

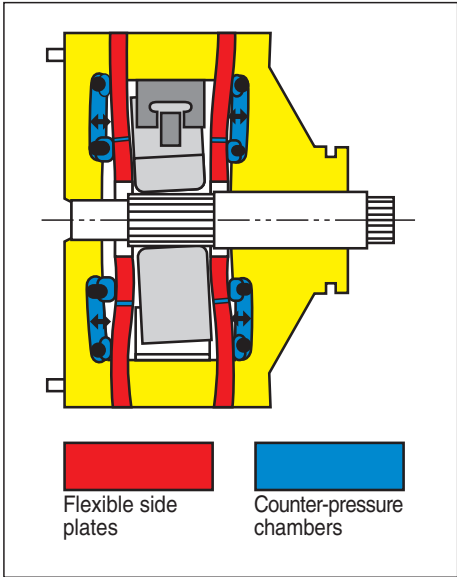
**FIXED DISPLACEMENT HYDRAULIC VANE PUMPS “BQ” SERIES**

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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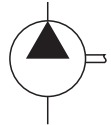
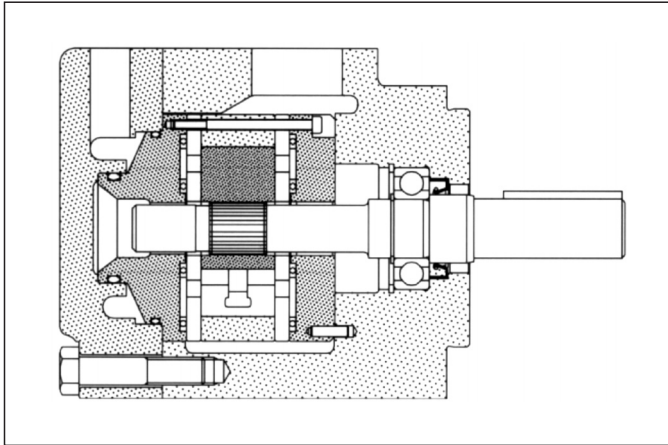
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## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

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

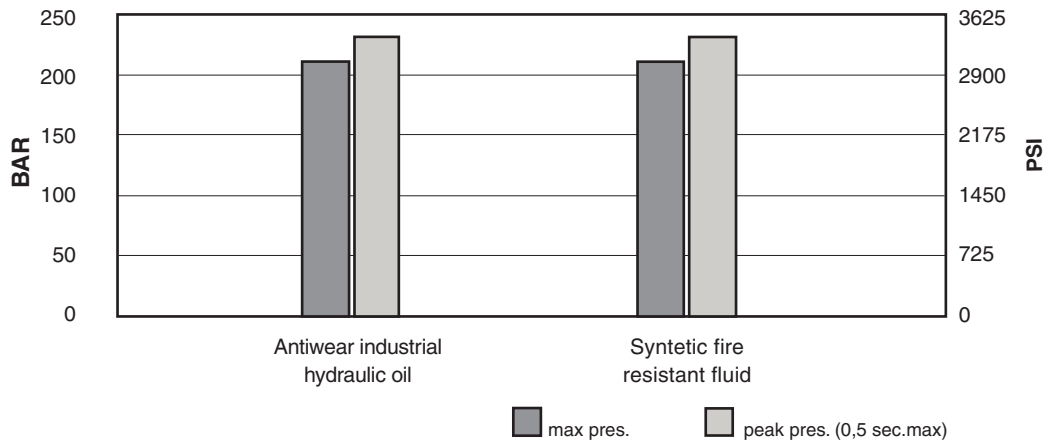
**Inlet pressure:** (*with mineral oil*): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

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

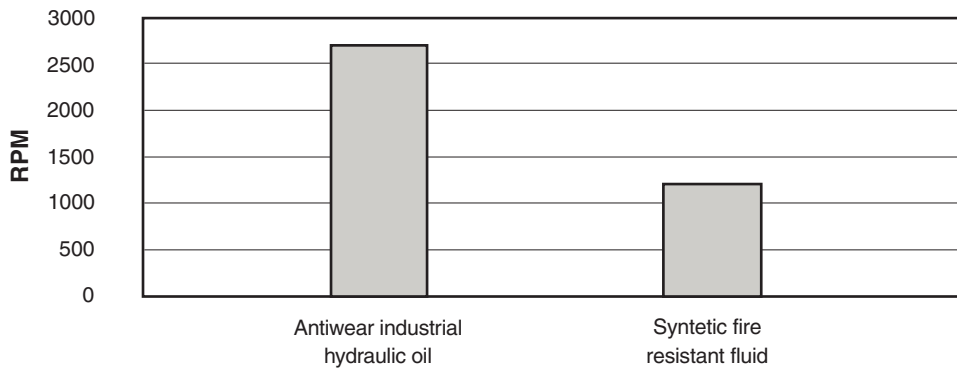
**Drive:** direct and coaxial by means of a flexible coupling.

## Main operating data

### max pressure / hydraulic fluid

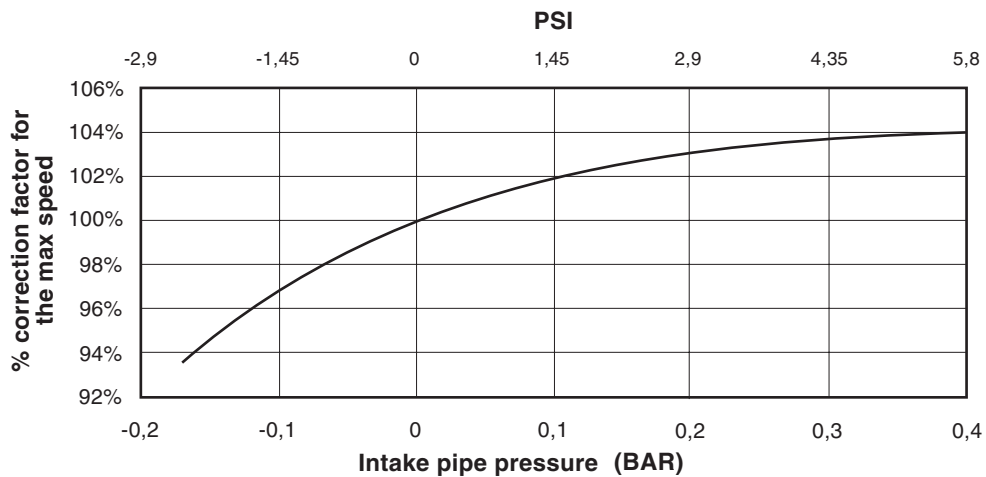


### max speed / hydraulic fluid (with 0 bar in the intake pipe)

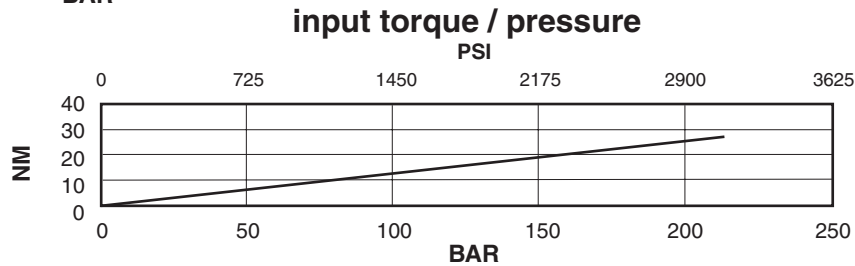
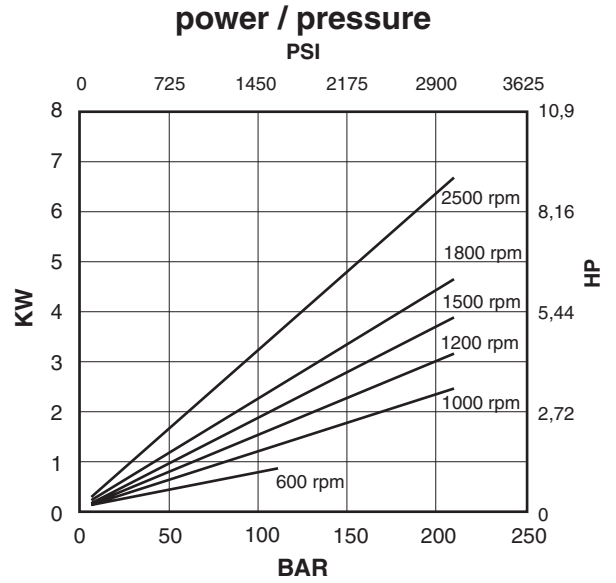
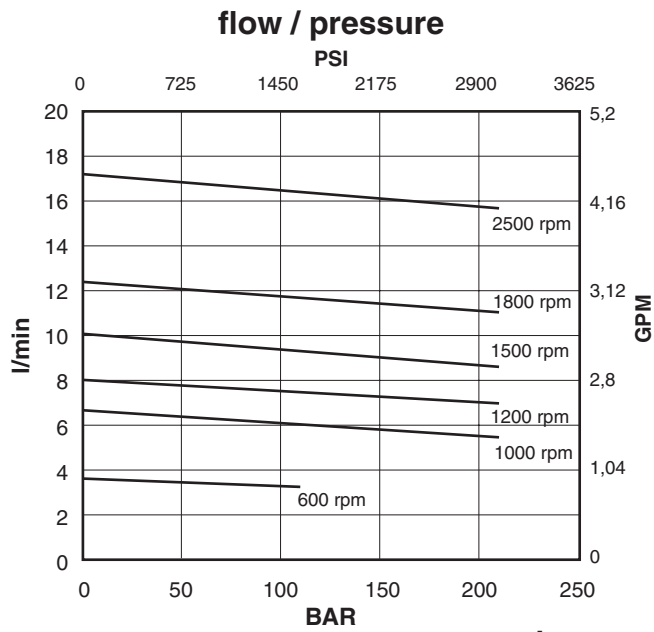


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

### max speed / intake pipe pressure

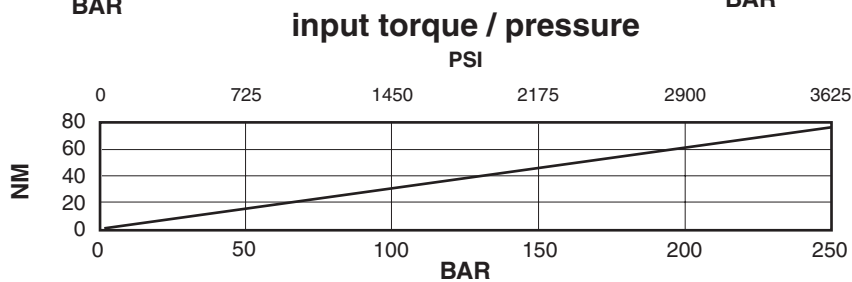
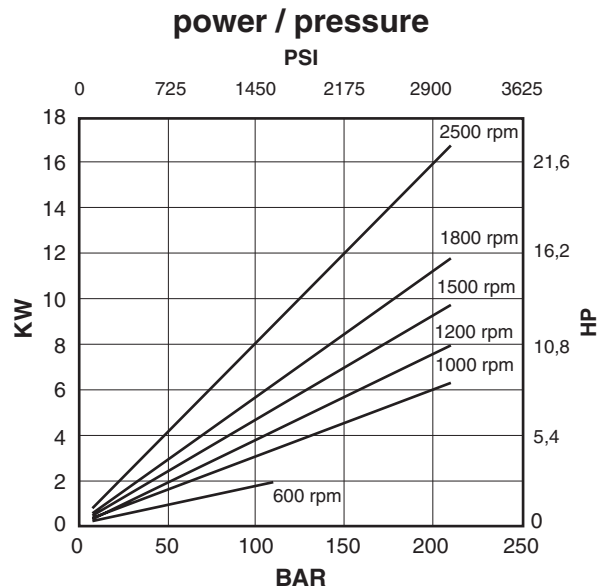
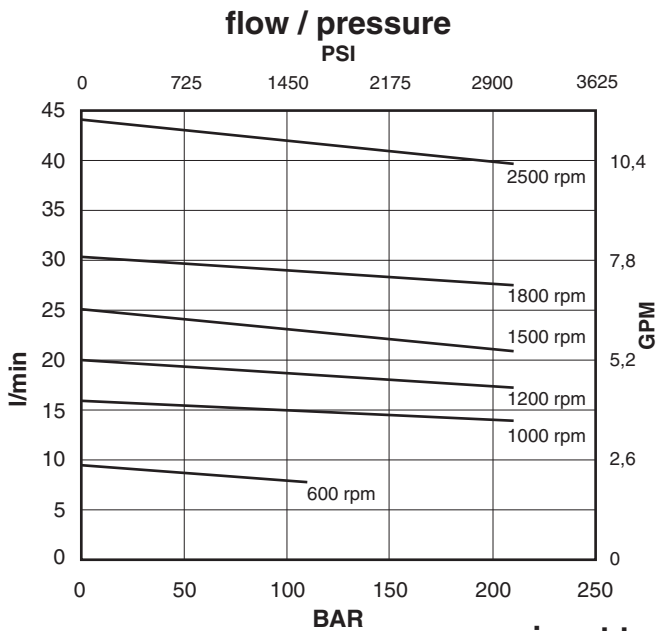


## Cartridge A01-02



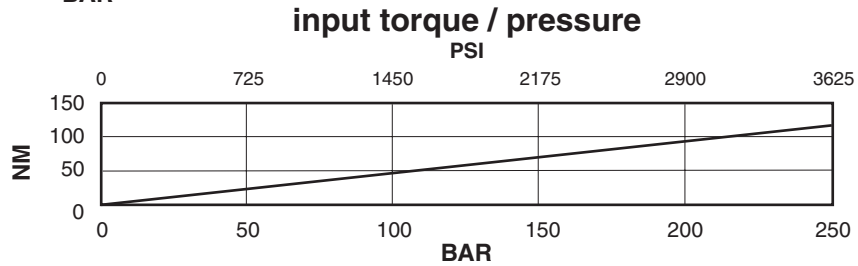
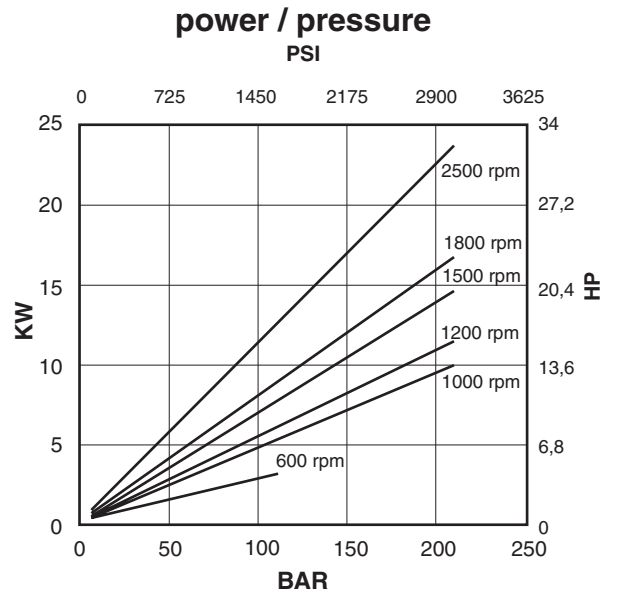
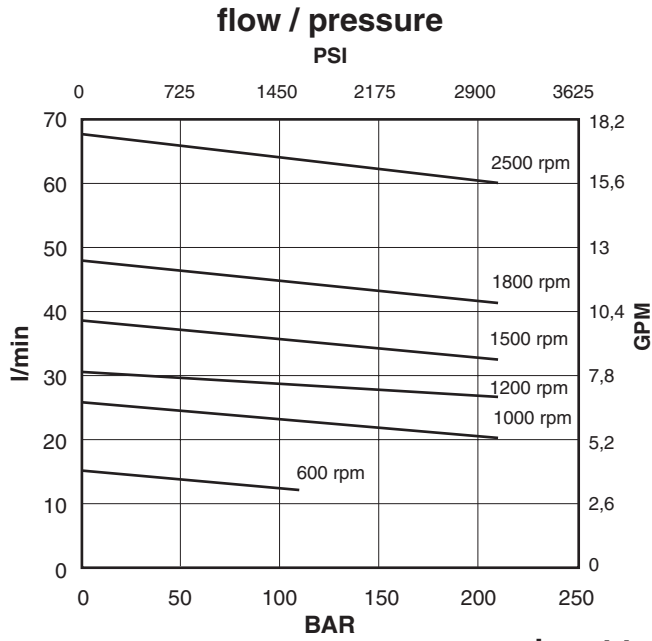
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A01-05



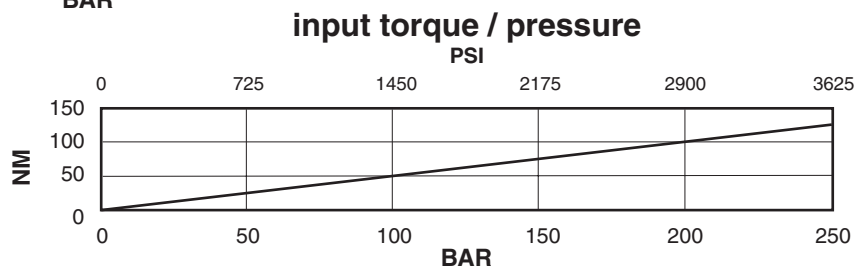
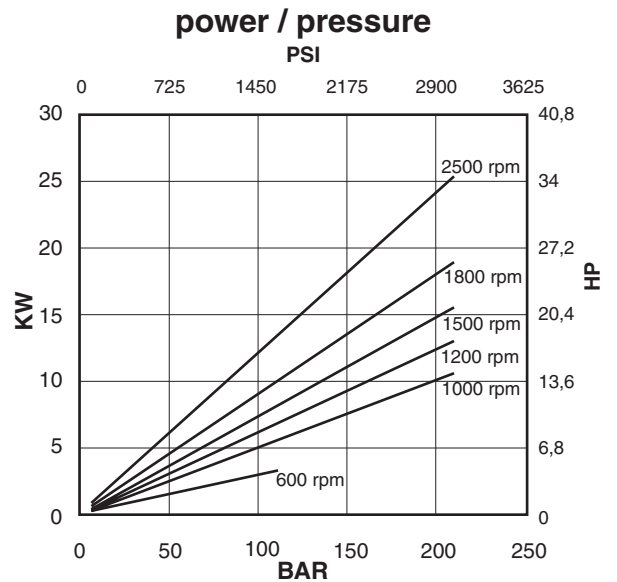
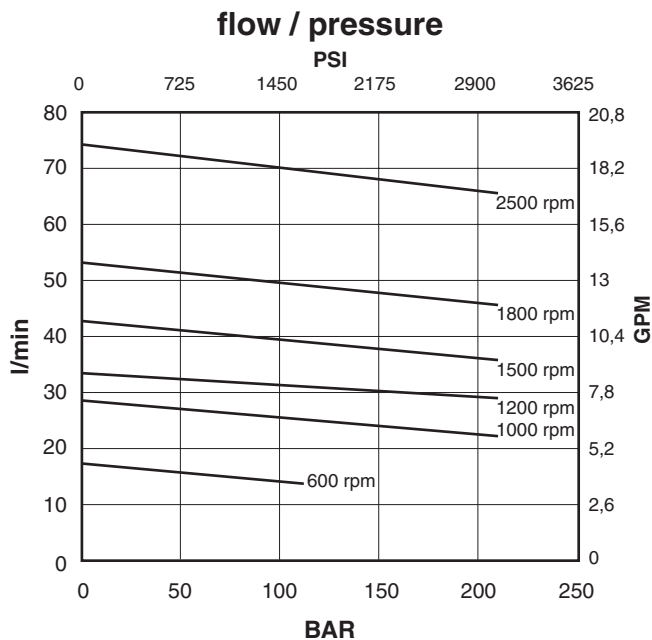
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A01-08



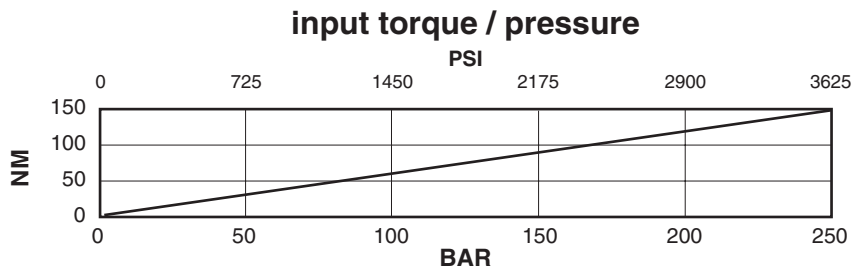
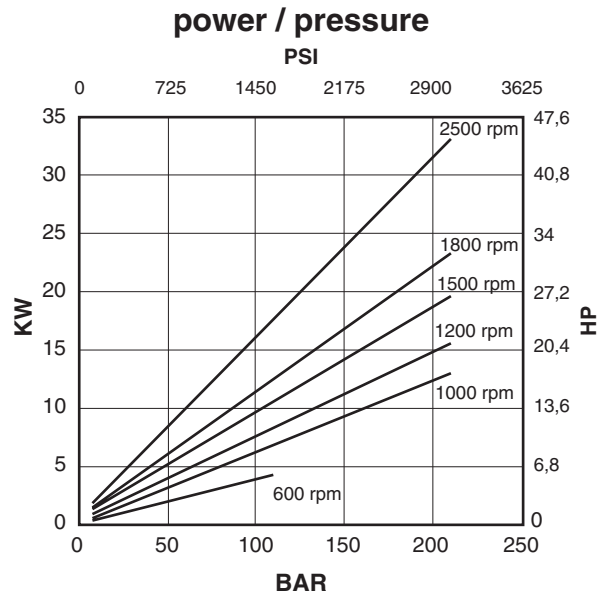
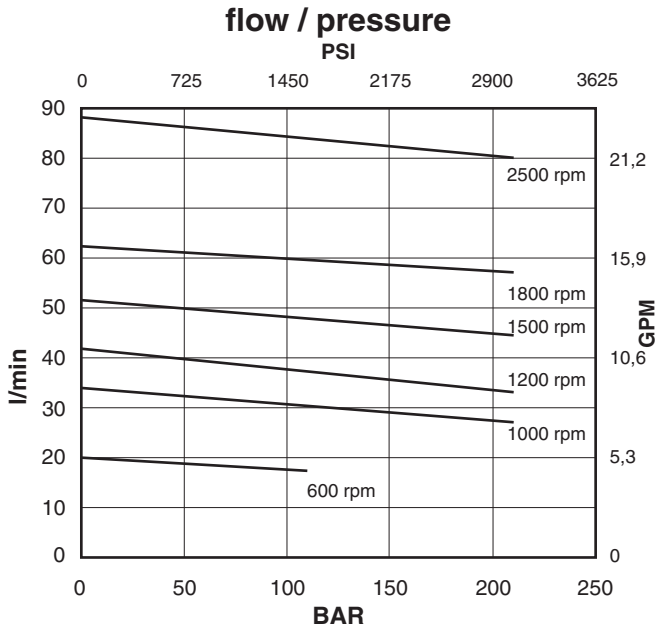
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A01-09



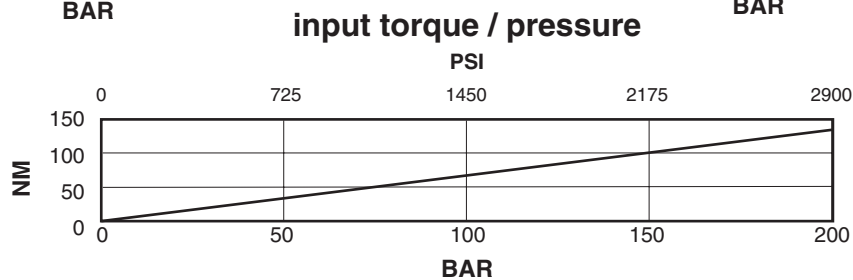
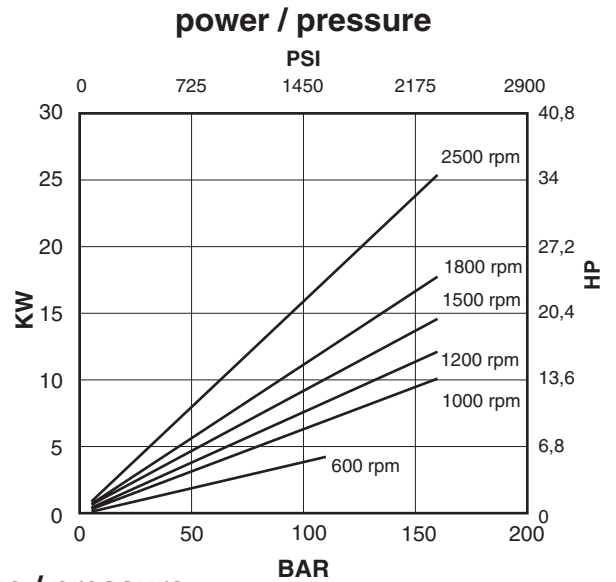
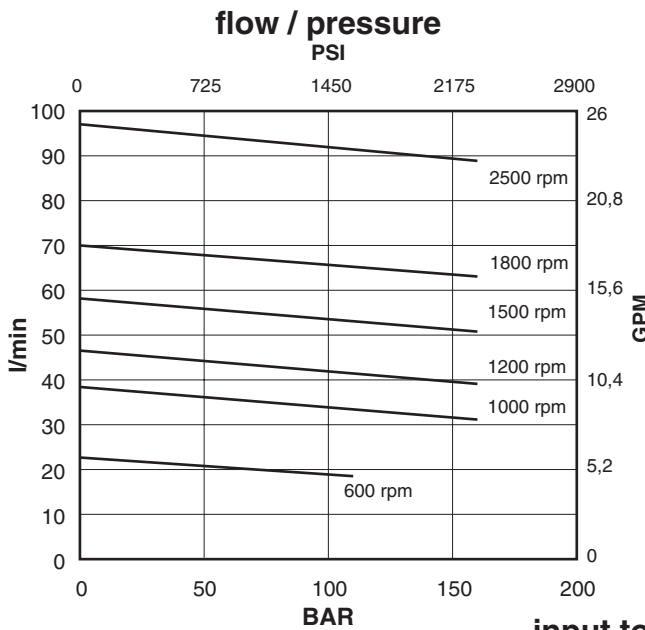
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A01-11



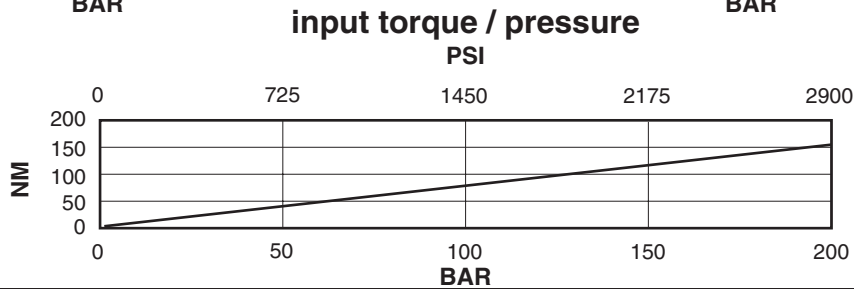
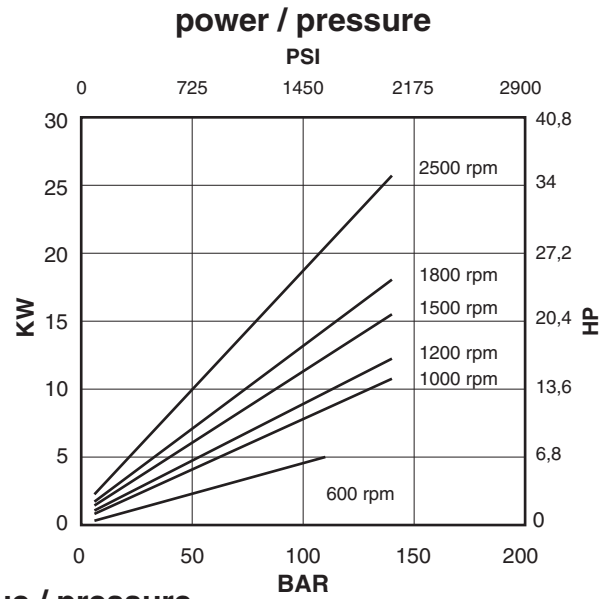
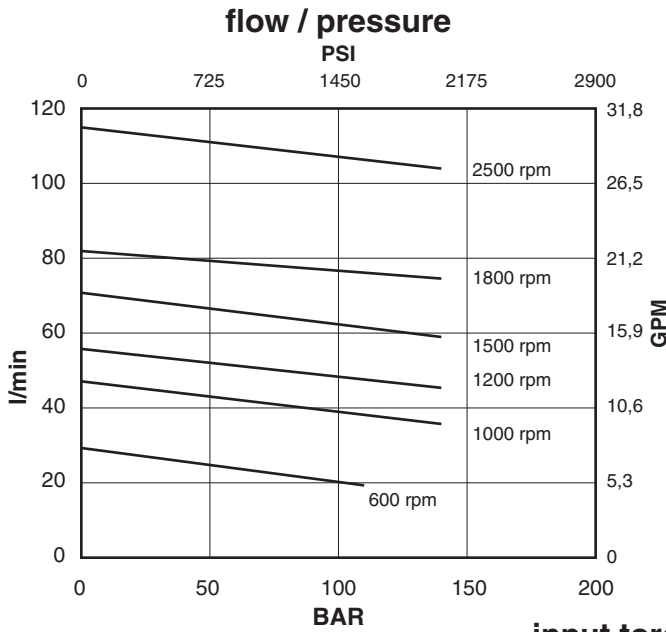
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cartridge A01-12



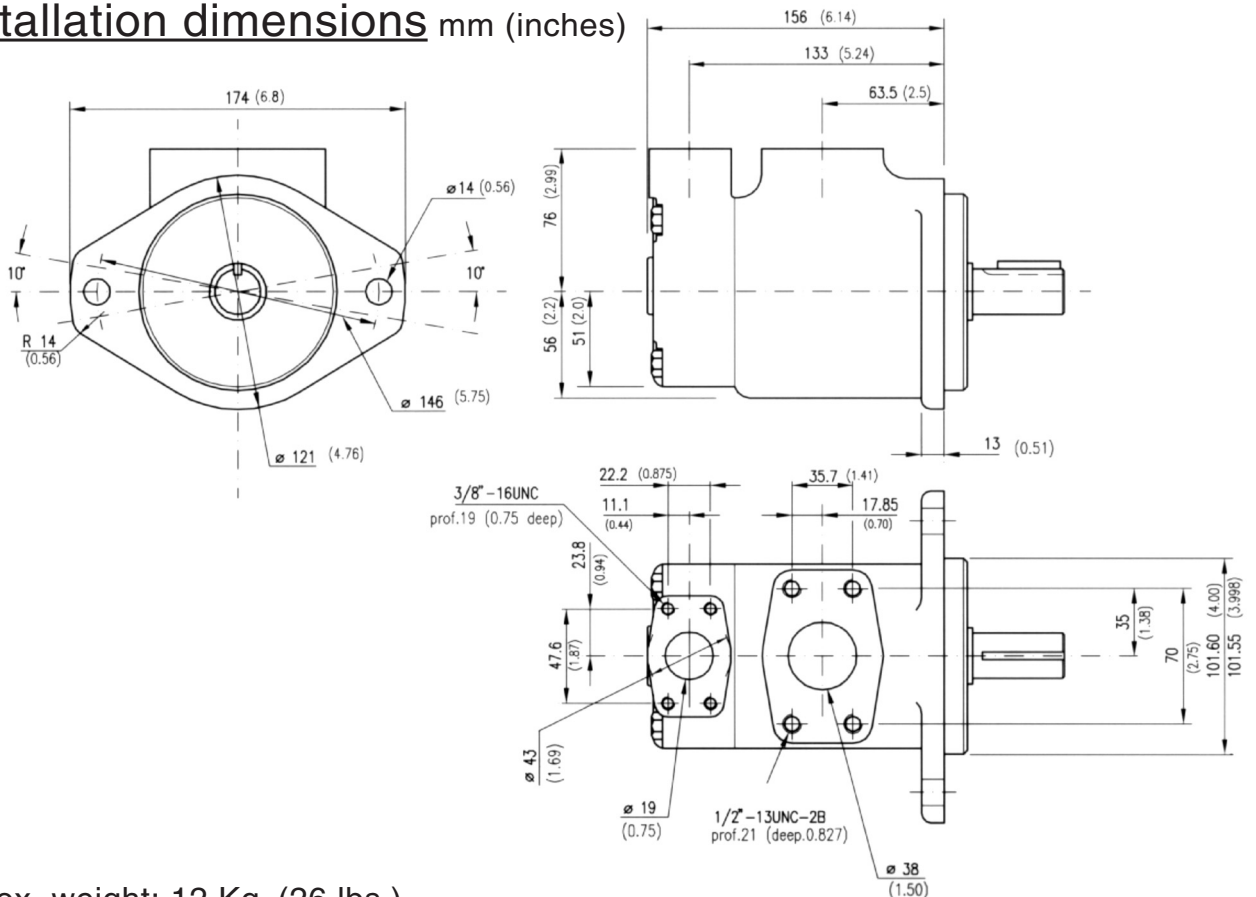
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cartridge A01-14



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

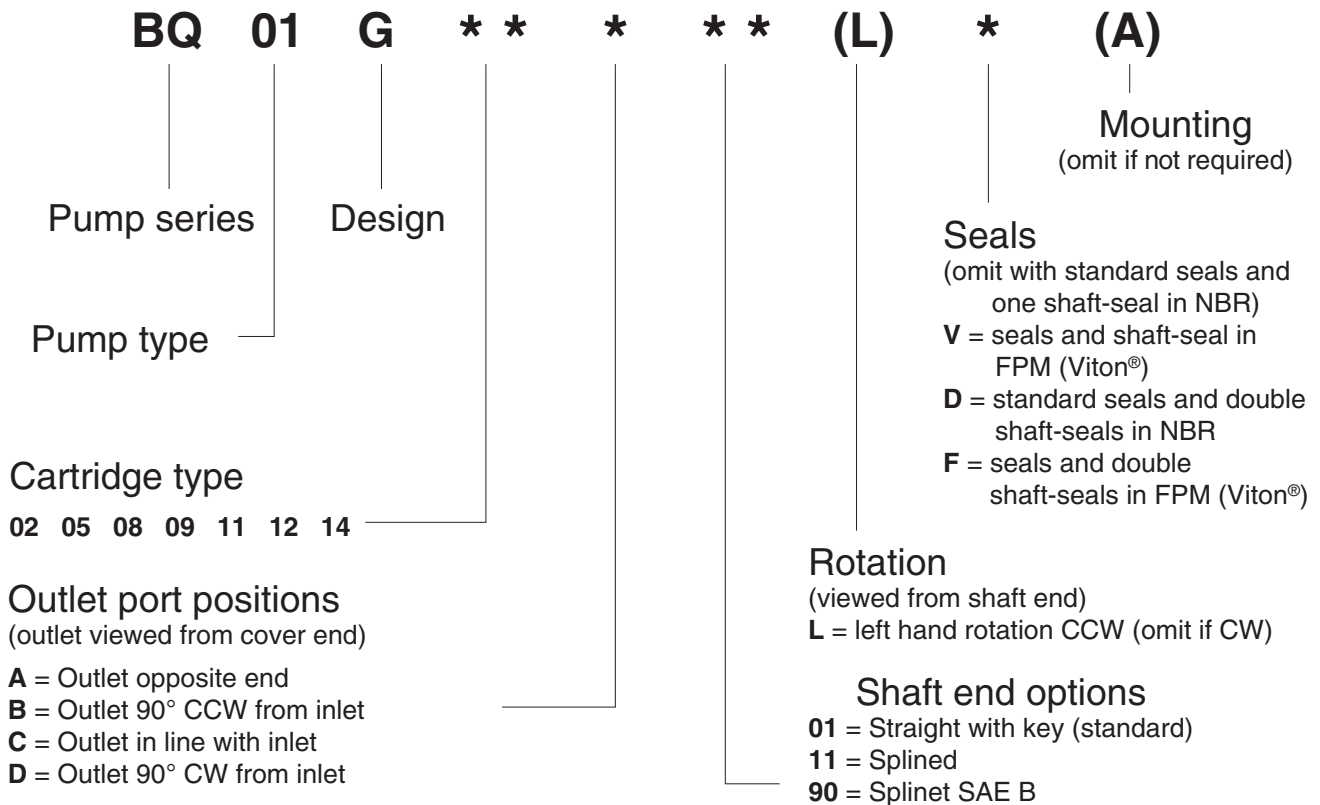
## Installation dimensions mm (inches)



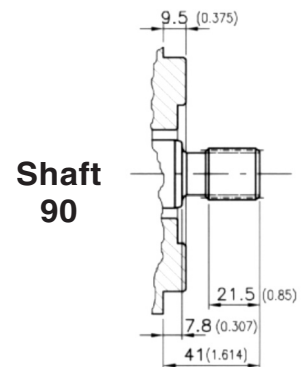
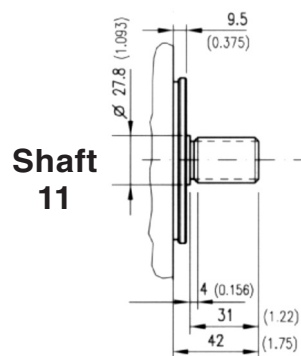
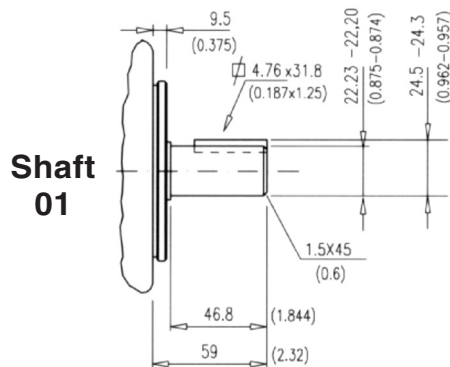
Approx. weight: 12 Kg. (26 lbs.)



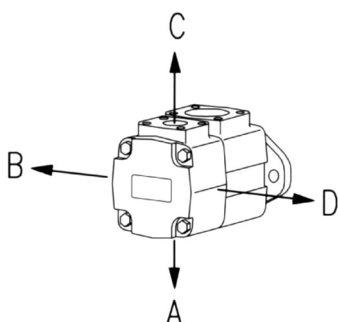
## Model code breakdown



## Shaft options mm (inches)



### PORT ORIENTATIONS



### Spline data

(Shaft 11 and shaft 90)

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

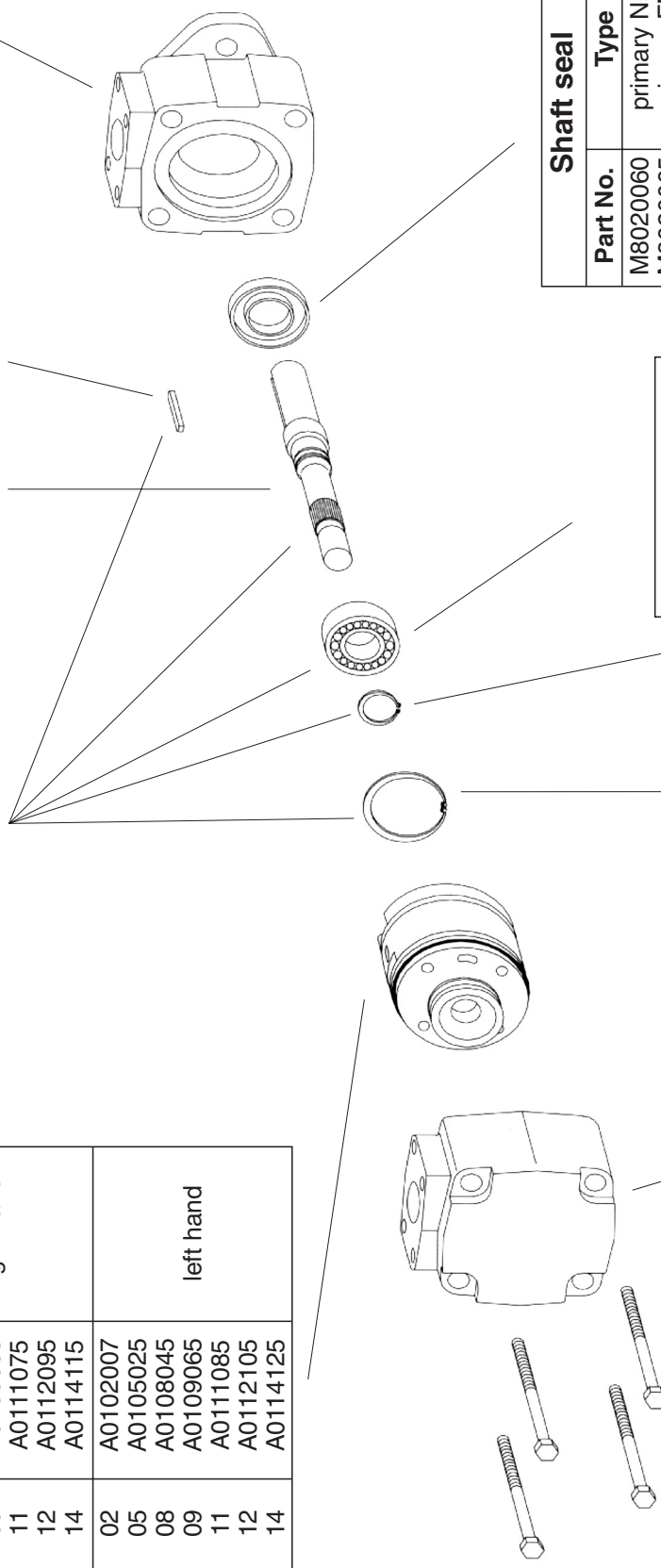
## Id. codes of pump components

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

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

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

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



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

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

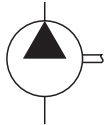
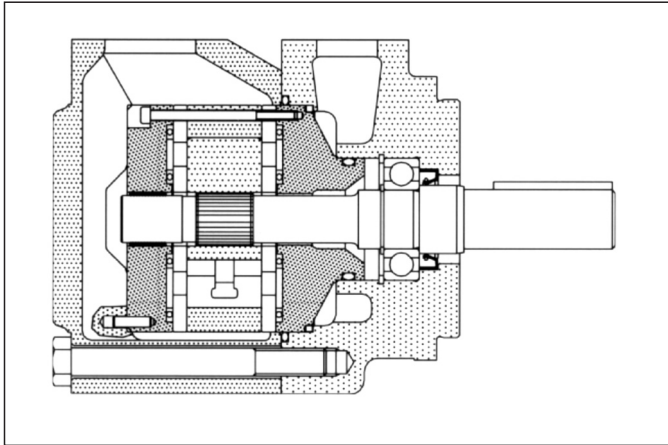
| Seeger   |          |
|----------|----------|
| Part No. | Part No. |
| M8010050 |          |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

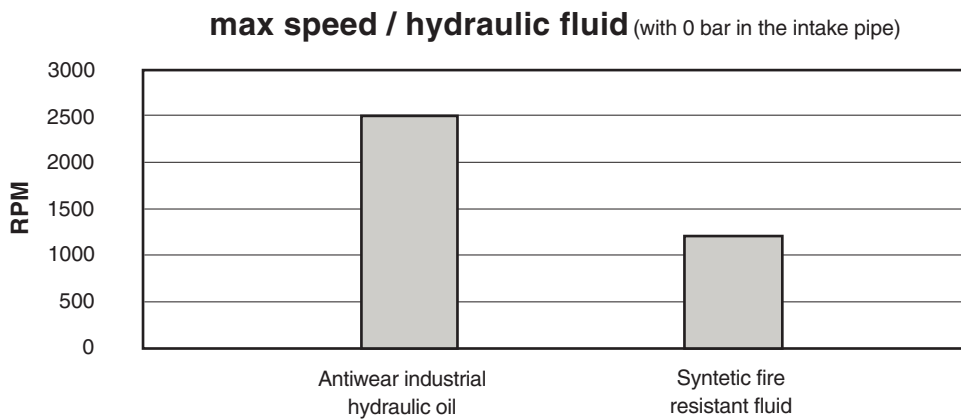
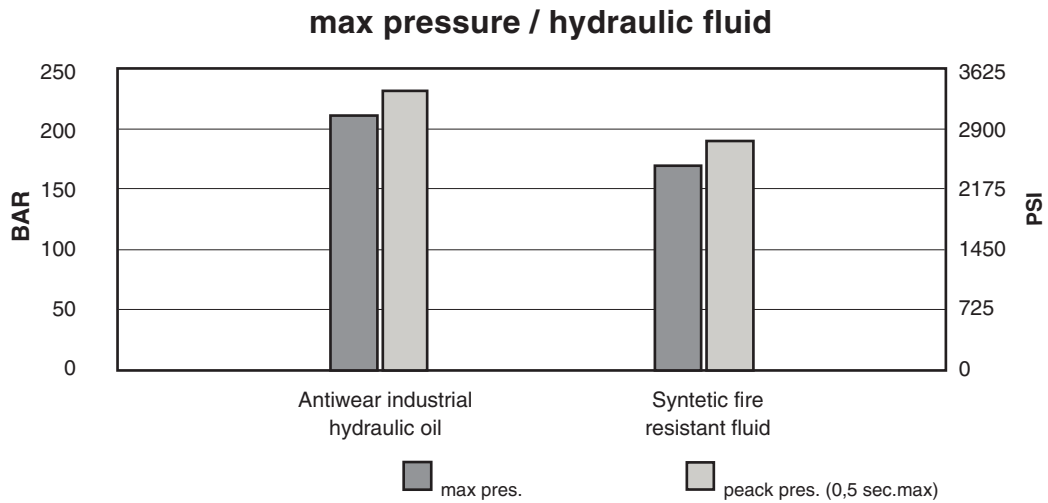
**Filtration:** for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

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

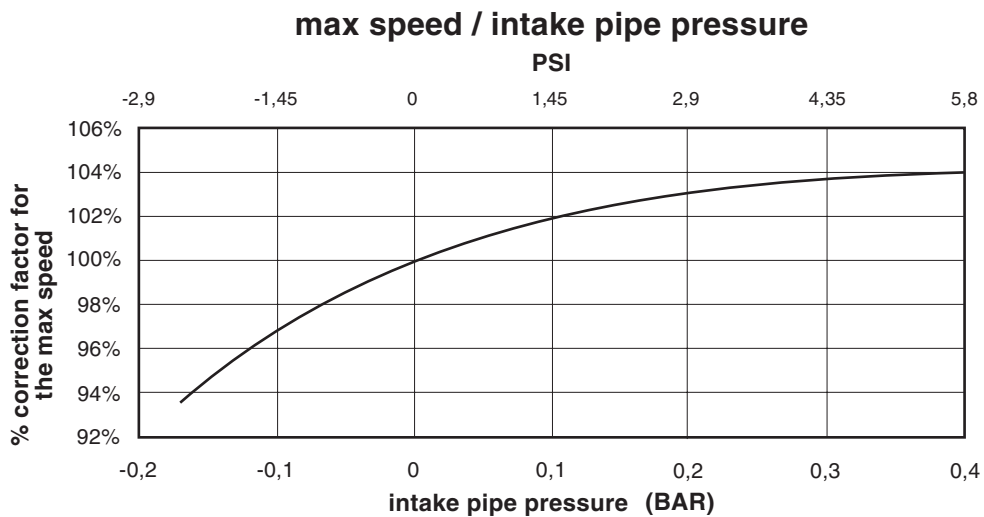
**Operating temperature:** with mineral oil -10°C +70°C (+30°C to +60°C recommended).

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

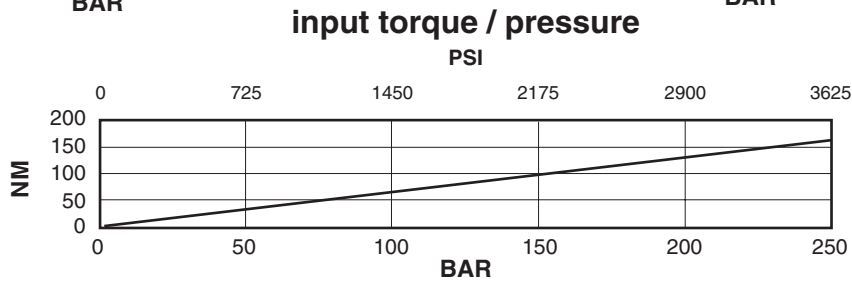
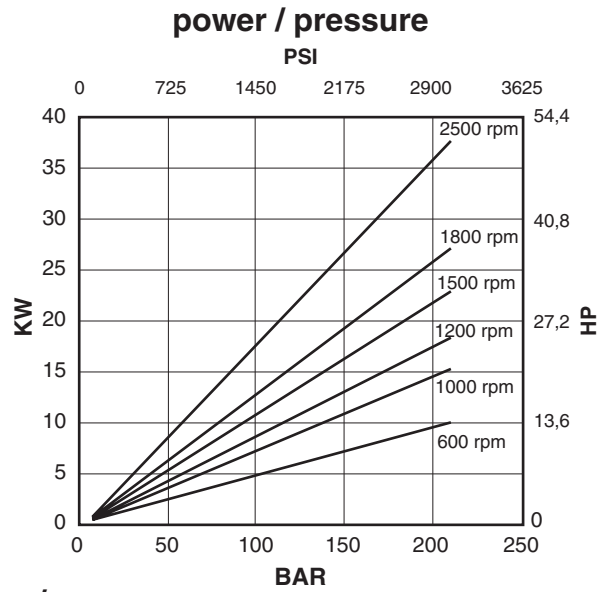
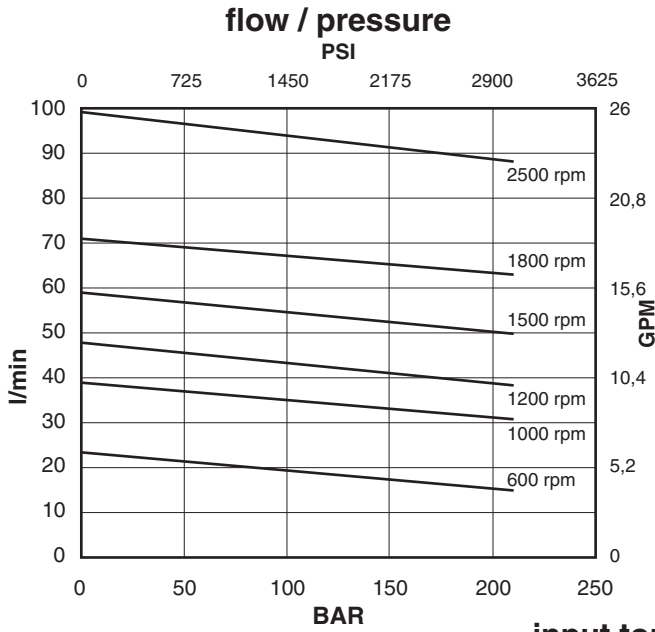
## Main operating data



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

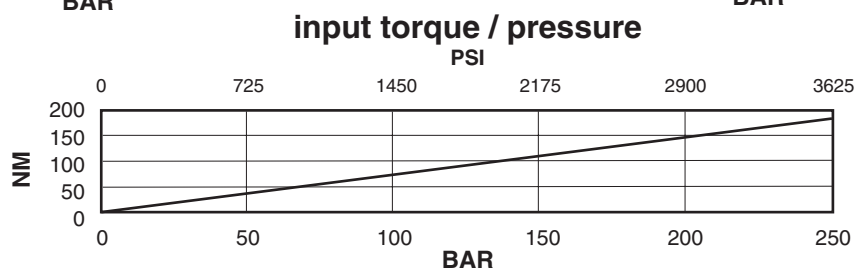
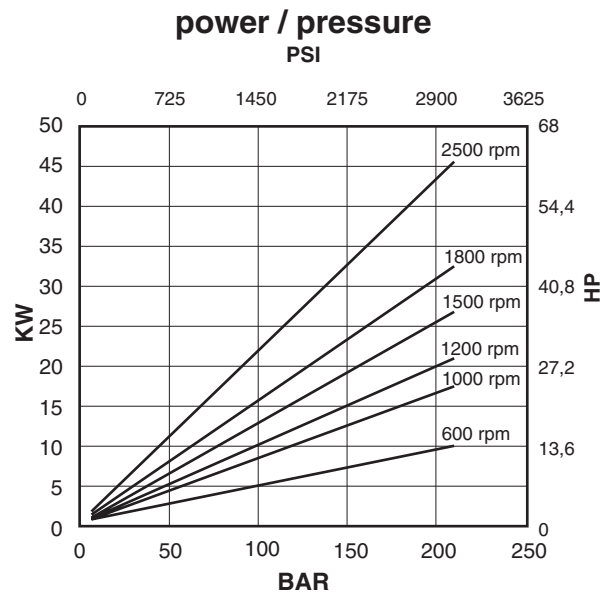
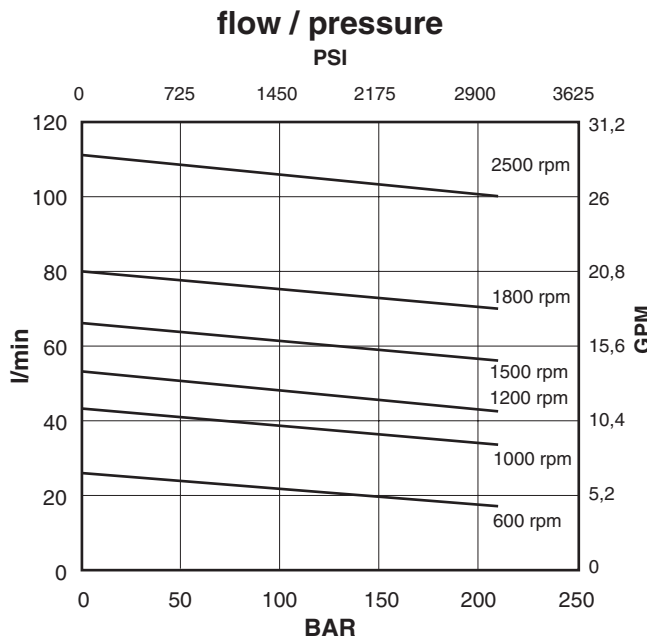


## Cartridge A02-12



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

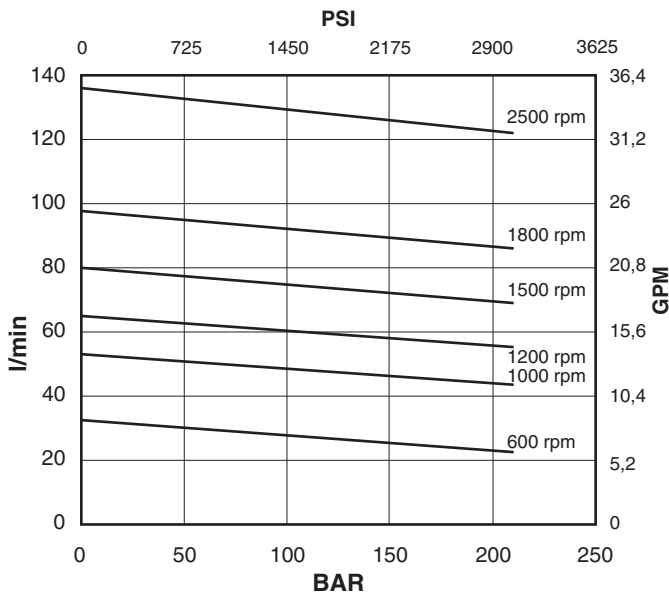
## Cartridge A02-14



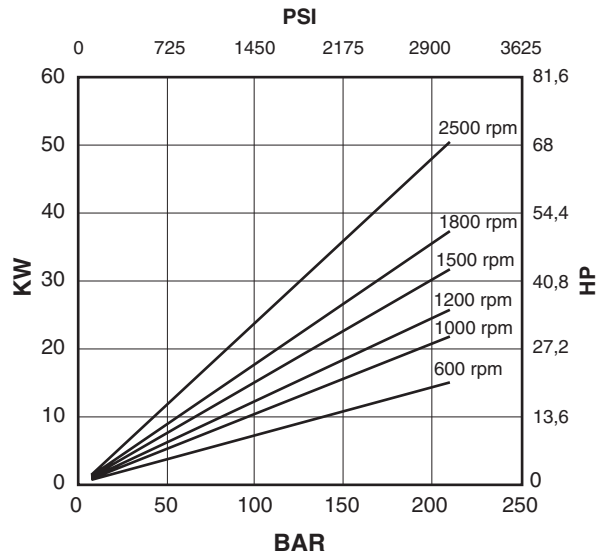
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A02-17

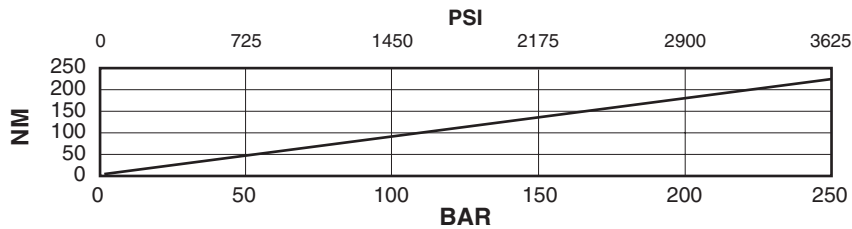
### flow / pressure



### power / pressure



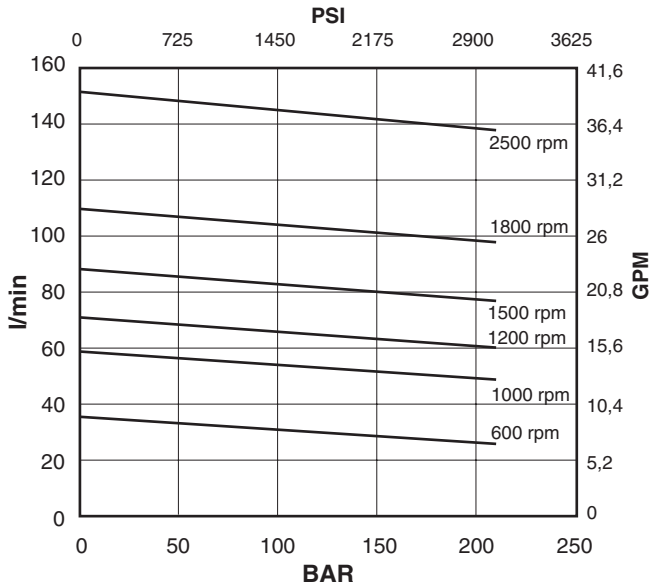
### input torque / pressure



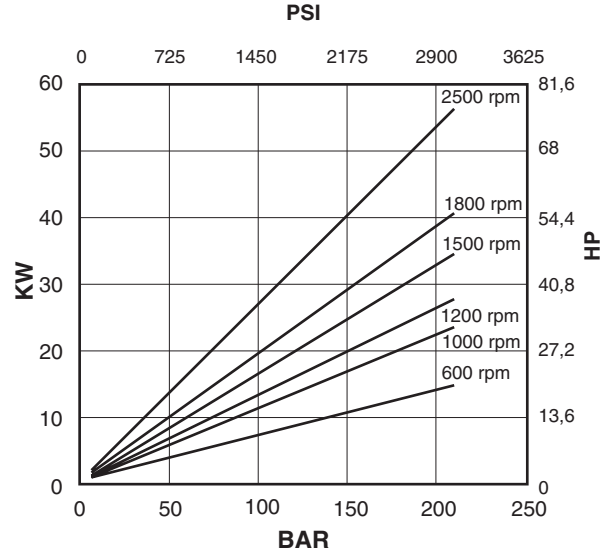
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A02-19

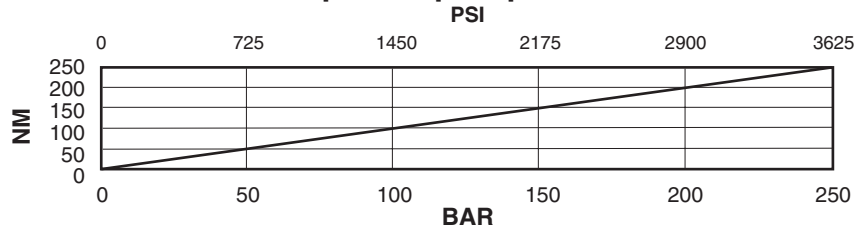
### flow / pressure



### power / pressure



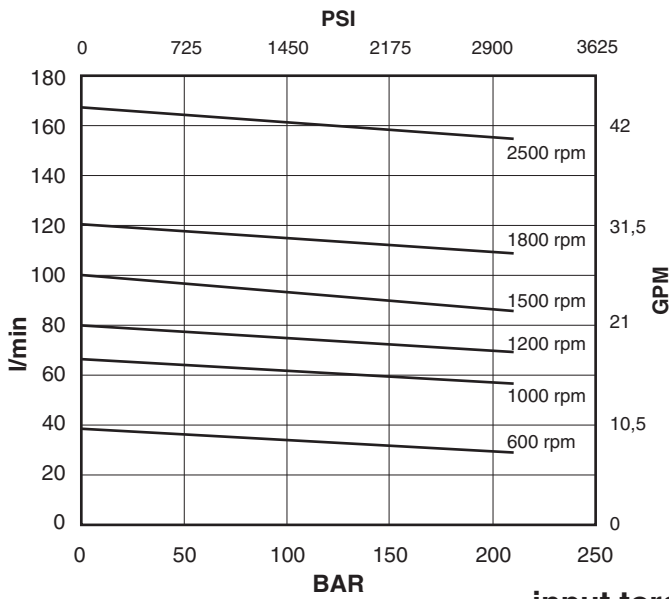
### input torque / pressure



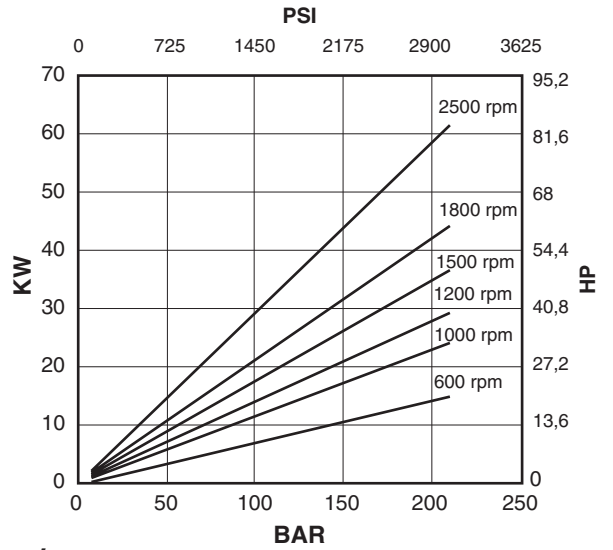
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A02-21

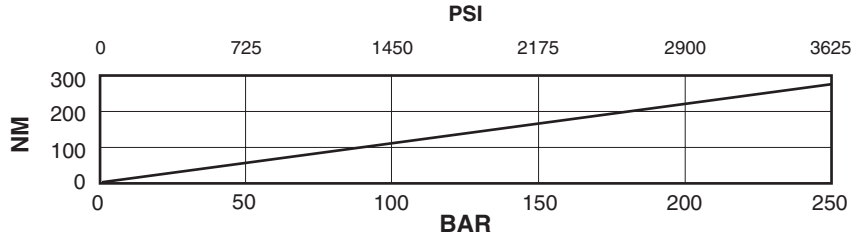
### flow / pressure



### power / pressure

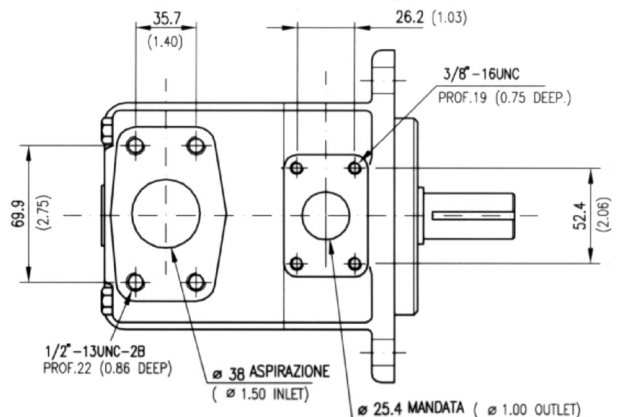
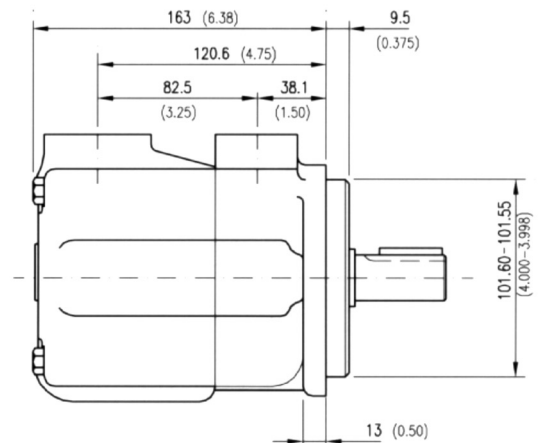
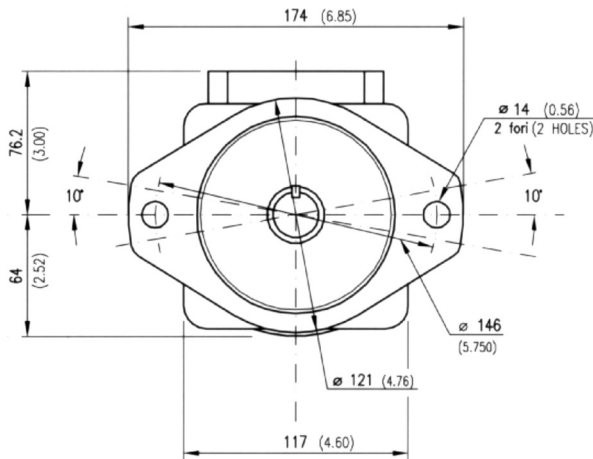


### input torque / pressure



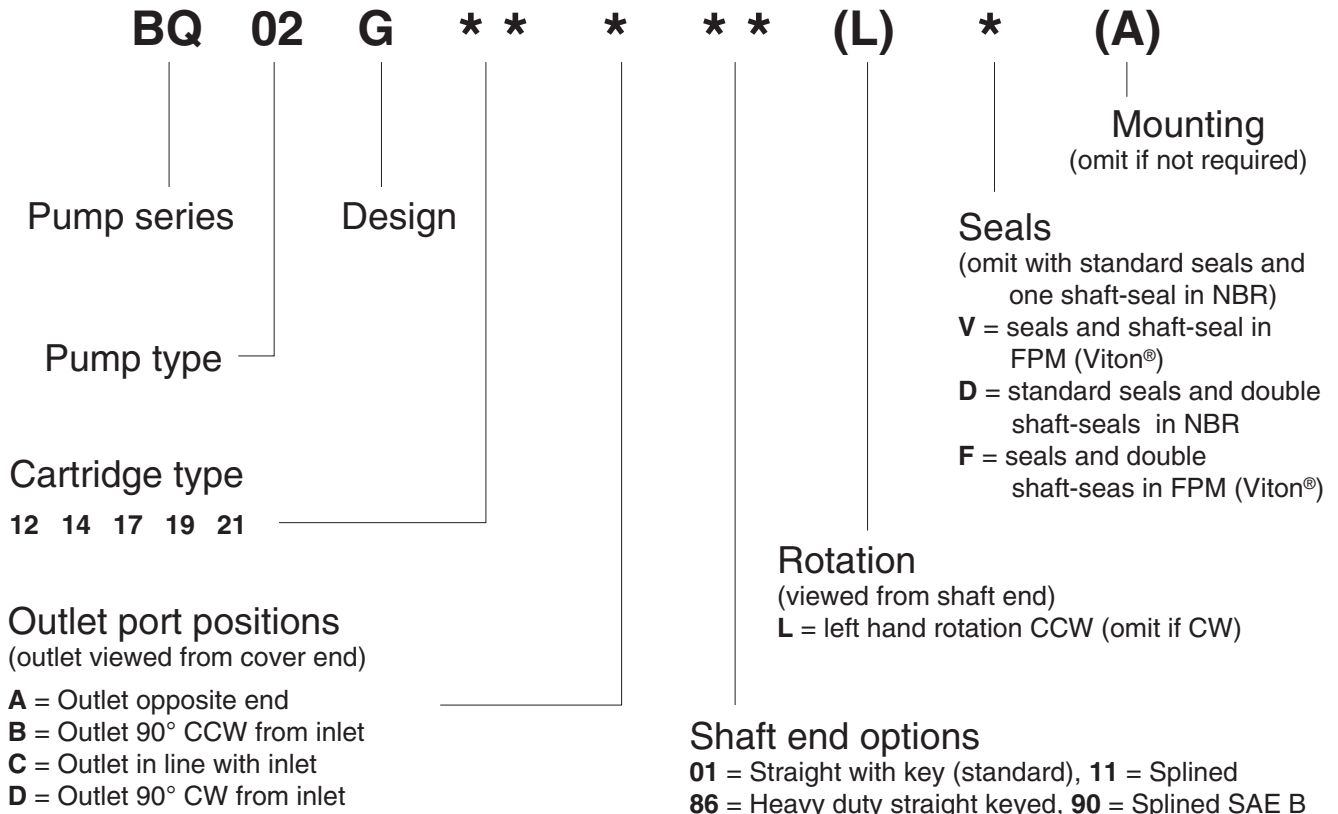
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Installation dimensions mm (inches)

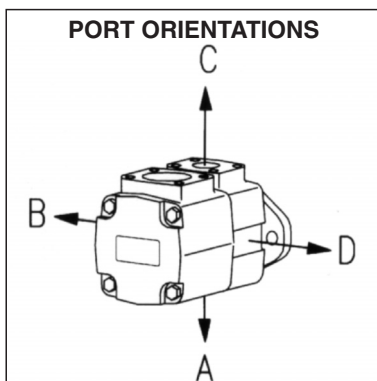
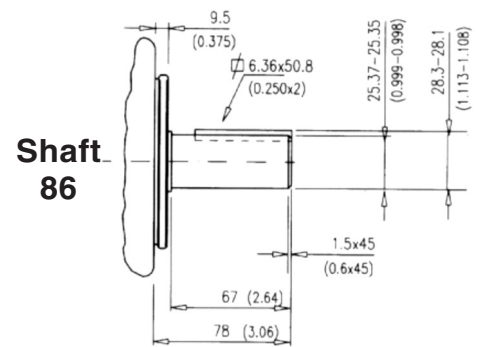
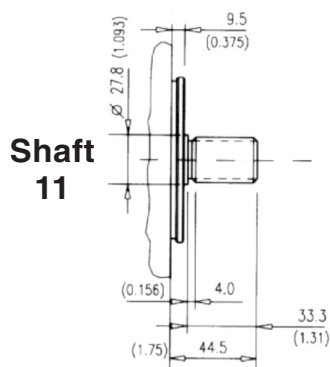
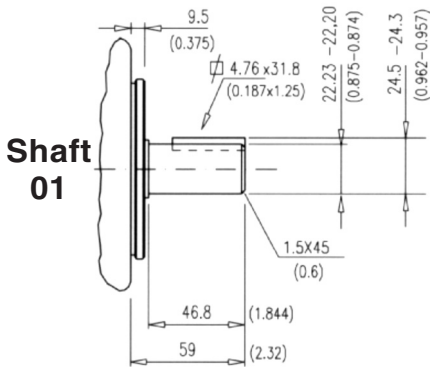


Approx. weight: 15 Kg. (33 lbs.)

