

HYDRAULIC GEAR
PUMPS AND
MOTORS

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Replaces: 02/04.2022

03/06.2023



Modification from former edition.

INTRODUCTION

KAPPA 30 Compact series is a solid compact 2-piece construction and allows you to include many functions in a reduced space.

KAPPA 30 Compact is a direct result of feedback received from Casappa customers, this has given Casappa the opportunity to understand the needs of our customers and implement the hydraulic knowledge gained into new and improved products.

The “Compact” line provides exceptional quality and reliability thanks to 3-dimensional modeling, virtual simulation of the pump’s behavior in the hydraulic system and testing on the machines.

The reduced dimensions as well as a large variety of drive shafts, mounting flanges and ports ensure great flexibility and allow for their use in an infinite variety of applications.

DISPLACEMENTS

From 21,99 cm³/rev (1.34 in³/rev)

To 73,82 cm³/rev (4.50 in³/rev)

PRESSURE

Max. constant operating pressure 280 bar (4060 psi)

Max. system pressure (relief valve setting) 300 bar (4350 psi)

Max. peak of pressure 320 bar (4640 psi)

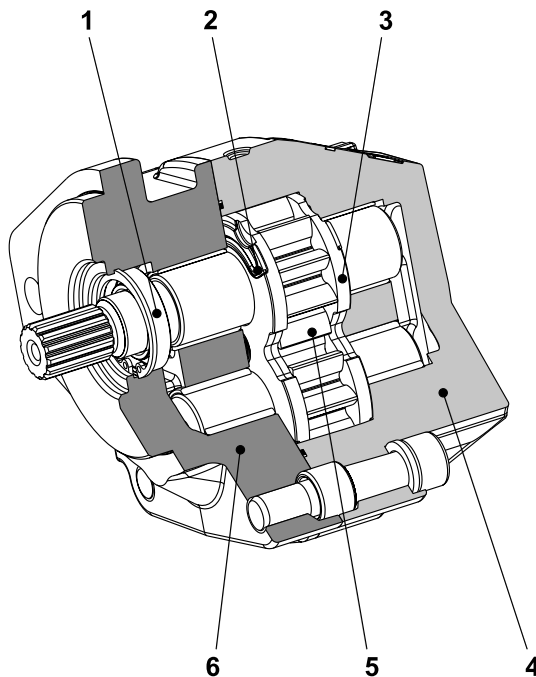
MAX. SPEED

Max. 3000 min⁻¹

- High operating pressures.
- Low noise emission.
- Available with built-in valves.
- Exceptional working life expectancy.

TYPICAL APPLICATIONS

- Building & Construction
- Material Handling
- Forestry
- Fan Drive



| | |
|---|-----------------|
| 1 | Shaft seal |
| 2 | Seal |
| 3 | Thrust plate |
| 4 | Body |
| 5 | Gear |
| 6 | Mounting flange |

01/10.2018

INSTRUCTIONS

INSTALLATION

Pump

The direction of rotation of single-rotation pumps must be the same as that of the drive shaft. Check that the coupling flange correctly aligns the transmission shaft and the pump shaft. Flexible couplings should be used (never rigid fittings) which will not generate an axial or radial load on the pump shaft.

Motor

The direction of rotation of single-rotation motors must match circuit connections. Check that the coupling flange correctly aligns the transmission shaft and the motor shaft. Flexible couplings should be used (never rigid fittings) which will not generate an axial or radial load on the motor shaft.

TANK

Tank capacity must be sufficient for the system's operating conditions (~ 3 times the amount of oil in circulation) to avoid overheating of the fluid. A heat exchanger should be installed if necessary. The intake and return lines in the tank must be spaced apart (by inserting a vertical divider) to prevent the return-line oil from being taken up again immediately.

LINES

The lines must have a major diameter which is at least as large as the diameter of pump or motor ports, and must be perfectly sealed. To reduce loss of power, the lines should be as short as possible, reducing the sources of hydraulic resistance (elbow, throttling, gate valves, etc.) to a minimum. A length of flexible tubing is recommended to reduce the transmission of vibrations. All return lines must end below the minimum oil level, to prevent foaming. Before connecting the lines, remove any plugs and make sure that the lines are perfectly clean.

HYDRAULIC FLUID

Use hydraulic fluid conforming to viscosity data as specified in the first pages of the catalogue. Avoid using mixtures of different oils which could result in decomposition and reduction of the oil's lubricating power.

FILTERS

We recommend filtering the entire system flow. Filters on suction and return line must be fitted in according to the contamination class as indicated in the first pages of the catalogue. Casappa recommends to use its own production filters:



STORAGE

The storage must be in a dry environment. Max storage time in ideal conditions is 24 months. The ideal storage temperature is between 5°C (41°F) and 20°C (68°F).

No problem in case of temperature between -40°C (-40°F) and 50°C (122°F). Below -40°C (-40°F) please contact us.

STARTING UP

Check that all circuit connections are tight and that the entire system is completely clean. Insert the oil in the tank, using a filter. Bleed the circuit to assist in filling. Set the pressure relief valves to the lowest possible setting. Turn on the system for a few moments at minimum speed, then bleed the circuit again and check the level of oil in the tank.

If the difference between pump or motor temperature and fluid temperature exceeds 10 °C (18 °F), rapidly switch the system on and off to heat it up gradually. Then gradually increase the pressure and speed of rotation until the pre-set operating levels as specified in the catalogue are attained.

COLD START

Cold start is meant short term and low idle. During cold start of the machine the following limits can be applied:

| | |
|---|--|
| Minimum inlet pressure | 0,5 bar abs. (7 psi) |
| Outlet pressure (pumps) Inlet pressure (motors) | ≤ 50 bar (725 psi) |
| Max drain pressure / Max back pressure for single rotation motors | + 50% of standard values |
| Speed | ≤ 1500 min ⁻¹ |
| Minimum temperature | -40 °C (-40 °F) |
| Max oil viscosity | 2000 mm ² /s (cSt) [9100 SSU] |

If the ambient temperature is lower than -20 °C (-4 °F) the system speed and pressure must be limited until the hydraulic oil temperature exceeds -20 °C (-4 °F).

PERIODICAL CHECKS - MAINTENANCE

Keep the outside surface clean especially in the area of the drive shaft seal. In fact, abrasive powder can accelerate wear on the seal and cause leakage. Replace filters regularly to keep the fluid clean. The oil level must be checked and oil replaced periodically depending on the system's operating conditions.

Replaces: 01/10.2018

03/06.2023

FEATURES

| | |
|---|--|
| Construction | External gear type pumps and motors |
| Mounting | European - SAE - standard flanges |
| Ports | Threaded and flange |
| Direction of rotation (looking at the drive shaft) | Anti-clockwise (S) - clockwise (D) - reversible external drain (R - L) reversible internal drain (B) |
| Inlet pressure range for pumps | 0,7 ÷ 3 bar abs. (10 ÷ 44 psi) If p > 1,5 bar abs. (22 psi) specific shaft sealing have to be applied. Please contact us for more information. |
| Max back pressure for single rotation motors | 5 bar (73 psi) continuous @ min. speed 350 min ⁻¹ 1 bar (14.5 psi) continuous @ max. speed (see page 8) |
| Max drain line pressure on reversible rotation motors | 5 bar (73 psi) continuous @ min. speed 350 min ⁻¹ 1 bar (14.5 psi) continuous @ max. speed (see page 8) |
| Max back pressure on in series motors | 150 bar (2175 psi) |
| Fluid temperature range | See table (1) |
| Fluid | Mineral oil based hydraulic fluids to ISO/DIN and fire resistant fluids [see table (1)] Please contact us for other fluids |
| Viscosity range | From 12 to 100 mm ² /s (cSt) [60 to 456 SSU] recommended Up to 750 mm ² /s (cSt) [3410 SSU] permitted |
| Filtering requirement and recommended fluid contamination | See table (2) page 6 |

Tab. 1

| Type | Fluid composition | Max pressure bar (psi) | Max speed min ⁻¹ | Temperature °C (°F) | | | Seals (●) | Shaft seals option (◆) |
|---------|--|------------------------|-----------------------------|---------------------|----------------|-----------|-------------|------------------------|
| | | | | Min | Max continuous | Max peak | | |
| ISO/DIN | Mineral oil based hydraulic fluid to ISO/DIN | See page 8 | See page 8 | -25 (-13) | 80 (176) | 100 (212) | N | D C4 |
| | | | | -25 (-13) | 110 (230) | 125 (257) | V | |
| | | | | -25 (-13) | 110 (230) | 125 (257) | T-PV | |
| HFA | Oil emulsion in water 5 ÷ 15% of oil | 50 (725) | 1500 | 2 (36) | 55 (131) | | N | D |
| HFB | Water emulsion in oil 40 % of water | 120 (1740) | 1500 | 2 (36) | 60 (140) | | N | |
| HFC | Water - glycol | 100 (1450) | 1500 | -20 (-4) | 60 (140) | | N Bz | |
| HFD | Phosphate ester | 150 (2175) | 1500 | -10 (14) | 80 (176) | | V Bz | |

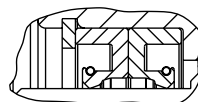
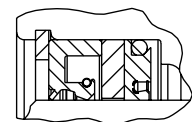
- (●) **N**= Buna NBR (standard) - **V**= Viton-FKM - **T-PV**= Hydrogenated buna HNBR seals with Viton-FKM shaft seals
N Bz= Buna NBR and Bronze thrust plates - **V Bz**= Viton-FKM and Bronze thrust plates

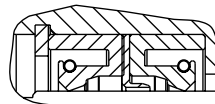
01/10.2018

D (◆) shaft seals with wiper seal

C4 (◆) High pressure special shaft seal (only with ISO/DIN hydraulic fluid)

Single rotation pumps

 Max drain line pressure:
0,5 bar (7 psi)

 Max drain line pressure:
10 bar (145 psi)

 Single rotation motors
 Reversible rotation pumps and motors

 Max drain line pressure:
5 bar (73 psi)


INSTRUCTIONS

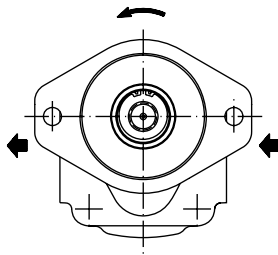
Tab. 2

| Working pressure bar (psi) | $\Delta p < 140$ (2030) | $140 < \Delta p < 210$ (2030) (3045) | $\Delta p > 210$ (3045) |
|--|----------------------------|---|----------------------------|
| Contamination class NAS 1638 | 10 | 9 | 8 |
| Contamination class ISO 4406:1999 | 21/19/16 | 20/18/15 | 19/17/14 |
| Achieved with filter $\beta_{10}(c) \geq 200$ according to ISO 16889 | - | 10 μm | 10 μm |
| Achieved with filter $\beta_{25}(c) \geq 200$ according to ISO 16889 | 25 μm | - | - |

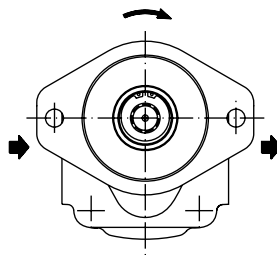
Casappa recommends to use its own production filters:



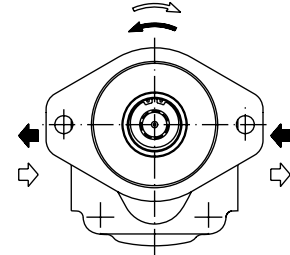
DEFINITION OF ROTATION DIRECTION LOOKING AT THE DRIVE SHAFT



Anti-clockwise rotation



Clockwise rotation



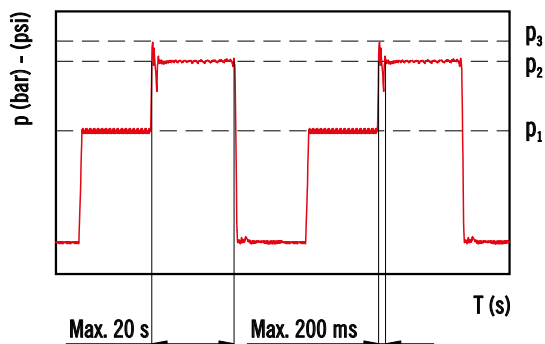
Reversible rotation

GENERAL NOTES

Available with different inlet and outlet ports. If you use fire resistant fluids, specify the fluid type when ordering. Please contact us for more information.

FEATURES

PRESSURE DEFINITION



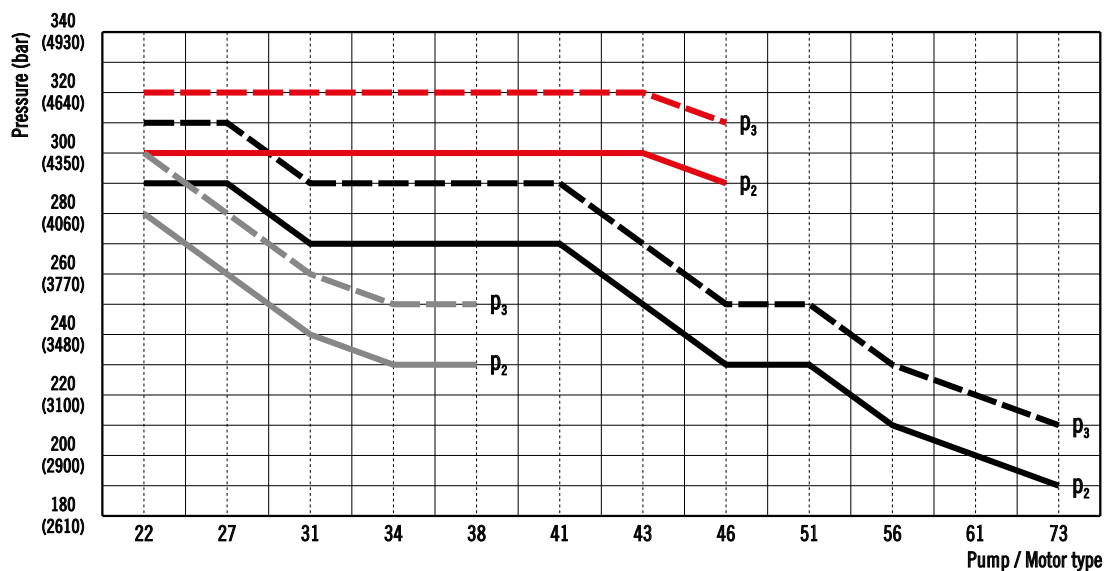
- p_1 Constant operating pressure
- p_2 System pressure (relief valve setting)
- p_3 Peak of pressure

The peak of pressure is the max pressure allowed and it corresponds to the overshoot of the relief valve.

Please note that both relief valve setting and overshoot must be lower than their limits.

If the relief setting is compliant but the overshoot is higher than the limit, the relief setting must be decreased until the overshoot is compliant to Casappa limit.

Please contact us for high frequency applications.



Body design: **BSC/BSL**
Characteristics: **High performance**



Body design: **CSC/CSL**
Characteristics: **Standard**



Body design: **HSC/KSL**
Characteristics: **Compact**

01/10.2018

Pressure values referred to side ports.

Please contact us for different configurations and working conditions.

FEATURES

| Pump type Motor type | Displacement cm ³ /rev (in ³ /rev) | Body design | Characteristics | Max. pressure | | | Max. speed min ⁻¹ | Min. speed |
|-------------------------|---|----------------|------------------|----------------|----------------|----------------|--|---------------|
| | | | | P ₁ | P ₂ | P ₃ | | |
| | | | | bar (psi) | | | | |
| K. 30•22 | 21,99 (1.34) | HSC / KSL | Compact | 260 (3770) | 280 (4060) | 300 (4350) | 3000 | 350 |
| | | CSC / CSL | Standard | 270 (3915) | 290 (4205) | 310 (4495) | | |
| | | BSC / BSL | High performance | 280 (4060) | 300 (4350) | 320 (4640) | | |
| K. 30•27 | 26,7 (1.63) | HSC / KSL | Compact | 240 (3480) | 260 (3770) | 280 (4060) | 3000 | 350 |
| | | CSC / CSL | Standard | 270 (3915) | 290 (4205) | 310 (4495) | | |
| | | BSC / BSL | High performance | 280 (4060) | 300 (4350) | 320 (4640) | | |
| K. 30•31 | 30,63 (1.87) | HSC / KSL | Compact | 220 (3190) | 240 (3480) | 260 (3770) | 3000 | 350 |
| | | CSC / CSL | Standard | 250 (3625) | 270 (3915) | 290 (4205) | | |
| | | BSC / BSL | High performance | 280 (4060) | 300 (4350) | 320 (4640) | | |
| K. 30•34 | 34,56 (2.11) | HSC / KSL | Compact | 210 (3045) | 230 (3335) | 250 (3625) | 3000 | 350 |
| | | CSC / CSL | Standard | 250 (3625) | 270 (3915) | 290 (4205) | | |
| | | BSC / BSL | High performance | 280 (4060) | 300 (4350) | 320 (4640) | | |
| K. 30•38 | 39,27 (2.40) | HSC / KSL | Compact | 210 (3045) | 230 (3335) | 250 (3625) | 3000 | 350 |
| | | CSC / CSL | Standard | 250 (3625) | 270 (3915) | 290 (4205) | | |
| | | BSC / BSL | High performance | 280 (4060) | 300 (4350) | 320 (4640) | | |
| K. 30•41 | 41,62 (2.54) | CSC / CSL | Standard | 250 (3625) | 270 (3915) | 290 (4205) | 3000 | 350 |
| | | BSC / BSL | High performance | 280 (4060) | 300 (4350) | 320 (4640) | | |
| K. 30•43 | 43,98 (2.68) | CSC / CSL | Standard | 230 (3335) | 250 (3625) | 270 (3915) | 3000 | 350 |
| | | BSC / BSL | High performance | 280 (4060) | 300 (4350) | 320 (4640) | | |
| K. 30•46 | 46,34 (2.83) | CSC / CSL | Standard | 210 (3045) | 230 (3335) | 250 (3625) | 3000 | 350 |
| | | BSC / BSL | High performance | 270 (3915) | 290 (4205) | 310 (4495) | | |
| K. 30•51 | 51,83 (3.16) | CSC / CSL | Standard | 210 (3045) | 230 (3335) | 250 (3625) | 2500 | 350 |
| K. 30•56 | 56,54 (3.45) | CSC / CSL | Standard | 190 (2755) | 210 (3045) | 230 (3335) | 2500 | 350 |
| K. 30•61 | 61,26 (3.74) | CSC / CSL | Standard | 180 (2610) | 200 (2900) | 220 (3190) | 2500 | 350 |
| K. 30•73 | 73,82 (4.50) | CSC / CSL | Standard | 170 (2465) | 190 (2755) | 210 (3045) | 2500 | 350 |

Pressure values in the table refer to side ports unidirectional pumps and motors.
 For reversible pumps and motors, max pressures are 250 bar (3600 psi) excepted those with lower pressures value.
 Please contact us for different configurations and working conditions.

FEATURES

Replaces: 01/10.2018

| | | |
|---|---|-----------------------------|
| Q | l/min (US gpm) | Flow |
| M | Nm (lbf in) | Torque |
| P | kW (HP) | Power |
| V | cm ³ /rev (in ³ /rev) | Displacement |
| n | min ⁻¹ | Speed |
| Δp | bar (psi) | Pressure |
| $\eta_v = \eta_v(V, \Delta p, n)$ | | Volumetric efficiency |
| $\eta_{hm} = \eta_{hm}(V, \Delta p, n)$ | | Hydro-mechanical efficiency |
| $\eta_t = \eta_v \cdot \eta_{hm}$ | | Overall efficiency |



Design calculations for pump

$$Q = Q_{\text{theor.}} \cdot \eta_v \quad [\text{l/min}]$$

$$Q_{\text{theor.}} = \frac{V \cdot n}{1000} \quad [\text{l/min}]$$

$$M = \frac{M_{\text{theor.}}}{\eta_{hm}} \quad [\text{Nm}]$$

$$M_{\text{theor.}} = \frac{\Delta p \cdot V}{62,83} \quad [\text{Nm}]$$

$$P_{\text{IN}} = \frac{P_{\text{OUT}}}{\eta_t} \quad [\text{kW}]$$

$$P_{\text{OUT}} = \frac{\Delta p \cdot Q}{600} \quad [\text{kW}]$$

Design calculations for motor

$$Q = \frac{Q_{\text{theor.}}}{\eta_v} \quad [\text{l/min}]$$

$$Q_{\text{theor.}} = \frac{V \cdot n}{1000} \quad [\text{l/min}]$$

$$M = M_{\text{theor.}} \cdot \eta_{hm} \quad [\text{Nm}]$$

$$M_{\text{theor.}} = \frac{\Delta p \cdot V}{62,83} \quad [\text{Nm}]$$

$$P_{\text{IN}} = \frac{\Delta p \cdot Q}{600} \quad [\text{kW}]$$

$$P_{\text{OUT}} = P_{\text{IN}} \cdot \eta_t \quad [\text{kW}]$$

Note: Diagrams providing approximate selection data will be found on subsequent pages.

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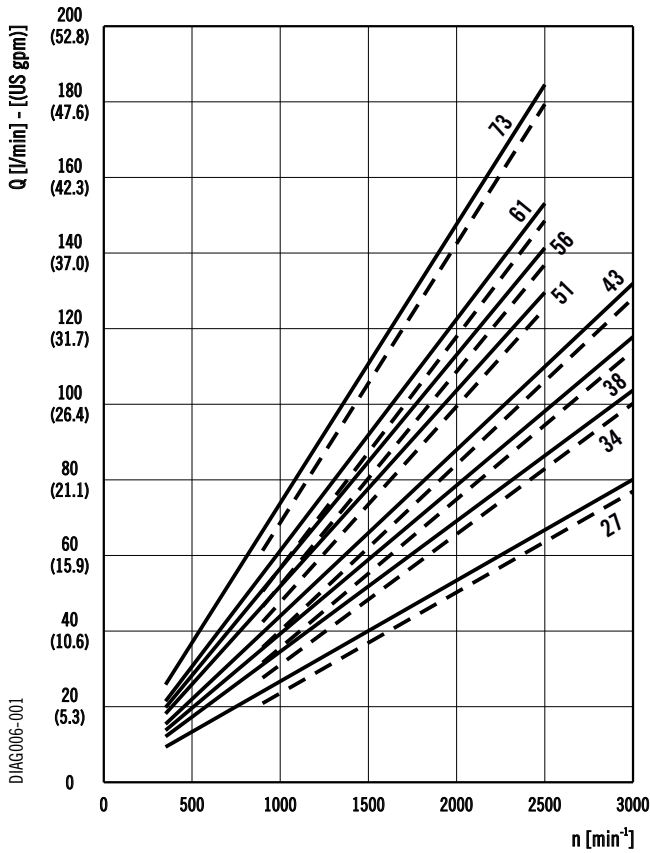


KP 30

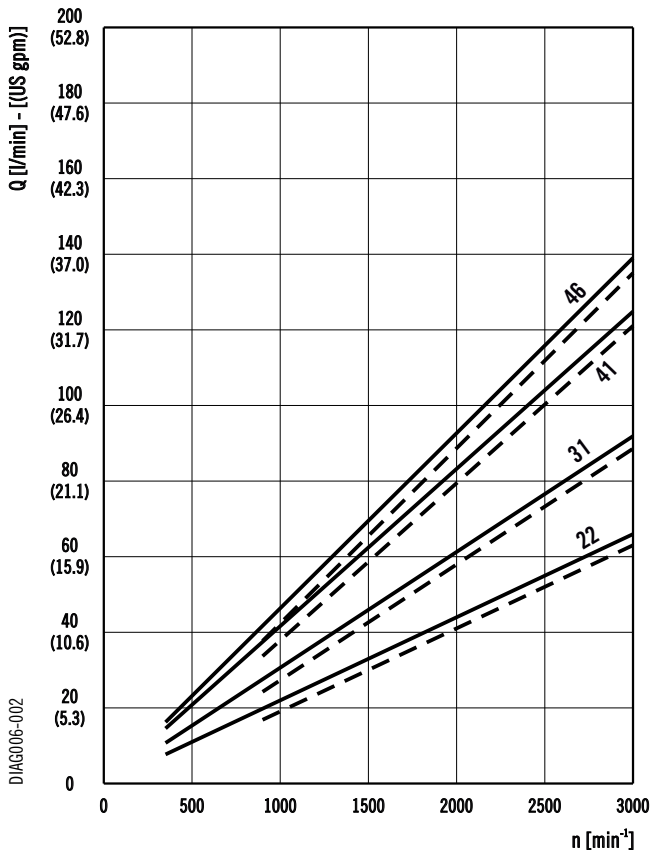
GEAR PUMPS PERFORMANCE CURVES

Diagrams refer to standard performance pumps.

