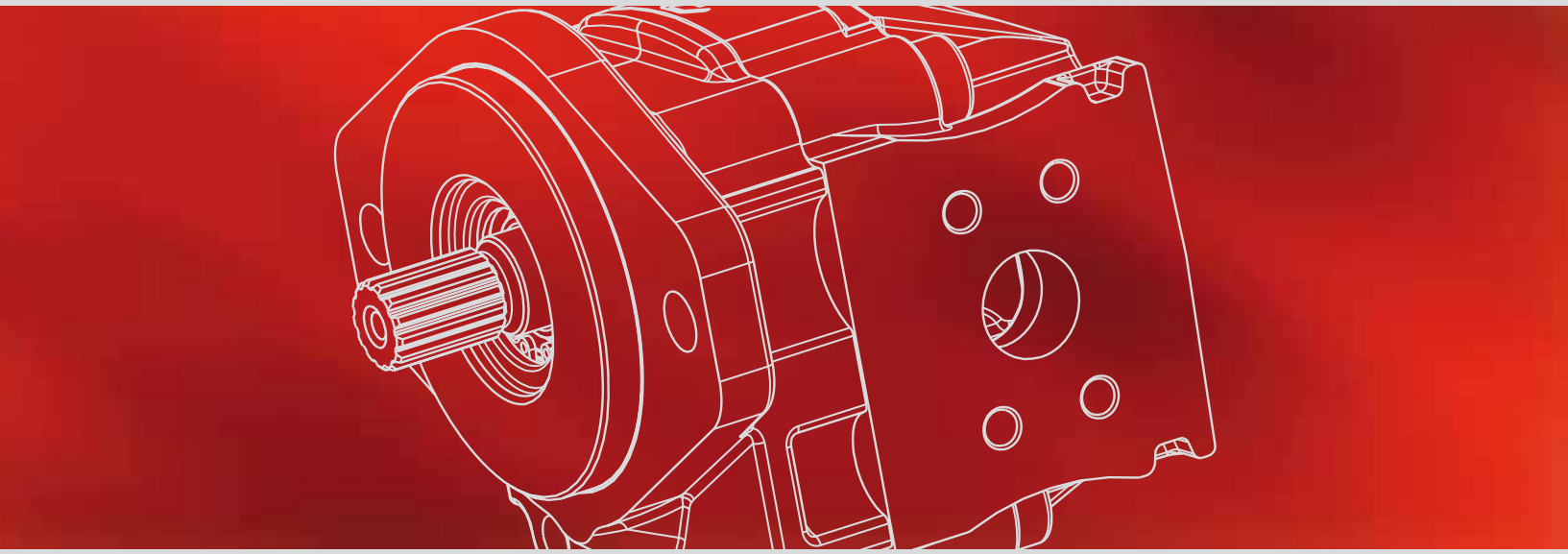
CASAPPA®
FLUID POWER DESIGN



HYDRAULIC GEAR PUMPS AND MOTORS

KAPPA®
Compact

INDEX

03/07.2005

o **Modification from former edition.**

FEATURES

From the KAPPA series, we now introduce the KAPPA “Compact” line. The main feature of this new line is a solid, compact 2-piece construction. The new Kappa “Compact” line allows you to include many functions in a reduced envelope (space).
The new KAPPA “Compact” line is a direct result of feedback received from Casappa customers. This feedback 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 tri-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 in the “Compact” line.

DISPLACEMENTS

From 1.34 in^3/rev (21,99 cm^3/rev)
To 9.20 in^3/rev (150,79 cm^3/rev)

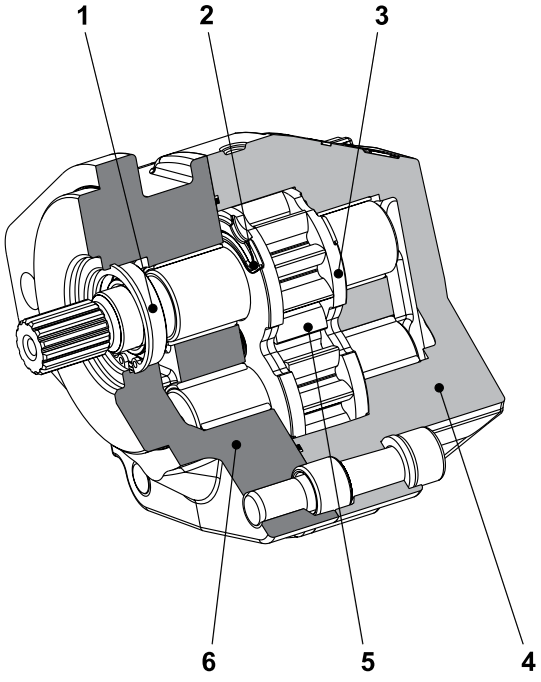
PRESSURE

Max. Continuous 4350 psi (300 bar)
Max. Intermittent 4568 psi (315 bar)
Max. Peak 4713 psi (325 bar)

MAX. SPEED

Max. 3000 min^{-1}

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



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

04/07.2008

FEATURES

Construction	External gear type pumps and motors
Mounting	EUROPEAN - SAE - standard flanges
Line connections	Screw and flange
Direction of rotation (looking at the drive shaft)	Anti-clock (S) - clockwise (D) - reversible external drain (R) reversible internal drain (B)
Inlet pressure range for pumps	10 ÷ 44 psi - [0,7 ÷ 3 bar (abs.)]
Max back pressure for single rotation motors	p_1 (continuous) max 73 psi (5 bar)
	p_2 (for 20 s) max 116 psi (8 bar)
	p_3 (for 8 s) max 218 psi (15 bar)
Max drain line pressure on reversible rotation motors	73 psi (5 bar)
Max back pressure on the series motors	2175 psi (150 bar)
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 technical sales department.
Viscosity range	From 60 to 456 SSU [12 to 100 mm²/s (cSt)] recommended
	Up to 3410 SSU [750 mm²/s (cSt)] permitted
Filtering requirement	See table (2)

Replaces: 04/07.2008

Tab. 1

Type	Fluid composition	Max pressure psi - (bar)	Max speed min^{-1}	Temperature °F - (°C) Min	Max continuous	Max peak	Seals (◆)
ISO/DIN	Mineral oil based hydraulic fluid to ISO/DIN	See page 6	See page 6	-13 (-25)	176 (80)	212 (100)	N N - H
				-13 (-25)	230 (110)	257 (125)	V
HFA	Oil emulsion in water 5 ÷15% of oil	725 (50)	1500	36 (2)	131 (55)		N
HFB	Water emulsion in oil 40 % of water	1740 (120)	1500	36 (2)	140 (60)		N
HFC	Water - glycol	1450 (100)	1500	-4 (-20)	140 (60)		N Bz
HFD	Phosphate ester	2175 (150)	1500	14 (-10)	176 (80)		V Bz

(◆) **N**= Buna N (standard) - **N-H**= Buna N and high back pressure shaft seals - **V**= Viton
N Bz= Buna N and Bronze thrust plates - **V Bz**= Viton and Bronze thrust plates

Tab. 2 O

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

Casappa recommends to use its own production filters:

IKRON® Fluid Filtration

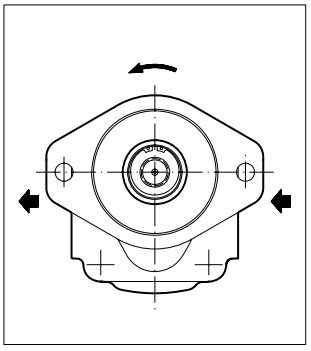
O 05/02.2012

General Notes

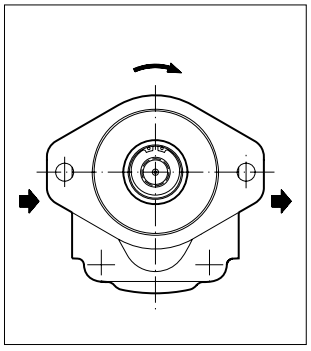
Available with different inlet and outlet ports.
If you use fire resistant fluids, specify the fluid type when ordering.
For more information please consult our technical sales department.

FEATURES

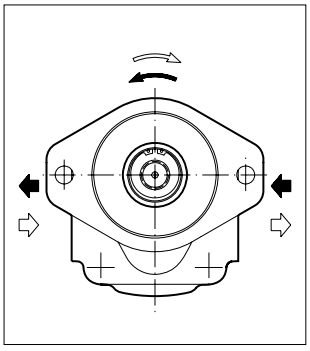
DEFINITION OF ROTATION DIRECTION LOOKING AT THE DRIVE SHAFT



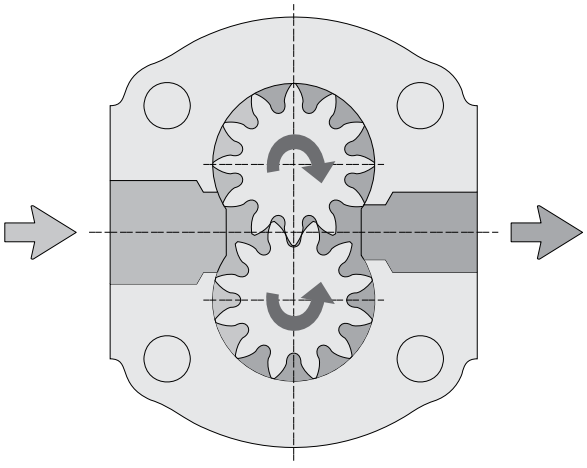
Anti-clock rotation



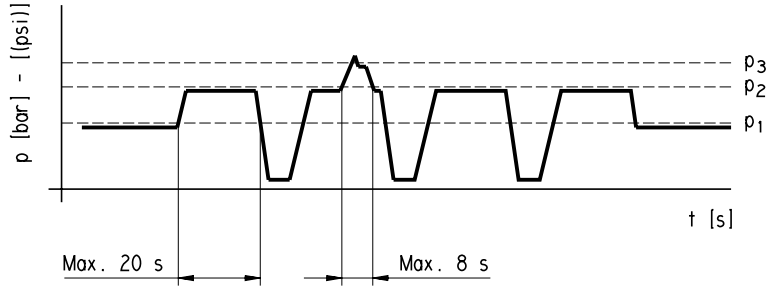
Clockwise rotation



Reversible rotation



PRESSURE DEFINITION



p_1 Max. continuous pressure
p_2 Max. intermittent pressure
p_3 Max. peak pressure

01/05.2002

GENERAL DATA

Pump type Motor type	Displacement	Max. pressure			Max. speed	Min. speed
		p_1	p_2	p_3		
	in^3/rev (cm^3/rev)		psi (bar)		min $^{-1}$	
K. 30•22	1.34 (21,99)	4060 (280)	4350 (300)	4495 (310)	3000	350
K. 30•27	1.63 (26,7)	4060 (280)	4350 (300)	4495 (310)	3000	350
K. 30•31	1.87 (30,63)	3770 (260)	4060 (280)	4350 (300)	3000	350
K. 30•34	2.11 (34,56)	3770 (260)	4060 (280)	4350 (300)	3000	350
K. 30•38	2.40 (39,27)	3770 (260)	4060 (280)	4350 (300)	3000	350
K. 30•41	2.54 (41,62)	3625 (250)	3915 (270)	4205 (290)	3000	350
K. 30•43	2.68 (43,98)	3625 (250)	3915 (270)	4205 (290)	3000	350
K. 30•46	2.83 (46,34)	3625 (250)	3915 (270)	4205 (290)	3000	350
K. 30•51	3.16 (51,83)	3335 (230)	3625 (250)	3915 (270)	2500	350
K. 30•56	3.45 (56,54)	3118 (215)	3408 (235)	3698 (255)	2500	350
K. 30•61	3.74 (61,26)	2900 (200)	3190 (220)	3480 (240)	2500	350
K. 30•73	4.50 (73,82)	2610 (180)	2900 (200)	3190 (220)	2500	350
K. 40•63	3.75 (61,43)	4350 (300)	4568 (315)	4713 (325)	2800	300
K. 40•73	4.43 (72,6)	4350 (300)	4568 (315)	4713 (325)	2800	300
K. 40•87	5.28 (86,56)	4060 (280)	4278 (295)	4423 (305)	2800	300
K. 40•109	6.64 (108,9)	3625 (250)	3843 (265)	3988 (275)	2800	300
K. 40•121	7.43 (121,8)	3335 (230)	3553 (245)	3698 (255)	2500	300
K. 40•133	8.18 (134,03)	3190 (220)	3408 (235)	3553 (245)	2500	300
K. 40•151	9.20 (150,79)	2900 (200)	3118 (215)	3263 (225)	2500	300

p_1= Max. continuous pressure p_2= Max. intermittent pressure p_3= Max. peak pressure

The values in the table refer to unidirectional pumps and motors.
Reversible pumps and motors max pressures are 15% lower than those shown in table.
For different working conditions please consult our sales department.

Replaces: 01/05.2002

03/07.2005

GENERAL DATA PUMPS AND MOTORS

Q	US gpm (l/min)	Flow
M	lbf in (Nm)	Torque
P	HP (kW)	Power
V	in^3/rev (cm^3/rev)	Displacement
n	min^{-1}	Speed
Δp	psi (bar)	Pressure

Replaces: 03/07.2005

Efficiencies

		Pumps	Motor
$\eta_v = \eta_v (V, \Delta p, n)$	Volumetric efficiency	(≈ 0,98)	(≈ 0,97)
$\eta_{hm} = \eta_{hm} (V, \Delta p, n)$	Hydro-mechanical efficiency	(≈ 0,90)	(≈ 0,88)
$\eta_t = \eta_v \bullet \eta_{hm}$	Overall efficiency	(≈ 0,88)	(≈ 0,85)

Design calculations for pump O

$$Q = Q_{theor.} \bullet \eta_v$$

$$Q_{theor.} = \frac{V\ (cm^3/rev) \bullet n\ (min^{-1})}{1000} \quad [l/min]$$

$$M = \frac{M_{theor.}}{\eta_{hm}}$$

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

$$P_{IN} = \frac{P_{OUT}}{\eta_t}$$

$$P_{OUT} = \frac{\Delta p\ (bar) \bullet Q\ (l/min)}{600} \quad [kW]$$

Design calculations for motor O

$$Q = \frac{Q_{theor.}}{\eta_v}$$

$$Q_{theor.} = \frac{V\ (cm^3/rev) \bullet n\ (min^{-1})}{1000} \quad [l/min]$$

$$M = M_{theor.} \bullet \eta_{hm}$$

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

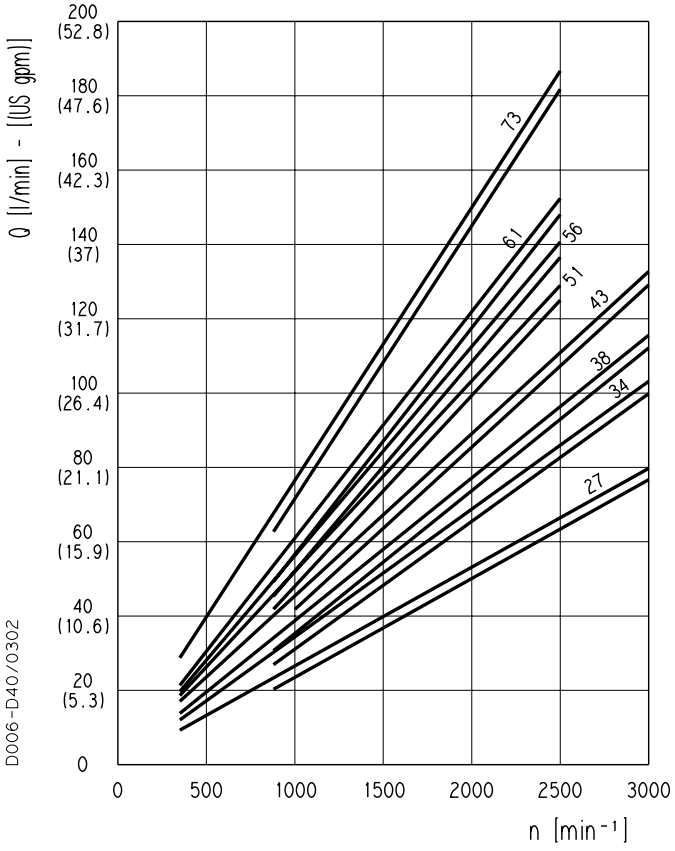
$$P_{IN} = \frac{\Delta p\ (bar) \bullet Q\ (l/min)}{600}$$

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

O 05/02.2012

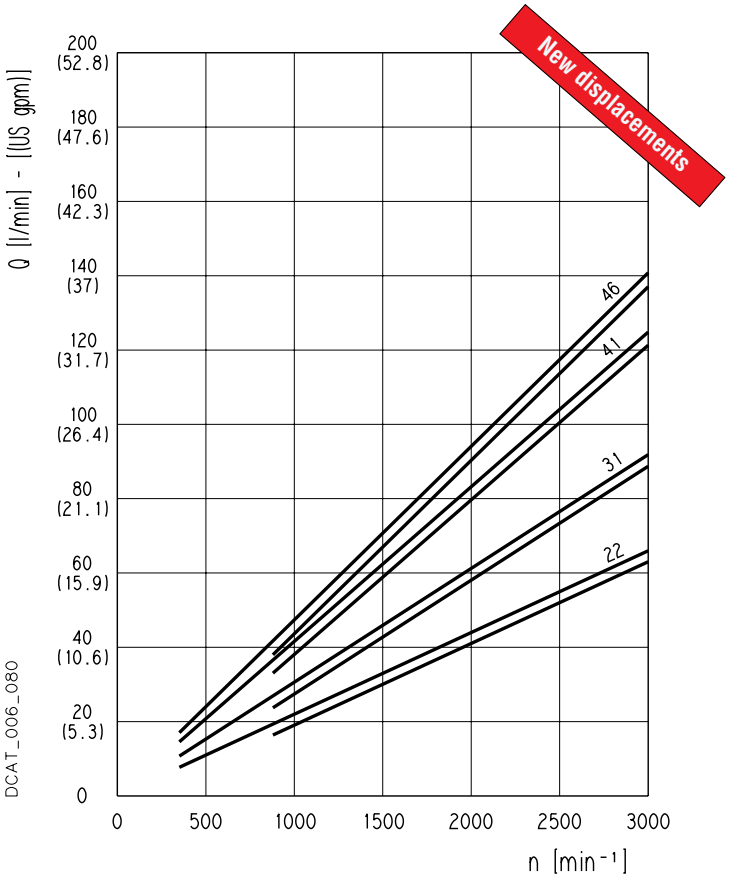
Note: Diagrams providing approximate selection data will be found on subsequent pages.

KP 30 KAPPA 30 GEAR PUMPS PERFORMANCE CURVES



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

KP 30•27	290 - 4060 psi (20 - 280 bar)
KP 30•34	290 - 3770 psi (20 - 260 bar)
KP 30•38	290 - 3770 psi (20 - 260 bar)
KP 30•43	290 - 3625 psi (20 - 250 bar)
KP 30•51	290 - 3335 psi (20 - 230 bar)
KP 30•56	290 - 3118 psi (20 - 215 bar)
KP 30•61	290 - 2900 psi (20 - 200 bar)
KP 30•73	290 - 2610 psi (20 - 180 bar)



KP 30•22	290 - 4060 psi (20 - 280 bar)
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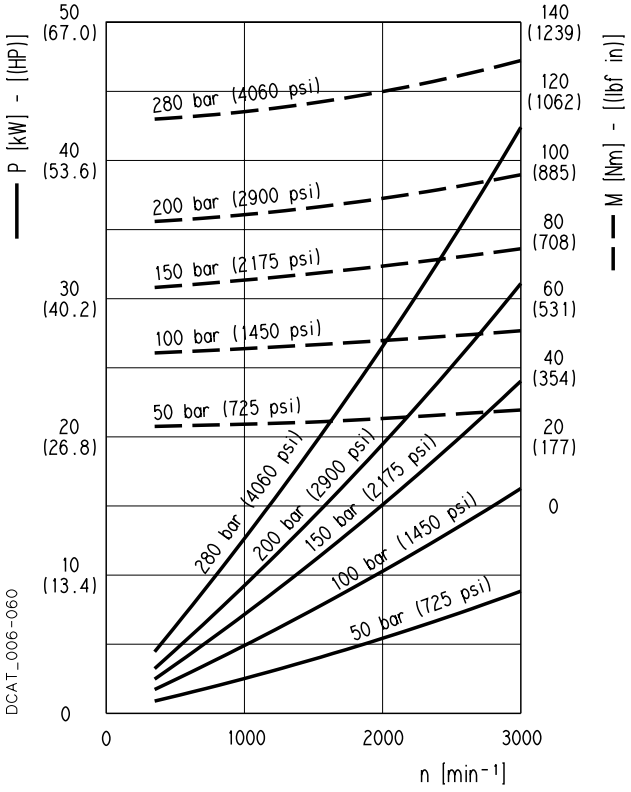
KP 30•46	290 - 3625 psi (20 - 250 bar)

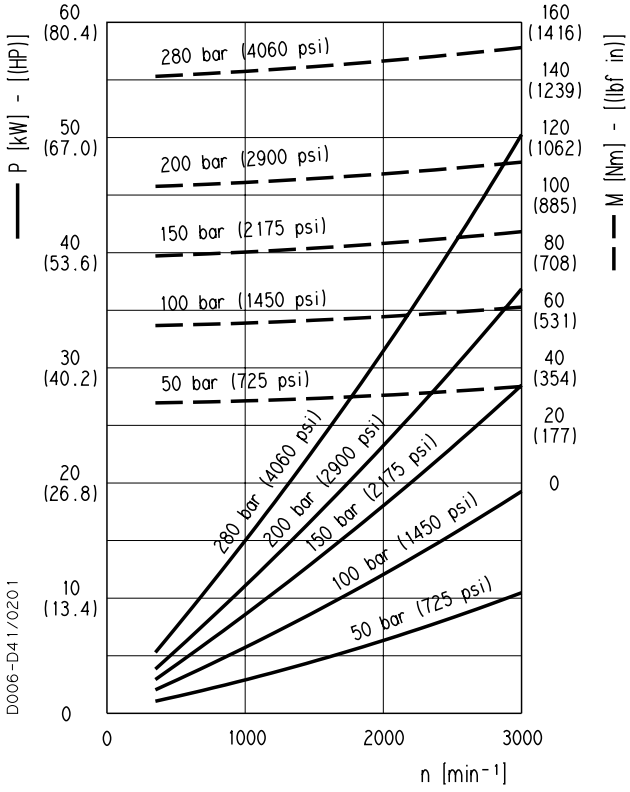
01/05.2002

KP 30 KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30•22



KP 30•27



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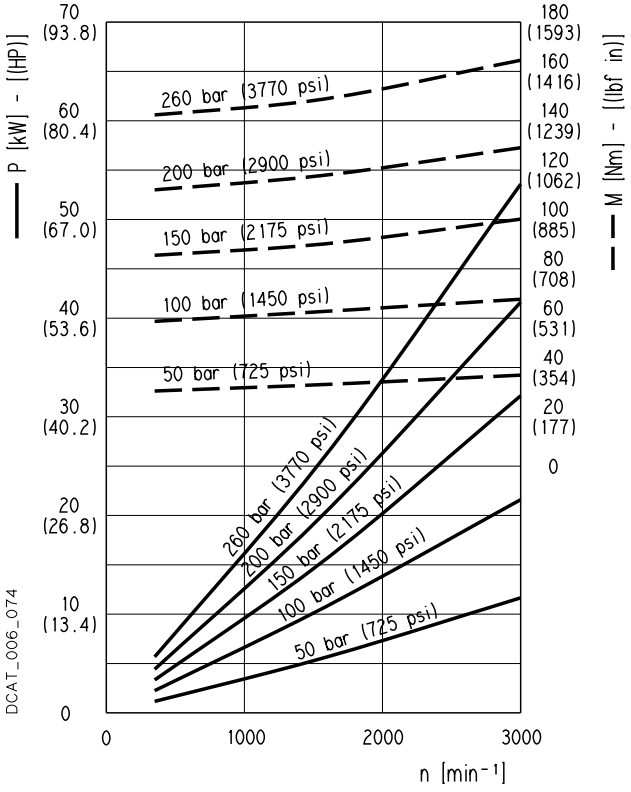
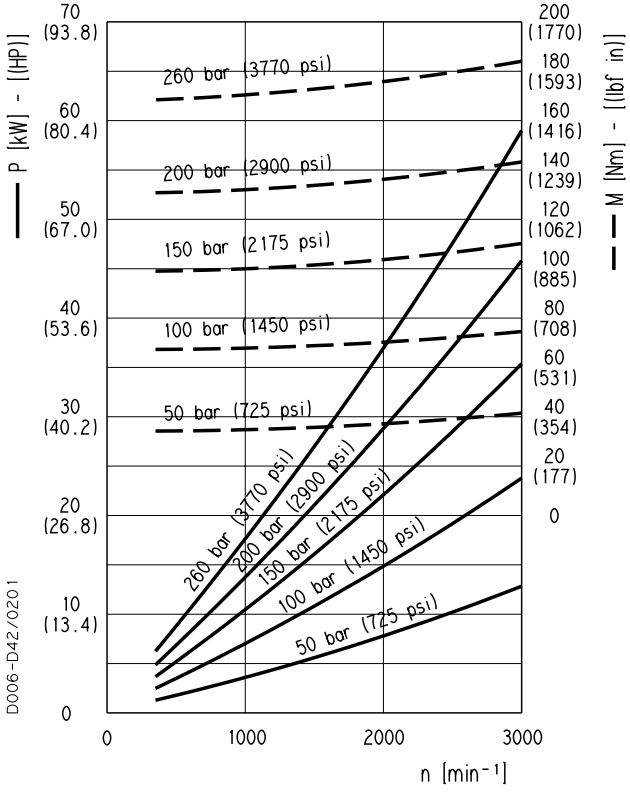


KP 30•34



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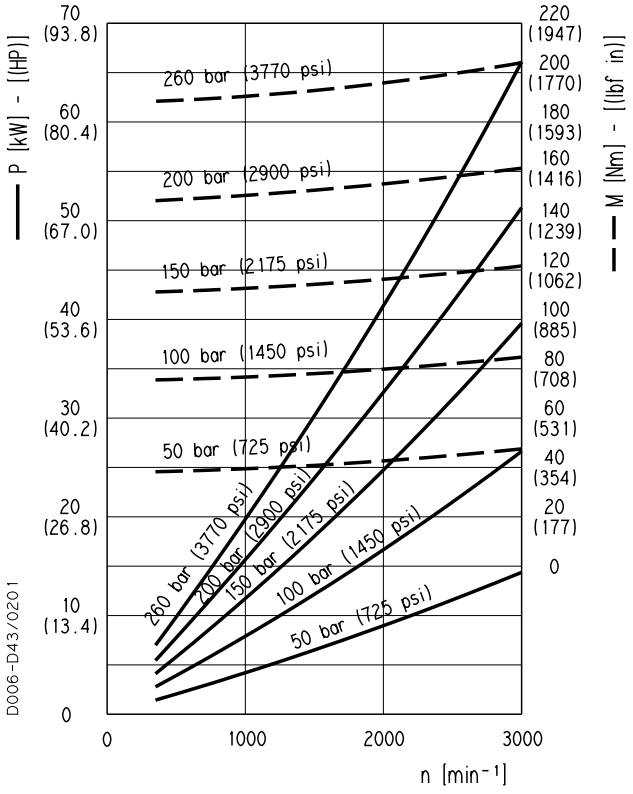
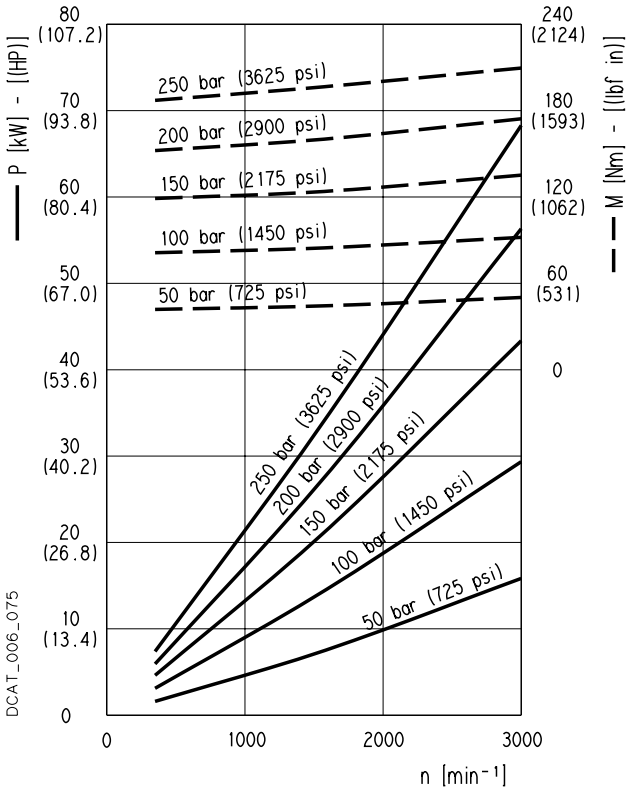
KP 30 KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30•38