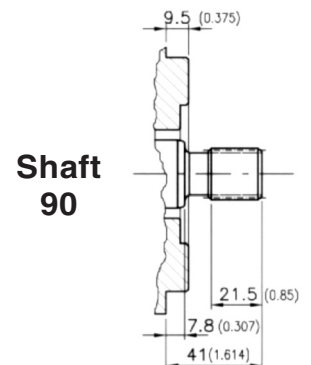
## Model code breakdown



## Shaft options mm (inches)



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





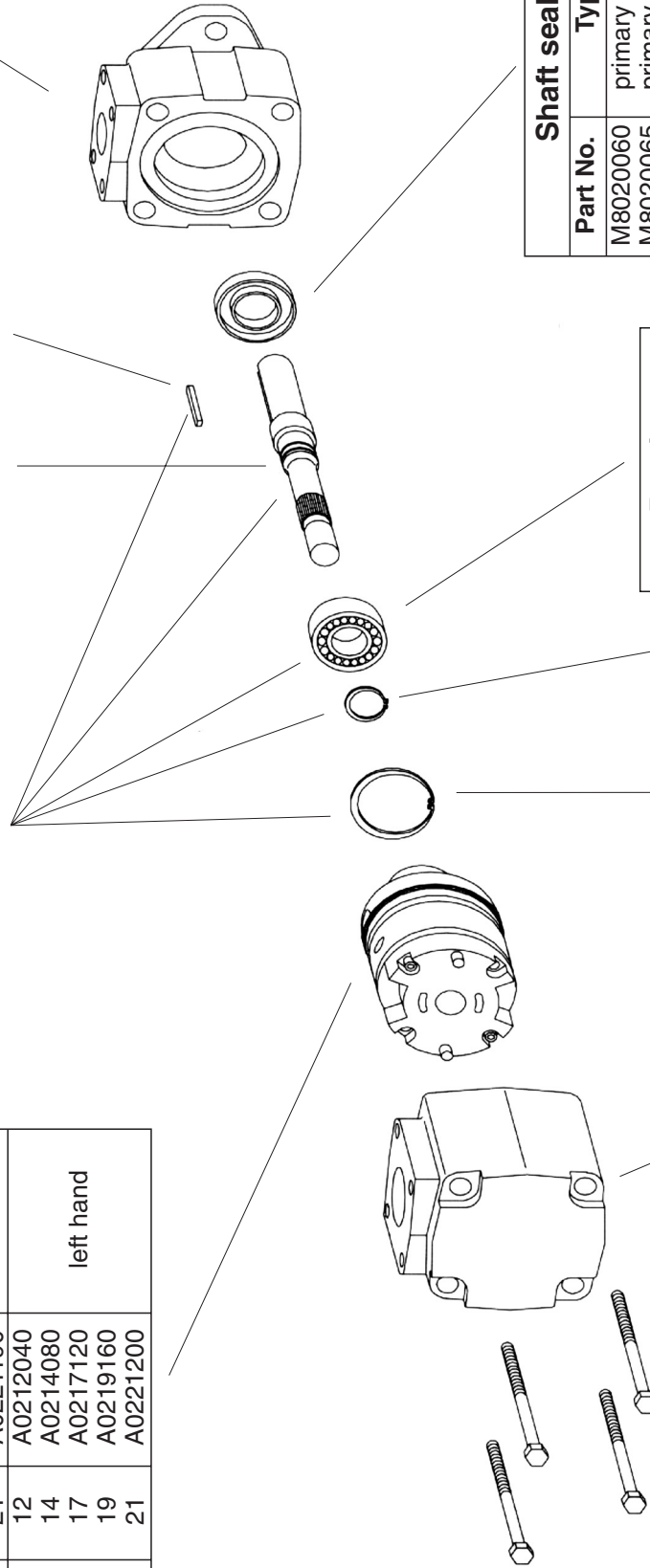
## Id. codes of pump components

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

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

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

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



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

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

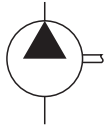
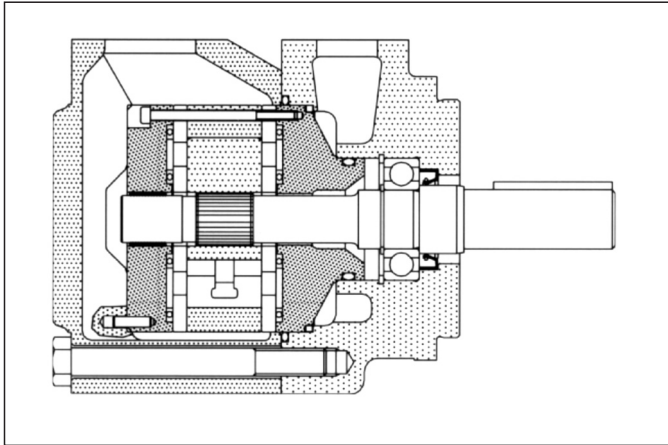
| Seeger   |          |
|----------|----------|
| Part No. | Part No. |
| M8020050 |          |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

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

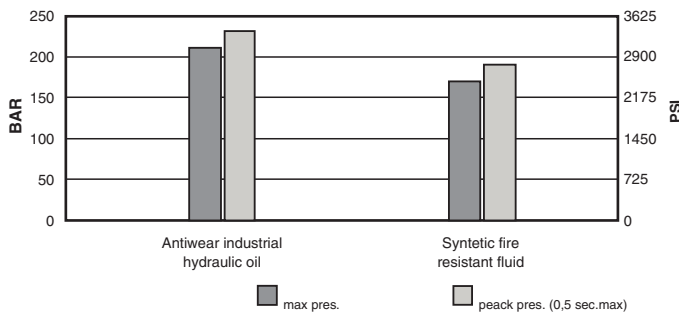
**Inlet pressure:** (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

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

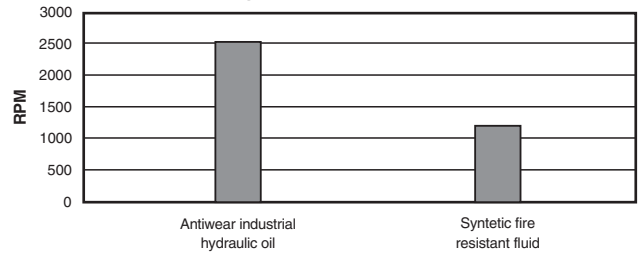
**Drive:** direct and coaxial by means of a flexible coupling.

## Main operating data

max pressure / hydraulic fluid

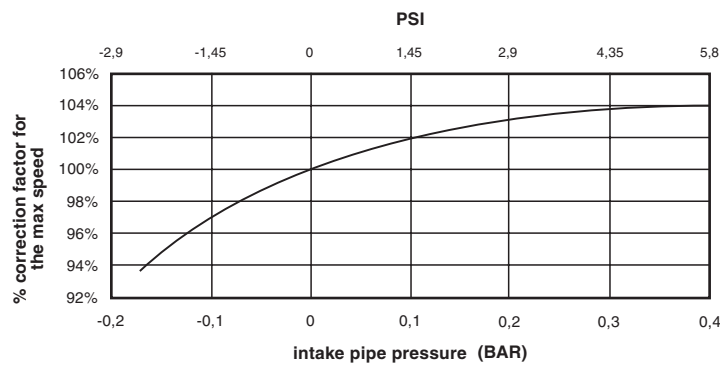


max speed / hydraulic fluid (with 0 bar in the intake pipe)



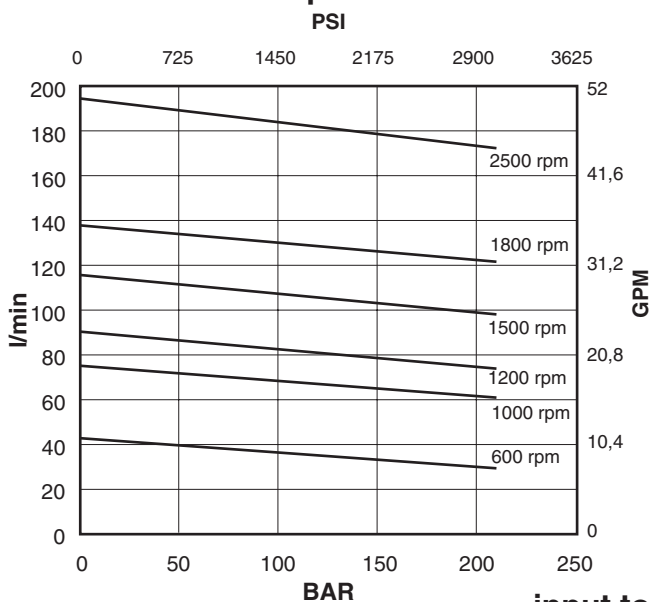
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

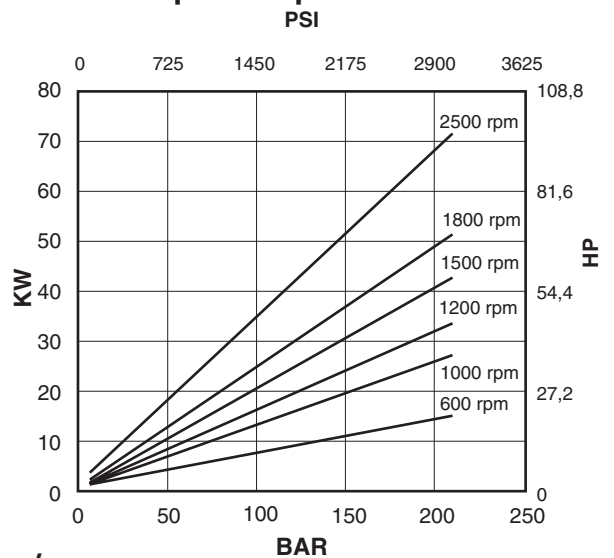


## Cartridge A03-24

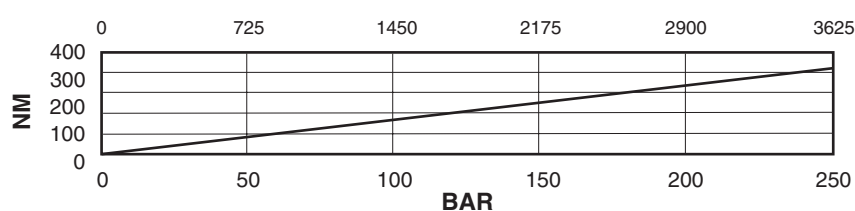
flow / pressure



power / pressure



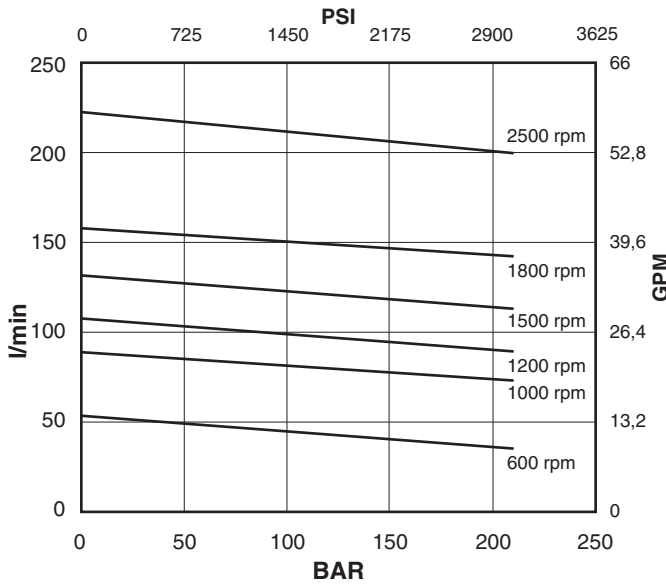
input torque / pressure



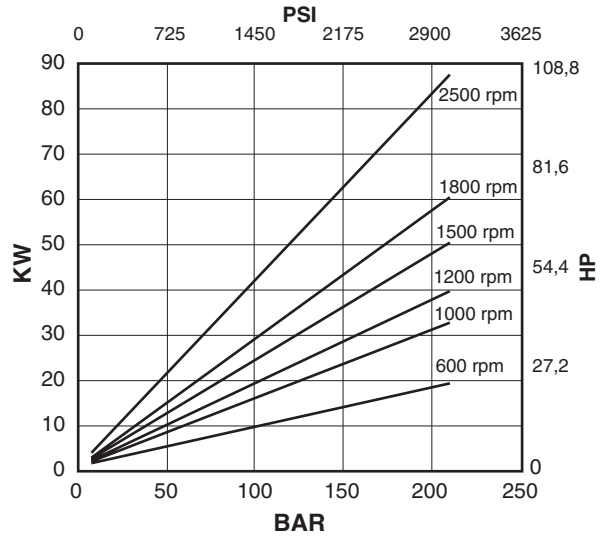
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cartridge A03-28

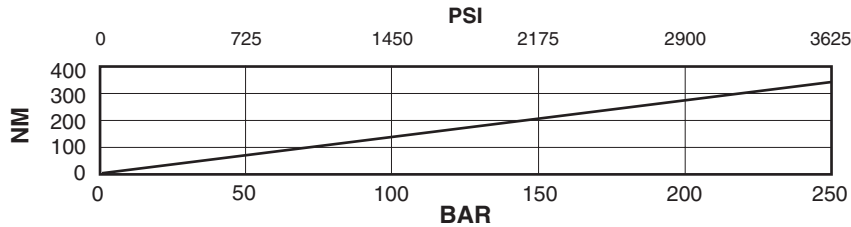
flow / pressure



power / pressure

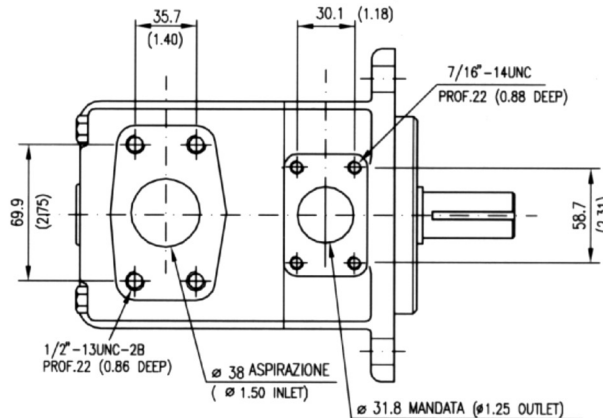
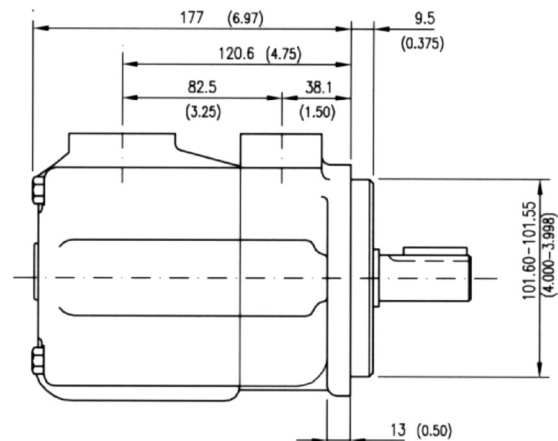
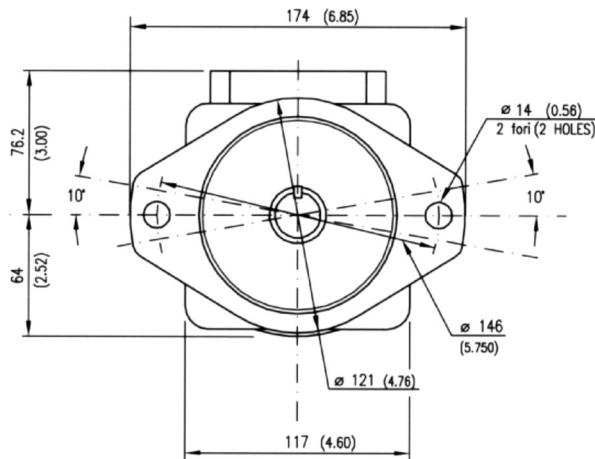


input torque / pressure



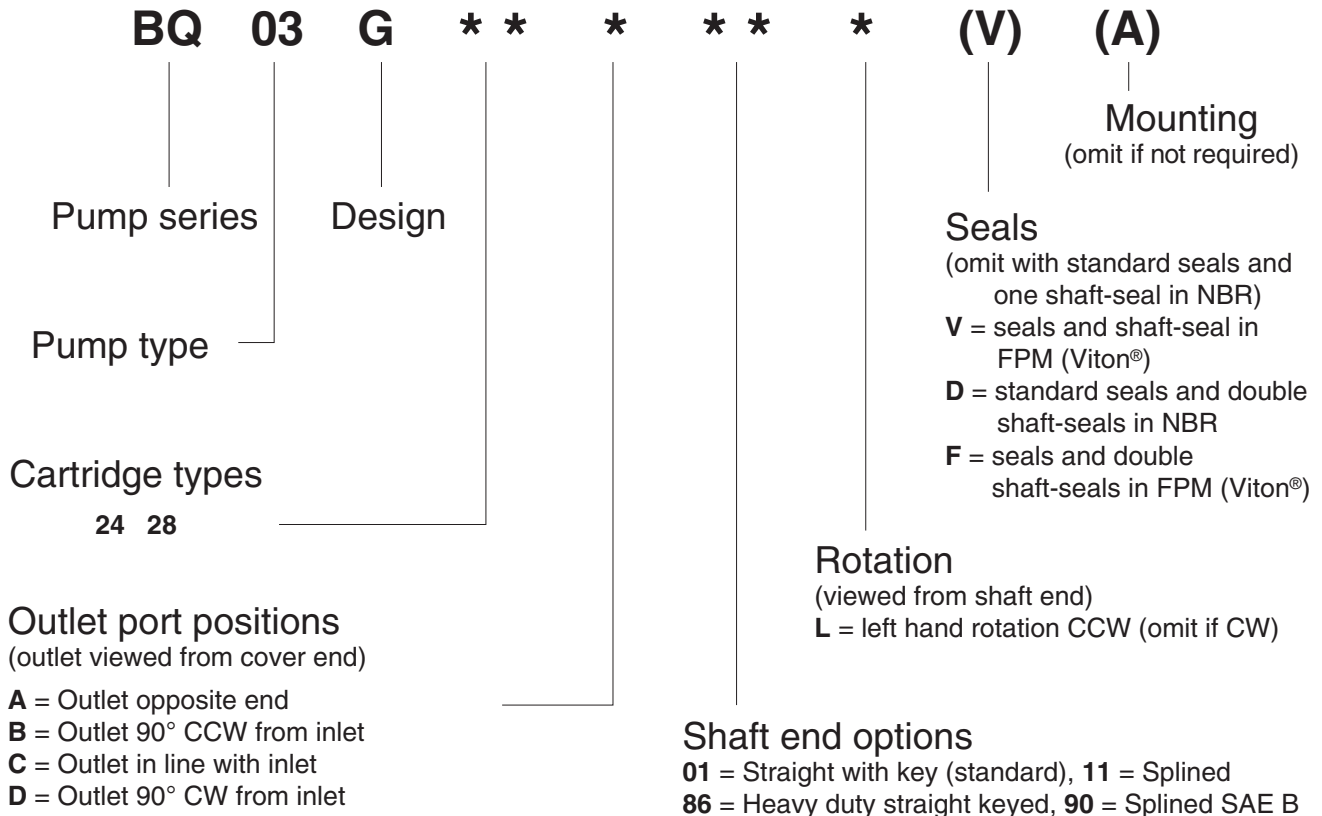
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Installation dimensions mm (inches)

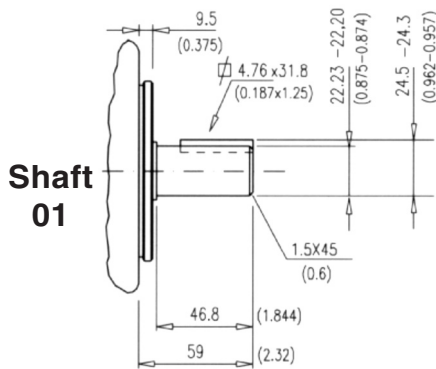


Approx. weight: 17 Kg. (37 lbs.)

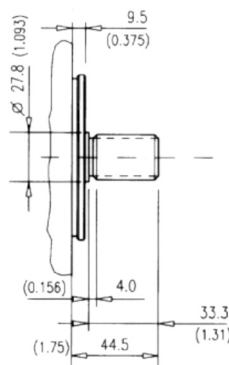
## Model code breakdown



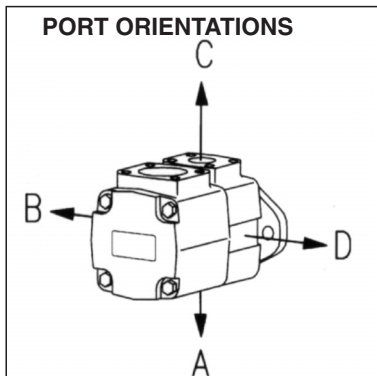
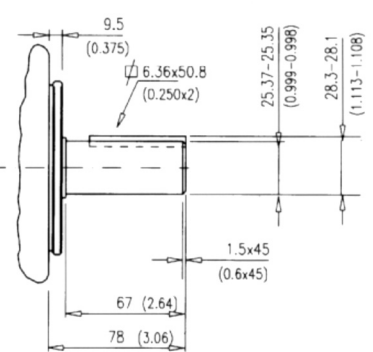
## Shaft options mm (inches)



**Shaft 11**



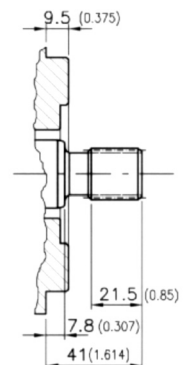
**Shaft 86**



### Spline data (Shaft 11 and shaft 90)

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

**Shaft 90**



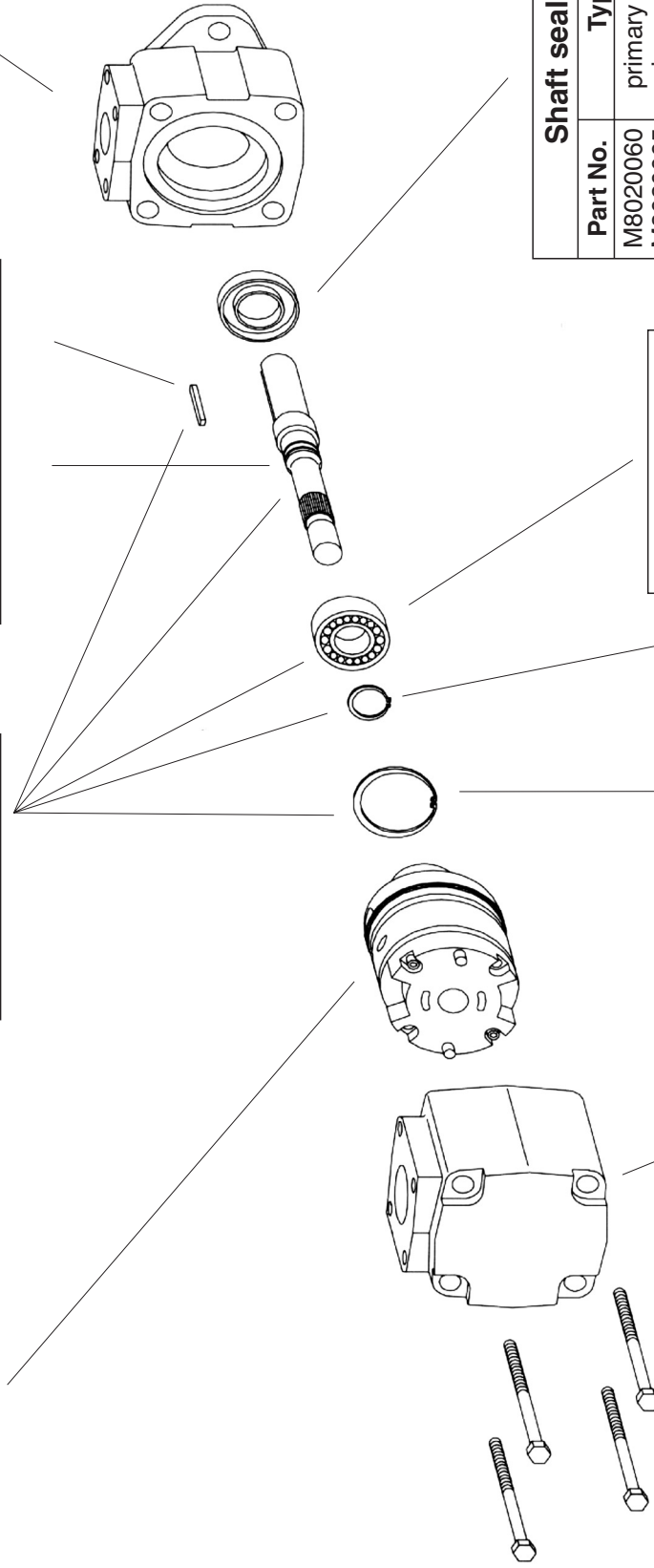
## Id. codes of pump components

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

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

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

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



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

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

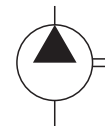
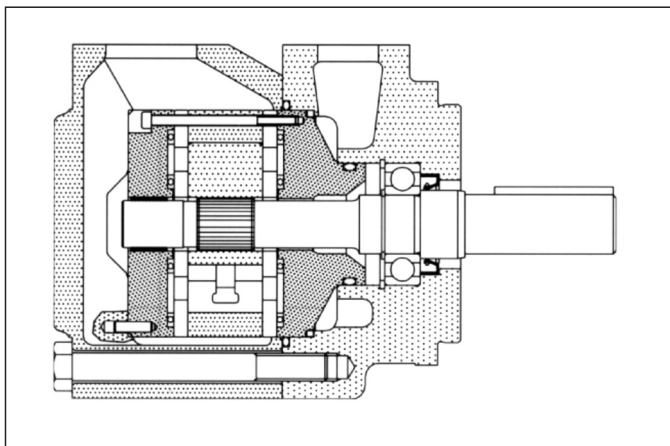
| Seeger   |          |
|----------|----------|
| Part No. | Part No. |
| M8020050 |          |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

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

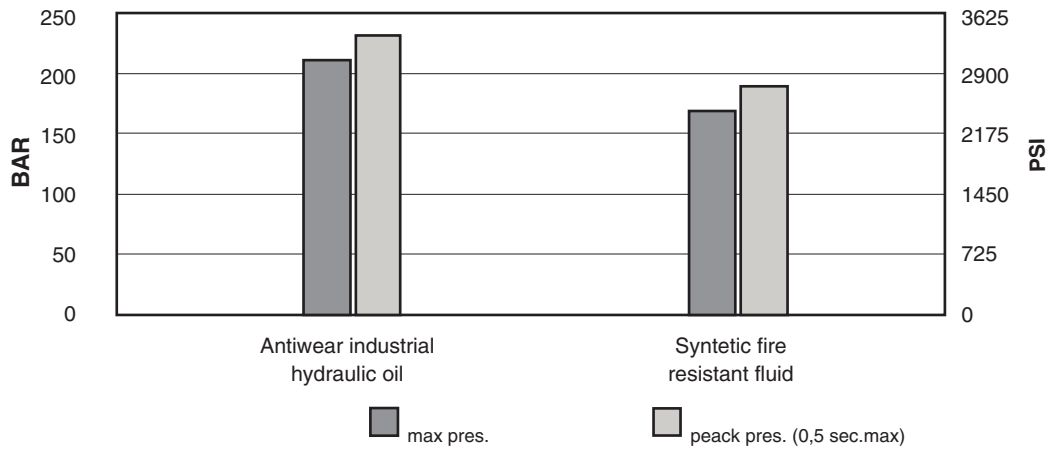
**Inlet pressure:** (*with mineral oil*): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

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

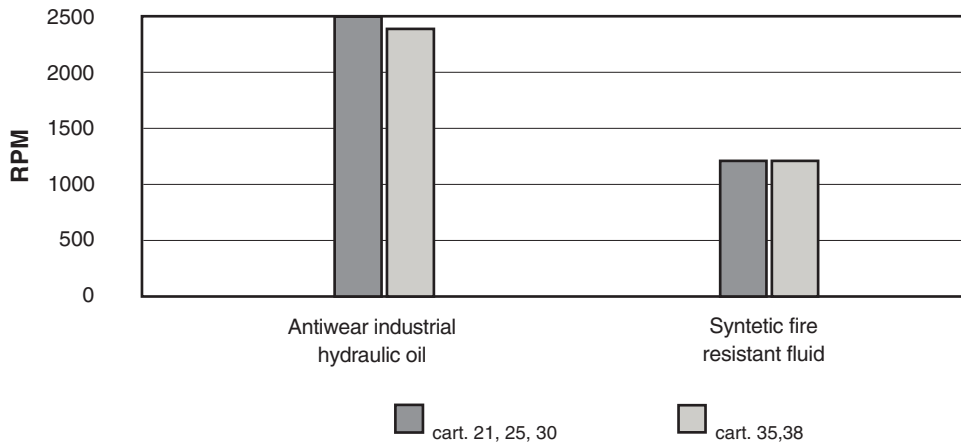
**Drive:** direct and coaxial by means of a flexible coupling.

## Main operating data

### max pressure / hydraulic fluid

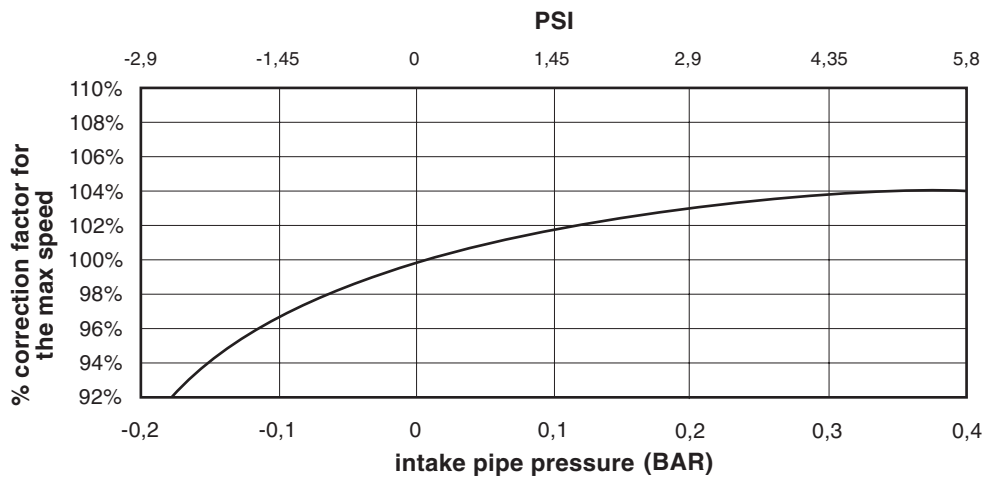


### max speed / hydraulic fluid (with 0 bar in the intake pipe)



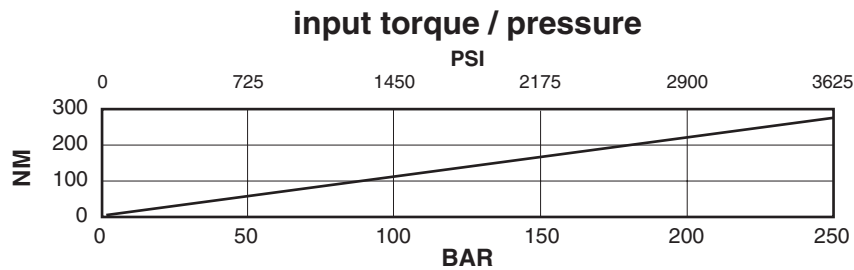
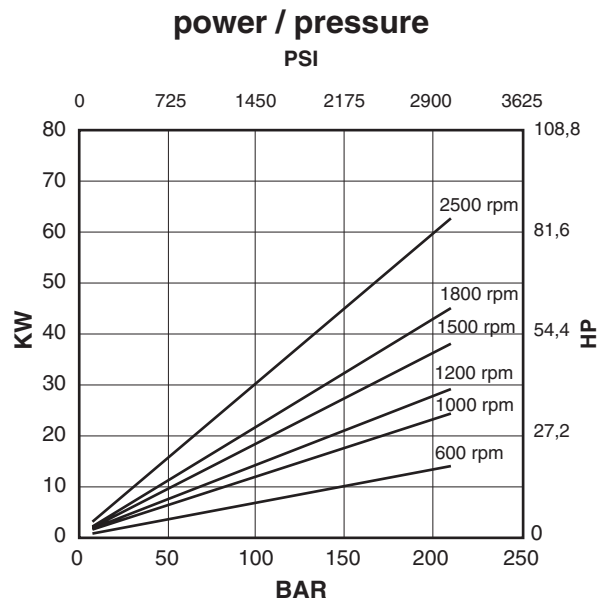
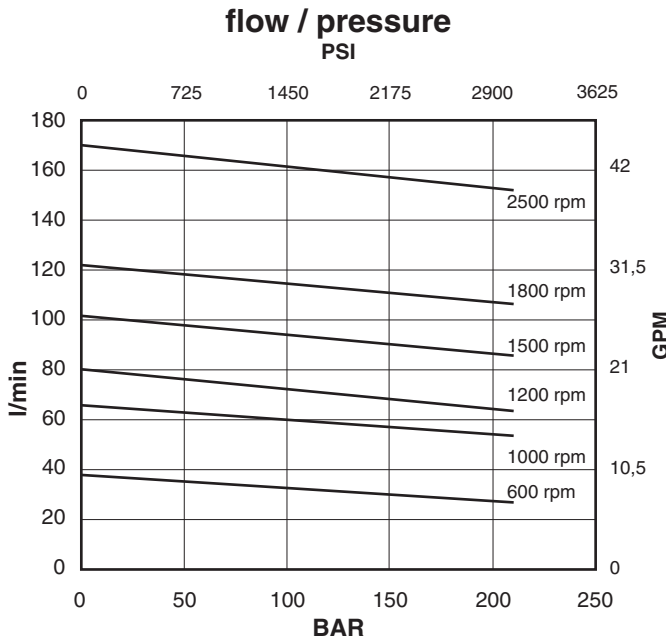
If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

### max speed / intake pipe pressure



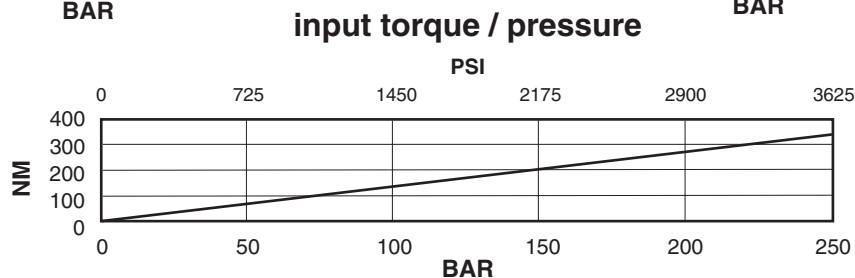
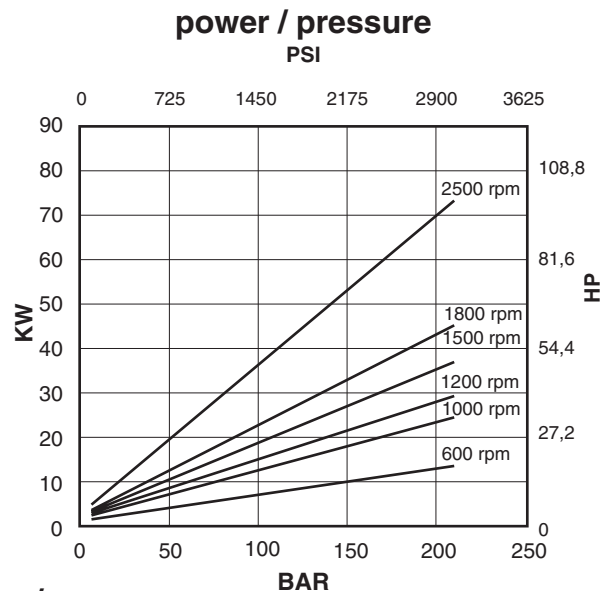
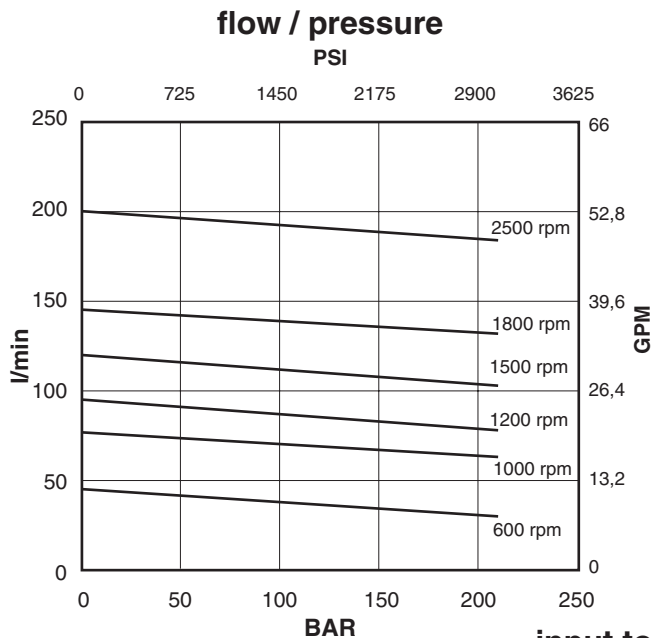


## Cartridge A04-21



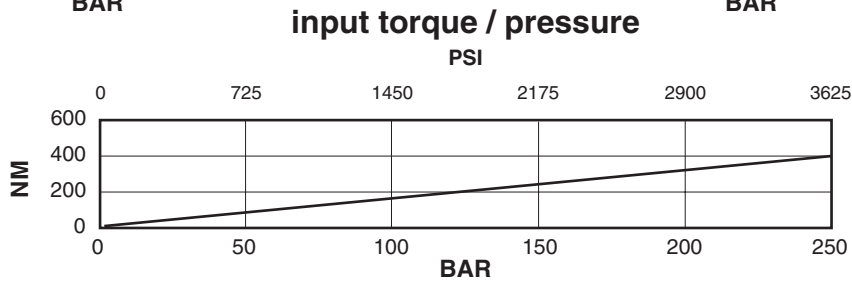
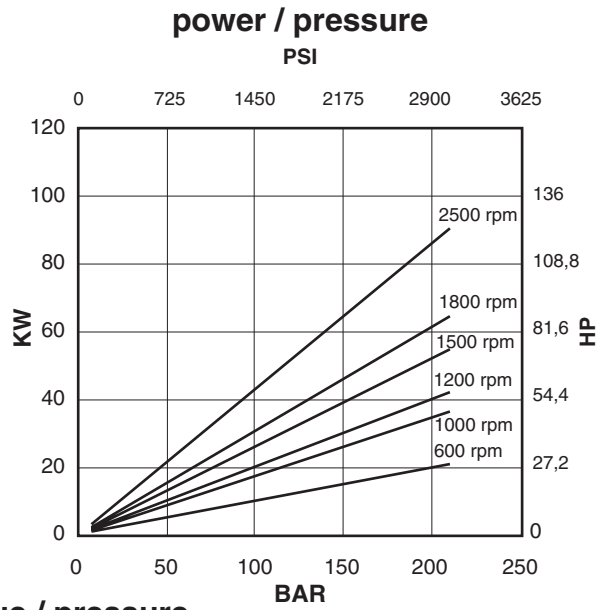
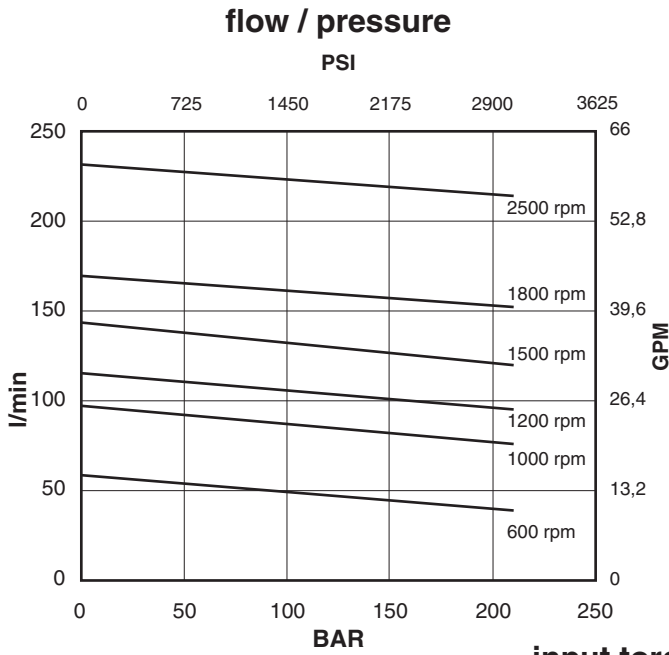
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cartridge A04-25



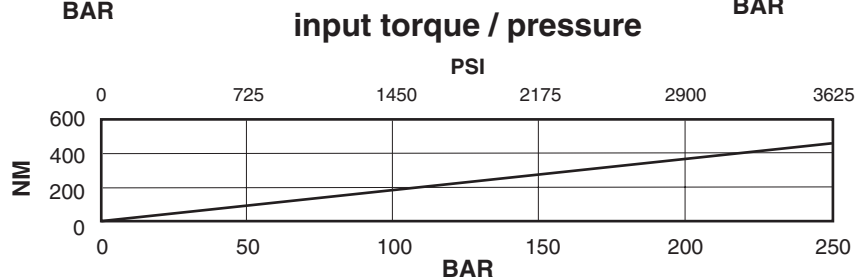
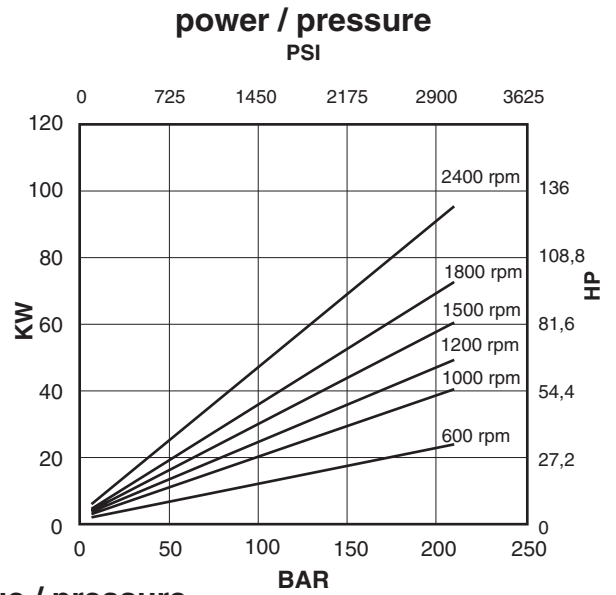
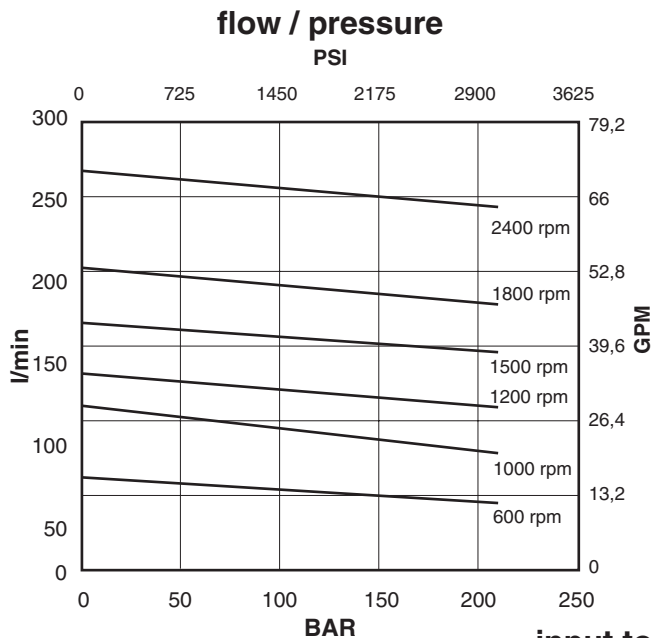
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cartridge A04-30



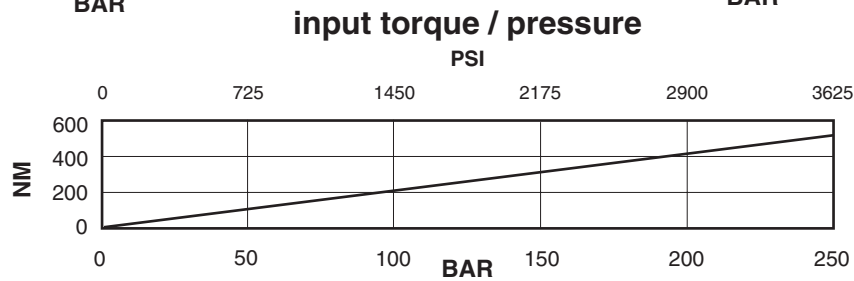
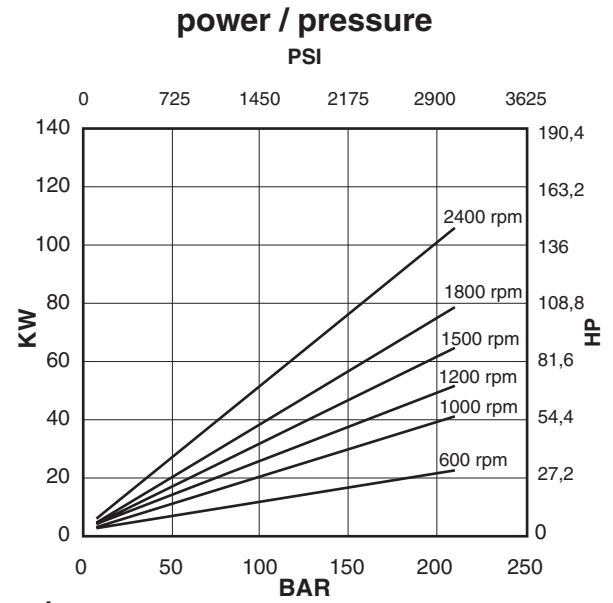
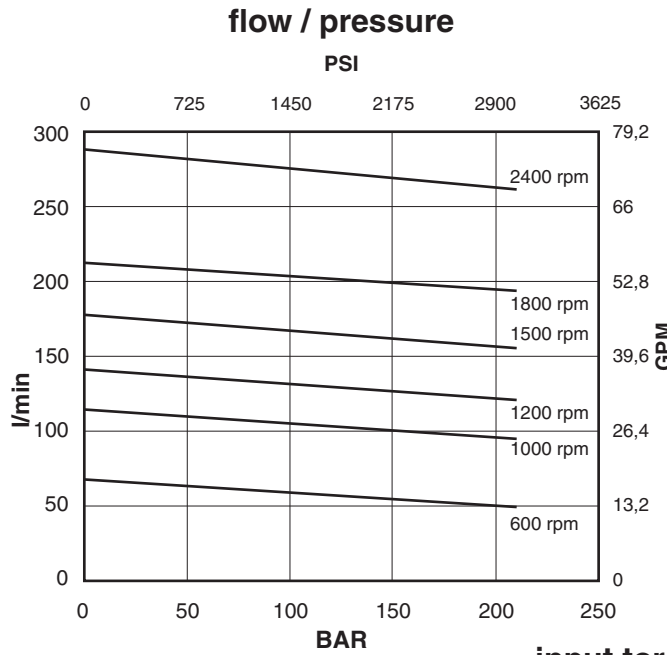
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A04-35



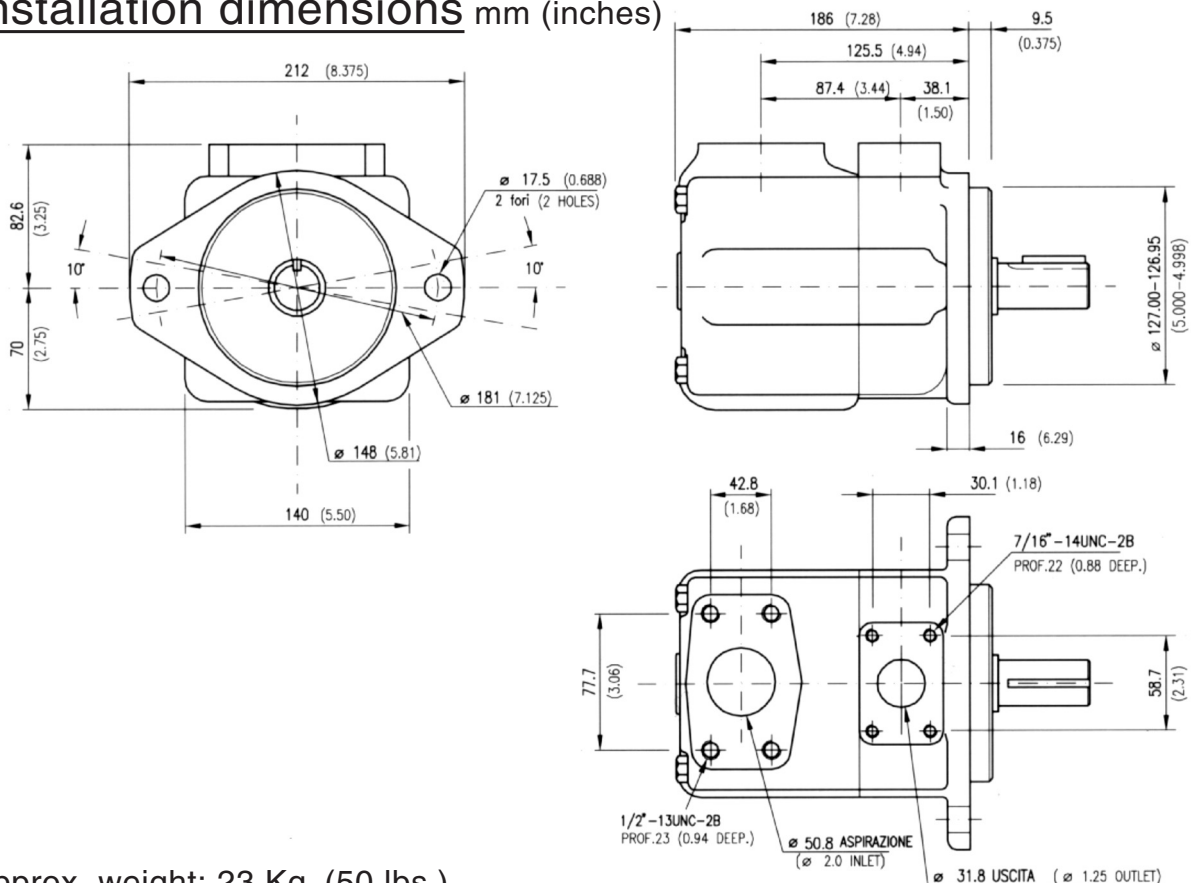
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A04-38



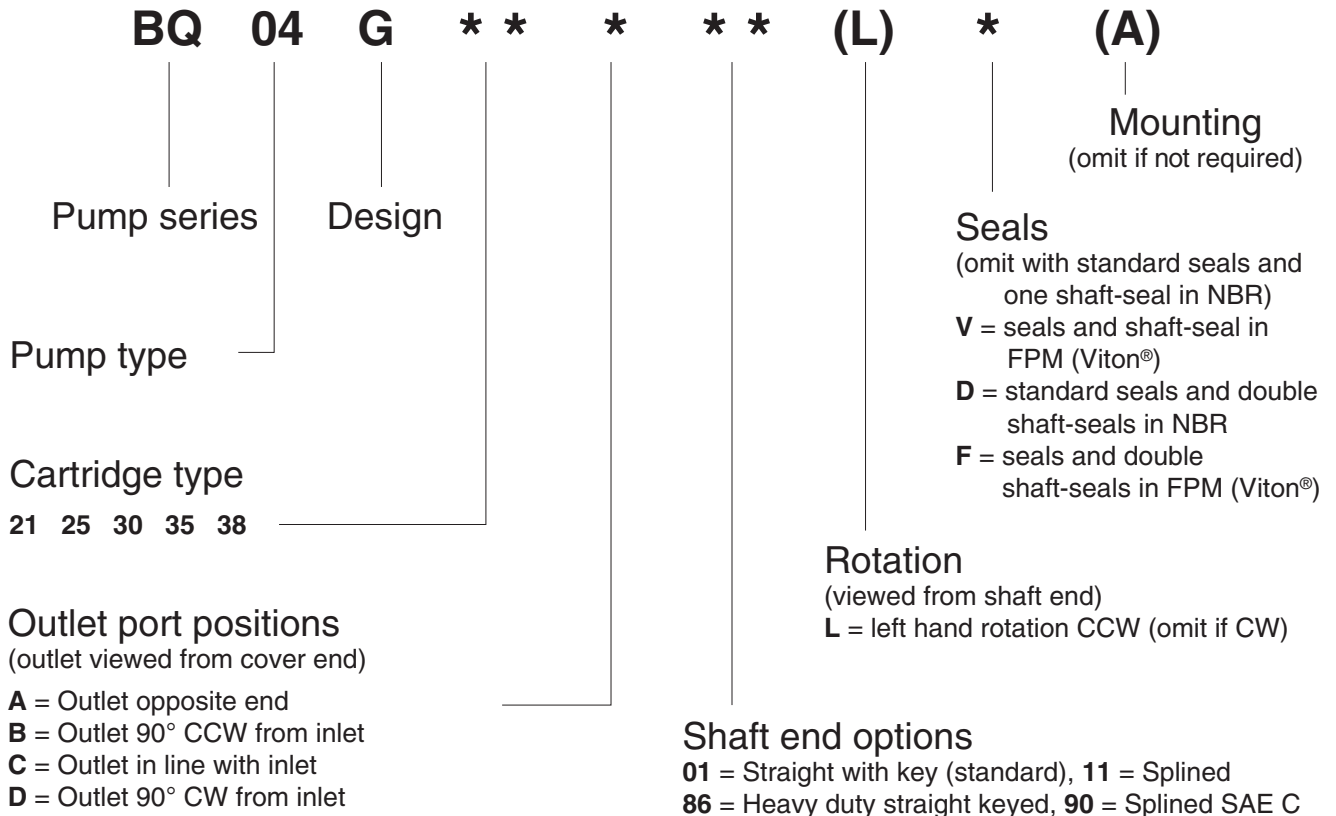
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Installation dimensions mm (inches)

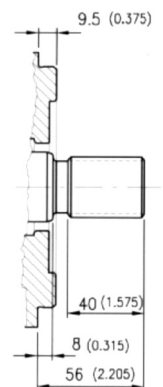
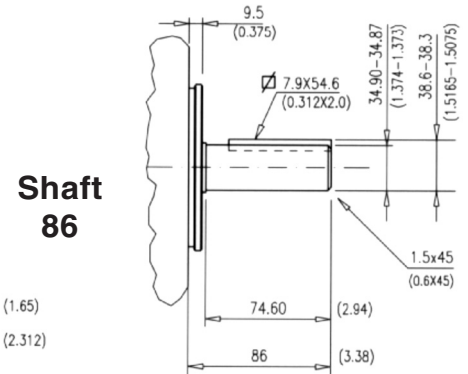
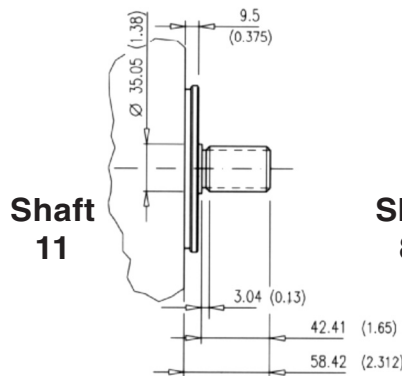
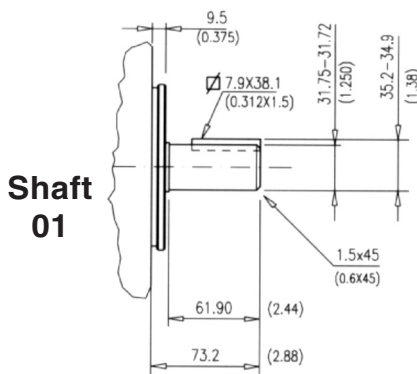


Approx. weight: 23 Kg. (50 lbs.)