Each curve has been obtained at 50°C (122 °F), using oil with viscosity 36 cSt (168 SSU) at 40°C (104 °F) and at these pressures.



| | | |
|-----------------|-----|--------------------|
| KP 30•27 | — | 20 bar (290 psi) |
| | - - | 270 bar (3915 psi) |
| KP 30•34 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KP 30•38 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KP 30•43 | — | 20 bar (290 psi) |
| | - - | 230 bar (3335 psi) |
| KP 30•51 | — | 20 bar (290 psi) |
| | - - | 210 bar (3045 psi) |
| KP 30•56 | — | 20 bar (290 psi) |
| | - - | 190 bar (2755 psi) |
| KP 30•61 | — | 20 bar (290 psi) |
| | - - | 180 bar (2610 psi) |
| KP 30•73 | — | 20 bar (290 psi) |
| | - - | 170 bar (2465 psi) |



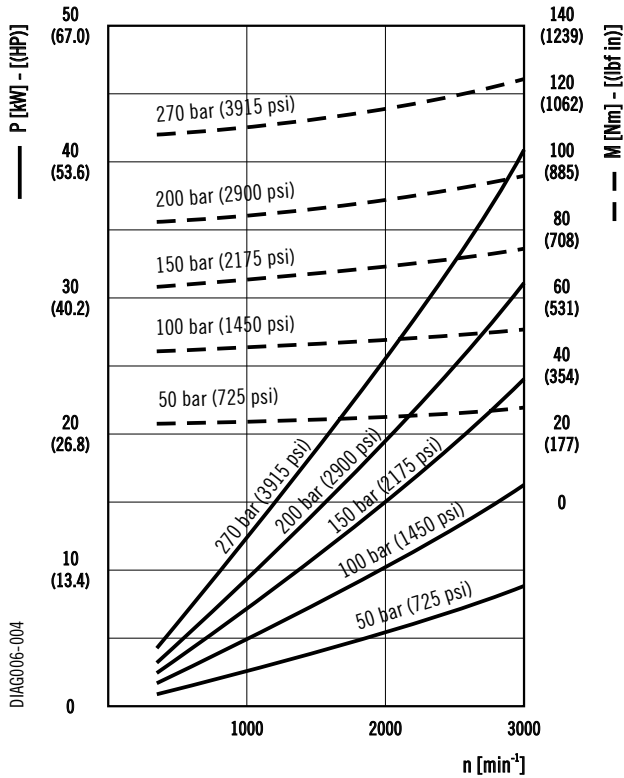
| | | |
|-----------------|-----|--------------------|
| KP 30•22 | — | 20 bar (290 psi) |
| | - - | 270 bar (3915 psi) |
| KP 30•31 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KP 30•41 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KP 30•46 | — | 20 bar (290 psi) |
| | - - | 210 bar (3045 psi) |

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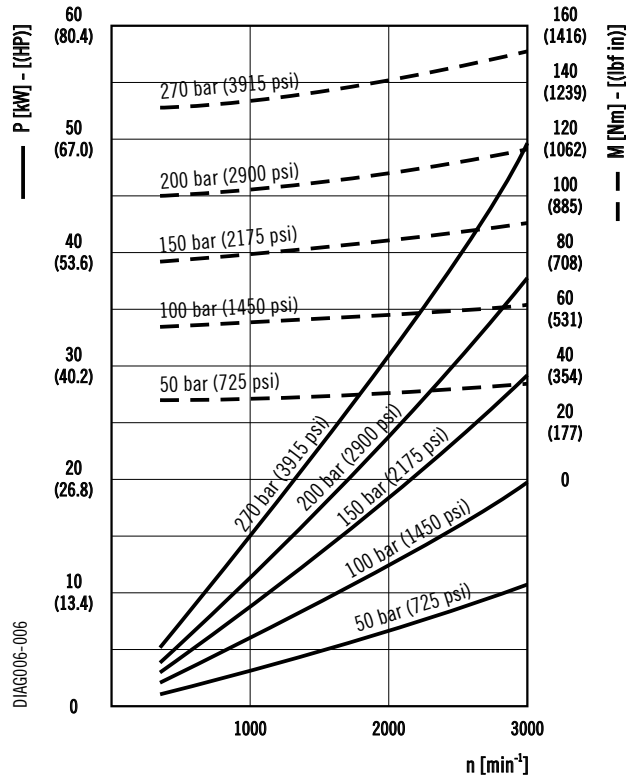
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GEAR PUMPS PERFORMANCE CURVES

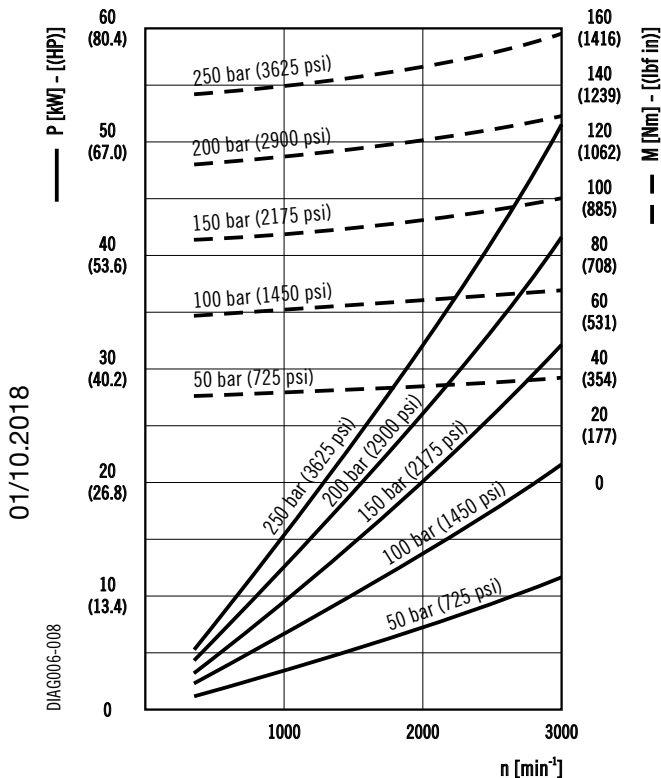
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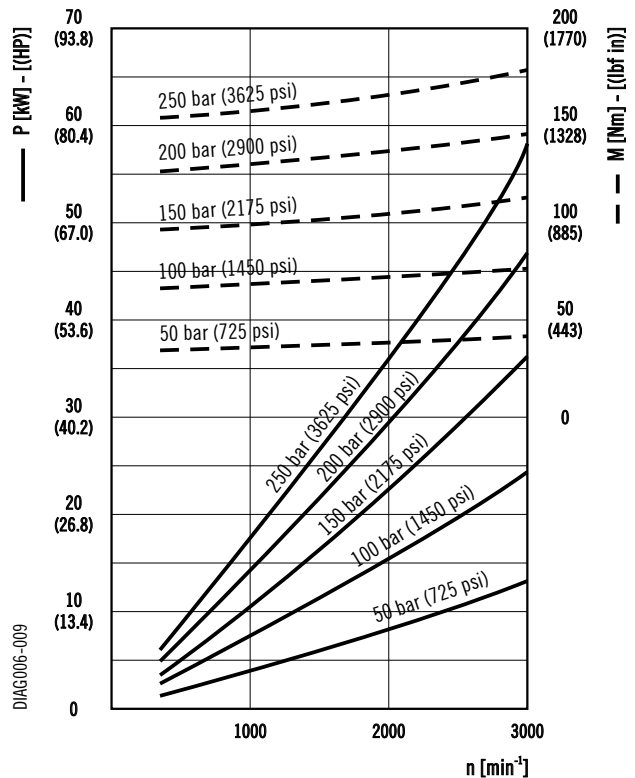
KP 30•27



KP 30•31



KP 30•34

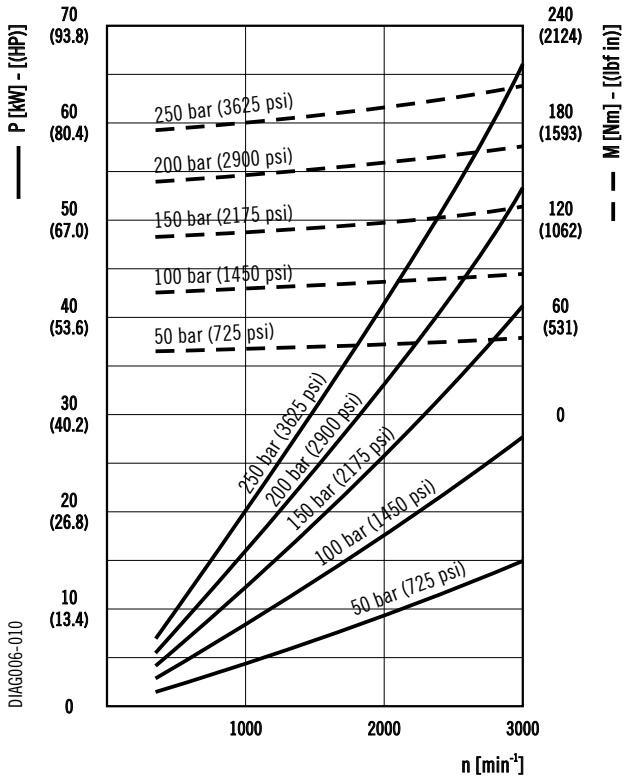


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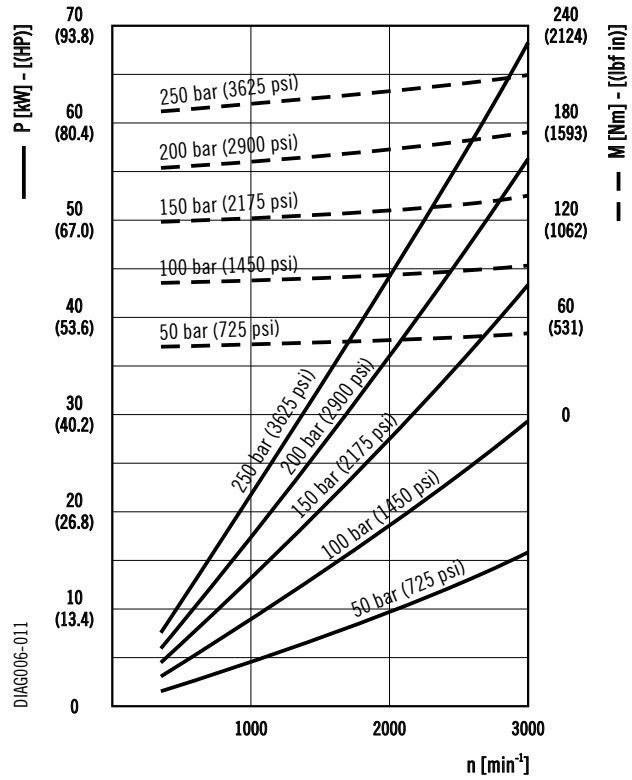
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GEAR PUMPS PERFORMANCE CURVES

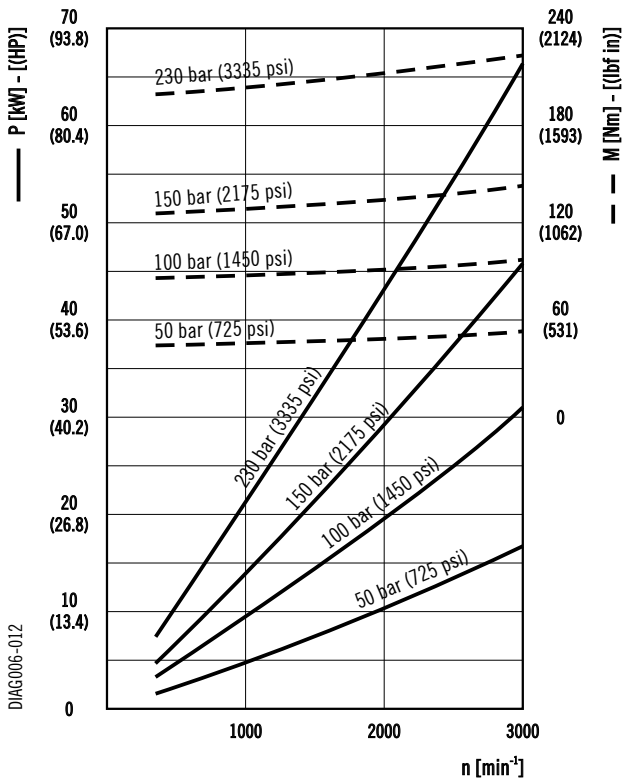
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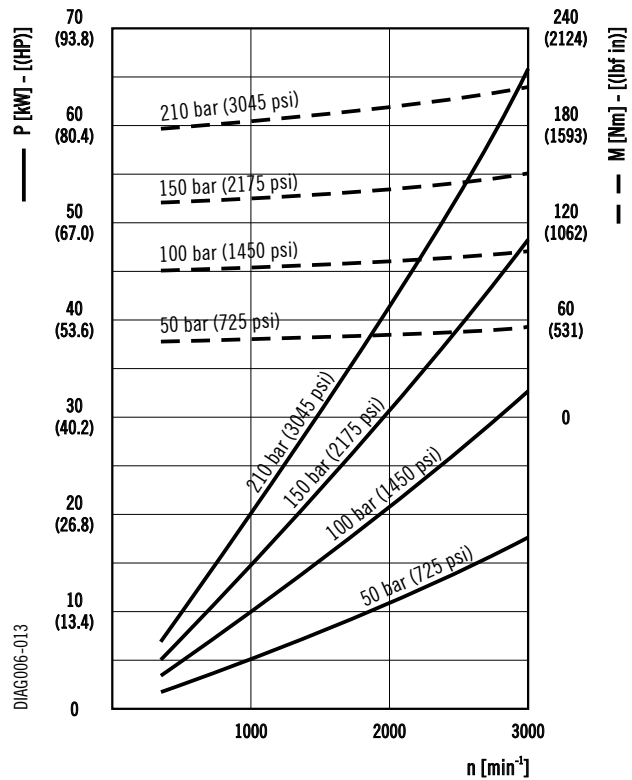
KP 30•41



KP 30•43



KP 30•46

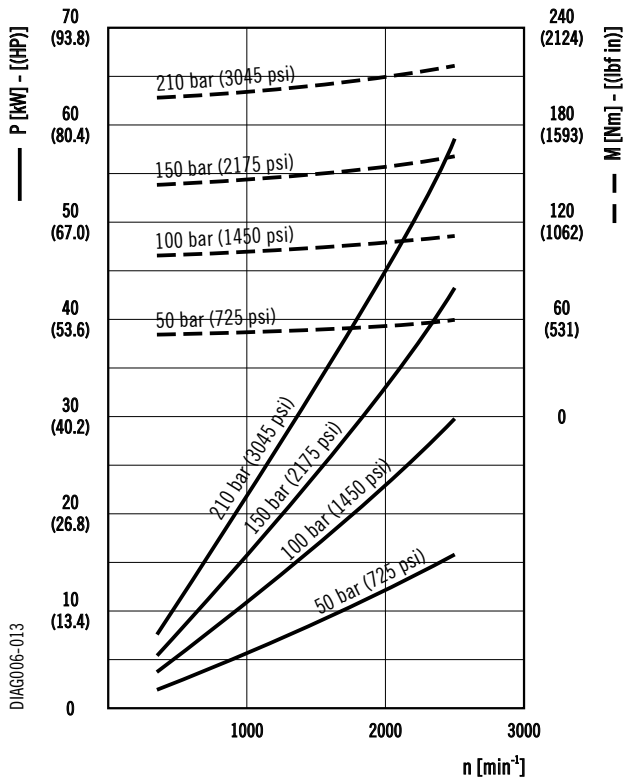


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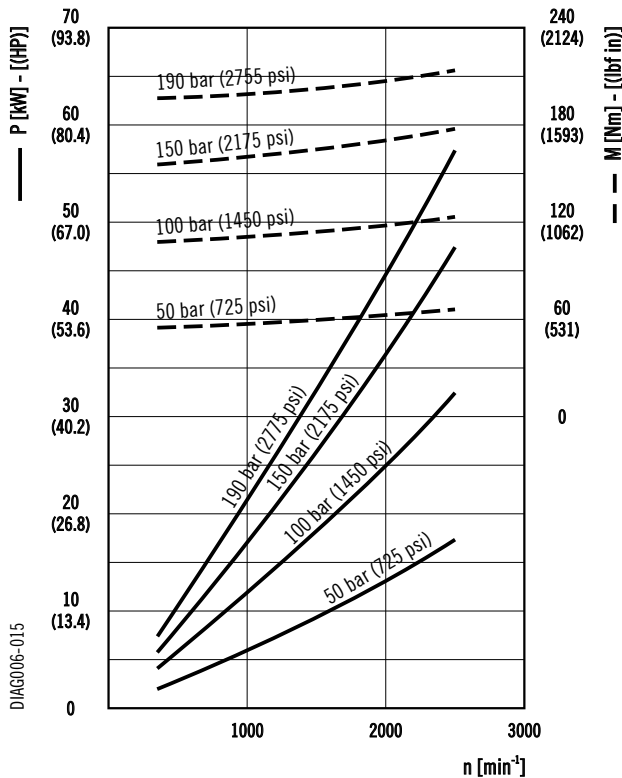
KP 30

GEAR PUMPS PERFORMANCE CURVES

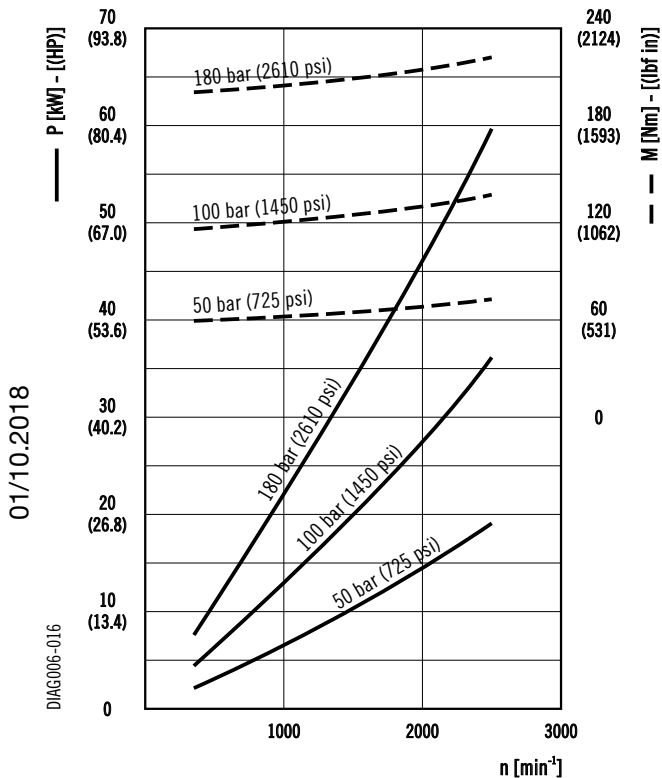
KP 30•51



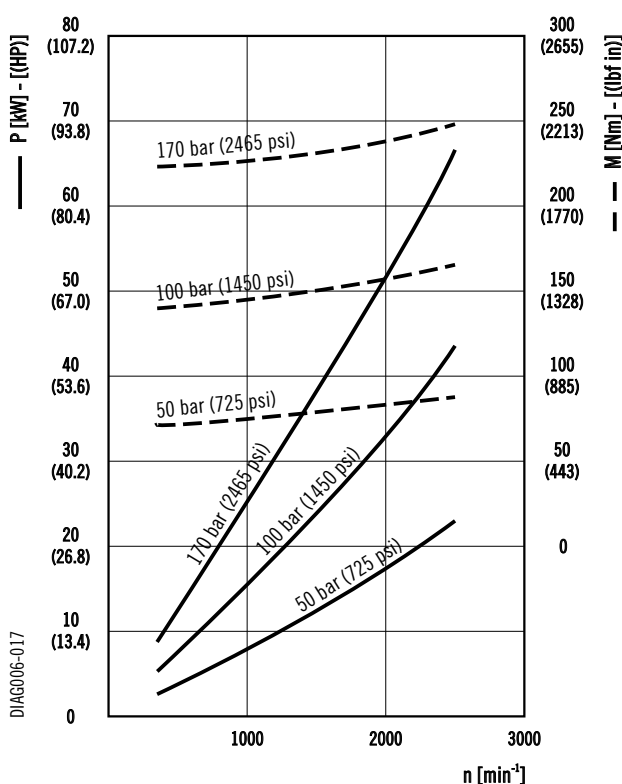
KP 30•56



KP 30•61



KP 30•73



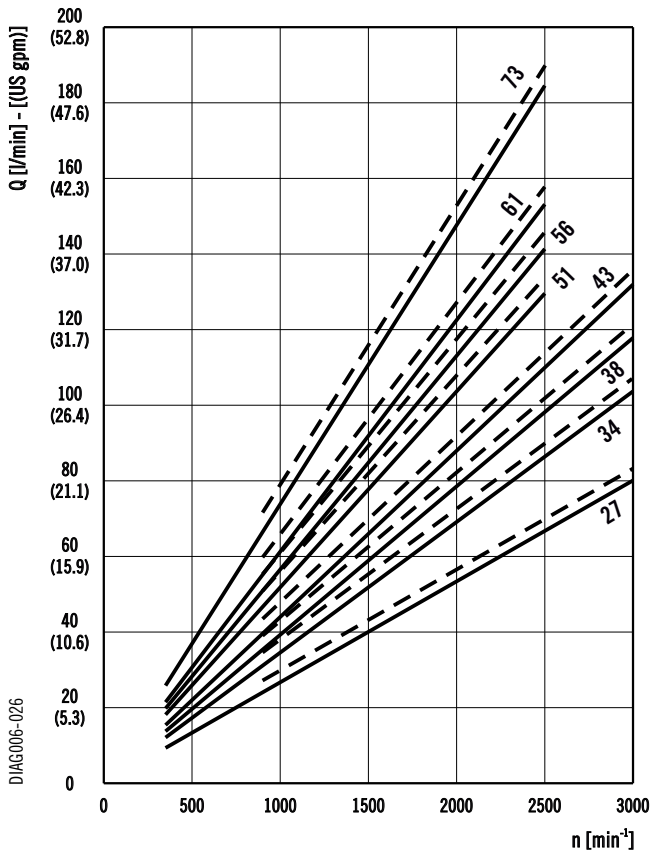
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KM 30

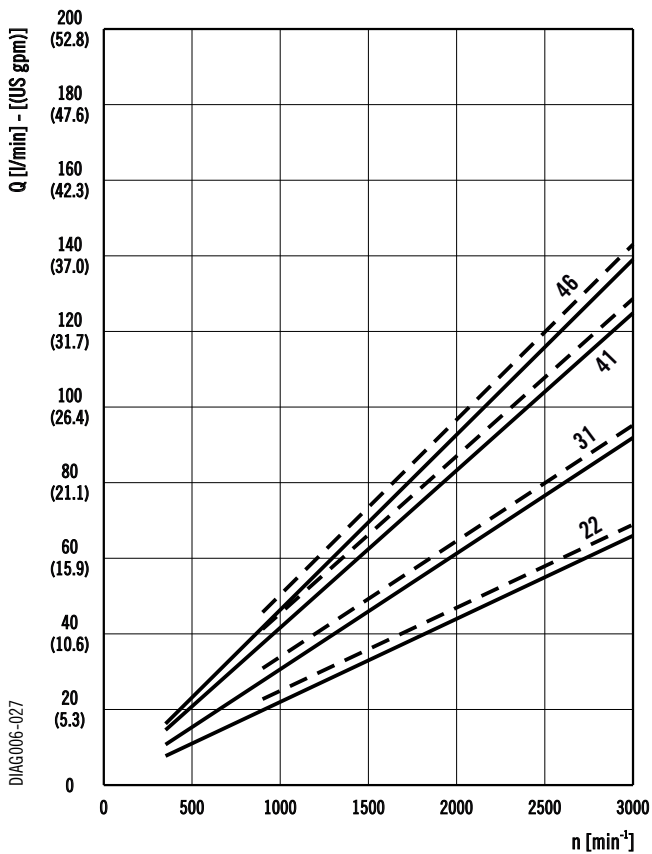
GEAR MOTORS PERFORMANCE CURVES

Diagrams refer to standard performance pumps.

