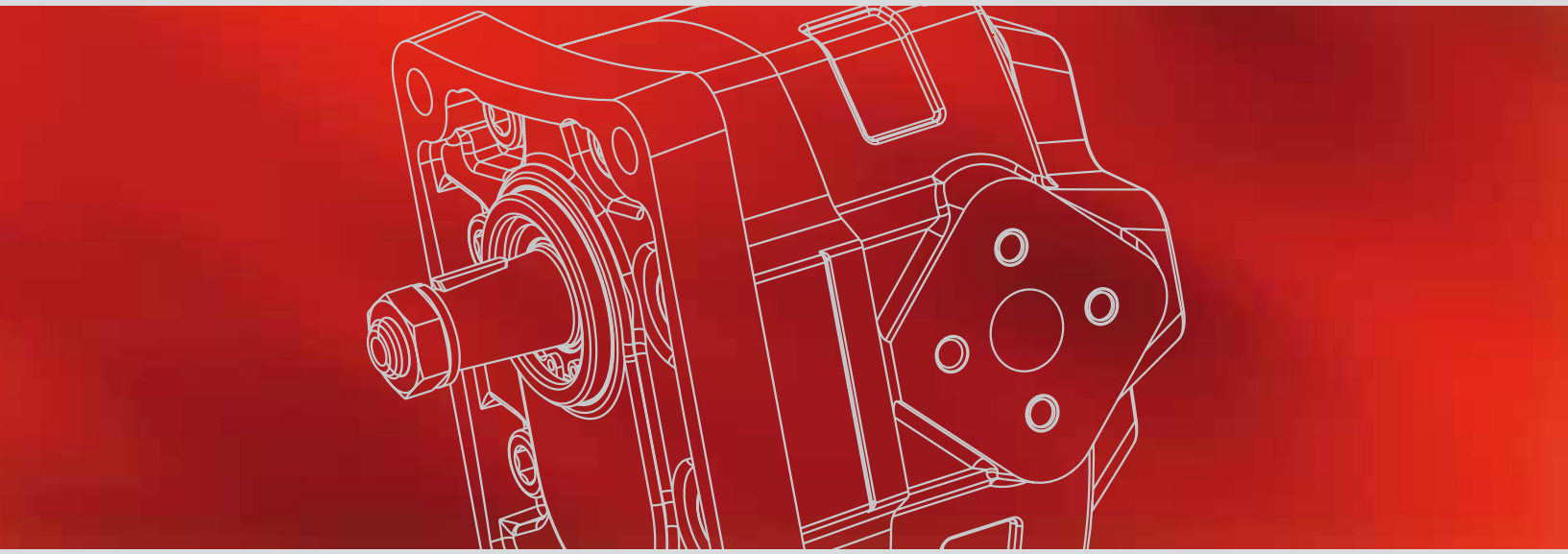
CASAPPA®
FLUID POWER DESIGN



HYDRAULIC GEAR PUMPS AND MOTORS

KAPPA®

INDEX

FEATURES

KAPPA pump and motor units consist essentially of a housing and a mounting flange in cast iron of superior mechanical specifications. KAPPA is available with mountig flanges and side or rear ports according to SAE and European standard.
The rigidity of assembly and the compact design of KAPPA pumps and motors ensure reliability and high volumetric efficiency also at high operating pressures. Infinite care and attention is taken over the design and construction of each single component, and with quality monitored unceasingly, the result is a consistent, perfectly balanced assembly that guarantees unbroken service under the most arduous operating conditions. KAPPA series is the right choice wherever noise, contamination, non inflammable fluids and size are critical factors. The wide choice of combinations of mounting flanges, shafts and ports ensure to KAPPA series to be applied in a vast range of application.

05/03.2012

DISPLACEMENTS

From 0.30 in^3/rev (4,95 cm^3/rev)
To 4.50 in^3/rev (73,82 cm^3/rev)

PRESSURE

Max. Continuous 4133 psi (285 bar)
Max. Intermittent 4350 psi (300 bar)
Max. Peak 4785 psi (330 bar)

MAX. SPEED

Max. 4000 min^{-1}

- High operating pressures
- High efficiency at high temperature
- Exceptional working life expectancy

Modification from former edition.

FEATURES

Replaces: 04/07.2008

Construction	External gear type pumps and motors
Mounting	EUROPEAN - SAE - ISO standard flanges
Line connections	Screw and flange
Direction of rotation (looking on drive shaft)	Anti-clock (S) - clockwise (D) - reversible (L, R or 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 mm^2/s (cSt)] recommended
Filtering requirement	See table (2)

Tab. 1

Type	Fluid composition	Max pressure psi - (bar)	Max speed min^{-1}	Temperature °F - (°C)			Seals (◆)
				Min	Max continuous	Max peak	
ISO/DIN	Mineral oil based hydraulic fluid to ISO/DIN	See page 3, 4 75, 76	See page 3, 4 75, 76	-13 (-25)	176 (80)	212 (100)	N
				-13 (-25)	230 (110)		N-H
HFA	Oil emulsion in water 5 ÷ 15% of oil	725 (50)	1500	36 (2)	131 (55)	257 (125)	V
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

05/03.2012

Tab. 2

Working pressure psi (bar)	Δp<2030 (140)	2030<Δp<3045 (140) (210)	Δp>3045 (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	-	-

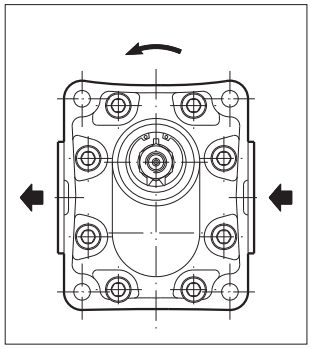
Casappa recommends to use its own production filters:

IKRON® Fluid Filtration

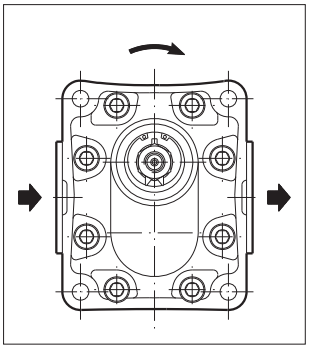
GENERAL NOTES

Available with different inlet and outlet ports. If you use fire resistant fluids specify the type of them at the order. For more information please consult our technical sales department.

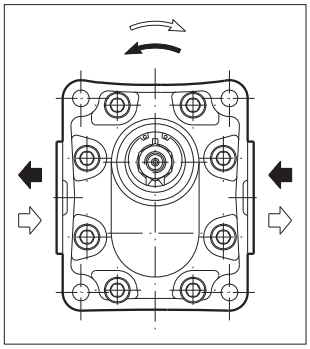
DEFINITION OF ROTATION DIRECTION LOOKING AT THE DRIVE SHAFT



Anti-clock rotation

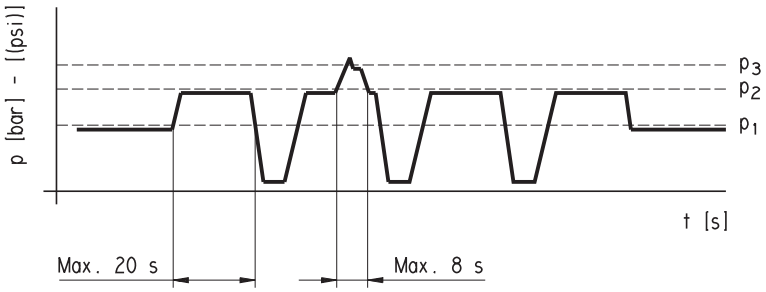


Clockwise rotation



Reversible rotation

PRESSURE DEFINITION



p_1 Max. continuous pressure

p_2 Max. intermittent pressure

p_3 Max. peak pressure

01/03.2002

KAPPA 20 GENERAL DATA PUMPS

KP 20

Pump type	Displacement	Max. pressure			Max. speed	Min. speed
		p_1	p_2	p_3		
	in^3/rev (cm^3/rev)	psi (bar)			min $^{-1}$	
KP 20•4	0.30 (4,95)	4133 (285)	4350 (300)	4785 (330)	4000	350
KP 20•6,3	0.40 (6,61)	4133 (285)	4350 (300)	4785 (330)	4000	350
KP 20•8	0.50 (8,26)	4133 (285)	4350 (300)	4785 (330)	3500	350
KP 20•11,2	0.69 (11,23)	3988 (275)	4205 (290)	4640 (320)	3500	350
KP 20•14	0.89 (14,53)	3843 (265)	4205 (290)	4640 (320)	3500	350
KP 20•16	1.03 (16,85)	3770 (260)	4205 (290)	4640 (320)	3000	300
KP 20•20	1.29 (21,14)	3045 (210)	3335 (230)	3625 (250)	3000	300
KP 20•25	1.61 (26,42)	2610 (180)	2900 (200)	3190 (220)	2500	300
KP 20•31,5	2.01 (33,03)	2030 (140)	2320 (160)	2610 (180)	2000	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.
Reversible pump max pressures are 15% lower than those shown in table.
For different working conditions please consult our sales department.

01/03.2002

KAPPA 30 GENERAL DATA PUMPS

KP 30

Pump type	Displacement	Max. pressure			Max. speed	Min. speed
		p_1	p_2	p_3		
	in^3/rev (cm^3/rev)	psi (bar)			min $^{-1}$	
KP 30•27	1.63 (26,7)	4060 (280)	4350 (300)	4495 (310)	3000	350
KP 30•34	2.11 (34,56)	3770 (260)	4060 (280)	4350 (300)	3000	350
KP 30•38	2.40 (39,27)	3770 (260)	4060 (280)	4350 (300)	3000	350
KP 30•43	2.68 (43,98)	3625 (250)	3915 (270)	4205 (290)	3000	350
KP 30•51	3.16 (51,83)	3335 (230)	3625 (250)	3915 (270)	2500	350
KP 30•56	3.45 (56,54)	3118 (215)	3408 (235)	3698 (255)	2500	350
KP 30•61	3.74 (61,26)	2900 (200)	3190 (220)	3480 (240)	2500	350
KP 30•73	4.50 (73,82)	2610 (180)	2900 (200)	3190 (220)	2500	350

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

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

01/03.2002

DESIGN CALCULATIONS FOR PUMPS

Replaces: 02/06.2005

Q	US gpm (l/min)	Delivery
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
$\eta_v = \eta_v (V, \Delta p, n)$	(≈ 0,98)	Volumetric efficiency
$\eta_{hm} = \eta_{hm} (V, \Delta p, n)$	(≈ 0,90)	Hydro-mechanical efficiency
$\eta_t = \eta_v \cdot \eta_m$	(≈ 0,88)	Overall efficiency

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

O 05/03.2012

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

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

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

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

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

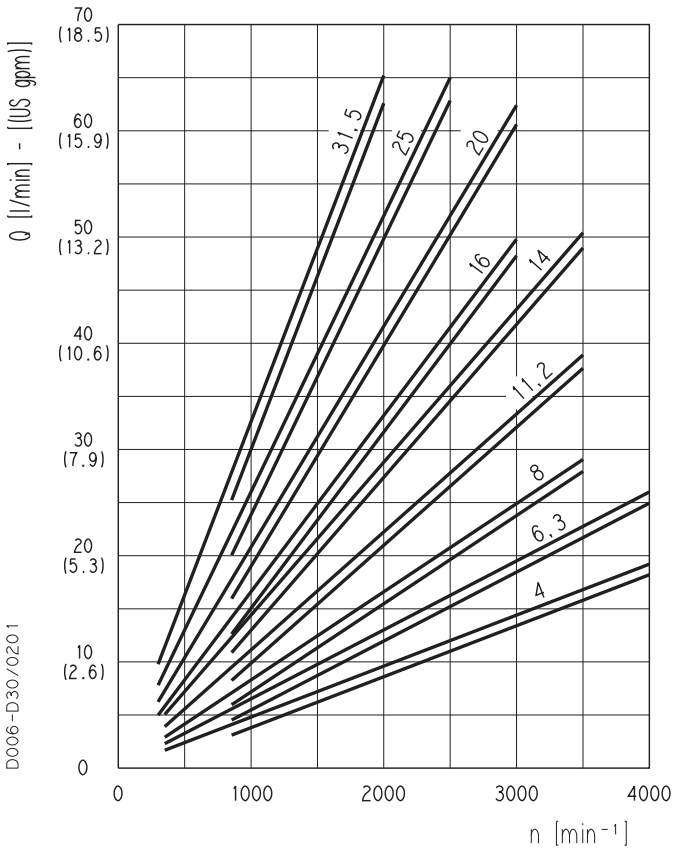
$$P_{OUT} = \frac{\Delta p\ (bar) \cdot Q\ (l/min)}{600} \quad [kW]$$

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

KAPPA 20 GEAR PUMPS PERFORMANCE CURVES

KP 20

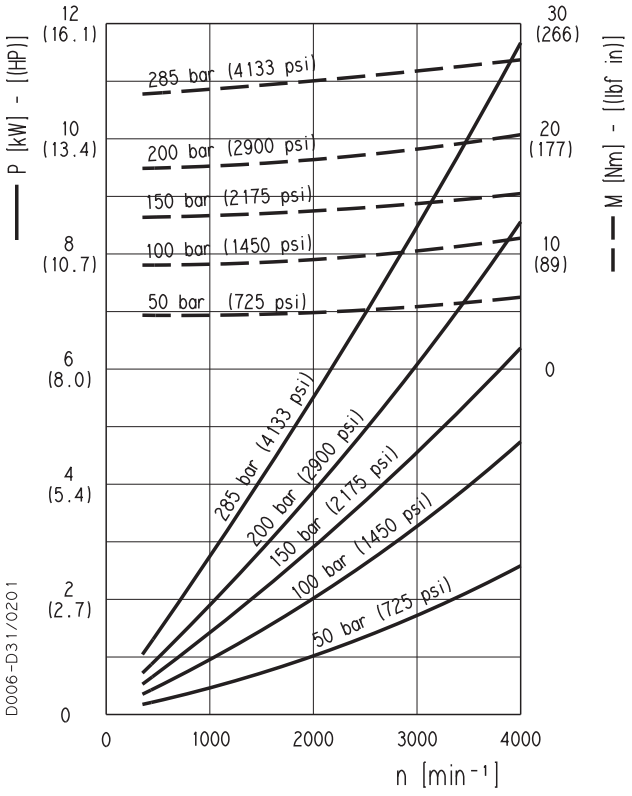
KP 20



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 20•4. . . . . 290-4133 psi (20-285 bar)
KP 20•6,3 . . . . . 290-4133 psi (20-285 bar)
KP 20•8. . . . . 290-4133 psi (20-285 bar)
KP 20•11,2 . . . . . 290-3988 psi (20-275 bar)
KP 20•14. . . . . 290-3843 psi (20-265 bar)
KP 20•16. . . . . 290-3770 psi (20-260 bar)
KP 20•20. . . . . 290-3045 psi (20-210 bar)
KP 20•25. . . . . 290-2610 psi (20-180 bar)
KP 20•31,5 . . . . . 290-2030 psi (20-140 bar)

KP 20•4



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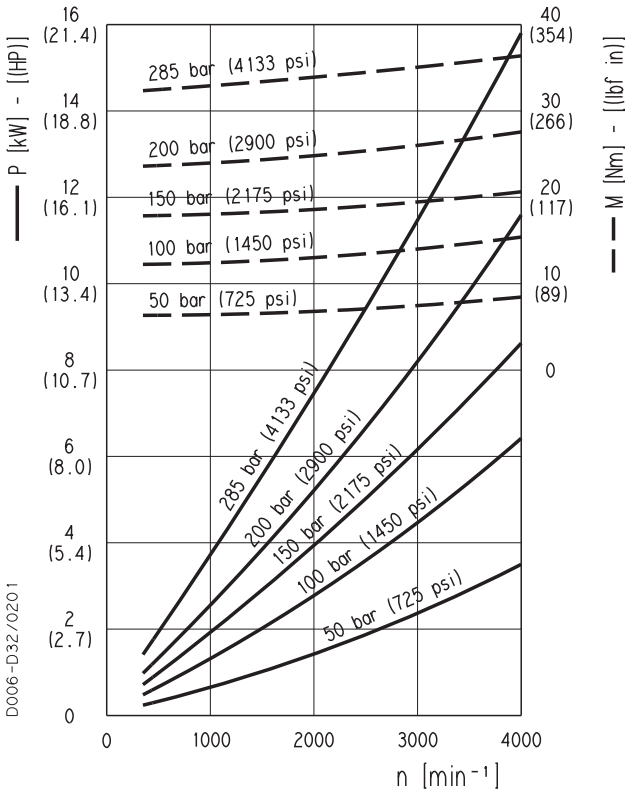

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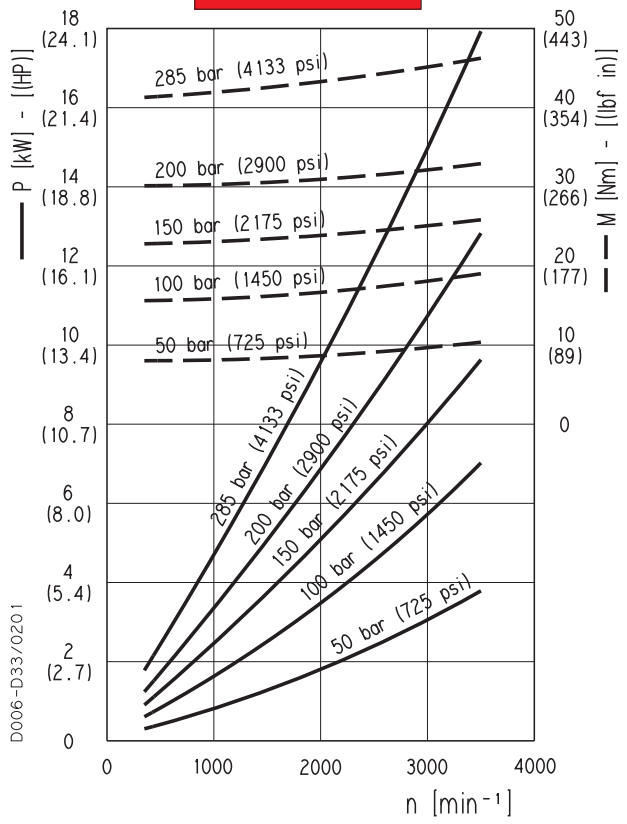
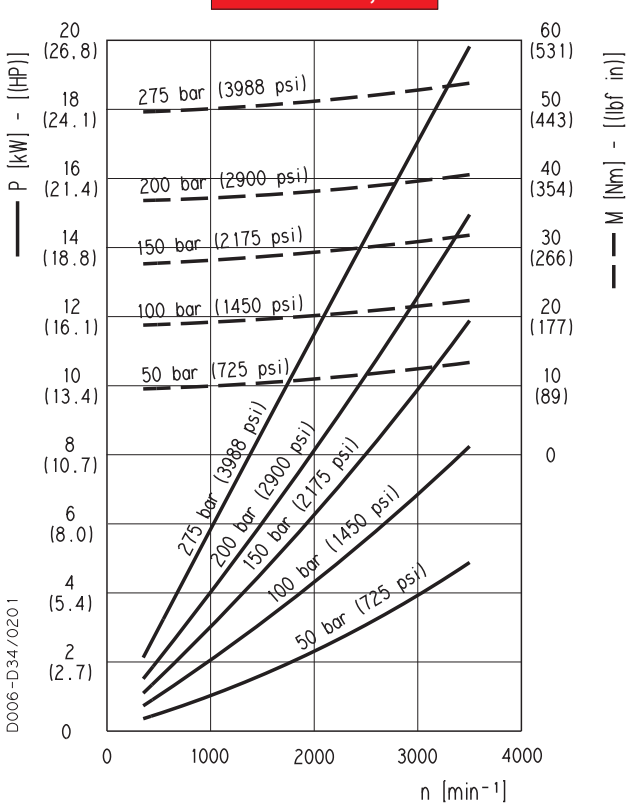
KAPPA 20 GEAR PUMPS PERFORMANCE CURVES

KP 20

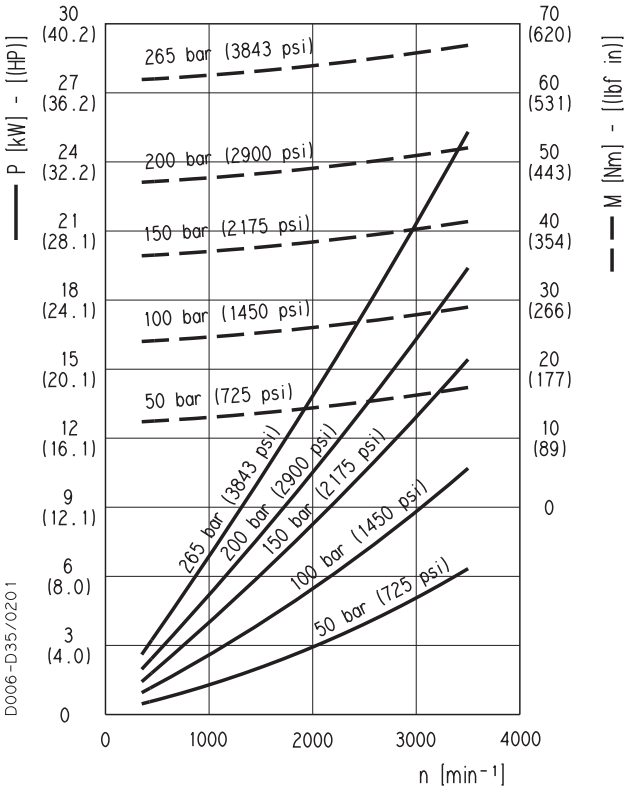
KP 20•8



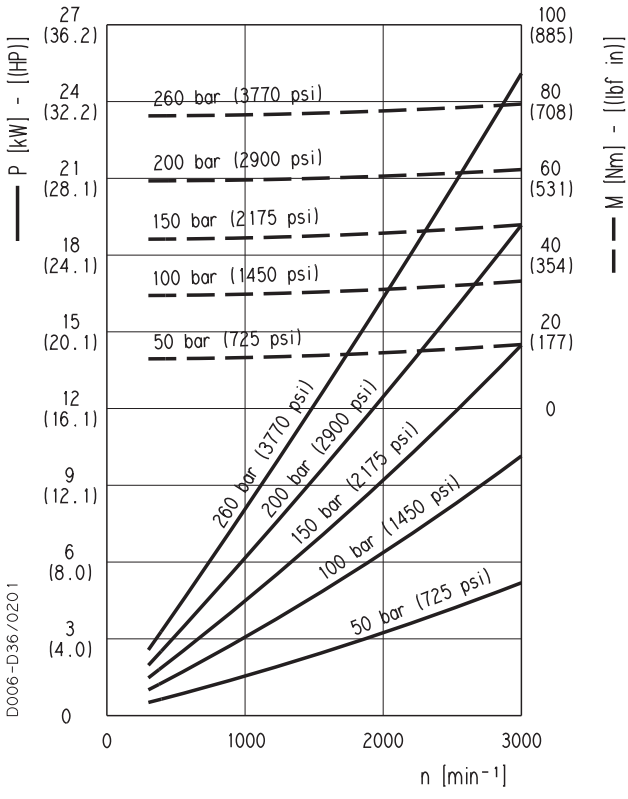
KP 20•11,2



KP 20•14



KP 20•16

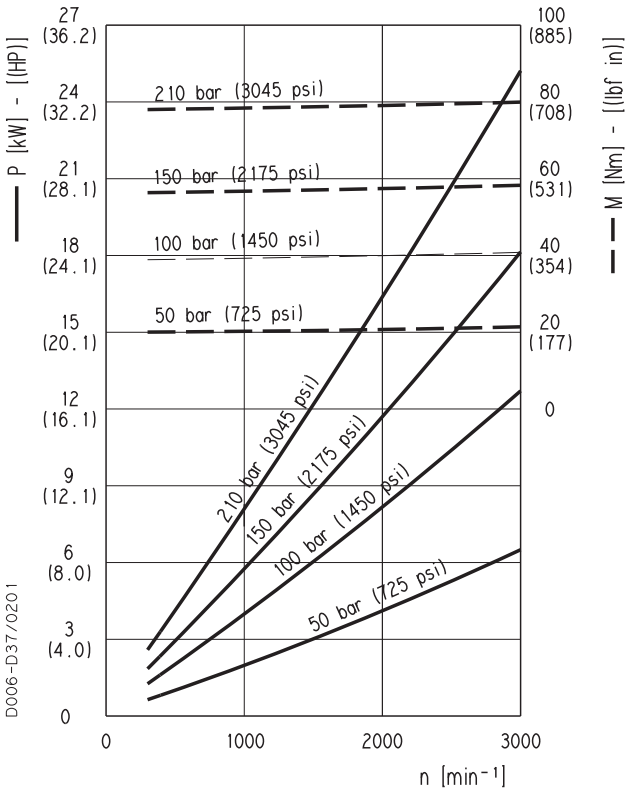


01/03.2002

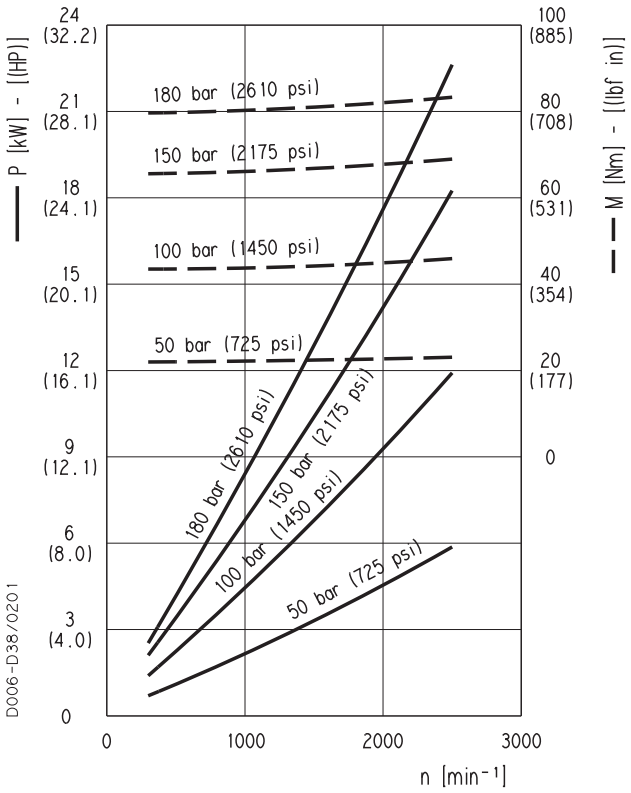
KAPPA 20 GEAR PUMPS PERFORMANCE CURVES

KP 20

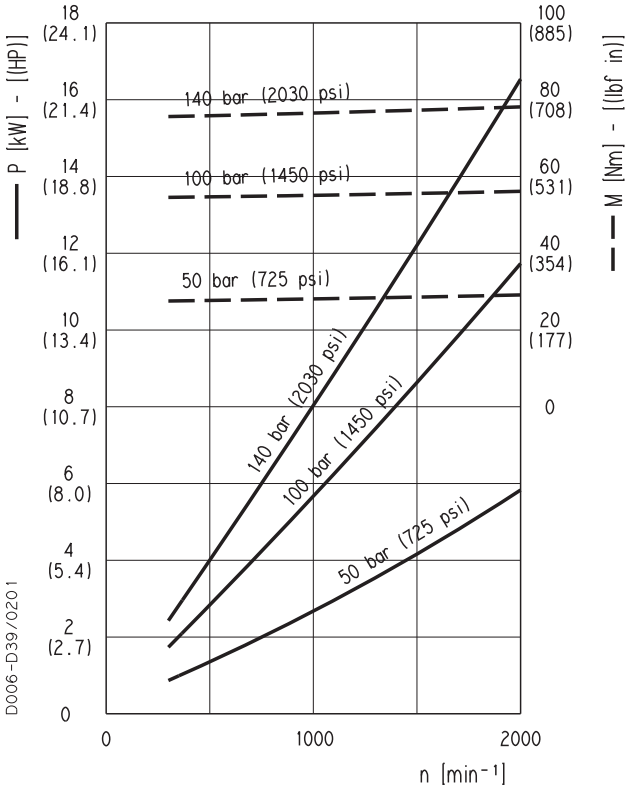
KP 20•20



KP 20•25



KP 20•31,5



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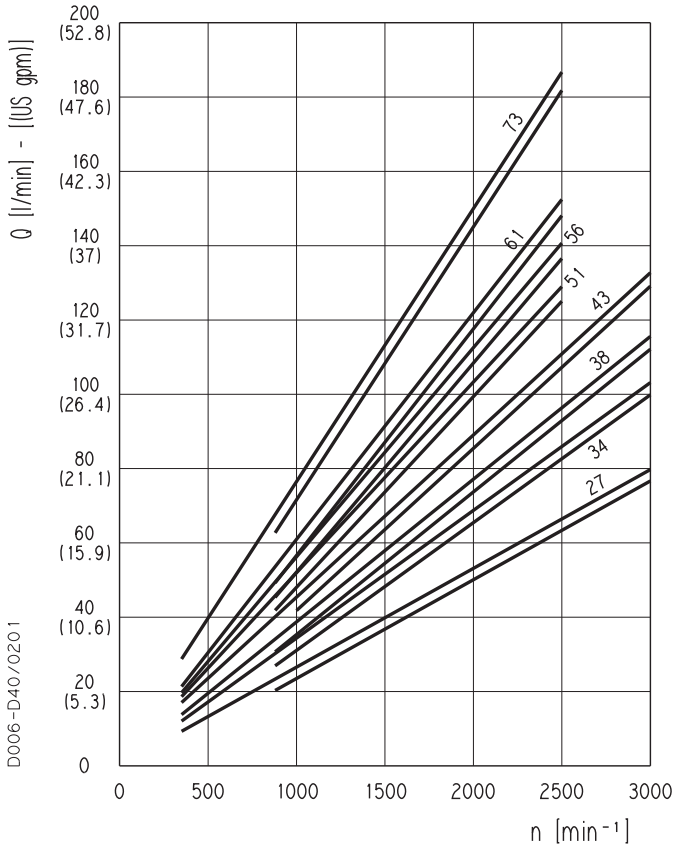
KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30

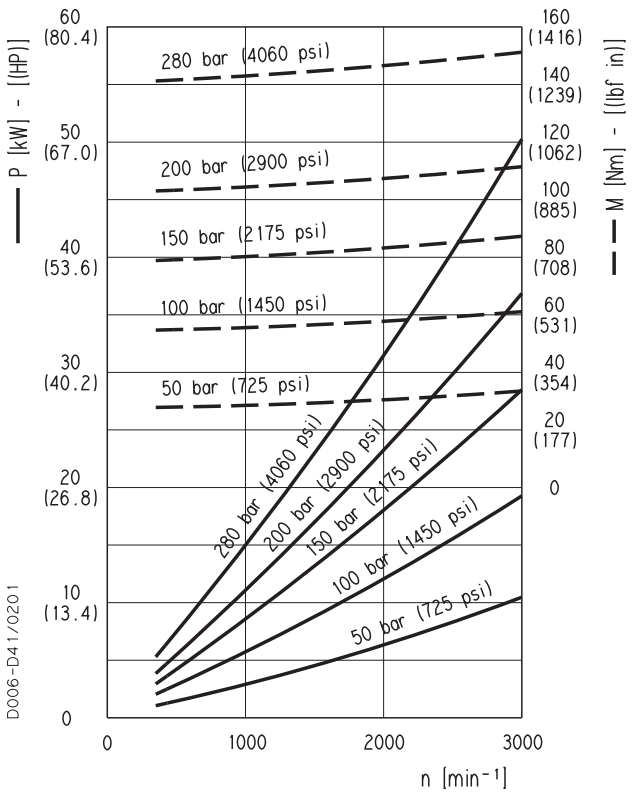
KP 30



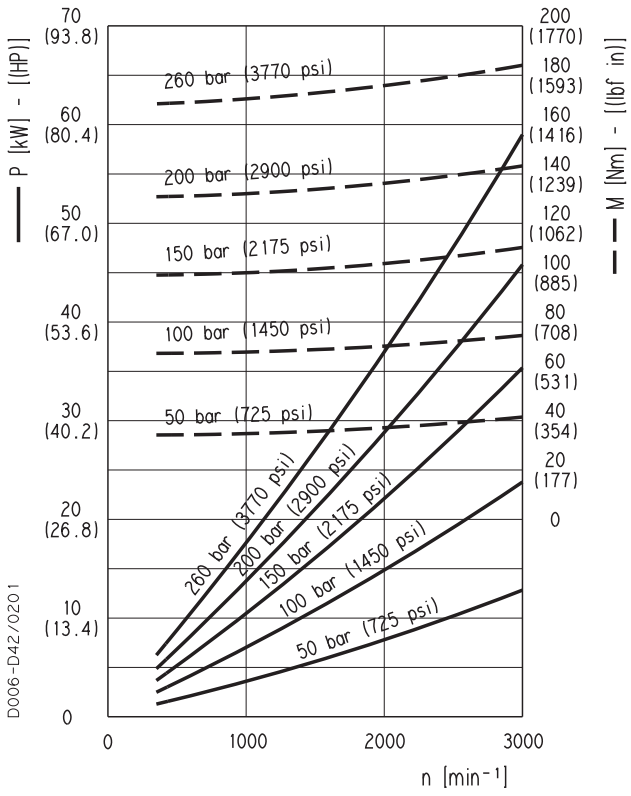
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures:

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•27



KP 30•34



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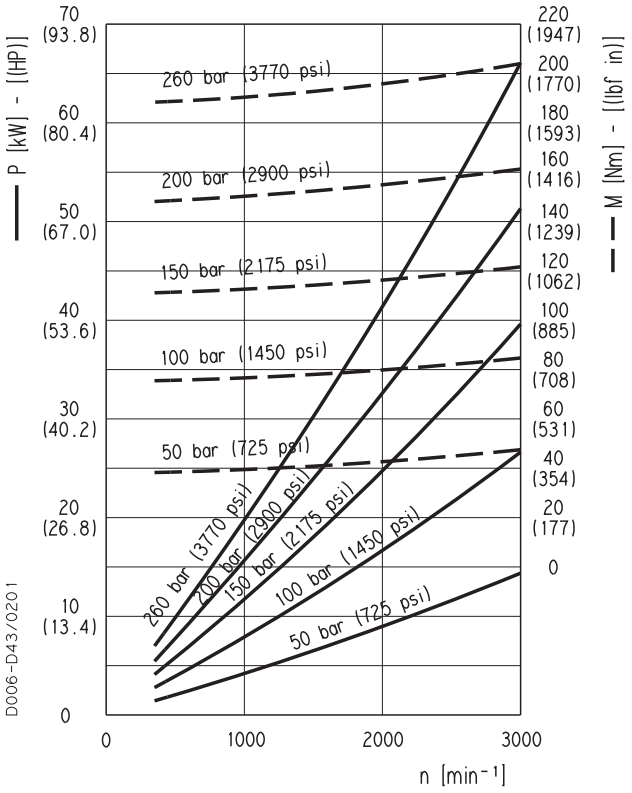
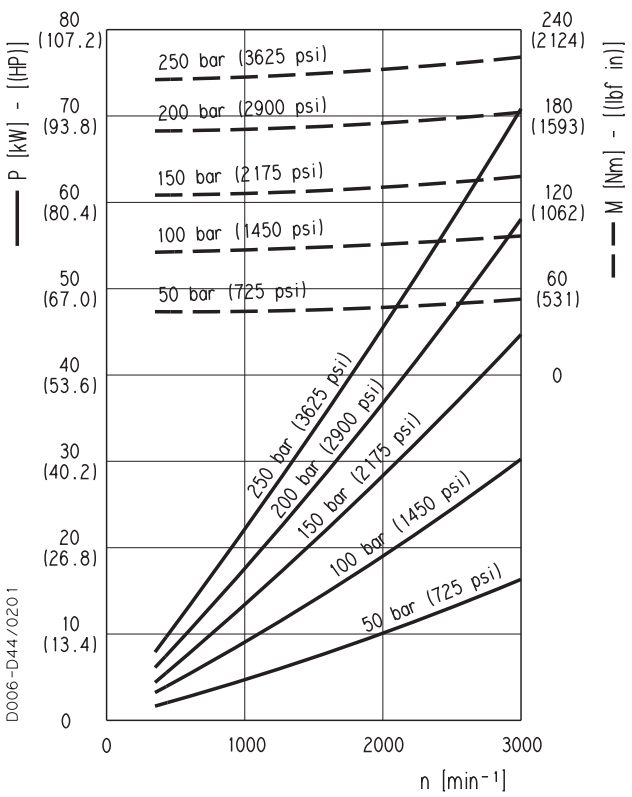
KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30

KP 30•38



KP 30•43



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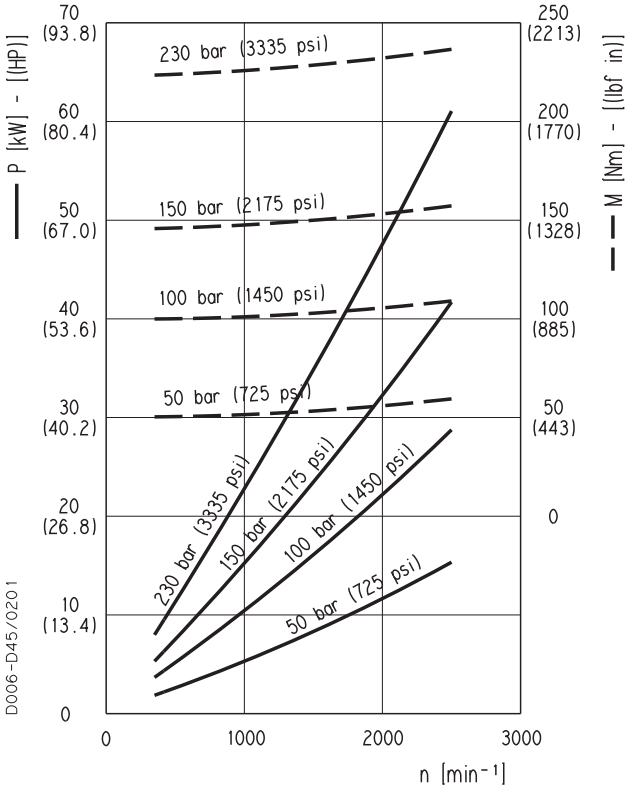
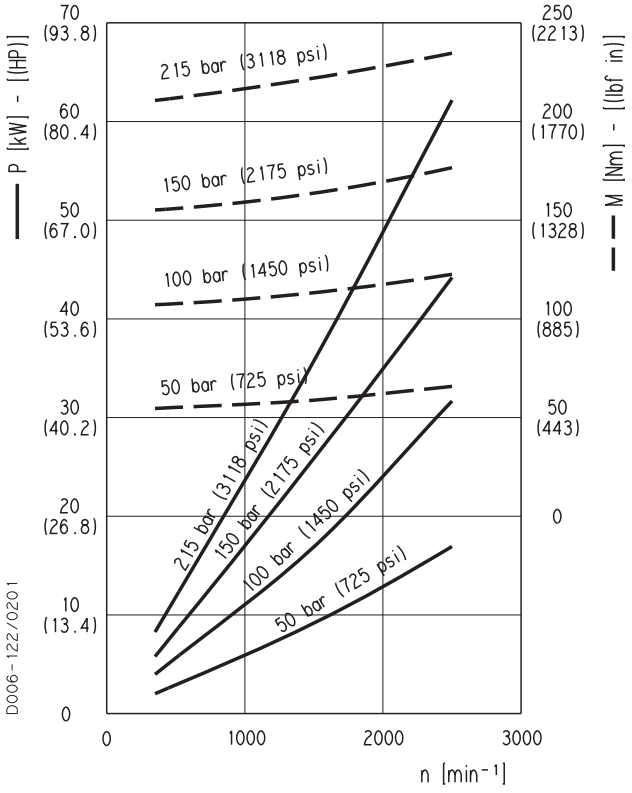


KP 30•56



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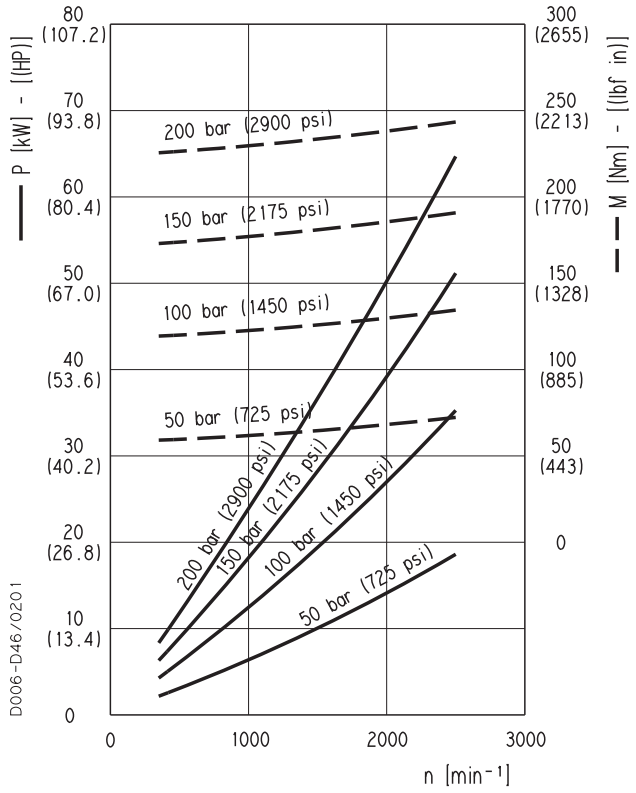
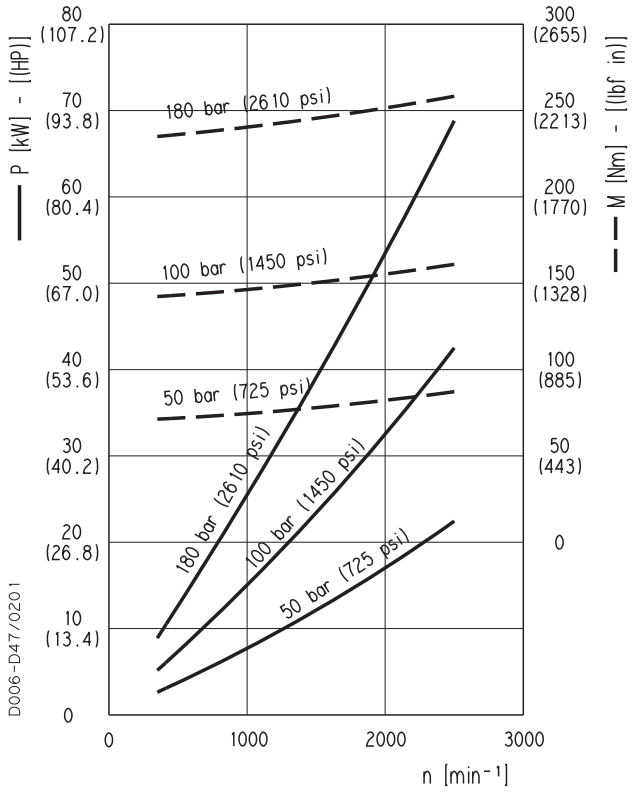
KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30

KP 30•61



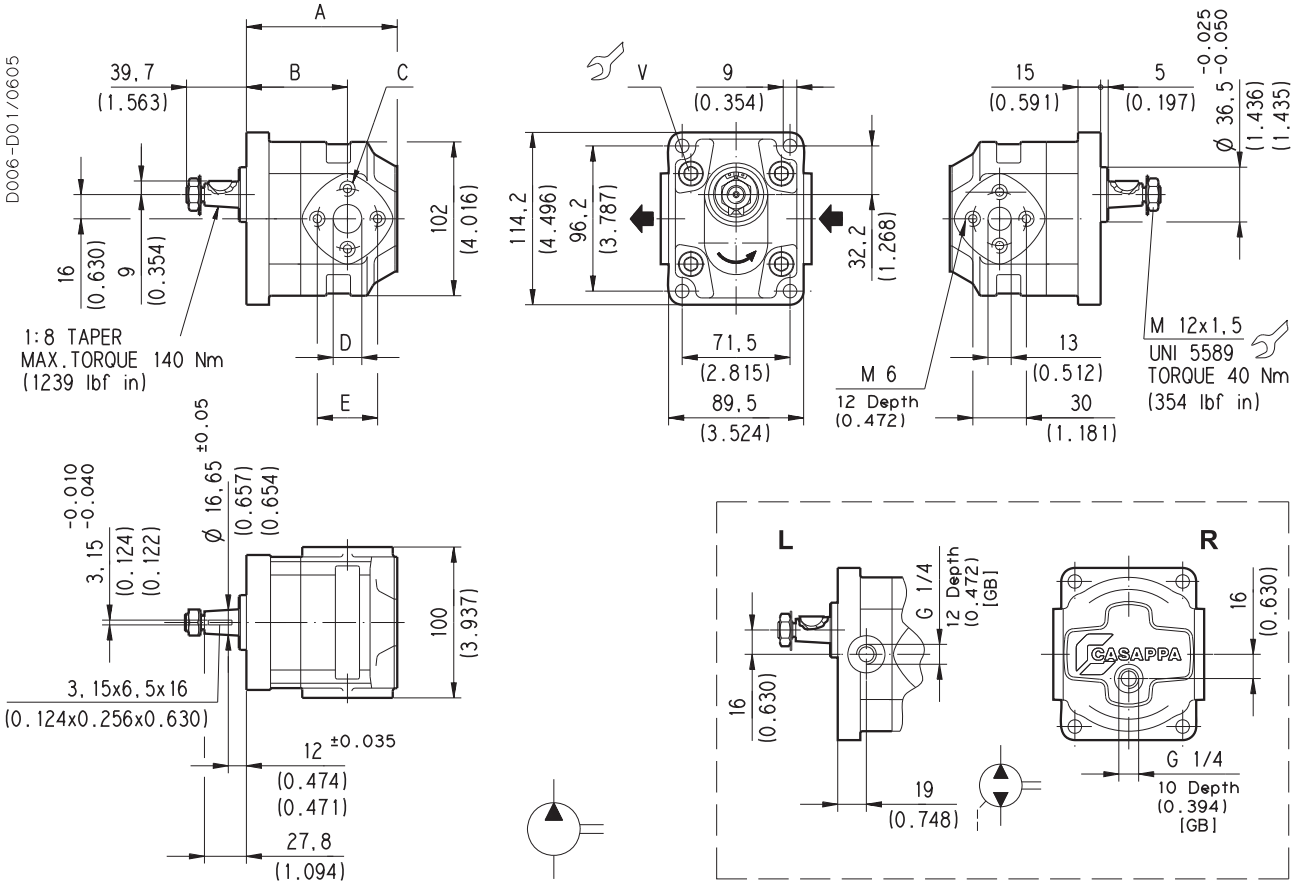
KP 30•73



01/03.2002

KAPPA 20 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 82 E2

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A	B	C	D	E
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 20•4	S D L R B	0-82 E2-L EA/EA-N	87,5 (3.445)	60 (2.362)	M6 Depth 12 (0.472)	13 (0.512)	30 (1.181)
KP 20•6,3			90 (3.543)	62,5 (2.461)			
KP 20•8			92,5 (3.642)	65 (2.559)			
KP 20•11,2			96 (3.780)	68,5 (2.697)			
KP 20•14		0-82 E2-L EB/EA-N	100 (3.937)	67 (2.638)	M8 Depth 14 (0.551)	19 (0.748)	40 (1.575)
KP 20•16			105,5 (4.154)	72,5 (2.854)			
KP 20•20			112 (4.409)	79 (3.110)			
KP 20•25			120 (4.724)	72 (2.835)			
KP 20•31,5			130 (5.118)	82 (3.228)			