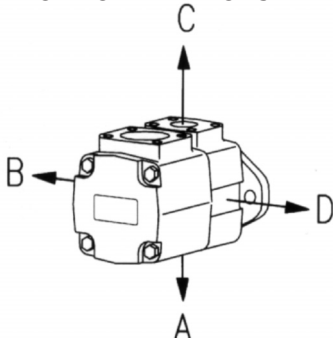
## Model code breakdown



## Shaft options mm (inches)



### PORT ORIENTATIONS



### Spline data (Shaft 11 and shaft 90)

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

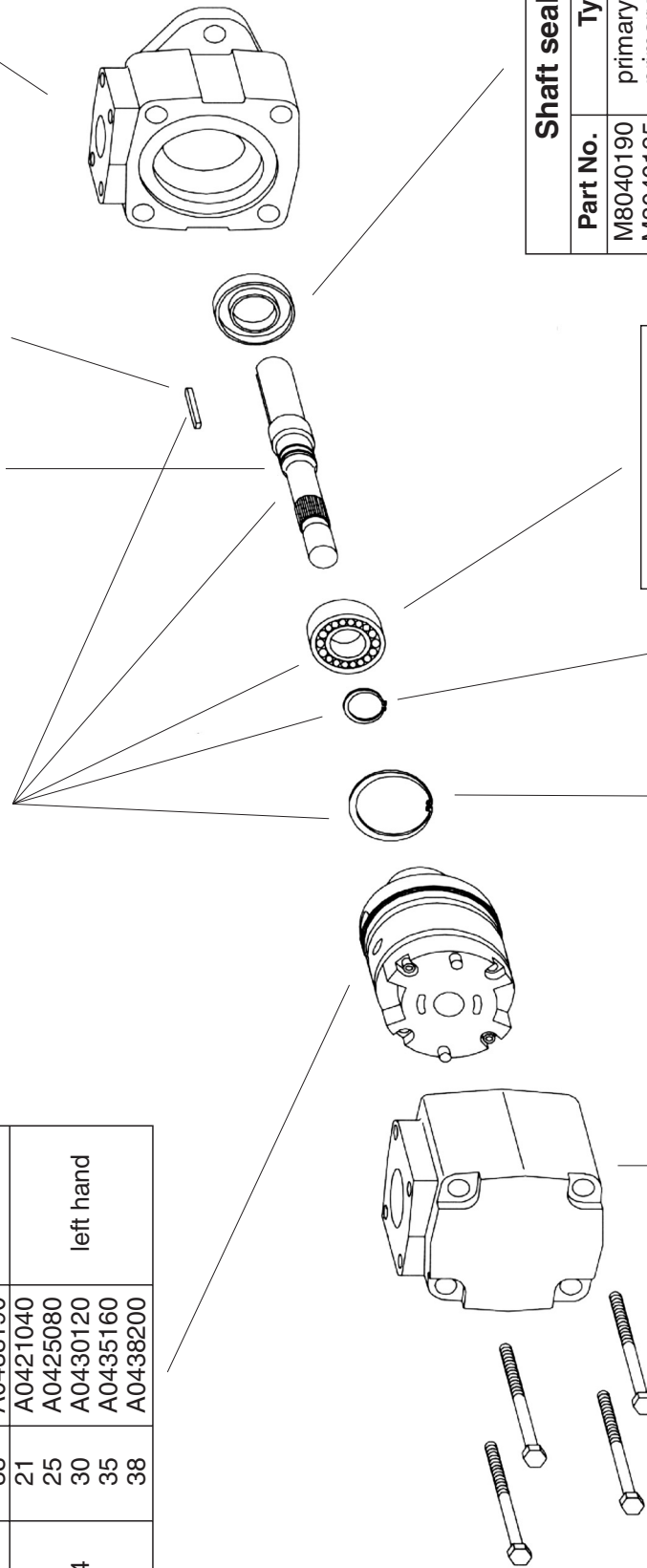
## Id. codes of pump components

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

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

| Shaft |          | Key      |          |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01    | K0401000 | M8040100 | M8040140 |
| 11    | K0411000 | -        | -        |
| 86    | K0486000 | M8048600 | -        |
| 90    | K0490000 | -        | -        |

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



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

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

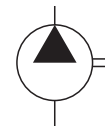
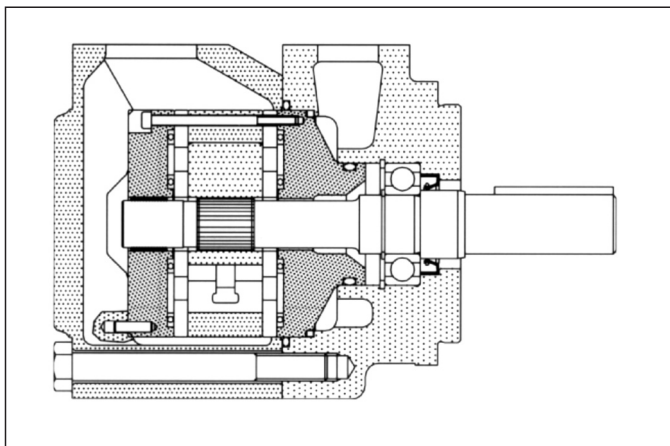
| Seeger   |          |
|----------|----------|
| Part No. | Part No. |
| M8040180 | M8040180 |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

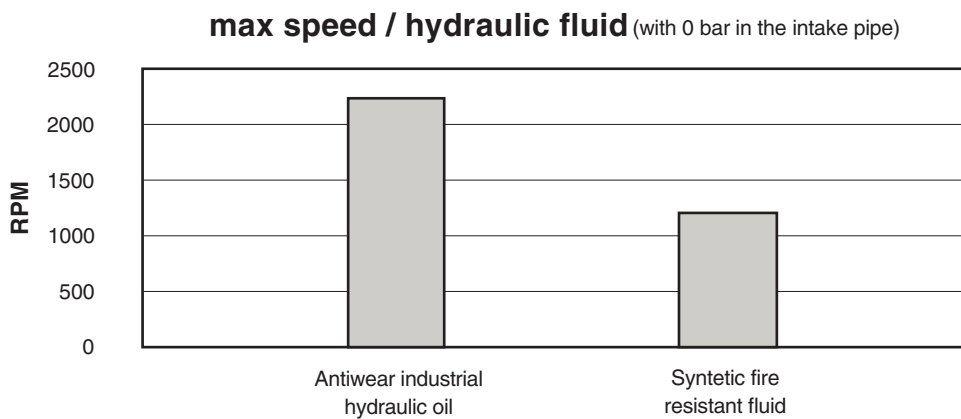
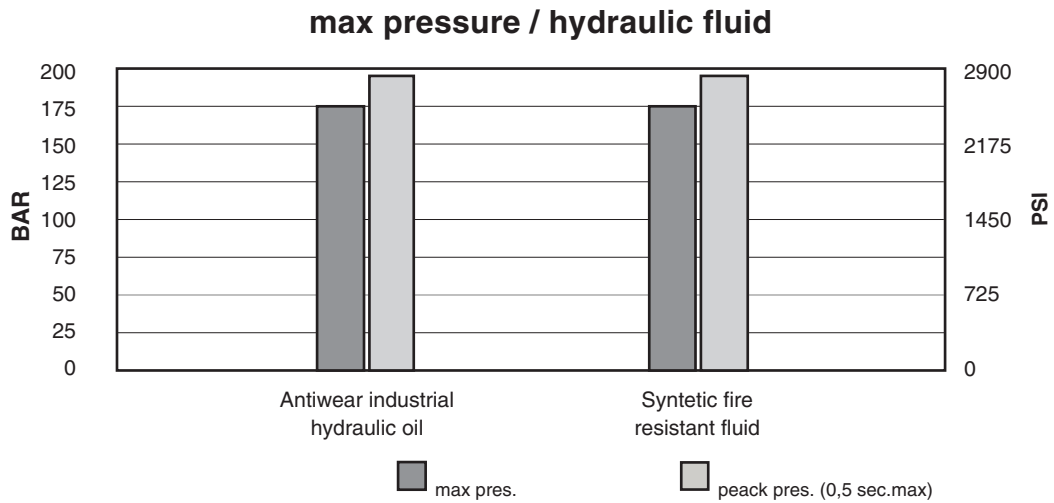
**Filtration:** for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

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

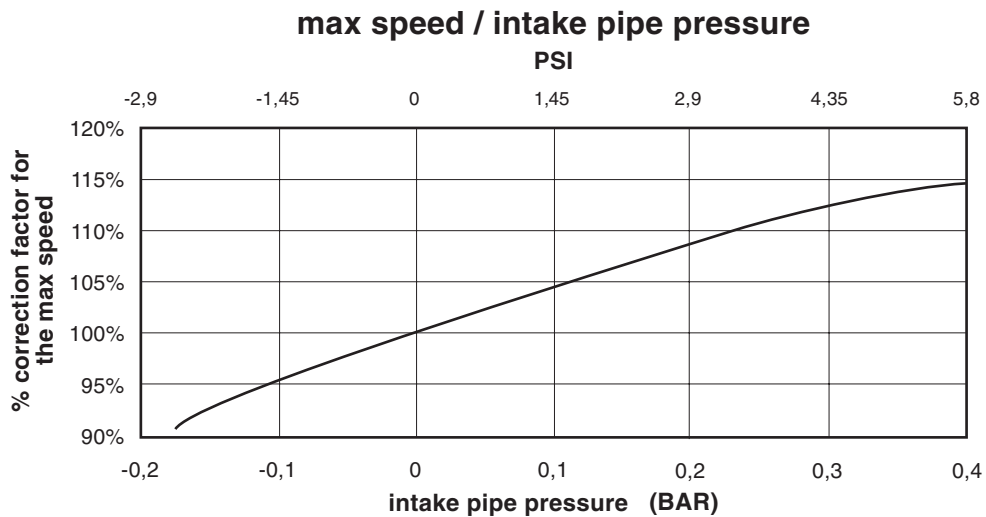
**Operating temperature:** with mineral oil -10°C +70°C (+30°C to +60°C recommended).

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

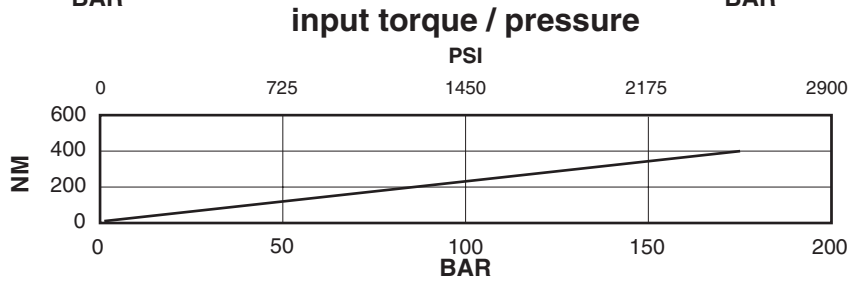
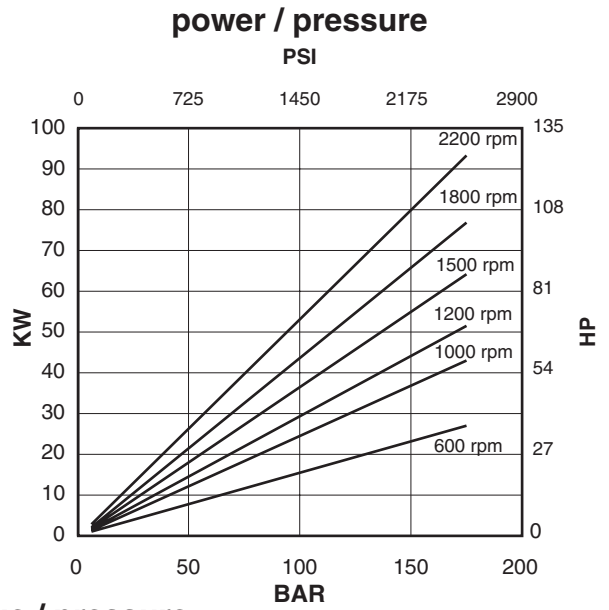
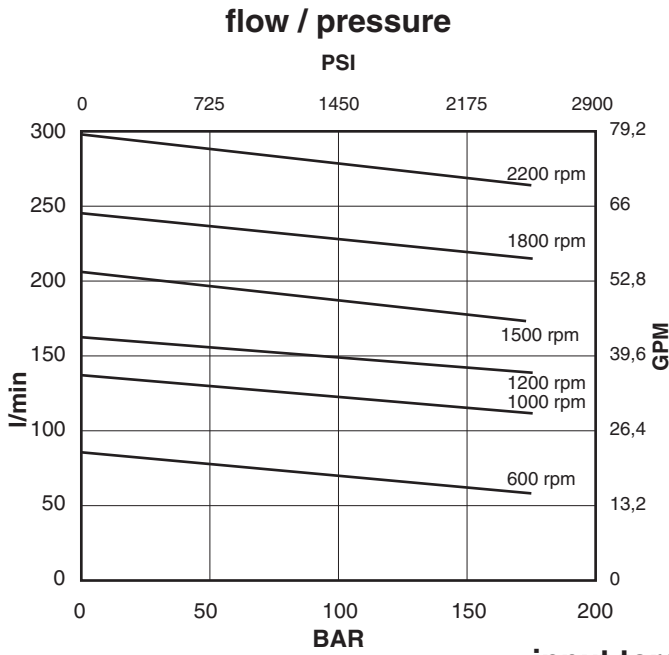
## Main operating data



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

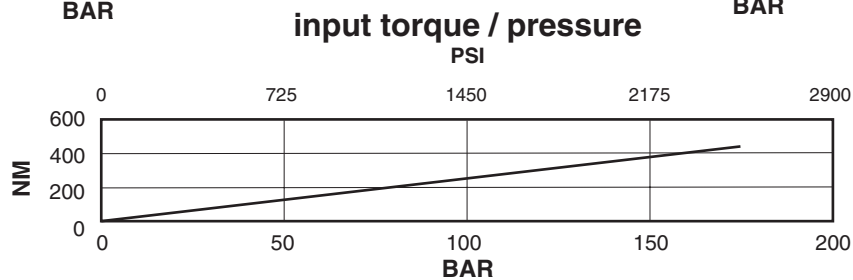
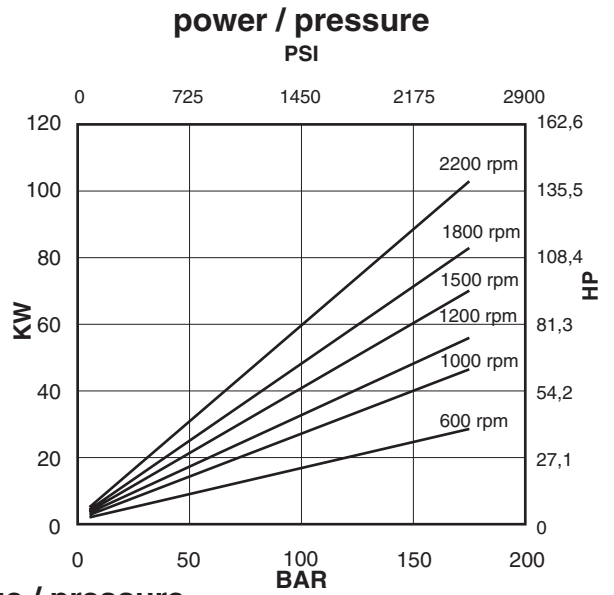
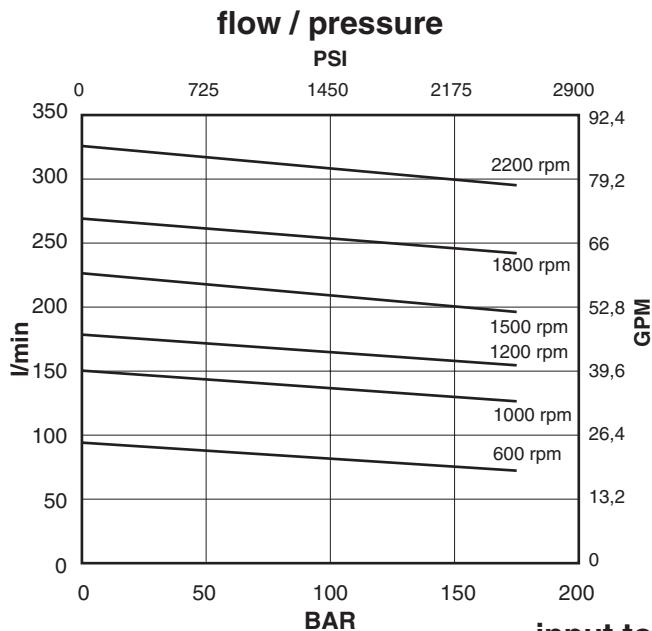


## Cartridge A05-42



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

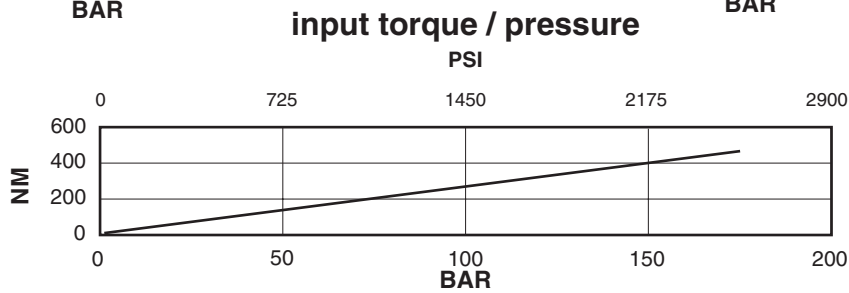
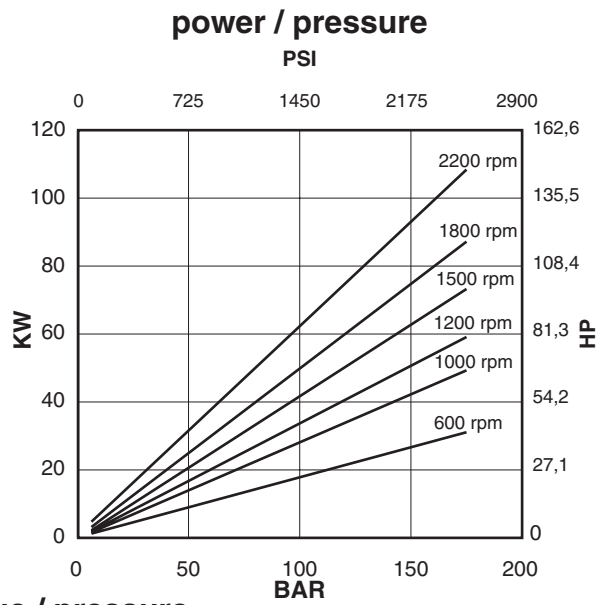
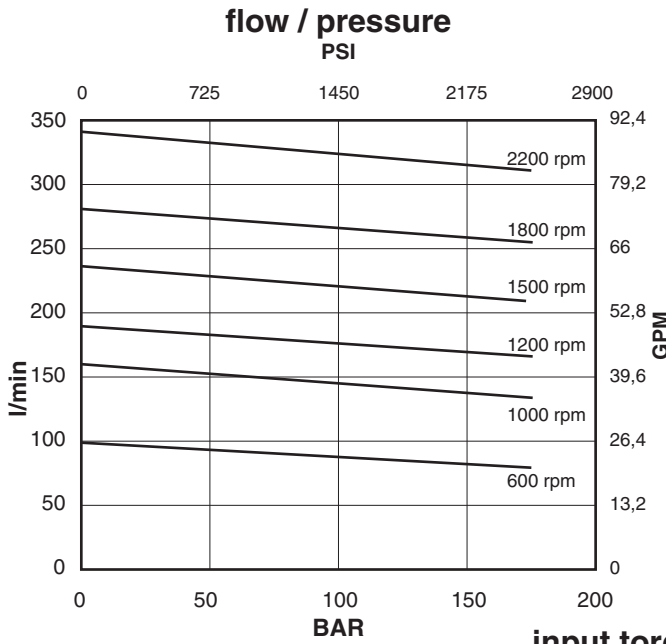
## Cartridge A05-47



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

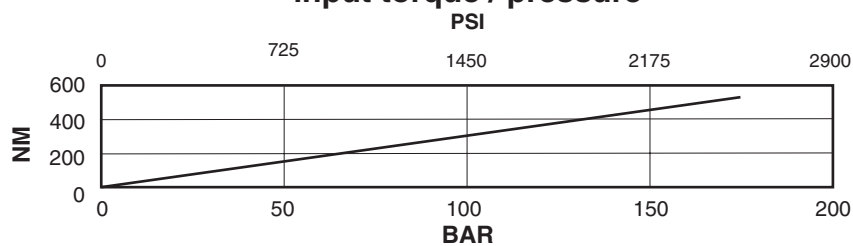
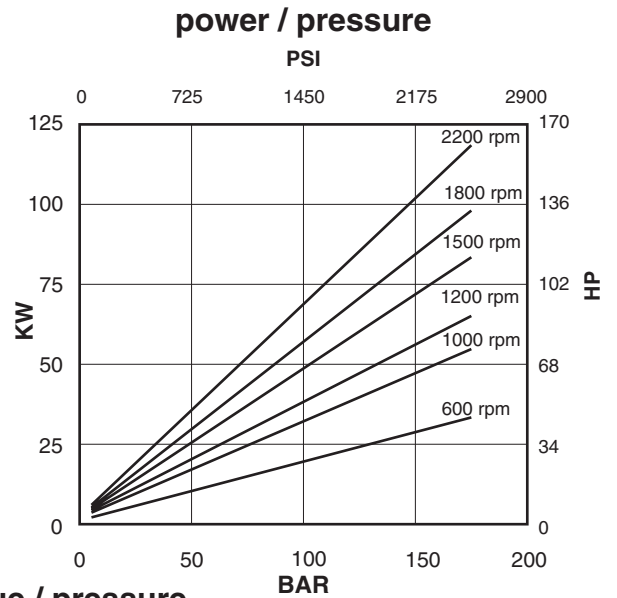
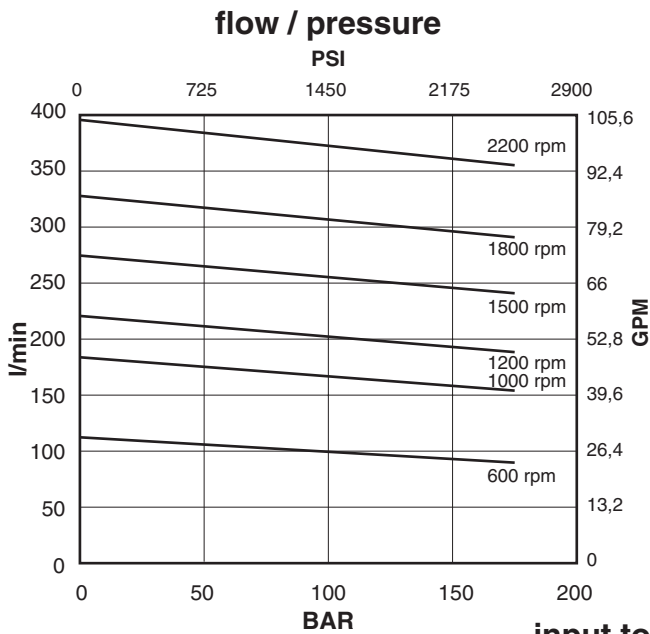


## Cartridge A05-50



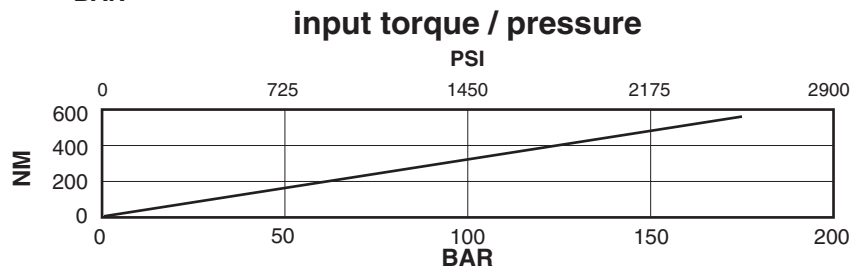
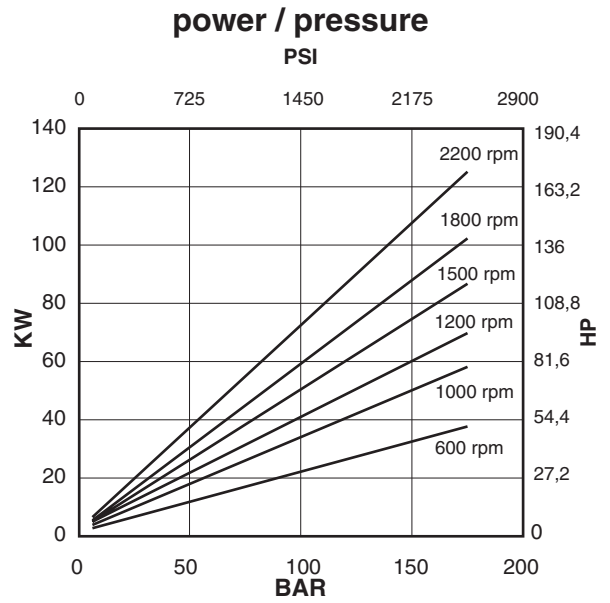
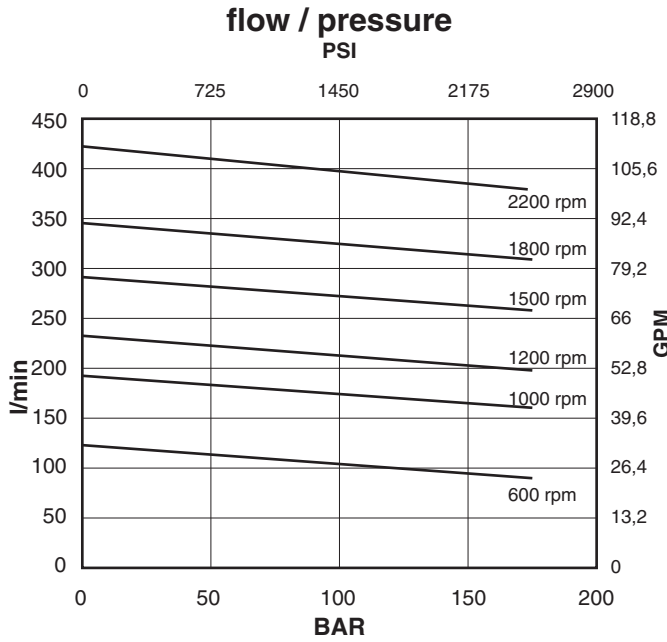
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A05-57



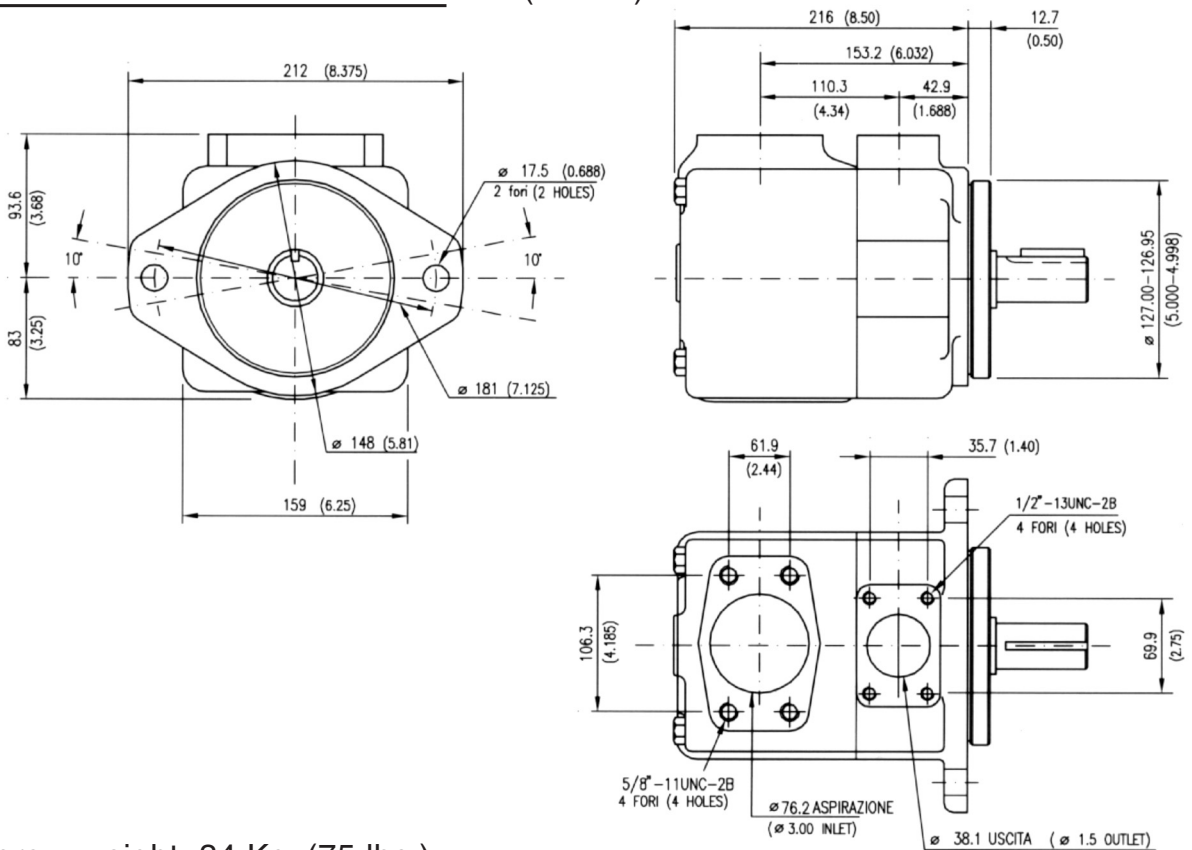
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cartridge A05-60



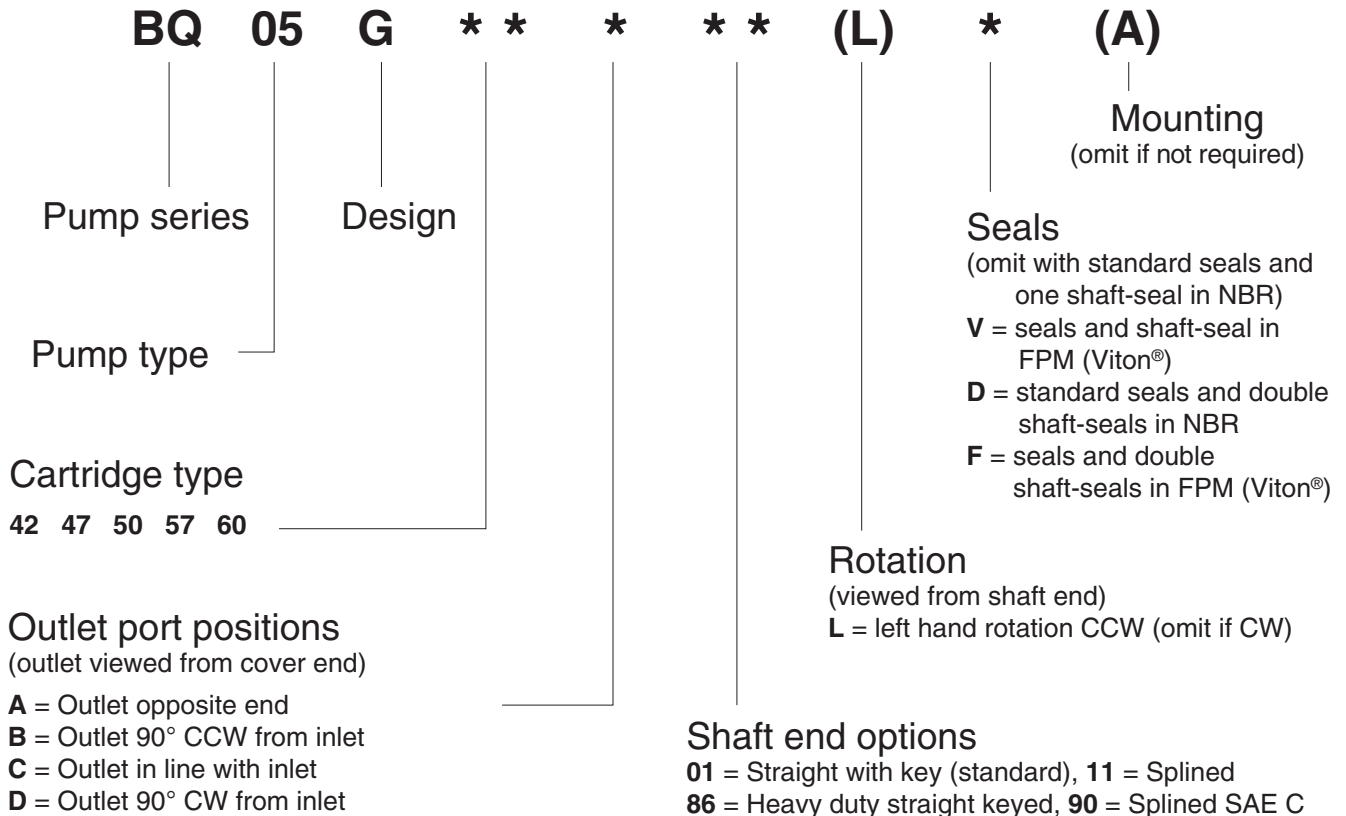
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Installation dimensions mm (inches)

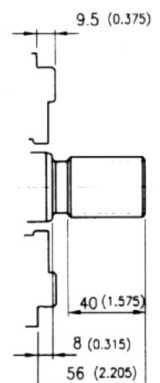
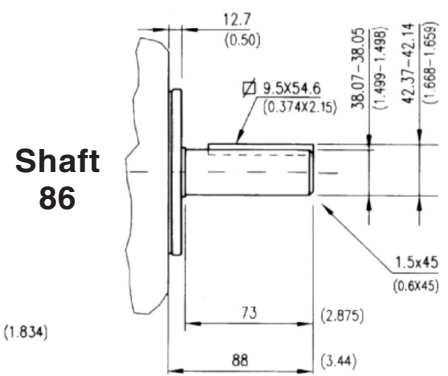
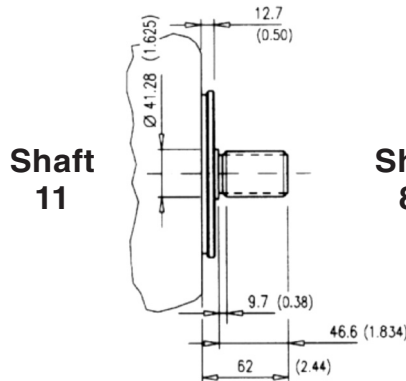
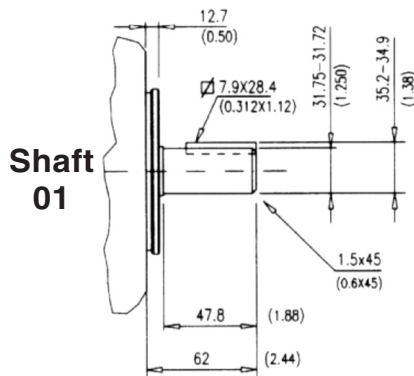


Approx. weight: 34 Kg. (75 lbs.)

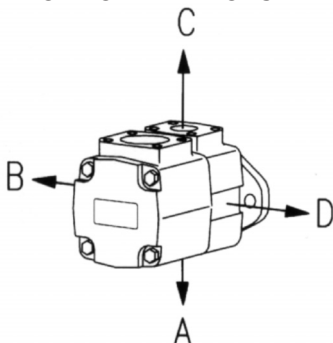
## Model code breakdown



## Shaft options mm (inches)



### PORT ORIENTATIONS



### Spline data (Shaft 11 and shaft 90)

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

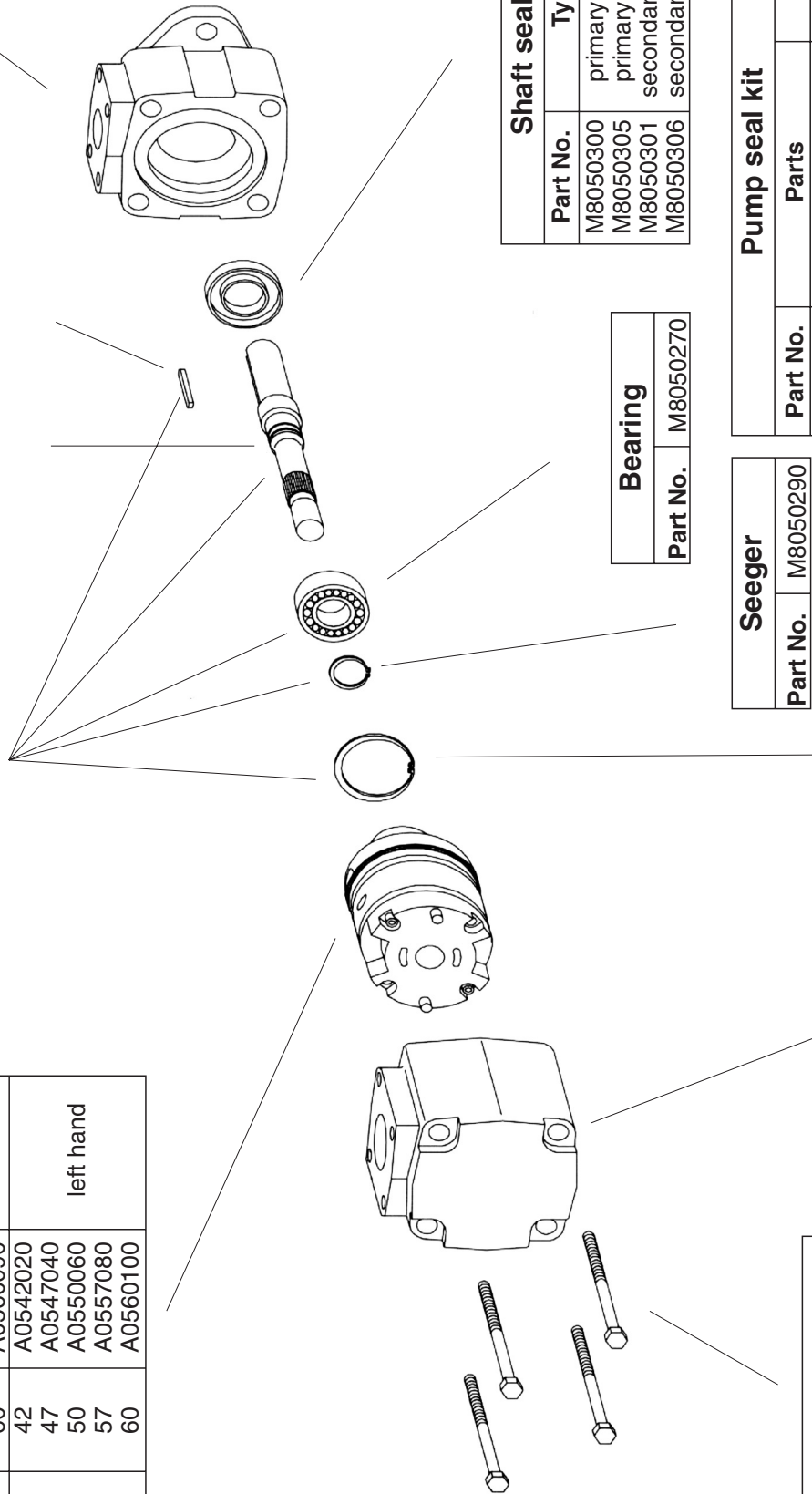
## Id. codes of pump components

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

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

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

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



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

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

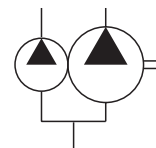
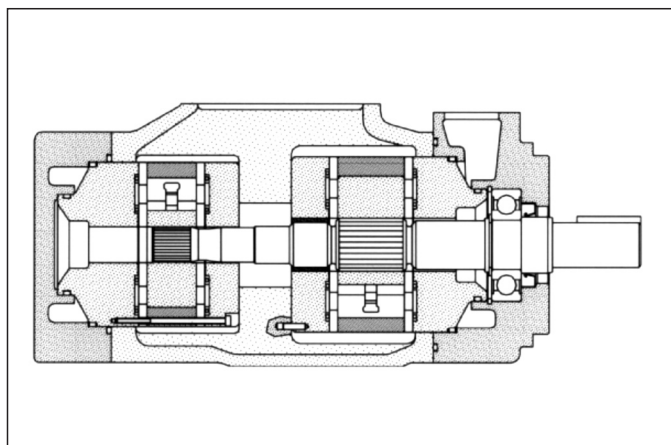
| Seeger   |          |
|----------|----------|
| Part No. | Part No. |
| M8050290 | M8050290 |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

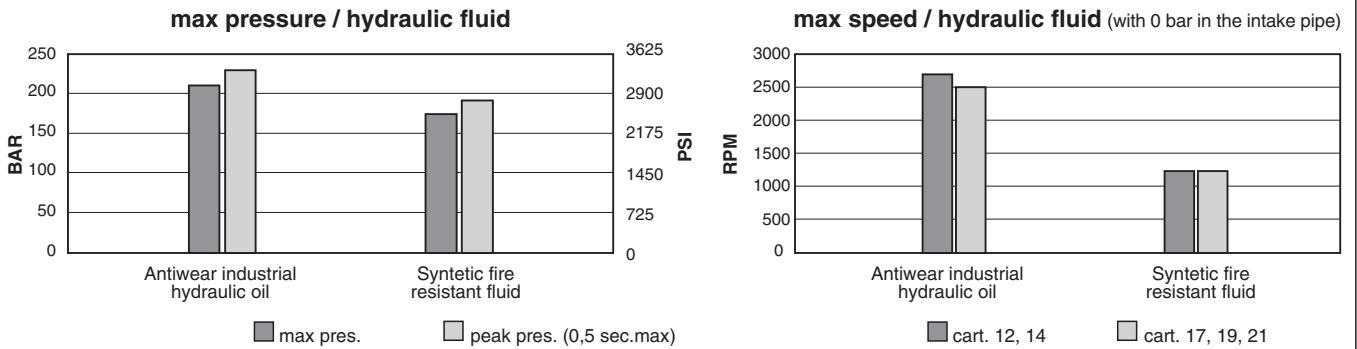
**Filtration:** for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (*with synthetic fluids: for the return line - 10 micron abs. or better*).

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

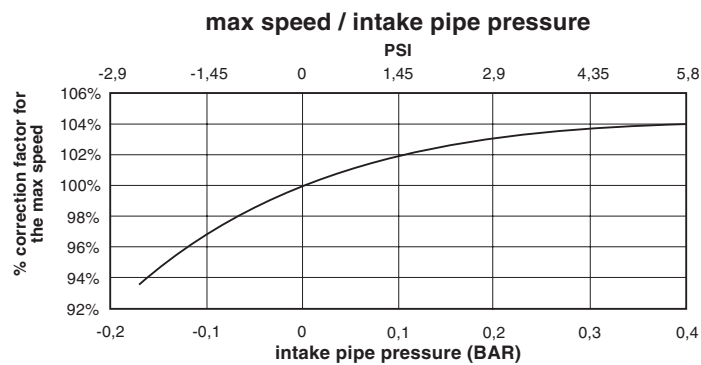
**Operating temperature:** with mineral oil -10°C +70°C (+30°C to +60°C recommended).

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

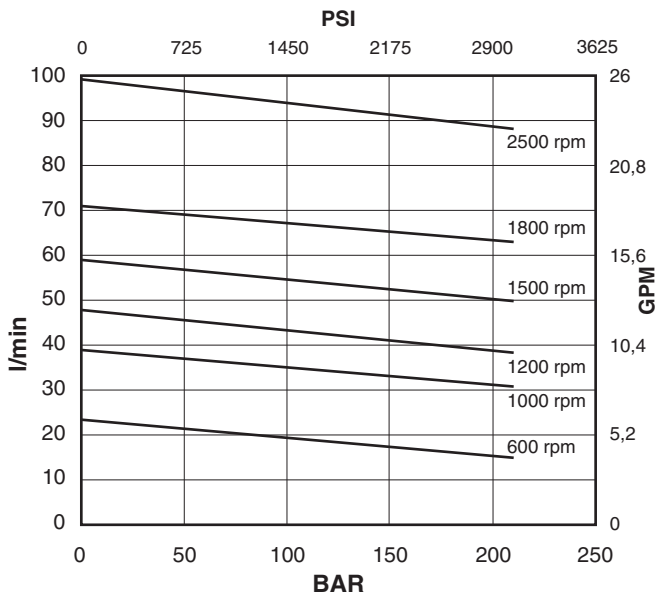
## Main operating data



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

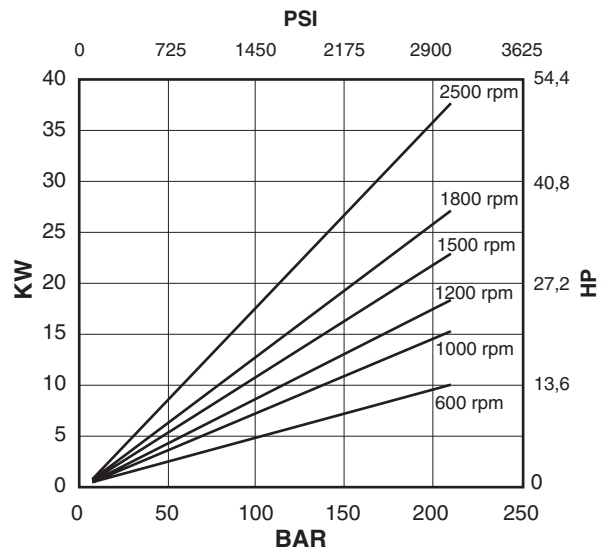


## flow / pressure

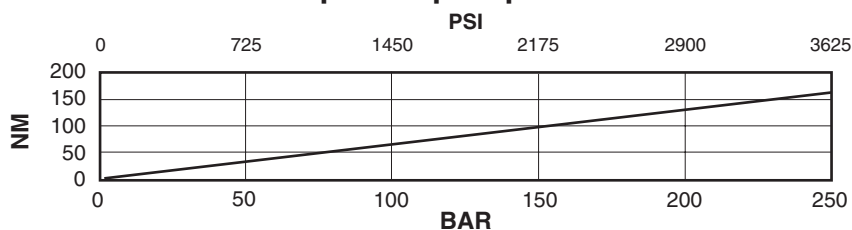


## Shaft end cartridge A02-12

### power / pressure

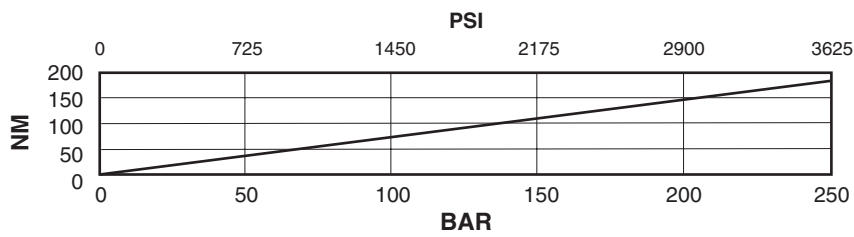
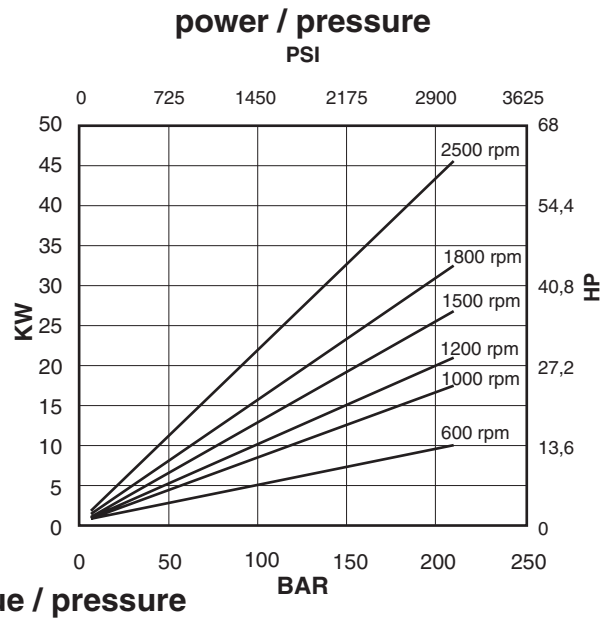
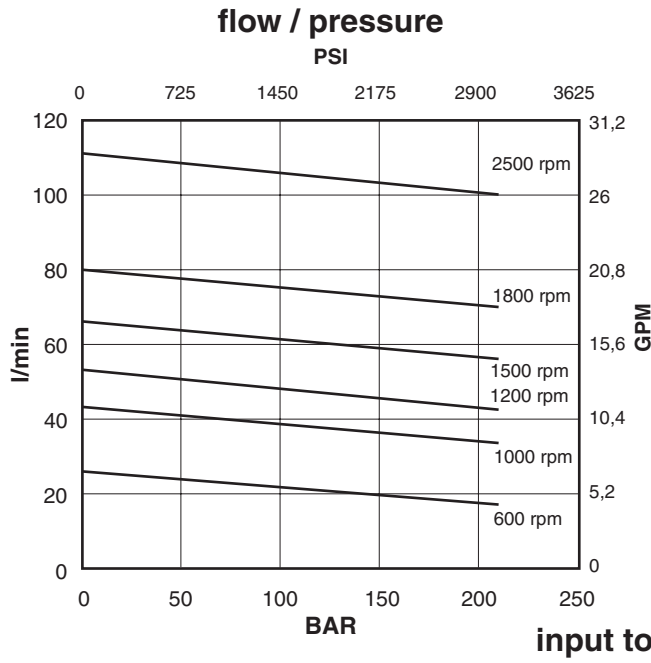


### input torque / pressure



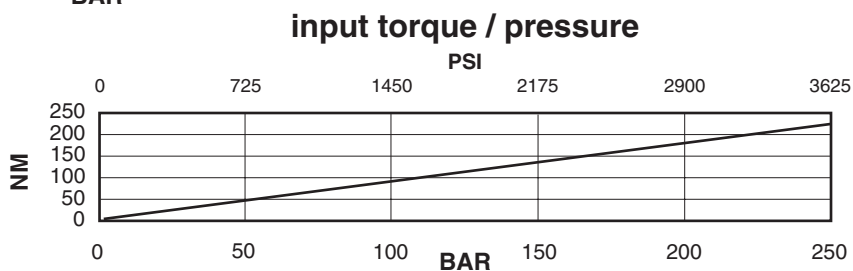
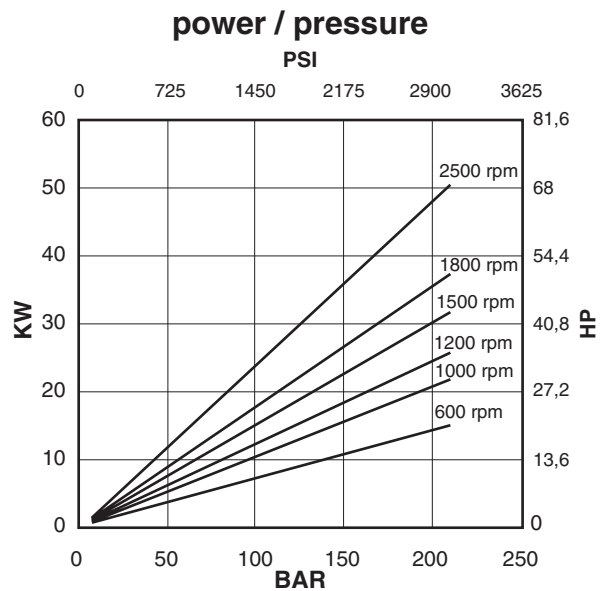
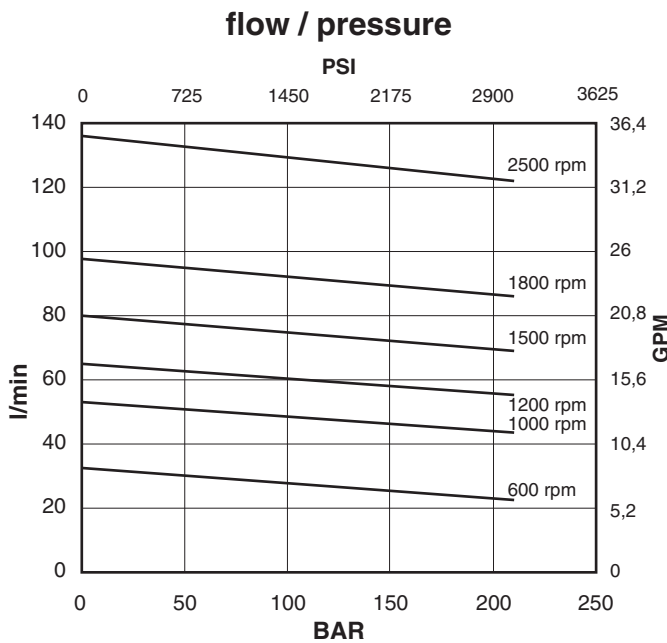
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A02-14



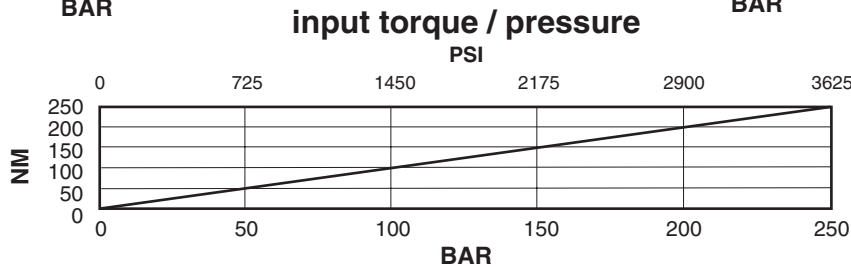
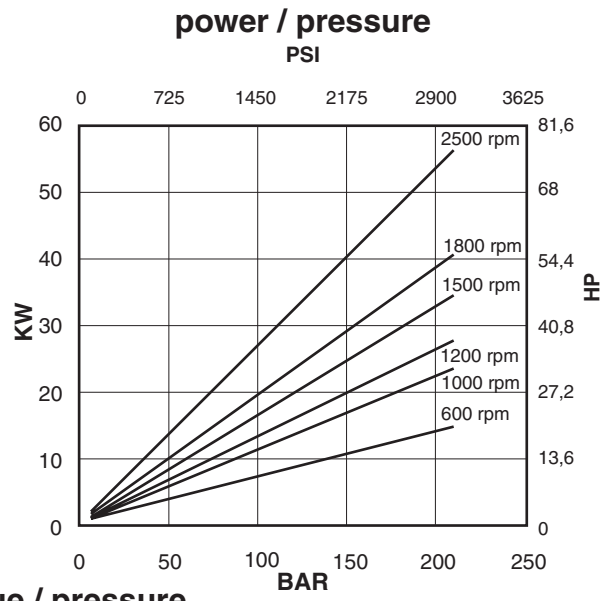
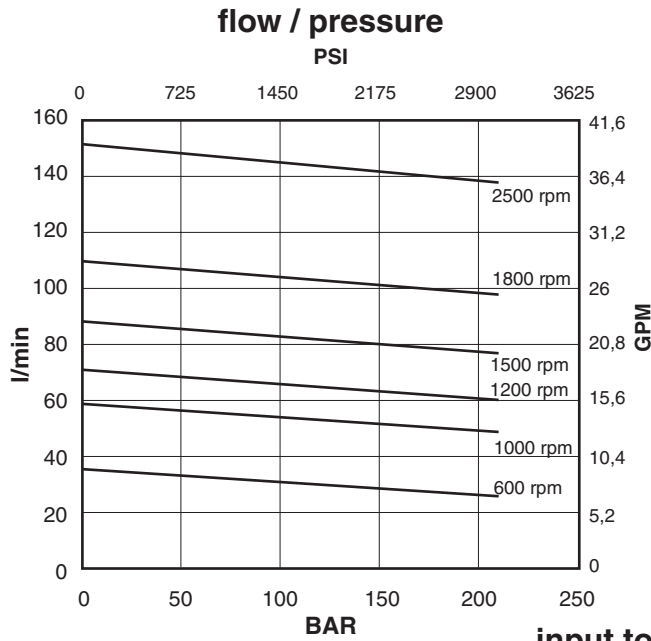
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A02-17



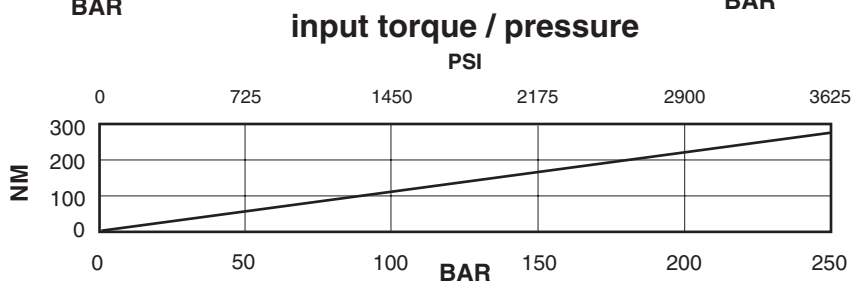
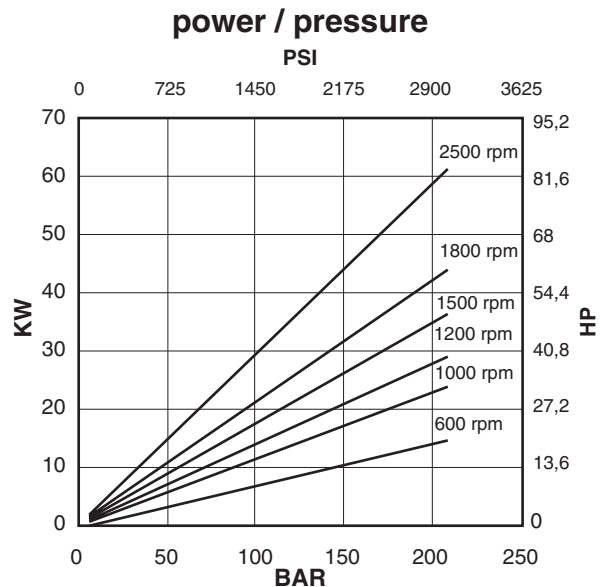
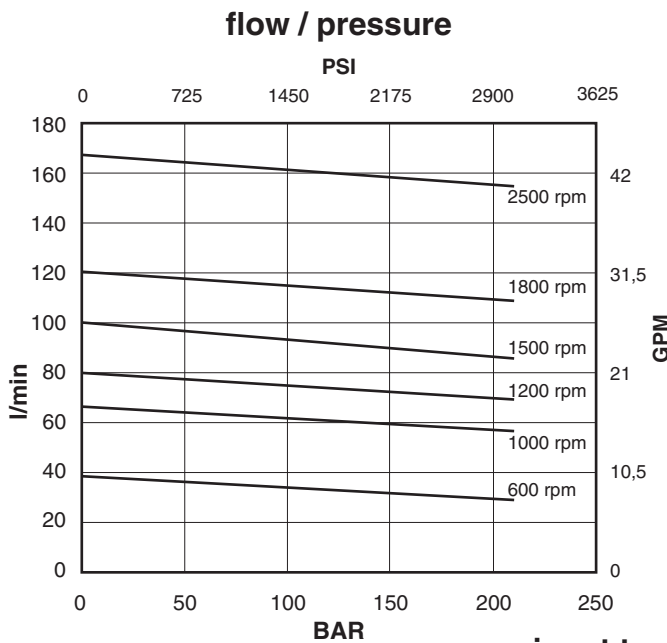
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A02-19



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

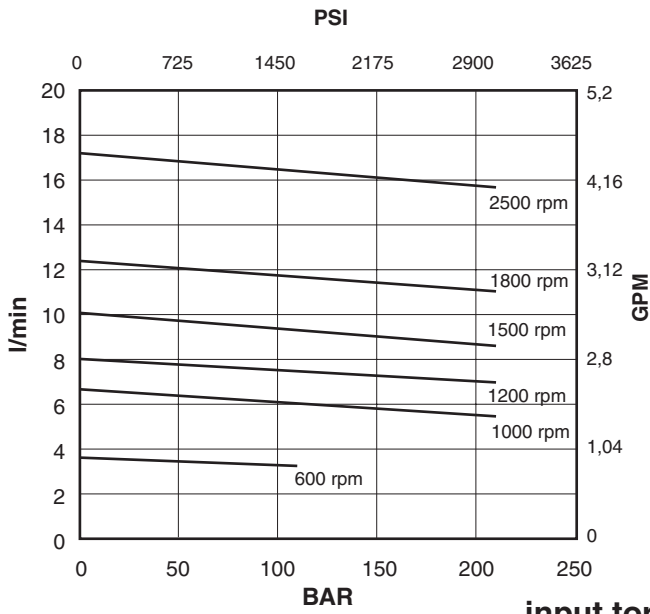
## Shaft end cartridge A02-21



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

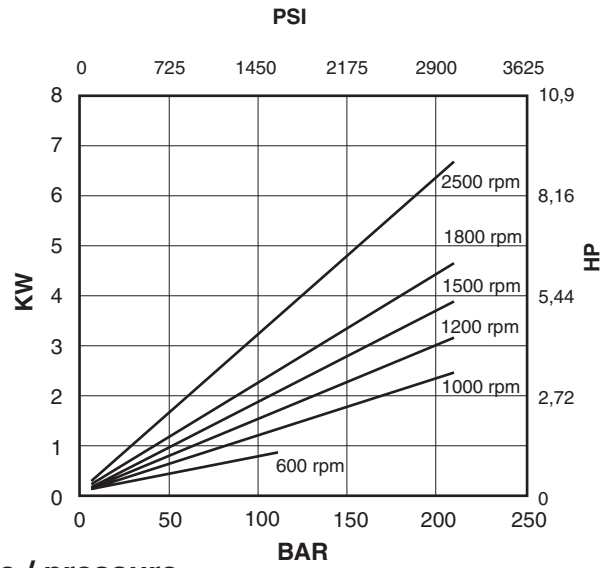


## flow / pressure

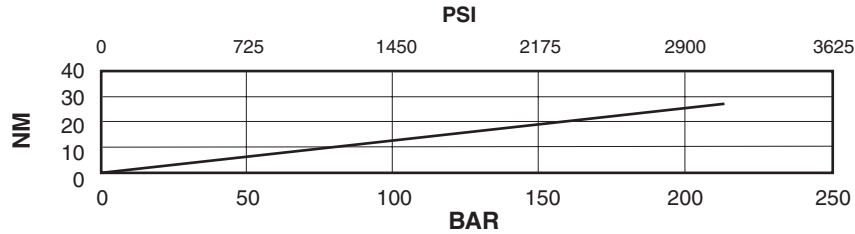


## Cover end cartridge A01-02

### power / pressure

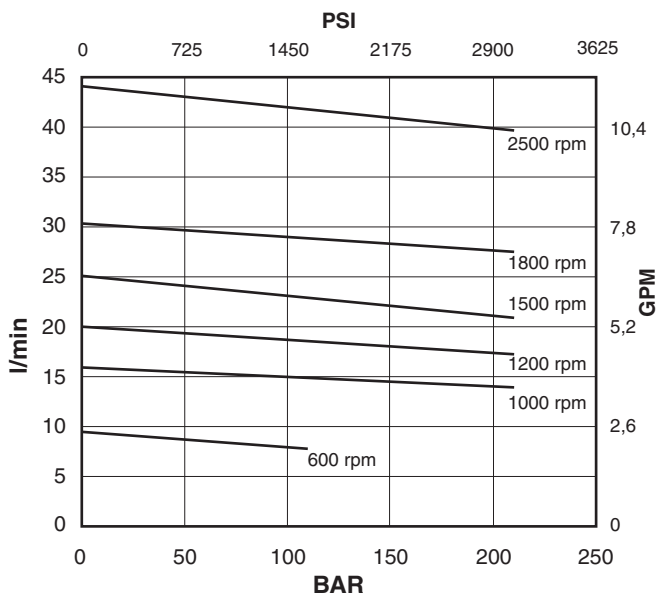


### input torque / pressure



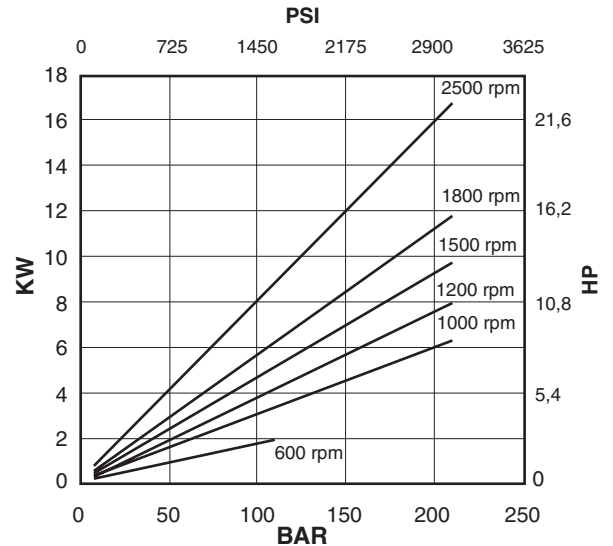
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## flow / pressure