Each curve has been obtained at 50°C (122 °F), using oil with viscosity 36 cSt (168 SSU) at 40°C (104 °F) and at these pressures.



| | | |
|-----------------|-----|--------------------|
| KM 30•27 | — | 20 bar (290 psi) |
| | - - | 270 bar (3915 psi) |
| KM 30•34 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KM 30•38 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KM 30•43 | — | 20 bar (290 psi) |
| | - - | 230 bar (3335 psi) |
| KM 30•51 | — | 20 bar (290 psi) |
| | - - | 210 bar (3045 psi) |
| KM 30•56 | — | 20 bar (290 psi) |
| | - - | 190 bar (2755 psi) |
| KM 30•61 | — | 20 bar (290 psi) |
| | - - | 180 bar (2610 psi) |
| KM 30•73 | — | 20 bar (290 psi) |
| | - - | 170 bar (2465 psi) |



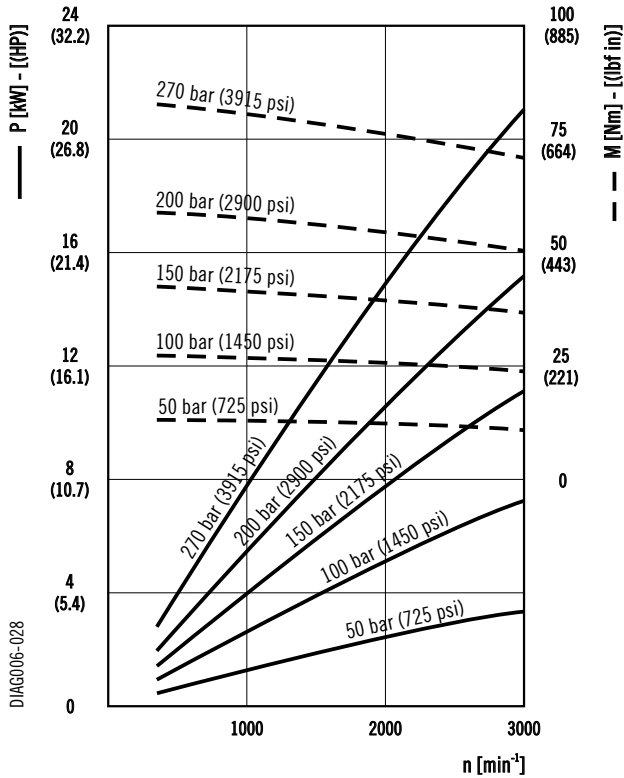
| | | |
|-----------------|-----|--------------------|
| KM 30•22 | — | 20 bar (290 psi) |
| | - - | 270 bar (3915 psi) |
| KM 30•31 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KM 30•41 | — | 20 bar (290 psi) |
| | - - | 250 bar (3625 psi) |
| KM 30•46 | — | 20 bar (290 psi) |
| | - - | 210 bar (3045 psi) |

01/10.2018

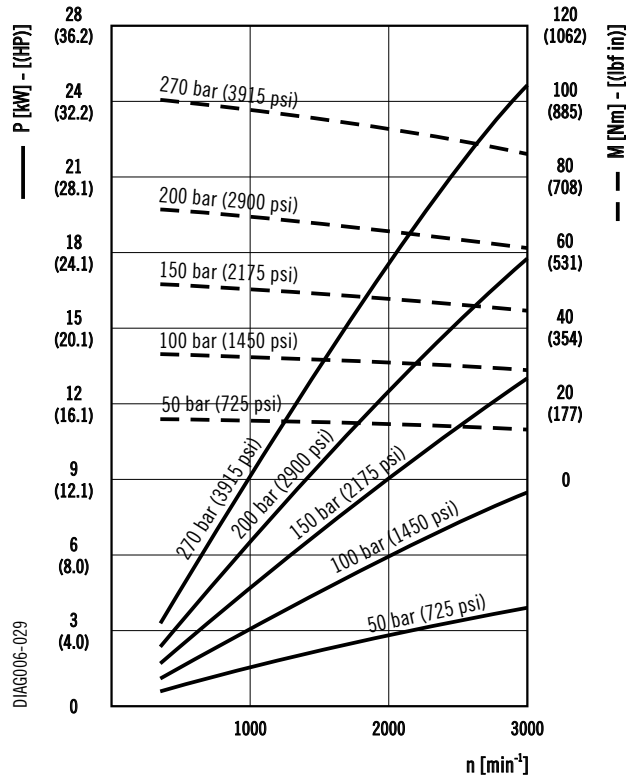
KM 30

GEAR MOTORS PERFORMANCE CURVES

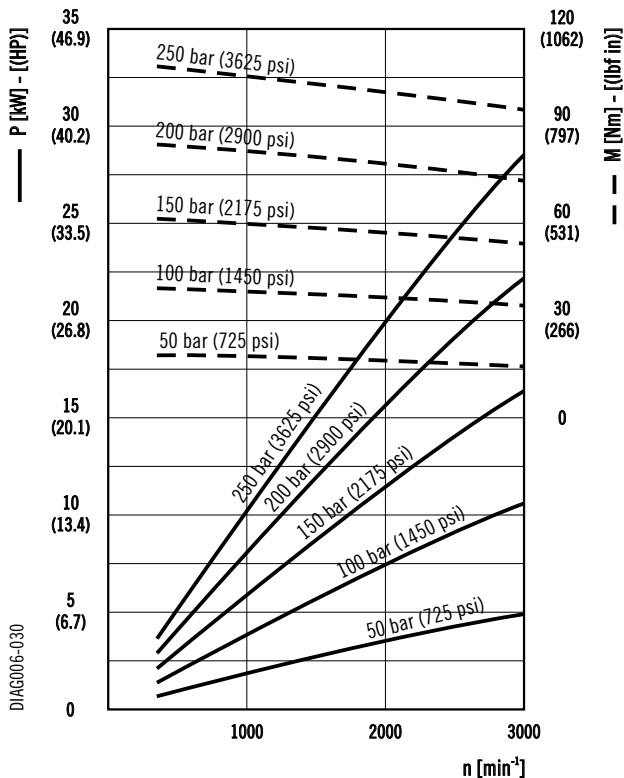
KM 30•22



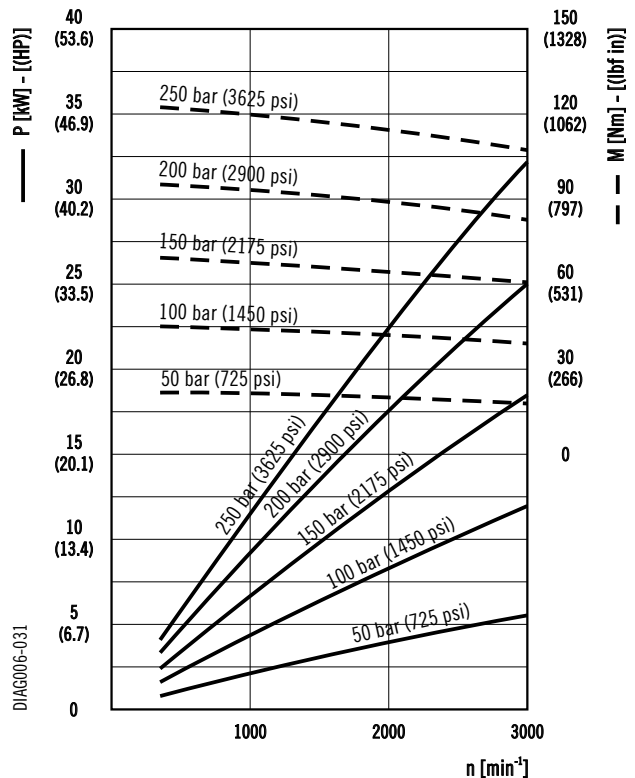
KM 30•27



KM 30•31



KM 30•34

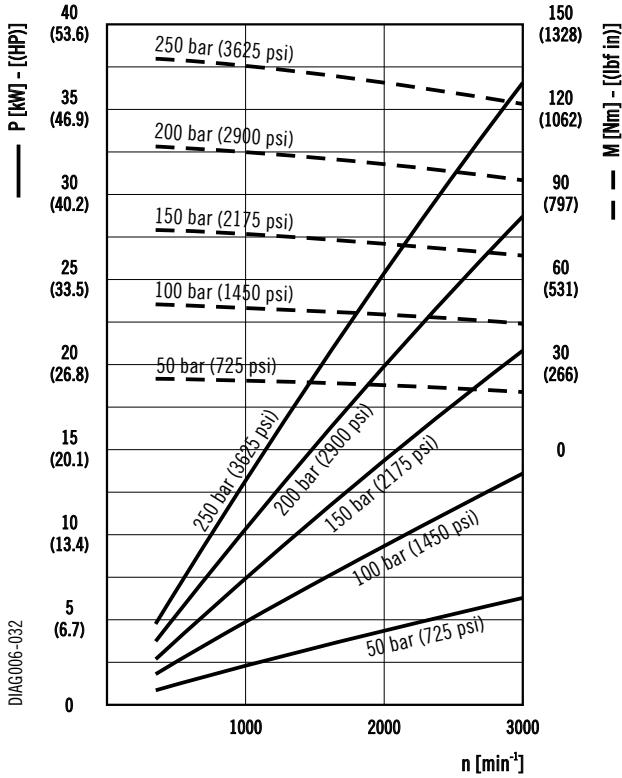


01/10.2018

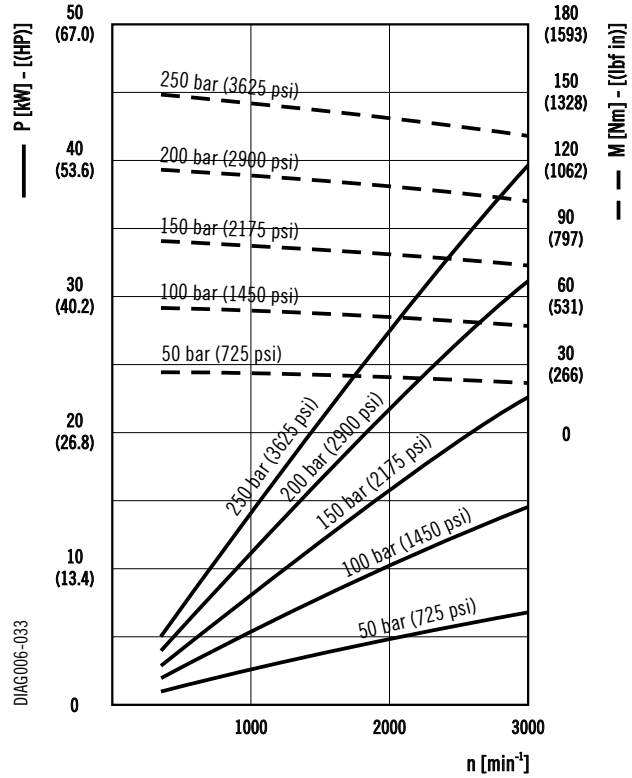
KM 30

GEAR MOTORS PERFORMANCE CURVES

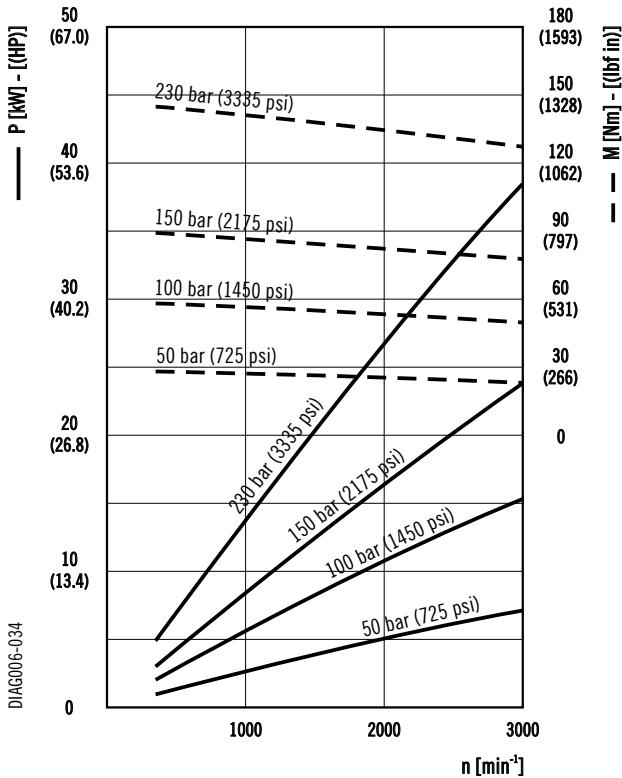
KM 30•38



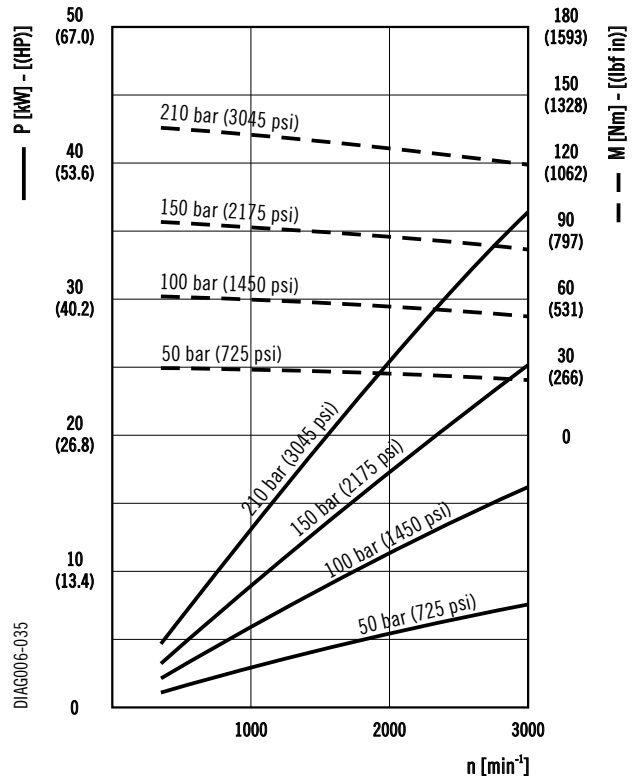
KM 30•41



KM 30•43



KM 30•46

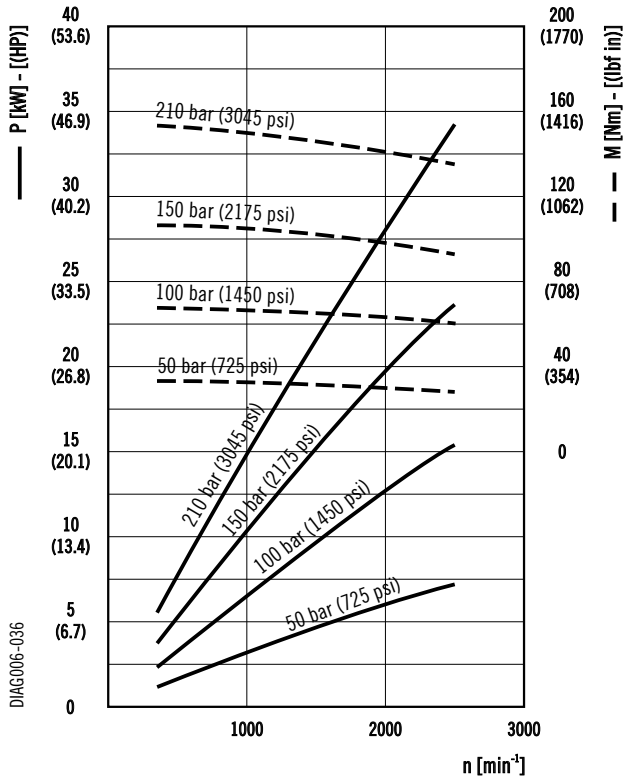


01/10.2018

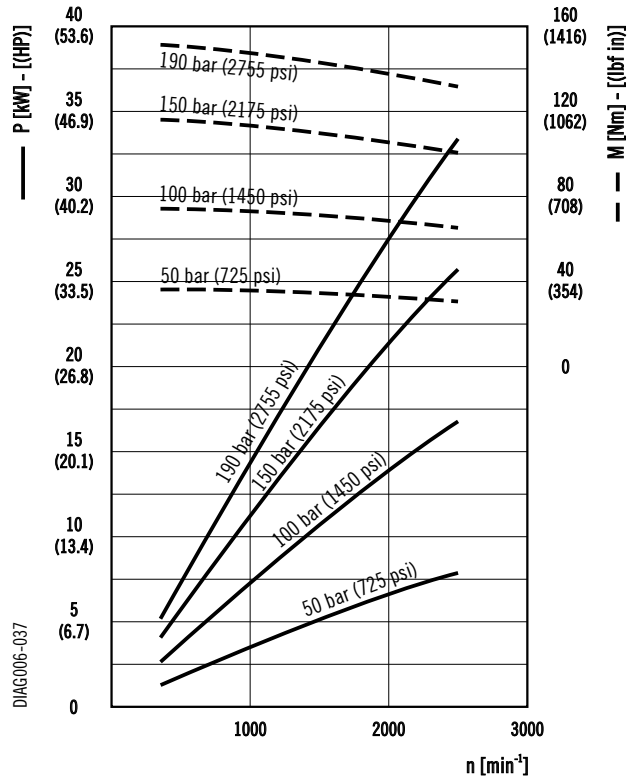
KM 30

GEAR MOTORS PERFORMANCE CURVES

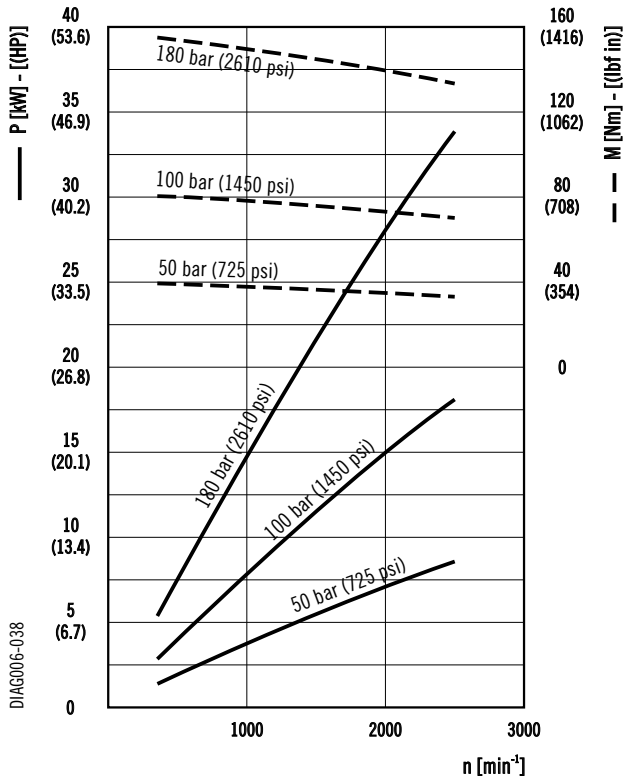
KM 30•51



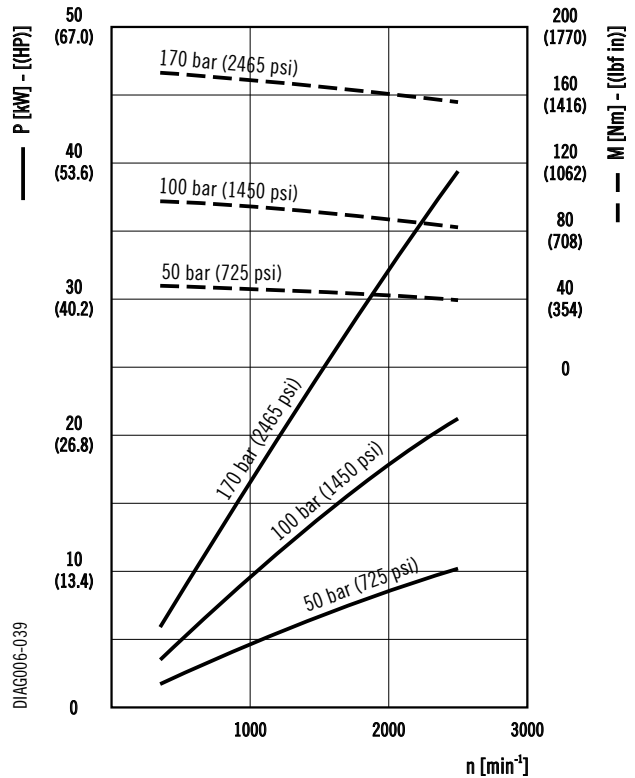
KM 30•56



KM 30•61



KM 30•73



01/10.2018

KAPPA 30

SINGLE UNITS DIMENSIONS - SIDE PORTS

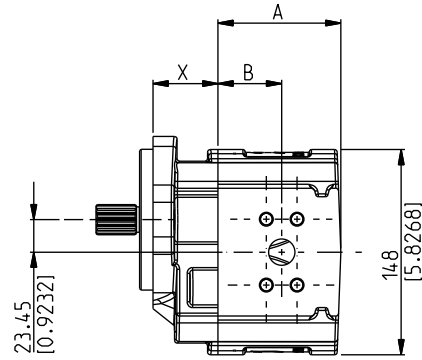
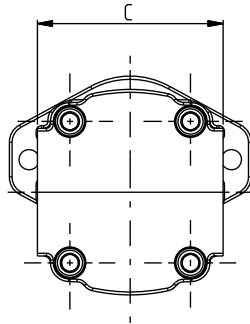
CSC

Body design: CSC
Characteristics: Standard

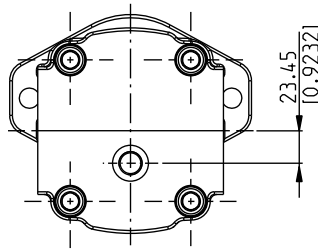
Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see
pages 40 ÷ 44

Ports availability: European, Split, Gas,
SAE. See page 45

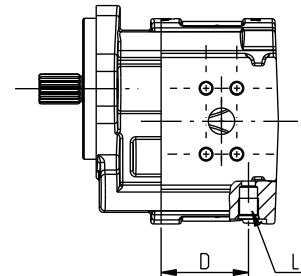
DCAT_006_007_03571388



Unidirectional rotation S-D and reversible rotation B



Reversible rotation R



Reversible rotation L

| Pump type Motor type | A | | B | | C | | D |
|-------------------------|--------------|-------------|------------|------------|-------------------------------------|--|------------------------------|
| | mm (inch) | | mm (inch) | | European - Split ports mm (inch) | | Gas - SAE ports mm (inch) |
| K. 30•22 | 80,5 (3.17) | 38 (1.50) | 134 (5.28) | 142 (5.59) | 61,5 (2.42) | | |
| K. 30•27 | 83,5 (3.29) | 41 (1.61) | 134 (5.28) | 142 (5.59) | 64,7 (2.55) | | |
| K. 30•31 | 86 (3.39) | 43,5 (1.71) | 134 (5.28) | 142 (5.59) | 67 (2.64) | | |
| K. 30•34 | 88,5 (3.48) | 46 (1.811) | 134 (5.28) | 142 (5.59) | 69,5 (2.74) | | |
| K. 30•38 | 91,5 (3.60) | 49 (1.93) | 134 (5.28) | 142 (5.59) | 69,5 (2.74) | | |
| K. 30•41 | 93 (3.66) | 50,5 (1.99) | 134 (5.28) | 142 (5.59) | 73 (2.87) | | |
| K. 30•43 | 94,5 (3.72) | 52 (2.05) | 134 (5.28) | 142 (5.59) | 74,5 (2.93) | | |
| K. 30•46 | 96 (3.79) | 53,5 (2.10) | 134 (5.28) | 142 (5.59) | 76 (2.99) | | |
| K. 30•51 | 99,5 (3.92) | 57 (2.24) | 134 (5.28) | 142 (5.59) | 79,5 (3.13) | | |
| K. 30•56 | 102,5 (4.04) | 60 (2.36) | 134 (5.28) | 142 (5.59) | 82,5 (3.25) | | |
| K. 30•61 | 105,5 (4.15) | 63 (2.48) | 134 (5.28) | 142 (5.59) | 86 (3.39) | | |
| K. 30•73 | 113,5 (4.47) | 71 (2.80) | 134 (5.28) | 142 (5.59) | 94 (3.70) | | |

