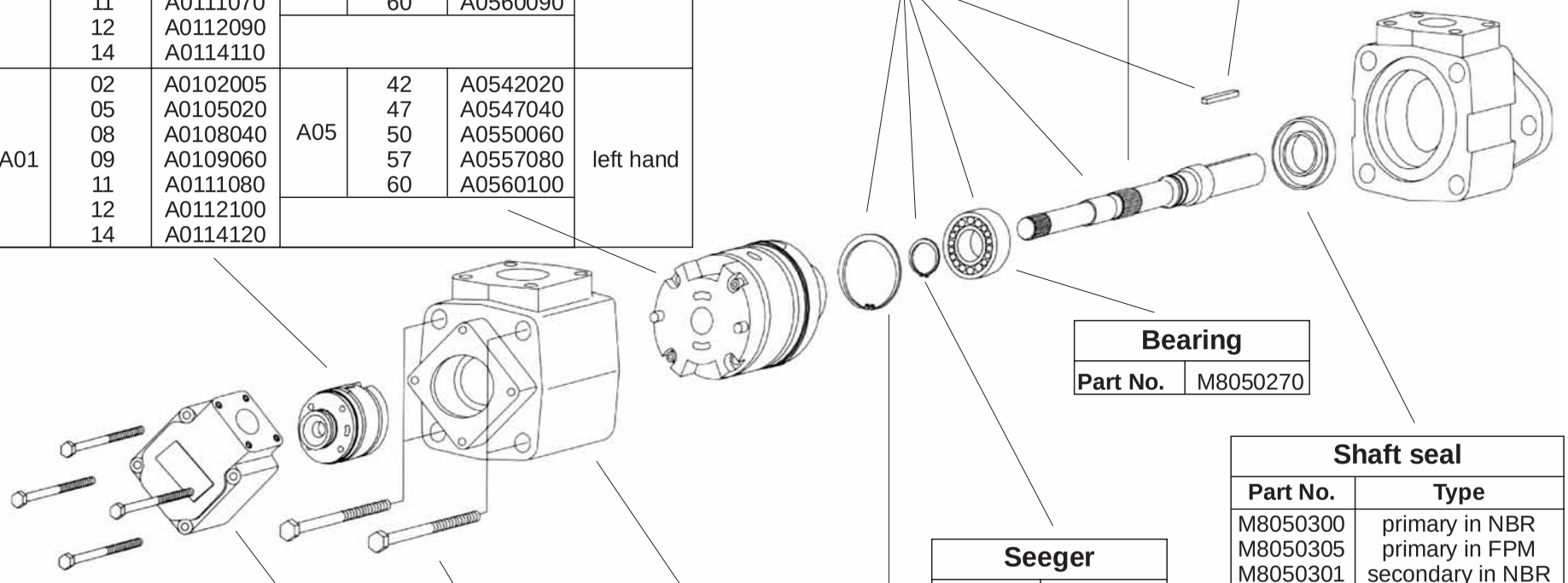
Id. codes of pump components

Cartridges						
Cover end			Shaft end			Pump rotation
Series	Model	Part No.	Series	Model	Part No.	
A01	02	A0102000	A05	42	A0542010	right hand
	05	A0105010		47	A0547030	
	08	A0108030		50	A0550050	
	09	A0109050		57	A0557070	
	11	A0111070		60	A0560090	
	12	A0112090				
	14	A0114110				
A01	02	A0102005	A05	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	
Model	Part No.
01	M8510601
11	M8510611
86	M8510686
90	M8510690

Shaft		Key
Model	Part No.	Part No.
01	K5101000	M8050100
11	K5111000	-
86	K5186000	M8058600
90	K5190000	-

Body	
Part No.	M8050250



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

Cover	
Part No.	M8020120

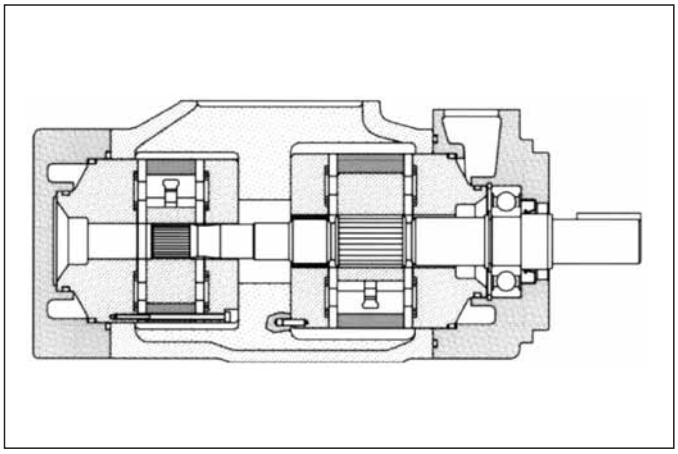
Inlet body	
Part No.	M8050390

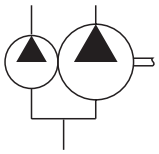
Pump seal kit		
Part No.	Parts	Type
M8510411	seals + 1 shaft seal	NBR
M8510412	seals + 2 shaft seals	NBR
M8510413	seals + 1 shaft seal	FPM (Viton®)
M8510414	seals + 2 shaft seals	FPM (Viton®)

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

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

Seeger	
Part No.	M8050280





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	
shaft end	**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**
cover end	**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	**60,1**	(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).*

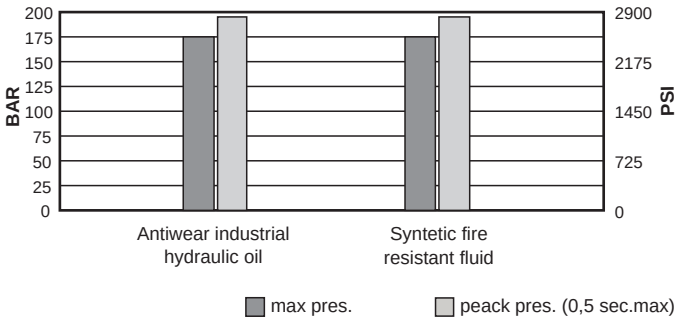
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

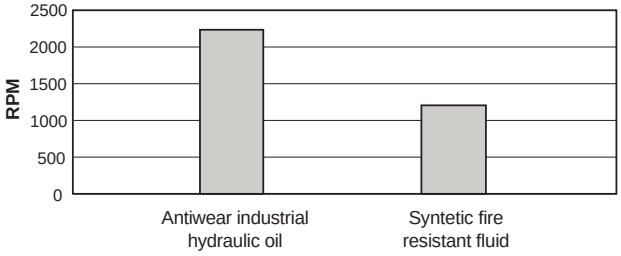
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

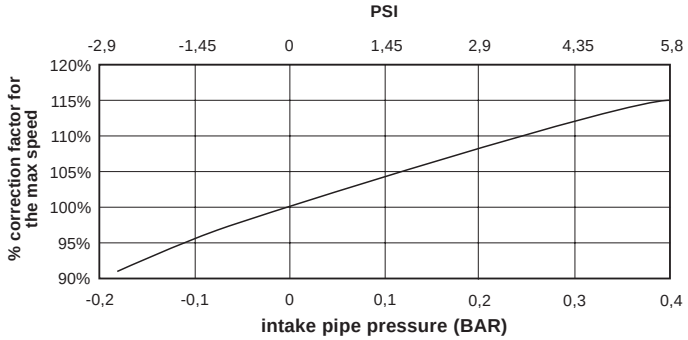


max speed / hydraulic fluid (with 0 bar in the intake pipe)



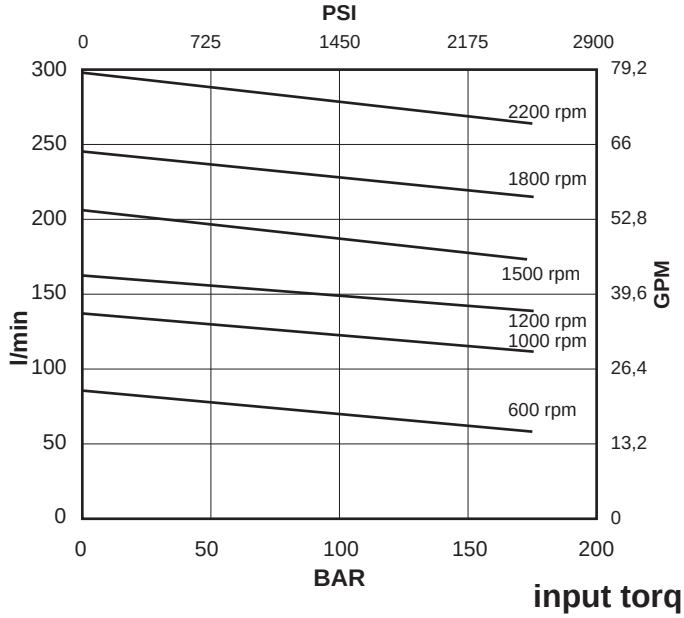
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

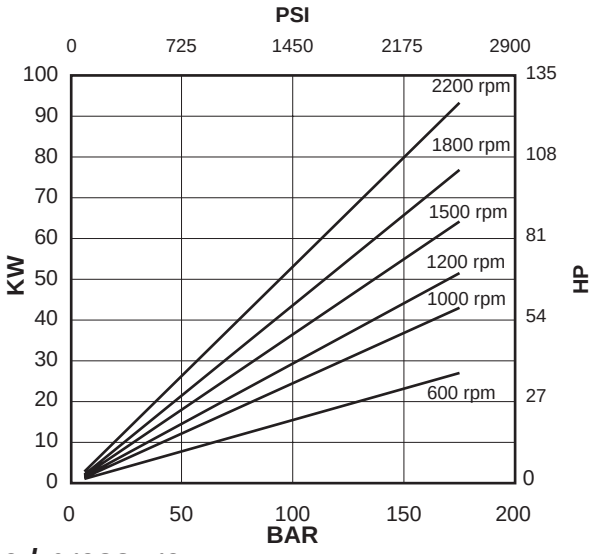


Shaft end cartridge A05-42

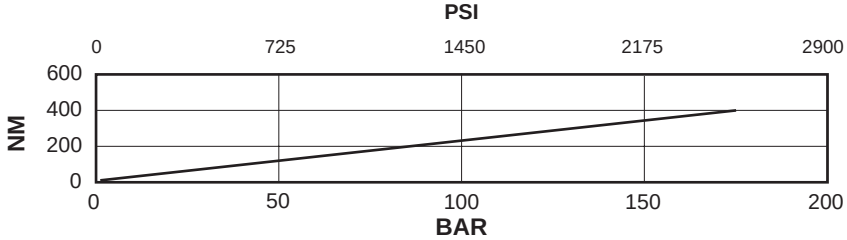
flow / pressure



power / pressure



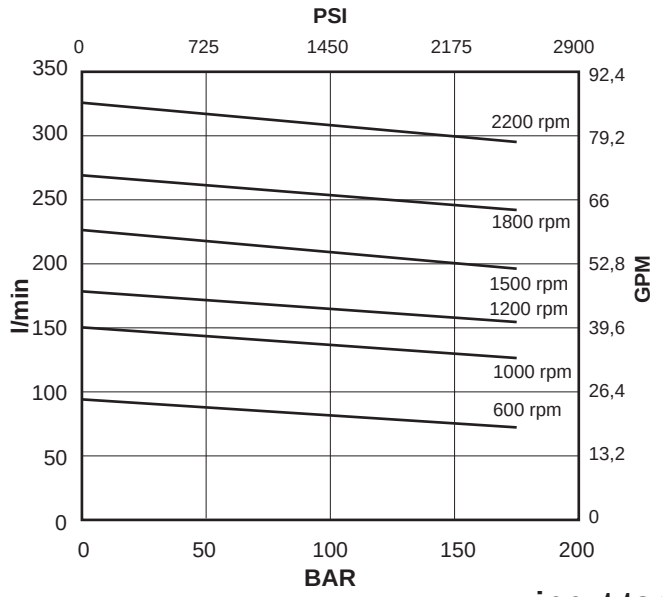
input torque / pressure



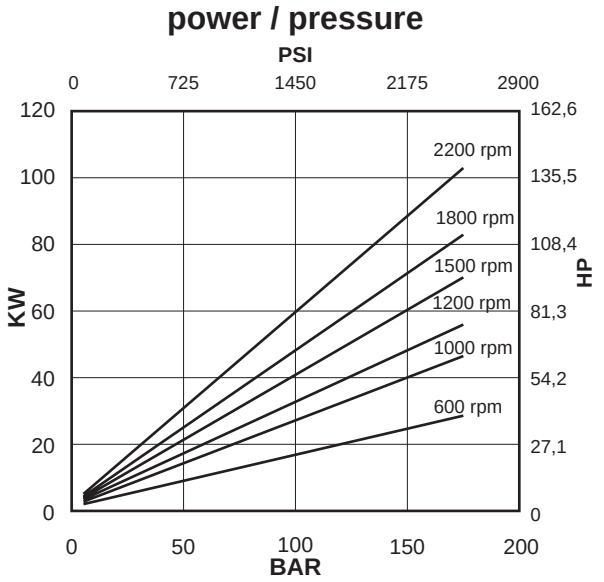
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-47

