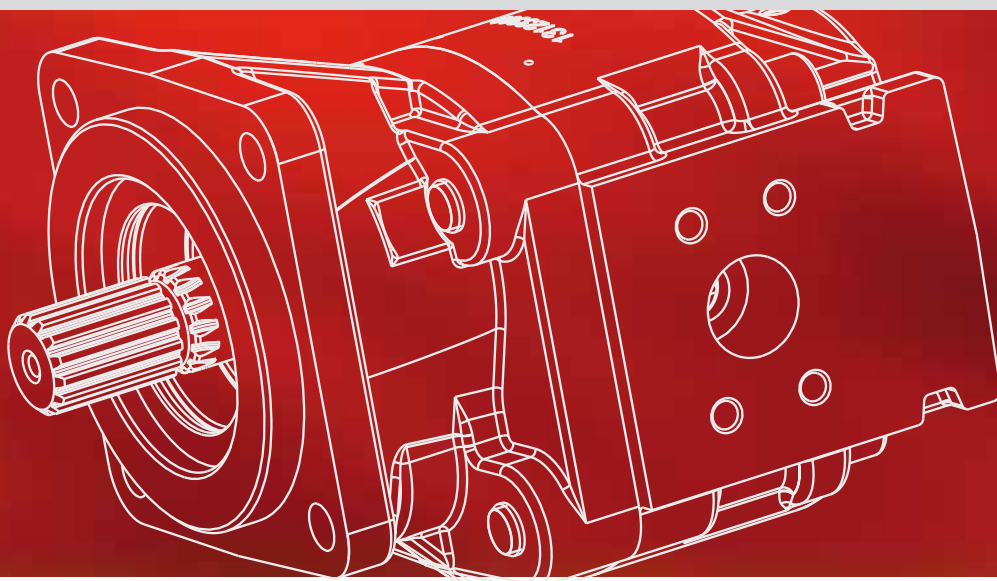




HYDRAULIC GEAR PUMPS

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INTRODUCTION

Kappa 35 Compact series is a heavy duty, two-piece construction, cast iron pump.
The robust design ensures high performances, reliability and long service life.

DISPLACEMENTS

From 63,88 cm³/rev (3.90 in³/rev)

To 100,08 cm³/rev (6.10 in³/rev)

PRESSURE

Max. constant operating pressure 260 bar (3770 psi)

Max. system pressure (relief valve setting) 275 bar (3988 psi)

Max. peak of pressure 290 bar (4205 psi)

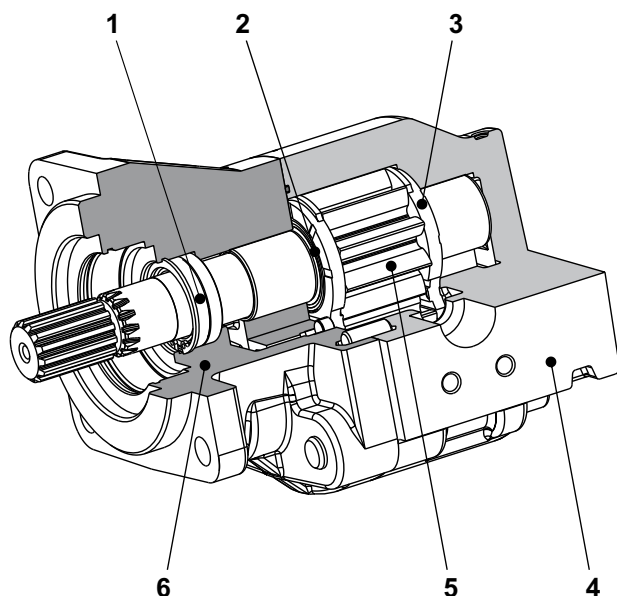
SPEED

Max. 3000 min⁻¹

- High working pressure
- Long service life - High reliability
- High volumetric efficiency
- Low noise level
- Standard drive shafts, mounting flanges and ports
- Direct mounting on customer machines, no modification necessary
- Combination in multiple pumps

TYPICAL APPLICATIONS

- Building & Construction Machinery



1	Shaft seals
2	Seal
3	Thrust plate
4	Body
5	Gear
6	Mounting flange

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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.

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 consult our pre-sales department.

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 (50 °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	≤ 50 bar (725 psi)
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.



FEATURES

Construction	External gear pumps
Mounting	SAE standard flanges
Ports	Threaded or split flange
Direction of rotation (looking on drive shaft)	Anti-clockwise (S) - clockwise (D)
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 consult our pre-sales department.
Fluid temperature range	See table (1)
Fluid	Mineral oil based hydraulic fluids to ISO/DIN and fire resistant fluids [see table (1)]. For other fluids please consult our pre-sales department.
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 7	See page 7	-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	

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

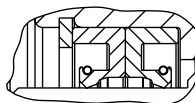
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D (◆) shaft seals with wiper seal

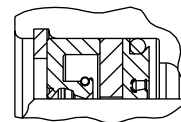
C4 (◆) High pressure special shaft seal (only with ISO/DIN hydraulic fluid)

Single rotation pumps

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



Max drain line pressure:
10 bar (145 psi)



FEATURES

Filtration

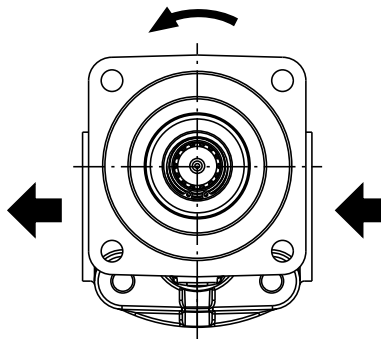
Casappa recommends to use its own production filters:

Tab. 2

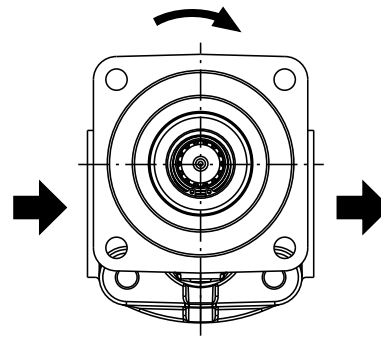
Working pressure bar (psi)	$\Delta p < 140$ (2030)	$140 < \Delta p < 210$ (2030) (3045)	$\Delta p > 210$ (3045)
Contamination class NAS 1638	10	9	8
Contamination class ISO 4406	21/19/16	20/18/15	19/17/14
Achieved with filter $\beta_{10}(c) \geq 200$ according to ISO 16889	-	10 μm	10 μm
Achieved with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



DEFINITION OF ROTATION DIRECTION LOOKING AT THE DRIVE SHAFT



Anti-clockwise rotation

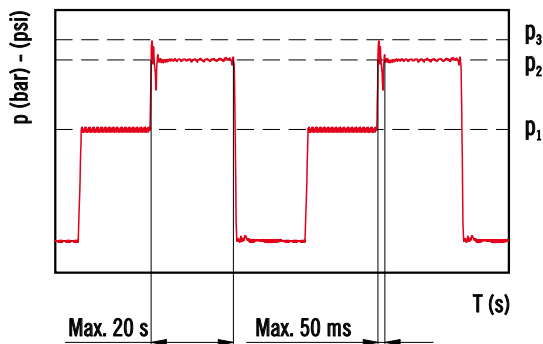


Clockwise rotation

GENERAL NOTES

Available with different inlet and outlet ports. If you use fire resistant fluids, specify the fluid type when ordering. For more information please consult our pre-sales department.

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.

For high frequency applications please consult our pre-sales department.