KP 30•41



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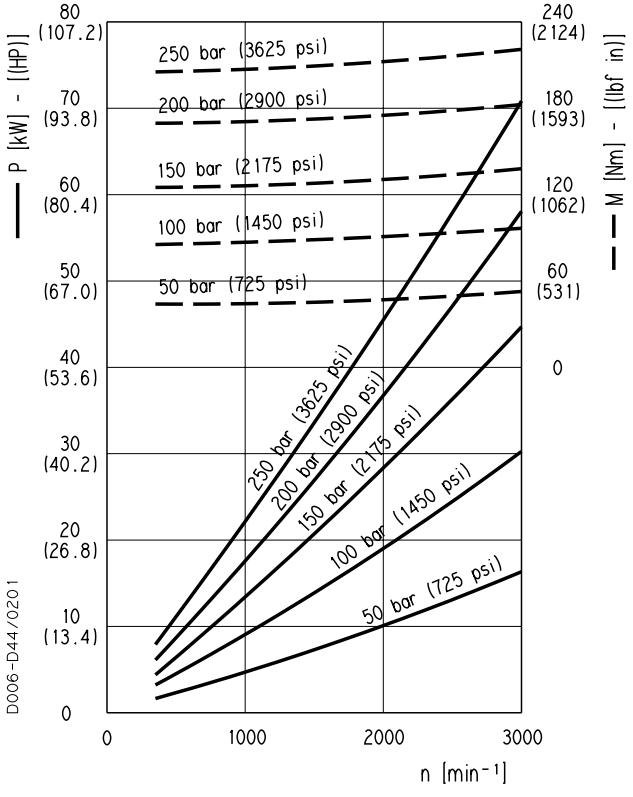

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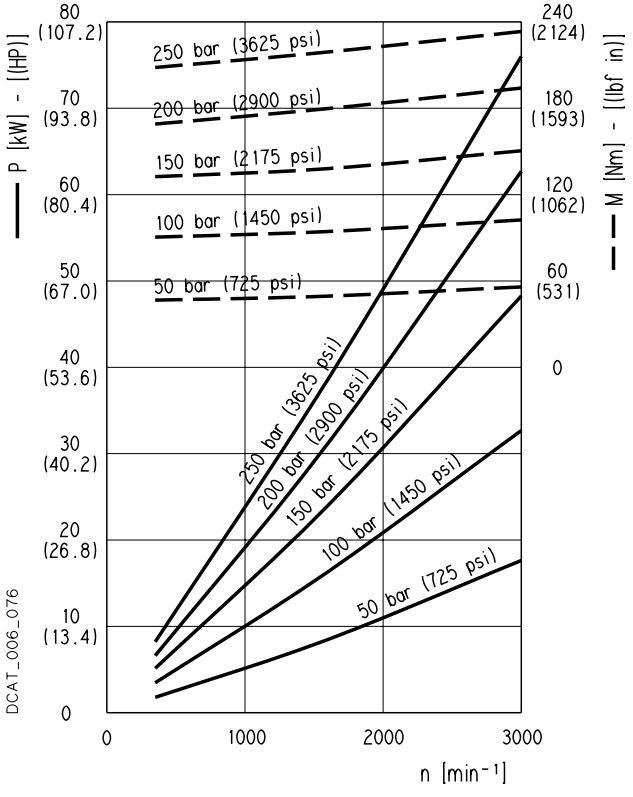
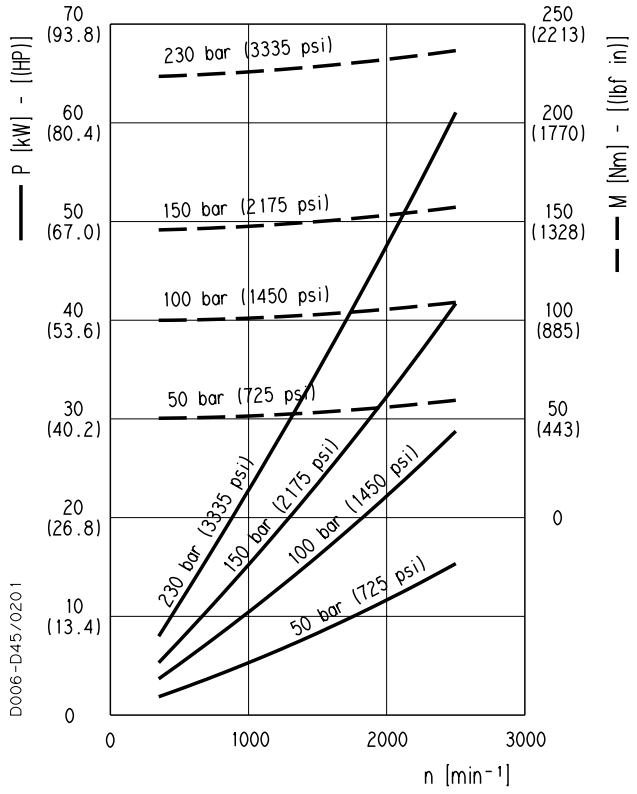


01/05.2002

KP 30 KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30•51



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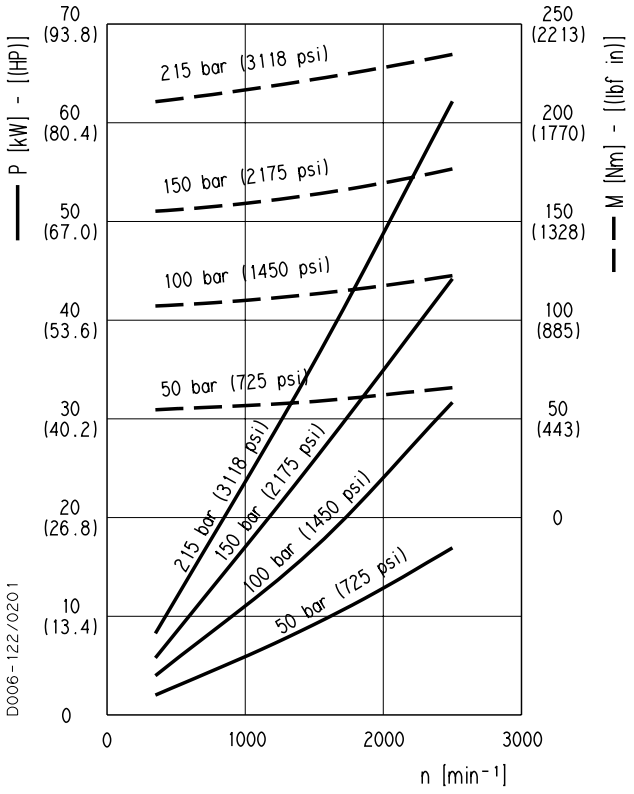
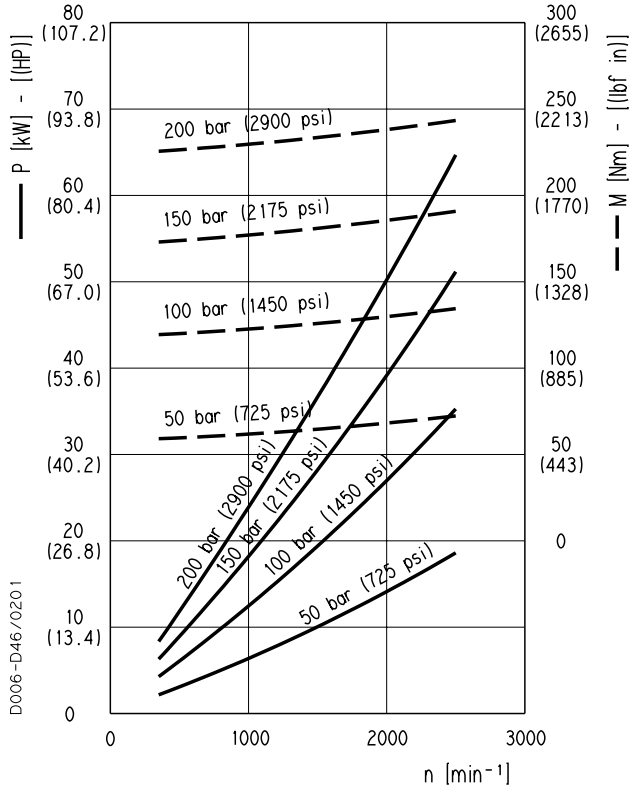
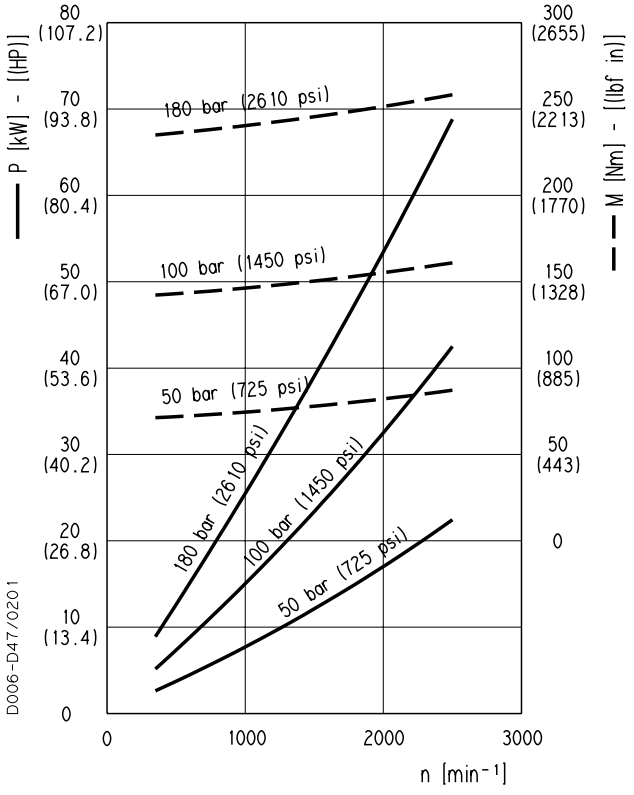


KP 30•61



KP 30•73



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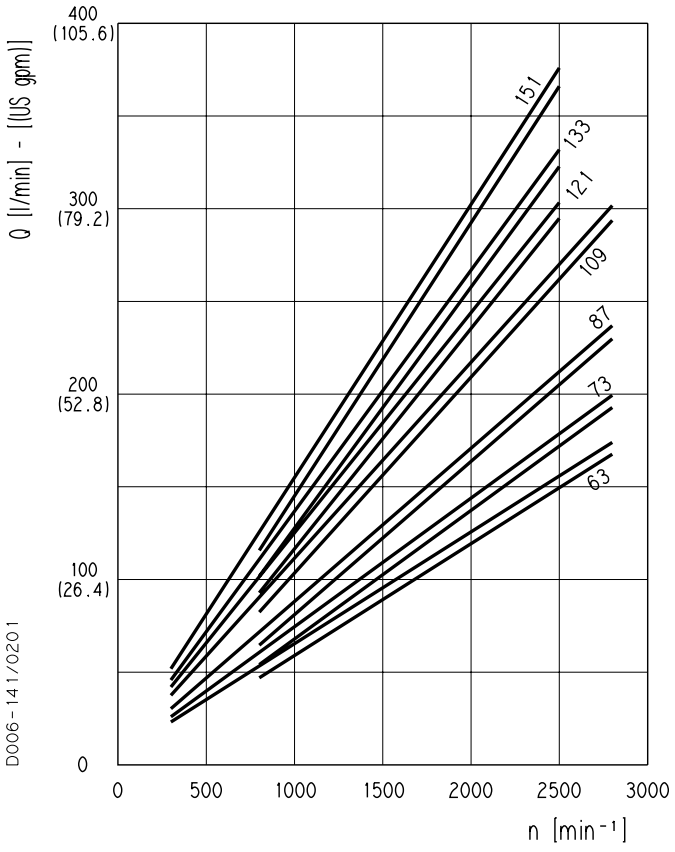
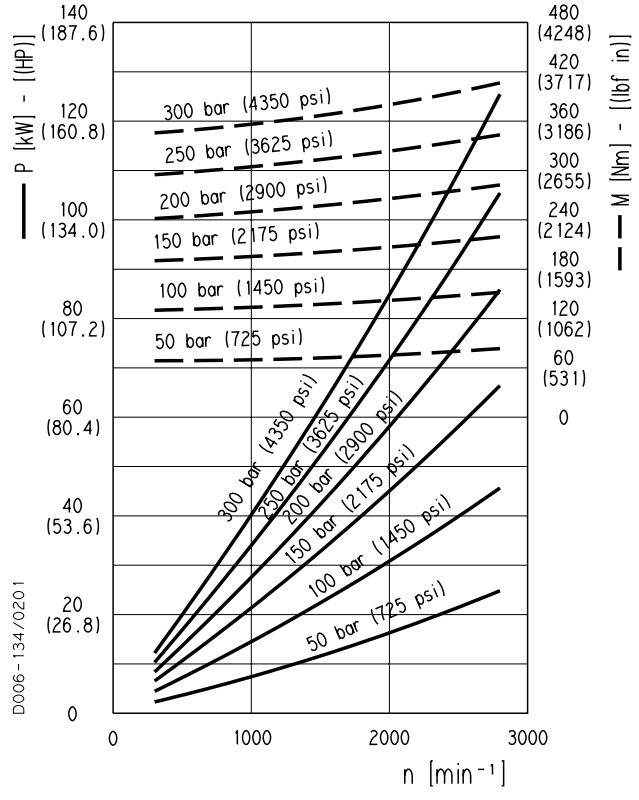
KP 40 KAPPA 40 GEAR PUMPS PERFORMANCE CURVES



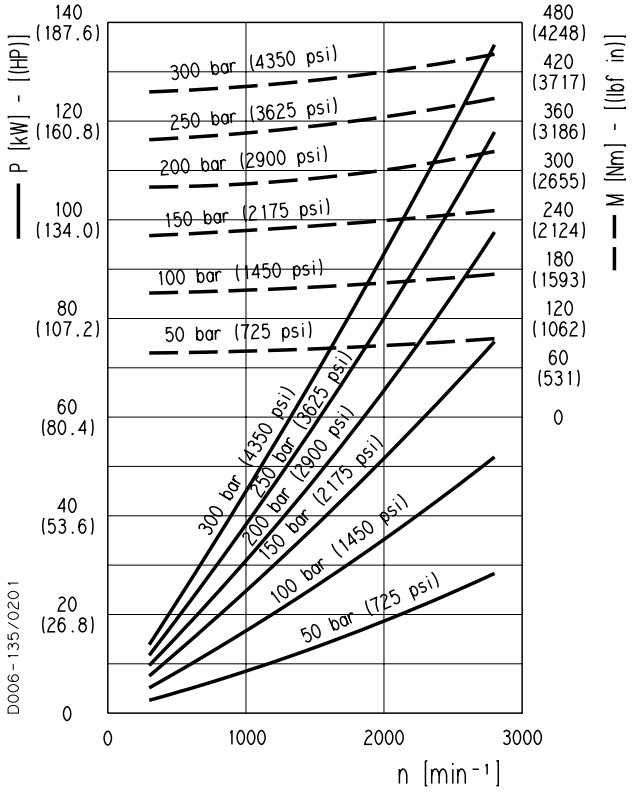
Each curve has been obtained at 122 °F (50°C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40°C) and at these pressures.

KP 40•63	290 - 4350 psi (20 - 300 bar)
KP 40•73	290 - 4350 psi (20 - 300 bar)
KP 40•87	290 - 4060 psi (20 - 280 bar)
KP 40•109	290 - 3625 psi (20 - 250bar)
KP 40•121	290 - 3335 psi (20 - 230 bar)
KP 40•133	290 - 3190 psi (20 - 220 bar)
KP 40•151	290 - 2900 psi (20 - 200 bar)

KP 40•63



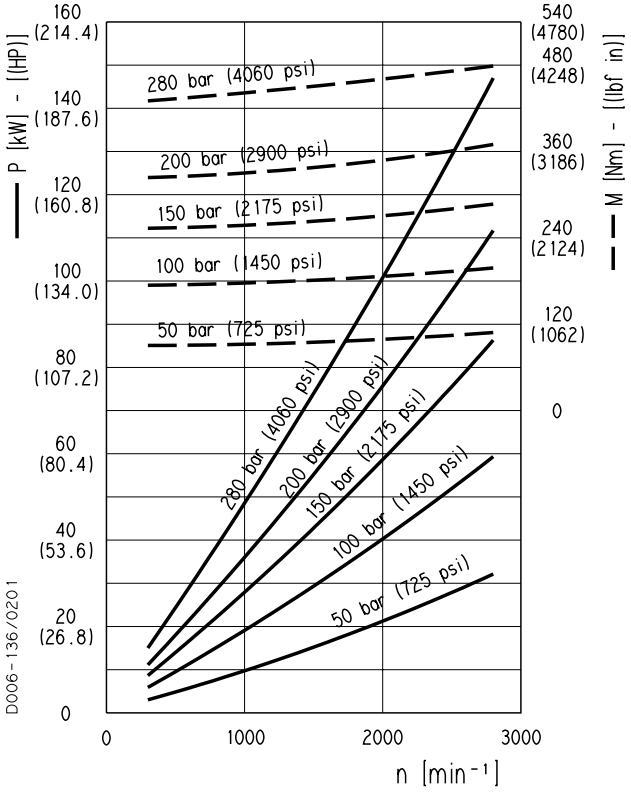
KP 40•73



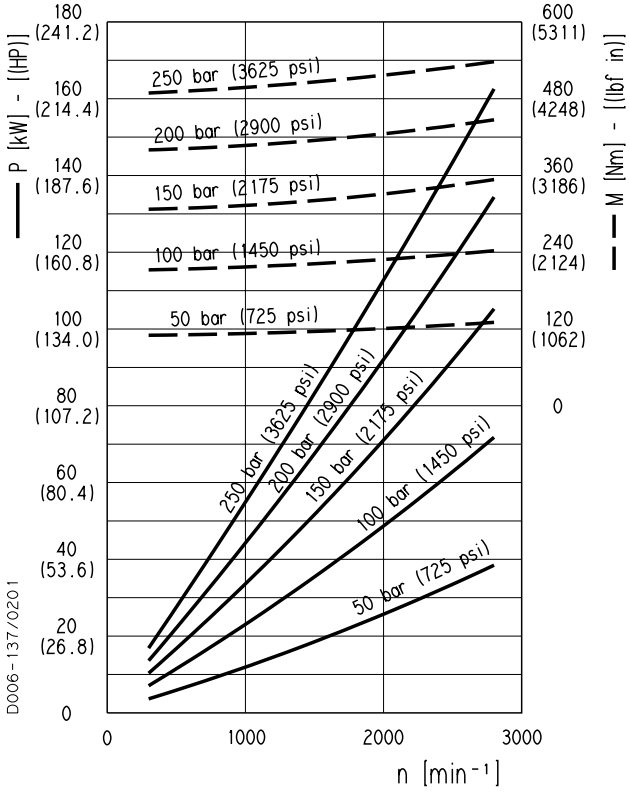
01/05.2002

KP 40 KAPPA 40 GEAR PUMPS PERFORMANCE CURVES

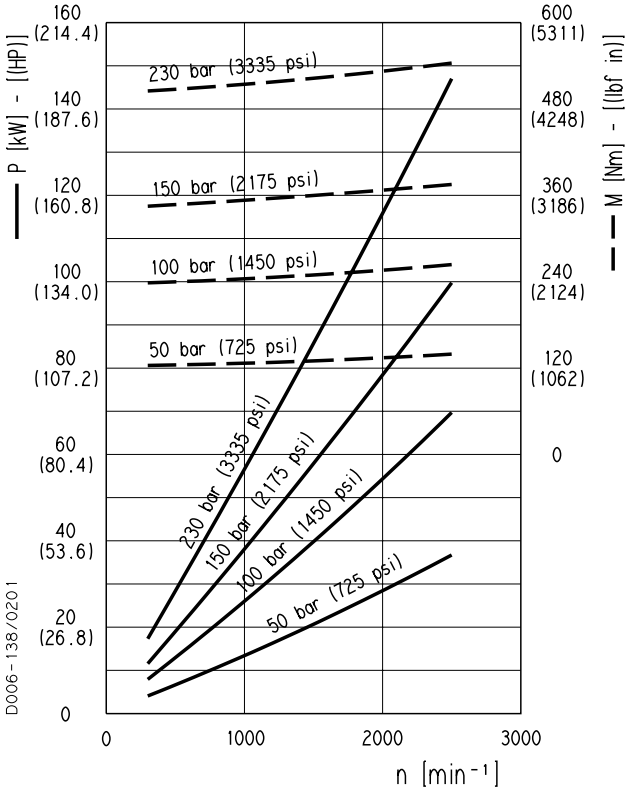
KP 40•87



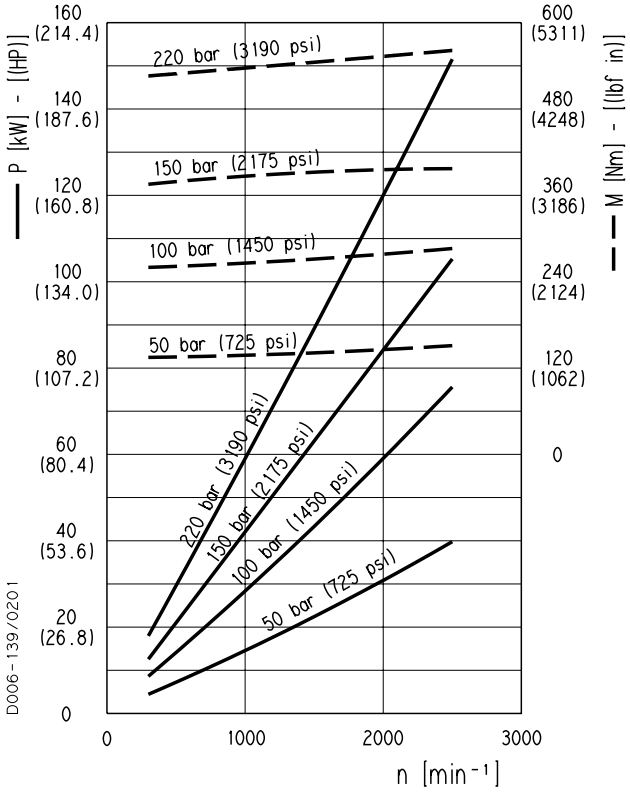
KP 40•109



KP 40•121



KP 40•133



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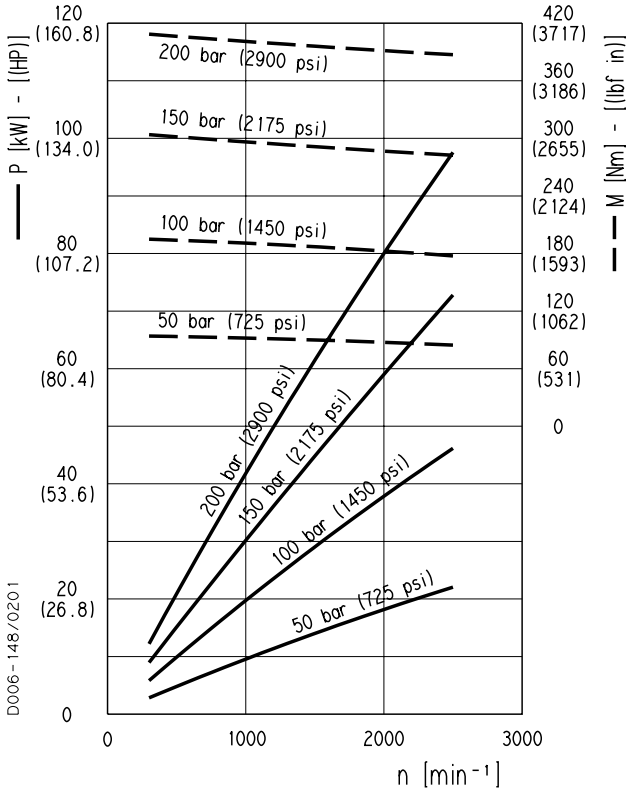
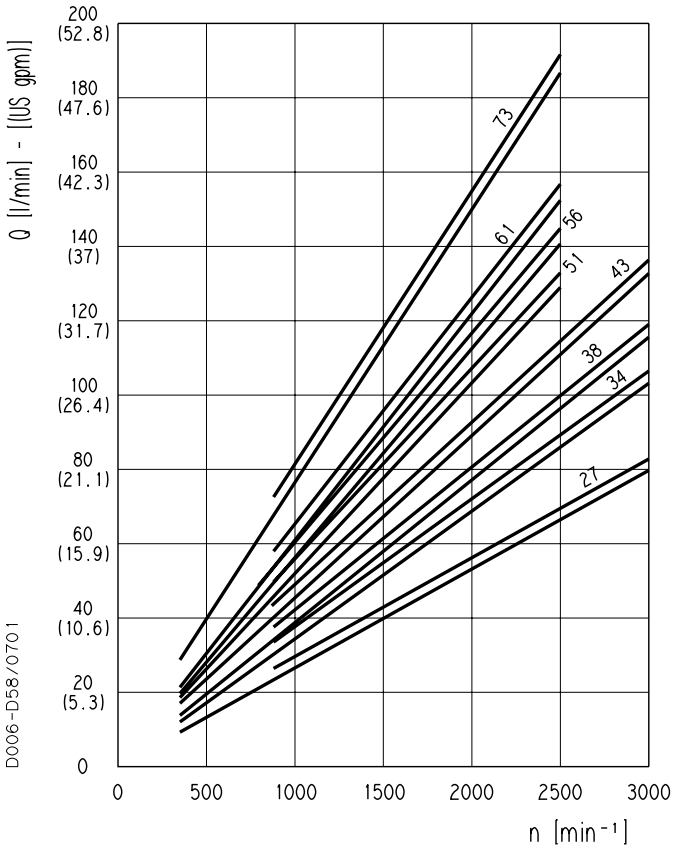
KP 40 KAPPA 40 GEAR PUMPS PERFORMANCE CURVES