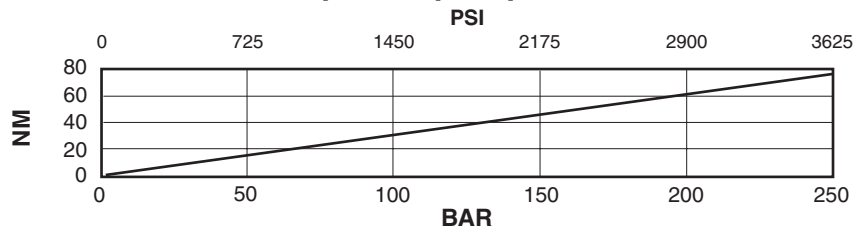


## Cover end cartridge A01-05

### power / pressure

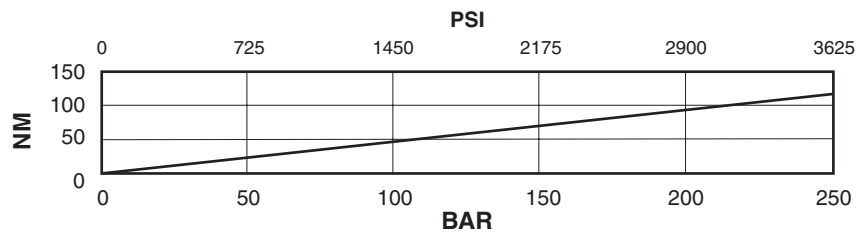
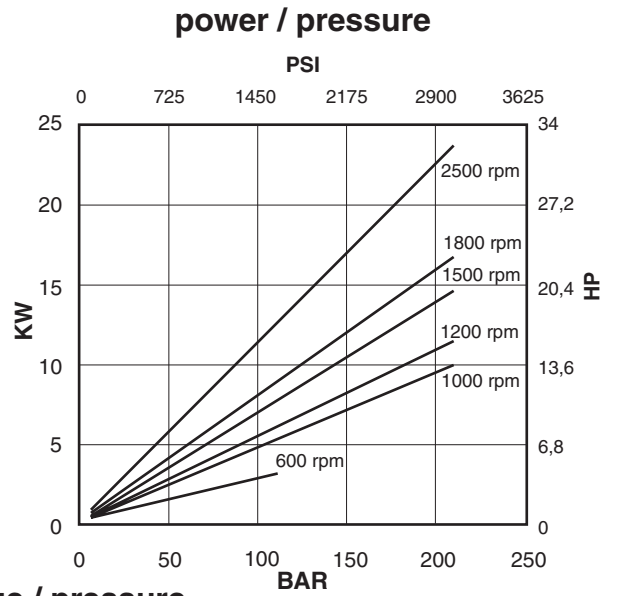
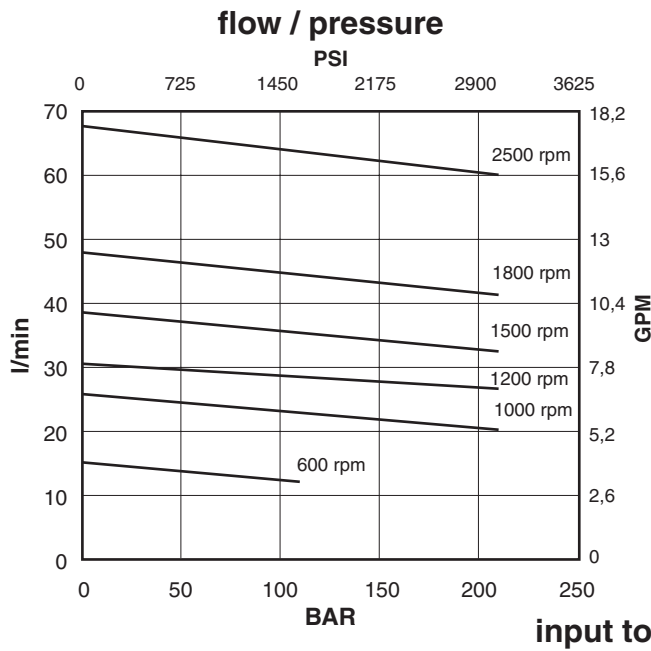


### input torque / pressure



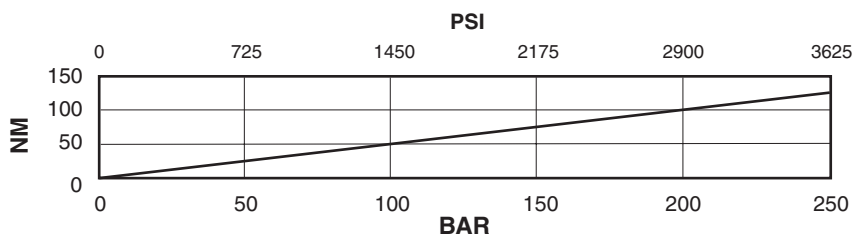
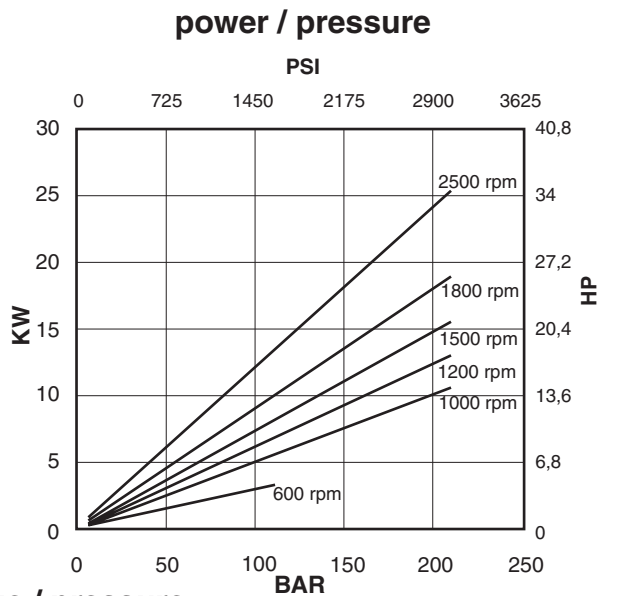
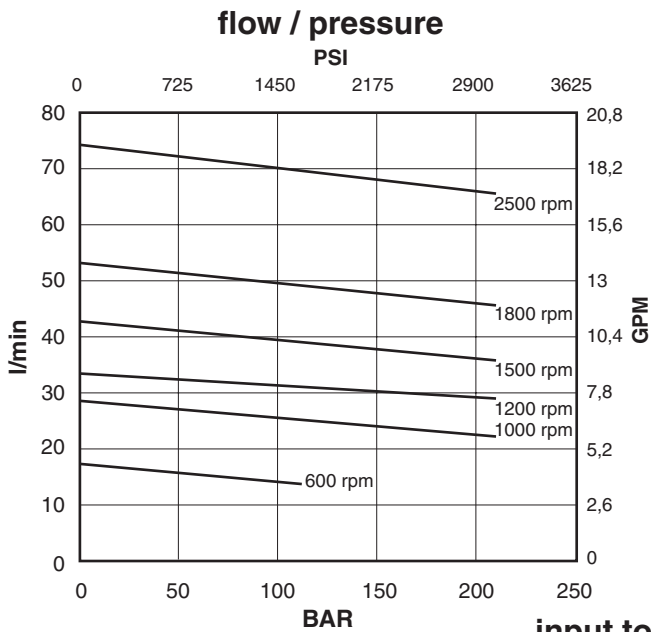
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-08



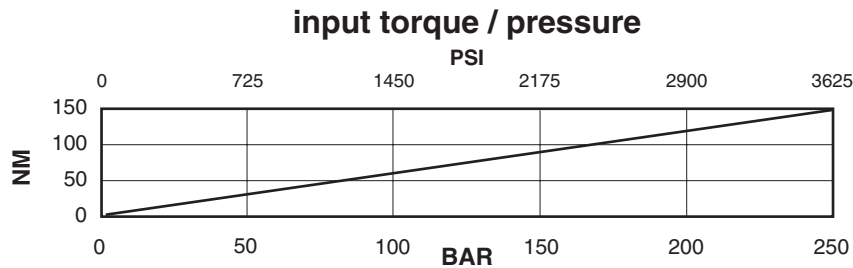
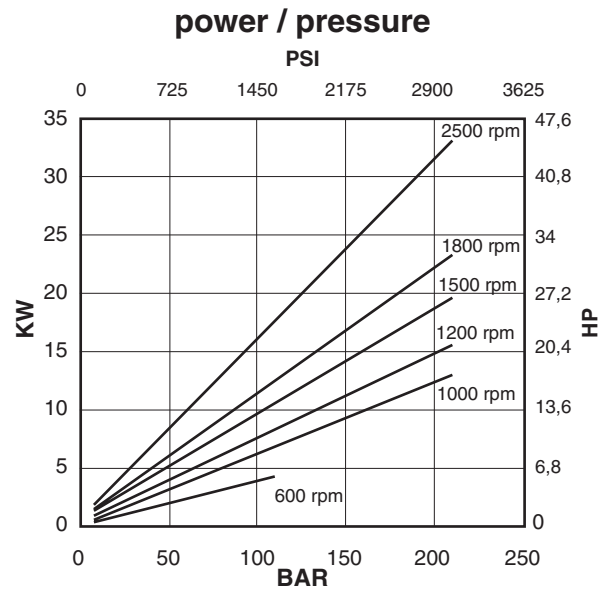
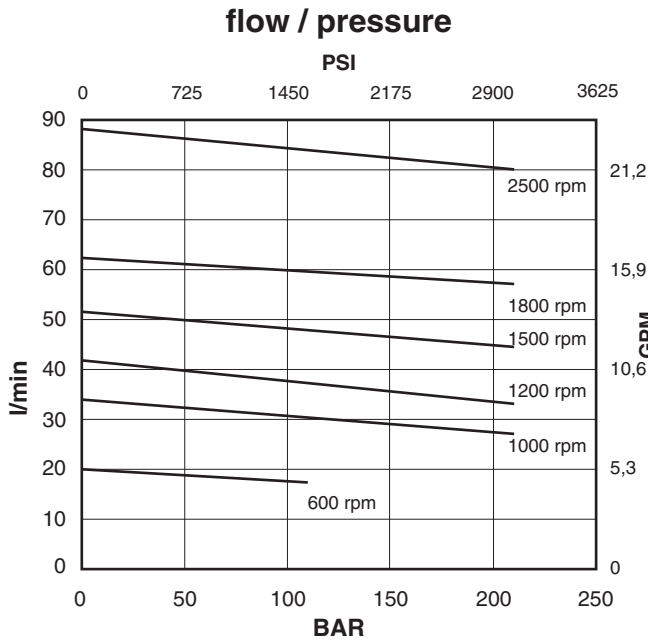
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-09



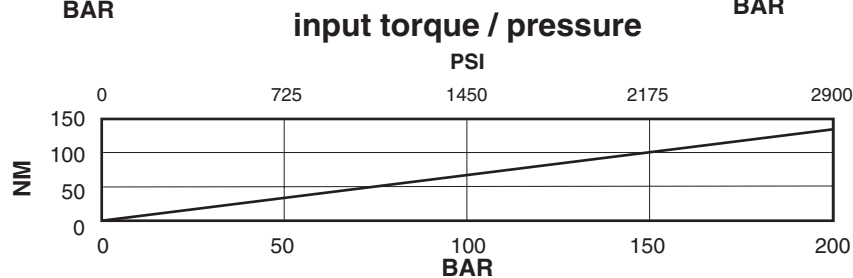
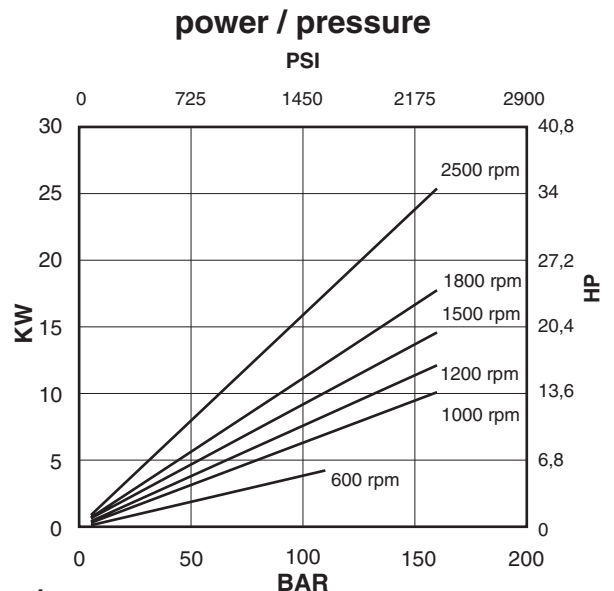
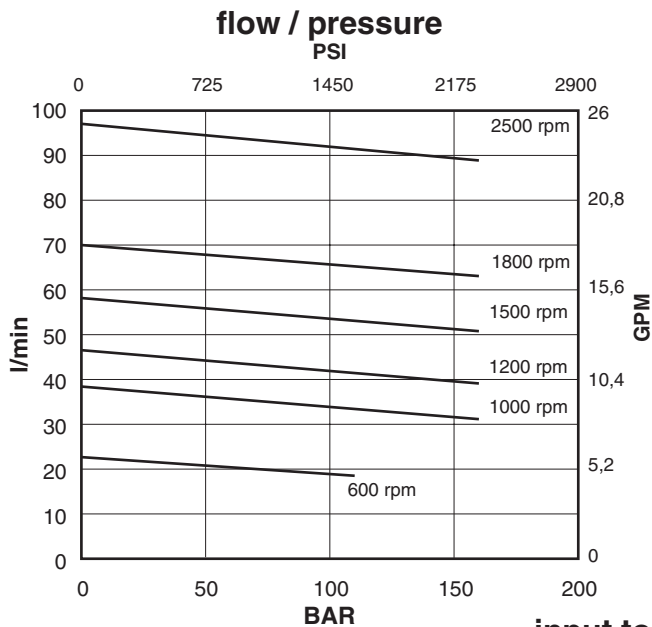
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-11



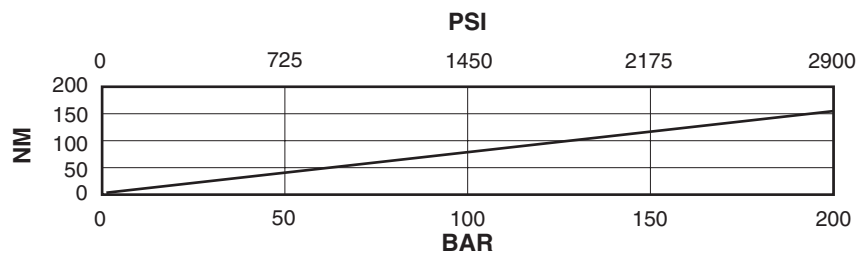
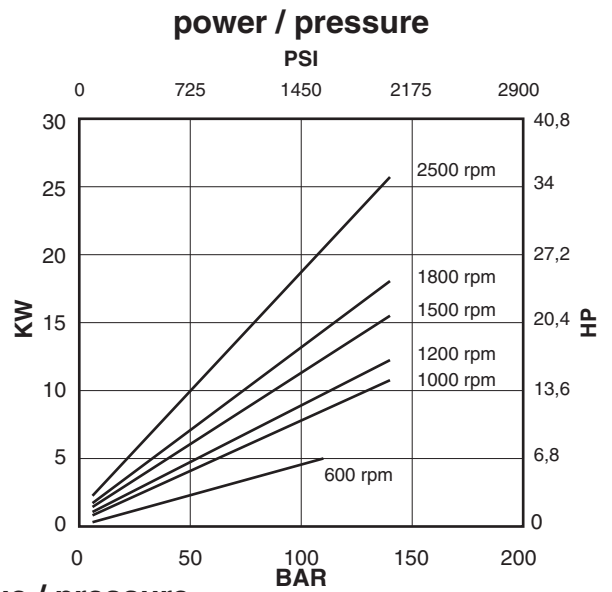
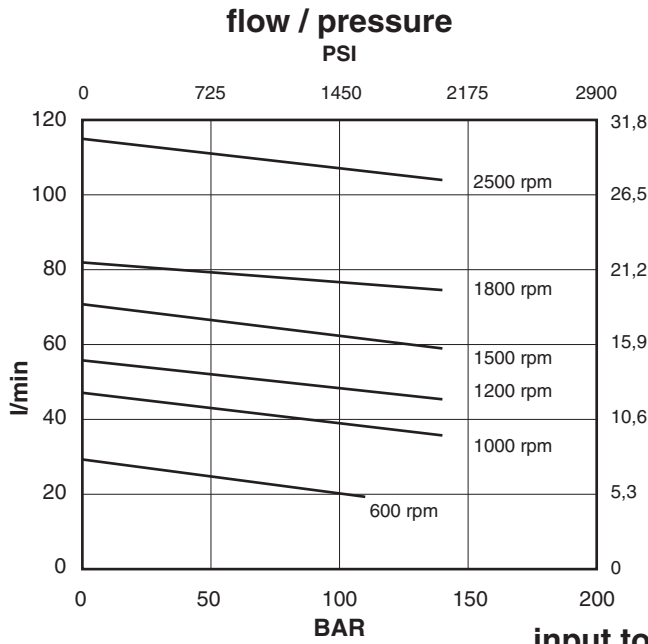
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-12



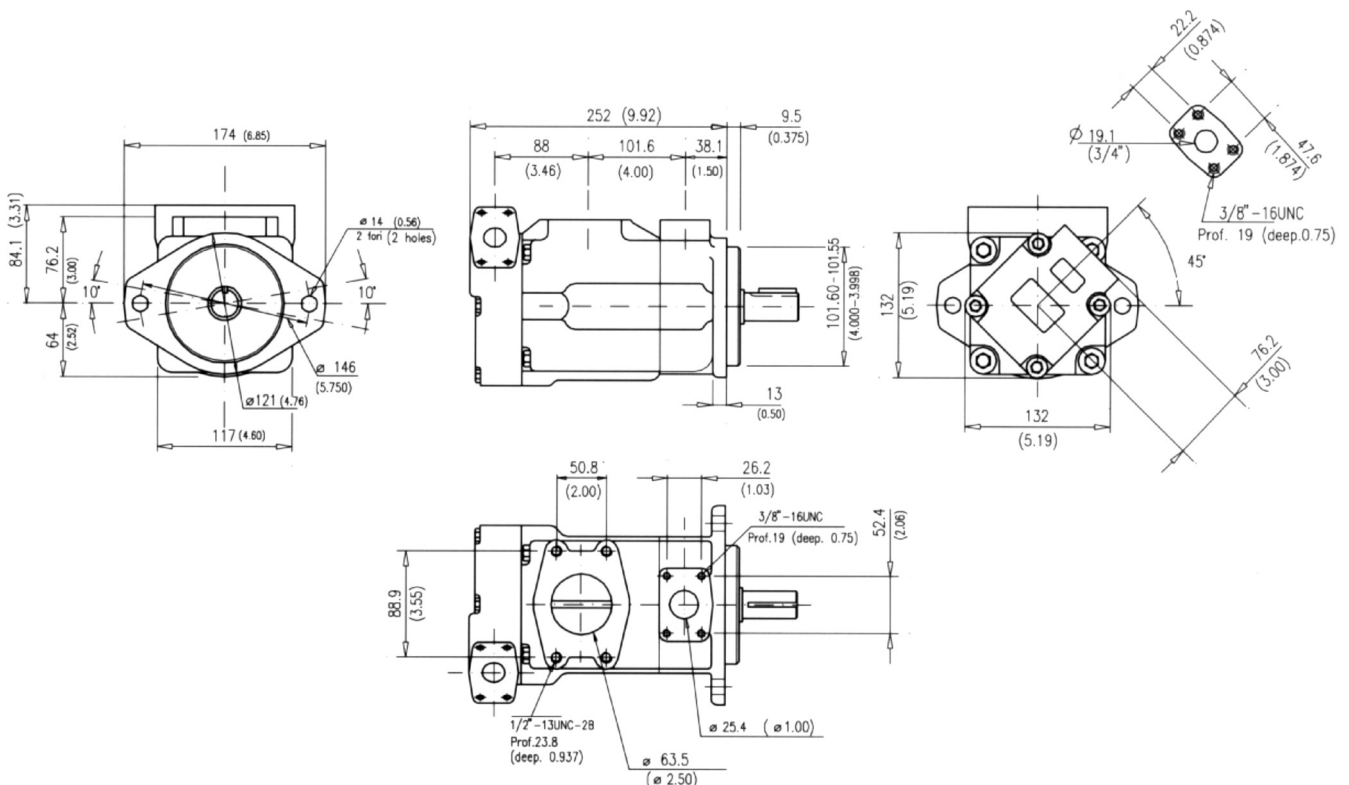
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-14



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

## Installation dimensions mm (inches)



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

## Model code breakdown

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

**Pump series** | **Design** | **Mounting**  
(omit if not required)

**Pump type**

**Cartridge types**

-shaft end 12 14 17 19 21 | **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®)

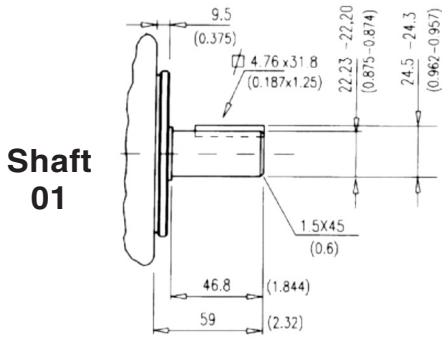
-cover end 02 05 08 09 11 12 14 | **Rotation**  
(viewed from shaft end)  
L = left hand rotation CCW (omit if CW)

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

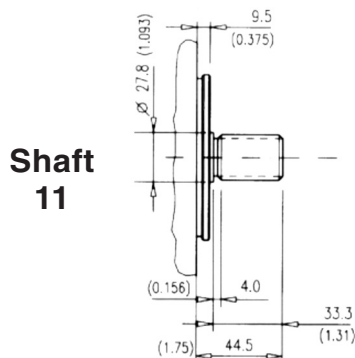
**Cover outlet port positions**  
(Outlet viewed from cover end)  
A = Outlet 135° CCW from inlet  
B = Outlet 45° CCW from inlet  
C = Outlet 45° CW from inlet  
D = Outlet 135° CW from inlet

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

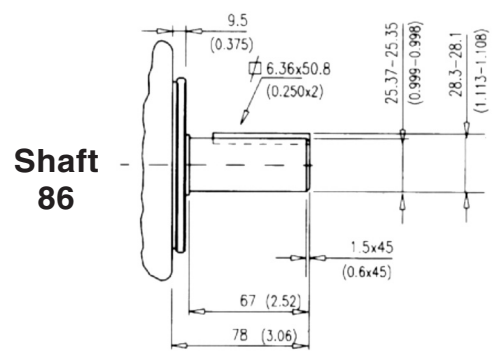
## Shaft options mm (inches)



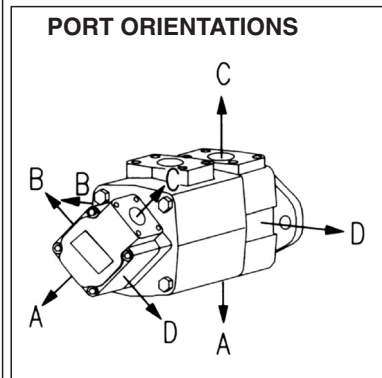
max. torque capability : 320 Nm (2800 lb.in.)



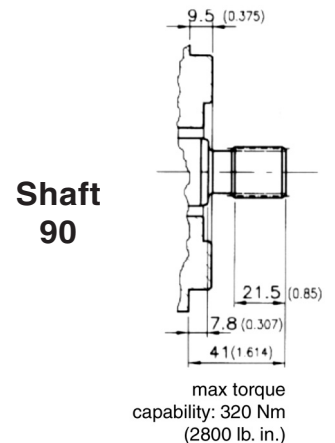
max. torque capability : 320Nm (2800 lb.in.)



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



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



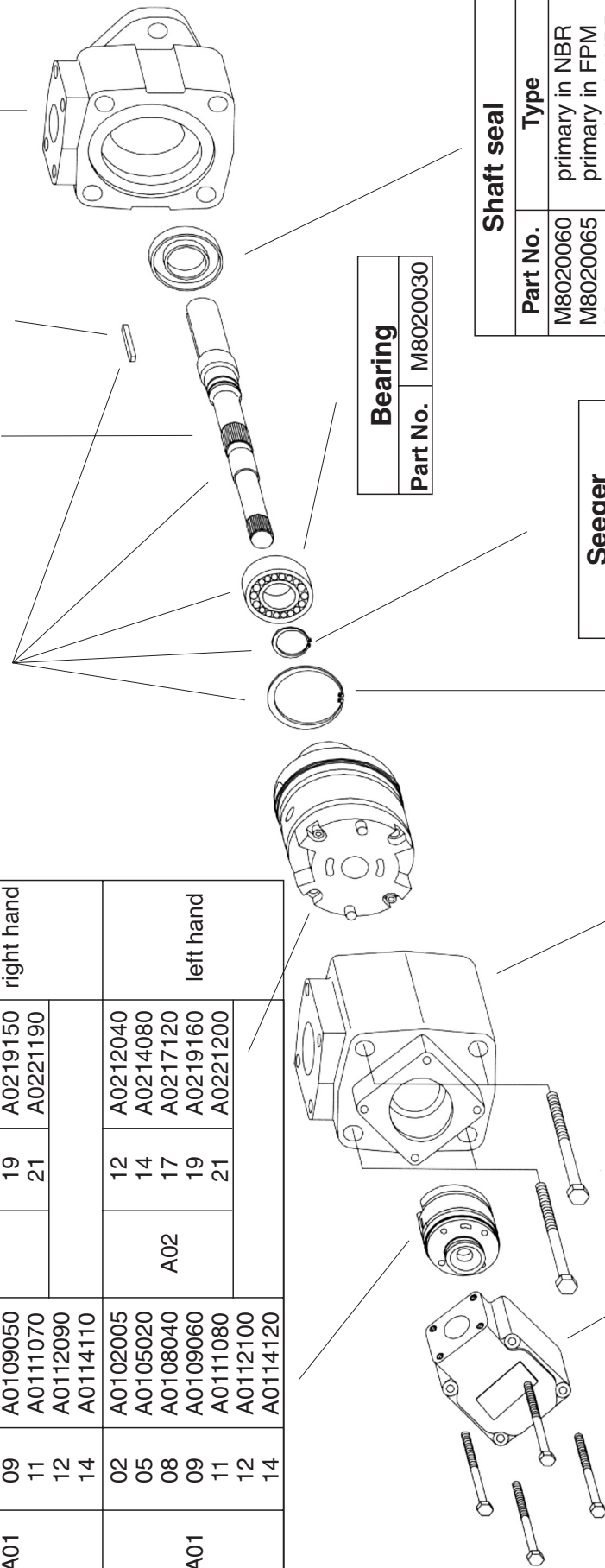
## Id. codes of pump components

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

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

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

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



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

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

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

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

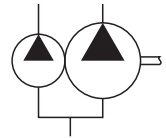
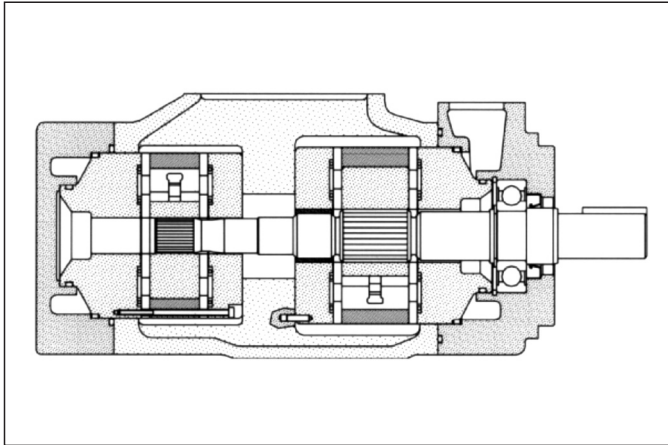
| Cover    |          |
|----------|----------|
| Part No. | Model    |
| M8020120 | M8020120 |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

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

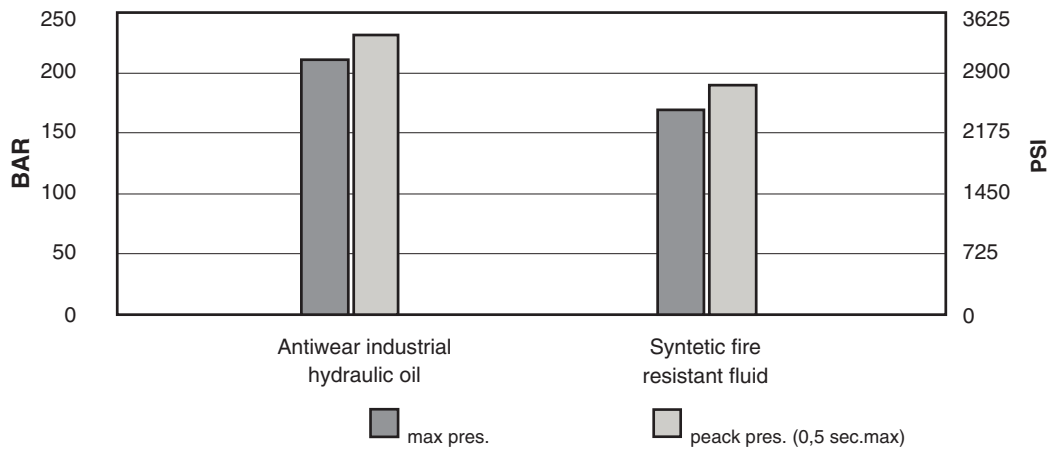
**Inlet pressure:** (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

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

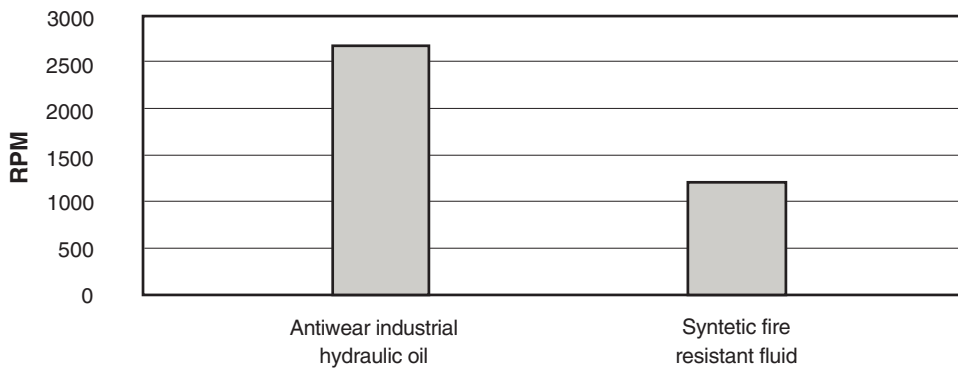
**Drive:** direct and coaxial by means of a flexible coupling.

## Main operating data

### max pressure / hydraulic fluid

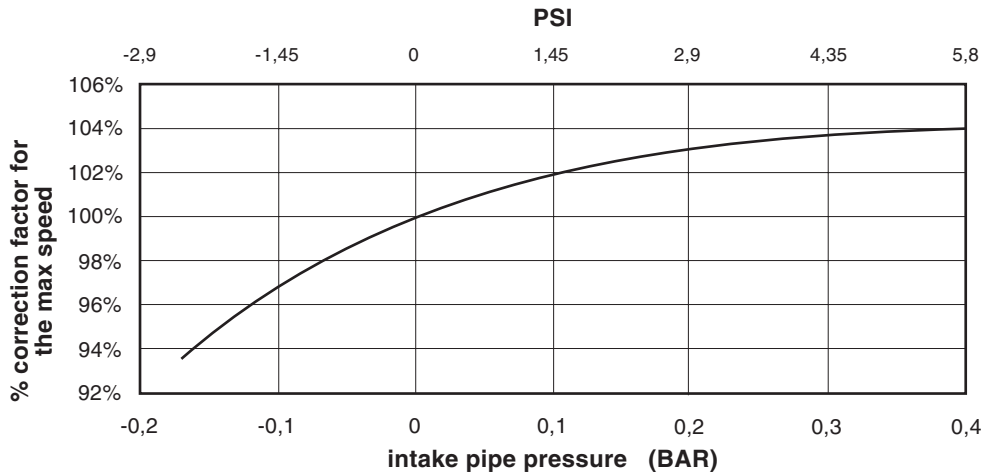


### max speed / hydraulic fluid (with 0 bar in the intake pipe)

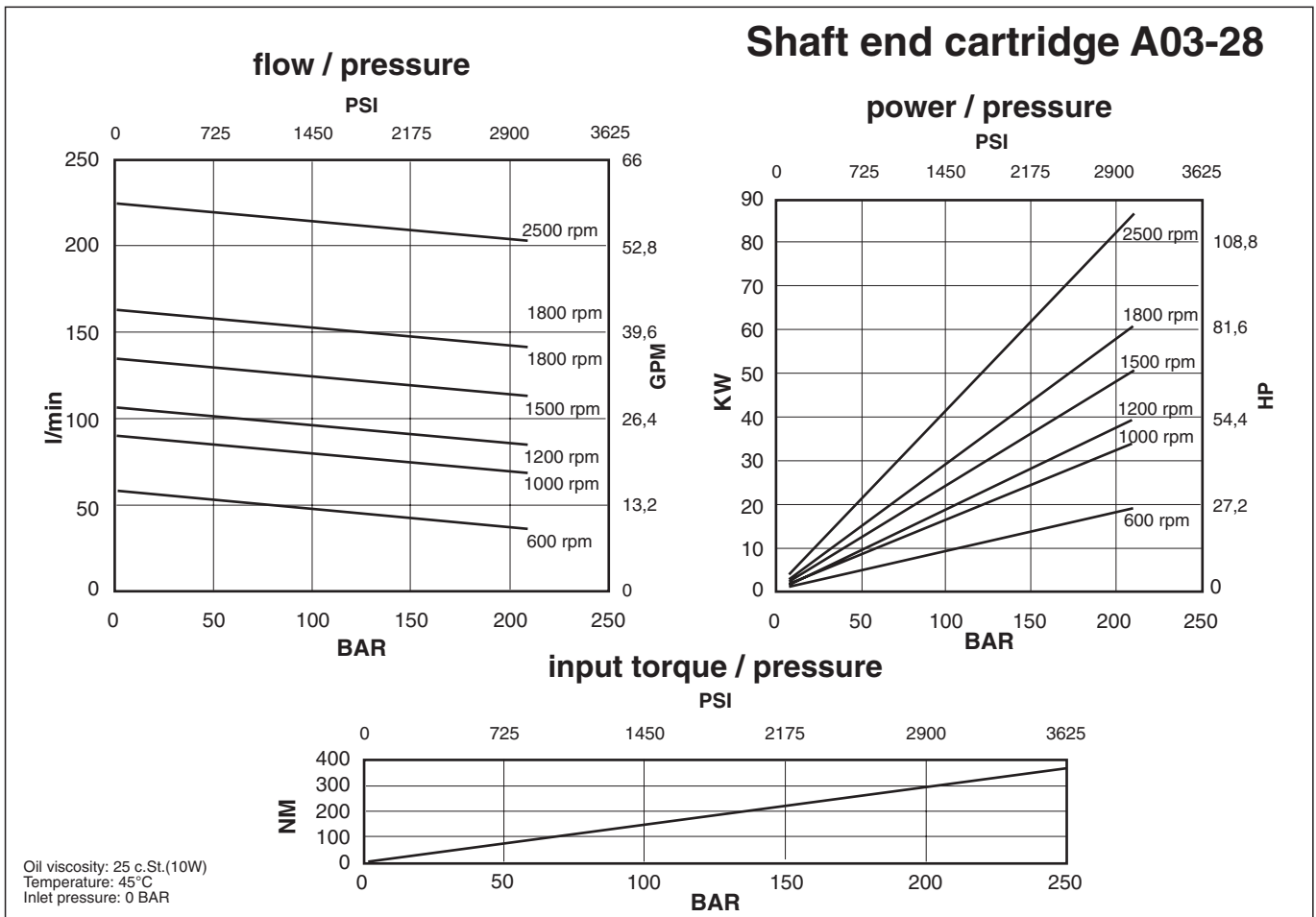
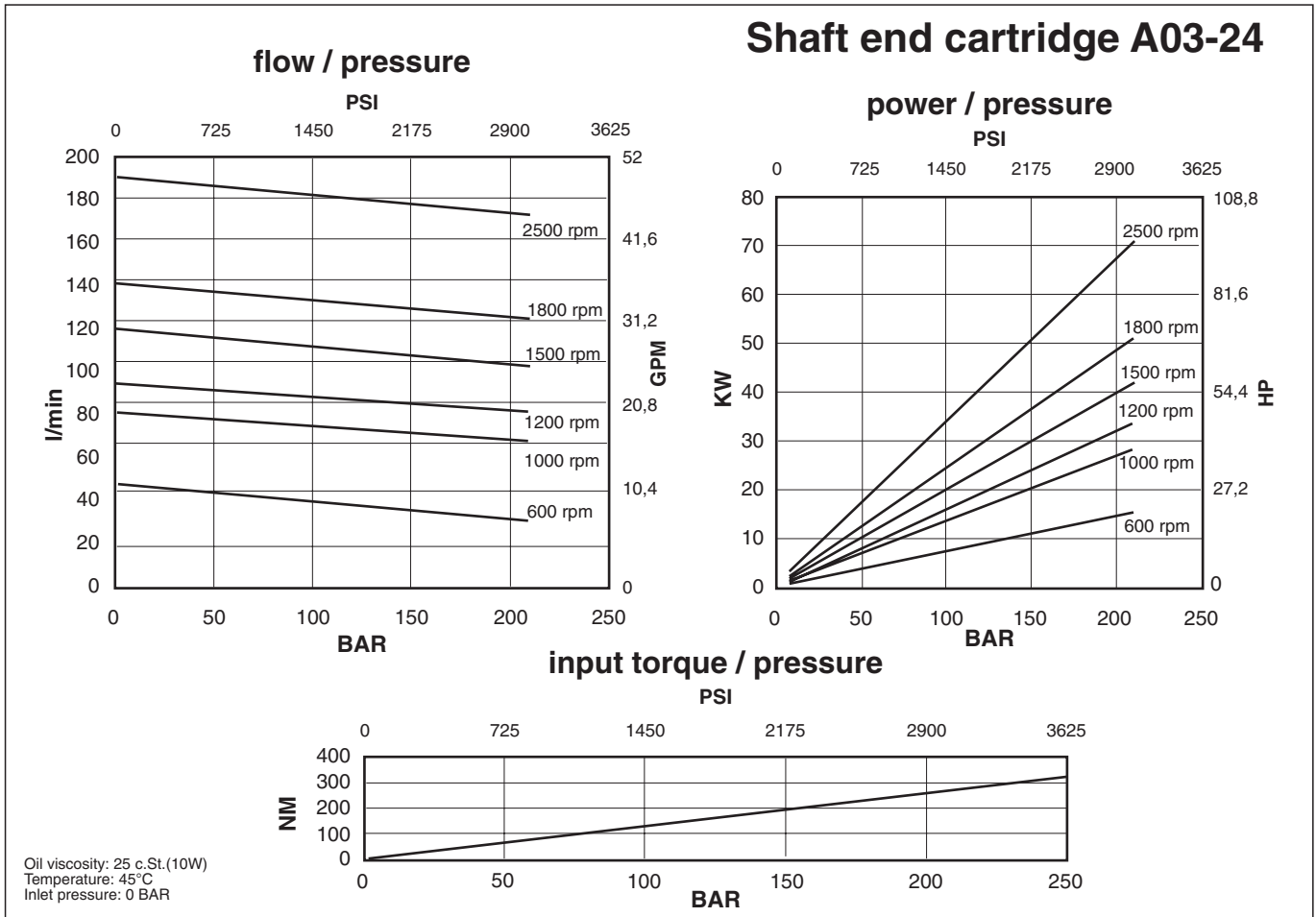


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

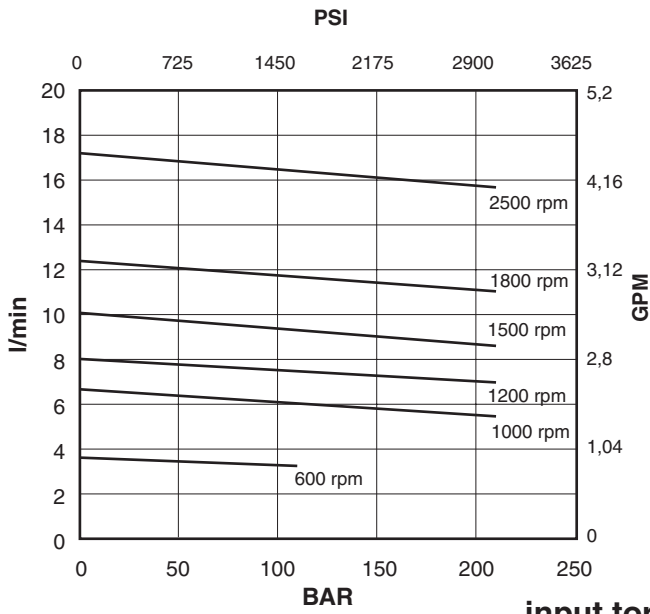
### max speed / intake pipe pressure





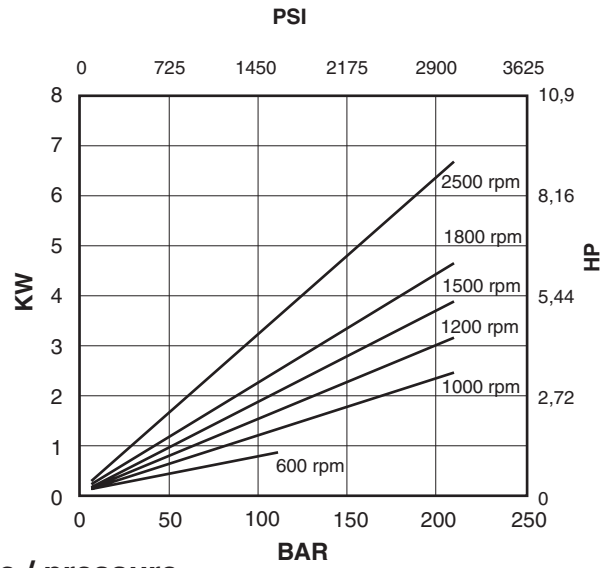


## flow / pressure

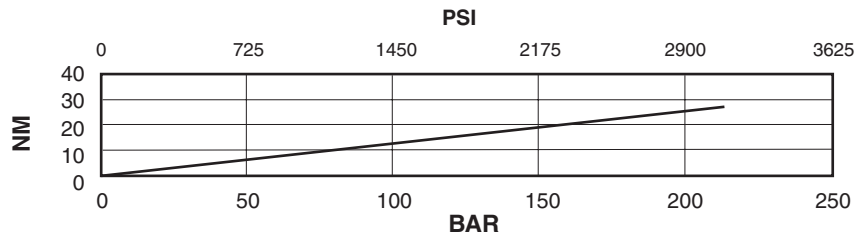


## Cover end cartridge A01-02

### power / pressure

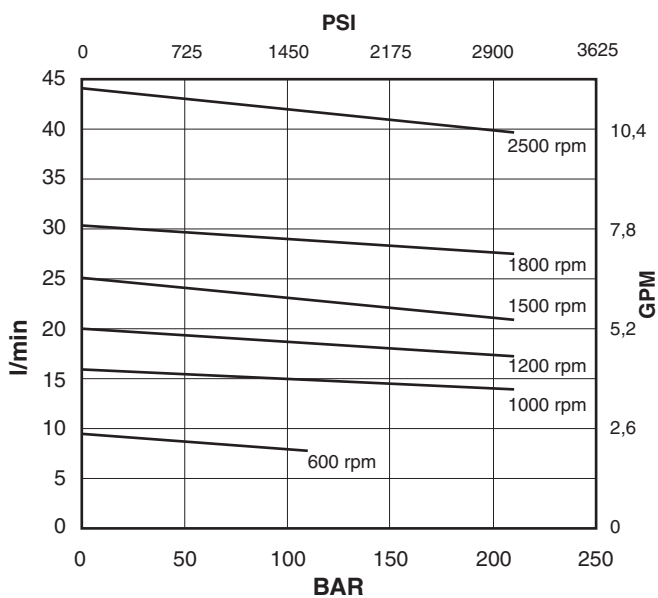


### input torque / pressure



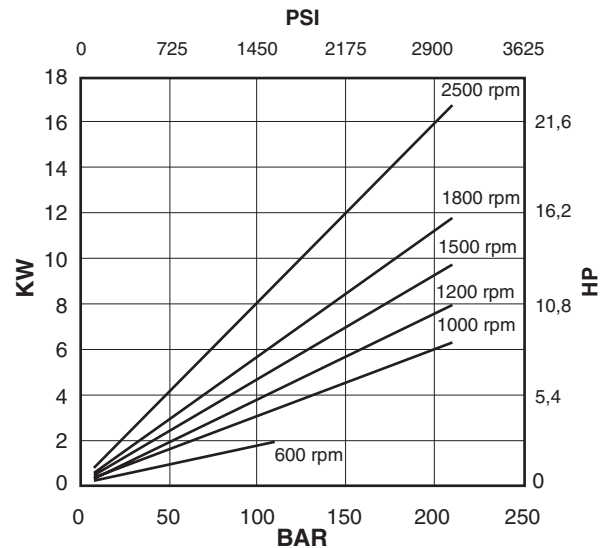
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## flow / pressure

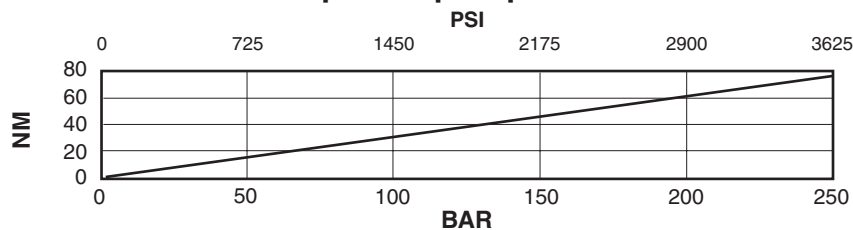


## Cover end cartridge A01-05

### power / pressure

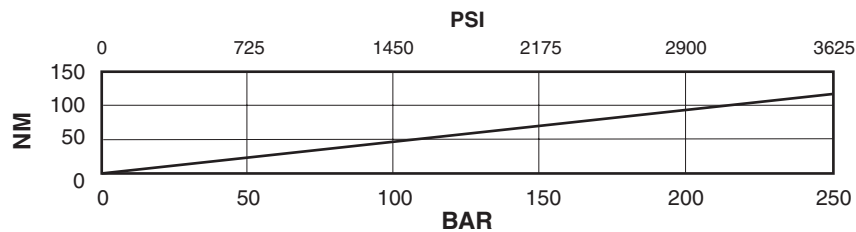
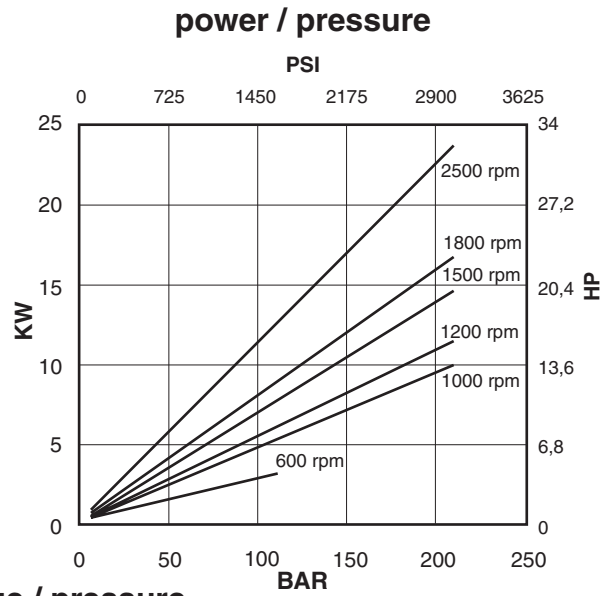
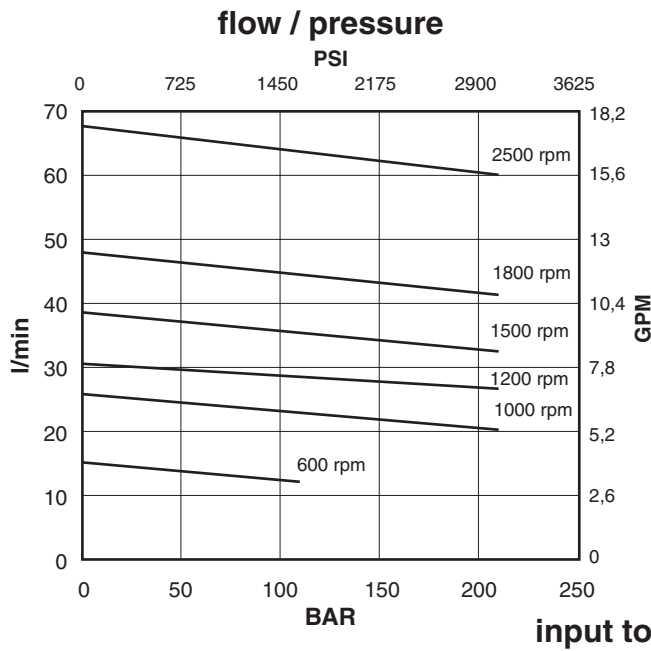


### input torque / pressure



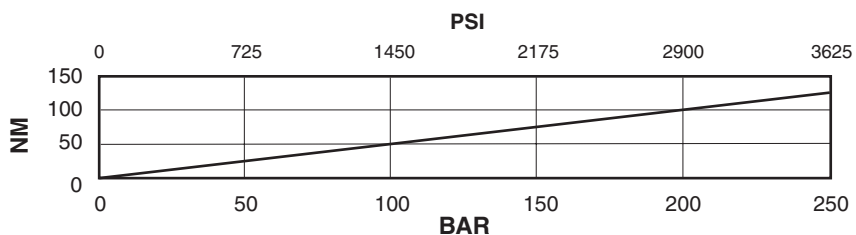
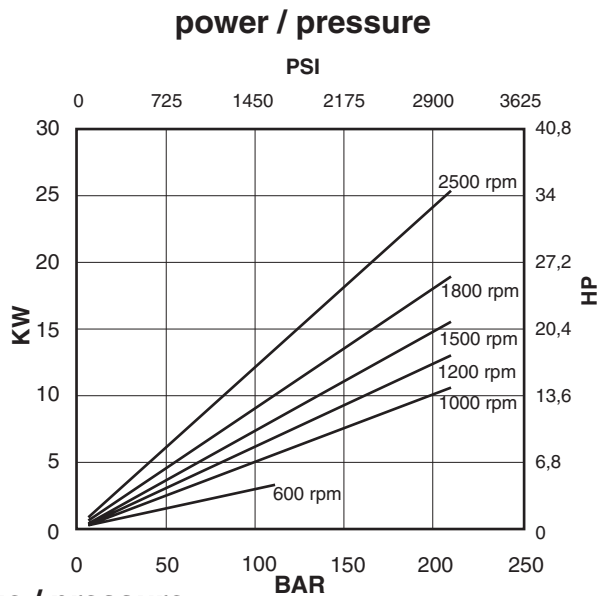
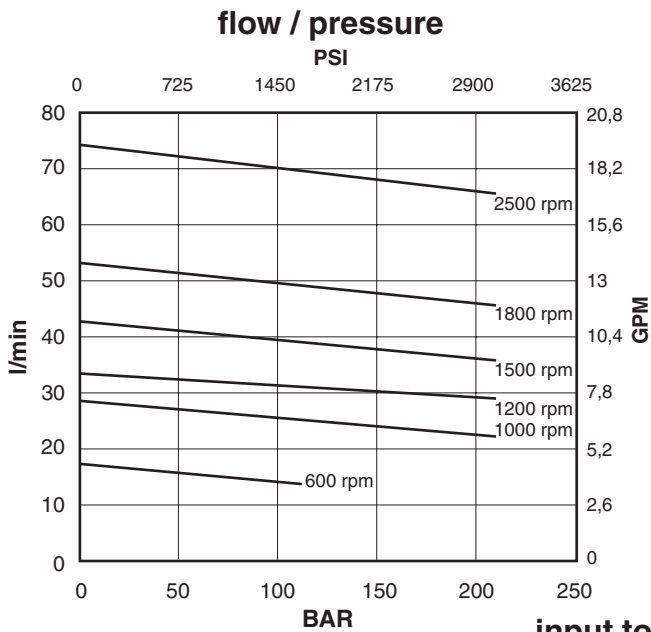
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-08



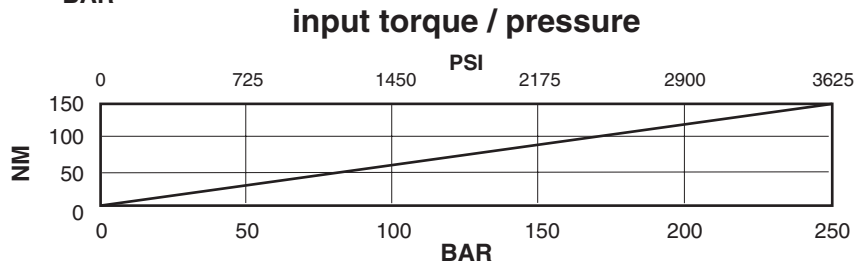
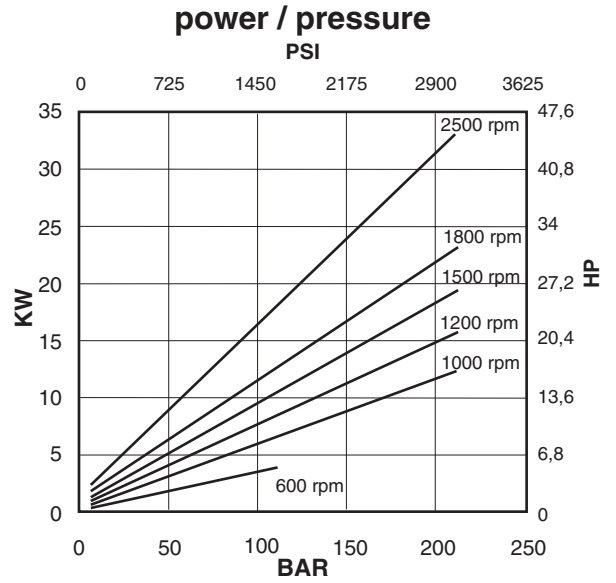
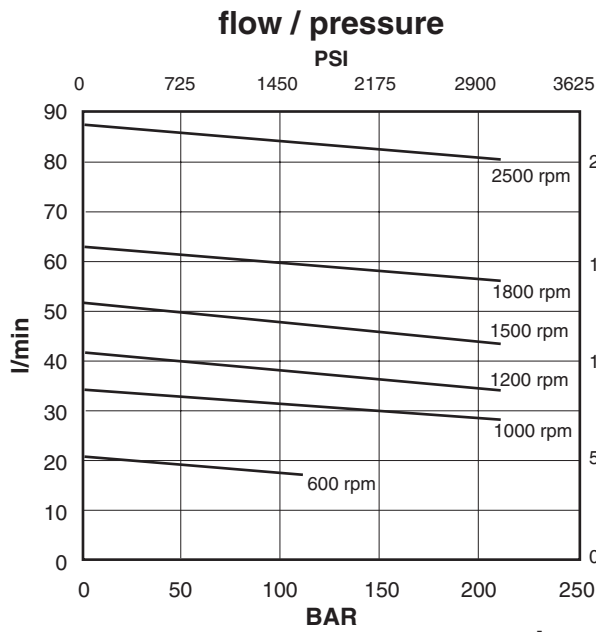
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-09



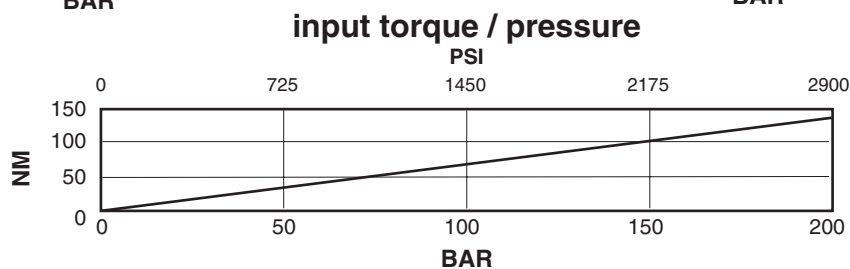
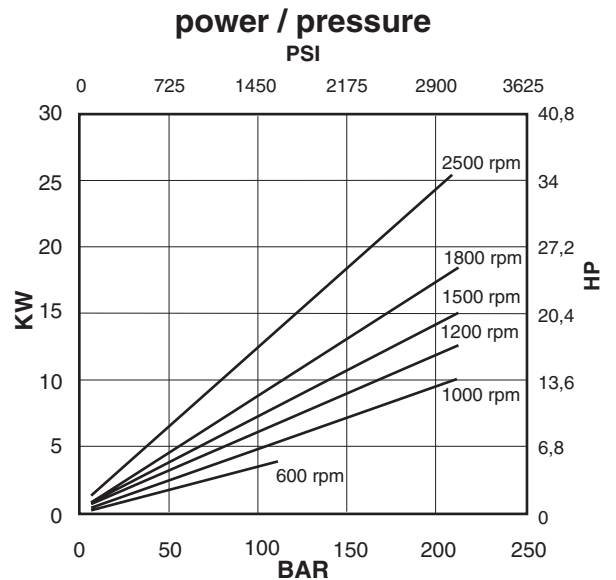
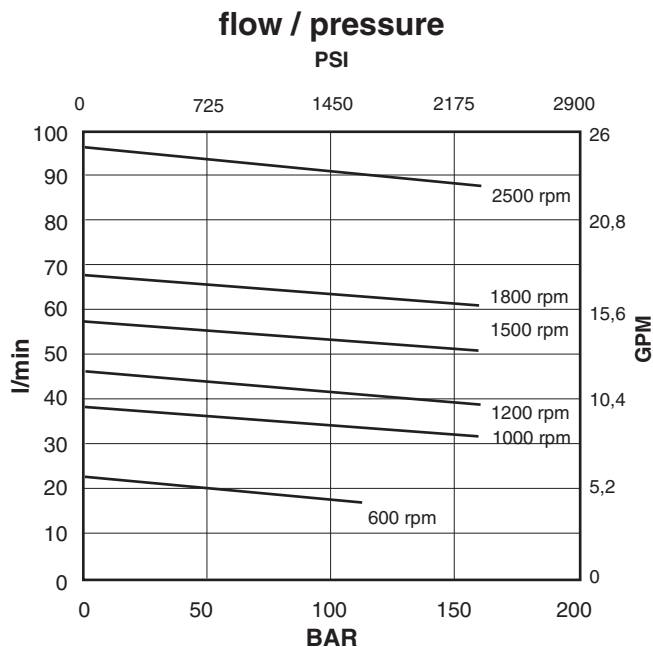
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-11



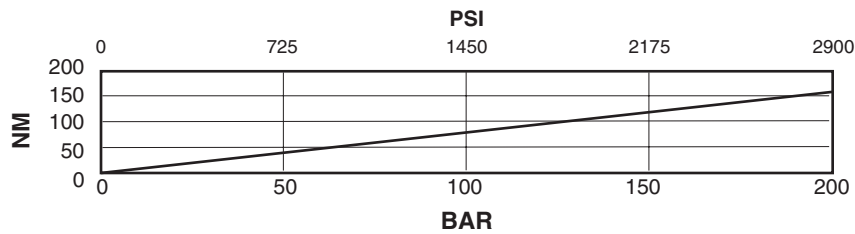
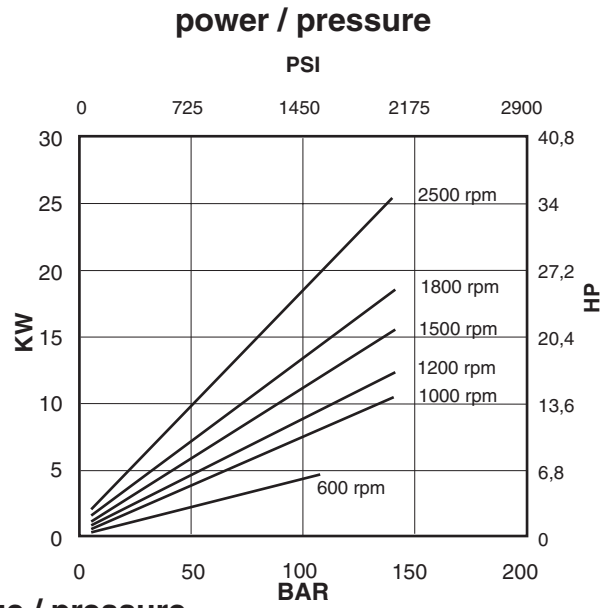
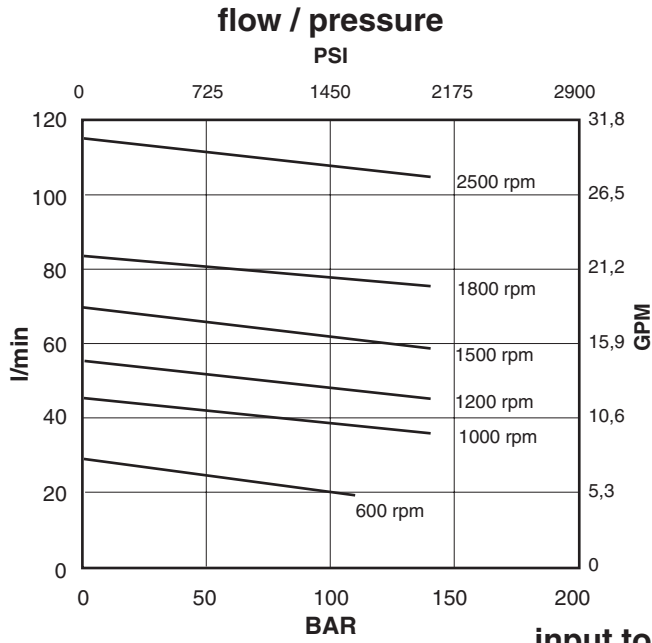
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-12



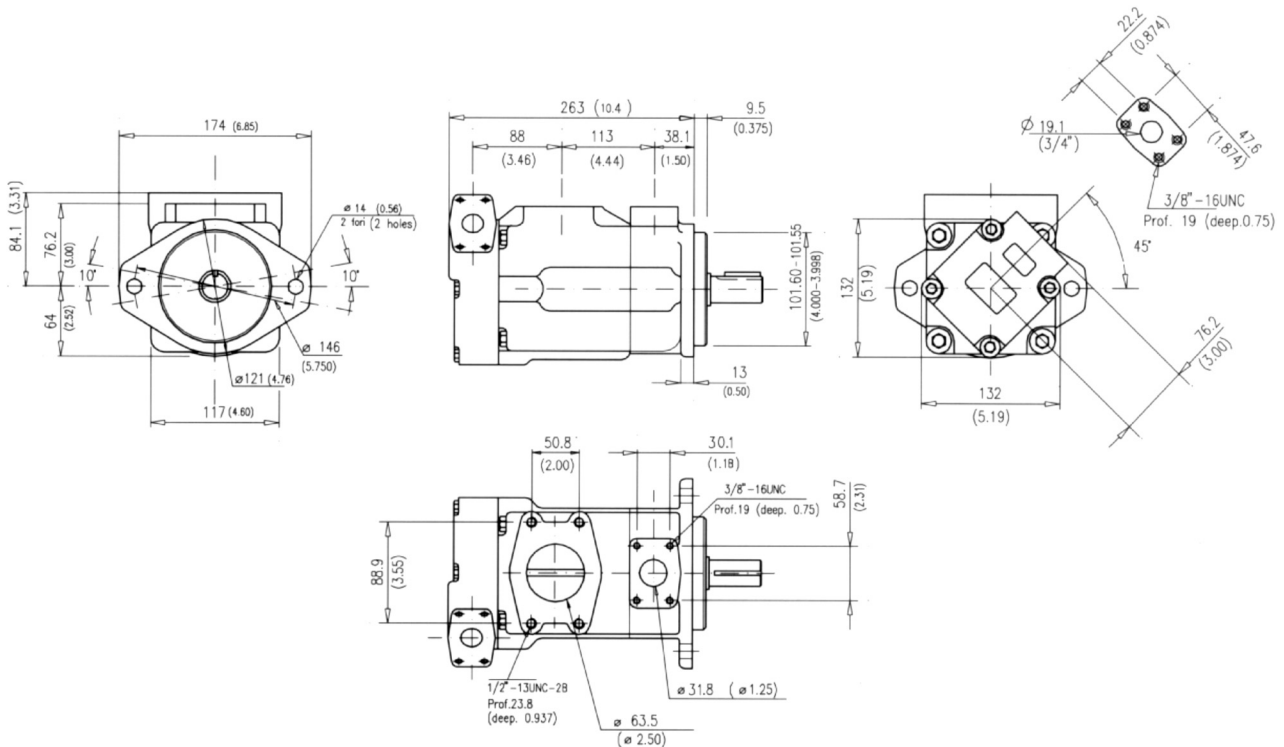
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-14



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

## Installation dimensions mm (inches)

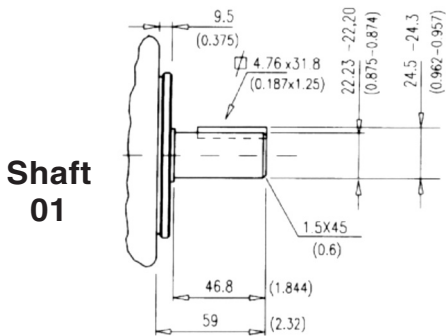


Approx. weight: 23 kg. (50 lbs.)