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FEATURES

Pump type	Displacement	Body design	Characteristics	Max. pressure			Max. speed	Min. speed
	cm³/rev (in³/rev)			p ₁	p ₂	p ₃		
				bar (psi)				
KP 35•63	63,88 (3.90)	HSC	Compact	260 (3770)	275 (3988)	290 (4205)	3000	400
		CSL	Standard					
KP 35•71	72,4 (4.42)	HSC	Compact	260 (3770)	275 (3988)	290 (4205)	3000	400
		CSL	Standard					
KP 35•80	80,91 (4.94)	HSC	Compact	260 (3770)	275 (3988)	290 (4205)	3000	400
		CSL	Standard					
KP 35•90	91,56 (5.59)	HSC	Compact	245 (3553)	260 (3770)	275 (3988)	2500	400
		CSL	Standard					
KP 35•100	100,08 (6.10)	HSC	Compact	230 (3335)	245 (3553)	260 (3770)	2500	400
		CSL	Standard					

Pressure values in the table refer to side ports unidirectional pumps.

For different configurations and working conditions please consult our pre-sales department.

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

Efficiencies		Pumps
$\eta_v = \eta_v(V, \Delta p, n)$	Volumetric efficiency	(≈ 0,95)
$\eta_{hm} = \eta_{hm}(V, \Delta p, n)$	Hydro-mechanical efficiency	(≈ 0,88)
$\eta_t = \eta_v \cdot \eta_{hm}$	Overall efficiency	(≈ 0,84)

DESIGN CALCULATIONS FOR PUMP

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

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

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

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

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

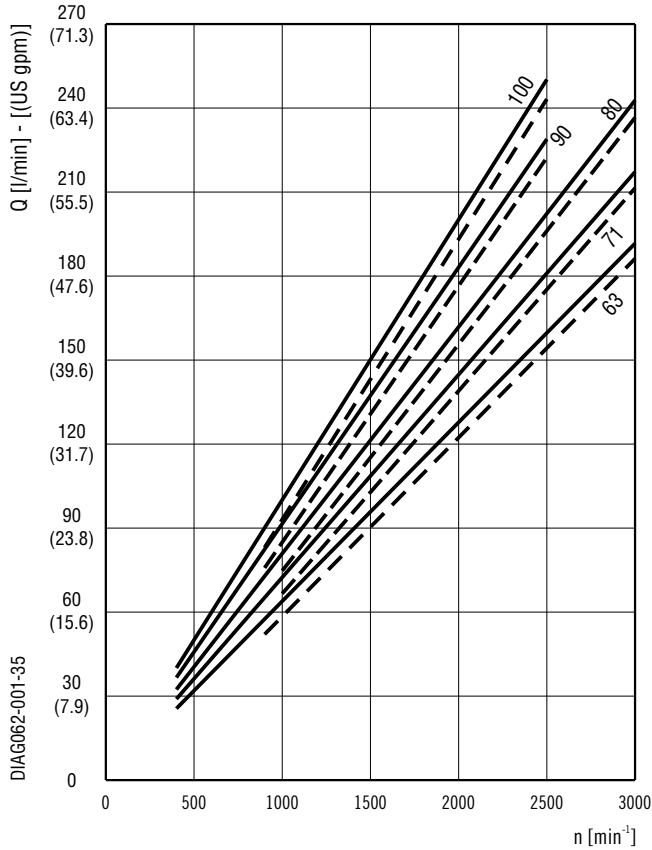
$$P_{\text{OUT}} = \frac{\Delta p \cdot Q}{600} \quad [\text{kW}]$$

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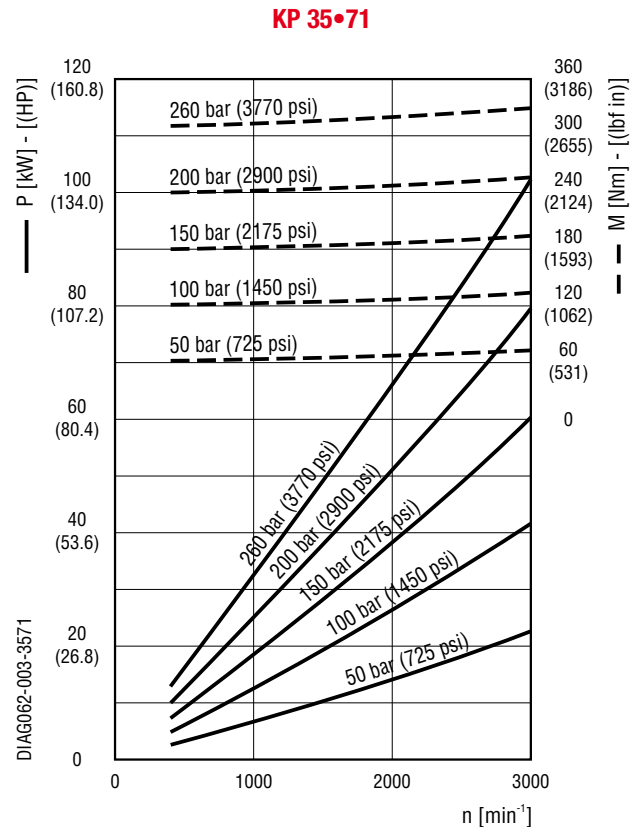
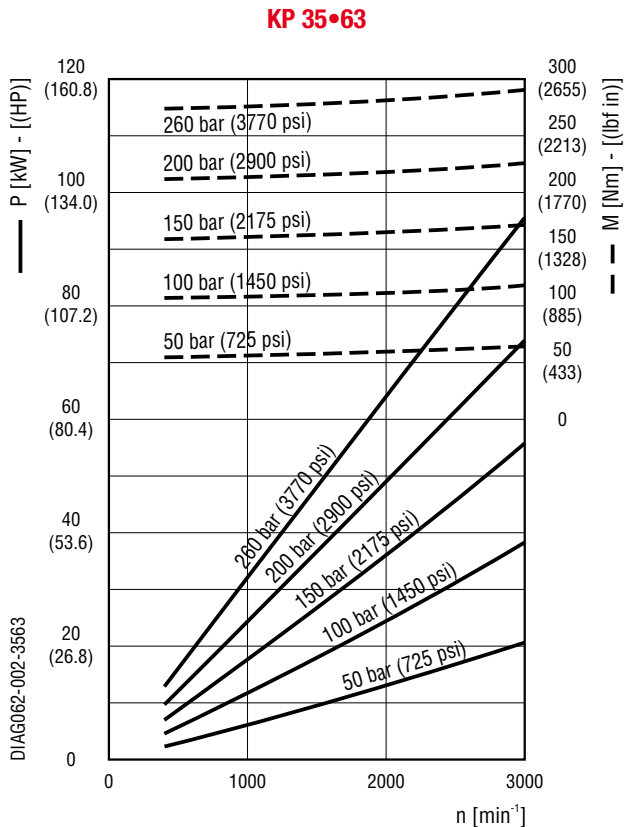
KAPPA 35

GEAR PUMPS PERFORMANCE CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these pressures.



