



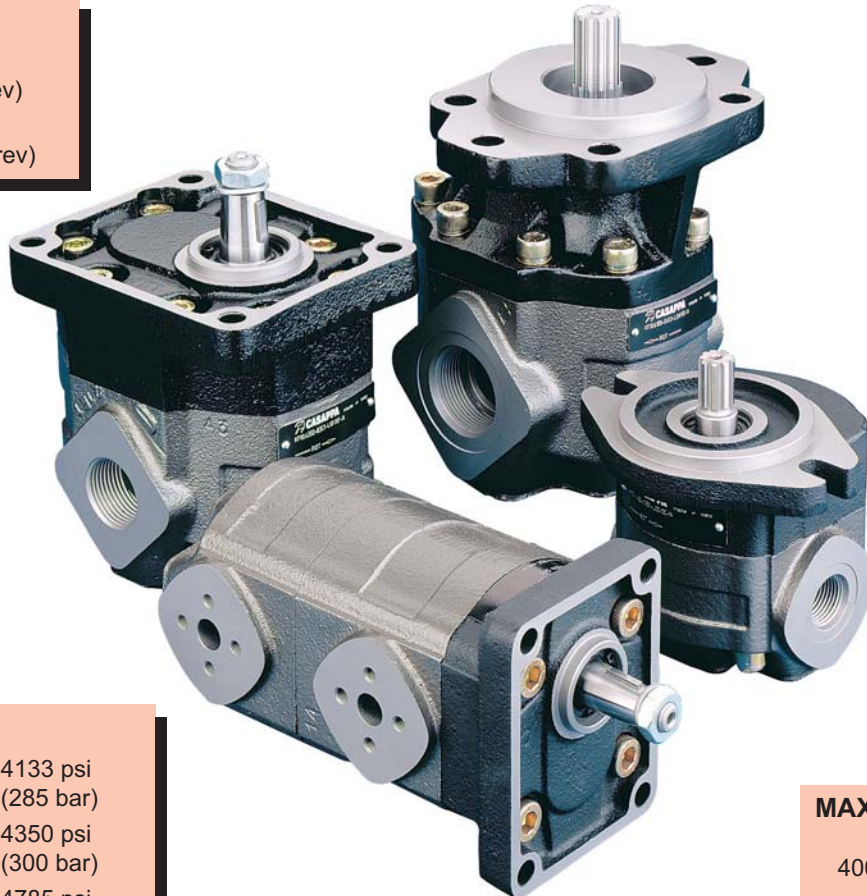
Hydraulic gear pumps and motors

two piece cast iron housing

Replaces: K 02 T A

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

4000 min⁻¹

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

Edition: 03/03.2006

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 mounting 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.



INDEX

Section	Description	Page
FEATURES		1
	GENERAL DATA PUMPS	3
	KP 20 PERFORMANCE CURVES	6
	KP 30 PERFORMANCE CURVES	9
SINGLE GEAR PUMPS	KP 20 EUROPEAN STANDARD	12
	KP 20 SAE STANDARD	15
	KP 30 EUROPEAN STANDARD	23
	KP 30 SAE STANDARD	31
MULTIPLE GEAR PUMPS	GENERALITY	35
	KP 20 EUROPEAN STANDARD	40
	KP 20 SAE STANDARD	46
	KP 30 EUROPEAN STANDARD	56
PORTS CONNECTORS TIGHTENING TORQUE		74
GEAR MOTORS	GENERAL DATA MOTORS	75
	KM 20 PERFORMANCE CURVES	78
	KM 30 PERFORMANCE CURVES	81
	KM 20 EUROPEAN STANDARD	84
	KM 20 SAE STANDARD	87
	KM 30 EUROPEAN STANDARD	95
	KM 30 SAE STANDARD	103
	KM 30 ISO STANDARD	106
INSTRUCTIONS		108

● **Modification from former edition.**

02/06.05

FEATURES

Replaces: 02/06.05

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 the 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		Max pressure psi - (bar)	Max speed min ⁻¹	Temperature °F - (°C)			Seals (◆)
Type	Fluid composition			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)	257 (125)	N-H
HFA	Oil emulsion in water 5 ÷ 15% of oil	725 (50)	1500	36 (2)	131 (55)		N
HFB	Water emulsion in oil 40 % of water	1740 (120)	1500	36 (2)	140 (60)		N
HFC	Water - glycol	1450 (100)	1500	-4 (-20)	140 (60)		N Bz
HFD	Phosphate ester	2175 (150)	1500	14 (-10)	176 (80)		V Bz

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

03/03.2006

Tab. 2		Working pressure psi (bar)		
		$\Delta p < 2030$ (140)	$2030 < \Delta p < 3045$ (140) (210)	$\Delta p > 3045$ (210)
Contamination class NAS 1638		10	9	8
Contamination class ISO 4406		21/19/16	20/18/15	19/17/14
Achieved with filter $\beta_{x(c)} \geq 75$		25 μ m	10 μ m	10 μ m

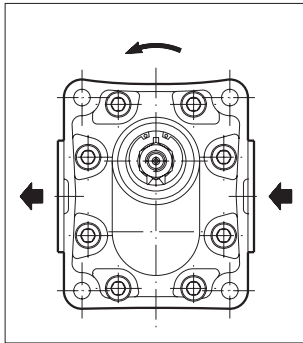
Casappa recommends to use its own production filters:



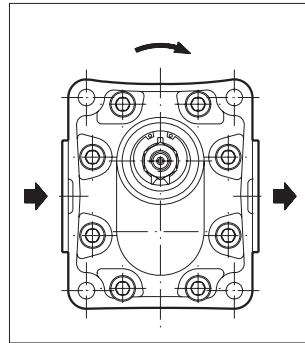
GENERAL NOTES

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.

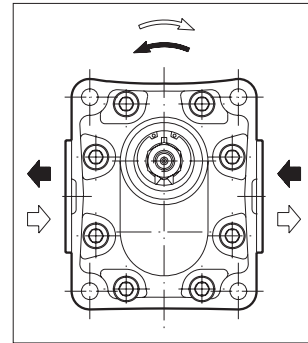
DEFINITION OF ROTATION DIRECTION LOOKING ON THE DRIVE SHAFT



Anti-clock rotation

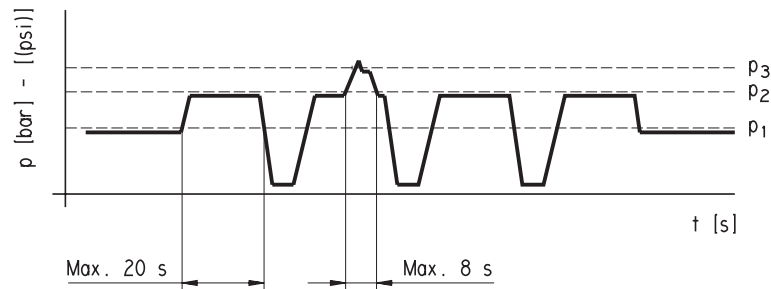


Clockwise rotation



Reversible rotation

PRESSURE DEFINITION



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

01/03.02

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

 p₁= Max. continuous pressure

 p₂= Max. intermittent pressure

 p₃= 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.

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

p₁= Max. continuous pressure

p₂= Max. intermittent pressure

p₃= 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.

DESIGN CALCULATIONS FOR PUMPS

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
$\eta_v = \eta_v(V, \Delta p, n) \quad (\approx 0,98)$		Volumetric efficiency
$\eta_m = \eta_m(V, \Delta p, n) \quad (\approx 0,90)$		Mechanical efficiency
$\eta_t = \eta_v \cdot \eta_m \quad (\approx 0,88)$		Overall efficiency

$$Q = V(\text{cm}^3/\text{rev}) \cdot \eta_v \cdot n \cdot 10^{-3} \quad [\text{l/min}]$$

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

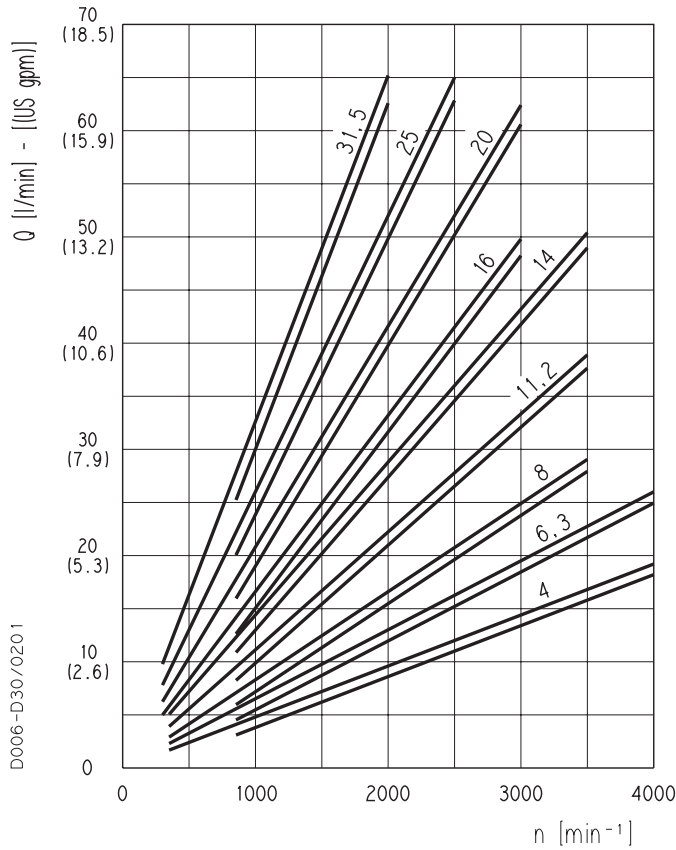
$$P = \frac{\Delta p (\text{bar}) \cdot V (\text{cm}^3/\text{rev}) \cdot n}{600 \cdot 1000 \cdot \eta_t} \quad [\text{kW}]$$

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

KAPPA 20 GEAR PUMPS PERFORMANCE CURVES

KP 20

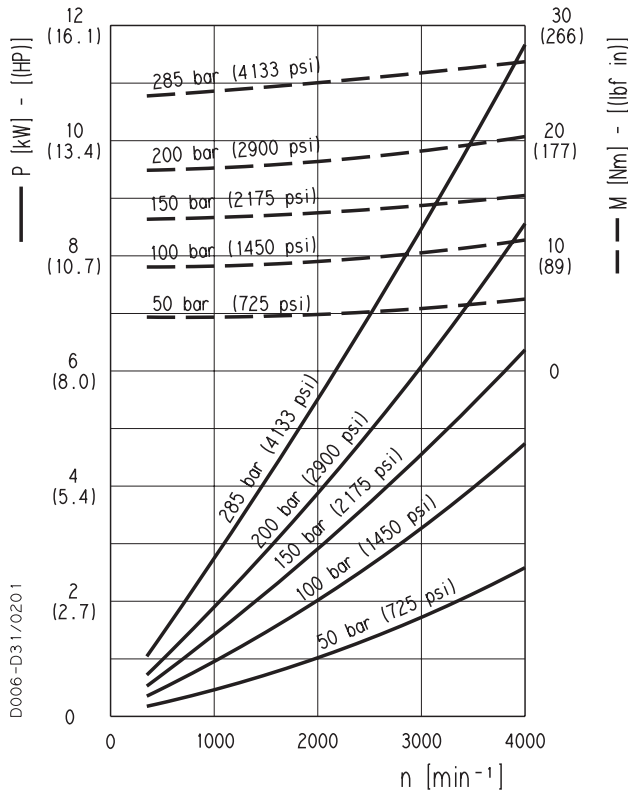
KP 20



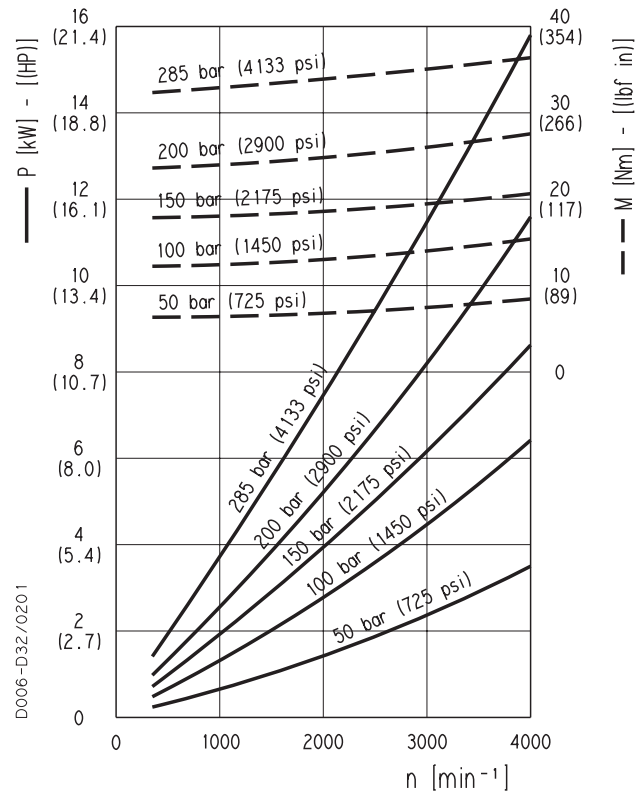
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures.

- 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



KP 20•6,3

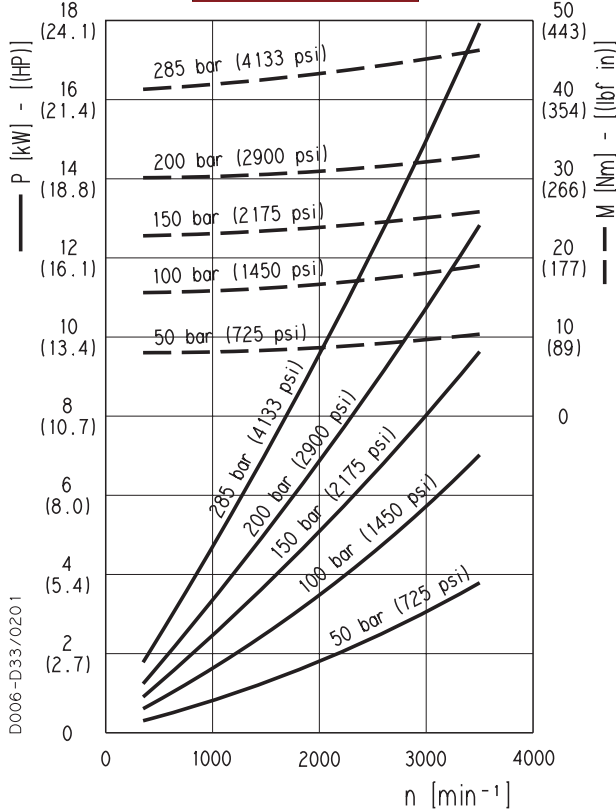


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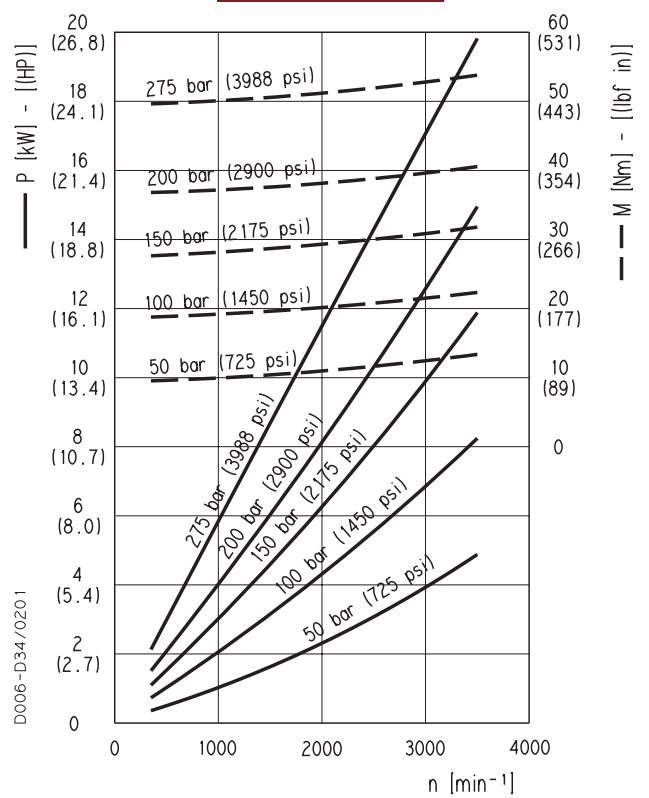
KAPPA 20 GEAR PUMPS PERFORMANCE CURVES

KP 20

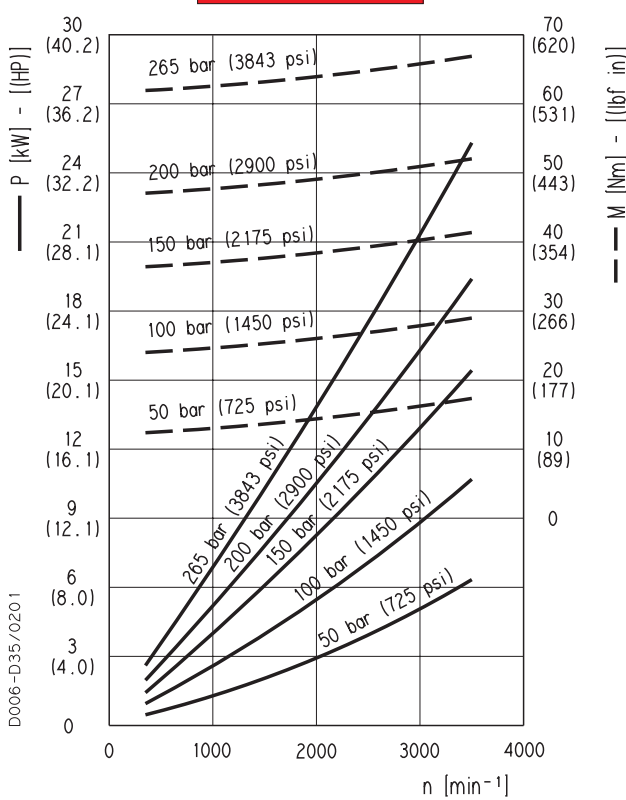
KP 20-8



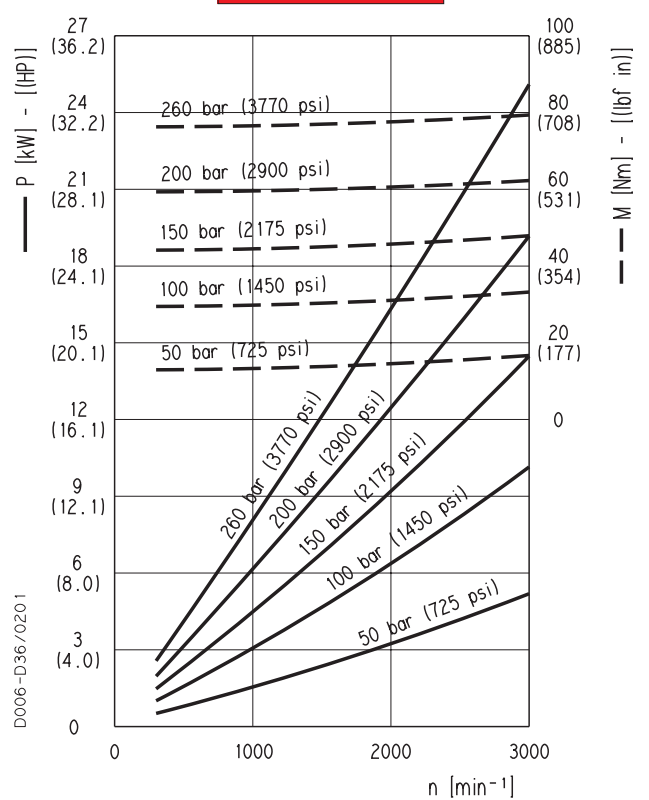
KP 20-11,2



KP 20-14



KP 20-16



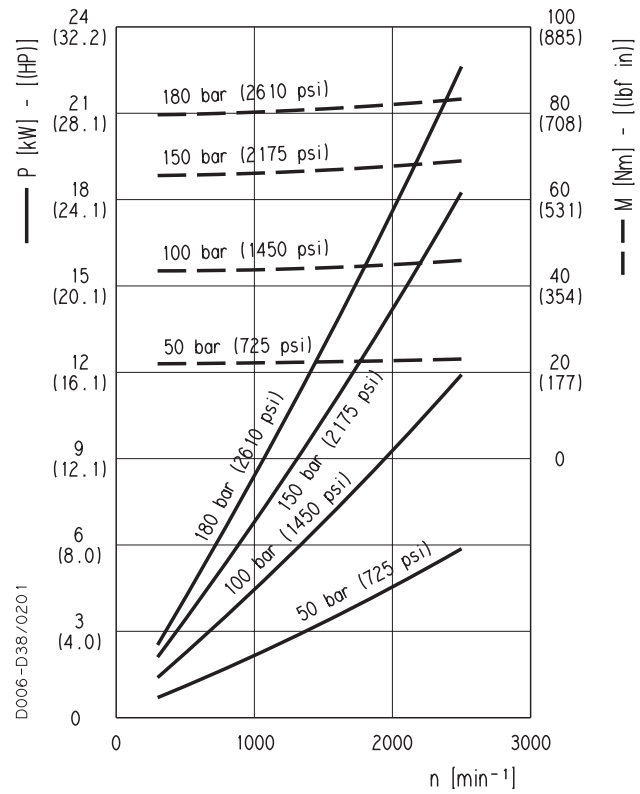
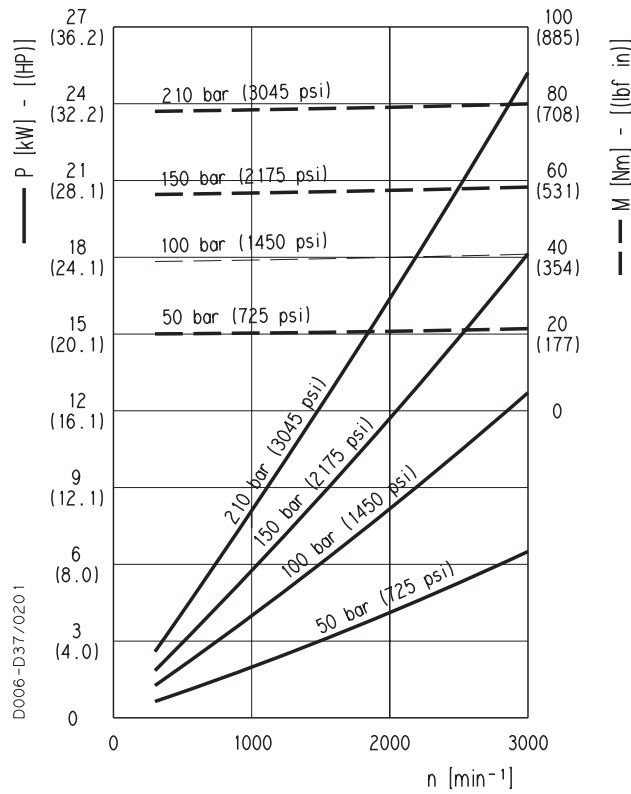
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KAPPA 20 GEAR PUMPS PERFORMANCE CURVES