02/06.2005

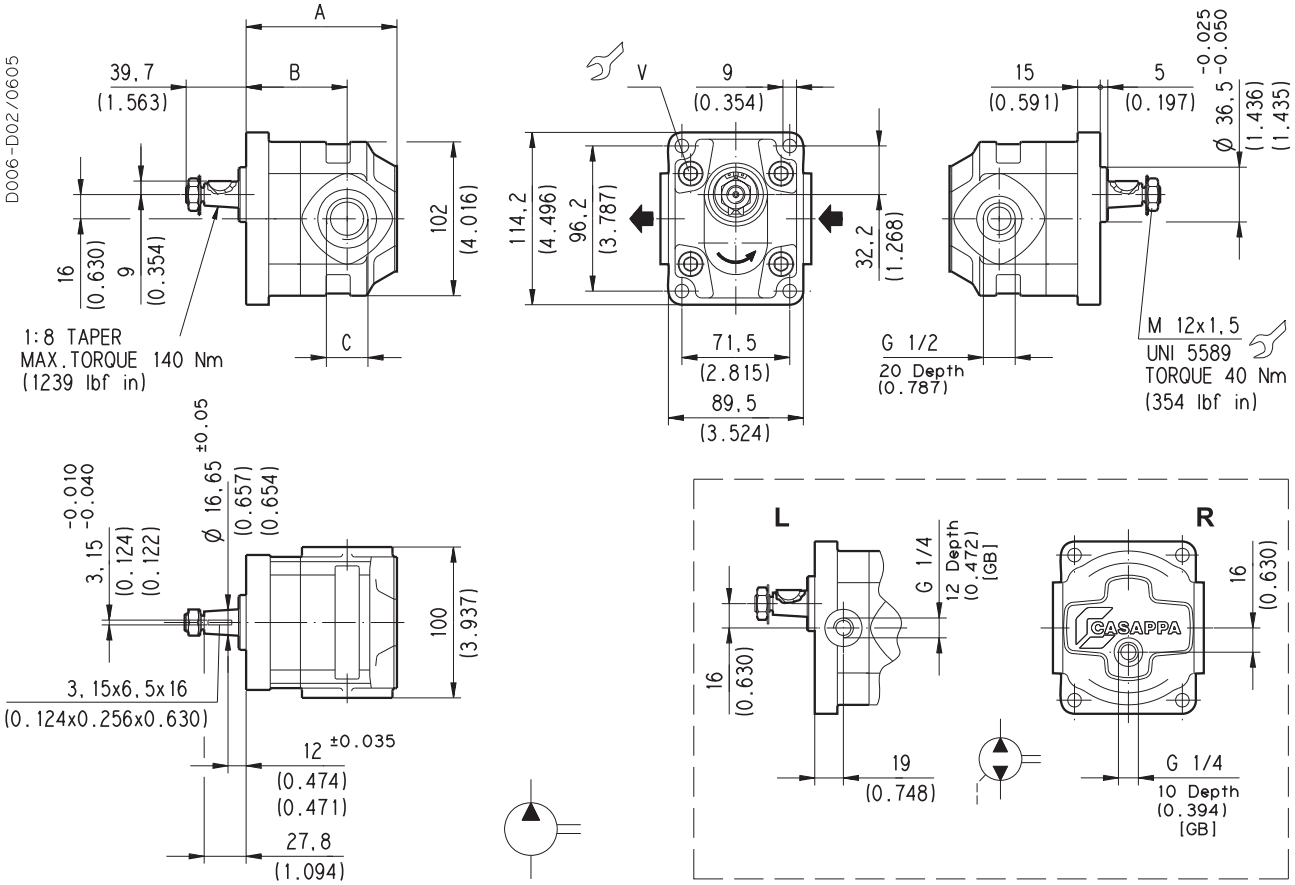
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KP 20•4 S0-82 E2-L EA/EA-N

KAPPA 20 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 82 E2

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A	B	C
			mm (in)	mm (in)	mm (in)
KP 20•4	S D L R B	0-82 E2-L GD/GD-N	87,5 (3.445)	60 (2.362)	G 1/2 Depth 20 (0.787)
KP 20•6,3			90 (3.543)	62,5 (2.461)	
KP 20•8			92,5 (3.642)	65 (2.559)	
KP 20•11,2			96 (3.780)	68,5 (2.697)	
KP 20•14		0-82 E2-L GE/GD-N	100 (3.937)	67 (2.638)	G 3/4 Depth 22 (0.866)
KP 20•16			105,5 (4.154)	72,5 (2.854)	
KP 20•20			112 (4.409)	79 (3.110)	
KP 20•25			120 (4.724)	72 (2.835)	
KP 20•31,5			130 (5.118)	82 (3.228)	

02/06.2005

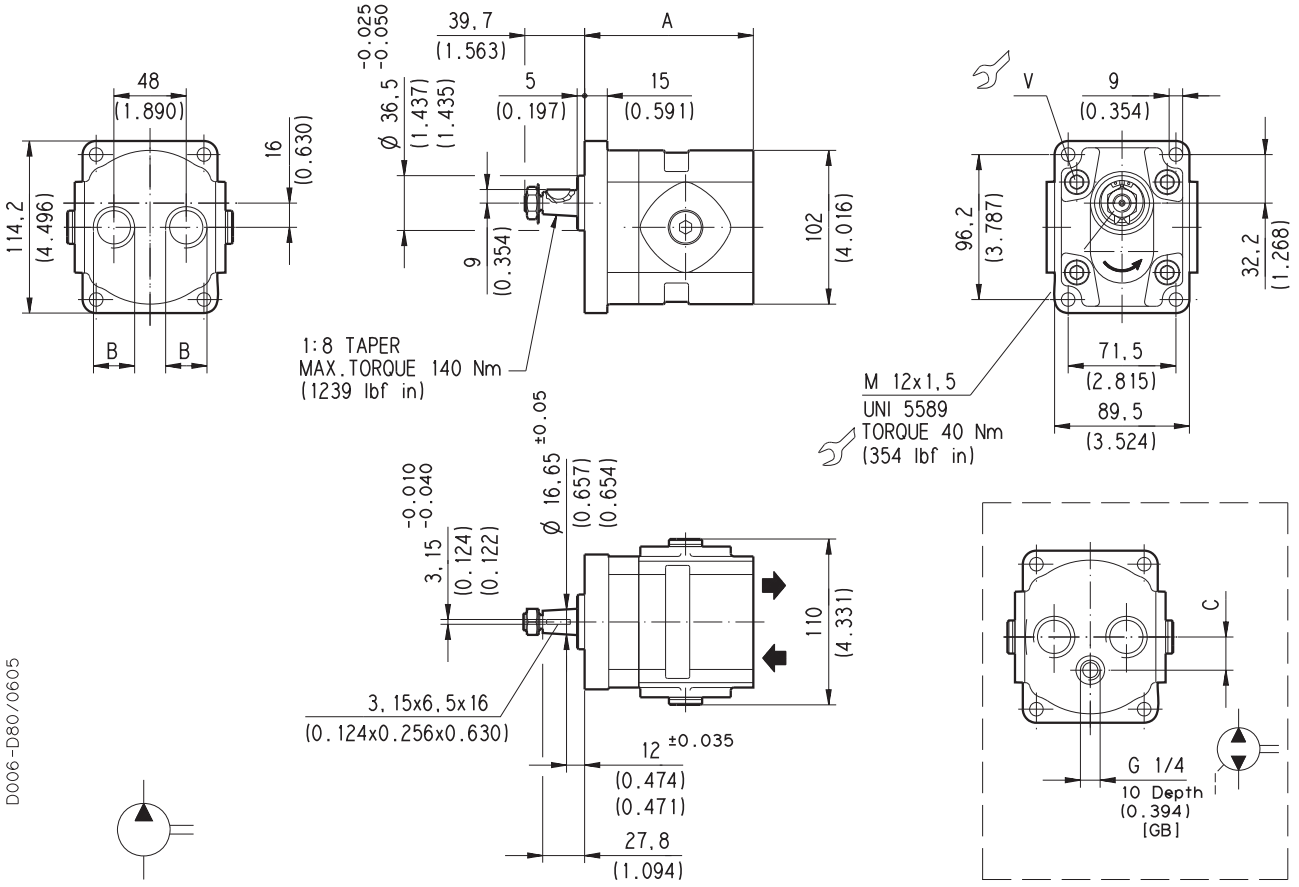
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KP 20•4 S0-82 E2-L GD/GD-N

KAPPA 20 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 82 E2 - P

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Rear ports version

Pump type			A	B	C
			mm (in)	mm (in)	mm (in)
KP 20•4	S D R B	0-82 E2-P GD/GD-N	84,5 (3.327)	G 1/2 Depth 17 (0.670)	19 (0.748)
KP 20•6,3			87 (3.425)		
KP 20•8			89,5 (3.524)		
KP 20•11,2			93 (3.661)		
KP 20•14		0-82 E2-P GE/GE-N	112 (4.409)	G 3/4 Depth 18 (0.709)	22 (0.866)
KP 20•16			115,5 (4.547)		
KP 20•20			122 (4.803)		
KP 20•25			130 (5.118)		
KP 20•31,5			140 (5.512)		

02/06.2005

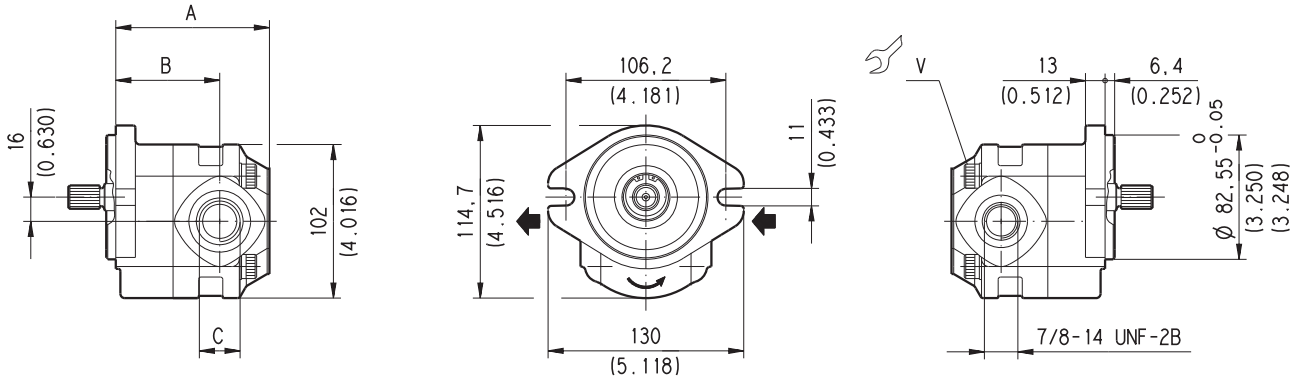
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

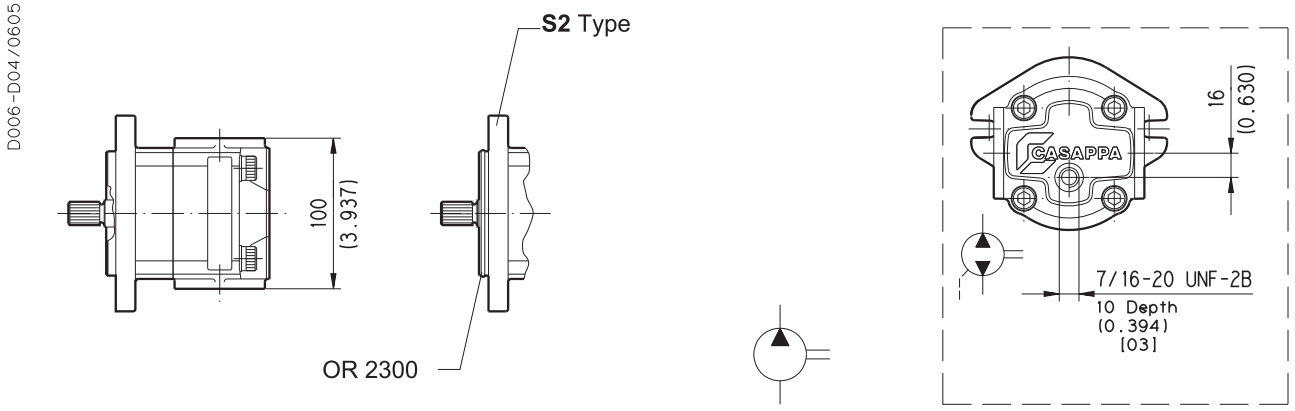
How to order:

KP 20•4 S0-82 E2-P GD/GD-N

KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S1

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1





V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

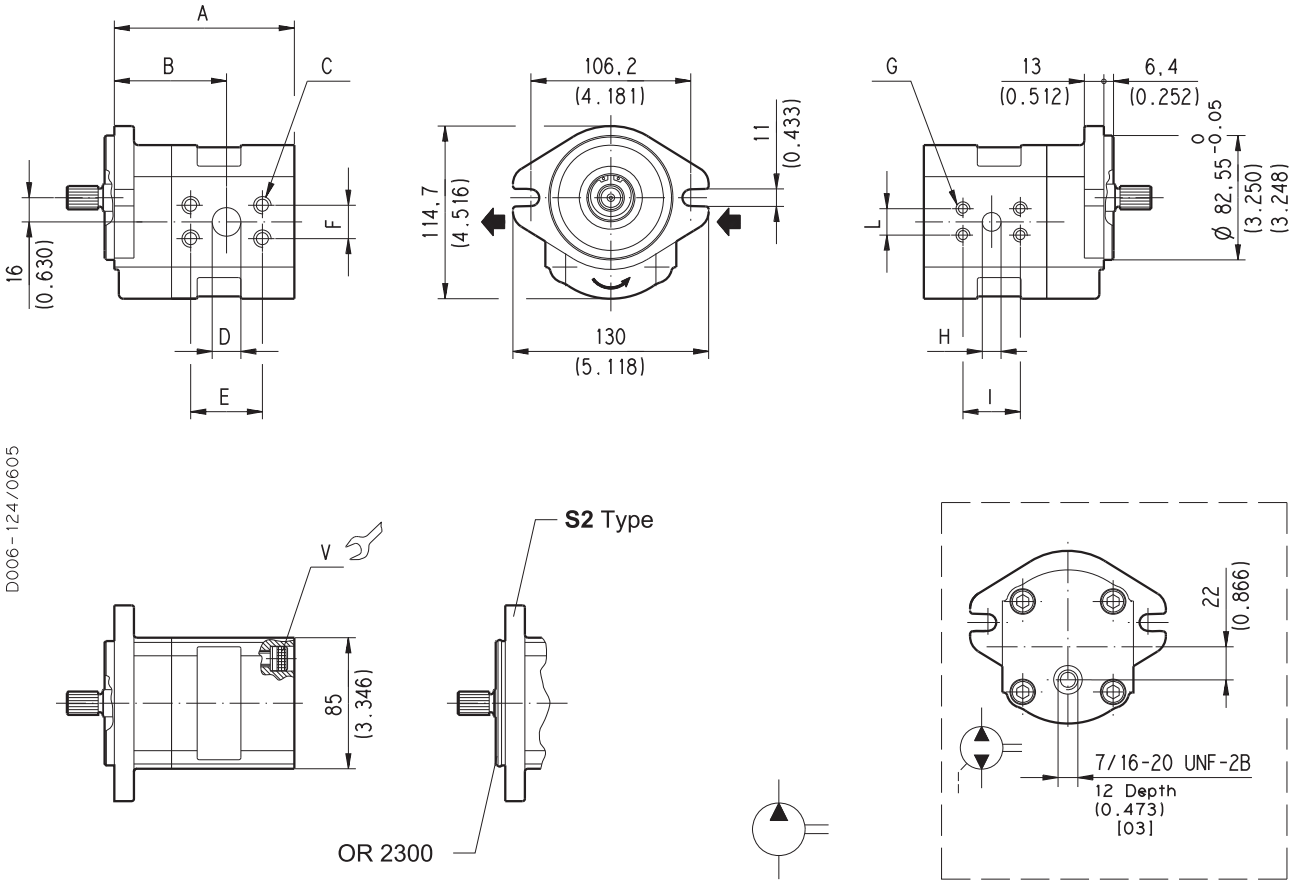
Side ports version (L) - To order see page 22

Pump type	A	B	C	Ports code	
	mm (in)	mm (in)	mm (in)	IN	OUT
KP 20•4	89,5 (3.524)	62 (2.441)	7/8-14 UNF-2B	**OC**	**OC**
KP 20•6,3	92 (3.622)	64,5 (2.539)			
KP 20•8	94,5 (3.720)	67 (2.638)			
KP 20•11,2	98 (3.858)	70,5 (2.776)			
KP 20•14	102 (4.016)	69 (2.717)	1-1/16-12 UN-2B	**OD**	
KP 20•16	107,5 (4.232)	74,5 (2.933)			
KP 20•20	114 (4.488)	81 (3.189)			
KP 20•25	122 (4.803)	74 (2.913)			
KP 20•31,5	132 (5.197)	84 (3.307)			

02/06.2005

KAPPA 20 — HYDRAULIC GEAR PUMPS SAE STANDARD — ... S1

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI
Metric thread ISO 60° conforms to ISO/R 262



D006-124/0605

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

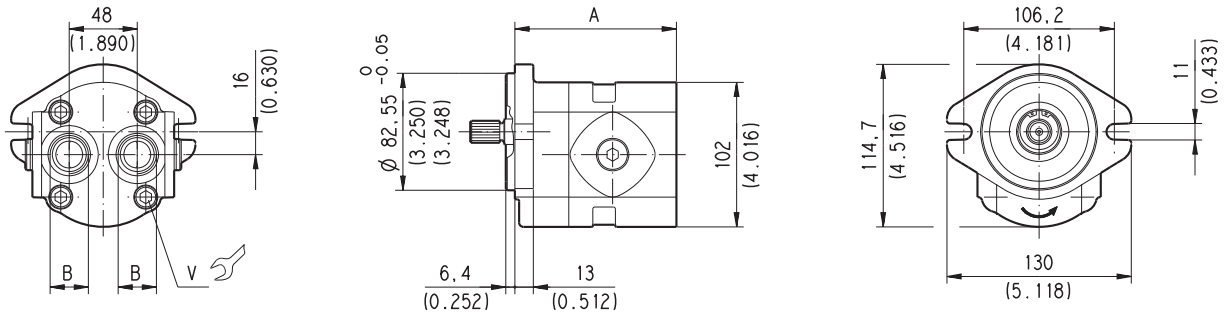
Side ports version (L) - To order see page 22

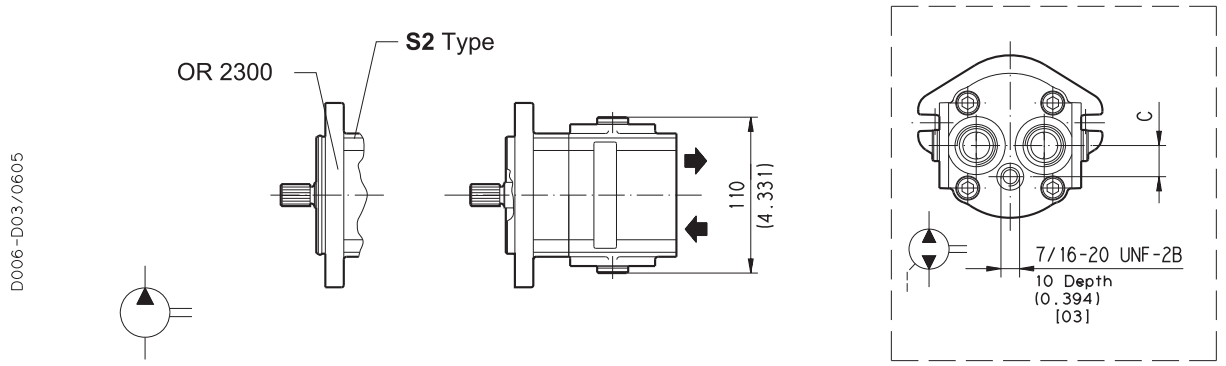
Pump type	A	B	C	D	E	F	G	H	I	L	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 20•4	101,5 (3.996)	62 (2.441)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	**MA**	**MA**
KP 20•6,3	104 (4.094)	64,5 (2.539)										
KP 20•8	106,5 (4.193)	67 (2.638)										
KP 20•11,2	111 (4.370)	70,5 (2.776)										
KP 20•14	116 (4.567)	69 (2.717)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)					**MB**	
KP 20•16	119,5 (4.705)	74,5 (2.933)										
KP 20•20	126 (4.961)	81 (3.189)										
KP 20•25	134 (5.276)	74 (2.913)		25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	**MC**	**MB**
KP 20•31,5	144 (5.669)	84 (3.307)										

02/06.2005

KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S1

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1





V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

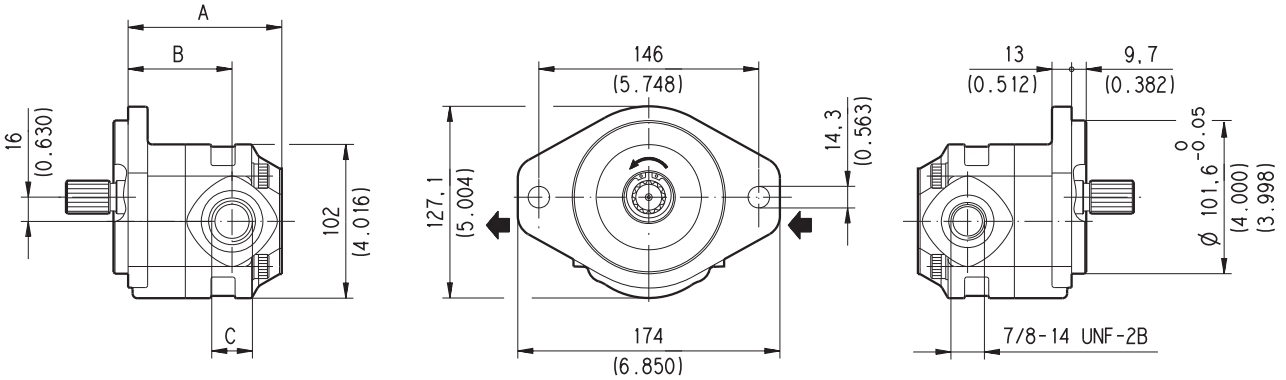
Rear ports version (P) - To order see page 22

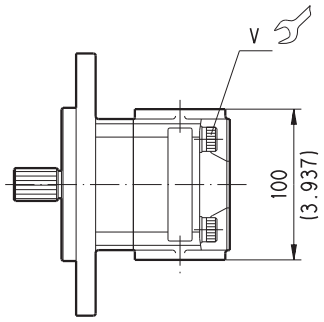
Pump type	A	B	C	Ports code	
	mm (in)		mm (in)	IN	OUT
KP 20•4	86,5 (3.406)	7/8-14 UNF-2B	19 (0.748)	**OC**	**OC**
KP 20•6,3	89 (3.504)				
KP 20•8	91,5 (3.602)				
KP 20•11,2	95 (3.740)				
KP 20•14	114 (4.488)	1-1/16-12 UN-2B	22 (0.866)	**OD**	
KP 20•16	117,5 (4.623)				
KP 20•20	124 (4.882)				
KP 20•25	132 (5.197)				
KP 20•31,5	142 (5.591)				

02/06.2005

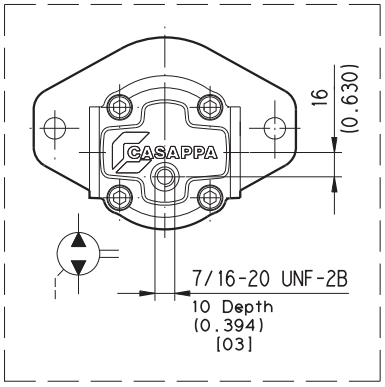
KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S5

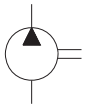
SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1





D006-163/0605





V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

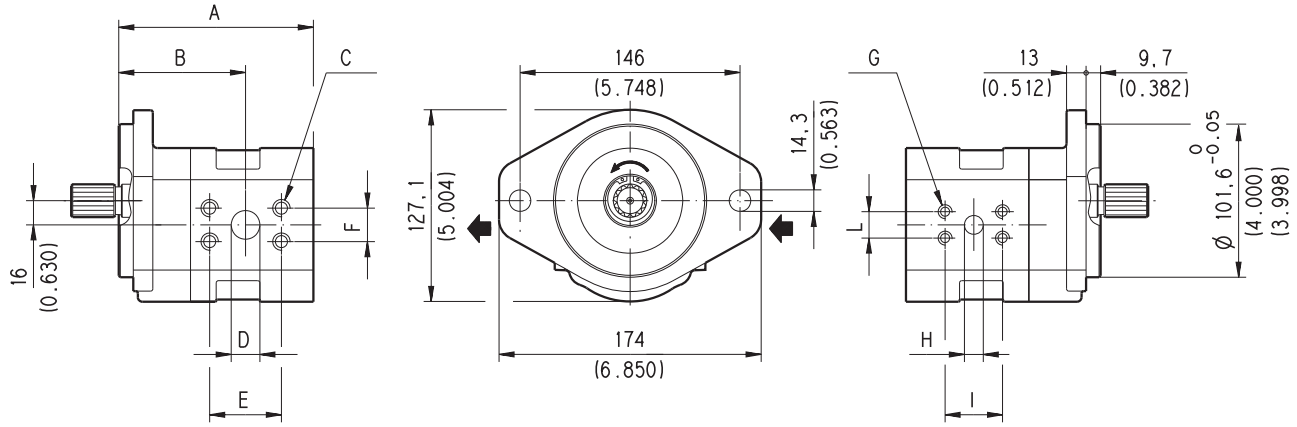
Side ports version (L) - To order see page 22

Pump type	A	B	C	Ports code	
	mm (in)		mm (in)	IN	OUT
KP 20•4	89,5 (3.524)	62 (2.441)	7/8-14 UNF-2B	**OC**	**OC**
KP 20•6,3	92 (3.622)	64,5 (2.539)			
KP 20•8	94,5 (3.720)	67 (2.638)			
KP 20•11,2	98 (3.858)	70,5 (2.776)			
KP 20•14	102 (4.016)	69 (2.717)	1-1/16-12 UN-2B	**OD**	
KP 20•16	107,5 (4.232)	74,5 (2.933)			
KP 20•20	114 (4.488)	81 (3.189)			
KP 20•25	122 (4.803)	74 (2.913)			
KP 20•31,5	132 (5.197)	84 (3.307)			

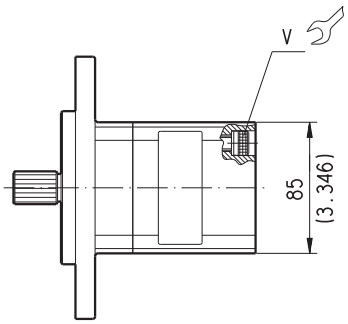
02/06.2005

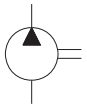
KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S5

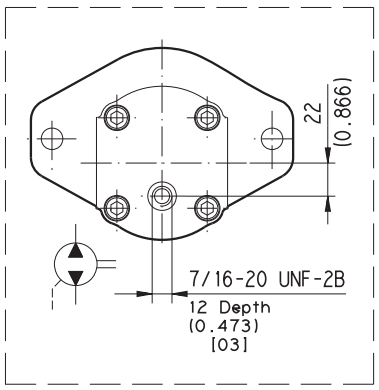
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI
Metric thread ISO 60° conforms to ISO/R 262



D006-164/0605







V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

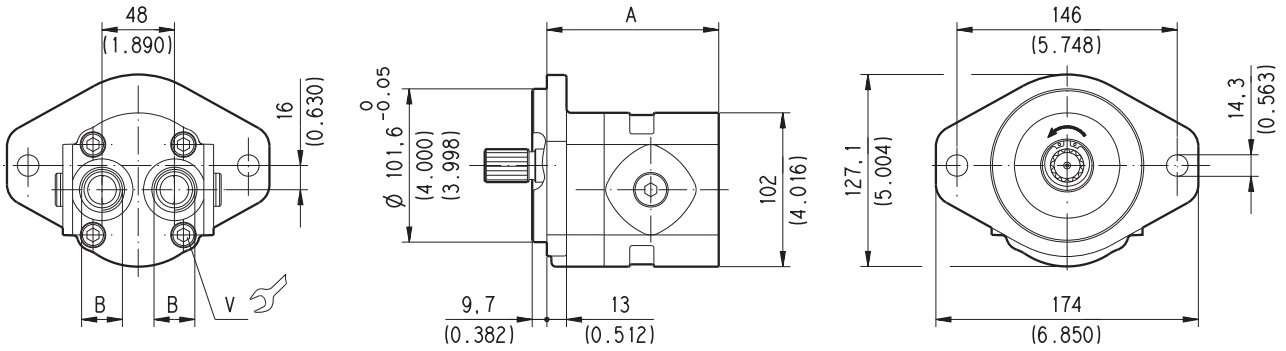
Side ports version (L) - To order see page 22

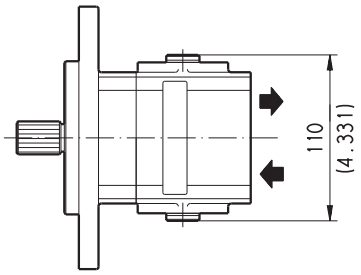
Pump type	A	B	C	D	E	F	G	H	I	L	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 20•4	101,5 (3.996)	62 (2.441)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	**MA**	**MA**
KP 20•6,3	104 (4.094)	64,5 (2.539)										
KP 20•8	106,5 (4.193)	67 (2.638)										
KP 20•11,2	111 (4.370)	70,5 (2.776)										
KP 20•14	116 (4.567)	69 (2.717)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)					**MB**	
KP 20•16	119,5 (4.705)	74,5 (2.933)										
KP 20•20	126 (4.961)	81 (3.189)										
KP 20•25	134 (5.276)	74 (2.913)		25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	**MC**	**MB**
KP 20•31,5	144 (5.669)	84 (3.307)										

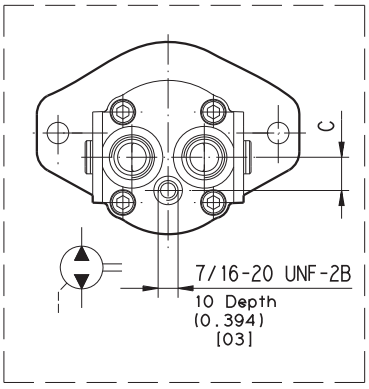
02/06.2005

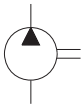
KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S5

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1









D006-165/0605

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Rear ports version (P) - To order see page 22

Pump type	A	B	C	Ports code	
	mm (in)		mm (in)	IN	OUT
KP 20•4	86,5 (3.406)	7/8-14 UNF-2B	19 (0.748)	**OC**	**OC**
KP 20•6,3	89 (3.504)				
KP 20•8	91,5 (3.602)				
KP 20•11,2	95 (3.740)				
KP 20•14	114 (4.488)	1-1/16-12 UN-2B	22 (0.866)	**OD**	
KP 20•16	117,5 (4.623)				
KP 20•20	124 (4.882)				
KP 20•25	132 (5.197)				
KP 20•31,5	142 (5.591)				

02/06.2005

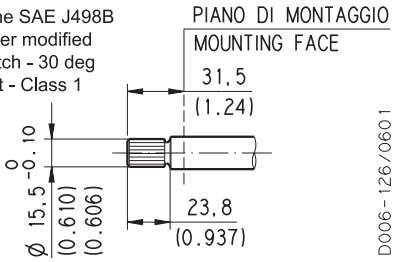
KAPPA 20 END DRIVE SHAFTS

SAE

Replaces: 01/03.2002

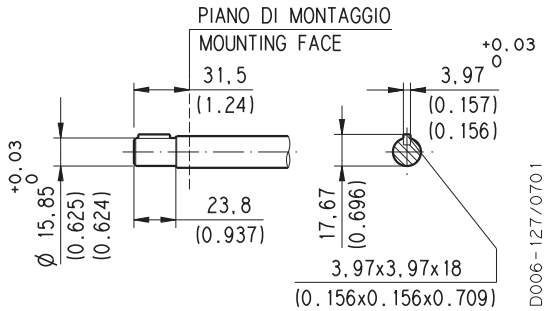
SAE "A" SPLINE — 03

Ext. Involute Spline SAE J498B
with major diameter modified
9 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 885 lbf in (100 Nm)

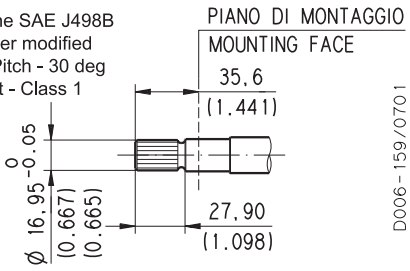
SAE "A" STRAIGHT — 31



MAX 620 lbf in (70 Nm)

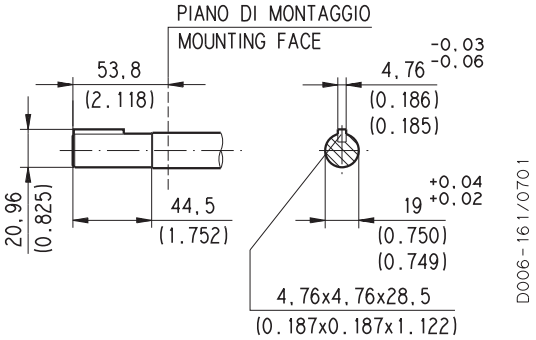
SAE SPLINE — 01

Ext. Involute Spline SAE J498B
with major diameter modified
10 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 1151 lbf in (130 Nm)

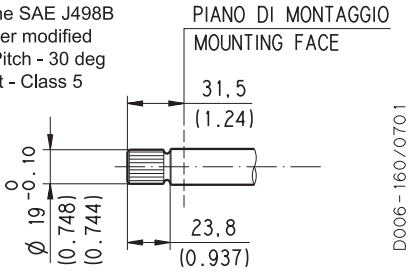
STRAIGHT — 49



MAX 1239 lbf in (140 Nm)

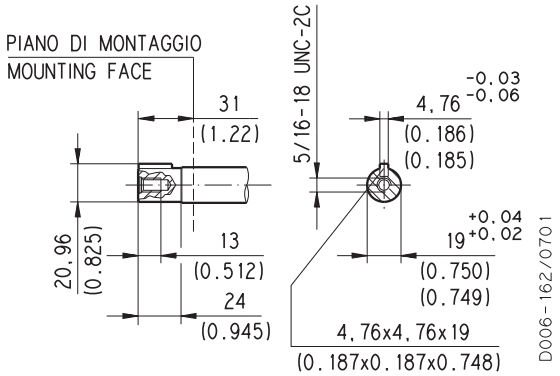
SAE SPLINE — 07

Ext. Involute Spline SAE J498B
with major diameter modified
11 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 5



MAX 1505 lbf in (170 Nm)

STRAIGHT — 50

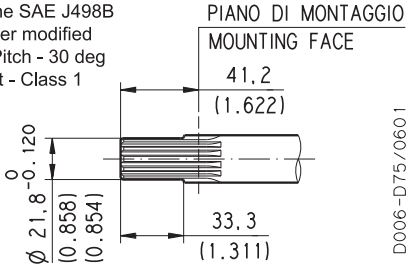


MAX 885 lbf in (100 Nm)

03/03.2006

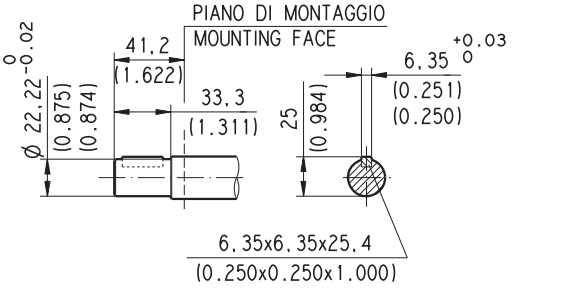
SAE "B" SPLINE — 04

Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 2478 lbf in (280 Nm)

SAE "B" STRAIGHT — 32



MAX 1770 lbf in (200 Nm)

HOW TO ORDER SINGLE PUMPS

1	2	3		4	5		6	7		8
Pump type	Rotation	Version	–	Drive shaft	Mounting flange	–	Ports positon	Ports IN/OUT	–	Seals
KP30•17	S	0	–	03	S1	–	L	OC/OC	–	N

1 Pump Type		CODE
in³/rev	(cm³/rev)	
0.30	4,95	KP 20•4
0.40	6,61	KP 20•6,3
0.50	8,26	KP 20•8
0.69	11,23	KP 20•11,2
0.89	14,53	KP 20•14
1.03	16,85	KP 20•16
1.29	21,14	KP 20•20
1.61	26,42	KP 20•25
2.01	33,03	KP 20•31,5

2 Rotation	CODE
Left	S
Right	D
Reversible	R
Reversible with internal drain	B

3 Version	CODE
Without outboard bearing	0

4 Drive shaft	CODE
SAE “A” spline (9 teeth)	03
SAE spline (10 teeth)	01
SAE spline (11 teeth)	07
SAE “B” spline (13 teeth)	04
SAE “A” straight	31
Straight	49
Straight	50
SAE “B” straight	32

5 Mounting flange	CODE
SAE “A” 2 holes	S1
SAE “A” 2 holes (with o-ring seal)	S2
SAE “B” 2 holes (a)	S5

CODE	6 Ports position
L	Side
P	Rear

CODE		7 Ports IN/OUT
SAE STRAIGHT THREAD PORTS (ODT)		
Side	Rear	Pump type
OC/OC	OC/OC	KP 20•4
OC/OC	OC/OC	KP 20•6,3
OC/OC	OC/OC	KP 20•8
OC/OC	OC/OC	KP 20•11,2
OD/OC	OD/OD	KP 20•14
OD/OC	OD/OD	KP 20•16
OD/OC	OD/OD	KP 20•20
OD/OC	OD/OD	KP 20•25
OD/OC	OD/OD	KP 20•31,5
METRIC SAE SPLIT PORTS SAE J518 C		
MA/MA		KP 20•4
MA/MA		KP 20•6,3
MA/MA		KP 20•8
MA/MA		KP 20•11,2
MB/MA		KP 20•14
MB/MA		KP 20•16
MB/MA		KP 20•20
MC/MB		KP 20•25
MC/MB		KP 20•31,5

CODE	8 Seals (b)
N	Buna N (standard) - no code
N-H	Buna with high back pressure shaft seals
V	Viton
N Bz	Buna N and Bronze thrust plates
V Bz	Viton and Bronze thrust plates

(a) Available only with 04 and 32 shaft

(b) Choose the seals according to the temperature shown on page 1

01/03.2002

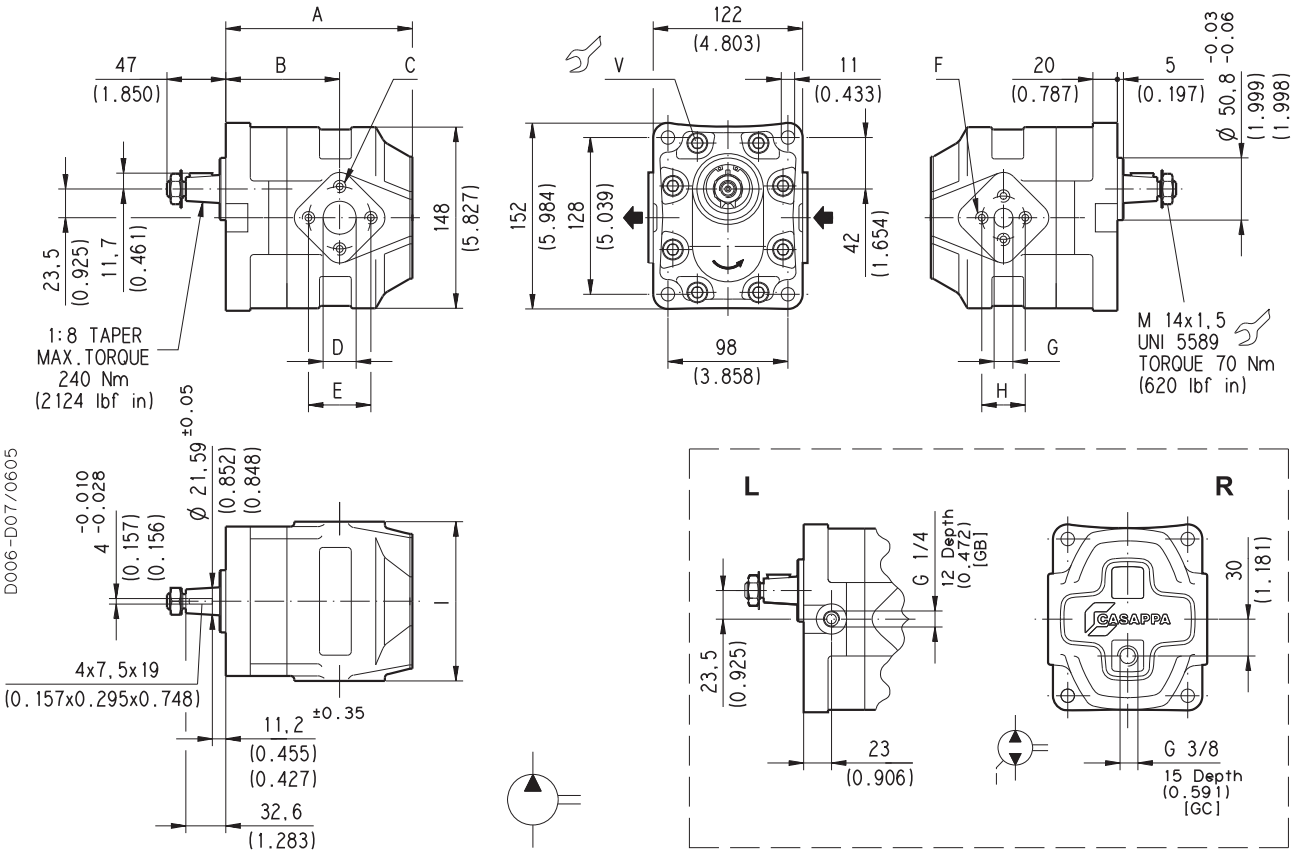
ORDER EXAMPLE

Standard pump KP 20•4 S0 - 03 S1 - L OC/OC - N

Special version pump KP 20•4 S0 - 04 S5 - L MA/MA - V Bz

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A mm (in)	B mm (in)	C mm (in)	D mm (in)	E mm (in)	F mm (in)	G mm (in)	H mm (in)	I mm (in)
KP 30•27	S D L R B	0-83 E3-L ED/EB-N	133 (5.236)	85 (3.346)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	M 8 Depth 17 (0.669)	19 (0.748)	40 (1.575)	130 (5.118)
KP 30•34			138 (5.433)	90 (3.543)							
KP 30•38			141 (5.551)	93 (3.661)							
KP 30•43			144 (5.669)	96 (3.780)							
KP 30•51			149 (5.866)	93 (3.661)							
KP 30•56			152 (5.984)	97 (3.819)							
KP 30•61			155 (6.102)	100 (3.937)							
KP 30•73		0-83 E3-L EF/ED-N	163 (6.417)	108 (4.252)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	135 (5.315)

02/06.2005

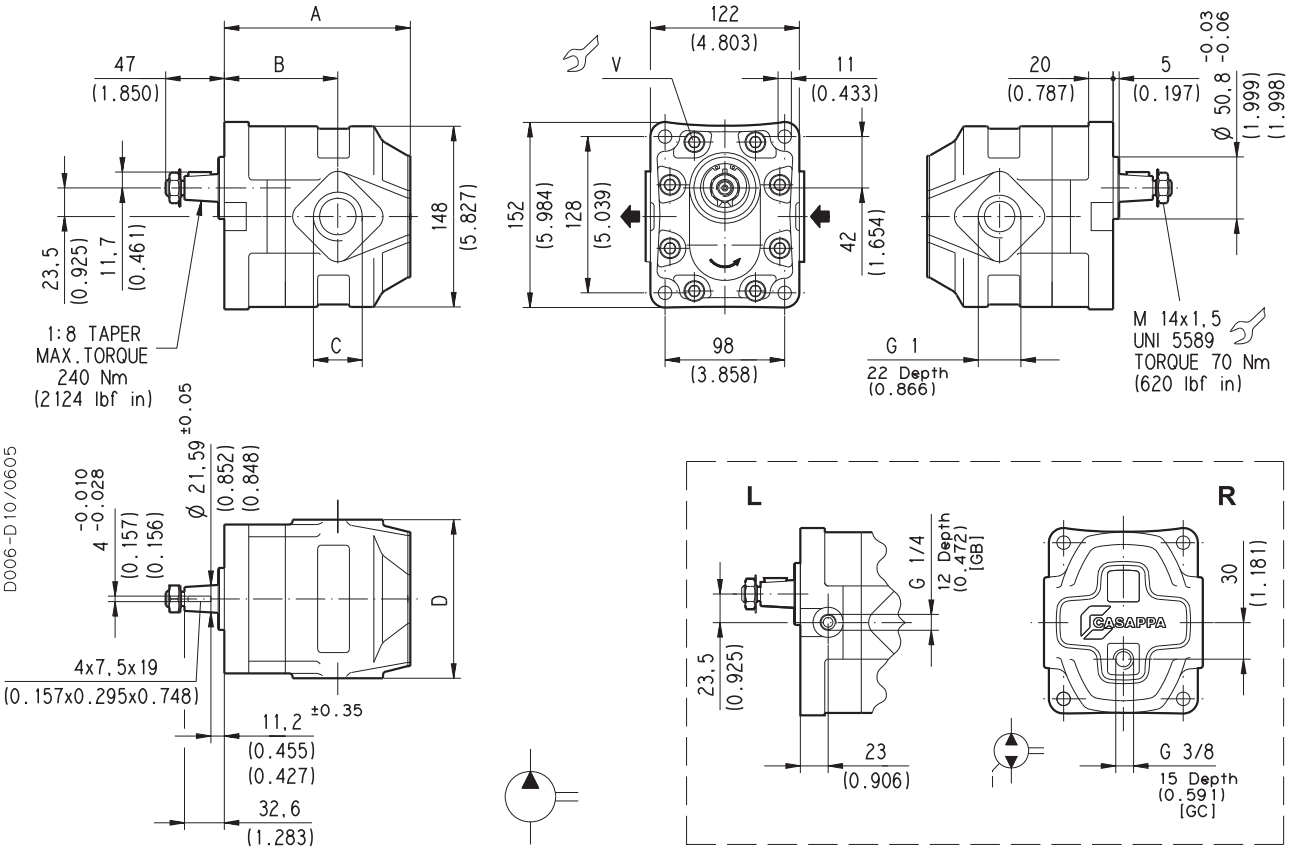
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30•27 S0-83 E3-L ED/EB-N