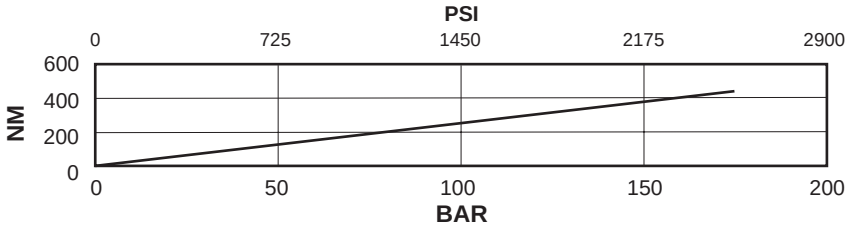
flow / pressure



power / pressure



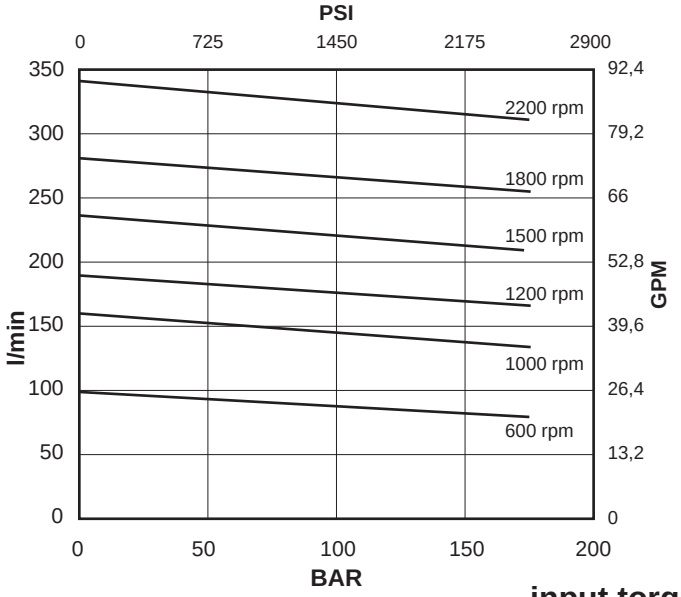
input torque / pressure



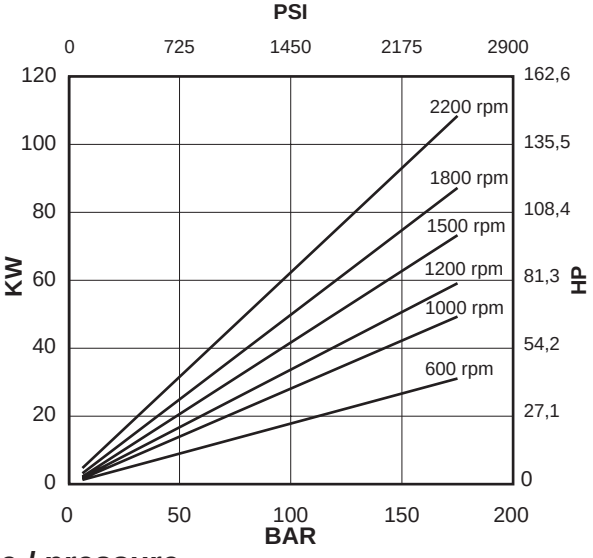
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-50

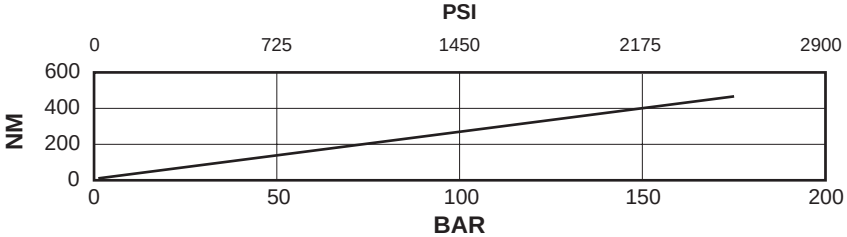
flow / pressure



power / pressure



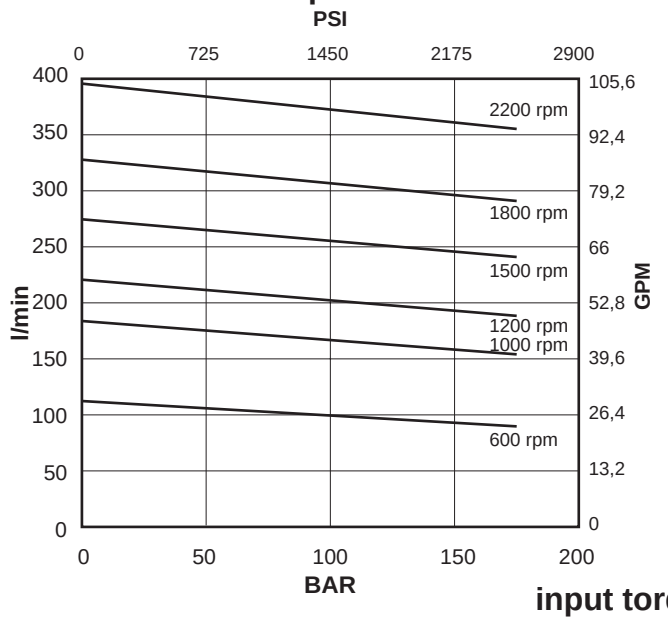
input torque / pressure



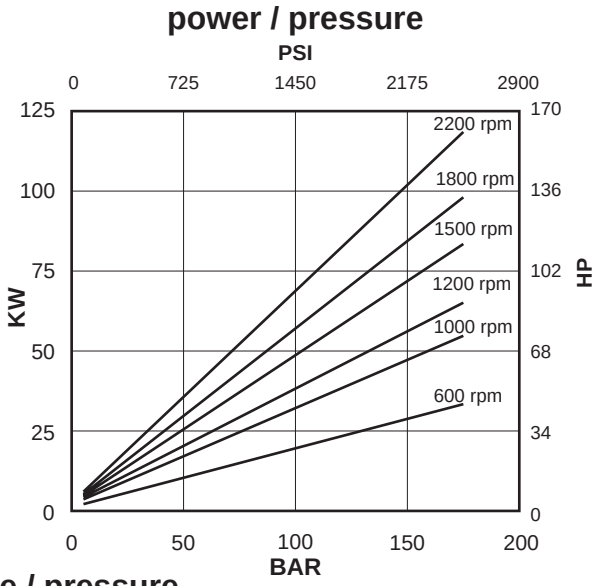
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-57

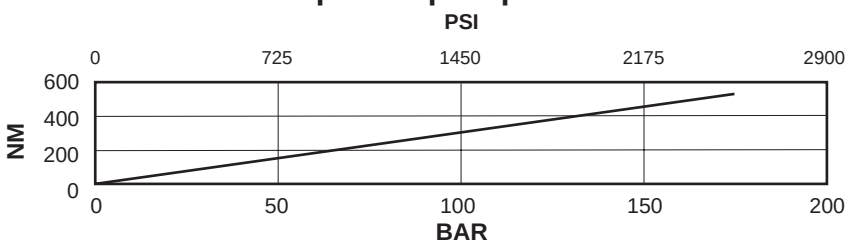
flow / pressure



power / pressure



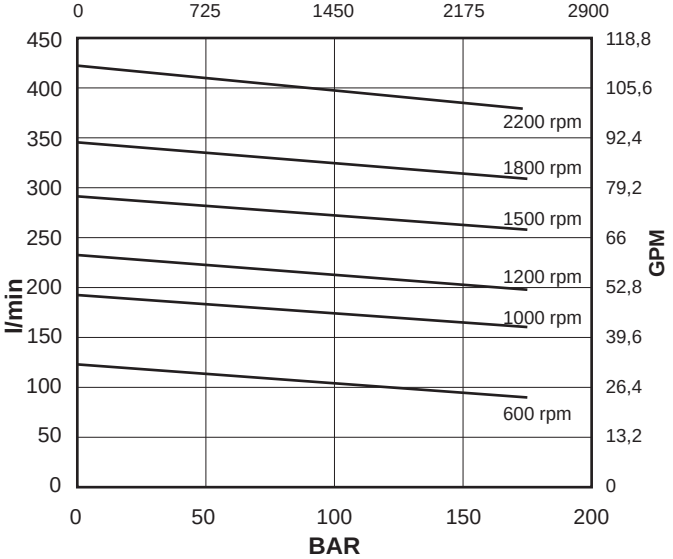
input torque / pressure



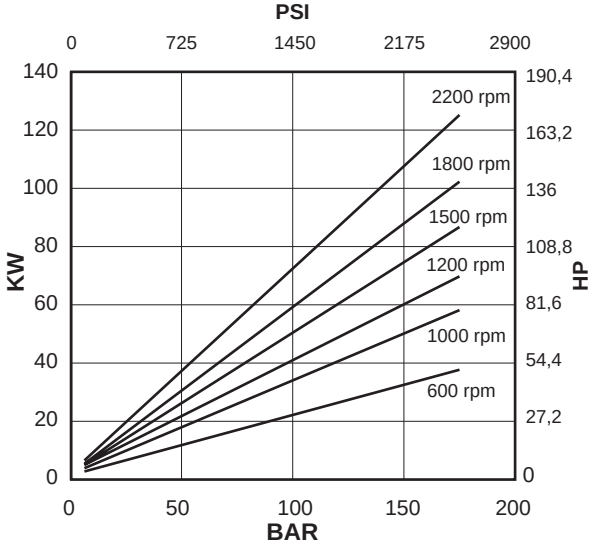
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-60

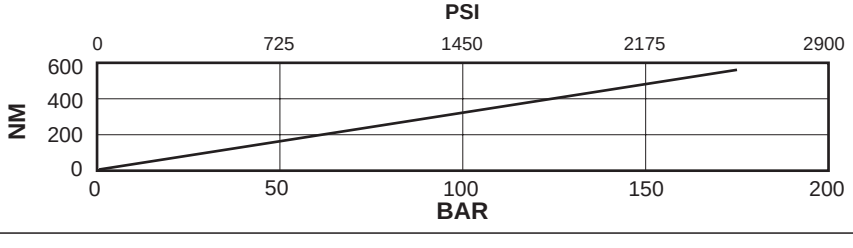
flow / pressure



power / pressure



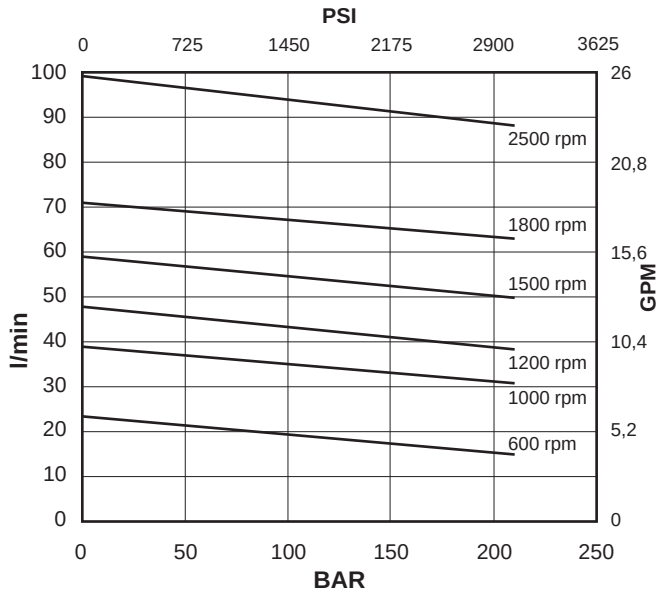
input torque / pressure



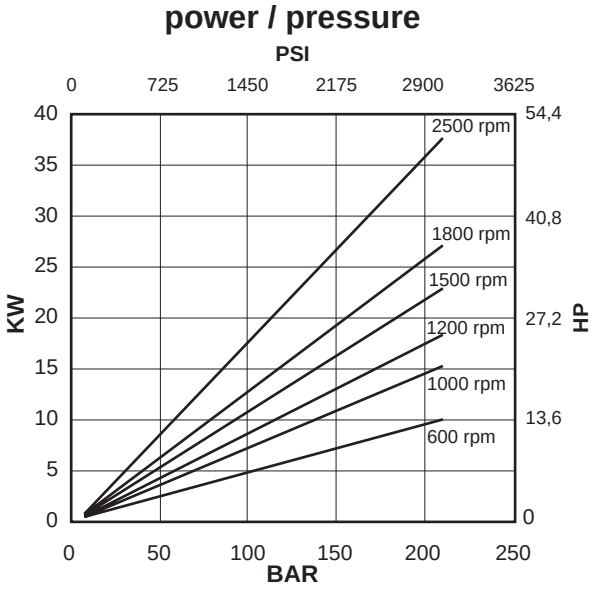
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-12