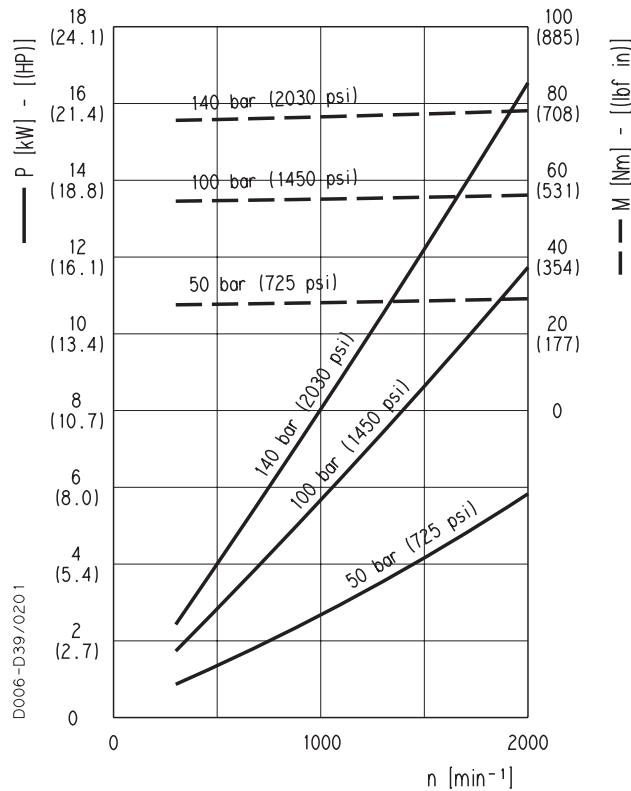
KP 20

KP 20•20

KP 20•25



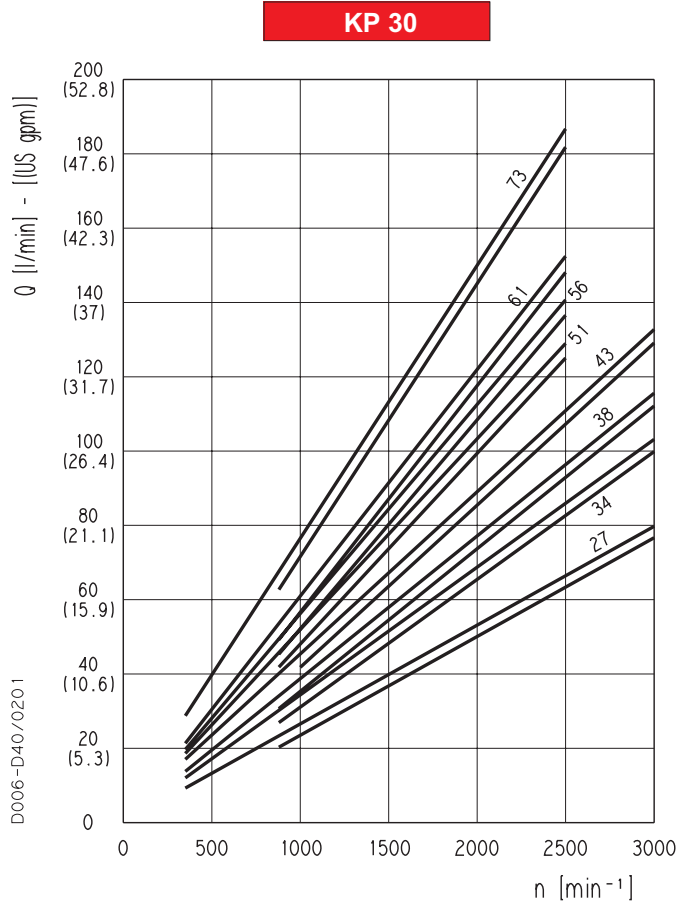
KP 20•31,5



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KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

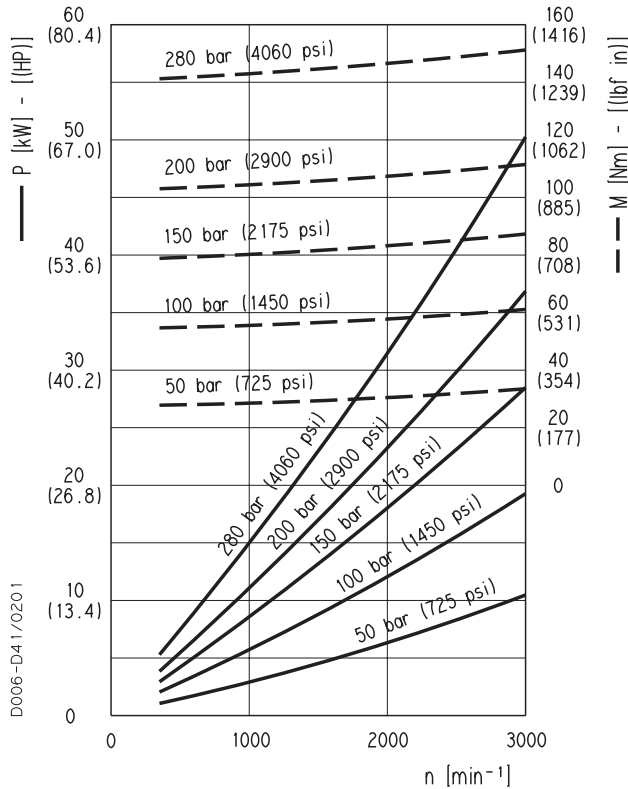
KP 30



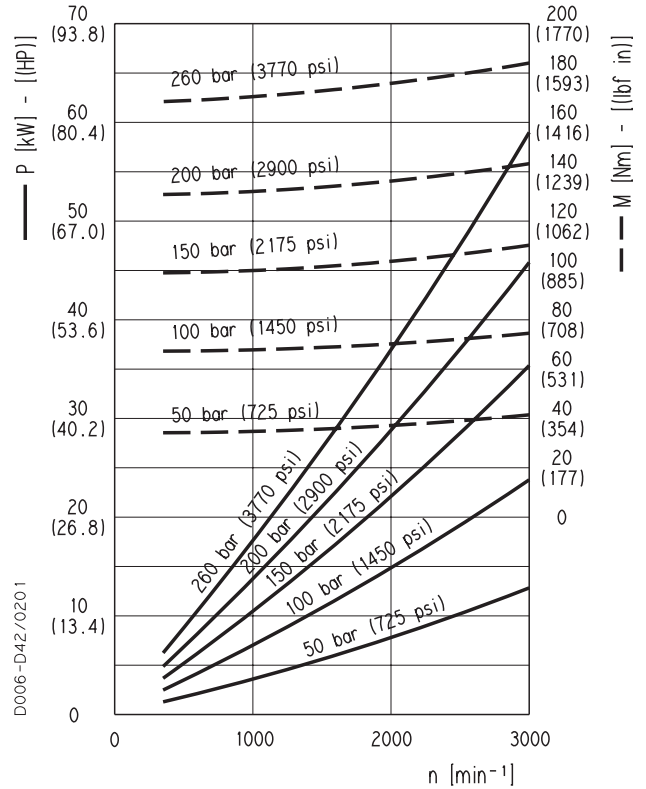
Each curve has been obtained at 122 °F (50°C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40°C) and at these pressures.

- 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

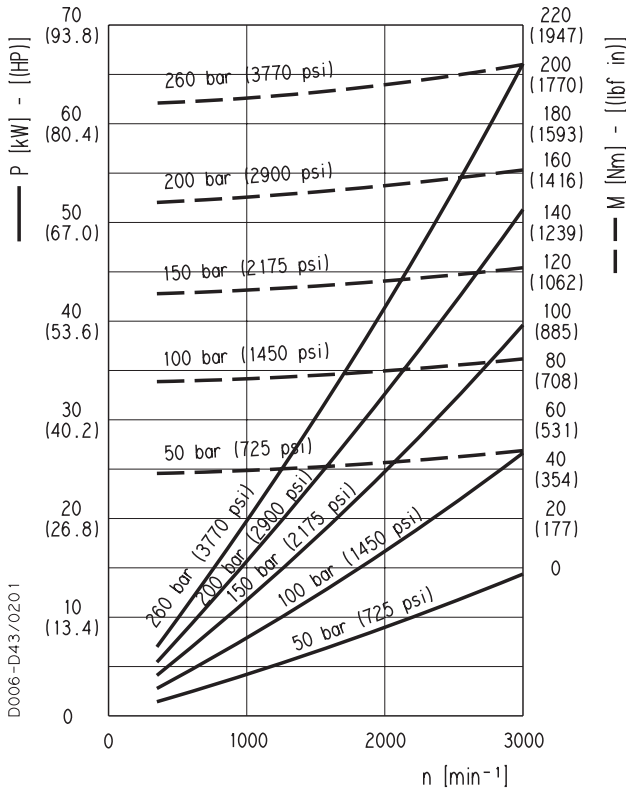


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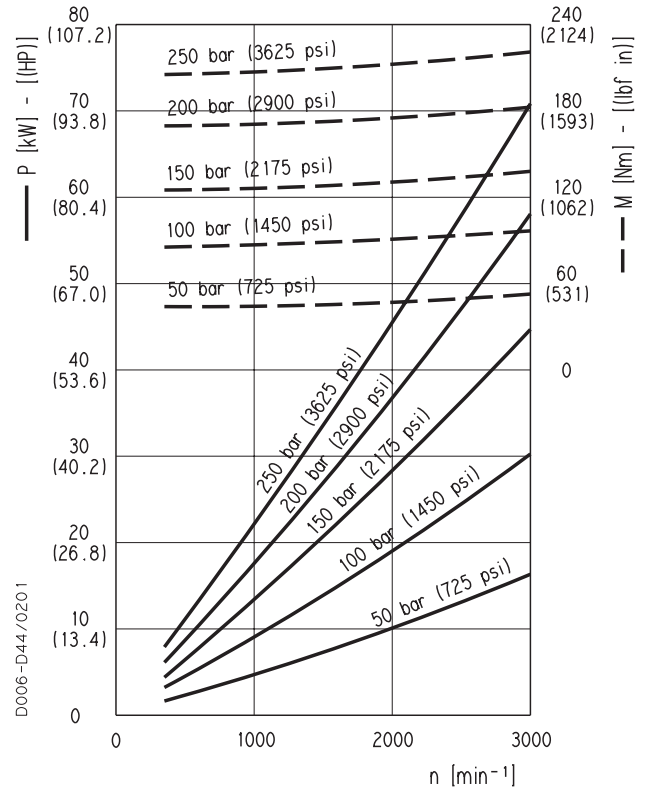
KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30

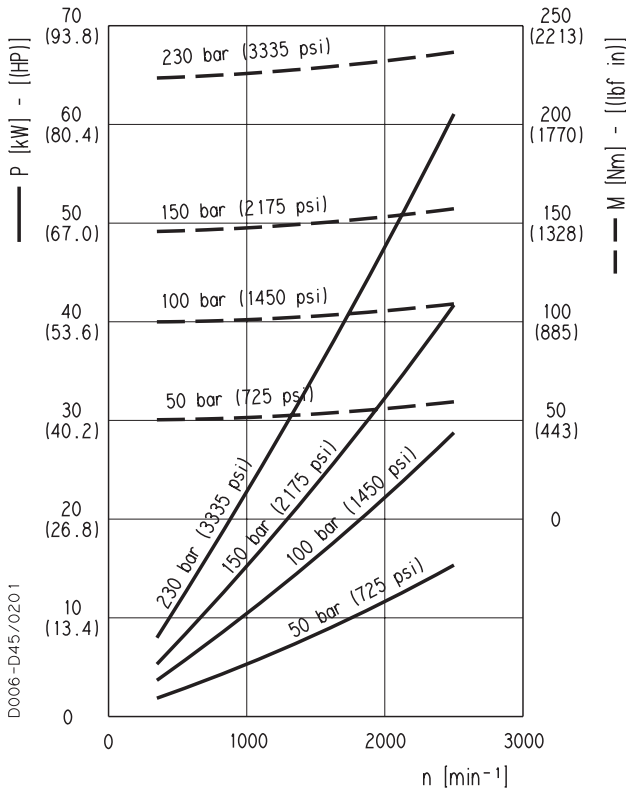
KP 30•38



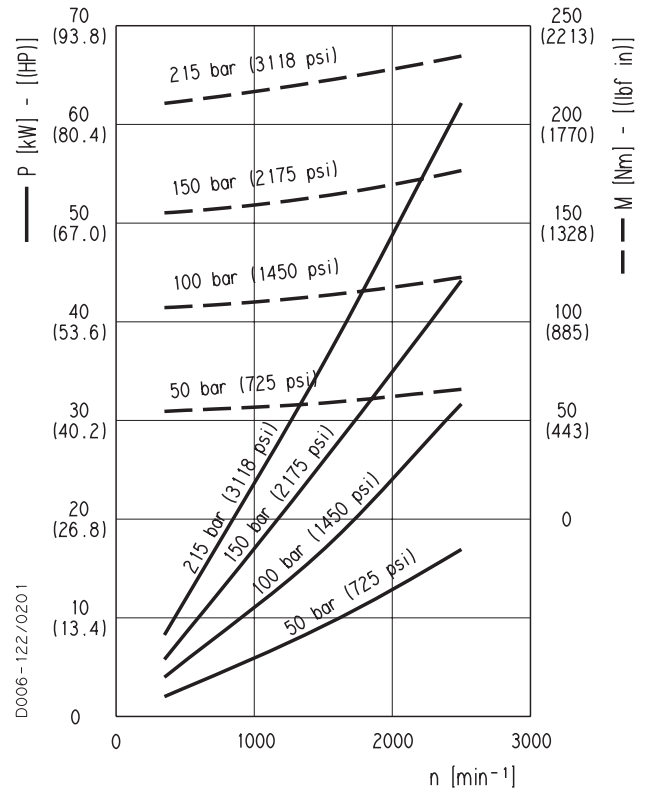
KP 30•43



KP 30•51



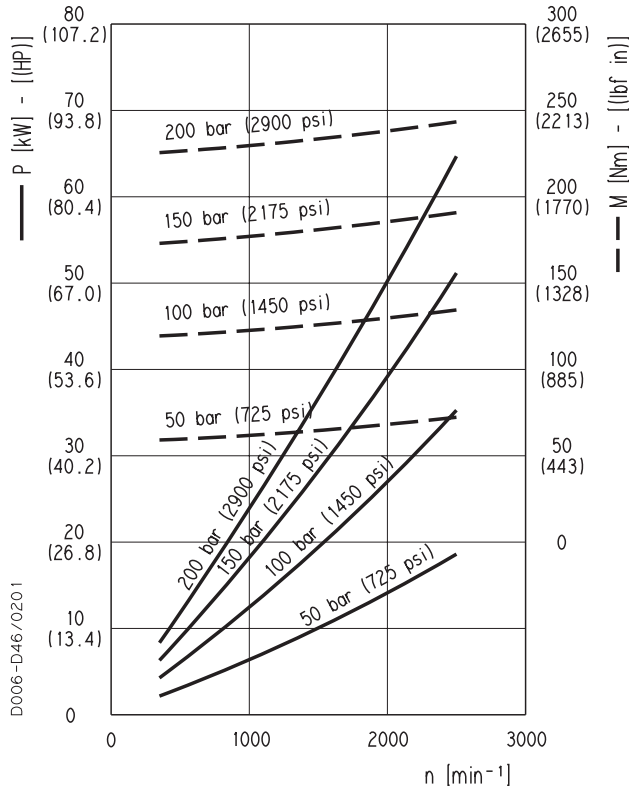
KP 30•56



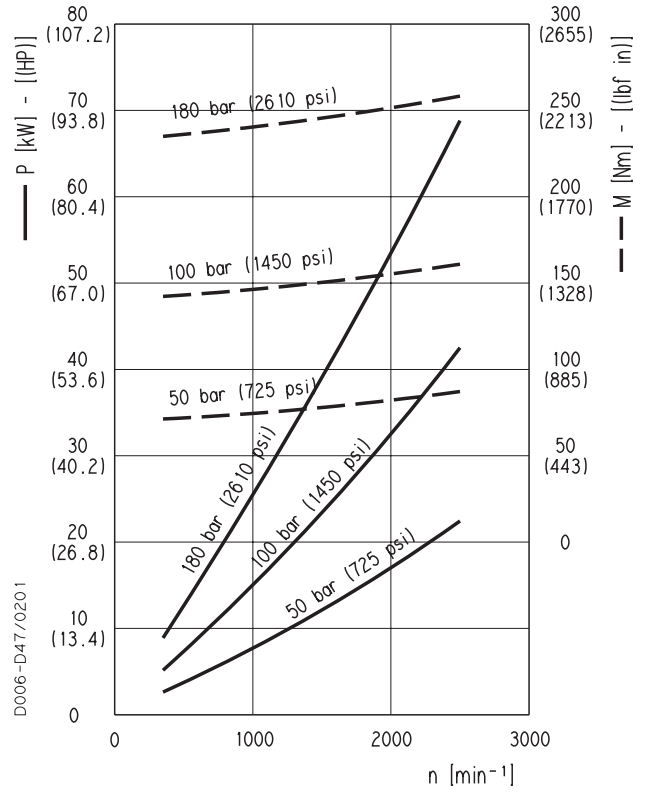
KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

KP 30

KP 30•61



KP 30•73



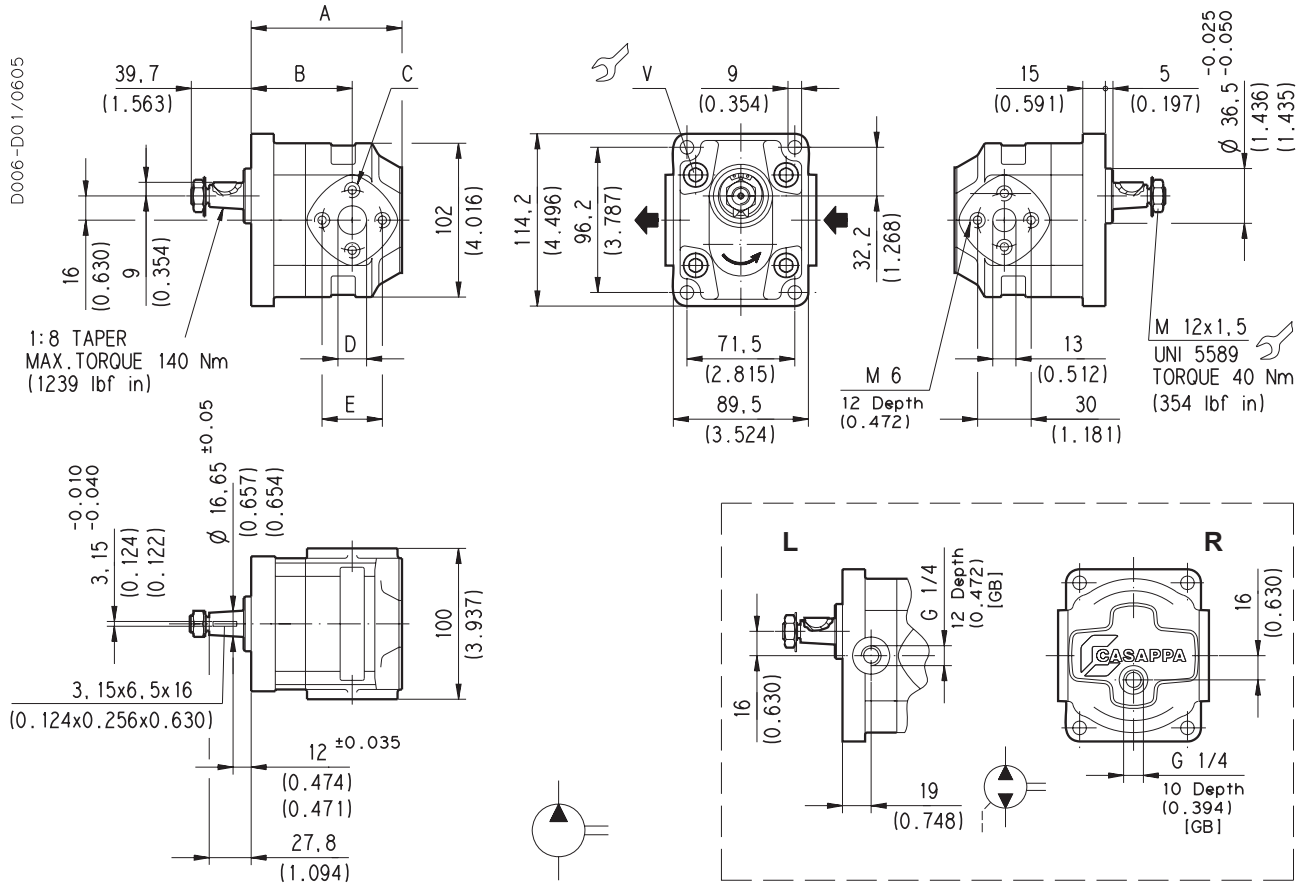
01/03.02

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	87,5 (3.445)	60 (2.362)	M 6 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	S D L R B	100 (3.937)	67 (2.638)	M 8 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)			

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

02/06.05

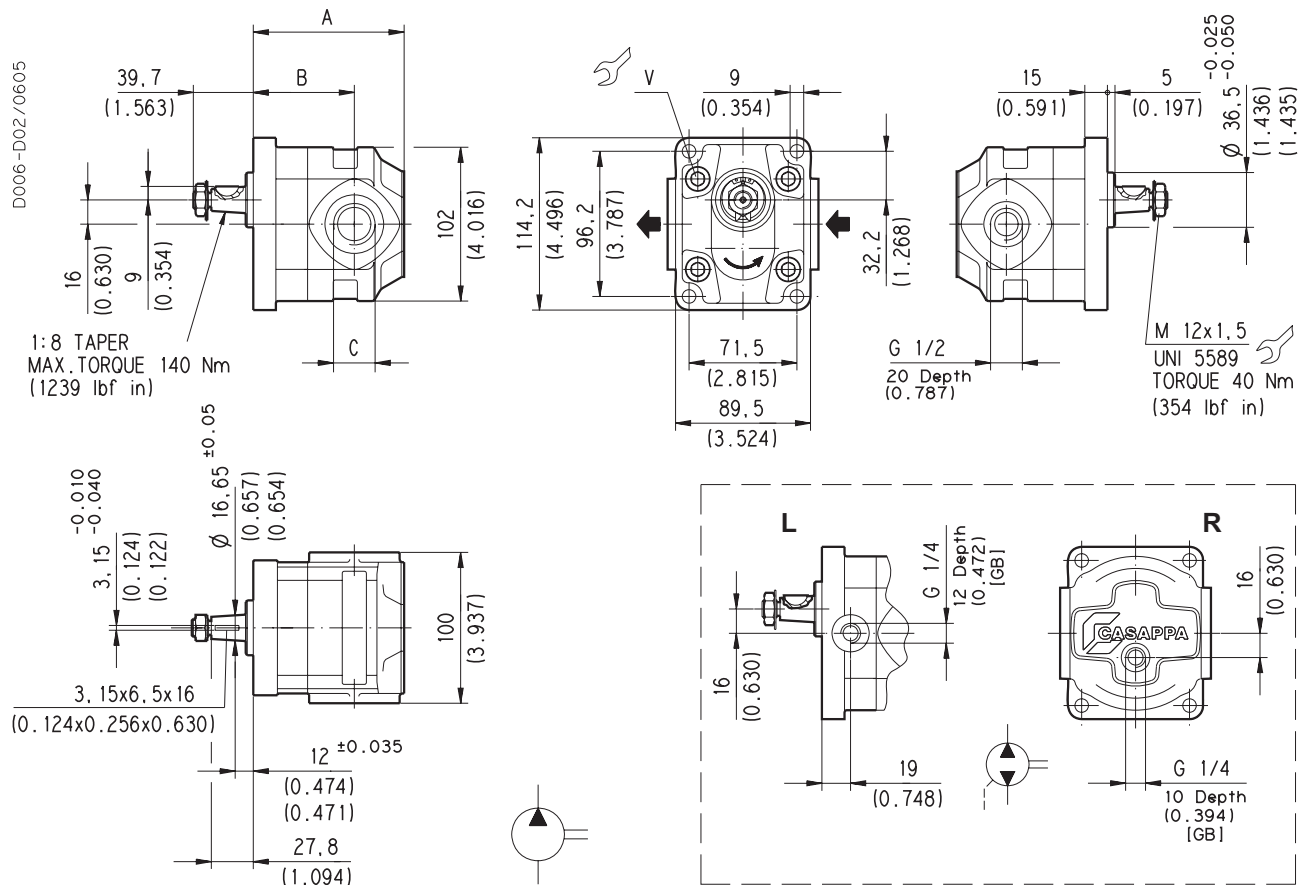
KAPPA 20

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)
SDLRB 0-82 E2-L GD/GD-N	87,5 (3.445)	60 (2.362)	G 1/2 Depth 20 (0.787)
	90 (3.543)	62,5 (2.461)	
	92,5 (3.642)	65 (2.559)	
	96 (3.780)	68,5 (2.697)	
SDLRB 0-82 E2-L GE/GD-N	100 (3.937)	67 (2.638)	G 3/4 Depth 22 (0.866)
	105,5 (4.154)	72,5 (2.854)	
	112 (4.409)	79 (3.110)	
	120 (4.724)	72 (2.835)	
	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:

KP 20•4 S0-82 E2-L GD/GD-N

02/06.05

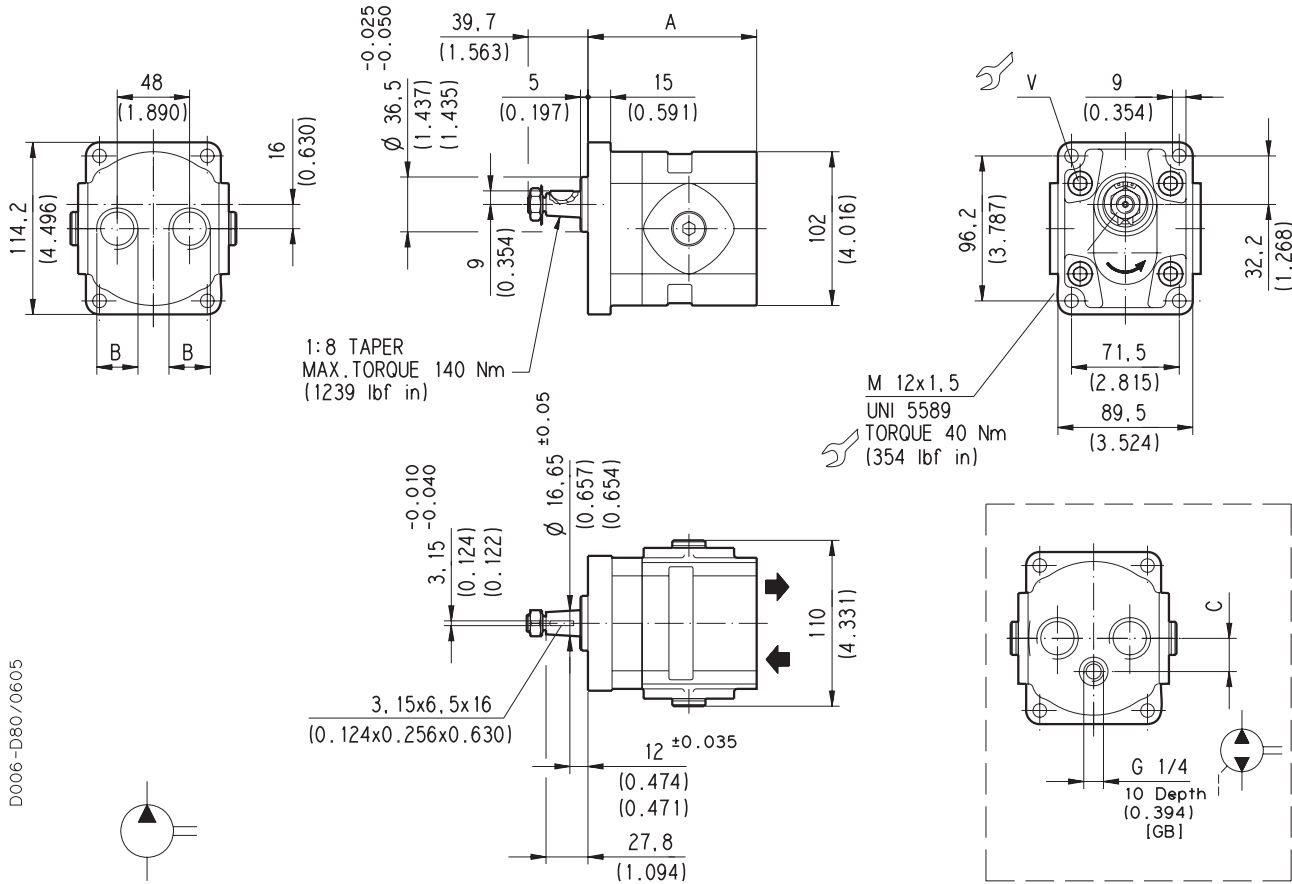
KAPPA 20

HYDRAULIC GEAR PUMPS EUROPEAN STANDARD

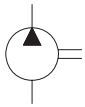
82 E2 - P

GAS STRAIGHT THREAD PORTS

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



D006-D80/0605



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	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	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)		

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

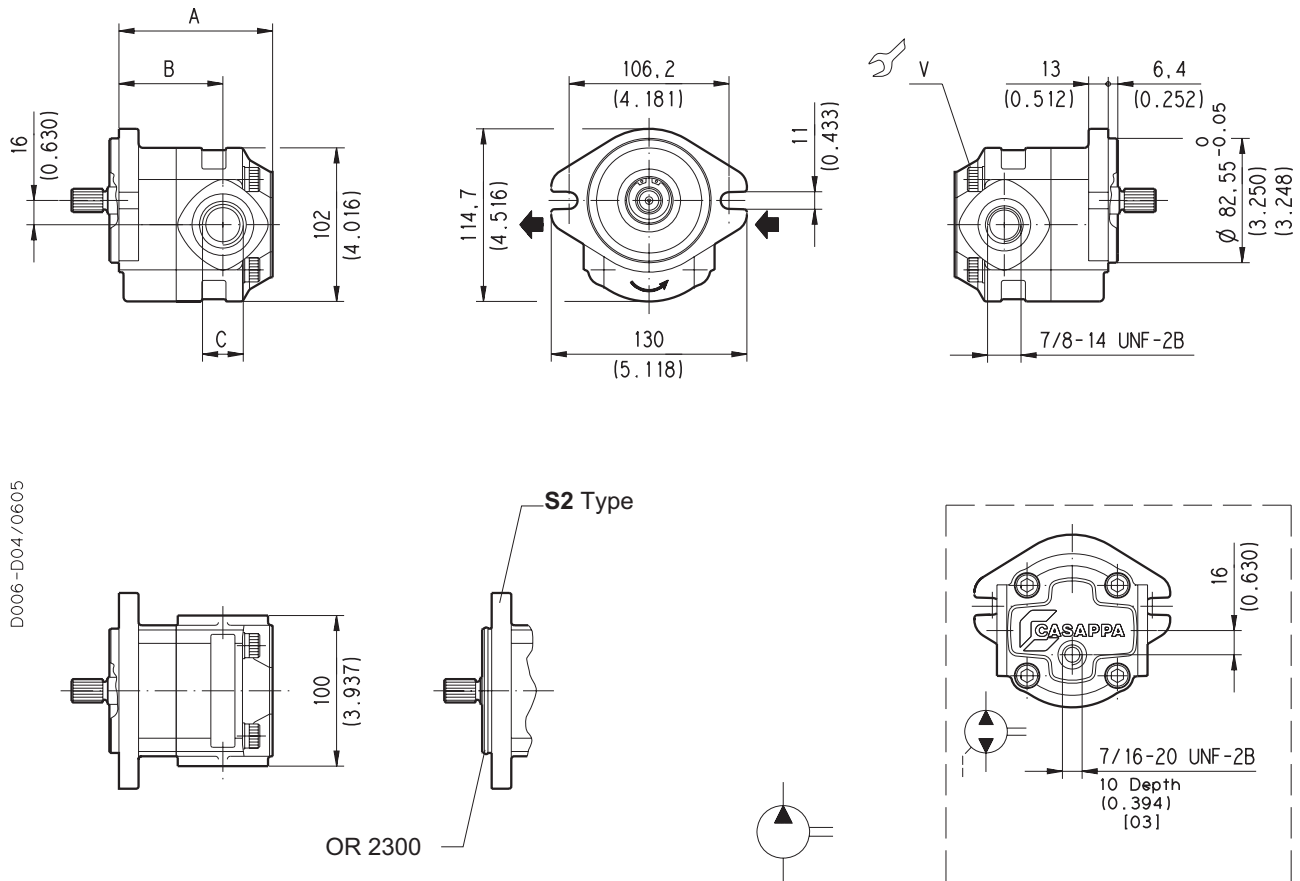
How to order:

KP 20-4 S0-82 E2-P GD/GD-N

02/06.05

SAE STRAIGHT THREAD PORTS J514

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



D006-D04/0605

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

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

02/06.05

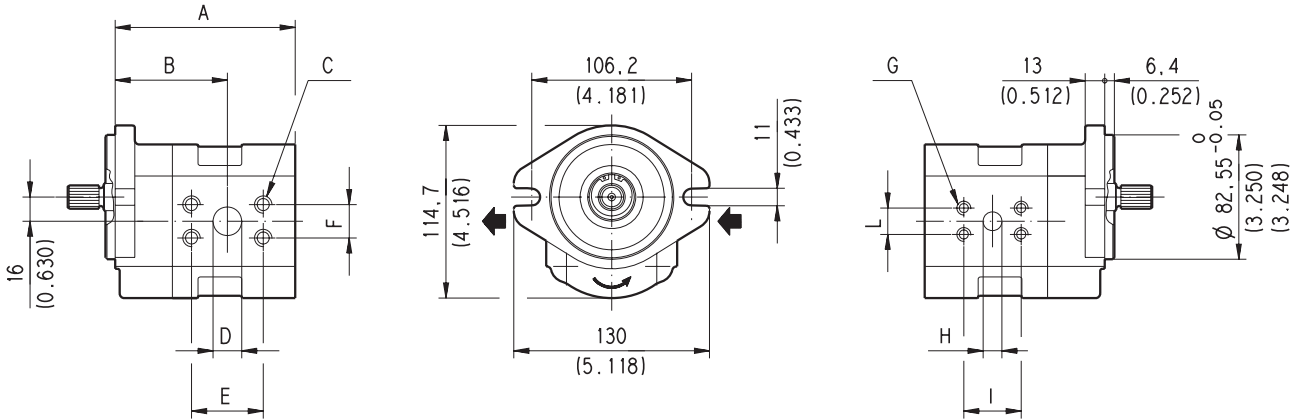
Pump type	A	B	C	Ports code	
	mm (in)	mm (in)		IN	OUT
KP 20•4	89,5 (3.524)	62 (2.441)	7/8-14 UNF-2B	OC	OC
KP 20•6,3	92 (3.622)	64,5 (2.539)			
KP 20•8	94,5 (3.720)	67 (2.638)			
KP 20•11,2	98 (3.858)	70,5 (2.776)			
KP 20•14	102 (4.016)	69 (2.717)	1-1/16-12 UN-2B	OD	
KP 20•16	107,5 (4.232)	74,5 (2.933)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

KAPPA 20

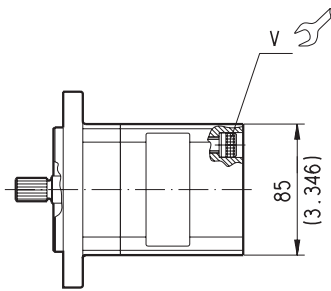
HYDRAULIC GEAR PUMPS SAE STANDARD

... S1

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

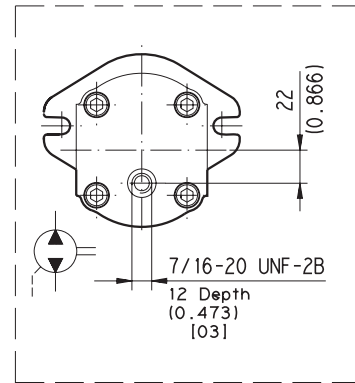


D006-124/0605



OR 2300

S2 Type



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

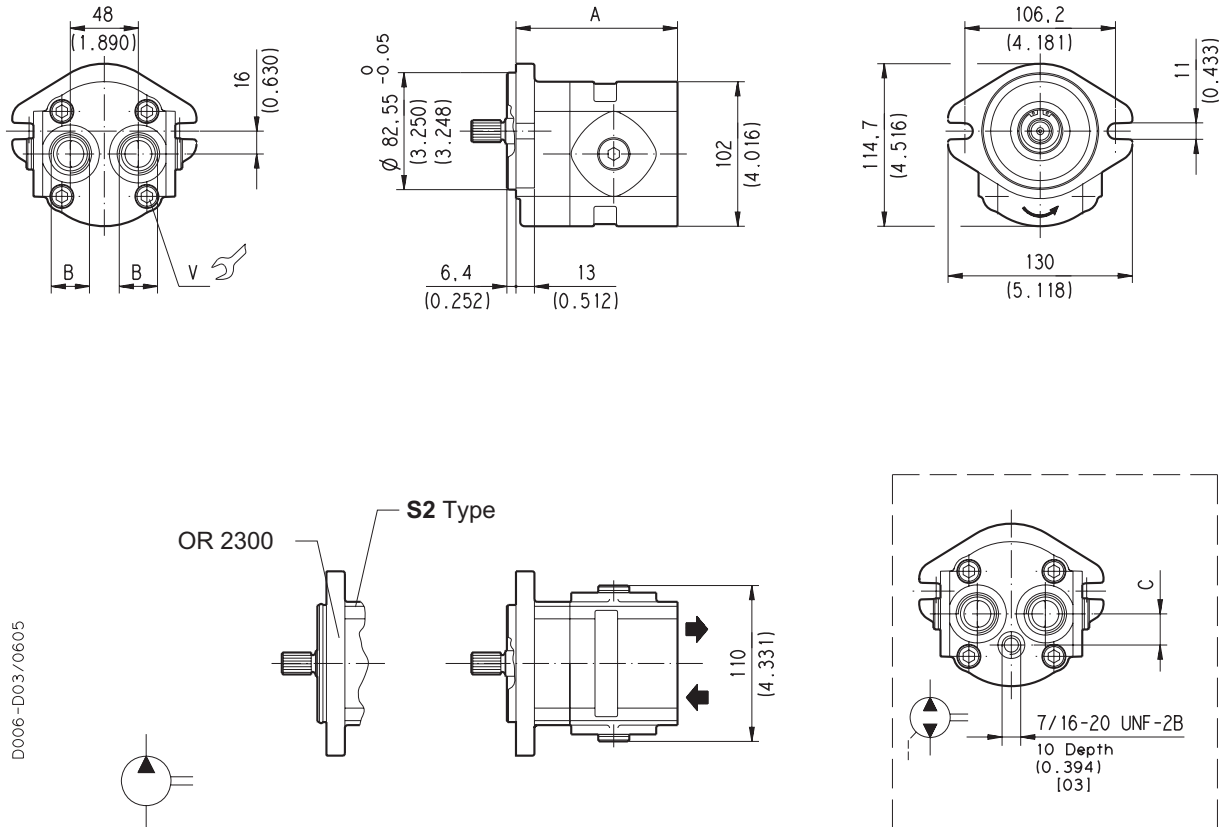
Side ports version (L) - To order see page 22

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)	M 8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M 8 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)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MB	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)										
KP 20•31,5	144 (5.669)	84 (3.307)		25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MC	MB

02/06.05

SAE STRAIGHT THREAD PORTS J514

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



D006-D03/0605

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

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

02/06.05

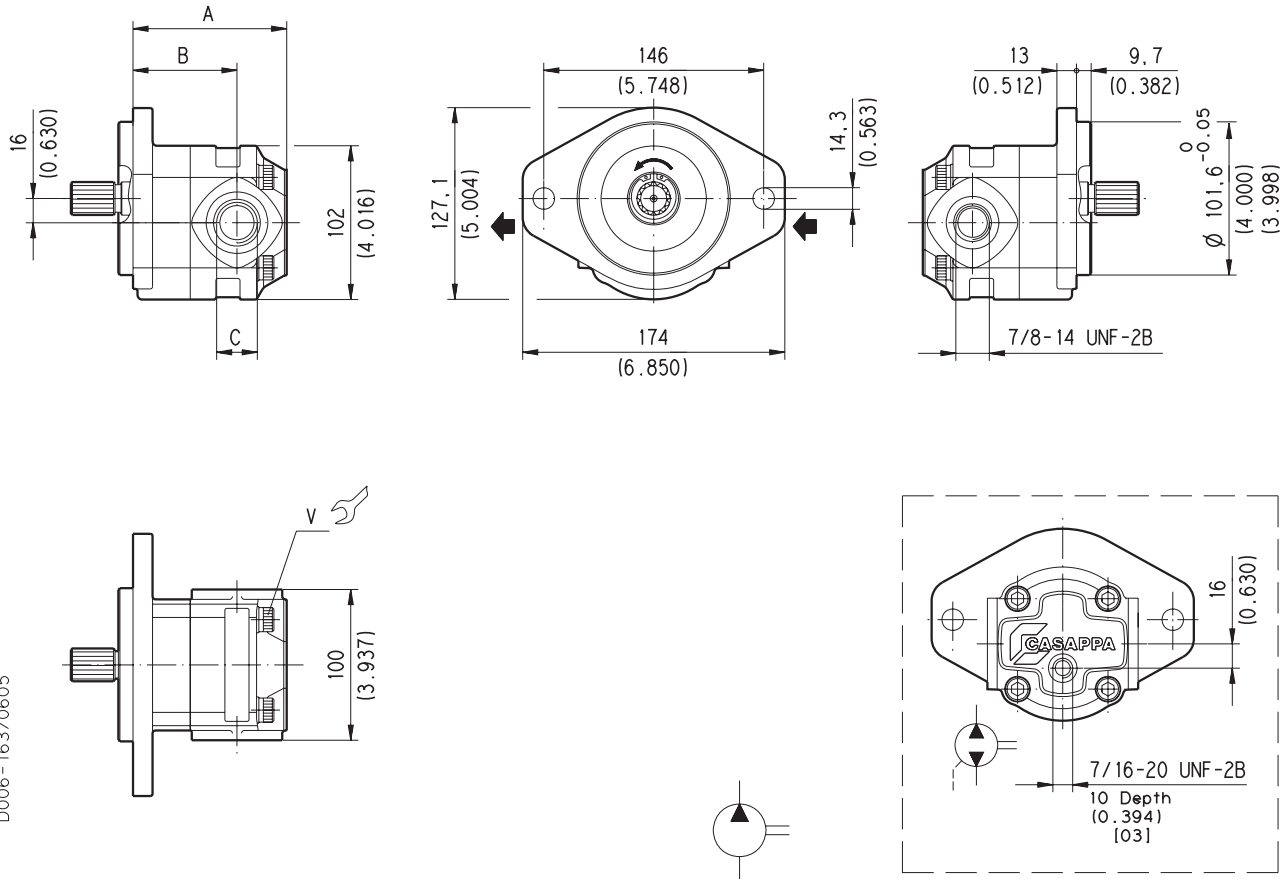
Pump type	A	B	C	Ports code	
	mm (in)		mm (in)	IN	OUT
KP 20•4	86,5 (3.406)	7/8-14 UNF-2B	19 (0.748)	OC	OC
KP 20•6,3	89 (3.504)				
KP 20•8	91,5 (3.602)				
KP 20•11,2	95 (3.740)				
KP 20•14	114 (4.488)	1-1/16-12 UN-2B	22 (0.866)	OD	
KP 20•16	117,5 (4.623)				
KP 20•20	124 (4.882)				
KP 20•25	132 (5.197)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

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)

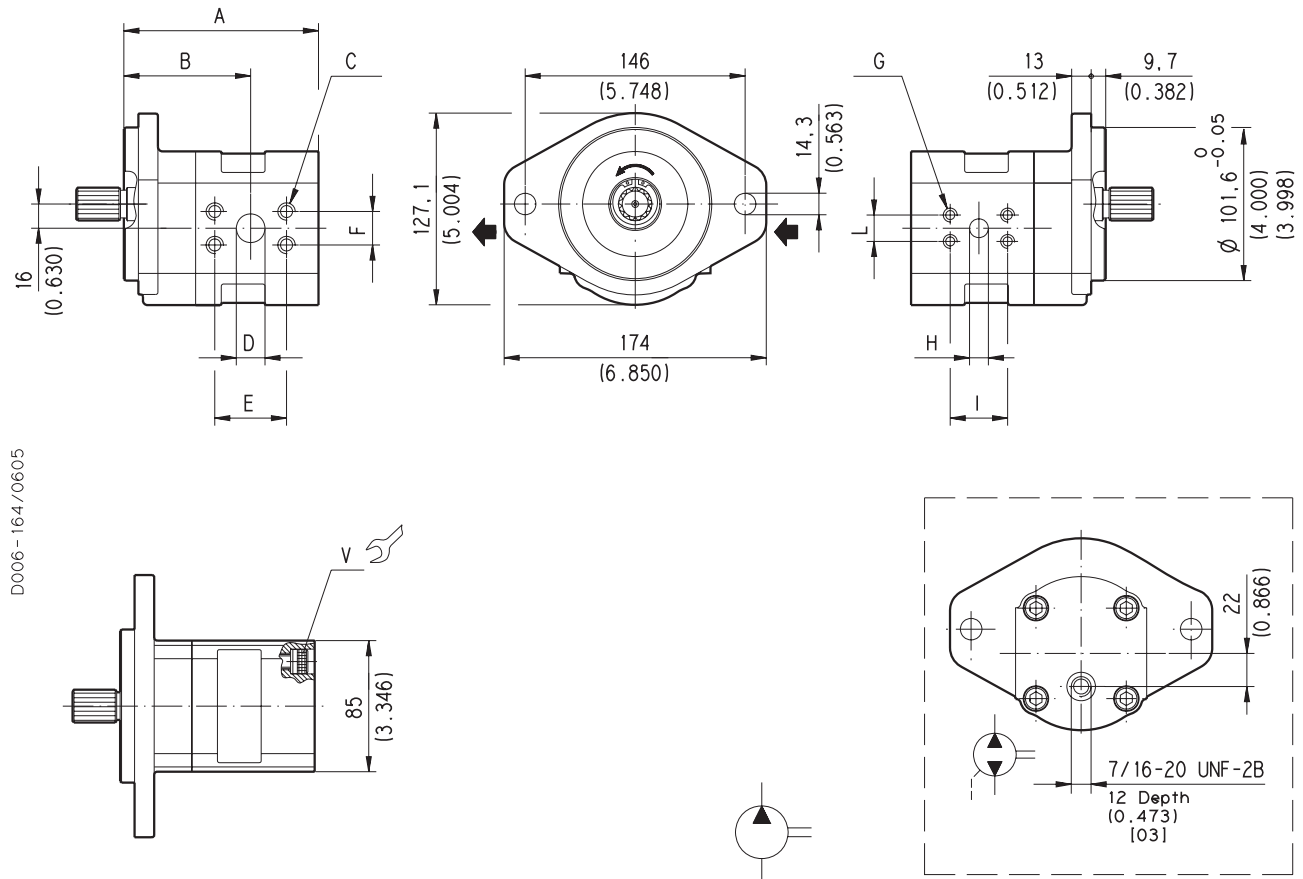
70 ^{±7} (558 ÷ 682)

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	
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	OC
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)			

02/06.05

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)

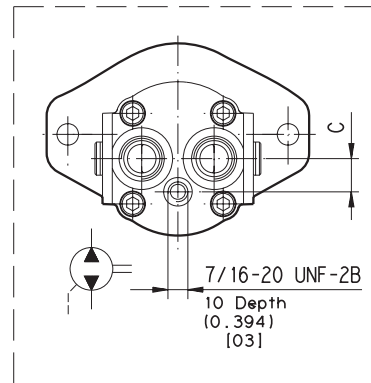
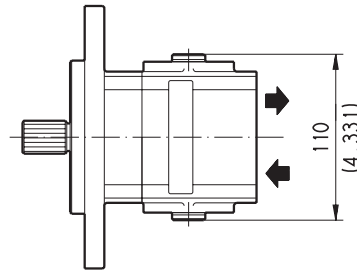
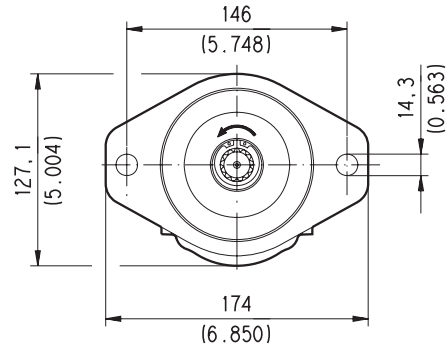
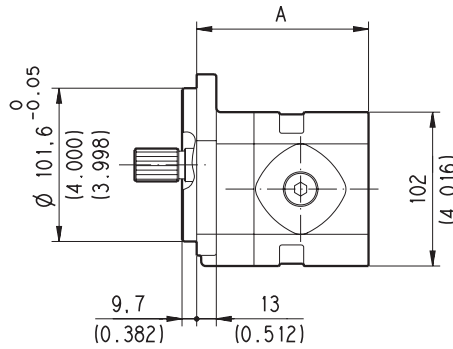
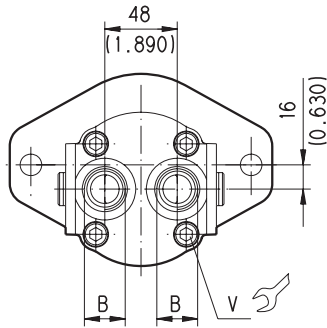
Side ports version (L) - To order see page 22

02/06.05

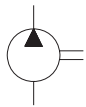
Pump type	A	B	C	D	E	F	G	H	I	L	Ports code	
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	IN	OUT
KP 20-4	101,5 (3.996)	62 (2.441)	M 8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M 8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	MA	MA
KP 20-6,3	104 (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)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MB	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)	M 10 Depth 12 (0.472)	25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M 10 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)										

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	OC
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)				