01/10.2018

KAPPA 30

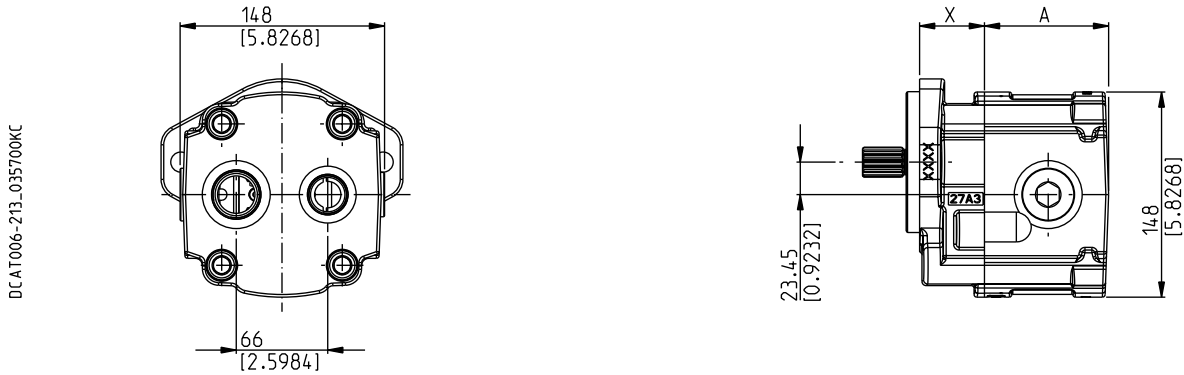
SINGLE UNITS DIMENSIONS - REAR PORTS

CSC

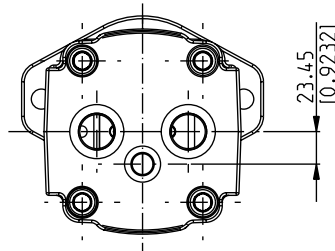
Body design: CSC
Characteristics: Standard

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see
pages 40 ÷ 44

Ports availability: Gas, SAE.
See page 45



Unidirectional rotation S-D and reversible rotation B



Reversible rotation R

01/10.2018

| Pump type Motor type | A |
|-------------------------|-------------|
| | mm (inch) |
| K. 30•22 | 76 (2.99) |
| K. 30•27 | 79 (3.11) |
| K. 30•31 | 81,5 (3.21) |
| K. 30•34 | 84 (3.31) |
| K. 30•38 | 87 (3.43) |
| K. 30•41 | 88,5 (3.48) |
| K. 30•43 | 90 (3.54) |
| K. 30•46 | 91,5 (3.60) |
| K. 30•51 | 95 (3.74) |
| K. 30•56 | 98 (3.86) |
| K. 30•61 | 101 (3.98) |
| K. 30•73 | 109 (4.29) |

KAPPA 30

SINGLE UNITS DIMENSIONS - SIDE PORTS

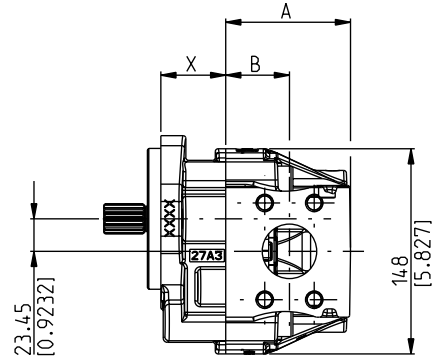
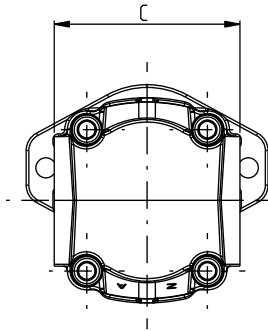
HSC

Body design: HSC
Characteristics: Compact

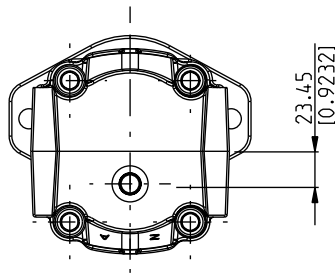
Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see
pages 40 ÷ 44

Ports availability: European, Split, Gas,
SAE. See page 45

DCAT006-200_035700LH



Unidirectional rotation S-D and reversible rotation B



Reversible rotation R

01/10.2018

| Pump type Motor type | A | | B | | C | |
|-------------------------|-------------|--|-------------|--|------------------------|-----------------|
| | | | | | European - Split ports | Gas - SAE ports |
| | mm (inch) | | mm (inch) | | mm (inch) | mm (inch) |
| K. 30•22 | 80,5 (3.17) | | 38 (1.50) | | 134 (5.28) | 142 (5.59) |
| K. 30•27 | 83,5 (3.29) | | 41 (1.61) | | 134 (5.28) | 142 (5.59) |
| K. 30•31 | 86 (3.39) | | 43,5 (1.71) | | 134 (5.28) | 142 (5.59) |
| K. 30•34 | 88,5 (3.48) | | 46 (1.81) | | 134 (5.28) | 142 (5.59) |
| K. 30•38 | 88,5 (3.48) | | 46 (1.81) | | 134 (5.28) | 142 (5.59) |

KAPPA 30

SINGLE UNITS DIMENSIONS - REAR PORTS

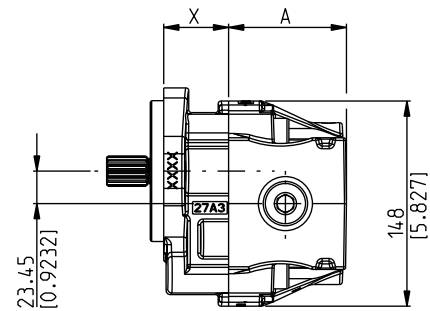
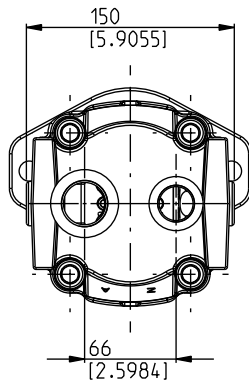
HSC

Body design: HSC
Characteristics: Compact

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see
pages 40 ÷ 44

Ports availability: Gas, SAE.
See page 45

DCAT006-225



Unidirectional rotation S-D

01/10.2018

Pump type
Motor type

A

mm (inch)

| | |
|-----------------|-------------|
| K. 30•22 | 80,5 (3.17) |
| K. 30•27 | 83,5 (3.29) |
| K. 30•31 | 86 (3.39) |
| K. 30•34 | 88,5 (3.48) |
| K. 30•38 | 88,5 (3.48) |

KAPPA 30

SINGLE UNITS DIMENSIONS - SIDE PORTS

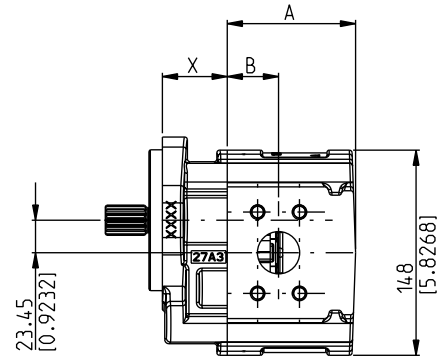
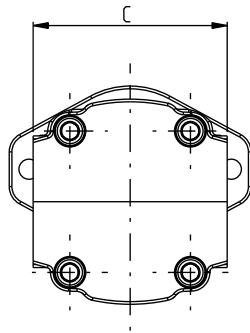
BSC

Body design: BSC
Characteristics: High performance

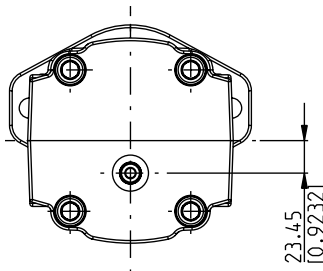
Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see
pages 40 ÷ 44

Ports availability: European, Split, Gas,
SAE. See page 45

DCAT006-216



Unidirectional rotation S-D and reversible rotation B



Reversible rotation R

| Pump type Motor type | A | B | C | |
|-------------------------|-------------|-------------|------------------------|-----------------|
| | | | European - Split ports | Gas - SAE ports |
| | mm (inch) | mm (inch) | mm (inch) | mm (inch) |
| K. 30•22 | 81,6 (3.21) | 26 (1.02) | 140 (5.51) | 148 (5.83) |
| K. 30•27 | 84,6 (3.33) | 29 (1.14) | 140 (5.51) | 148 (5.83) |
| K. 30•31 | 87,1 (3.43) | 31,5 (1.24) | 140 (5.51) | 148 (5.83) |
| K. 30•34 | 89,6 (3.53) | 34 (1.34) | 140 (5.51) | 148 (5.83) |
| K. 30•38 | 92,6 (3.65) | 37 (1.46) | 140 (5.51) | 148 (5.83) |
| K. 30•41 | 94,1 (3.70) | 38,5 (1.52) | 140 (5.51) | 148 (5.83) |
| K. 30•43 | 95,6 (3.76) | 40 (1.57) | 140 (5.51) | 148 (5.83) |
| K. 30•46 | 97,1 (3.82) | 41,5 (1.63) | 140 (5.51) | 148 (5.83) |

01/10.2018

KAPPA 30

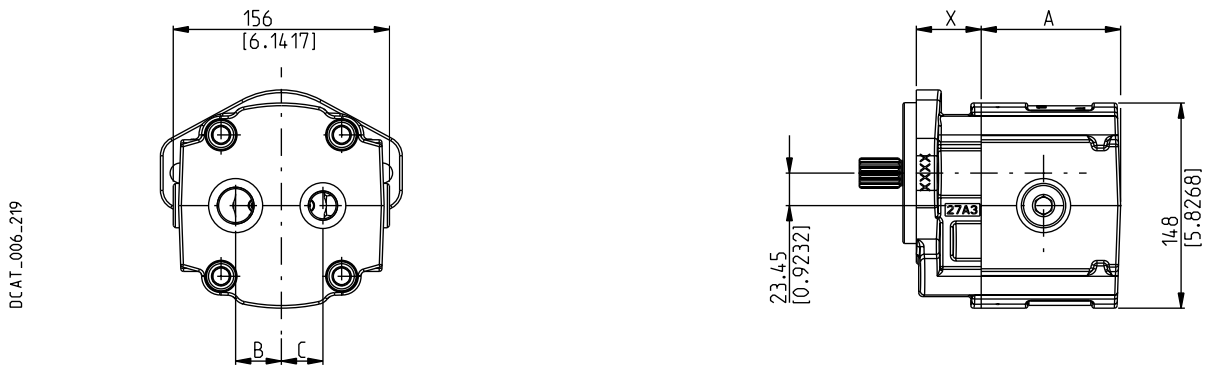
SINGLE UNITS DIMENSIONS - REAR PORTS

BSC

Body design: BSC
Characteristics: High performance

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see
pages 40 ÷ 44

Ports availability: Gas, SAE.
See page 45



Unidirectional rotation S-D

01/10.2018

| Pump type | A |
|-----------------|-------------|
| Motor type | mm (inch) |
| K. 30•22 | 81,6 (3.21) |
| K. 30•27 | 84,6 (3.33) |
| K. 30•31 | 87,1 (3.43) |
| K. 30•34 | 89,6 (3.53) |
| K. 30•38 | 92,6 (3.65) |
| K. 30•41 | 94,1 (3.70) |
| K. 30•43 | 95,6 (3.76) |
| K. 30•46 | 97,1 (3.82) |

MULTIPLE PUMPS

KAPPA series pumps can be coupled together in combination. In applications where the input power requirement of each section varies, the section with the greater requirement must be at the drive shaft end, and progressively smaller to the rear.

Features and performances are the same as the corresponding single pumps, but pressures must be limited by the transmissible torque of the drive and connecting shafts. To have appropriate data, use the formula below.

The maximum rotational speed is that of the lowest rated speed of the single units incorporated.

Available with common inlet. Please contact us for more information.

Replaces: 01/10.2018

| | | |
|---|---|-----------------------------|
| M | Nm (lbf in) | Torque |
| V | cm ³ /rev (in ³ /rev) | Displacement |
| Δp | bar (psi) | Pressure |
| $\eta_{hm} = \eta_{hm}(V, \Delta p, n)$ | | Hydro-mechanical efficiency |



$$M = \frac{M_{theor.}}{\eta_{hm}} \quad [Nm]$$

$$M_{theor.} = \frac{\Delta p \text{ (bar)} \cdot V \text{ (cm}^3\text{/rev)}}{62,83}$$

Note:

The torque absorbed from the shaft of the first pump results from the sum of the torques due to all single stages. The achieved value must not exceed the maximum torque limit given for the shaft of the first pump.

For multiple pumps with more than two sections we recommend to use a bracket.

03/06.2023

KAPPA 30

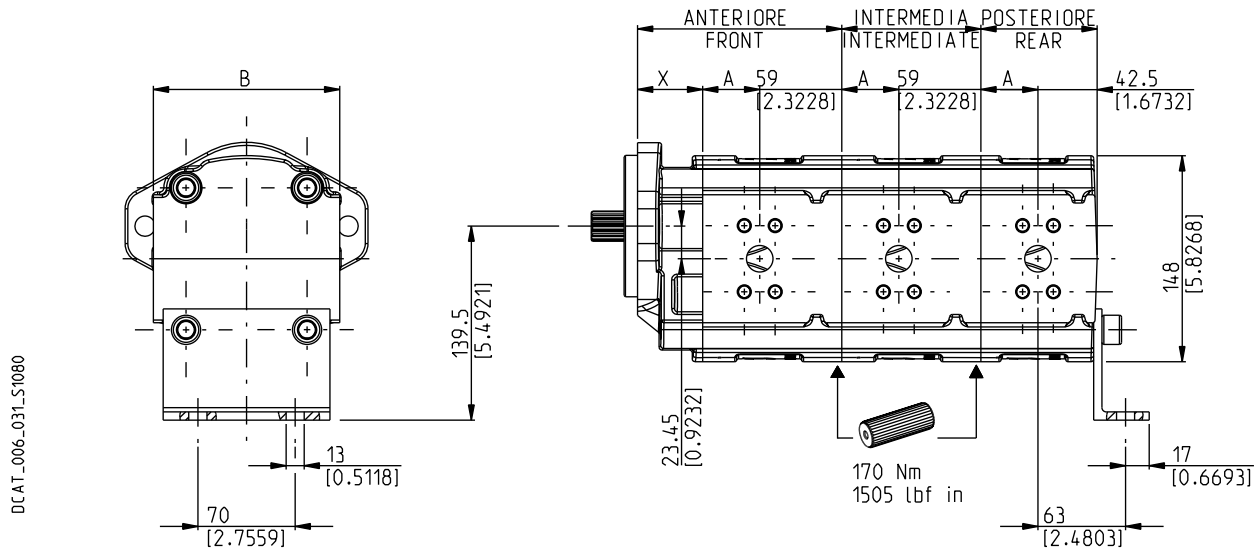
MULTIPLE PUMPS DIMENSIONS - SAME GROUPS

CSL/CSL/CSC

Characteristics: Standard

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45



Special connecting shaft is also available with torque up to 350 Nm (3098 lbf in). Please contact us for more information.

| | Front | Intermediate | Rear |
|-------------|------------|--------------|------------|
| Body design | CSL | CSL | CSC |

For multiple pumps with more than two sections we recommend to use a bracket.

01/10.2018

| Pump type | B | | |
|-----------------|-------------|---------------------------|------------------|
| | A | European ports | Gas ports (BSPP) |
| | | Split ports (SSM) / (SSS) | SAE ports (ODT) |
| mm (inch) | mm (inch) | mm (inch) | |
| KP 30•22 | 38 (1.50) | 134 (5.28) | 142 (5.59) |
| KP 30•27 | 41 (1.61) | 134 (5.28) | 142 (5.59) |
| KP 30•31 | 43,5 (1.71) | 134 (5.28) | 142 (5.59) |
| KP 30•34 | 46 (1.81) | 134 (5.28) | 142 (5.59) |
| KP 30•38 | 49 (1.93) | 134 (5.28) | 142 (5.59) |
| KP 30•41 | 50,5 (1.99) | 134 (5.28) | 142 (5.59) |
| KP 30•43 | 52 (2.05) | 134 (5.28) | 142 (5.59) |
| KP 30•46 | 53,5 (2.11) | 134 (5.28) | 142 (5.59) |
| KP 30•51 | 57 (2.24) | 134 (5.28) | 142 (5.59) |
| KP 30•56 | 60 (2.36) | 134 (5.28) | 142 (5.59) |
| KP 30•61 | 63 (2.48) | 134 (5.28) | 142 (5.59) |
| KP 30•73 | 71 (2.80) | 134 (5.28) | 142 (5.59) |

KAPPA 30

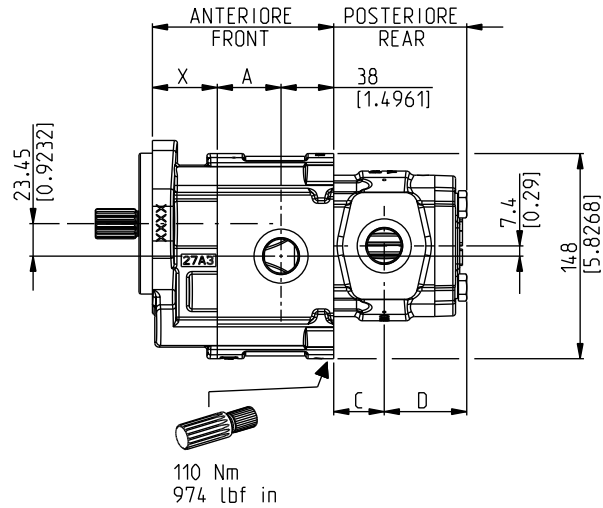
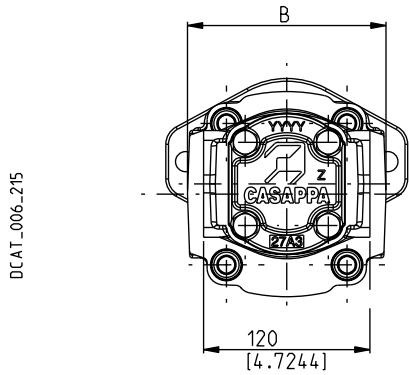
DOUBLE PUMPS DIMENSIONS - KP30/PHP20

CSC

Characteristics: Standard

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45



Special connecting shaft is also available with torque up to 170 Nm (1505 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|-----------------------|
| Body design | CSC | Polaris PH Series (●) |

(●) For features please consult the proper technical catalog

| Pump type | A mm (inch) | B | |
|-----------------|----------------|---------------------------------|------------------------------|
| | | Eur. - Split ports mm (inch) | Gas - SAE ports mm (inch) |
| KP 30•22 | 38 (1.50) | 134 (5.28) | 142 (5.59) |
| KP 30•27 | 41 (1.61) | 134 (5.28) | 142 (5.59) |
| KP 30•31 | 43,5 (1.71) | 134 (5.28) | 142 (5.59) |
| KP 30•34 | 46 (1.81) | 134 (5.28) | 142 (5.59) |
| KP 30•38 | 49 (1.93) | 134 (5.28) | 142 (5.59) |
| KP 30•41 | 50,5 (1.99) | 134 (5.28) | 142 (5.59) |
| KP 30•43 | 52 (2.05) | 134 (5.28) | 142 (5.59) |
| KP 30•46 | 53,5 (2.11) | 134 (5.28) | 142 (5.59) |
| KP 30•51 | 57 (2.24) | 134 (5.28) | 142 (5.59) |
| KP 30•56 | 60 (2.36) | 134 (5.28) | 142 (5.59) |
| KP 30•61 | 63 (2.48) | 134 (5.28) | 142 (5.59) |
| KP 30•73 | 71 (2.80) | 134 (5.28) | 142 (5.59) |

| Pump type | C | | D |
|--------------------|--------------|--------------|-----------|
| | mm (inch) | mm (inch) | mm (inch) |
| PHP 20•8 | 32,5 (1.28) | 47,6 (1.87) | |
| PHP 20•10,5 | 36,5 (1.44) | 47,6 (1.87) | |
| PHP 20•11,2 | 37 (1.46) | 47,6 (1.87) | |
| PHP 20•14 | 42 (1.65) | 47,6 (1.87) | |
| PHP 20•16 | 34,75 (1.37) | 58,35 (2.30) | |
| PHP 20•18 | 35,85 (1.41) | 59,45 (2.34) | |
| PHP 20•19 | 36,45 (1.44) | 60,05 (2.36) | |
| PHP 20•20 | 38 (1.50) | 61,6 (2.43) | |
| PHP 20•23 | 39,65 (1.56) | 63,25 (2.49) | |
| PHP 20•24,5 | 40,8 (1.61) | 64,4 (2.54) | |
| PHP 20•25 | 42 (1.65) | 65,6 (2.58) | |
| PHP 20•27,8 | 43,35 (1.71) | 66,95 (2.64) | |
| PHP 20•31,5 | 47 (1.85) | 70,6 (2.78) | |

01/10.2018

KAPPA 30

DOUBLE PUMPS DIMENSIONS - KP30/PLP20

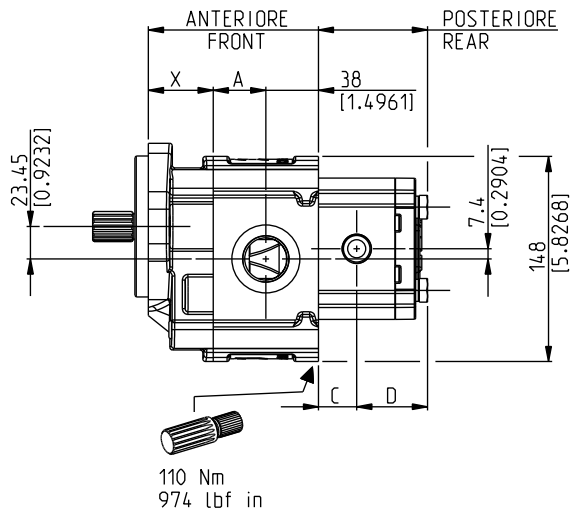
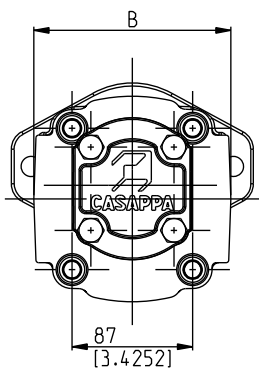
CSC

Characteristics: Standard

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45

DCAT_006_033_S1082



Special connecting shaft is also available with torque up to 170 Nm (1505 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|-----------------------|
| Body design | CSC | Polaris 20 Series (●) |

(●) For features please consult the proper technical catalog

01/10.2018

| Pump type | A mm (inch) | B | |
|-----------------|----------------|---------------------------------|------------------------------|
| | | Eur. - Split ports mm (inch) | Gas - SAE ports mm (inch) |
| KP 30•22 | 38 (1.50) | 134 (5.28) | 142 (5.59) |
| KP 30•27 | 41 (1.61) | 134 (5.28) | 142 (5.59) |
| KP 30•31 | 43,5 (1.71) | 134 (5.28) | 142 (5.59) |
| KP 30•34 | 46 (1.81) | 134 (5.28) | 142 (5.59) |
| KP 30•38 | 49 (1.93) | 134 (5.28) | 142 (5.59) |
| KP 30•41 | 50,5 (1.99) | 134 (5.28) | 142 (5.59) |
| KP 30•43 | 52 (2.05) | 134 (5.28) | 142 (5.59) |
| KP 30•46 | 53,5 (2.11) | 134 (5.28) | 142 (5.59) |
| KP 30•51 | 57 (2.24) | 134 (5.28) | 142 (5.59) |
| KP 30•56 | 60 (2.36) | 134 (5.28) | 142 (5.59) |
| KP 30•61 | 63 (2.48) | 134 (5.28) | 142 (5.59) |
| KP 30•73 | 71 (2.80) | 134 (5.28) | 142 (5.59) |

| Pump type | C | | D | |
|--------------------|-------------|--------------|-----------|--|
| | mm (inch) | | mm (inch) | |
| PLP 20•4 | 25,8 (1.02) | 49,3 (1.94) | | |
| PLP 20•6,3 | 27 (1.06) | 50,5 (1.99) | | |
| PLP 20•7,2 | 27,5 (1.08) | 51 (2.01) | | |
| PLP 20•8 | 28,3 (1.11) | 51,8 (2.04) | | |
| PLP 20•9 | 28,9 (1.14) | 52,4 (2.063) | | |
| PLP 20•10,5 | 30,3 (1.19) | 53,8 (2.12) | | |
| PLP 20•11,2 | 30,5 (1.20) | 54 (2.13) | | |
| PLP 20•14 | 33 (1.30) | 56,5 (2.22) | | |
| PLP 20•16 | 34,8 (1.37) | 58,3 (2.30) | | |
| PLP 20•19 | 36,5 (1.44) | 60 (2.36) | | |
| PLP 20•20 | 38 (1.50) | 61,5 (2.42) | | |
| PLP 20•24,5 | 40,8 (1.61) | 64,3 (2.53) | | |
| PLP 20•25 | 42 (1.65) | 65,5 (2.58) | | |
| PLP 20•27,8 | 43,4 (1.71) | 66,9 (2.63) | | |
| PLP 20•31,5 | 47 (1.85) | 70,5 (2.78) | | |