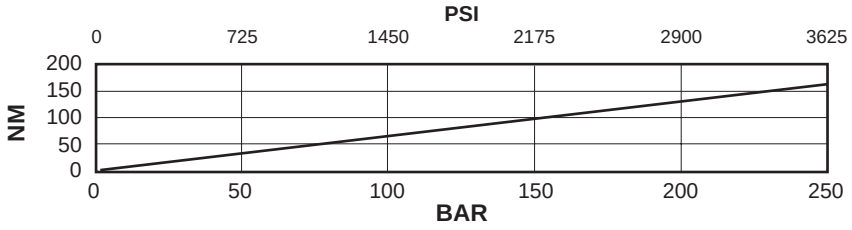
flow / pressure



power / pressure



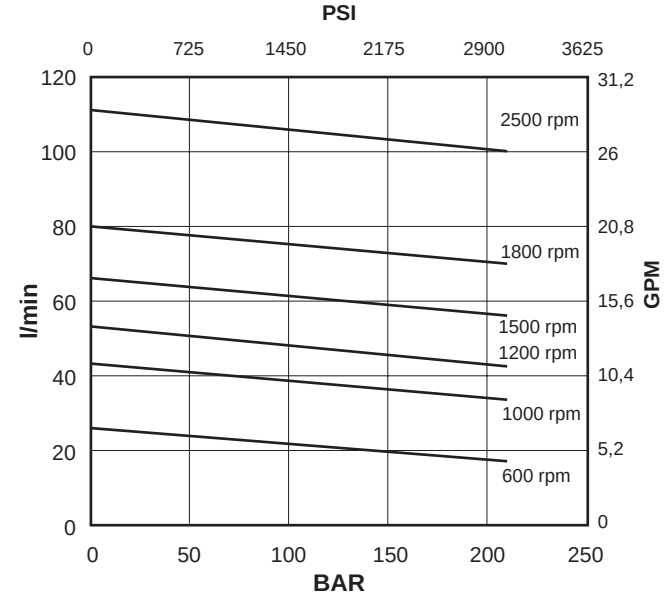
input torque / pressure



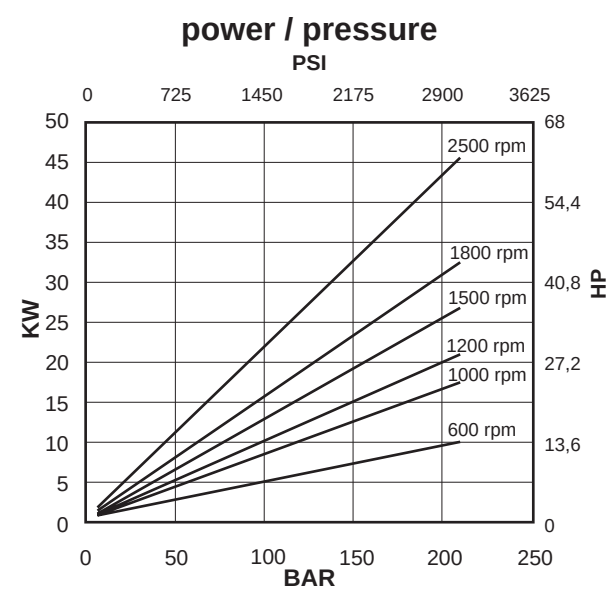
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-14

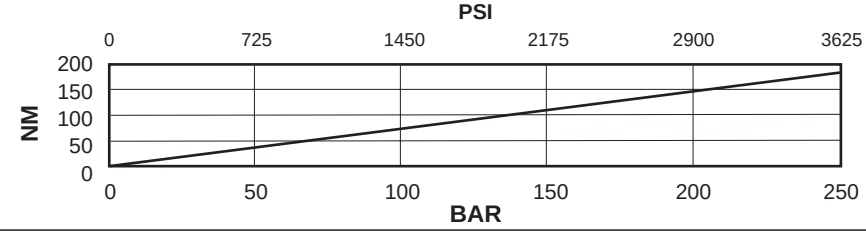
flow / pressure



power / pressure



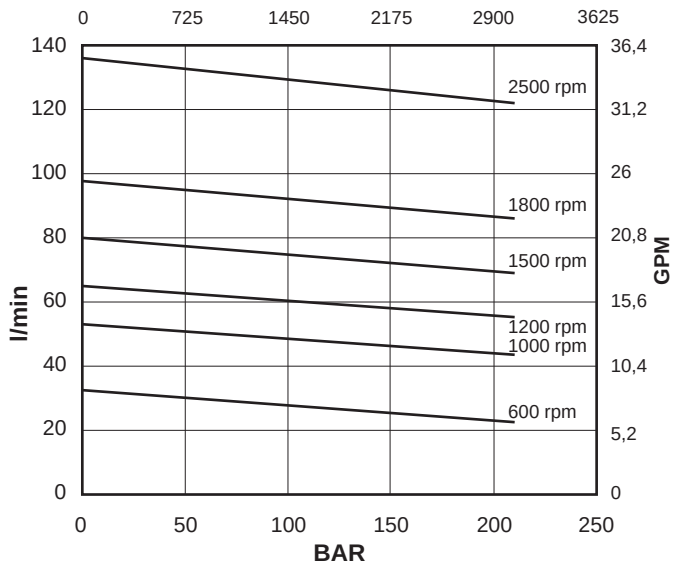
input torque / pressure



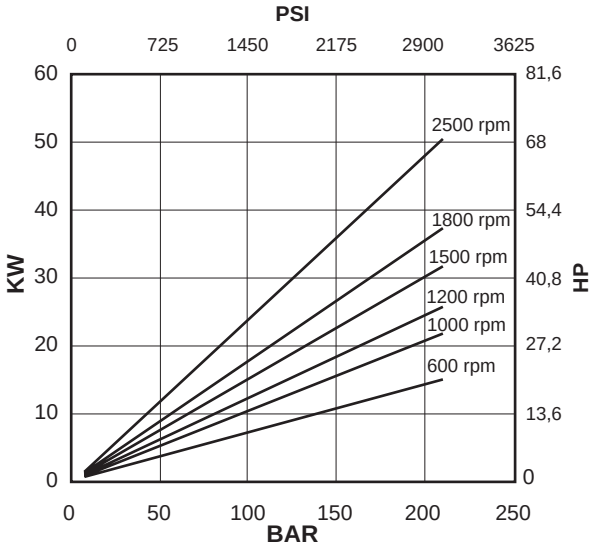
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-17

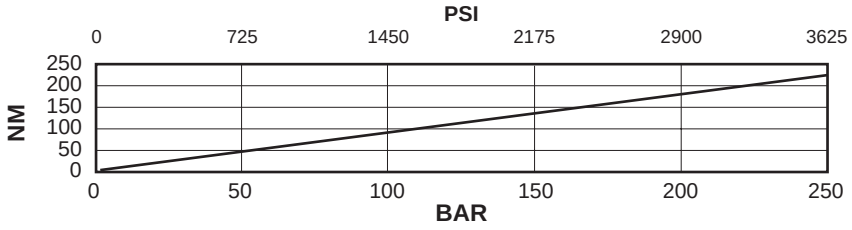
flow / pressure



power / pressure



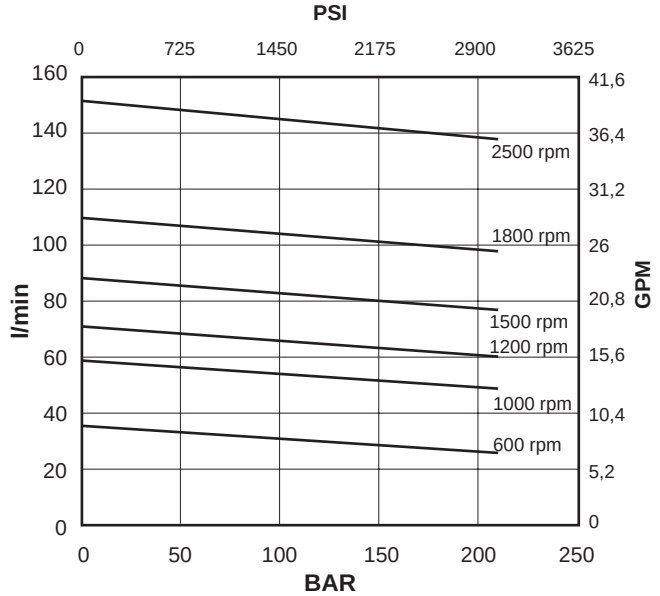
input torque / pressure



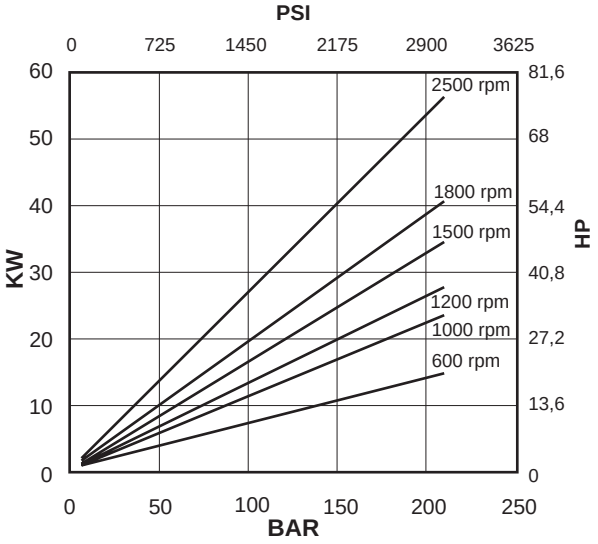
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-19

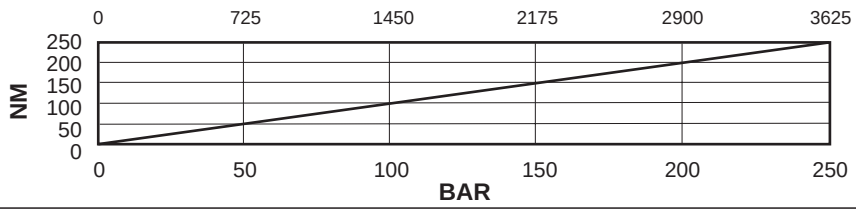
flow / pressure



power / pressure



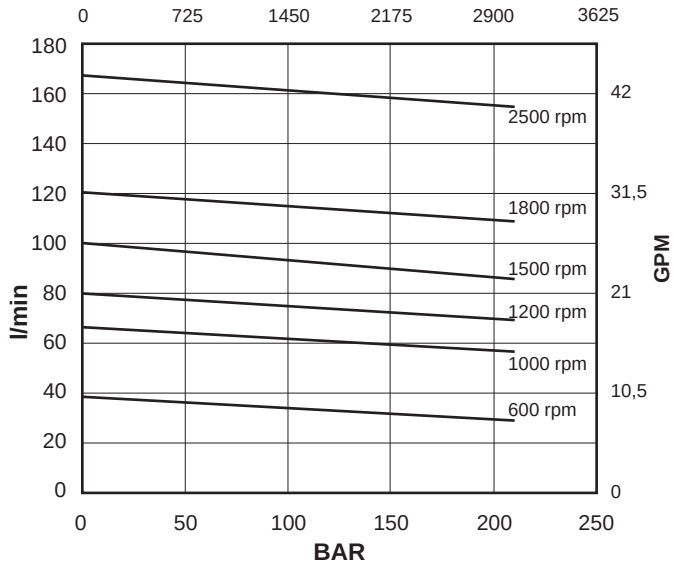
input torque / pressure



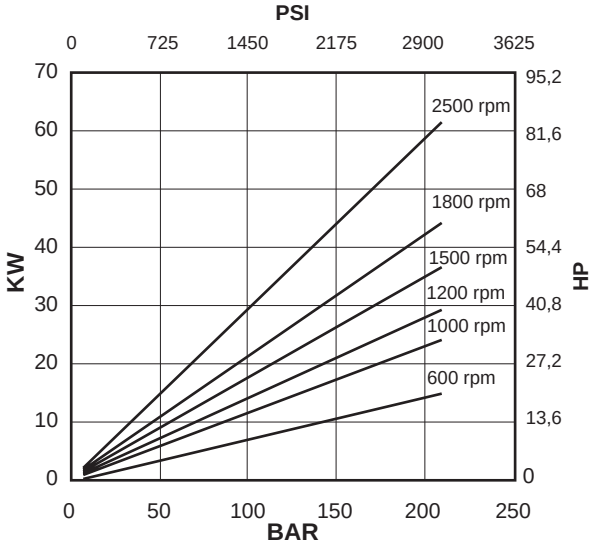
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A02-21