02/06.05

KAPPA 20 END DRIVE SHAFTS

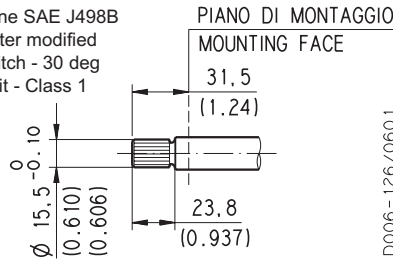
SAE

Replaces: 01/03.02

SAE "A" SPLINE

03

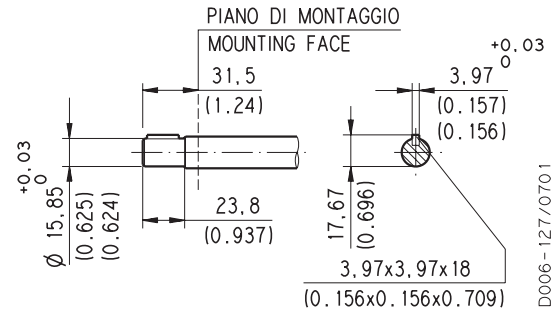
Ext. Involute Spline SAE J498B with major diameter modified 9 teeth - 16/32 Pitch - 30 deg Flat Root - Side fit - Class 1



MAX 885 lbf in (100 Nm)

SAE "A" STRAIGHT

31

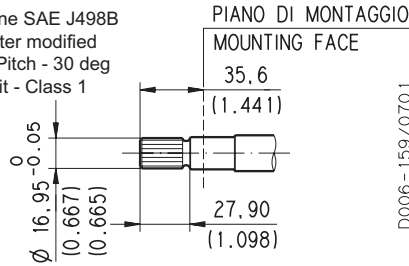


MAX 620 lbf in (70 Nm)

SAE SPLINE

01

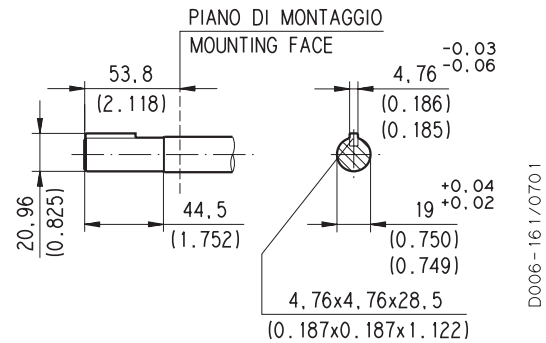
Ext. Involute Spline SAE J498B with major diameter modified 10 teeth - 16/32 Pitch - 30 deg Flat Root - Side fit - Class 1



MAX 1151 lbf in (130 Nm)

STRAIGHT

49

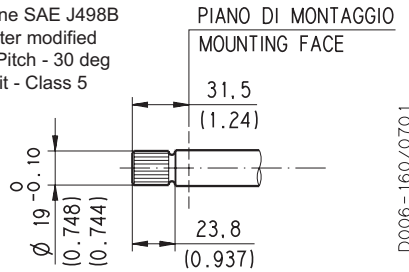


MAX 1239 lbf in (140 Nm)

SAE SPLINE

07

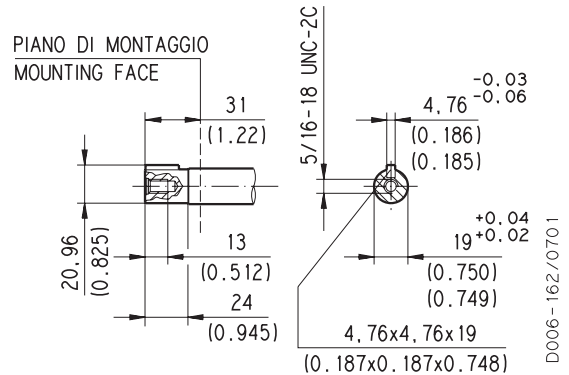
Ext. Involute Spline SAE J498B with major diameter modified 11 teeth - 16/32 Pitch - 30 deg Flat Root - Side fit - Class 5



MAX 1505 lbf in (170 Nm)

STRAIGHT

50

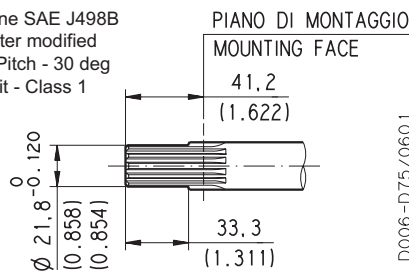


MAX 885 lbf in (100 Nm)

SAE "B" SPLINE

04

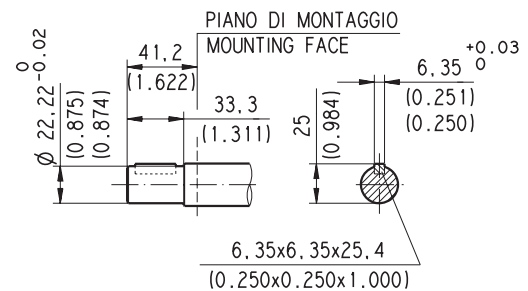
Ext. Involute Spline SAE J498B with major diameter modified 13 teeth - 16/32 Pitch - 30 deg Flat Root - Side fit - Class 1



MAX 2478 lbf in (280 Nm)

SAE "B" STRAIGHT

32



MAX 1770 lbf in (200 Nm)

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 position	Ports IN/OUT	Seals
KP20•4	S	0	03	S1	L	OC/OC	N

1 Pump type		CODE
in ³ /rev	cm ³ /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 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	Ports position	6
L	Side	
P	Rear	

CODE	Ports IN/OUT		7
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			
	Side	Rear	Pump type
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	Seals (b)	8
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

ORDER EXAMPLE

Standard pump

KP 20•4 S0 - 03 S1 - L OC/OC - N

Special version pump

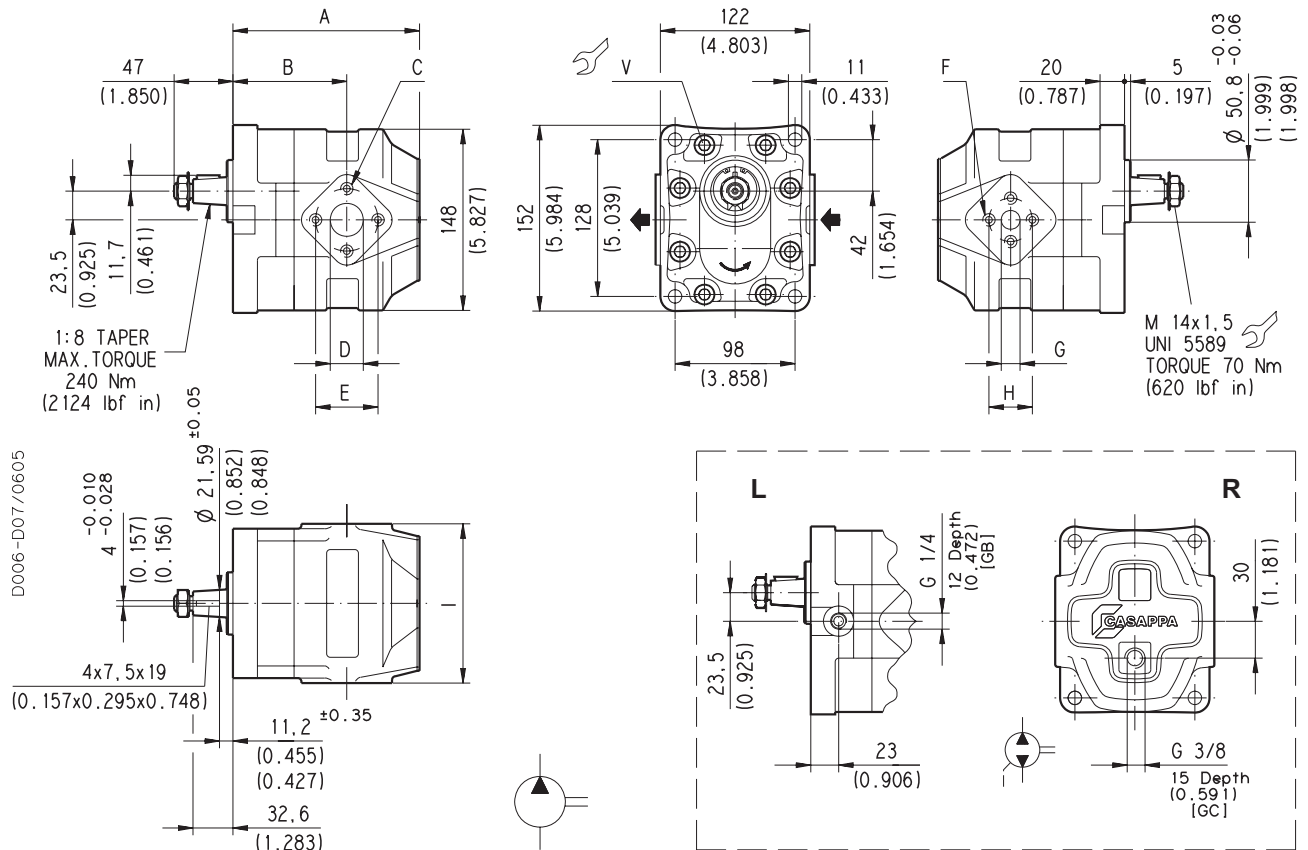
KP 20•4 S0 - 04 S5 - L MA/MA - V Bz

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	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	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	163 (6.417)	108 (4.252)							

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

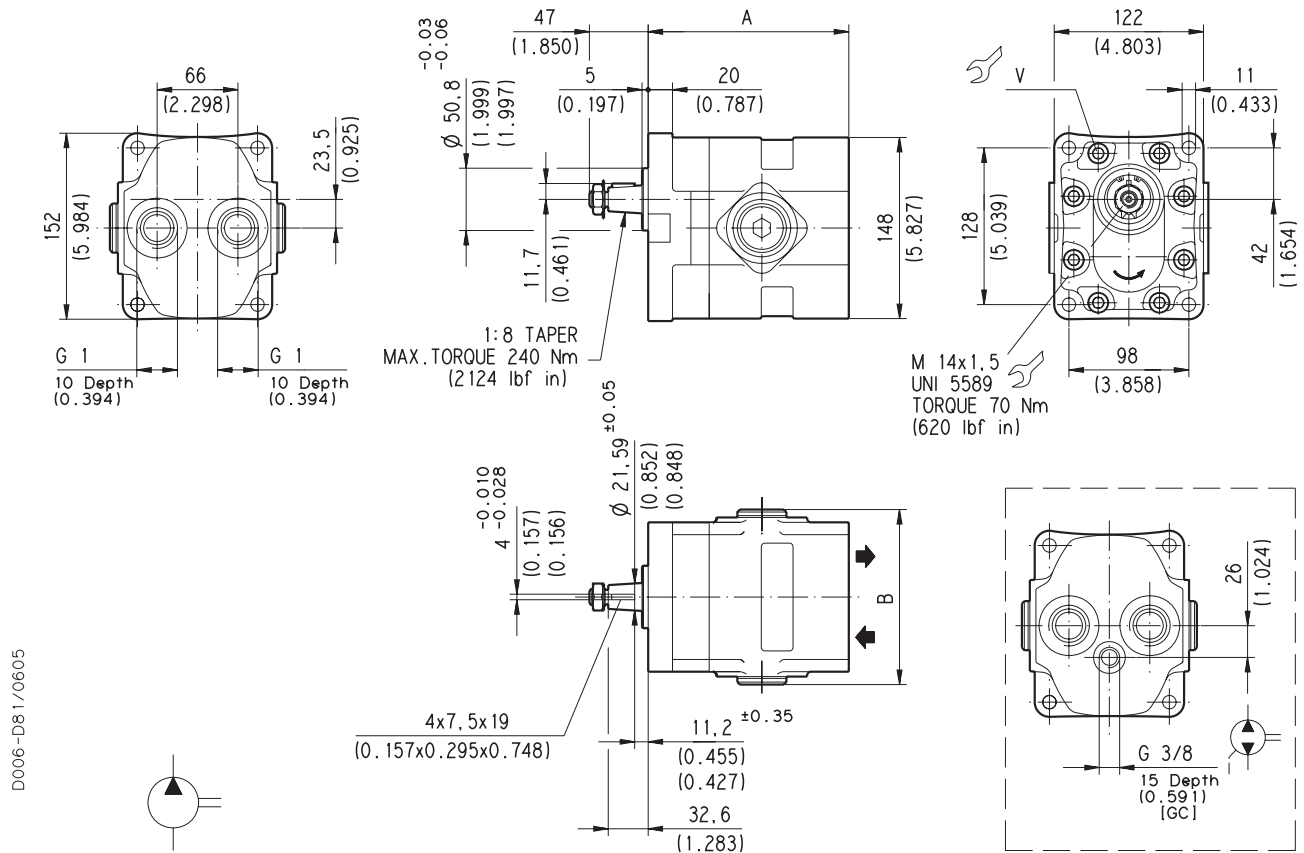
How to order:

KP 30-27 S0-83 E3-L ED/EB-N

02/06.05

GAS STRAIGHT THREAD PORTS

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



D006-D81/0605

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	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)		

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

02/06.05

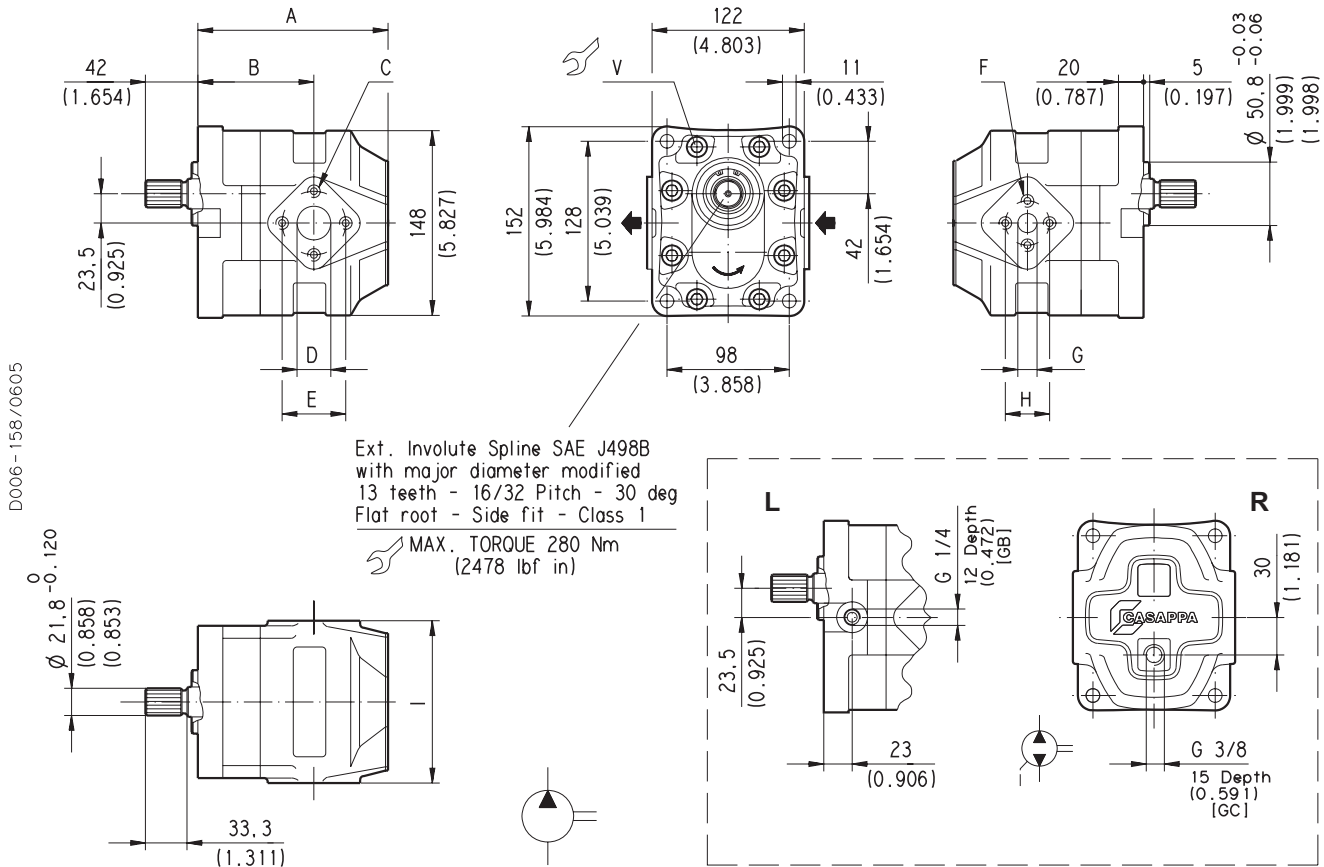
KAPPA 30

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	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	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)

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

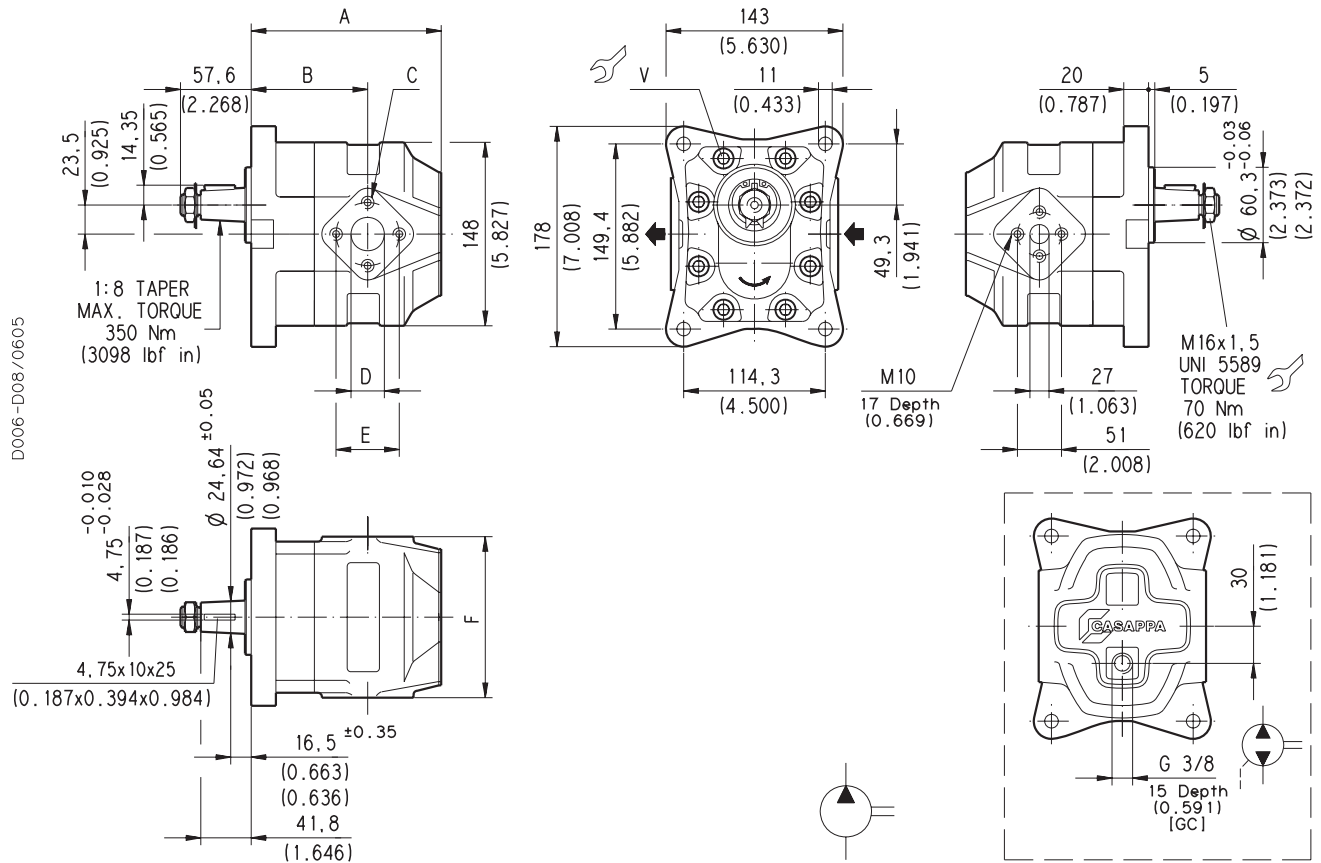
02/06.05

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)

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	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			156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KP 30•73	B	0-84 E4-L EF/ED-N	164 (6.457)	109 (4.291)				

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

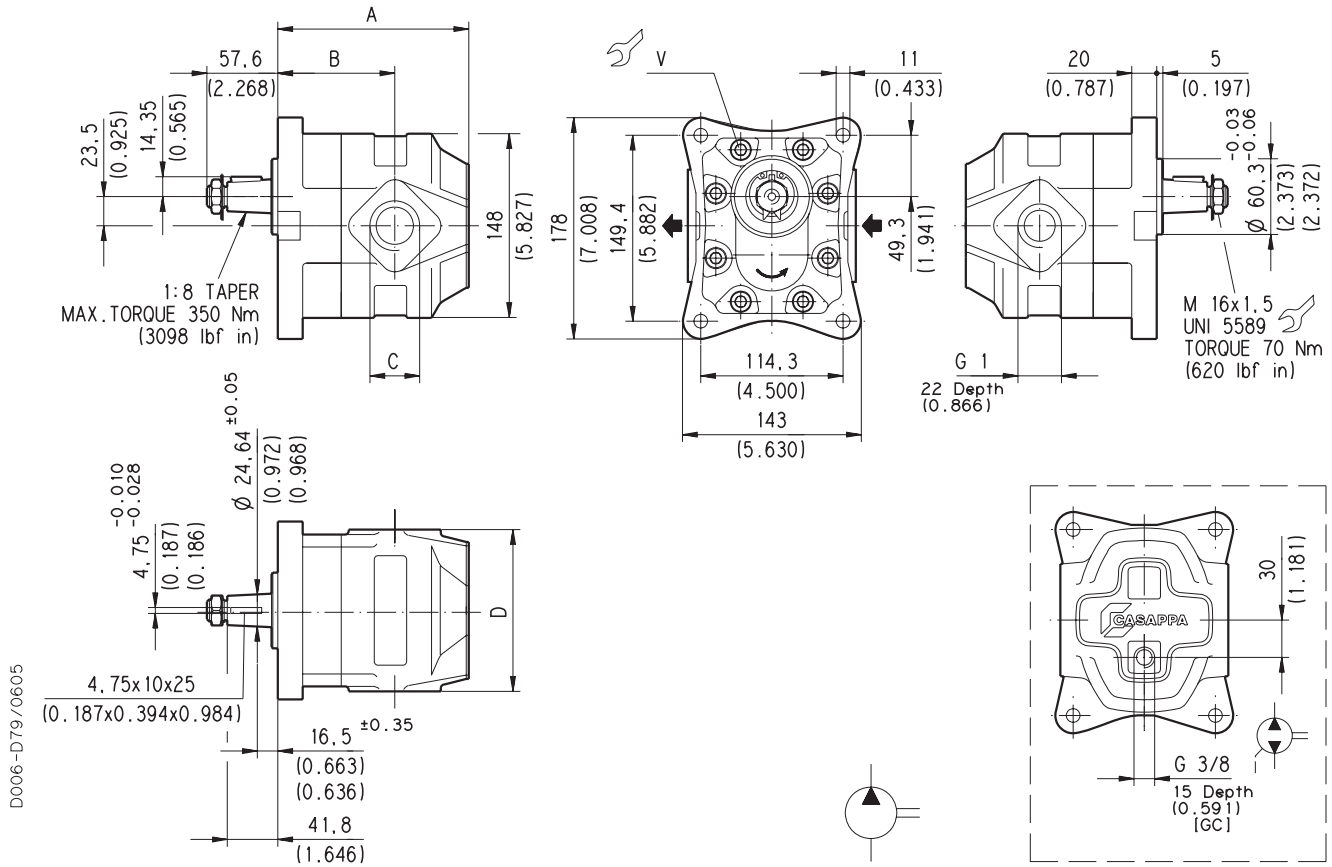
How to order:

KP 30•51 S0-84 E4-L ED/ED-N

02/06.05

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

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

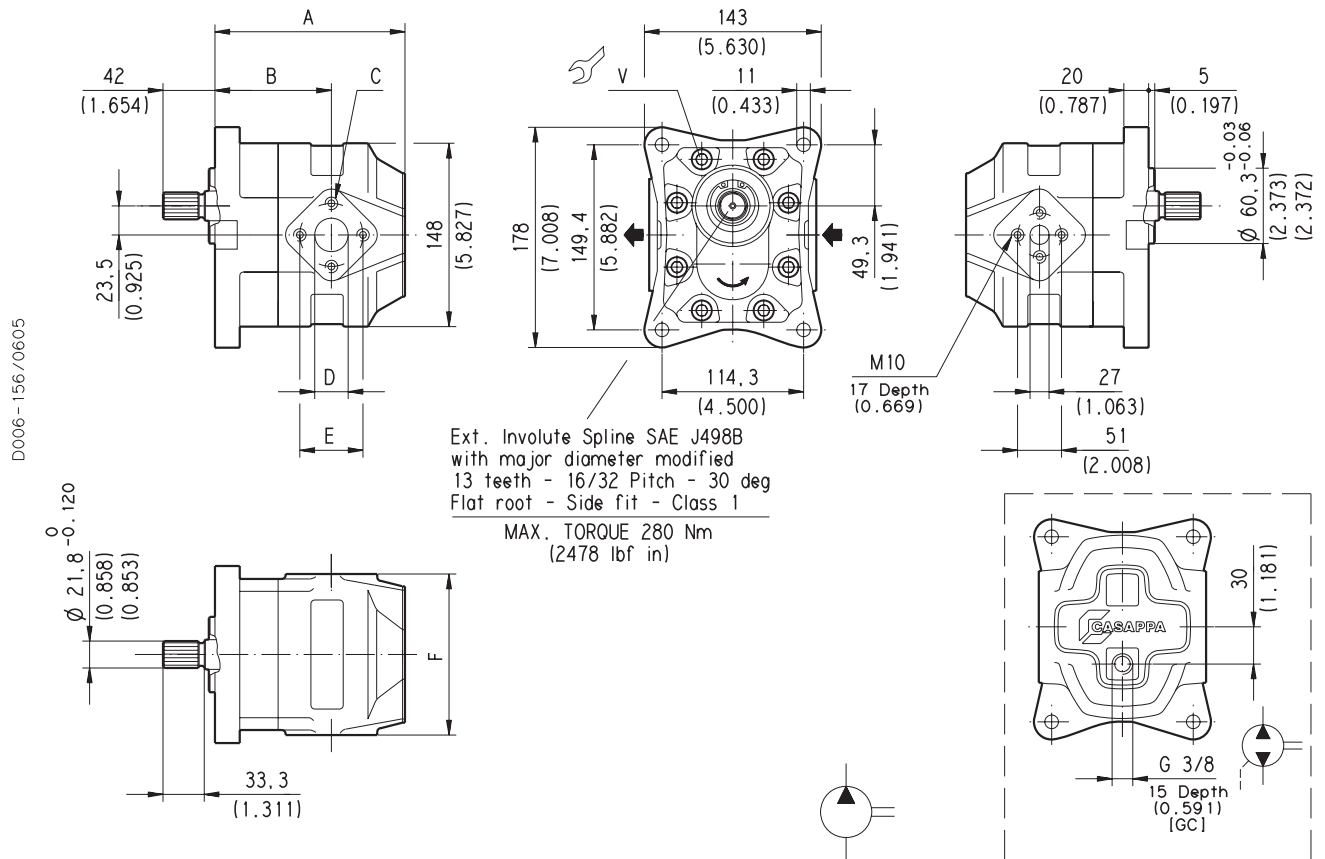
02/06.05

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	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
	D						
KP 30•61	R	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KP 30•73	B	164 (6.457)	109 (4.291)				

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

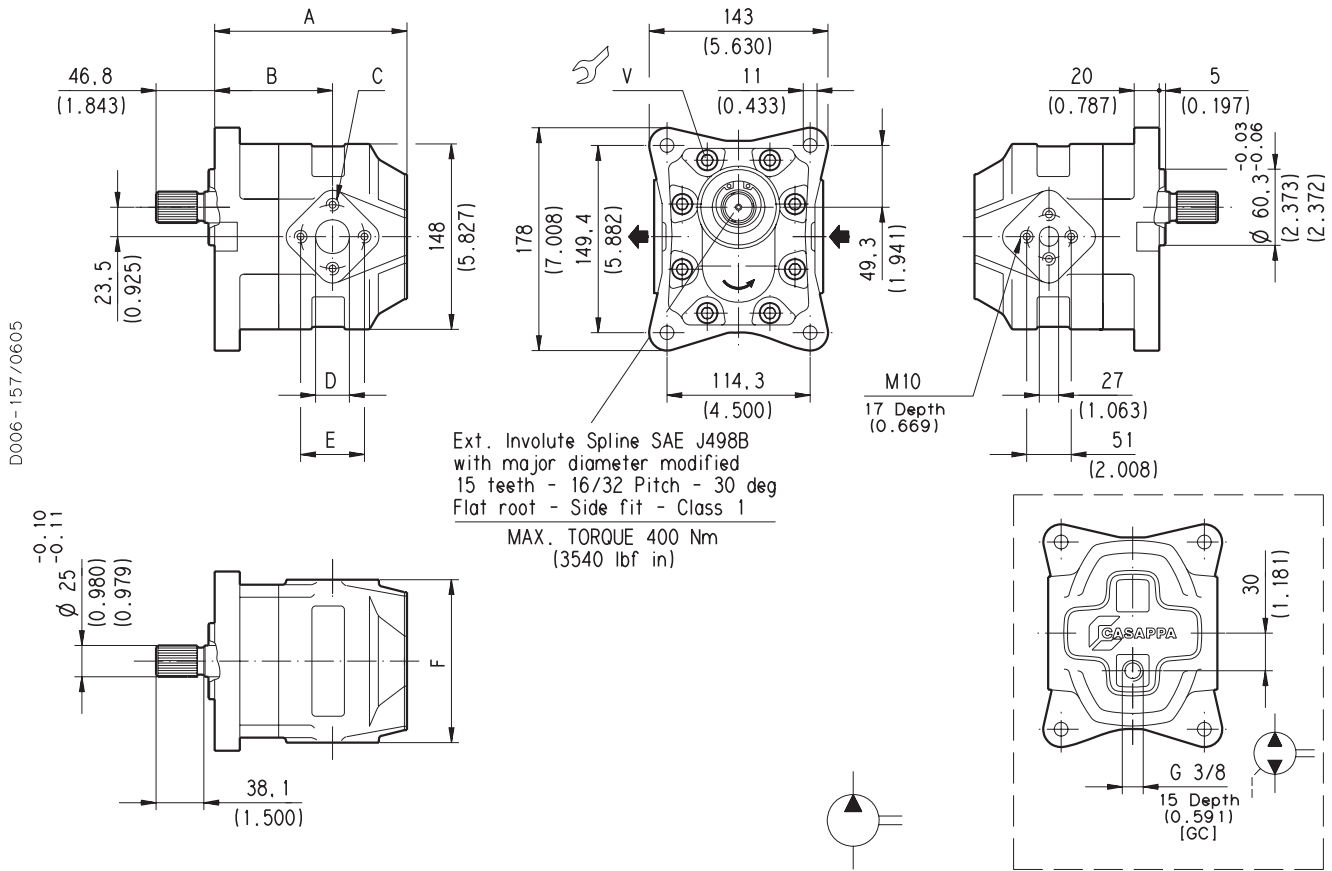
02/06.05

KAPPA 30

HYDRAULIC GEAR PUMPS EUROPEAN STANDARD

A5 E4

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



D006-157/0605

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	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
KP 30-61	D						
KP 30-73	B	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

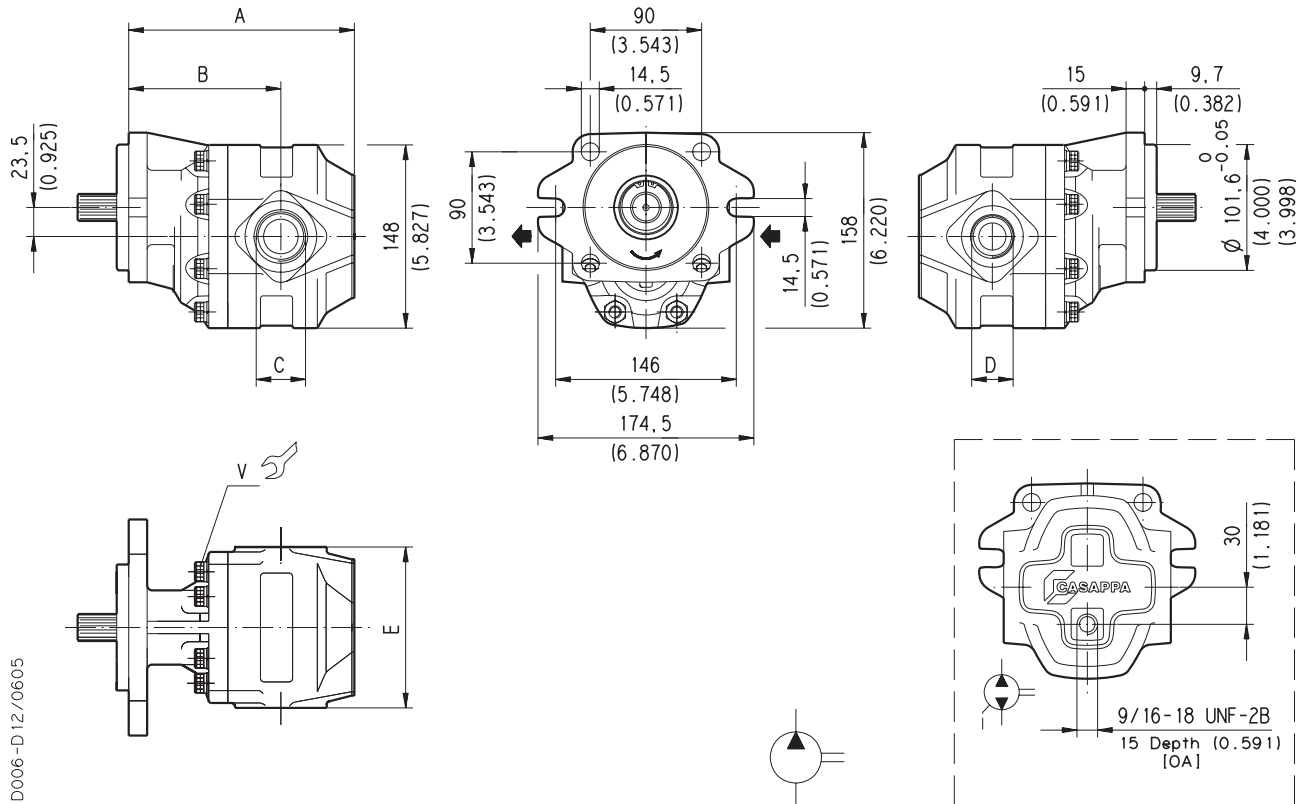
How to order:

KP 30-51 S0-A5 E4-L ED/ED-N

02/06.05

SAE STRAIGHT THREAD PORTS J514

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



D006-D 12/0605

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.

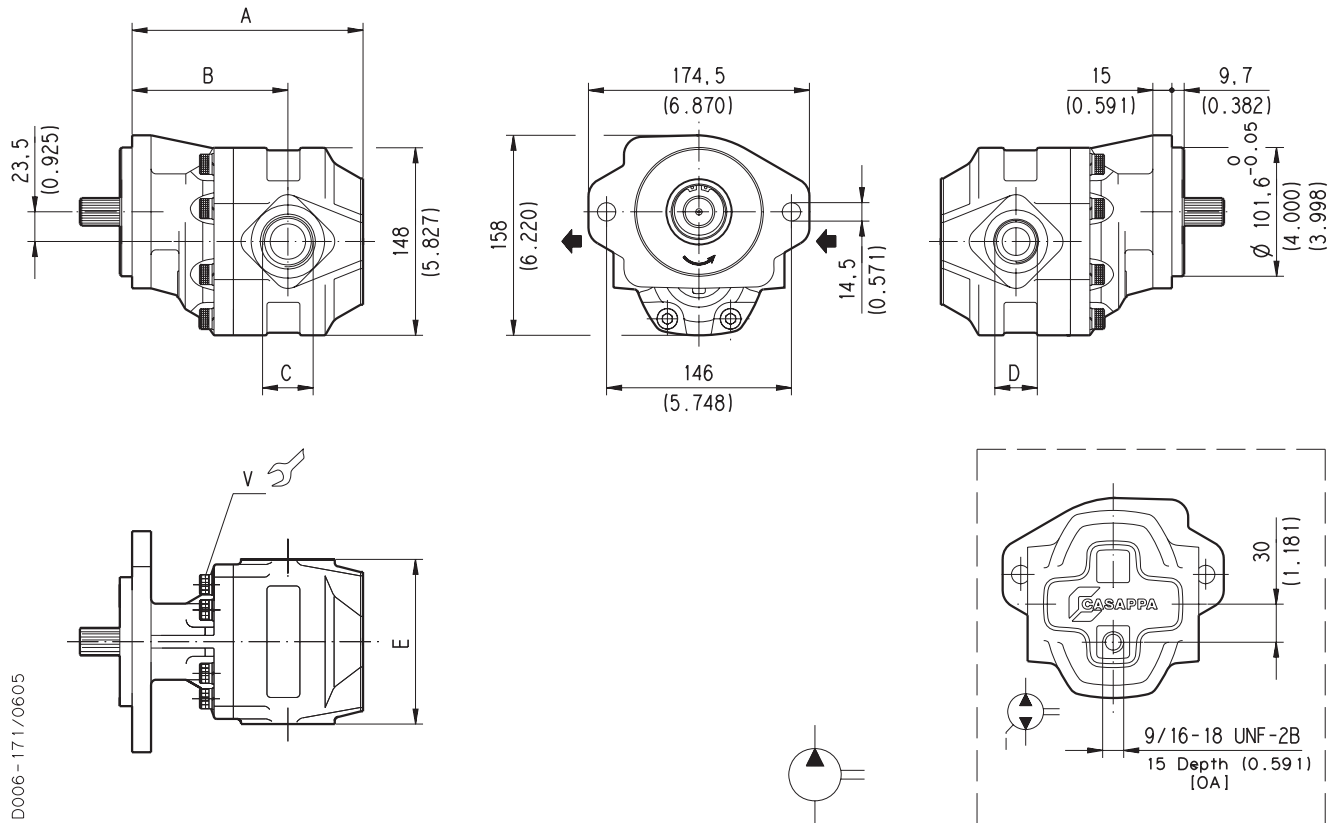
02/06.05

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



D006-171/0605

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)				OG	OF
KP 30-38	172 (6.772)	123 (4.843)	1-5/8-12 UN-2B	1-5/16-12 UN-2B		OH	OG
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)					

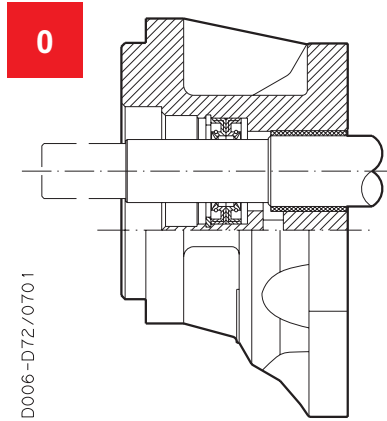
* Available only with 04 and 32 shaft for 0 and 1 version.

02/06.05

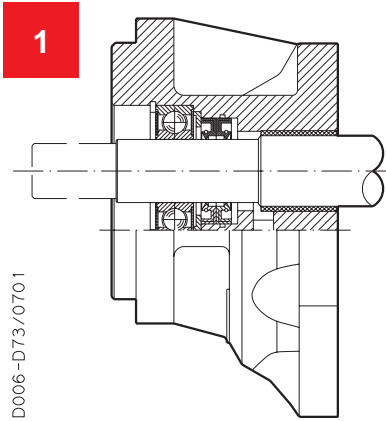
KAPPA 30 SAE VERSION

SAE

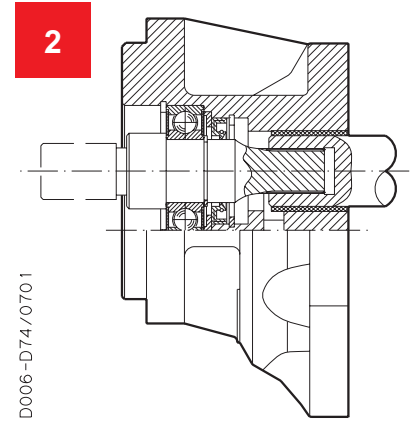
Replaces: 01/03.02



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



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



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

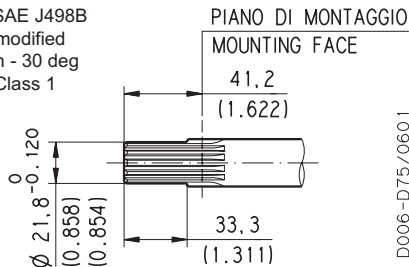
KAPPA 30 END DRIVE SHAFTS

SAE

SAE "B" SPLINE

04

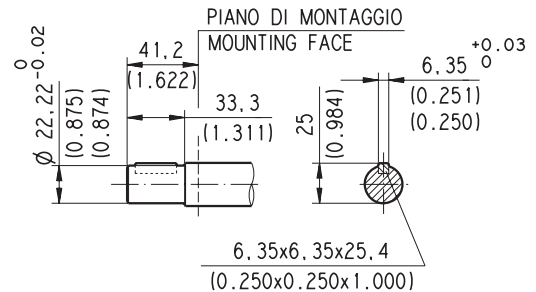
Ext. Involute Spline SAE J498B with major diameter modified 13 teeth - 16/32 Pitch - 30 deg Flat Root - Side fit - Class 1



MAX 2921 lbf in (330 Nm)

SAE "B" STRAIGHT

32

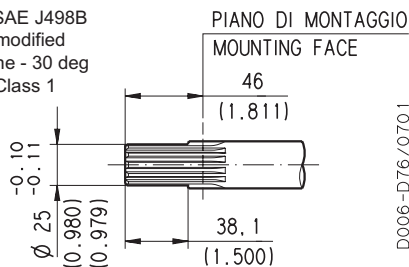


MAX 1770 lbf in (200 Nm)

SAE "BB" SPLINE

05

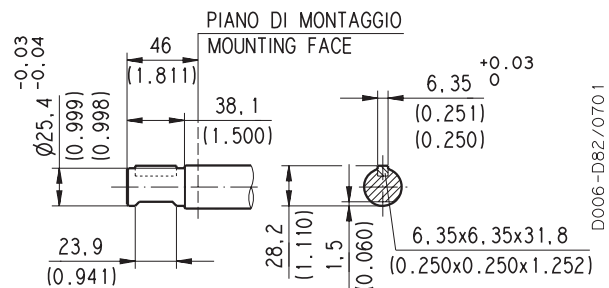
Ext. Involute Spline SAE J498B with major diameter modified 15 teeth - 16/32 Spline - 30 deg Flat Root - Side fit - Class 1



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 SAE SINGLE PUMPS

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

1	Pump type	CODE
	in ³ /rev	cm ³ /rev
	1.63	26,7
	2.11	34,56
	2.40	39,27
	2.68	43,98
	3.16	51,83
	3.45	56,54
	3.74	61,26
	4.50	73,82

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

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

4	Drive shaft	CODE
	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	Ports position	6
L	Side	
P	Rear	

CODE	Ports IN/OUT	7
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	Seals (a)	8
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

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 input 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.

M	lbf in (Nm)	Torque
V	in ³ /rev (cm ³ /rev)	Displacement
Δp	psi (bar)	Pressure
$\eta_m = \eta_m (V, \Delta p, n) \quad (\approx 0,90)$		Mechanical efficiency

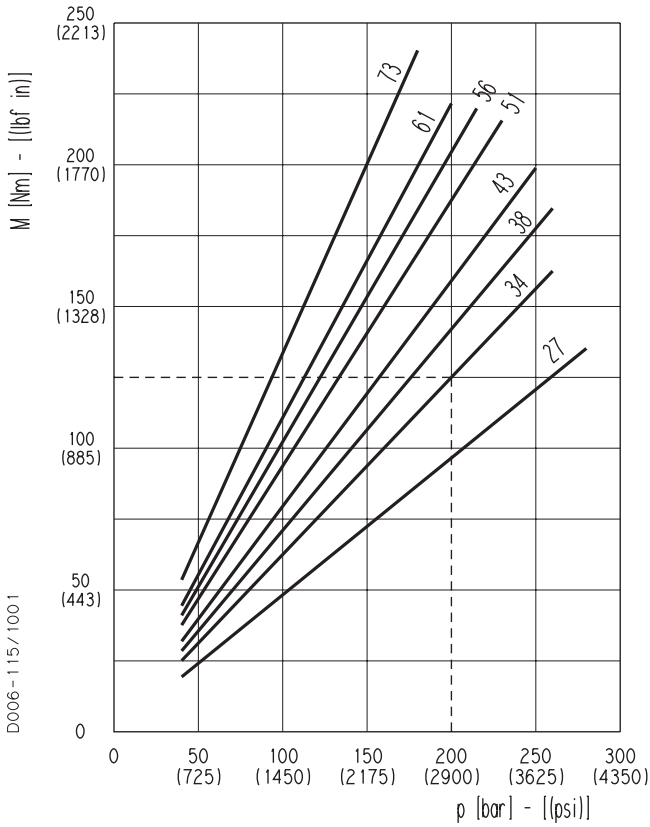
$$M = \frac{\Delta p \text{ (bar)} \cdot V \text{ (cm}^3\text{/rev)}}{62,83 \cdot \eta_m} \quad [\text{Nm}]$$

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

ABSORBED TORQUE

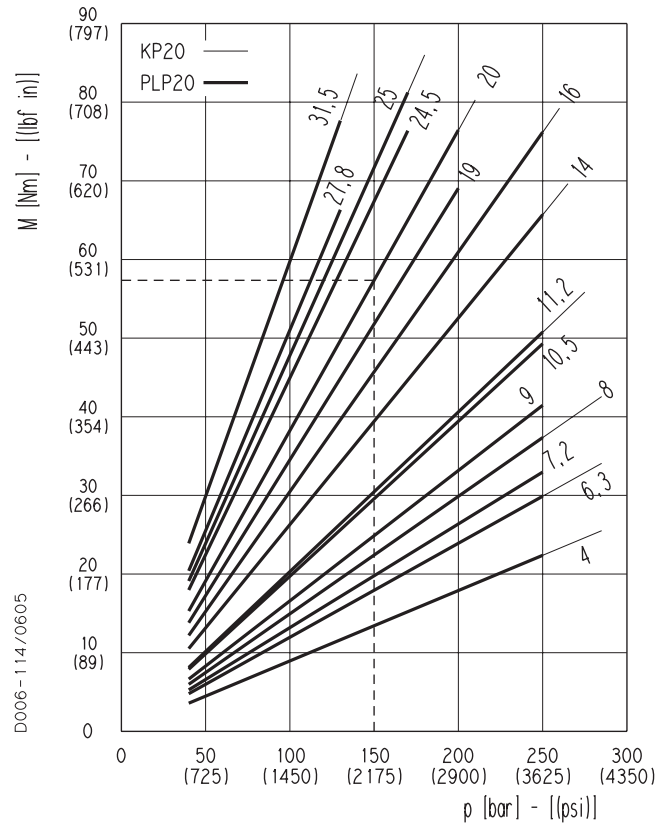
KP 30

1



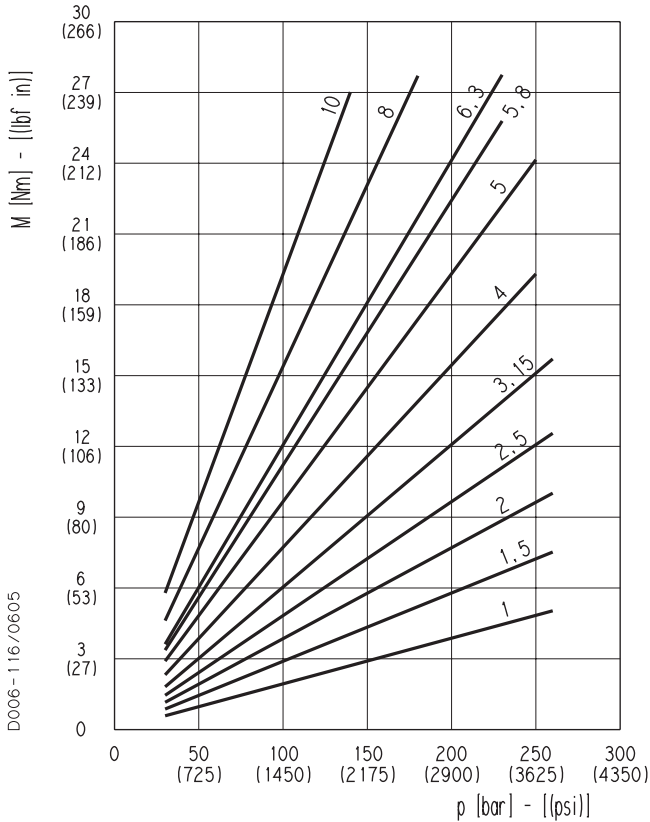
KP 20 - PLP 20

2



PLP 10

3



DRIVE SHAFT SELECTION

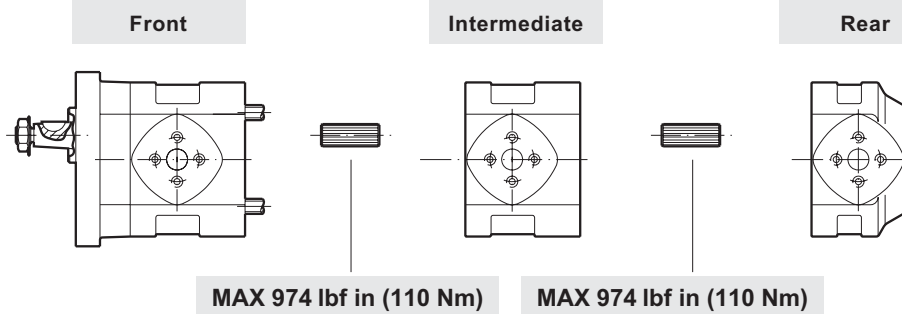
Let us consider a double pump KP30•34+ KP20•20. If we suppose that we have to work with the first pump at a pressure of 2900 psi (200 bar) and the second pump at a pressure of 2175 psi (150 bar), the graph 1 shows that the torque absorbed by KP30•34 is 1106 lbf in (125 Nm) and the graph 2 shows that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