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A	B	C	D
			mm (in)	mm (in)	mm (in)	mm (in)
KP 30•27	S D L R B	0-83 E3-L GF/GF-N	133 (5.236)	85 (3.346)	G 1 Depth 22 (0.866)	130 (5.118)
KP 30•34			138 (5.433)	90 (3.543)		
KP 30•38			141 (5.551)	93 (3.661)		
KP 30•43			144 (5.669)	96 (3.780)		
KP 30•51			149 (5.866)	93 (3.661)		
KP 30•56			152 (5.984)	97 (3.819)		
KP 30•61			155 (6.102)	100 (3.937)		
KP 30•73		0-83 E3-L GG/GF-N	163 (6.417)	108 (4.252)	G 1 1/4 Depth 24 (0.945)	135 (5.315)

Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

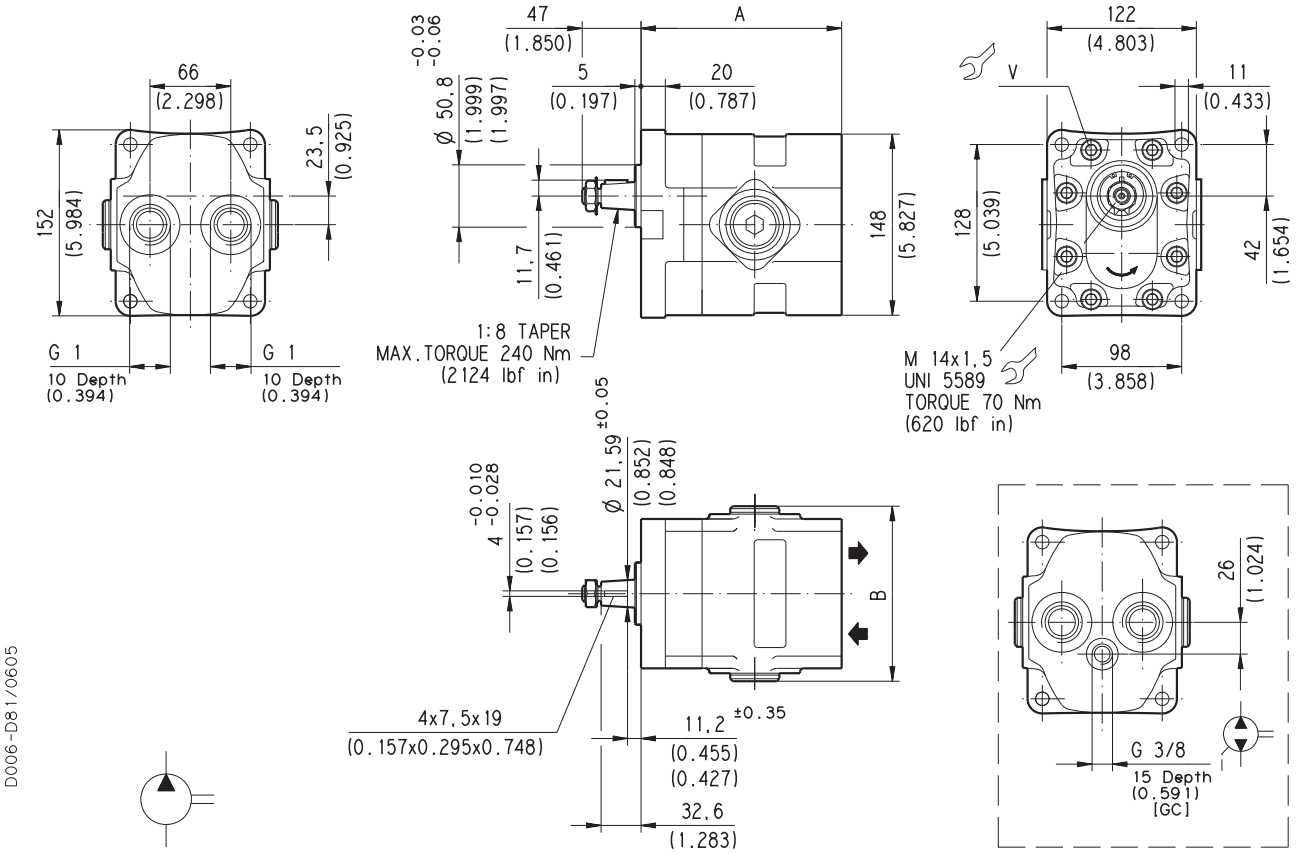
How to order:

KP 30•27 S0-83 E3-L GF/GF-N

02/06.2005

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Rear ports version (P)

Pump type			A	B
			mm (in)	mm (in)
KP 30•27	S D R B	0-83 E3-P GF/GF-N	148 (5.827)	143 (5.630)
KP 30•34			153 (6.024)	
KP 30•38			156 (6.142)	
KP 30•43			159 (6.260)	
KP 30•51			164 (6.457)	
KP 30•56			167 (6.575)	148 (5.827)
KP 30•61			170 (6.693)	
KP 30•73			178 (7.008)	

02/06.2005

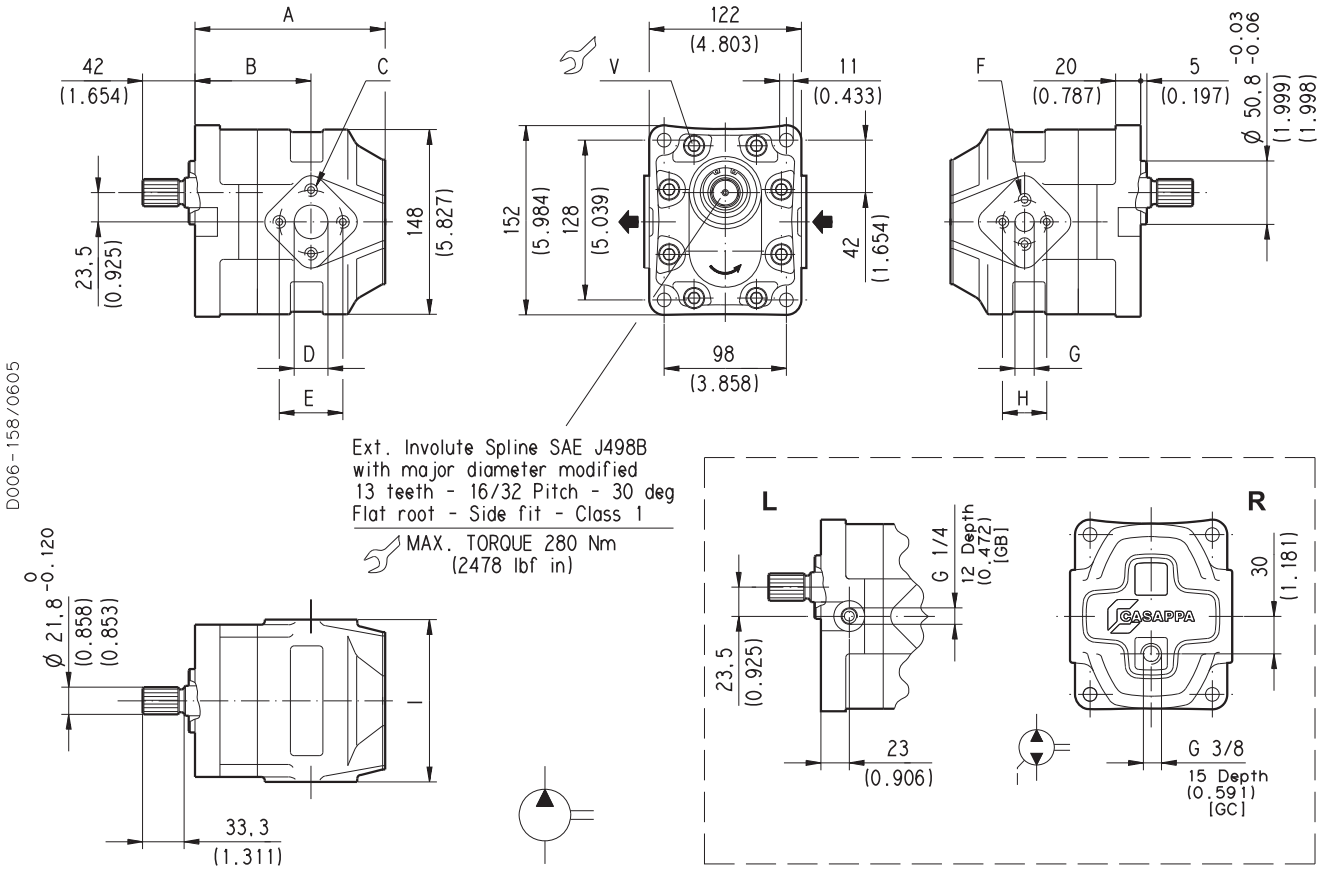
Rotation: S=Left - D=Right - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30•27 S0-83 E3-P GF/GF-N

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | A8 E3

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A	B	C	D	E	F	G	H	I
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•27	S D L R B	0-83 E3-L ED/EB-N	133 (5.236)	85 (3.346)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	M 8 Depth 17 (0.669)	19 (0.748)	40 (1.575)	130 (5.118)
KP 30•34			138 (5.433)	90 (3.543)							
KP 30•38			141 (5.551)	93 (3.661)							
KP 30•43			144 (5.669)	96 (3.780)							
KP 30•51			149 (5.866)	93 (3.661)							
KP 30•56			152 (5.984)	97 (3.819)							
KP 30•61			155 (6.102)	100 (3.937)							
KP 30•73		0-83 E3-L EF/ED-N	163 (6.417)	108 (4.252)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	135 (5.315)

02/06.2005

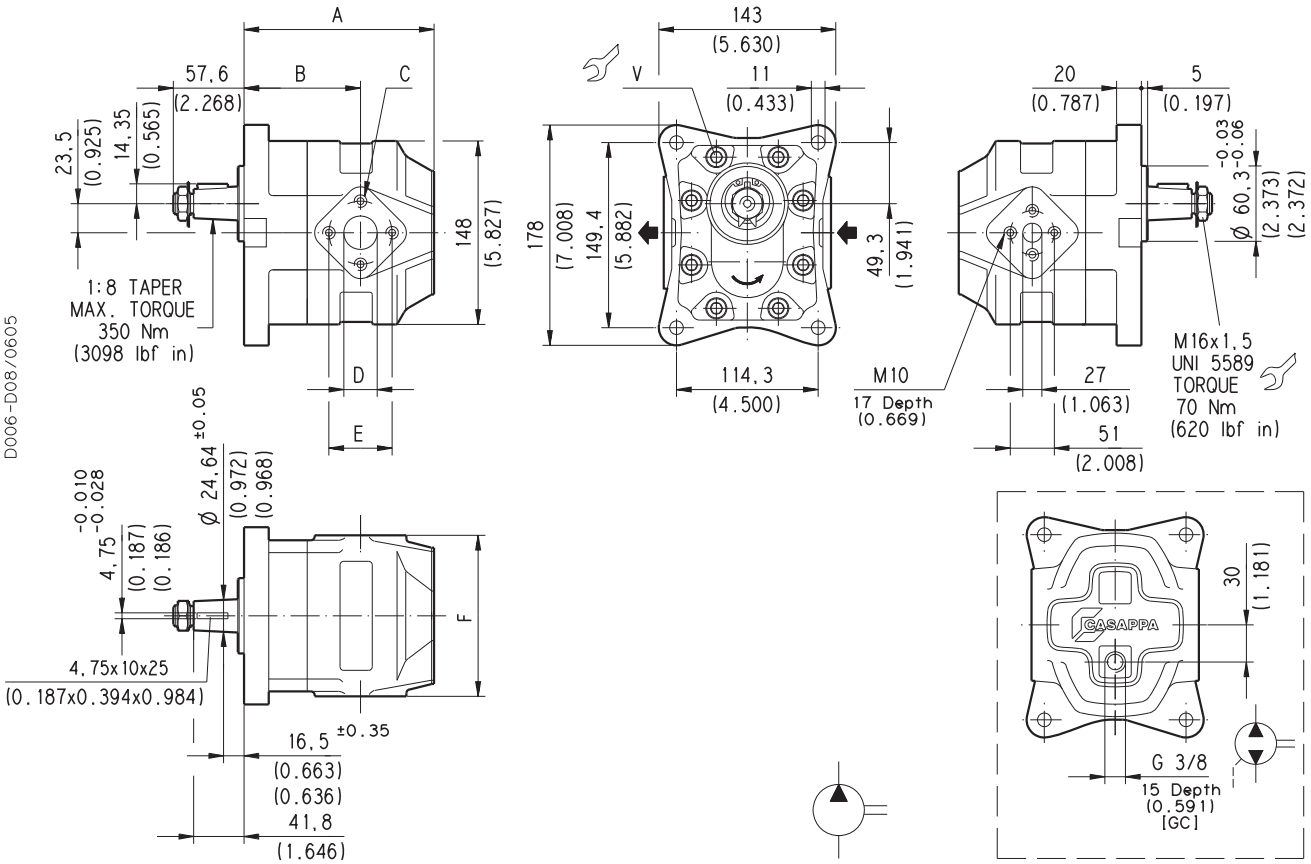
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30•27 S0-83 E3-L ED/EB-N

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 84 E4

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

02/06.2005

Pump type			A	B	C	D	E	F
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•51	S D R B	0-84 E4-L ED/ED-N	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
KP 30•61	S D R B	0-84 E4-L EF/ED-N	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KP 30•73	S D R B	0-84 E4-L EF/ED-N	164 (6.457)	109 (4.291)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)

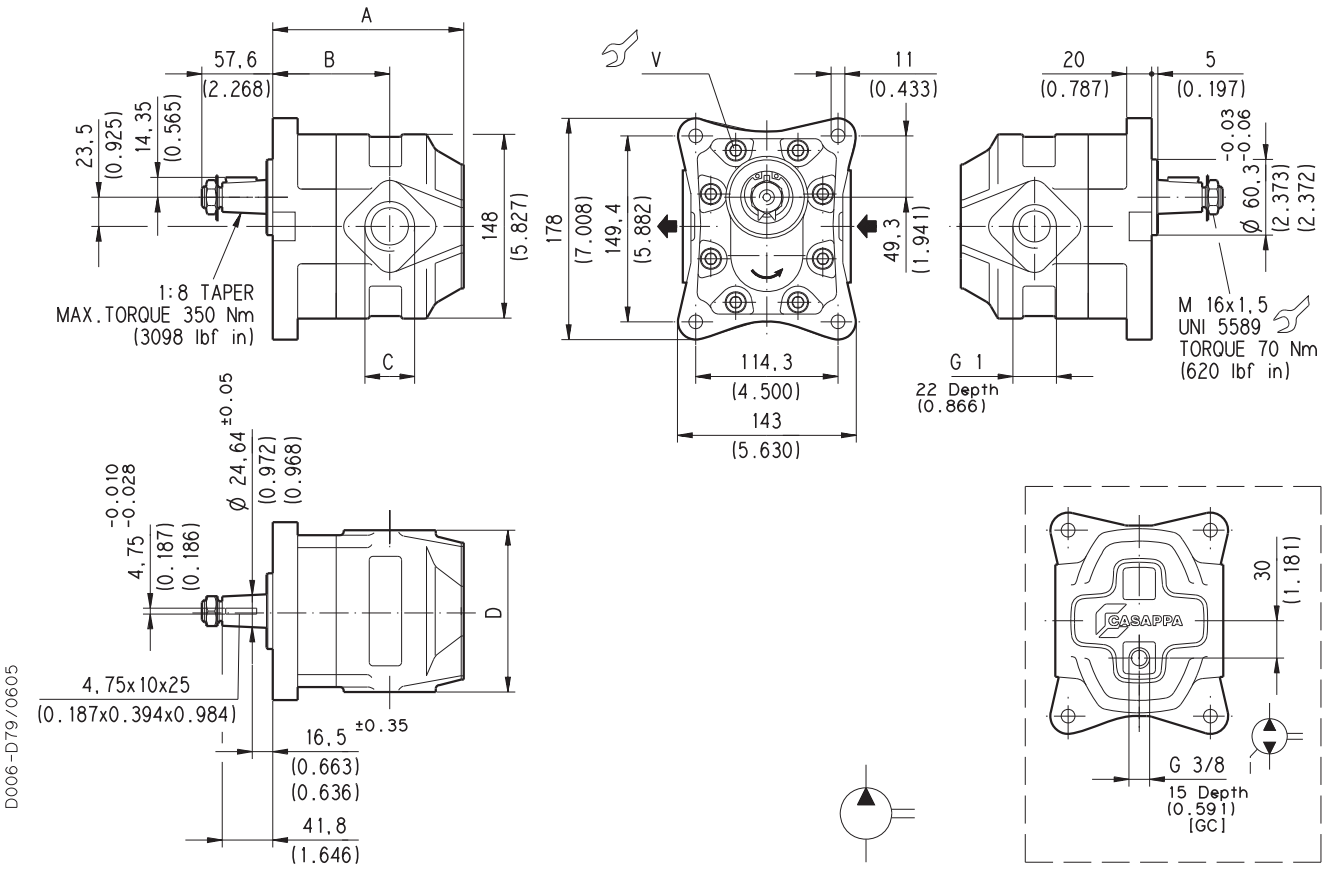
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30•51 S0-84 E4-L ED/ED-N

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 84 E4

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A	B	C	D
			mm (in)	mm (in)	mm (in)	mm (in)
KP 30•51	S D R B	0-84 E4-L GF/GF-N	150 (5.906)	94 (3.701)	G 1 Depth 22 (0.866)	130 (5.118)
KP 30•61	S D R B	0-84 E4-L GG/GF-N	156 (6.142)	101 (3.976)	G 1 1/4 Depth 24 (0.945)	135 (5.315)
KP 30•73	S D R B	0-84 E4-L GG/GF-N	164 (6.457)	109 (4.291)	G 1 1/4 Depth 24 (0.945)	135 (5.315)

02/06.2005

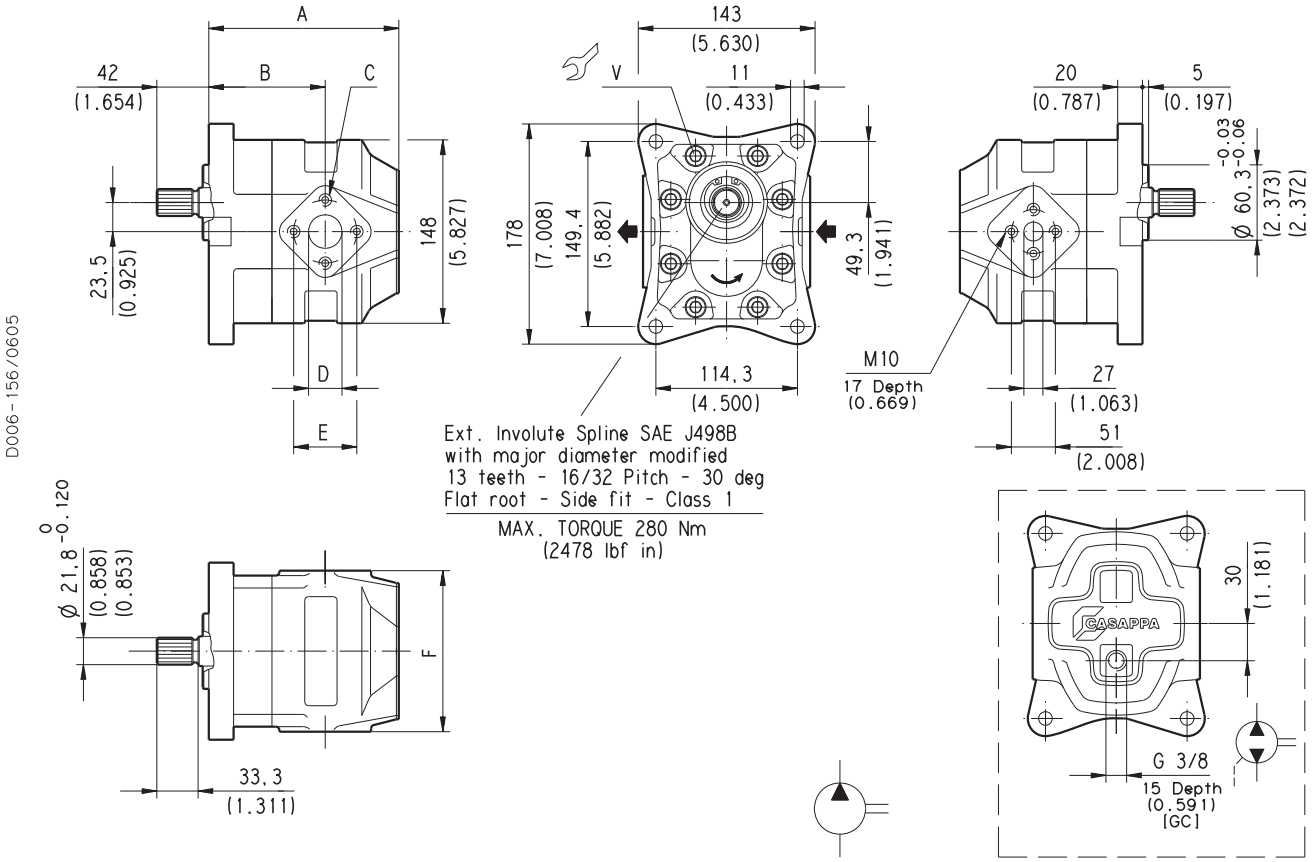
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30•51 S0-84 E4-L GF/GF-N

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | A8 E4

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A	B	C	D	E	F
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•51	S D R B	0-A8 E4-L ED/ED-N	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
KP 30•61	S D R B	0-A8 E4-L EF/ED-N	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KP 30•73	S D R B	0-A8 E4-L EF/ED-N	164 (6.457)	109 (4.291)				

02/06.2005

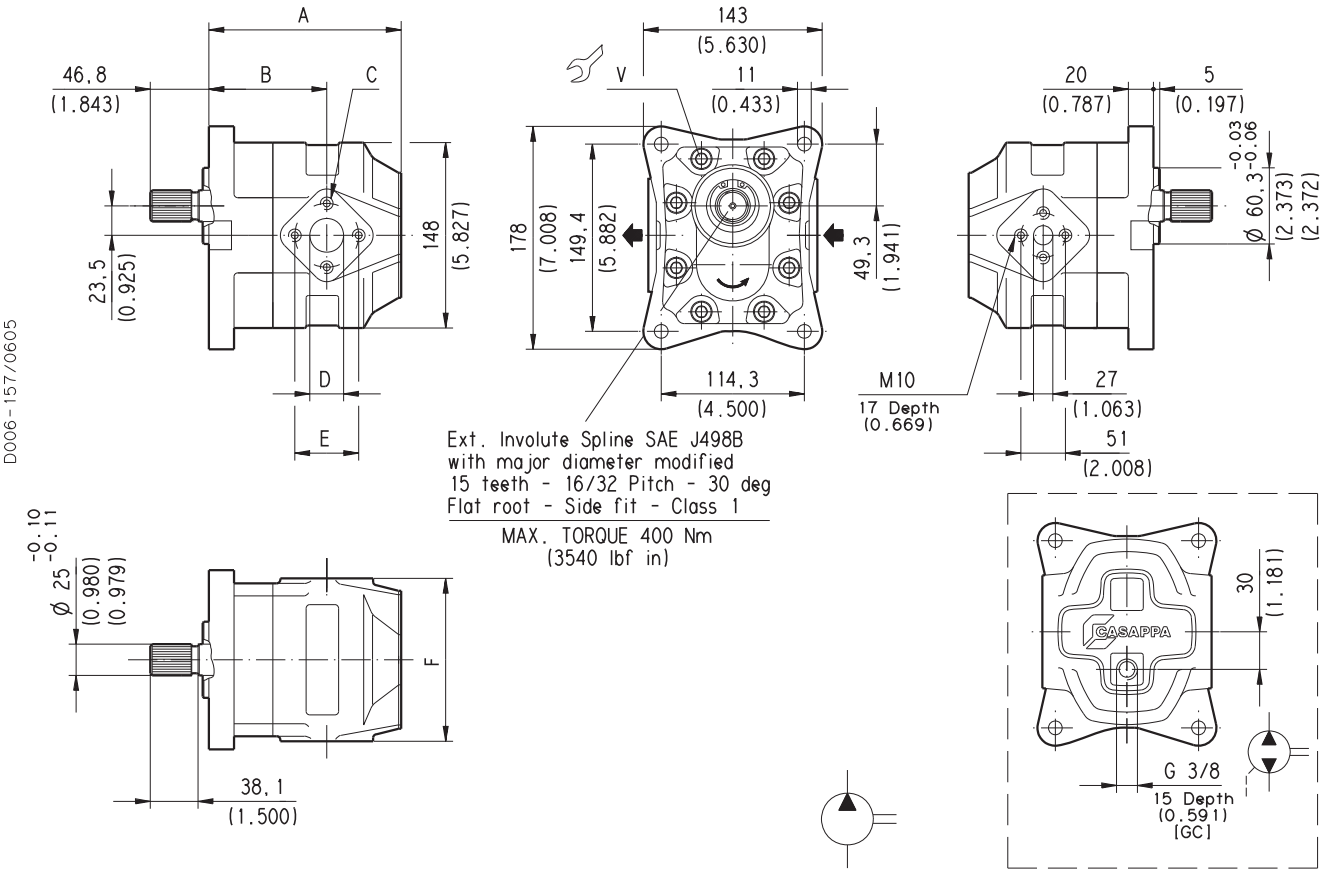
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30•51 S0-A8 E4-L ED/ED-N

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | A5 E4

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Pump type			A	B	C	D	E	F
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•51	S D R B	0-A5 E4-L ED/ED-N	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
KP 30•61	S D R B	0-A5 E4-L EF/ED-N	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KP 30•73	S D R B	0-A5 E4-L EF/ED-N	164 (6.457)	109 (4.291)				

02/06.2005

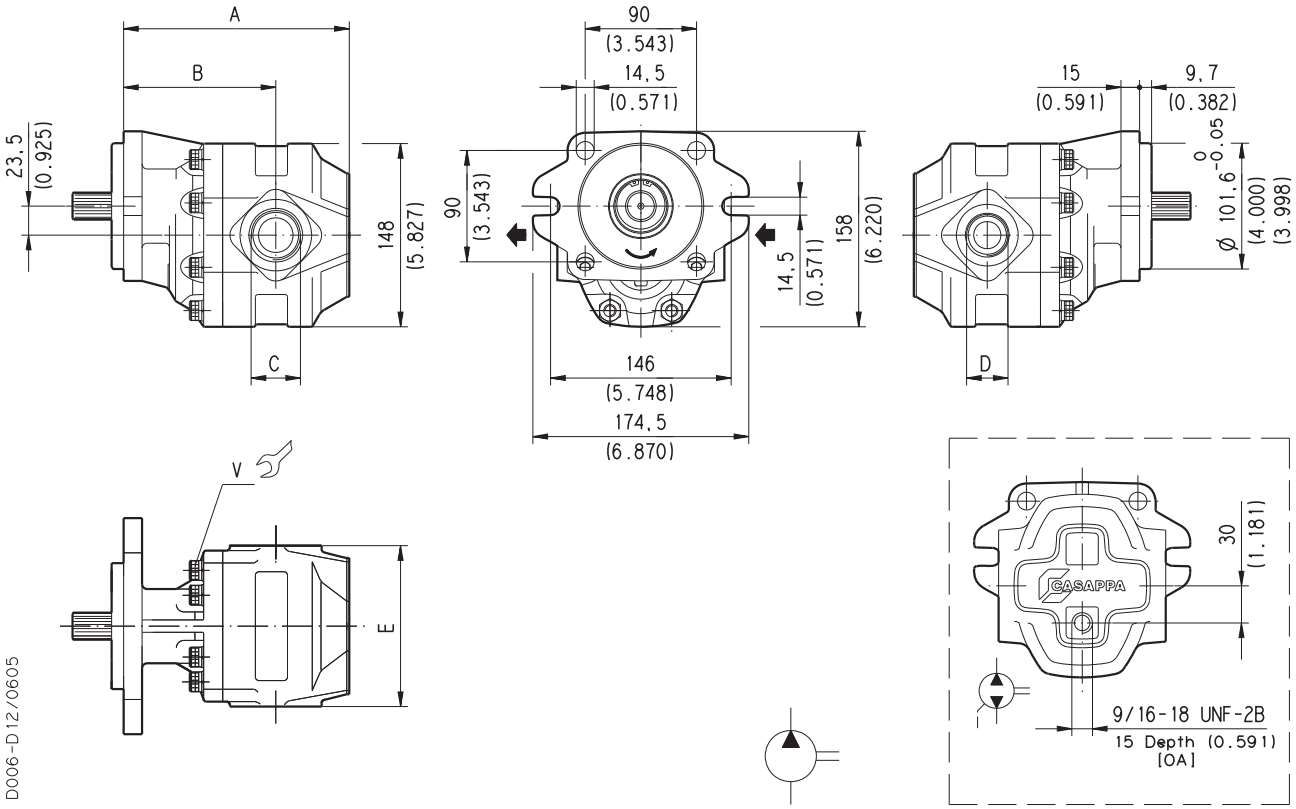
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30•51 S0-A5 E4-L ED/ED-N

KAPPA 30 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S3

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

To order see page 33 - 34

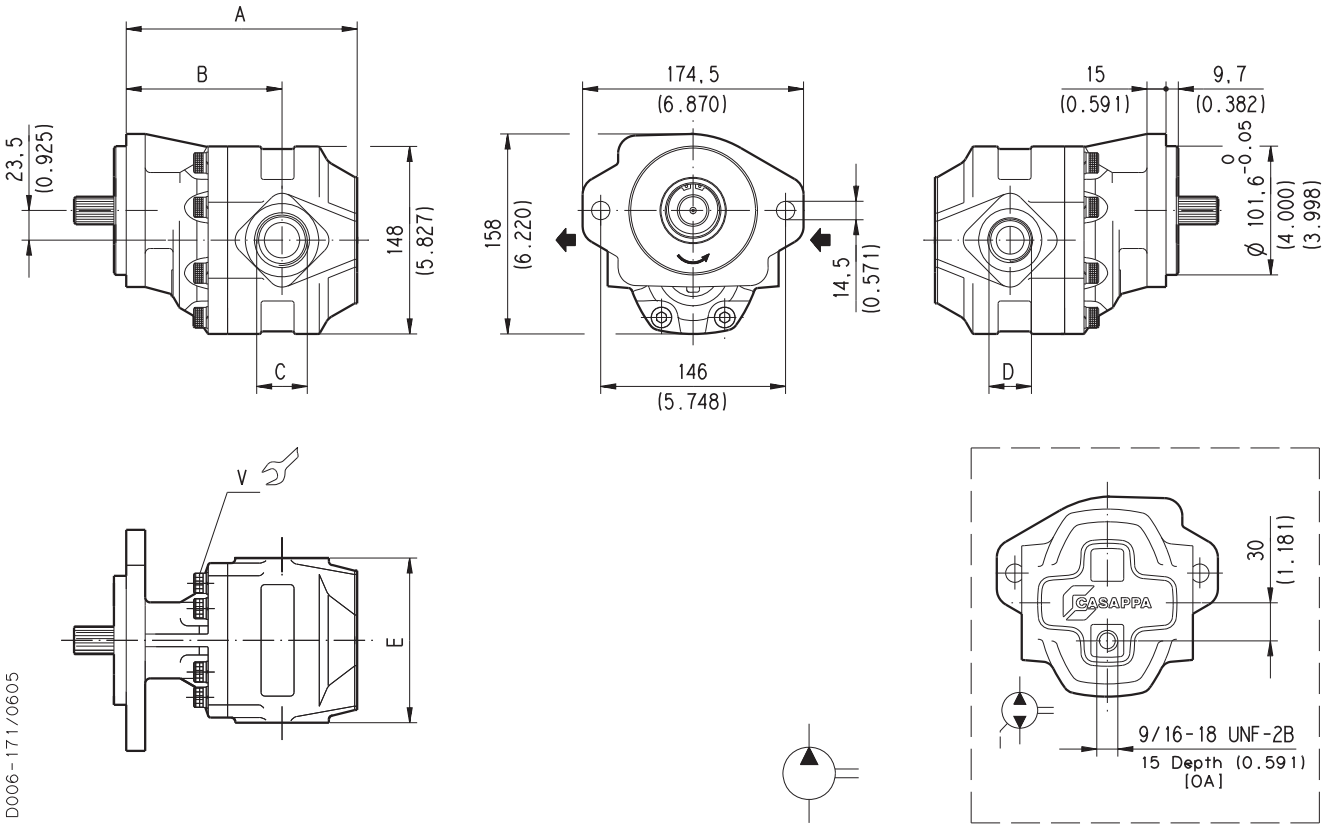
Pump type	A	B	C	D	E	Ports code	
	mm (in)	mm (in)			mm (in)	IN	OUT
KP 30•27	164 (6.457)	115 (4.528)	1-5/16-12 UN-2B	1-1/16-12 UN-2B	130 (5.118)	**OF**	**OD**
KP 30•34	169 (6.654)	120 (4.724)					
KP 30•38	172 (6.772)	123 (4.843)	1-5/8-12 UN-2B	1-5/16-12 UN-2B		**OG**	**OF**
KP 30•43	175 (6.890)	126 (4.961)					
KP 30•51	180 (7.087)	123 (4.843)					
KP 30•56*	182 (7.165)	127 (5.000)	1-7/8-12 UN-2B	1-5/8-12 UN-2B	135 (5.433)	**OH**	**OG**
KP 30•61	186 (7.323)	130 (5.118)					
KP 30•73	194 (7.638)	138 (5.433)					

* Available only with 04 and 32 shaft for 0 and 1 version.

02/06.2005

KAPPA 30 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S5

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

To order see page 33 - 34

Pump type	A	B	C	D	E	Ports code	
	mm (in)	mm (in)			mm (in)	IN	OUT
KP 30•27	164 (6.457)	115 (4.528)	1-5/16-12 UN-2B	1-1/16-12 UN-2B	130 (5.118)	**OF**	**OD**
KP 30•34	169 (6.654)	120 (4.724)					
KP 30•38	172 (6.772)	123 (4.843)	1-5/8-12 UN-2B	1-5/16-12 UN-2B		**OG**	**OF**
KP 30•43	175 (6.890)	126 (4.961)					
KP 30•51	180 (7.087)	123 (4.843)					
KP 30•56*	182 (7.165)	127 (5.000)	1-7/8-12 UN-2B	1-5/8-12 UN-2B	135 (5.433)	**OH**	**OG**
KP 30•61	186 (7.323)	130 (5.118)					
KP 30•73	194 (7.638)	138 (5.433)					

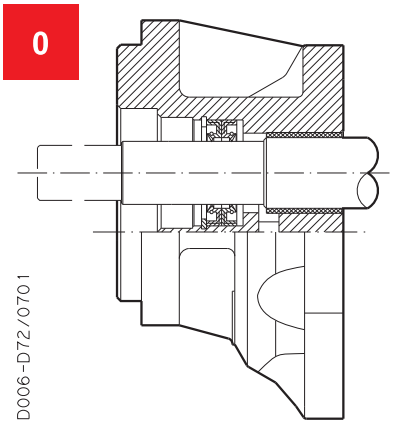
02/06.2005

* Available only with 04 and 32 shaft for 0 and 1 version.

Replaces: 01/03.2002

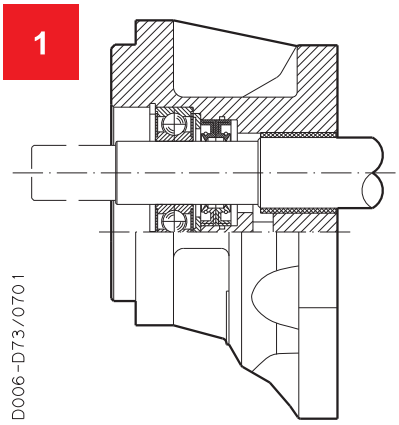
KAPPA 30 SAE VERSION — SAE

0



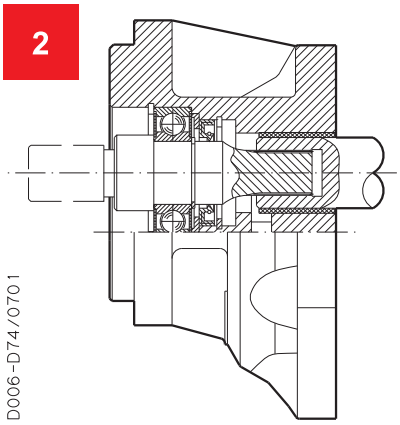
Version for applications without radial and axial load on the drive shaft.

1



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

2

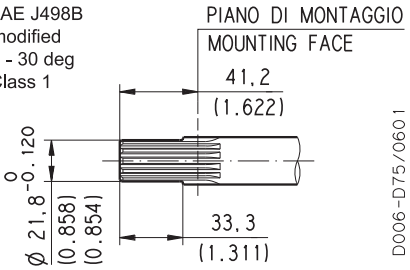


Special version with independent shaft for applications with low radial load and without axial load on the drive shaft.

KAPPA 30 END DRIVE SHAFTS — SAE

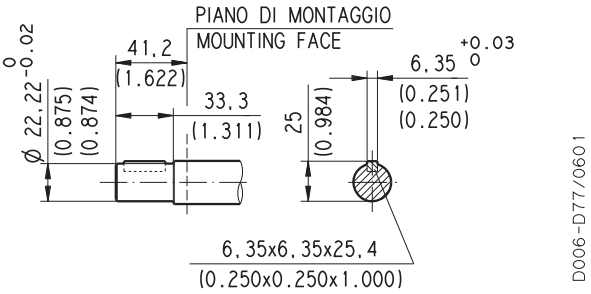
SAE "B" SPLINE — 04

Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 2921 lbf in (330 Nm) ◆

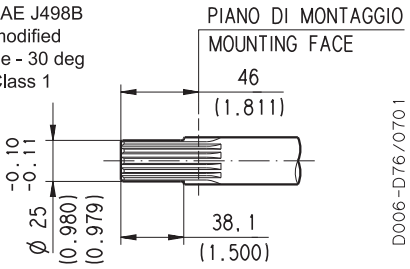
SAE "B" STRAIGHT — 32



MAX 1770 lbf in (200 Nm) ◆

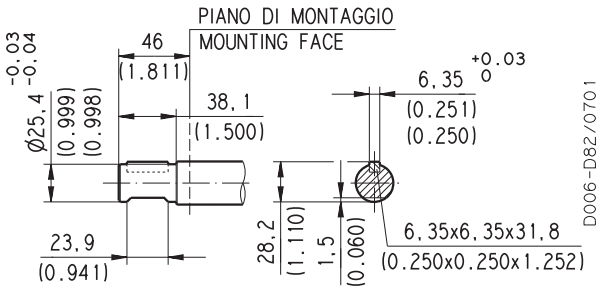
SAE "BB" SPLINE — 05

Ext. Involute Spline SAE J498B
with major diameter modified
15 teeth - 16/32 Spline - 30 deg
Flat Root - Side fit - Class 1



MAX 4426 lbf in (500 Nm) ◆

SAE "BB" STRAIGHT — 33



MAX 2478 lbf in (280 Nm) ◆

◆ For "2" version whichever end shaft, the max. torque applicable is M= 1505 lbf in (170 Nm)

03/03.2006

HOW TO ORDER SINGLE PUMPS

1	2	3		4	5		6	7		8
Pump type	Rotation	Version	–	Drive shaft	Mounting flange	–	Ports positon	Ports IN/OUT	–	Seals
KP30•27	S	0	–	04	S3	–	L	OF/OD	–	N

1 Pump Type		CODE
in³/rev	(cm³/rev)	
1.63	26,7	KP 30•27
2.11	34,56	KP 30•34
2.40	39,27	KP 30•38
2.68	43,98	KP 30•43
3.16	51,83	KP 30•51
3.45	56,54	KP 30•56
3.74	61,26	KP 30•61
4.50	73,82	KP 30•73

2 Rotation	CODE
Left	S
Right	D
Reversible	R
Reversible with 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
SAE “B” spline (13 teeth)	04
SAE “B” straight	32
SAE “BB” spline (15 teeth)	05
SAE “BB” straight	33

5 Mounting flange	CODE
SAE “B” 2-4 holes	S3
SAE “B” 2 holes	S5

CODE	6 Ports position
L	Side
P	Rear

CODE	7 Ports IN/OUT	
SAE STRAIGHT THREAD PORTS (ODT)		
Side	Pump type	
OF/OD	KP 30•27	
OF/OD	KP 30•34	
OG/OF	KP 30•38	
OG/OF	KP 30•43	
OG/OF	KP 30•51	
OH/OG	KP 30•56	
OH/OG	KP 30•61	
OH/OG	KP 30•73	

CODE	8 Seals (a)
N	Buna N (standard) - no code
N-H	Buna with high back pressure shaft seals
V	Viton
N Bz	Buna N and Bronze thrust plates
V Bz	Viton and Bronze thrust plates

(a) Choose the seals according to the temperature shown on page 1

01/03.2002

ORDER EXAMPLE

Standard pump KP 30•27 S0 - 04 S3 - L OF/OD - N

Special version pump KP 30•27 S2 - 32 S3 - L OF/OD - V Bz

MULTIPLE PUMPS

KAPPA series pumps can be coupled together in combination. Where imput power requirement of each element varies, that 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.

Replaces: 02/06.2005

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

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

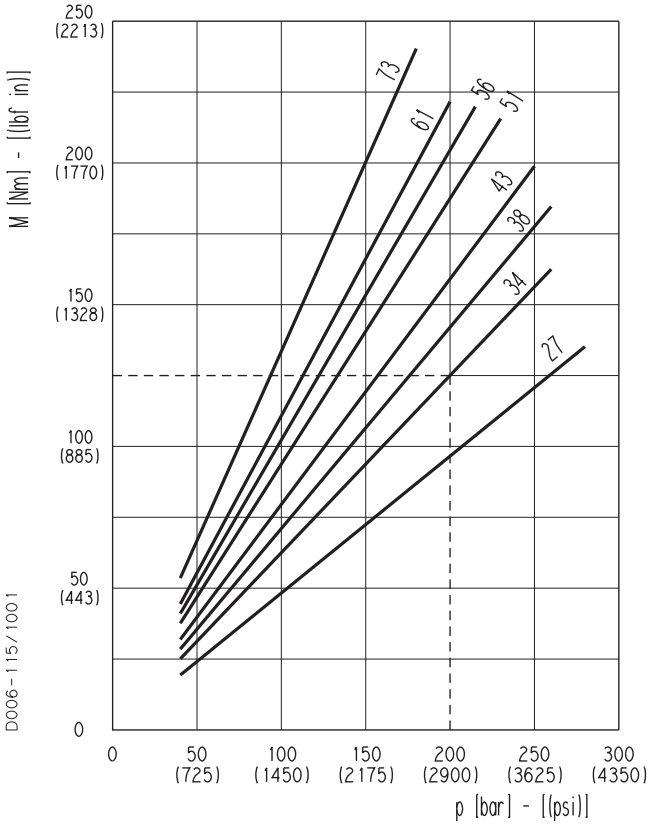
$$\mathbf{M_{theor.}} = \frac{\Delta p\ (bar) \cdot V\ (cm^3/rev)}{62{,}83}$$

05/03.2012

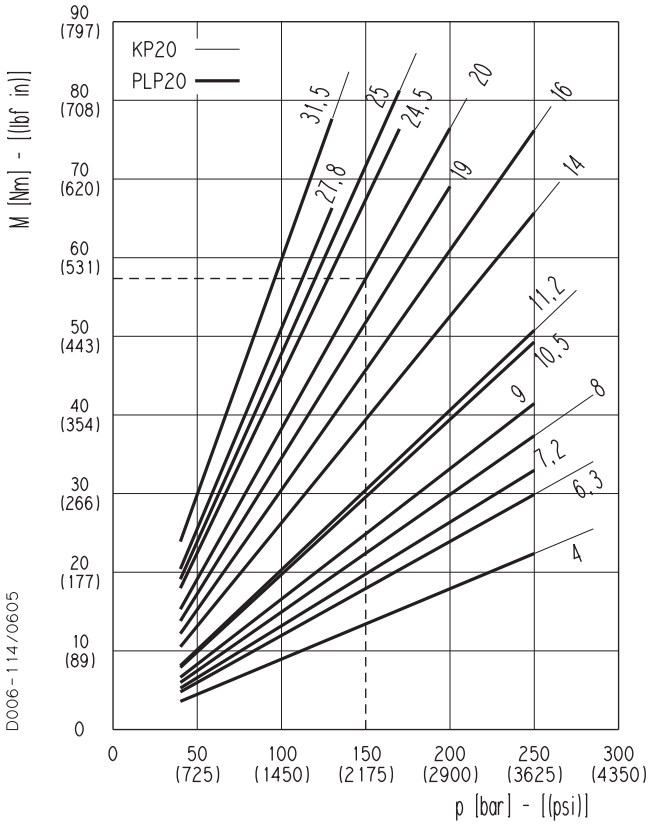
Note: The torque absorbed from the shaft of the first pump results from the sum of the torques due to all single stages. The achieved value must not exceed the maximum torque limit given for the shaft of the first pump.
Diagrams providing approximate selection data will be found on page 36.