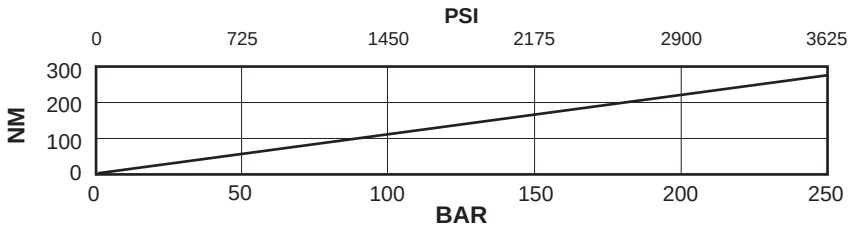
flow / pressure



power / pressure

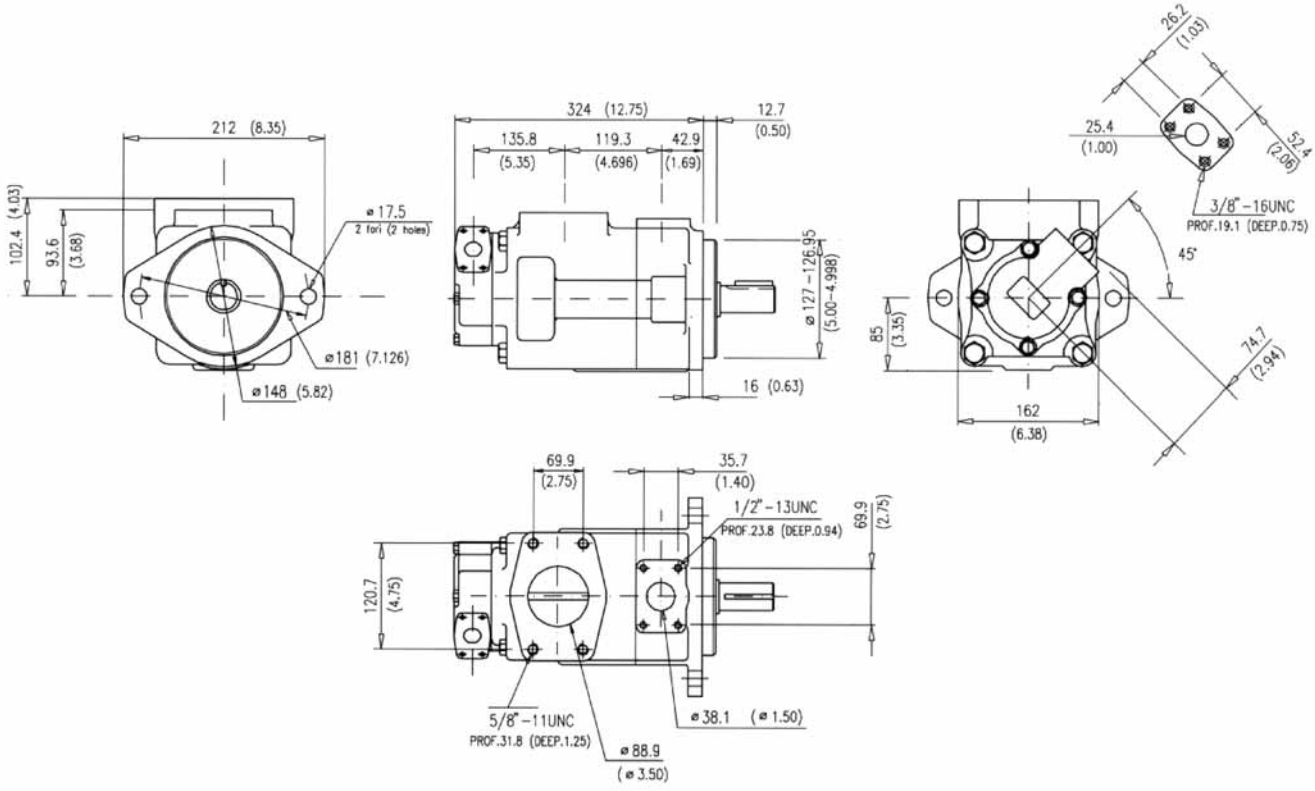


input torque / pressure



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

Installation dimensions mm (inches)



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

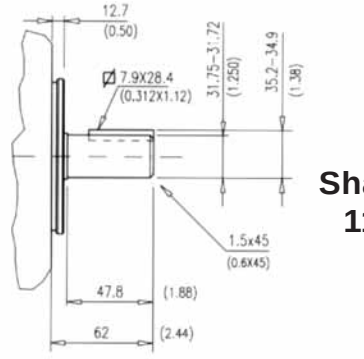
Model code breakdown

BQ 52 G ** ** * * ** (L) * (A)

- **BQ** — Pump series
- **52** — Pump type
- **G** — Design
- ****** — 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
- **(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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

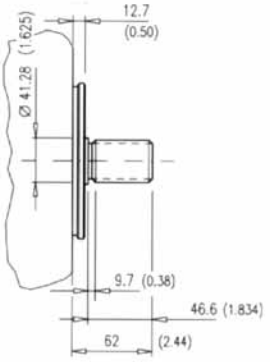
Shaft options mm (inches)

Shaft 01



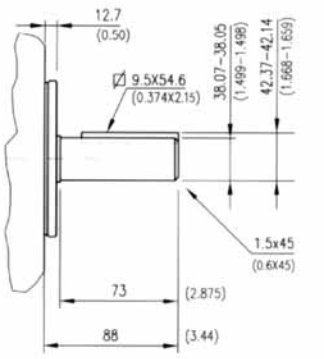
max. torque capability : 600 Nm (5300 lb.in.)

Shaft 11



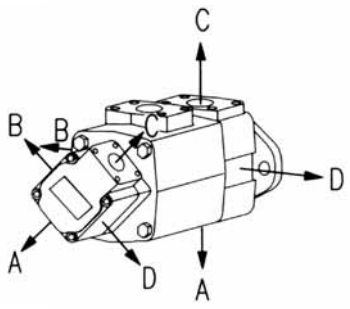
max. torque capability : 820 Nm (7200 lb.in.)

Shaft 86



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

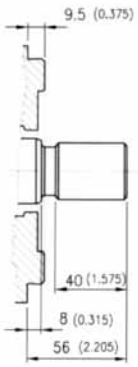
PORT ORIENTATIONS



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.)

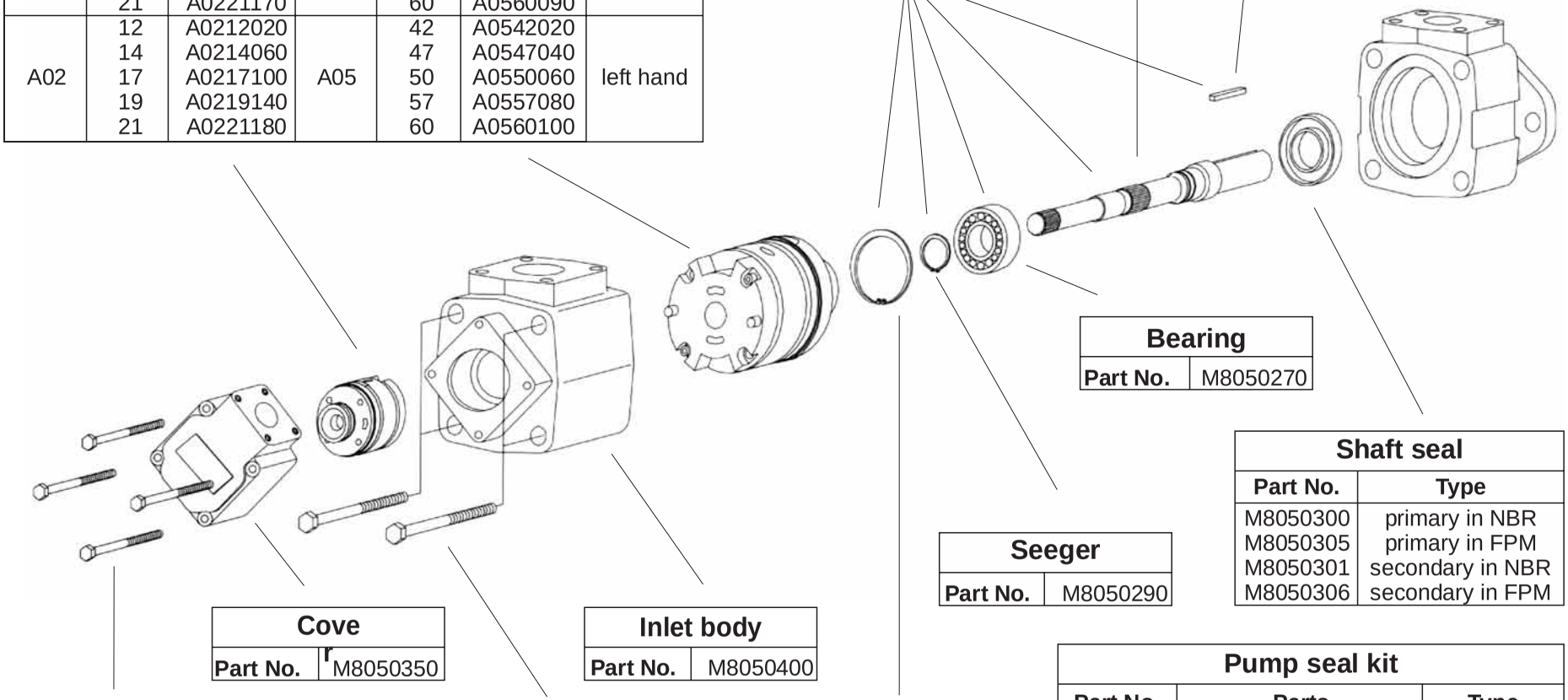
Id. codes of pump components

Cartridges						
Cover end			Shaft end			Pump rotation
Series	Model	Part No.	Series	Model	Part No.	
A02	12	A0212010	A05	42	A0542010	right hand
	14	A0214050		47	A0547030	
	17	A0217090		50	A0550050	
	19	A0219130		57	A0557070	
	21	A0221170		60	A0560090	
A02	12	A0212020	A05	42	A0542020	left hand
	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		Key
Model	Part No.	Part No.
01	K5201000	M8050100
11	K5211000	-
86	K5286000	M8058600
90	K5290000	-

Body	
Part No.	M8050250



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

Cover	
Part No.	M8050350

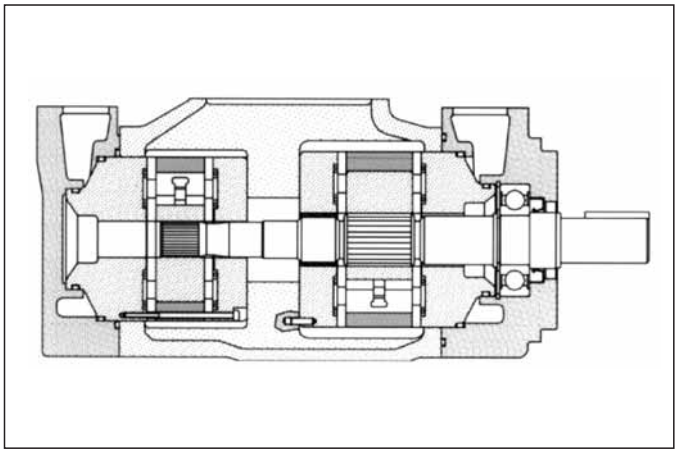
Inlet body	
Part No.	M8050400

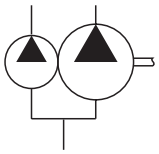
Pump seal kit		
Part No.	Parts	Type
M8520431	seals + 1 shaft seal	NBR
M8520432	seals + 2 shaft seals	NBR
M8520433	seals + 1 shaft seal	FPM (Viton®)
M8520434	seals + 2 shaft seals	FPM (Viton®)

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





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	
shaft end	**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**
cover end	**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).*

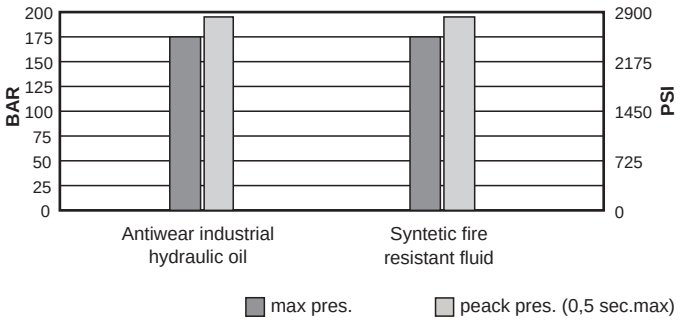
Inlet pressure: *(with mineral oil)***:** from -0,17 to +1,4 bar *(-2.5 to + 20 psi)*

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

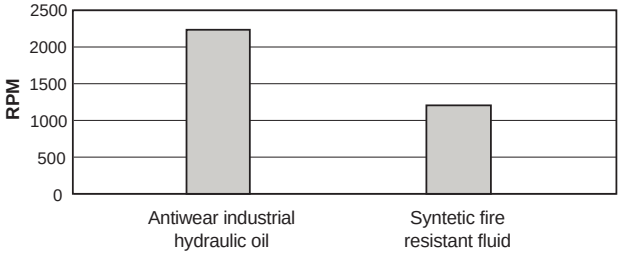
Drive: direct and coaxial by means of a flexible coupling.