02/06.05

Replaces: 01/03.02

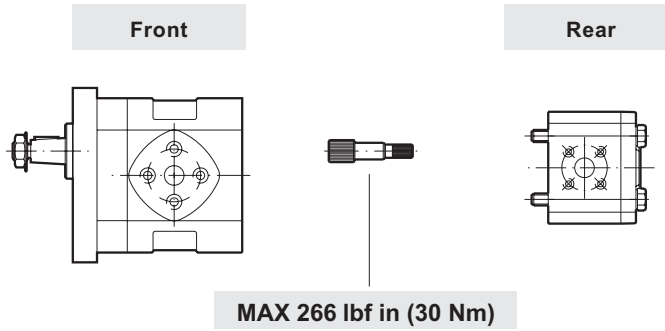
KAPPA 20 + KAPPA 20

D006-DZ7/0701

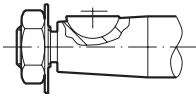

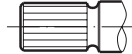
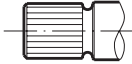
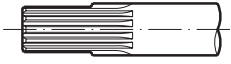


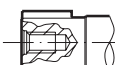
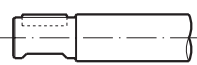


KAPPA 20 +POLARIS 10

D006-DZ1/0701



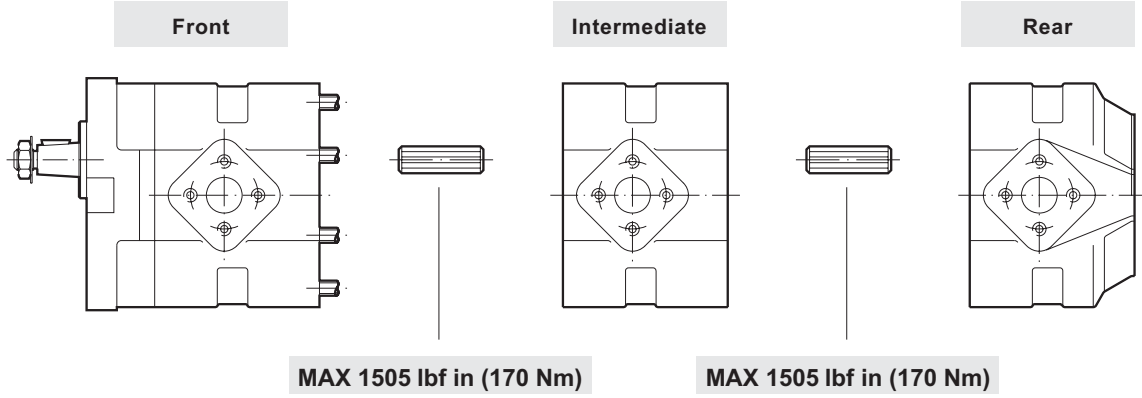
KAPPA 20 END DRIVE SHAFTS

<p>EUROPEAN TAPERED 1:8 82</p>  <p>MAX 1239 lbf in (140 Nm)</p>	<p>SAE "A" SPLINE 03</p>  <p>MAX 885 lbf in (100 Nm)</p>	<p>SAE SPLINE 01</p>  <p>○ MAX 1151 lbf in (130 Nm)</p>
<p>SAE SPLINE 07</p>  <p>MAX 1505 lbf in (170 Nm)</p>	<p>SAE "B" SPLINE 04</p>  <p>○ MAX 2478 lbf in (280 Nm)</p>	<p>SAE "A" STRAIGHT 31</p>  <p>MAX 620 lbf in (70 Nm)</p>
<p>STRAIGHT 49</p>  <p>MAX 1239 lbf in (140 Nm)</p>	<p>STRAIGHT 50</p>  <p>MAX 885 lbf in (100 Nm)</p>	<p>SAE "B" STRAIGHT 32</p>  <p>MAX 1770 lbf in (200 Nm)</p>

○ 03/03.2006

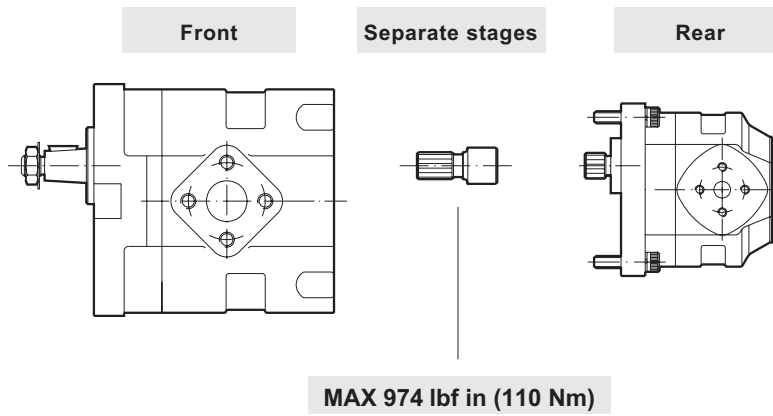
Kappa 30 + Kappa 30

D006-D23/0701



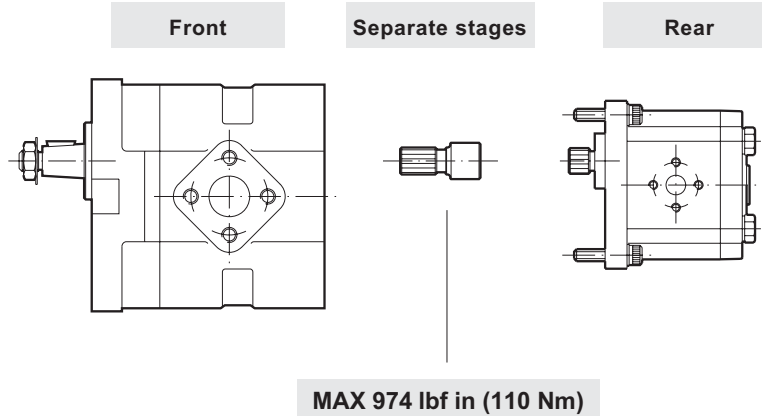
Kappa 30 + Kappa 20

D006-D22/0701



Kappa 30 + Polaris 20

D006-D26/0701

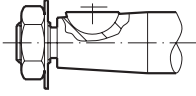


01/03.02

KAPPA 30 END DRIVE SHAFTS

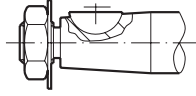
Replaces: 01/03.02

EUROPEAN TAPERED 1:8 **83**



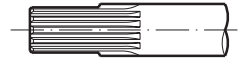
MAX 2124 lbf in (240 Nm)

EUROPEAN TAPERED 1:8 **84**



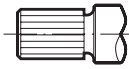
MAX 3098 lbf in (350 Nm)

SAE "B" SPLINE **04**



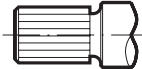
○ MAX 2921 lbf in (330 Nm)

SAE SPLINE **A8**



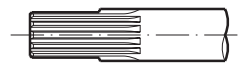
○ MAX 2478 lbf in (280 Nm)

SAE SPLINE **A5**



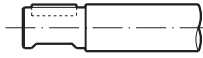
○ MAX 3540 lbf in (400 Nm)

SAE "BB" SPLINE **05**



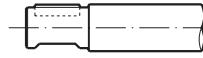
○ MAX 4426 lbf in (500 Nm)

SAE "B" STRAIGHT **32**



MAX 1770 lbf in (200 Nm)

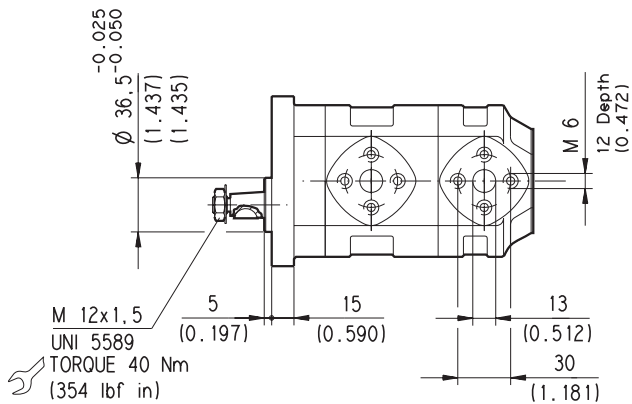
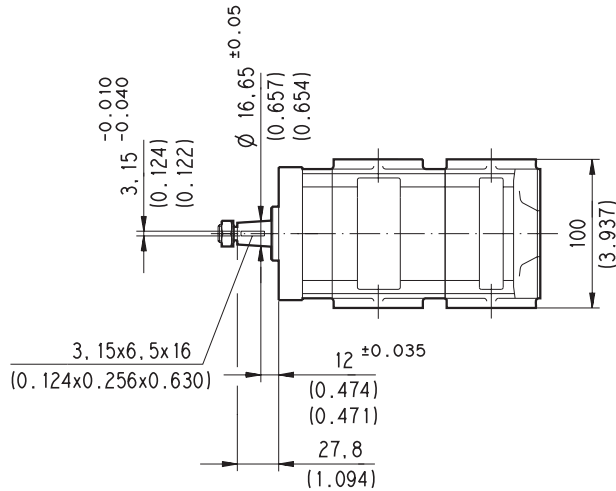
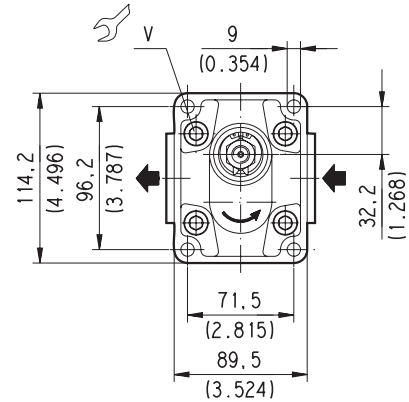
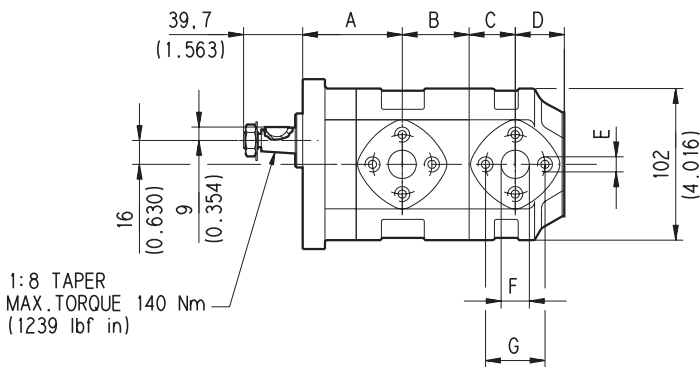
SAE "BB" STRAIGHT **33**



MAX 2478 lbf in (280 Nm)

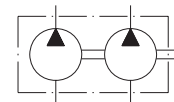
○ 03/03.2006

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



D006-D05/0605

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



02/06.05

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)		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 length 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

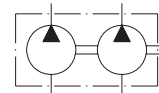
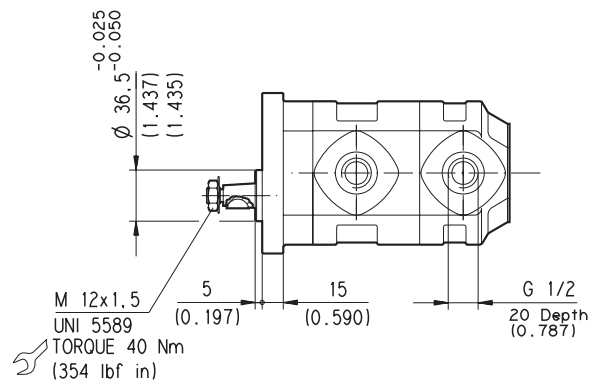
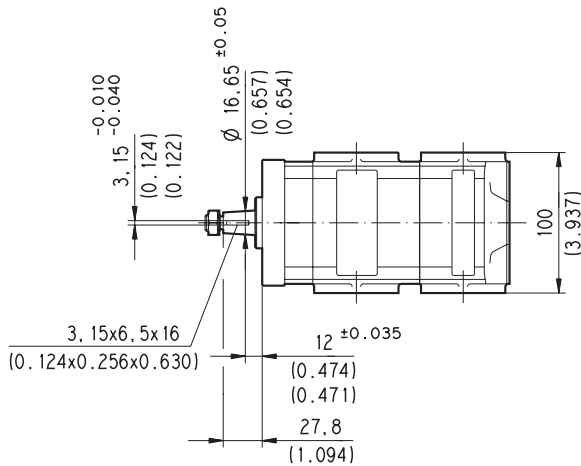
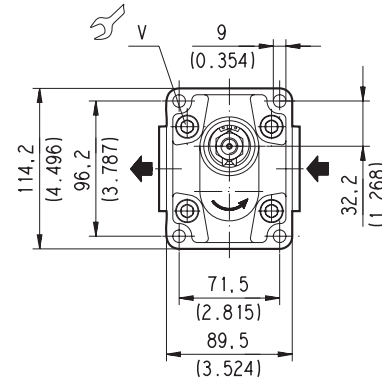
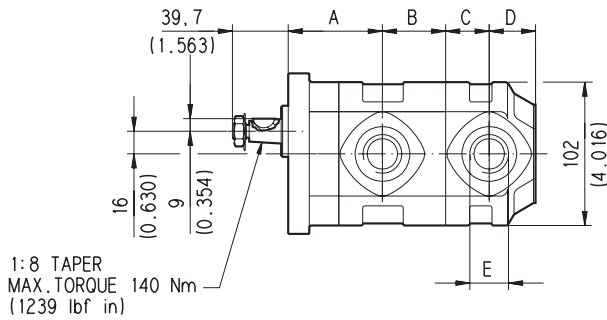
ORDER EXAMPLE

Double pump **KP20•4/20•4 S/FS**

Triple pump **KP20•4/20•4/20•4 S/FS**

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)

D006-D92/0605

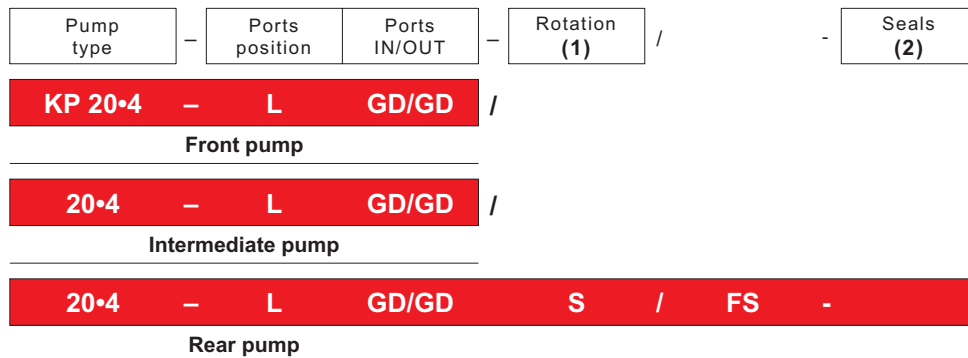
02/06.05

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 length 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)



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

(2) For Buna N seals no code

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**

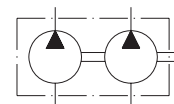
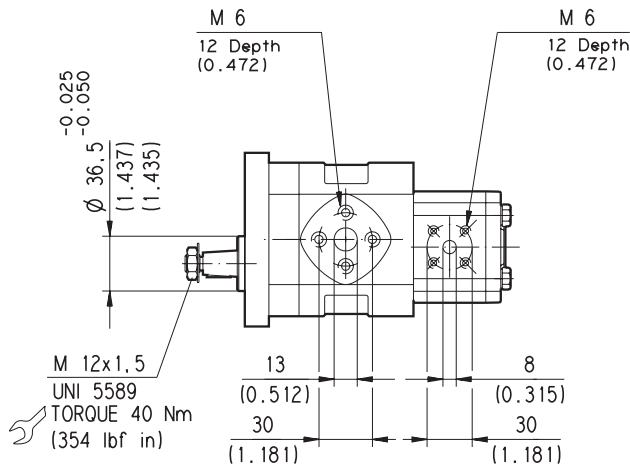
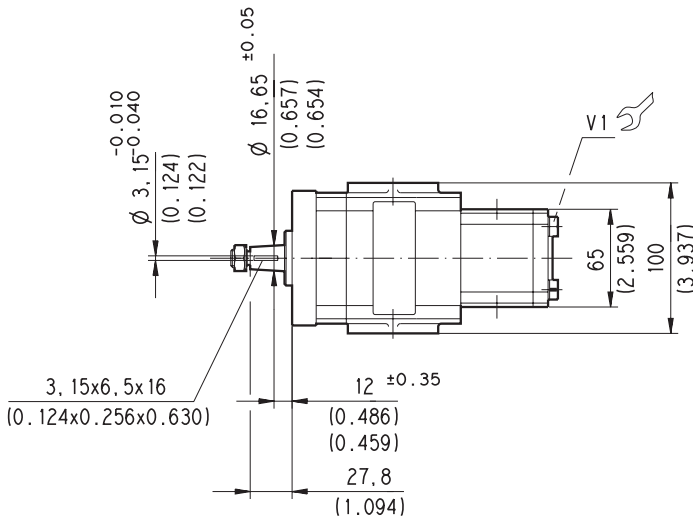
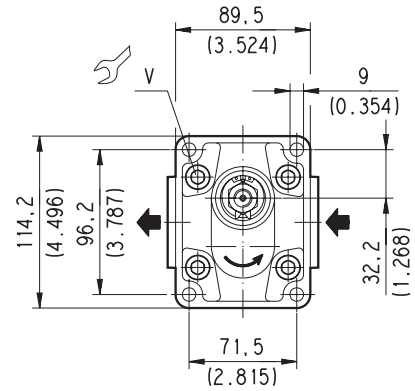
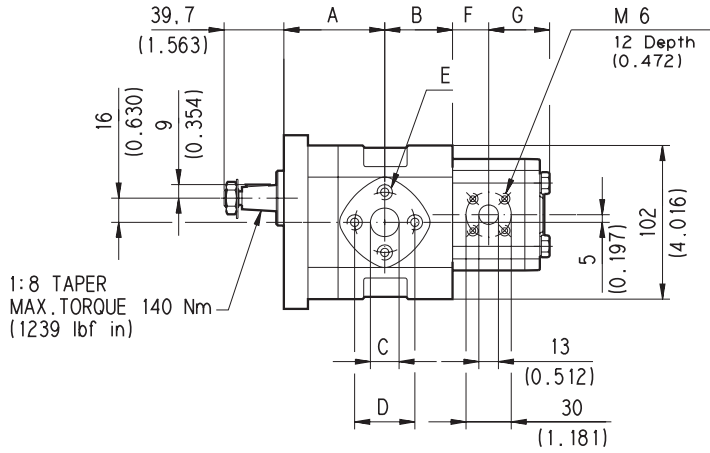
02/06.05

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

02/06.05

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

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)		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

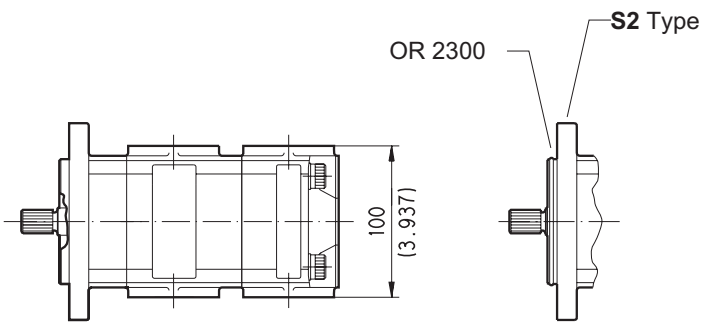
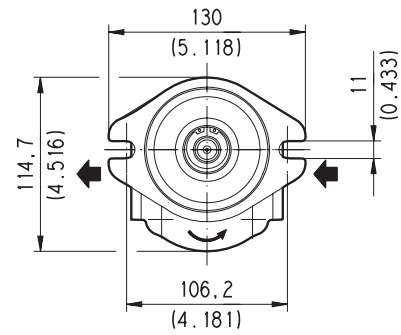
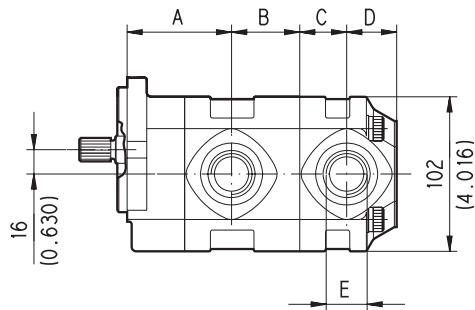
ORDER EXAMPLE

Double pump

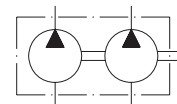
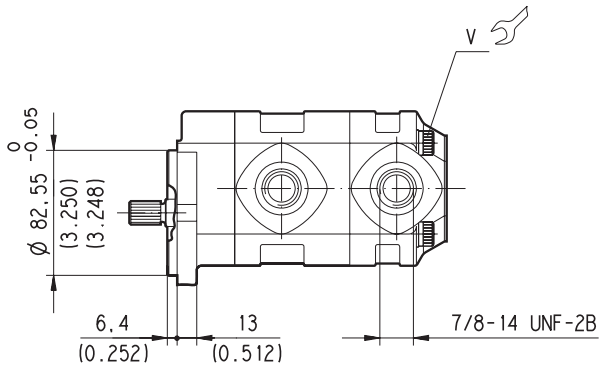
KP20•4/PLP10•1 S/FS

02/06.05

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



D006-D93/0605



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

02/06.05

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

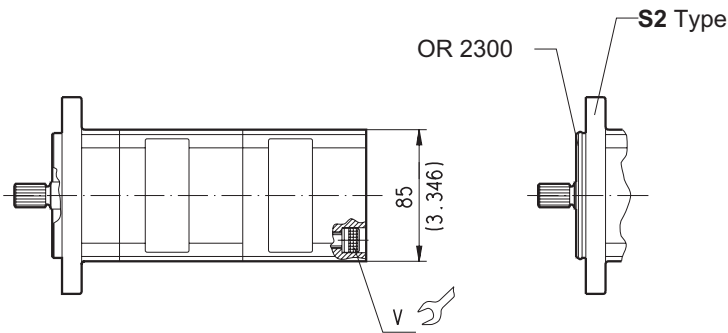
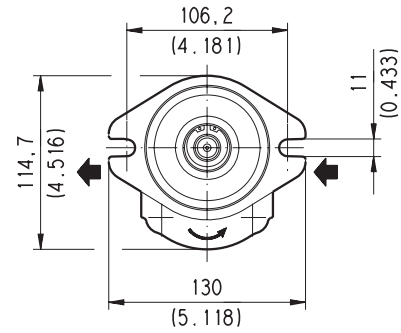
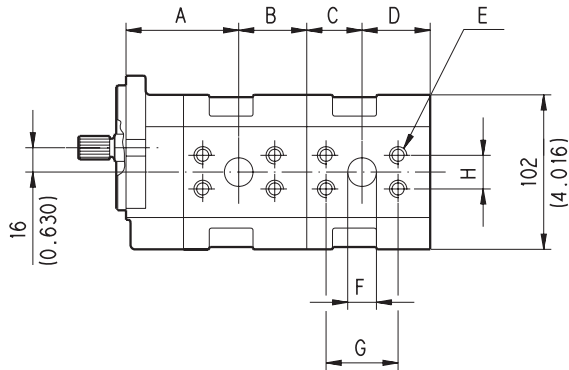
To order see page 54 e 55

KAPPA 20

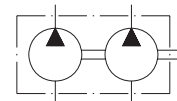
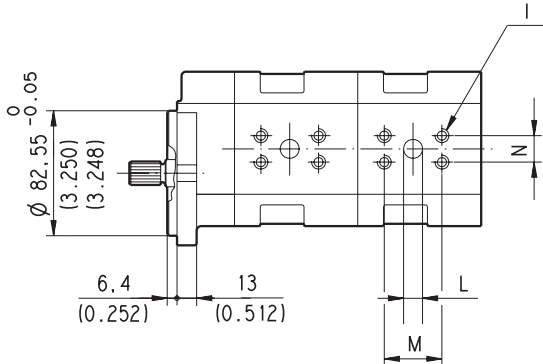
HYDRAULIC GEAR PUMPS SAE STANDARD

... S1

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



D006-128/0605



02/06.05

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 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)	

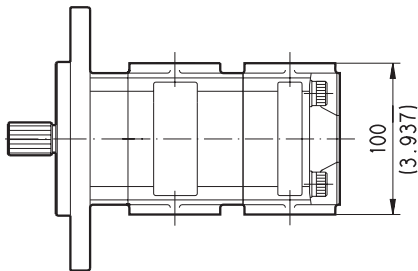
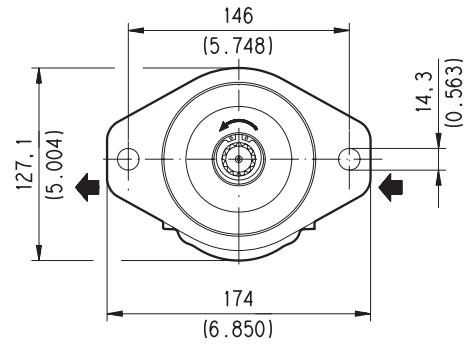
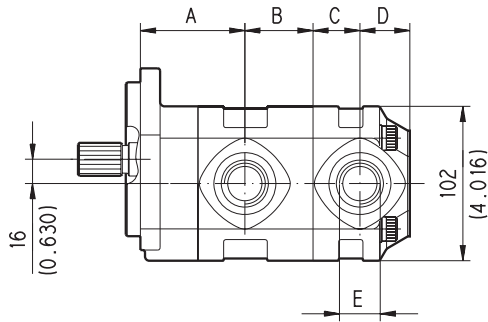
The length of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D**.