KP 35•63	—	20 bar (290 psi)
	- - -	260 bar (3770 psi)
KP 35•71	—	20 bar (290 psi)
	- - -	260 bar (3770 psi)
KP 35•80	—	20 bar (290 psi)
	- - -	260 bar (3770 psi)
KP 35•90	—	20 bar (290 psi)
	- - -	245 bar (3553 psi)
KP 35•100	—	20 bar (290 psi)
	- - -	230 bar (3335 psi)

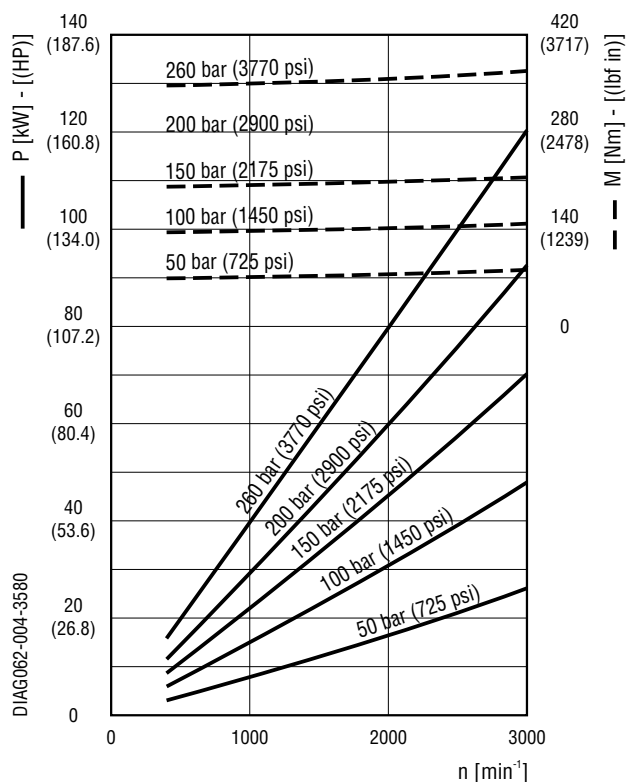


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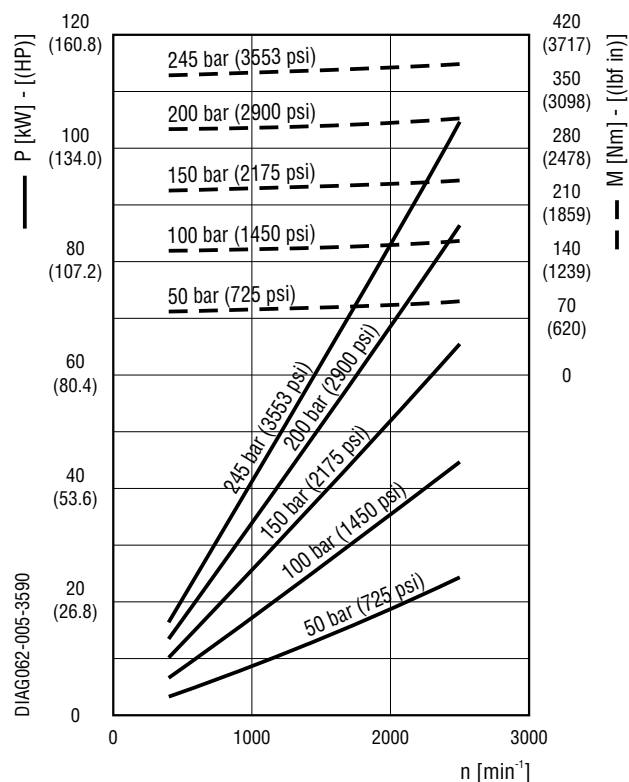
KAPPA 35

GEAR PUMPS PERFORMANCE CURVES

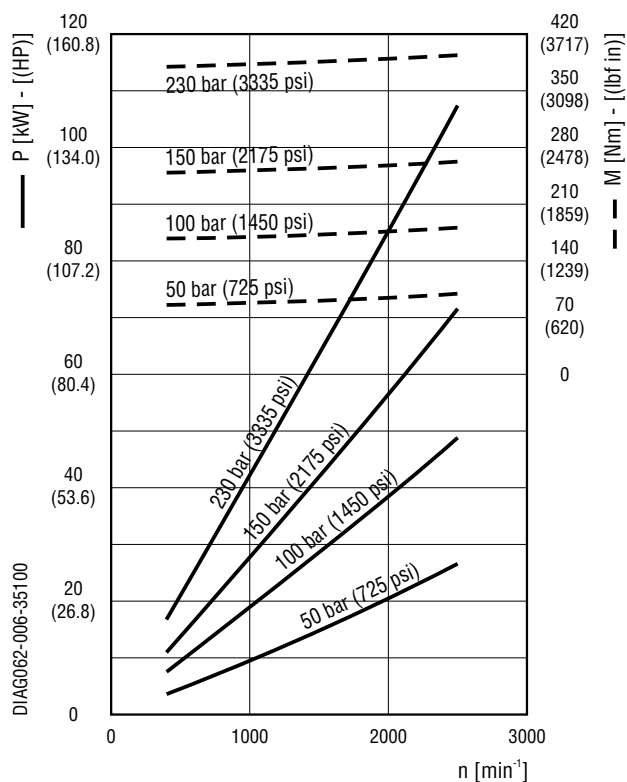
KP 35•80



KP 35•90



KP 35•100

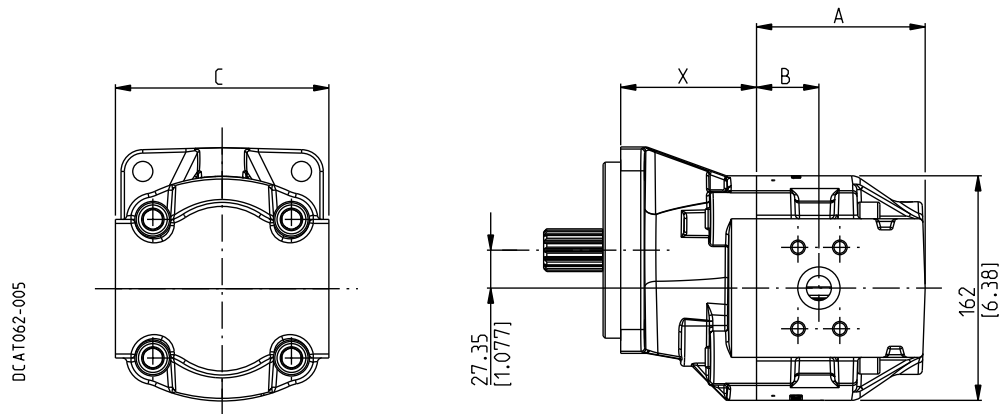


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KAPPA 35
SINGLE PUMPS DIMENSIONS - SIDE PORTS
HSC

 Body design: HSC
 Characteristics: Compact

 Drive shaft: see page 17
 Mounting flange: for X dimension see
 page 18

 Ports availability: Split, Gas, SAE.
 See page 19


Single rotation S - D

Pump type	A	B	C	
			Split ports	GAS - SAE ports
	mm (in)	mm (in)	mm (in)	mm (in)
K. 35•63	105 (4.13)	28 (1.10)	154 (6.06)	165 (6.50)
K. 35•71	109 (4.29)	32 (1.26)	154 (6.06)	165 (6.50)
K. 35•80	113 (4.45)	36 (1.42)	154 (6.06)	165 (6.50)
K. 35•90	118 (4.65)	41 (1.61)	154 (6.06)	165 (6.50)
K. 35•100	122 (4.80)	45 (1.77)	154 (6.06)	165 (6.50)

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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. For more information please consult our pre-sales department.

M	Nm (lbf in)	Torque
V	cm ³ /rev (in ³ /rev)	Displacement
Δp	bar (psi)	Pressure
$\eta_{hm} = \eta_{hm}(V, \Delta p, n)$	(≈ 0,88)	Hydro-mechanical efficiency

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

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

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.