Main operating data

max pressure / hydraulic fluid

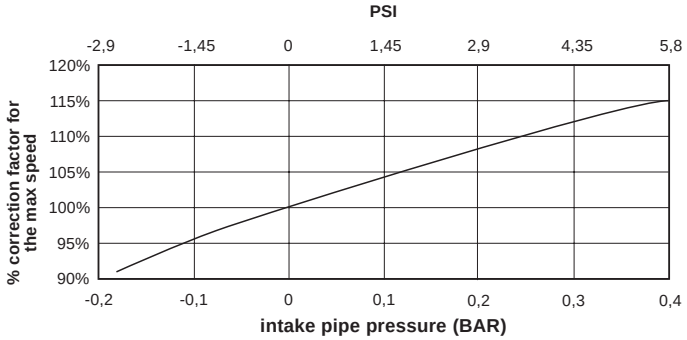


max speed / hydraulic fluid (with 0 bar in the intake pipe)



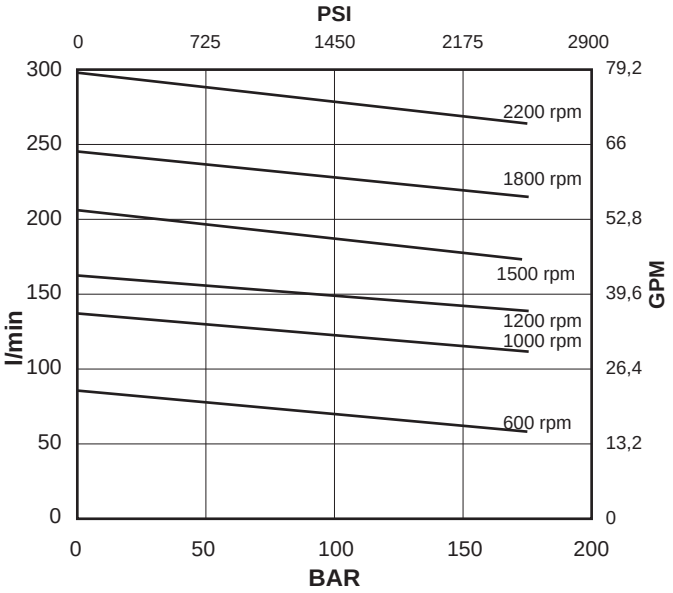
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

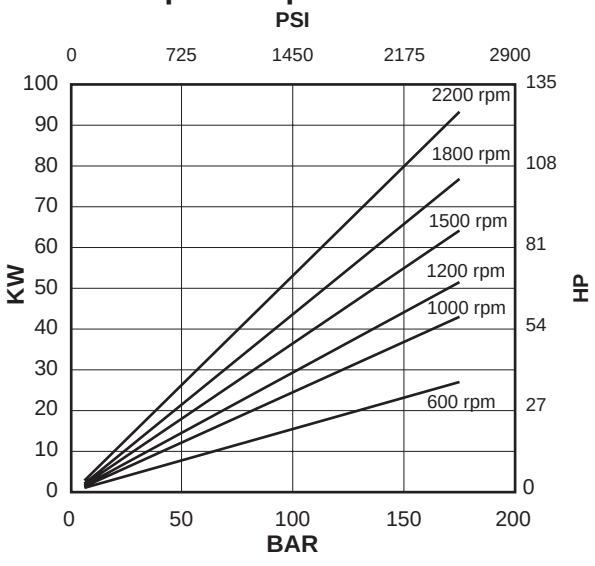


Shaft end cartridge A05-42

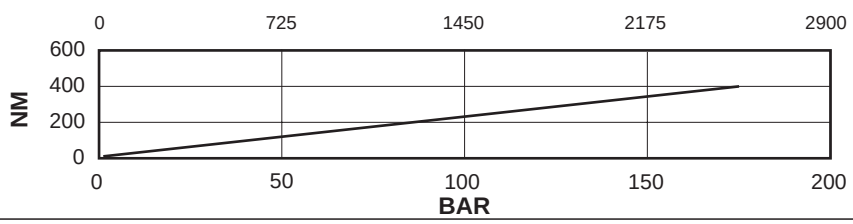
flow / pressure



power / pressure



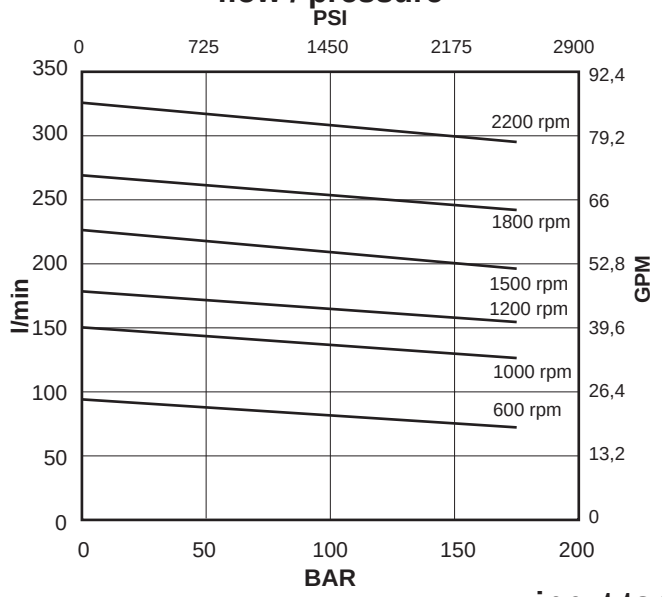
input torque / pressure



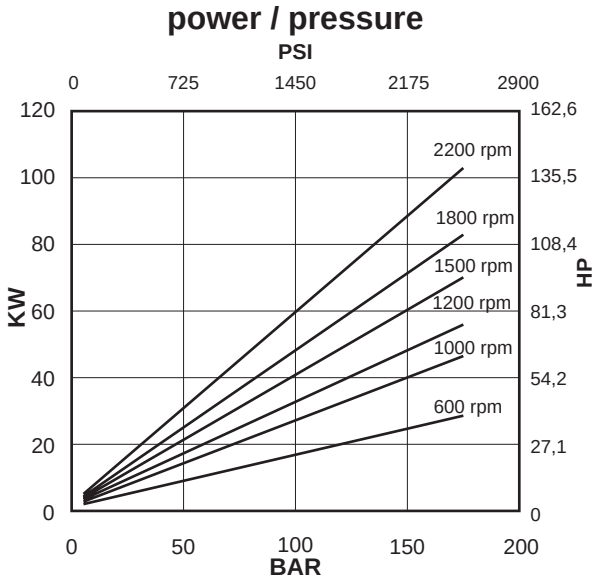
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-47

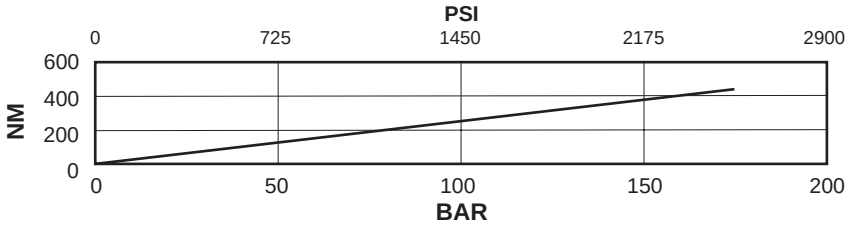
flow / pressure



power / pressure



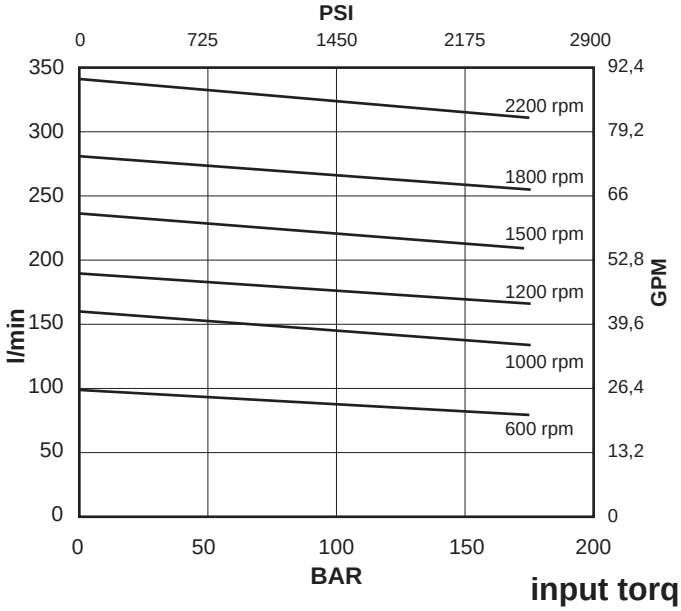
input torque / pressure



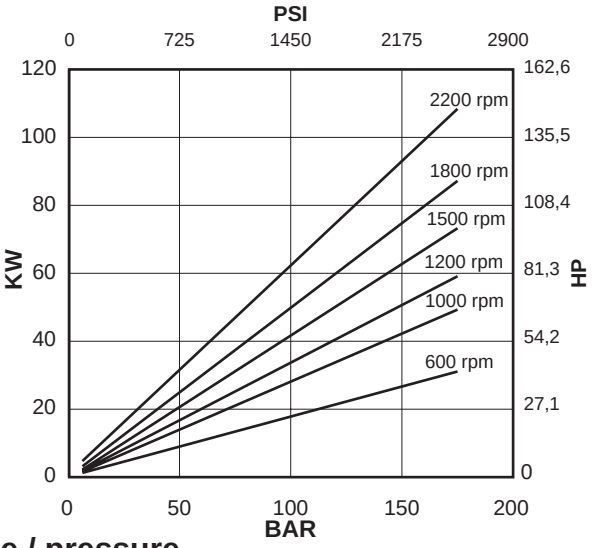
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-50