KP 40•151



01/05.2002

KM 30 KAPPA 30 GEAR MOTORS PERFORMANCE CURVES



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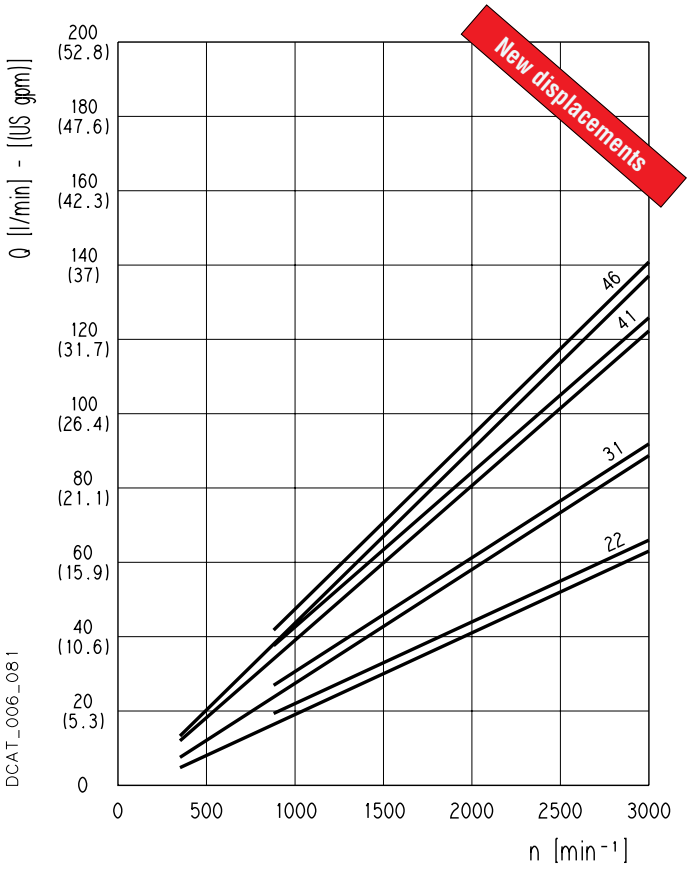
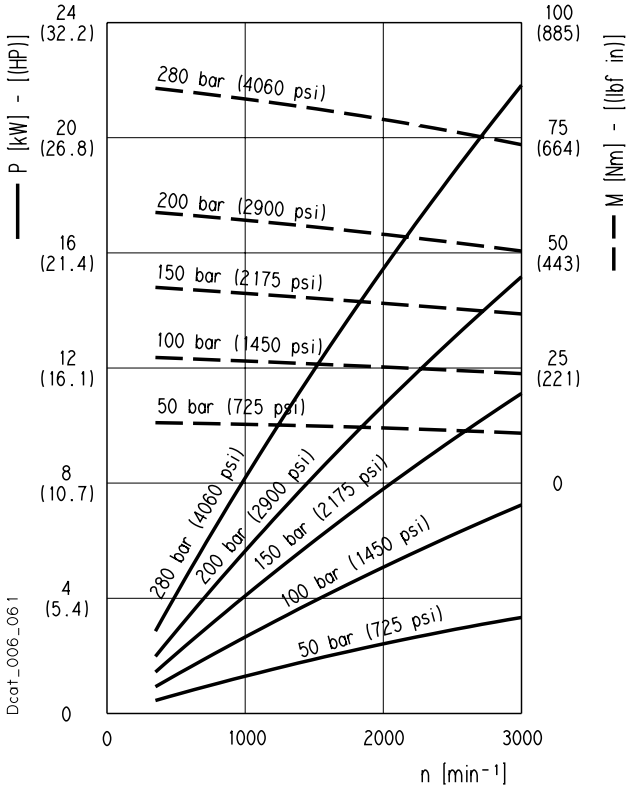


KM 30•22	290 - 4060 psi (20 - 280 bar)
KM 30•31	290 - 3770 psi (20 - 260 bar)
KM 30•41	290 - 3625 psi (20 - 250 bar)
KM 30•46	290 - 3625 psi (20 - 250 bar)

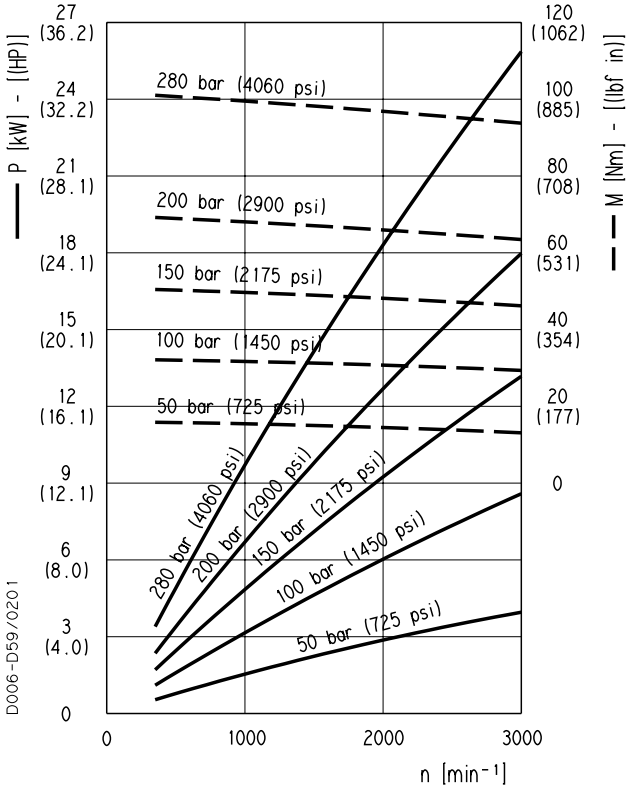
01/05.2002

KM 30 KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

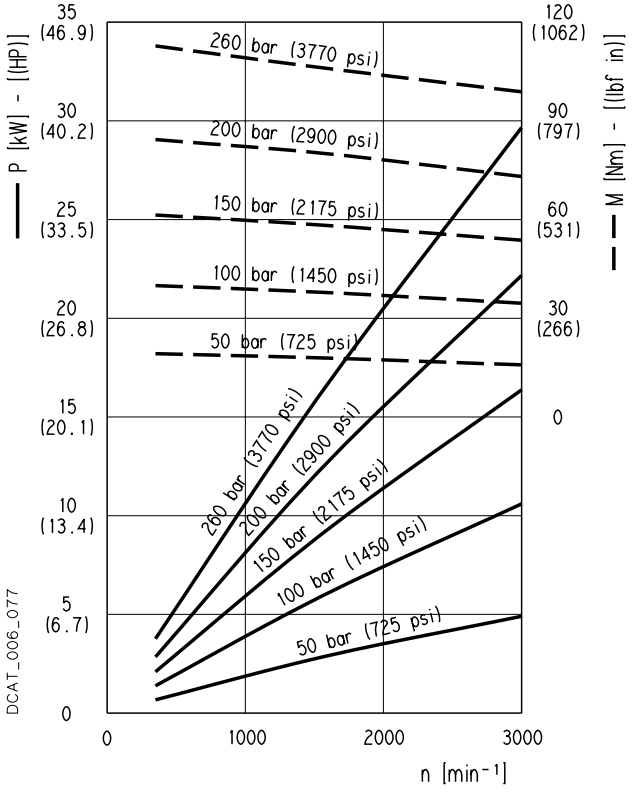
KM 30•22



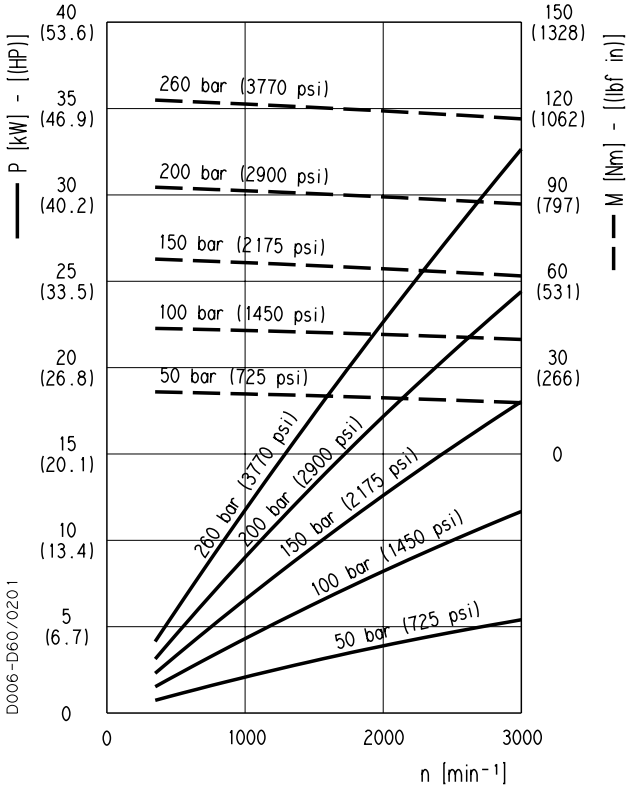
KM 30•27



KM 30•31



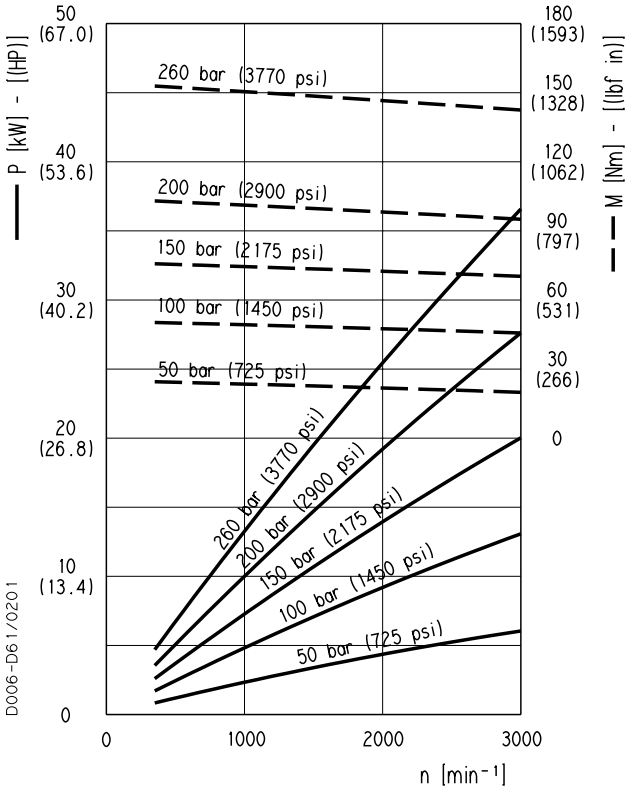
KM 30•34



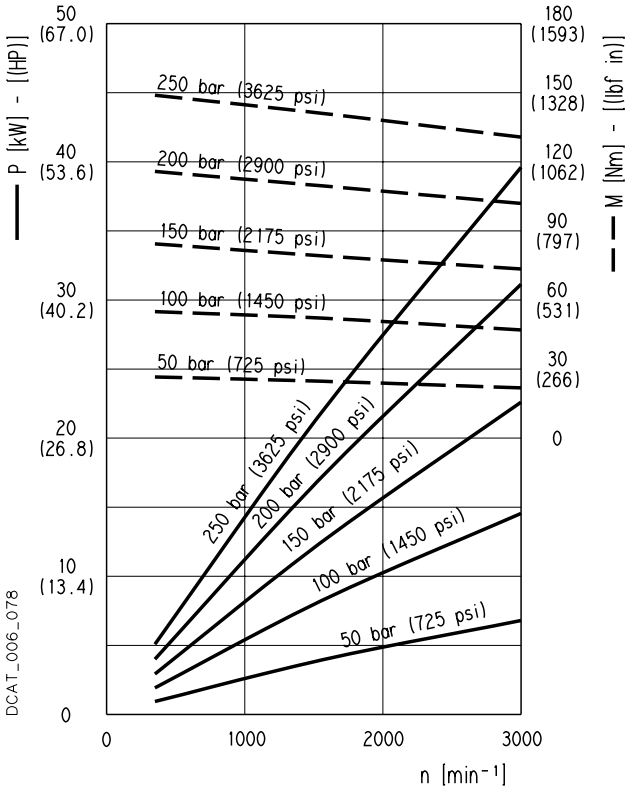
01/05.2002

KM 30 KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

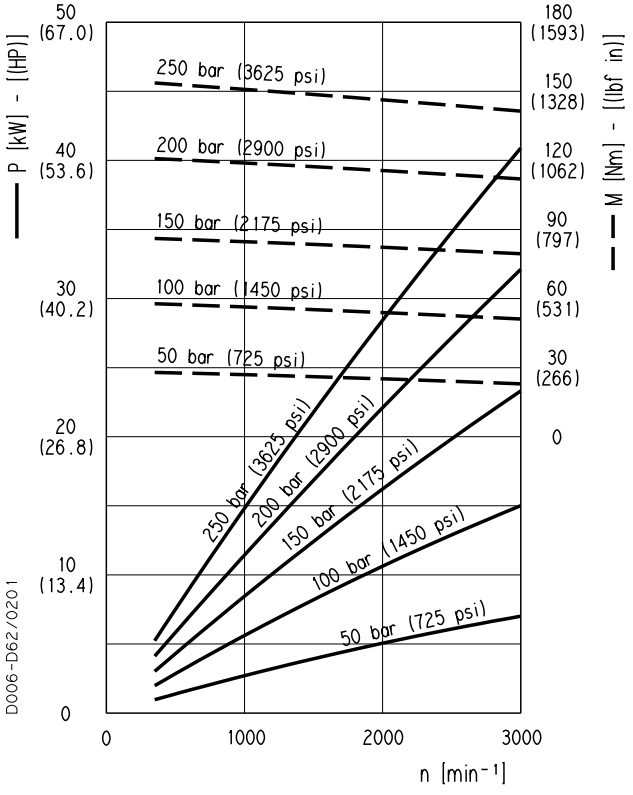
KM 30•38



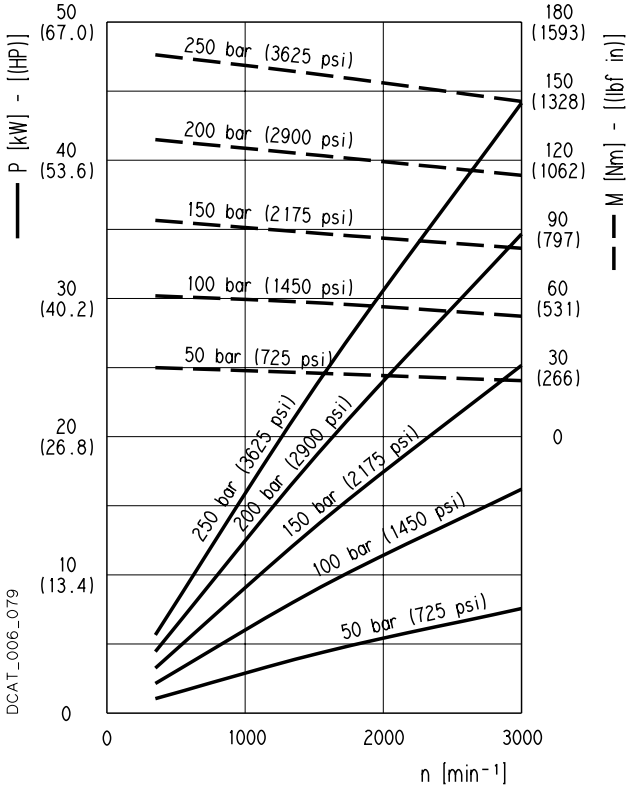
KM 30•41



KM 30•43



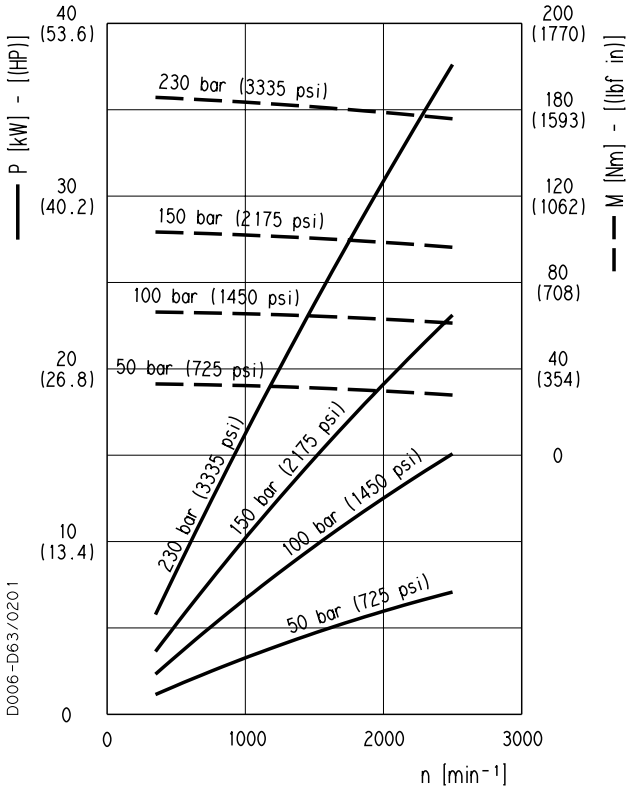
KM 30•46



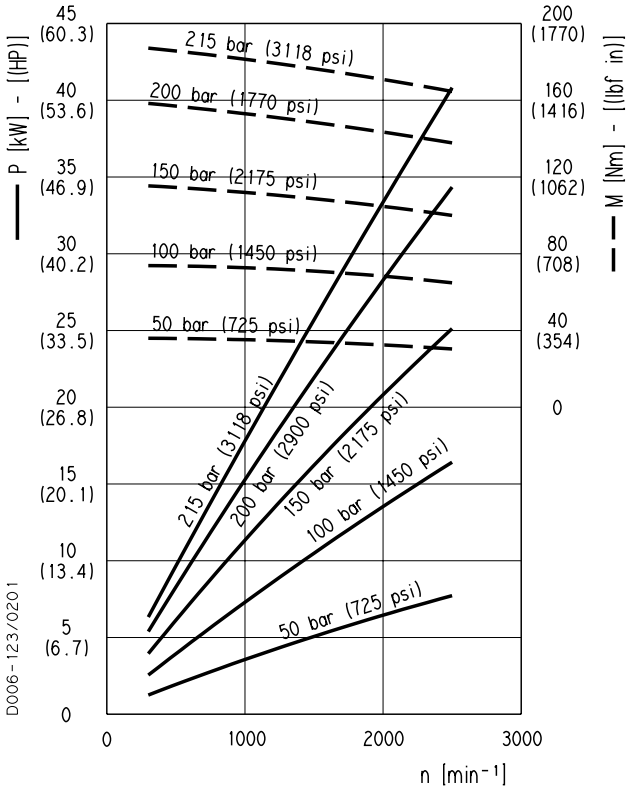
01/05.2002

KM 30 KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

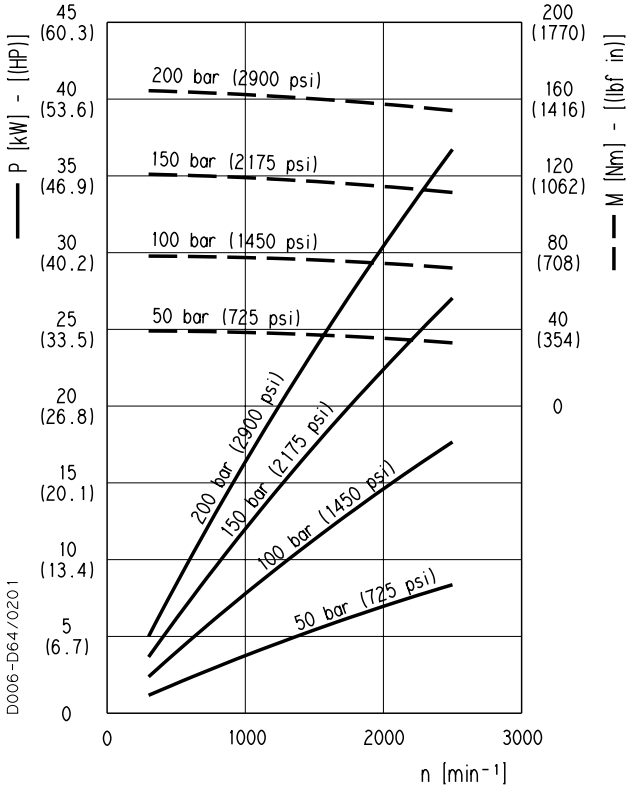
KM 30•51



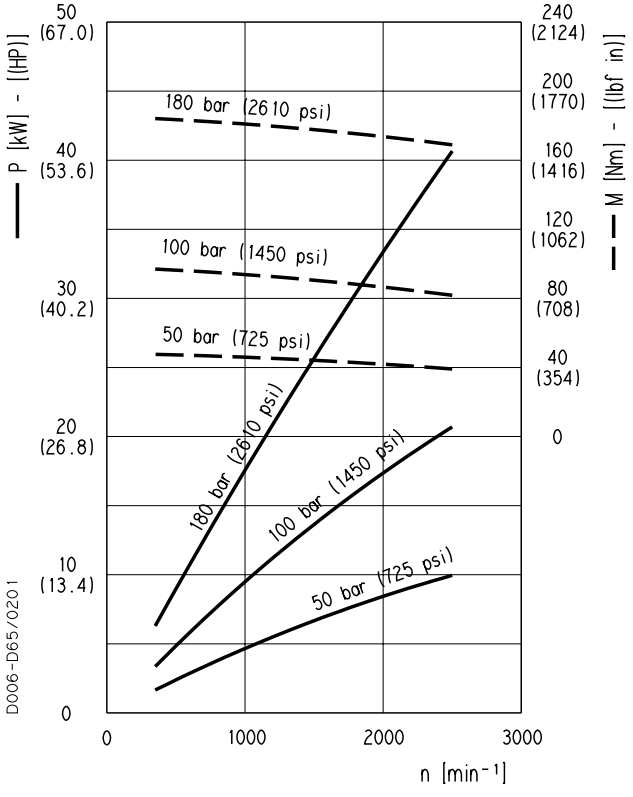
KM 30•56



KM 30•61

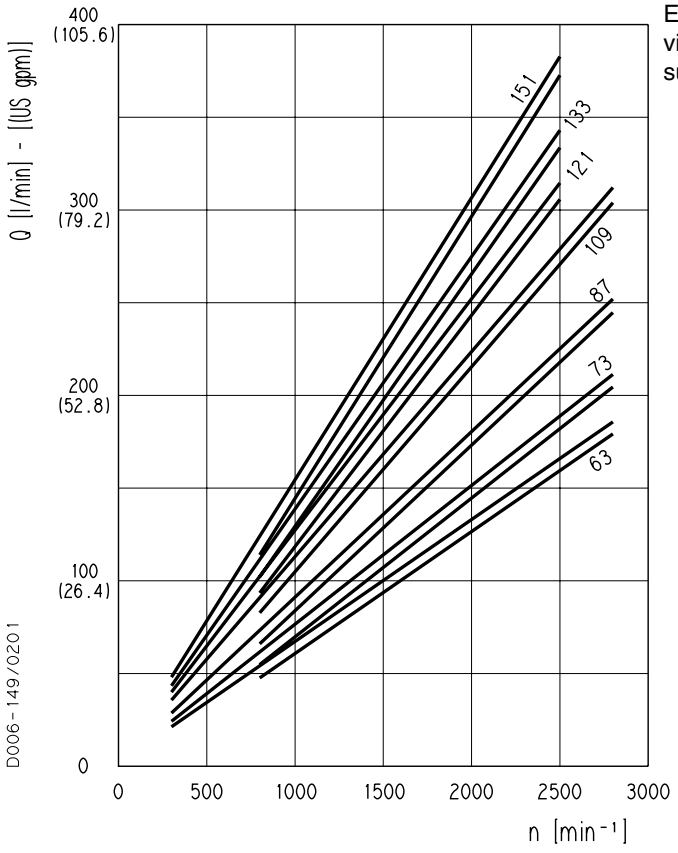


KM 30•73



01/05.2002

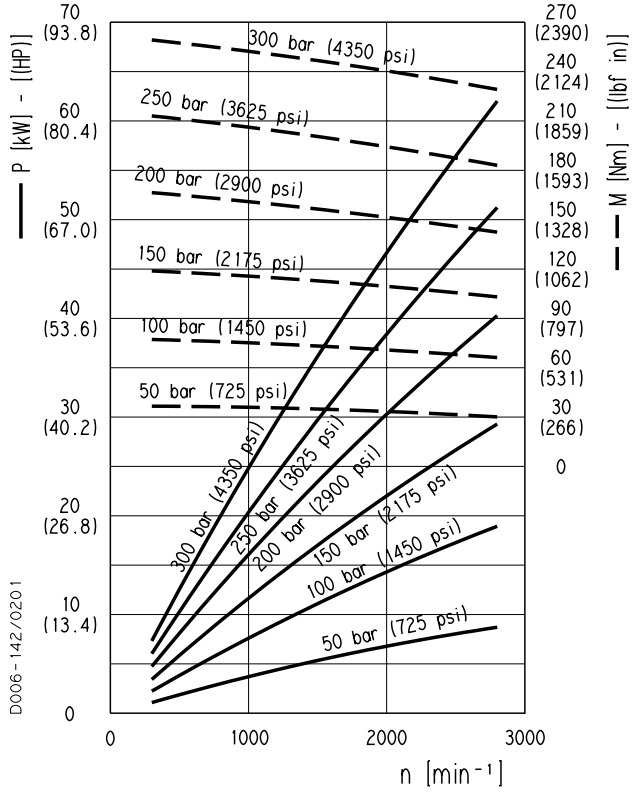
KM 40 KAPPA 40 GEAR MOTORS PERFORMANCE CURVES



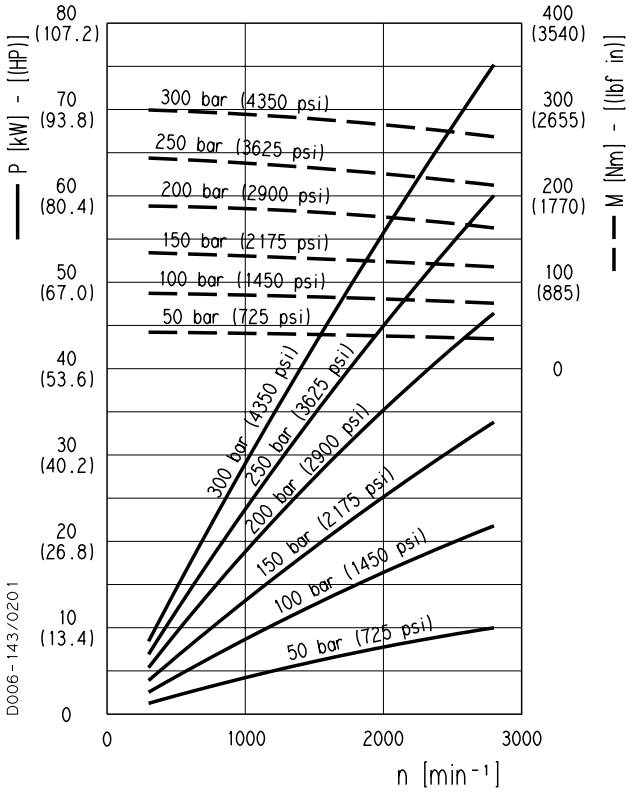
Each curve has been obtained at 122 °F (50°C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40°C) and at these pressures.