KAPPA 30

DOUBLE PUMPS DIMENSIONS - SAME GROUPS

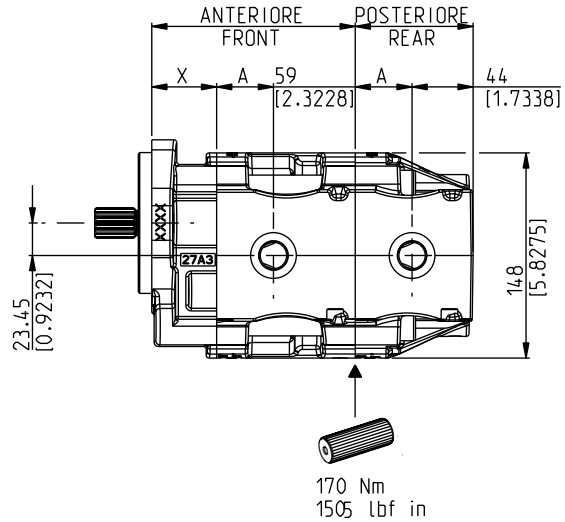
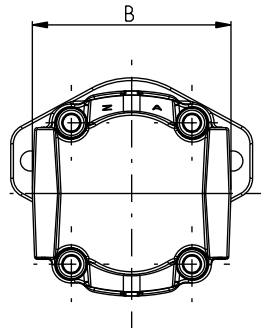
KSL/HSC

Characteristics: Compact

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45

DCAT006-201_PRT14049



Special connecting shaft is also available with torque up to 350 Nm (3098 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|------------|
| Body design | KSL | HSC |

| Pump type | B | | |
|-----------------|-------------|------------------------|------------|
| | A | European - Split ports | |
| | | mm (inch) | mm (inch) |
| KP 30•22 | 38 (1.0) | 134 (5.28) | 142 (5.59) |
| KP 30•27 | 41 (1.61) | 134 (5.28) | 142 (5.59) |
| KP 30•31 | 43,5 (1.71) | 134 (5.28) | 142 (5.59) |
| KP 30•34 | 46 (1.81) | 134 (5.28) | 142 (5.59) |
| KP 30•38 | 46 (1.81) | 134 (5.28) | 142 (5.59) |

01/10.2018

KAPPA 30

DOUBLE PUMPS DIMENSIONS - KP30/PHP20

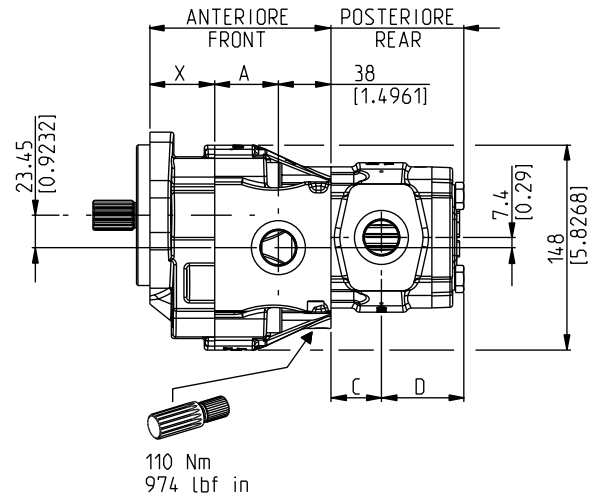
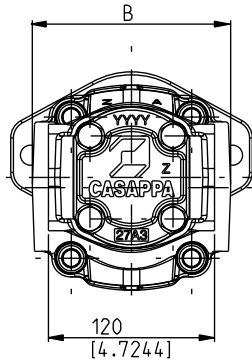
HSC

Characteristics: Compact

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45

DCAT006-202



Special connecting shaft is also available with torque up to 170 Nm (1505 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|-----------------------|
| Body design | HSC | Polaris PH Series (●) |

(●) For features please consult the proper technical catalog

01/10.2018

| Pump type | A | B | |
|-----------------|-------------|---------------------------------|------------------------------|
| | mm (inch) | Eur. - Split ports mm (inch) | Gas - SAE ports mm (inch) |
| KP 30•22 | 38 (1.50) | 134 (5.28) | 142 (5.59) |
| KP 30•27 | 41 (1.61) | 134 (5.28) | 142 (5.59) |
| KP 30•31 | 43,5 (1.71) | 134 (5.28) | 142 (5.59) |
| KP 30•34 | 46 (1.81) | 134 (5.28) | 142 (5.59) |
| KP 30•38 | 49 (1.93) | 134 (5.28) | 142 (5.59) |

| Pump type | C | D |
|--------------------|--------------|--------------|
| | mm (inch) | mm (inch) |
| PHP 20•8 | 32,5 (1.28) | 47,6 (1.87) |
| PHP 20•10,5 | 36,5 (1.44) | 47,6 (1.87) |
| PHP 20•11,2 | 37 (1.46) | 47,6 (1.87) |
| PHP 20•14 | 42 (1.65) | 47,6 (1.87) |
| PHP 20•16 | 34,75 (1.37) | 58,35 (2.30) |
| PHP 20•18 | 35,85 (1.41) | 59,45 (2.34) |
| PHP 20•19 | 36,45 (1.44) | 60,05 (2.36) |
| PHP 20•20 | 38 (1.50) | 61,6 (2.43) |
| PHP 20•23 | 39,65 (1.56) | 63,25 (2.49) |
| PHP 20•24,5 | 40,8 (1.61) | 64,4 (2.54) |
| PHP 20•25 | 42 (1.65) | 65,6 (2.58) |
| PHP 20•27,8 | 43,35 (1.71) | 66,95 (2.64) |
| PHP 20•31,5 | 47 (1.85) | 70,6 (2.78) |

KAPPA 30

DOUBLE PUMPS DIMENSIONS - KP30/PLP20

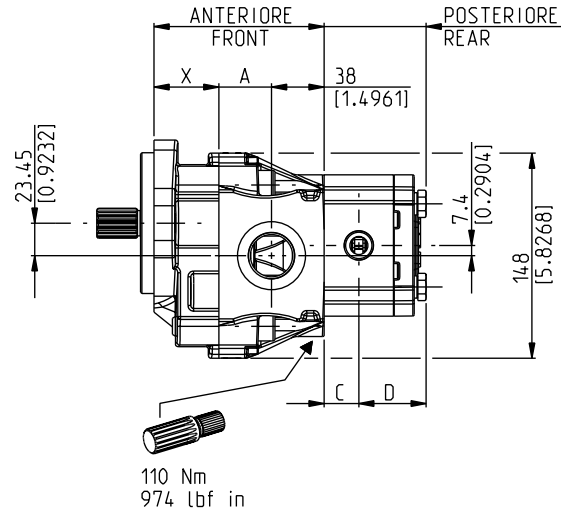
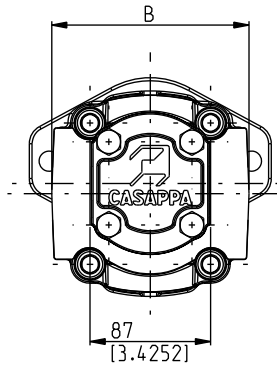
HSC

Characteristics: Compact

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45

DCAT_006_059_N16-2



Special connecting shaft is also available with torque up to 170 Nm (1505 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|-----------------------|
| Body design | HSC | Polaris 20 Series (●) |

(●) For features please consult the proper technical catalog

| Pump type | B | | |
|-----------------|-------------|--------------------|-----------------|
| | A | Eur. - Split ports | Gas - SAE ports |
| | mm (inch) | mm (inch) | mm (inch) |
| KP 30•22 | 38 (1.50) | 134 (5.28) | 142 (5.59) |
| KP 30•27 | 41 (1.61) | 134 (5.28) | 142 (5.59) |
| KP 30•31 | 43,5 (1.71) | 134 (5.28) | 142 (5.59) |
| KP 30•34 | 46 (1.81) | 134 (5.28) | 142 (5.59) |
| KP 30•38 | 49 (1.93) | 134 (5.28) | 142 (5.59) |

| Pump type | C | D |
|--------------------|-------------|-------------|
| | mm (inch) | mm (inch) |
| PLP 20•4 | 25,8 (1.02) | 49,3 (1.94) |
| PLP 20•6,3 | 27 (1.06) | 50,5 (1.99) |
| PLP 20•7,2 | 27,5 (1.08) | 51 (2.01) |
| PLP 20•8 | 28,3 (1.11) | 51,8 (2.04) |
| PLP 20•9 | 28,9 (1.14) | 52,4 (2.06) |
| PLP 20•10,5 | 30,3 (1.19) | 53,8 (2.12) |
| PLP 20•11,2 | 30,5 (1.20) | 54 (2.13) |
| PLP 20•14 | 33 (1.30) | 56,5 (2.22) |
| PLP 20•16 | 34,8 (1.37) | 58,3 (2.30) |
| PLP 20•19 | 36,5 (1.44) | 60 (2.36) |
| PLP 20•20 | 38 (1.50) | 61,5 (2.42) |
| PLP 20•24,5 | 40,8 (1.61) | 64,3 (2.53) |
| PLP 20•25 | 42 (1.65) | 65,5 (2.58) |
| PLP 20•27,8 | 43,4 (1.71) | 66,9 (2.63) |
| PLP 20•31,5 | 47 (1.85) | 70,5 (2.78) |

01/10.2018

KAPPA 30

MULTIPLE PUMPS DIMENSIONS - SAME GROUPS

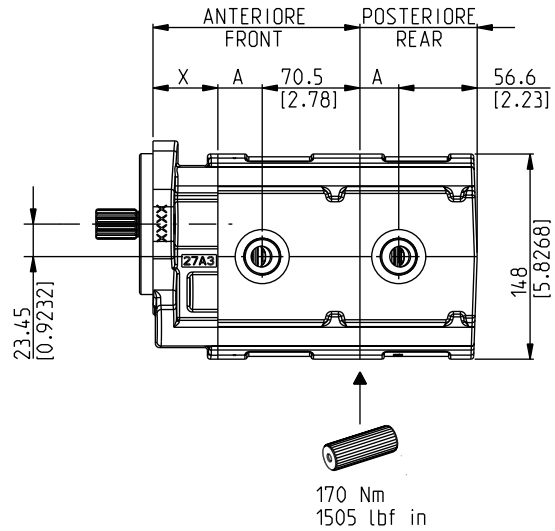
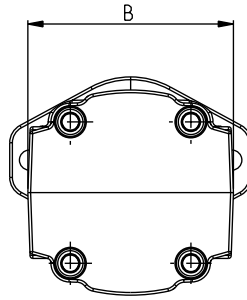
BSC/BSC

Characteristics: High performance

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45

DCAT006-224



Special connecting shaft is also available with torque up to 350 Nm (3098 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|------------|
| Body design | BSL | BSC |

01/10.2018

| Pump type | B | | |
|-----------------|-------------|------------------------|-----------------|
| | A | European - Split ports | Gas - SAE ports |
| | mm (inch) | mm (inch) | mm (inch) |
| K. 30•22 | 81,6 (3.21) | 140 (5.51) | 148 (5.83) |
| K. 30•27 | 84,6 (3.33) | 140 (5.51) | 148 (5.83) |
| K. 30•31 | 87,1 (3.43) | 140 (5.51) | 148 (5.83) |
| K. 30•34 | 89,6 (3.53) | 140 (5.51) | 148 (5.83) |
| K. 30•38 | 92,6 (3.65) | 140 (5.51) | 148 (5.83) |
| K. 30•41 | 94,1 (3.70) | 140 (5.51) | 148 (5.83) |
| K. 30•43 | 95,6 (3.76) | 140 (5.51) | 148 (5.83) |
| K. 30•46 | 97,1 (3.82) | 140 (5.51) | 148 (5.83) |

KAPPA 30

DOUBLE PUMPS DIMENSIONS - KP30/PHP20

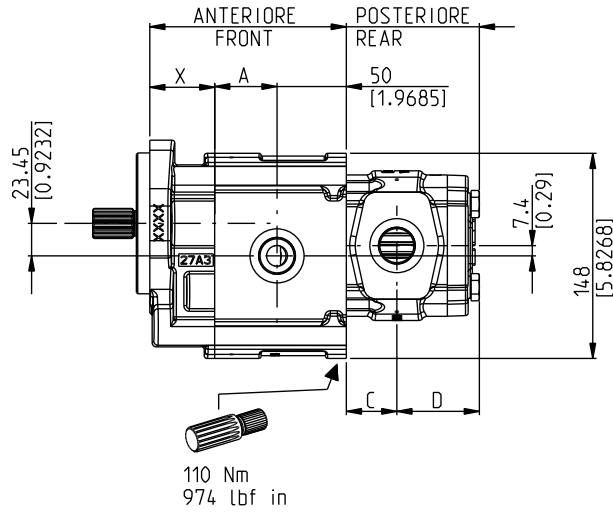
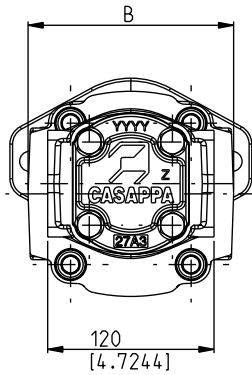
BSC

Characteristics: High performance

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45

DCAT_006-223



Special connecting shaft is also available with torque up to 170 Nm (1505 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|-----------------------|
| Body design | BSC | Polaris PH Series (●) |

(●) For features please consult the proper technical catalog

| Pump type | B | | |
|-----------------|-------------|--------------------|-----------------|
| | A | Eur. - Split ports | Gas - SAE ports |
| | mm (inch) | mm (inch) | mm (inch) |
| KP 30•22 | 81,6 (3.21) | 140 (5.51) | 148 (5.83) |
| KP 30•27 | 84,6 (3.33) | 140 (5.51) | 148 (5.83) |
| KP 30•31 | 87,1 (3.43) | 140 (5.51) | 148 (5.83) |
| KP 30•34 | 89,6 (3.53) | 140 (5.51) | 148 (5.83) |
| KP 30•38 | 92,6 (3.65) | 140 (5.51) | 148 (5.83) |
| KP 30•41 | 94,1 (3.70) | 140 (5.51) | 148 (5.83) |
| KP 30•43 | 95,6 (3.76) | 140 (5.51) | 148 (5.83) |
| KP 30•46 | 97,1 (3.82) | 140 (5.51) | 148 (5.83) |

| Pump type | C | D |
|--------------------|--------------|--------------|
| | mm (inch) | mm (inch) |
| PHP 20•8 | 32,5 (1.28) | 47,6 (1.87) |
| PHP 20•10,5 | 36,5 (1.44) | 47,6 (1.87) |
| PHP 20•11,2 | 37 (1.46) | 47,6 (1.87) |
| PHP 20•14 | 42 (1.65) | 47,6 (1.87) |
| PHP 20•16 | 34,75 (1.37) | 58,35 (2.30) |
| PHP 20•18 | 35,85 (1.41) | 59,45 (2.34) |
| PHP 20•19 | 36,45 (1.44) | 60,05 (2.36) |
| PHP 20•20 | 38 (1.50) | 61,6 (2.43) |
| PHP 20•23 | 39,65 (1.56) | 63,25 (2.49) |
| PHP 20•24,5 | 40,8 (1.61) | 64,4 (2.54) |
| PHP 20•25 | 42 (1.65) | 65,6 (2.58) |
| PHP 20•27,8 | 43,35 (1.71) | 66,95 (2.64) |
| PHP 20•31,5 | 47 (1.85) | 70,6 (2.78) |

01/10.2018

KAPPA 30

DOUBLE PUMPS DIMENSIONS - KP30/PLP20

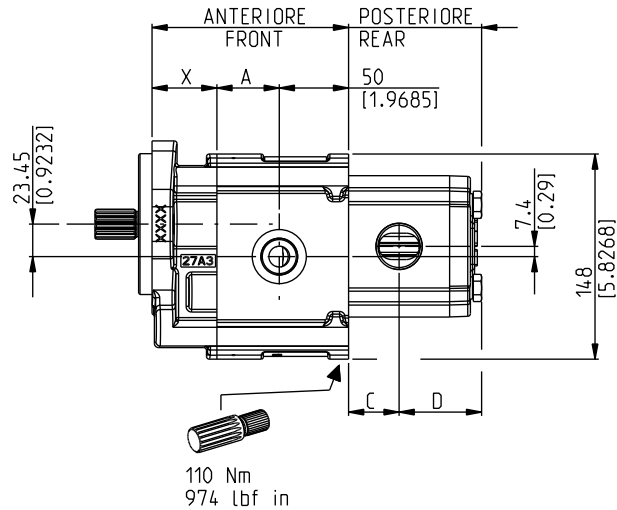
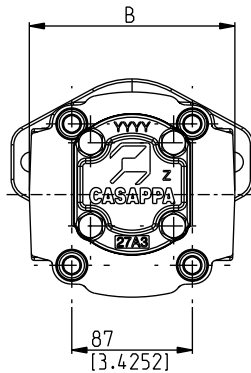
BSC

Characteristics: High performance

Drive shaft: see pages 38 ÷ 39
Mounting flange: for X dimension see pages 40 ÷ 44

Ports availability: European, Split, Gas, SAE. See page 45

DCAT_006_222



Special connecting shaft is also available with torque up to 170 Nm (1505 lbf in). Please contact us for more information.

| | Front | Rear |
|-------------|------------|-----------------------|
| Body design | BSC | Polaris 20 Series (●) |

(●) For features please consult the proper technical catalog

| Pump type | A mm (inch) | B | |
|-----------------|----------------|---------------------------------|------------------------------|
| | | Eur. - Split ports mm (inch) | Gas - SAE ports mm (inch) |
| KP 30•22 | 81,6 (3.21) | 140 (5.51) | 148 (5.83) |
| KP 30•27 | 84,6 (3.33) | 140 (5.51) | 148 (5.83) |
| KP 30•31 | 87,1 (3.43) | 140 (5.51) | 148 (5.83) |
| KP 30•34 | 89,6 (3.53) | 140 (5.51) | 148 (5.83) |
| KP 30•38 | 92,6 (3.65) | 140 (5.51) | 148 (5.83) |
| KP 30•41 | 94,1 (3.70) | 140 (5.51) | 148 (5.83) |
| KP 30•43 | 95,6 (3.76) | 140 (5.51) | 148 (5.83) |
| KP 30•46 | 97,1 (3.82) | 140 (5.51) | 148 (5.83) |

| Pump type | C | | D | |
|--------------------|-------------|--------------|-----------|-----------|
| | mm (inch) | mm (inch) | mm (inch) | mm (inch) |
| PLP 20•4 | 25,8 (1.02) | 49,3 (1.94) | | |
| PLP 20•6,3 | 27 (1.06) | 50,5 (1.99) | | |
| PLP 20•7,2 | 27,5 (1.08) | 51 (2.01) | | |
| PLP 20•8 | 28,3 (1.11) | 51,8 (2.04) | | |
| PLP 20•9 | 28,9 (1.14) | 52,4 (2.063) | | |
| PLP 20•10,5 | 30,3 (1.19) | 53,8 (2.12) | | |
| PLP 20•11,2 | 30,5 (1.20) | 54 (2.13) | | |
| PLP 20•14 | 33 (1.30) | 56,5 (2.22) | | |
| PLP 20•16 | 34,8 (1.37) | 58,3 (2.30) | | |
| PLP 20•19 | 36,5 (1.44) | 60 (2.36) | | |
| PLP 20•20 | 38 (1.50) | 61,5 (2.42) | | |
| PLP 20•24,5 | 40,8 (1.61) | 64,3 (2.53) | | |
| PLP 20•25 | 42 (1.65) | 65,5 (2.58) | | |
| PLP 20•27,8 | 43,4 (1.71) | 66,9 (2.63) | | |
| PLP 20•31,5 | 47 (1.85) | 70,5 (2.78) | | |

01/10.2018

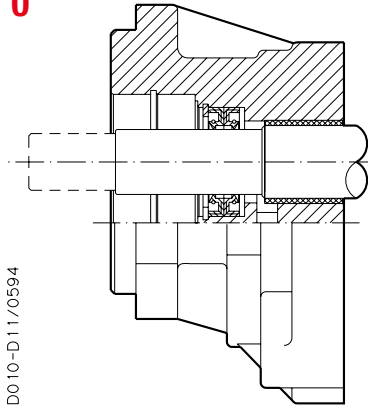
NOTES

01/10.2018

OUTBOARD BEARING OPTIONS

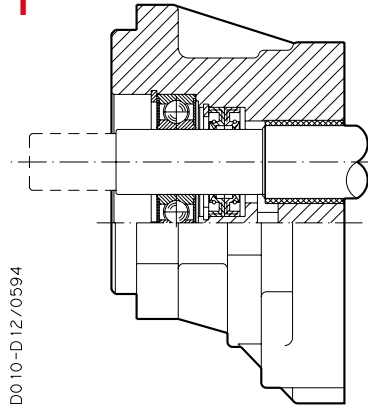
For each version, the possible combination between drive shafts and mounting flanges are shown on pages 40 ÷ 44.

0



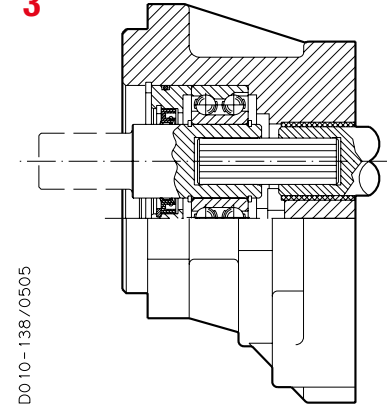
Version for applications without radial and axial load on the drive shaft.

1



Version for applications with low radial load and without axial load on the drive shaft.

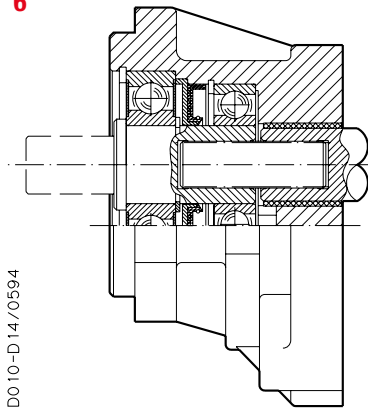
3



Version for applications with radial and low axial load on the drive shaft.

Max. torque version 3:
KAPPA 30: 170 Nm (1505 lbf in)

6

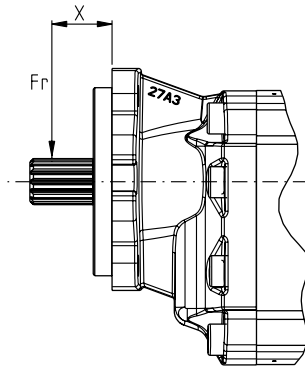


Version for applications with radial and low axial load on the drive shaft.

Max. torque version 6:
KAPPA 30: 170 Nm (1505 lbf in)

01/10.2018

For the outboard bearings life expectancy, diagrams providing approximate selection data will be found on subsequent pages. Please contact us for particular applications.



X = Distance of the radial load result from the mounting flange [mm (in)].