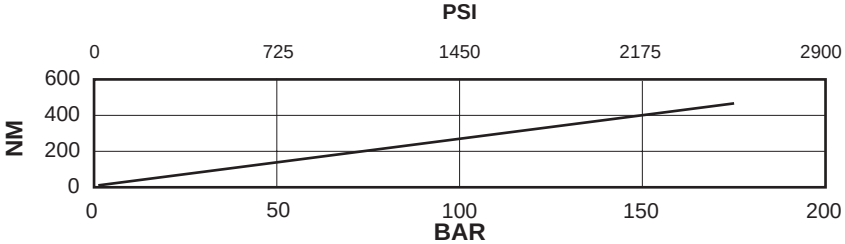
flow / pressure



power / pressure



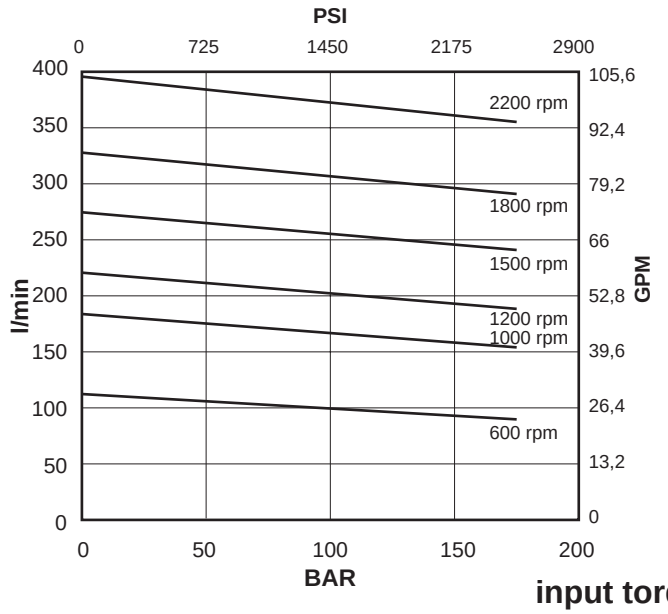
input torque / pressure



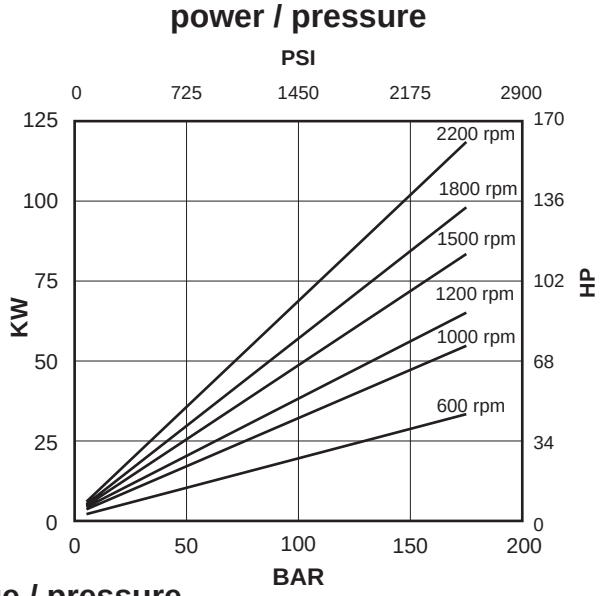
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-57

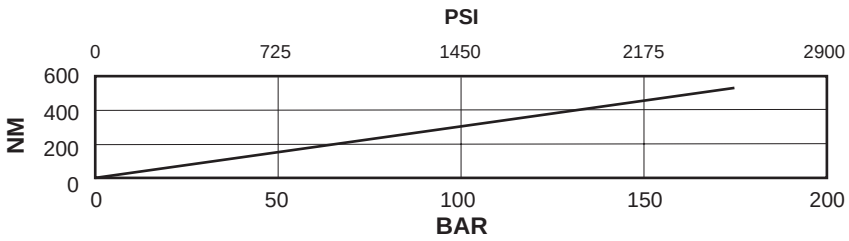
flow / pressure



power / pressure



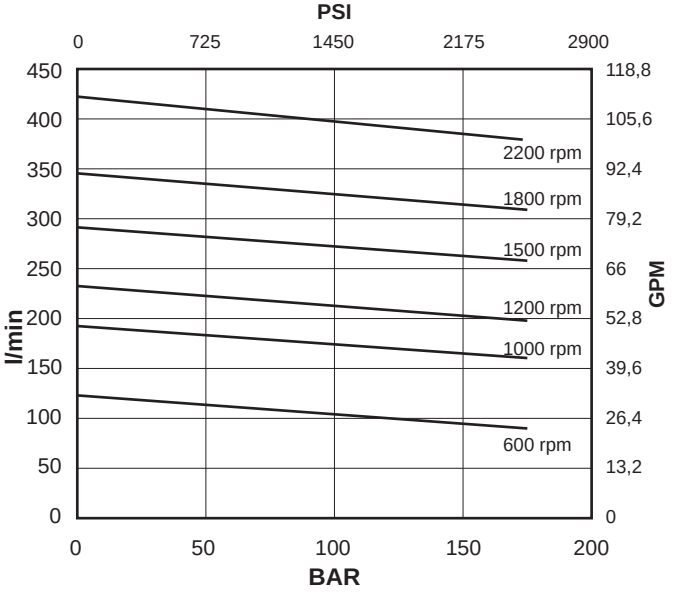
input torque / pressure



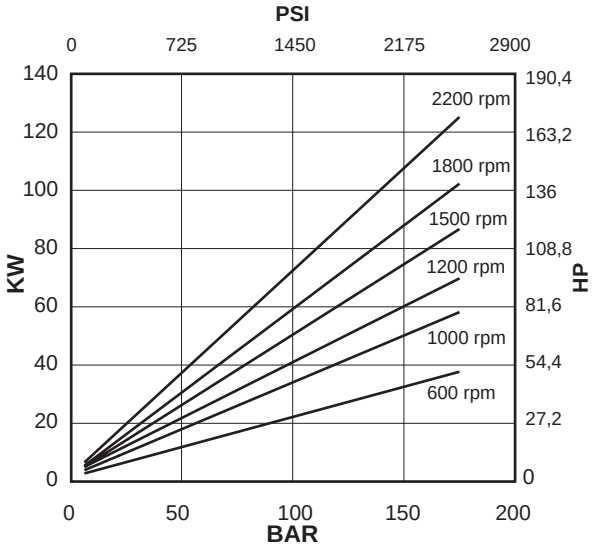
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Shaft end cartridge A05-60

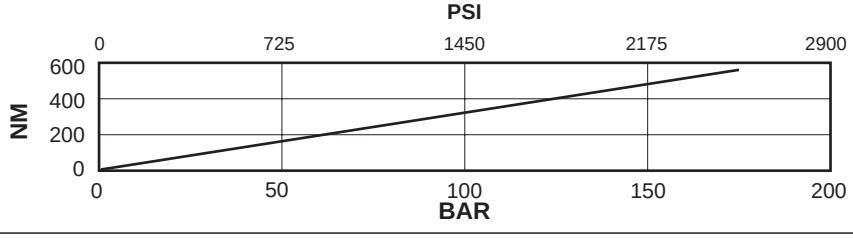
flow / pressure



power / pressure



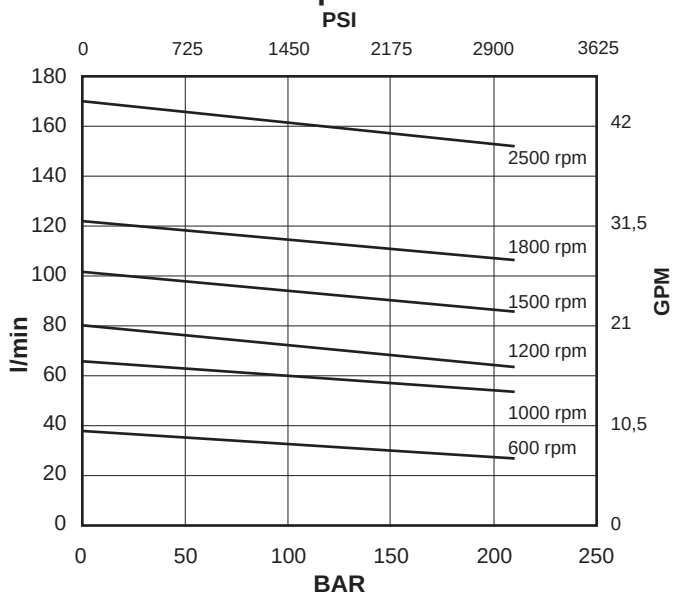
input torque / pressure



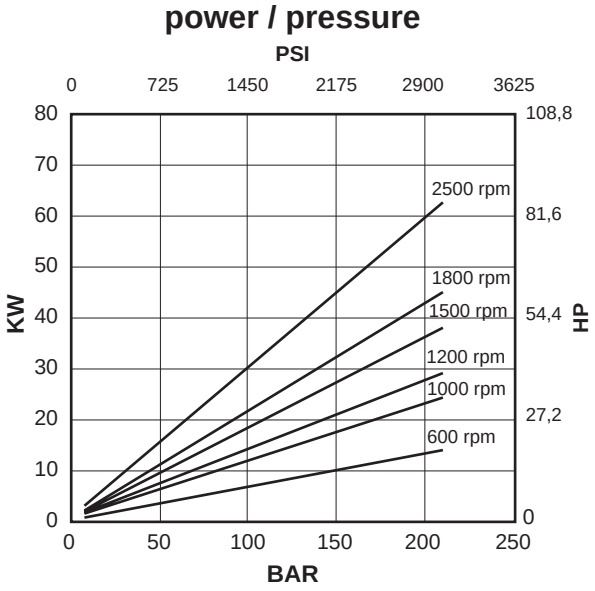
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A04-21

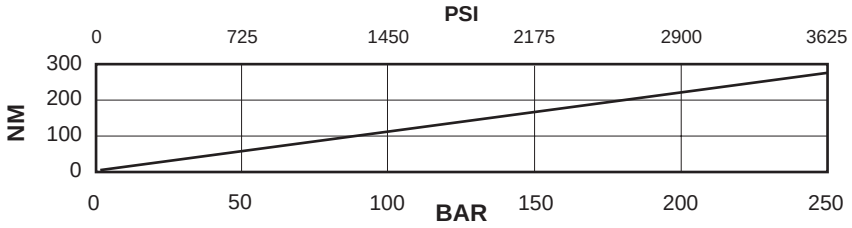
flow / pressure



power / pressure



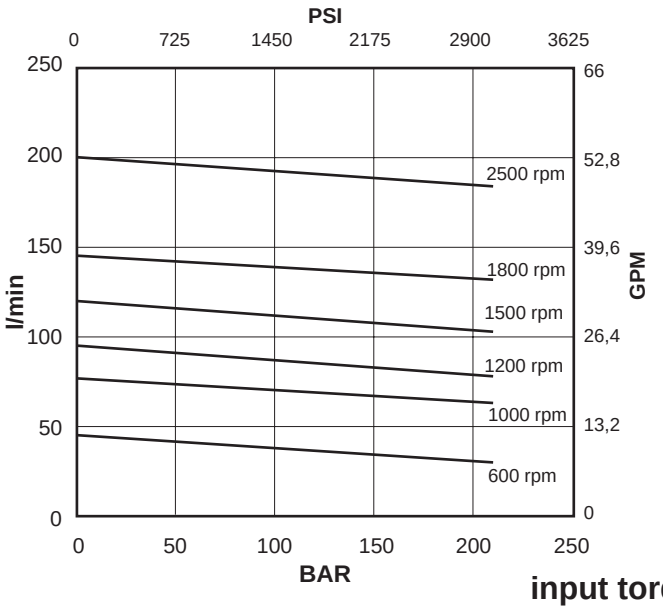
input torque / pressure



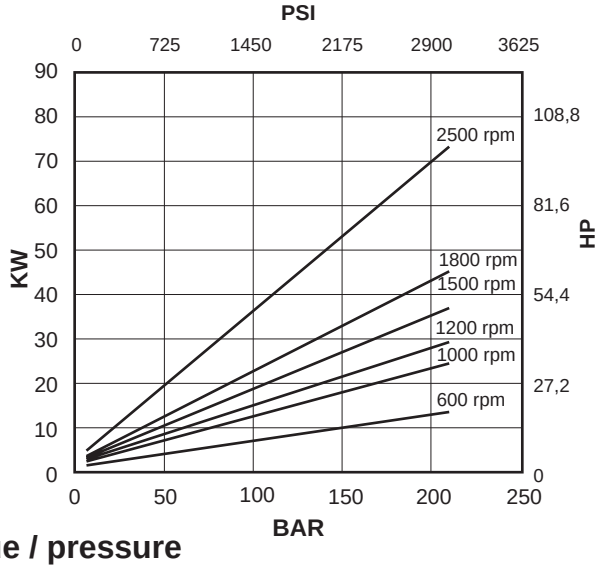
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A04-25