KM 40•63	290 - 4350 psi (20 - 300 bar)
KM 40•73	290 - 4350 psi (20 - 300 bar)
KM 40•87	290 - 4060 psi (20 - 280 bar)
KM 40•109	290 - 3625 psi (20 - 250 bar)
KM 40•121	290 - 3335 psi (20 - 230 bar)
KM 40•133	290 - 3190 psi (20 - 220 bar)
KM 40•151	290 - 2900 psi (20 - 200 bar)

KM 40•63



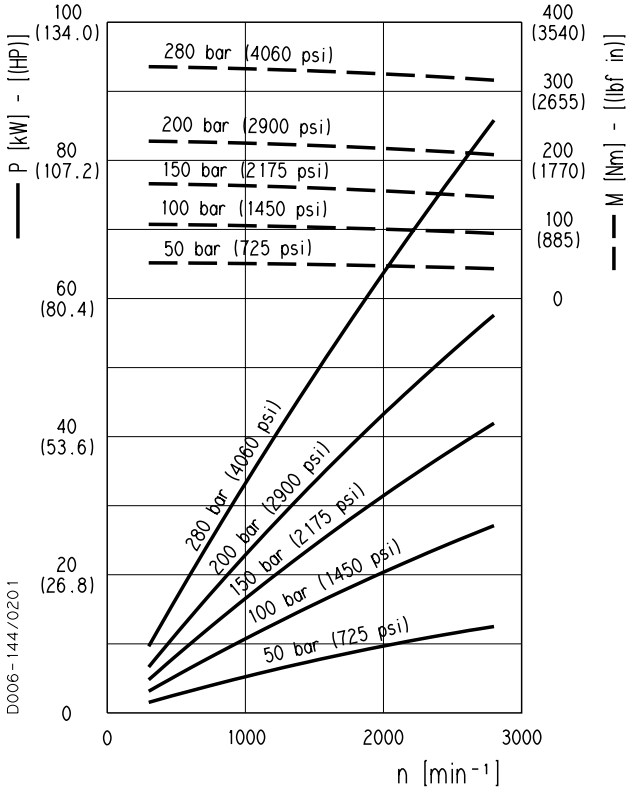
KM 40•73



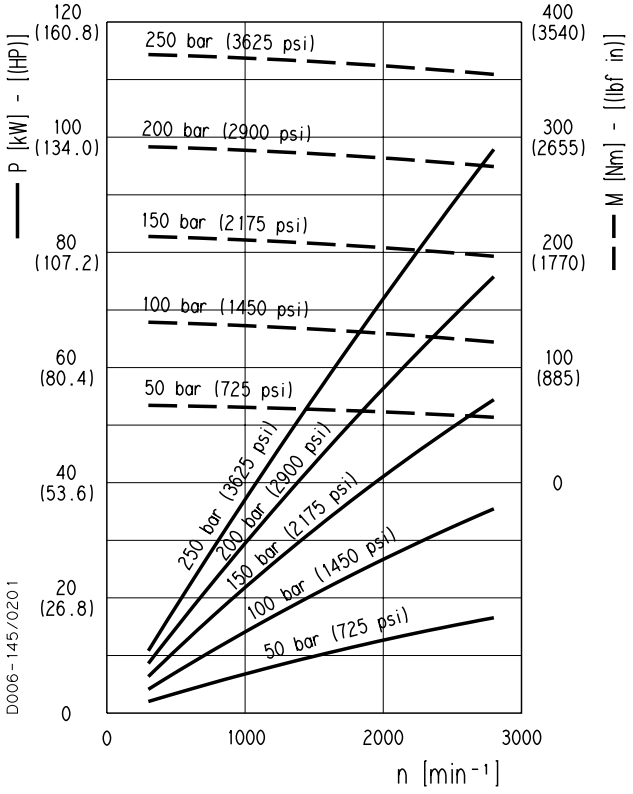
01/05.2002

KM 40 KAPPA 40 GEAR MOTORS PERFORMANCE CURVES

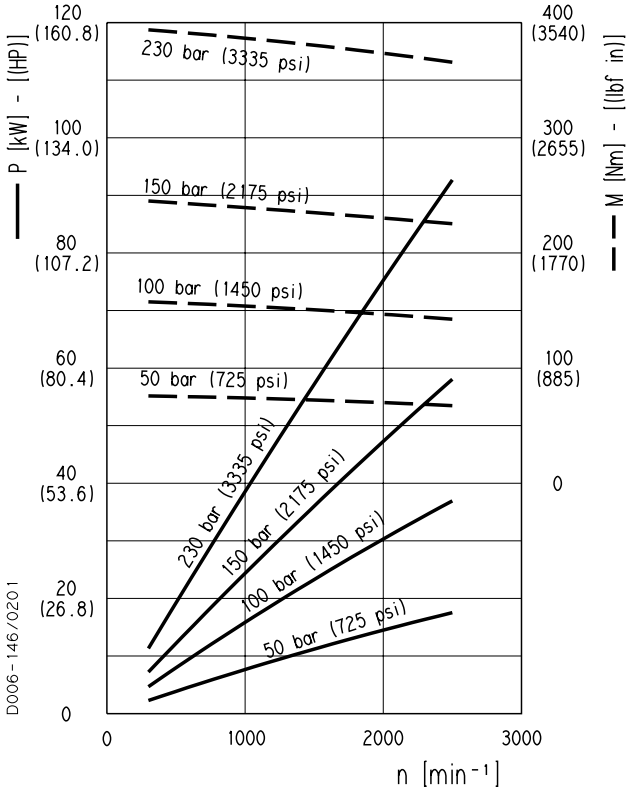
KM 40•87



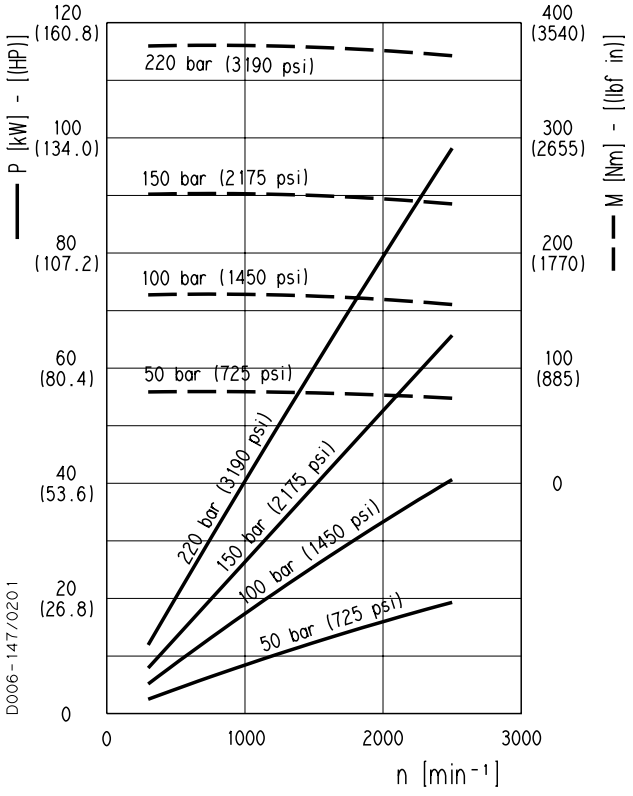
KM 40•109



KM 40•121



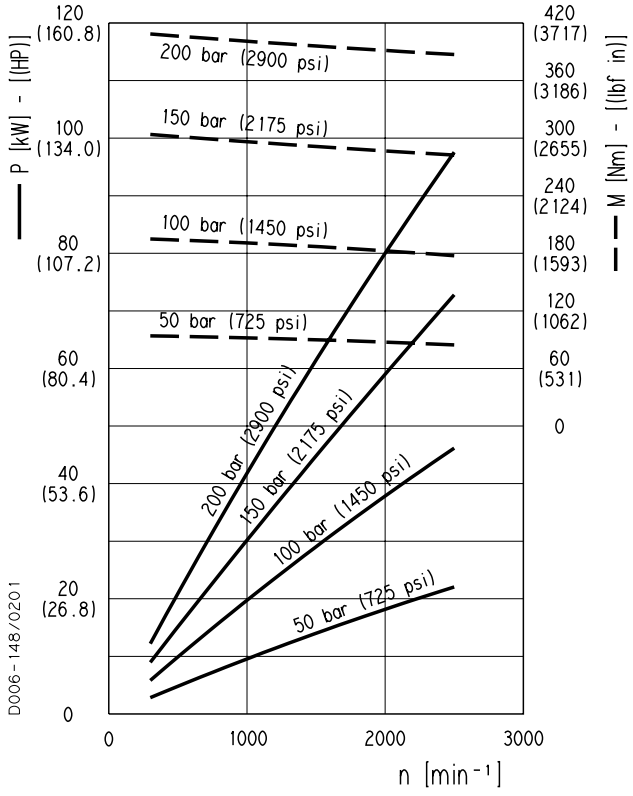
KM 40•133



01/05.2002

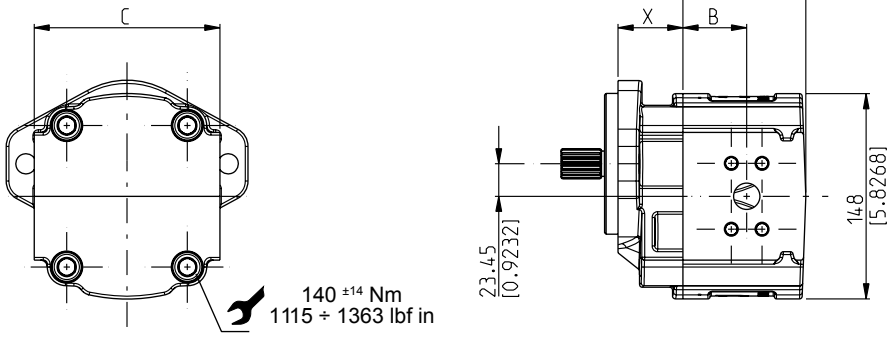
KM 40 KAPPA 40 GEAR MOTORS PERFORMANCE CURVES

KM 40•151



01/05.2002

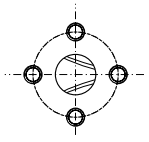
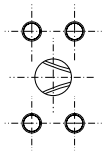
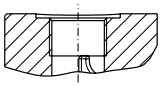
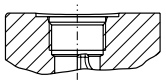
KAPPA 30 SINGLE UNITS SHORT BODY - SIDE PORTS CSC



DCAT_006_007_03571388

Replaces: 01/05.2002

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 41 ÷ 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

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 (3.1693)	38 (1.4961)	134 (5.2756)	142 (5.5906)
K. 30•27	83,5 (3.2874)	41 (1.6142)	134 (5.2756)	142 (5.5906)
K. 30•31	86 (3.3858)	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
K. 30•34	88,5 (3.4843)	46 (1.8110)	134 (5.2756)	142 (5.5906)
K. 30•38	91,5 (3.6024)	49 (1.9291)	134 (5.2756)	142 (5.5906)
K. 30•41	93 (3.6614)	50,5 (1.9882)	134 (5.2756)	142 (5.5906)
K. 30•43	94,5 (3.7205)	52 (2.0472)	134 (5.2756)	142 (5.5906)
K. 30•46	96 (3.7795)	53,5 (2.1063)	134 (5.2756)	142 (5.5906)
K. 30•51	99,5 (3.9173)	57 (2.2441)	134 (5.2756)	142 (5.5906)
K. 30•56	102,5 (4.0354)	60 (2.3622)	134 (5.2756)	142 (5.5906)
K. 30•61	105,5 (4.1535)	63 (2.4803)	134 (5.2756)	142 (5.5906)
K. 30•73	113,5 (4.4685)	71 (2.7953)	134 (5.2756)	142 (5.5906)

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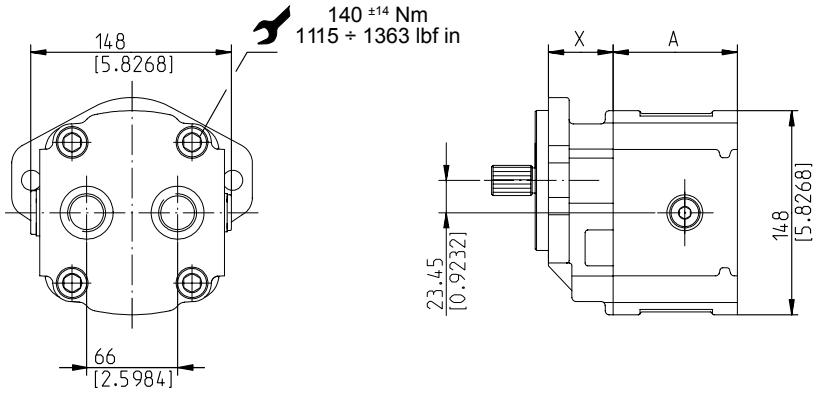
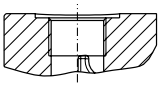
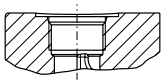
KAPPA 30 SINGLE UNITS SHORT BODY - REAR PORTS CSC

Replaces: 01/05.2002

DCAT_006_008



Ports type (see availability on page 50)

Gas (BSPP)	SAE (ODT)
	

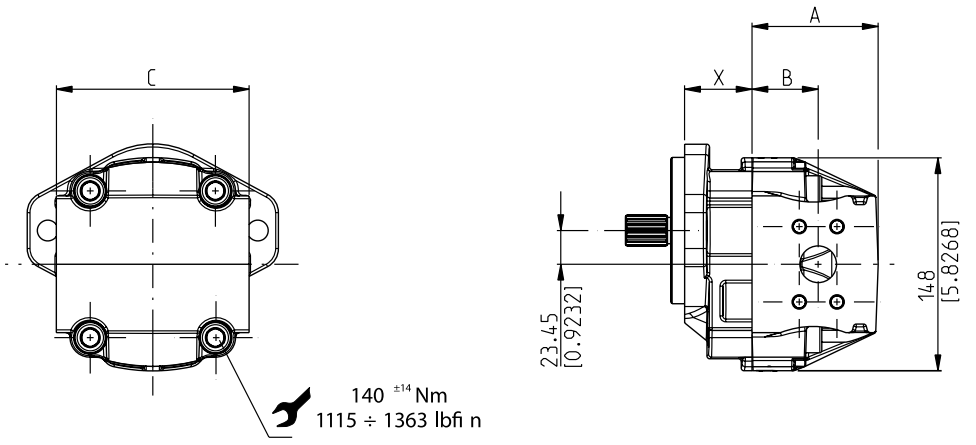
DRIVE SHAFTS:
see page 41 ÷ 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

03/07.2005

Pump type Motor type	**A** mm (inch)
K. 30•22	76 (2.9921)
K. 30•27	79 (3.1102)
K. 30•31	81,5 (3.2087)
K. 30•34	84 (3.3071)
K. 30•38	87 (3.4252)
K. 30•41	88,5 (3.4843)
K. 30•43	90 (3.5433)
K. 30•46	91,5 (3.6024)
K. 30•51	95 (3.7401)
K. 30•56	98 (3.8583)
K. 30•61	101 (3.9764)
K. 30•73	109 (4.2913)

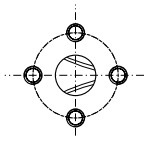
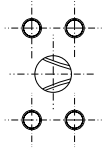
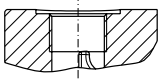
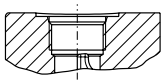
KAPPA 30 SINGLE UNITS SHORT SHAPED BODY - SIDE PORTS KSC



DCAT_006_006_PRT01137

Replaces: 01/05.2002

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 41 ÷ 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

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 (3.1693)	38 (1.4961)	134 (5.2756)	142 (5.5906)
K. 30•27	83,5 (3.2874)	41 (1.6142)	134 (5.2756)	142 (5.5906)
K. 30•31	86 (3.3858)	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
K. 30•34	88,5 (3.4843)	46 (1.8110)	134 (5.2756)	142 (5.5906)
K. 30•38	88,5 (3.4843)	46 (1.8110)	134 (5.2756)	142 (5.5906)

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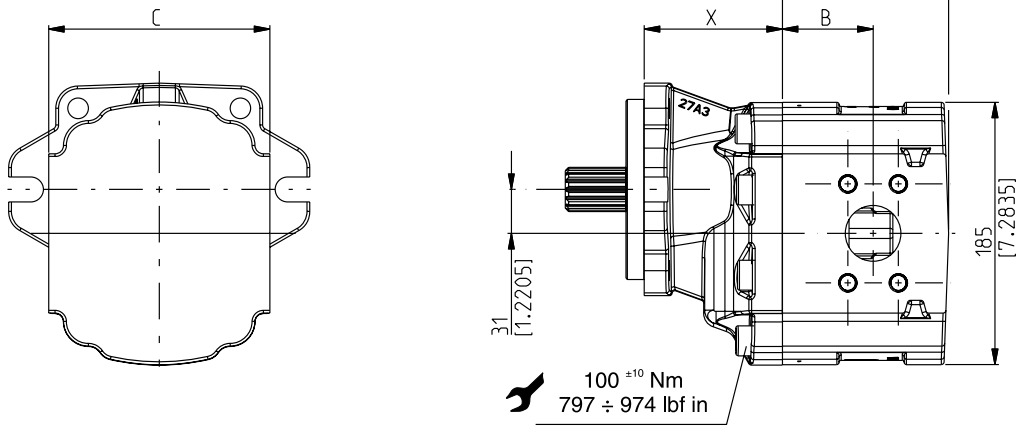
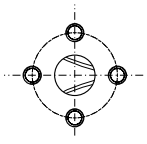
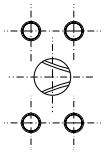
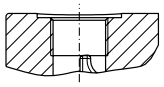
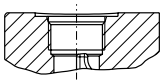
KAPPA 40 SINGLE UNITS SHORT BODY - SIDE PORTS CSC

Replaces: 01/05.2002

DCAT_006_050_40_CSC



Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

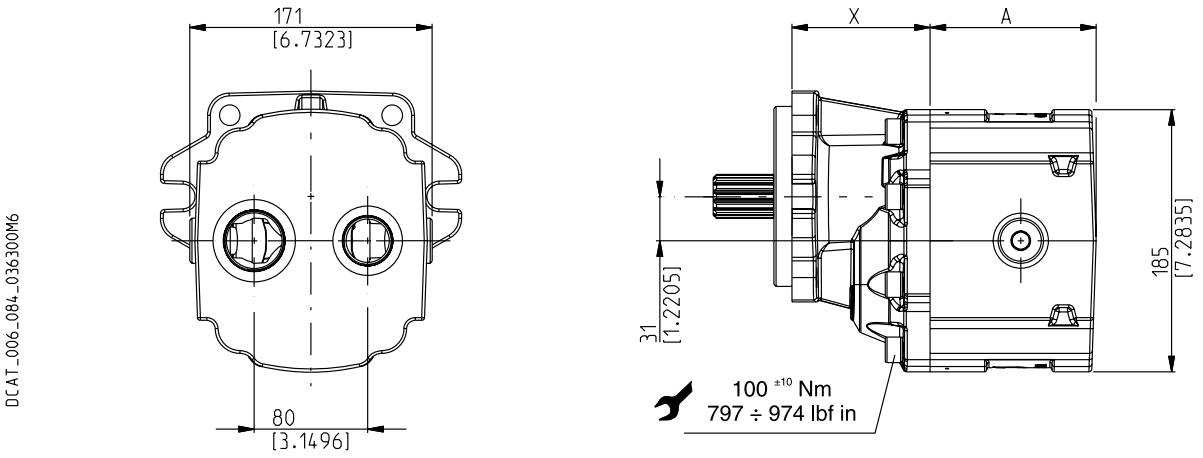
DRIVE SHAFTS:
see page 43

MOUNTING FLANGE:
for **X** dimension see page 49

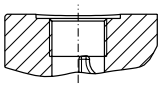
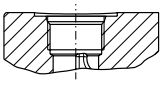
03/07.2005

Pump type Motor type	A	B	C	
			European - Split ports	Gas - SAE ports
	mm (inch)	mm (inch)	mm (inch)	mm (inch)
K. 40•63	108 (4.2610)	55 (2.1653)	156 (6.1417)	164 (6.4567)
K. 40•73	112 (4.4185)	59 (2.3228)	156 (6.1417)	164 (6.4567)
K. 40•87	117 (4.4094)	64 (2.5197)	156 (6.1417)	164 (6.4567)
K. 40•109	125 (4.9303)	63 (2.4403)	156 (6.1417)	164 (6.4567)
K. 40•121	130 (5.1272)	68 (2.6772)	156 (6.1417)	164 (6.4567)
K. 40•133	134 (5.2846)	72 (2.8346)	156 (6.1417)	164 (6.4567)
K. 40•151	140 (5.5209)	78 (3.0709)	156 (6.1417)	164 (6.4567)

KAPPA 40 SINGLE UNITS - REAR PORTS CS.



Ports type (see availability on page 50)

Gas (BSPP)	SAE (ODT)
	

DRIVE SHAFTS:
see page 43

MOUNTING FLANGE:
for **X** dimension see page 49

Pump type Motor type	A For rotation S - D - B (short body CSC) mm (inch)	A For rotation R (long body CSL) mm (inch)
K. 40•63	108 (4.2610)	124 (4.8819)
K. 40•73	112 (4.4185)	128 (5.0394)
K. 40•87	117 (4.4094)	133 (5.2362)
K. 40•109	125 (4.9303)	141 (5.5512)
K. 40•121	130 (5.1272)	146 (5.7480)
K. 40•133	134 (5.2846)	150 (5.9055)
K. 40•151	140 (5.5209)	156 (6.1417)

03/07.2005

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 technical sales department.

Replaces: 03/07.2005

M	lbf in (Nm)	Torque
V	in^3/rev (cm^3/rev)	Displacement
Δp	psi (bar)	Pressure
$\eta_{hm} = \eta_m$ (V, Δp, n)	(≈ 0,90)	Hydro-mechanical efficiency

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

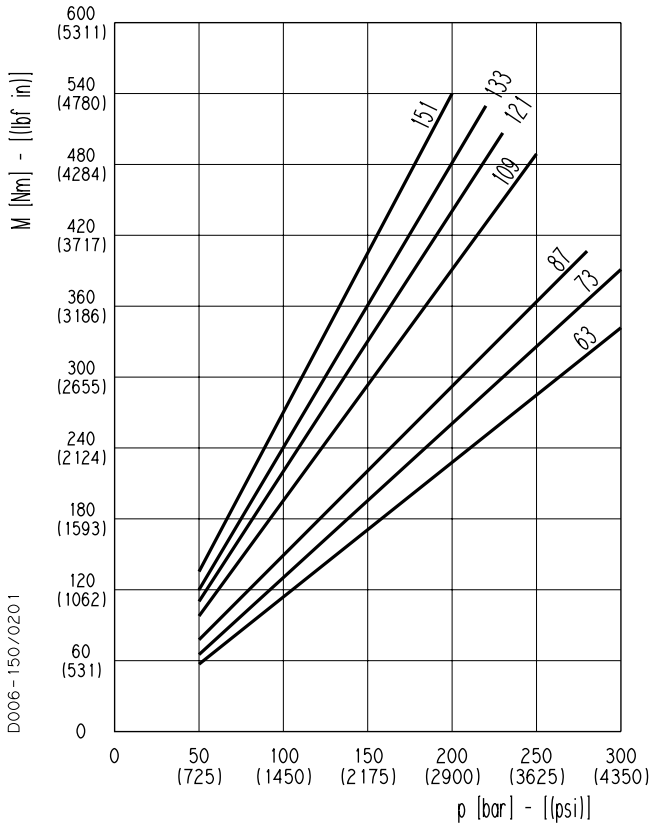
$$\mathbf{M_{theor.}} = \frac{\Delta p\ (bar) \bullet V\ (cm^3/rev)}{62{,}83}$$

05/02.2012

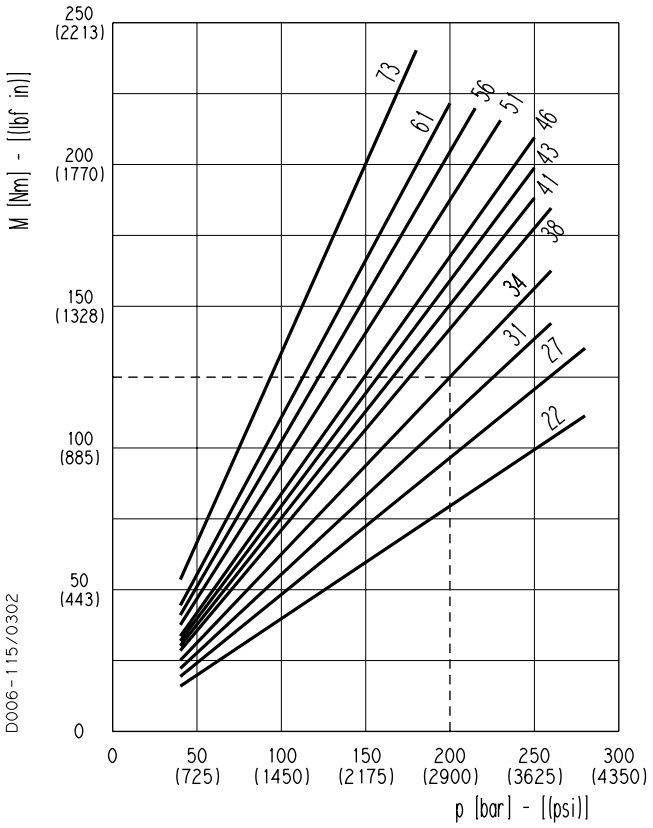
Note: The torque absorbed from the shaft of the first pump results from the sum of the torques due to all single stages.
The achieved value must not exceed the maximum torque limit given for the shaft of the first pump.
Diagrams providing approximate selection data will be found on page 28.

ABSORBED TORQUE

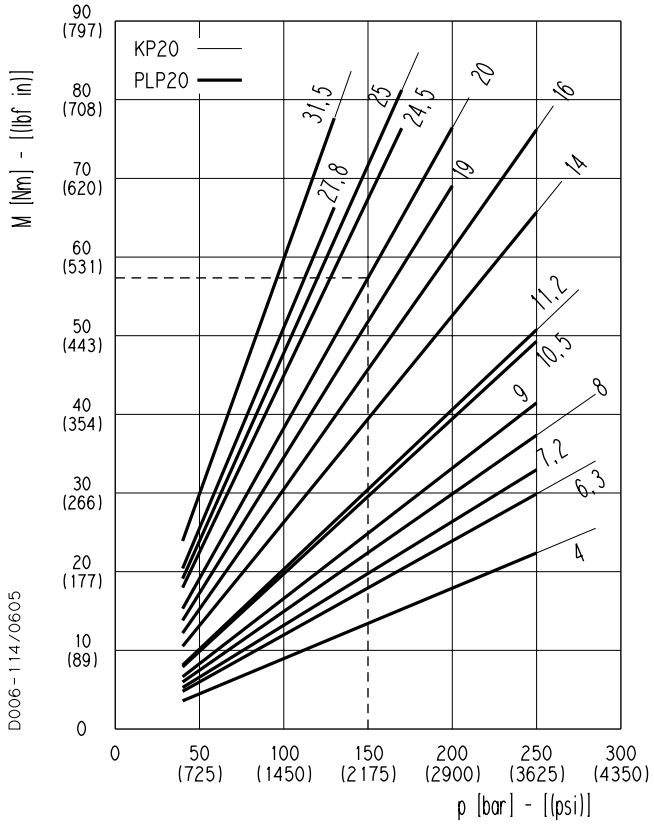
KP 40 (1)



KP 30 (2)



KP 20 - PLP 20 (3)



DRIVE SHAFT SELECTION

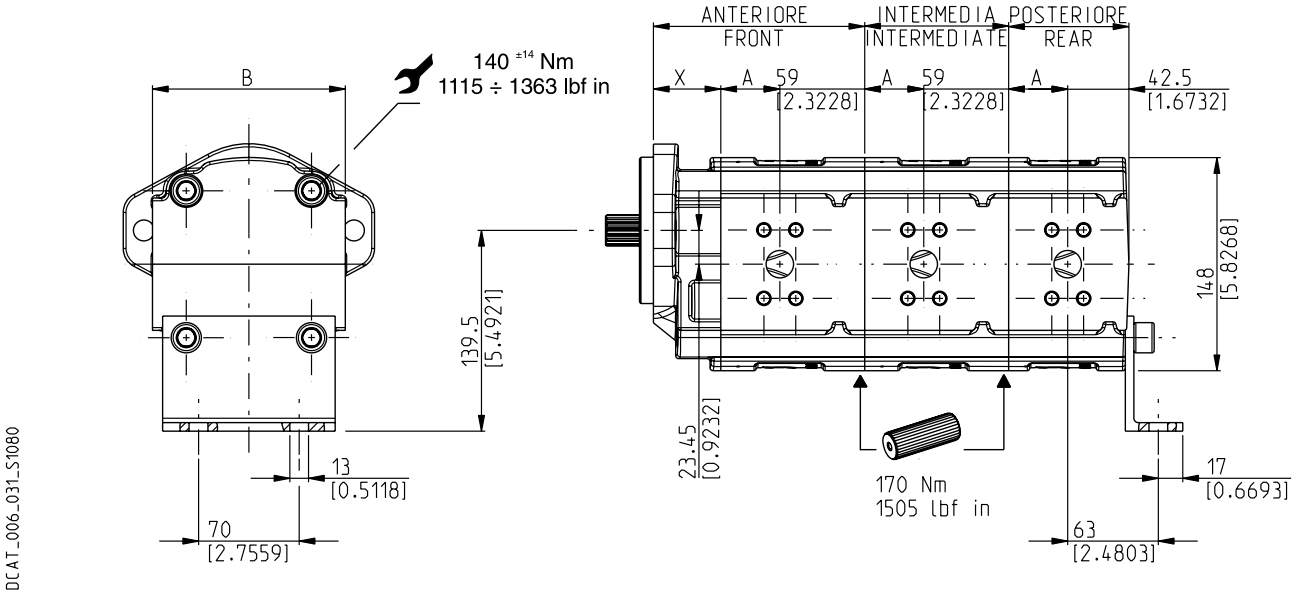
Let us consider a double pump KP30•34 + PL20•20.
If we suppose that we have to work with the first pump at a pressure of 2900 psi (200 bar) and the second pump at a pressure of 2175 psi (150 bar), the graph **(2)** shows that the torque absorbed by KP30•34 is 1106 lbf in (125 Nm) and the graph **(3)** shows that the torque absorbed by PLP20•20 is 505 lbf in (57 Nm) acceptable value because it doesn't exceed the maximum drive shaft torque that is 974 lbf in (110 Nm), see page 32. The torque to be transmitted by the first drive shaft will thus be 1106+505=1611 lbf in (125+57=182 Nm), this value must not exceed the shaft's maximum rated value.