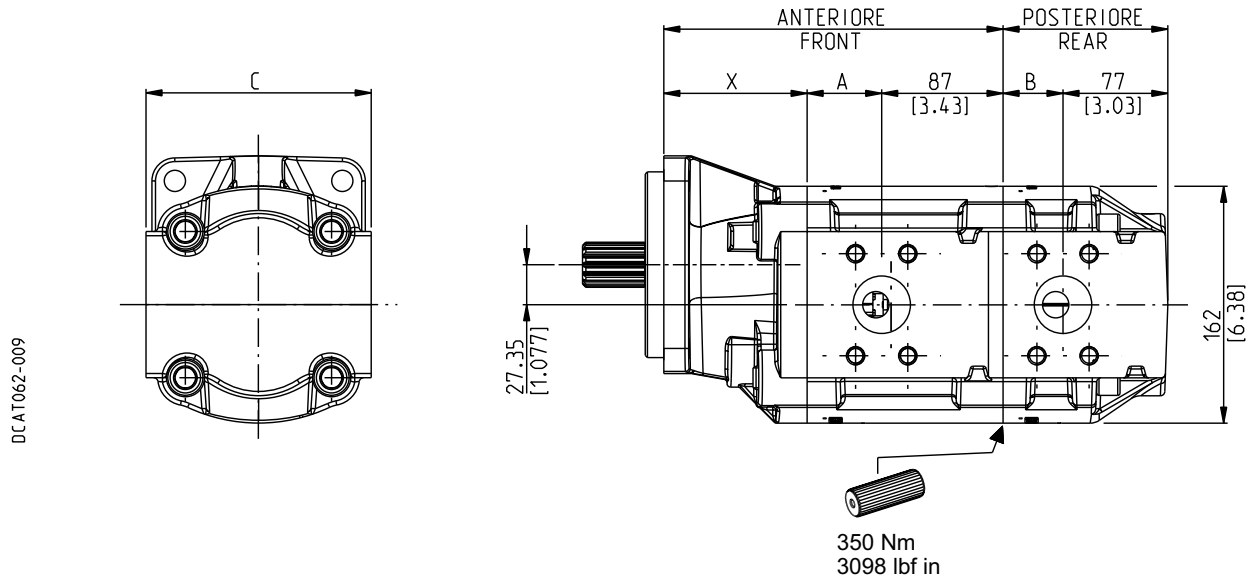
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KAPPA 35
DOUBLE PUMPS DIMENSIONS - SAME GROUPS
CSL/HSC

Characteristics:
Standard / Compact

Drive shaft: see page 17
Mounting flange: for X dimension see
page 18

Ports availability: Split, Gas, SAE.
See page 19



Special connecting shaft is also available
with torque up to 600 Nm (5311 lbf in).
Please consult our pre-sales department.

	Front	Rear
Body design	CSL	HSC

Pump type	A	B	C	
			Split ports	GAS - SAE ports
	mm (in)	mm (in)	mm (in)	mm (in)
KP 35•63	39 (1.54)	28 (1.10)	154 (6.06)	165 (6.50)
KP 35•71	43 (1.69)	32 (1.26)	154 (6.06)	165 (6.50)
KP 35•80	47 (1.85)	36 (1.42)	154 (6.06)	165 (6.50)
KP 35•90	52 (2.05)	41 (1.61)	154 (6.06)	165 (6.50)
KP 35•100	56 (2.20)	45 (1.77)	154 (6.06)	165 (6.50)

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KAPPA 35

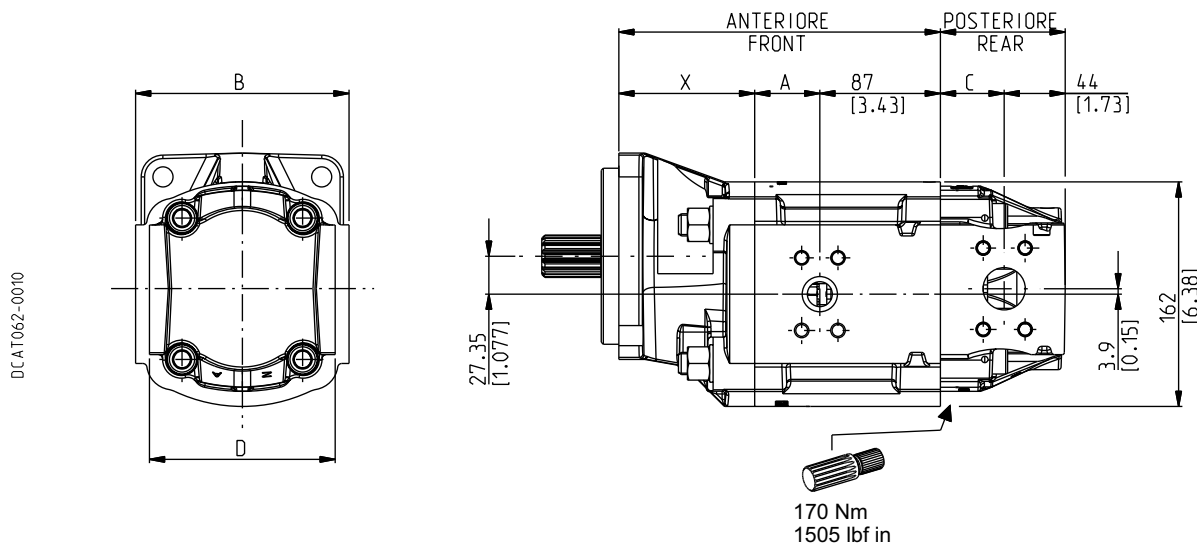
DOUBLE PUMPS DIMENSIONS - KP35/30

CSL/HSC

Characteristics:
Standard / Compact

Drive shaft: see page 17
Mounting flange: for X dimension see
page 18

Ports availability: Split, Gas, SAE.
See page 19



Special connecting shaft is also available
with torque up to 350 Nm (3098 lbf in).
Please consult our pre-sales department.

	Front	Rear
Body design	CSL	Kappa 30 Series HSC (●)

(●) Available also with CSC body design.

For features please consult the proper technical catalog

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Pump type	A	B	
	mm (in)	Split ports mm (in)	GAS - SAE ports mm (in)
KP 35•63	39 (1.54)	154 (6.06)	165 (6.50)
KP 35•71	43 (1.69)	154 (6.06)	165 (6.50)
KP 35•80	47 (1.85)	154 (6.06)	165 (6.50)
KP 35•90	52 (2.05)	154 (6.06)	165 (6.50)
KP 35•100	56 (2.20)	154 (6.06)	165 (6.50)

Pump type	C	D	
	mm (in)	Split ports mm (in)	Gas - SAE ports mm (in)
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	46 (1.81)	134 (5.28)	142 (5.59)