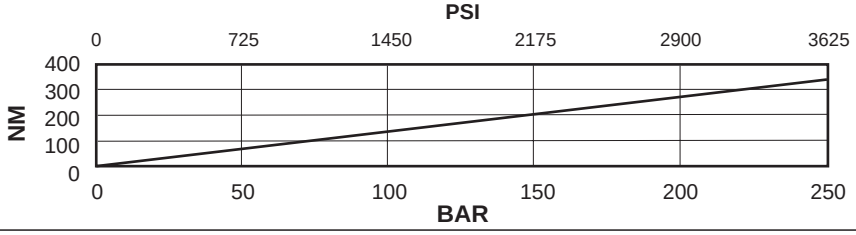
flow / pressure



power / pressure



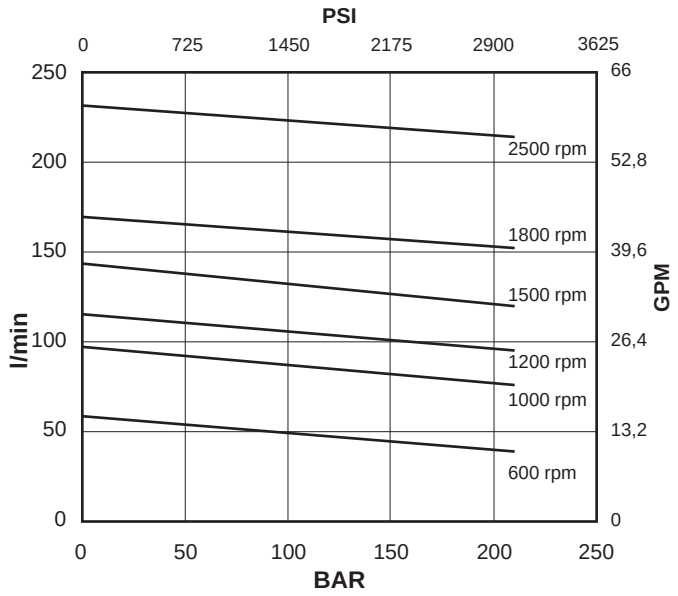
input torque / pressure



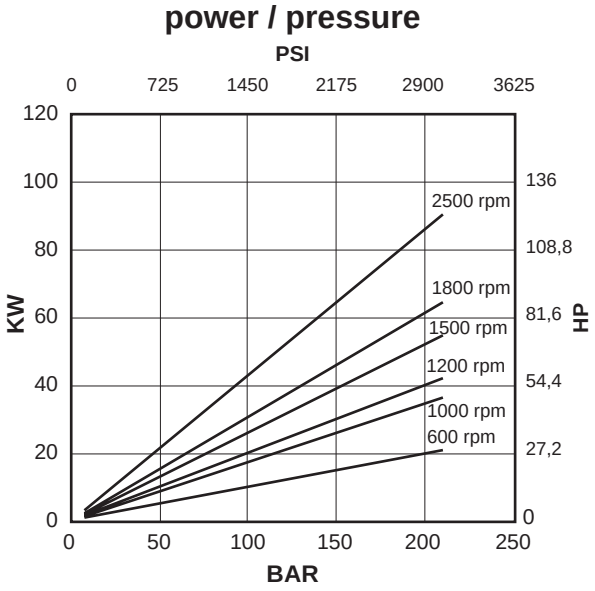
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A04-30

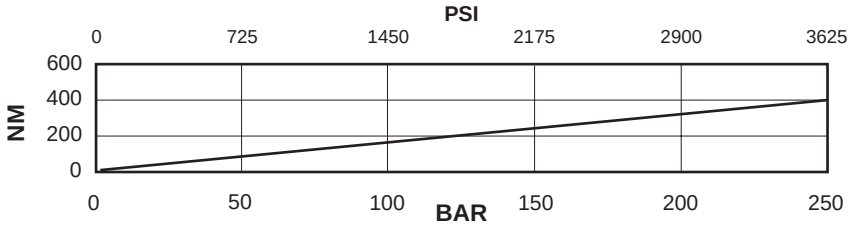
flow / pressure



power / pressure



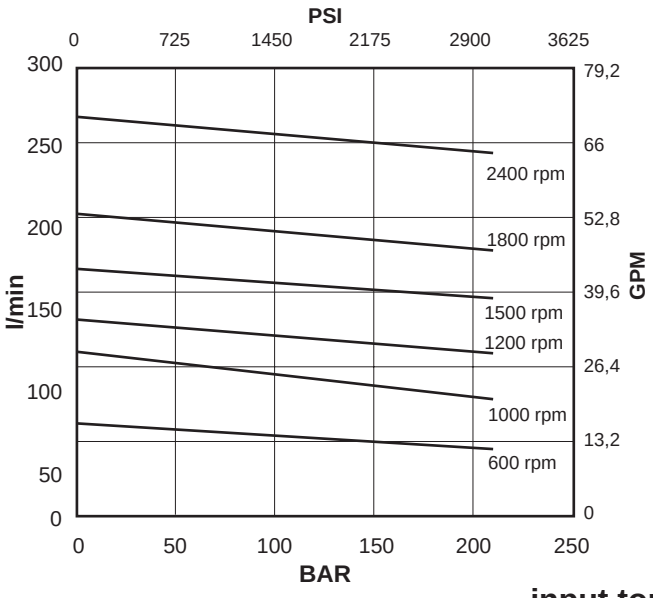
input torque / pressure



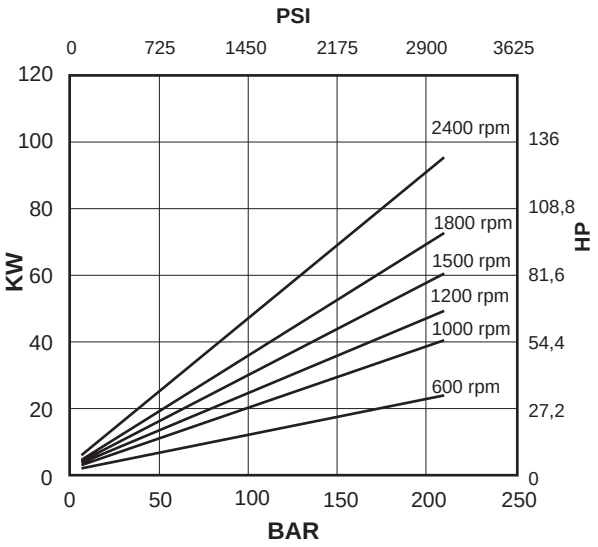
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A04-35

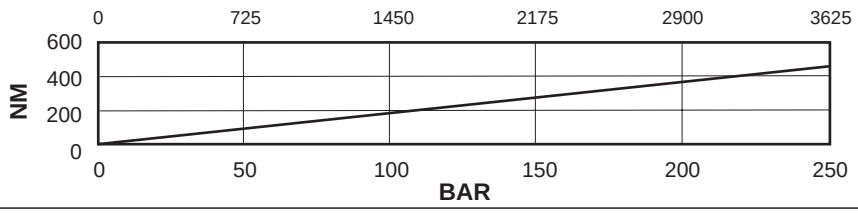
flow / pressure



power / pressure



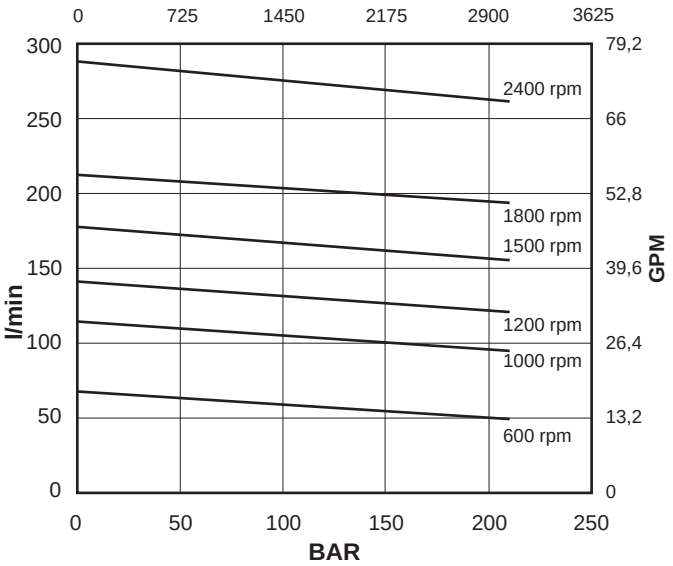
input torque / pressure



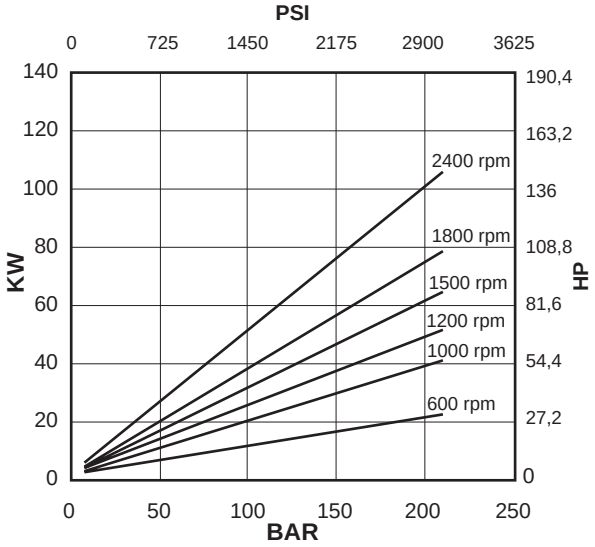
Oil viscosity: 25 c.St.(10W)
Temperature: 45°C
Inlet pressure: 0 BAR

Cover end cartridge A04-38

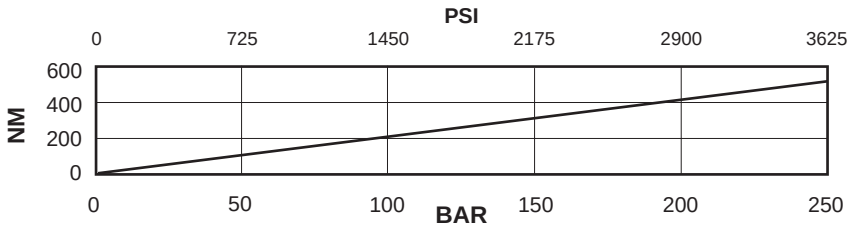
flow / pressure



power / pressure

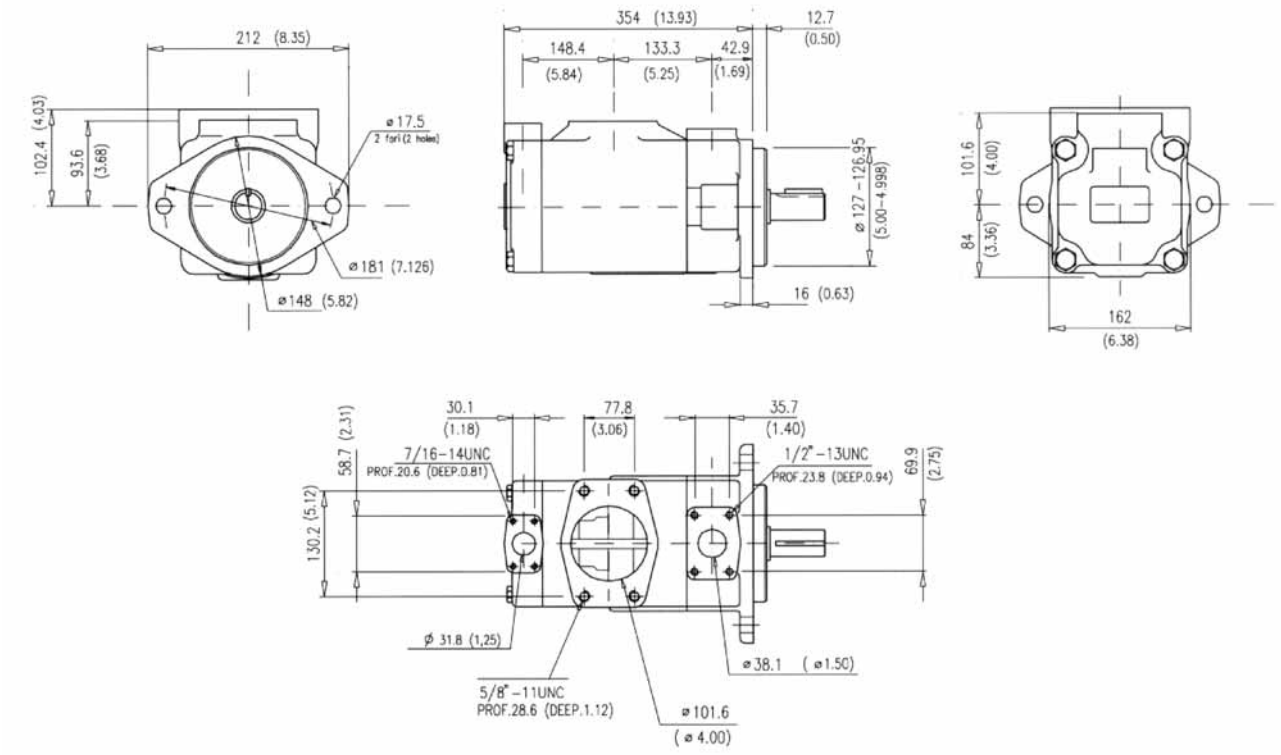


input torque / pressure



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

Installation dimensions mm (inches)