Replaces: 01/05.2002

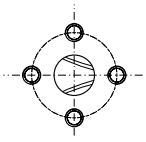
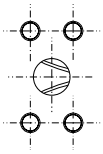
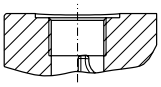
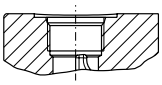
03/07.2005

KAPPA 30 MULTIPLE PUMPS SAME GROUPS CS.

Replaces: 01/05.2002



Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 41 and page 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

FRONT: **CSL** (long body)

INTERMEDIATE: **CSL** (long body)

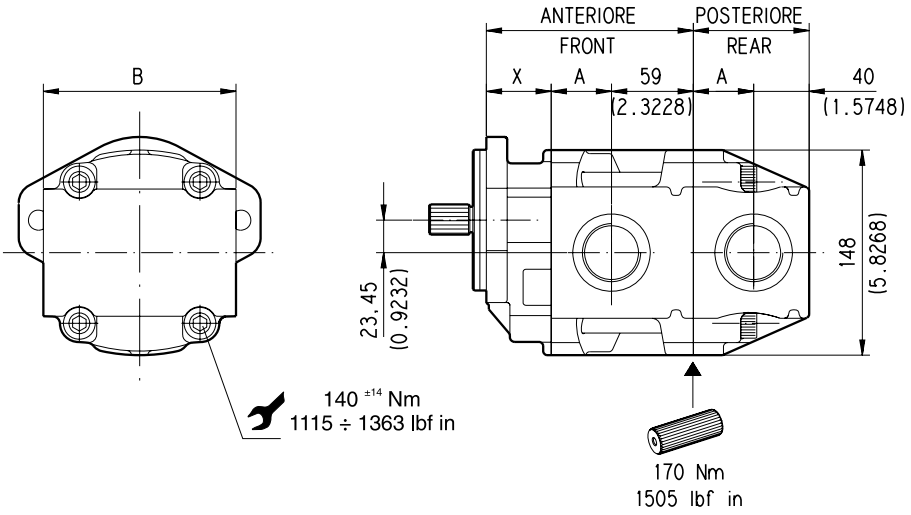
REAR: **CSC** (short body)

(all multiple pumps with more than two sections are available with bracket).

Pump type	A	B	
		European ports Split ports (SSM) / (SSS)	Gas ports (BSPP) SAE ports (ODT)
	mm (inch)	mm (inch)	mm (inch)
KP 30•22	38 (1.4961)	134 (5.2756)	142 (5.5906)
KP 30•27	41 (1.6142)	134 (5.2756)	142 (5.5906)
KP 30•31	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
KP 30•34	46 (1.8110)	134 (5.2756)	142 (5.5906)
KP 30•38	49 (1.9291)	134 (5.2756)	142 (5.5906)
KP 30•41	50,5 (1.9882)	134 (5.2756)	142 (5.5906)
KP 30•43	52 (2.0472)	134 (5.2756)	142 (5.5906)
KP 30•46	53,5 (2.1063)	134 (5.2756)	142 (5.5906)
KP 30•51	57 (2.2441)	134 (5.2756)	142 (5.5906)
KP 30•56	60 (2.3622)	134 (5.2756)	142 (5.5906)
KP 30•61	63 (2.4803)	134 (5.2756)	142 (5.5906)
KP 30•73	71 (2.7953)	134 (5.2756)	142 (5.5906)

03/07.2005

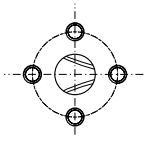
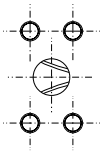
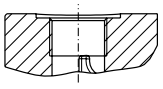
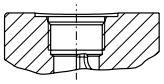
KAPPA 30 DOUBLE PUMPS SAME GROUPS SHAPED BODY KS.



DCAT_006_034_R1179

Replaces: 01/05.2002

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 41 and page 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

FRONT: **KSL** (long shaped body)

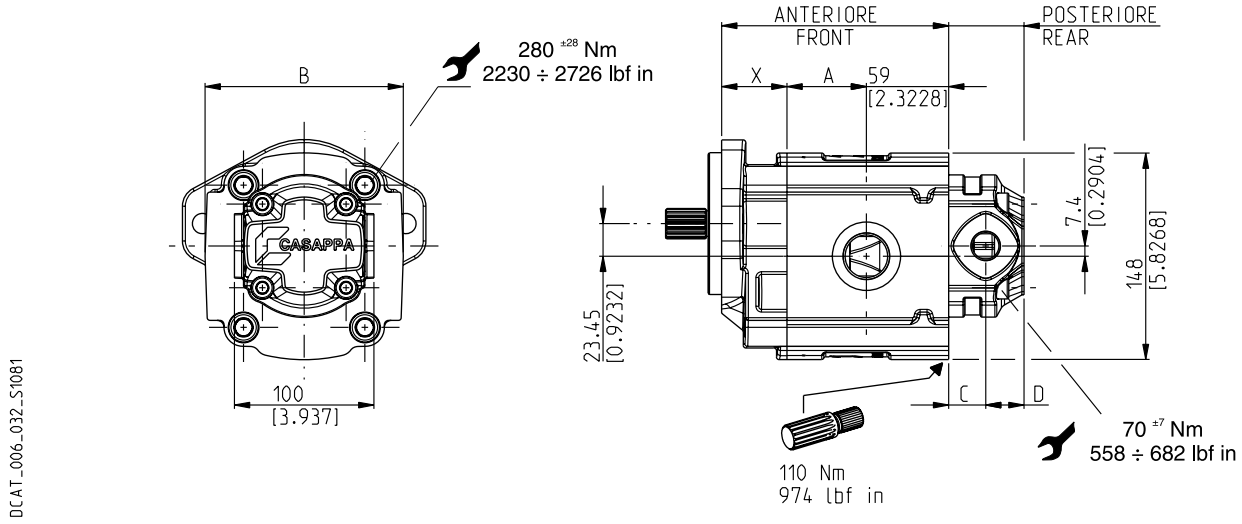
REAR: **KSC** (short shaped body)

Pump type	A	B	
		European ports Split ports (SSM) / (SSS)	Gas ports (BSPP) SAE ports (ODT)
	mm (inch)	mm (inch)	mm (inch)
KP 30•22	38 (1.4961)	134 (5.2756)	142 (5.5906)
KP 30•27	41 (1.6142)	134 (5.2756)	142 (5.5906)
KP 30•31	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
KP 30•34	46 (1.8110)	134 (5.2756)	142 (5.5906)
KP 30•38	46 (1.8110)	134 (5.2756)	142 (5.5906)

03/07.2005

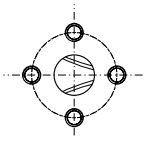
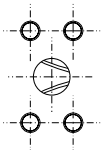
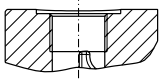
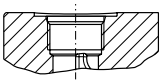
KAPPA 30 DOUBLE PUMPS KP30/KP20 CSL

Replaces: 01/05.2002



DCAT_006_032_S1081

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 41 and page 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

FRONT: **CSL** (long body)

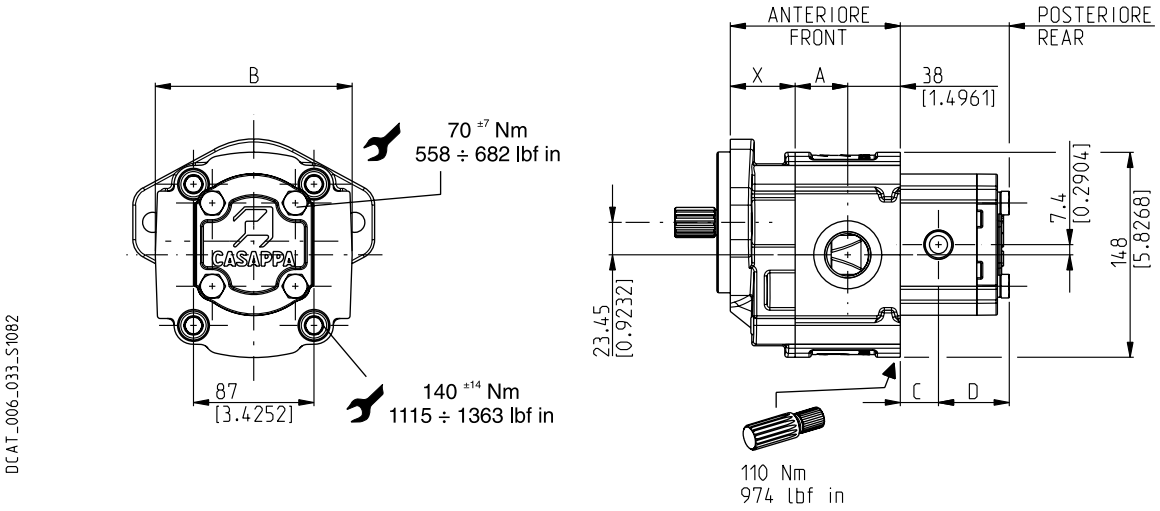
REAR: Kappa 20 Series
(for features please consult the proper technical catalog)

Pump type	A	B	
		Eur. - Split ports	Gas - SAE ports
	mm (inch)	mm (inch)	mm (inch)
KP 30•22	38 (1.4961)	134 (5.2756)	142 (5.5906)
KP 30•27	41 (1.6142)	134 (5.2756)	142 (5.5906)
KP 30•31	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
KP 30•34	46 (1.8110)	134 (5.2756)	142 (5.5906)
KP 30•38	49 (1.9291)	134 (5.2756)	142 (5.5906)
KP 30•41	50,5 (1.9882)	134 (5.2756)	142 (5.5906)
KP 30•43	52 (2.0472)	134 (5.2756)	142 (5.5906)
KP 30•46	53,5 (2.1063)	134 (5.2756)	142 (5.5906)
KP 30•51	57 (2.2441)	134 (5.2756)	142 (5.5906)
KP 30•56	60 (2.3622)	134 (5.2756)	142 (5.5906)
KP 30•61	63 (2.4803)	134 (5.2756)	142 (5.5906)
KP 30•73	71 (2.7953)	134 (5.2756)	142 (5.5906)

Pump type	C	D
	mm (inch)	mm (inch)
KP 20•4	24 (0.9449)	27,5 (1.0827)
KP 20•6,3	26,5 (1.0433)	27,5 (1.0827)
KP 20•8	29 (1.1417)	27,5 (1.0827)
KP 20•11,2	32,5 (1.2795)	27,5 (1.0827)
KP 20•14	31 (1.2205)	33 (1.2992)
KP 20•16	36,5 (1.4370)	33 (1.2992)
KP 20•20	43 (1.6929)	33 (1.2992)
KP 20•25	36 (1.4173)	48 (1.8898)
KP 20•31,5	46 (1.8110)	48 (1.8898)

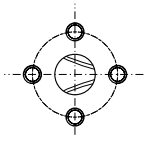
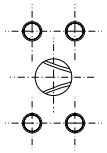
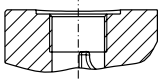
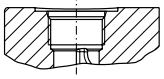
03/07.2005

KAPPA 30 DOUBLE PUMPS KP30/PL20 SHORT BODY CSC



Replaces: 01/05.2002

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 41 and page 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

FRONT: **CSC** (short body)

REAR: Polaris 20 Series
(for features please consult the proper technical catalog)

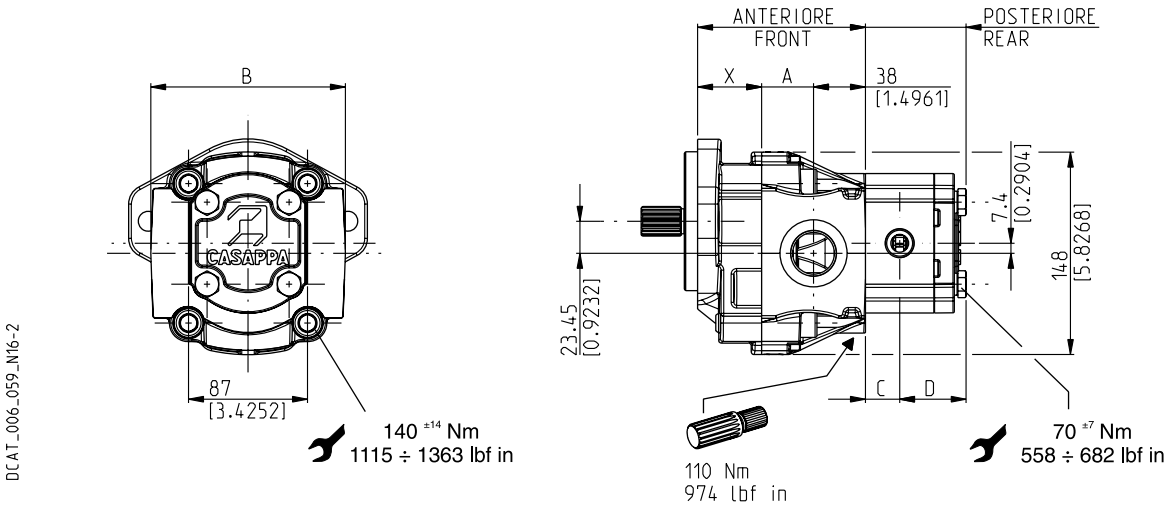
Pump type	A	B	
		Eur. - Split ports	Gas - SAE ports
	mm (inch)	mm (inch)	mm (inch)
KP 30•22	38 (1.4961)	134 (5.2756)	142 (5.5906)
KP 30•27	41 (1.6142)	134 (5.2756)	142 (5.5906)
KP 30•31	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
KP 30•34	46 (1.8110)	134 (5.2756)	142 (5.5906)
KP 30•38	49 (1.9291)	134 (5.2756)	142 (5.5906)
KP 30•41	50,5 (1.9882)	134 (5.2756)	142 (5.5906)
KP 30•43	52 (2.0472)	134 (5.2756)	142 (5.5906)
KP 30•46	53,5 (2.1063)	134 (5.2756)	142 (5.5906)
KP 30•51	57 (2.2441)	134 (5.2756)	142 (5.5906)
KP 30•56	60 (2.3622)	134 (5.2756)	142 (5.5906)
KP 30•61	63 (2.4803)	134 (5.2756)	142 (5.5906)
KP 30•73	71 (2.7953)	134 (5.2756)	142 (5.5906)

Pump type	C	D
	mm (inch)	mm (inch)
PLP 20•4	25,8 (1.0157)	49,3 (1.9409)
PLP 20•6,3	27 (1.0630)	50,5 (1.9882)
PLP 20•7,2	27,5 (1.0826)	51 (2.0079)
PLP 20•8	28,3 (1.1142)	51,8 (2.0394)
PLP 20•9	28,9 (1.1378)	52,4 (2.0630)
PLP 20•10,5	30,3 (1.1929)	53,8 (2.1181)
PLP 20•11,2	30,5 (1.2008)	54 (2.1260)
PLP 20•14	33 (1.2992)	56,5 (2.2244)
PLP 20•16	34,8 (1.3701)	58,3 (2.2953)
PLP 20•19	36,5 (1.4370)	60 (2.3622)
PLP 20•20	38 (1.4961)	61,5 (2.4213)
PLP 20•24,5	40,8 (1.6063)	64,3 (2.5315)
PLP 20•25	42 (1.6535)	65,5 (2.5787)
PLP 20•27,5	43,4 (1.7087)	66,9 (2.6339)
PLP 20•31,5	47 (1.8504)	70,5 (2.7756)

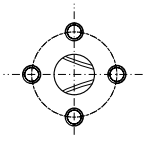
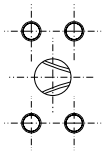
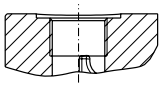
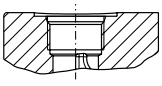
03/07.2005

KAPPA 30 DOUBLE PUMPS KP30/PL20 SHORT SHAPED BODY HSC

Replaces: 01/05.2002



Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 41 and page 42

MOUNTING FLANGE:
for **X** dimension see page 44 ÷ 48

FRONT: **HSC** (short shaped body)

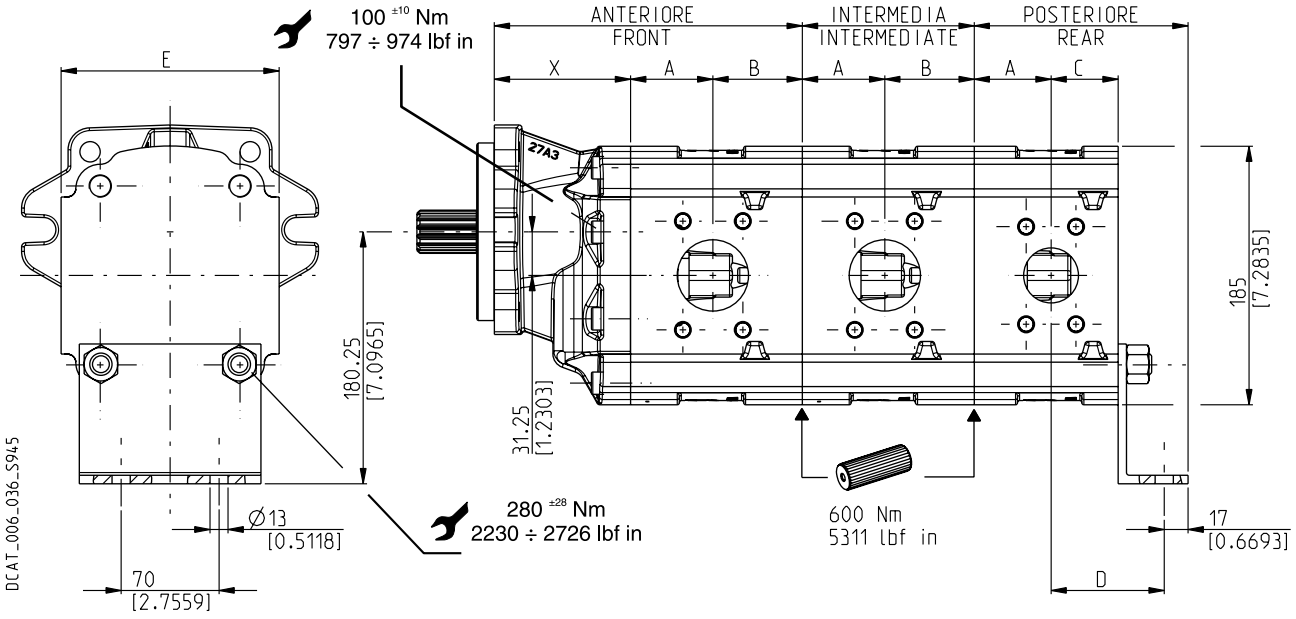
REAR: Polaris 20 Series
(for features please consult the proper technical catalog)

Pump type	A	B	
		Eur. - Split ports	Gas - SAE ports
	mm (inch)	mm (inch)	mm (inch)
KP 30•22	38 (1.4961)	134 (5.2756)	142 (5.5906)
KP 30•27	41 (1.6142)	134 (5.2756)	142 (5.5906)
KP 30•31	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
KP 30•34	46 (1.8110)	134 (5.2756)	142 (5.5906)
KP 30•38	46 (1.8110)	134 (5.2756)	142 (5.5906)

Pump type	C	D
	mm (inch)	mm (inch)
PLP 20•4	25,8 (1.0157)	49,3 (1.9409)
PLP 20•6,3	27 (1.0630)	50,5 (1.9882)
PLP 20•7,2	27,5 (1.0826)	51 (2.0079)
PLP 20•8	28,3 (1.1142)	51,8 (2.0394)
PLP 20•9	28,9 (1.1378)	52,4 (2.0630)
PLP 20•10,5	30,3 (1.1929)	53,8 (2.1181)
PLP 20•11,2	30,5 (1.2008)	54 (2.1260)
PLP 20•14	33 (1.2992)	56,5 (2.2244)
PLP 20•16	34,8 (1.3701)	58,3 (2.2953)
PLP 20•19	36,5 (1.4370)	60 (2.3622)
PLP 20•20	38 (1.4961)	61,5 (2.4213)
PLP 20•24,5	40,8 (1.6063)	64,3 (2.5315)
PLP 20•25	42 (1.6535)	65,5 (2.5787)
PLP 20•27,5	43,4 (1.7087)	66,9 (2.6339)
PLP 20•31,5	47 (1.8504)	70,5 (2.7756)

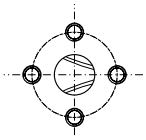
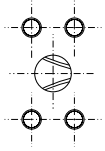
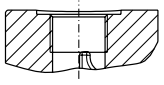
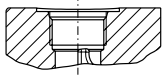
03/07.2005

KAPPA 40 MULTIPLE PUMPS SAME GROUPS CS.



Replaces: 02/11.2004

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 43

MOUNTING FLANGE:
for **X** dimension see page 49

FRONT: **CSL** (long body)

INTERMEDIATE: **CSL** (long body)

REAR: **CSC** (short body)

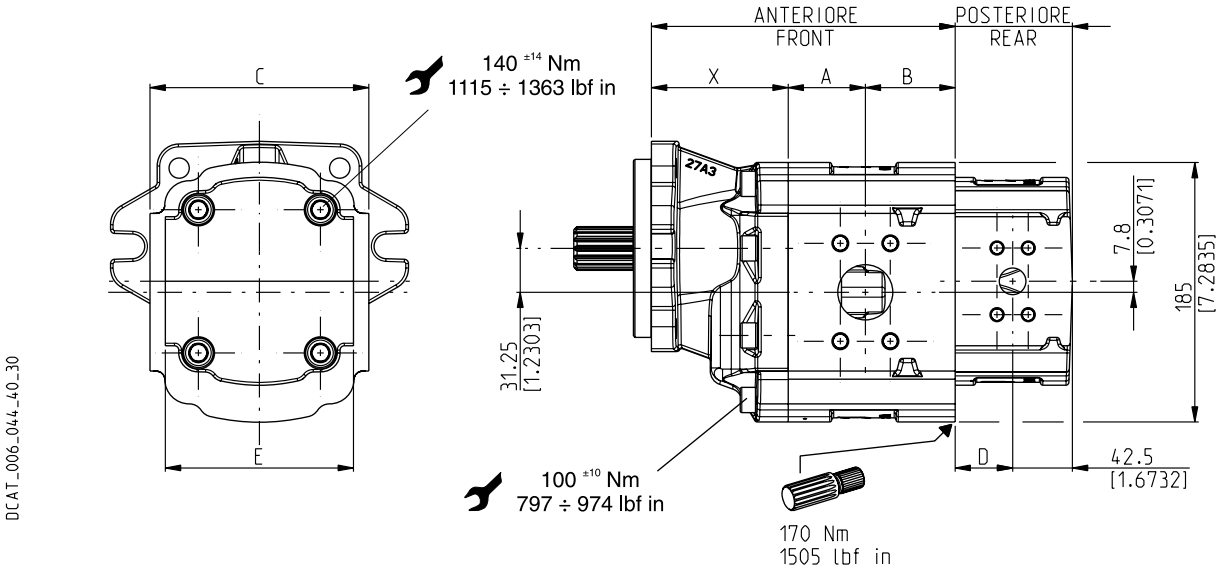
(all multiple pumps with more than two sections are available with bracket).

Pump type	A	B	C	D	E	
					European - Split ports	Gas - SAE ports
	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)
KP 40•63	55 (2.1653)	64 (2.5197)	48 (1.8897)	81 (3.1890)	156 (6.1417)	164 (6.4567)
KP 40•73	59 (2.3228)	64 (2.5197)	48 (1.8897)	81 (3.1890)	156 (6.1417)	164 (6.4567)
KP 40•87	64 (2.5197)	64 (2.5197)	48 (1.8897)	81 (3.1890)	156 (6.1417)	164 (6.4567)
KP 40•109	63 (2.4803)	73 (2.8740)	57 (2.2440)	90 (3.5433)	156 (6.1417)	164 (6.4567)
KP 40•121	68 (2.6772)	73 (2.8740)	57 (2.2440)	92 (3.6220)	156 (6.1417)	164 (6.4567)
KP 40•133	72 (2.8346)	73 (2.8740)	57 (2.2440)	92 (3.6220)	156 (6.1417)	164 (6.4567)

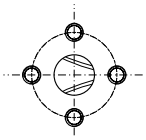
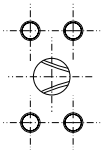
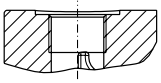
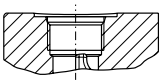
03/07.2005

KAPPA 40 DOUBLE PUMPS KP40/KP30 CS.