KAPPA 35
DOUBLE PUMPS DIMENSIONS - KP35/PHP20
HSC

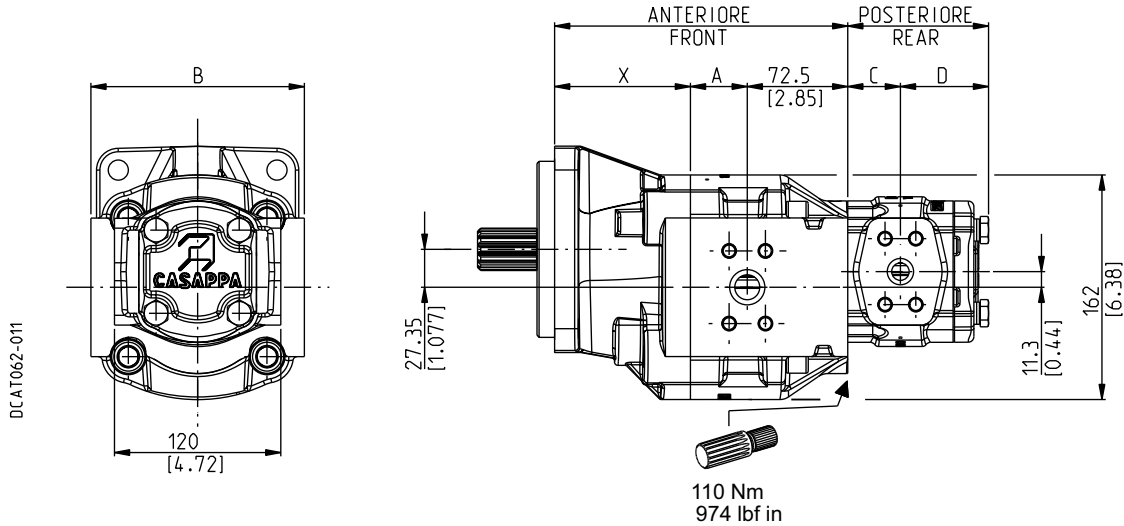
Characteristics: Compact

Drive shaft: see page 19

 Mounting flange: for X dimension see
page 20

Ports availability: Split, Gas, SAE.

See page 21



Special connecting shaft is also available
with torque up to 170 Nm (1505 lbf in).
Please consult our pre-sales department.

	Front	Rear
Body design	HSC	Polaris PH Series (●)

(●) For features please consult the proper technical catalog

Pump type	A	B	
		Split ports	GAS - SAE ports
	mm (in)	mm (in)	mm (in)
KP 35•63	28 (1.10)	154 (6.06)	165 (6.50)
KP 35•71	32 (1.26)	154 (6.06)	165 (6.50)
KP 35•80	36 (1.42)	154 (6.06)	165 (6.50)
KP 35•90	41 (1.61)	154 (6.06)	165 (6.50)
KP 35•100	45 (1.77)	154 (6.06)	165 (6.50)

Pump type	C	D
	mm (in)	mm (in)
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)

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KAPPA 35
DOUBLE PUMPS DIMENSIONS - KP35/PLP20
HSC

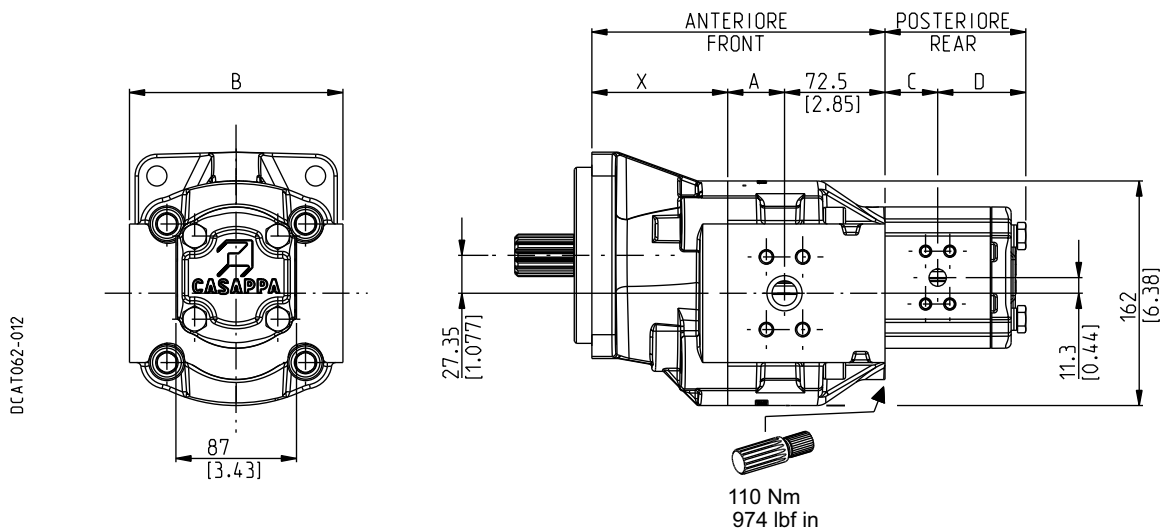
Characteristics: Compact

Drive shaft: see page 19

 Mounting flange: for X dimension see
page 20

Ports availability: Split, Gas, SAE.

See page 21



Special connecting shaft is also available
with torque up to 170 Nm (1505 lbf in).
Please consult our pre-sales department.

	Front	Rear
Body design	HSC	Polaris 20 Series (●)

(●) For features please consult the proper technical catalog

Pump type	A	B	
	mm (in)	Split ports mm (in)	GAS - SAE ports mm (in)
KP 35•63	28 (1.10)	154 (6.06)	165 (6.50)
KP 35•71	32 (1.26)	154 (6.06)	165 (6.50)
KP 35•80	36 (1.42)	154 (6.06)	165 (6.50)
KP 35•90	41 (1.61)	154 (6.06)	165 (6.50)
KP 35•100	45 (1.77)	154 (6.06)	165 (6.50)

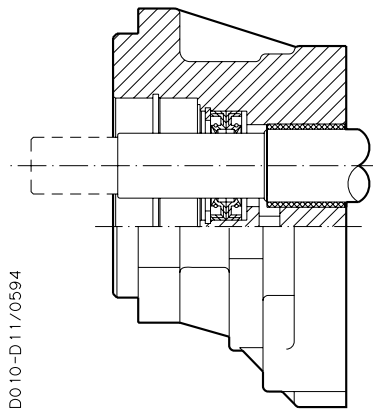
Pump type	C	D
	mm (in)	mm (in)
PLP 20•4	25,8 (1.02)	49,3 (1.94)
PLP 20•6,3	27 (1.06)	50,5 (1.99)
PLP 20•7,2	27,5 (1.08)	51 (2.01)
PLP 20•8	28,3 (1.11)	51,8 (2.04)
PLP 20•9	28,9 (1.14)	52,4 (2.06)
PLP 20•10,5	30,3 (1.19)	53,8 (2.12)
PLP 20•11,2	30,5 (1.20)	54 (2.13)
PLP 20•14	33 (1.30)	56,5 (2.22)
PLP 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)

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VERSIONS - OUTBOARD BEARING OPTIONS

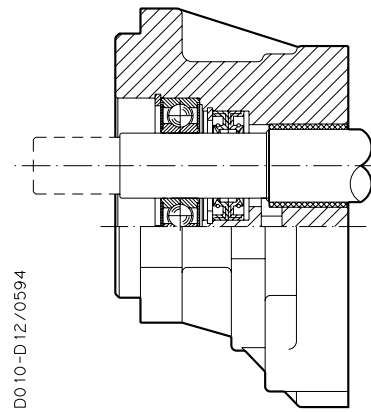
For each version, the possible combination between drive shafts and mounting flanges are shown on page 20.
For particular applications please consult our pre-sales department.