Pump type	E	F	G	H	I	L	M	N	Ports code	
	mm (in)	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)	M 8 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	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MB	MB
KP 20•14										
KP 20•16										
KP 20•20										
KP 20•25	M 10 Depth 12 (0.472)	25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MC	MB
KP 20•31,5										

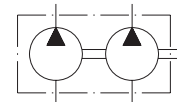
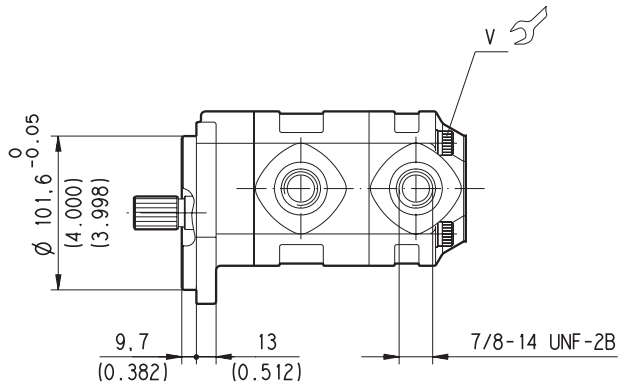
To order see page 54 e 55

02/06.05

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



D006 - 166 / 0605



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

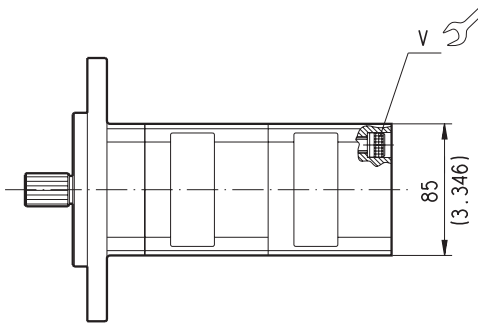
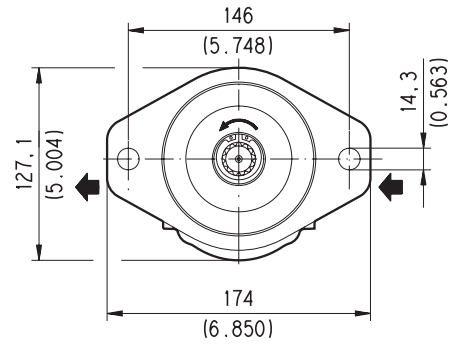
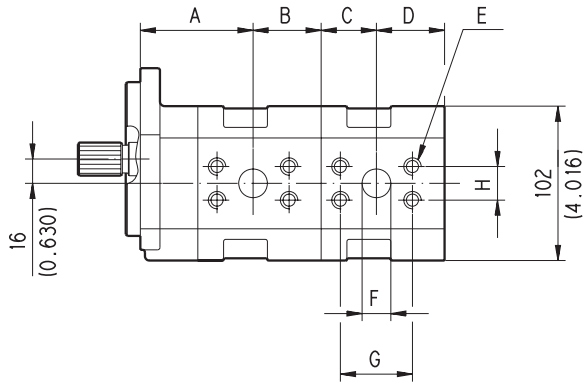
02/06.05

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)	33 (1.299)	1-1/16-12 UN-2B	OD	
KP 20•14	69 (2.717)	45 (1.772)	31 (1.220)				
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)				

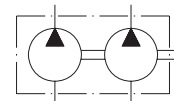
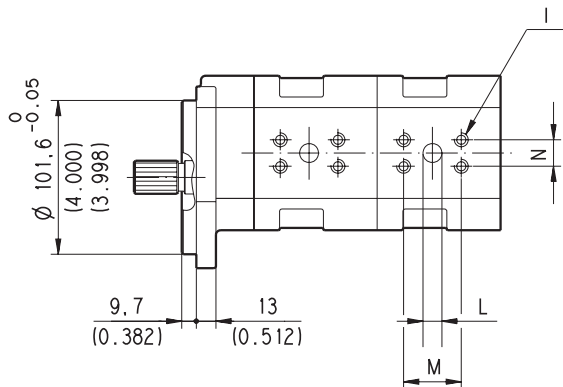
The length of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D**.

To order see page 54 e 55

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



D006-167/0605



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

02/06.05

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 length 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	Ports code	
	mm (in)	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)	M 8 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	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MB	MB
KP 20•14										
KP 20•16										
KP 20•20										
KP 20•25	25,4 (1.000)	52,4 (2.063)	26,2 (1.031)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MC	MB	
KP 20•31,5										

To order see page 54 e 55

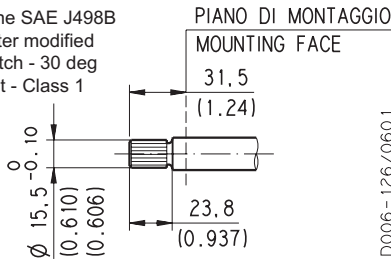
KAPPA 20 END DRIVE SHAFTS

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

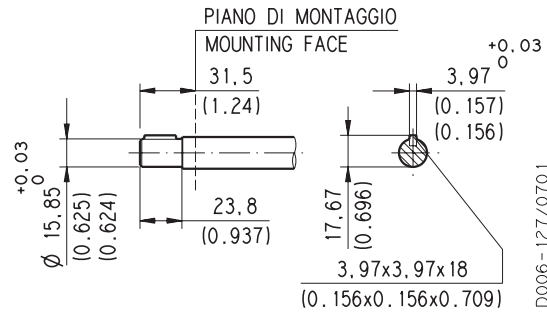


D006-126/0601

MAX 885 lbf in (100 Nm)

SAE "A" STRAIGHT

31



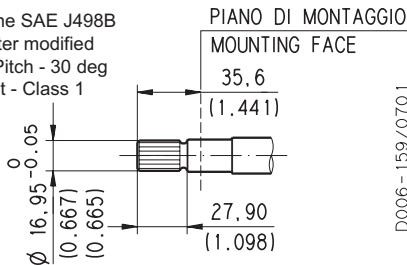
D006-127/0701

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

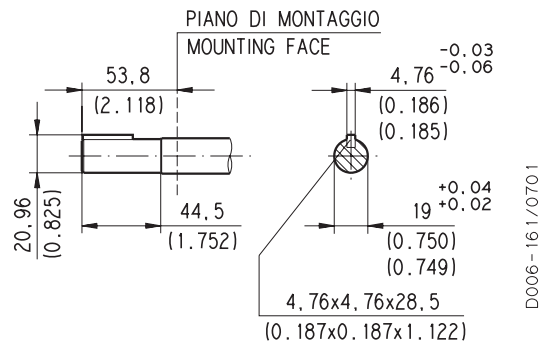


D006-159/0701

MAX 1151 lbf in (130 Nm)

STRAIGHT

49



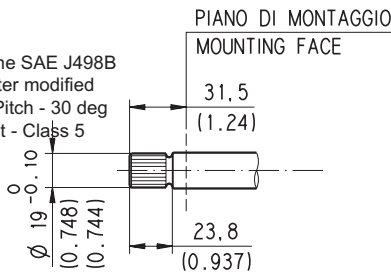
D006-161/0701

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

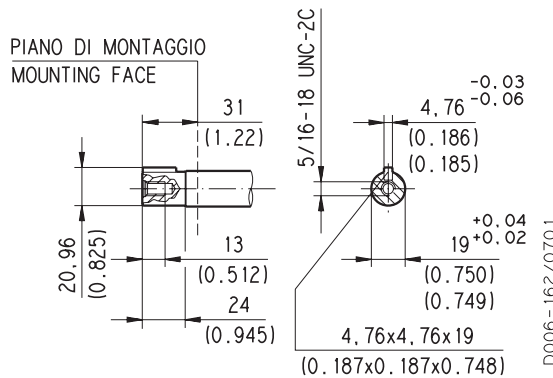


D006-160/0701

MAX 1505 lbf in (170 Nm)

STRAIGHT

50



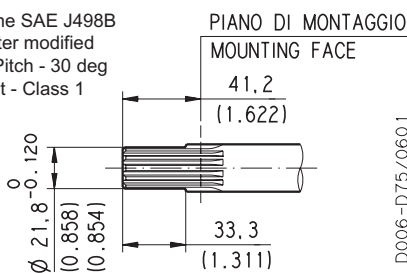
D006-162/0701

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

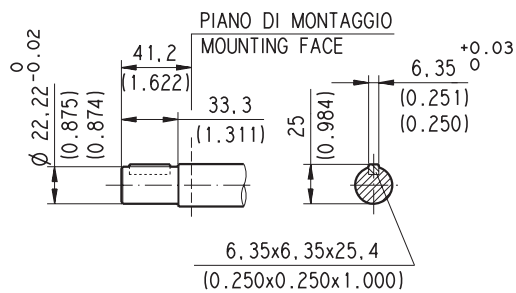


D006-D75/0601

MAX 2478 lbf in (280 Nm)

SAE "B" STRAIGHT

32



D006-D77/0601

MAX 1770 lbf in (200 Nm)

Replaces: 01/03.02

03/03.2006

HOW TO ORDER KAPPA 20 MULTIPLE PUMPS

1	2	3	4	5	6	7
Pump type	Drive shaft	Mounting flange	Ports position	Ports IN/OUT	Rotation	Seals
KP 20•4	– 03	S1	– L	OC/OC	/	
Front pump						
20•4	–		L	O/COC	/	
Intermediate pump						
20•4	–		L	OC/OC	S / FS	–
Rear pump						

1	Pump type		CODE
in ³ /rev	cm ³ /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	Ports IN/OUT		5
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			
	Side	Rear	Pump type
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

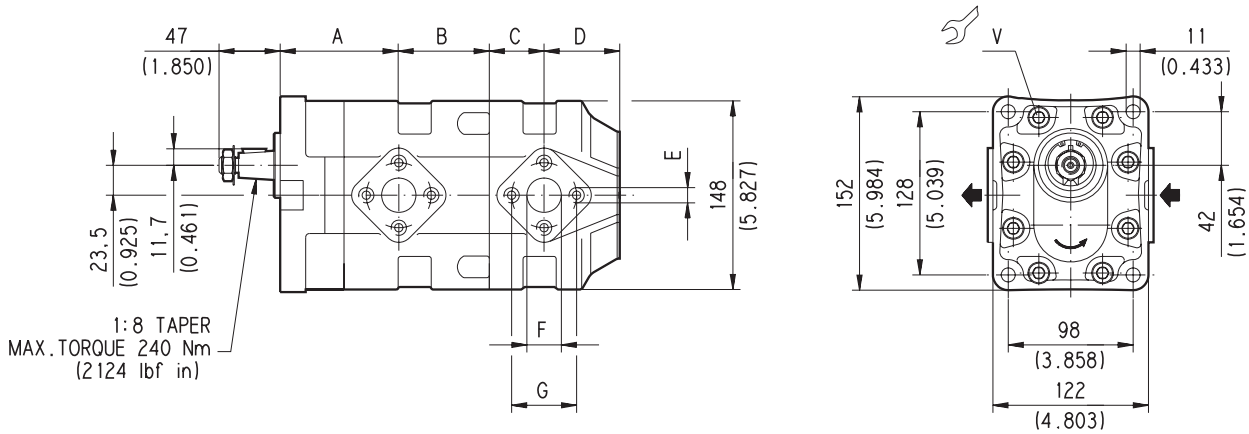
CODE	Rotation	6
S	Left	
D	Right	

CODE	Seals (b)	7
	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	

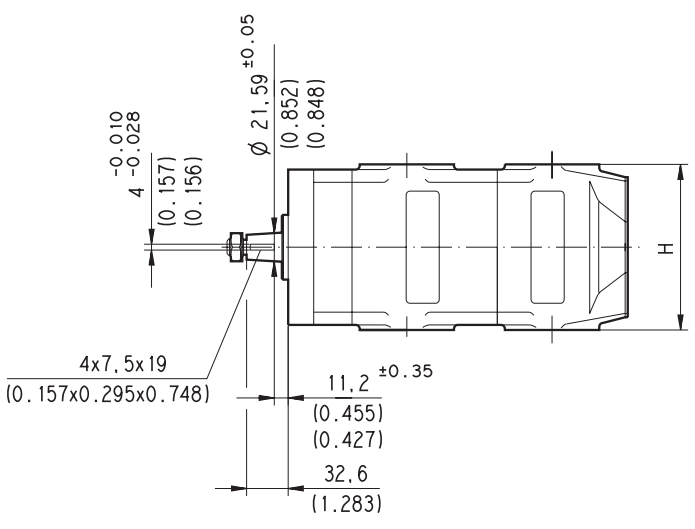
(a) Available only with 04 and 32 shaft

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

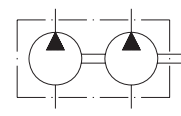
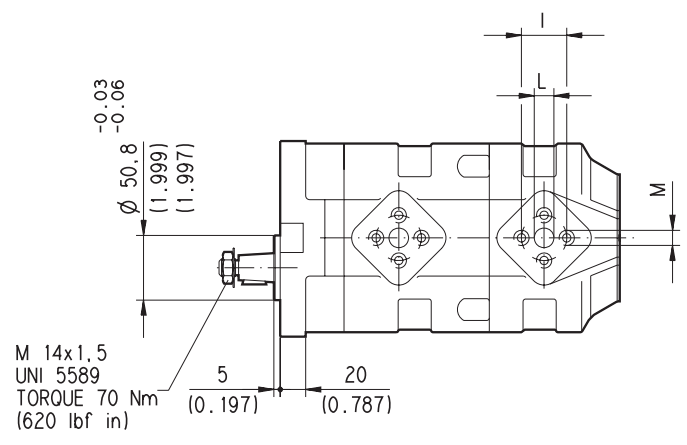
EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



1:8 TAPER
MAX. TORQUE 240 Nm
(2124 lbf in)



D006-D14/0605



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

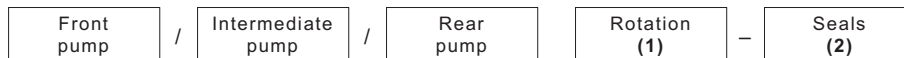
02/06.05

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)	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)
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)									

The length 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)



KP30•27 / 30•27 / 30•27 S -

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

(2) For Buna N seals no code

ORDER EXAMPLE

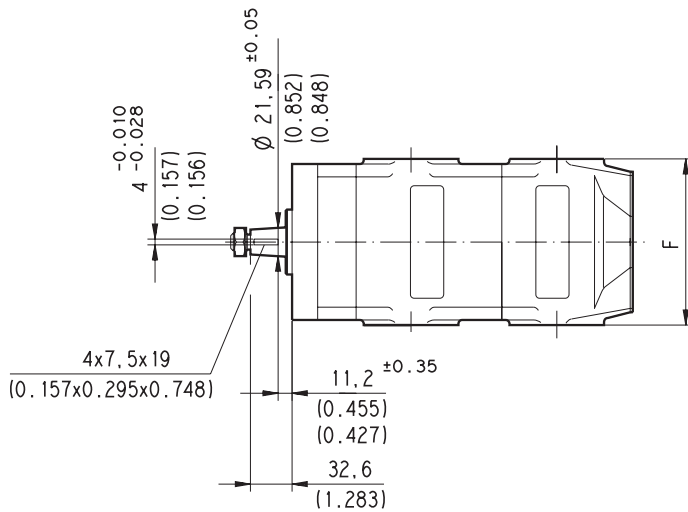
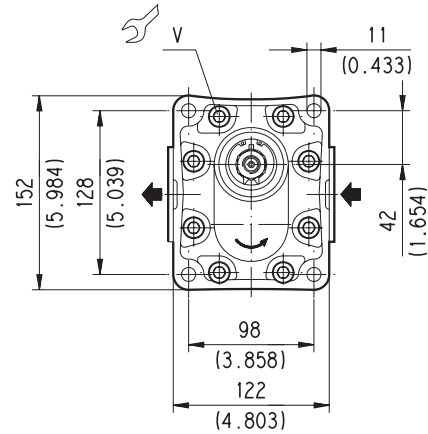
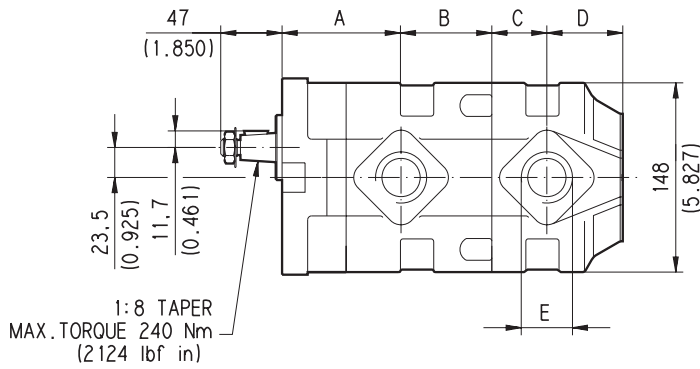
Double pump **KP30•27/30•27 S**

Triple pump **KP30•27/30•27/30•27 S**

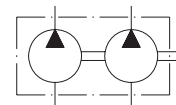
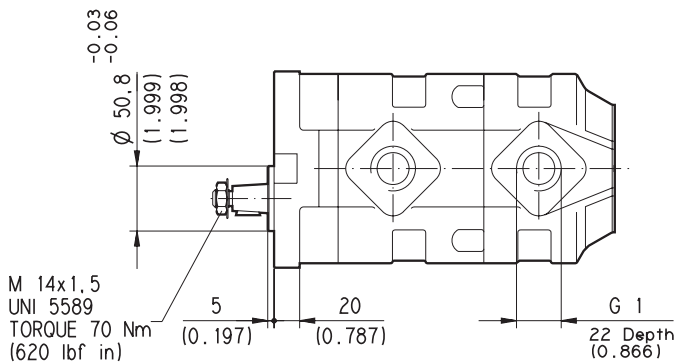
02/06.05

GAS STRAIGHT THREAD PORTS

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



D006-D16/0605



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

02/06.05

Pump type	A	B	C	D	E	F	Ports 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)	G 1 1/4 Depth 24 (0.945)	135 (5.315)	GG	GF
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)					

The length 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

ORDER EXAMPLE

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

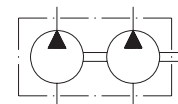
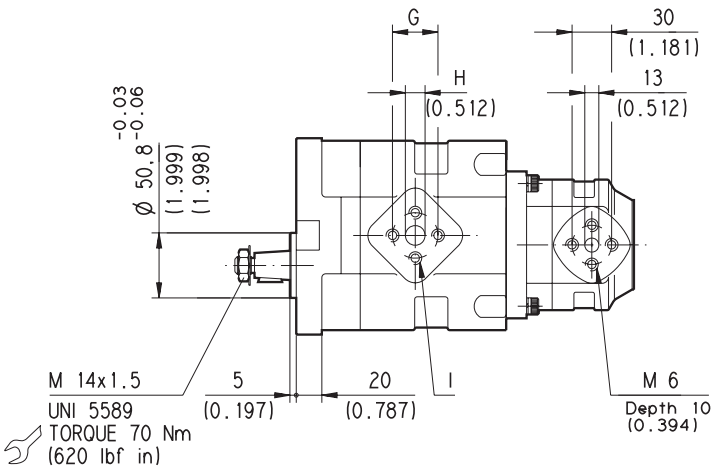
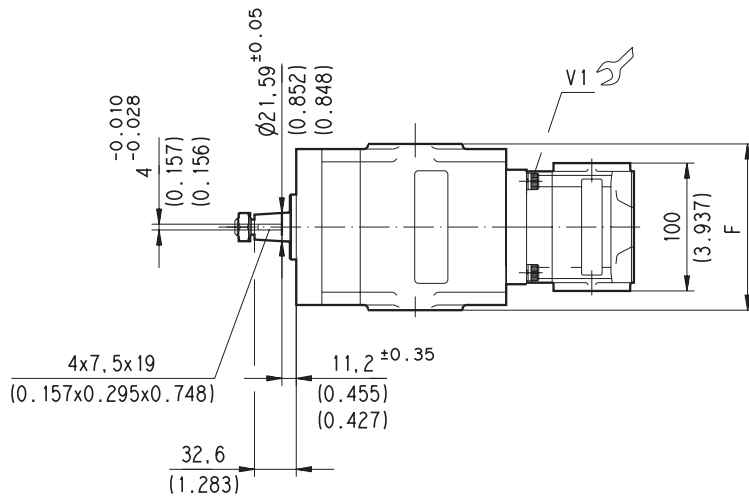
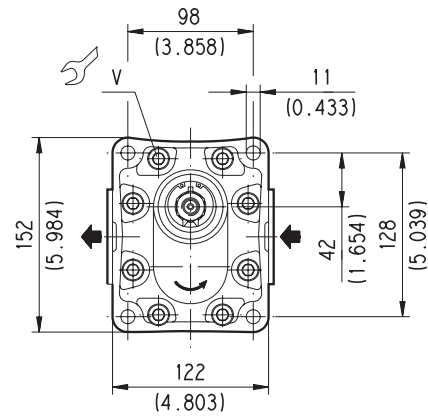
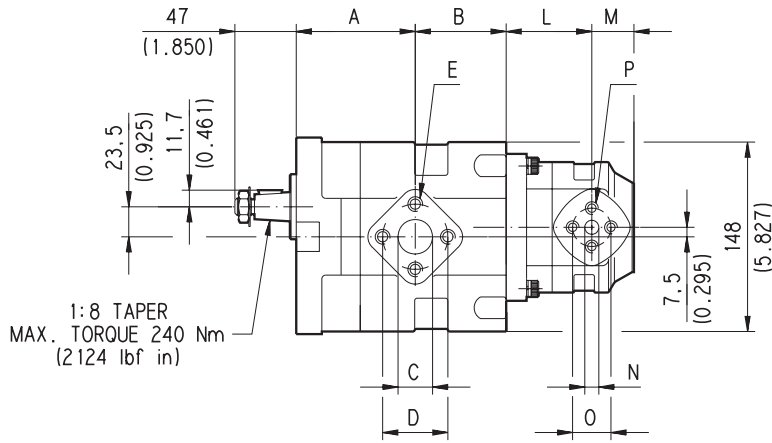
Triple pump **KP30•27-LGF/GF/30•27-LGF/GF/30•27-LGF/GF S**

02/06.05

HYDRAULIC GEAR PUMPS EUROPEAN STANDARD

83 E3+KP20

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



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

D006-D20/0605

02/06.05

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)	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)
KP 30•56	97 (3.819)	70 (2.756)							
KP 30•61	100 (3.937)								
KP 30•73	108 (4.252)								

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)				