Replaces: 01/05.2002



Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 43

MOUNTING FLANGE:
for **X** dimension see page 49

FRONT: **CSL** (long body)

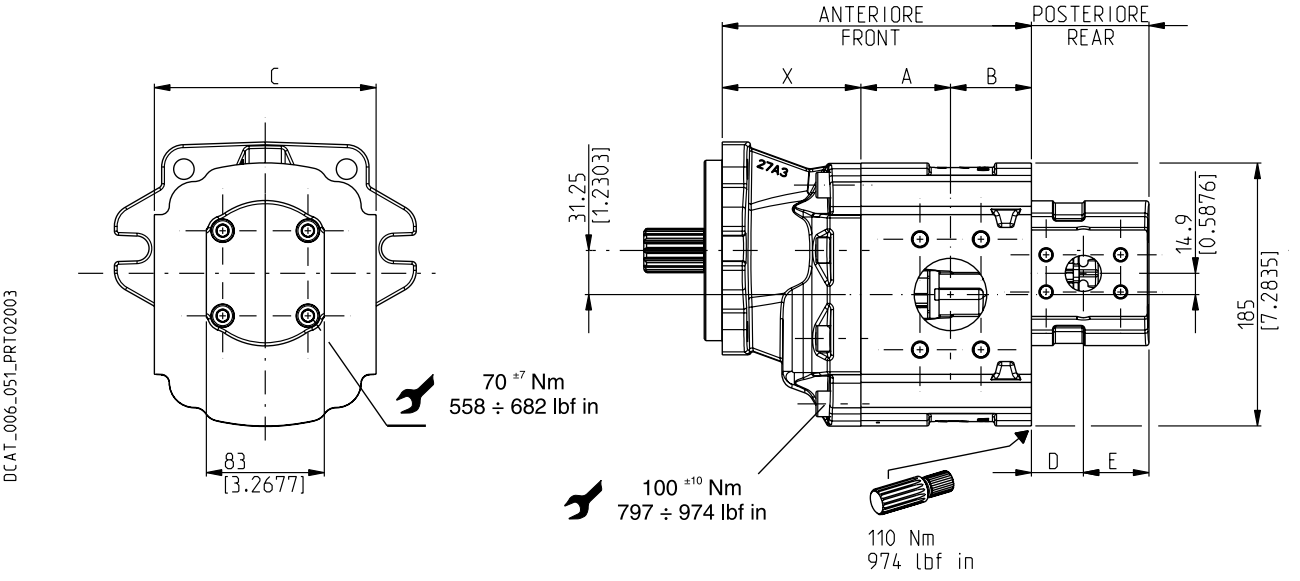
REAR: Serie KAPPA 30 **CSC** (short body)

Pump type	A	B	C	
			Eur. - Split ports	Gas -SAE ports
	mm (inch)	mm (inch)	mm (inch)	mm (inch)
KP 40•63	55 (2.1653)	64 (2.5197)	156 (6.1417)	164 (6.4567)
KP 40•73	59 (2.3228)	64 (2.5197)	156 (6.1417)	164 (6.4567)
KP 40•87	64 (2.5197)	64 (2.5197)	156 (6.1417)	164 (6.4567)
KP 40•109	63 (2.4803)	73 (2.8740)	156 (6.1417)	164 (6.4567)
KP 40•121	68 (2.6772)	73 (2.8740)	156 (6.1417)	164 (6.4567)
KP 40•133	72 (2.8346)	73 (2.8740)	156 (6.1417)	164 (6.4567)

Pump type	D	E	
		Eur. - Split ports	Gas -SAE ports
	mm (inch)	mm (inch)	mm (inch)
KP 30•22	38 (1.4961)	134 (5.2756)	142 (5.5906)
KP 30•27	41 (1.6142)	134 (5.2756)	142 (5.5906)
KP 30•31	43,5 (1.7126)	134 (5.2756)	142 (5.5906)
KP 30•34	46 (1.8110)	134 (5.2756)	142 (5.5906)
KP 30•38	49 (1.9291)	134 (5.2756)	142 (5.5906)
KP 30•41	50,5 (1.9882)	134 (5.2756)	142 (5.5906)
KP 30•43	52 (2.0472)	134 (5.2756)	142 (5.5906)
KP 30•46	53,5 (2.1063)	134 (5.2756)	142 (5.5906)
KP 30•51	57 (2.2441)	134 (5.2756)	142 (5.5906)
KP 30•56	60 (2.3622)	134 (5.2756)	142 (5.5906)
KP 30•61	63 (2.4803)	134 (5.2756)	142 (5.5906)
KP 30•73	71 (2.7953)	134 (5.2756)	142 (5.5906)

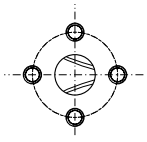
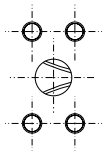
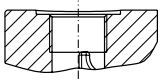
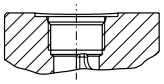
03/07.2005

KAPPA 40 DOUBLE PUMPS KP40/KP20 SHORT BODY CSC



Replaces: 02/11.2004

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

DRIVE SHAFTS:
see page 43

MOUNTING FLANGE:
for **X** dimension see page 49

FRONT: **CSC** (short body)

REAR: Kappa 20 Series
(for features please consult the proper technical catalog)

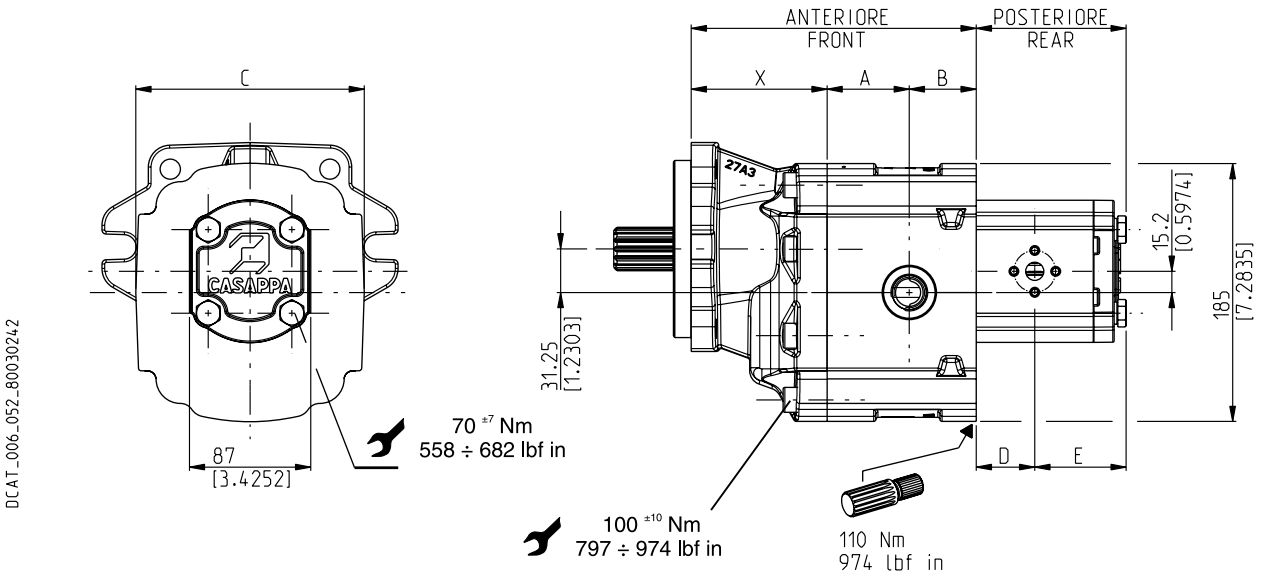
Pump type	A	B	C	
			Eur. ports Split. ports	Gas ports SAE ports
	mm (inch)	mm (inch)	mm (inch)	mm (inch)
KP 40•63	55 (2.1653)	48 (1.8897)	156 (6.1417)	164 (6.4567)
KP 40•73	59 (2.3228)	48 (1.8897)	156 (6.1417)	164 (6.4567)
KP 40•87	64 (2.5197)	48 (1.8897)	156 (6.1417)	164 (6.4567)
KP 40•109	63 (2.4803)	57 (2.2440)	156 (6.1417)	164 (6.4567)
KP 40•121	68 (2.6772)	57 (2.2440)	156 (6.1417)	164 (6.4567)
KP 40•133	72 (2.8346)	57 (2.2440)	156 (6.1417)	164 (6.4567)

Pump type	D	E
	mm (inch)	mm (inch)
KP 20•4	24 (0.9449)	39,5 (1.5551)
KP 20•6,3	26,5 (1.0433)	39,5 (1.5551)
KP 20•8	29 (1.1417)	39,5 (1.5551)
KP 20•11,2	32,5 (1.2795)	40,5 (1.5945)
KP 20•14	31 (1.2205)	47 (1.8504)
KP 20•16	36,5 (1.4370)	45 (1.7717)
KP 20•20	43 (1.6929)	45 (1.7717)
KP 20•25	36 (1.4173)	60 (2.3622)
KP 20•31,5	46 (1.8110)	60 (2.3622)

03/07.2005

KAPPA 40 DOUBLE PUMPS KP40/PL20 SHORT BODY CSC

Replaces: 02/11.2004



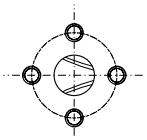
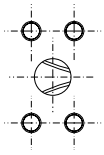
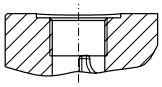
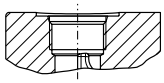
DRIVE SHAFTS:
see page 43

MOUNTING FLANGE:
for **X** dimension see page 49

FRONT: **CSC** (short body)

REAR: Polaris 20 Series
(for features please consult the proper technical catalog)

Ports type (see availability on page 50)

European	Split (SSM) / (SSS)	Gas (BSPP)	SAE (ODT)
			

Pump type	A	B	C	
			Eur. ports Split. ports	Gas ports SAE ports
	mm (inch)	mm (inch)	mm (inch)	mm (inch)
KP 40•63	55 (2.1653)	48 (1.8897)	156 (6.1417)	164 (6.4567)
KP 40•73	59 (2.3228)	48 (1.8897)	156 (6.1417)	164 (6.4567)
KP 40•87	64 (2.5197)	48 (1.8897)	156 (6.1417)	164 (6.4567)
KP 40•109	63 (2.4803)	57 (2.2440)	156 (6.1417)	164 (6.4567)
KP 40•121	68 (2.6772)	57 (2.2440)	156 (6.1417)	164 (6.4567)
KP 40•133	72 (2.8346)	57 (2.2440)	156 (6.1417)	164 (6.4567)

Pump type	D	E
	mm (inch)	mm (inch)
PLP 20•4	25,8 (1.0157)	49,3 (1.9409)
PLP 20•6,3	27 (1.0630)	50,5 (1.9882)
PLP 20•7,2	27,5 (1.0826)	51 (2.0079)
PLP 20•8	28,3 (1.1142)	51,8 (2.0394)
PLP 20•9	28,9 (1.1378)	52,4 (2.0630)
PLP 20•10,5	30,3 (1.1929)	53,8 (2.1181)
PLP 20•11,2	30,5 (1.2008)	54 (2.1260)
PLP 20•14	33 (1.2992)	56,5 (2.2244)
PLP 20•16	34,8 (1.3701)	58,3 (2.2953)
PLP 20•19	36,5 (1.4370)	60 (2.3622)
PLP 20•20	38 (1.4961)	61,5 (2.4213)
PLP 20•24,5	40,8 (1.6063)	64,3 (2.5315)
PLP 20•25	42 (1.6535)	65,5 (2.5787)
PLP 20•27,5	43,4 (1.7087)	66,9 (2.6339)
PLP 20•31,5	47 (1.8504)	70,5 (2.7756)

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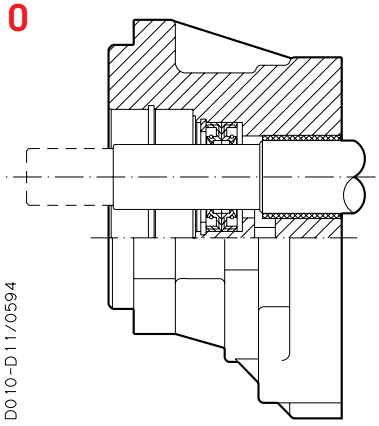
VERSIONS

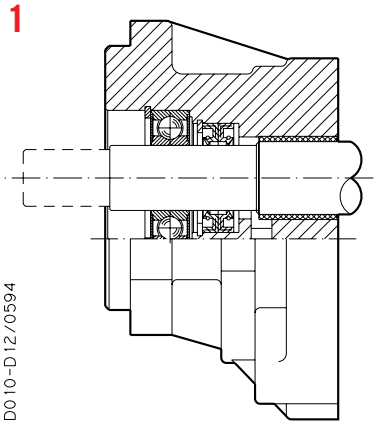
For each version, the possible combination between drive shafts and mounting flanges are shown on pages 44 ÷ 49.

0



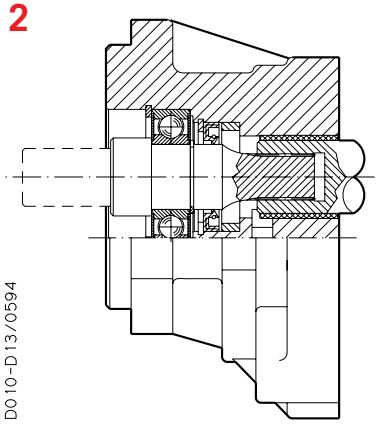
Version for applications without radial and axial load on the drive shaft.

1



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

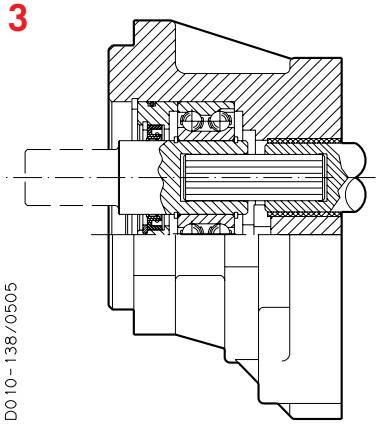
2



Special version with independent shaft for applications with low radial load and without axial load on the drive shaft

Max. torque version 2:
KAPPA 30: 170 Nm (1505 lbf in)
KAPPA 40: 600 Nm (5311 lbf in)

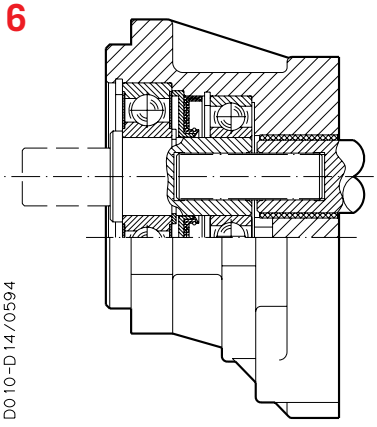
3



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

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

6



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

Max. torque version 6:
KAPPA 30: 170 Nm (1505 lbf in)
KAPPA 40: 600 Nm (5311 lbf in)

For the outboard bearings life expectancy, diagrams providing approximate selection data will be found on subsequent pages.
For particular applications please consult our technical sales department.

Replaces: 01/05.2002

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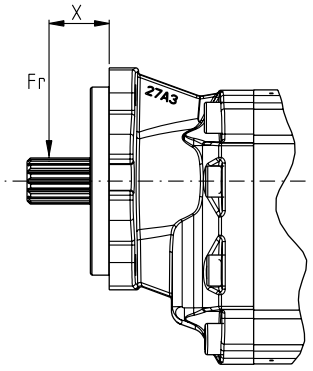
KAPPA 30 VERSION WITH OUTBOARD BEARINGS 3



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

Each curve has been obtained at:

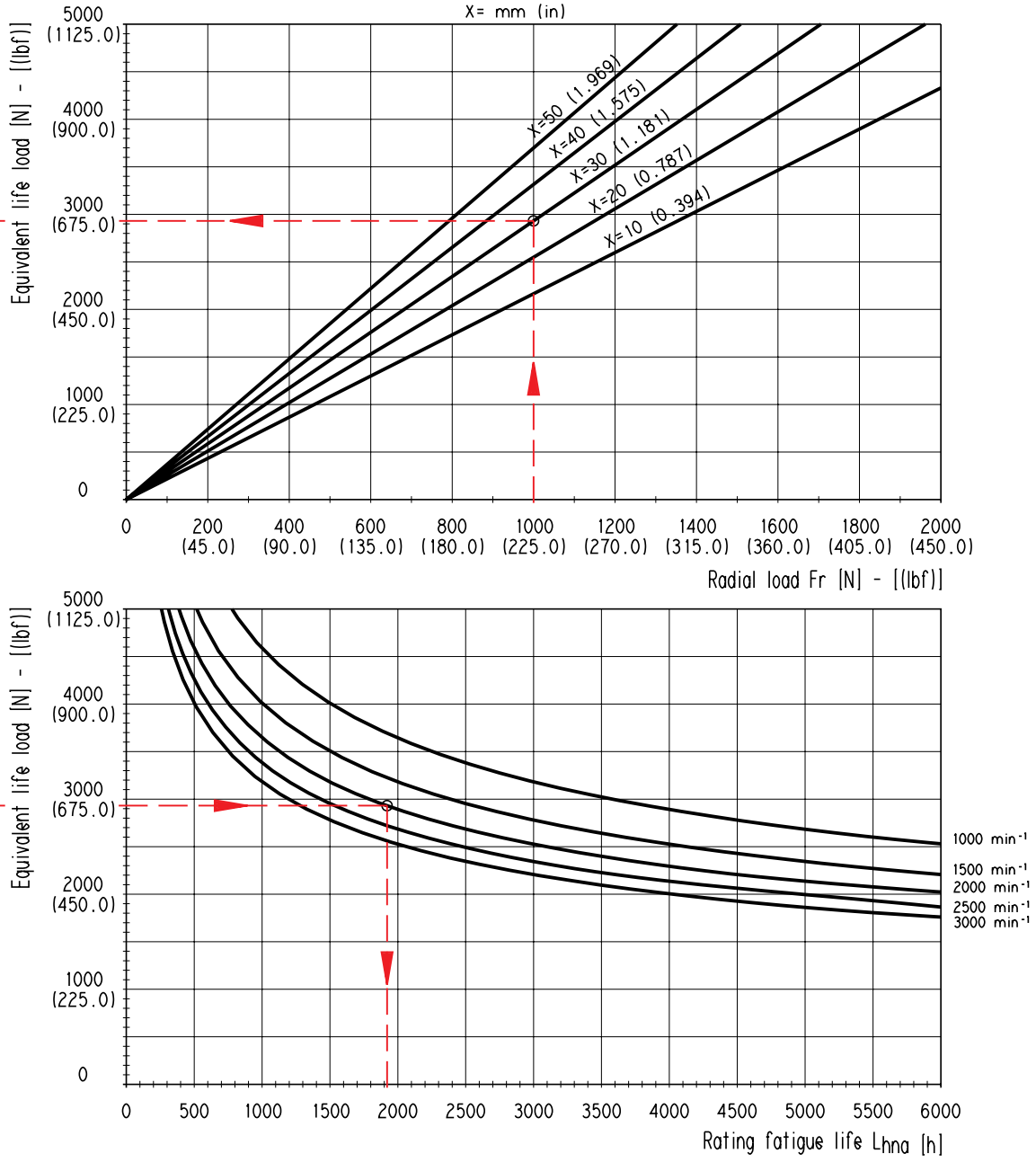
Lubricant oil ISO VG 46

Temperature 140 °F (60 °C)

Without or with very low axial load

Example

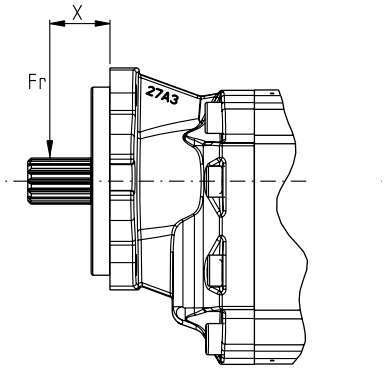
Fr Radial load	1000 N (225.0 lbf)
X	30 mm (1.8111 in)
Speed	2000 min^{-1}
Rating fatigue life	≈ 1915 h



03/07.2005

D010-147/0605

KAPPA 30 VERSION WITH OUTBOARD BEARINGS 6



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

Each curve has been obtained at:

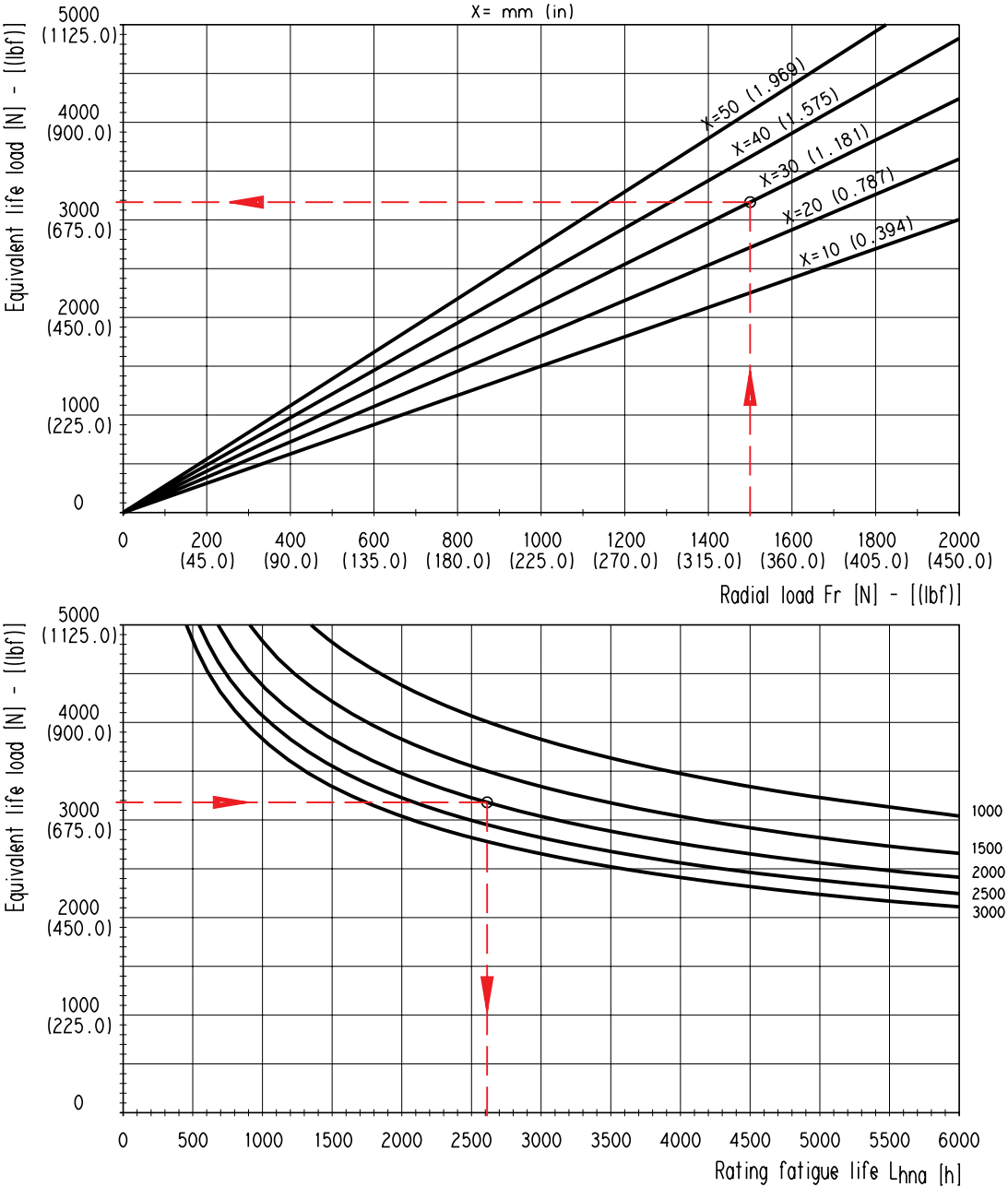
Lubricant oil ISO VG 46

Temperature 140 °F (60 °C)

Without or with very low axial load

Example

Fr Radial load	1500 N (337.5 lbf)
X	30 mm (1.8111 in)
Speed	2000 min^{-1}
Rating fatigue life	≈ 2613 h



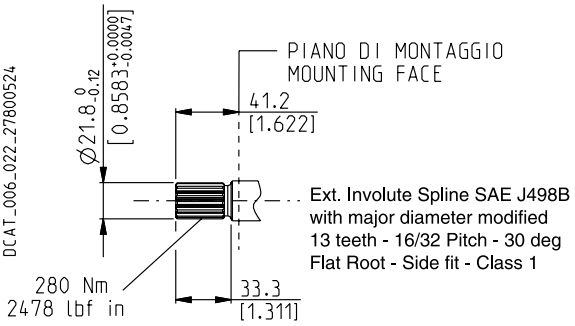
D010-149/0605

03/07.2005

KAPPA 30 DRIVE SHAFTS

SAE "B" SPLINE A8

Mounting face refer to flange code **K9**

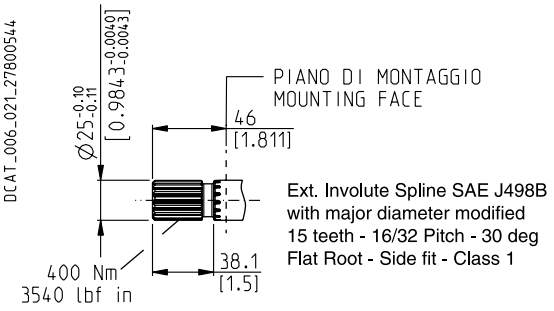


SAE "BB" SPLINE A5

Not available with size:

30•31 30•41 30•46

Mounting face refer to flange code **K9**

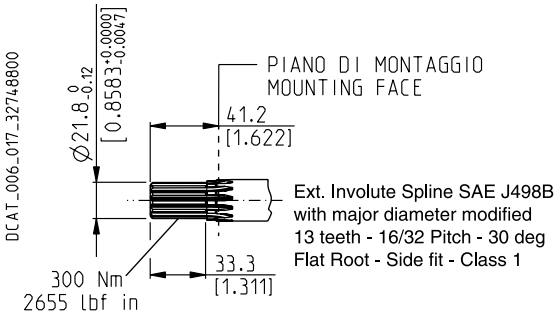


SAE "B" SPLINE 04

Not available with size:

30•31 30•46

Mounting face refer to flange code **S3**

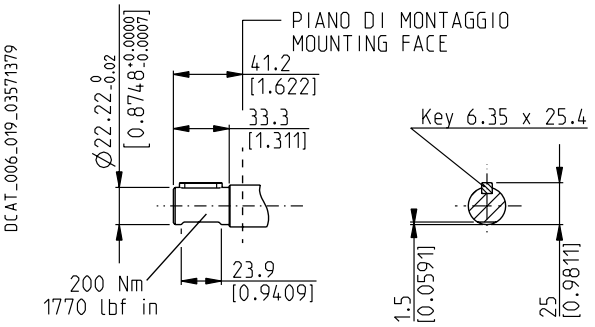


SAE "B" STRAIGHT 32

Not available with size:

30•31 30•41 30•46

Mounting face refer to flange code **S3**

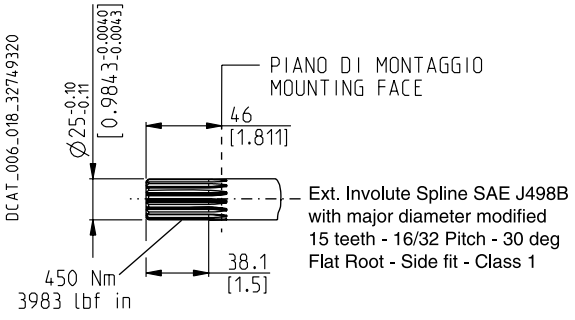


SAE "BB" SPLINE 05

Not available with size:

30•22 30•31 30•41 30•46

Mounting face refer to flange code **S3**

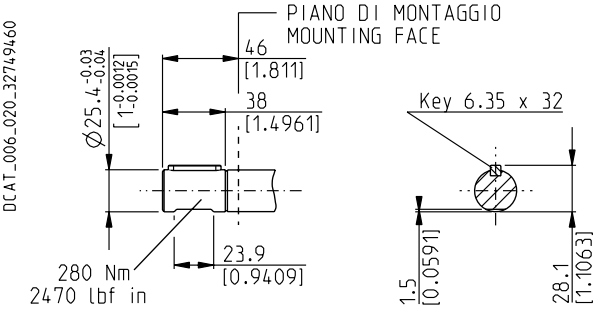


SAE "BB" STRAIGHT 33

Not available with size:

30•22 30•31 30•41 30•46 30•56

Mounting face refer to flange code **S3**



02/11.2004

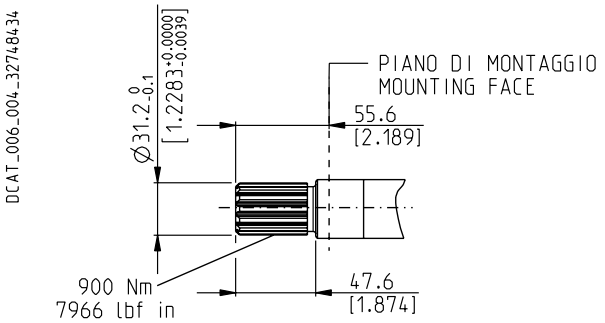
KAPPA 30 DRIVE SHAFTS

SAE “C” SPLINE 06

Not available with size:

30•22	30•31	30•41	30•46	30•56

Mounting face refer to flange code **S8**



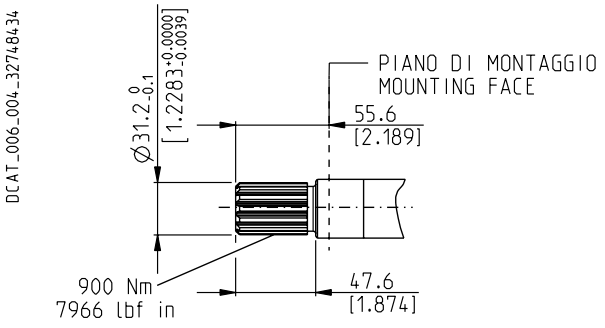
Ext. Involute Spline SAE J498B
with major diameter modified
14 teeth - 12/24 Pitch - 30 deg
Flat Root - Side fit - Class 1

SAE “C” SPLINE - SHORT TYPE A6

Non disponibile nei seguenti tipi:

30•56	30•73

Mounting face refer to flange code **Q3**



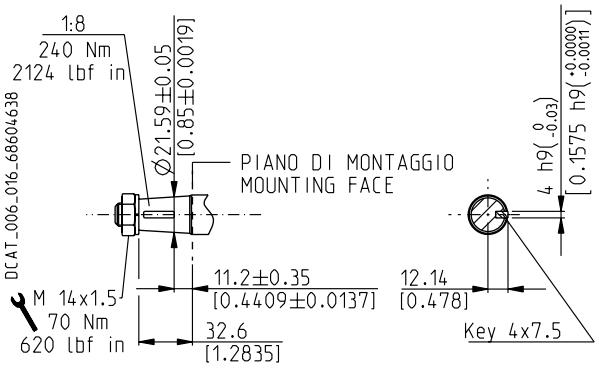
Ext. Involute Spline SAE J498B
with major diameter modified
14 teeth - 12/24 Pitch - 30 deg
Flat Root - Side fit - Class 1