## Model code breakdown

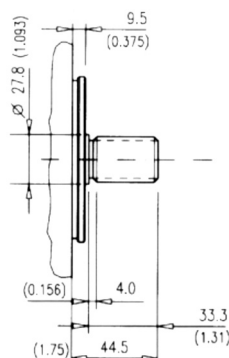
|  |   |  |   |  |
|--|---|--|---|--|
| <p><b>BQ 31 G ** ** * * ** (L) * (A)</b></p> <p>Pump series</p> <p>Design</p> <p>Pump type</p> <p>Cartridge types</p> <p>-shaft end 24 28</p> <p>-cover end 02 05 08 09 11 12 14</p> <p>Body outlet port positions<br/>(Outlet viewed from cover end)</p> <p>A = Outlet opposite end<br/>B = Outlet 90° CCW from inlet<br/>C = Outlet in line with inlet<br/>D = Outlet 90° CW from inlet</p> <p>Cover outlet port positions<br/>(Outlet viewed from cover end)</p> <p>A = Outlet 135° CCW from inlet<br/>B = Outlet 45° CCW from inlet<br/>C = Outlet 45° CW from inlet<br/>D = Outlet 135° CW from inlet</p> | <p>Seals<br/>(omit with standard seals and one shaft-seal in NBR)</p> <p>V = seals and shaft-seal in FPM (Viton®)</p> <p>D = standard seals and double shaft-seals in NBR</p> <p>F = seals and double shaft-seals in FPM (Viton®)</p> | <p>Rotation<br/>(viewed from shaft end)</p> <p>L = left hand rotation CCW (omit if CW)</p> | <p>Shaft end options</p> <p>01 = Straight with key (standard), 11 = Splined</p> <p>86 = Heavy duty straight keyed, 90 = Splined SAE B</p> | <p>Mounting<br/>(omit if not required)</p> |
|--|---|--|---|--|

## Shaft options mm (inches)



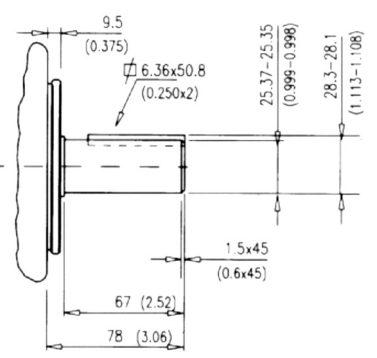
max. torque capability : 320 Nm (2800 lb.in.)

**Shaft 11**



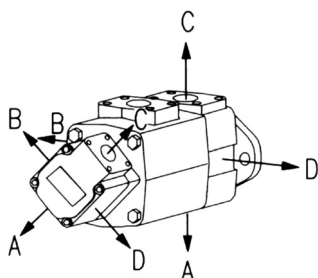
max. torque capability : 320Nm (2800 lb.in.)

**Shaft 86**



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

### PORT ORIENTATIONS

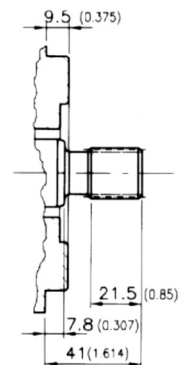


### Spline data

(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.)

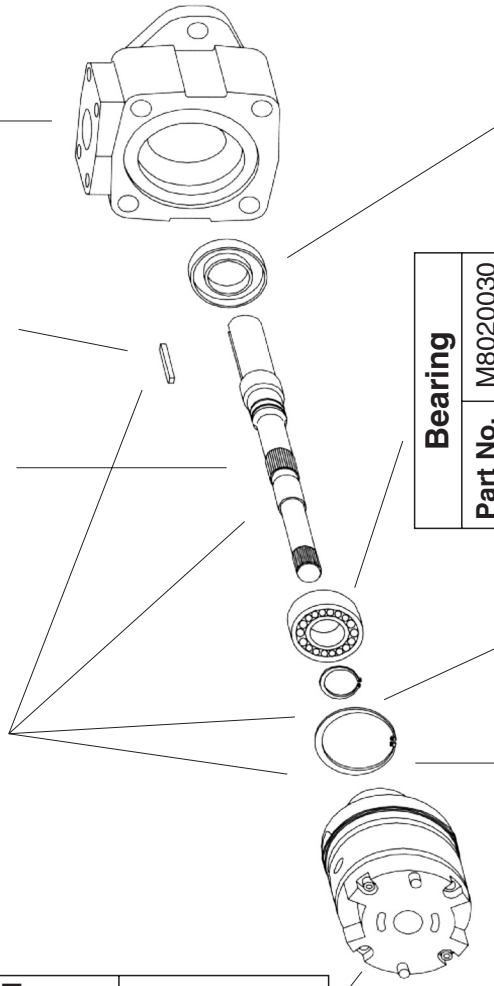
## Id. codes of pump components

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

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

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

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

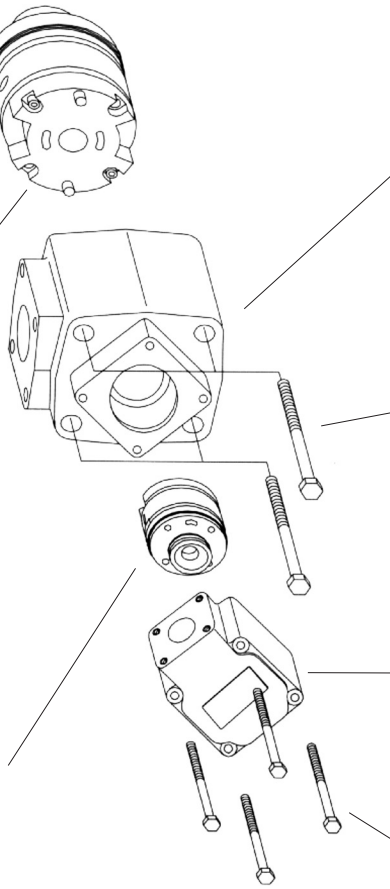


| Bearing  |          |
|----------|----------|
| Part No. | M8020030 |

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

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

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



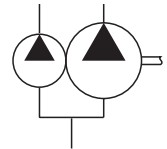
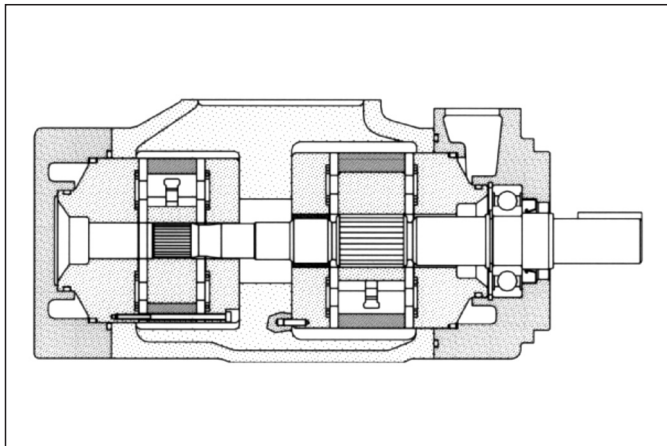
| Inlet body |          |
|------------|----------|
| Part No.   | M8020115 |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

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

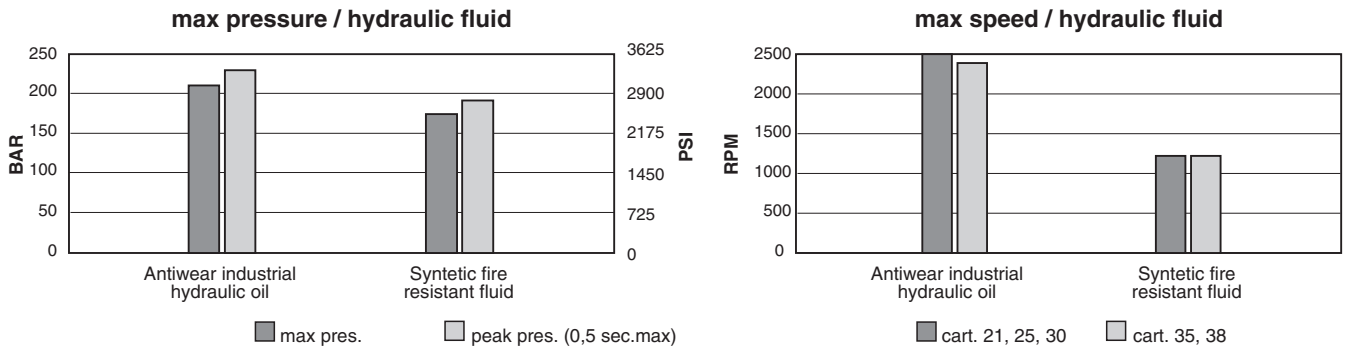
**Inlet pressure:** (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

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

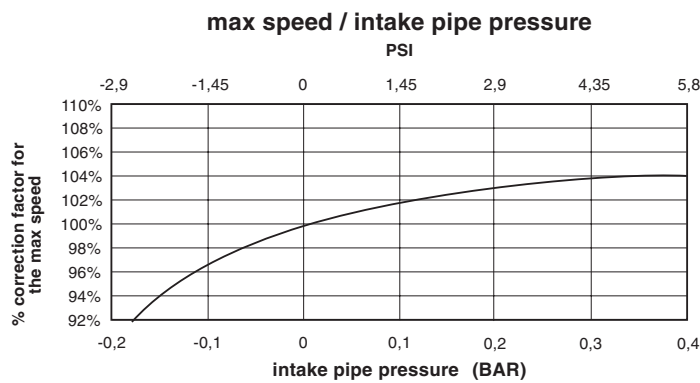
**Drive:** direct and coaxial by means of a flexible coupling.



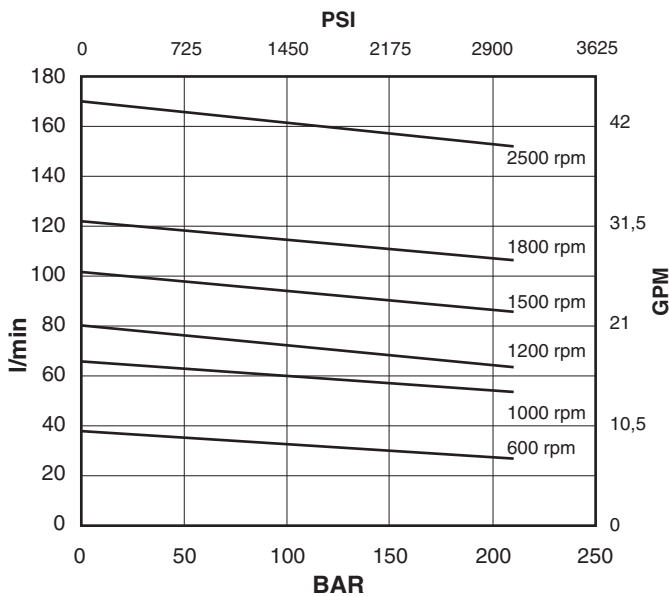
## Main operating data



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

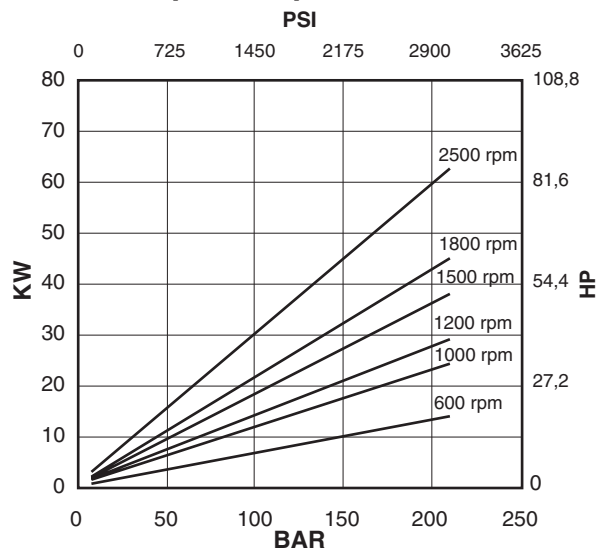


## flow / pressure

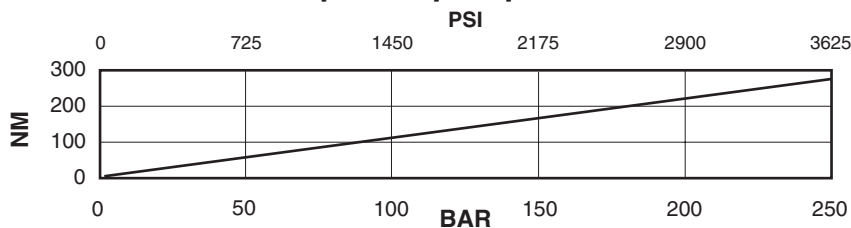


## Shaft end cartridge A04-21

### power / pressure

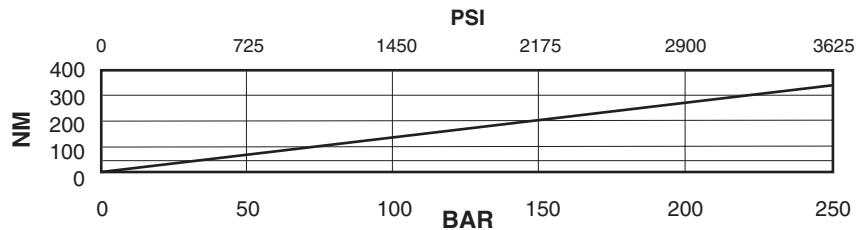
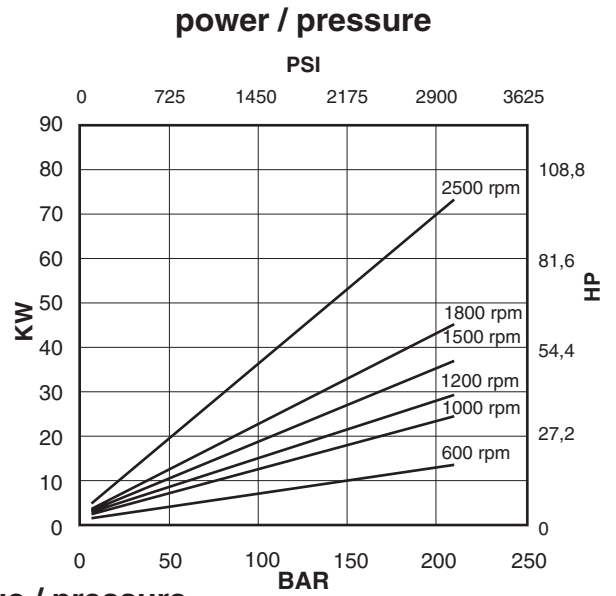
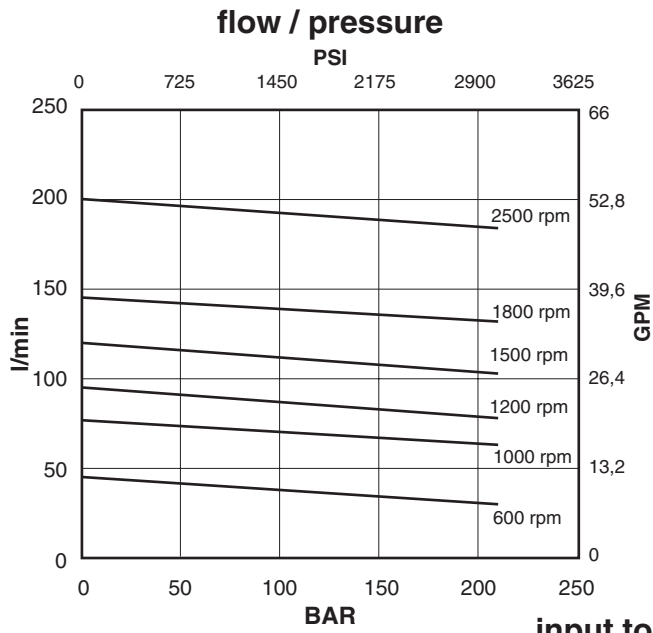


### input torque / pressure



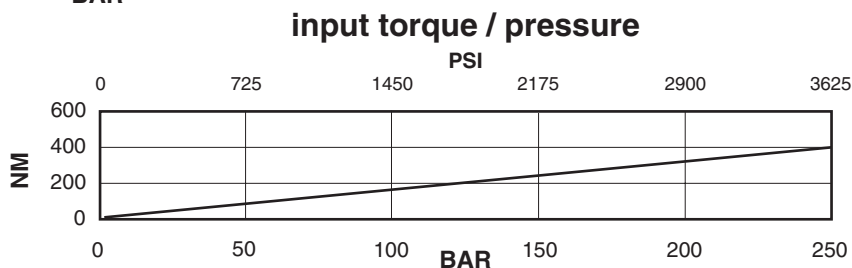
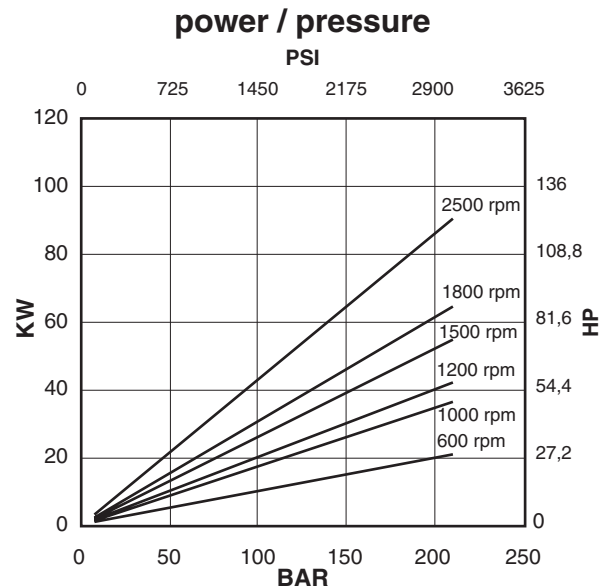
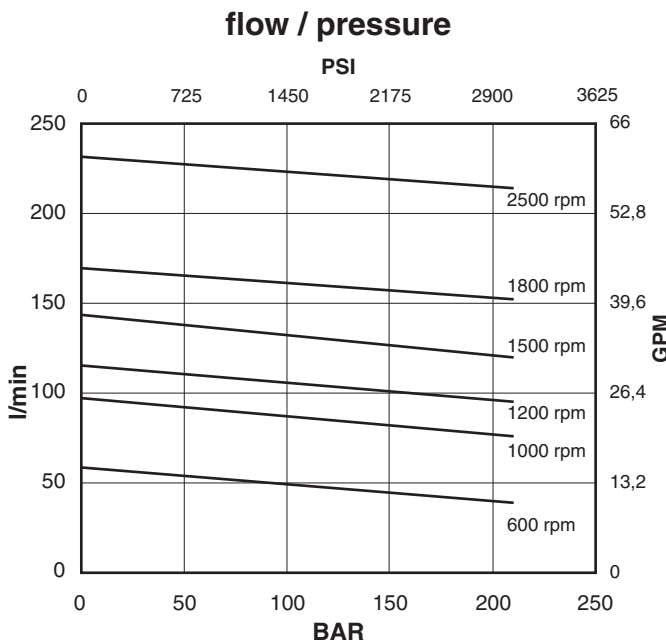
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-25



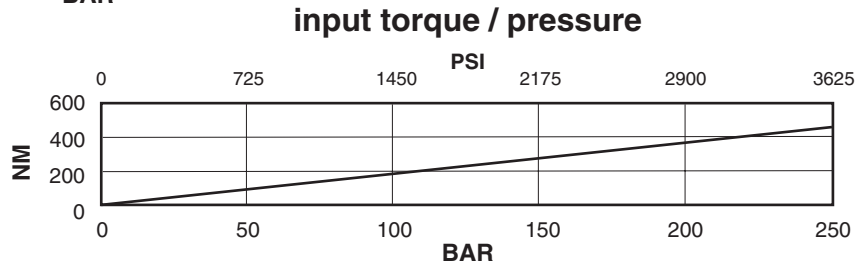
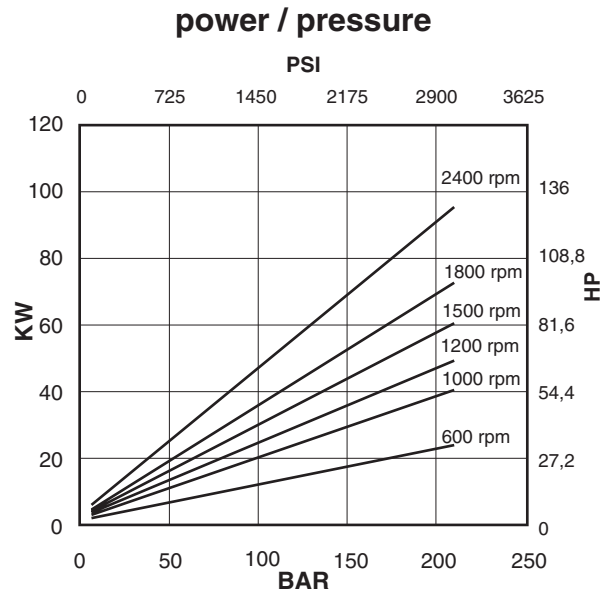
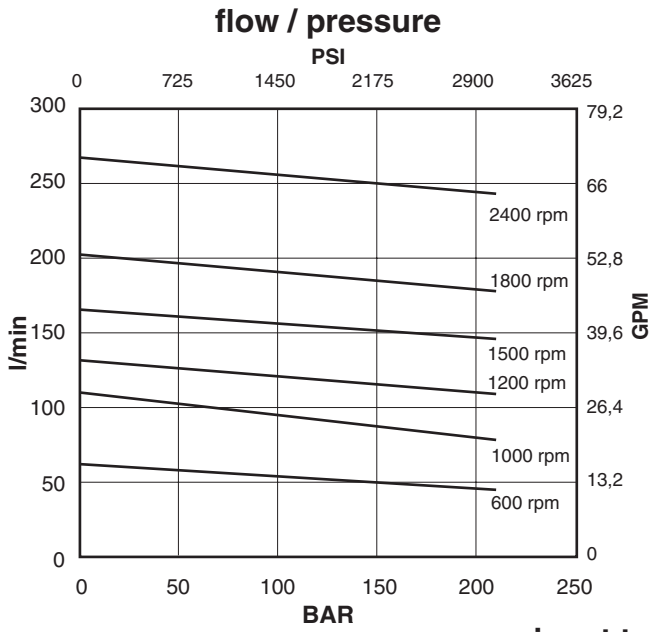
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-30



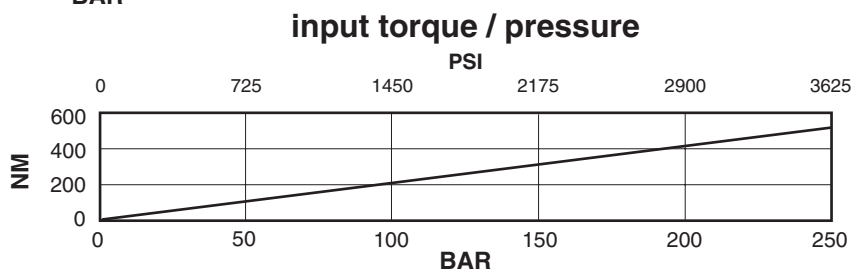
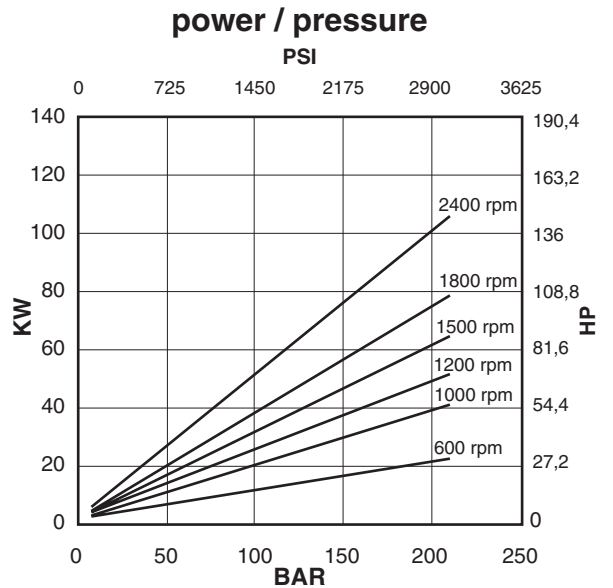
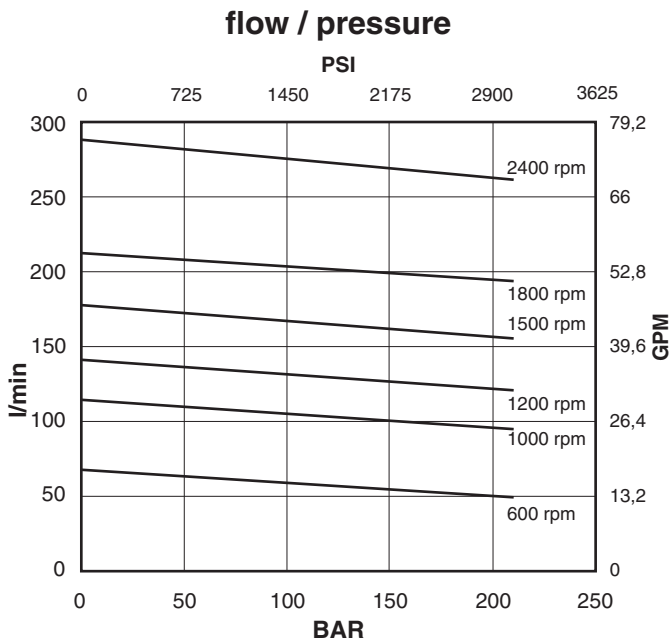
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-35



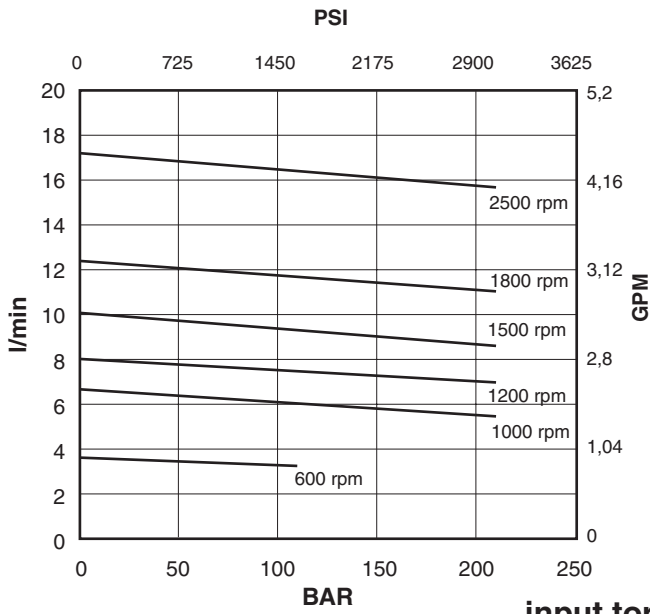
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-38



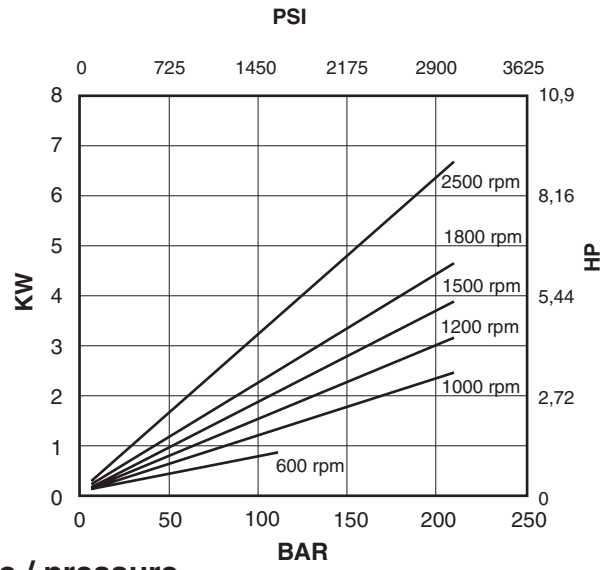
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## flow / pressure

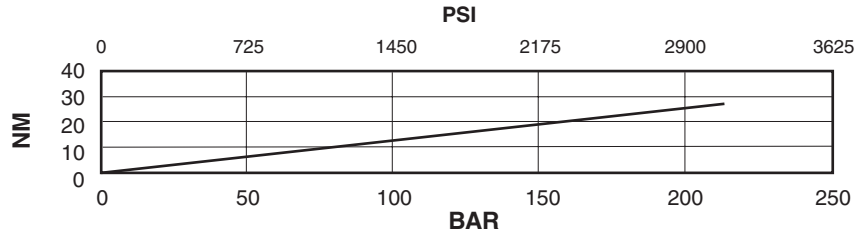


## Cover end cartridge A01-02

### power / pressure

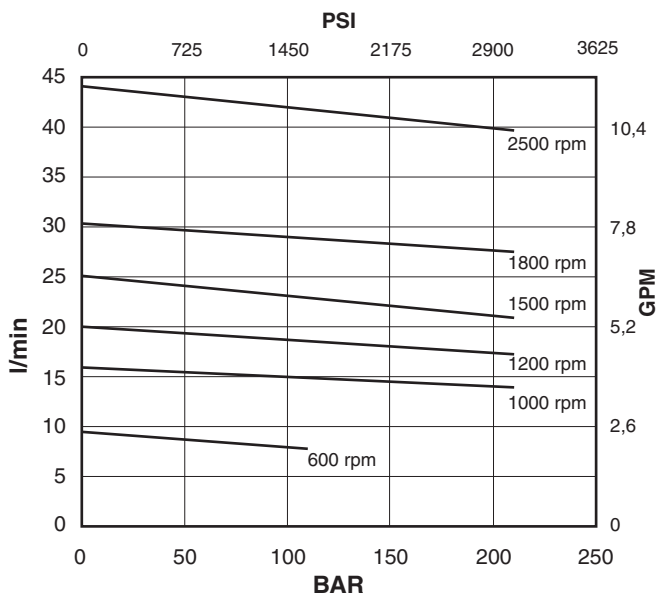


### input torque / pressure



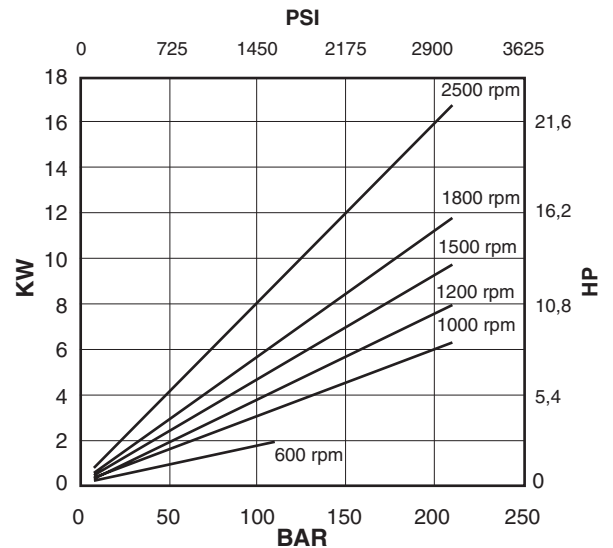
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## flow / pressure

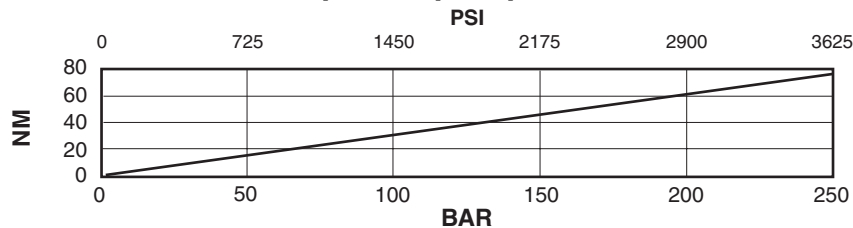


## Cover end cartridge A01-05

### power / pressure

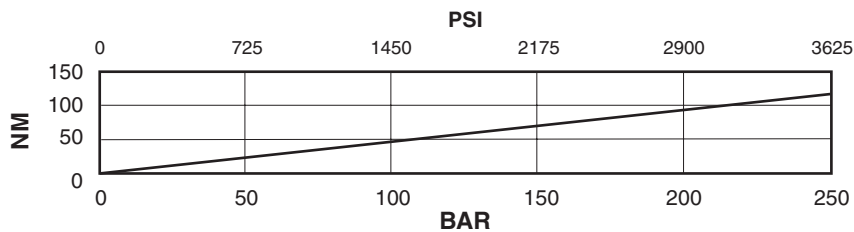
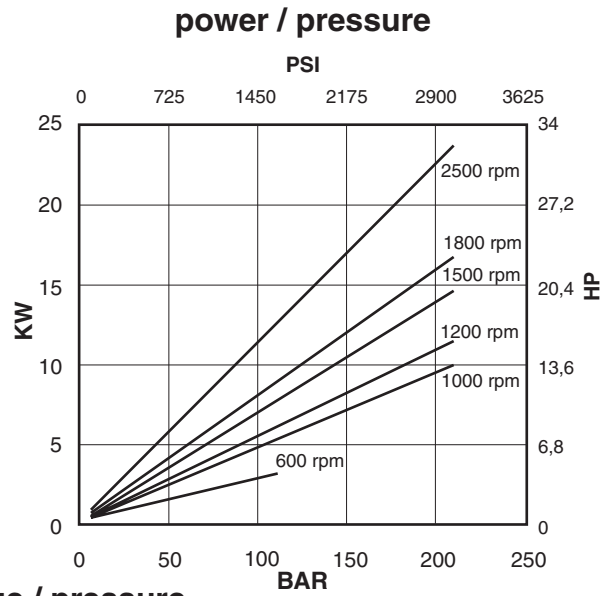
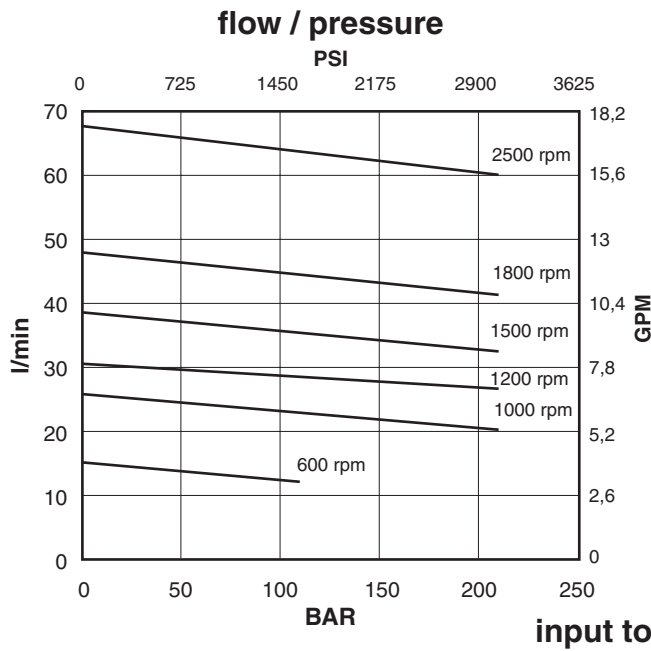


### input torque / pressure



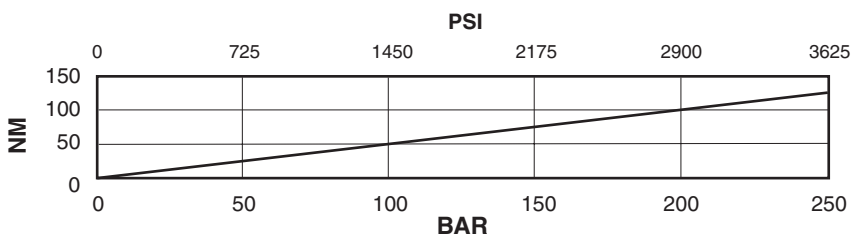
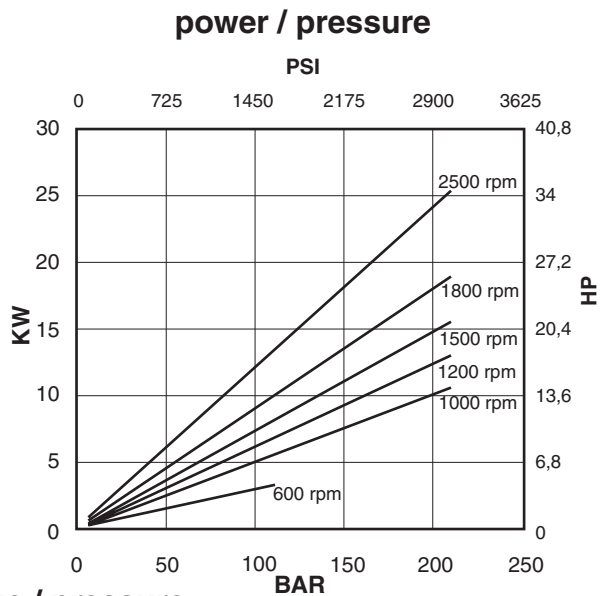
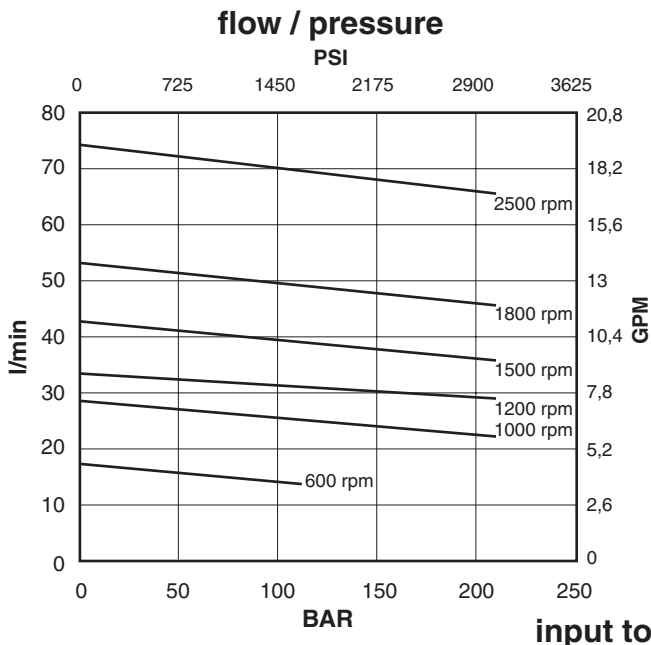
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-08



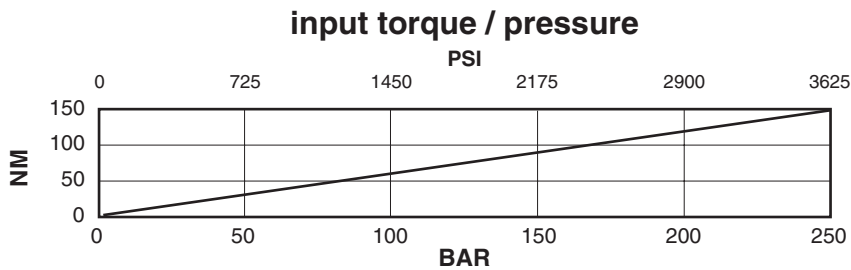
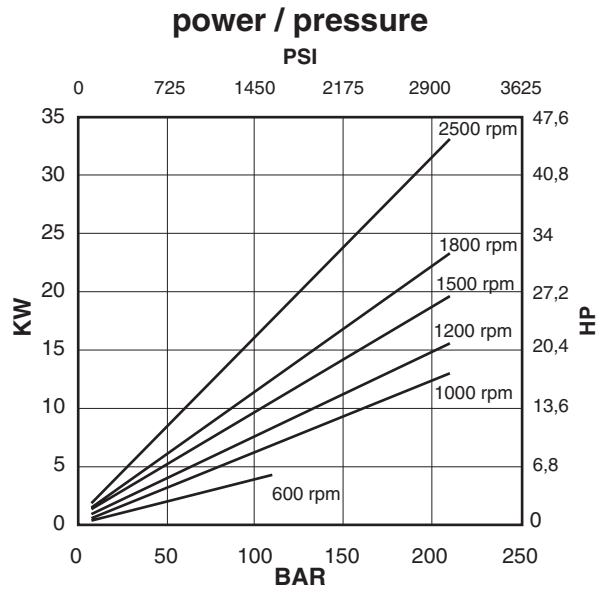
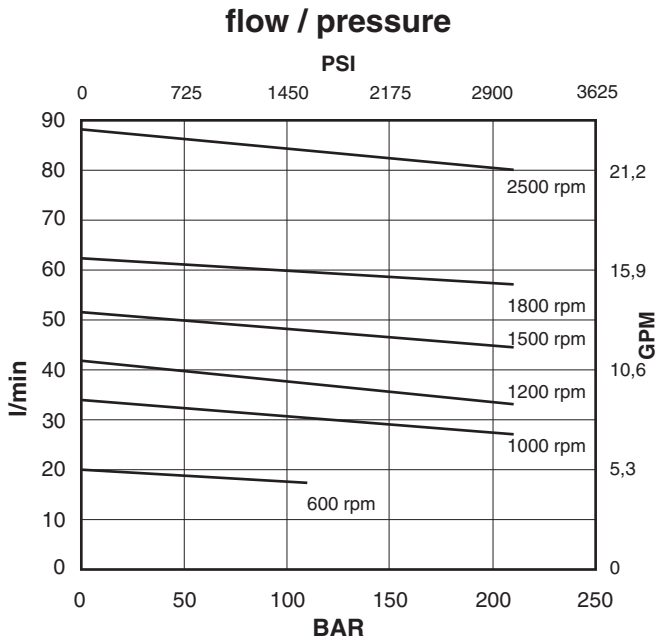
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-09



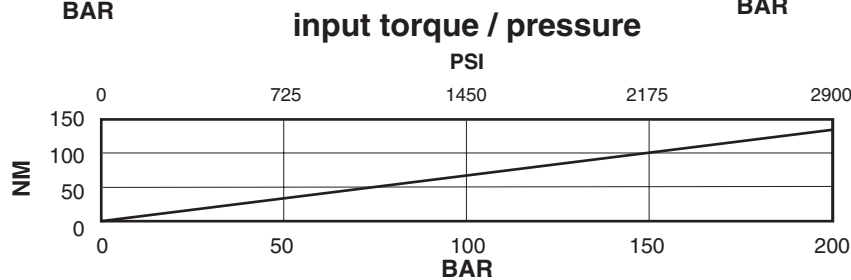
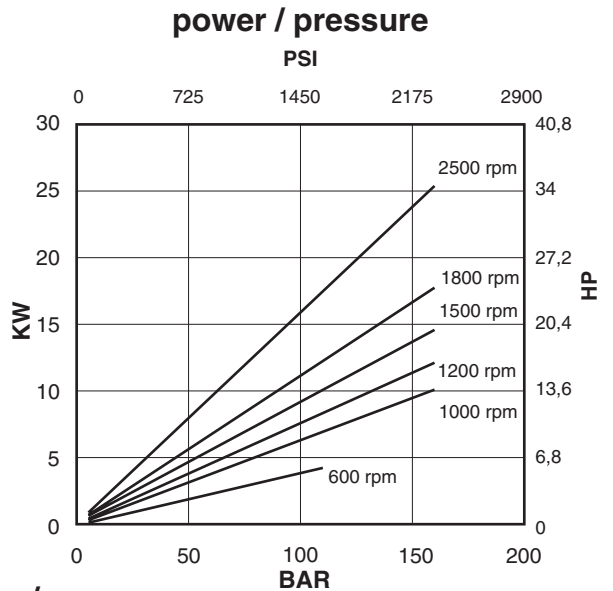
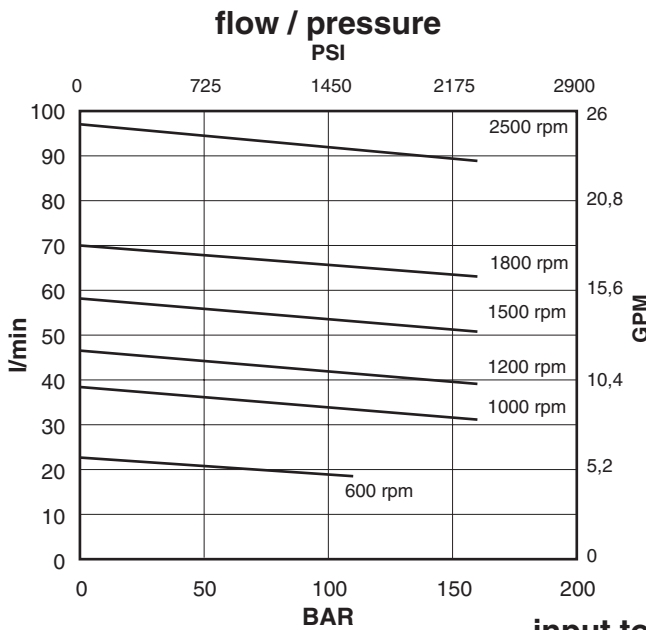
Oil viscosity: 25 c.St.(10W)  
Temperature: 45°C  
Inlet pressure: 0 BAR

## Cover end cartridge A01-11



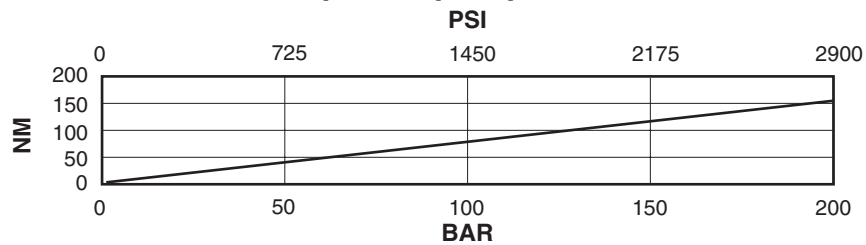
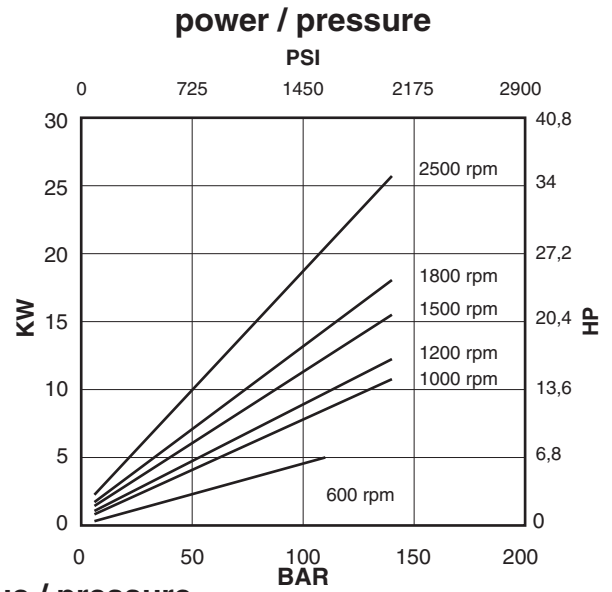
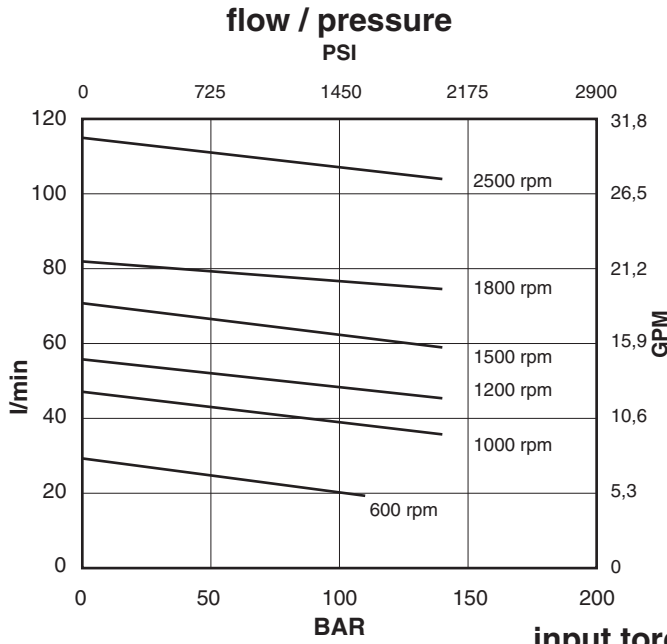
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-12



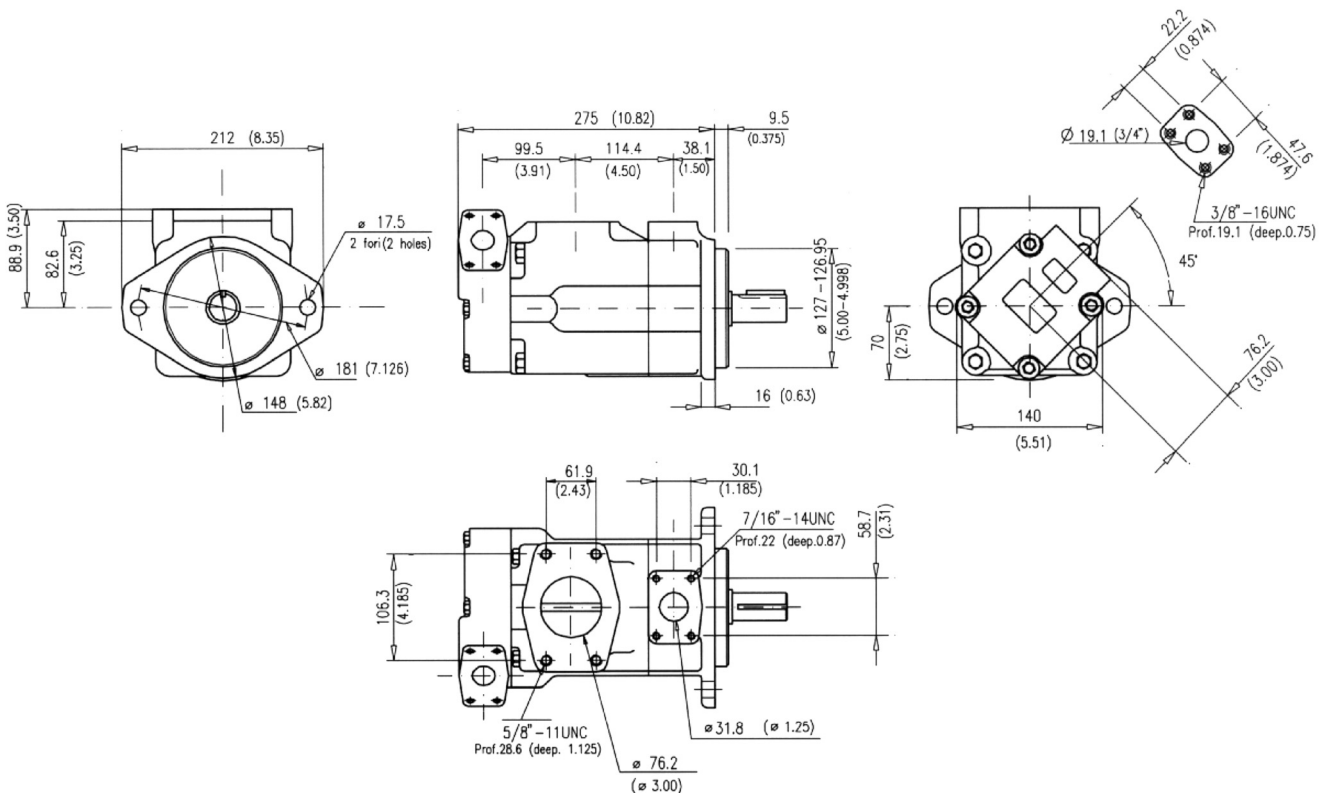
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-14



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

## Installation dimensions mm (inches)

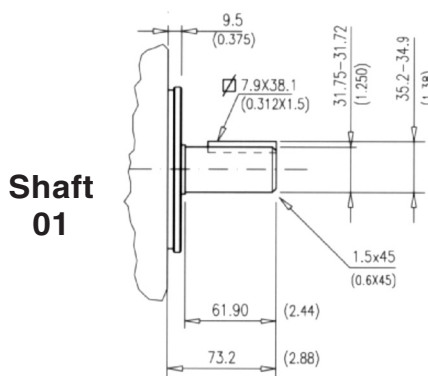


Approx. weight: 34 Kg. (75 lbs.)

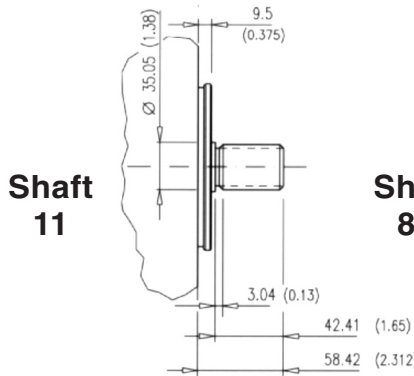
## Model code breakdown

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

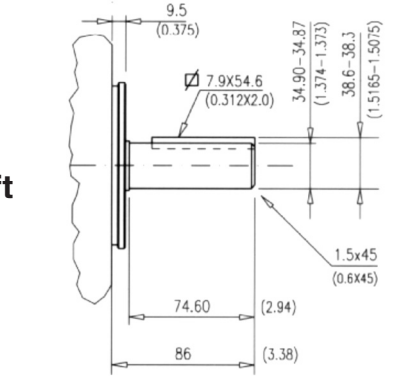
## Shaft options mm (inches)



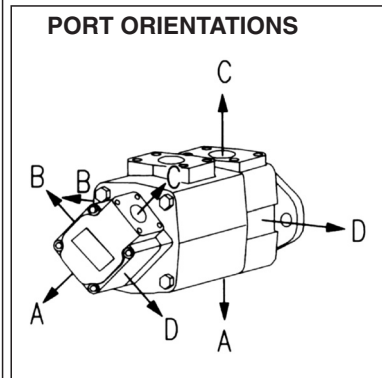
max. torque capability : 400 Nm (3560 lb.in.)



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

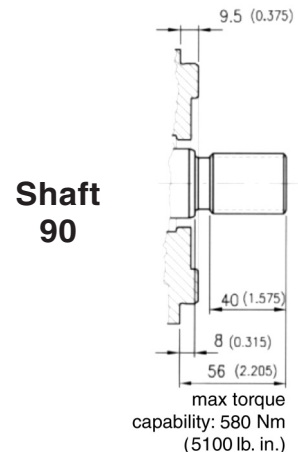


max torque capability: 600 Nm (5300 lb. in.)



**Spline data**  
(Shaft 11 and shaft 90)

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





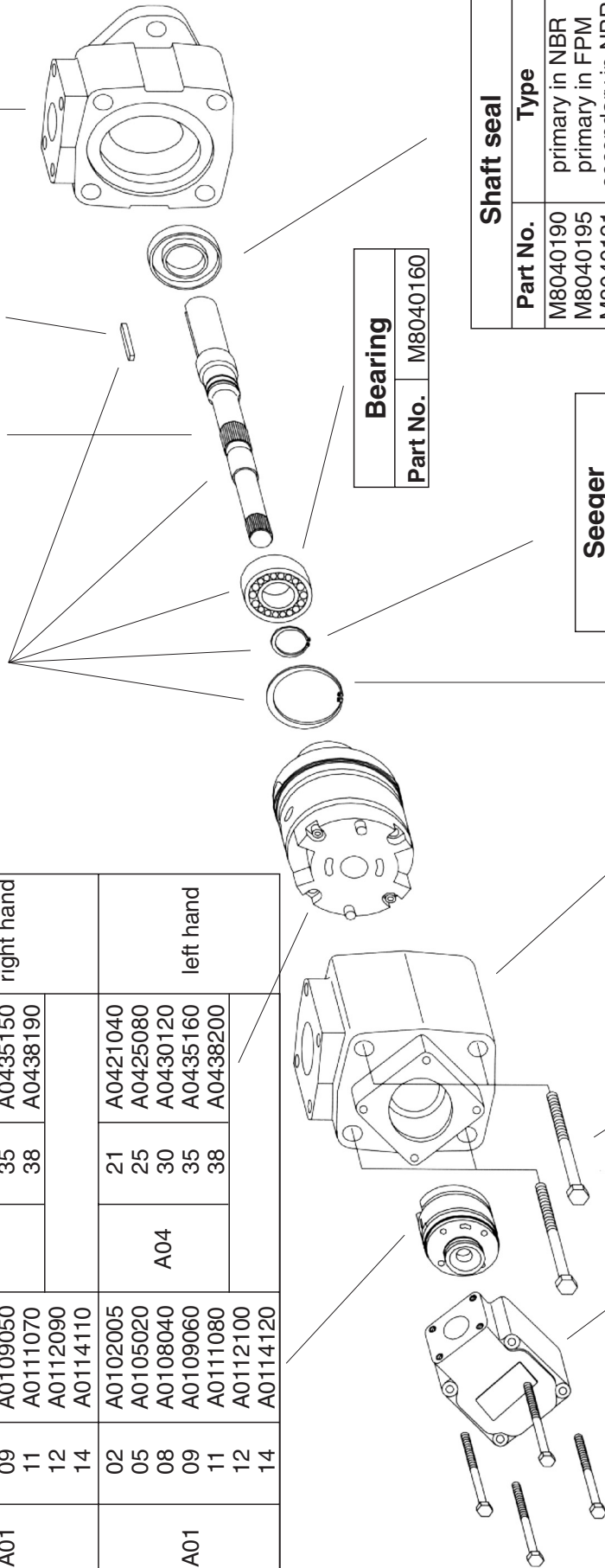
## Id. codes of pump components

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

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

| Shaft |          | Key      |          |
|-------|----------|----------|----------|
| Model | Part No. | Part No. | Part No. |
| 01    | K4101000 | M8040100 |          |
| 11    | K4111000 | -        |          |
| 86    | K4186000 | M8048600 |          |
| 90    | K4190000 | -        |          |

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



| Bearing  |          |
|----------|----------|
| Part No. | 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. | Part No. |
| M8040180 |          |

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

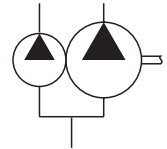
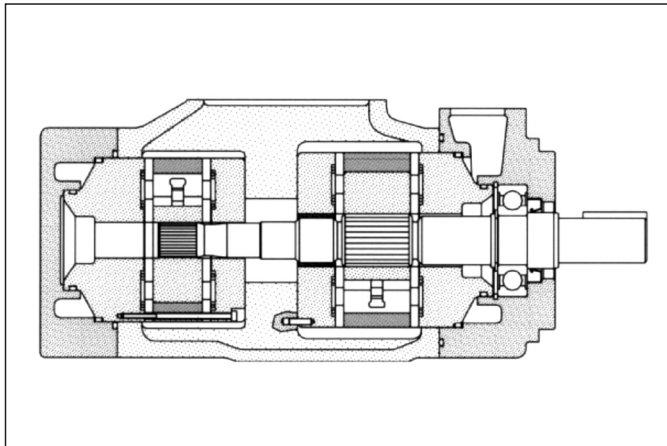
| Cover    |          |
|----------|----------|
| Part No. | Part No. |
| M8020120 |          |

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

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

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

| 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®) |



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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

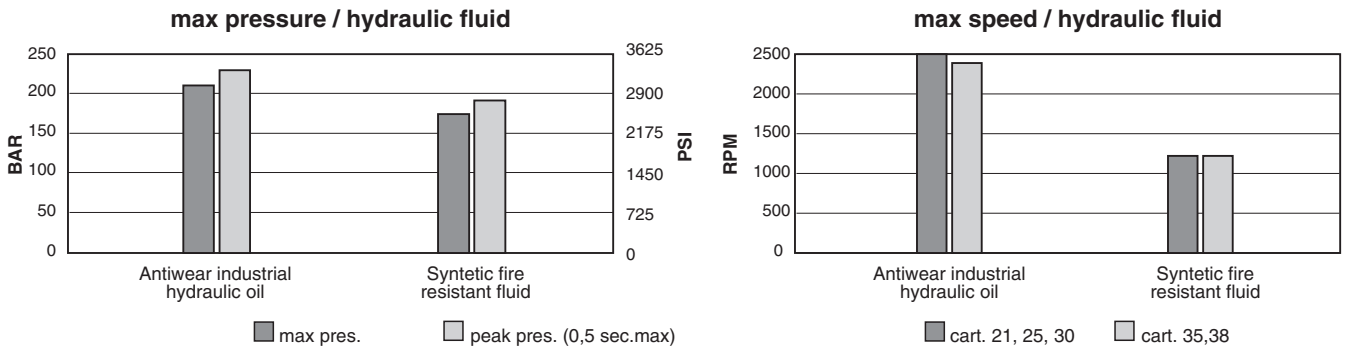
**Filtration:** for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

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

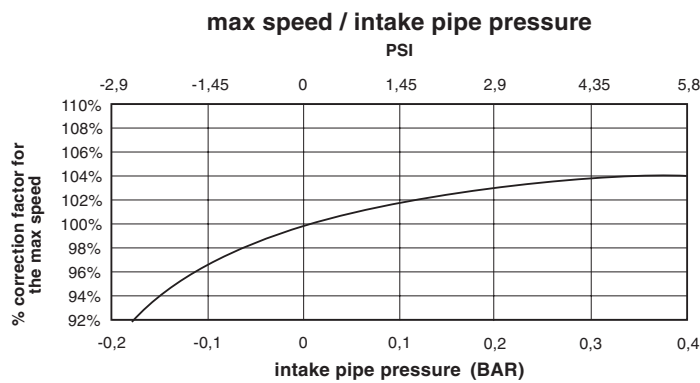
**Operating temperature:** with mineral oil -10°C +70°C (+30°C to +60°C recommended).