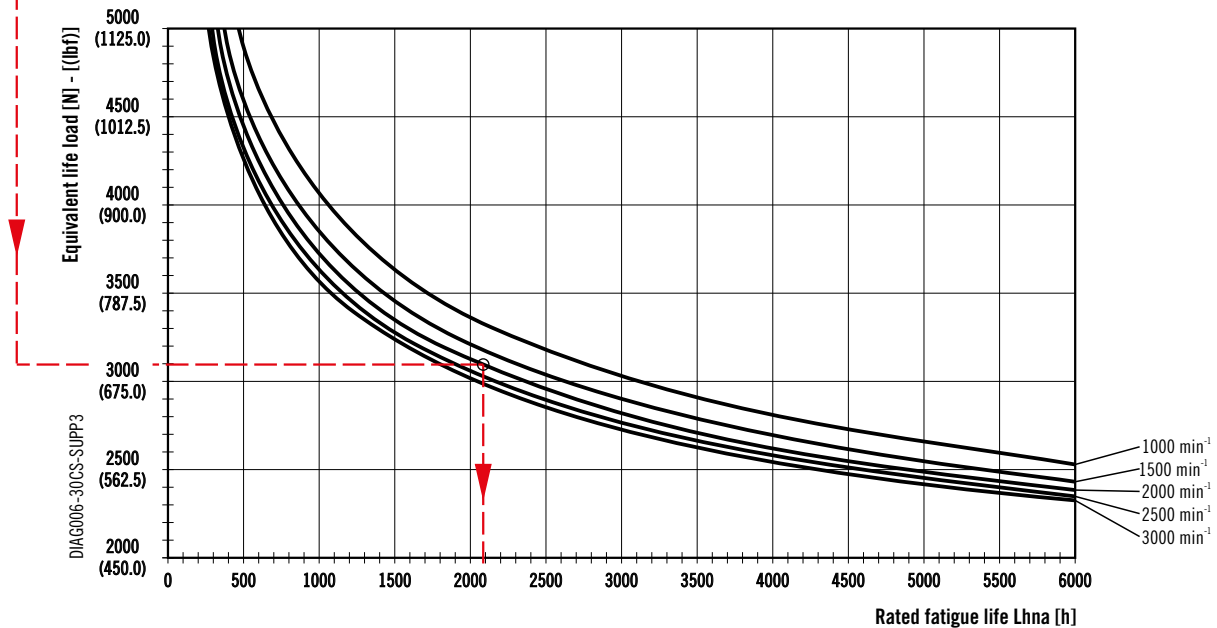
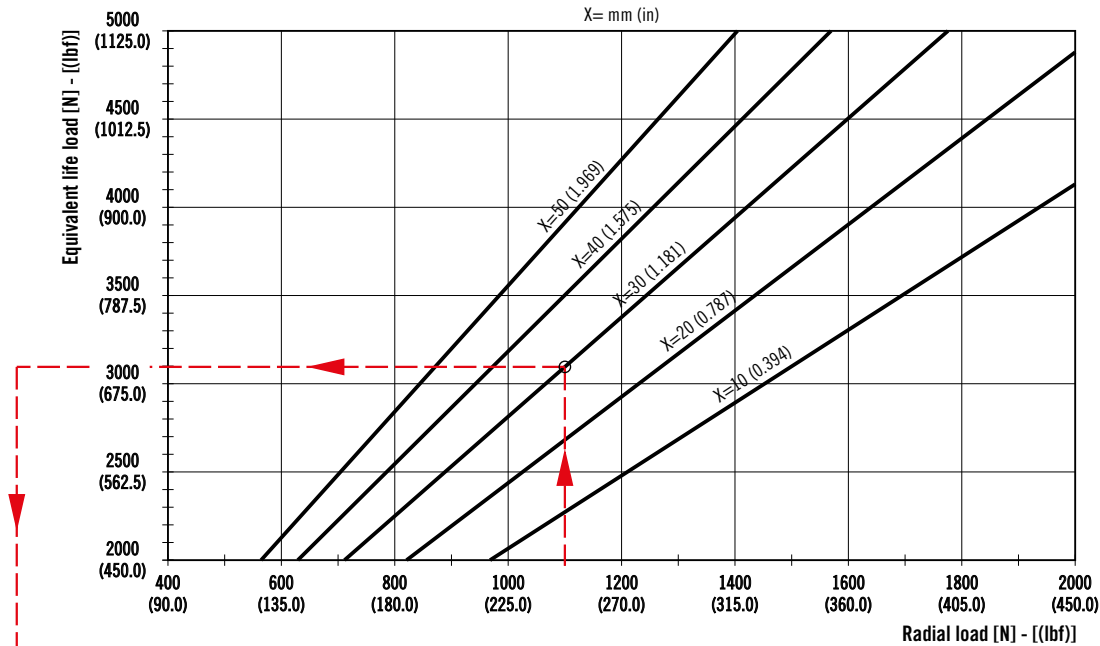
Each curve has been obtained at:

- Lubricant oil ISO VG 46
- Temperature 60 °C (140 °F)
- Without axial load
- Contamination level ISO 281: $\beta_{12} = 200$
- Reliability level of the calculation 90%

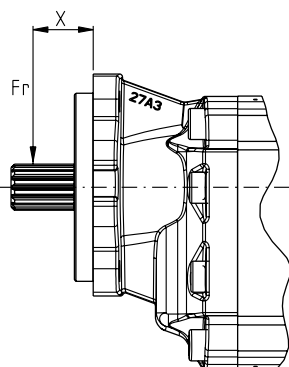
Example

| | |
|---------------------|------------------------|
| Fr Radial load | 1100 N (247.5 lbf) |
| X | 30 mm (1.8111 in) |
| Speed | 2000 min ⁻¹ |
| Rating fatigue life | ≈ 2085 h |

Values shown in the diagrams are indicative only. Please contact us for more information.



01/10.2018



X = Distance of the radial load result from the mounting flange [mm (in)].

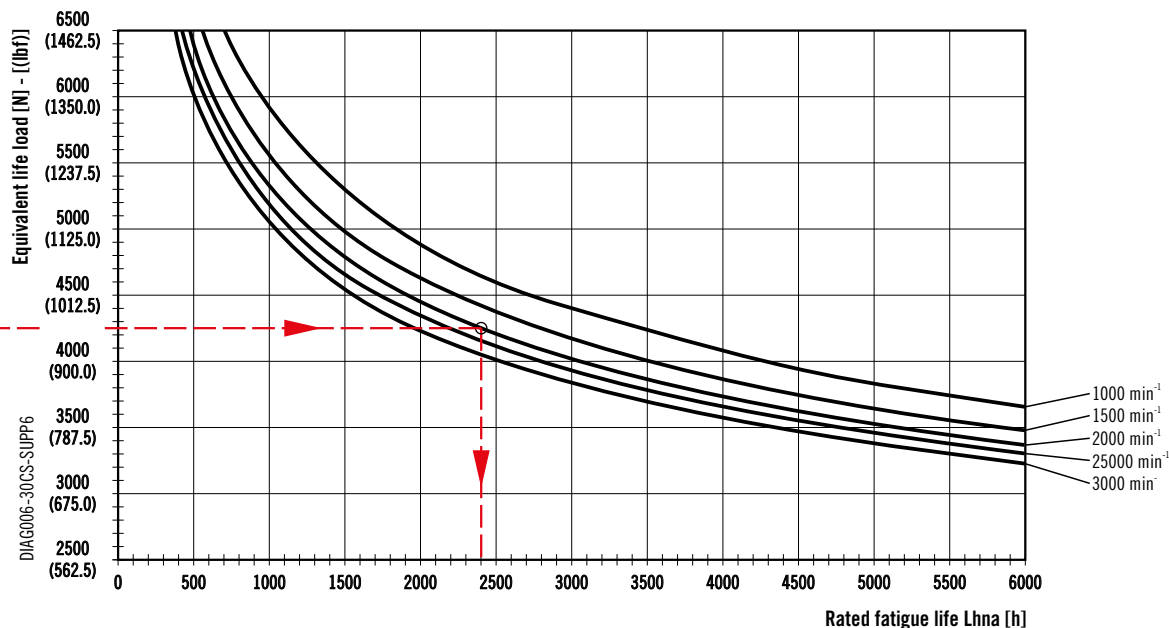
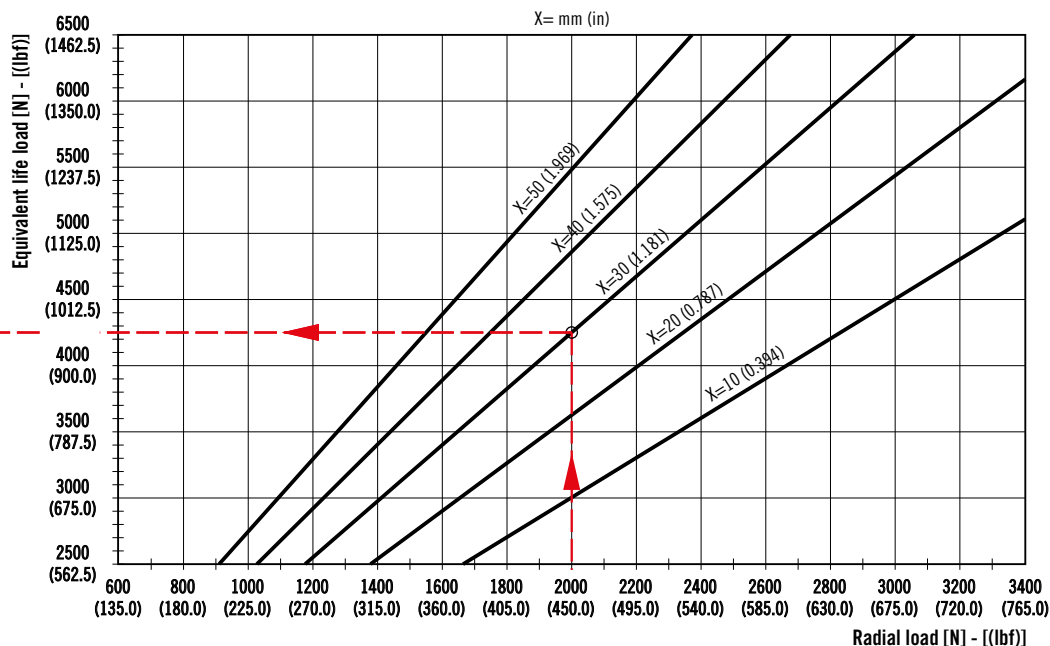
Each curve has been obtained at:

- Lubricant oil ISO VG 46
- Temperature 60 °C (140 °F)
- Without axial load
- Contamination level ISO 281: $\beta_{12} = 200$
- Reliability level of the calculation 90%

Example

| | |
|---------------------|------------------------|
| Fr Radial load | 2000 N (337.5 lbf) |
| X | 30 mm (1.8111 in) |
| Speed | 2000 min ⁻¹ |
| Rating fatigue life | ≈ 2400 h |

Values shown in the diagrams are indicative only. Please contact us for more information.



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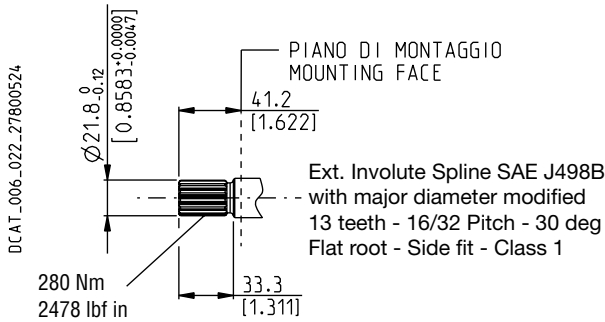
KAPPA 30

DRIVE SHAFTS

SAE "B" SPLINE

A8

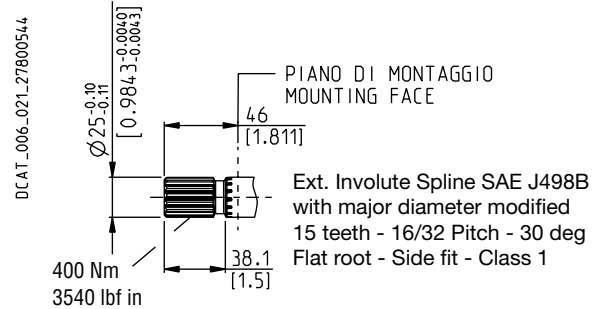
Mounting face refer to flange code **K9**



SAE "BB" SPLINE

A5

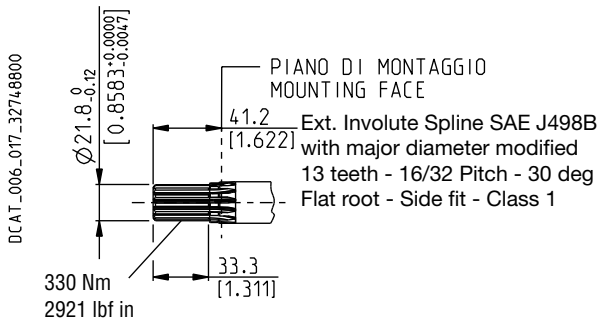
Mounting face refer to flange code **K9**



SAE "B" SPLINE

04

Mounting face refer to flange code **S3**

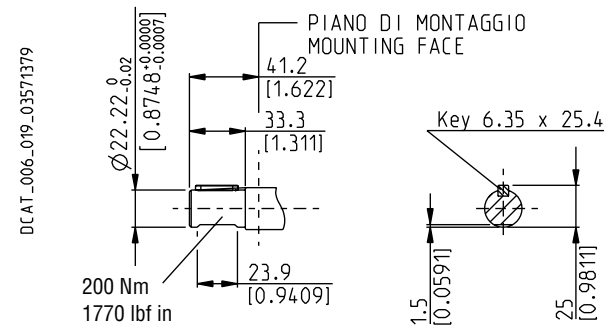


SAE "B" STRAIGHT

32

Not available with size: **30•41 - 30•46**

Mounting face refer to flange code **S3**

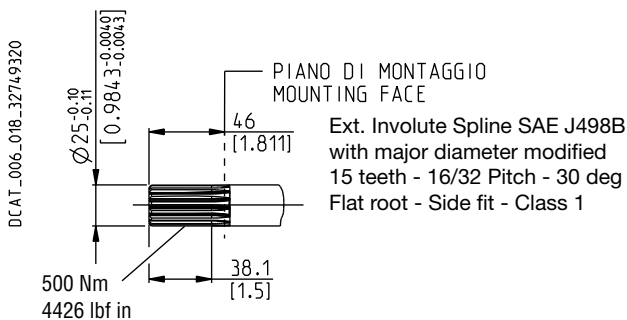


SAE "BB" SPLINE

05

Not available with size: **30•22 - 30•31 - 30•41**

Mounting face refer to flange code **S3**

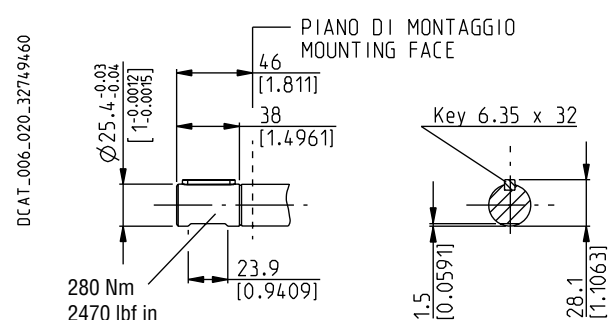


SAE "BB" STRAIGHT

33

Not available with size: **30•31 - 30•41**

Mounting face refer to flange code **S3**



01/10.2018

KAPPA 30

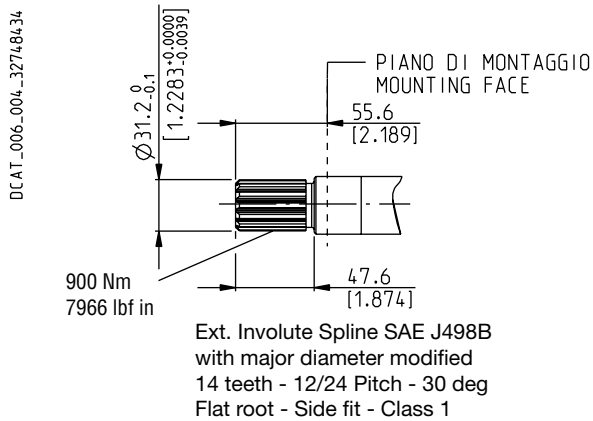
DRIVE SHAFTS

SAE "C" SPLINE

06

Not available with size: **30•41**

Mounting face refer to flange code **S8**

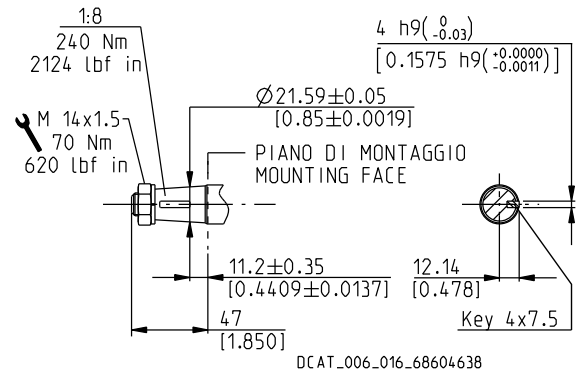


EUROPEAN TAPERED

83

Not available with size: **30•41**

Mounting face refer to flange code **E3**

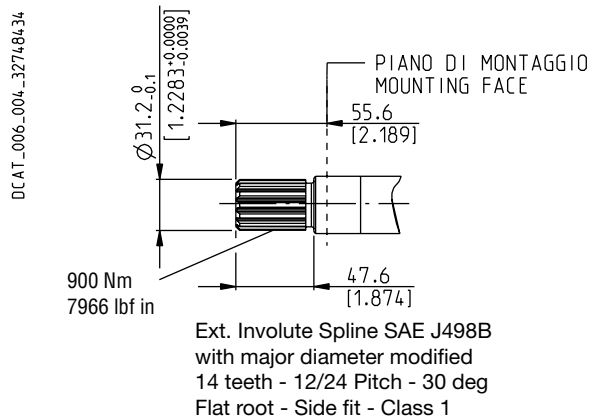


SAE "C" SPLINE - SHORT TYPE

A6

Not available with size: **30•22 - 30•31 - 30•46 - 30•56 - 30•73**

Mounting face refer to flange code **Q3**



01/10.2018

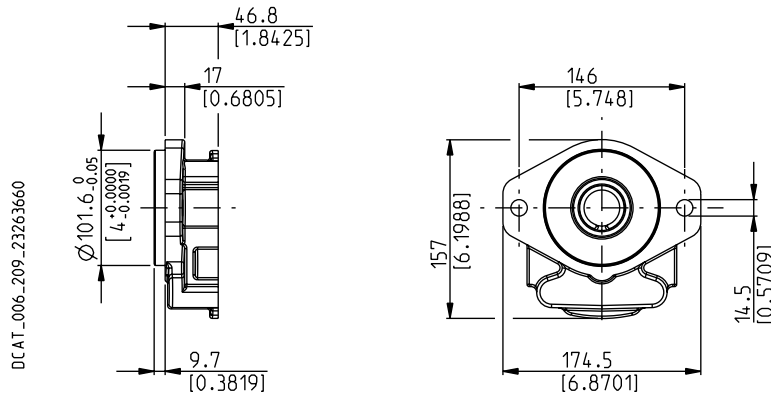
KAPPA 30

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "B" 2 HOLES

K9

Conforms to SAE J744



DRIVE SHAFTS
See page 38

VERSIONS

See page 35

A8

A5

0

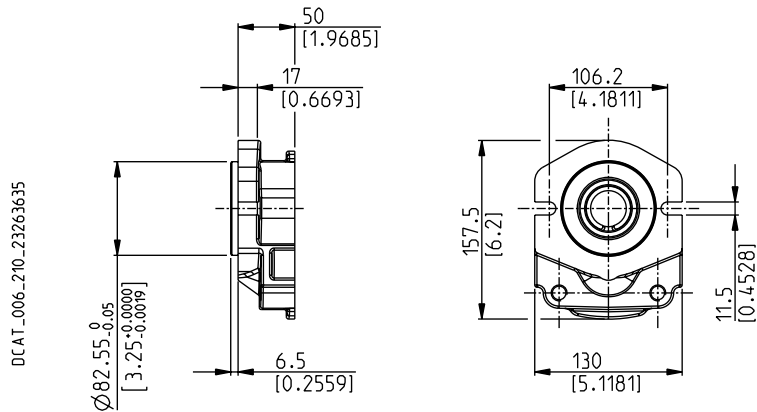


- Standard combination
- Available combination

SAE "A" 2 HOLES

S9

Conforms to SAE J744



DRIVE SHAFTS
See page 38

VERSIONS

See page 35

A8

0



- Standard combination
- Available combination

01/10.2018

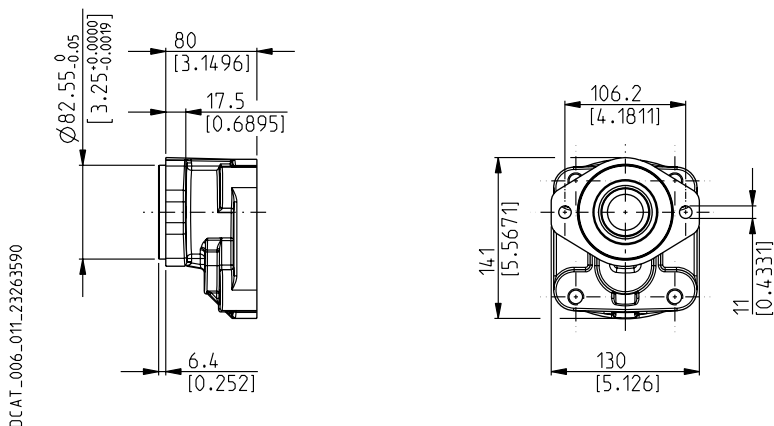
KAPPA 30

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "A" 2 HOLES

S1

Conforms to SAE J744



DRIVE SHAFTS
See page 38

VERSIONS
See page 35

04

32

05

33

0

■

●

●

●

1

■

●

●

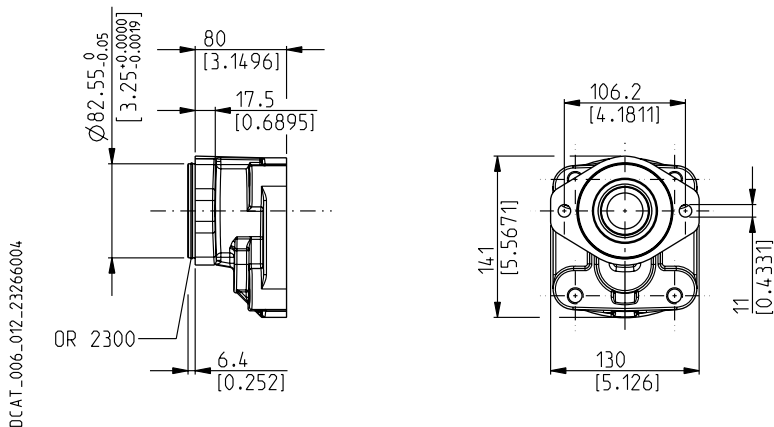
●

- Standard combination
- Available combination

SAE "A" 2 HOLES

S2

Conforms to SAE J744



DRIVE SHAFTS
See page 38

VERSIONS
See page 35

04

32

05

33

0

■

●

●

●

1

■

●

●

●

- Standard combination
- Available combination

01/10.2018

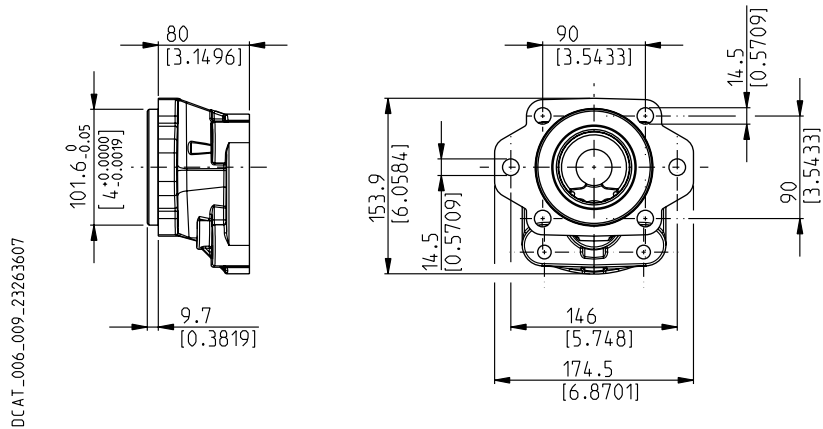
KAPPA 30

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "B" 2-4 HOLES

S3

Conforms to SAE J744



DCAT_006_009_23263607

DRIVE SHAFTS
See page 38

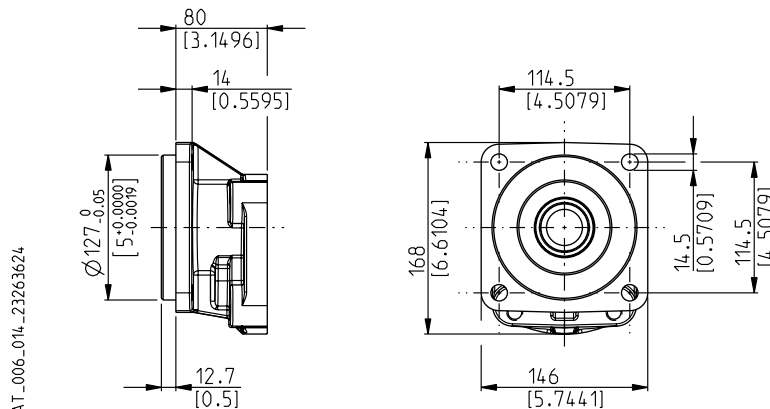
| VERSIONS See page 35 | 04 | 32 | 05 | 33 |
|-------------------------|-----------|-----------|-----------|-----------|
| 0 | ■ | ● | ● | ● |
| 1 | ■ | ● | ● | ● |
| 3 | ■ | ● | ● | ● |
| 6 | ■ | ● | ● | ● |