ABSORBED TORQUE

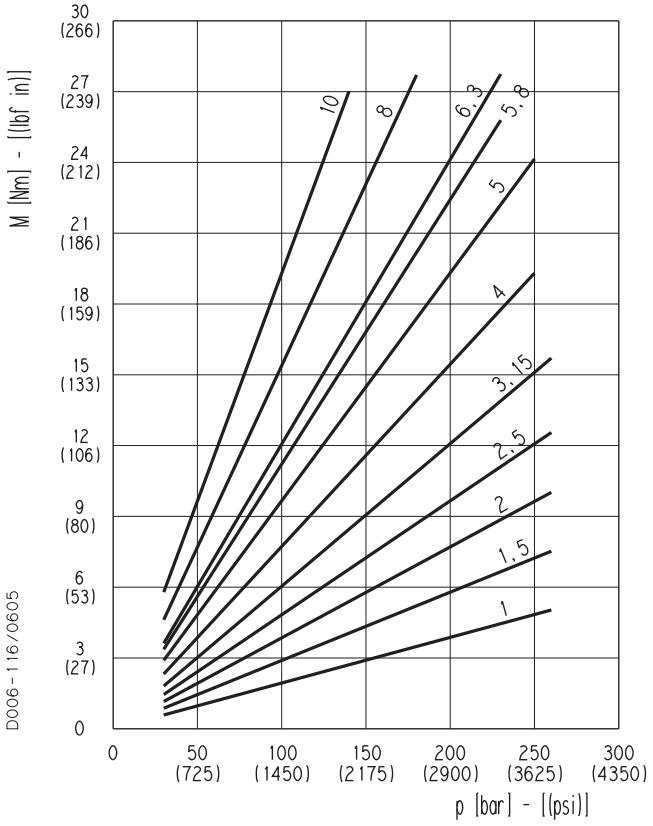
KP 30 **1**



KP 20 - PLP 20 **2**



PLP 10 **3**



DRIVE SHAFT SELECTION

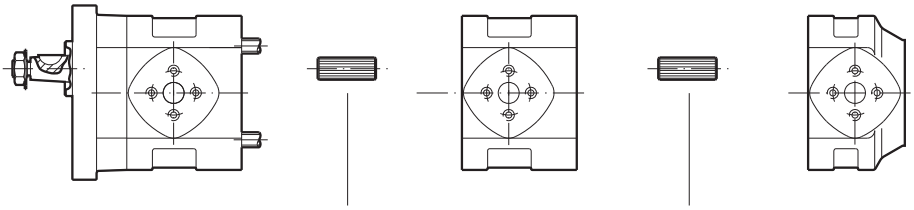
Let us consider a double pump KP30•34+KP20•20. If we suppose that we have to work with the first pump at a pressure of 2900 psi (200 bar) and the second pump at a pressure of 2175 psi (150 bar), the grafh 1 shows that the torque absorbed by KP30•34 is 1106 lbf in (125 Nm) and the grafh 2 shows that the torque absorbed by KP20•20 is 505 lbf in (57 Nm) acceptable value because it don't exceed the maximum drive shaft torque that is 974 lbf in (110 Nm), see page 38. 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.

02/06.2005

Replaces: 01/03.2002

KAPPA 20 + KAPPA 20

D006-D27/0701

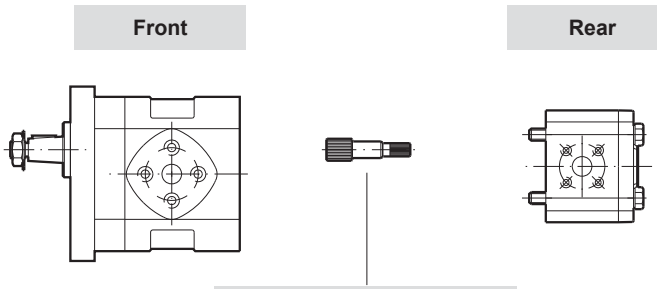


MAX 974 lbf in (110 Nm)

MAX 974 lbf in (110 Nm)

KAPPA 20 + POLARIS 10

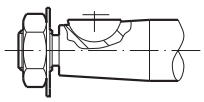
D006-D21/0701



MAX 266 lbf in (30 Nm)

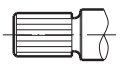
KAPPA 20 END DRIVE SHAFT

EUROPEAN TAPERED 1:8	82



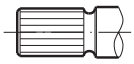
MAX 1239 lbf in (140 Nm)

SAE "A" SPLINE	03



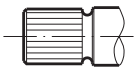
MAX 885 lbf in (100 Nm)

SAE SPLINE	01



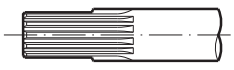
MAX 1151 lbf in (130 Nm)

SAE SPLINE	07



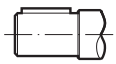
MAX 1505 lbf in (170 Nm)

SAE "B" SPLINE	04



MAX 2478 lbf in (280 Nm)

SAE "A" STRAIGHT	31



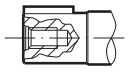
MAX 620 lbf in (70 Nm)

03/03.2006

STRAIGHT	49

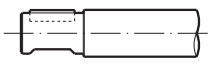
MAX 1239 lbf in (140 Nm)

STRAIGHT	50



MAX 885 lbf in (100 Nm)

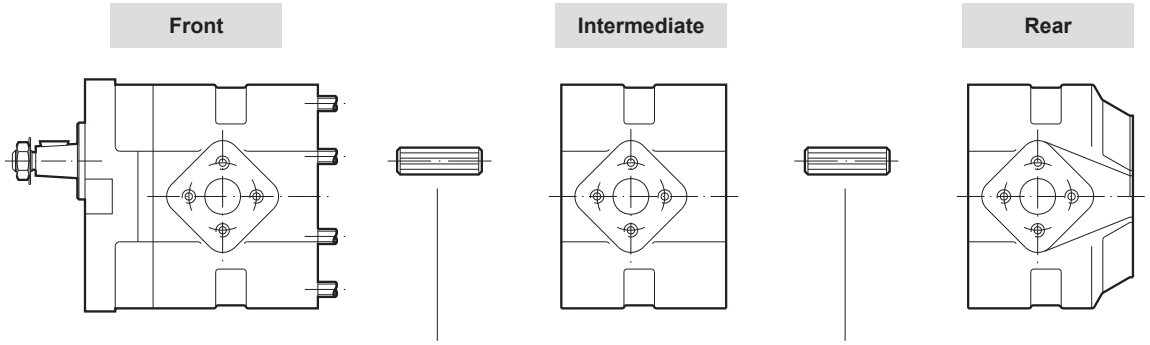
SAE "B" STRAIGHT	32



MAX 1770 lbf in (200 Nm)

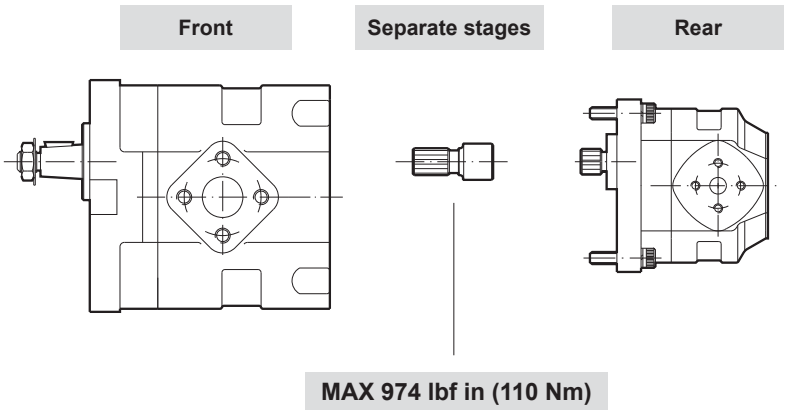
KAPPA 30 + KAPPA 30

D006-D23/0701



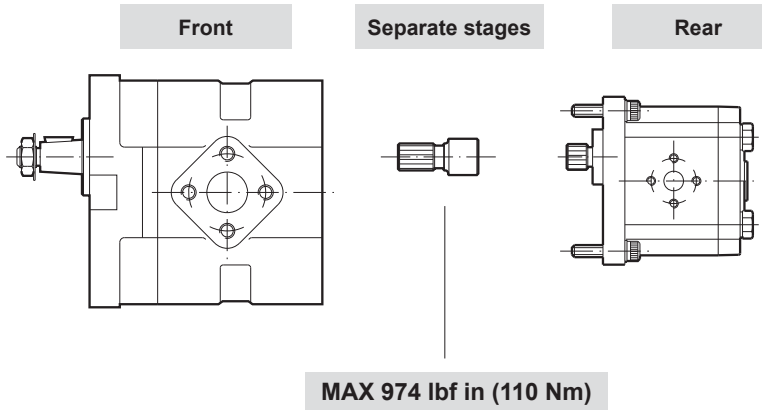
KAPPA 30 + KAPPA 20

D006-D22/0701



KAPPA 30 + POLARIS 20

D006-D26/0701

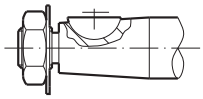


01/03.2002

KAPPA 30 END DRIVE SHAFTS

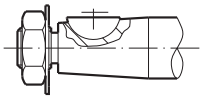
Replaces: 01/03.2002

EUROPEAN TAPERED 1:8	83



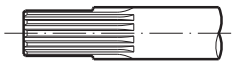
MAX 2124 lbf in (240 Nm)

EUROPEAN TAPERED 1:8	84



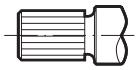
MAX 3098 lbf in (350 Nm)

SAE “B” SPLINE	04



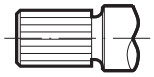
MAX 2921 lbf in (330 Nm)

SAE SPLINE	A8



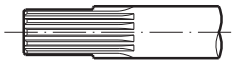
MAX 2478 lbf in (280 Nm)

SAE SPLINE	A5



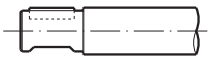
MAX 3540 lbf in (400 Nm)

SAE “BB” SPLINE	05



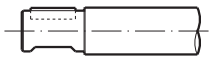
MAX 4426 lbf in (500 Nm)

SAE “B” STRAIGHT	32



MAX 1770 lbf in (200 Nm)

SAE “BB” STRAIGHT	33

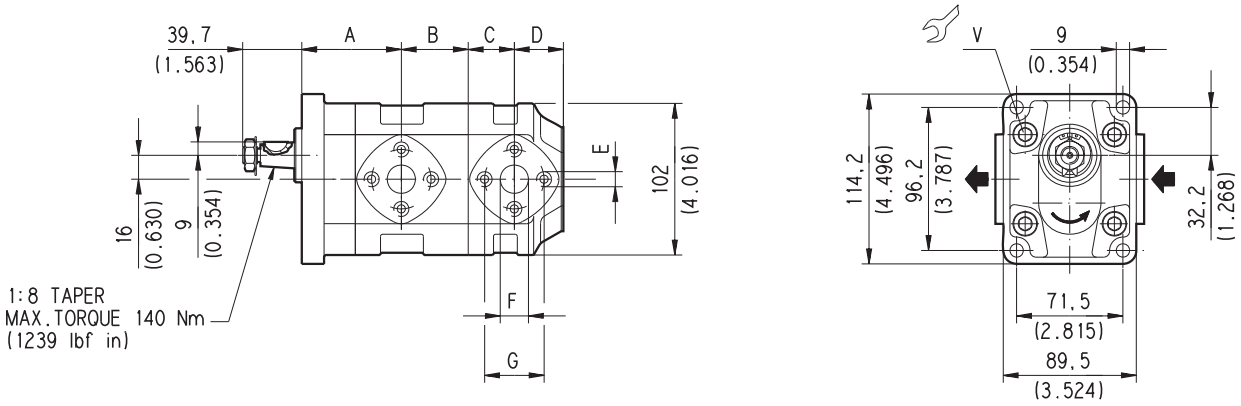


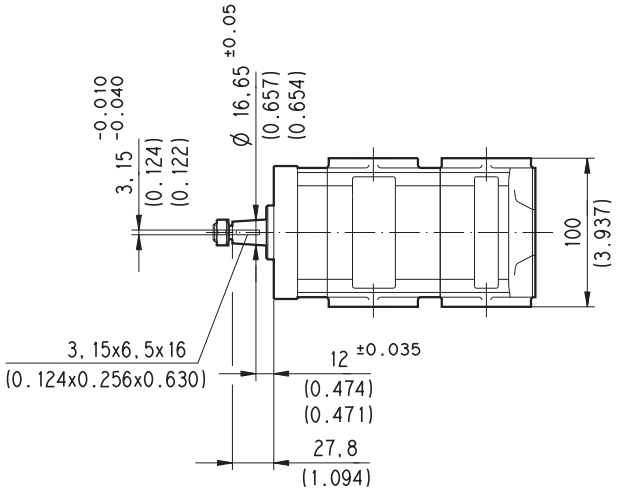
MAX 2478 lbf in (280 Nm)

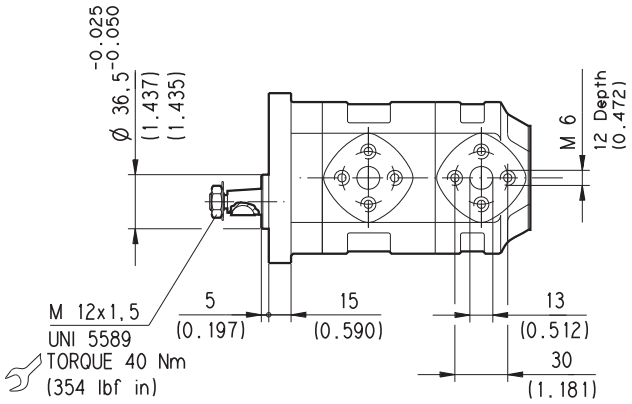
03/03.2006

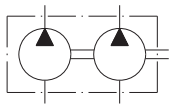
KAPPA 20 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 82 E2

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262









D006-D05/0605

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 20 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — 82 E2

Pump type	A	B	C	D	E	F	G
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 20•4	60 (2.362)	37,5 (1.476)	24 (0.945)	27,5 (1.083)	M 6 Depth 12 (0.472)	13 (0.512)	30 (1.181)
KP 20•6,3	62,5 (2.461)		26,5 (1.043)				
KP 20•8	65 (2.559)		29 (1.142)				
KP 20•11,2	68,5 (2.697)	38,5 (1.51)	32,5 (1.280)				
KP 20•14	67 (2.638)	45 (1.772)	31 (1.220)	33 (1.299)	M 8 Depth 14 (0.551)	19 (0.748)	40 (1.575)
KP 20•16	72,5 (2.854)	43 (1.693)	36,5 (1.437)				
KP 20•20	79 (3.110)		43 (1.693)				
KP 20•25	72 (2.835)	58 (2.283)	36 (1.417)	48 (1.890)			
KP 20•31,5	82 (3.228)		46 (1.811)				

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Front pump	/	Intermediate pump	/	Rear pump	Rotation **(1)**	/	–	Seals **(2)**
KP20•4	**/**	**20•4**	**/**	**20•4**	**S**		**–**	**FS -**

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

02/06.2005

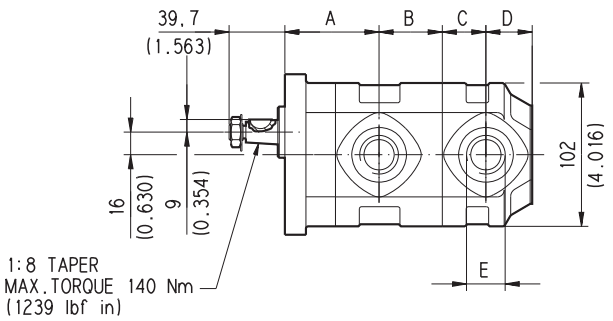
ORDER EXAMPLE

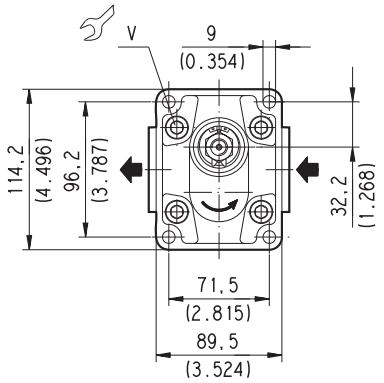
Double pump **KP20•4/20•4 S/FS**

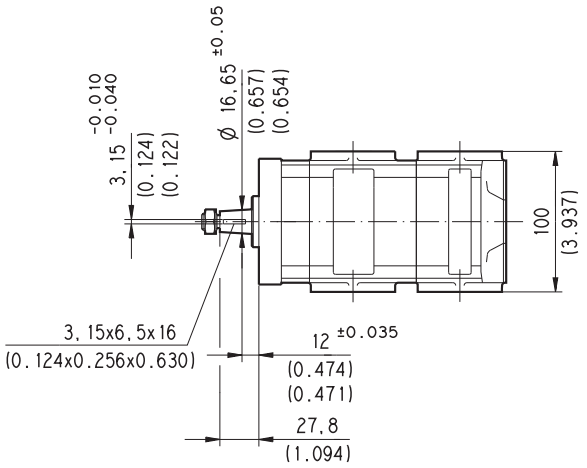
Triple pump **KP20•4/20•4/20•4 S/FS**

KAPPA 20 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 82 E2

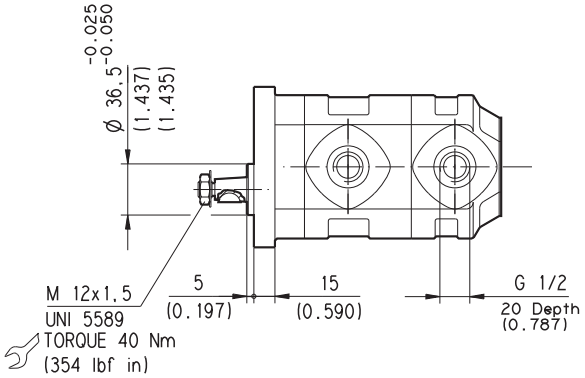
GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228

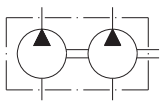






D006-D92/0605





02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 20 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — 82 E2

Pump type	A	B	C	D	E	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 20•4	60 (2.362)	37,5 (1.476)	24 (0.945)	27,5 (1.083)	G 1/2 Depth 20 (0.787)	GD	GD
KP 20•6,3	62,5 (2.461)		26,5 (1.043)				
KP 20•8	65 (2.559)		29 (1.142)				
KP 20•11,2	68,5 (2.697)	38,5 (1.51)	32,5 (1.280)				
KP 20•14	67 (2.638)	45 (1.772)	31 (1.220)	33 (1.299)	G 3/4 Depth 22 (0.866)	GE	
KP 20•16	72,5 (2.854)	43 (1.693)	36,5 (1.437)				
KP 20•20	79 (3.110)		43 (1.693)				
KP 20•25	72 (2.835)	58 (2.283)	36 (1.417)	48 (1.890)			
KP 20•31,5	82 (3.228)		46 (1.811)				

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Pump type	/	Ports position	/	Ports IN/OUT	–	Rotation (1)	/	–	Seals (2)

KP20•4 / L / GD/GD /

Front pump

20•4 / L / GD/GD /

Intermediate pump

20•4 / L / GD/GD S / FS -

Rear pump

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

02/06.2005

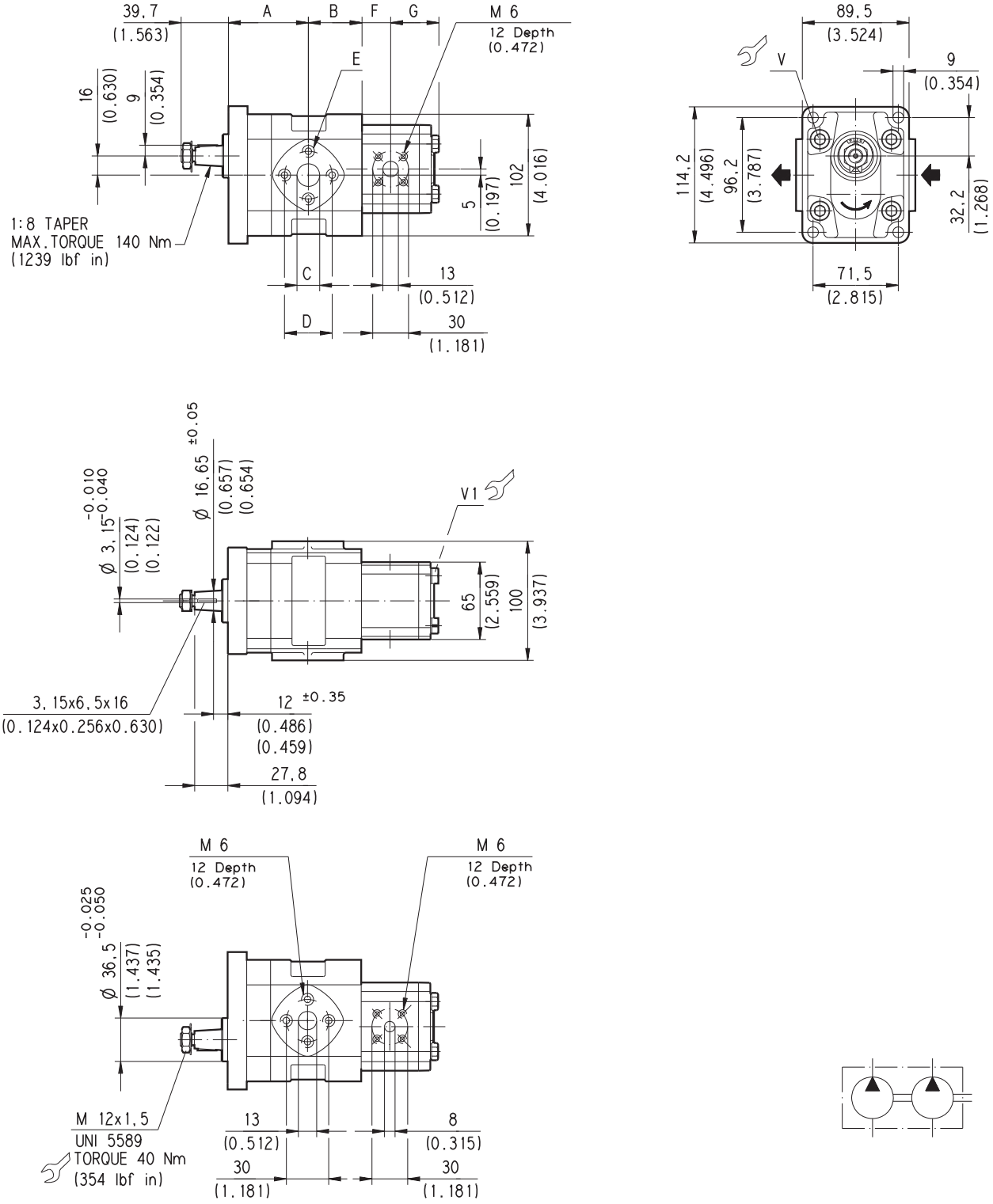
ORDER EXAMPLE

Double pump KP20•4-LGD/GD/20•4-LGD/GD S/FS

Triple pump KP20•4-LGD/GD/20•4-LGD/GD/20•4-LGD/GD S/FS

KAPPA 20 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 82 E2+PL10

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



D006-D06/0605

02/06.2005

Screws tightening torque Nm (lbf in)	
V	**V1**
70 ±7 (558 ÷ 682)	25 ±2,5 (199 ÷ 243)

KAPPA 20 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 82 E2+PL10

Pump type	A	B	C	D	E
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 20•4	60 (2.362)	37,5 (1.476)	24 (0.945)	27,5 (1.083)	M 6 Depth 12 (0.472)
KP 20•6,3	62,5 (2.461)		26,5 (1.043)		
KP 20•8	65 (2.559)		29 (1.142)		
KP 20•11,2	68,5 (2.697)	38,5 (1.51)	32,5 (1.280)		
KP 20•14	67 (2.638)	45 (1.772)	31 (1.220)	33 (1.299)	M 8 Depth 14 (0.551)
KP 20•16	72,5 (2.854)	43 (1.693)	36,5 (1.437)		
KP 20•20	79 (3.110)		43 (1.693)		
KP 20•25	72 (2.835)	58 (2.283)	36 (1.417)	48 (1.890)	
KP 20•31,5	82 (3.228)		46 (1.811)		

Pump type	F	G
	mm (in)	mm (in)
PL 10•1	17,6 (0.693)	34,6 (1.362)
PL 10•1,5	18,4 (0.724)	35,4 (1.394)
PL 10•2	19,2 (0.756)	36,2 (1.425)
PL 10•2,5	20 (0.787)	37 (1.457)
PL 10•3,15	21 (0.827)	38 (1.496)
PL 10•4	22,4 (0.882)	39,4 (1.551)
PL 10•5	24 (0.945)	41 (1.614)
PL 10•5,8	25,3 (0.996)	42,3 (1.665)
PL 10•6,3	26 (1.024)	43 (1.693)
PL 10•8	28,8 (1.134)	45,8 (1.803)
PL 10•10	32 (1.260)	49 (1.929)

For ports and general data of Polaris series, please see the proper technical catalogue.

How to order a double pump

Front pump	/	Rear pump	Rotation (1)	/	–	Seals (2)
KP20•4	/	PLP10•1	S	/	FS	-

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

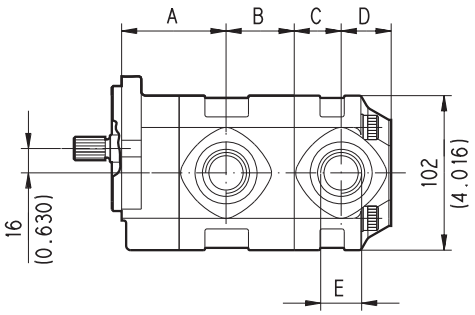
02/06.2005

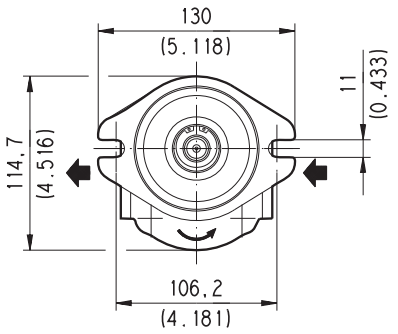
ORDER EXAMPLE

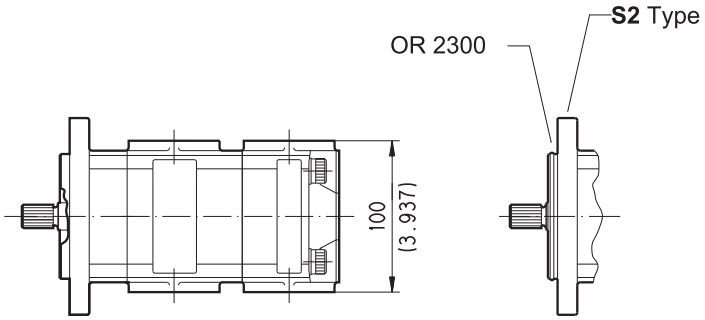
Double pump	**KP20•4/PLP10•1 S/FS**

KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S1

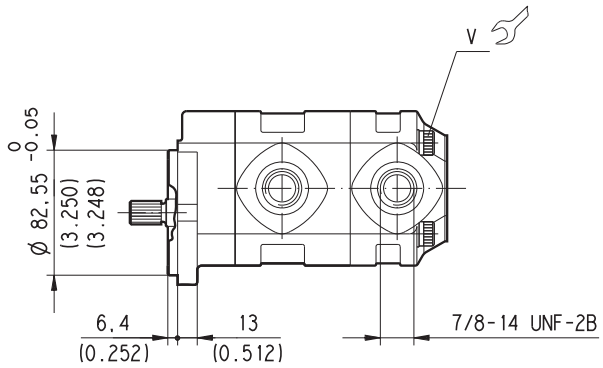
SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1

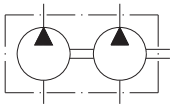






D006-D93/0605





02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 20 — HYDRAULIC GEAR PUMPS SAE STANDARD — ... S1

Pump type	A	B	C	D	E	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)		IN	OUT
KP 20•4	62 (2.441)	37,5 (1.476)	24 (0.945)	27,5 (1.083)	7/8-14 UNF-2B	**OC**	**OC**
KP 20•6,3	64,5 (2.539)		26,5 (1.043)				
KP 20•8	67 (2.638)		29 (1.142)				
KP 20•11,2	70,5 (2.776)	38,5 (1.51)	32,5 (1.280)				
KP 20•14	69 (2.717)	45 (1.772)	31 (1.220)	33 (1.299)	1-1/16-12 UN-2B	**OD**	
KP 20•16	74,5 (2.933)	43 (1.693)	36,5 (1.437)				
KP 20•20	81 (3.189)		43 (1.693)				
KP 20•25	74 (2.913)	58 (2.283)	36 (1.417)	48 (1.890)			
KP 20•31,5	84 (3.307)		46 (1.811)				

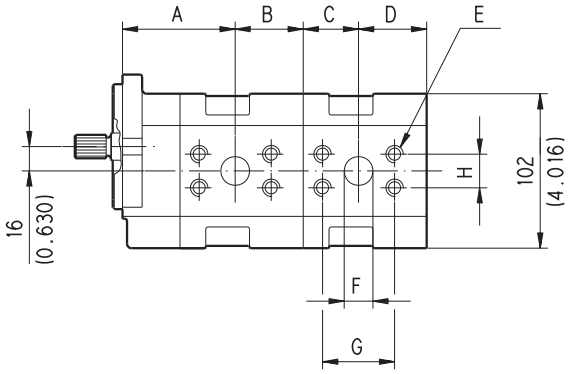
The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

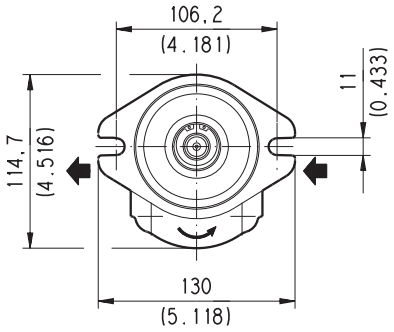
To order see page 54 e 55

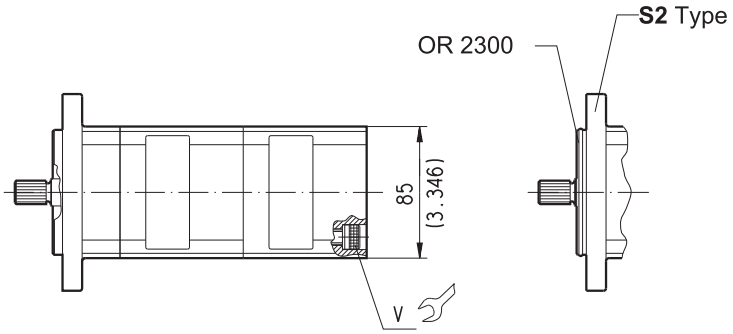
02/06.2005

KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S1

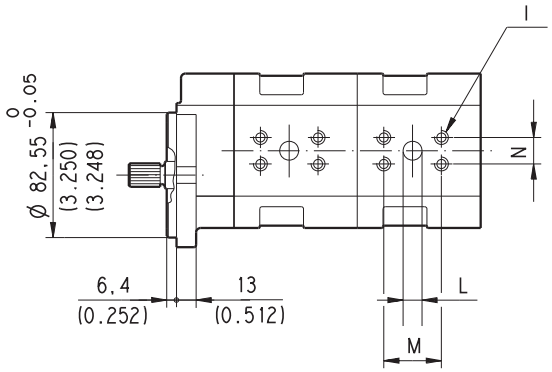
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI
Metric thread ISO 60° conforms to ISO/R 262

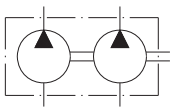






D006-128/0605





02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 20 — HYDRAULIC GEAR PUMPS SAE STANDARD — ... S1

Pump type	A	B	C	D
	mm (in)	mm (in)	mm (in)	mm (in)
KP 20•4	62 (2.441)	37,5 (1.476)	24 (0.945)	39,5 (1.555)
KP 20•6,3	64,5 (2.539)		26,5 (1.043)	
KP 20•8	67 (2.638)		29 (1.142)	
KP 20•11,2	70,5 (2.776)	38,5 (1.51)	32,5 (1.280)	40,5 (1.594)
KP 20•14	69 (2.717)	45 (1.772)	31 (1.220)	47 (1.850)
KP 20•16	74,5 (2.933)	43 (1.693)	36,5 (1.437)	45 (1.772)
KP 20•20	81 (3.189)		43 (1.693)	
KP 20•25	74 (2.913)	58 (2.283)	36 (1.417)	60 (2.362)
KP 20•31,5	84 (3.307)		46 (1.811)	

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

Pump type	E	F	G	H	I	L	M	N	Port code	
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 20•4	M 8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	**MA**	**MA**
KP 20•6,3										
KP 20•8										
KP 20•11,2										
KP 20•14	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)					**MB**	
KP 20•16										
KP 20•20										
KP 20•25		25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	**MC**	**MB**
KP 20•31,5										

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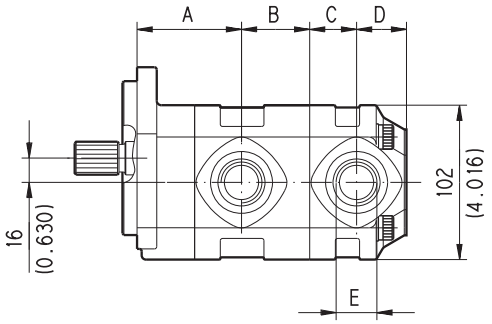
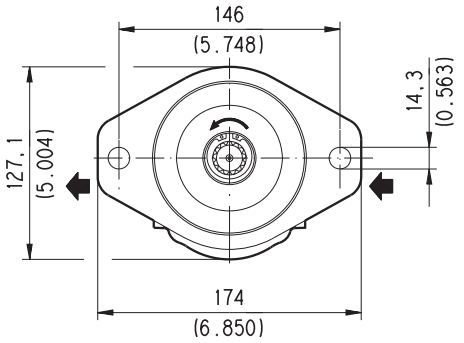
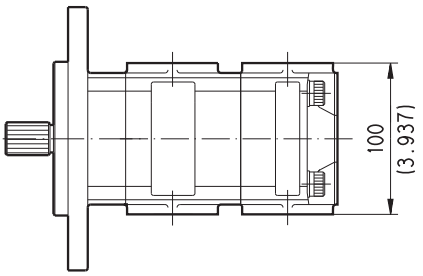
To order see page 54 e 55

KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S5

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1







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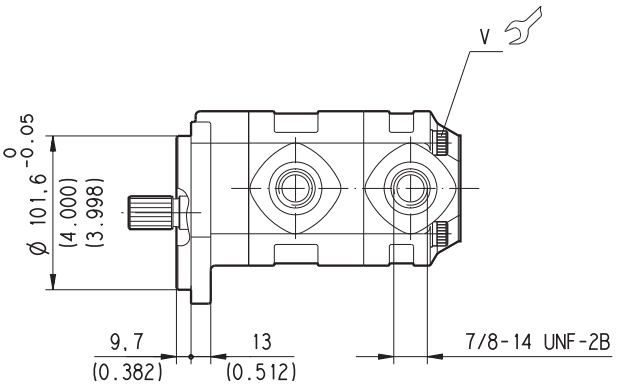

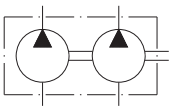

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 20 — HYDRAULIC GEAR PUMPS SAE STANDARD — ... S5

Pump type	A	B	C	D	E	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)		IN	OUT
KP 20•4	62 (2.441)	37,5 (1.476)	24 (0.945)	27,5 (1.083)	7/8-14 UNF-2B	**OC**	**OC**
KP 20•6,3	64,5 (2.539)		26,5 (1.043)				
KP 20•8	67 (2.638)		29 (1.142)				
KP 20•11,2	70,5 (2.776)	38,5 (1.51)	32,5 (1.280)				
KP 20•14	69 (2.717)	45 (1.772)	31 (1.220)	33 (1.299)	1-1/16-12 UN-2B	**OD**	
KP 20•16	74,5 (2.933)	43 (1.693)	36,5 (1.437)				
KP 20•20	81 (3.189)		43 (1.693)				
KP 20•25	74 (2.913)	58 (2.283)	36 (1.417)	48 (1.890)			
KP 20•31,5	84 (3.307)		46 (1.811)				

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

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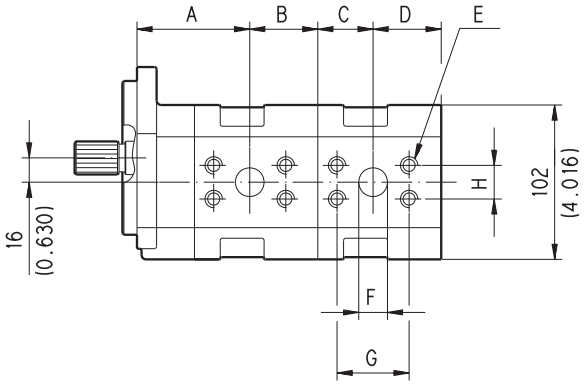
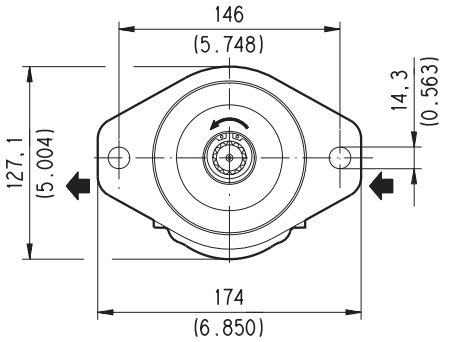
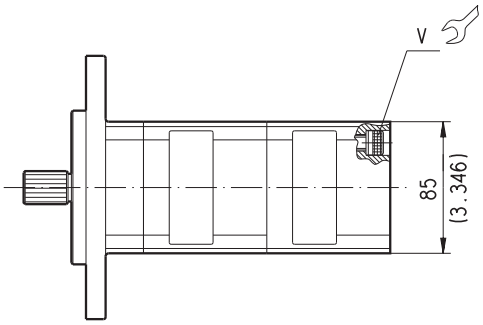
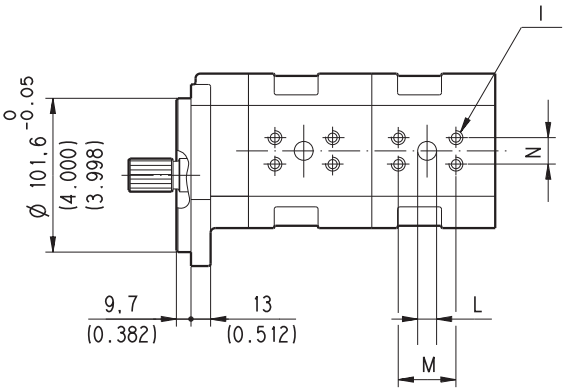
KAPPA 20 | HYDRAULIC GEAR PUMPS SAE STANDARD | ... S5

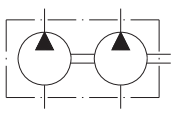
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI
Metric thread ISO 60° conforms to ISO/R 262











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02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 20 — HYDRAULIC GEAR PUMPS SAE STANDARD — ... S5

Pump type	A	B	C	D
	mm (in)	mm (in)	mm (in)	mm (in)
KP 20•4	62 (2.441)	37,5 (1.476)	24 (0.945)	39,5 (1.555)
KP 20•6,3	64,5 (2.539)		26,5 (1.043)	
KP 20•8	67 (2.638)		29 (1.142)	
KP 20•11,2	70,5 (2.776)	38,5 (1.51)	32,5 (1.280)	40,5 (1.594)
KP 20•14	69 (2.717)	45 (1.772)	31 (1.220)	47 (1.850)
KP 20•16	74,5 (2.933)	43 (1.693)	36,5 (1.437)	45 (1.772)
KP 20•20	81 (3.189)		43 (1.693)	
KP 20•25	74 (2.913)	58 (2.283)	36 (1.417)	60 (2.362)
KP 20•31,5	84 (3.307)		46 (1.811)	

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

Pump type	E	F	G	H	I	L	M	N	Port code	
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 20•4	M 8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	**MA**	**MA**
KP 20•6,3										
KP 20•8										
KP 20•11,2										
KP 20•14	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)					**MB**	
KP 20•16										
KP 20•20										
KP 20•25		25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	**MC**	**MB**
KP 20•31,5										

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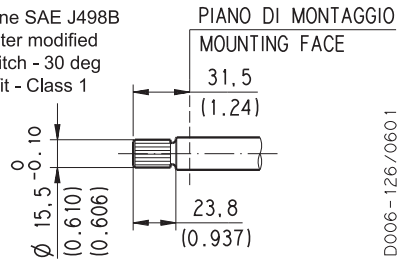
To order see page 54 e 55

KAPPA 30 SAE VERSION

SAE

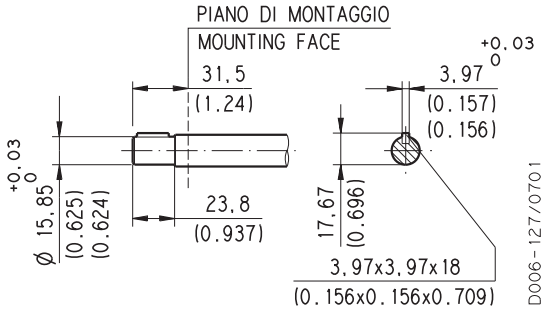
SAE "A" SPLINE — 03

Ext. Involute Spline SAE J498B
with major diameter modified
9 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 885 lbf in (100 Nm)

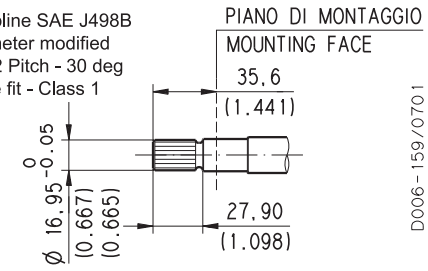
SAE "A" STRAIGHT — 31



MAX 620 lbf in (70 Nm)

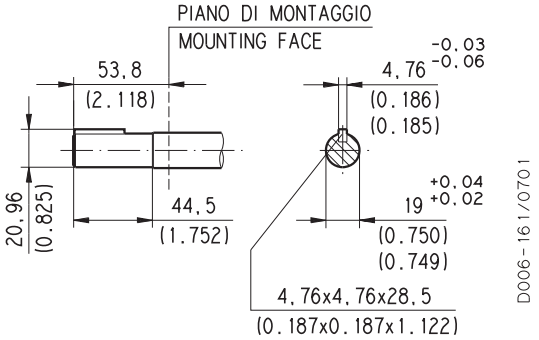
SAE SPLINE — 01

Ext. Involute Spline SAE J498B
with major diameter modified
10 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 1151 lbf in (130 Nm)

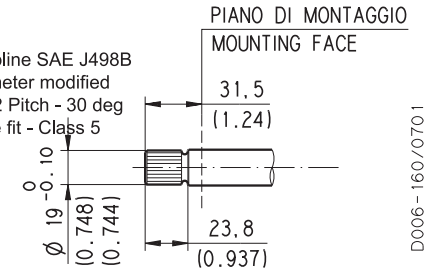
STRAIGHT — 49



MAX 1239 lbf in (140 Nm)

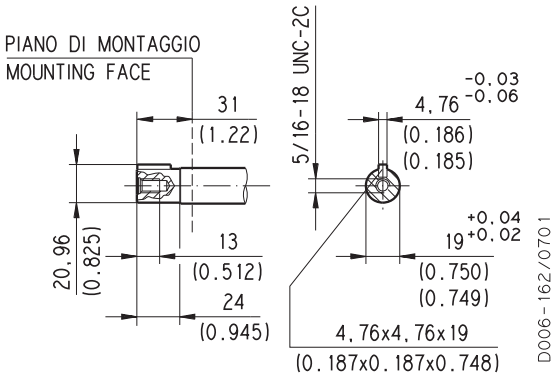
SAE SPLINE — 07

Ext. Involute Spline SAE J498B
with major diameter modified
11 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 5



MAX 1505 lbf in (170 Nm)

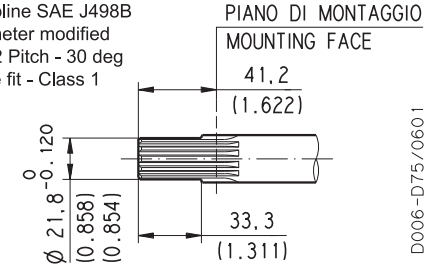
STRAIGHT — 50



MAX 885 lbf in (100 Nm)

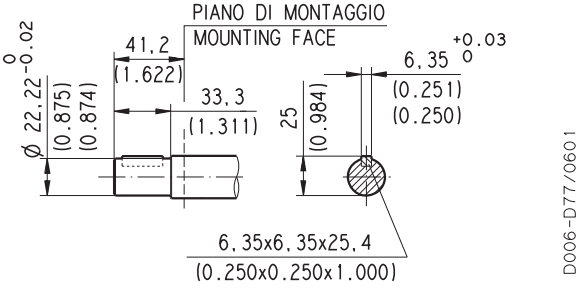
SAE "B" SPLINE — 04

Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 2478 lbf in (280 Nm)

SAE "B" STRAIGHT — 32



MAX 1770 lbf in (200 Nm)

Replaces: 01/03.2002

O 03/03.2006

HOW TO ORDER KAPPA 20 MULTIPLE PUMPS

1		2	3		4	5		6			7
Pump type	–	Drive shaft	Mounting flange	–	Ports positon	Ports IN/OUT	–	Rotation	/	–	Seals
KP 20•4	–	03	S1	–	L	OC/OC	/				
Front ump											
20•4	–				L	O/COC	/				
Internediate ump											
20•4	–				L	OC/OC		S	–	0	N
Rear ump											

1 Pump Type		CODE
in³/rev	(cm³/rev)	
0.30	4,95	KP 20•4
0.40	6,61	KP 20•6,3
0.50	8,26	KP 20•8
0.69	11,23	KP 20•11,2
0.89	14,53	KP 20•14
1.03	16,85	KP 20•16
1.29	21,14	KP 20•20
1.61	26,42	KP 20•25
2.01	33,03	KP 20•31,5

2 Drive shaft	CODE
SAE “A” spline (9 teeth)	03
SAE spline (10 teeth)	01
SAE spline (11 teeth)	07
SAE “B” spline (13 teeth)	04
SAE “A” straight	31
Straight	49
Straight	50
SAE “B” straight	32

3 Mounting flange	CODE
SAE “A” 2 holes	S1
SAE “A” 2 holes (with o-ring seal)	S2
SAE “B” 2 holes (a)	S5

4 Ports position	CODE
Side	L
Rear (only for rear sections)	P

CODE		5 Ports IN/OUT
SAE STRAIGHT THREAD PORTS (ODT)		
Side	Rear	Pump type
OC/OC	OC/OC	KP 20•4
OC/OC	OC/OC	KP 20•6,3
OC/OC	OC/OC	KP 20•8
OC/OC	OC/OC	KP 20•11,2
OD/OC	OD/OD	KP 20•14
OD/OC	OD/OD	KP 20•16
OD/OC	OD/OD	KP 20•20
OD/OC	OD/OD	KP 20•25
OD/OC	OD/OD	KP 20•31,5
METRIC SAE SPLIT PORTS SAE J518 C		
MA/MA		KP 20•4
MA/MA		KP 20•6,3
MA/MA		KP 20•8
MA/MA		KP 20•11,2
MB/MA		KP 20•14
MB/MA		KP 20•20
MB/MA		KP 20•16
MC/MB		KP 20•25
MC/MB		KP 20•31,5