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

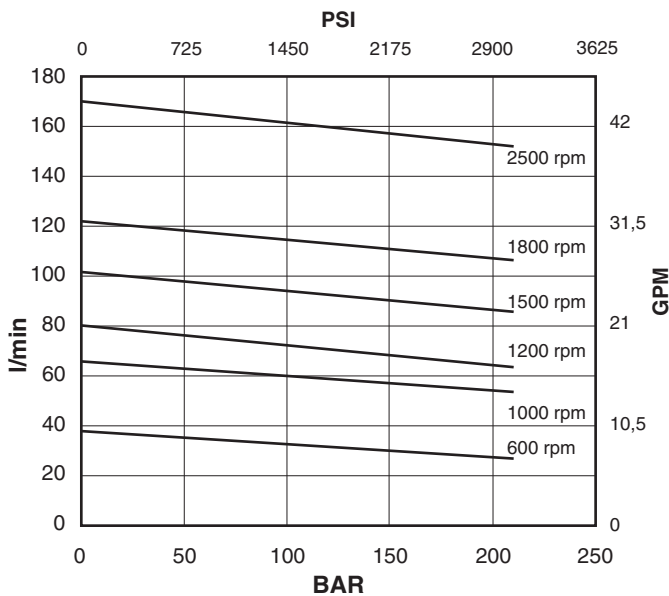
## Main operating data



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

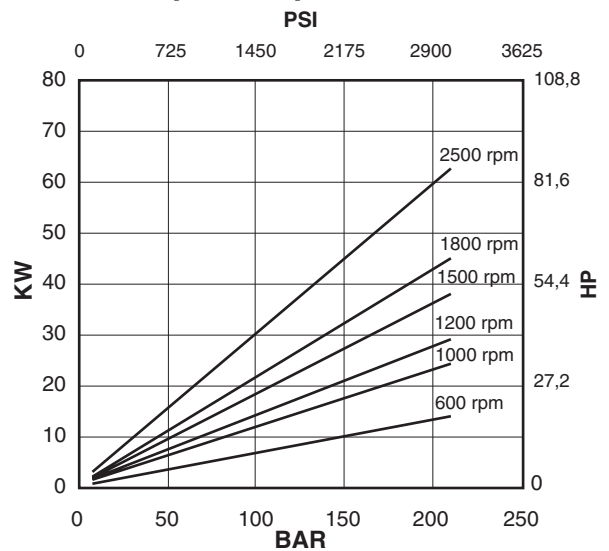


## flow / pressure

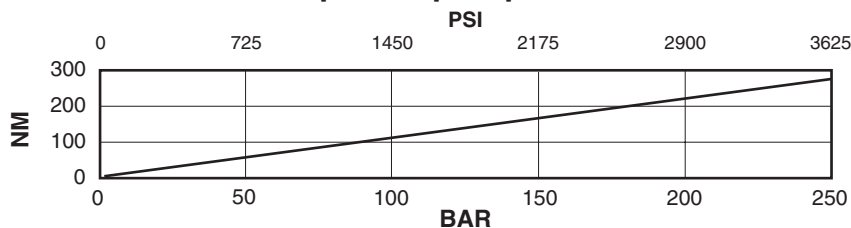


## Shaft end cartridge A04-21

### power / pressure

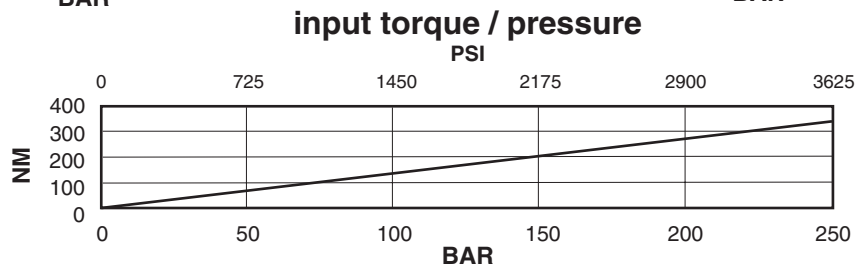
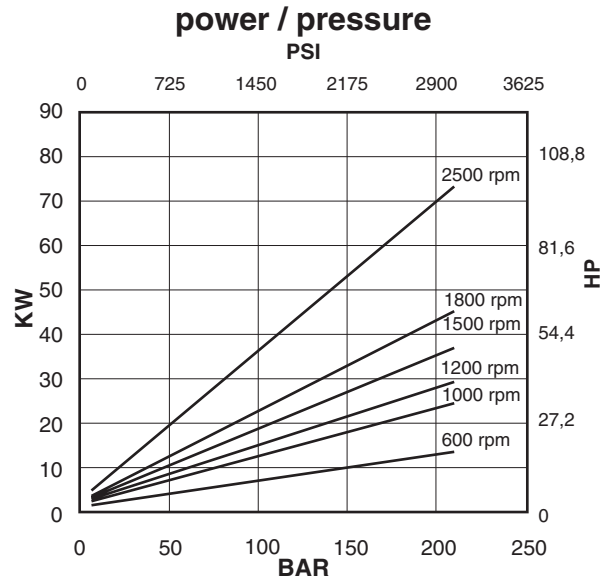
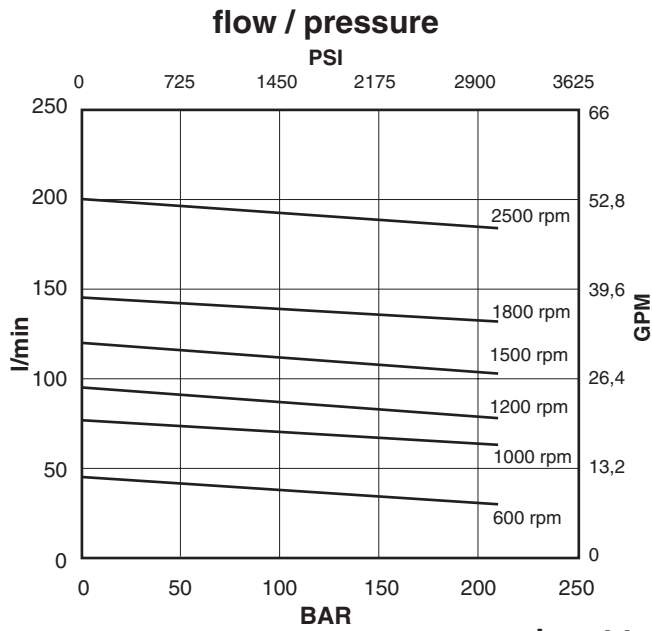


### input torque / pressure



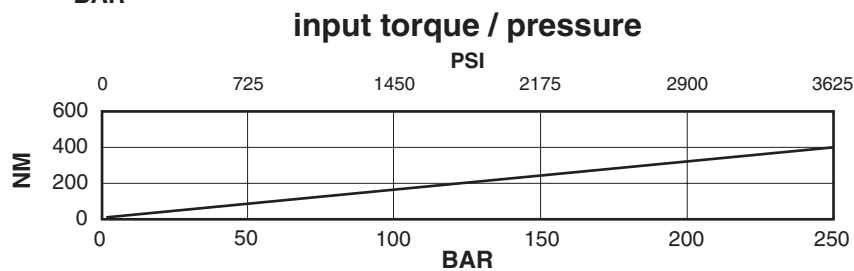
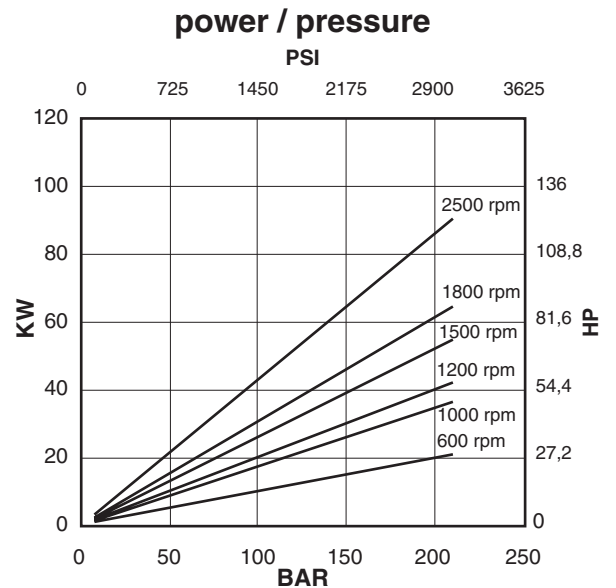
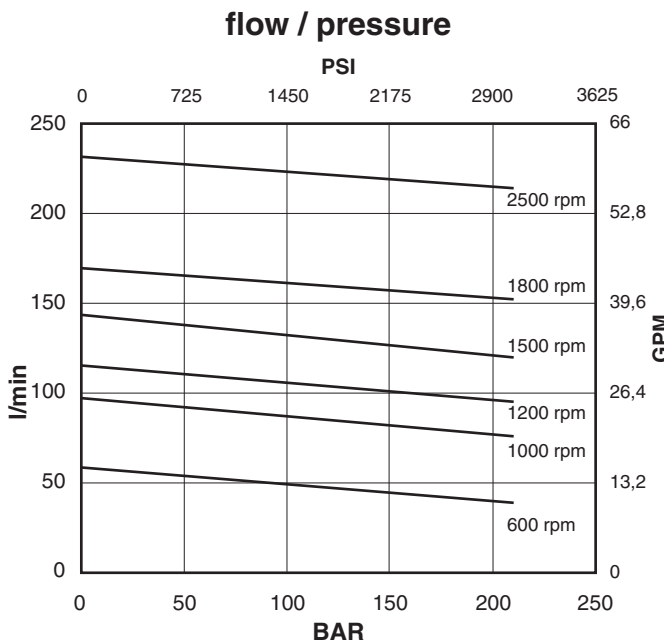
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-25



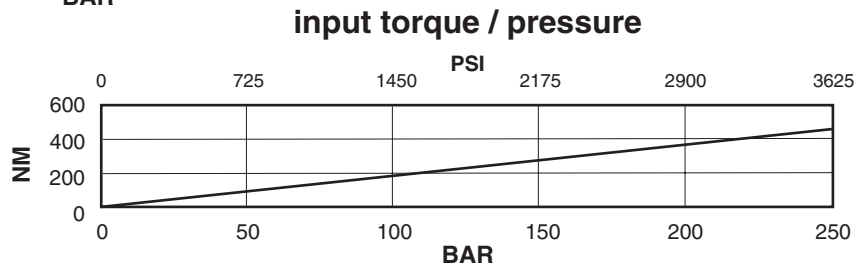
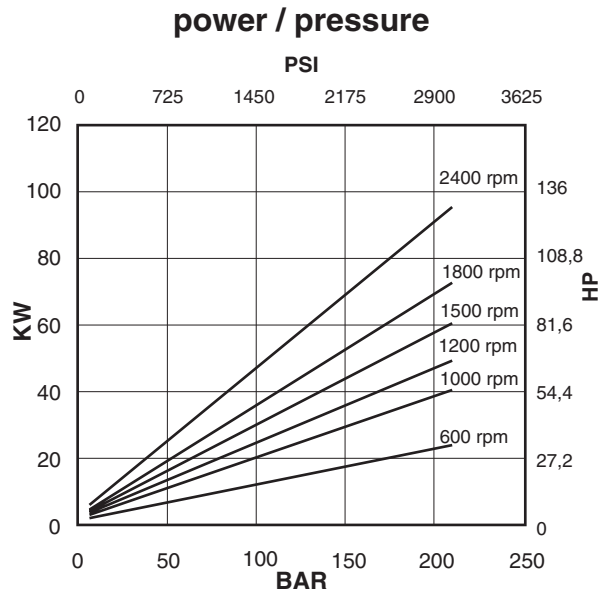
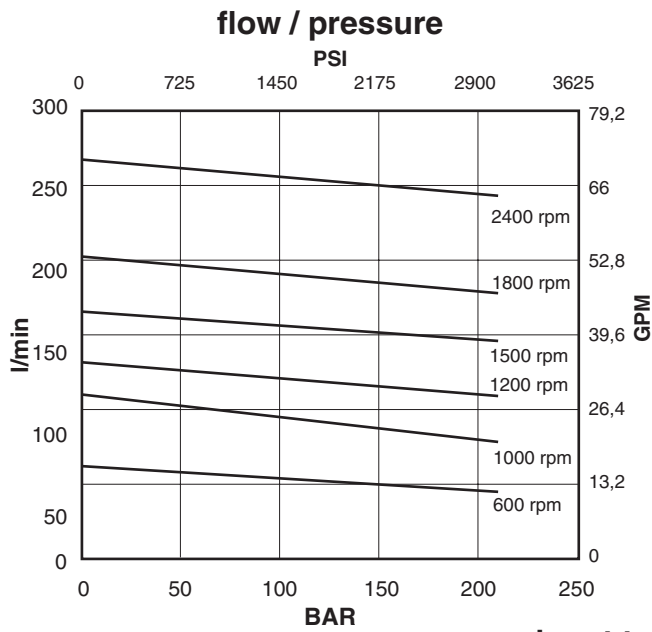
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-30



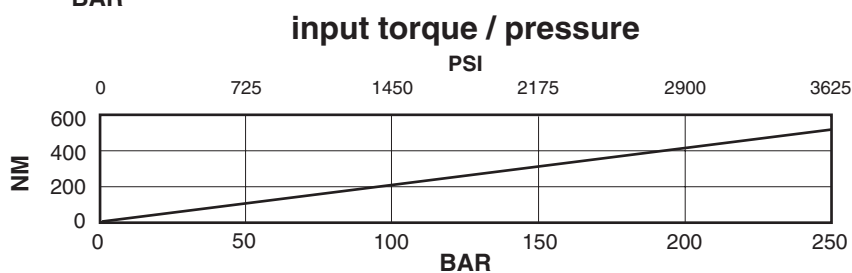
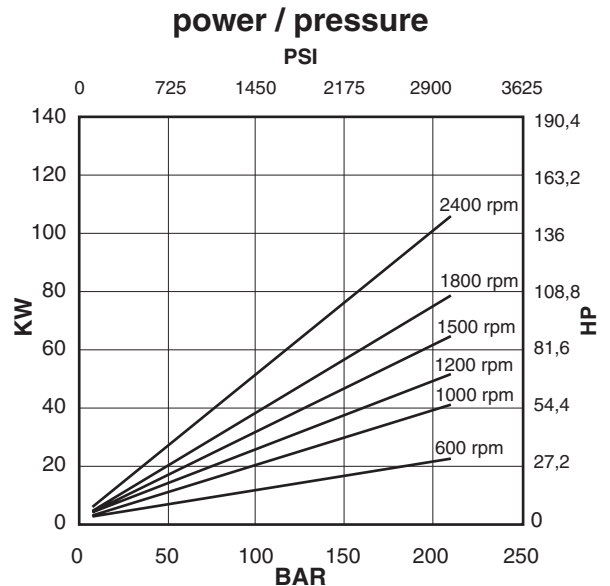
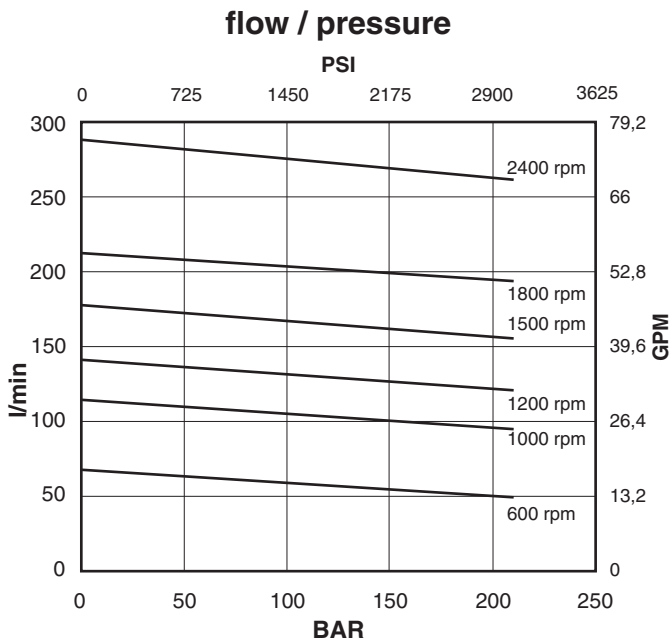
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-35



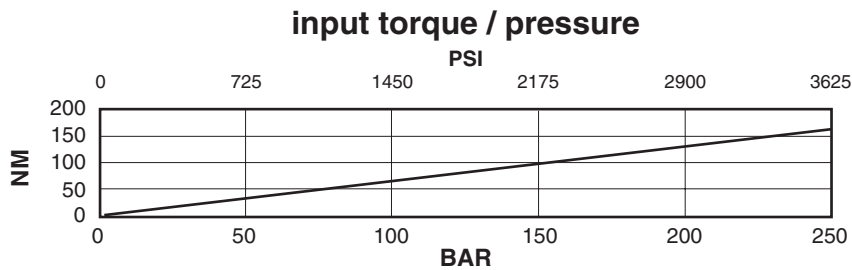
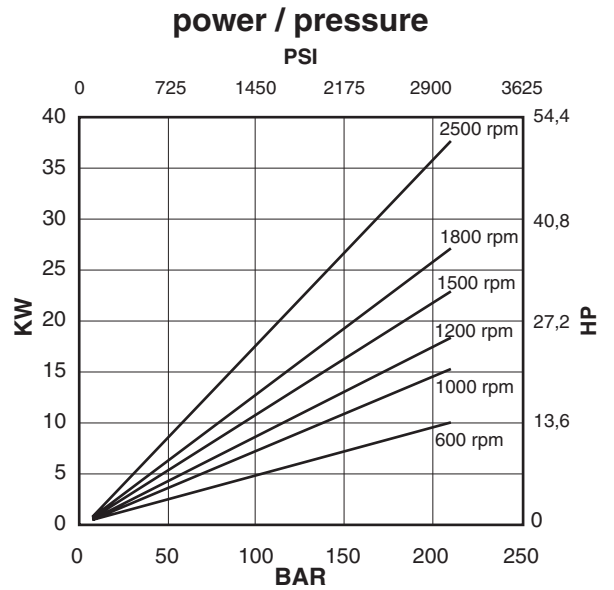
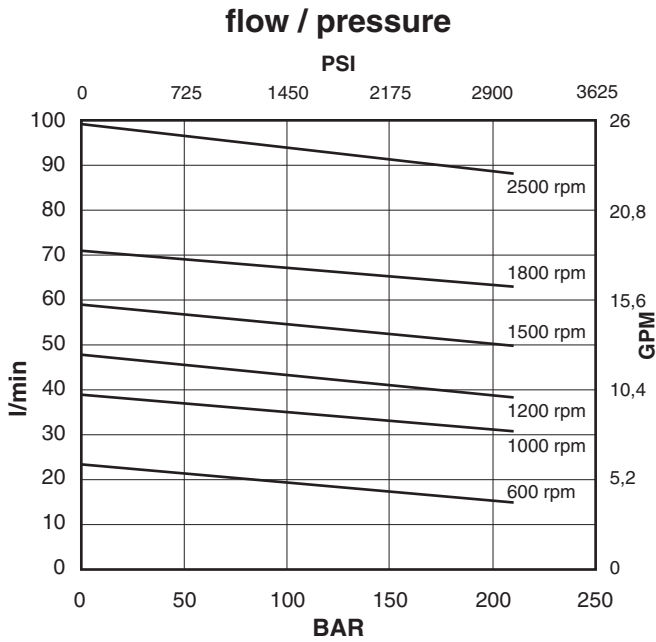
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A04-38



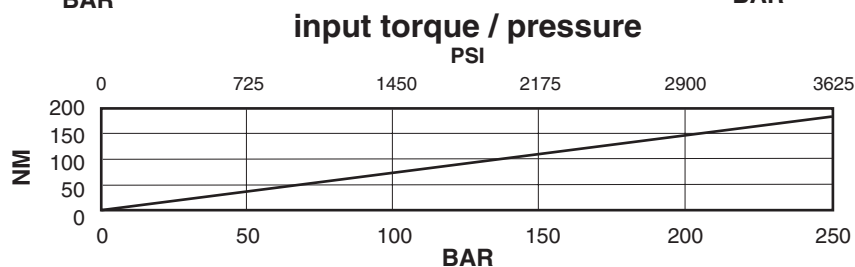
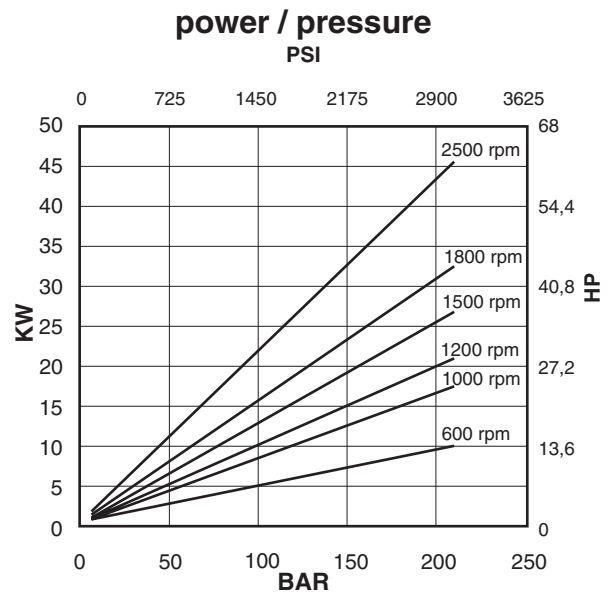
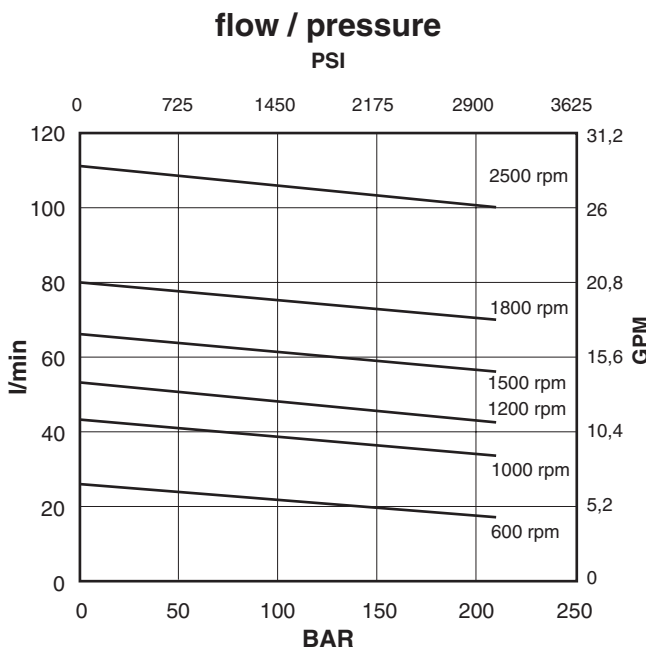
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-12



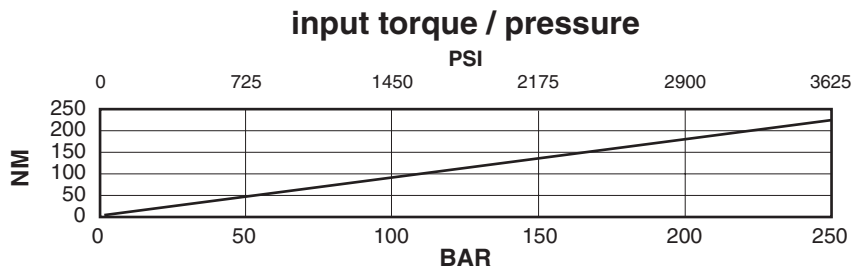
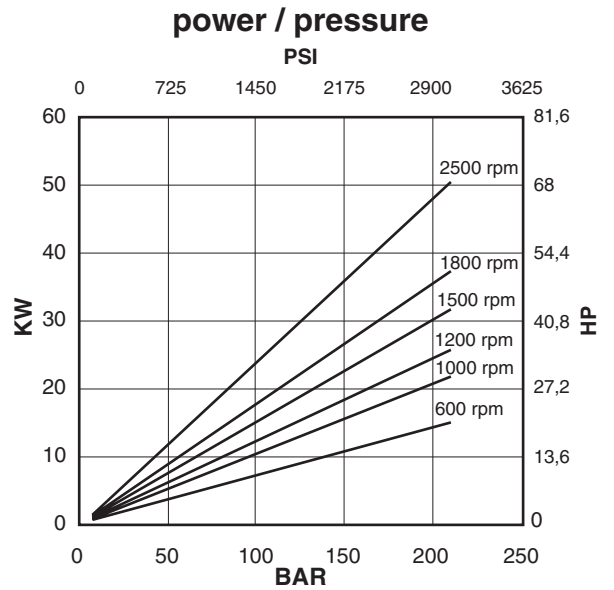
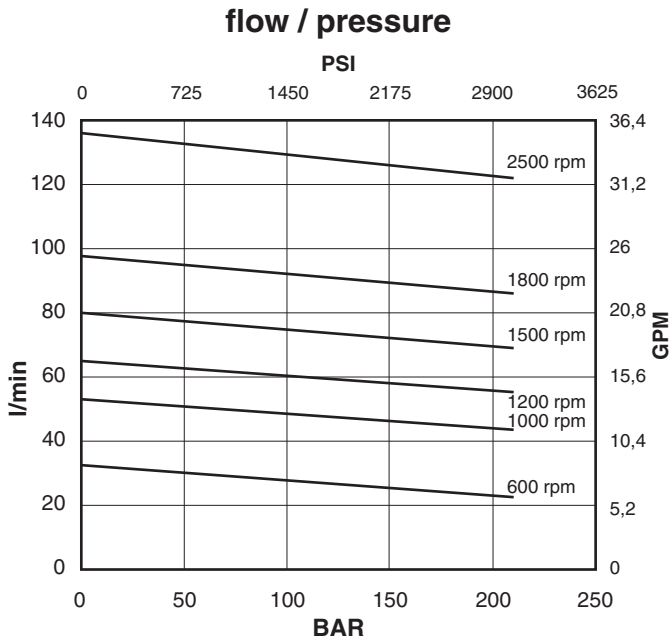
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-14



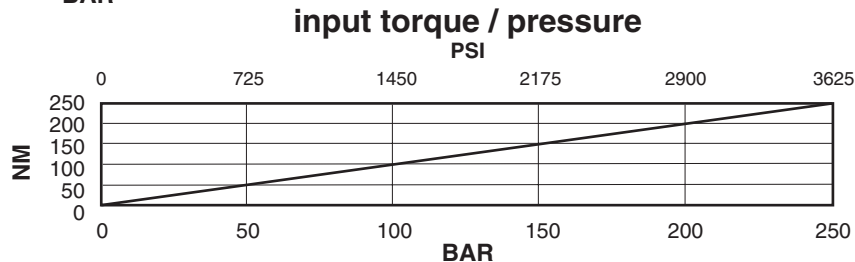
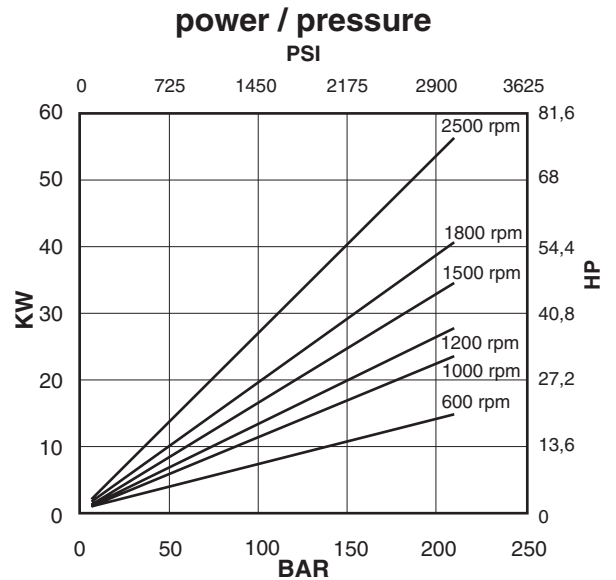
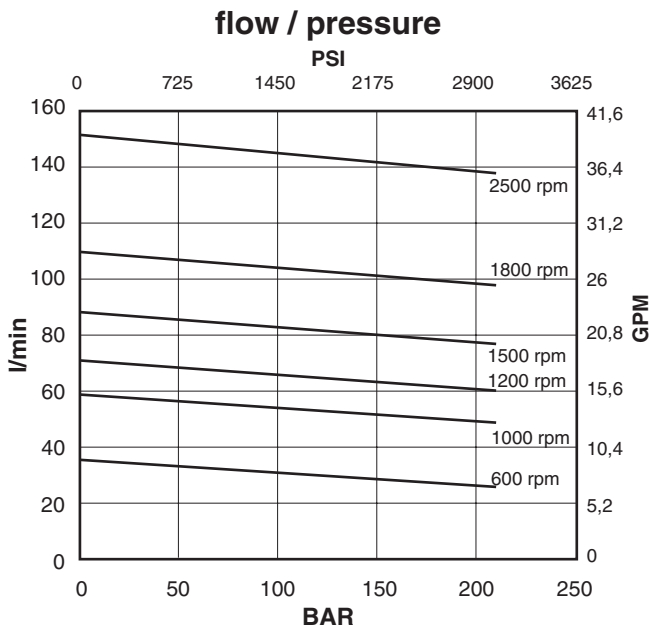
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-17



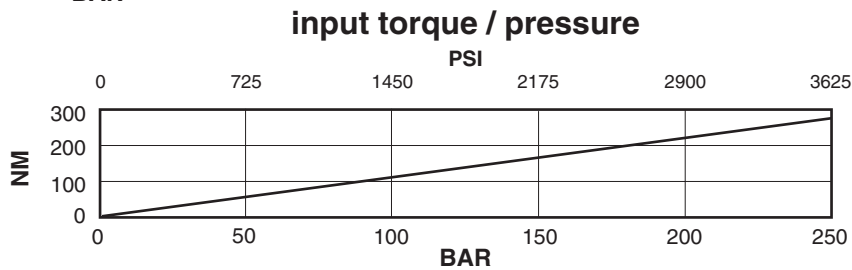
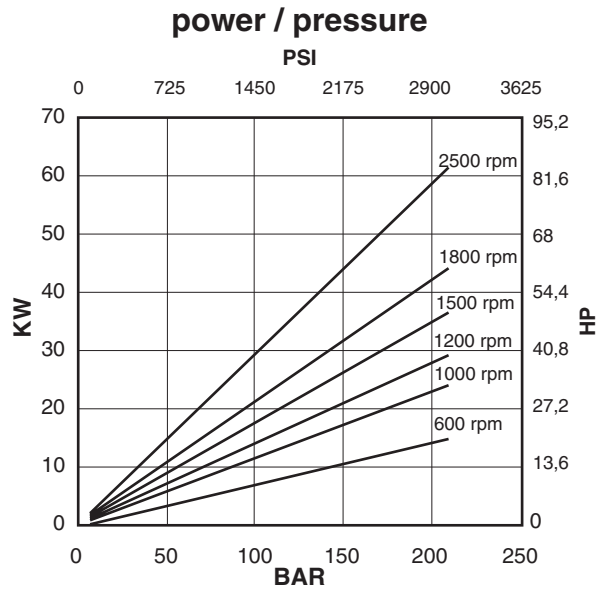
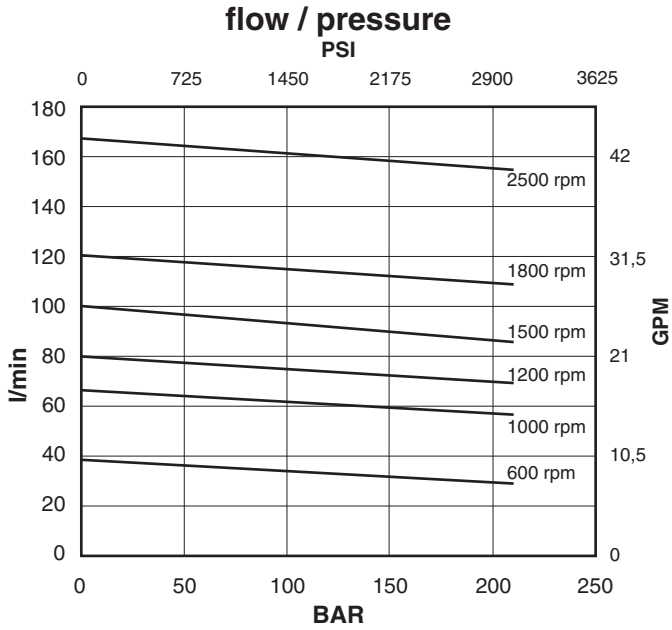
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-19



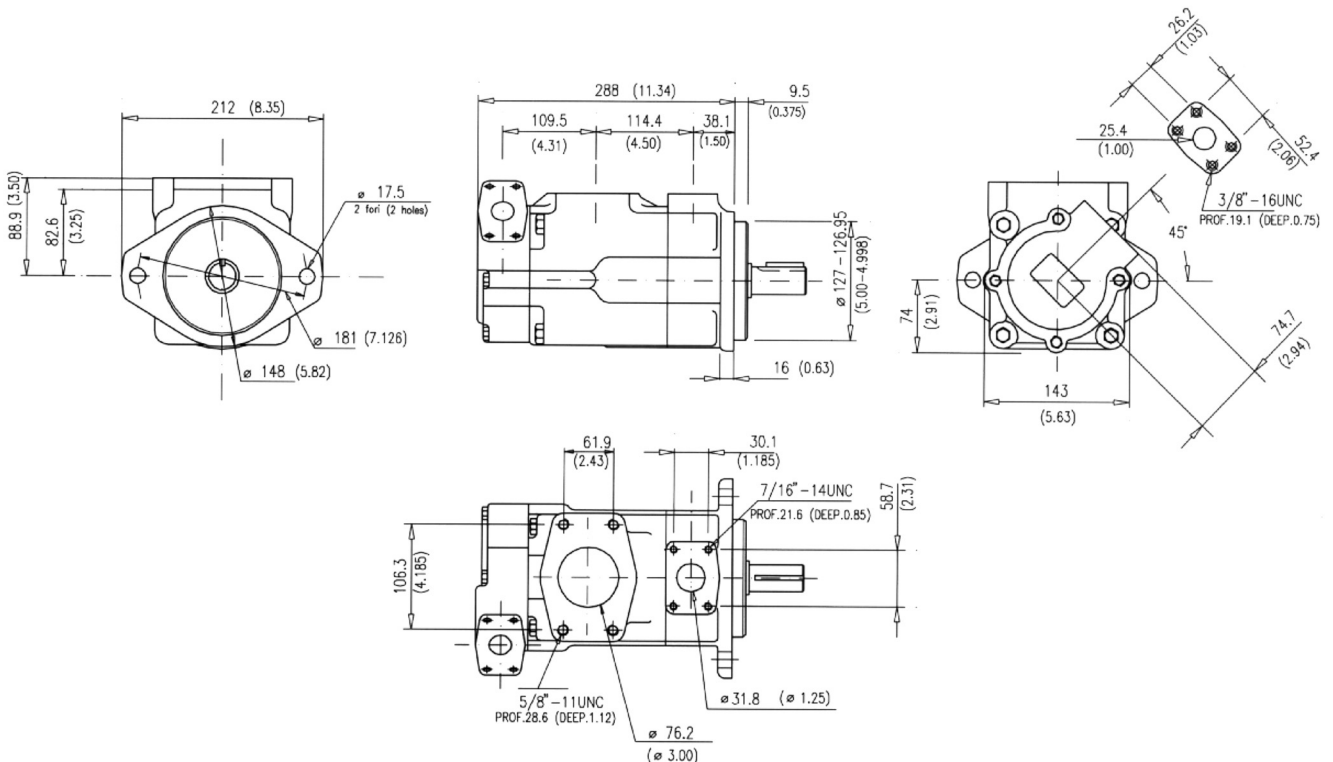
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-21



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

## Installation dimensions mm (inches)



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



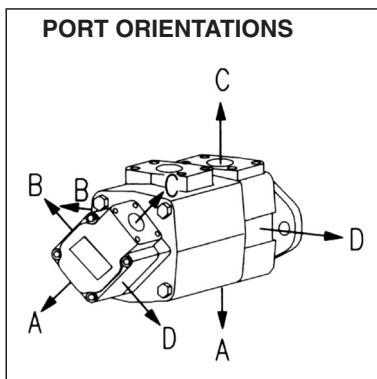
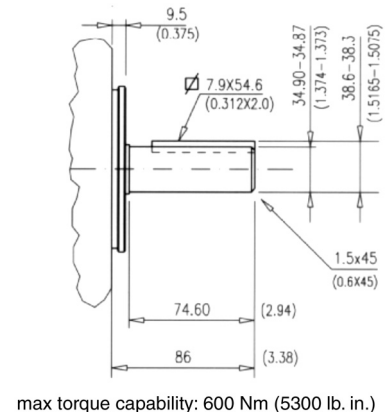
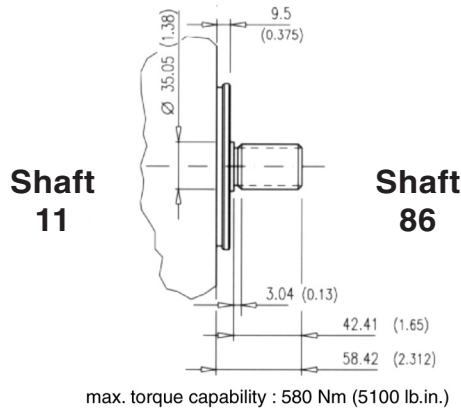
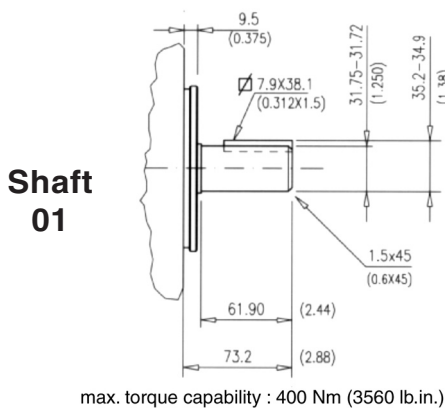
## Model code breakdown

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

### Shaft end options

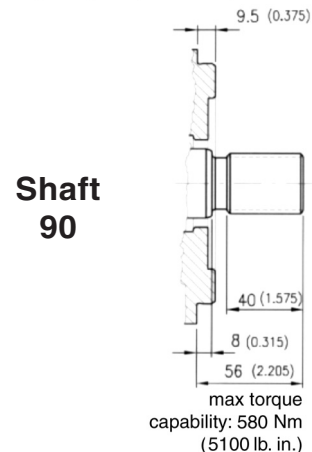
**01** = Straight with key (standard), **11** = Splined  
**86** = Heavy duty straight keyed, **90** = Splined SAE C

## Shaft options mm (inches)



**Spline data**  
(Shaft 11 and shaft 90)

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



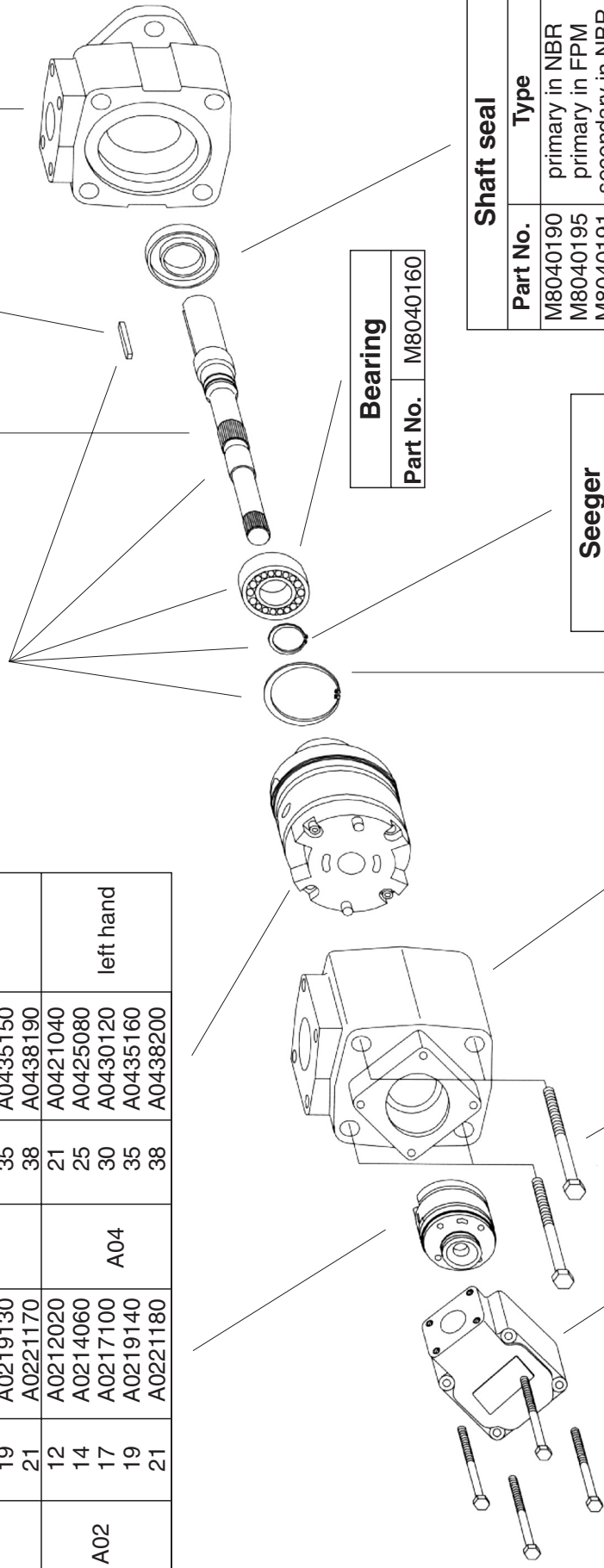
## Id. codes of pump components

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

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

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

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



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

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

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

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

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

| Screw    |          |
|----------|----------|
| Part No. | Part No. |
| M8040230 |          |

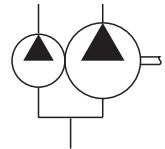
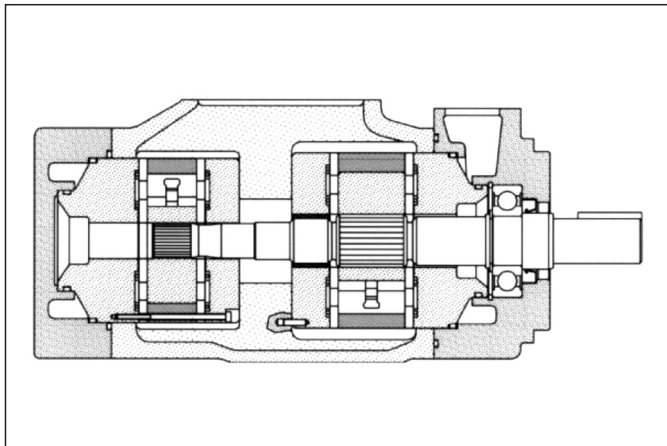
Torque to 102 Nm (910 lb. in.)

| Screw    |          |
|----------|----------|
| Part No. | Part No. |
| M8040220 |          |

Torque to 225 Nm (2010 lb. in.)

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

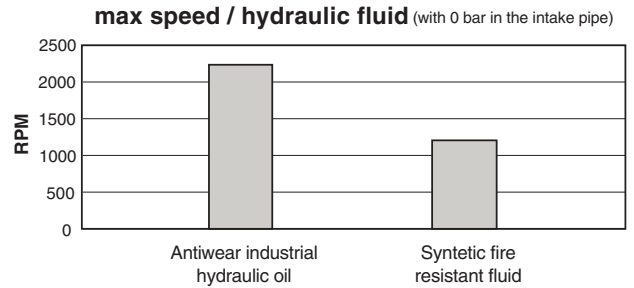
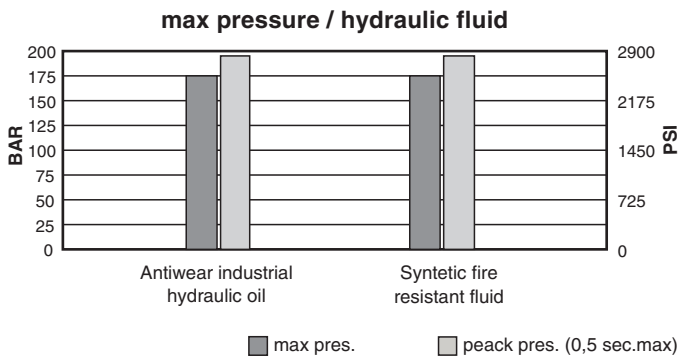
**Filtration:** for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

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

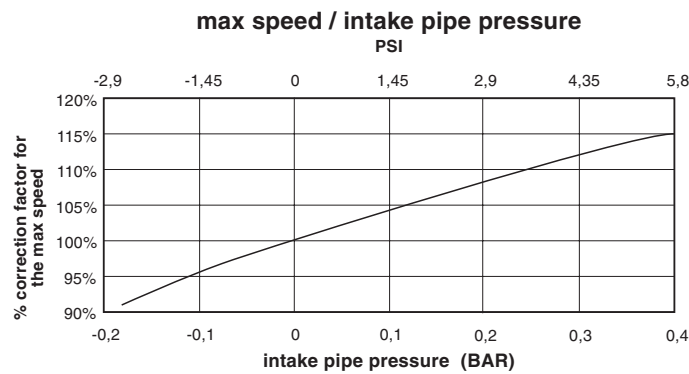
**Operating temperature:** with mineral oil -10°C +70°C (+30°C to +60°C recommended).

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

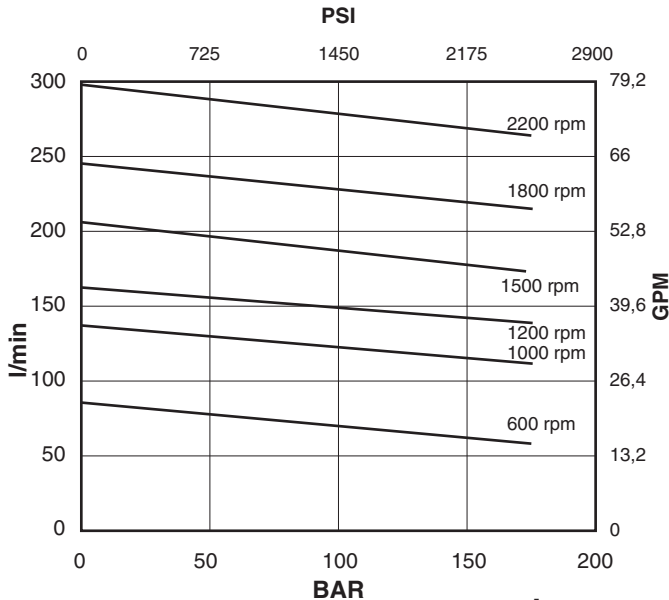
## Main operating data



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

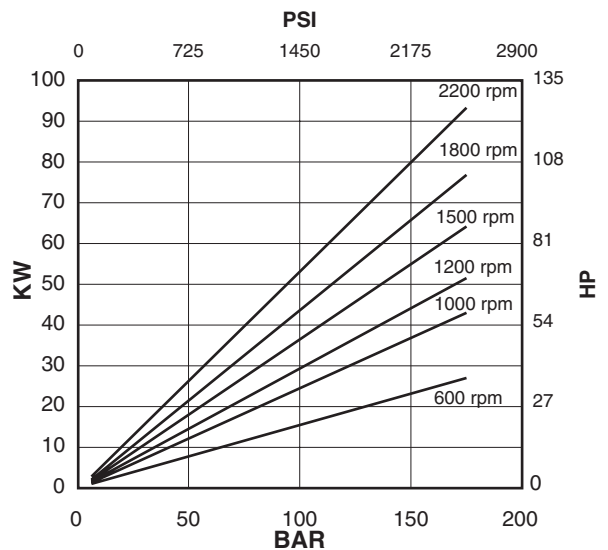


## flow / pressure

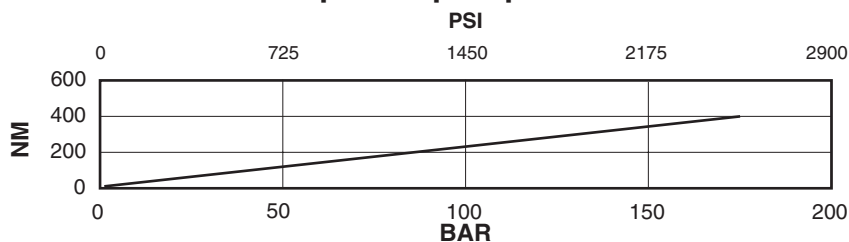


## Shaft end cartridge A05-42

### power / pressure

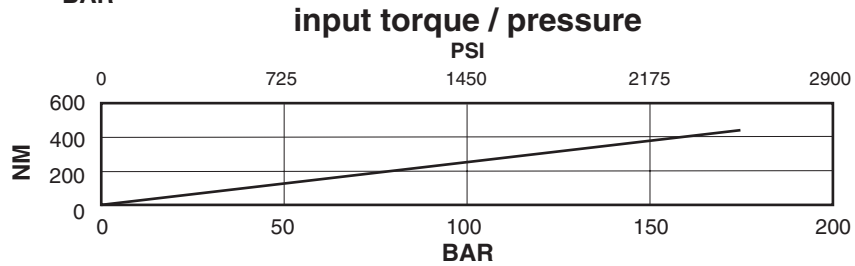
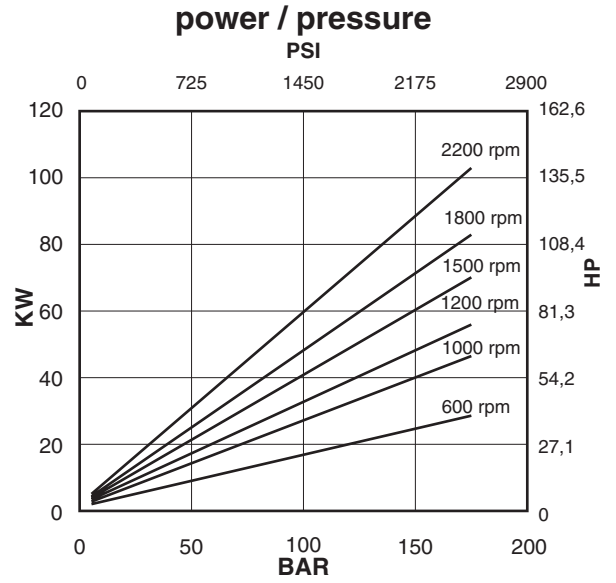
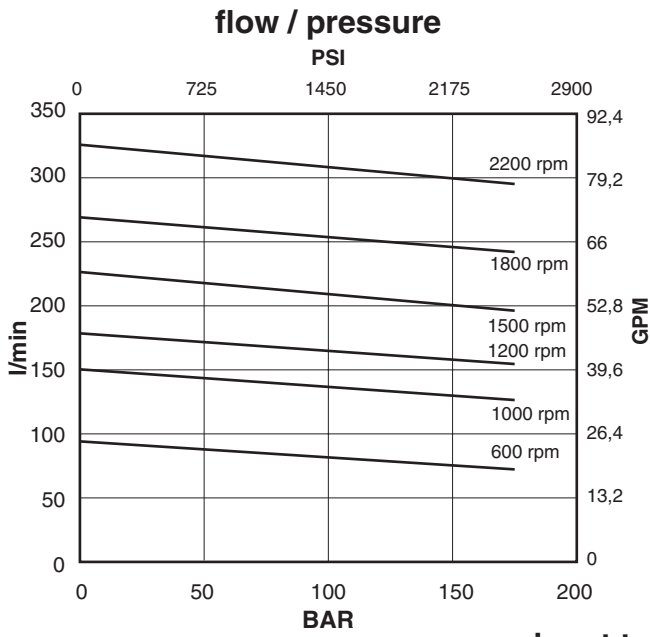


### input torque / pressure



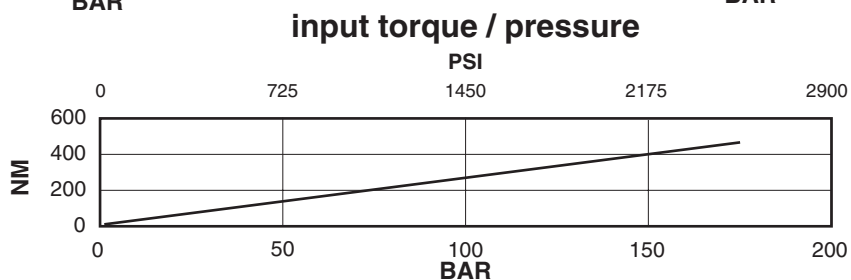
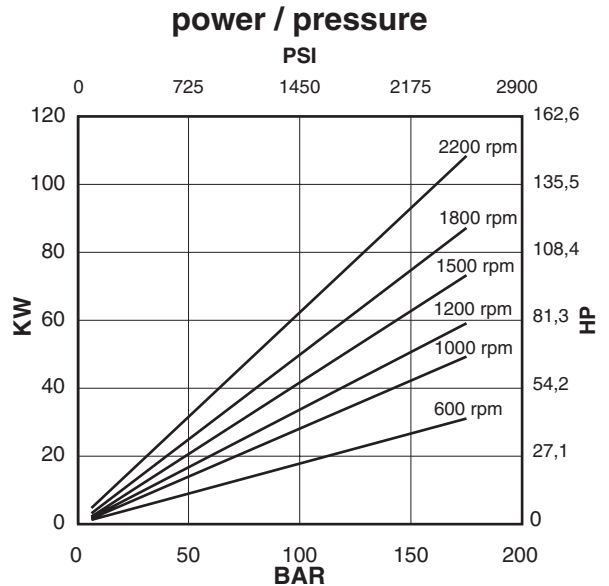
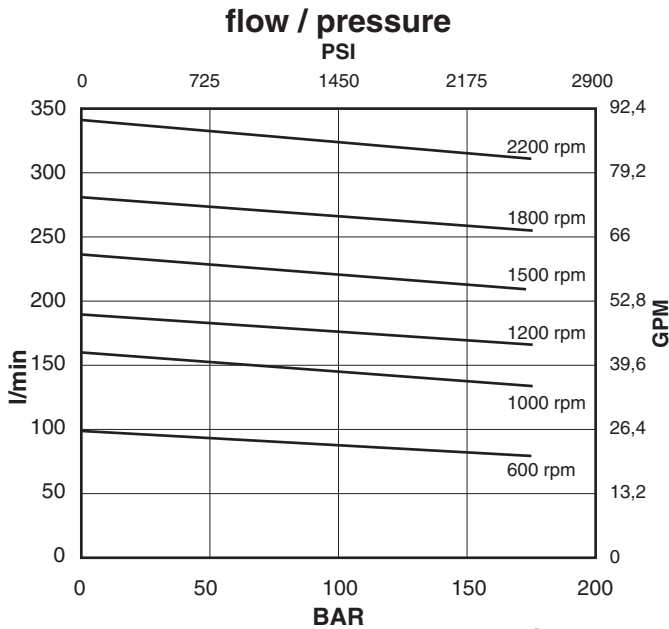
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-47



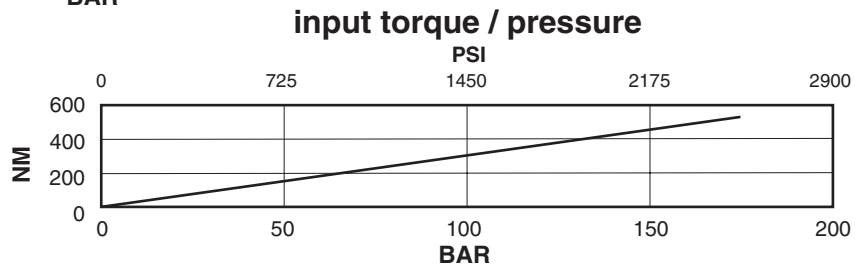
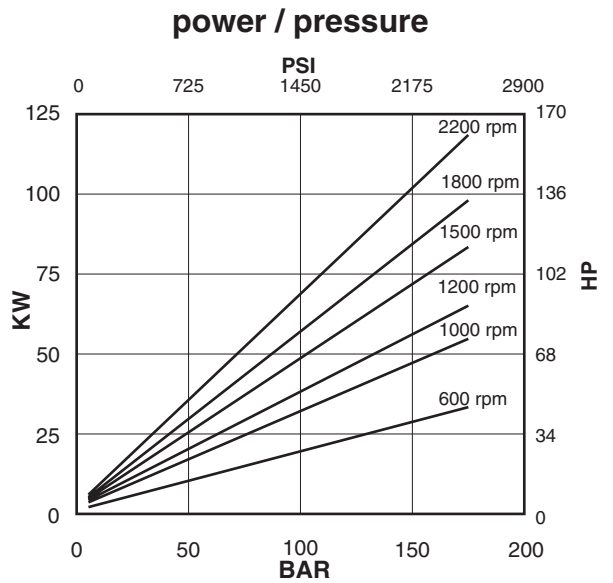
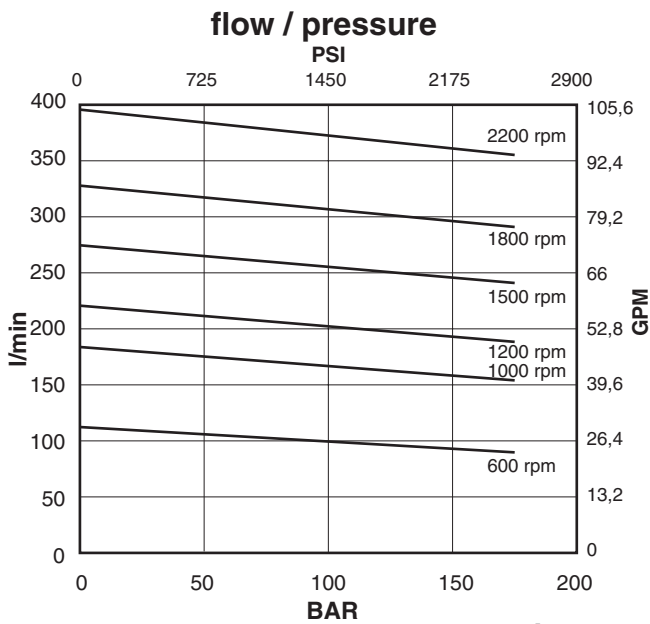
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-50



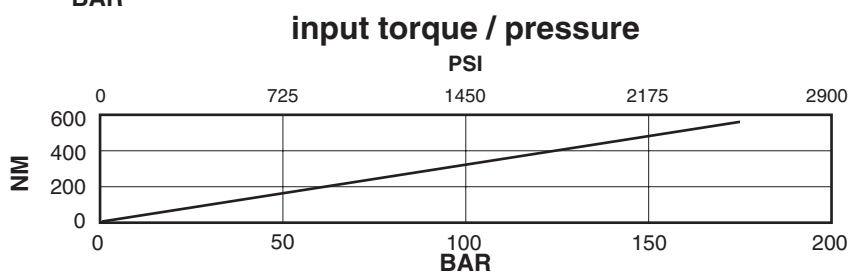
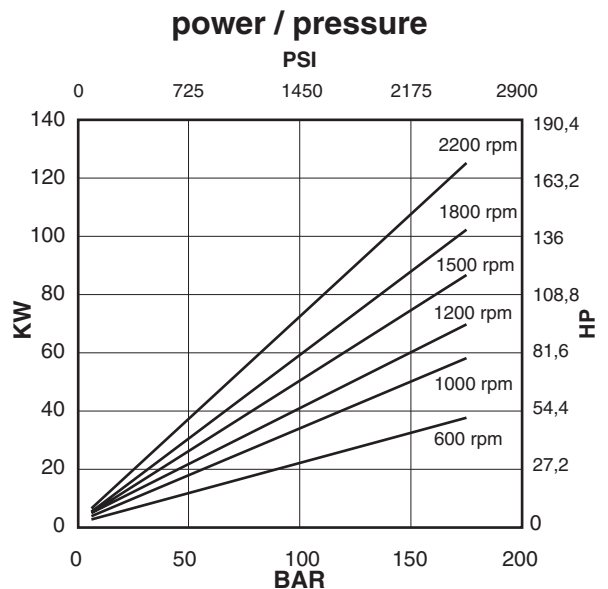
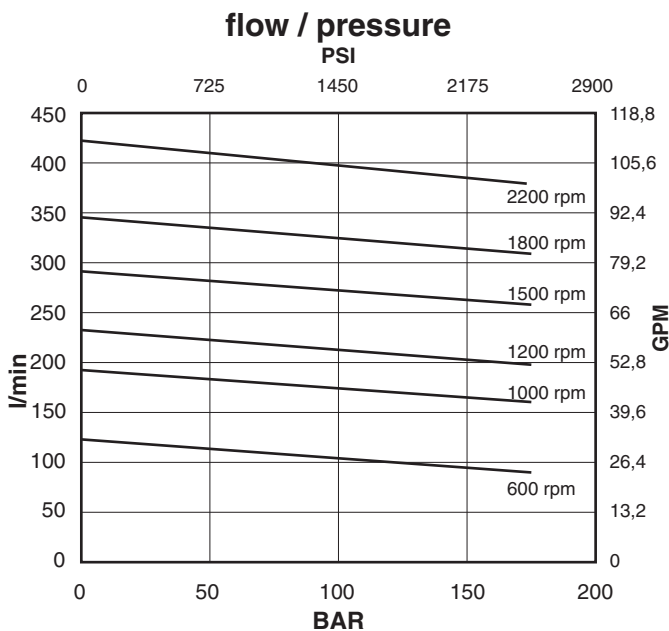
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-57