VERSION 0



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

VERSION 1



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

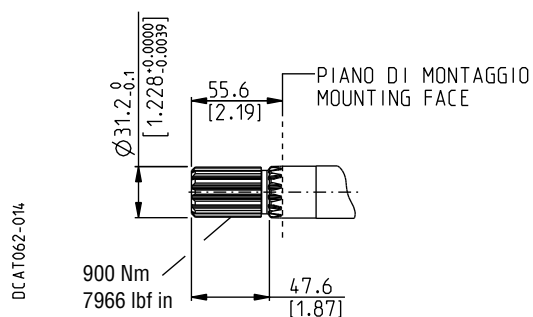
KAPPA 35

DRIVE SHFTS

SAE "C" SPLINE

06

Mounting face refer to flange code **S6**

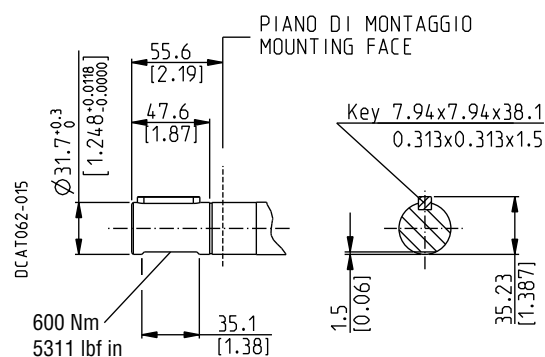


Ext. Involute Spline SAE J498B
with major diameter modified
14 teeth - 12/24 Pitch - 30 deg
Flat root - Side fit - Class 1

SAE "C" STRAIGHT

34

Mounting face refer to flange code **S6**



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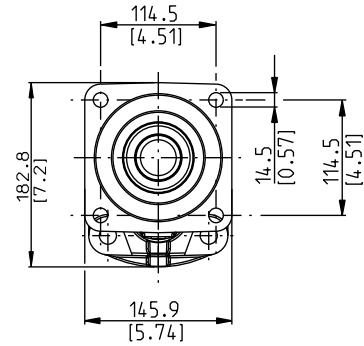
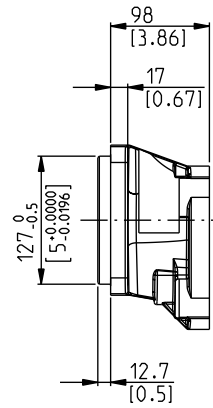
MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "C" 4 HOLES

S6

Conforms to SAE J744

DCAT062-017



DRIVE SHAFTS

See page 19

VERSIONS

See page 18

06

34

0

#

1

X

Standard combination

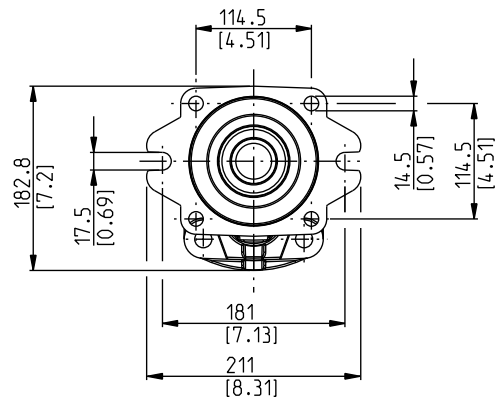
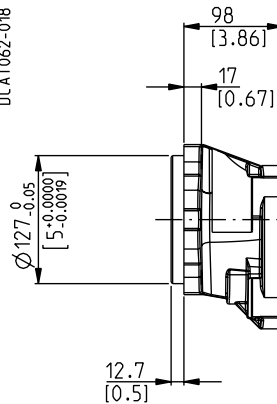
x Available combination

SAE "C" 2-4 HOLES

S8

Conforms to SAE J744

DCAT062-018



DRIVE SHAFTS

See page 19

VERSIONS

See page 18

06

34

0

#

1

X

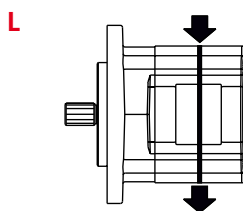
Standard combination

x Available combination

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KAPPA 35

PORTS POSITION AND TYPE



SIDE PORTS

PORTS TYPE	Split SSM		Spit SSS		Gas BSPP		SAE ODT	
Pump type	IN	OUT	IN	OUT	IN	OUT	IN	OUT
K. 35•63	ME	MD	SE	SD	GG	GF	OG	OF
K. 35•71	ME	MD	SE	SD	GG	GF	OG	OF
K. 35•80	MF	ME	SF	SE	GG	GF	OG	OF
K. 35•90	MF	ME	SF	SE	GG	GF	OG	OF
K. 35•100	MF	ME	SF	SE	GG	GF	OG	OF

Different ports are available on request.
For more information please consult our pre-sales department.

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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.

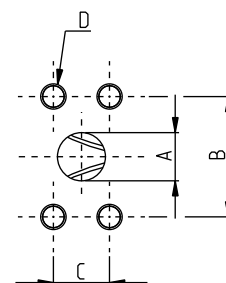
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

SSM

Metric thread ISO 60° conforms to ISO/R 262

CODE	A	B	C	D		
	mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
MD	30,5 (1.20)	58,7 (2.31)	30,2 (1.19)	M 10 22 (0.87)	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)
MF	51 (2.01)	77,8 (3.06)	42,9 (1.69)	M 12 17 (0.67)	25 ⁺¹ (221 ÷ 230)	—

DCAT_006_025_21064252



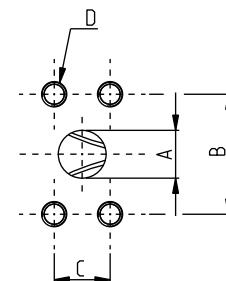
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

SSS

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

CODE	A	B	C	D		
	mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
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)
SF	51 (2.01)	77,8 (3.06)	42,9 (1.69)	1/2 - 13 UNC-2B 17 (0.67)	30 ^{+2,5} (266 ÷ 288)	—

DCAT_006_028_21060740



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PORT SIZES



Tightening torque for low pressure side port.



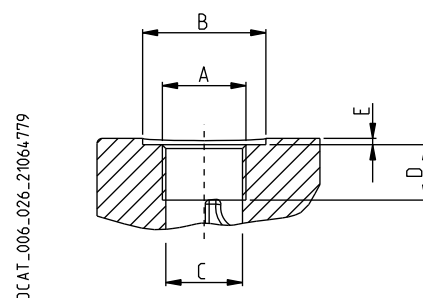
Tightening torque for high pressure side port.

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

GAS STRAIGHT THREAD PORTS

BSPP

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

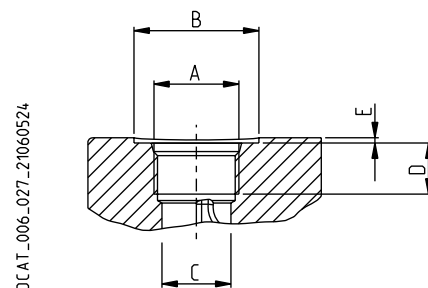


CODE	Nominal size	A	Ø B	Ø C	D	E		
			mm (in)	mm (in)	mm (in)	mm (in)	Nm (lbf in)	Nm (lbf in)
GF	1"	G 1	49 (1.93)	30,5 (1.20)	19 (0.75)	2,5 (0.10)	50 ^{+2,5} (443 ÷ 465)	130 ⁺¹⁰ (1151 ÷ 1239)
GG	1" 1/4	G 1 1/4	60 (2.36)	39 (1.54)	22 (0.87)	2,5 (0.10)	60 ⁺⁵ (531 ÷ 575)	170 ⁺¹⁵ (1505 ÷ 1637)

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 (in)	mm (in)	mm (in)	mm (in)	Nm (lbf in)	Nm (lbf in)
OF	1"	1 5/16" - 12 UNF - 2B	49 (1.93)	30,5 (1.20)	20 (0.79)	2 (0.8)	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 (0.8)	70 ⁺⁵ (620 ÷ 664)	—