CODE	6 Ports position
S	Left
D	Right

CODE	7 Seals (b)
	Buna N (standard) - no code
N-H	Buna with high back pressure shaft seals
V	Viton
N Bz	Buna N and Bronze thrust plates
V Bz	Viton and Bronze thrust plates

(a) Available only with 04 and 32 shaft

(b) Choose the seals according to the temperature shown on page 1

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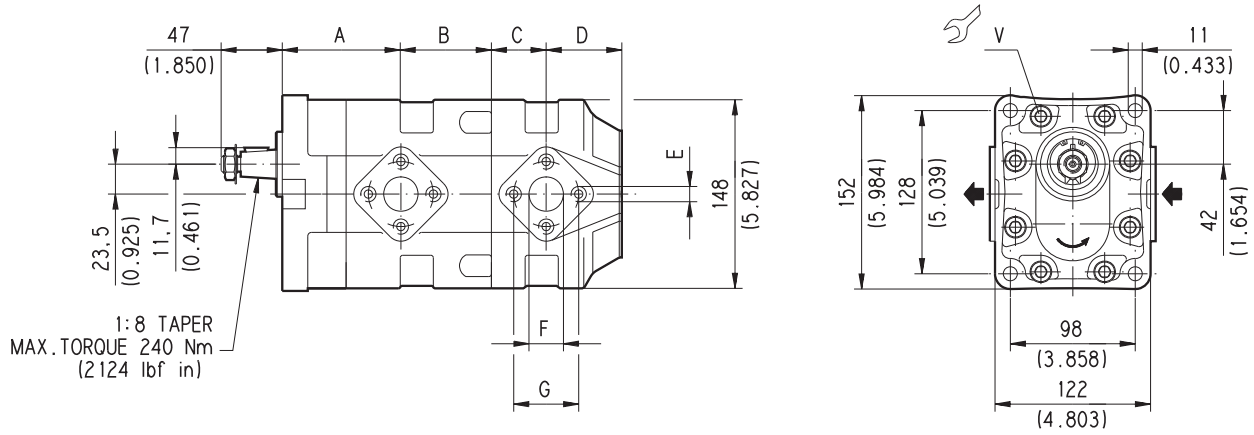
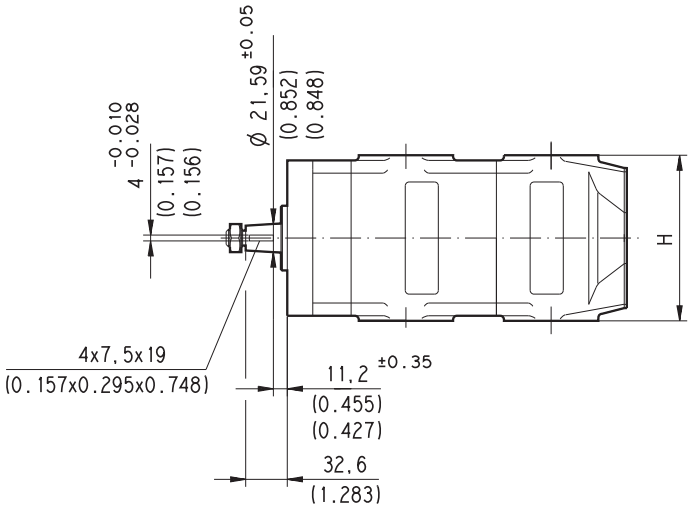
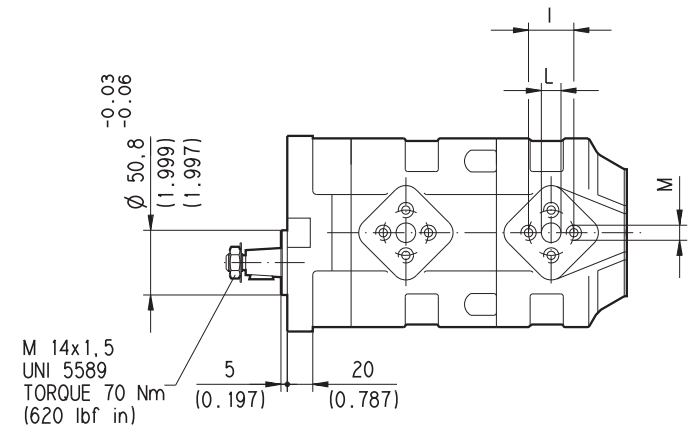
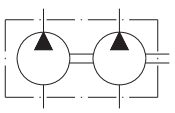
KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262









D006-D14/0605

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — 83 E3

Pump type	A	B	C	D	E	F	G	H	I	L	M
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•27	85 (3.346)	63 (2.480)	35 (1.378)	48 (1.890)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)	40 (1.575)	19 (0.748)	M 8 Depth 17 (0.669)
KP 30•34	90 (3.543)		40 (1.575)								
KP 30•38	93 (3.661)		43 (1.693)								
KP 30•43	96 (3.780)		46 (1.811)								
KP 30•51	93 (3.661)	71 (2.795)	43 (1.693)	56 (2.205)							
KP 30•56	97 (3.819)	70 (2.756)	47 (1.850)	55 (2.165)							
KP 30•61	100 (3.937)		50 (1.969)								
KP 30•73	108 (4.252)		58 (2.283)		M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)	51 (2.008)	27 (1.063)	M 10 Depth 17 (0.669)

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Front pump	/	Intermediate pump	/	Rear pump	Rotation **(1)**	–	Seals **(2)**
KP30•27	/	**30•27**	/	**30•27**	/ **S**		**-**

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

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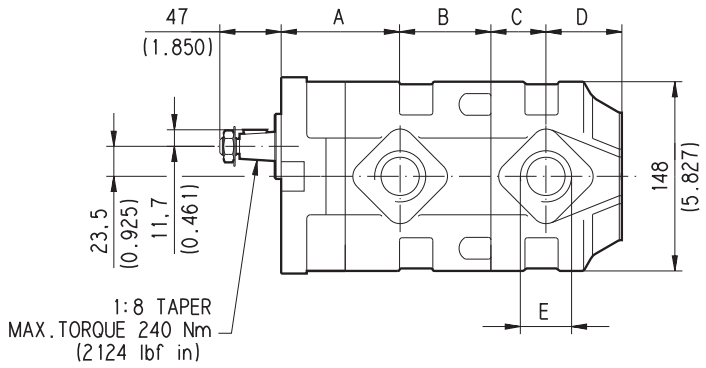
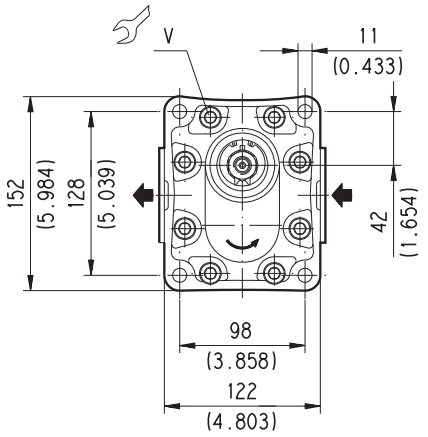
ORDER EXAMPLE

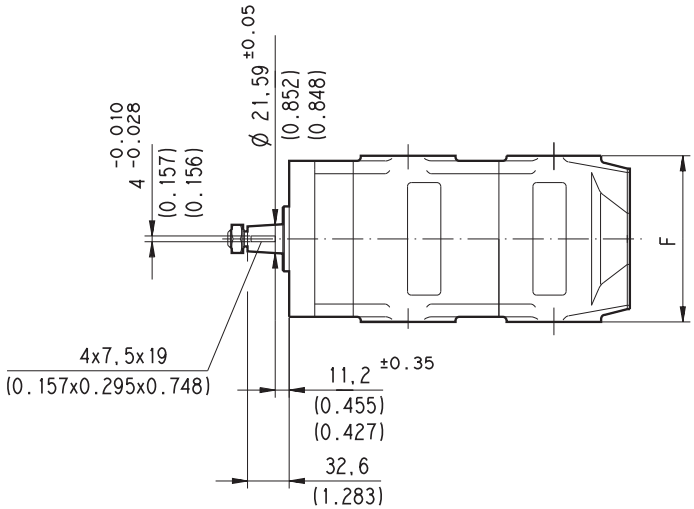
Double pump	**KP30•27/30•27 S**
Triple pump	**KP30•27/30•27/30•27 S**

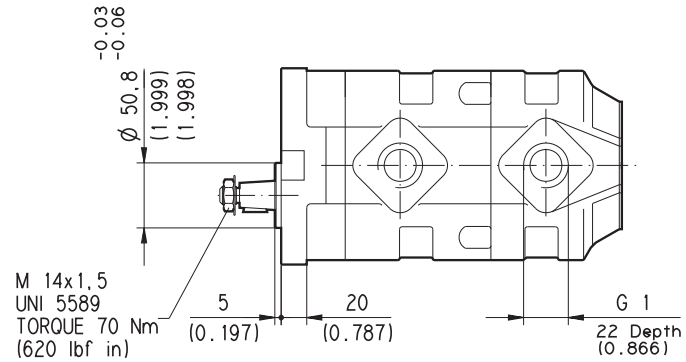
KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3

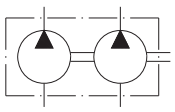
GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228











D006-D16/0605

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — 83 E3

Pump type	A	B	C	D	E	F	Port code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 30•27	85 (3.346)	63 (2.480)	35 (1.378)	48 (1.890)	G 1 Depth 22 (0.866)	130 (5.118)	GF	GF
KP 30•34	90 (3.543)		40 (1.575)					
KP 30•38	93 (3.661)		43 (1.693)					
KP 30•43	96 (3.780)		46 (1.811)					
KP 30•51	93 (3.661)	71 (2.795)	43 (1.693)	56 (2.205)				
KP 30•56	97 (3.819)	70 (2.756)	47 (1.850)	55 (2.165)				
KP 30•61	100 (3.937)		50 (1.969)					
KP 30•73	108 (4.252)		58 (2.283)		G 1 1/4 Depth 24 (0.945)	135 (5.315)	GG	GF

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Pump type	/	Ports position	/	Ports IN/OUT	–	Rotation (1)	–	Seals (2)

KP 30•27 / L / GF/GF /

Front pump

30•27 / L / GF/GF /

Intermediate pump

30•27 / L / GF/GF S / -

Rear pump

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

02/06.2005

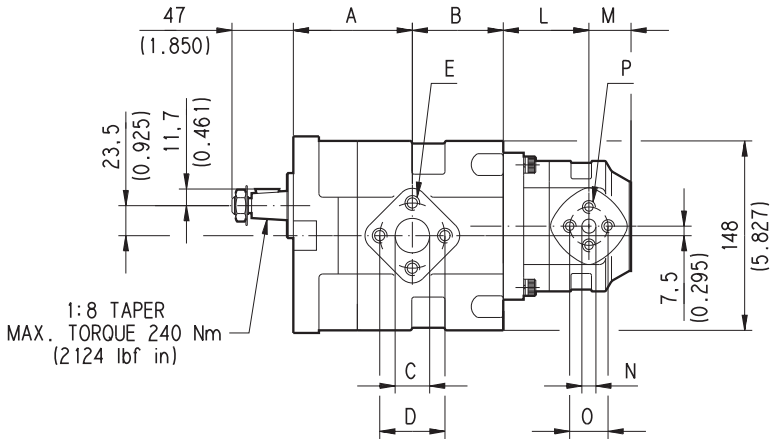
ORDER EXAMPLE

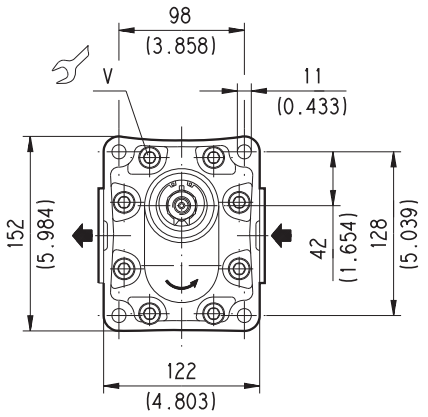
Double pump KP30•27-LGF/GF/30•27-LGF/GF S

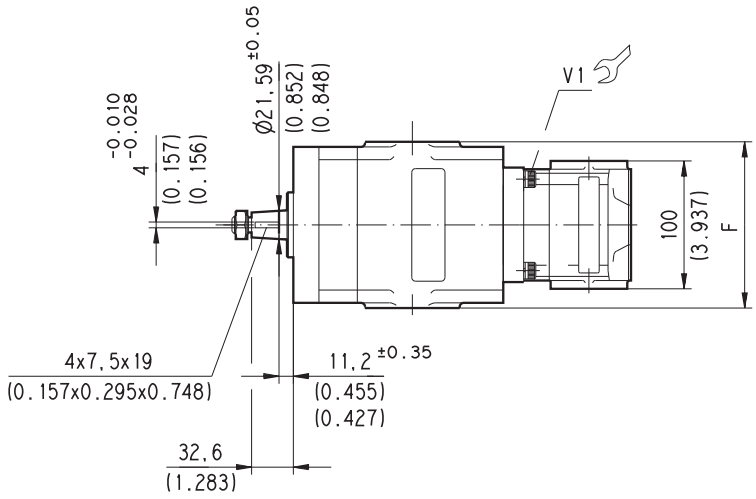
Triple pump KP30•27-LGF/GF/30•27-LGF/GF/30•27-LGF/GF S

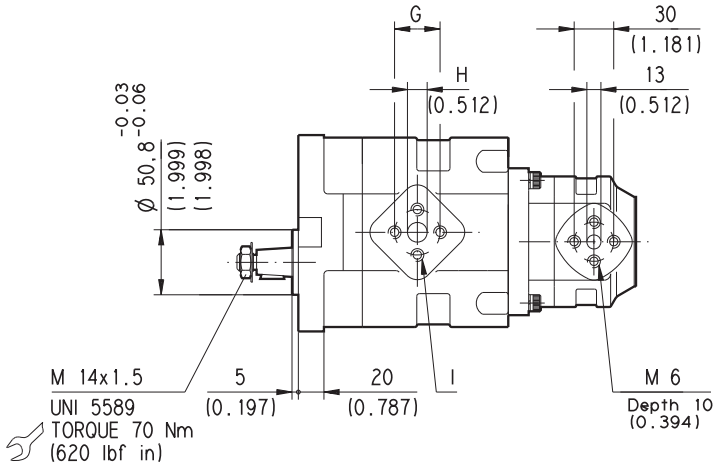
KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3+KP20

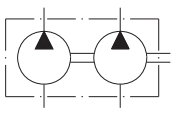
EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262











D006-D20/0605

02/06.2005

Screws tightening torque Nm (lbf in)	
V	**V1**
70 ±7 (558 ÷ 682)	70 ±7 (558 ÷ 682)

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3+KP20

Pump type	A	B	C	D	E	F	G	H	I
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•27	85 (3.346)	63 (2.480)	27 (1.063)	51 (2.008)	M 10 Depth 17 (0.669)	130 (5.118)	40 (1.575)	19 (0.748)	M 8 Depth 17 (0.669)
KP 30•34	90 (3.543)								
KP 30•38	93 (3.661)								
KP 30•43	96 (3.780)								
KP 30•51	93 (3.661)	71 (2.795)							
KP 30•56	97 (3.819)	70 (2.756)							
KP 30•61	100 (3.937)								
KP 30•73	108 (4.252)		33 (1.299)	62 (2.441)	M 12 Depth 17 (0.669)	135 (5.315)	51 (2.008)	27 (1.063)	M 10 Depth 17 (0.669)

Pump type	L	M	N	O	P
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 20•4	60 (2.362)	27,5 (1.083)	13 (0.512)	30 (1.181)	M 6 Depth 12 (0.472)
KP 20•6,3	62,5 (2.461)				
KP 20•8	65 (2.559)				
KP 20•11,2	68,5 (2.697)				
KP 20•14	67 (2.638)	33 (1.299)	91 (0.748)	40 (1.575)	M 8 Depth 14 (0.551)
KP 20•16	72,5 (2.854)				
KP 20•20	79 (3.110)				
KP 20•25	72 (2.835)	48 (1.890)			
KP 20•31,5	82 (3.228)				

02/06.2005

How to order a double pump

Front pump	–		/	Rear pump	Rotation (1)	–	Seals (2)
KP30•27	/	67	/	20•4	/ S	-	

(1) Rotation: S= Left - D= Right

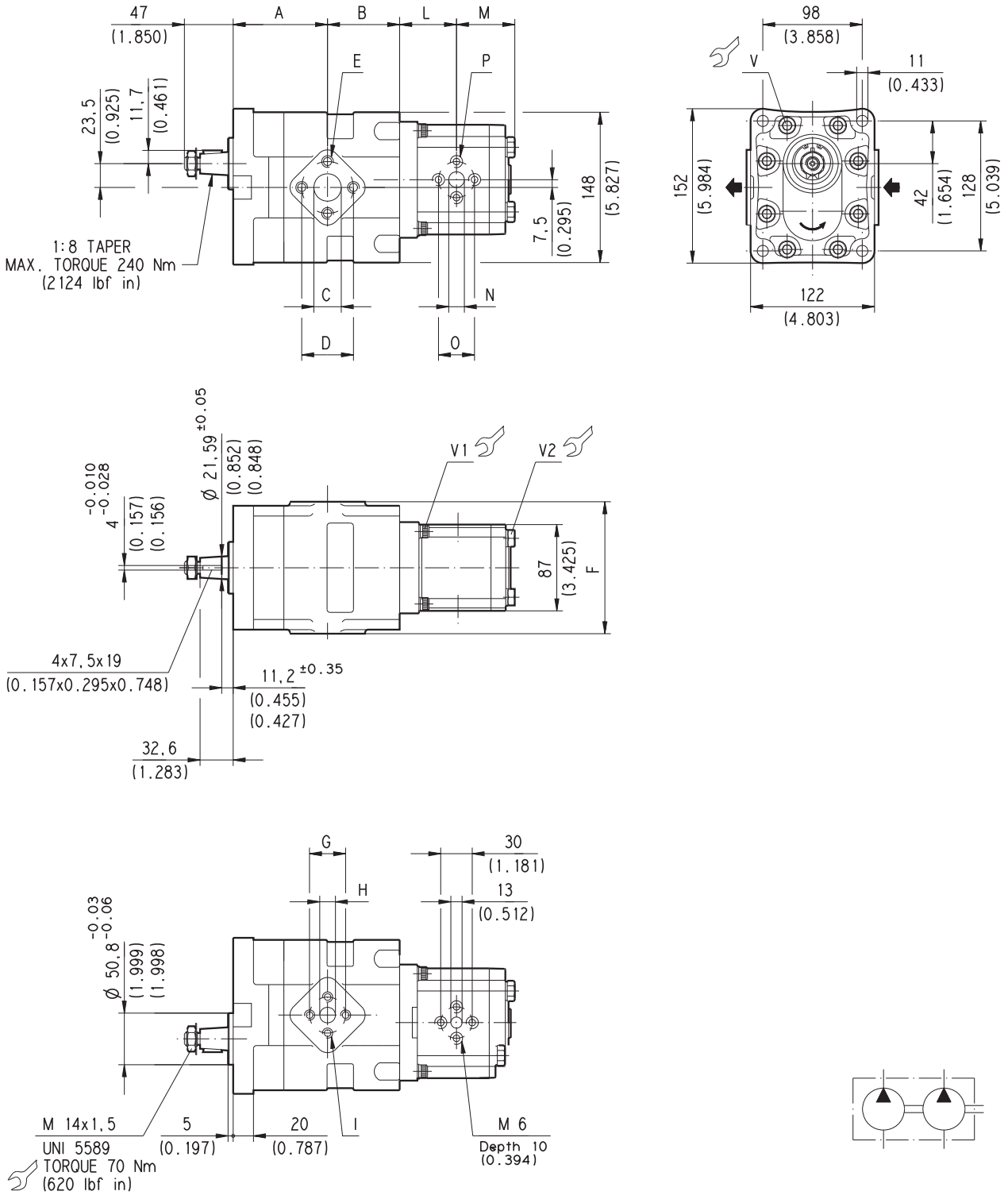
(2) For Buna N seals no code

ORDER EXAMPLE

Double pump KP30•27-67/20•4 S/FS

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 83 E3+PL20

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



D006-D19/0605

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Screws tightening torque Nm (lbf in)		
V	**V1**	**V2**
70 ±7 (558 ÷ 682)	70 ±7 (558 ÷ 682)	70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — 83 E3+PL20

Pump type	A	B	C	D	E	F	G	H	I
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•27	85 (3.346)	63 (2.480)	27 (1.063)	51 (2.008)	M 10 Depth 17 (0.669)	130 (5.118)	40 (1.575)	19 (0.748)	M 8 Depth 17 (0.669)
KP 30•34	90 (3.543)								
KP 30•38	93 (3.661)								
KP 30•43	96 (3.780)								
KP 30•51	93 (3.661)	71 (2.795)							
KP 30•56	97 (3.819)	70 (2.756)							
KP 30•61	100 (3.937)								
KP 30•73	108 (4.252)		33 (1.299)	62 (2.441)	M 12 Depth 17 (0.669)	135 (5.315)	51 (2.008)	27 (1.063)	M 10 Depth 17 (0.669)

Pump type	L	M	N	O	P
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
PLP 20•4	43,8 (1.722)	49,3 (1.941)	13 (0.512)	30 (1.181)	M 6 Depth 13 (0.512)
PLP 20•6,3	45 (1.772)	50,5 (1.988)			
PLP 20•7,2	45,5 (1.791)	51 (2.008)			
PLP 20•8	46,3 (1.821)	51,8 (2.039)			
PLP 20•9	46,9 (1.846)	52,4 (2.063)			
PLP 20•10,5	48,3 (1.900)	53,8 (2.118)			
PLP 20•11,2	48,5 (1.909)	54 (2.126)			
PLP 20•14	51 (2.008)	56,5 (2.224)	91 (0.748)	40 (1.575)	M 8 Depth 14 (0.551)
PLP 20•16	52,8 (2.077)	58,3 (2.295)			
PLP 20•19	54,5 (2.146)	60 (2.553)			
PLP 20•20	56 (2.205)	61,5 (2.421)			
PLP 20•24,5	58,8 (2.315)	64,3 (2.531)			
PLP 20•25	60 (2.362)	65,5 (2.579)			
PLP 20•27,5	61,4 (2.417)	66,9 (2.634)			
PLP 20•31,5	65 (2.559)	70,5 (2.776)			

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How to order a double pump

Front pump	–		/	Rear pump	Rotation (1)	–	Seals (2)
KP30•27	/	67	/	PLP20•4	S	-	

(1) Rotation: S= Left - D= Right

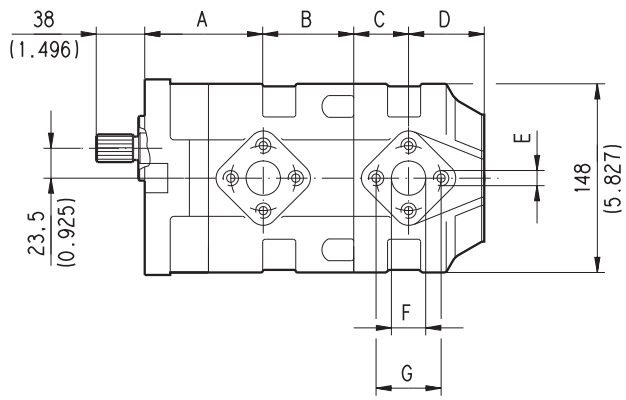
(2) For Buna N seals no code

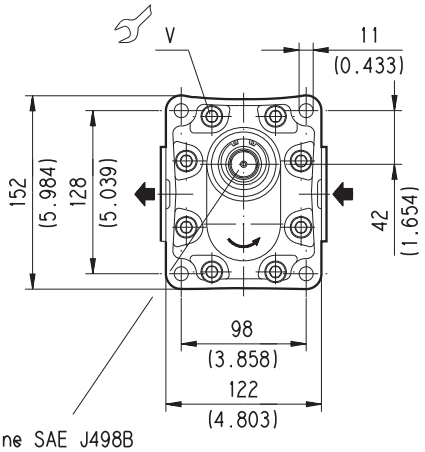
ORDER EXAMPLE

Double pump KP30•27-67/PLP20•4 S/FS

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | A8 E3

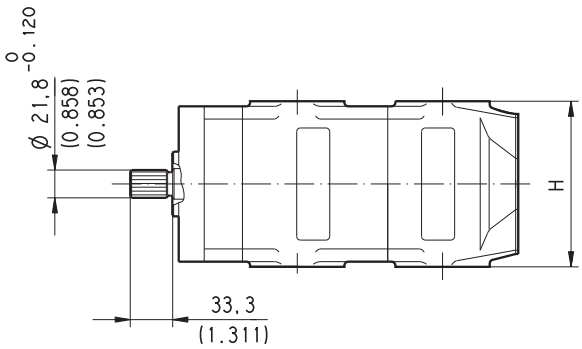
EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262

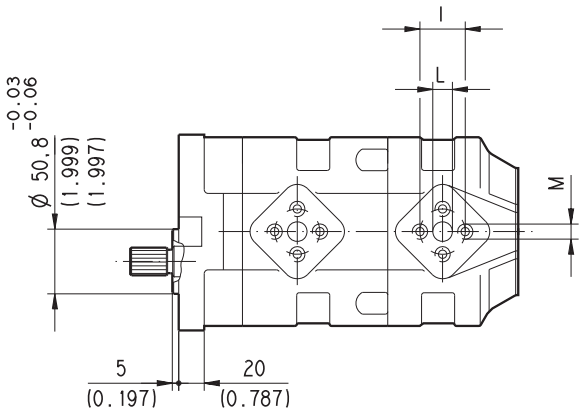


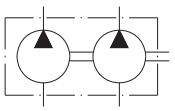


Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat root - Side fit - Class 1

MAX. TORQUE 280 Nm
(2478 lbf in)







D006-151/0605

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — A8 E3

Pump type	A	B	C	D	E	F	G	H	I	L	M
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KP 30•27	85 (3.346)	63 (2.480)	35 (1.378)	48 (1.890)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)	40 (1.575)	19 (0.748)	M 8 Depth 17 (0.669)
KP 30•34	90 (3.543)		40 (1.575)								
KP 30•38	93 (3.661)		43 (1.693)								
KP 30•43	96 (3.780)		46 (1.811)								
KP 30•51	93 (3.661)	71 (2.795)	43 (1.693)	56 (2.205)							
KP 30•56	97 (3.819)	70 (2.756)	47 (1.850)	55 (2.165)							
KP 30•61	100 (3.937)		50 (1.969)								
KP 30•73	108 (4.252)		58 (2.283)		M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)	51 (2.008)	27 (1.063)	M 10 Depth 17 (0.669)

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Front pump	–	Drive shaft	/	Intermediate pump	/	Rear pump	Rotation **(1)**	–	Seals **(2)**
KP30•27	/	A8	/	30•27	/	30•27	/ S	-	

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

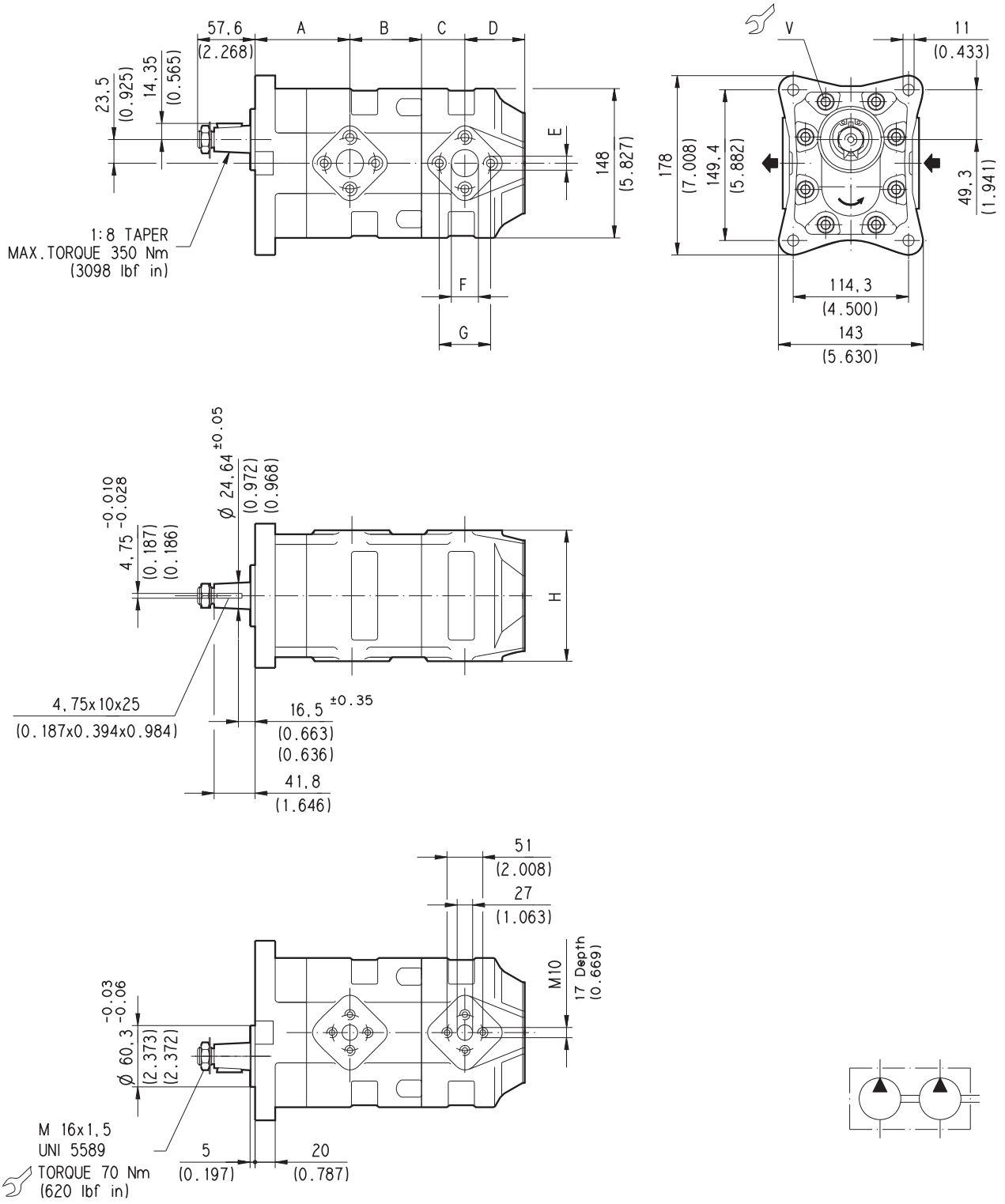
02/06.2005

ORDER EXAMPLE

Double pump	**KP30•27-A8/30•27 S**
Triple pump	**KP30•27-A8/30•27/30•27 S**

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 84 E4

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



D006-D17/0605

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — 84 E4

Pump type	A	B	C	D	E	F	G	H	Port code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 30•51	94 (3.701)	71 (2.795)	43 (1.693)	56 (2.205)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)	**ED**	**ED**
KP 30•61	101 (3.976)	70 (2.756)	50 (1.969)	55 (2.165)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)	**EF**	
KP 30•73	109 (4.291)		58 (2.283)							

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Pump type		Drive shaft	Mounting flange		Ports position	Ports IN/OUT		Rotation **(1)**		Seals **(2)**	
KP 30•51	**–**	**84**	**E4**	**–**	**L**	**ED/ED**	**/**				
Front pump											
30•51	**–**				**L**	**ED/ED**	**/**				
Intermediate pump											
30•51	**–**				**L**	**ED/ED**		**S**	**-**		
Rear pump											

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

02/06.2005

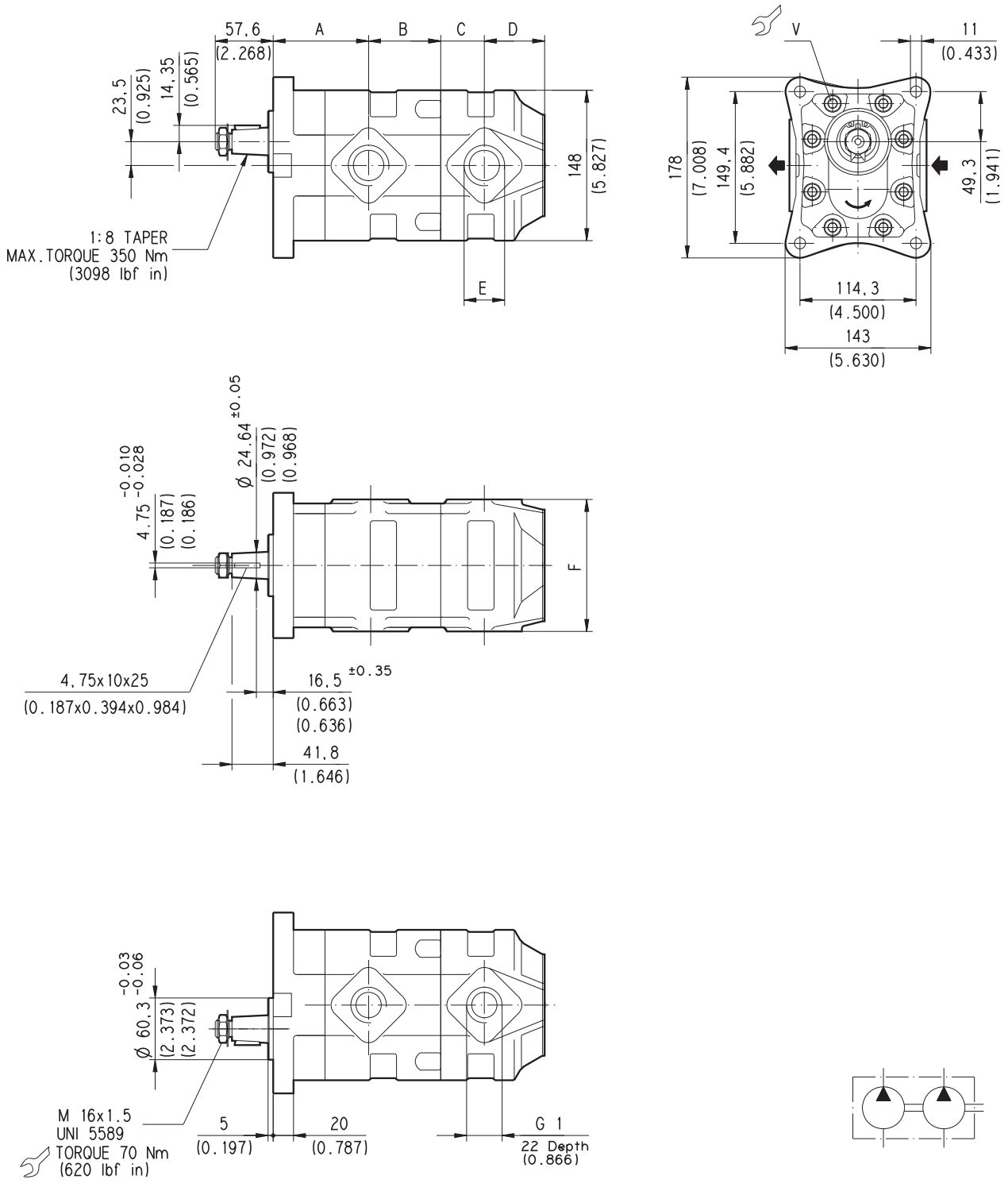
ORDER EXAMPLE

Double pump **KP30•51-84 E4-LED/ED/30•51-LED/ED S**

Triple pump **KP30•51-84 E4-LED/ED/30•51-LED/ED/30•51-LED/ED S**

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | 84 E4

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



D006-D95/0605

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — 84 E4

Pump type	A	B	C	D	E	F	Port code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 30•51	94 (3.701)	71 (2.795)	43 (1.693)	56 (2.205)	G 1 Depth 22 (0.866)	130 (5.118)	**GF**	**GF**
KP 30•61	101 (3.976)	70 (2.756)	50 (1.969)	55 (2.165)	G 1 1/4 Depth 24 (0.945)	135 (5.315)	**GG**	
KP 30•73	109 (4.291)		58 (2.283)					

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Pump type		Drive shaft	Mounting flange		Ports position	Ports IN/OUT		Rotation **(1)**		Seals **(2)**	
KP 30•51	–	**84**	**E4**	–	**L**	**GF/GF**	/				
Front pump											
30•51	–				**L**	**GF/GF**	/				
Intermediate pump											
30•51	–				**L**	**GF/GF**		**S**	-		
Rear pump											

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

02/06.2005

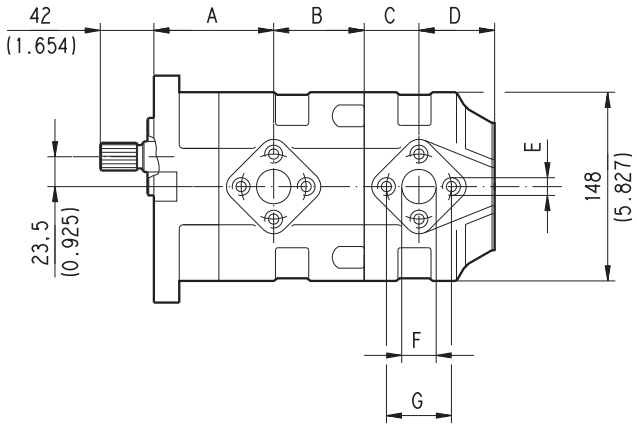
ORDER EXAMPLE

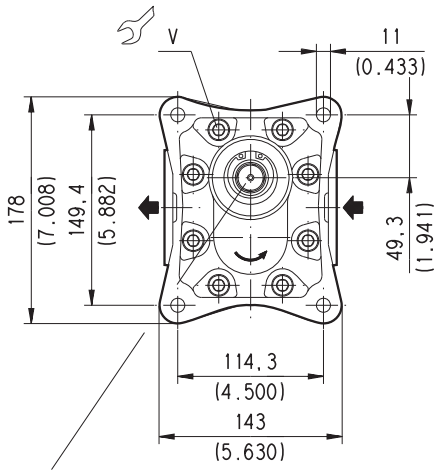
Double pump KP30•51-84 E4-LGF/GF/30•51-LGF/GF S

Triple pump KP30•51-84 E4-LGF/GF/30•51-LGF/GF/30•51-LGF/GF S

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | A8 E4

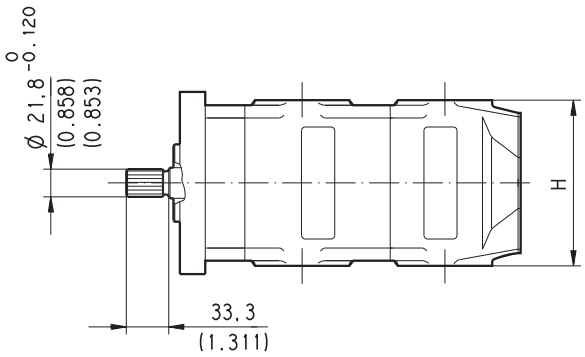
EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



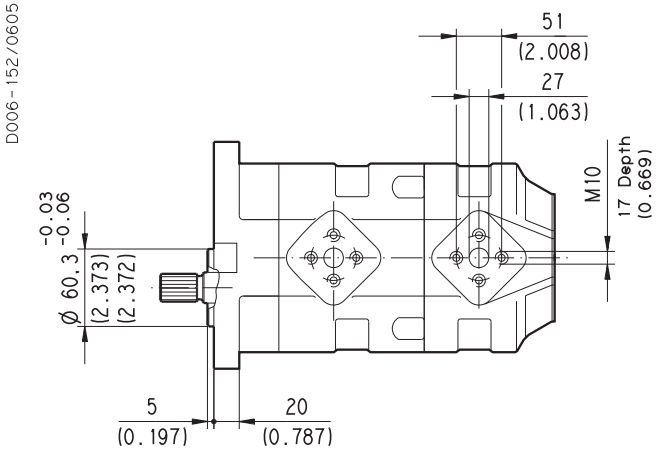


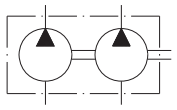
Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat root - Side fit - Class 1

MAX. TORQUE 280 Nm
(2478 lbf in)



D006-152/0605





02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — A8 E4

Pump type	A	B	C	D	E	F	G	H	Port code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 30•51	94 (3.701)	71 (2.795)	43 (1.693)	56 (2.205)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)	ED	ED
KP 30•61	101 (3.976)	70 (2.756)	50 (1.969)	55 (2.165)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)	EF	
KP 30•73	109 (4.291)		58 (2.283)							

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Pump type	–	Drive shaft	Mounting flange	–	Ports position	Ports IN/OUT	–	Rotation (1)	–	Seals (2)	
KP 30•51	–	A8	E4	–	L	ED/ED					/
Front pump											
30•51	–				L	ED/ED					/
Intermediate pump											
30•51	–				L	ED/ED		S	-		
Rear pump											

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

02/06.2005

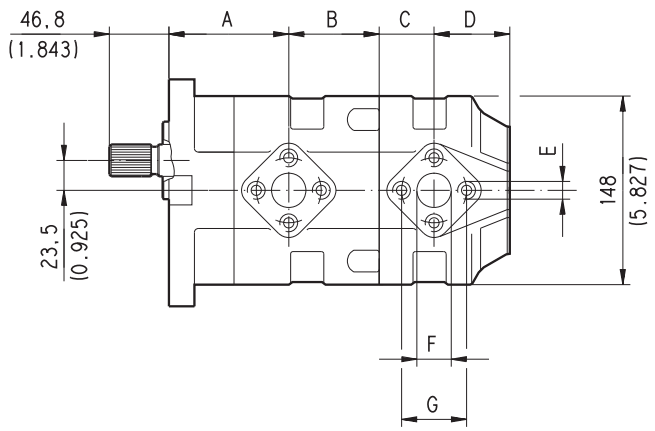
ORDER EXAMPLE

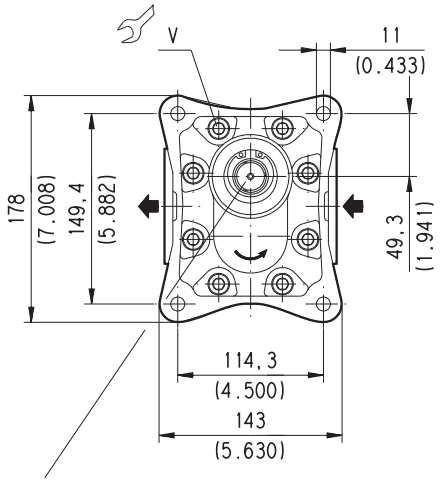
Double pump KP30•51-A8 E4-LED/ED/30•51-LED/ED S

Triple pump KP30•51-A8 E4-LED/ED/30•51-LED/ED/30•51-LED/ED S

KAPPA 30 | HYDRAULIC GEAR PUMPS EUROPEAN STANDARD | A5 E4

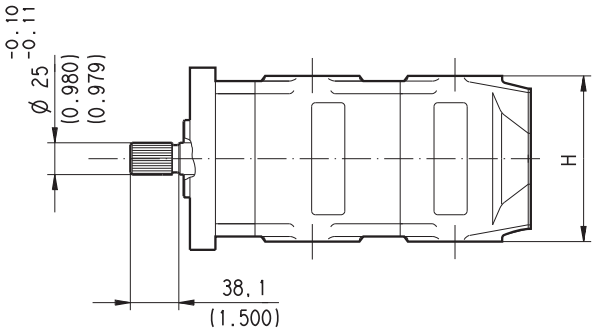
EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262

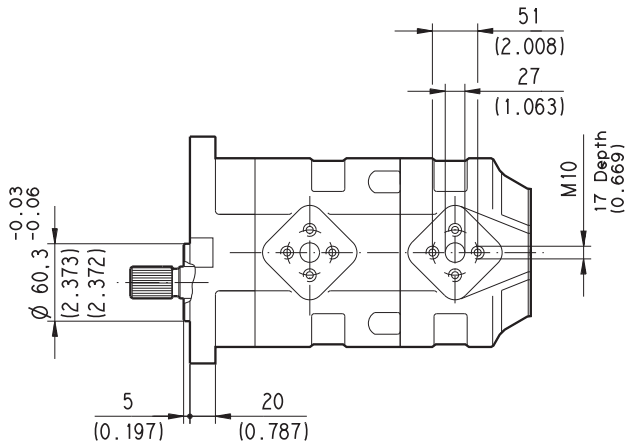


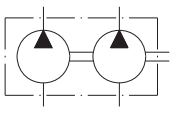


Ext. Involute Spline SAE J498B
with major diameter modified
15 teeth-16/32 Pitch-30 deg
Flat Root-Side fit-Class 1

MAX. TORQUE 400 Nm
(3540 lbf in)







D006-153/0605

02/06.2005

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

KAPPA 30 — HYDRAULIC GEAR PUMPS EUROPEAN STANDARD — A5 E4

Pump type	A	B	C	D	E	F	G	H	Port code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 30•51	94 (3.701)	71 (2.795)	43 (1.693)	56 (2.205)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)	**ED**	**ED**
KP 30•61	101 (3.976)	70 (2.756)	50 (1.969)	55 (2.165)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)	**EF**	
KP 30•73	109 (4.291)		58 (2.283)							

The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D.**

How to order a triple pump

(for double pump omit the intermediate pump)

Pump type		Drive shaft	Mounting flange		Ports position	Ports IN/OUT		Rotation **(1)**		Seals **(2)**	
KP 30•51	**–**	**A5**	**E4**	**–**	**L**	**ED/ED**	**/**				
Front pump											
30•51	**–**				**L**	**ED/ED**	**/**				
Intermediate pump											
30•51	**–**				**L**	**ED/ED**		**S**	**-**		
Rear pump											

(1) Rotation: S= Left - D= Right

(2) For Buna N seals no code

02/06.2005

ORDER EXAMPLE

Double pump **KP30•51-A5 E4-LED/ED/30•51-LED/ED S**

Triple pump **KP30•51-A5 E4-LED/ED/30•51-LED/ED/30•51-LED/ED S**

PORTS CONNECTORS TIGHTENING TORQUE

Tightening torque for low pressure side port.