EUROPEAN TAPERED 83

Not available with size:

30•31	30•41	30•46	30•56

Mounting face refer to flange code **E3**



Replaces: 01/05.2002

03/07.2005

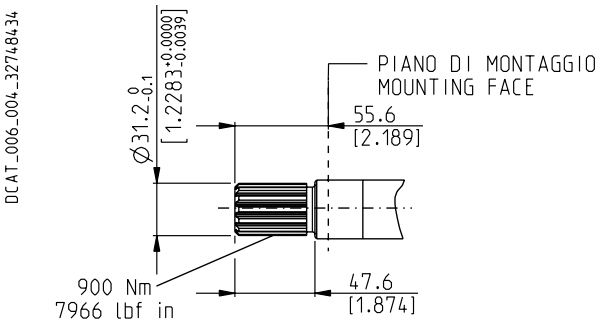
KAPPA 40 DRIVE SHAFTS

SAE “C” SPLINE 06

Not available with size:

40•121

Mounting face refer to flange code **S8**



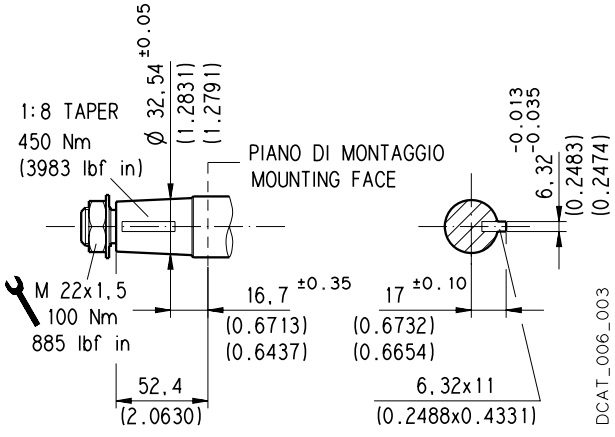
Ext. Involute Spline SAE J498B
with major diameter modified
14 teeth - 12/24 Pitch - 30 deg
Flat Root - Side fit - Class 1

EUROPEAN TAPERED 1:8 85

Not available with size:

40•63 **40•151**

Mounting face refer to flange code **E5**

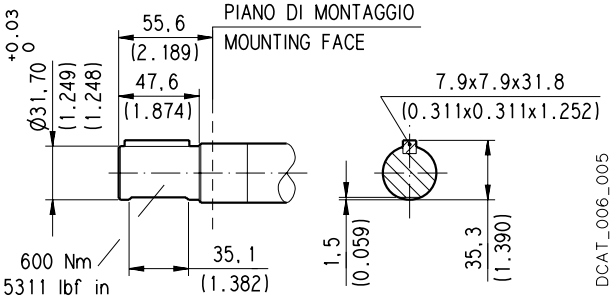


SAE “C” STRAIGHT 34

Not available with size:

40•121

Mounting face refer to flange code **S8**



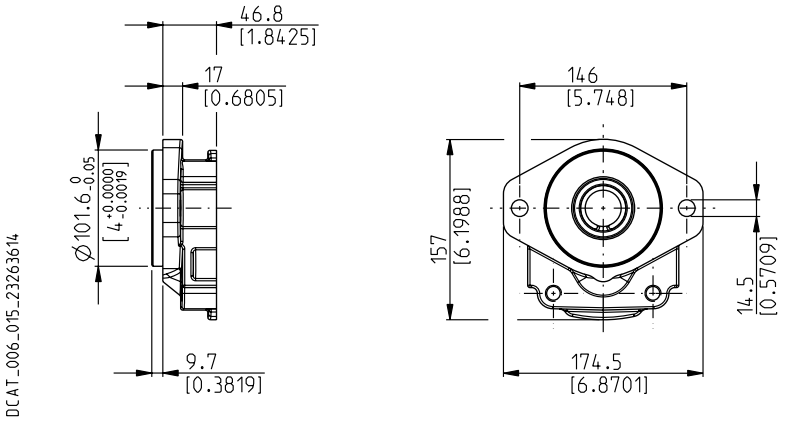
02/11.2004

KAPPA 30 MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "B" 2 HOLES

K9

Conforms to SAE J744



VERSIONS See page 38	DRIVE SHAFTS See page 41 A8	A5
0	■	●

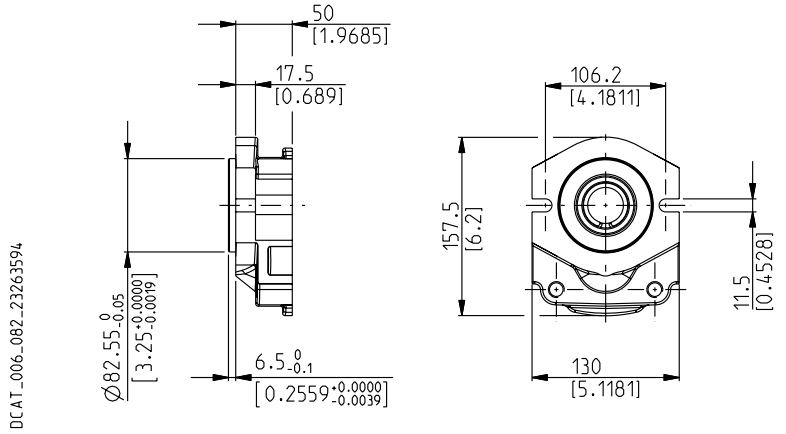
■ Standard combination
● Available combination

N.B.: For the mounting with flanged ports bodies, we recommend to use studs.

SAE "A" 2 HOLES

S9

Conforms to SAE J744



VERSIONS See page 38	DRIVE SHAFTS See page 41 A8
0	■

■ Standard combination
● Available combination

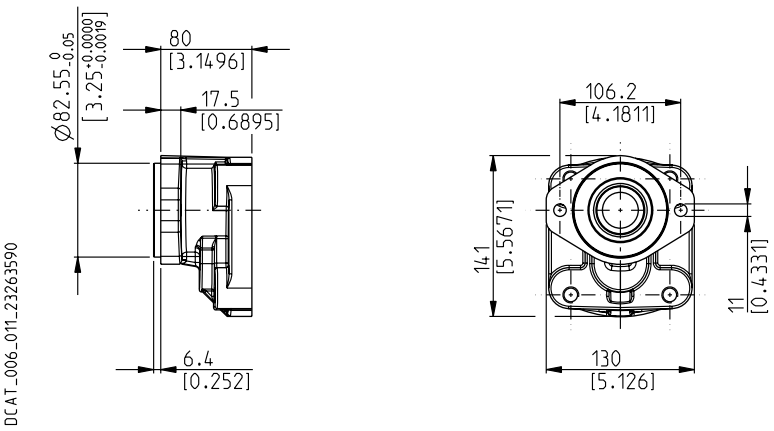
03/07.2005

KAPPA 30 MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE “A” 2 HOLES

S1

Conforms to SAE J744



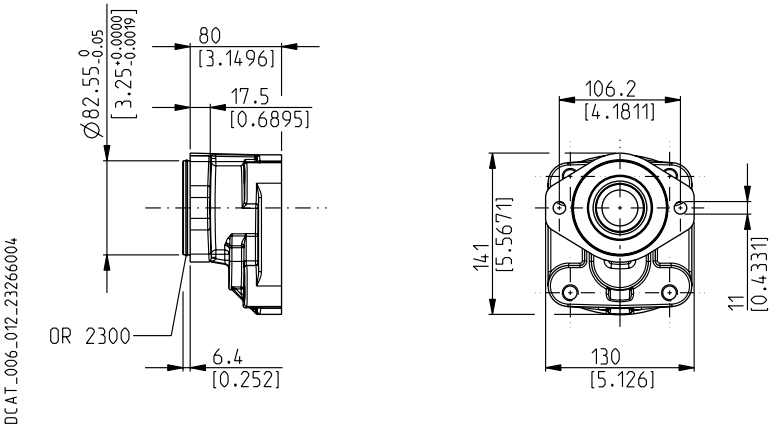
VERSIONS See page 38	DRIVE SHAFTS See page 41 04	32	05	33
0	■	●	●	●
1	■	●	●	●
2	■	●	●	●

■ Standard combination
● Available combination

SAE “A” 2 HOLES

S2

Conforms to SAE J744



VERSIONS See page 38	DRIVE SHAFTS See page 41 04	32	05	33
0	■	●	●	●
1	■	●	●	●
2	■	●	●	●

■ Standard combination
● Available combination

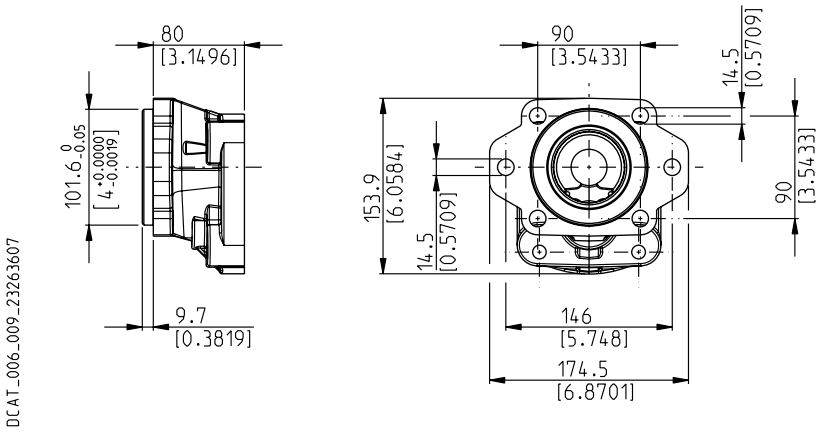
01/05.2002

KAPPA 30 MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "B" 2-4 HOLES

S3

Conforms to SAE J744



DRIVE SHAFTS
See page 41

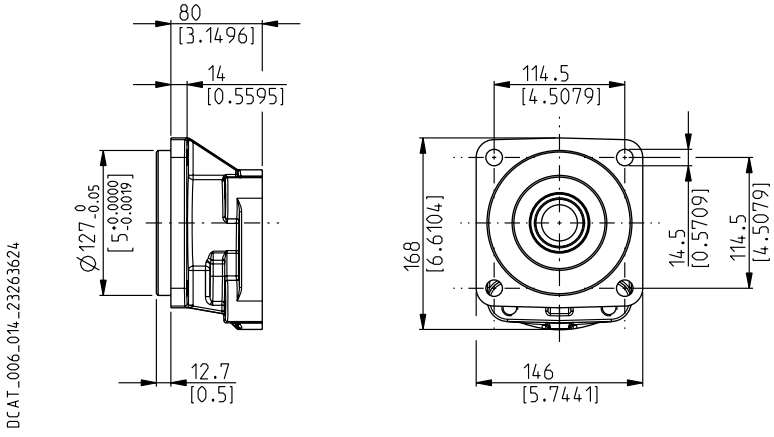
VERSIONS See page 38	04	32	05	33
0	■	●	●	●
1	■	●	●	●
2	■	●	●	●
3	■	●	●	●
6	■	●	●	●

■ Standard combination
● Available combination

SAE "C" 4 HOLES

S6

Conforms to SAE J744



DRIVE SHAFTS
See page 41 and 42

VERSIONS See page 38	06	05
0	■	●
1	■	●
2	■	●
3	■	●
6	■	●

■ Standard combination
● Available combination

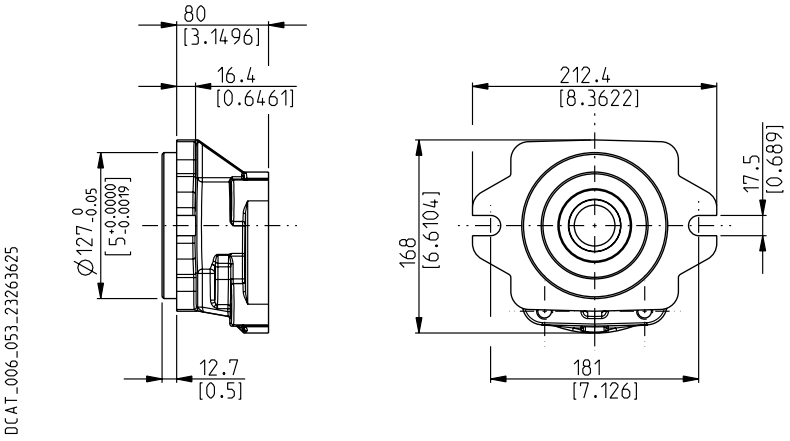
01/05.2002

KAPPA 30 MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE “C” 2 HOLES

S8

Conforms to SAE J744



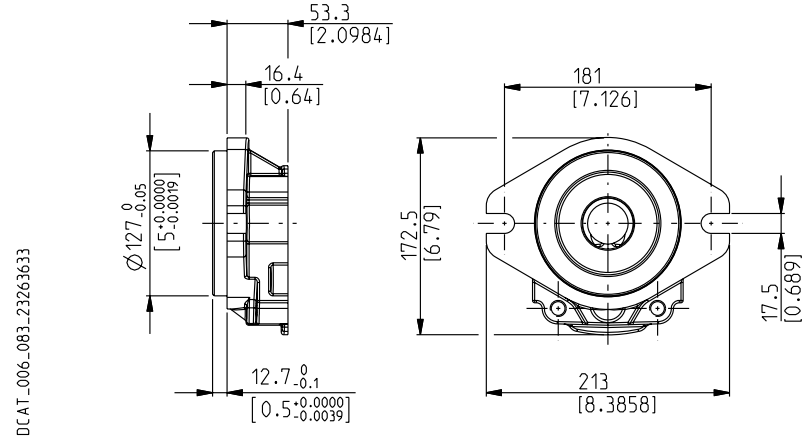
VERSIONS See page 38	DRIVE SHAFTS See page 41 and 42 06	05
0	■	●
1	■	●
2	■	●
3	■	●
6	■	●

■ Standard combination
● Available combination

SAE “C” 2 HOLES

Q3

Conforms to SAE J744



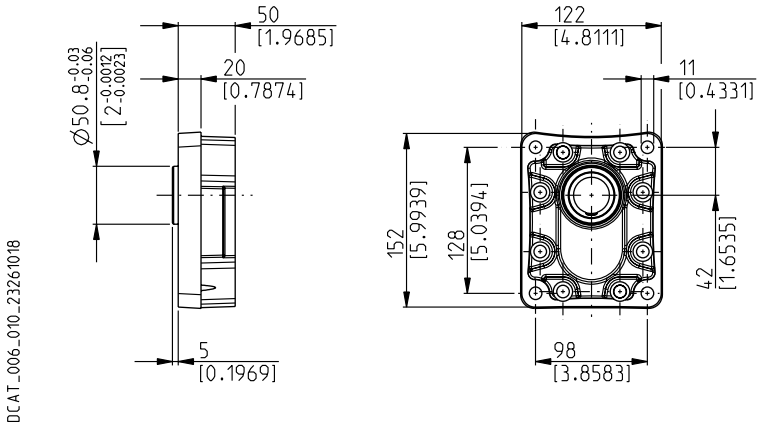
VERSIONS See page 38	DRIVE SHAFTS See page 42 A6
0	■

■ Standard combination
● Available combination

03/07.2005

KAPPA 30 MOUNTING FLANGES AND TABLE OF COMPATIBILITY

EUROPEAN
E3



VERSIONS See page 38	DRIVE SHAFTS See page 41 and 42 83	A8	A5
0	■	●	●

■ Standard combination
● Available combination

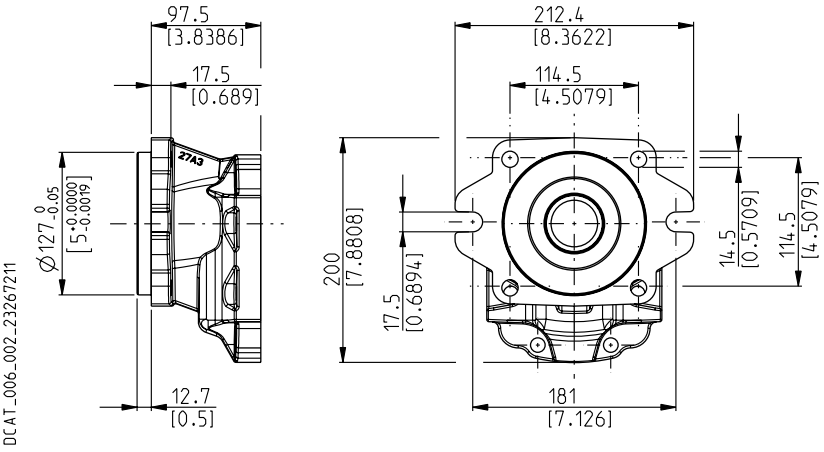
01/05.2002

KAPPA 40 MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE “C” 2-4 HOLES

S8

Conforms to SAE J744

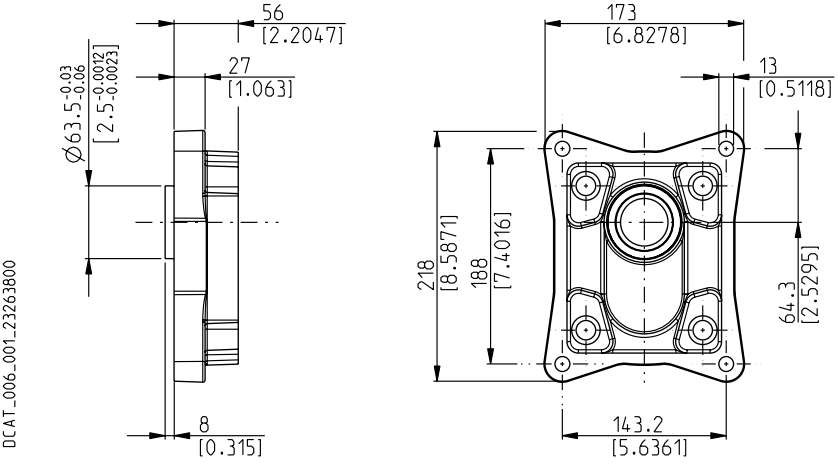


VERSIONS See page 38	DRIVE SHAFTS See page 43 06	34
0	■	■
1	■	■
2	■	■

■ Standard combination
● Available combination

EUROPEAN

E5



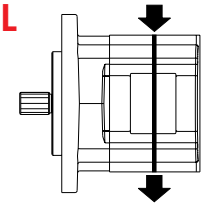
VERSIONS See page 38	DRIVE SHAFTS See page 43 85
0	■

■ Standard combination
● Available combination

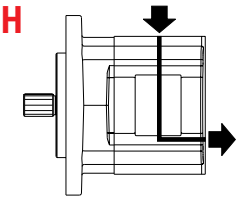
01/05.2002

PORTS TYPE

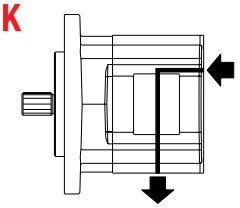
L



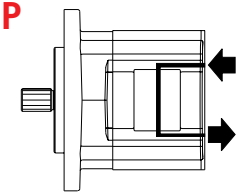
H



K



P



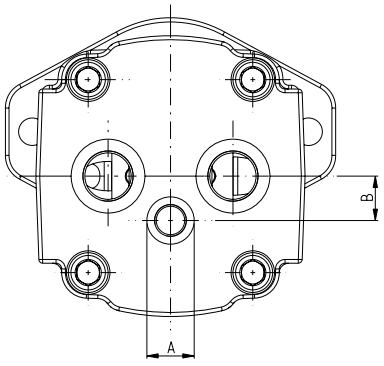
	SIDE PORTS										REAR PORTS			
PORTS TYPE	European		Split SSM		Spit SSS		Gas BSPP		SAE ODT		Gas BSPP		SAE ODT	
Pump type	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Motor type	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN
K. 30•22	ED	EB	MC	MB	SC	SB	GF	GE	OF	OD	GF	GE	OF	OD
K. 30•27	ED	EB	MC	MB	SC	SB	GF	GE	OF	OD	GF	GE	OF	OD
K. 30•31	ED	EB	MC	MB	SC	SB	GF	GE	OF	OD	GF	GE	OF	OD
K. 30•34	ED	EB	MC	MB	SC	SB	GF	GE	OF	OD	GF	GE	OF	OD
K. 30•38	ED	EB	MC	MB	SC	SB	GF	GE	OF	OD	GF	GE	OF	OD
K. 30•41	ED	EB	MD	MC	SD	SC	GG	GF	OG	OF	GG	GF	OG	OF
K. 30•43	ED	EB	MD	MC	SD	SC	GG	GF	OG	OF	GG	GF	OG	OF
K. 30•46	ED	EB	MD	MC	SD	SC	GG	GF	OG	OF	GG	GF	OG	OF
K. 30•51	ED	EB	MD	MC	SD	SC	GG	GF	OG	OF	GG	GF	OG	OF
K. 30•56	ED	EB	ME	MD	SE	SD	GG	GF	OG	OF	GG	GF	OG	OF
K. 30•61	ED	EB	ME	MD	SE	SD	GG	GF	OG	OF	GG	GF	OG	OF
K. 30•73	EF	ED	ME	MD	SE	SD	GG	GF	OG	OF	GG	GF	OG	OF
K. 40•63	EG	ED	ME	MD	SE	SD	GG	GF	OG	OF	GF	GE	OF	OD
K. 40•73	EG	ED	ME	MD	SE	SD	GG	GF	OG	OF	GF	GE	OF	OD
K. 40•87	EG	ED	MF	ME	SF	SE	GG	GF	OG	OF	GG	GF	OG	OF
K. 40•109	EG	ED	MF	ME	SF	SE	GG	GF	OG	OF	GG	GF	OG	OF
K. 40•121	EG	EF	MF	ME	SF	SE	GH	GF	OH	OF	GH	GF	OH	OF
K. 40•133	EG	EF	MF	ME	SF	SE	GH	GF	OH	OF	GH	GF	OH	OF
K. 40•151	EG	EF	MF	ME	SF	SE	GH	GF	OH	OF	GH	GF	OH	OF

Replaces: 02/11.2004

EXTERNAL DRAIN PORTS

	GAS BSPP		SAE ODT	
Pump type / Motor type	A	B mm (inch)	A	B mm (inch)
K. 30	GC	23,45 (0.9232)	OA	23,45 (0.9232)
K. 40	GC	31 (1.2205)	OA	31 (1.2205)

DCAT_006_029_21064838



03/07.2005

PORTS SIZE

Tightening torque for low pressure side port

Tightening torque for high pressure side port [values obtained at 5075 psi (350 bar)]

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

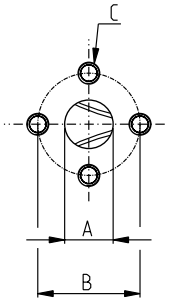
EUROPEAN FLANGED PORTS - 4 Bolts — EUROPEAN

Metric thread ISO 60° conforms to ISO/R 262

CODE	A mm (inch)	B mm (inch)	C Thread Depth mm (inch)	Nm (lbf in)	Nm (lbf in)
EB	19 (0.7480)	40 (1.5748)	M 8 18 (0.7087)	15 +1 (133 ÷ 142)	15 +1 (133 ÷ 142)
ED	27 (1.0630)	51 (2.0079)	M 10 15 (0.5906)	20 +1 (177 ÷ 186)	30 +2,5 (266 ÷ 288)
			M 10 (◆) 13 (0.5118)		25 +1 (◆) (221 ÷ 230)
EF	33 (1.2992)	62 (2.4409)	M 12 17 (0.6693)	25 +1 (221 ÷ 230)	50 +2,5 (443 ÷ 465)
			M 12 (◆) 18 (0.7087)		
EG	38 (1.4961)	72 (2.8346)	M 12 18 (0.7087)	30 +2,5 (266 ÷ 288)	—

(◆) For KAPPA 40

DCAT_006_024_21060533



SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI — SSM

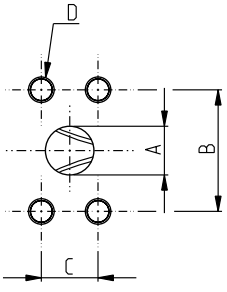
Metric thread ISO 60° conforms to ISO/R 262

CODE	A mm (inch)	B mm (inch)	C mm (inch)	D Thread Depth mm (inch)	Nm (lbf in)	Nm (lbf in)
MB	19 (0.7480)	47,6 (1.8740)	22,2 (0.8740)	M 10 17 (0.6693)	20 +1 (177 ÷ 186)	30 +2,5 (266 ÷ 288)
MC	25,4 (1.0000)	52,4 (2.0630)	26,2 (1.0315)	M 10 17 (0.6693)	20 +1 (177 ÷ 186)	30 +2,5 (266 ÷ 288)
MD	30,5 (1.2008)	58,7 (2.3110)	30,2 (1.1890)	M 10 17 (0.6693)	20 +1 (177 ÷ 186)	35 +2,5 (310 ÷ 332)
				M 10 (◆) 22 (0.8661)		
ME	39,3 (1.5472)	69,8 (2.7480)	35,7 (1.4055)	M 12 17 (0.6693)	30 +2,5 (266 ÷ 288)	60 +5 (531 ÷ 575)
				M 12 (◆) 27 (1.0630)		
MF	51 (2.0079)	77,8 (3.0630)	42,9 (1.6890)	M 12 27 (1.0630)	25 +1 (221 ÷ 230)	—

(◆) For KAPPA 40

02/11.2004

DCAT_006_025_21064252



PORTS SIZES

Tightening torque for low pressure side port

Tightening torque for high pressure side port [values obtained at 5075 psi (350 bar)]

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

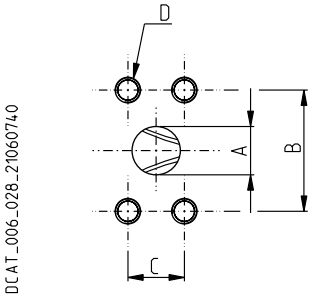
Replaces: 02/11.2004

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 (0.7480)	47,6 (1.8740)	22,2 (0.8740)	3/8 - 16 UNC-2B 17 (0.6693)	20 +1 (177 ÷ 186)	25 +1 (221 ÷ 230)
SC	25,4 (1.0000)	52,4 (2.0630)	26,2 (1.0315)	3/8 - 16 UNC-2B 17 (0.6693)	20 +1 (177 ÷ 186)	30 +2,5 (266 ÷ 288)
SD	30,5 (1.2008)	58,7 (2.3110)	30,2 (1.1890)	7/16 - 14 UNC-2B O 17 (0.6693)	20 +1 (177 ÷ 186)	40 +2,5 O (354 ÷ 376)
SE	39,3 (1.5472)	69,8 (2.7480)	35,7 (1.4055)	1/2 - 13 UNC-2B 17 (0.6693) / 1/2 - 13 UNC-2B 27 (1.0630) (◆)	30 +2,5 (266 ÷ 288)	70 +5 (620 ÷ 664)
SF	51 (2.0079)	77,8 (3.0630)	42,9 (1.6890)	1/2 - 13 UNC-2B 27 (1.0630)	30 +2,5 (266 ÷ 288)	—

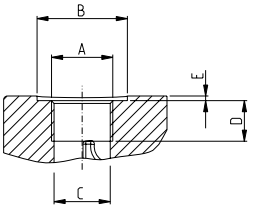
(◆) For KAPPA 40



DCAT_006_028_21060740

GAS STRAIGHT THREAD PORTS — BSPP

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



DCAT_006_026_21064779

CODE	Nominal size	A	Ø B	Ø C	D	E		
			mm (inch)	mm (inch)	mm (inch)	mm (inch)	Nm (lbf in)	Nm (lbf in)
GC (◆)	3/8”	G 3/8	25 (0.9843)	15 (0.5906)	14 (0.5512)	2 (0.0787)	15 +1 (133 ÷ 142)	—
GE	3/4”	G 3/4	39 (1.5354)	24,5 (0.9646)	18 (0.7087)	2,5 (0.0984)	30 +2,5 (266 ÷ 288)	90 +5 (797 ÷ 841)
GF	1”	G 1	49 (1.9291)	30,5 (1.2008)	22 (0.8661)	2,5 (0.0984)	50 +2,5 (443 ÷ 465)	130 +10 (1151 ÷ 1239)
GG	1” 1/4	G 1 1/4	56 (2.2047)	39 (1.5354)	24 (0.9449)	2,5 (0.0984)	60 +5 (531 ÷ 575)	170 +10 (1505 ÷ 1593)
GH	1” 1/2	G 1 1/2	72 (2.8346)	45 (1.7717)	26 (1.0236)	2,5 (0.0984)	70 +5 (620 ÷ 664)	—