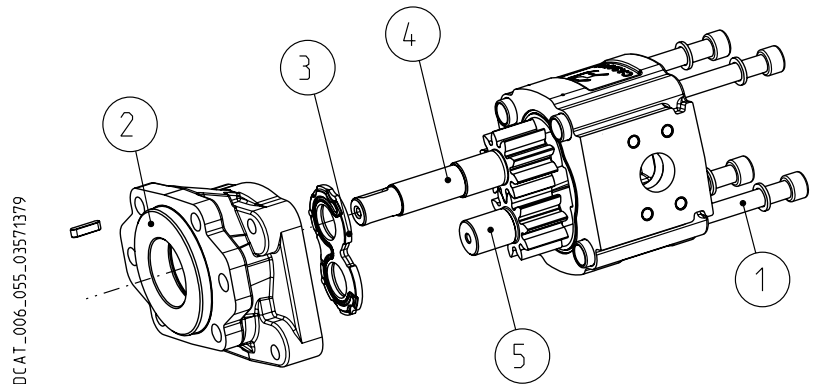
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CHANGING ROTATION

Example of changing rotation: from KP35 pump counterclockwise to clockwise

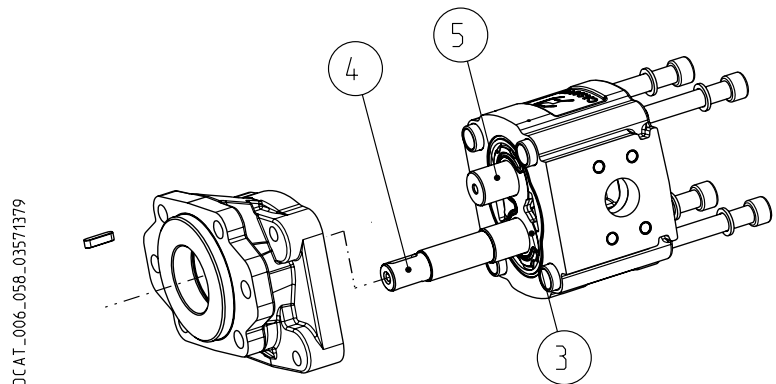
To change rotation of unidirectional pumps and motors is necessary to operate in the following way:

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.

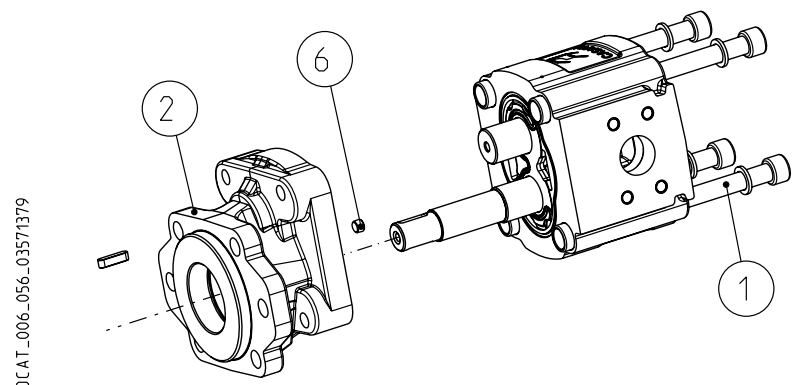


5. Ease the drive gear (4) up to facilitate removal the front plate (3), taking care that the precision ground surfaces do not become damaged, and remove the drive gear.
6. Remove the driven gear (5) without overturning. The rear plate has not to be removed.

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 100 ± 15 Nm ($752 \div 1018$ 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 pined.
15. The pump is ready for installation with the original rotation reversed.



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KAPPA 35
HOW TO ORDER - SINGLE PUMPS

1	2	3	4	5	6	7	8	9	10	11						
KP 35•63	S	0	-	06	S6	-	L	ME/MD	-	N	-	D	-	HSC	-	VNR01

1	Type	Pump type
63,88 cm³/rev (3.90 in³/rev)		KP 35•63
72,4 cm³/rev (4.42 in³/rev)		KP 35•71
80,91 cm³/rev (4.94 in³/rev)		KP 35•80
91,56 cm³/rev (5.59 in³/rev)		KP 35•90
100,08 cm³/rev (6.10 in³/rev)		KP 35•100

2	Rotation	Code
Anti-clockwise		S
Clockwise		D

3	Versions - Outboard bearing options	Code
Without outboard bearing		0
Version		1

4	Drive shaft	Code
SAE "C" spline		06
SAE "C" straight		34

5	Mouning flange	Code
SAE "C" 4 holes		S6
SAE "C" 2-4 holes		S8

6	Ports position	Code
Side		L

7	Ports IN/OUT	Code
SAE FLANGED PORTS (SSM)		
Type		Side
63-71	KP 35	ME/MD
80-90-100	KP 35	MF/ME
SAE FLANGED PORTS (SSS)		
Type		Side
63-71	KP 35	SE/SD
80-90-100	KP 35	SF/SE
GAS STRAIGHT THREAD PORTS (BSPP)		
63-71	KP 35	GG/GF
80-90-100	KP 35	GG/GF
SAE STRAIGHT THREAD PORTS J514 (ODT)		
63-71	KP 35	OG/OF
80-90-100	KP 35	OG/OF

Code	Seals (a)	8
N	Buna NBR (standard)	
V	Viton-FKM	
T-PV	Hydrogenated buna HNBR seals with Viton-FKM shaft seals	

Code	Shaft seal options	9
D	Shaft seal with wiper seal	
C4	High pressure special shaft seal	

Code	Body design	10
HSC	Compact	

Code	Painting	11
...	Without painting (standard) no code	
VNR01	Black painting (b)	
VGR01	Grey painting (b)	

- (a) Choose the seals according to the temperature shown on page 5
- (b) Salt spray resistance of 300 hours. For more information please consult our pre-sales department

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KAPPA 35
HOW TO ORDER - DOUBLE PUMPS SAME GROUPS

1	2	3	4	5	6	7	8	9	10	11	12
KP 35•63	-	06	S6	-	L	ME/MD	-	-	CSL	/	

Front section

35•63	-		L	ME/MD	-	-	HSC	-	S	0	-	N	-	D	-	VNR01
-------	---	--	---	-------	---	---	-----	---	---	---	---	---	---	---	---	-------

Rear section

1	Type	Pump type
63,88 cm³/rev (3.90 in³/rev)		KP 35•63
72,4 cm³/rev (4.42 in³/rev)		KP 35•71
80,91 cm³/rev (4.94 in³/rev)		KP 35•80
91,56 cm³/rev (5.59 in³/rev)		KP 35•90
100,08 cm³/rev (6.10 in³/rev)		KP 35•100

2	Drive shaft	Code
SAE "C" spline		06
SAE "C" straight		34

3	Mouning flange	Code
SAE "C" 4 holes		S6
SAE "C" 2-4 holes		S8

4	Ports position	Code
Side		L

5	Ports IN/OUT	Code
SAE FLANGED PORTS (SSM)		
Type	Side	
63-71	KP 35	ME/MD
80-90-100	KP 35	MF/ME
SAE FLANGED PORTS (SSS)		
Type	Side	
63-71	KP 35	SE/SD
80-90-100	KP 35	SF/SE
GAS STRAIGHT THREAD PORTS (BSPP)		
63-71	KP 35	GG/GF
80-90-100	KP 35	GG/GF
SAE STRAIGHT THREAD PORTS J514 (ODT)		
63-71	KP 35	OG/OF
80-90-100	KP 35	OG/OF