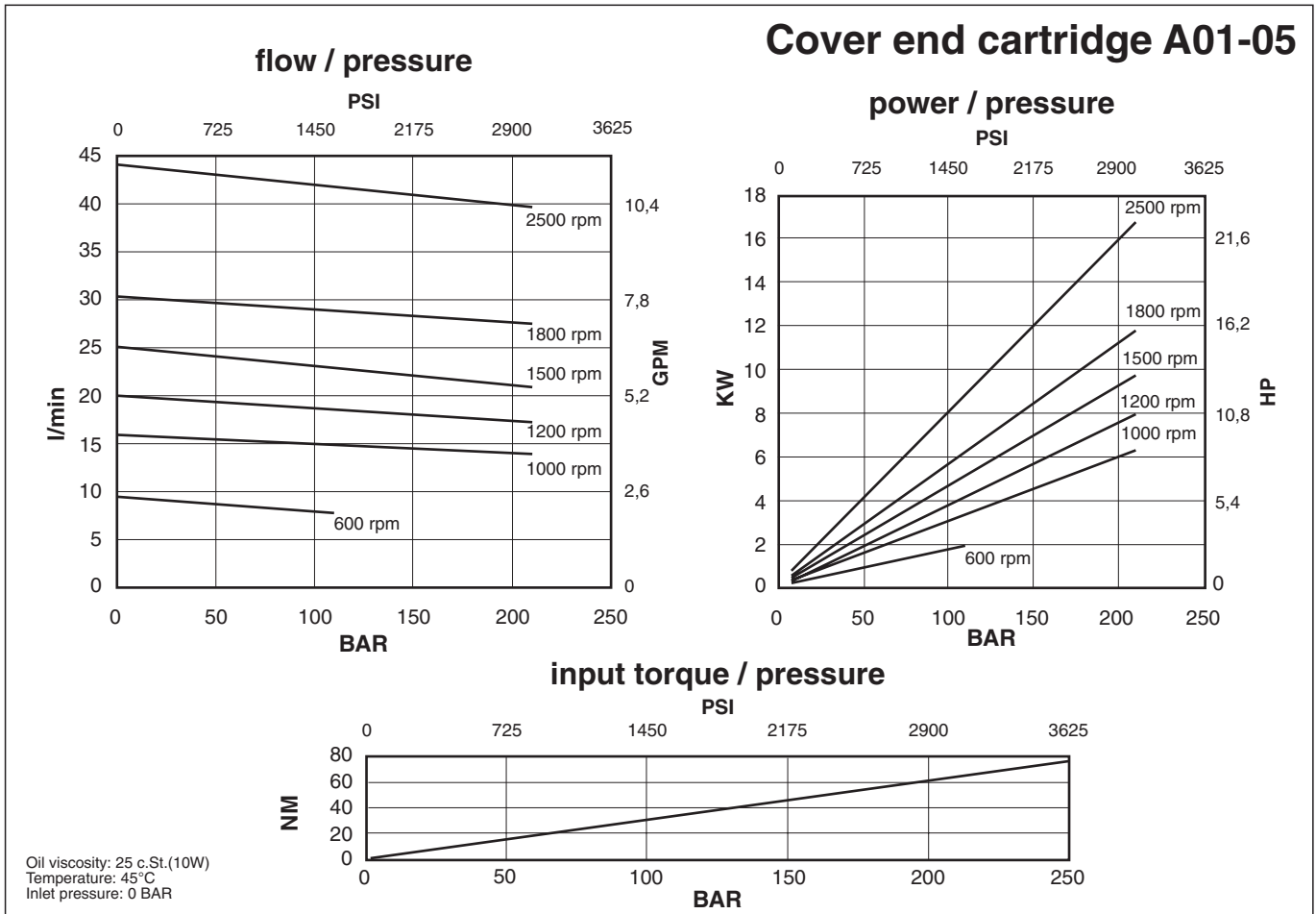
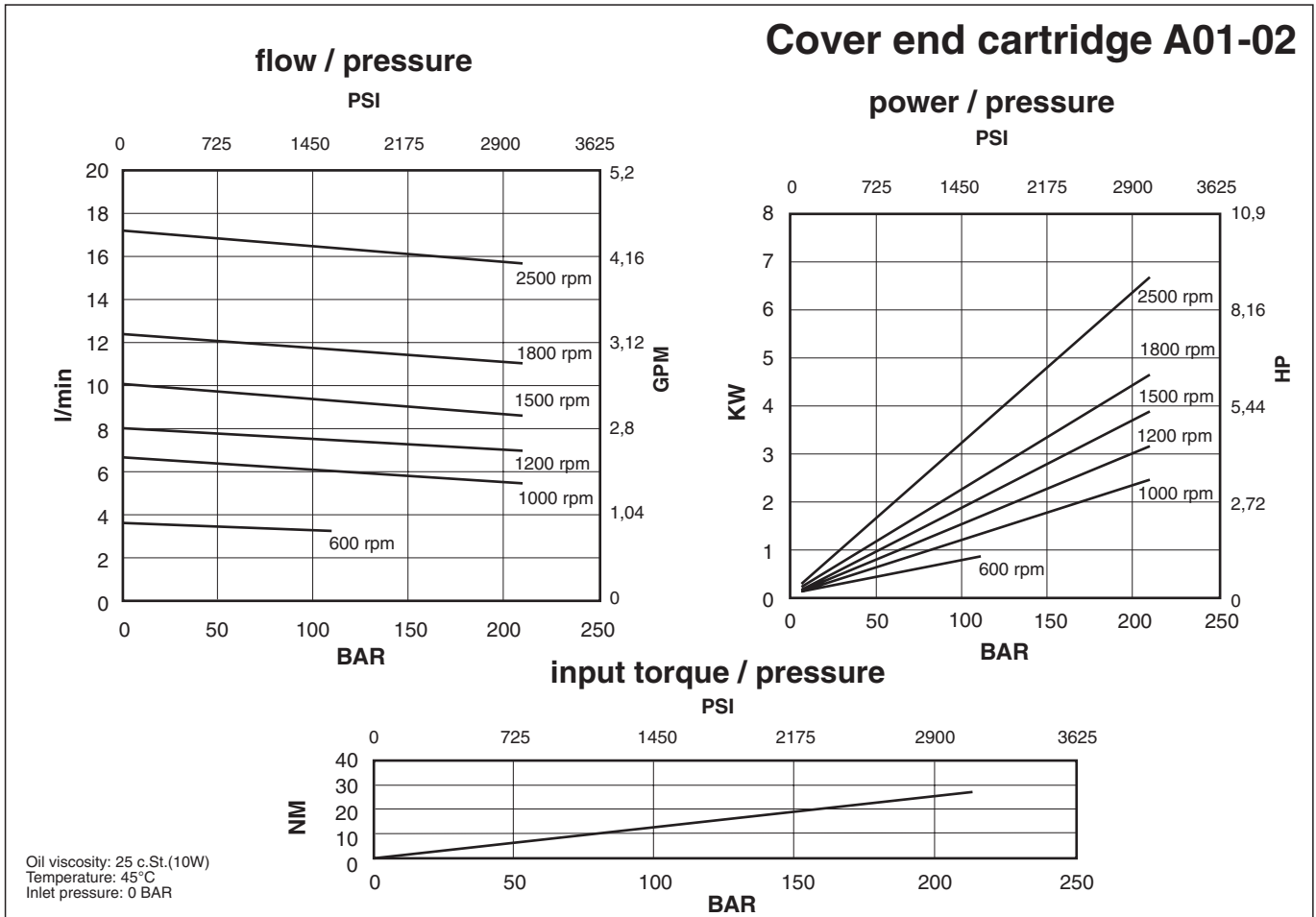


Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

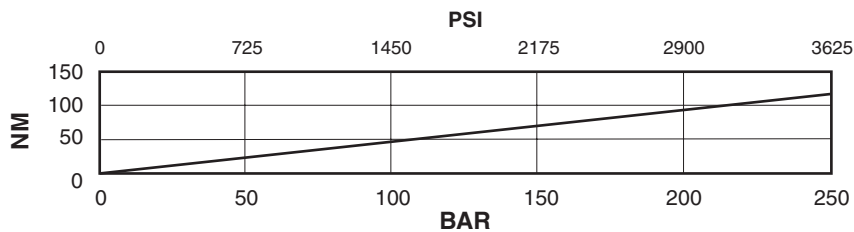
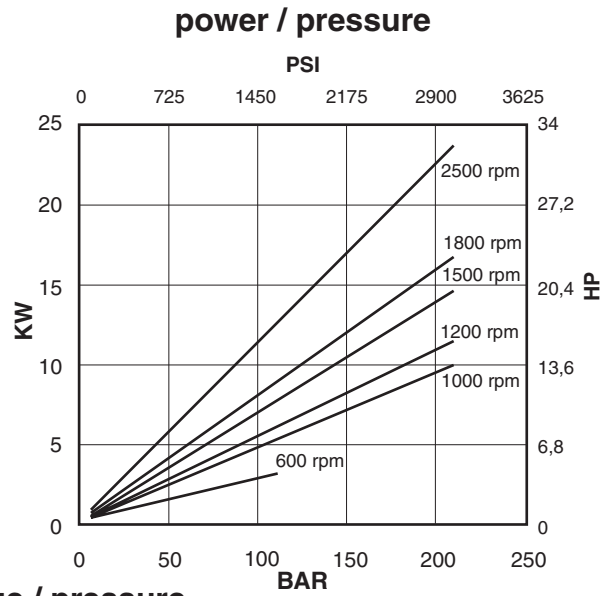
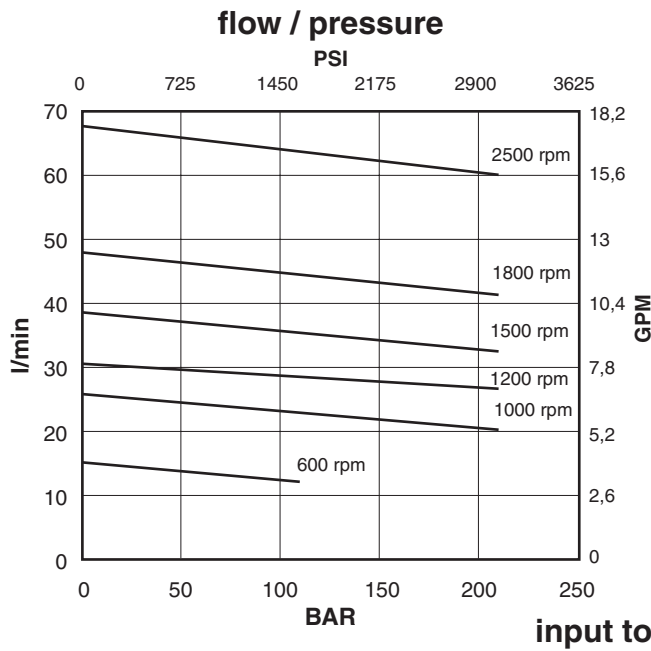
## Shaft end cartridge A05-60



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

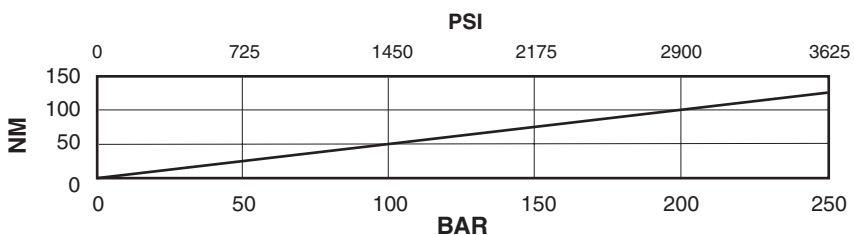
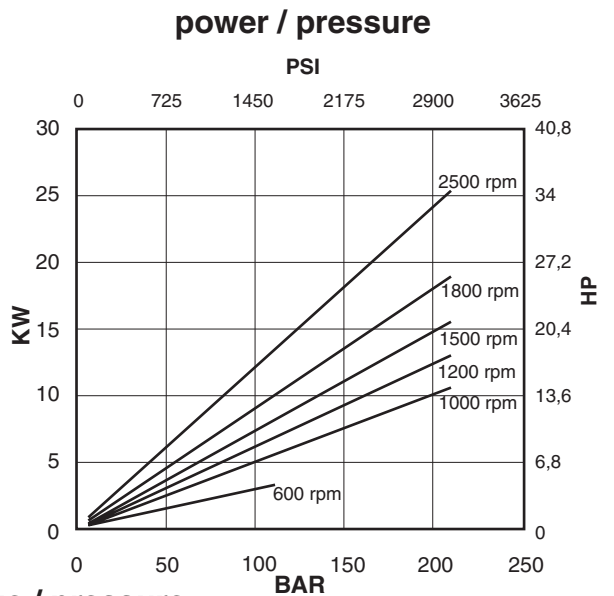
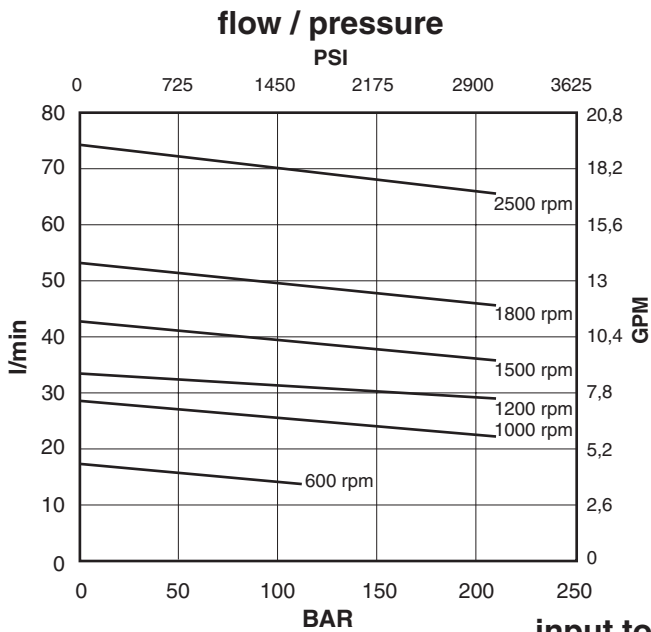


## Cover end cartridge A01-08



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

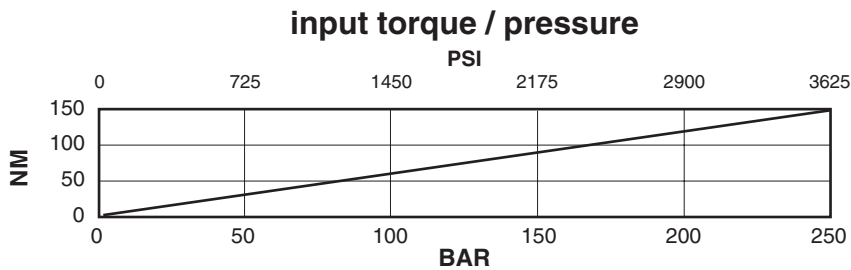
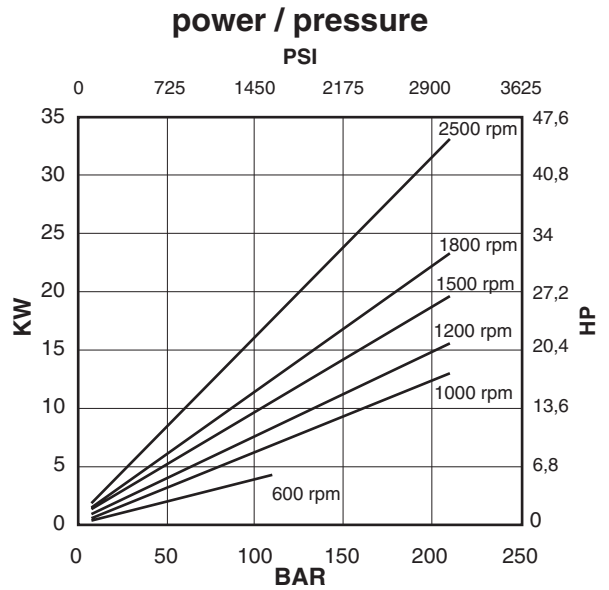
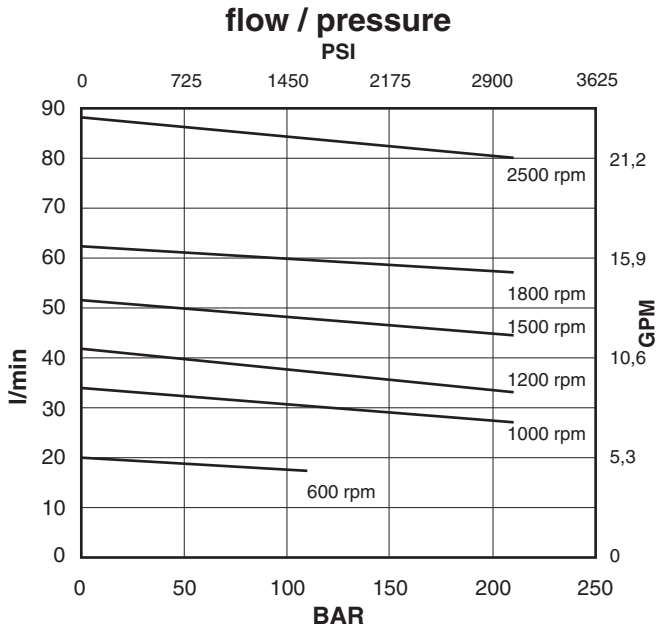
## Cover end cartridge A01-09



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

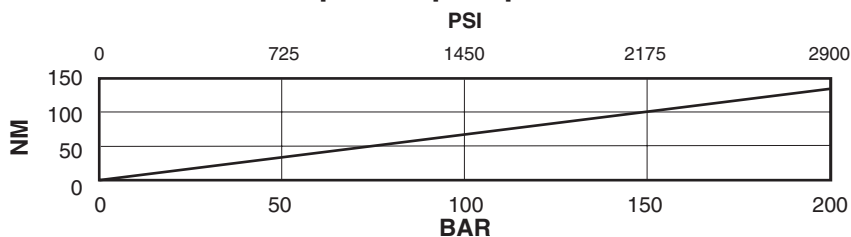
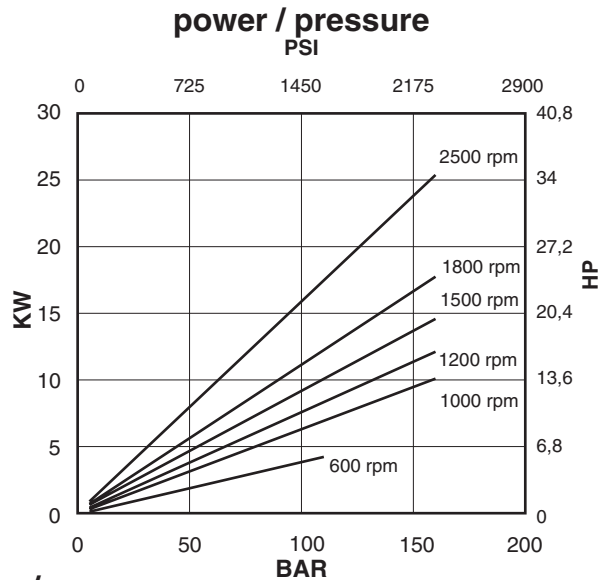
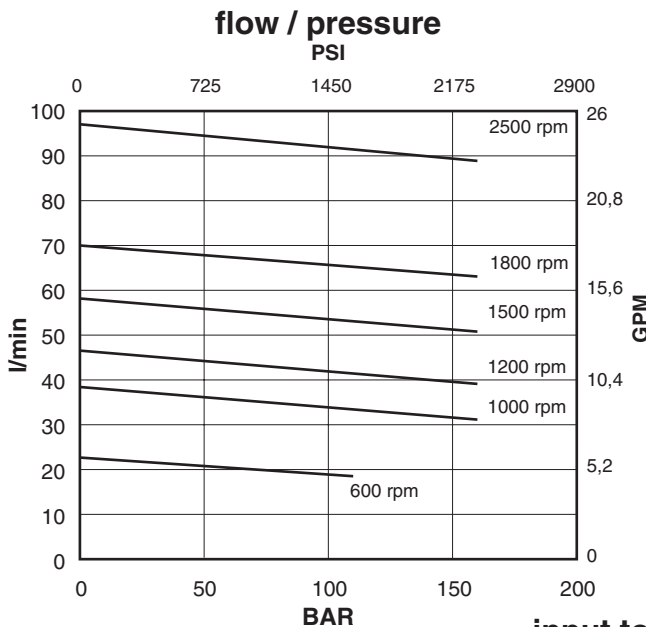


## Cover end cartridge A01-11



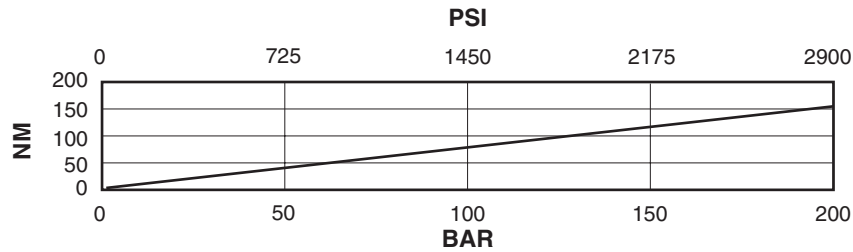
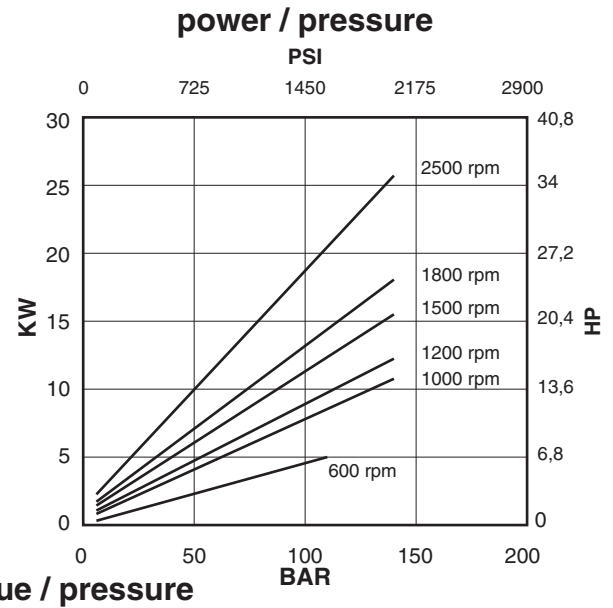
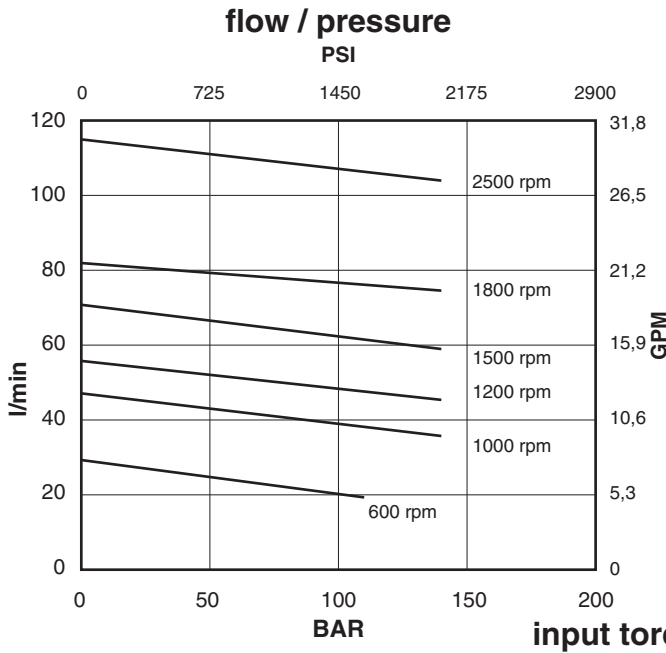
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-12



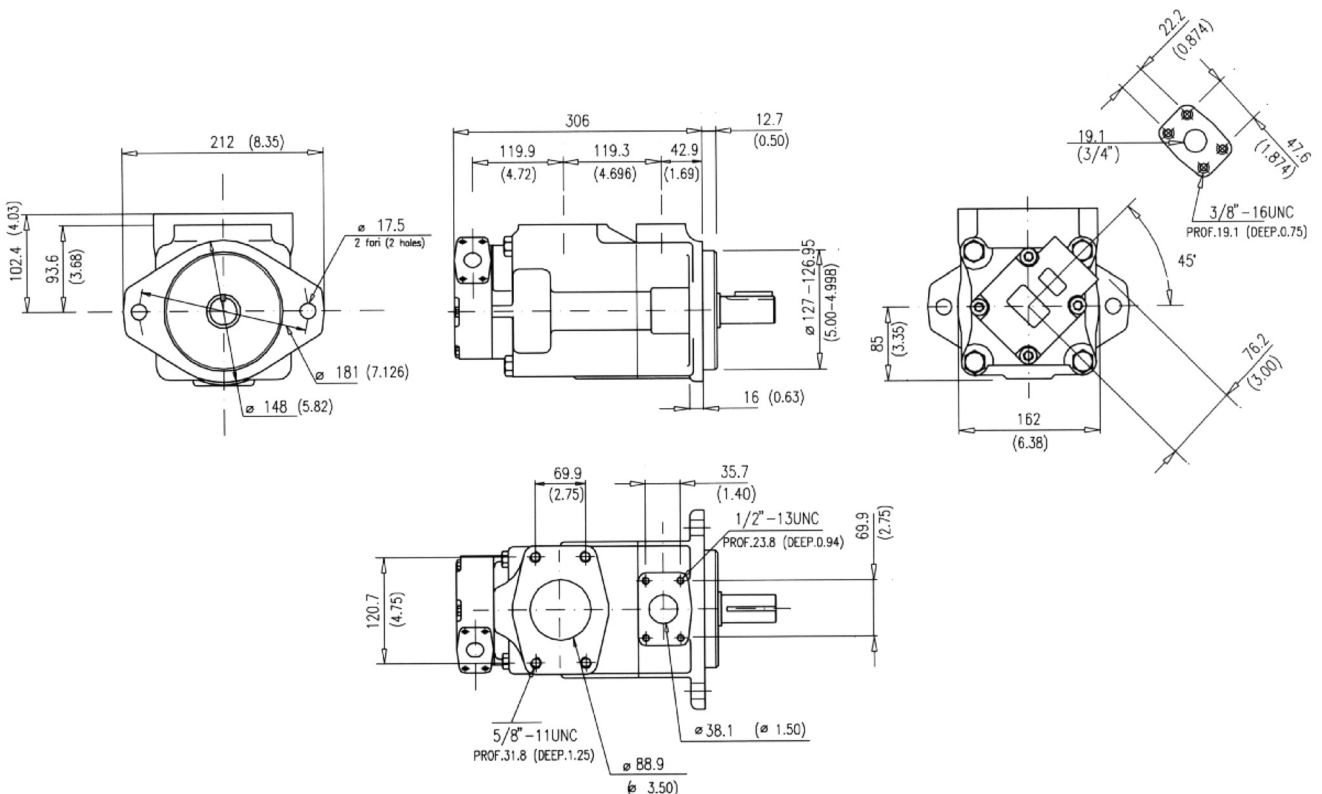
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A01-14



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

## Installation dimensions mm (inches)



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

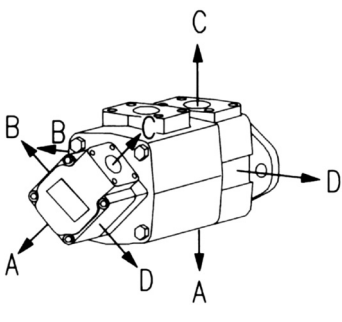
## Model code breakdown

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

## Shaft options mm (inches)

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

### PORT ORIENTATIONS



|                         |                               |
|-------------------------|-------------------------------|
| <b>Spline data</b>      |                               |
| (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) |

|  |
|--|
| <br><b>Shaft 90</b><br>max. torque capability : 820 Nm (7200 lb.in.) |
|--|

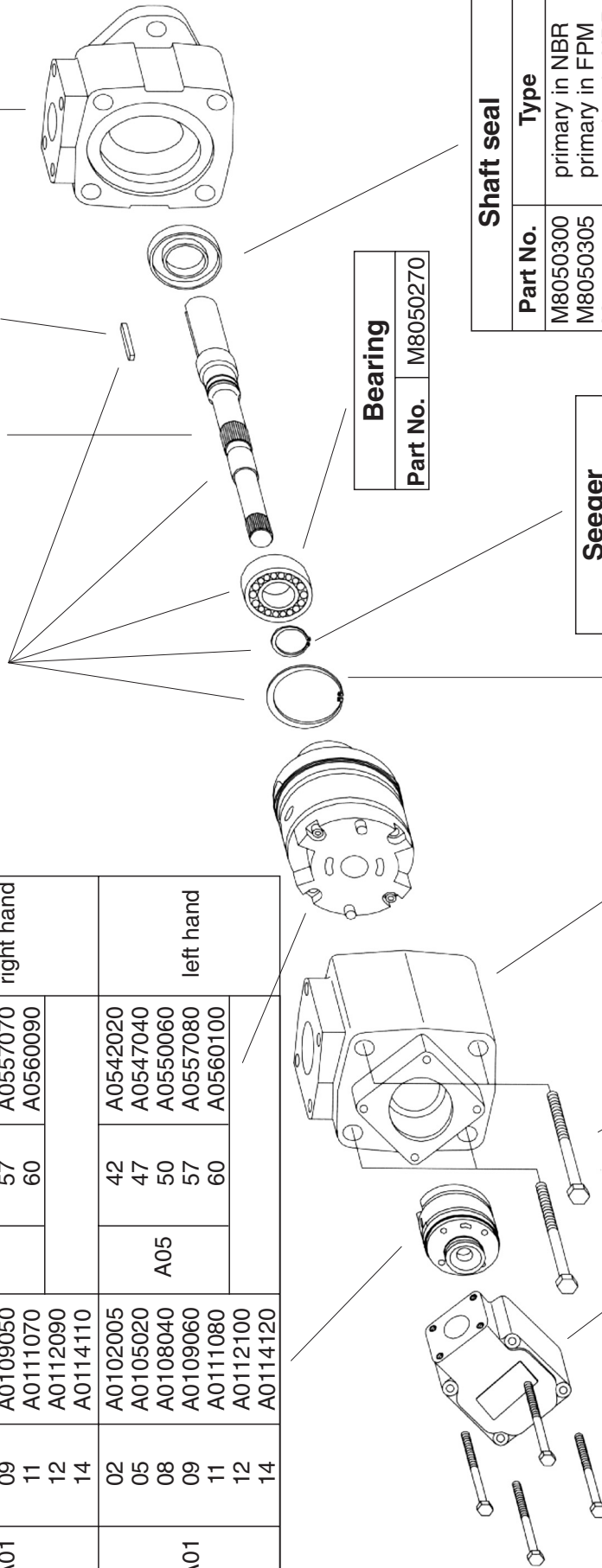
## Id. codes of pump components

| Cartridges |       |           |                       | Pump rotation |            |
|------------|-------|-----------|-----------------------|---------------|------------|
| Cover end  |       | Shaft end |                       |               |            |
| Series     | Model | Part No.  | Series Model Part No. |               |            |
| A01        | 02    | A0102000  | 42                    | A0542010      | right hand |
|            | 05    | A0105010  | 47                    | A0547030      |            |
|            | 08    | A0108030  | 50                    | A0550050      |            |
|            | 09    | A0109050  | 57                    | A0557070      |            |
|            | 11    | A0111070  | 60                    | A0560090      |            |
|            | 12    | A0112090  |                       |               |            |
|            | 14    | A0114110  |                       |               |            |
| A01        | 02    | A0102005  | 42                    | A0542020      | left hand  |
|            | 05    | A0105020  | 47                    | A0547040      |            |
|            | 08    | A0108040  | 50                    | A0550060      |            |
|            | 09    | A0109060  | 57                    | A0557080      |            |
|            | 11    | A0111080  | 60                    | A0560100      |            |
|            | 12    | A0112100  |                       |               |            |
|            | 14    | A0114120  |                       |               |            |

| Shaft kit |          |
|-----------|----------|
| Model     | Part No. |
| 01        | M8510601 |
| 11        | M8510611 |
| 86        | M8510686 |
| 90        | M8510690 |

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

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



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

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

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

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

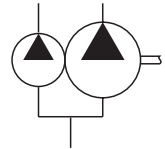
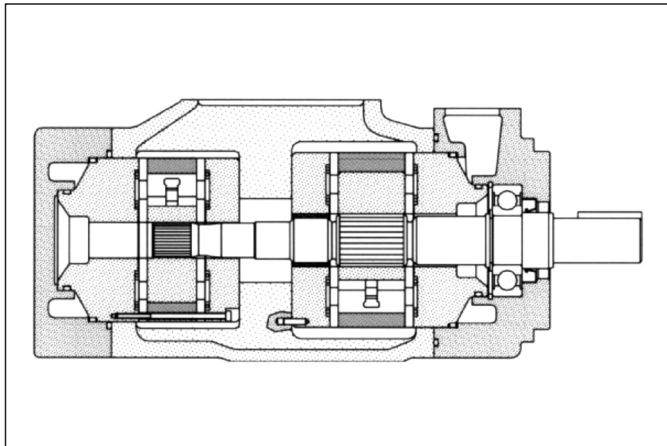
| Cover    |          |
|----------|----------|
| Part No. | Part No. |
| M8020120 |          |

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

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

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

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



## General description

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

## Technical characteristics

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

**Hydraulic fluids:** mineral oils, phosphate ester based fluids.

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

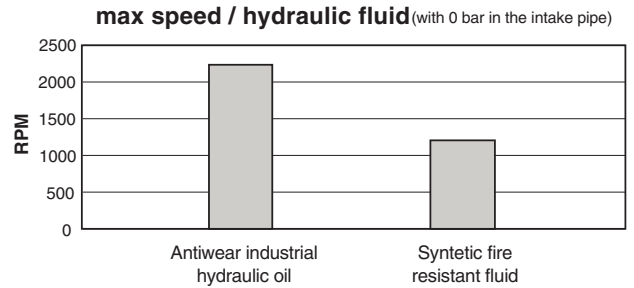
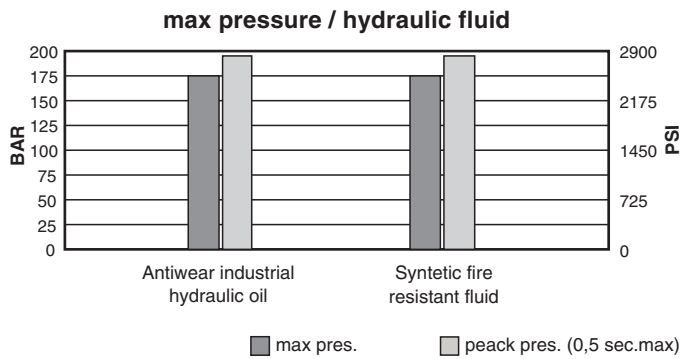
**Filtration:** for the inlet - 149 micron abs., for the return line - 25 micron abs. or better (with synthetic fluids: for the return line - 10 micron abs. or better).

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

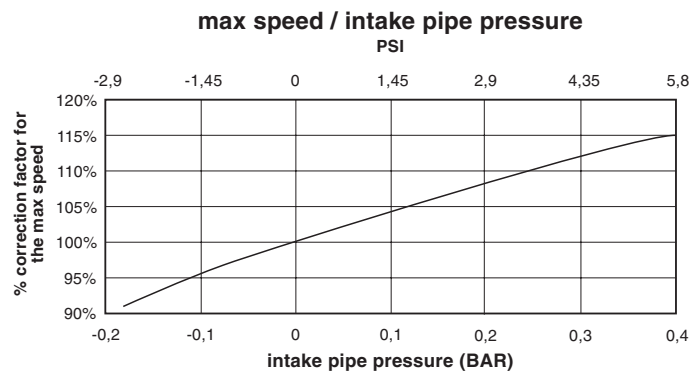
**Operating temperature:** with mineral oil -10°C +70°C (+30°C to +60°C recommended).

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

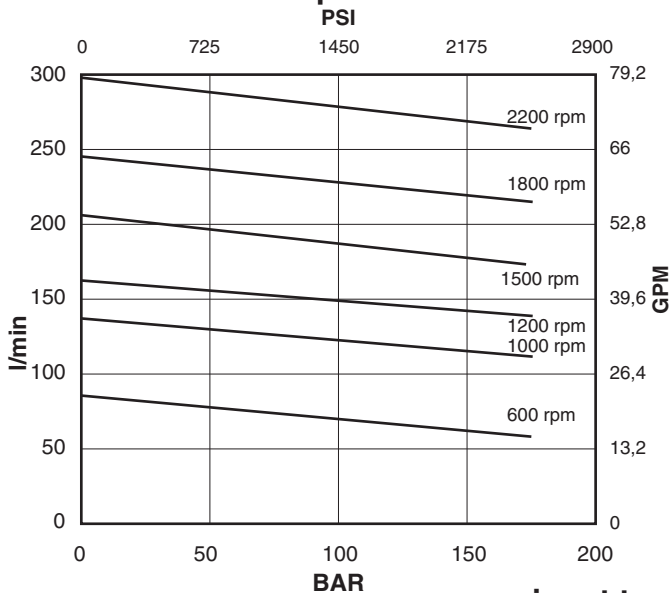
## Main operating data



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

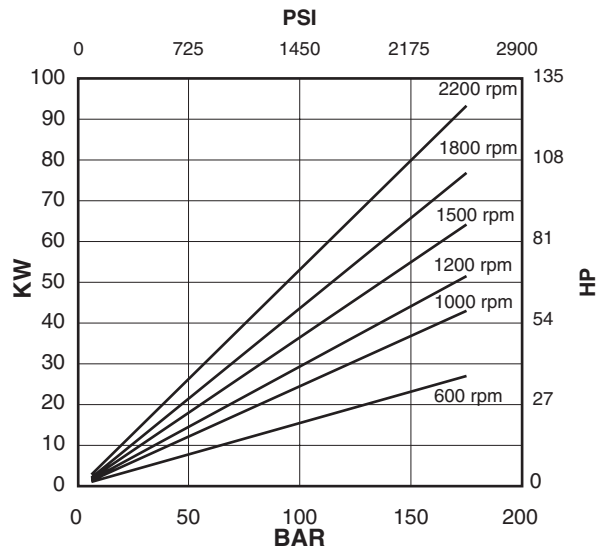


### flow / pressure

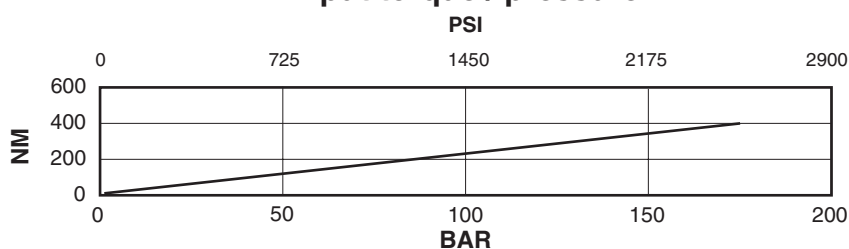


### Shaft end cartridge A05-42

### power / pressure

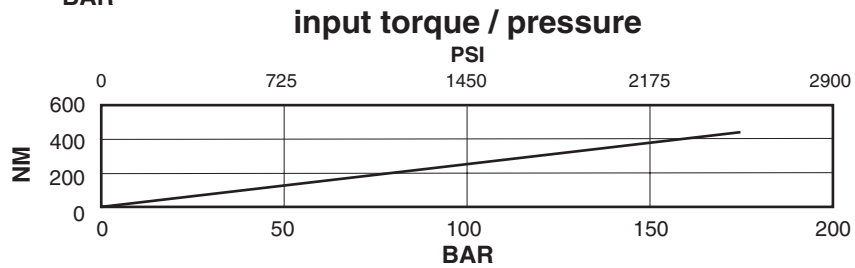
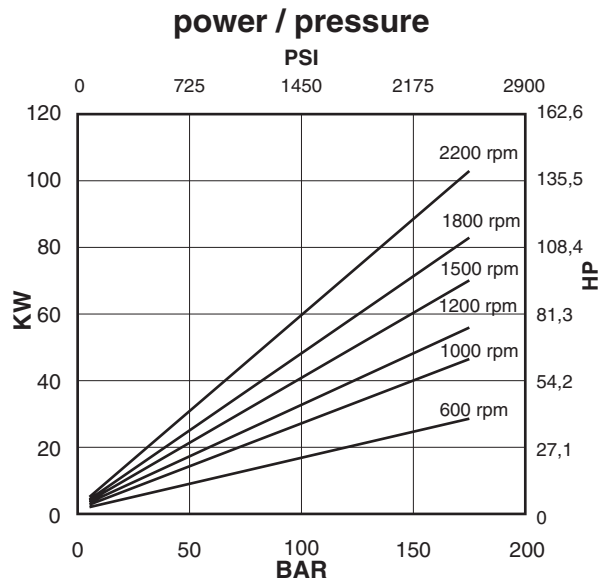
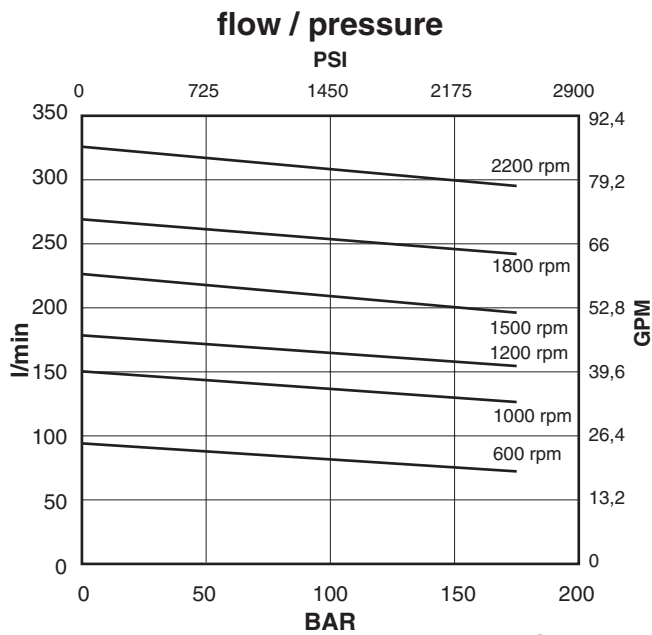


### input torque / pressure



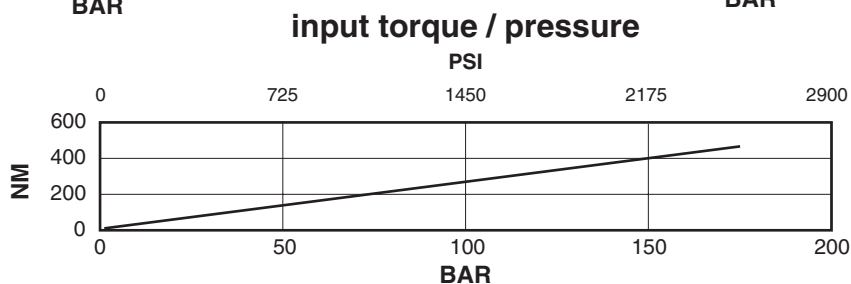
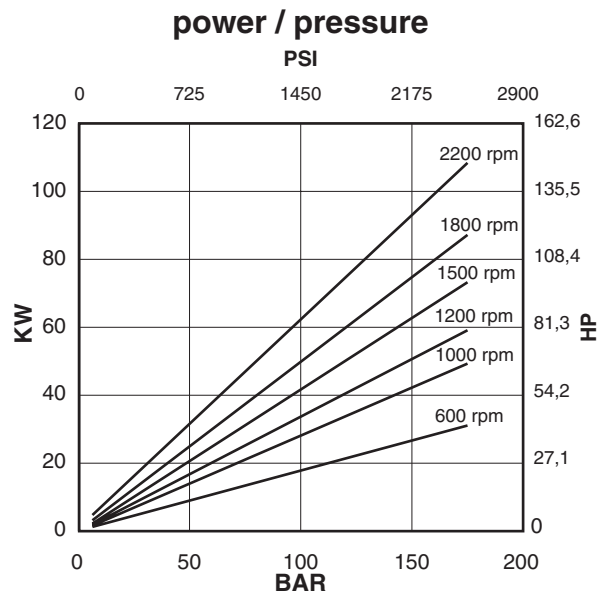
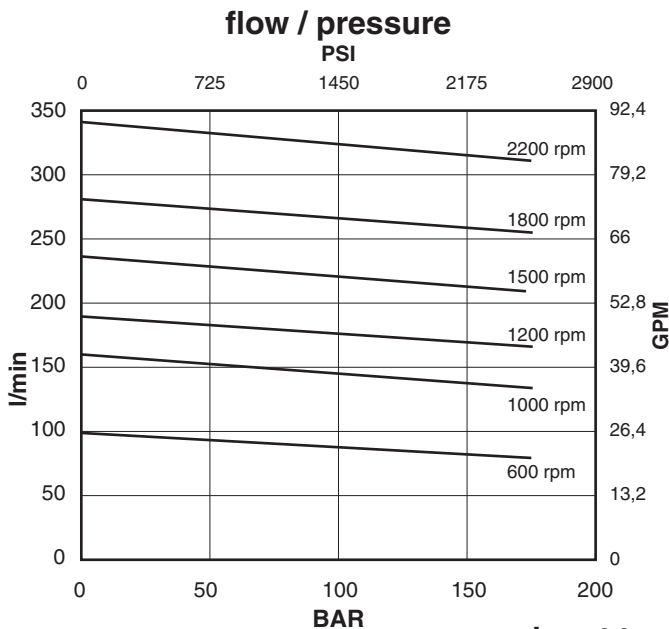
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-47



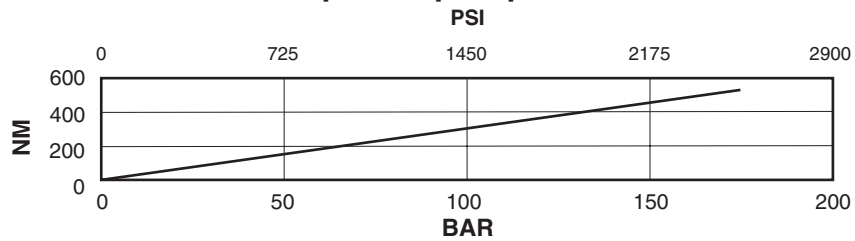
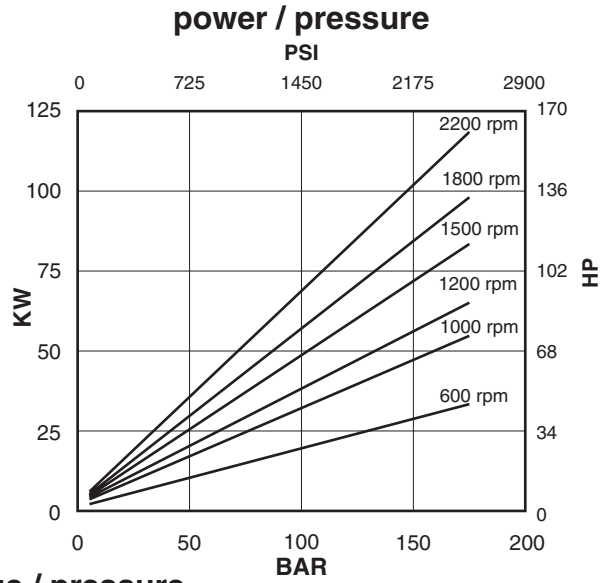
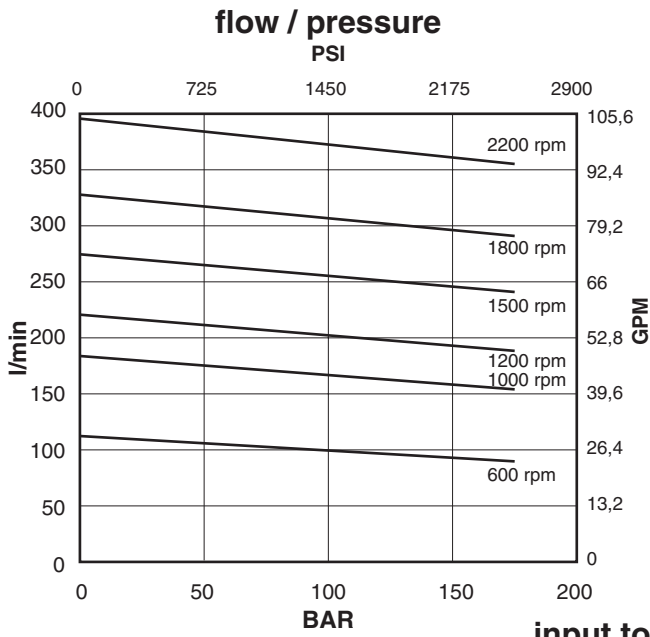
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-50



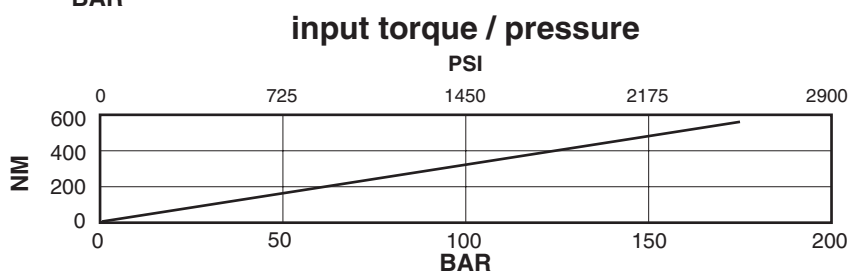
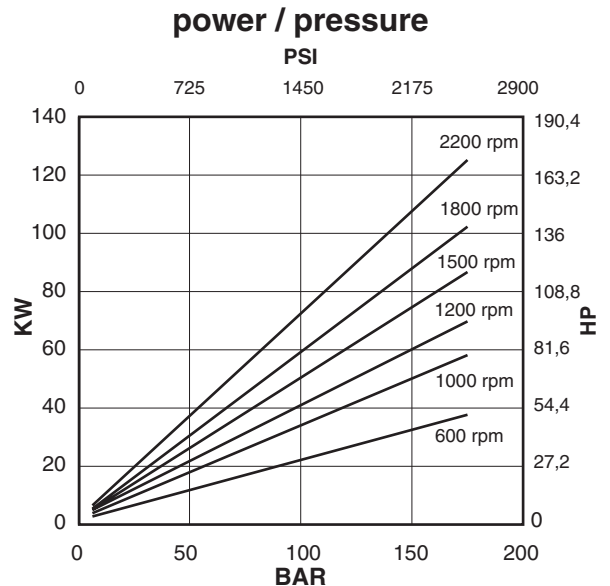
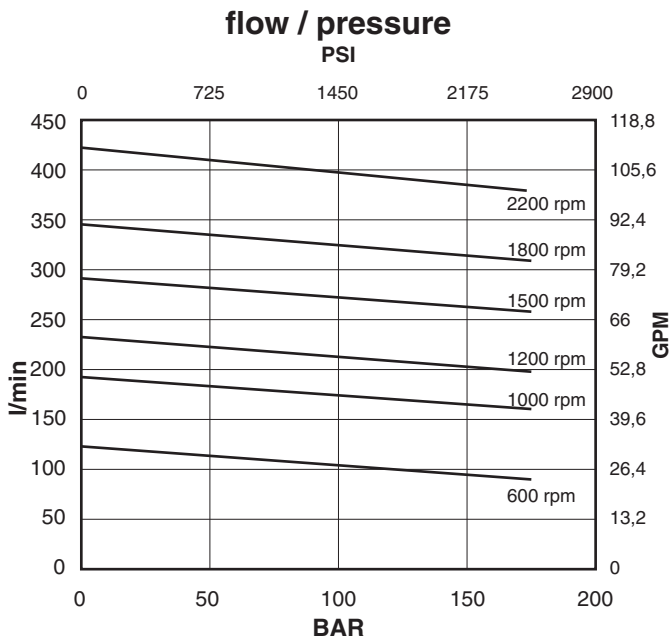
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-57



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

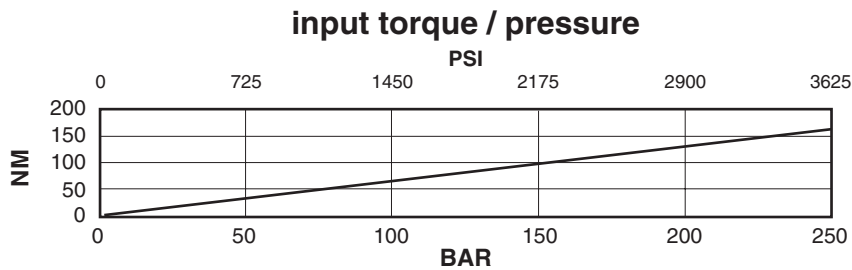
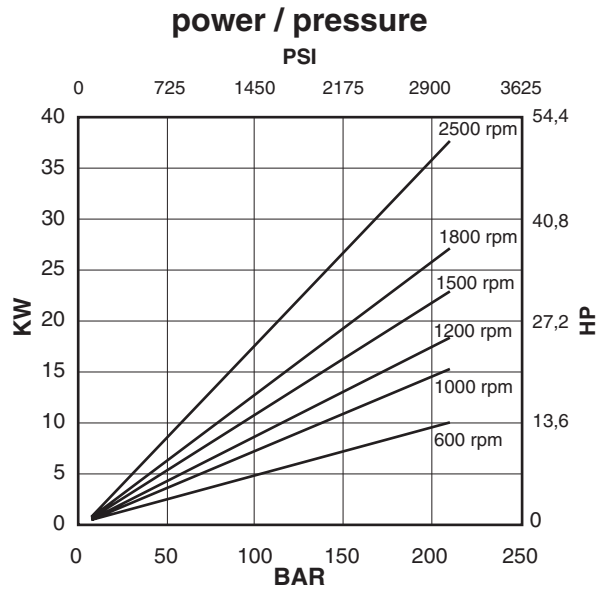
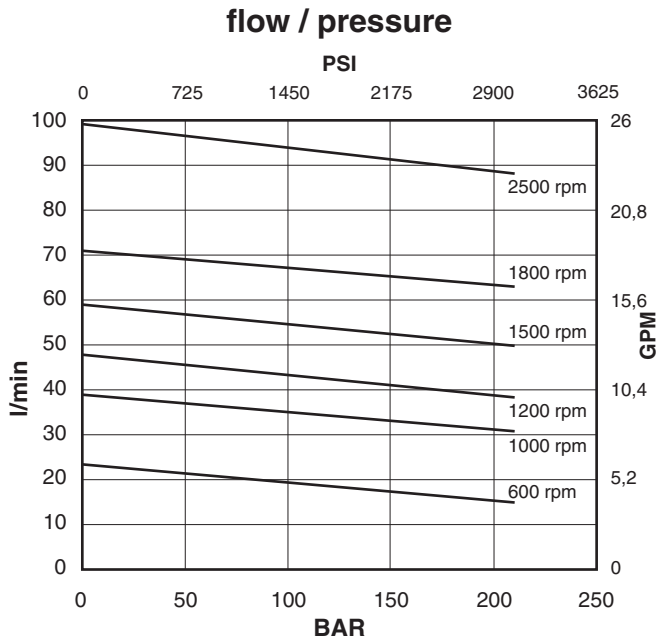
## Shaft end cartridge A05-60



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

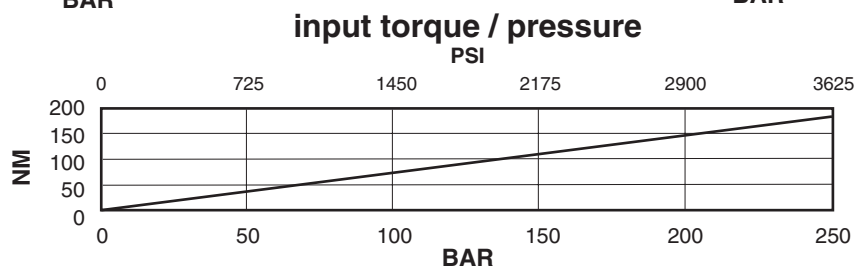
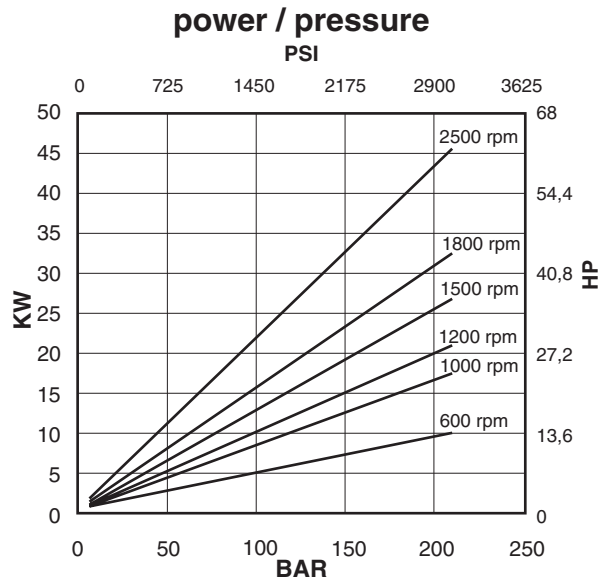
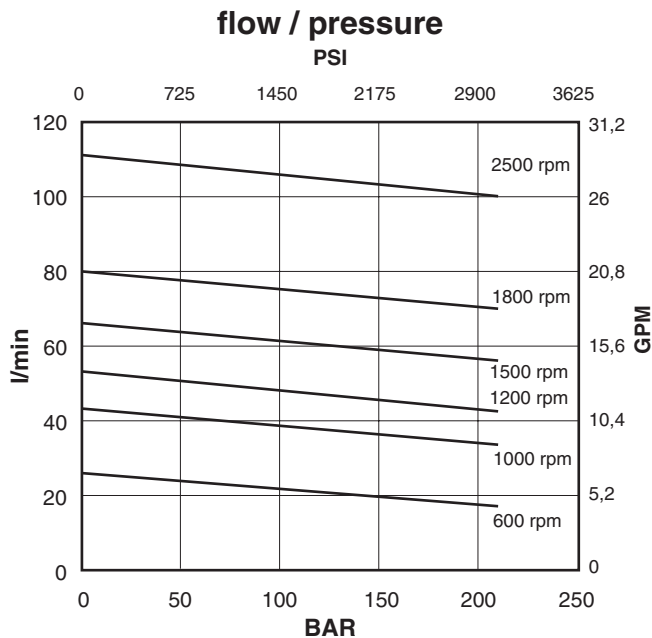


## Cover end cartridge A02-12



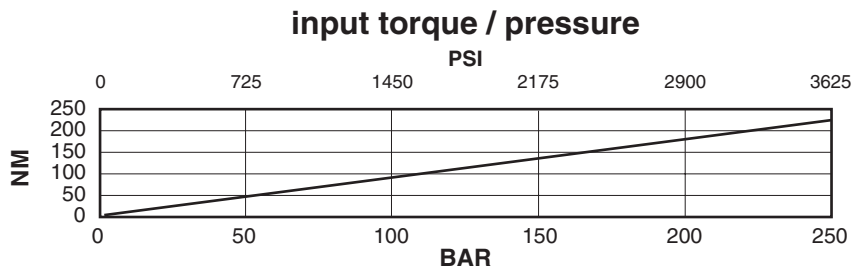
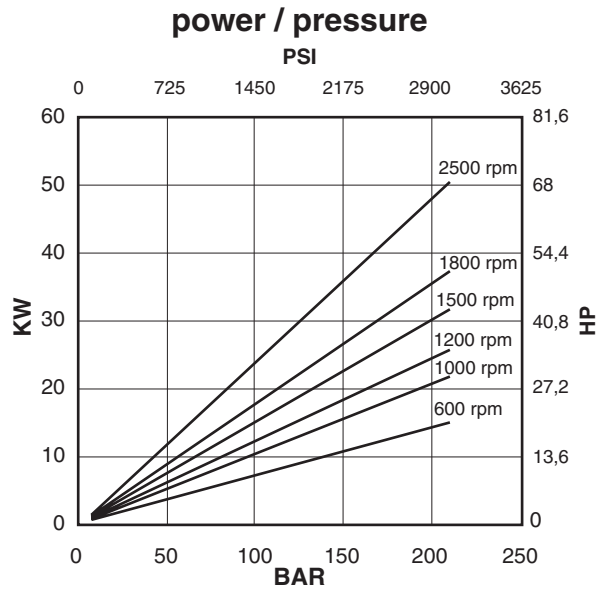
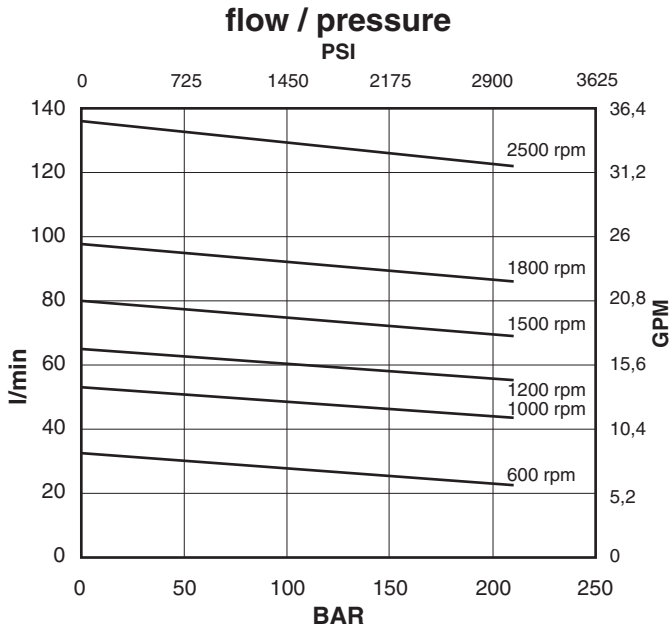
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-14



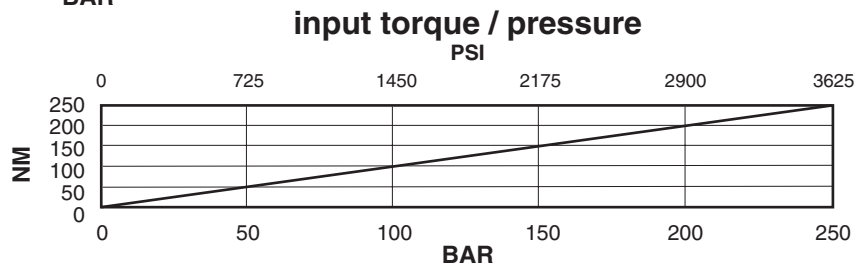
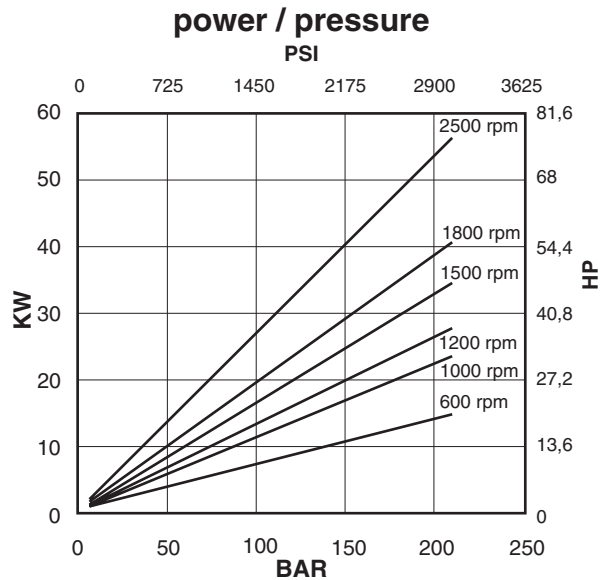
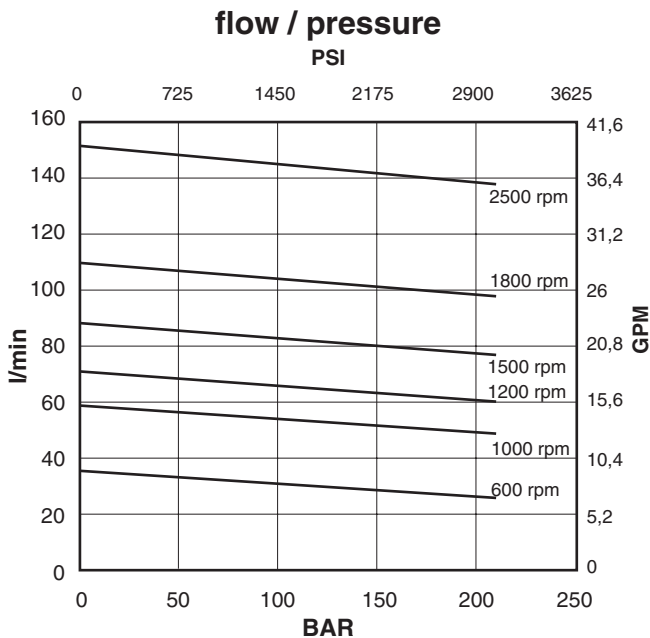
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-17



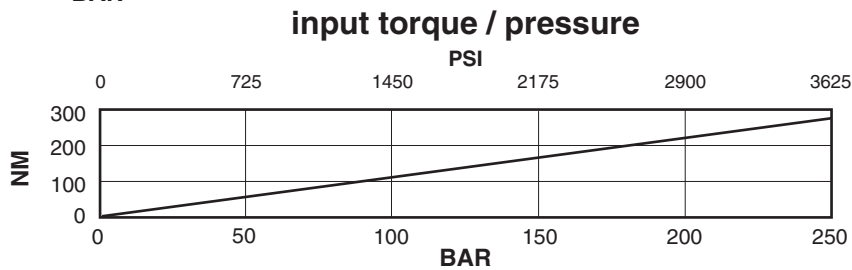
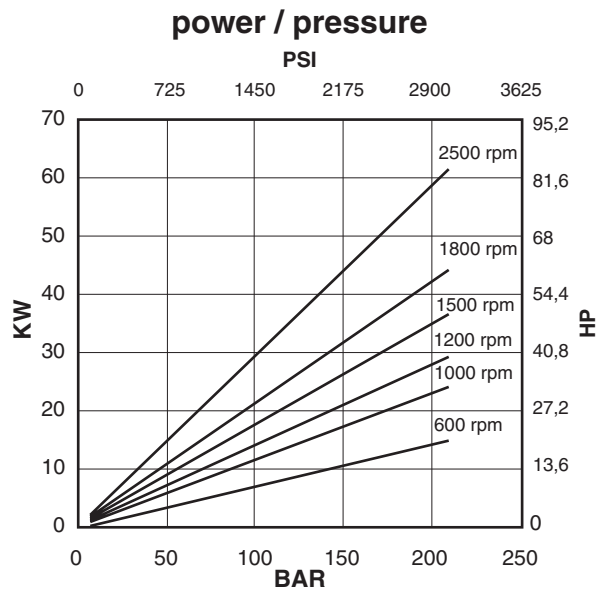
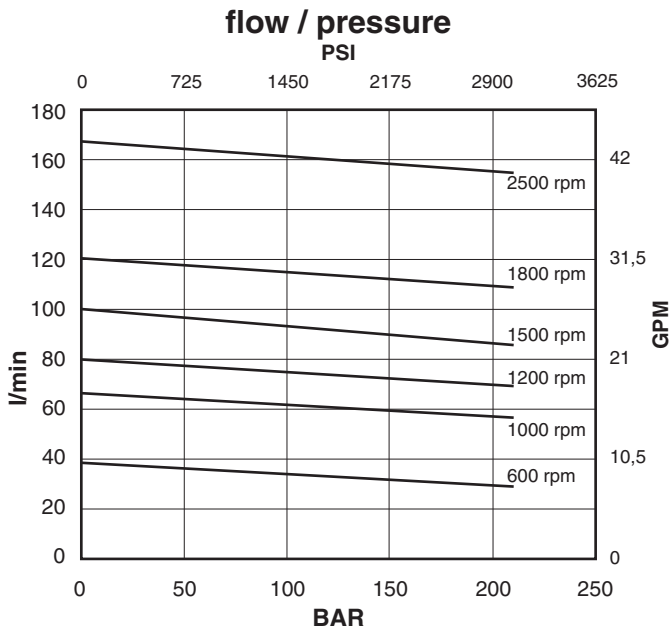
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-19



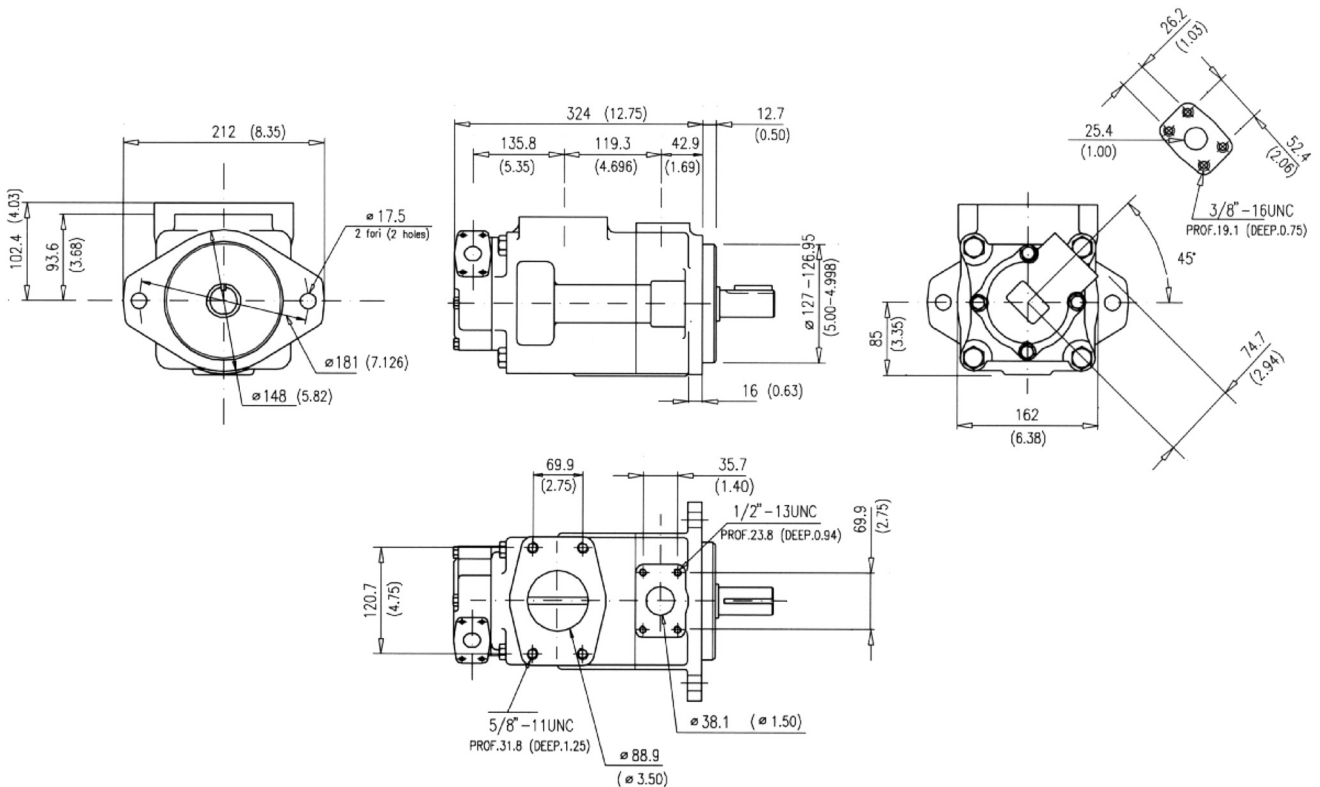
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A02-21



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

## Installation dimensions mm (inches)

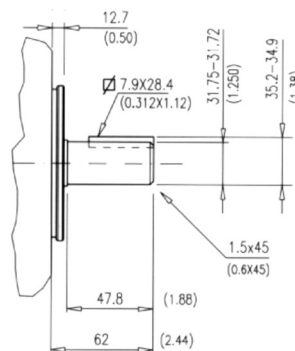


Approx. weight: 46 Kg. (101 lbs.)