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

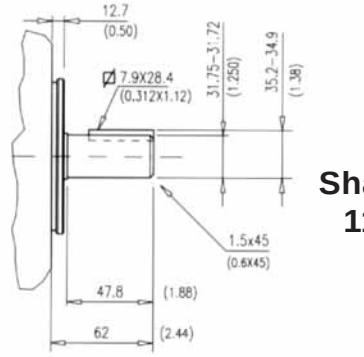
Model code breakdown

BQ 54 G ** ** * * ** (L) * (A)

- **BQ** — Pump series
- **54** — Pump type
- **G** — Design
- ****** — Cartridge types
  - **-shaft end** 42 47 50 57 60
  - **-cover end** 21 25 30 35 38
- ****** — 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 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
- **(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-seals in FPM (Viton®)
- **(A)** — Mounting (omit if not required)

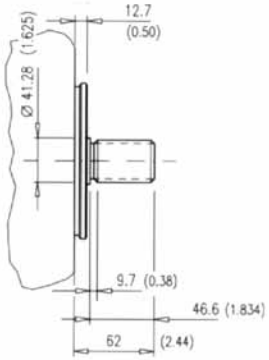
Shaft options mm (inches)

Shaft 01



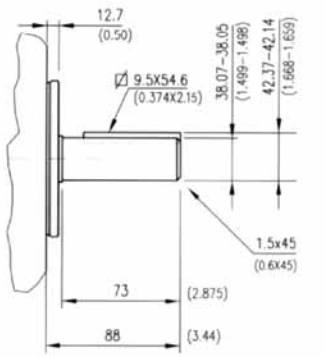
max. torque capability : 600 Nm (5300 lb.in.)

Shaft 11



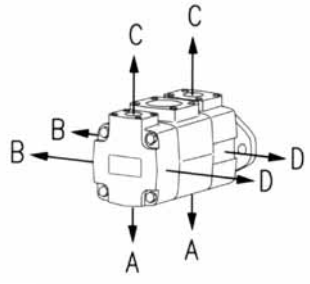
max. torque capability : 820 Nm (7200 lb.in.)

Shaft 86



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

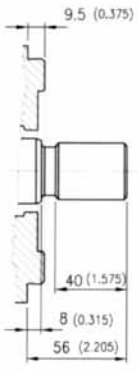
PORT ORIENTATIONS



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.)

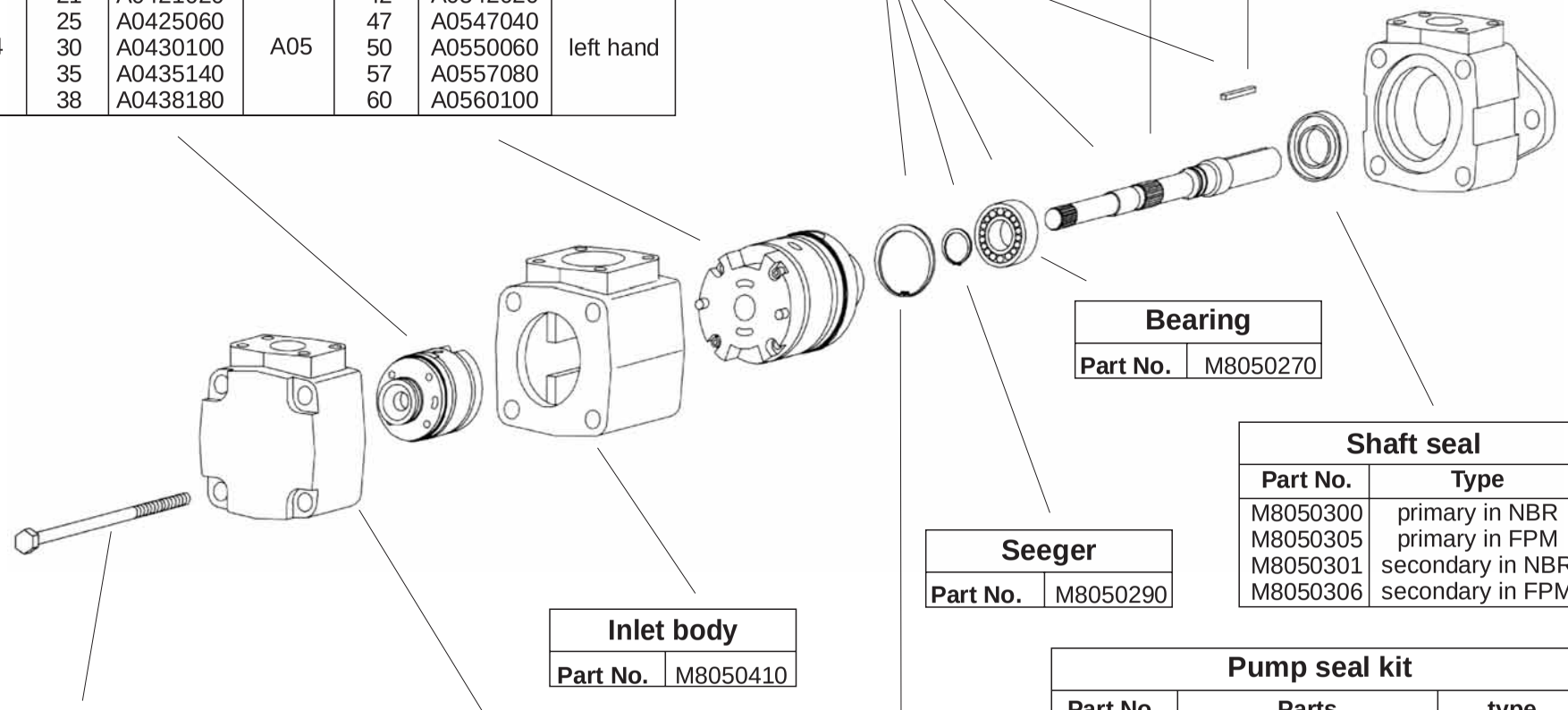
Id. codes of pump components

Cartridges						
Cover end			Shaft end			Pump rotation
Series	Model	Part No.	Series	Model	Part No.	
A04	21	A0421010	A05	42	A0542010	right hand
	25	A0425050		47	A0547030	
	30	A0430090		50	A0550050	
	35	A0435130		57	A0557070	
	38	A0438170		60	A0560090	
A04	21	A0421020	A05	42	A0542020	left hand
	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		Key
Model	Part No.	Part No.
01	K5401000	M8050100
11	K5411000	-
86	K5486000	M8058600
90	K5490000	-

Body	
Part No.	M8050250



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

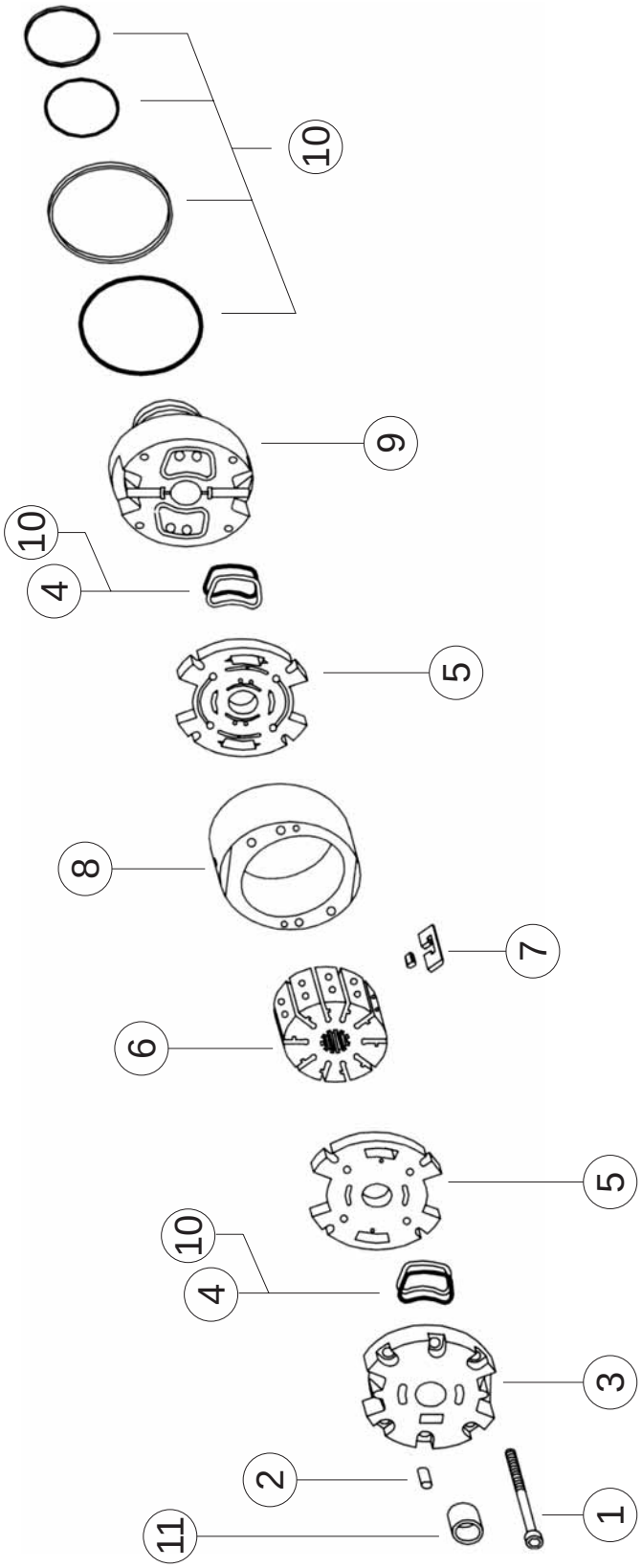
Pump seal kit		
Part No.	Parts	type
M8540131	seals + 1 shaft seal	NBR
M8540132	seals + 2 shaft seals	NBR
M8540133	seals + 1 shaft seal	FPM (Viton®)
M8540134	seals + 2 shaft seals	FPM (Viton®)

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

Cover	
Part No.	M8050360

Seeger	
Part No.	M8050280

Id. codes of cartridge kit components



Cartridge Series	Model	1 Screw	2 Pin	3 Inlet support plate	4 Seal pack (4+4 pcs)	5 Flex. plate (2 pcs)	6 Rotor	7 Vane and insert kit (10+10 pcs)	8 Ring	9 Outlet support plate	10 Seal kit (12 pcs)	11 Bushing (*)
A01	02	L7200900 3,6 Nm (32 lb. in.)	L7200800	L7209200	L7201300	L7200715	L7209300	L7209300	L7209002	L7200100	L7201100 L7202100 (FPM)	L7200600
	05			L7209200			L7209300	L7209100	L7209005			
	08			L7209200			L7209300	L7209100	L7209008			
	09			L7209200			L7209300	L7209100	L7209009			
	11			L7200200			L7200300	L7201200	L7201011			
	12			L7200200			L7200300	L7201200	L7201012			
	14			L7200200			L7200300	L7201200	L7201014			
A02	12	L7250900 5,5 Nm (49 lb. in.)	L7250800	L7250200	L7251300	L7250715	L7250300	L7251200	L7251012	L7250100	L7251100 L7252100 (FPM)	L7250600
	14								L7251014			
	17								L7251017			
	19								L7251019			
	21								L7251021			
A03	24	L7300900 5,5 Nm	L7250800	L7250200	L7251300	L7250715	L7300300	L7301200	L7301024	L7250100	L7251100 L7252100 (FPM)	L7250600
	28								L7301028			
A04	21	L7350900 12,6 Nm (112 lb.in)	L735800	L7350200	L7351300	L7350715	L7350300	L7351200	L7351021	L7350100	L7351100 L7352100 (FPM)	L7350600
	25								L7351025			
	30								L7351030			
	35								L7351035			
	38								L7351038			
A05	42	L7450900 12,6 Nm (112 lb.in)	L7450800	L7450200	L7451300	L7450715	L7450300	L7451200	L7451042	L7450100	L7451100 L7452100 (FPM)	L7450600
	47								L7451047			
	50								L7451050			
	57								L7451057			
	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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