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

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

EUROPEAN FLANGED PORTS - 4 Bolts — EUROPEAN

CODE	Nm	(lbf in)	Nm	(lbf in)
EA	8 +0,5	71 ÷ 75	8 +0,5	71 ÷ 75
EB	15 +1	133 ÷ 142	20 +1 (KP 20)	177 ÷ 186
			15 +1 (KP 30)	133 ÷ 142
ED	20 +1	177 ÷ 186	30 +2,5	266 ÷ 288
EF	25 +1	221 ÷ 230	50 +2,5	443 ÷ 465

GAS STRAIGHT THREAD PORTS — BSPP

CODE	Nm	(lbf in)	Nm	(lbf in)
GB (◆)	15 +1	133 ÷ 142	–	–
GC (■)	15 +1	133 ÷ 142	–	–
GD	20 +1	177 ÷ 186	50 +2,5	443 ÷ 465
GE	30 +2,5	266 ÷ 288	90 +5	797 ÷ 841
GF	50 +2,5	443 ÷ 465	130 +10	1151 ÷ 1239
GG	60 +5	531 ÷ 575	170 +10	1505 ÷ 1593

SAE STRAIGHT THREAD POTRS J514 — ODT

CODE	Nm	(lbf in)	Nm	(lbf in)
03 (✹)	12 +1	106 ÷ 115	——	——
OA (■)	15 +1	133 ÷ 142	——	——
OC	30 +2,5	266 ÷ 288	70 +5	620 ÷ 664
OD	40 +2,5	354 ÷ 376	120 +10	1062 ÷ 1151
OF	60 +5	531 ÷ 575	170 +10	1505 ÷ 1593
OG	70 +5	620 ÷ 664	200 +10	1770 ÷ 1859
OH	100 +5	885 ÷ 929	270 +15	2390 ÷ 2523

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

CODE	Nm	(lbf in)	Nm	(lbf in)
MA	12 +1	106 ÷ 115	12 +1	106 ÷ 115
MB	20 +1	177 ÷ 186	25 +1	221 ÷ 230
MC	20 +1	177 ÷ 186	25 +1	221 ÷ 230

(◆) Drain port: KAPPA 20 rear drain (R) and KAPPA 30 side drain (L)
(✹) Drain port: KAPPA 20 rear drain (R)
(■) Drain port: KAPPA 30 rear drain (R)

02/06.2005

KAPPA 20 GENERAL DATA MOTORS

KM 20

Motor type	Displacement	Max. pressure			Max. speed	Min. speed
		p_1	p_2	p_3		
	in^3/rev (cm^3/rev)	psi (bar)			min $^{-1}$	
KM 20•4	0.30 (4,95)	4133 (285)	4350 (300)	4785 (330)	4000	350
KM 20•6,3	0.40 (6,61)	4133 (285)	4350 (300)	4785 (330)	4000	350
KM 20•8	0.50 (8,26)	4133 (285)	4350 (300)	4785 (330)	3500	350
KM 20•11,2	0.69 (11,23)	3988 (275)	4205 (290)	4640 (320)	3500	350
KM 20•14	0.89 (14,53)	3843 (265)	4205 (290)	4640 (320)	3500	350
KM 20•16	1.03 (16,85)	3770 (260)	4205 (290)	4640 (320)	3000	300
KM 20•20	1.29 (21,14)	3045 (210)	3335 (230)	3625 (250)	3000	300
KM 20•25	1.61 (26,42)	2610 (180)	2900 (200)	3190 (220)	2500	300
KM 20•31,5	2.01 (33,03)	2030 (140)	2320 (160)	2610 (180)	2000	300

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

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

01/03.2002

KAPPA 30 GENERAL DATA MOTORS

KM 30

Motor type	Displacement	Max. pressure			Max. speed	Min. speed
		p_1	p_2	p_3		
	in^3/rev (cm^3/rev)	psi (bar)			min $^{-1}$	
KM 30•27	1.63 (26,7)	4060 (280)	4350 (300)	4495 (310)	3000	350
KM 30•34	2.11 (34,56)	3770 (260)	4060 (280)	4350 (300)	3000	350
KM 30•38	2.40 (39,27)	3770 (260)	4060 (280)	4350 (300)	3000	350
KM 30•43	2.68 (43,98)	3625 (250)	3915 (270)	4205 (290)	3000	350
KM 30•51	3.16 (51,83)	3335 (230)	3625 (250)	3915 (270)	2500	350
KM 30•56	3.45 (56,54)	3118 (215)	3408 (235)	3698 (255)	2500	350
KM 30•61	3.74 (61,26)	2900 (200)	3190 (220)	3480 (240)	2500	350
KM 30•73	4.50 (73,82)	2610 (180)	2900 (200)	3190 (220)	2500	350

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

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

01/03.2002

DESIGN CALCULATIONS FOR MOTORS

Replaces: 02/06.2005

Q	US gpm (l/min)	Delivery
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
$\eta_v = \eta_v$ (V, Δp, n)	(≈ 0,97)	Volumetric efficiency
$\eta_{hm} = \eta_{hm}$ (V, Δp, n)	(≈ 0,88)	Hydro-mechanical efficiency
$\eta_t = \eta_v \cdot \eta_m$	(≈ 0,85)	Overall efficiency

O

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

$$Q_{theor.} = \frac{V\ (cm^3/rev) \cdot n\ (min^{-1})}{1000}$$

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

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

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

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

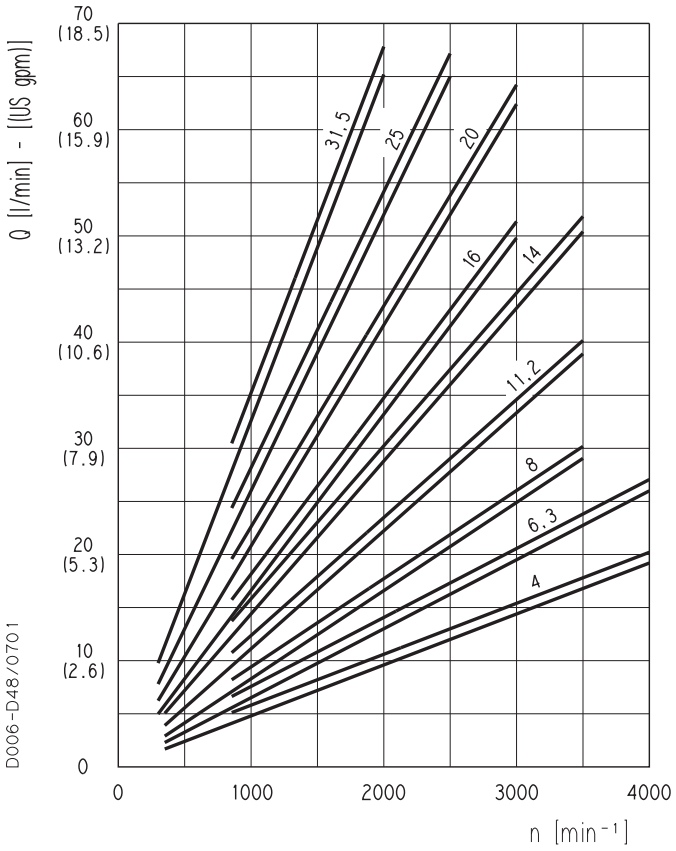
O 05/03.2012

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

KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

KM 20

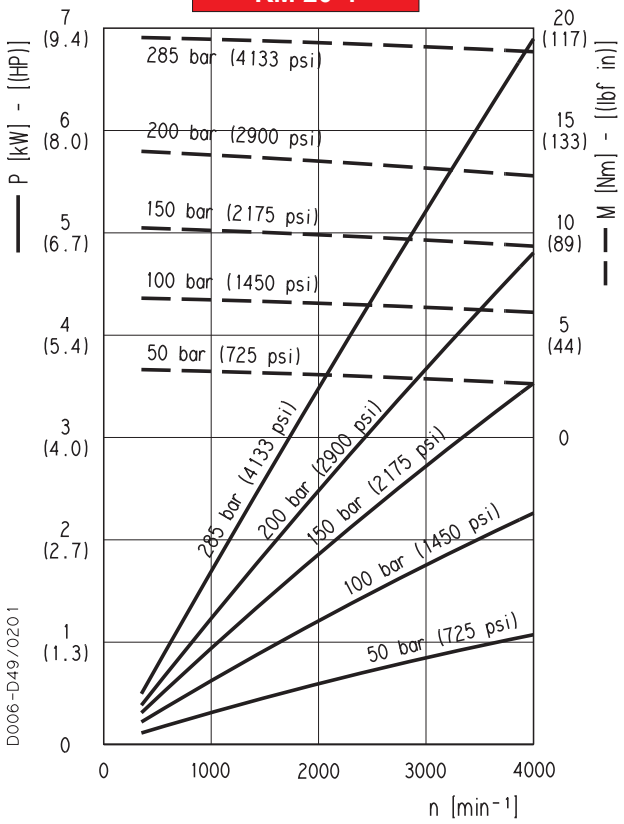
KM 20



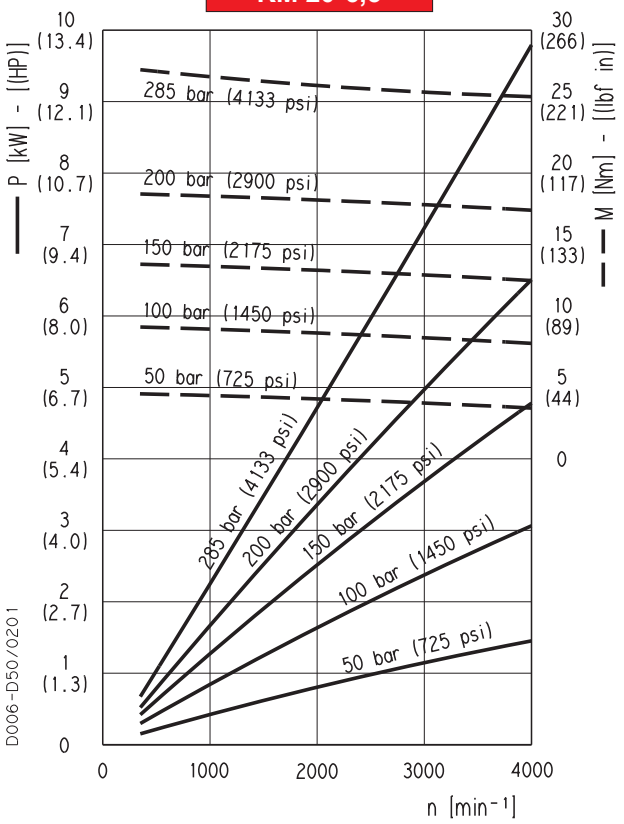
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures:

KM 20•4 . . . . . 290-4133 psi (20-285 bar)
KM 20•6,3. . . . . 290-4133 psi (20-285 bar)
KM 20•8 . . . . . 290-4133 psi (20-285 bar)
KM 20•11,2 . . . . . 290-3988 psi (20-275 bar)
KM 20•14 . . . . . 290-3843 psi (20-265 bar)
KM 20•16 . . . . . 290-3770 psi (20-260 bar)
KM 20•20 . . . . . 290-3045 psi (20-210 bar)
KM 20•25 . . . . . 290-2610 psi (20-180 bar)
KM 20•31,5. . . . . 290-2030 psi (20-140 bar)

KM 20•4



KM 20•6,3

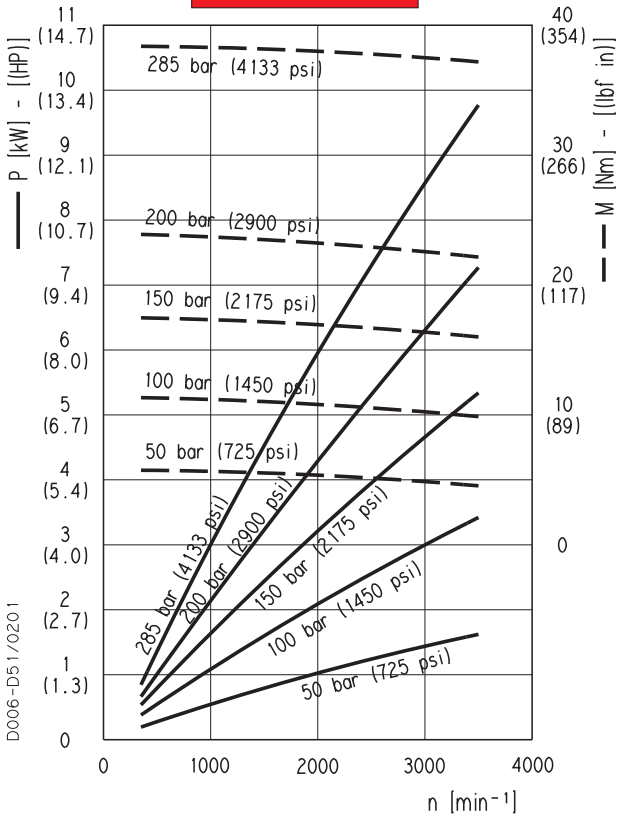


01/03.2002

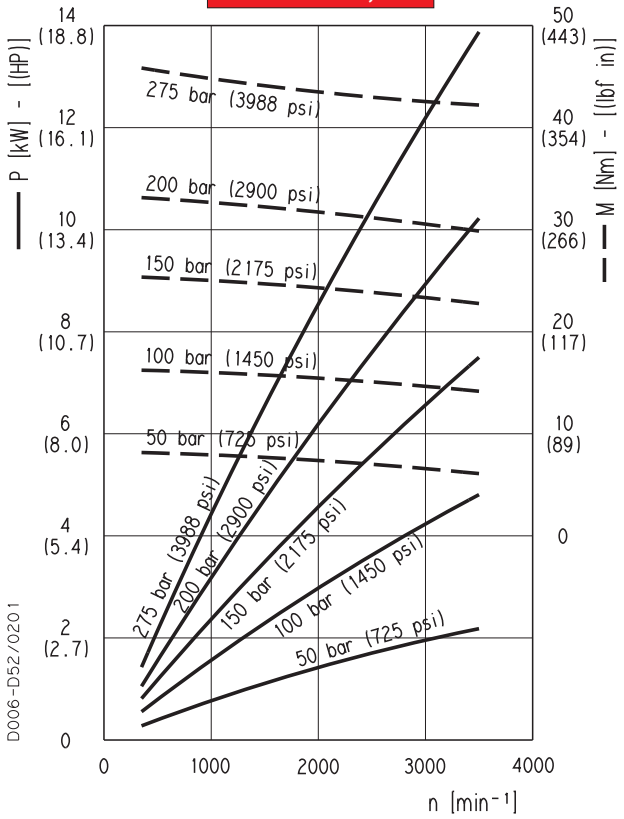
KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

KM 20

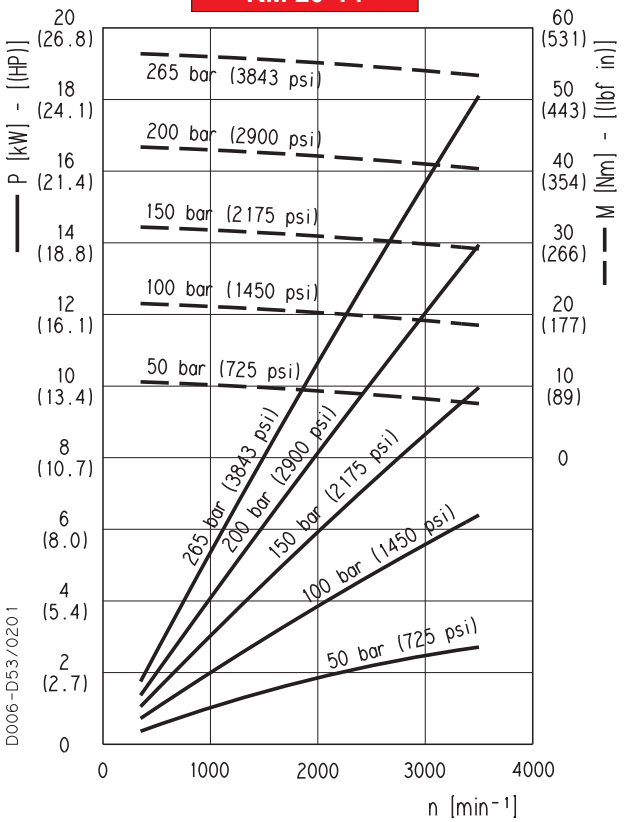
KM 20•8



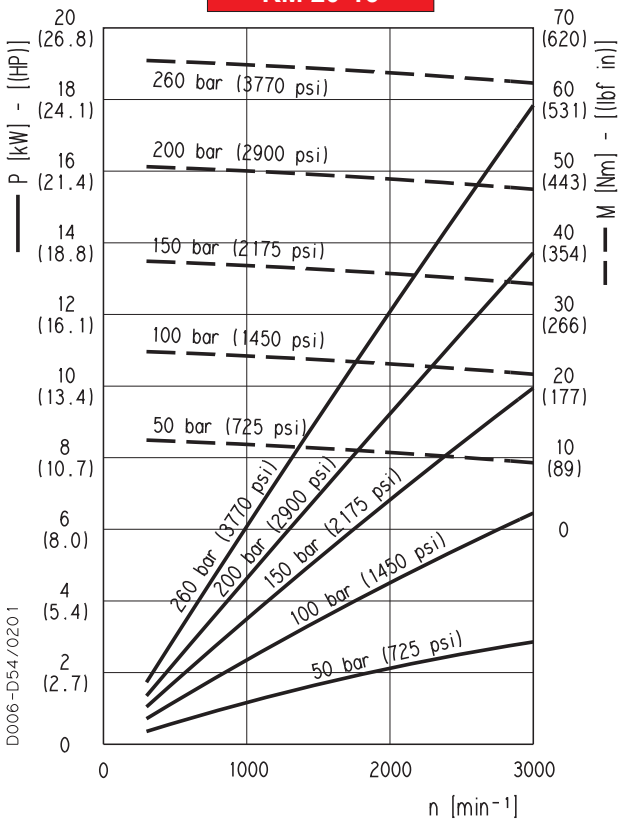
KM 20•11,2



KM 20•14



KM 20•16



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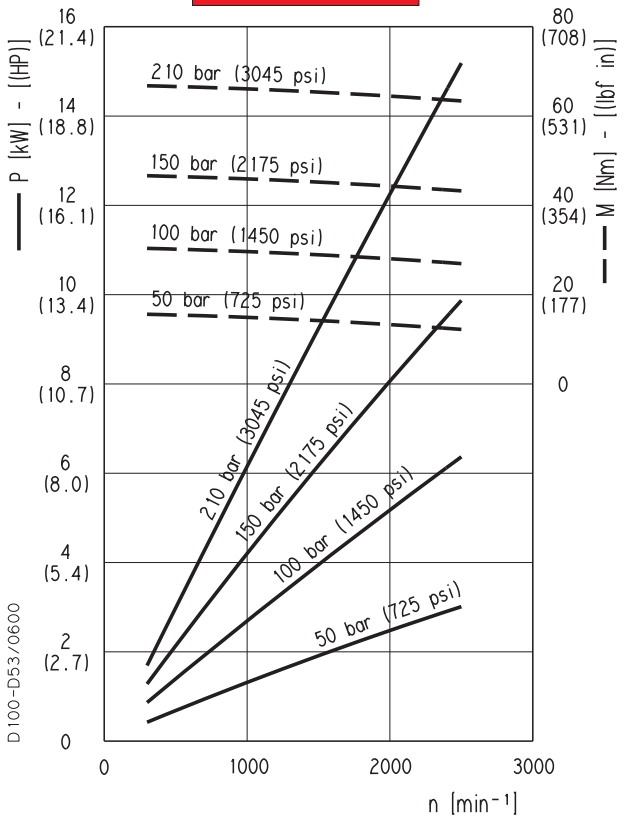
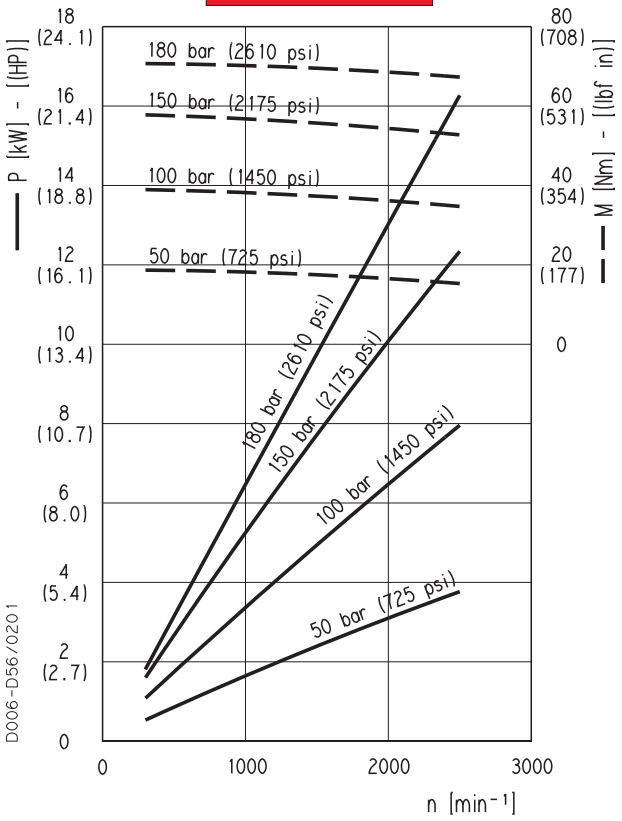
KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

KM 20

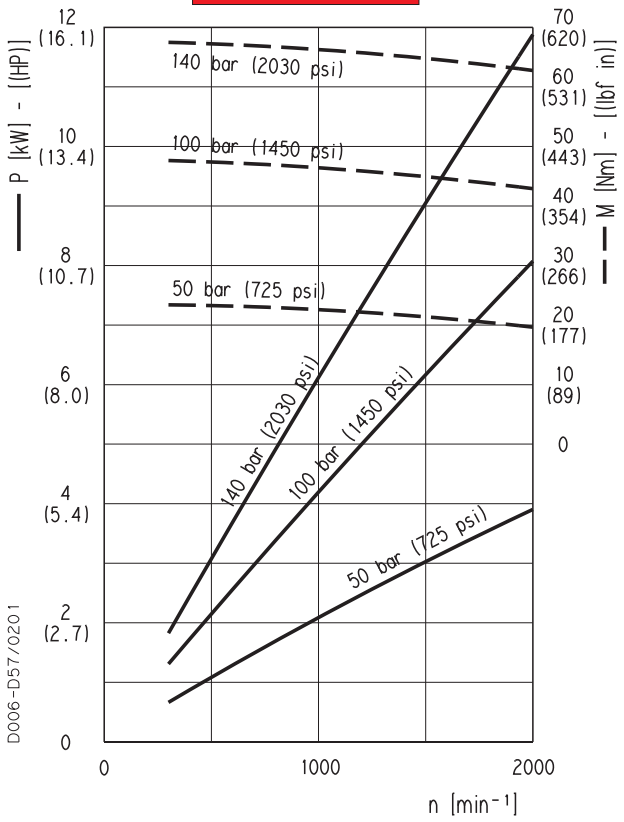
KM 20•20



KM 20•25



KM 20•31,5

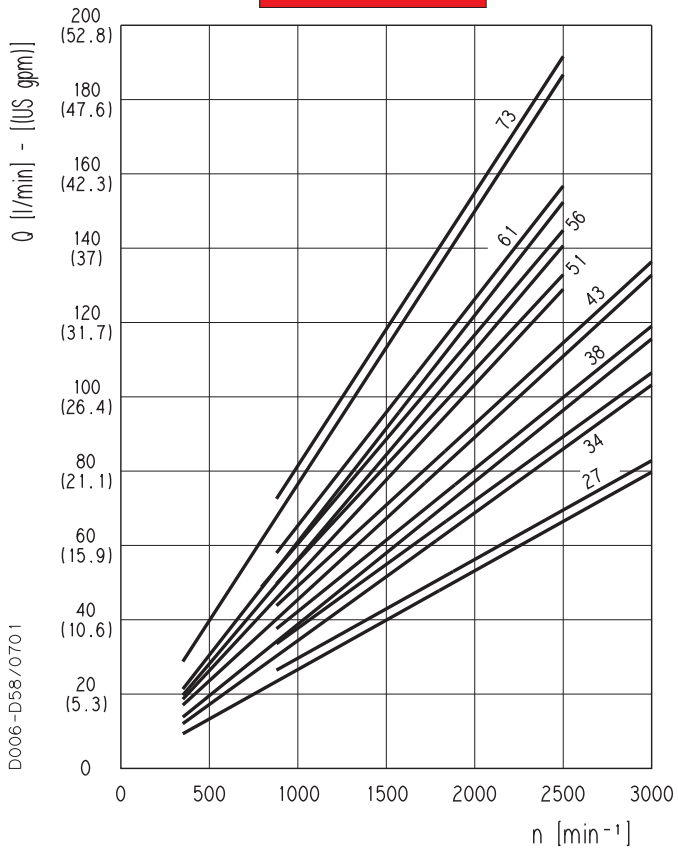


01/03.2002

KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

KM 30

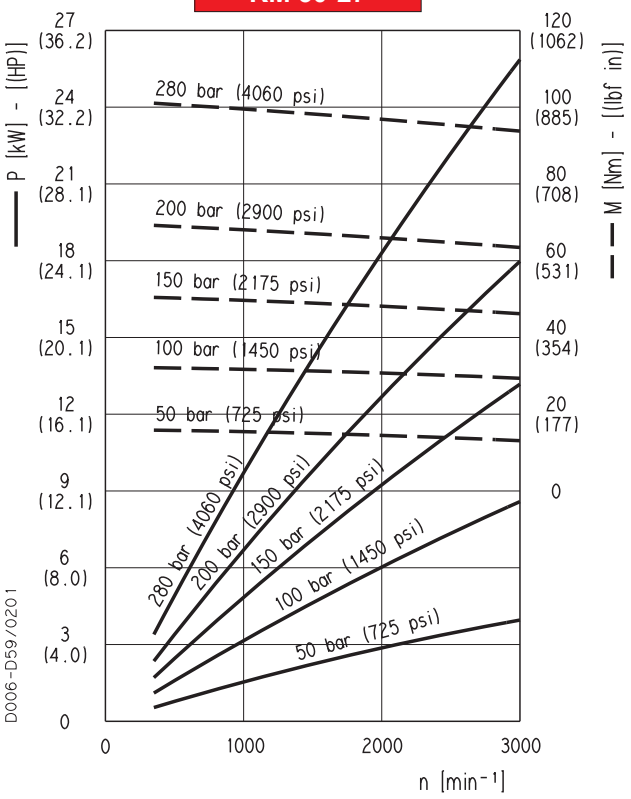
KM 30



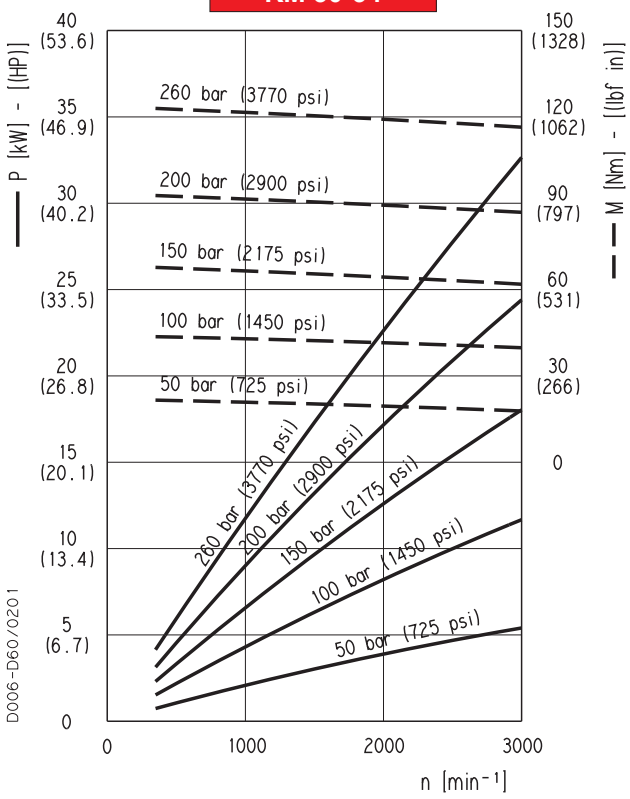
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures:

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

KM 30•27



KM 30•34

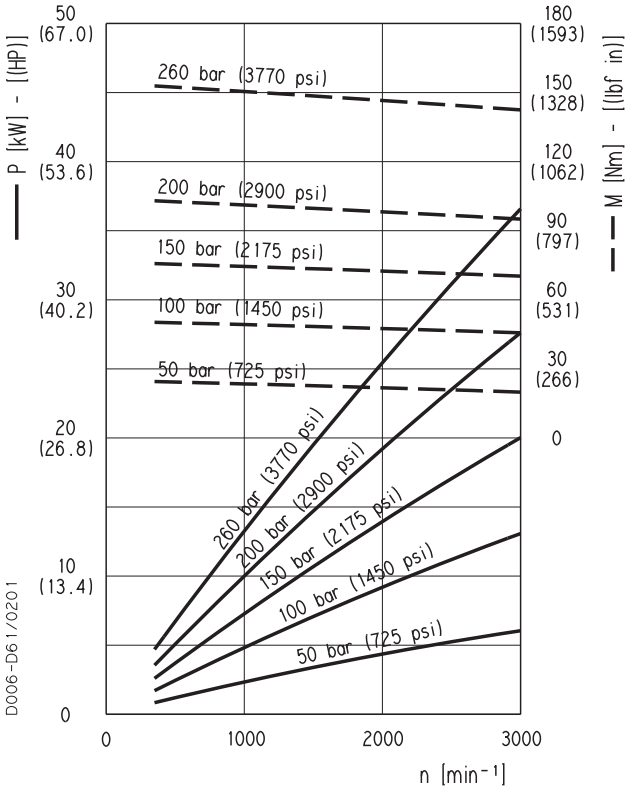


01/03.2002

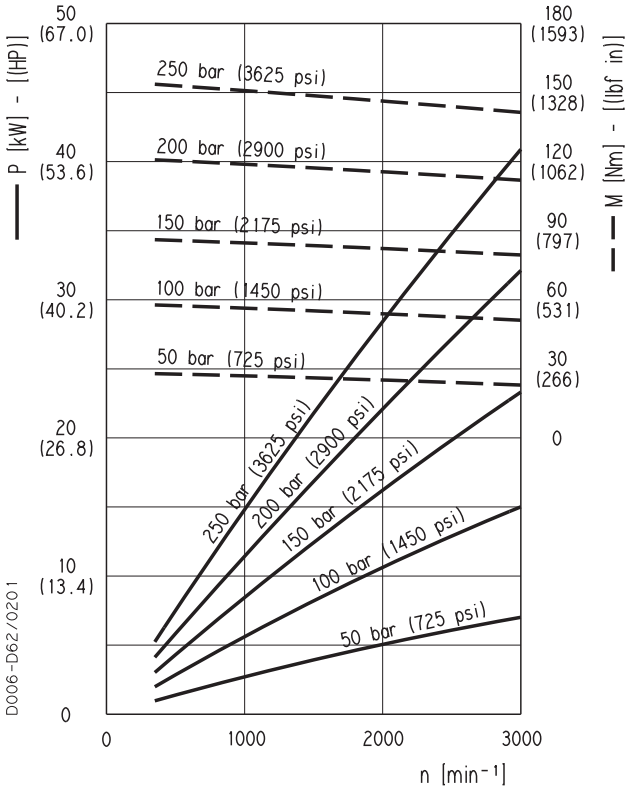
KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

KM 30

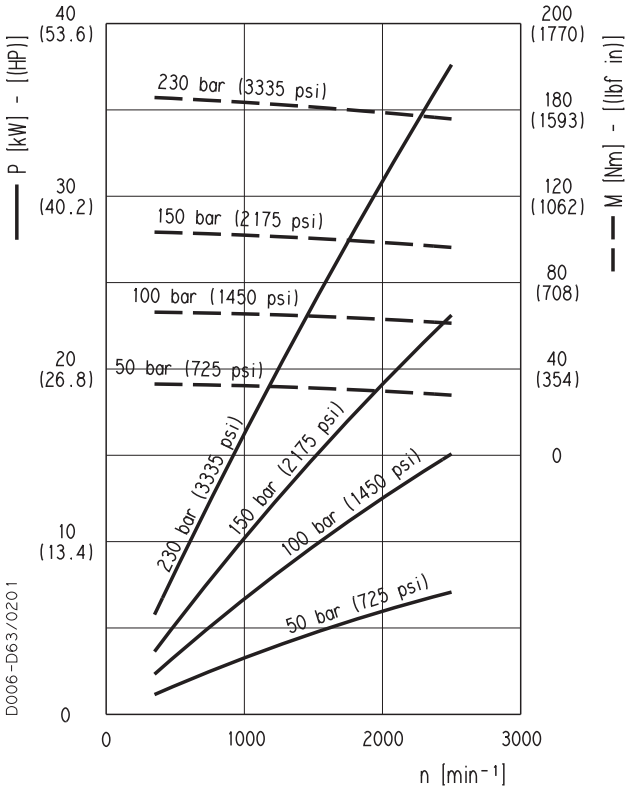
KM 30•38



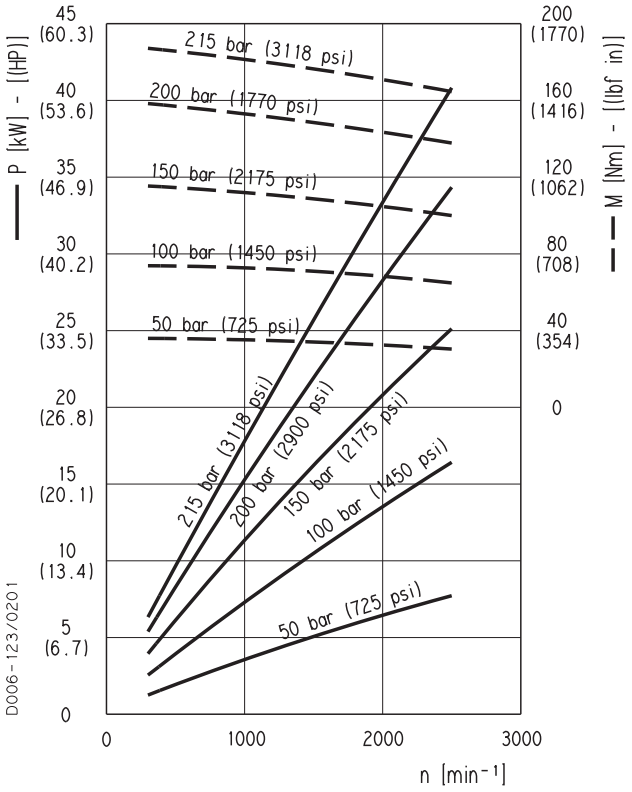
KM 30•43



KM 30•51



KM 30•56

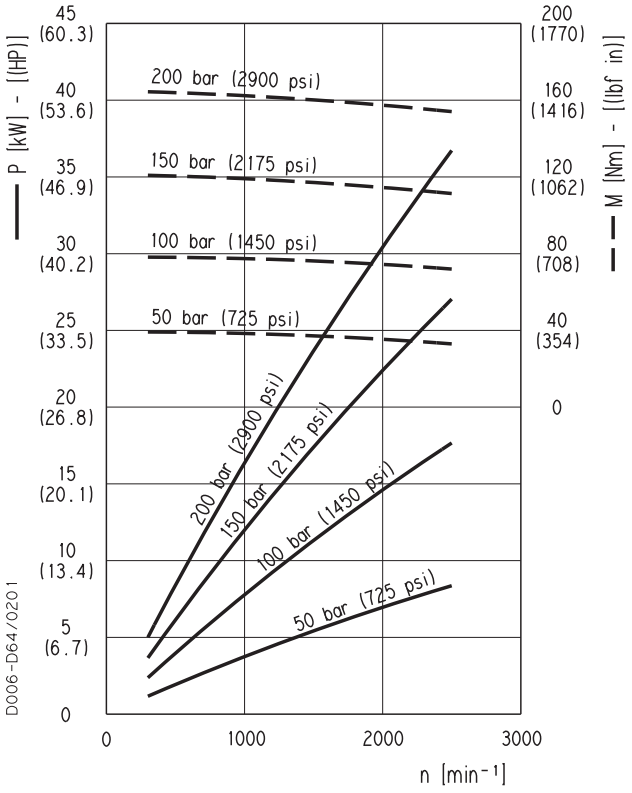


01/03.2002

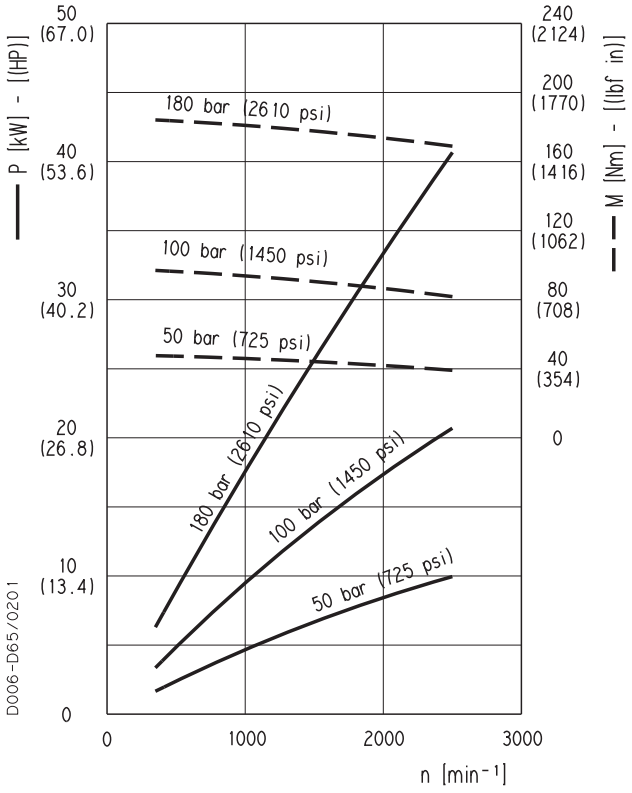
KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

KM 30

KM 30•61



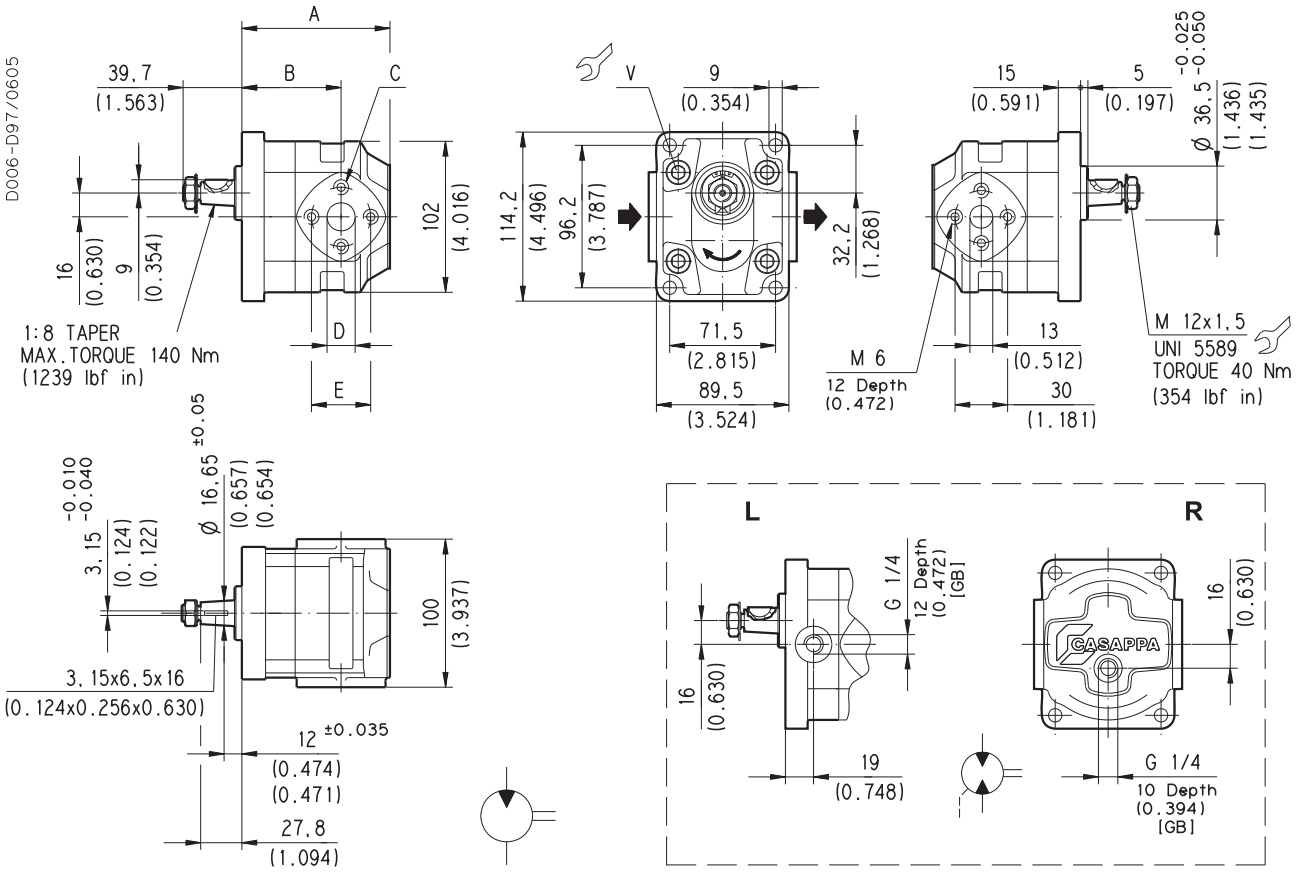
KM 30•73



01/03.2002

KAPPA 20 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 82 E2

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C	D	E
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KM 20•4	S D L R B	0-82 E2-L EA/EA-N	87,5 (3.445)	60 (2.362)	M6 Depth 12 (0.551)	13 (0.512)	30 (1.181)
KM 20•6,3			90 (3.543)	62,5 (2.461)			
KM 20•8			92,5 (3.642)	65 (2.559)			
KM 20•11,2			96 (3.780)	68,5 (2.697)			
KM 20•14		0-82 E2-L EA/EB-N	100 (3.937)	67 (2.638)	M8 Depth 14 (0.551)	19 (0.748)	40 (1.575)
KM 20•16			105,5 (4.154)	72,5 (2.854)			
KM 20•20			112 (4.409)	79 (3.110)			
KM 20•25			120 (4.724)	72 (2.835)			
KM 20•31,5			130 (5.118)	82 (3.228)			

02/06.2005

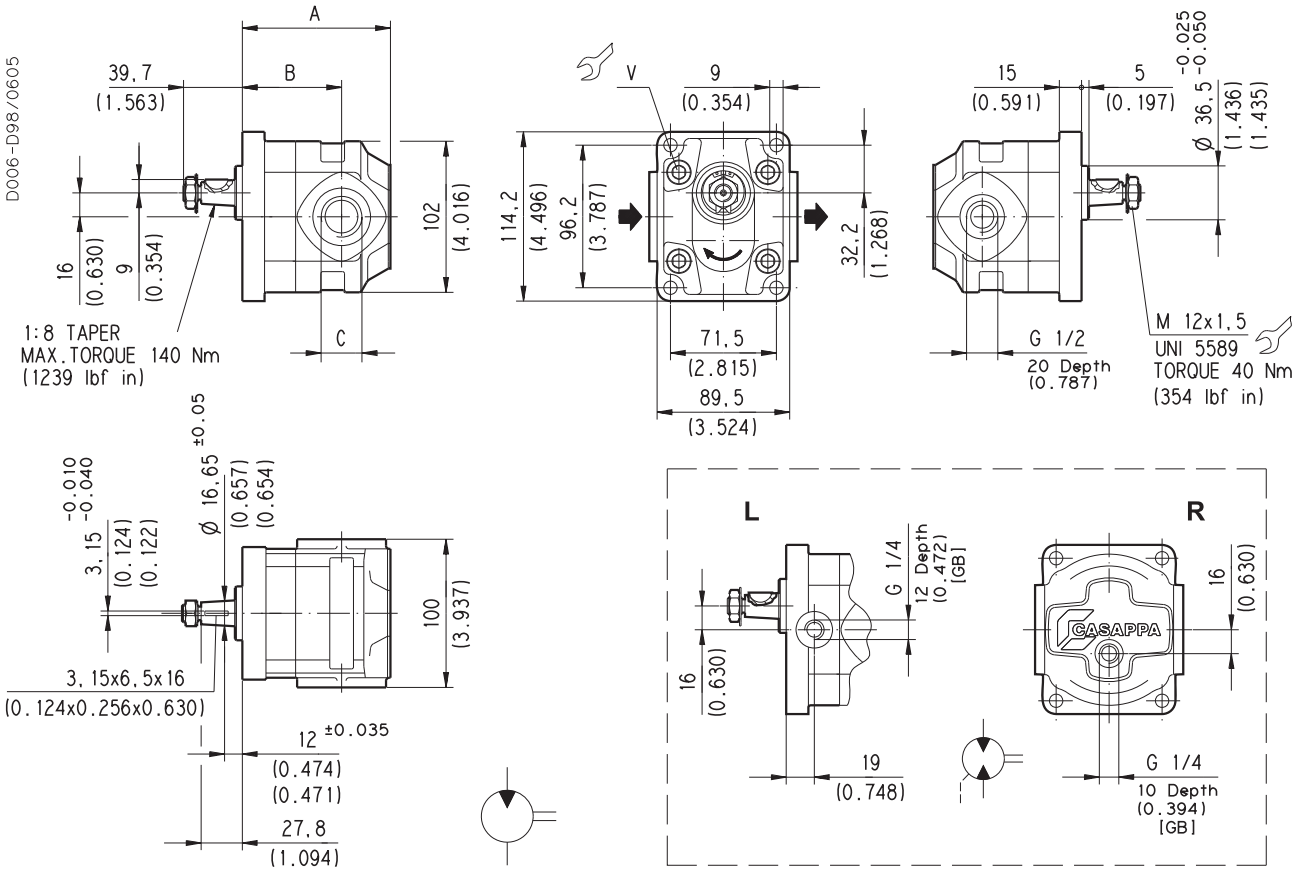
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KM 20•4 S0-82 E2-L EA/EA-N

KAPPA 20 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 82 E2

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C
			mm (in)	mm (in)	mm (in)
KM 20•4	S D L R B	0-82 E2-L GD/GD-N	87,5 (3.445)	60 (2.362)	G 1/2 Depth 20 (0.787)
KM 20•6,3			90 (3.543)	62,5 (2.461)	
KM 20•8			92,5 (3.642)	65 (2.559)	
KM 20•11,2			96 (3.780)	68,5 (2.697)	
KM 20•14		0-82 E2-L GD/GE-N	100 (3.937)	67 (2.638)	G 3/4 Depth 22 (0.866)
KM 20•16			105,5 (4.154)	72,5 (2.854)	
KM 20•20			112 (4.409)	79 (3.110)	
KM 20•25			120 (4.724)	72 (2.835)	
KM 20•31,5			130 (5.118)	82 (3.228)	

Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

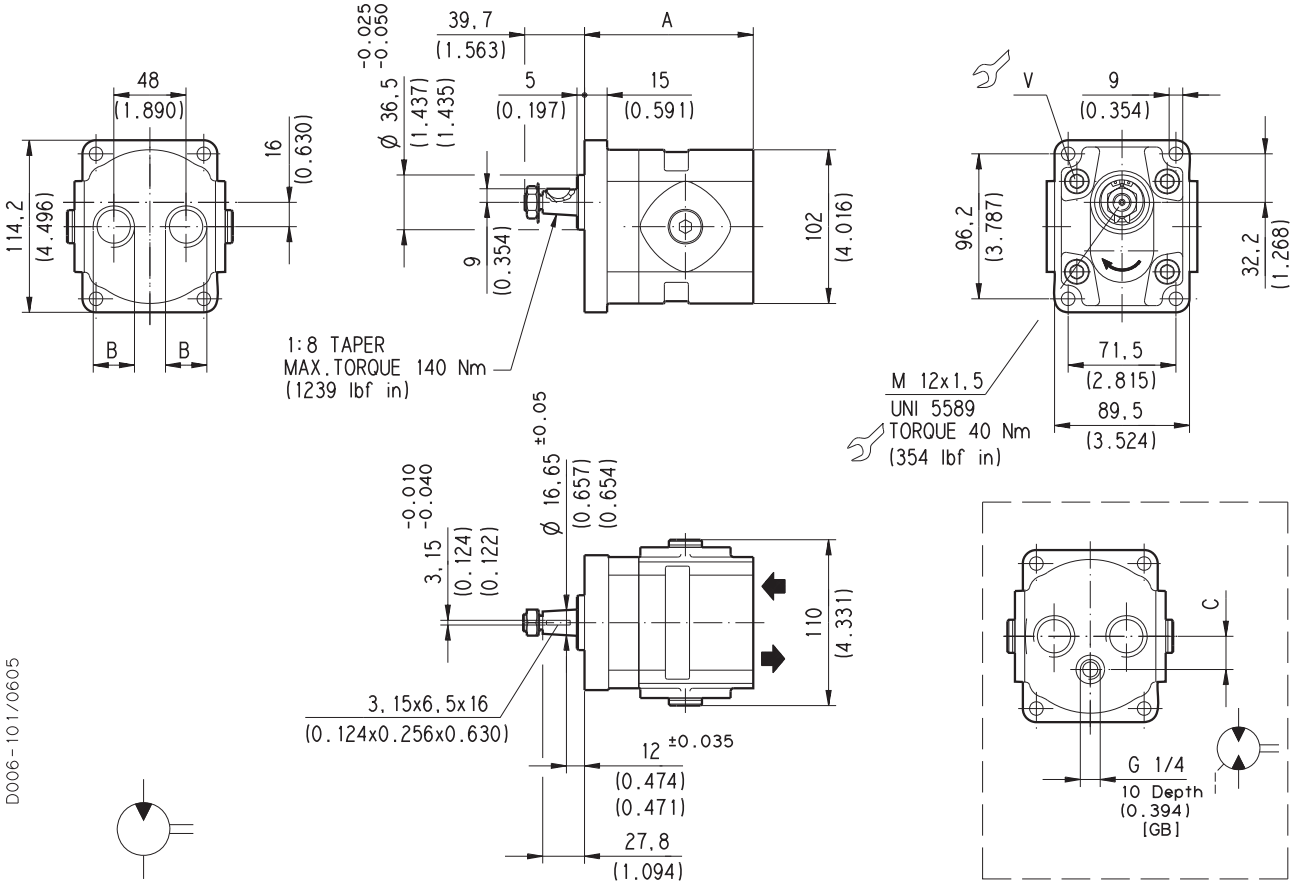
How to order:

KM 20•4 S0-82 E2-L GD/GD-N

02/06.2005

KAPPA 20 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 82 E2 - P

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Rear ports version

Moror type			A	B	C
			mm (in)	mm (in)	mm (in)
KM 20•4	S D R B	0-82 E2-P GD/GD-N	84,5 (3.327)	G 1/2 Depth 17 (0.670)	19 (0.748)
KM 20•6,3			87 (3.425)		
KM 20•8			89,5 (3.524)		
KM 20•11,2			93 (3.661)		
KM 20•14		0-82 E2-P GE/GE-N	112 (4.409)	G 3/4 Depth 18 (0.709)	22 (0.866)
KM 20•16			115,5 (4.547)		
KM 20•20			122 (4.803)		
KM 20•25			130 (5.118)		
KM 20•31,5			140 (5.512)		

02/06.2005

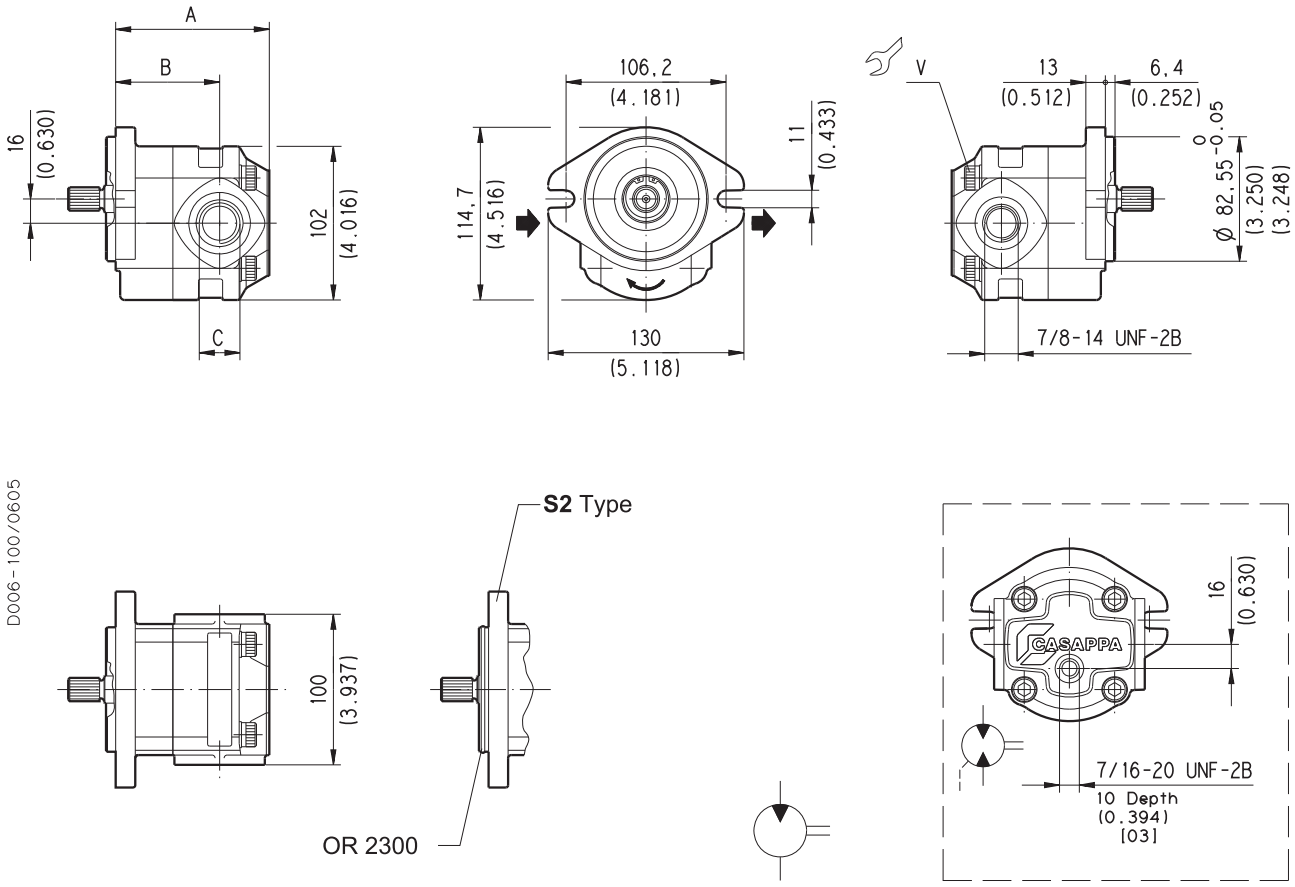
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KM 20•4 S0-82 E2-P GD/GD-N

KAPPA 20 | HYDRAULIC GEAR MOTORS SAE STANDARD | ... S1

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

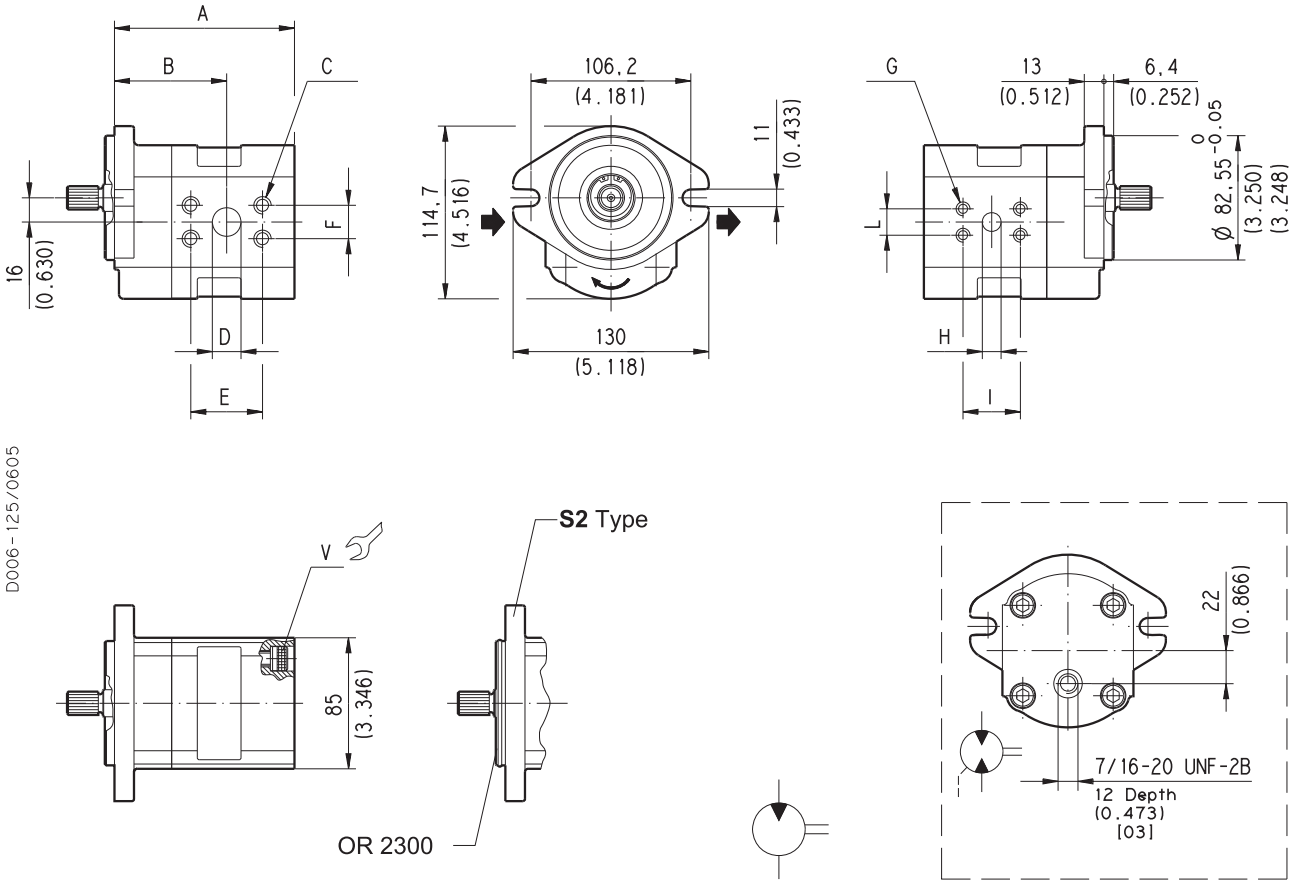
Side ports version (L) - To order see page 93 e 94

Motor type	A	B	C	Ports code	
	mm (in)	mm (in)	mm (in)	IN	OUT
KM 20•4	89,5 (3.524)	62 (2.441)	7/8-14 UNF-2B	OC	OC
KM 20•6,3	92 (3.622)	64,5 (2.539)			
KM 20•8	94,5 (3.720)	67 (2.638)			
KM 20•11,2	98 (3.858)	70,5 (2.776)			
KM 20•14	102 (4.016)	69 (2.717)	1-1/16-12 UN-2B		OD
KM 20•16	107,5 (4.232)	74,5 (2.933)			
KM 20•20	114 (4.488)	81 (3.189)			
KM 20•25	122 (4.803)	74 (2.913)			
KM 20•31,5	132 (5.197)	84 (3.307)			

02/06.2005

KAPPA 20 — HYDRAULIC GEAR MOTORS SAE STANDARD — ... S1

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI
Metric thread ISO 60° conforms to ISO/R 262



D006-125/0605

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

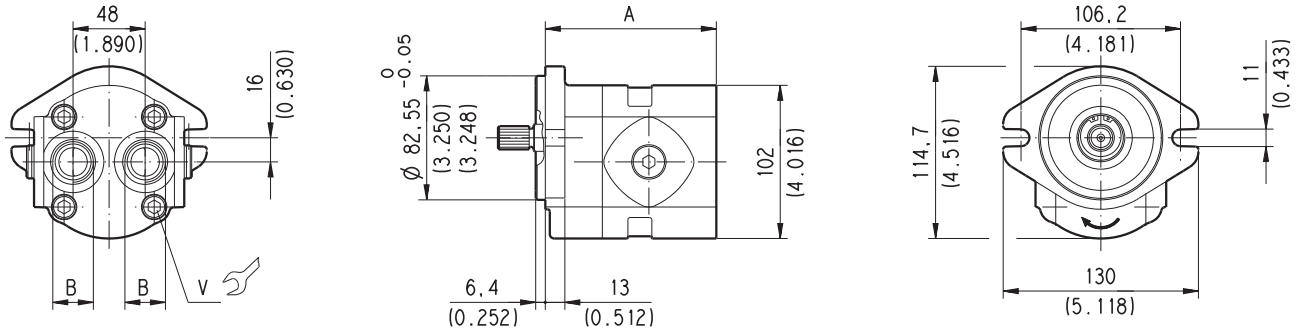
Side ports version (L) - To order see page 93 e 94

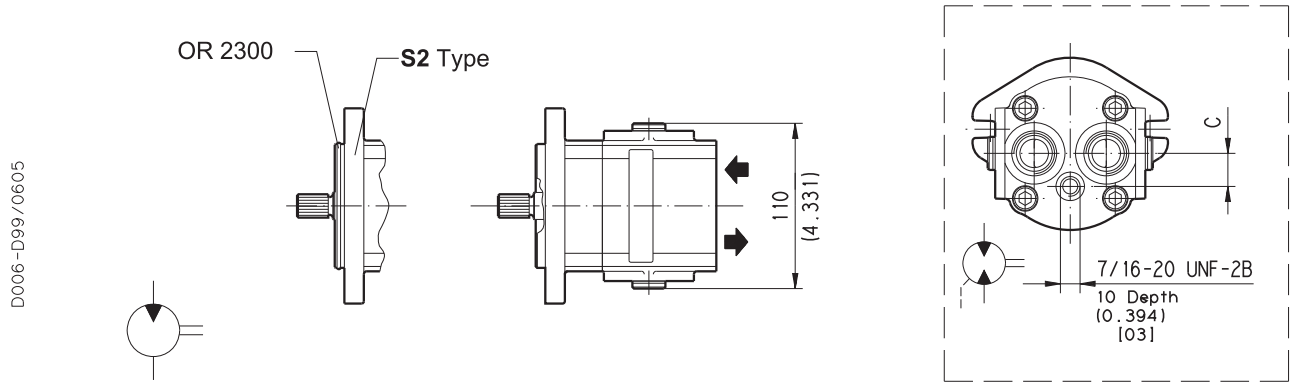
Motor type	A	B	C	D	E	F	G	H	I	L	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KM 20•4	101,5 (3.996)	62 (2.441)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	**MA**	**MA**
KM 20•6,3	104 (4.094)	64,5 (2.539)										
KM 20•8	106,5 (4.193)	67 (2.638)										
KM 20•11,2	111 (4.370)	70,5 (2.776)										
KM 20•14	116 (4.567)	69 (2.717)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)						**MB**
KM 20•16	119,5 (4.705)	74,5 (2.933)										
KM 20•20	126 (4.961)	81 (3.189)										
KM 20•25	134 (5.276)	74 (2.913)		25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	**MB**	**MC**
KM 20•31,5	144 (5.669)	84 (3.307)										

02/06.2005

KAPPA 20 | HYDRAULIC GEAR MOTORS SAE STANDARD | ... S1

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1





V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

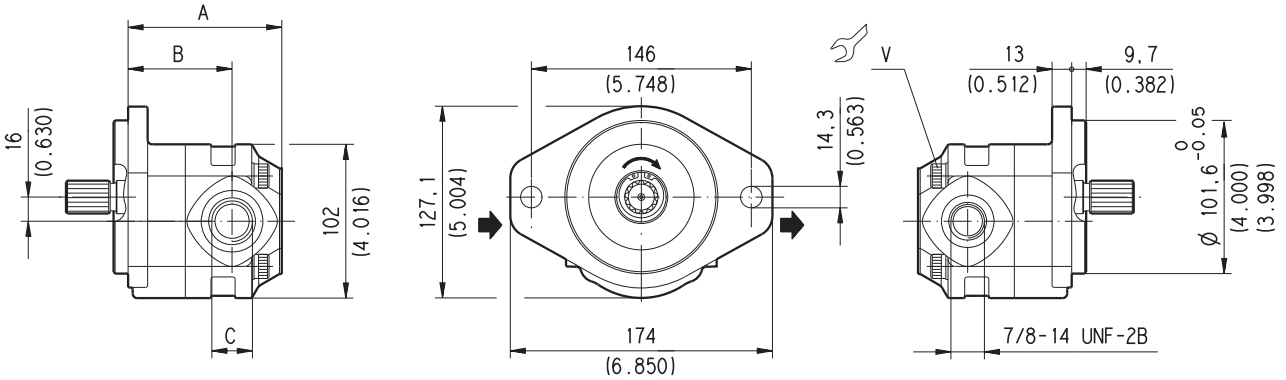
Rear ports version (P) - To order see page 93 e 94

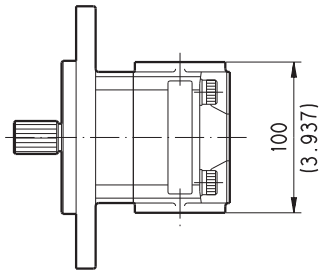
Motor type	A	B	C	Ports code	
	mm (in)		mm (in)	IN	OUT
KM 20•4	86,5 (3.406)	7/8-14 UNF-2B	19 (0.748)	**OC**	**OC**
KM 20•6,3	89 (3.504)				
KM 20•8	91,5 (3.602)				
KM 20•11,2	95 (3.740)				
KM 20•14	114 (4.488)	1-1/16-12 UN-2B	22 (0.866)		**OD**
KM 20•16	117,5 (4.623)				
KM 20•20	124 (4.882)				
KM 20•25	132 (5.197)				
KM 20•31,5	142 (5.591)				

02/06.2005

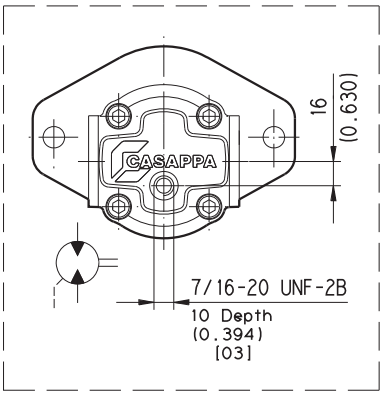
KAPPA 20 | HYDRAULIC GEAR MOTORS SAE STANDARD | ... S5

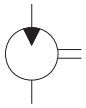
SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1





D006-168/0605





V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

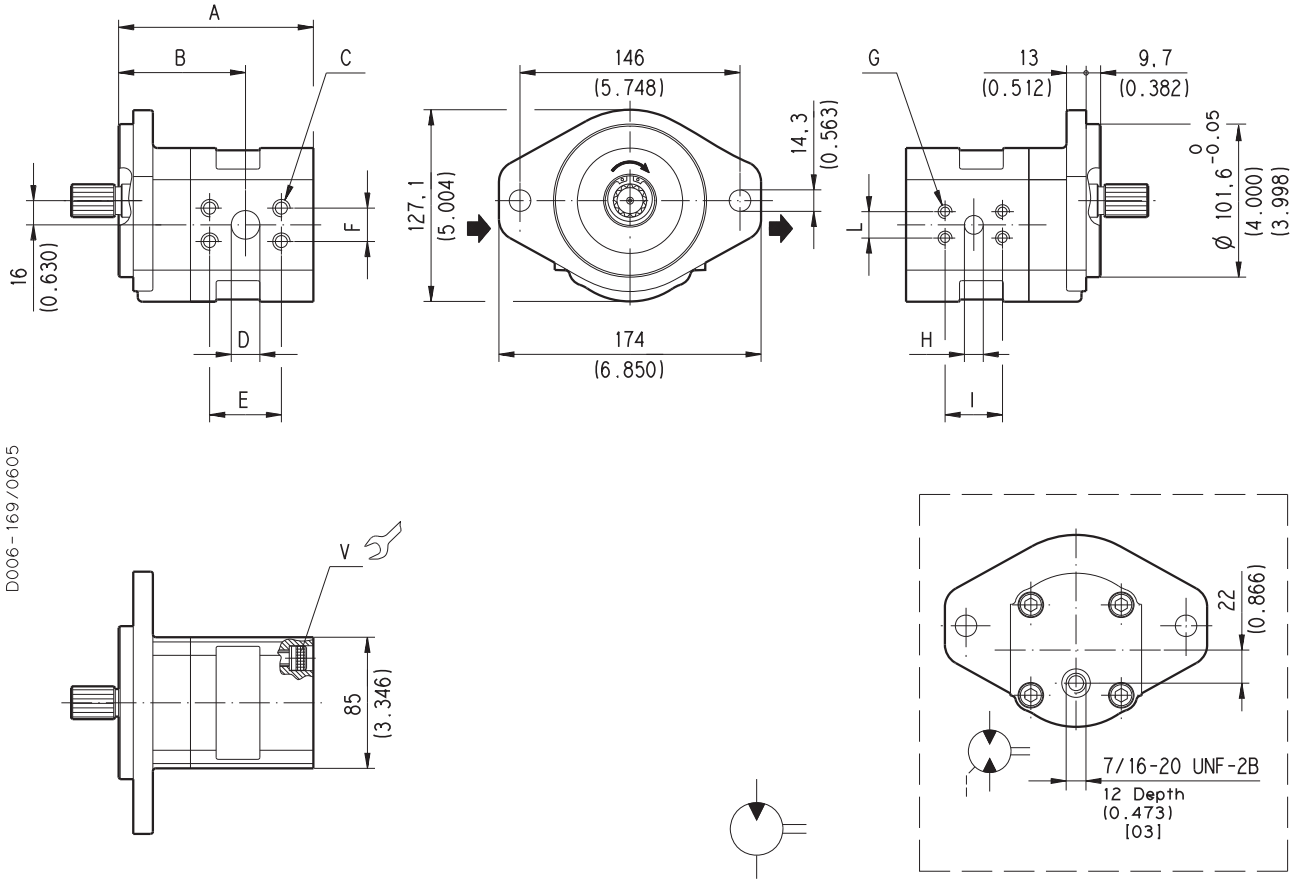
Side ports version (L) - To order see page 93 e 94

Motor type	A	B	C	Ports code	
	mm (in)		mm (in)	IN	OUT
KM 20•4	89,5 (3.524)	62 (2.441)	7/8-14 UNF-2B	**OC**	**OC**
KM 20•6,3	92 (3.622)	64,5 (2.539)			
KM 20•8	94,5 (3.720)	67 (2.638)			
KM 20•11,2	98 (3.858)	70,5 (2.776)			
KM 20•14	102 (4.016)	69 (2.717)	1-1/16-12 UN-2B		**OD**
KM 20•16	107,5 (4.232)	74,5 (2.933)			
KM 20•20	114 (4.488)	81 (3.189)			
KM 20•25	122 (4.803)	74 (2.913)			
KM 20•31,5	132 (5.197)	84 (3.307)			

02/06.2005

KAPPA 20 | HYDRAULIC GEAR MOTORS SAE STANDARD | ... S5

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

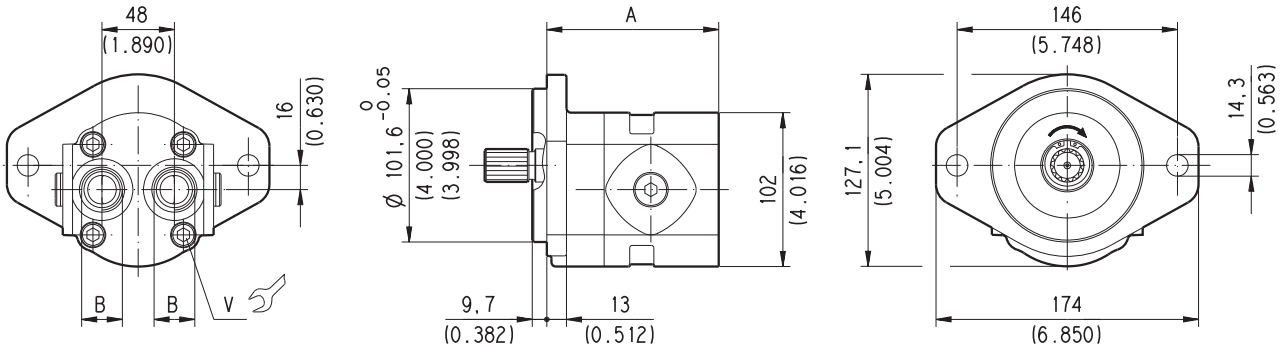
Side ports version (L) - To order see page 93 e 94

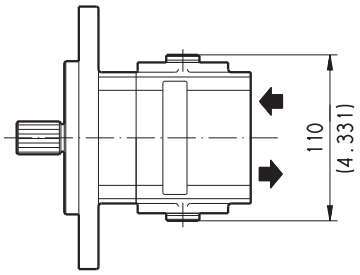
Motor type	A	B	C	D	E	F	G	H	I	L	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KM 20•4	101,5 (3.996)	62 (2.441)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	**MA**	**MA**
KM 20•6,3	104 (4.094)	64,5 (2.539)										
KM 20•8	106,5 (4.193)	67 (2.638)										
KM 20•11,2	111 (4.370)	70,5 (2.776)										
KM 20•14	116 (4.567)	69 (2.717)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)						**MB**
KM 20•16	119,5 (4.705)	74,5 (2.933)										
KM 20•20	126 (4.961)	81 (3.189)										
KM 20•25	134 (5.276)	74 (2.913)		25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	**MB**	**MC**
KM 20•31,5	144 (5.669)	84 (3.307)										

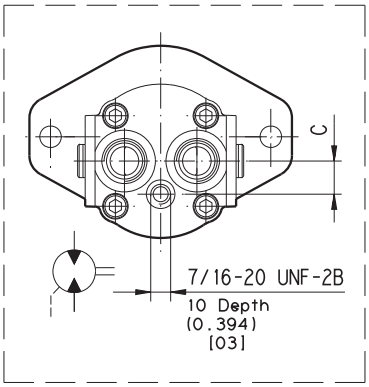
02/06.2005

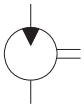
KAPPA 20 | HYDRAULIC GEAR MOTORS SAE STANDARD | ... S5

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1









D006-170/0605

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Rear ports version (P) - To order see page 93 e 94

Motor type	A	B	C	Ports code	
	mm (in)		mm (in)	IN	OUT
KM 20•4	86,5 (3.406)	7/8-14 UNF-2B	19 (0.748)	**OC**	**OC**
KM 20•6,3	89 (3.504)				
KM 20•8	91,5 (3.602)				
KM 20•11,2	95 (3.740)				
KM 20•14	114 (4.488)	1-1/16-12 UN-2B	22 (0.866)		**OD**
KM 20•16	117,5 (4.623)				
KM 20•20	124 (4.882)				
KM 20•25	132 (5.197)				
KM 20•31,5	142 (5.591)				

02/06.2005

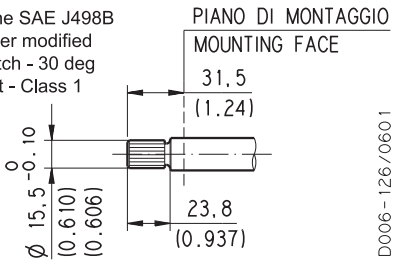
KAPPA 20 END DRIVE SHAFTS

SAE

Replaces: 01/03.2002

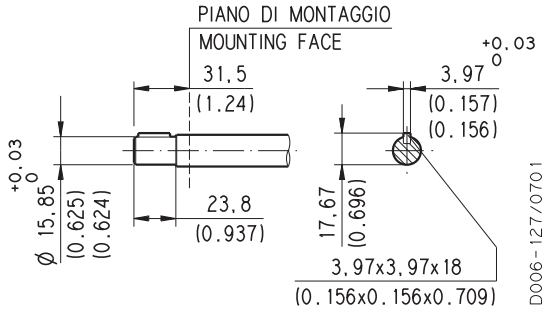
SAE "A" SPLINE — 03

Ext. Involute Spline SAE J498B
with major diameter modified
9 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 885 lbf in (100 Nm)

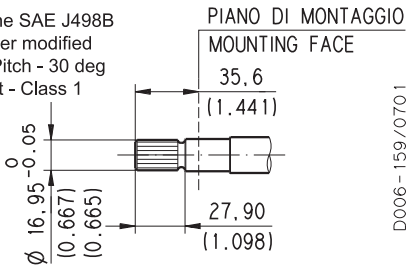
SAE "A" STRAIGHT — 31



MAX 620 lbf in (70 Nm)

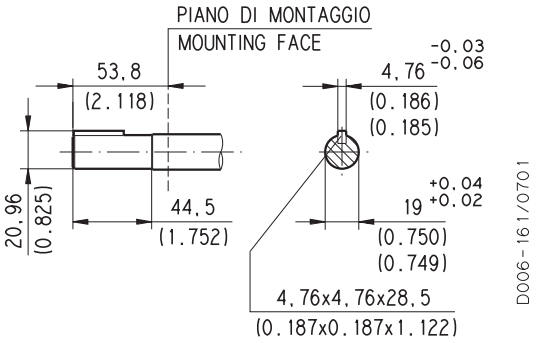
SAE SPLINE — 01

Ext. Involute Spline SAE J498B
with major diameter modified
10 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 1151 lbf in (130 Nm)

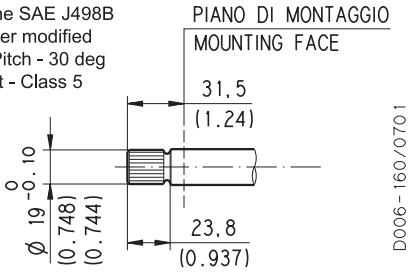
STRAIGHT — 49



MAX 1239 lbf in (140 Nm)

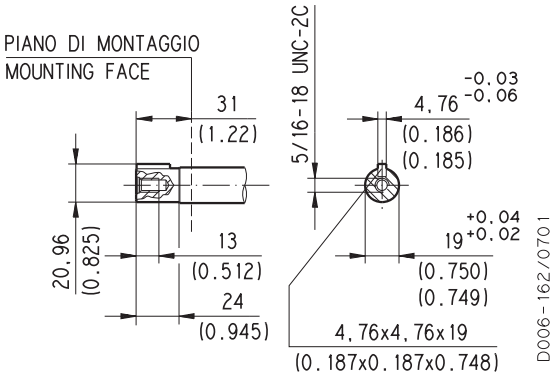
SAE SPLINE — 07

Ext. Involute Spline SAE J498B
with major diameter modified
11 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 5



MAX 1505 lbf in (170 Nm)

STRAIGHT — 50

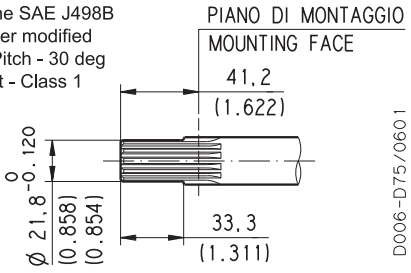


MAX 885 lbf in (100 Nm)

03/03.2006

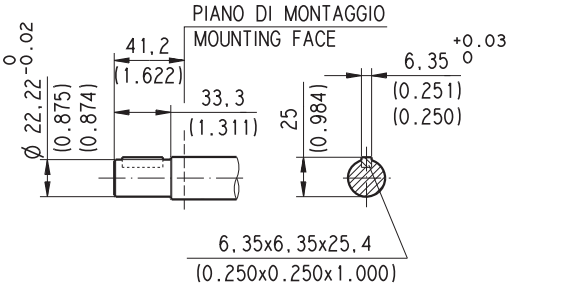
SAE "B" SPLINE — 04

Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 2478 lbf in (280 Nm)

SAE "B" STRAIGHT — 32



MAX 1770 lbf in (200 Nm)

HOW TO ORDER SINGLE MOTORS

1	2	3		4	5		6	7		8
Motor type	Rotation	Version	–	Drive shaft	Mounting flange	–	Ports positon	Ports IN/OUT	–	Seals
KM20•4	S	0	–	03	S1	–	L	OC/OC	–	N

1 Motor Type		CODE
in³/rev	(cm³/rev)	
0.30	4,95	KM 20•4
0.40	6,61	KM 20•6,3
0.50	8,26	KM 20•8
0.69	11,23	KM 20•11,2
0.89	14,53	KM 20•14
1.03	16,85	KM 20•16
1.29	21,14	KM 20•20
1.61	26,42	KM 20•25
2.01	33,03	KM 20•31,5

2 Rotation	CODE
Left	S
Right	D
Reversible	R
Reversible with internal drain	B

3 Version	CODE
Without outboard bearing	0

4 Drive shaft	CODE
SAE “A” spline (9 teeth)	03
SAE spline (10 teeth)	01
SAE spline (11 teeth)	07
SAE “B” spline (13 teeth)	04
SAE “A” straight	31
Straight	49
Straight	50
SAE “B” straight	32

5 Mounting flange	CODE
SAE “A” 2 holes	S1
SAE “A” 2 holes (with o-ring seal)	S2
SAE “B” 2 holes (a)	S5

CODE	6 Ports position
L	Side
P	Rear

CODE		7 Ports IN/OUT
SAE STRAIGHT THREAD PORTS (ODT)		
Side	Rear	Motor type
OC/OC	OC/OC	KM 20•4
OC/OC	OC/OC	KM 20•6,3
OC/OC	OC/OC	KM 20•8
OC/OC	OC/OC	KM 20•11,2
OC/OD	OD/OD	KM 20•14
OC/OD	OD/OD	KM 20•16
OC/OD	OD/OD	KM 20•20
OC/OD	OD/OD	KM 20•25
OC/OD	OD/OD	KM 20•31,5
METRIC SAE SPLIT PORTS SAE J518 C		
MA/MA		KM 20•4
MA/MA		KM 20•6,3
MA/MA		KM 20•8
MA/MA		KM 20•11,2
MA/MB		KM 20•14
MA/MB		KM 20•16
MA/MB		KM 20•20
MB/MC		KM 20•25
MB/MC		KM 20•31,5

CODE	8 Seals (b)
N	Buna N (standard) - no code
N-H	Buna with high back pressure shaft seals
V	Viton
N Bz	Buna N and Bronze thrust plates
V Bz	Viton and Bronze thrust plates

(a) Available only with 04 and 32 shaft

(b) Choose the seals according to the temperature shown on page 1

01/03.2002

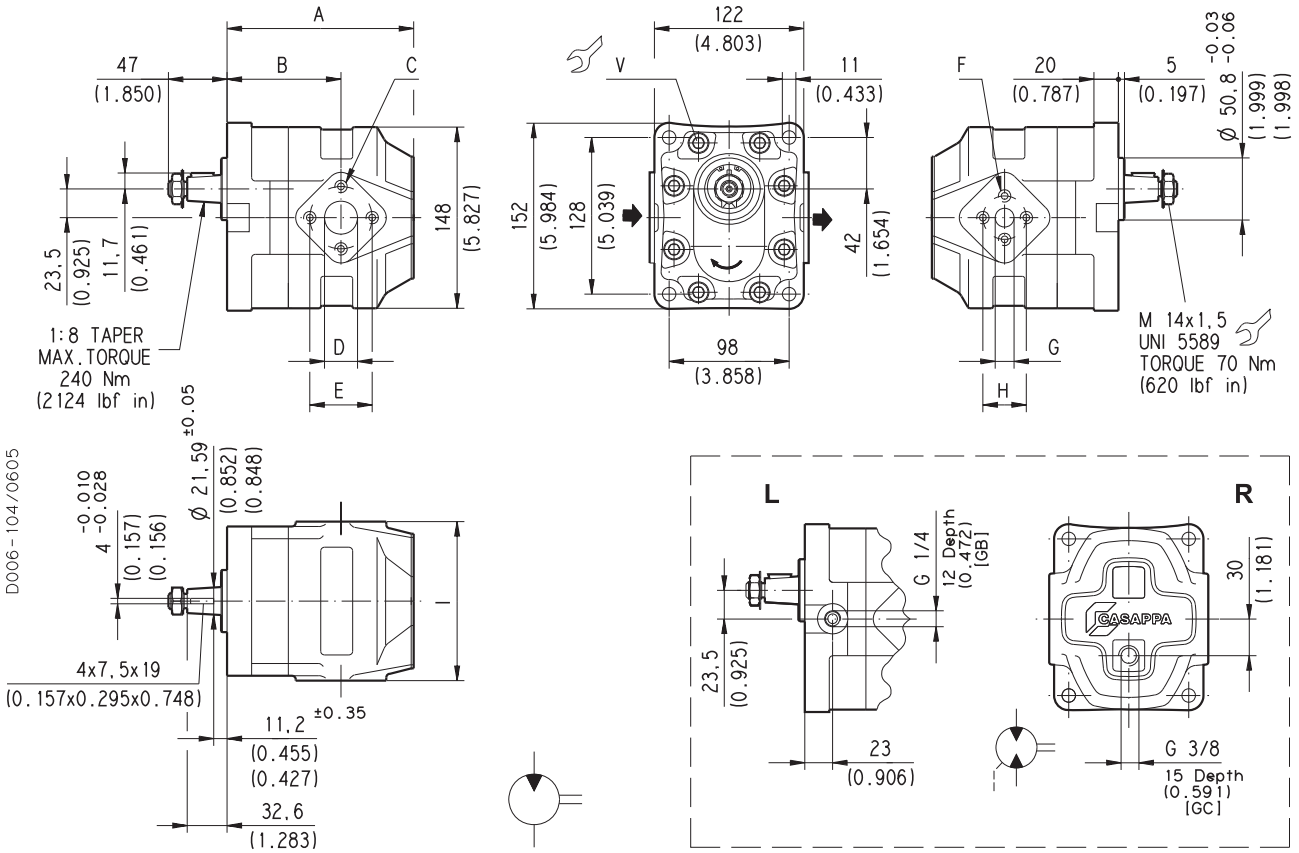
ORDER EXAMPLE

Standard motor KM 20•4 S0 - 03 S1 - L OC/OC - N

Special version motor KM 20•4 S0 - 04 S5 - L MA/MA - V Bz

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 83 E3

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C	D	E	F	G	H	I
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KM 30•27	S D L R B	0-83 E3-L EB/ED-N	133 (5.236)	85 (3.346)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	M 8 Depth 17 (0.669)	19 (0.748)	40 (1.575)	130 (5.118)
KM 30•34			138 (5.433)	90 (3.543)							
KM 30•38			141 (5.551)	93 (3.661)							
KM 30•43			144 (5.669)	96 (3.780)							
KM 30•51			149 (5.866)	93 (3.661)							
KM 30•56			152 (5.984)	97 (3.819)							
KM 30•61			155 (6.102)	100 (3.937)							
KM 30•73		0-83 E3-L ED/EF-N	163 (6.417)	108 (4.252)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	135 (5.315)

02/06.2005

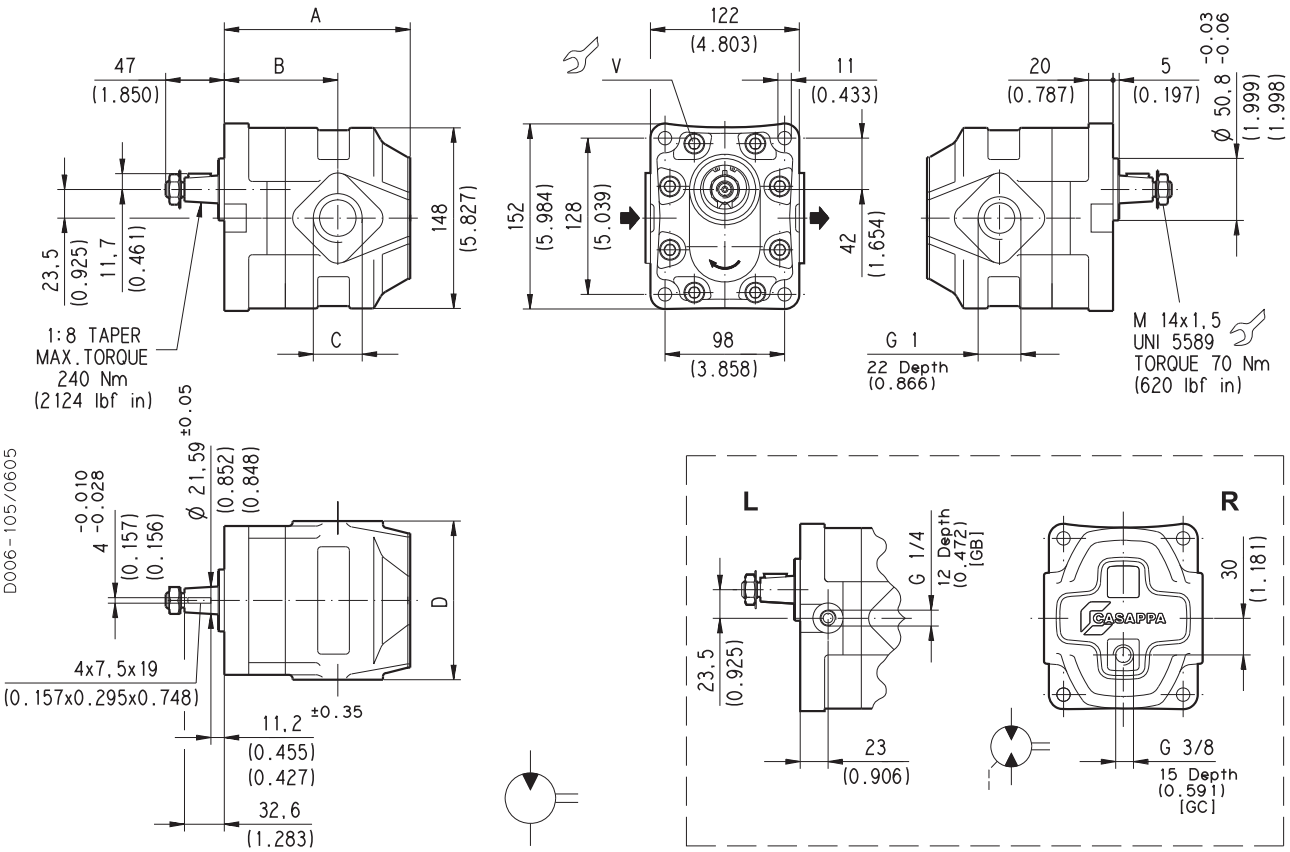
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•27 S0-83 E3-L EB/ED-N

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 83 E3

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C	D
			mm (in)	mm (in)	mm (in)	mm (in)
KM 30•27	S D L R B	0-83 E3-L GF/GF-N	133 (5.236)	85 (3.346)	G 1 Depth 22 (0.866)	130 (5.118)
KM 30•34			138 (5.433)	90 (3.543)		
KM 30•38			141 (5.551)	93 (3.661)		
KM 30•43			144 (5.669)	96 (3.780)		
KM 30•51			149 (5.866)	93 (3.661)		
KM 30•56			152 (5.984)	97 (3.819)		
KM 30•61			155 (6.102)	100 (3.937)		
KM 30•73		0-83 E3-L GF/GG-N	163 (6.417)	108 (4.252)	G 1 1/4 Depth 24 (0.945)	135 (5.315)

Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

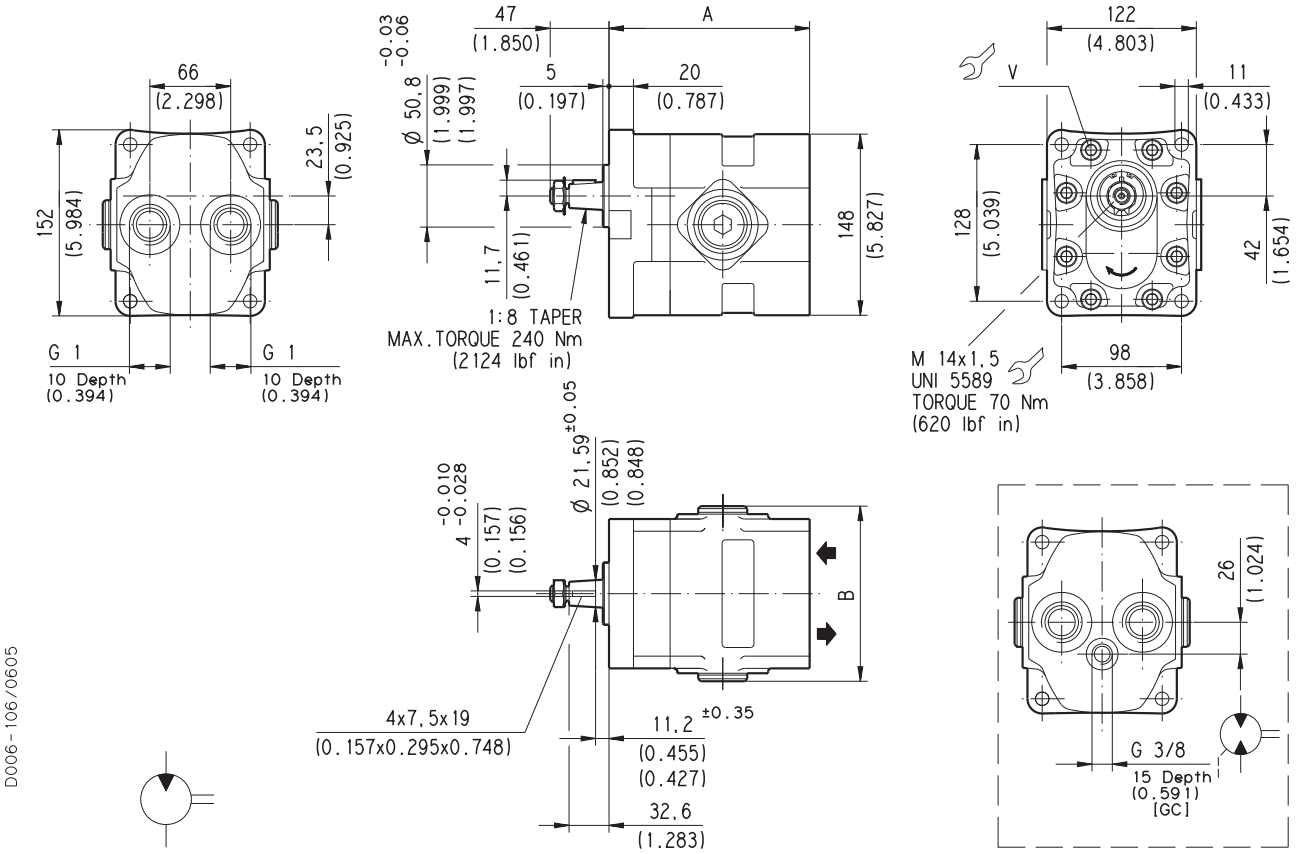
How to order:

KM 30•27 S0-83 E3-L GF/GF-N

02/06.2005

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 83 E3

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Rear ports version (P)

Motor type			A	B
			mm (in)	mm (in)
KM 30•27	S D R B	0-83 E3-P GF/GF-N	148 (5.827)	143 (5.630)
KM 30•34			153 (6.024)	
KM 30•38			156 (6.142)	
KM 30•43			159 (6.260)	
KM 30•51			164 (6.457)	
KM 30•56			167 (6.575)	148 (5.827)
KM 30•61			170 (6.693)	
KM 30•73			178 (7.008)	

02/06.2005

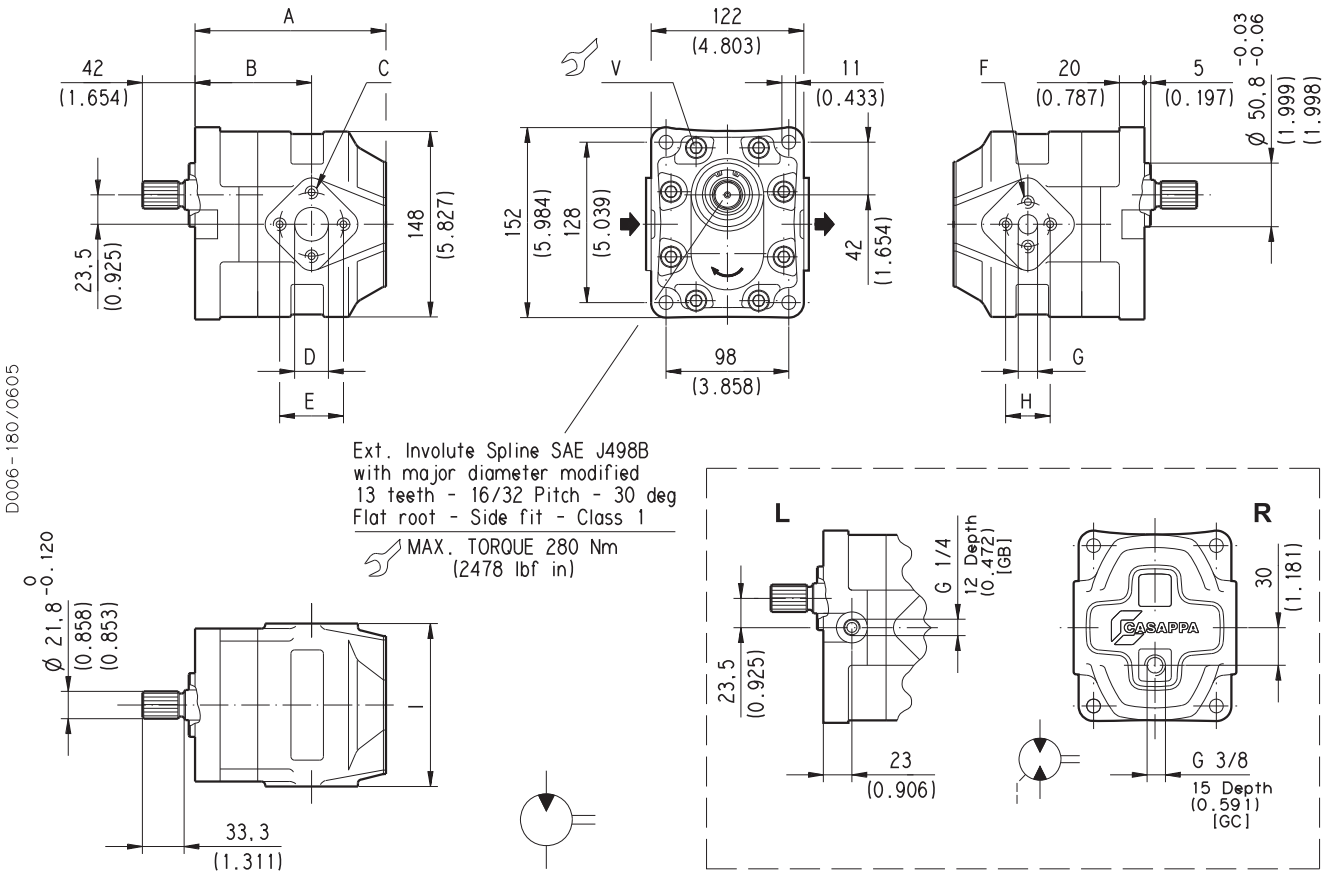
Rotation: S=Left - D=Right - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•27 S0-83 E3-P GF/GF-N

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | A8 E3

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C	D	E	F	G	H	I
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KM 30•27	S D L R B	0-83 E3-L ED/EB-N	133 (5.236)	85 (3.346)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	M 8 Depth 17 (0.669)	19 (0.748)	40 (1.575)	130 (5.118)
KM 30•34			138 (5.433)	90 (3.543)							
KM 30•38			141 (5.551)	93 (3.661)							
KM 30•43			144 (5.669)	96 (3.780)							
KM 30•51			149 (5.866)	93 (3.661)							
KM 30•56			152 (5.984)	97 (3.819)							
KM 30•61			155 (6.102)	100 (3.937)							
KM 30•73		0-83 E3-L EF/ED-N	163 (6.417)	108 (4.252)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	135 (5.315)

02/06.2005

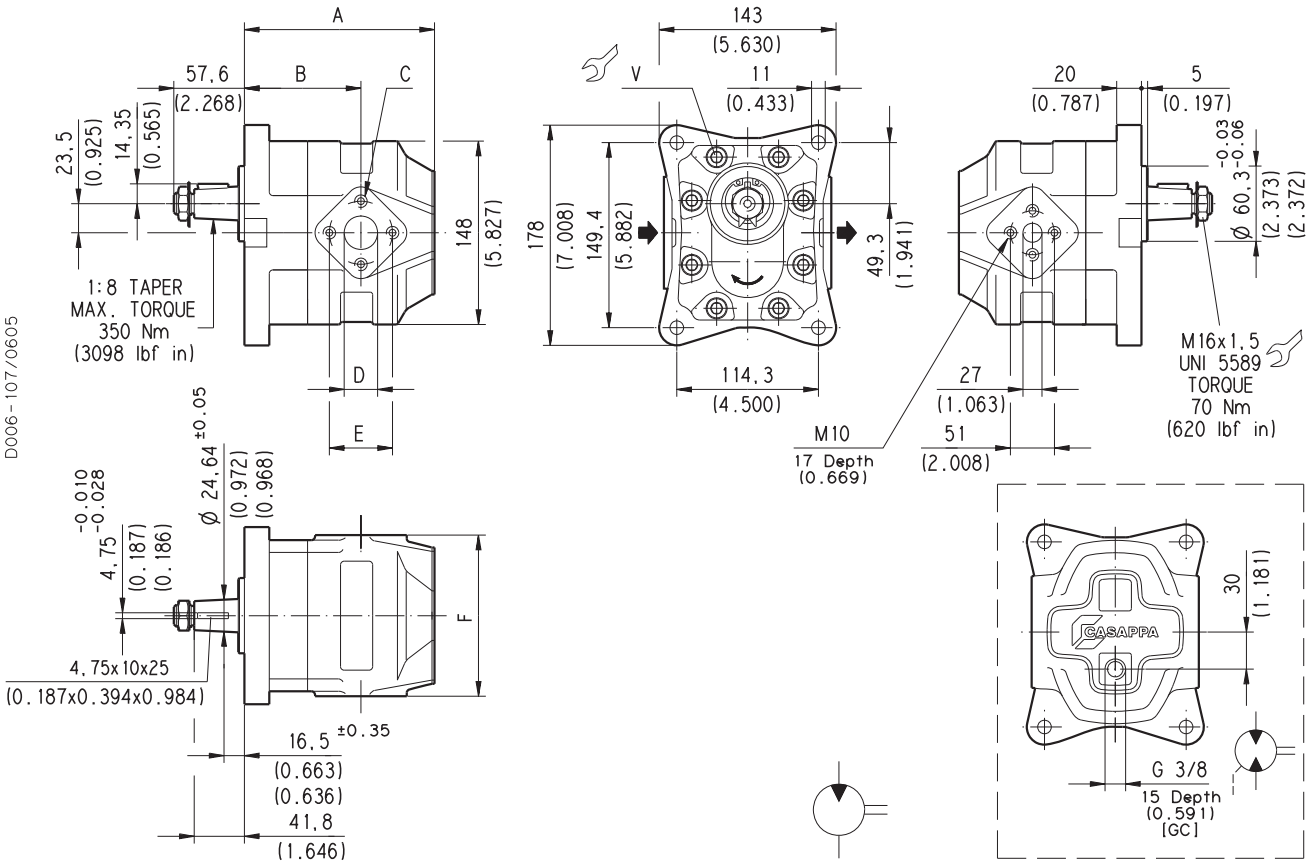
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•27 S0-83 E3-L ED/EB-N

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 84 E4

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

02/06.2005

Motor type			A	B	C	D	E	F
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KM 30•51	S D R B	0-84 E4-L ED/ED-N	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
KM 30•61	S D R B	0-84 E4-L ED/EF-N	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KM 30•73	S D R B	0-84 E4-L ED/EF-N	164 (6.457)	109 (4.291)				

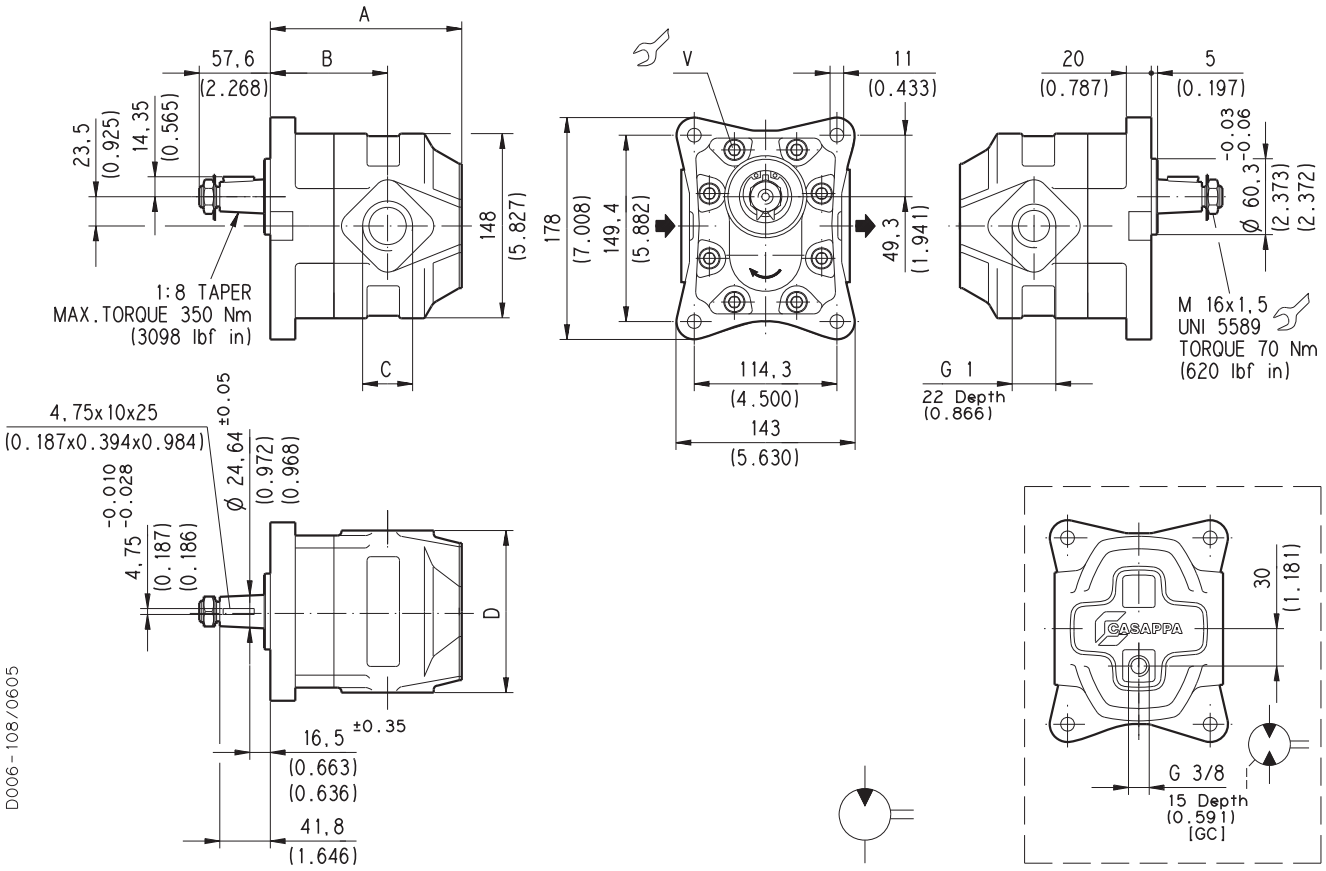
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•51 S0-84 E4-L ED/ED-N

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | 84 E4

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C	D
			mm (in)	mm (in)	mm (in)	mm (in)
KM 30•51	S D R B	0-84 E4-L GF/GF-N	150 (5.906)	94 (3.701)	G 1 Depth 22 (0.866)	130 (5.118)
KM 30•61	S D R B	0-84 E4-L GF/GG-N	156 (6.142)	101 (3.976)	G 1 1/4 Depth 24 (0.945)	135 (5.315)
KM 30•73	S D R B	0-84 E4-L GF/GG-N	164 (6.457)	109 (4.291)	G 1 1/4 Depth 24 (0.945)	135 (5.315)

02/06.2005

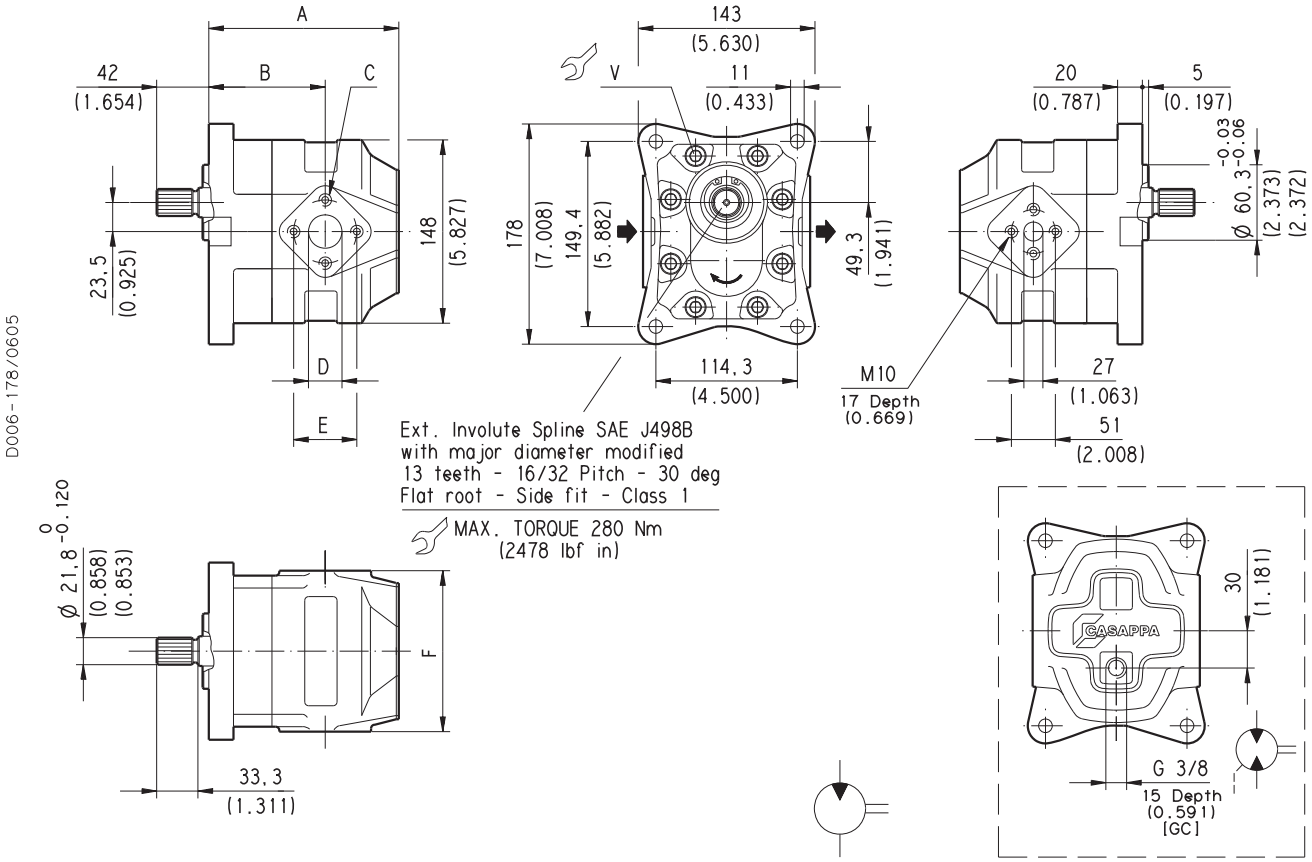
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•51 S0-84 E4-L GF/GF-N

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | A8 E4

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C	D	E	F
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KM 30•51	S D R B	0-A8 E4-L ED/ED-N	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
KM 30•61	S D R B	0-A8 E4-L ED/EF-N	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KM 30•73	S D R B	0-A8 E4-L ED/EF-N	164 (6.457)	109 (4.291)				

02/06.2005

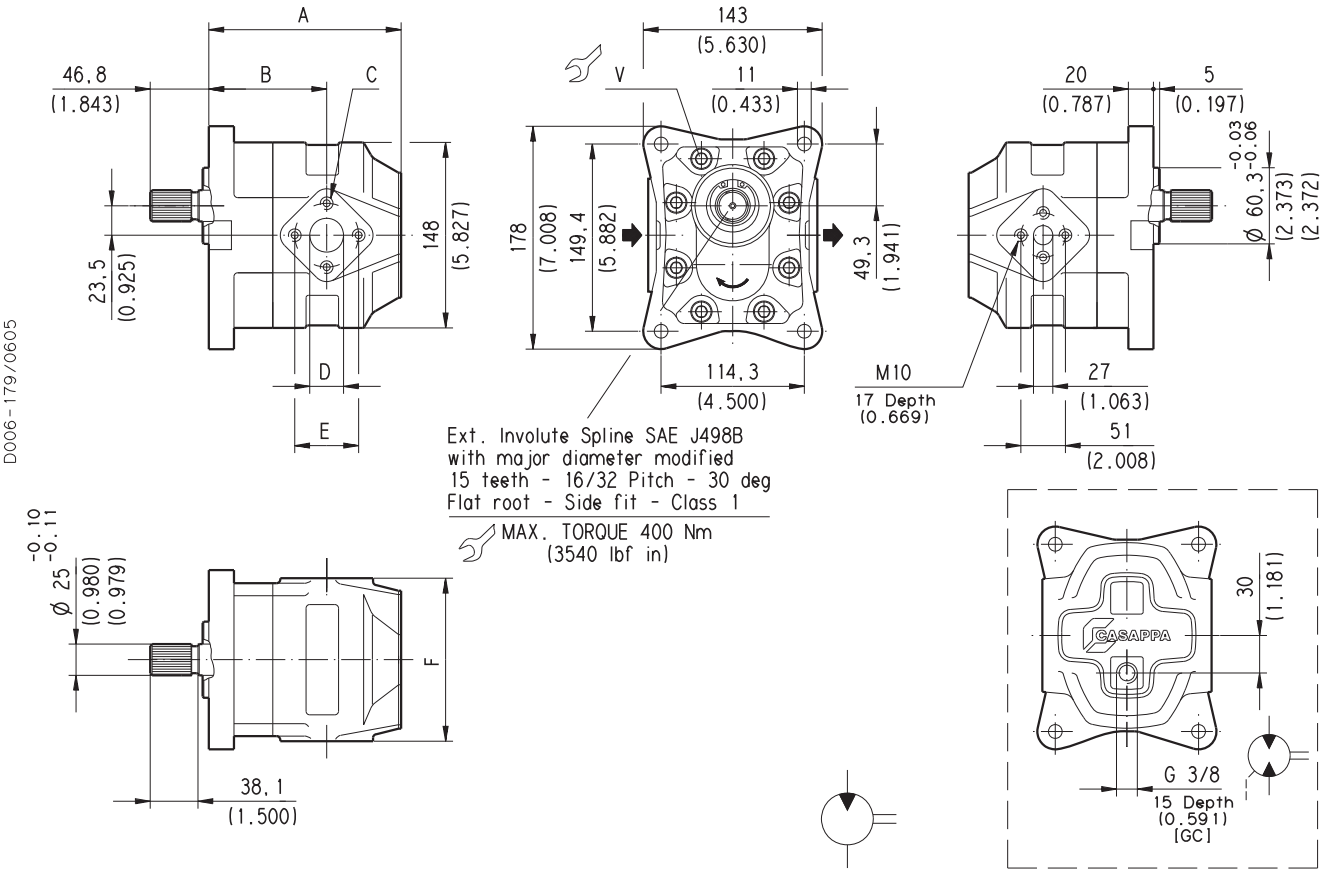
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•51 S0-A8 E4-L ED/ED-N

KAPPA 30 | HYDRAULIC GEAR MOTORS EUROPEAN STANDARD | A5 E4

EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type			A	B	C	D	E	F
			mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
KM 30•51	S D R B	0-A5 E4-L ED/ED-N	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
KM 30•61	S D R B	0-A5 E4-L ED/EF-N	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KM 30•73	S D R B	0-A5 E4-L ED/EF-N	164 (6.457)	109 (4.291)				

02/06.2005

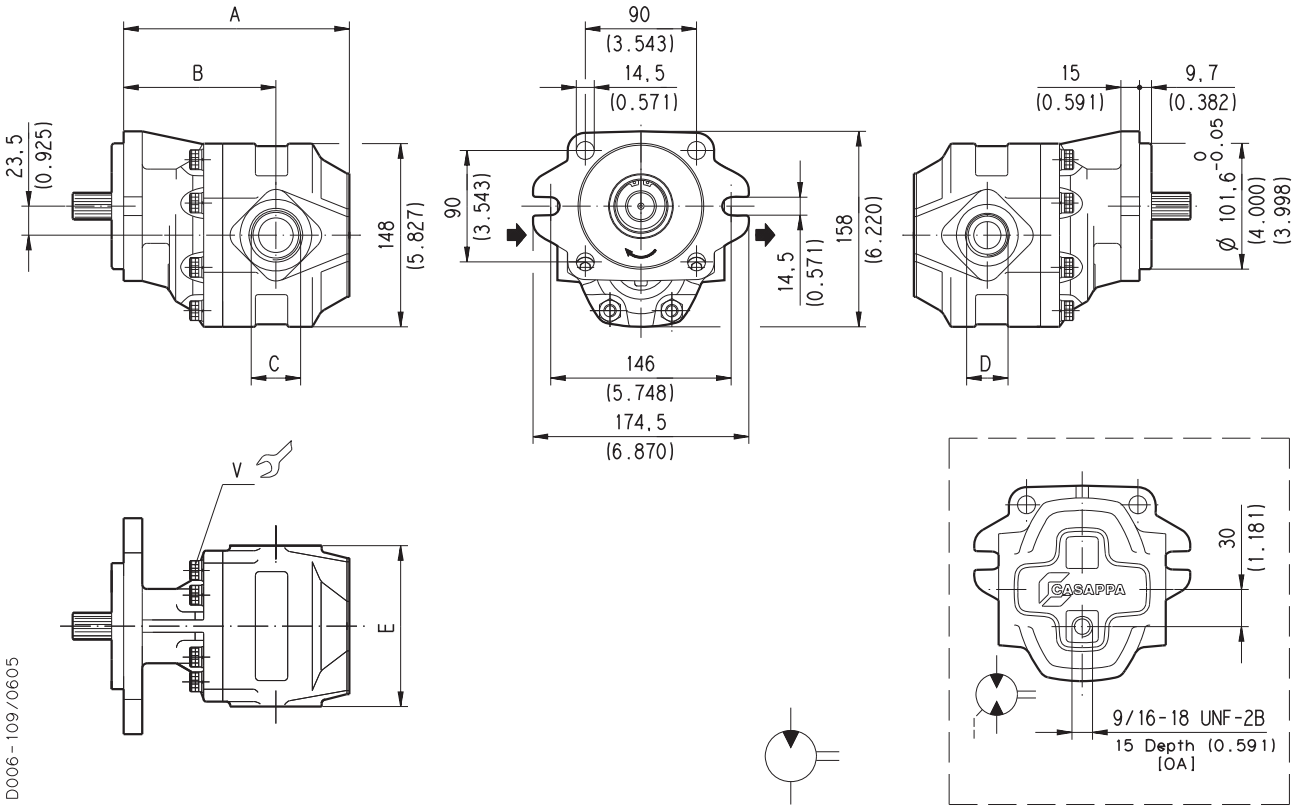
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•51 S0-A5 E4-L ED/ED-N

KAPPA 30 | HYDRAULIC GEAR MOTORS SAE STANDARD | ... S3

SAE STRAIGHT THREAD PORTS J514
American straight thread UNC-UNF 60° conforms to ANSI B 1.1



V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

To order see page 104 e 105

Motor type	A	B	C	D	E	Ports code	
	mm (in)	mm (in)			mm (in)	IN	OUT
KM 30•27	164 (6.457)	115 (4.528)	1-5/16-12 UN-2B	1-1/16-12 UN-2B	130 (5.118)	**OD**	**OF**
KM 30•34	169 (6.654)	120 (4.724)					
KM 30•38	172 (6.772)	123 (4.843)	1-5/8-12 UN-2B	1-5/16-12 UN-2B		**OF**	**OG**
KM 30•43	175 (6.890)	126 (4.961)					
KM 30•51	180 (7.087)	123 (4.843)					
KM 30•56*	182 (7.165)	127 (5.000)	1-7/8-12 UN-2B	1-5/8-12 UN-2B	135 (5.433)	**OG**	**OH**
KM 30•61	186 (7.323)	130 (5.118)					
KM 30•73	194 (7.638)	138 (5.433)					

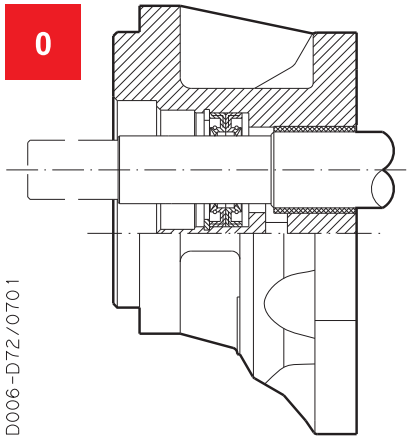
02/06.2005

* Available only with 04 and 32 shaft for 0 and 1 version.

KAPPA 30 SAE VERSION

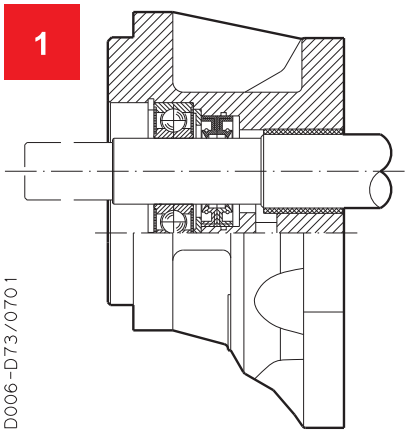
SAE

0



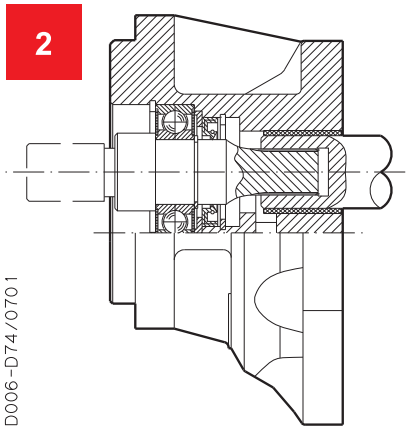
Version for applications without radial and axial load on the drive shaft.

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.

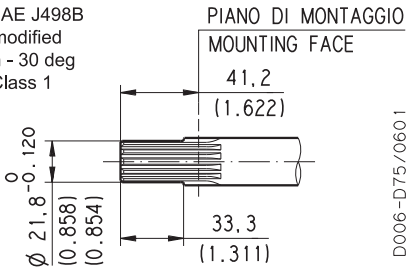
Replaces: 01/03.2002

KAPPA 30 END DRIVE SHAFTS

SAE

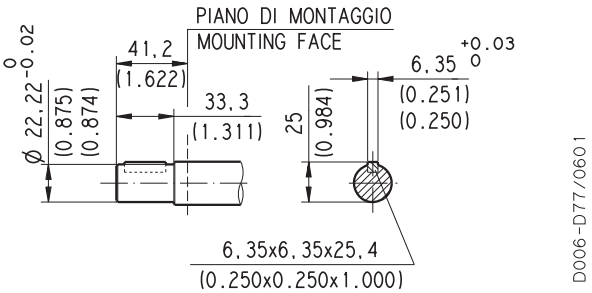
SAE "B" SPLINE — 04

Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat Root - Side fit - Class 1



MAX 2921 lbf in (330 Nm) ◆

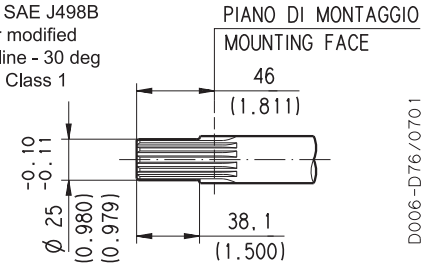
SAE "B" STRAIGHT — 32



MAX 1770 lbf in (200 Nm) ◆

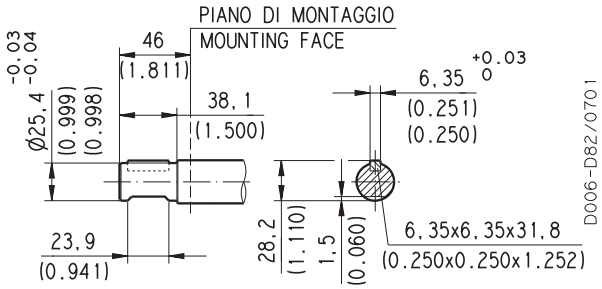
SAE "BB" SPLINE — 05

Ext. Involute Spline SAE J498B
with major diameter modified
15 teeth - 16/32 Spline - 30 deg
Flat Root - Side fit - Class 1



MAX 4426 lbf in (500 Nm) ◆

SAE "BB" STRAIGHT — 33



MAX 2478 lbf in (280 Nm) ◆

03/03.2006

◆ For "2" version whichever end shaft, the max. torque applicable is M= 1505 lbf in (170 Nm)

HOW TO ORDER SINGLE MOTORS

1	2	3		4	5		6	7		8
Motor type	Rotation	Version	–	Drive shaft	Mounting flange	–	Ports positon	Ports IN/OUT	–	Seals
KM30•27	**S**	**0**	**–**	**04**	**S3**	**–**	**L**	**OF/OD**	**–**	**N**

1 Motor Type		CODE
in³/rev	(cm³/rev)	
1.63	26,7	**KM 30•27**
2.11	34,56	**KM 30•34**
2.40	39,27	**KM 30•38**
2.68	43,98	**KM 30•43**
3.16	51,83	**KM 30•51**
3.45	56,54	**KM 30•56**
3.74	61,26	**KM 30•61**
4.50	73,82	**KM 30•73**

2 Rotation	CODE
Left	**S**
Right	**D**
Reversible	**R**
Reversible with 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
SAE “B” spline (13 teeth)	**04**
SAE “B” straight	**32**
SAE “BB” spline (15 teeth)	**05**
SAE “BB” straight	**33**

5 Mounting flange	CODE
SAE “B” 2-4 holes	**S3**

CODE	6 Ports position
L	Side

CODE	7 Ports IN/OUT	
SAE STRAIGHT THREAD PORTS (ODT)		
Side	Motor type	
OD/OF	KM 30•27	
OD/OF	KM 30•34	
OF/OG	KM 30•38	
OF/OG	KM 30•43	
OF/OG	KM 30•51	
OG/OH	KM 30•56	
OG/OH	KM 30•61	
OG/OH	KM 30•73	

CODE	8 Seals (a)
N	Buna N (standard) - no code
N-H	Buna with high back pressure shaft seals
V	Viton
N Bz	Buna N and Bronze thrust plates
V Bz	Viton and Bronze thrust plates

(a) Choose the seals according to the temperature shown on page 2

01/03.2002

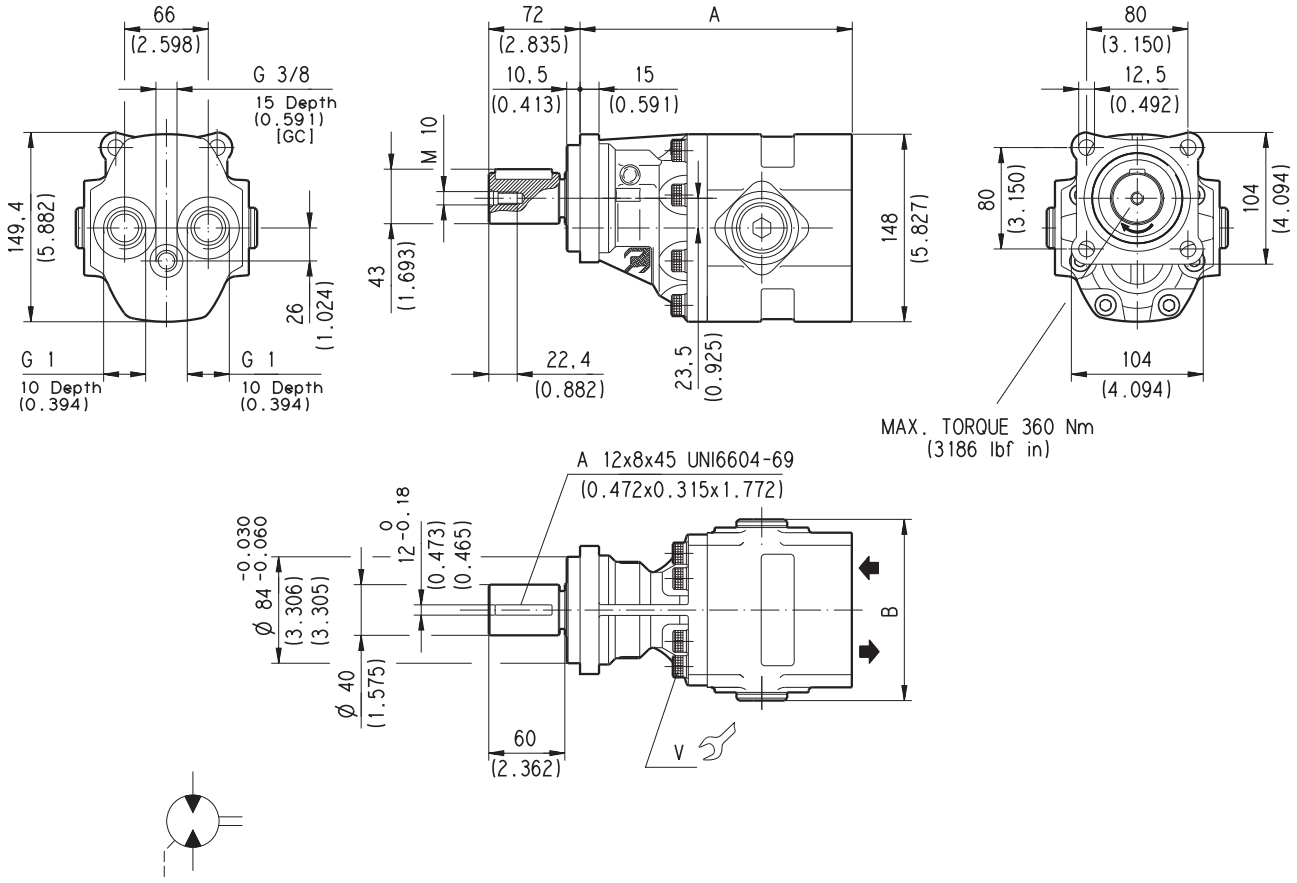
ORDER EXAMPLE

Standard motor **KM 30•27 S0 - 04 S3 - L OD/OF - N**

Special version motor **KM 30•27 S2 - 32 S3 - L OD/OF - V Bz**

KAPPA 30 | HYDRAULIC GEAR MOTORS ISO STANDARD | 42 Z0

GAS STRAIGHT THREAD PORTS
British standard pipe parallel (55°) conforms to UNI - ISO 228



D006-177/0605

V Screws tightening torque Nm (lbf in)
70 ±7 (558 ÷ 682)

Motor type		A	B
		mm (in)	mm (in)
KM 30•27	R5-42 Z0-P GF/GF-N	198 (7.795)	143 (5.630)
KM 30•34		203,5 (8.012)	
KM 30•38		206,5 (8.130)	
KM 30•43		209,5 (8.248)	

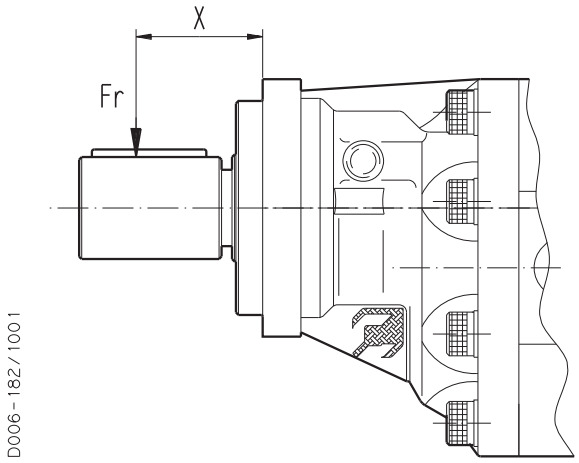
02/06.2005

Rotation: R=reversible rear drain

How to order:

KM 30•27 R5-42 Z0-P GF/GF-N

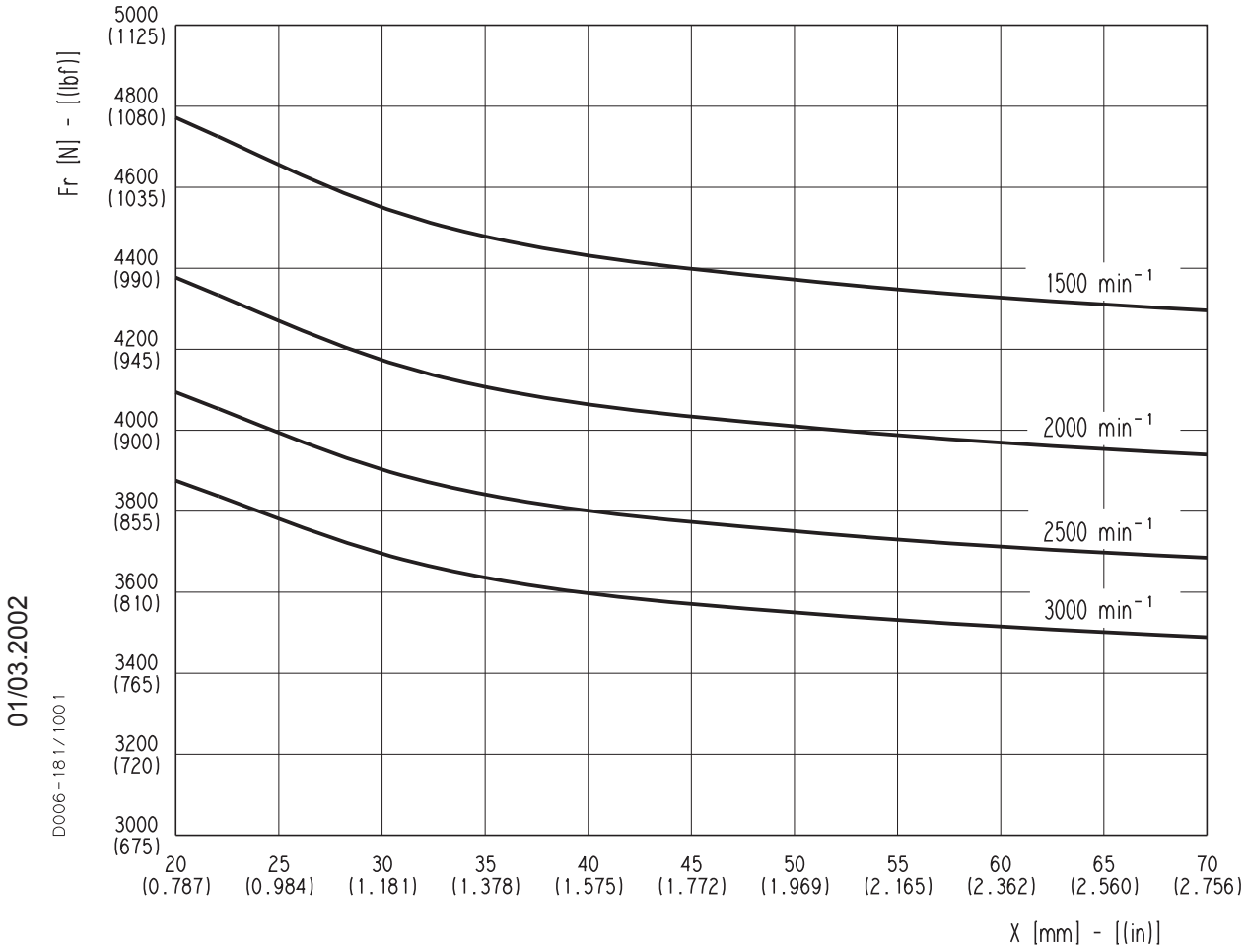
KAPPA 30 | PERMISSIBLE RADIAL LOADING ON SUPPORT | 42 Z0



X= Distance of the radial load result from the mounting flange.

Each curve has been obtained at:

Operating temperature: 140 °F (60 °C)
Grease lubrification ISO VG 100
Rating fatigue life (hours) Lh= 5000 [h]



01/03.2002

INSTRUCTIONS

INSTALLATION

Pump

The direction of rotation of single-rotation pumps must be the same as that of the drive shaft. Check that the coupling flange correctly aligns the transmission shaft and the pump shaft. Flexible couplings should be used (never rigid fittings) wich 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) wich 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

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

IKRON® Fluid Filtration

HYDRAULIC FLUID

Use hydraulic fluid conforming to ISO/DIN standards, having viscosity 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

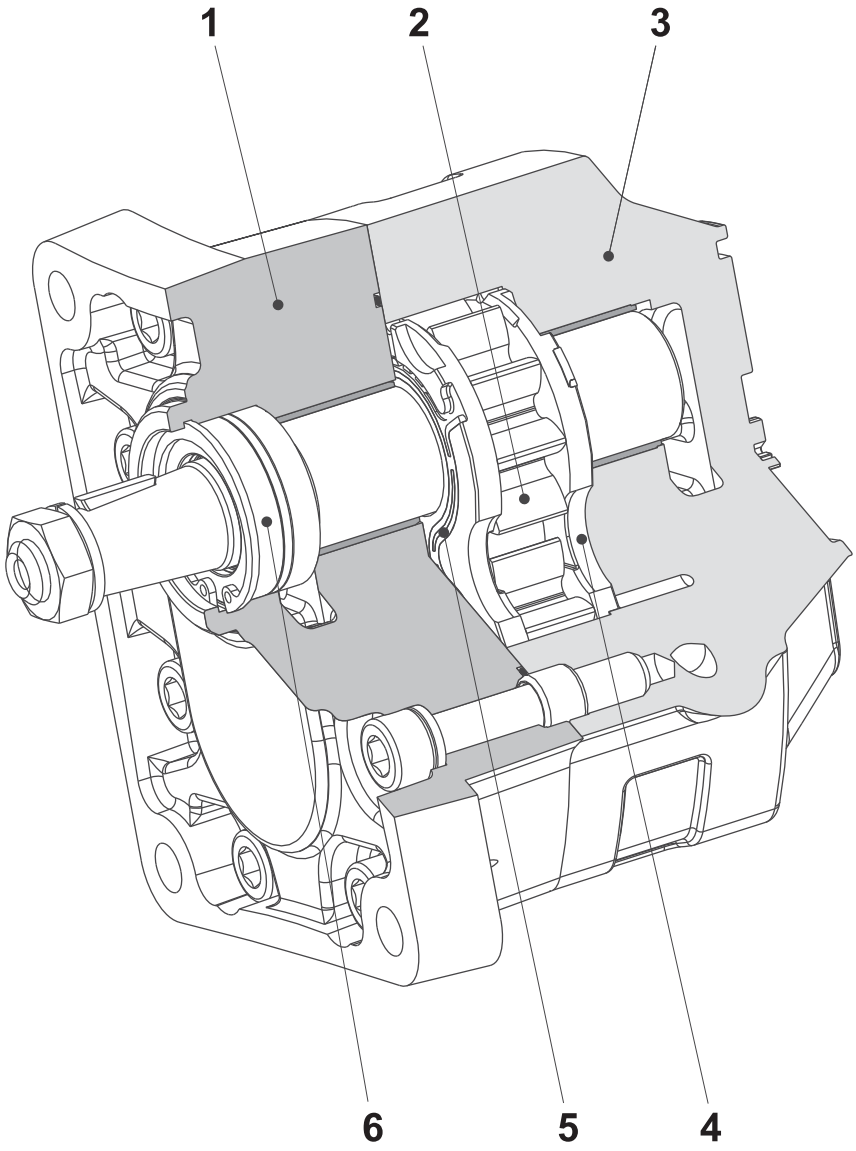
Check that all circuit connections are tight and that the entire system is completely clean. Insert the oil in the tank, using a filter. Bleed the circuit to assist in filling. Set the pressure relief valves to the lowest possible setting. Turn on the system for a few moments at minimum speed, then bleed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

02/06.2005

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.

INSTRUCTIONS



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

01/03.2002

K 05 T A Edition: 05/03.2012 Replaces: K 04 T A

CASAPPA®
FLUID POWER DESIGN

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