(◆) = Drain port

05/02.2012

PORTS SIZES

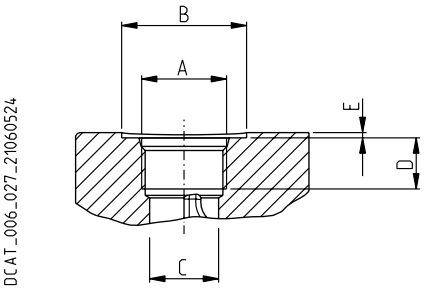
Tightening torque for low pressure side port

Tightening torque for high pressure side port [values obtained at 5075 psi (350 bar)]

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” - 12 UNF - 2B	26 (1.0236)	13 (0.5118)	15 (0.5906)	2 (0.0787)	15 +1 (133 ÷ 142)	—
OD	3/4”	1 1/16” - 12 UNF - 2B	42 (1.6535)	24,8 (0.9764)	20 (0.7874)	2 (0.0787)	40 +2,5 (354 ÷ 376)	120 +10 (1062 ÷ 1151)
OF	1”	1 5/16” - 12 UNF - 2B	49 (1.9291)	30,5 (1.2008)	20 (0.7874)	2 (0.0787)	60 +5 (531 ÷ 575)	170 +10 (1505 ÷ 1593)
OG	1” 1/4	1 5/8” - 12 UNF - 2B	58 (2.2835)	39,1 (1.5394)	20 (0.7874)	2 (0.0787)	70 +5 (620 ÷ 664)	—
OH	1” 1/2	1 7/8” - 12 UNF - 2B	65 (2.5591)	45 (1.7717)	20 (0.7874)	2 (0.0787)	100 +5 (885 ÷ 929)	—

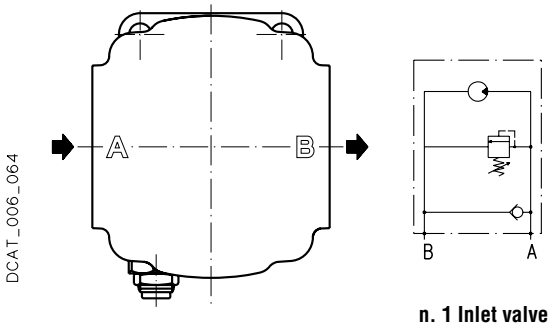
(◆) = Drain port

01/05.2002

KAPPA 30 MOTORS WITH BUILT-IN VALVES 83 E3

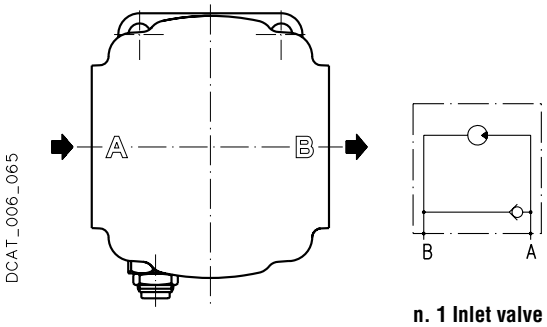
Unidirectional motors - Anti-clock rotation (S)

Antishock and anti-cavitation valves U1



n. 1 Inlet valve

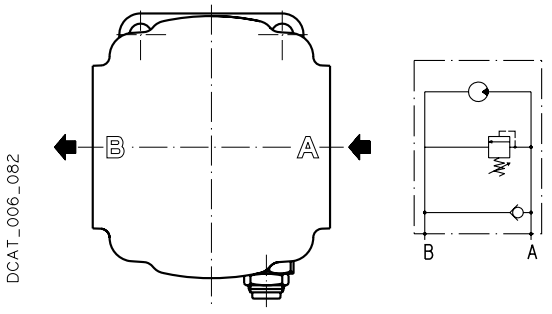
Anti-cavitation valves C1



n. 1 Inlet valve

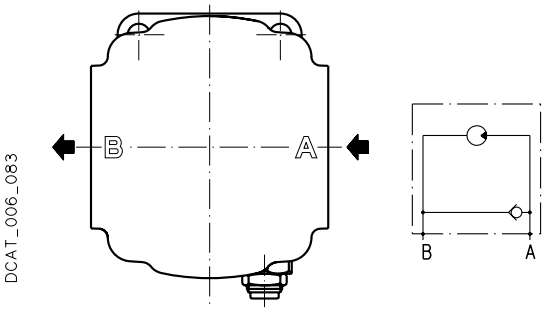
Unidirectional motors - Clockwise rotation (D)

Antishock and anti-cavitation valves U2



n. 1 Inlet valve

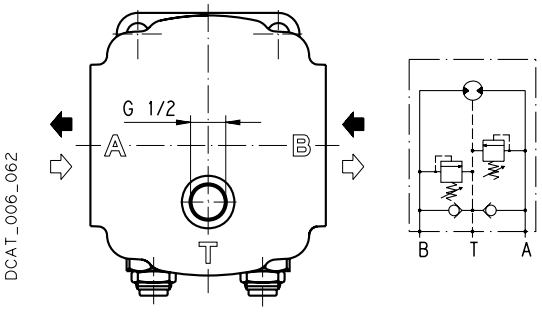
Anti-cavitation valves C2



n. 1 Inlet valve

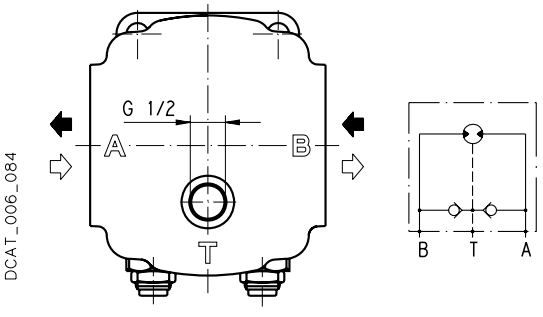
Reversible motors external drain (R)

Antishock and anti-cavitation valves U3



n. 2 valves

Anti-cavitation valves C3



n. 2 valves

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For different valve mounting positions please consult our sales department.

KAPPA 30 MOTORS WITH BUILT-IN VALVES 83 E3

Spring type	Antishock and anti-cavitation valves setting range (U..) psi (bar)
G3	725 ÷ 3190 (50 ÷ 220)
G4	2654 ÷ *** (p_3) (180 ÷ *** [(p_3)]

***: G4 spring maximum setting range, see KM30 p_3 peak pressure on page 6.
For more information please consult our technical sales department.

HOW TO ORDER

	-	Valve type	-	Spring and setting range	-	Body type
KM 30•38 D0-83 E3-L EB/ED-N	-	U2	-	(G3 - 200)	-	CSC

ORDER EXAMPLE

Clockwise motor with antishock and anti-cavitation valve Setting pressure 2900 psi (200 bar) — KM30•38 D0-83 E3-L EB/ED-N-U2 (G3-200)-CSC

Reversible motor R with anti-cavitation valve — KM30•27 R0-83 E3-L ED/EB-N-C3-CSC

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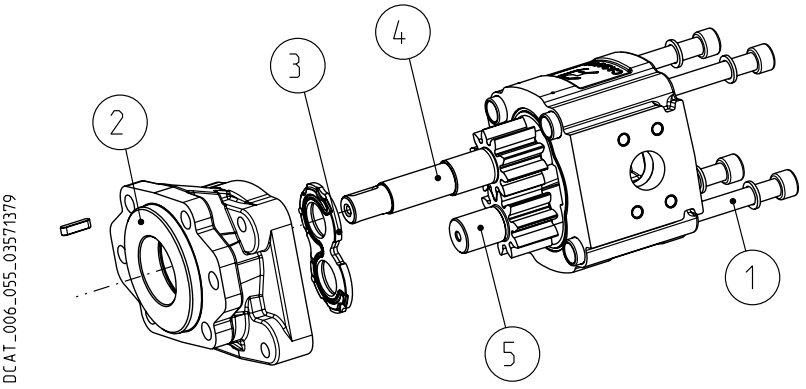
CHANGING ROTATION

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.

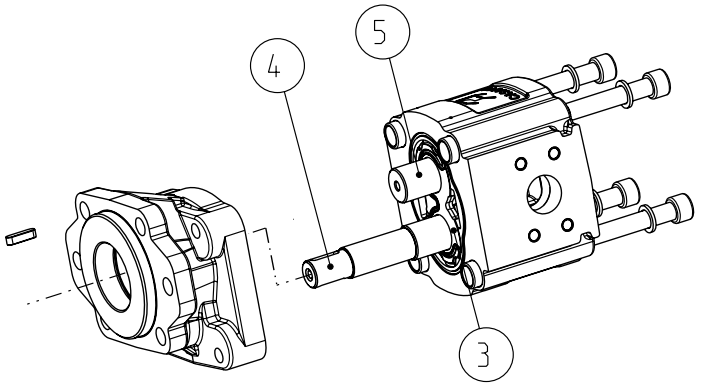


DCAT_006_055_03571379

Replaces: 01/05.2002

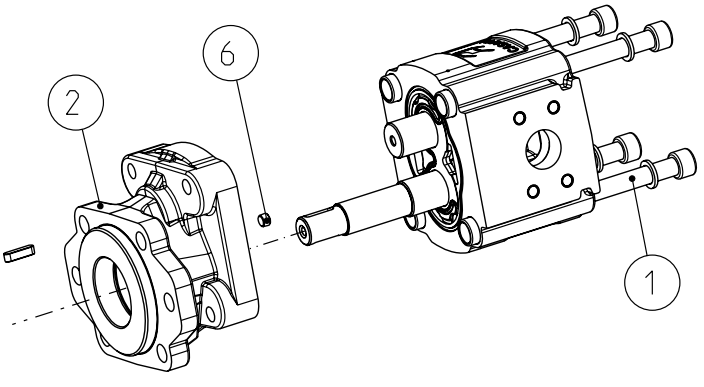
5. Ease the drive gear (4) up to facilitate removal the front plate (3), taking care that the precision ground surfaces do not become damaged, and remove the drive gear.
6. Remove the driven gear (5) without overturning. The rear plate has not to be removed.

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.



DCAT_006_058_03571379

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 1115 ÷ 1363 lbf in (140 $^{\pm 14}$ Nm)



DCAT_006_056_03571379

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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.

INSTRUCTIONS

Replaces: 01/05.2002

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.

FILTERS

Werecommend 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:

IKRON Fluid Filtration

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.

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.
In the difference between pump or motor temperature and fluid temperature exceeds 50 °F (10 °C), 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.

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.

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HOW TO ORDER KAPPA 30 SINGLE PUMPS

1	2	3		4	5		6	7		8		9
KP 30-27	S	0	-	04	S3	-	L	OF/OD	-	N	-	CSC

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

2 Rotation	Code
Left	S
Right	D
Reversible	R
Reversible internal drain	B

3 Version	Code
Without outboard bearing	0
With outboard bearing	1
With outboard bearing and indep. shaft	2
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	5 Mounting flange
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	6 Ports position
L	IN/OUT side
H	IN side/ OUT rear
K	IN rear/ OUT side
P	IN/OUT rear

Code	7 Ports IN/OUT	
EUROPEAN FLANGED PORTS		
Side	Rear	Type
ED/EB	KP 30	22-27-31-34-38 41-43-46-51-56-61
EB/ED	KM 30	
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	

Replaces: 01/05.2002

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HOW TO ORDER KAPPA 30 SINGLE PUMPS

Replaces: 01/05.2002

7	Ports IN/OUT		Code
SAE STRAIGHT THREAD PORTS (ODT)			
Side	Rear		Type
OF/OD	OF/OD	KP 30	22-27-31-34-38
OD/OF	OD/OF	KM 30	
OG/OF	OG/OF	KP 30	41-43-46-51 56-61-73
OF/OG	OF/OG	KM 30	
GAS STRAIGHT THREAD PORTS (BSPP)			
Side	Rear		Type
GF/GE	GF/GE	KP 30	22-27-31-34-38
GE/GF	GE/GF	KM 30	
GG/GF	GG/GF	KP 30	41-43-46-51 56-61-73
GF/GG	GF/GG	KM 30	

8	Seals (a)	Code
Buna N (standard)		N
Buna N with hig back pressure shaft seals		N-H
Viton		V
Buna N and bronze thrust plate		N Bz
Viton and bronze thrust plate		V Bz

9	Body type	Code
Short body		CSC
Short shaped body (b)		KSC

(a) Choose the seals according to the temperature shown on page 4.

(b) Available only with 22-27-31-34-38 displacements.

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HOW TO ORDER KAPPA 30 MULTIPLE PUMPS SAME GROUPS

1	2	3	4	5	6	7	8	9	10
KP 30-51	- A8	K9	- L	MD/MC	-	- CSL	/		
Front section									
30-51	-		- L	MD/MC	-	- CSL	/		
Intermediate section									
30-51	-		L	MD/MC	-	- CSL	- S	-	
Rear section									

Replaces: 01/05.2002

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

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

Code	**Body type** 7
CSL	Long body
CSC	Short body - Only for rear sections
KSL	Long shaped body (b)
KSC	Short shaped body (b) - Only for rear sections

HOW TO ORDER KAPPA 30 MULTIPLE PUMPS SAME GROUPS

8	**Rotation**	Code
Left		**S**
Right		**D**

9	**Version**	Code
Without outboard bear. (standard) no code		**0**
With outboard bearing		**1**
With outboard bearing and indep. shaft		**2**
With outboard bearing		**3**
With outboard bearing		**6**

10	**Seals (c)**	Code
Buna N (standard) no code		**N**
Buna N with high back pressure shaft seals		**N-H**
Viton		**V**
Buna N and bronze thrust plate		**N Bz**
Viton and bronze thrust plate		**V Bz**

(a)	Please write this code only for common inlet pump. (see page 66)
(b)	Available only with 22-27-31-34-38 displacements.
(c)	Choose the seals according to the temperature shown on page 4. Buna N no code.

Replaces: 01/05.2002

03/07.2005

HOW TO ORDER KAPPA 30 DOUBLE PUMPS DIFFERENT GROUPS

KP30 / KP20

1	2	3	4	5	6	7	8	10	11	12
KP 30·51 -	A8	K9 -	L	MD/MC -	55 -		CSL /			
Front section										
KP 20·14 -			L	MB/MA -		-		S	-	
Rear section										

KP30 / PLP20

1	2	3	4	5	6	7	8	9	10	11	12
KP 30·51 -	A8	K9 -	L	MD/MC -	45 -		CSC /				
Front section											
PLP 20·14 -			L	MB/MA -		-		L -	S	-	FS
Rear section											

1	**Type**	Pump type
The same of multiple pumps on page 61		KP 30·…

2	**Drive shaft**	Code
The same of multiple pumps on page 61		…

3	**Mounting flange**	Code
The same of multiple pumps on page 61		…

4	**Ports position**	Code
Side		L

5	**ports IN/OUT**	Code
The same of multiple pumps on page 61		…/…

6	**Connecting shaft**	Code
Combination KP 30 / KP 20		55
Combination KP 30 / PLP 20		45

7	**Body for common inlet (a)**	Code
Combination KP 30 / KP 20		N5
Combination KP 30 / PLP 20		N7

(a) Please write this code only for common inlet pump. (see page 66)

Code	**Body type**	8
CSL	Long body (KP 30 / KP 20)	
CSC	Short body (KP 30 / PLP 20)	
HSC	Short shaped body (KP 30 / PLP 20)	

Code	**Rear cover (only PLP 20)**	9
	Cast iron (standard) no code	
L	Aluminium	
2P	Without cover	

Code	**Rotation**	10
S	Left	
D	Right	

Code	**Version**	11
…	The same of multiple pumps on page 61	

Code	**Seals**	12
…	The same of multiple pumps on page 61	

02/11.2004

HOW TO ORDER KAPPA 40 SINGLE PUMPS

1	2	3		4	5		6	7		8		9
KP 40-63	S	0	-	06	S8	-	L	OG/OF	-	N	-	

Replaces: 01/05.2002

1 Type	Pump type	Motor type
3.75 in³/rev (61,43 cm³/rev)	KP 40-63	KM 30-22
4.43 in³/rev (72,6 cm³/rev)	KP 30-27	KM 30-27
5.28 in³/rev (86,56 cm³/rev)	KP 30-31	KM 30-31
6.64 in³/rev (108,9 cm³/rev)	KP 30-34	KM 30-34
7.43 in³/rev (121,8 cm³/rev)	KP 30-38	KM 30-38
8.18 in³/rev (134,03 cm³/rev)	KP 30-41	KM 30-41
9.20 in³/rev (150,79 cm³/rev)	KP 30-43	KM 30-43

2 Rotation	Code
Left	S
Right	D
Reversible	R
Reversible internal drain	B

3 Version	Code
Without outboard bearing	0
With outboard bearing	1
With outboard bearing and indep. shaft	2

4 Drive shaft	Code
European tapared 1:8	85
SAE “C” spline (14 teeth)	06
SAE “C” straight	34

5 Mounting flange	Code
European tapered 1:8	E5
SAE “C” 2-4 holes	S8

6 Ports position	Code
Side	L
Rear	P

03/07.2005

7 Ports IN/OUT	Code
EUROPEAN FLANGED PORTS	
Side / Rear	Type
EG/ED – KP 40	63-73-87-109
ED/EG – KM 40	
EG/EF – KP 40	121-133-151
EF/EG – KM 40	

Code	7 Ports IN/OUT		
SAE FLANGED PORTS (SSM)			
Side	Rear		Type
ME/MD		KP 40	63-73
MD/ME		KM 40	
MF/ME		KP 40	87-109-121-133-151
ME/MF		KM 40	
SAE FLANGED PORTS (SSS)			
Side	Rear		Type
SE/SD		KP 40	63-73
SD/SE		KM 40	
SF/SE		KP 40	87-109-121-133-151
SE/SF		KM 40	
SAE STRAIGHT THREAD PORTS (ODT)			
Side	Rear		Type
OG/OF	OF/OD	KP 40	63-73
OF/OG	OD/OF	KM 40	
OG/OF	OG/OF	KP 40	87-109
OF/OG	OF/OG	KM 40	
OH/OF	OH/OF	KP 40	121-133-151
OF/OH	OF/OH	KM 40	
GAS STRAIGHT THREAD PORTS (BSPP)			
GG/GF	GF/GE	KP 40	63-73
GF/GG	GE/GF	KM 40	
GG/GF	GG/GF	KP 40	87-109
GF/GG	GF/GG	KM 40	
GH/GF	GH/GF	KP 40	121-133-151
GF/GH	GF/GH	KM 40	

Code	8 Seals (a)
N	Buna N (standard)
N-H	Buna N with high back pressure shaft seals
V	Viton
N Bz	Buna N and bronze thrust plate
V Bz	Viton and bronze thrust plate

Code	9 Body type (b)
CSL	Long body

(a) Choose the seals according to the temperature shown on page 4

(b) Please write this code only for pump with rear ports

HOW TO ORDER KAPPA 40 MULTIPLE PUMPS SAME GROUPS

1	2	3	4	5	6	7	8	9	10
KP 40·63	- 06	S8	- L	OG/OF	-	- CSL	/		
Front section									
KP 40·63	-		- L	OG/OF	-	- CSL	/		
Intermediate section									
KP 40·63	-		- L	OG/OF	-	- CSC	- S		-
Rear section									

1 **Type**	Pump type
3.75 in³/rev (61,43 cm³/rev)	KP 40·63
4.43 in³/rev (72,6 cm³/rev)	KP 40·73
5.28 in³/rev (86,56 cm³/rev)	KP 40·87
6.64 in³/rev (108,9 cm³/rev)	KP 40·109
7.43 in³/rev (121,8 cm³/rev)	KP 40·121
8.18 in³/rev (134,03 cm³/rev)	KP 40·133
9.20 in³/rev (150,79 cm³/rev)	KP 40·151

2 **Drive shaft**	Code
European tapered 1:8	85
SAE "C" spline (14 teeth)	06
SAE "C" straight	34

3 **Mounting flange**	Code
European	E5
SAE "C" 2 holes	S8

4 **Ports position**	Code
Side	L

5 **Ports IN/OUT**		Code
EUROPEAN FLANGED PORTS		
Type		Side
63-73-87-109	KP 40	EG/ED
121-133-151	KP 40	EG/EF
SAE FLANGED PORTS (SSM)		
Type		Side
63-73	KP 40	ME/MD
87-109-121-133-151	KP 40	MF/ME
SAE FLANGED PORTS (SSS)		
Type		Side
63-73	KP 40	SE/SD
87-109-121-133-151	KP 40	SF/SE

Code 5		
SAE STRAIGHT THREAD PORTS (ODT)		
Side		Type
OG/OF	KP 40	63-73-87-109
OH/OF	KP 40	121-133-151
GAS STRAIGHT THREAD PORTS (BSPP)		
Side		Type
GG/GF	KP 40	63-73-87-109
GH/GF	KP 40	121-133-151

Code	**Body for common inlet (a)** 6
A5	Combination KP40 / KP40

Codee	**Body type (b)** 7
CSL	Long body
CSC	Short body

Code	**Rotation** 8
S	Left
D	Right

Code	**Version** 9
0	Without outboard bear. (standard) no code
1	With outboard bearing
2	With outboard bearing and indep. shaft

Code	**Seals (c)** 10
N	Buna N (standard) no code
N-H	Buna N with high back pressure shaft seals
V	Viton
N Bz	Buna N and bronze thrust plate
V Bz	Viton and bronze thrust plate

(a) Please write this code only for common inlet pump. (see page 66).

(b) Short body type CSC only for rear sections.

(c) Choose the seals according to the temperature shown on page 4. Buna N no code.

01/05.2002

HOW TO ORDER KAPPA 40 DOUBLE PUMPS DIFFERENT GROUPS

KP40 / KP30

1	2	3	4	5	6	7	8	10	11	12
KP 40-63	- 06	S8	- L	ME/MD	- 43	-	CSL	/		
Front section										
KP 30-51	-		- L	MD/MC	-		- CSC	- S	-	
Rear section										

KP40 / KP20

1	2	3	4	5	6	7	8	10	11	12
KP 40-63	- 06	S8	- L	ME/MD	- 42	-	CSC	/		
Front section										
KP 20-14	-		- L	MB/MA	-		-	S	-	
Rear section										

KP40 / PLP20

1	2	3	4	5	6	7	8	9	10	11	12
KM 40-63	- 06	S8	- L	ME/MD	- 41	-	CSC	/			
Front section											
PLP 20-14	-		- L	MB/MA	-		-	L - S	/ FS	-	
Rear section											

1 **Type**	Pump type
The same of multiple pumps on page 64	KP 40-...

2 **Drive shaft**	Code
The same of multiple pumps on page 64	...

3 **Mounting flange**	Code
The same of multiple pumps on page 64	...

4 **Ports position**	Code
Side	L

5 **Ports IN/OUT**	Code
The same of multiple pumps on page 64	.../...

6 **Connecting shaft**	Code
Combination KP40 / KP30	43
Combination KP40 / KP20	42
Combination KP40 / PLP20	41

(a) Please write this code only for common inlet pump (see page 66).

Code	**Body for common inlet (a)** 7
C5	Combination KP40 / KP 30
D5	Combination KP40 / KP 20
D7	Combination KP40 / PLP 20

Code	**Body type** 8
CSL	Long body (KP30 / KP20)
CSC	Short body (KP30 / PLP20)

Code	**Rear cover (only PLP20)** 9
	Cast iron (standard) no code
L	Aluminium
2P	Without cover

Code	**Rotation** 10
...	The same of multiple pumps on page 64

Code	**Version** 11
...	The same of multiple pumps on page 64

Code	**Seal** 12
...	The same of multiple pumps on page 64

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COMMON INLET

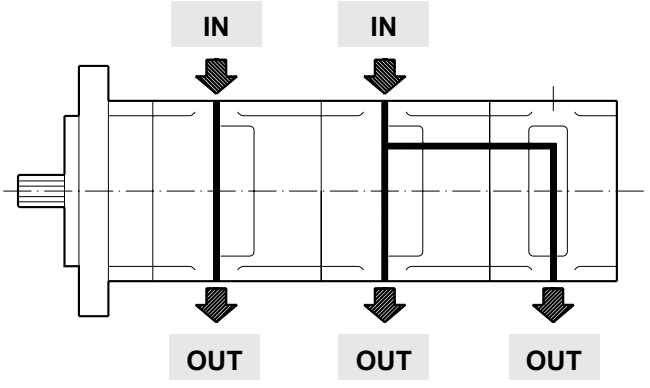
Depending on the required version, the common inlet codes must be used only for the section which has the common suction. For pumps with common inlet for all sections, the code must be used only for the last section. For the sections with only an outlet port, the code of the inlet port must be omitted.

Front pump	Identification code of common inlet body	Rear pump
KP 40	A5	KP 40
KP 40	C5	KP 30
KP 40	D5	KP 20
KP 40	D7	PL 20
KP 30	M5	KP 30
KP 30	N5	KP 20
KP 30	N7	PL 20

Order example

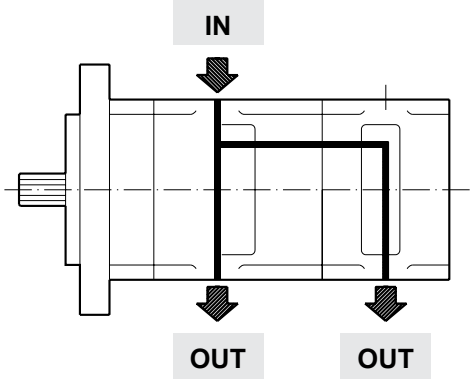
Triple pump Kappa 40+Kappa 30+ Kappa 20.
Common inlet intermediate pump and rear pump.

KP 40•63-06 S8-L ME/MD-43-CSL /
Front pump
KP 30•51-L MD/MC-55-N5-CSL /
Intermediate pump
KP 20•14-L /MA-S
Rear pump



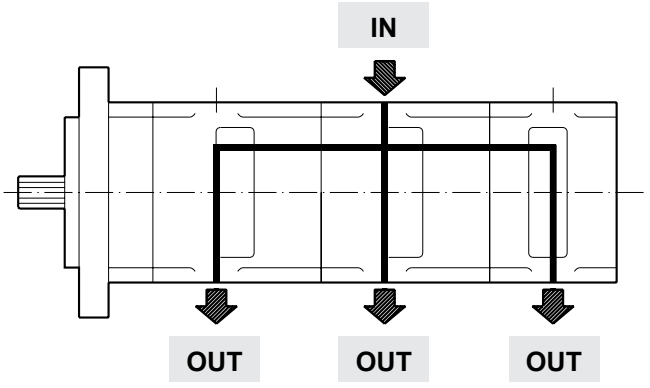
Double pump Kappa 30+Kappa 30.
Common inlet all pumps.

KP 30•51-A8 K9-L MD/MC-CSL /
Front pump
KP 30•51-L /MC-M5-CSC-S
Rear pump



Triple pump Kappa 40+Kappa 40+ Kappa 30
Common inlet all pumps.

KP 40•63 06-S8-L /MD-CSL /
Front pump
KP 40•63-L ME/MD-43-CSL /
Intermediate pump
KP 30•51-L /MC-C5-CSC-S
Rear pump



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

KCS 05 T A Edition: 05/02.2012 Replaces: KCS 04 T A

CASAPPA®
FLUID POWER DESIGN

Headquarters:
CASAPPA S.p.A.
Via Balestrieri, 1
43044 Lemignano di Collecchio
Parma (Italy)
Tel. (+39) 0521 30 41 11
Fax (+39) 0521 80 46 00
IP Videoconferencing
E-mail: info@casappa.com
www.casappa.com