## Model code breakdown

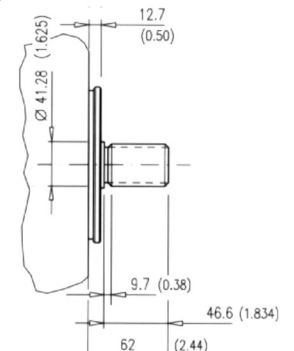
|   |           |          |           |           |          |          |           |            |          |   |
|---|-----------|----------|-----------|-----------|----------|----------|-----------|------------|----------|---|
| <b>BQ</b>   | <b>52</b> | <b>G</b> | <b>**</b> | <b>**</b> | <b>*</b>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

## Shaft options mm (inches)



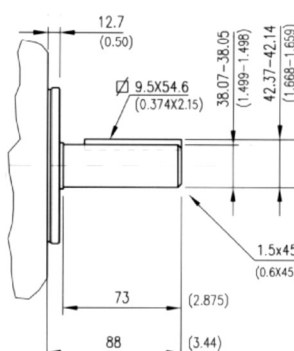
**Shaft 01**

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



**Shaft 11**

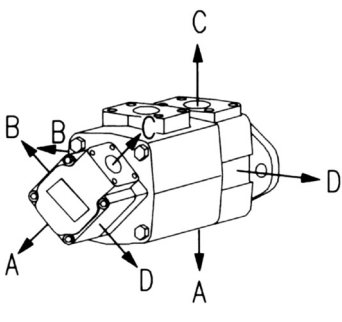
max. torque capability : 820 Nm (7200 lb.in.)



**Shaft 86**

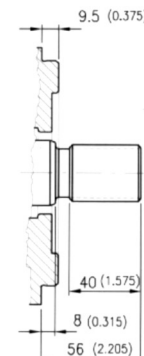
max. torque capability : 820 Nm (7200 lb.in.)

### PORT ORIENTATIONS



**Spline data**  
(Shaft 11 and shaft 90)

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



**Shaft 90**

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

## Id. codes of pump components

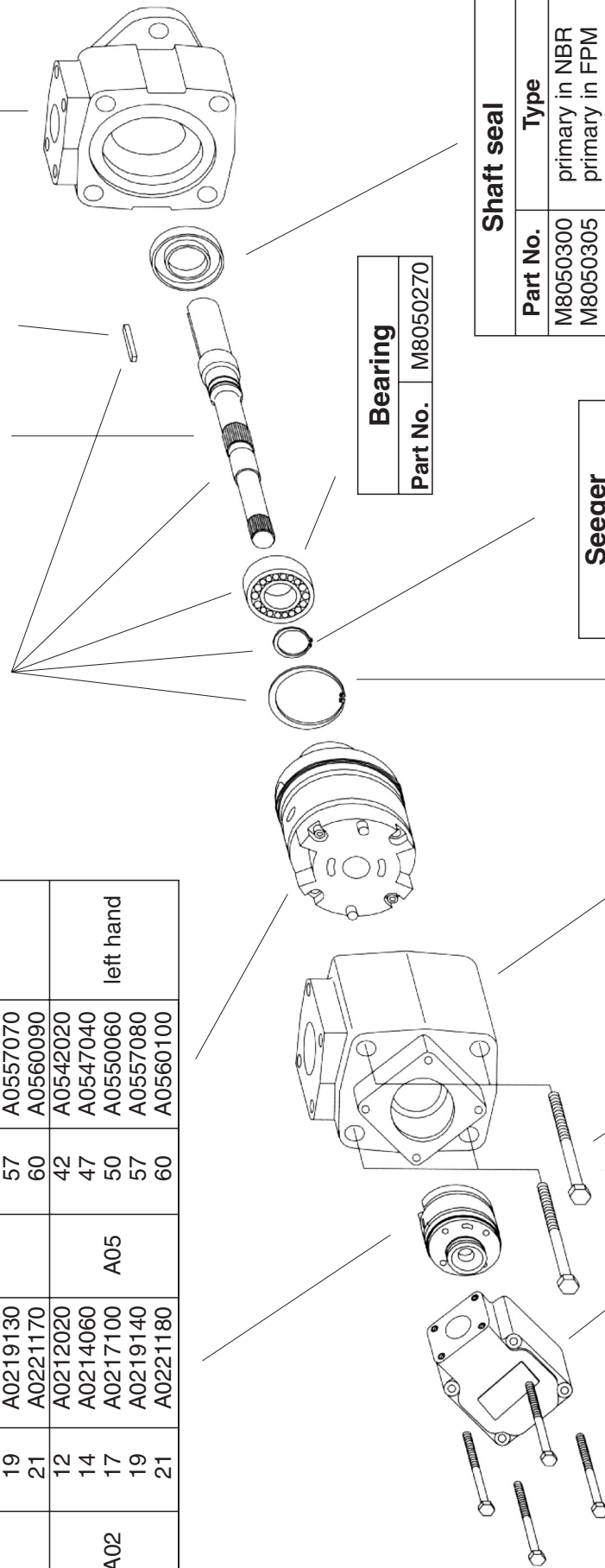
| Cartridges |       |           |        | Pump rotation |          |
|------------|-------|-----------|--------|---------------|----------|
| Cover end  |       | Shaft end |        |               |          |
| Series     | Model | Part No.  | Series | Model         | Part No. |
| A02        | 12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

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

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

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

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



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

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

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

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

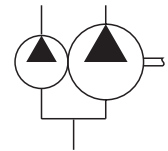
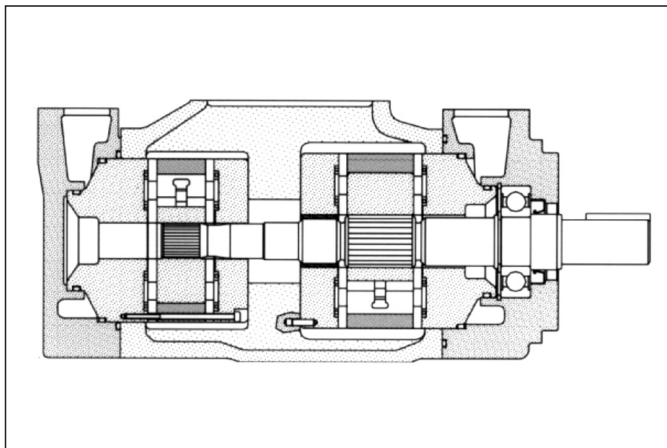
| Cove     |          |
|----------|----------|
| Part No. | M8050350 |

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

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

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

| Pump seal kit |                       |              |
|---------------|-----------------------|--------------|
| Part No.      | Parts                 | Type         |
| 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®) |



## 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<br>at 1200 rpm 7 bar |       | Rated capacity<br>at 1500 rpm 7 bar |        | Maximum pressure<br>with mineral oil |        | Speed range<br>rpm |      |
|------------------|------------------------|----------------------|-------------------------------------|-------|-------------------------------------|--------|--------------------------------------|--------|--------------------|------|
|                  | cm <sup>3</sup> /g     | (in <sup>3</sup> /r) | l/min                               | (gpm) | l/min                               | (gpm)  | bar                                  | (psi)  | min                | max  |
| <b>shaft end</b> |                        |                      |                                     |       |                                     |        |                                      |        |                    |      |
| 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 |
| <b>cover end</b> |                        |                      |                                     |       |                                     |        |                                      |        |                    |      |
| 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).

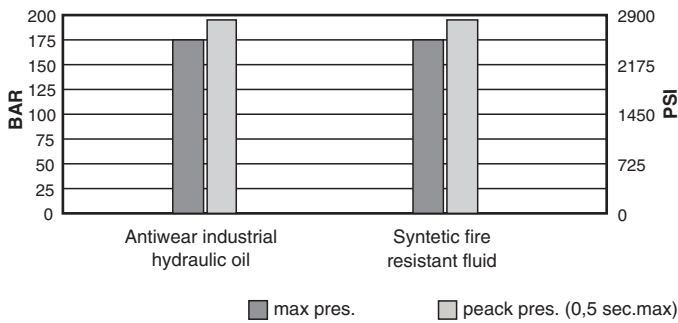
**Inlet pressure:** (with mineral oil): from -0,17 to +1,4 bar (-2.5 to + 20 psi)

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

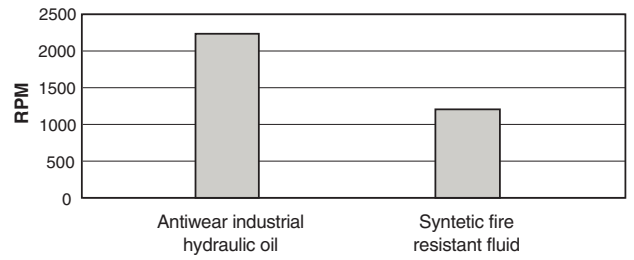
**Drive:** direct and coaxial by means of a flexible coupling.

## Main operating data

max pressure / hydraulic fluid

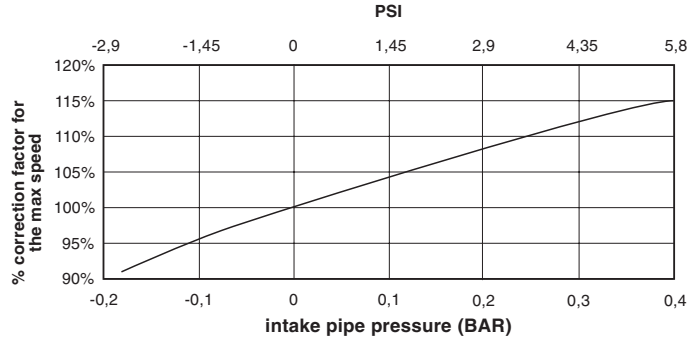


max speed / hydraulic fluid (with 0 bar in the intake pipe)

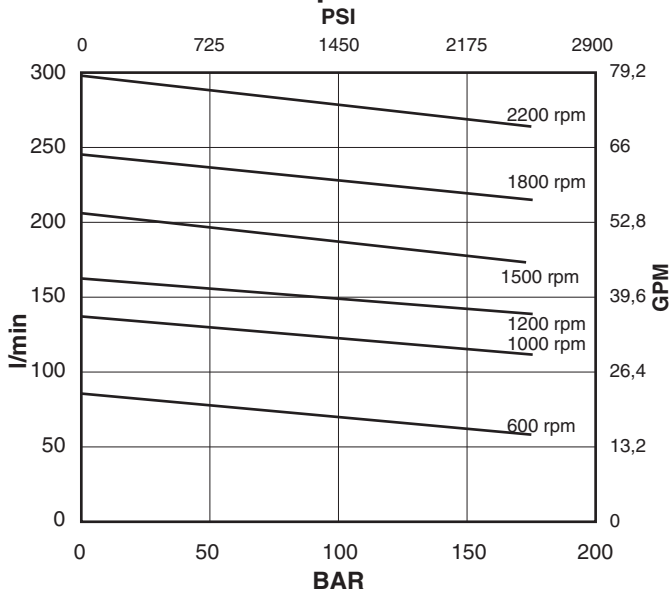


If the intake pressure is not zero bar, use the graph below to find the percentage correction factor to apply to the maximum speed

max speed / intake pipe pressure

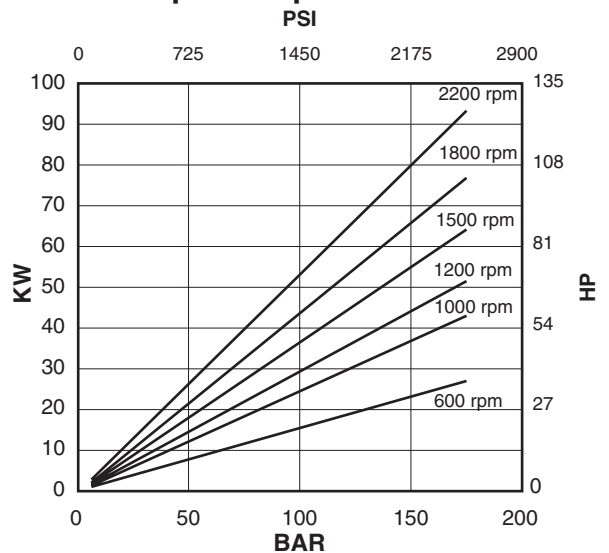


flow / pressure

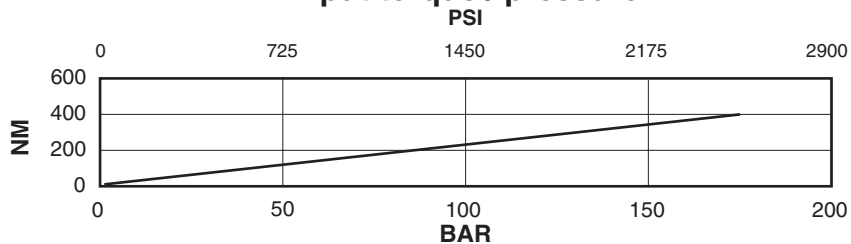


## Shaft end cartridge A05-42

power / pressure

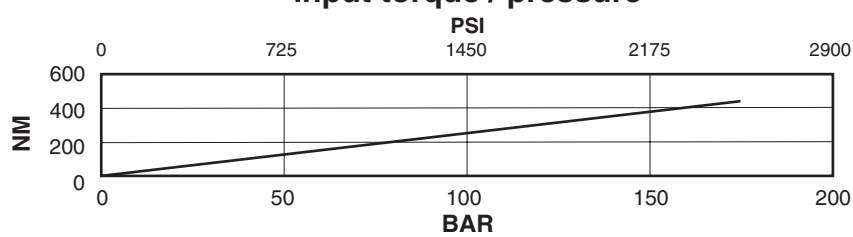
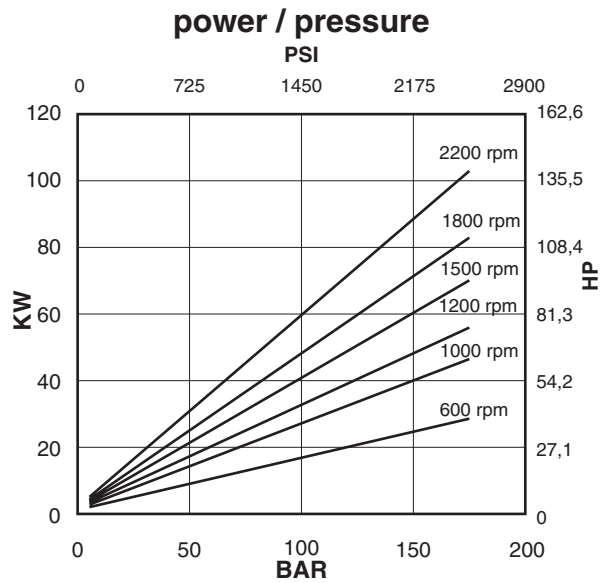
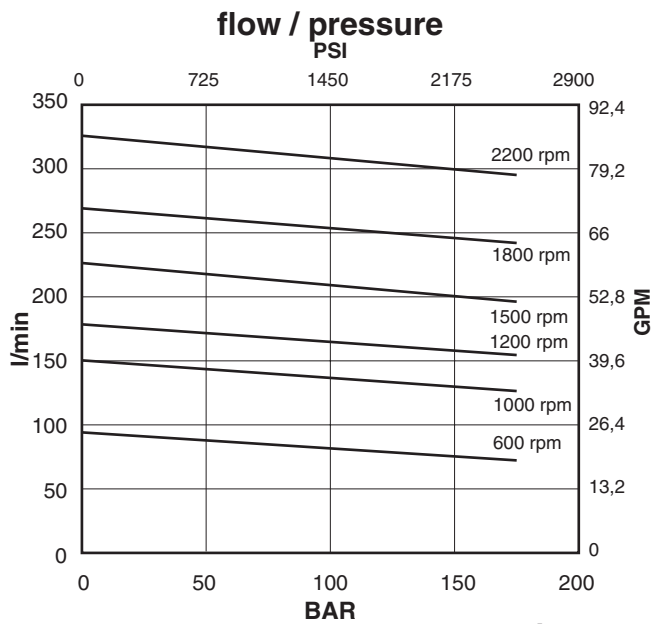


input torque / pressure



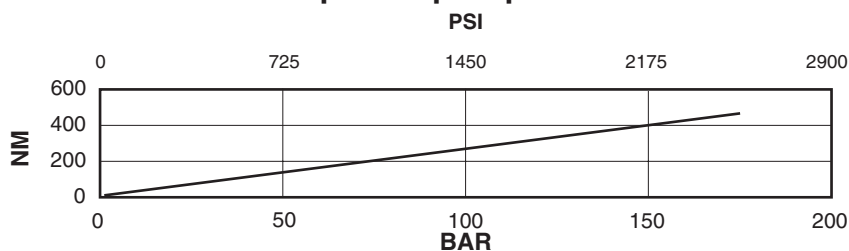
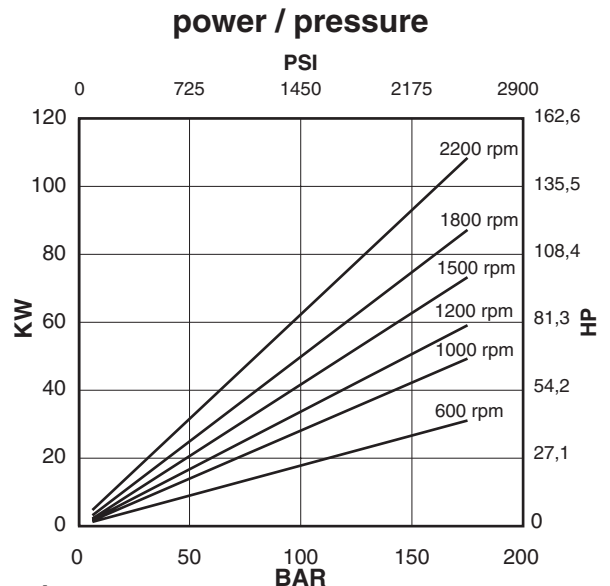
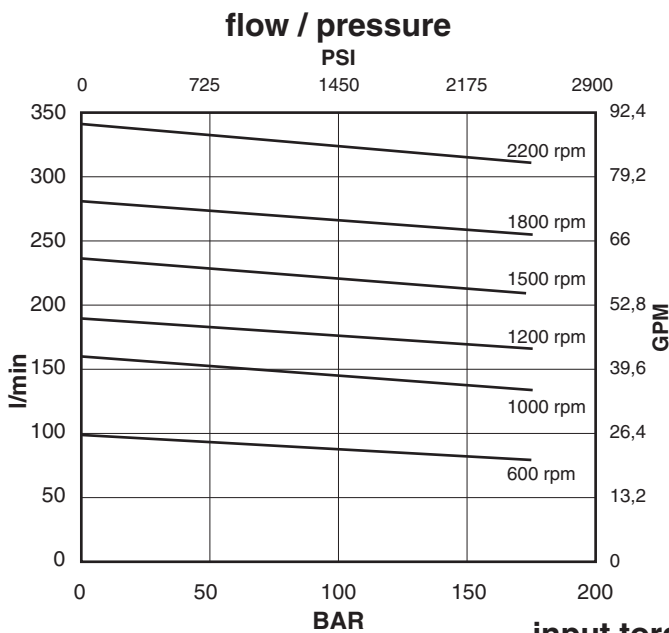
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-47



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

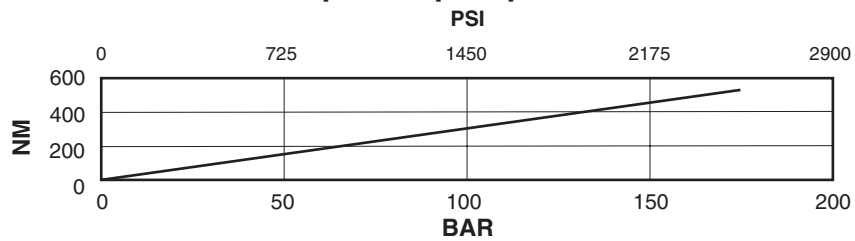
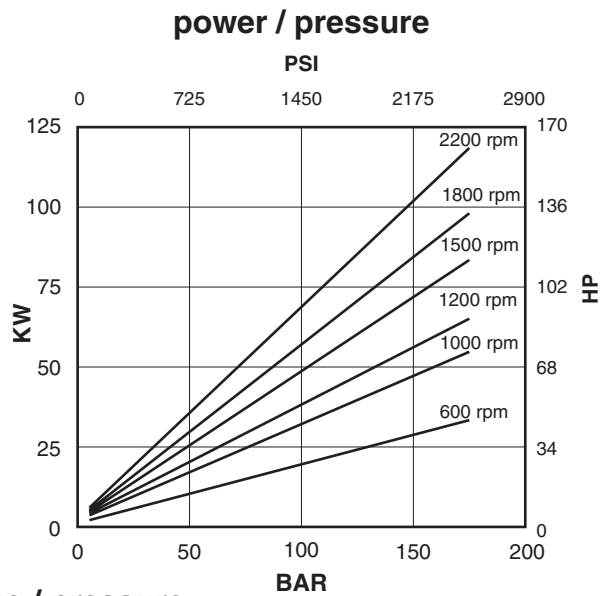
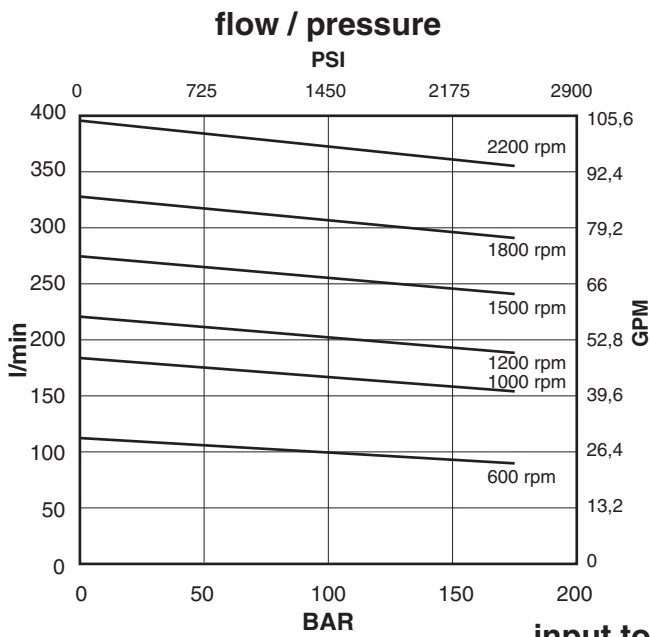
## Shaft end cartridge A05-50



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

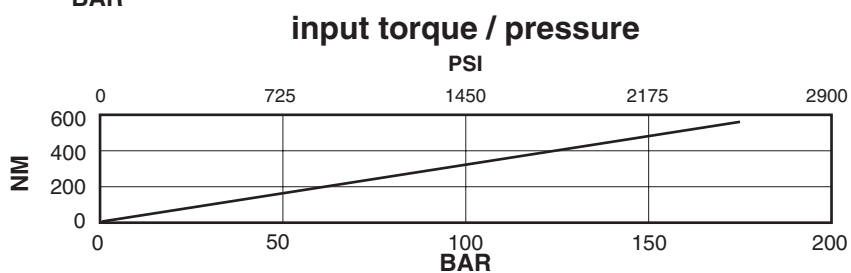
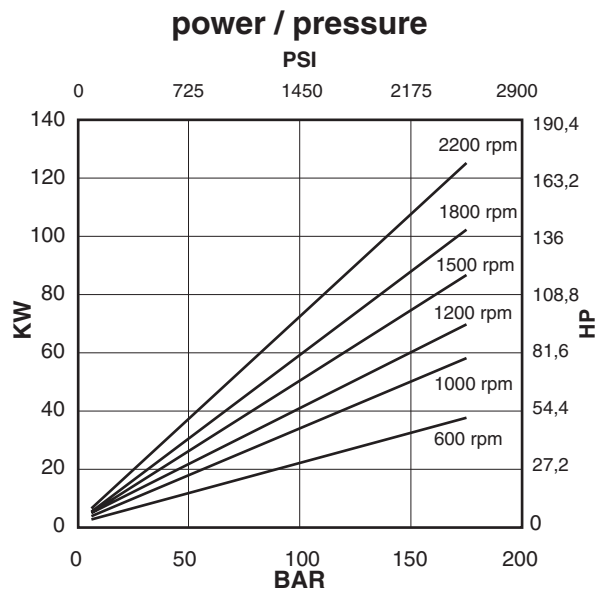
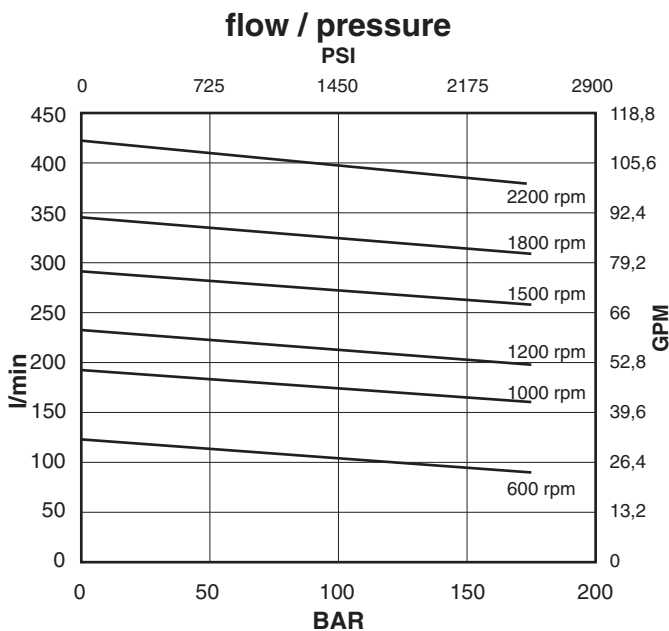


## Shaft end cartridge A05-57



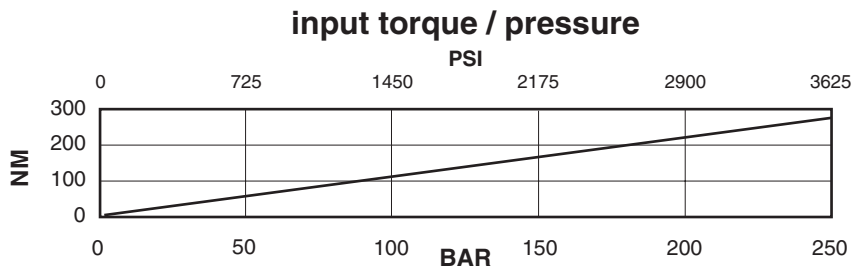
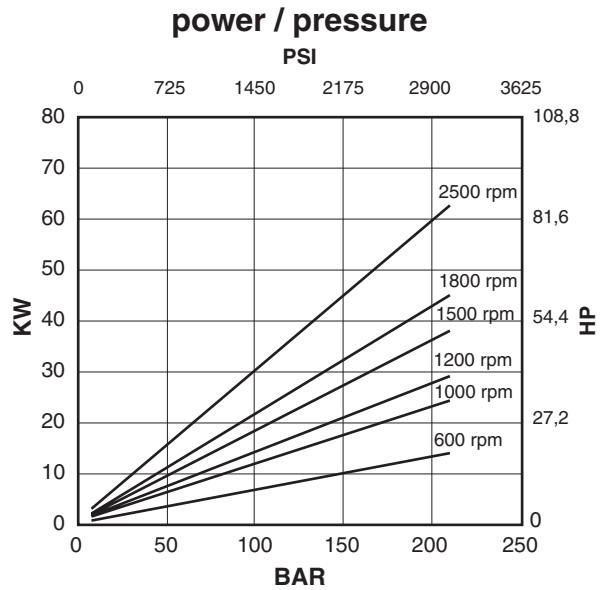
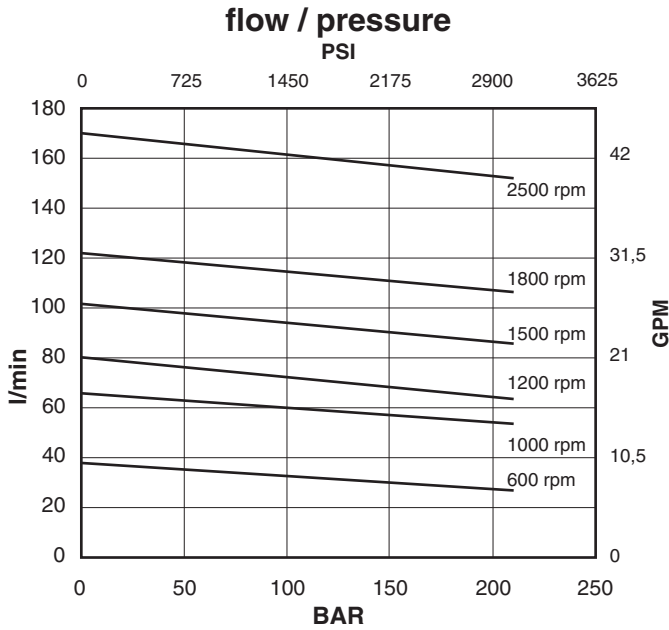
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Shaft end cartridge A05-60



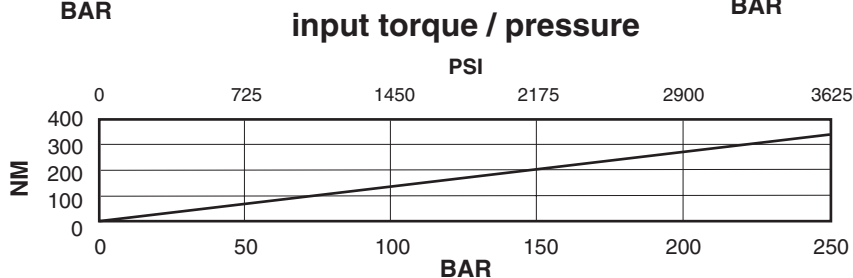
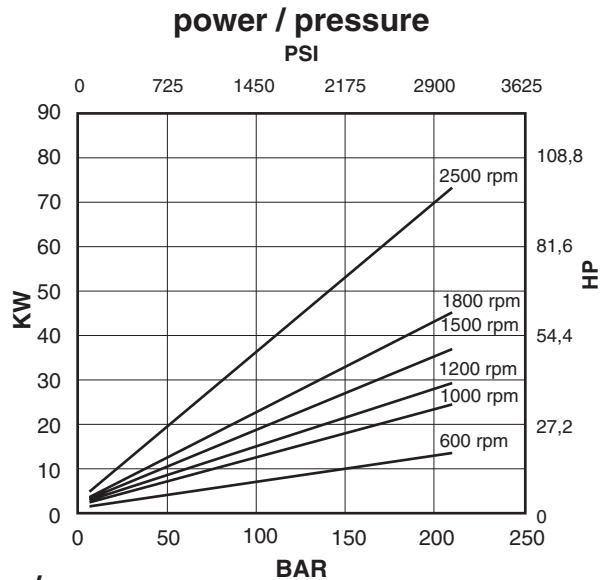
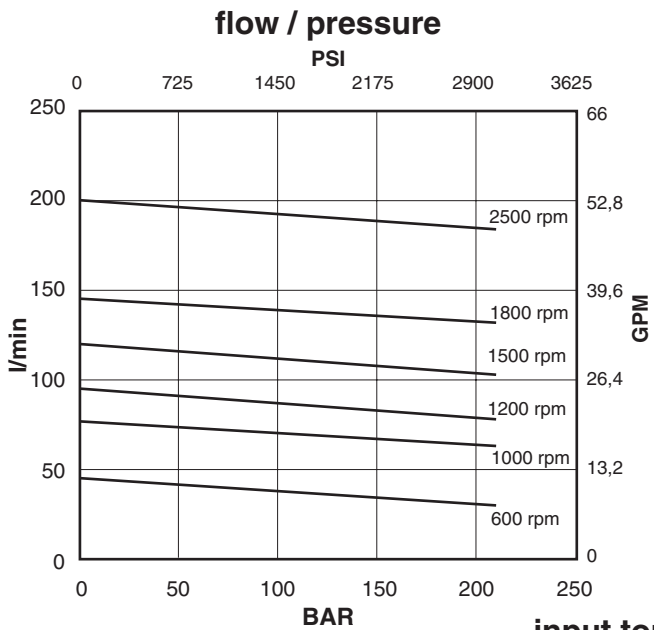
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A04-21



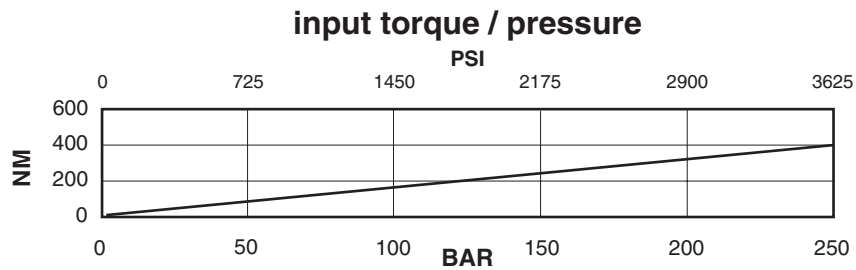
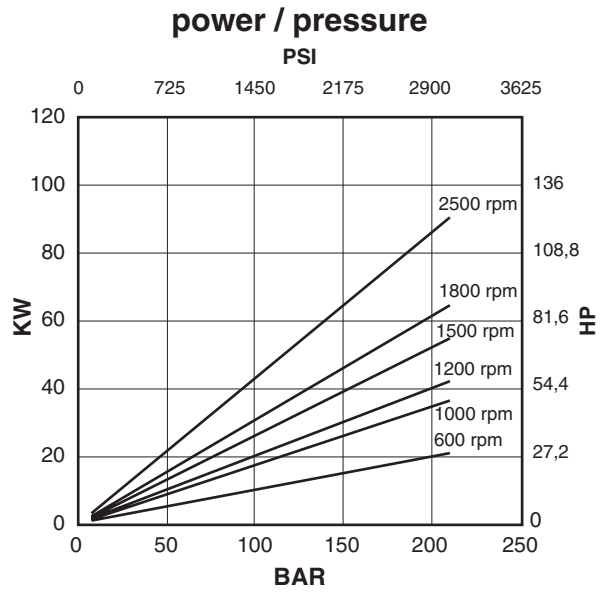
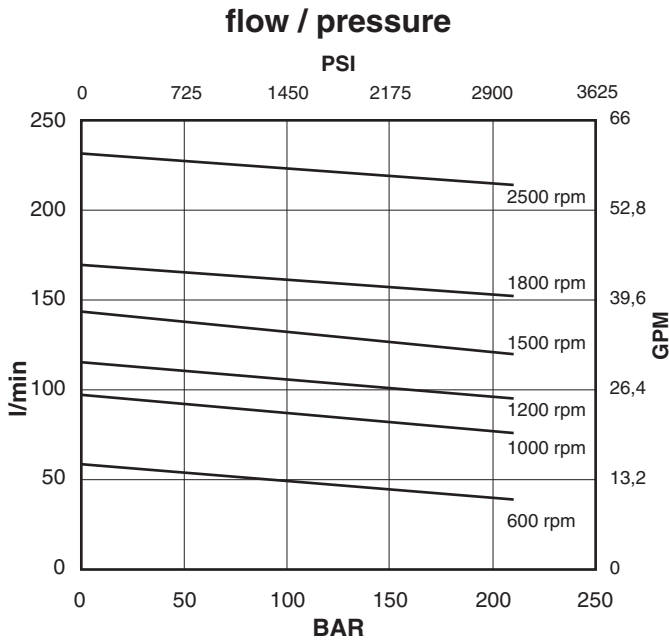
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A04-25



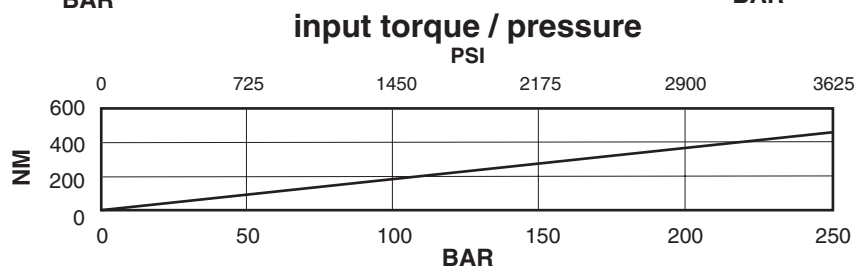
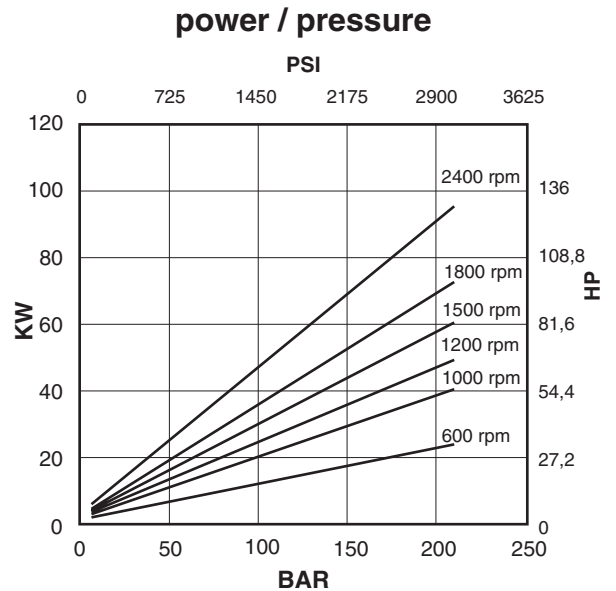
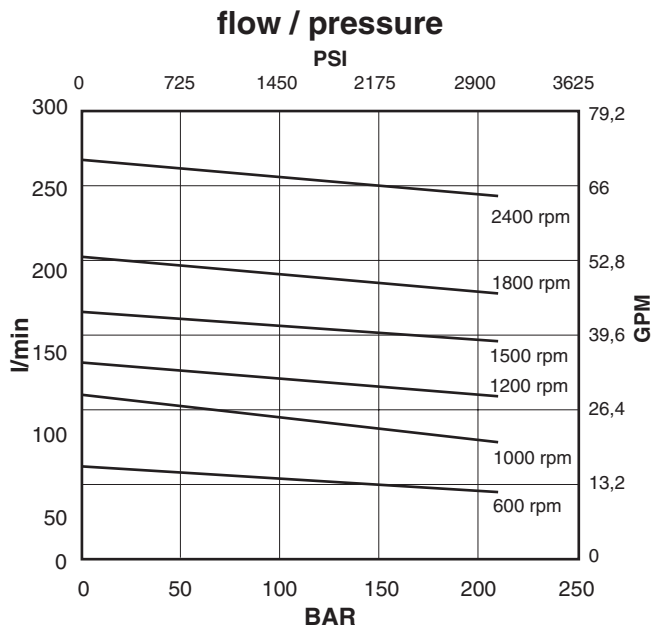
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A04-30



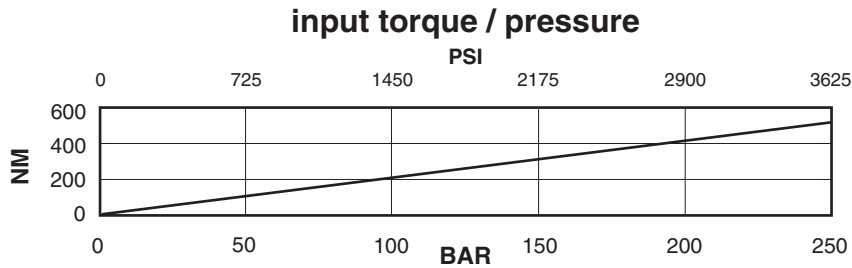
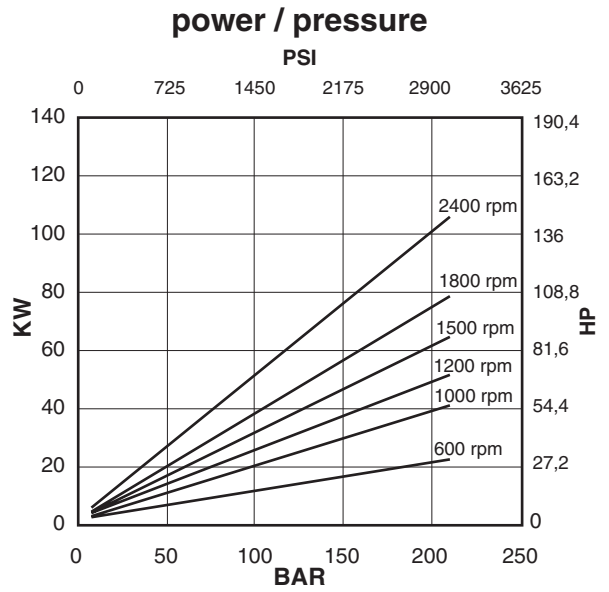
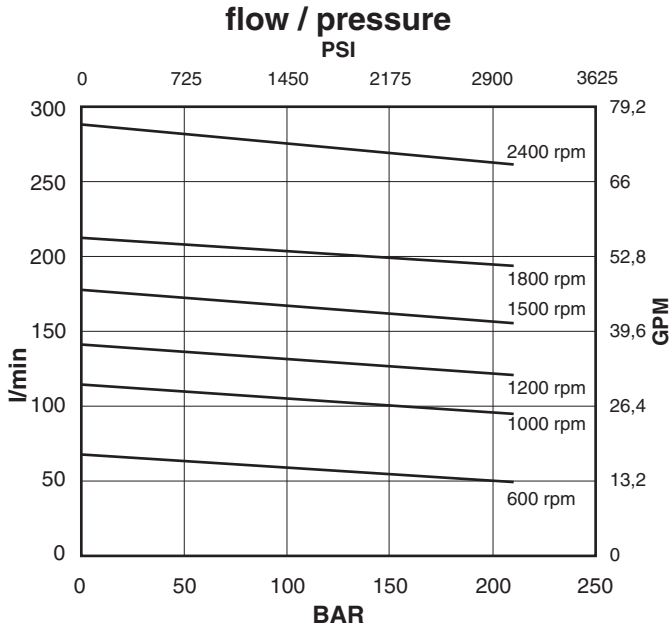
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A04-35



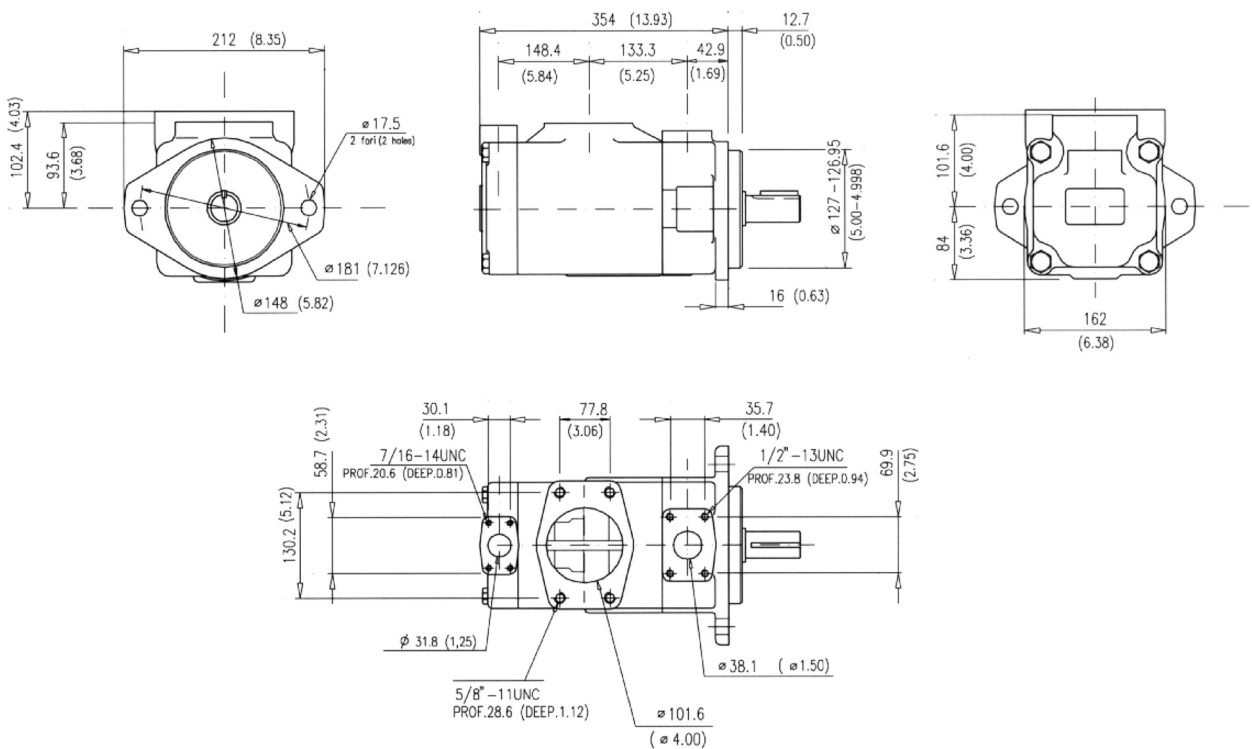
Oil viscosity: 25 c.St.(10W)  
 Temperature: 45°C  
 Inlet pressure: 0 BAR

## Cover end cartridge A04-38



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

## Installation dimensions mm (inches)



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

## Model code breakdown

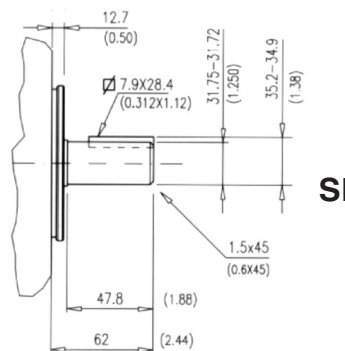
|  |   |   |
|--|---|---|
| <p><b>BQ 54 G ** ** * * ** (L) * (A)</b></p> <p>Pump series</p> <p>Design</p> <p>Pump type</p> <p>Cartridge types</p> <p>-shaft end 42 47 50 57 60</p> <p>-cover end 21 25 30 35 38</p> <p>Body outlet port positions<br/>(Outlet viewed from cover end)</p> <p>A = Outlet opposite end<br/>B = Outlet 90° CCW from inlet<br/>C = Outlet in line with inlet<br/>D = Outlet 90° CW from inlet</p> <p>Cover outlet port positions<br/>(Outlet viewed from cover end)</p> <p>A = Outlet opposite end<br/>B = Outlet 90° CCW from inlet<br/>C = Outlet in line with inlet<br/>D = Outlet 90° CW from inlet</p> | <p>Seals<br/>(omit with standard seals and one shaft-seal in NBR)</p> <p>V = seals and shaft-seal in FPM (Viton®)</p> <p>D = standard seals and double shaft-seals in NBR</p> <p>F = seals and double shaft-seals in FPM (Viton®)</p> | <p>Mounting<br/>(omit if not required)</p> <p>Rotation<br/>(viewed from shaft end)</p> <p>L = left hand rotation CCW (omit if CW)</p> |
|--|---|---|

### Shaft end options

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

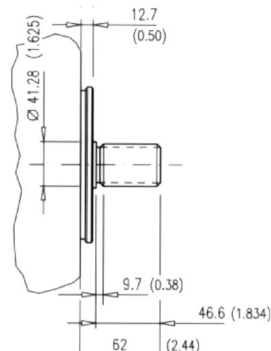
## Shaft options mm (inches)

**Shaft 01**



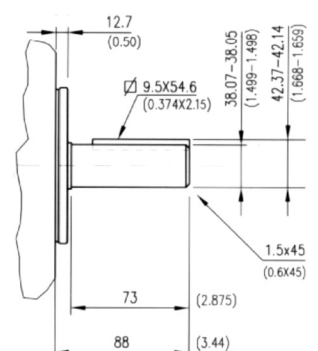
max. torque capability : 600 Nm (5300 lb.in.)

**Shaft 11**



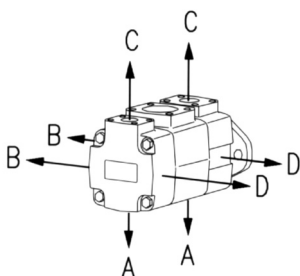
max. torque capability : 820 Nm (7200 lb.in.)

**Shaft 86**



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

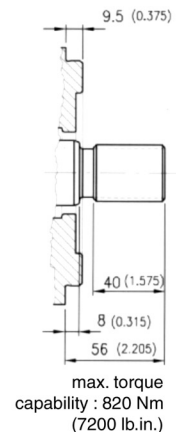
### PORT ORIENTATIONS



### Spline data (Shaft 11 and shaft 90)

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

**Shaft 90**



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

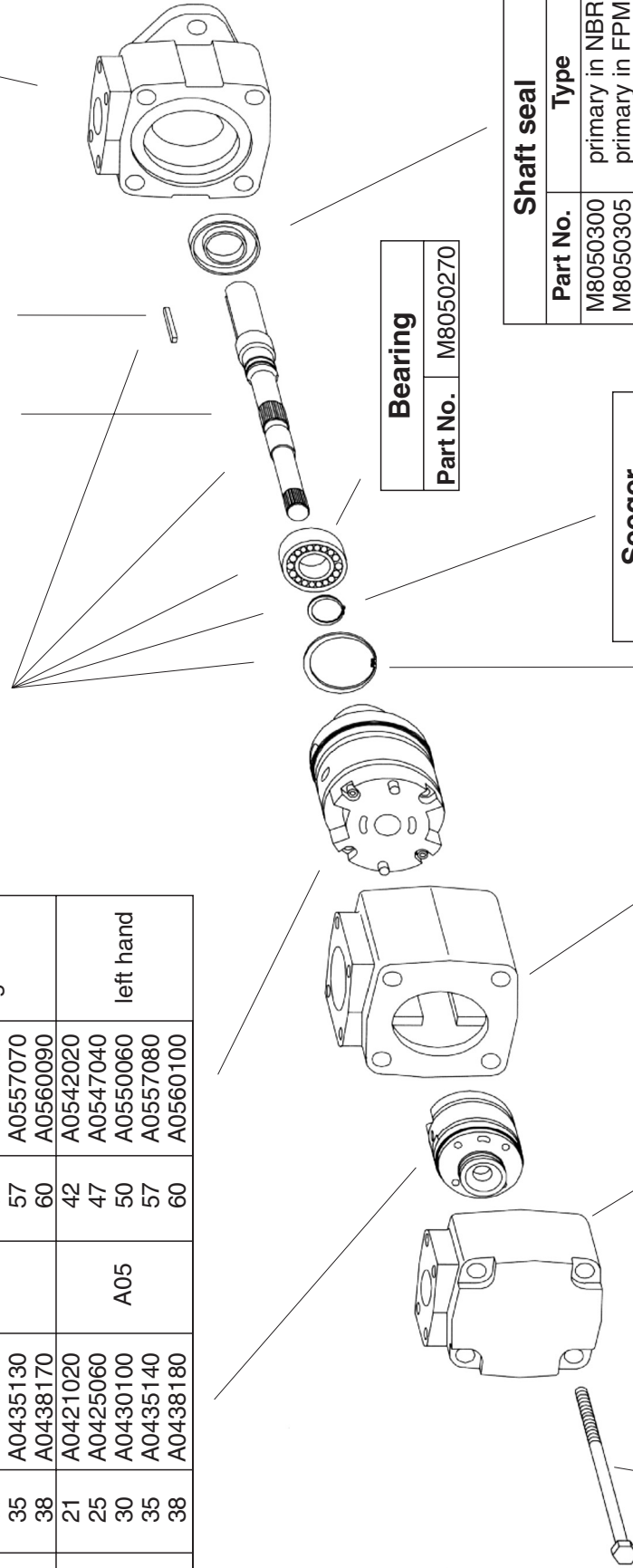
## Id. codes of pump components

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

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

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

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



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

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

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

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

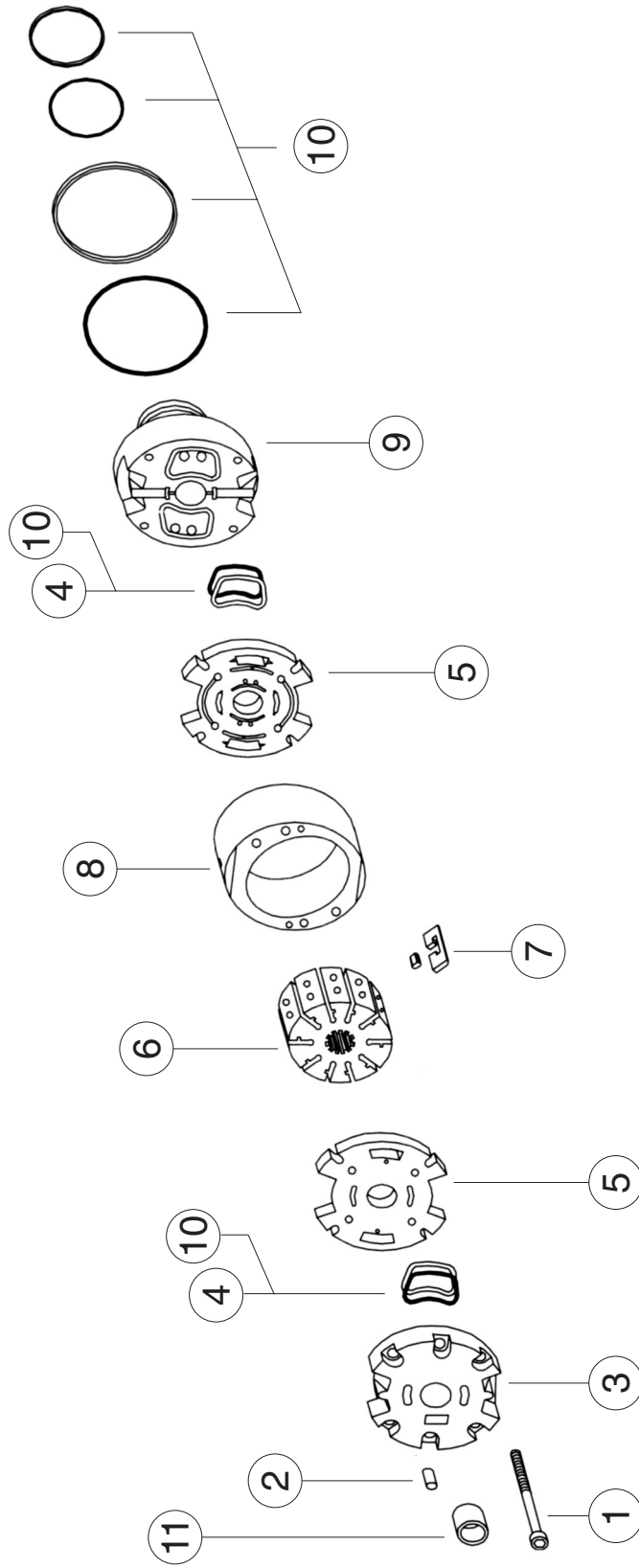
| Screw                           |          |
|---------------------------------|----------|
| Part No.                        | M8050380 |
| Torque to 398 Nm (3550 lb. in.) |          |

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

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

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

Id. codes of cartridge kit components



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

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



## Operating instructions

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

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

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

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

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

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

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

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

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

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

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

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