- Standard combination
- Available combination

SAE "C" 4 HOLES

S6

Conforms to SAE J744



DCAT_006_014_23263624

DRIVE SHAFTS
See page 38 and 39

| VERSIONS See page 35 | 05 | 06 |
|-------------------------|-----------|-----------|
| 0 | ● | ■ |
| 1 | ● | ■ |
| 3 | ● | ■ |
| 6 | ● | ■ |

- Standard combination
- Available combination

01/10.2018

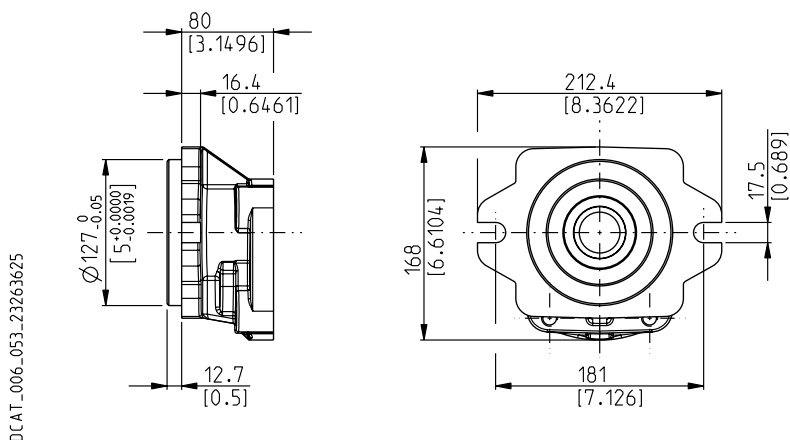
KAPPA 30

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "C" 2 HOLES

S8

Conforms to SAE J744



DRIVE SHAFTS
See page 38 and 39

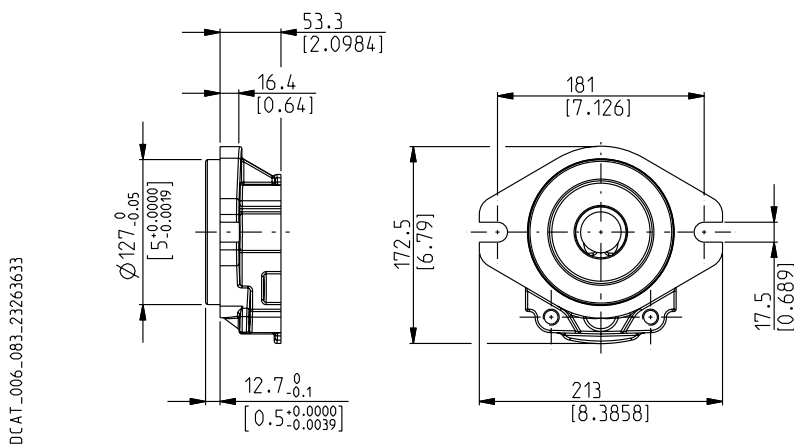
| VERSIONS See page 35 | 05 | 06 |
|-------------------------|-----------|-----------|
| 0 | ● | ■ |
| 1 | ● | ■ |
| 3 | ● | ■ |
| 6 | ● | ■ |

- Standard combination
- Available combination

SAE "C" 2 HOLES

Q3

Conforms to SAE J744



DRIVE SHAFTS
See page 38

| VERSIONS See page 35 | A6 |
|-------------------------|-----------|
| 0 | ■ |

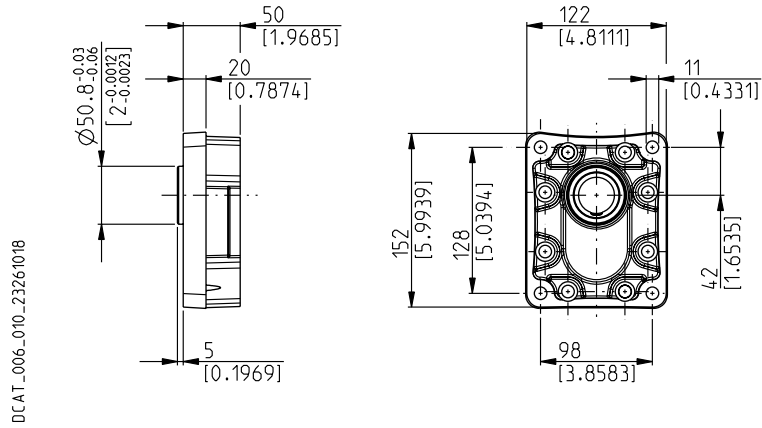
- Standard combination
- Available combination

01/10.2018

KAPPA 30

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

| |
|-----------------|
| EUROPEAN |
| E3 |



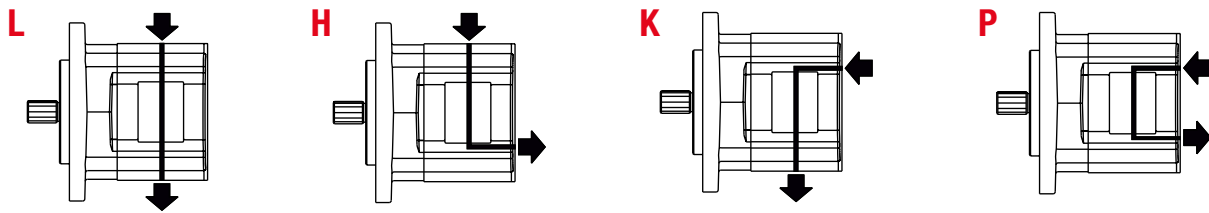
DRIVE SHAFTS
See page 38 and 39

| VERSIONS See page 35 | 83 | A8 | A5 |
|--------------------------------|-----------|-----------|-----------|
| 0 | ■ | ● | ● |

- Standard combination
- Available combination

01/10.2018

PORTS POSITION AND TYPE



| PORTS TYPE | SIDE PORTS | | | | | | | | | | | | REAR PORTS | | | |
|-----------------|------------|-----|-----------|-----|----------|-----|----------|-----|---------|-----|--------|-----|------------|-----|---------|-----|
| | European | | Split SSM | | Spit SSS | | Gas BSPP | | SAE ODT | | German | | Gas BSPP | | SAE ODT | |
| Pump type | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT |
| Motor type | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN |
| K. 30•22 | ED | EB | MC | MB | SC | SB | GF | GE | OF | OD | BM | BL | GF | GE | OF | OD |
| K. 30•27 | ED | EB | MC | MB | SC | SB | GF | GE | OF | OD | BM | BL | GF | GE | OF | OD |
| K. 30•31 | ED | EB | MC | MB | SC | SB | GF | GE | OF | OD | BM | BL | GF | GE | OF | OD |
| K. 30•34 | ED | EB | MC | MB | SC | SB | GF | GE | OF | OD | BM | BL | GF | GE | OF | OD |
| K. 30•38 | ED | EB | MC | MB | SC | SB | GF | GE | OF | OD | BM | BL | GF | GE | OF | OD |
| K. 30•41 | ED | EB | MD | MC | SD | SC | GG | GF | OG | OF | BM | BL | GG | GF | OG | OF |
| K. 30•43 | ED | EB | MD | MC | SD | SC | GG | GF | OG | OF | BM | BL | GG | GF | OG | OF |
| K. 30•46 | ED | EB | MD | MC | SD | SC | GG | GF | OG | OF | BM | BL | GG | GF | OG | OF |
| K. 30•51 | ED | EB | MD | MC | SD | SC | GG | GF | OG | OF | BM | BL | GG | GF | OG | OF |
| K. 30•56 | ED | EB | ME | MD | SE | SD | GG | GF | OG | OF | BM | BL | GG | GF | OG | OF |
| K. 30•61 | ED | EB | ME | MD | SE | SD | GG | GF | OG | OF | BM | BL | GG | GF | OG | OF |
| K. 30•73 | EF | ED | ME | MD | SE | SD | GG | GF | OG | OF | | | GG | GF | OG | OF |

Ports codes shown are not codified for all different body design (HSC - KSL - CSC - CSL - BSC - BSL).

Different ports are available on request. See page 49.


Please contact us for more information.


EXTERNAL DRAIN PORTS

| PORTS TYPE | GAS BSPP | SAE ODT |
|--------------|----------|---------|
| K. 30 | GC | OA |

01/10.2018

PORT SIZES

 Tightening torque for low pressure side port



 Tightening torque for high pressure side port

For reversible rotation, please consult only the tightening torque for high pressure side port.

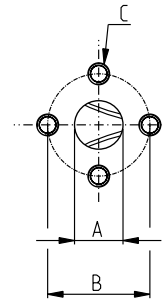
EUROPEAN FLANGED PORTS - 4 Bolts

EUROPEAN

Metric thread ISO 60° conforms to ISO/R 262

| CODE | A | B | C |  |  |
|-----------|--------------|--------------|---------------------------|---|---|
| | mm (inch) | mm (inch) | Thread Depth mm (inch) | Nm (lbf in) | Nm (lbf in) |
| EB | 19 (0.75) | 40 (1.57) | M 8 15 (0.59) | 15 ⁺¹ (133 ÷ 142) | 15 ⁺¹ (133 ÷ 142) |
| ED | 27 (1.06) | 51 (2.01) | M 10 15 (0.59) | 20 ⁺¹ (177 ÷ 186) | 30 ^{+2.5} (266 ÷ 288) |
| EF | 33 (1.30) | 62 (2.44) | M 12 17 (0.67) | 25 ⁺¹ (221 ÷ 230) | 50 ^{+2.5} (443 ÷ 465) |



DCAT_006_024_21060533



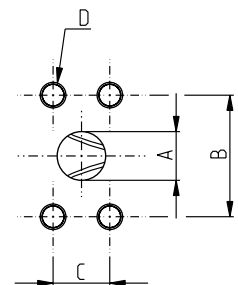
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

SSM

Metric thread ISO 60° conforms to ISO/R 262


| CODE | A | B | C | D |  |  |
|-----------|----------------|----------------|----------------|---------------------------|---|---|
| | mm (inch) | mm (inch) | mm (inch) | Thread Depth mm (inch) | Nm (lbf in) | Nm (lbf in) |
| MB | 19 (0.75) | 47,6 (1.87) | 22,2 (0.87) | M 10 17 (0.67) | 20 ⁺¹ (177 ÷ 186) | 30 ^{+2.5} (266 ÷ 288) |
| MC | 25,4 (1.00) | 52,4 (2.06) | 26,2 (1.03) | M 10 17 (0.67) | 20 ⁺¹ (177 ÷ 186) | 30 ^{+2.5} (266 ÷ 288) |
| MD | 30,5 (1.20) | 58,7 (2.31) | 30,2 (1.19) | M 10 17 (0.67) | 20 ⁺¹ (177 ÷ 186) | 35 ^{+2.5} (310 ÷ 332) |
| ME | 39,3 (1.55) | 69,8 (2.75) | 35,7 (1.41) | M 12 17 (0.67) | 30 ^{+2.5} (266 ÷ 288) | 60 ⁺⁵ (531 ÷ 575) |


DCAT_006_025_21064252



01/10.2018

PORT SIZES

 Tightening torque for low pressure side port



 Tightening torque for high pressure side port

For reversible rotation, please consult only the tightening torque for high pressure side port.

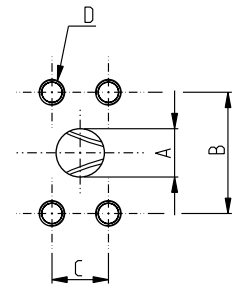
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

SSS

American straight thread UNC-UNF 60° conforms to ANSI B 1.1

| CODE | A | B | C | D |  |  |
|-----------|----------------|----------------|----------------|-------------------------------|---|---|
| | mm (inch) | mm (inch) | mm (inch) | Thread Depth mm (inch) | Nm (lbf in) | Nm (lbf in) |
| SB | 19 (0.75) | 47,6 (1.87) | 22,2 (0.87) | 3/8 - 16 UNC-2B 17 (0.67) | 20 ⁺¹ (177 ÷ 186) | 25 ⁺¹ (221 ÷ 230) |
| SC | 25,4 (1.00) | 52,4 (2.06) | 26,2 (1.03) | 3/8 - 16 UNC-2B 17 (0.67) | 20 ⁺¹ (177 ÷ 186) | 30 ^{+2,5} (266 ÷ 288) |
| SD | 30,5 (1.20) | 58,7 (2.31) | 30,2 (1.19) | 7/16 - 14 UNC-2B 17 (0.67) | 20 ⁺¹ (177 ÷ 186) | 40 ^{+2,5} (354 ÷ 376) |
| SE | 39,3 (1.55) | 69,8 (2.75) | 35,7 (1.41) | 1/2 - 13 UNC-2B 17 (0.67) | 30 ^{+2,5} (266 ÷ 288) | 70 ⁺⁵ (620 ÷ 664) |

DCAT_006_028_21060740

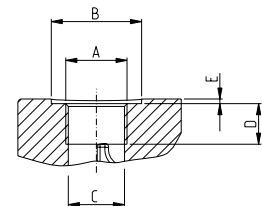


GAS STRAIGHT THREAD PORTS



BSPP

British standard pipe parallel (55°) conforms to UNI - ISO 228

DCAT_006_026_21064779





01/10.2018

| CODE | Nominal size | A | Ø B | Ø C | D | E |  |  |
|---------------|--------------|---------|--------------|----------------|--------------|---------------|---|---|
| | | | mm (inch) | mm (inch) | mm (inch) | mm (inch) | mm (inch) | Nm (lbf in) |
| GC (◆) | 3/8" | G 3/8 | 25 (0.98) | 15 (0.5906) | 14 (0.55) | 2 (0.08) | 15 ⁺¹ (133 ÷ 142) | — |
| GE | 3/4" | G 3/4 | 39 (1.54) | 24,5 (0.96) | 18 (0.71) | 2,5 (0.10) | 30 ^{+2,5} (266 ÷ 288) | 90 ⁺⁵ (797 ÷ 841) |
| GF | 1" | G 1 | 49 (1.93) | 30,5 (1.20) | 22 (0.87) | 2,5 (0.10) | 50 ^{+2,5} (443 ÷ 465) | 130 ⁺¹⁰ (1151 ÷ 1239) |
| GG | 1" 1/4 | G 1 1/4 | 56 (2.20) | 39 (1.54) | 24 (0.95) | 2,5 (0.10) | 60 ⁺⁵ (531 ÷ 575) | 170 ⁺¹⁵ (1505 ÷ 1637) |

(◆) = Drain port

PORT SIZES

 Tightening torque for low pressure side port

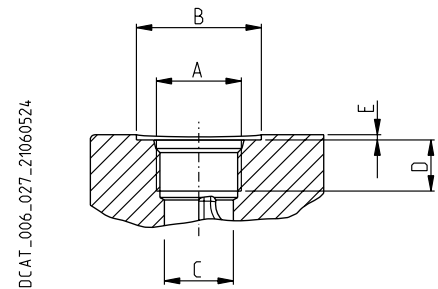
 Tightening torque for high pressure side port



For reversible rotation, please consult only the tightening torque for high pressure side port.

SAE STRAIGHT THREAD PORTS J514

ODT

American straight thread UNC-UNF 60° conforms to ANSI B 1.1





| CODE | Nominal size | A | Ø B | Ø C | D | E |  |  |
|---------------|--------------|-----------------------|--------------|----------------|----------------|---------------|---|---|
| | | | mm (inch) | mm (inch) | mm (inch) | mm (inch) | Nm (lbf in) | Nm (lbf in) |
| OA (◆) | 3/8" | 9/16" - 18 UNF - 2B | 26 (1.02) | 13 (0.5118) | 15 (0.5906) | 2 (0.0787) | 15 ⁺¹ (133 ÷ 142) | — |
| OD | 3/4" | 1 1/16" - 12 UNF - 2B | 42 (1.65) | 24,8 (0.98) | 20 (0.79) | 2 (0.08) | 40 ^{+2,5} (354 ÷ 376) | 120 ⁺¹⁰ (1062 ÷ 1151) |
| OF | 1" | 1 5/16" - 12 UNF - 2B | 49 (1.93) | 30,5 (1.20) | 20 (0.79) | 2 (0.08) | 60 ⁺⁵ (531 ÷ 575) | 170 ⁺¹⁰ (1505 ÷ 1593) |
| OG | 1" 1/4 | 1 5/8" - 12 UNF - 2B | 58 (2.28) | 39,1 (1.54) | 20 (0.79) | 2 (0.08) | 70 ⁺⁵ (620 ÷ 664) | — |
| OH | 1" 1/2 | 1 7/8" - 12 UNF - 2B | 65 (2.56) | 45 (1.77) | 20 (0.79) | 2 (0.08) | 100 ⁺⁵ (885 ÷ 929) | — |

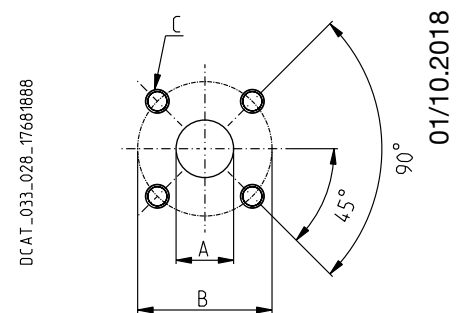
(◆) = Drain port

GERMAN FLANGED PORTS - 4 Bolts

GERMAN

Metric thread ISO 60° conforms to ISO/R 262

| CODE | A | B | C |  |  |
|-----------|--------------|--------------|----------------------|---|---|
| | mm (in) | mm (in) | Thread Depth mm (in) | Nm (lbf in) | Nm (lbf in) |
| BC | 15 (0.59) | 35 (1.38) | M6 13 (0.51) | 8 ^{+0,5} (71 ÷ 75) | 8 ^{+0,5} (71 ÷ 75) |
| BE | 20 (0.79) | 40 (1.57) | M6 13 (0.51) | 8 ^{+0,5} (71 ÷ 75) | 8 ^{+0,5} (71 ÷ 75) |
| BL | 19 (0.75) | 55 (2.17) | M8 17 (0.67) | 15 ⁺¹ (133 ÷ 142) | 20 ⁺¹ (177 ÷ 186) |
| BM | 27 (1.06) | 55 (2.17) | M8 17 (0.67) | 15 ⁺¹ (133 ÷ 142) | 20 ⁺¹ (177 ÷ 186) |



PORT SIZES



Tightening torque for low pressure side port



Tightening torque for high pressure side port

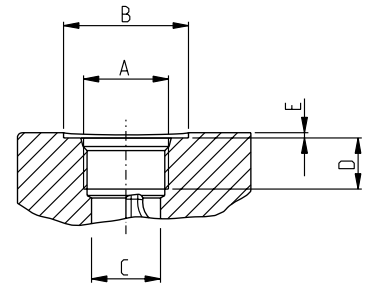
For reversible rotation, please consult only the tightening torque for high pressure side port.

INTERNATIONAL STRAIGHT THREAD PORTS ISO 6149

METRIC

Metric thread ISO 60° conforms to ISO/R 262

DCAT_006_027_21060524



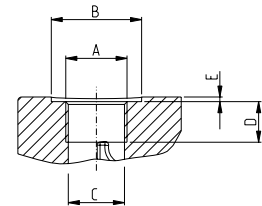
| CODE | Nominal size | A | Ø B | | Ø C | | D | E | | |
|-----------|--------------|-------|--------------|--------------|--------------|--------------|-----------------------------------|-------------------------------------|--|--|
| | | | mm (inch) | mm (inch) | mm (inch) | mm (inch) | | | | |
| RM | 3/4" | M27x2 | 50 (1.97) | 25 (0.98) | 22 (0.87) | 2 (0.08) | 40 ^{+2.5} (354 ÷ 376) | 100 ⁺⁵ (885 ÷ 929) | | |
| RP | 1" | M33x2 | 43 (1.69) | 31 (1.22) | 20 (0.79) | 2 (0.08) | 55 ⁺⁵ (487 ÷ 531) | 150 ⁺¹⁰ (1328 ÷ 1416) | | |
| RQ | 1" 1/4 | M42x2 | 52 (2.28) | 40 (1.57) | 20 (0.79) | 2 (0.08) | 70 ⁺⁵ (620 ÷ 664) | 200 ⁺¹⁰ (1770 ÷ 1859) | | |

INTERNATIONAL STRAIGHT THREAD PORTS ISO 9974

METRIC

Metric thread ISO 60° conforms to ISO/R 262

DCAT_006_026_21064779



01/10.2018

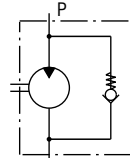
| CODE | Nominal size | A | Ø B | | Ø C | | D | E | | |
|-----------|--------------|-------|--------------|----------------|--------------|--------------|-----------------------------------|-------------------------------------|--|--|
| | | | mm (inch) | mm (inch) | mm (inch) | mm (inch) | | | | |
| TM | 3/4" | M27x2 | 40 (1.57) | 24,5 (0.96) | 20 (0.79) | 2 (0.08) | 40 ^{+2.5} (354 ÷ 376) | 100 ⁺⁵ (885 ÷ 929) | | |
| TP | 1" | M33x2 | 50 (1.97) | 30,5 (1.20) | 20 (0.79) | 2 (0.08) | 60 ⁺⁵ (531 ÷ 575) | 170 ⁺¹⁰ (1549 ÷ 1637) | | |

VALVE OPTIONS

ANTI-CAVITATION VALVES (a)

C1

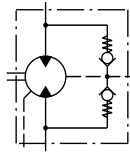
For unidirectional motors with anti-clockwise rotation. Only for Kappa 30 (CSC).



n.1 inlet valve

C2

For unidirectional motors with clockwise rotation. Only for Kappa 30 (CSC).



n.2 valves

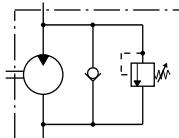
C3

For reversible motors with external drain. Only for Kappa 30 (CSC).

MAX.PRESSURE RELIEF VALVE ADJUSTABLE SETTING (a)

U1

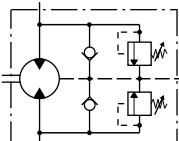
For unidirectional motors with anti-clockwise rotation. Only for Kappa 30 (CSC).



n.1 inlet valve

U2

For unidirectional motors with clockwise rotation. Only for Kappa 30 (CSC).



n.2 valves

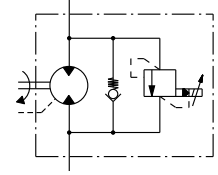
U3

For reversible motors with external drain. Only for Kappa 30 (CSC).

ELECTRIC VALVE (b)

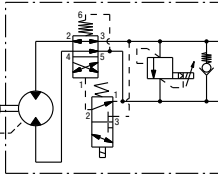
PRV-V8/V11

Proportional and anticavitation valve. For reversible motors with external drain.



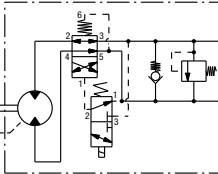
PRV-REVP-V8

Proportional with reversible and anticavitation valve. For reversible motors with external drain.



REVP/VPIF

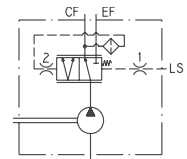
Reversible and max. pressure valve. For reversible motors with external drain.



LOAD SENSING VALVE (a)

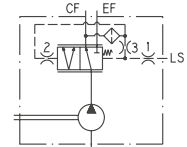
...

Static.



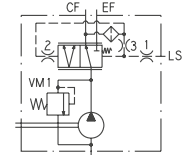
...

Dynamic.



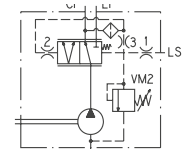
...

Dynamic with relief valve fitted on the main line.



...

Dynamic with relief valve fitted on controlled line.