6	Body for common inlet (a)	Code
KP35 CSL/35 HSC		I5

Code	Body design	7
FRONT SECTION		
CSL	Standard	

REAR SECTION		
HSC	Compact	

Code	Rotation	8
S	Anti-clockwise	
D	Clockwise	

Code	Versions - Outboard bearing options	9
0	Without outboard bearing	
1	Version	

Code	Seals (b)	10
N	Buna NBR (standard) no code	
V	Viton-FKM	
T-PV	Hydrogenated buna HNBR seals with Viton-FKM shaft seals	

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

Code	Painting	12
...	Without painting (standard) no code	
VNR01	Black painting (c)	
VGR01	Grey painting (c)	

- (a) Please write this code only for common inlet pumps (see page 27)
- (b) Choose the seals according to the temperature shown on page 5. Buna NBR no code.
- (c) Salt spray resistance of 300 hours. For more information please consult our pre-sales department

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KAPPA 35
HOW TO ORDER - DOUBLE PUMPS DIFFERENT GROUPS
KP35 / KP30

1	2	3	4	5	6	7	8	9	10	11	12	13	14
KP35•63	-	06	S6	-	L	ME/MD	-	61	-	CSL	/		
Front section													
KP30•51	-		L	MD/MC	-		HSC	-	S	0	-	N	- D VNR01
Rear section													

KP35 / PHP20

1	2	3	4	5	6	7	8	9	10	11	12	13	14
KP35•63	-	06	S6	-	L	ME/MD	-	82	-	HSC	/		
Front section													
PHP20•19	-		L	MB/MA	-				L	- S	0 / FS	N	- D VNR01
Rear section													

KP35 / PLP20

1	2	3	4	5	6	7	8	9	10	11	12	13	14
KP35•63	-	06	S6	-	L	ME/MD	-	82	-	HSC	/		
Front section													
PLP20•14	-		L	MB/MA	-				L	- S	0 / FS	N	- D VNR01
Rear section													

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1	Type (a)	Pump type
	The same of double pumps on page 24	KP 35•...
2	Drive shaft	Code
	The same of double pumps on page 24	...
3	Mounting flange	Code
	The same of double pumps on page 24	...
4	Ports position	Code
	Side	L
5	Ports IN/OUT (a)	Code
	The same of double pumps on page 24	.../...
6	Connecting shaft	Code
	Combination KP35/KP30	61
	Combination KP35/PHP20 and KP35/PLP20	82

Code	Body for common inlet (b)	7
L5	KP35 CSL/30 HSC	
H7	KP35 HSC/PHP20	
H7	KP35 HSC/PLP20	
Code	Body design	8
FRONT SECTION		
CSL	Combination KP35/KP30	
HSC	Combination KP35/PHP20 and KP35/PLP20	
REAR SECTION (KP30)		
HSC	Compact	
CSL	Standard	
Code	Rear cover options	9
...	Cast iron (standard) no code	
L	Aluminium	
Code	Rotation	10
S	Anti-clockwise	
D	Clockwise	
Code	Versions - Outboard bearing options	11
...	The same of double pumps on page 24	

KAPPA 35

HOW TO ORDER - DOUBLE PUMPS DIFFERENT GROUPS

12	Seals	Pump type
----	-------	-----------

The same of double pumps on page 24	...
-------------------------------------	-----

13	Shaft seal options	Code
----	--------------------	------

The same of double pumps on page 24	...
-------------------------------------	-----

14	Painting	Code
----	----------	------

Without painting (standard) no code	...
-------------------------------------	-----

Black painting (c)	VNR01
--------------------	-------

Grey painting (c)	VGR01
-------------------	-------

- (a) For KP 30, PHP 20 and PLP 20 features please consult the proper technical catalogue
- (b) Please write this code only for common inlet pumps.
(see page 27)
- (c) Salt spray resistance of 300 hours. For more information please consult our pre-sales department

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HOW TO ORDER - MULTIPLE PUMPS COMMON INLET

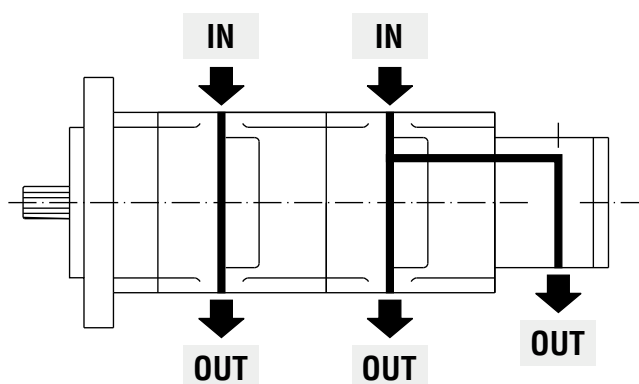
Depending on the required version, the common inlet codes must be used only for the section which has the common suction. For pumps with common inlet for all sections, the code must be used only for the last section. For the sections with only an outlet port, the code of the inlet port must be omitted.

Front pump	Identification code of common inlet body	Rear pump
KP 35	I5	KP 35
KP 35	L5	KP 30
KP 35	H7	PHP 20 PLP 20

Order example

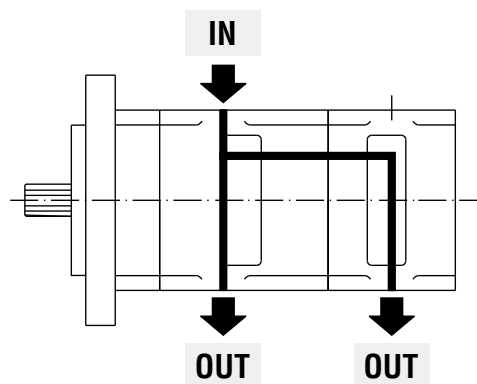
Triple pump Kappa 35+Kappa 35+ PLP 20.
Common inlet intermediate pump and rear pump.

KP 35•63-06 S6-L ME/MD-CSL	/
Front pump	
KP 35•63-L ME/MD-41-H7-HSC	/
Intermediate pump	
PLP 20•14-L /MA-L-S/FS	
Rear pump	



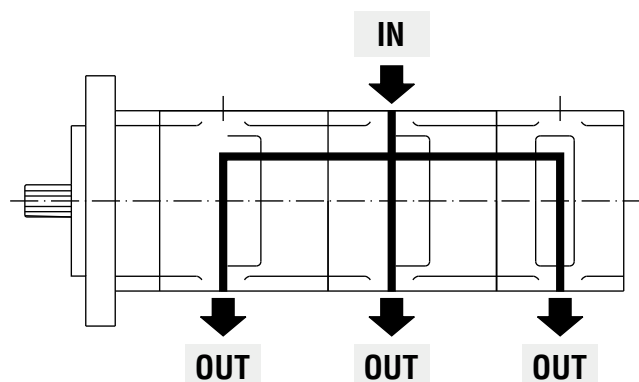
Double pump Kappa 35+Kappa 35.
Common inlet all pumps.

KP 35•63-06 S6-L ME/MD-CSL	/
Front pump	
KP 35•63-L /MD-I5-HSC-S	
Rear pump	



Triple pump Kappa 35+Kappa 35+ Kappa 35
Common inlet all pumps.

KP 35•63-06 S6-L /MD-CSL	/
Front pump	
KP 35•63-L ME/MD-CSL	/
Intermediate pump	
KP 35•63-L /MD-I5-HSC-S	
Rear pump	



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K35 01 T A

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