- (a) For more information please consult the built-in valves technical catalogue
- (b) For more information please consult the fan drive technical catalogue

Replaces: 02/04.2022

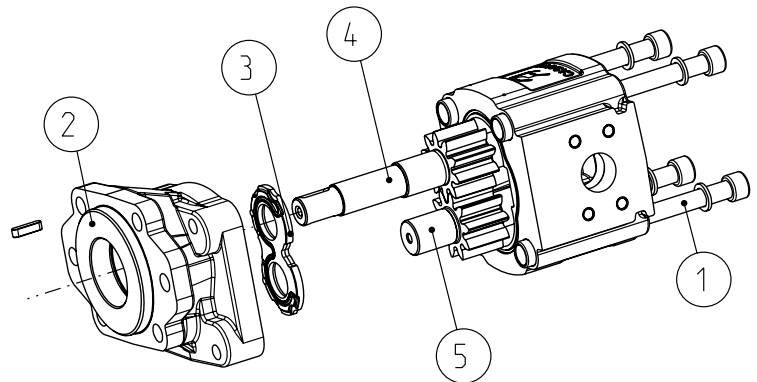
03/06.2023

CHANGING ROTATION

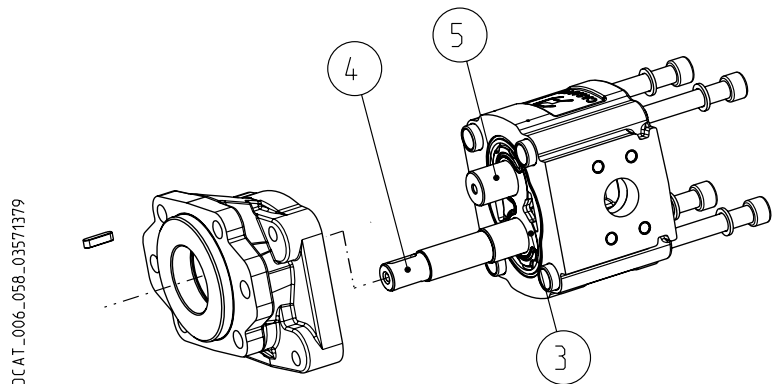
Example of changing rotation: from KP30 pump counterclockwise to clockwise

To change rotation of unidirectional pumps and motors is necessary to operate in the following way:

1. Clean the pump externally with care.
2. Loosen, and remove, the clamp bolts (1).
3. Coat the sharp edges of the drive shaft (4) with adhesive tape and smear a layer of clean grease on the shaft end extension to avoid damaging the lip of the shaft seal when removing the mounting flange.
4. Remove the mounting flange (2), taking care to keep the flange as straight as possible during removal. If the flange is stuck, tap around the edge with a fibre or rubber mallet in order to break away from the body. Ensure that while removing the front mounting flange, the drive shaft and other components remain position.
5. Ease the drive gear (4) up to facilitate removal the front plate (3), taking care that the precision ground surfaces do not become damaged, and remove the drive gear.
6. Remove the driven gear (5) without overturning. The rear plate has not to be removed.

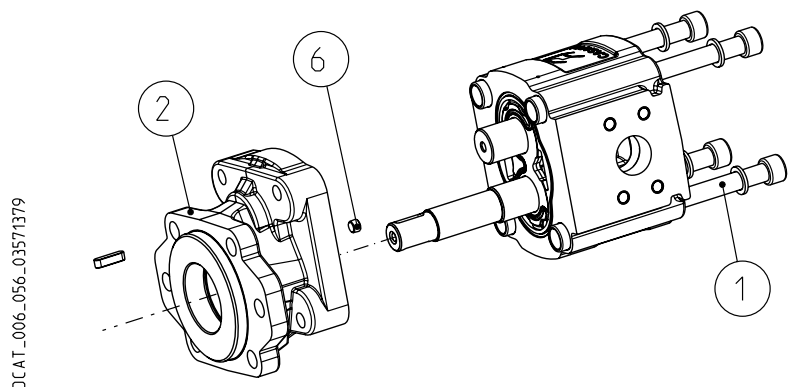


7. Re-locate the driven gear (5) in the position previously occupied by the drive gear (4).
8. Re-locate the drive gear (4) in the position previously occupied by the driven gear (5).
9. Replace the front plate (3) in its original position.



10. Remove the grub screw (6) from the mounting flange (2) and re-locate it in the other threaded hole in the same flange.

11. Gently wipe the machined surface of the mounting flange (2) and the body with a flat hand stone.
12. Refit the front mounting flange (2) turned 180° from its original position.
13. Refit the clamp bolts (1) with the washers and tighten in a crisscross pattern to a torque value of 140 ± 14 Nm ($1115 \div 1363$ lbf in)
14. Check that the pump rotates freely when the drive shaft (4) is turned by hand. If not a pressure plate seal may be pinched.



15. The pump is ready for installation with the original rotation reversed.

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HOW TO ORDER - SINGLE UNITS

| | | | | | | | | | | | |
|-----------------|----------|----------|-------------|-----------|------------|--------------|------------|-------------|-------------|--------------|----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| KP 30•27 | R | 0 | - 04 | S3 | - L | OF/OD | - N | - OA | - C4 | - CSC | - VNR01 |

| 1 | Type | Pump type | Motor type |
|--|------|-----------------|-----------------|
| 21,99 cm ³ /rev (1.34 in ³ /rev) | | KP 30•22 | KM 30•22 |
| 26,7 cm ³ /rev (1.63 in ³ /rev) | | KP 30•27 | KM 30•27 |
| 30,63 cm ³ /rev (1.87 in ³ /rev) | | KP 30•31 | KM 30•31 |
| 34,56 cm ³ /rev (2.11 in ³ /rev) | | KP 30•34 | KM 30•34 |
| 39,27 cm ³ /rev (2.40 in ³ /rev) | | KP 30•38 | KM 30•38 |
| 41,62 cm ³ /rev (2.54 in ³ /rev) | | KP 30•41 | KM 30•41 |
| 43,98 cm ³ /rev (2.68 in ³ /rev) | | KP 30•43 | KM 30•43 |
| 46,34 cm ³ /rev (2.83 in ³ /rev) | | KP 30•46 | KM 30•46 |
| 51,83 cm ³ /rev (3.16 in ³ /rev) | | KP 30•51 | KM 30•51 |
| 56,54 cm ³ /rev (3.45 in ³ /rev) | | KP 30•56 | KM 30•56 |
| 61,26 cm ³ /rev (3.74 in ³ /rev) | | KP 30•61 | KM 30•61 |
| 73,82 cm ³ /rev (4.50 in ³ /rev) | | KP 30•73 | KM 30•73 |

| 2 | Rotation | Code |
|--------------------------------|----------|----------|
| Anti-clockwise | | S |
| Clockwise | | D |
| Reversible rear external drain | | R |
| Reversible side external drain | | L |
| Reversible internal drain | | B |

| 3 | Outboard bearing options | Code |
|--------------------------|--------------------------|----------|
| Without outboard bearing | | 0 |
| With outboard bearing | | 1 |
| With outboard bearing | | 3 |
| With outboard bearing | | 6 |

| 4 | Drive shaft | Code |
|--------------------------------------|-------------|-----------|
| European tapered 1:8 | | 83 |
| SAE "B" spline (13 teeth) | | 04 |
| SAE "B" straight | | 32 |
| SAE "BB" spline (15 teeth) | | 05 |
| SAE "BB" straight | | 33 |
| SAE "B" spline (13 teeth) for K9 | | A8 |
| SAE "BB" spline (15 teeth) for K9 | | A5 |
| SAE "C" spline (14 teeth) | | 06 |
| SAE "C" spline short type (14 teeth) | | A6 |

| Code | Mounting flange | 5 |
|-----------|-----------------------------|---|
| E3 | European | |
| S1 | SAE "A" 2 holes | |
| S2 | SAE "A" 2 holes with O-ring | |
| S9 | SAE "A" 2 holes short type | |
| S3 | SAE "B" 2-4 holes | |
| K9 | SAE "B" 2 holes | |
| S6 | SAE "C" 4 holes | |
| S8 | SAE "C" 2 holes | |
| Q3 | SAE "C" 2 holes short type | |

| Code | Ports position | 6 |
|----------|-------------------|---|
| L | IN/OUT side | |
| H | IN side/ OUT rear | |
| K | IN rear/ OUT side | |
| P | IN/OUT rear | |

| Code | Ports IN/OUT | 7 | |
|--------------------------------|--------------|-------|-------------------|
| EUROPEAN FLANGED PORTS | | | |
| | Side | Rear | Type |
| ED/EB | | KP 30 | 22-27-31-34-38 |
| EB/ED | | KM 30 | 41-43-46-51-56-61 |
| EF/ED | | KP 30 | 73 |
| ED/EF | | KM 30 | |
| SAE FLANGED PORTS (SSM) | | | |
| | Side | Rear | Type |
| MC/MB | | KP 30 | 22-27-31-34-38 |
| MB/MC | | KM 30 | |
| MD/MC | | KP 30 | 41-43-46-51 |
| MC/MD | | KM 30 | |
| ME/MD | | KP 30 | 56-61-73 |
| MD/ME | | KM 30 | |
| SAE FLANGED PORTS (SSS) | | | |
| | Side | Rear | Type |
| SC/SB | | KP 30 | 22-27-31-34-38 |
| SB/SC | | KM 30 | |
| SD/SC | | KP 30 | 41-43-46-51 |
| SC/SD | | KM 30 | |
| SE/SD | | KP 30 | 56-61-73 |
| SD/SE | | KM 30 | |

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HOW TO ORDER - SINGLE UNITS

| 7 | Ports IN/OUT | Code |
|---|--------------|------|
|---|--------------|------|

| SAE STRAIGHT THREAD PORTS (ODT) | | |
|---------------------------------|-------|-------|
| Side | Rear | Type |
| OF/OD | OF/OD | KP 30 |
| OD/OF | OD/OF | KM 30 |
| OG/OF | OG/OF | KP 30 |
| OF/OG | OF/OG | KM 30 |

| GAS STRAIGHT THREAD PORTS (BSPP) | | |
|----------------------------------|-------|-------|
| Side | Rear | Type |
| GF/GE | GF/GE | KP 30 |
| GE/GF | GE/GF | KM 30 |
| GG/GF | GG/GF | KP 30 |
| GF/GG | GF/GG | KM 30 |

| 8 | Seals (a) | Code |
|---|-----------|------|
|---|-----------|------|

| | | |
|---|--|------|
| Buna NBR (standard) | | N |
| Viton-FKM | | V |
| Hydrogenated buna HNBR seals with Viton-FKM shaft seals | | T-PV |
| Buna NBR and bronze thrust plates | | N Bz |
| Viton-FKM and bronze thrust plate | | V Bz |

| 9 | Drain port | Code |
|---|------------|------|
|---|------------|------|

| | | |
|---|--|-----|
| GAS straight thread ports (BSPP) (standard) no code | | ... |
| SAE straight thread ports (ODT) | | OA |

| 10 | Shaft seal options | Code |
|----|--------------------|------|
|----|--------------------|------|

| | | |
|----------------------------------|--|----|
| Shaft seal with wiper seal | | D |
| High pressure special shaft seal | | C4 |

| 11 | Body design | Code |
|----|-------------|------|
|----|-------------|------|

| | | |
|----------------------|--|-----|
| Standard | | CSC |
| Compact (b) | | HSC |
| High performance (c) | | BSC |

| 12 | Painting | Code |
|----|----------|------|
|----|----------|------|

| | | |
|-------------------------------------|--|-------|
| Without painting (standard) no code | | ... |
| Black painting (d) | | VNR01 |
| Grey painting (d) | | VGR01 |

- (a) Choose the seals according to the temperature shown on page 5.
- (b) Available only with 22-27-31-34-38 displacements.
- (c) Available only with 22-27-31-34-38-41-43-46 displacements.
- (d) Salt spray resistance of 300 hours. Please contact us for more information.

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HOW TO ORDER - MULTIPLE PUMPS SAME GROUPS

| | | | | | | | | | | | | | | | | |
|-----------------------------|---|-----------|-----------|--------------|--------------|--------------|------------|------------|------------|----------|----|----------|---|-----------|---|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | |
| KP 30•51 | - | A8 | K9 | - | L | MD/MC | - | - | CSL | / | | | | | | |
| Front section | | | | | | | | | | | | | | | | |
| 30•51 | - | | - | L | MD/MC | - | - | CSL | / | | | | | | | |
| Intermediate section | | | | | | | | | | | | | | | | |
| 30•51 | - | | L | MD/MC | - | - | CSC | - | S | 1 | - | V | - | C4 | - | VNR01 |
| Rear section | | | | | | | | | | | | | | | | |

| 1 | Type | Pump type |
|---|------------------------------|-----------------|
| | 21,99 cm³/rev (1.34 in³/rev) | KP 30•22 |
| | 26,7 cm³/rev (1.63 in³/rev) | KP 30•27 |
| | 30,63 cm³/rev (1.87 in³/rev) | KP 30•31 |
| | 34,56 cm³/rev (2.11 in³/rev) | KP 30•34 |
| | 39,27 cm³/rev (2.40 in³/rev) | KP 30•38 |
| | 41,62 cm³/rev (2.54 in³/rev) | KP 30•41 |
| | 43,98 cm³/rev (2.68 in³/rev) | KP 30•43 |
| | 46,34 cm³/rev (2.83 in³/rev) | KP 30•46 |
| | 51,83 cm³/rev (3.16 in³/rev) | KP 30•51 |
| | 56,54 cm³/rev (3.45 in³/rev) | KP 30•56 |
| | 61,26 cm³/rev (3.74 in³/rev) | KP 30•61 |
| | 73,82 cm³/rev (4.50 in³/rev) | KP 30•73 |

| 2 | Drive shaft | Code |
|---|---------------------------------------|-----------|
| | European tapered 1:8 | 83 |
| | SAE "B" spline (13 teeth) | 04 |
| | SAE "B" straight | 32 |
| | SAE "BB" spline (15 teeth) | 05 |
| | SAE "BB" straight | 33 |
| | SAE "B" spline (13 teeth) for K9 | A8 |
| | SAE "BB" spline (15 teeth) for K9 | A5 |
| | SAE "C" spline (14 teeth) | 06 |
| | SAE "CC" spline short type (14 teeth) | A6 |

| 3 | Mounting flange | Code |
|---|-----------------------------|-----------|
| | European | E3 |
| | SAE "A" 2 holes | S1 |
| | SAE "A" 2 holes with O-ring | S2 |
| | SAE "A" 2 holes short type | S9 |
| | SAE "B" 2-4 holes | S3 |
| | SAE "B" 2 holes | K9 |
| | SAE "C" 4 holes | S6 |
| | SAE "C" 2 holes | S8 |
| | SAE "C" 2 holes short type | Q3 |

| Code | Ports position | 4 |
|----------|----------------|---|
| L | IN/OUT side | |

| Code | Ports IN/OUT | 5 |
|-------------------------------|--------------|-------------------------------------|
| EUROPEAN FLANGED PORTS | | |
| Side | | Type |
| ED/EB | KP 30 | 22-27-31-34-38 41-43-46-51-56-61 |
| EF/ED | KP 30 | 73 |

| SAE FLANGED PORTS (SSM) | | |
|--------------------------------|-------|----------------|
| Side | | Type |
| MC/MB | KP 30 | 22-27-31-34-38 |
| MD/MC | KP 30 | 41-43-46-51 |
| ME/MD | KP 30 | 56-61-73 |

| SAE FLANGED PORTS (SSS) | | |
|--------------------------------|-------|----------------|
| Side | | Type |
| SC/SB | KP 30 | 22-27-31-34-38 |
| SD/SC | KP 30 | 41-43-46-51 |
| SE/SD | KP 30 | 56-61-73 |

| SAE STRAIGHT THREAD PORTS (ODT) | | |
|--|-------|----------------------|
| Side | | Type |
| OF/OD | KP 30 | 22-27-31-34-38 |
| OG/OF | KP 30 | 41-43-46-51-56-61-73 |

| GAS STRAIGHT THREAD PORTS (BSPP) | | |
|---|-------|----------------------|
| Side | | Type |
| GF/GE | KP 30 | 22-27-31-34-38 |
| GG/GF | KP 30 | 41-43-46-51-56-61-73 |

| Code | Body for common inlet (a) | 6 |
|-----------|---------------------------|---|
| M5 | Combination KP30 / KP30 | |

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HOW TO ORDER - MULTIPLE PUMPS SAME GROUPS

| 7 | Body design | Code |
|-----------------------------|----------------------|------------|
| FRONT SECTION | | |
| | Standard | CSL |
| | Compact (b) | KSL |
| | High performance (c) | BSL |
| INTERMEDIATE SECTION | | |
| | Standard | CSL |
| REAR SECTION (d) | | |
| | Standard | CSC |
| | Compact (b) | HSC |
| | High performance (c) | BSC |

| 8 | Rotation | Code |
|---|----------------|----------|
| | Anti-clockwise | S |
| | Clockwise | D |

| 9 | Outboard bearing options | Code |
|---|---|----------|
| | Without outboard bearing (standard) no code | 0 |
| | With outboard bearing | 1 |
| | With outboard bearing | 3 |
| | With outboard bearing | 6 |

| 10 | Seals (e) | Code |
|----|---|-------------|
| | Buna NBR (standard) no code | ... |
| | Viton-FKM | V |
| | Hydrogenated buna HNBR seals with Viton-FKM shaft seals | T-PV |
| | Buna NBR and bronze thrust plate | N Bz |
| | Viton-FKM and bronze thrust plate | V Bz |

| 11 | Shaft seal options | Code |
|----|----------------------------------|-----------|
| | Shaft seal with wiper seal | D |
| | High pressure special shaft seal | C4 |

| 12 | Painting | Code |
|----|-------------------------------------|--------------|
| | Without painting (standard) no code | ... |
| | Black painting (f) | VNR01 |
| | Grey painting (f) | VGR01 |

- (a) Please write this code only for common inlet pumps. (see page 59)
- (b) Available only with 22-27-31-34-38 displacements.
- (c) Available only with 22-27-31-34-38-41-43-46 displacements.
- (d) For multiple pumps with more than two sections we recommend to use a bracket.
- (e) Choose the seals according to the temperature shown on page 4. Buna N-NBR no code.
- (f) Salt spray resistance of 300 hours. Please contact us for more information.

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HOW TO ORDER - DOUBLE PUMPS DIFFERENT GROUPS

KP30 / PHP20

| | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> KP 30•51 - A8 K9 - L MD/MC - 45 </div> - <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> CSC </div> / | | | | | | | | | | | | | |
| Front section | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> PHP 20•19 - L MB/MA </div> - <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block; margin-bottom: 5px;"></div> - <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> L - S 1 / FS V - C4 VNR01 </div> | | | | | | | | | | | | | |
| Rear section | | | | | | | | | | | | | |

KP30 / PLP20

| | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> KP 30•51 - A8 K9 - L MD/C - 45 </div> - <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> CSC </div> / | | | | | | | | | | | | | |
| Front section | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> PLP 20•14 - L MB/MA </div> - <div style="border: 1px solid black; width: 20px; height: 20px; display: inline-block; margin-bottom: 5px;"></div> - <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;"> L - S 1 / FS V - C4 VNR01 </div> | | | | | | | | | | | | | |
| Rear section | | | | | | | | | | | | | |

| | | |
|---|---------------------------------------|------------------|
| 1 | Type | Pump type |
| | The same of multiple pumps on page 56 | KP 30•... |
| 2 | Drive shaft | Code |
| | The same of multiple pumps on page 56 | ... |
| 3 | Mounting flange | Code |
| | The same of multiple pumps on page 56 | ... |
| 4 | Ports position | Code |
| | Side | L |
| 5 | Ports IN/OUT | Code |
| | The same of multiple pumps on page 56 | .../... |
| 6 | Connecting shaft | Code |
| | Combination KP30/PHP20 and KP30/PLP20 | 45 |
| 7 | Body for common inlet (a) | Code |
| | Combination KP30/PHP20 and KP30/PLP20 | N7 |
| 8 | Body design | Code |
| | Standard | CSC |
| | Compact (b) | HSC |
| | High performance (c) | BSC |

| | | |
|----|---------------------------------|---------------------------------------|
| 9 | Rear cover options | Code |
| | ... | Cast iron (standard) no code |
| | L | Aluminium |
| 10 | Rotation | Code |
| | S | Anti-clockwise |
| | D | Clockwise |
| 11 | Outboard bearing options | Code |
| | ... | The same of multiple pumps on page 57 |
| 12 | Seals | Code |
| | ... | The same of multiple pumps on page 57 |
| 13 | Shaft seal options | Code |
| | ... | The same of multiple pumps on page 57 |
| 14 | Painting | Code |
| | ... | Without painting (standard) no code |
| | VNR01 | Black painting (d) |
| | VGR01 | Grey painting (d) |

- (a) Please write this code only for common inlet pumps. (see page 59)
- (b) Available only with 22-27-31-34-38 displacements.
- (c) Available only with 22-27-31-34-38-41-43-46 displacements.
- (d) Salt spray resistance of 300 hours. Please contact us for more information.

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HOW TO ORDER - MULTIPLE PUMPS COMMON INLET

Depending on the required version, the common inlet codes must be used only for the section which has the common suction. For pumps with common inlet for all sections, the code must be used only for the last section. For the sections with only an outlet port, the code of the inlet port must be omitted.

| Front pump | Identification code of common inlet body | Rear pump |
|------------|--|------------------|
| KP 30 | M5 | KP 30 |
| KP 30 | N7 | PHP 20 PLP 20 |

Order example

Triple pump Kappa 30+Kappa 30+ PLP 20.
Common inlet intermediate pump and rear pump.

KP 30•51-A8 K9-L MD/MC-CSL /

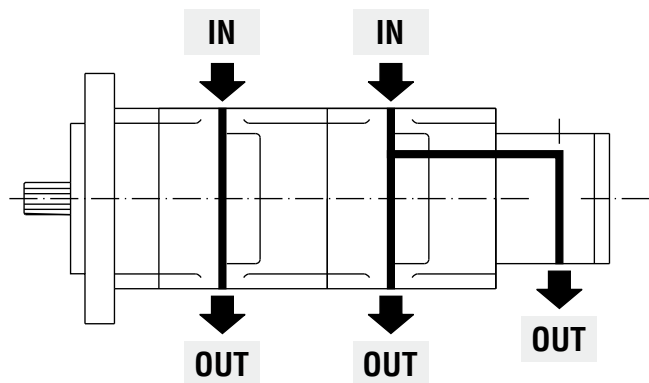
Front pump

KP 30•51-L MD/MC-45-N7-CSC /

Intermediate pump

PLP 20•14-L /MA-L-S/FS

Rear pump



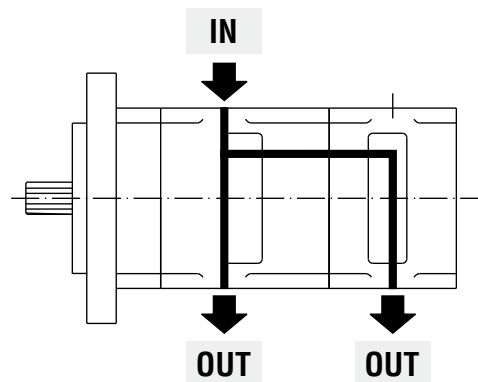
Double pump Kappa 30+Kappa 30.
Common inlet all pumps.

KP 30•38-A8 K9-I MC/MB-KSL /

Front pump

KP 30•38-L /MB-M5-HSC-S

Rear pump



Triple pump Kappa 30+Kappa 30+ Kappa 30
Common inlet all pumps.

KP 30•51 A8 K9-I /MC-CSL /

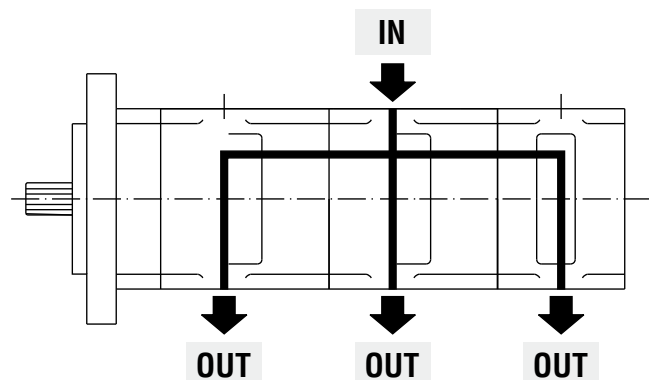
Front pump

KP 30•51-L MD/MC-CSL /

Intermediate pump

KP 30•51-L /MC-M5-CSC-S

Rear pump



01/10.2018

NOTES

01/10.2018

Our policy is one of continuous improvement in product. Specification of items may, therefore, be changed without notice.

K30 03 T A

Edition: 03/06.2023

Replaces: K30 02 T A



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