How to order a double pump

- / -

KP30•27 - 67 / 20•4 S -

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

(2) For Buna N seals no code

ORDER EXAMPLE

Double pump

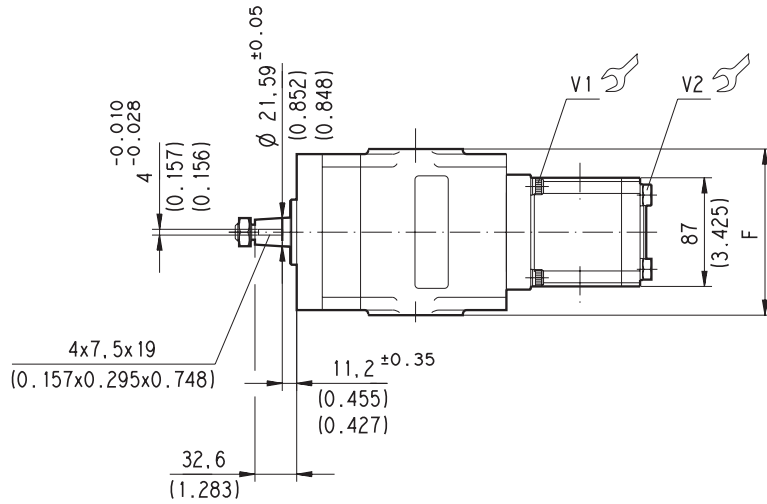
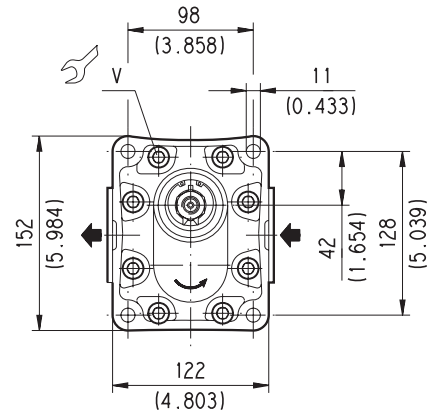
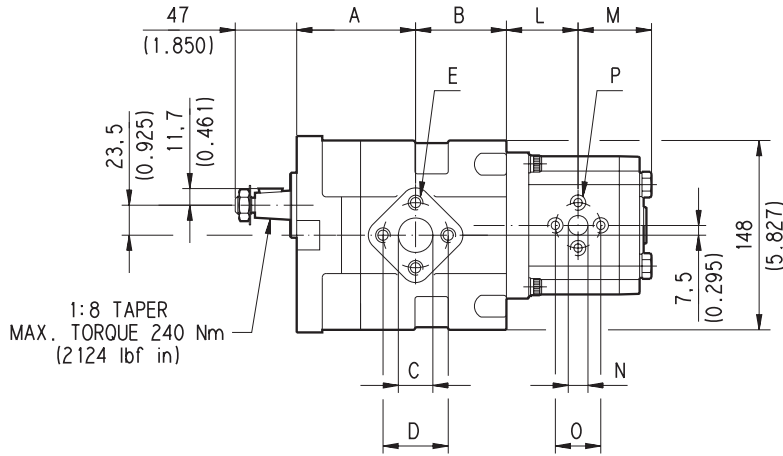
KP30•27-67/20•4 S/FS

02/06.05

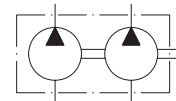
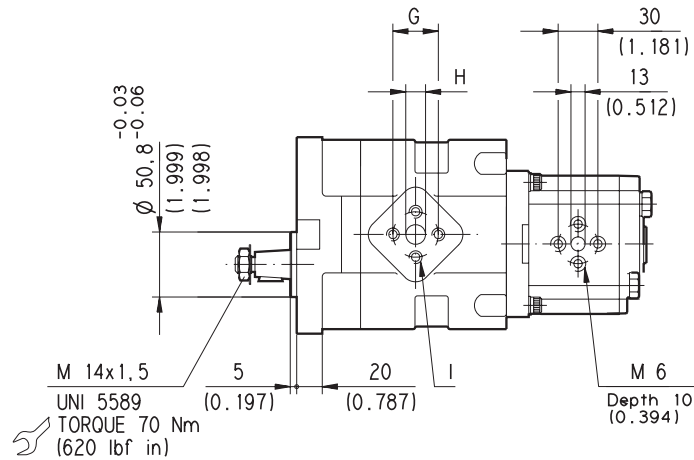
HYDRAULIC GEAR PUMPS EUROPEAN STANDARD

83 E3+PL20

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



D006-D19/0605



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

02/06.05

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)	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)
KP 30•56	97 (3.819)								
KP 30•61	100 (3.937)								
KP 30•73	108 (4.252)	70 (2.756)							

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)	19 (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)			

How to order a double pump

Front pump	-	/	Rear pump		Rotation (1)	-	Seals (2)
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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/S

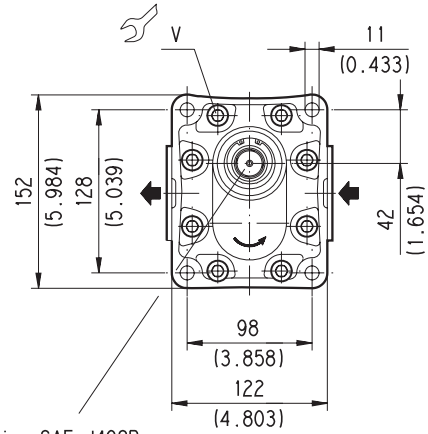
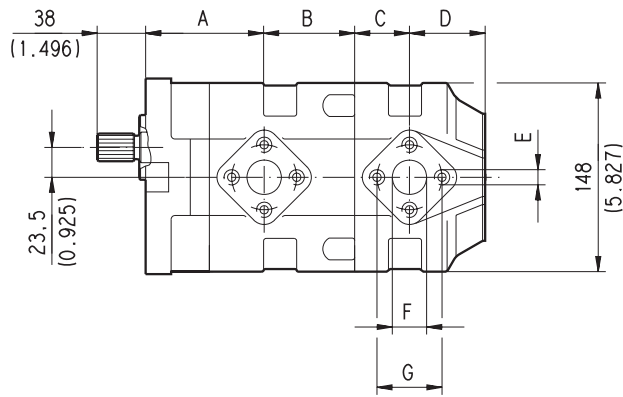
02/06.05

KAPPA 30

HYDRAULIC GEAR PUMPS EUROPEAN STANDARD

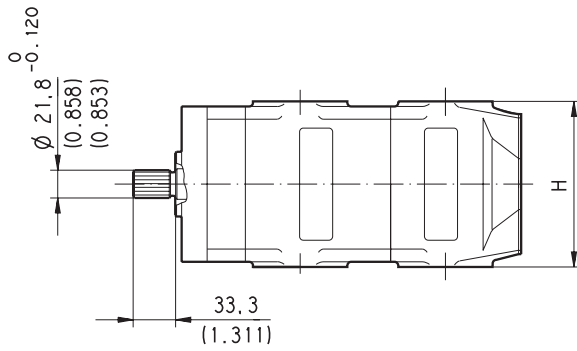
A8 E3

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

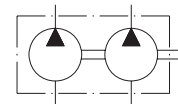
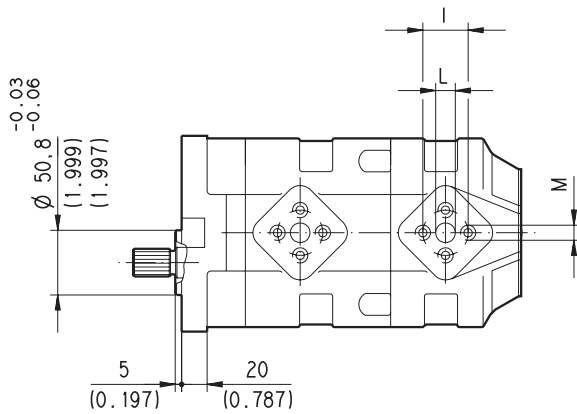


Ext. Involute Spline SAE J498B
with major diameter modified
13 teeth - 16/32 Pitch - 30 deg
Flat root - Side fit - Class 1

MAX. TORQUE 280 Nm
(2478 lbf in)



D006-151/0605



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

02/06.05

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 length 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)



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

(2) For Buna N seals no code

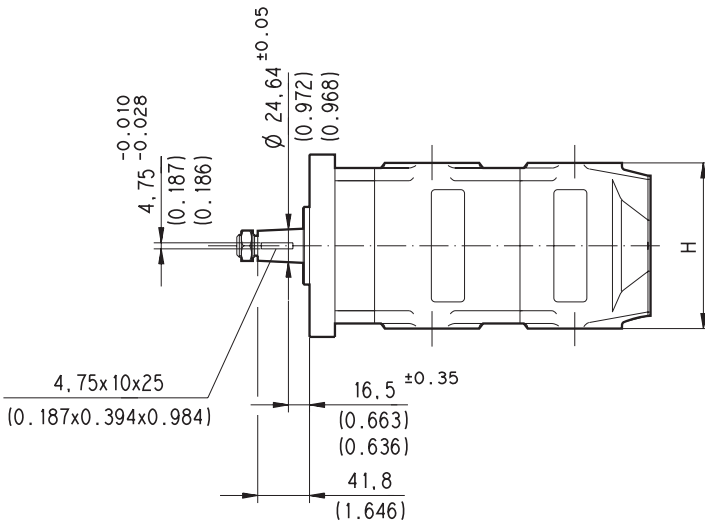
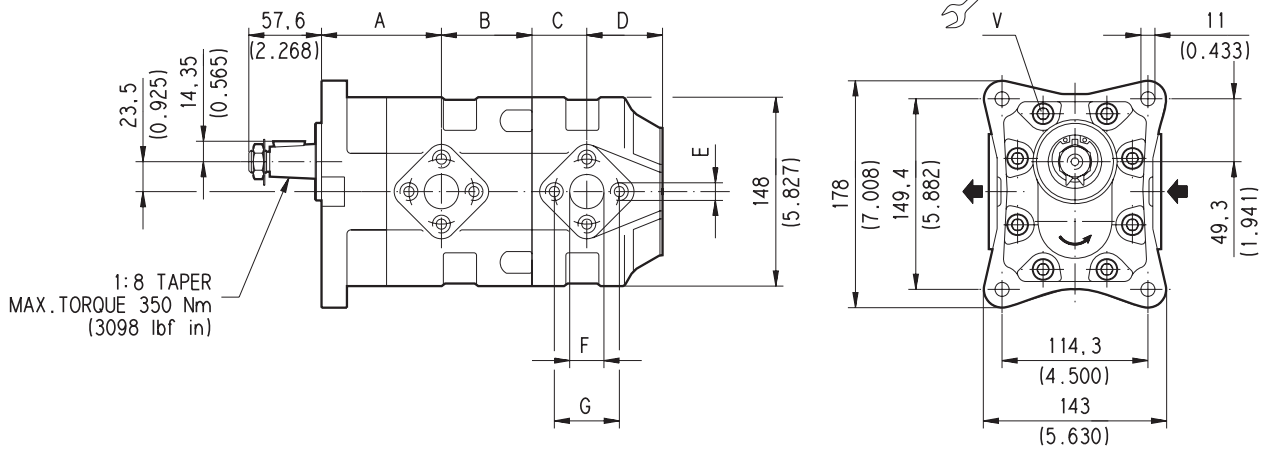
ORDER EXAMPLE

Double pump **KP30•27-A8/30•27 S**

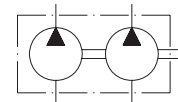
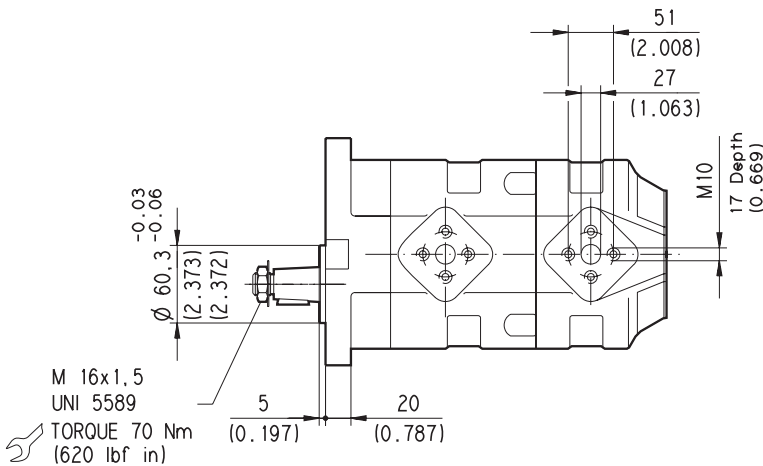
Triple pump **KP30•27-A8/30•27/30•27 S**

02/06.05

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



D006-D.17/0605



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

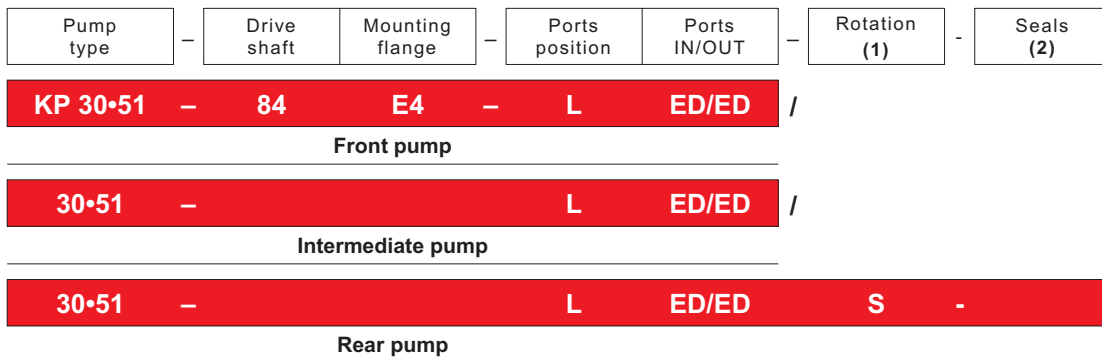
02/06.05

Pump type	A	B	C	D	E	F	G	H	Ports 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 length 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)



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

(2) For Buna N seals no code

ORDER EXAMPLE

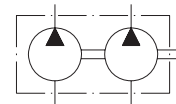
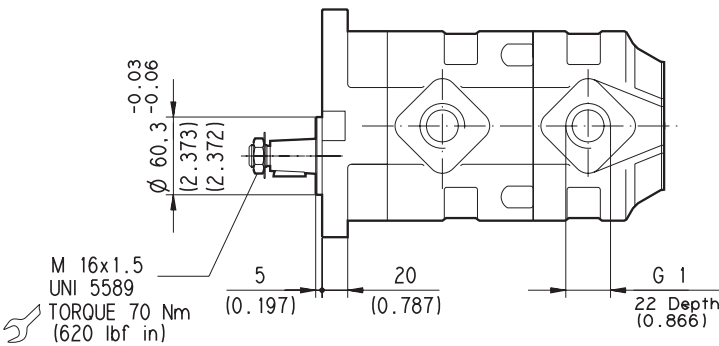
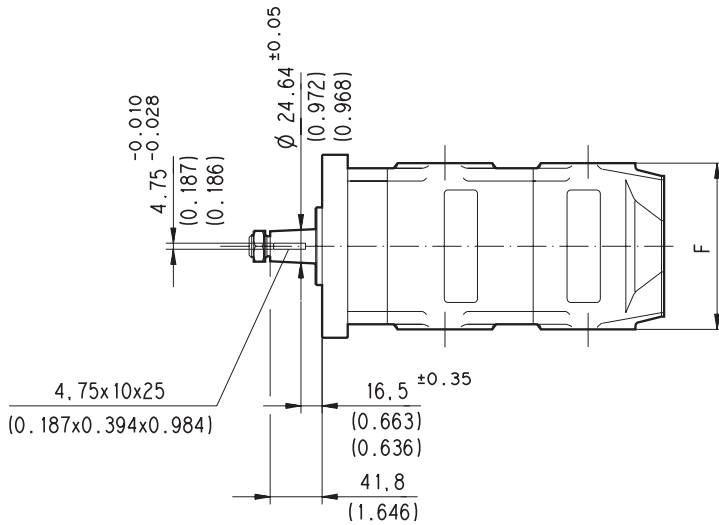
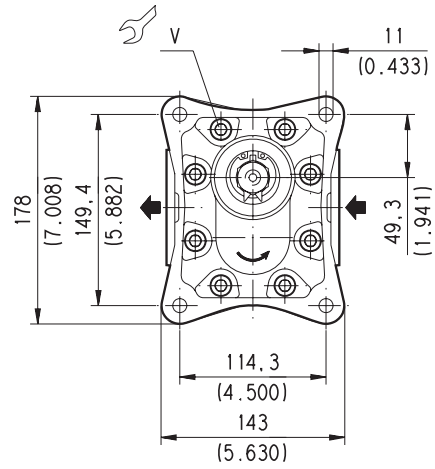
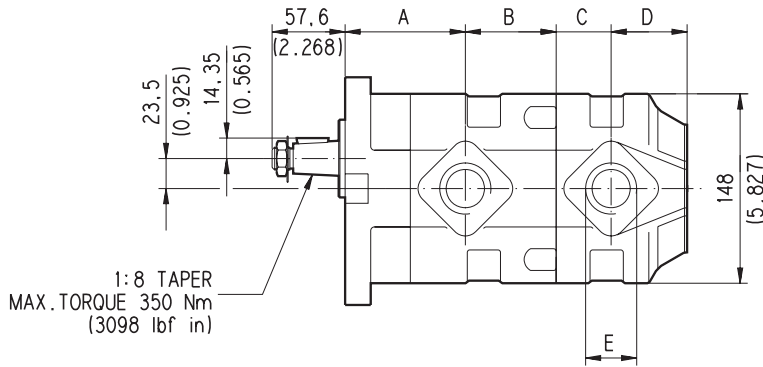
Double pump **KP30•51-84 E4-LED/ED/30•51-LED/ED S**

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

02/06.05

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)

D006-D95/0605

02/06.05

Pump type	A	B	C	D	E	F	Ports 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 length 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

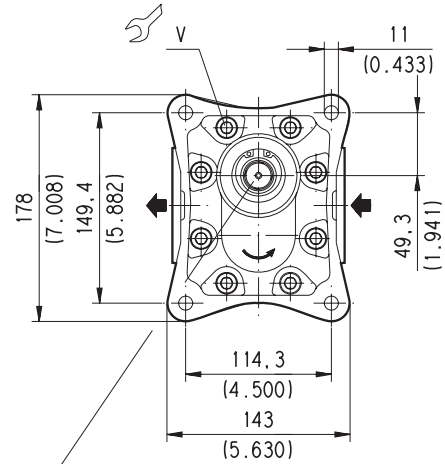
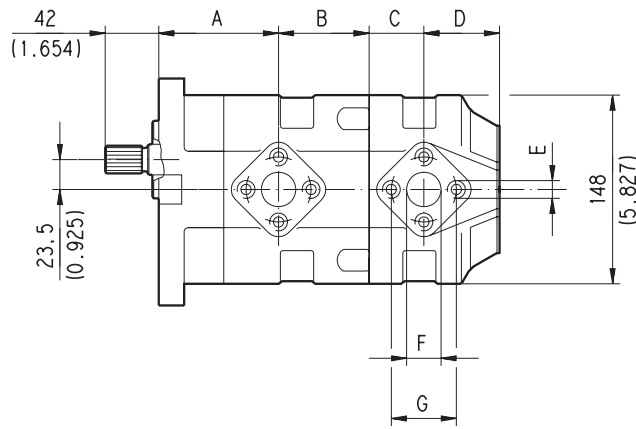
ORDER EXAMPLE

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

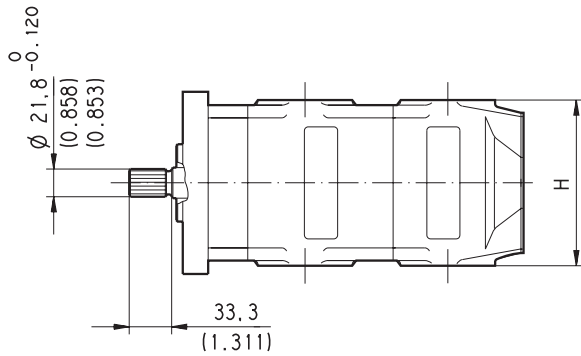
Triple pump **KP30•51-84 E4-LGF/GF/30•51-LGF/GF/30•51-LGF/GF S**

02/06.05

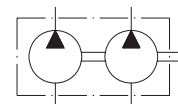
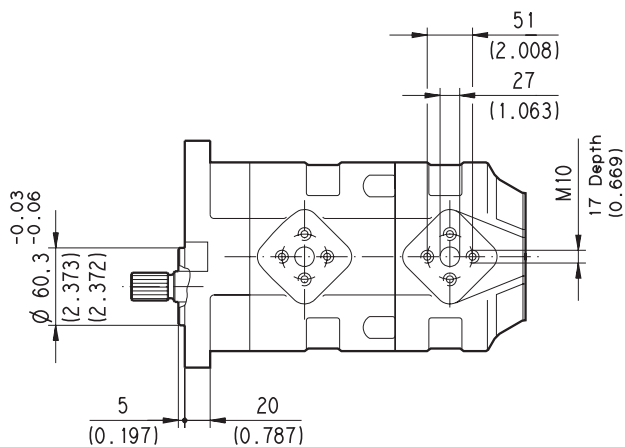
EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



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



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

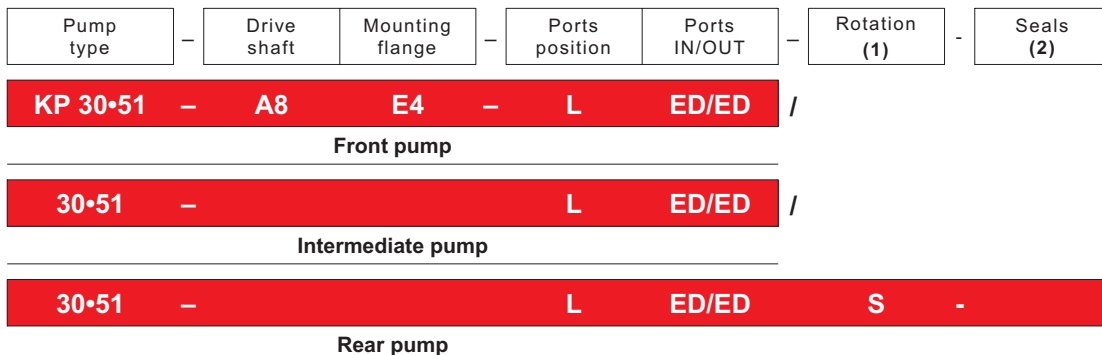
02/06.05

Pump type	A	B	C	D	E	F	G	H	Ports 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 length 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)



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

(2) For Buna N seals no code

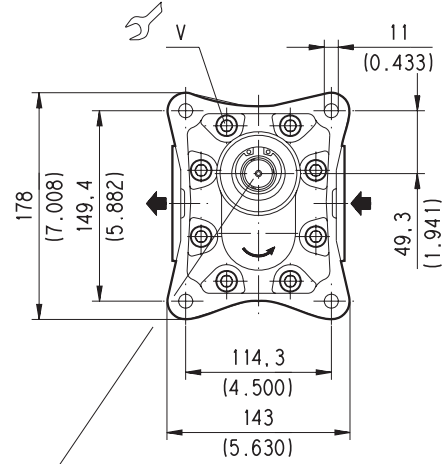
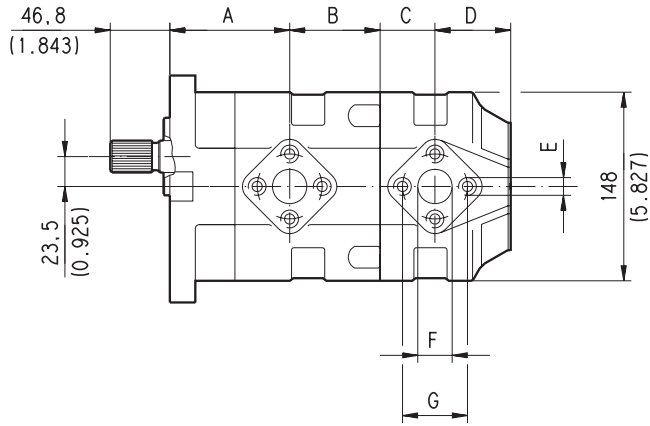
ORDER EXAMPLE

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

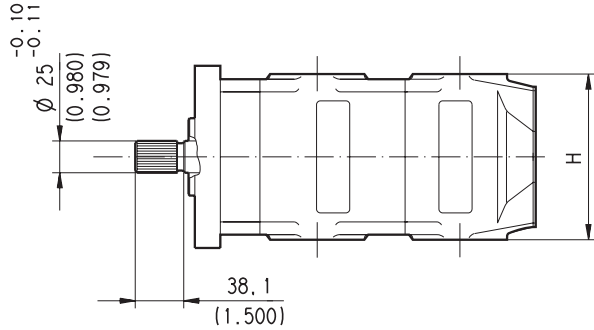
Triple pump **KP30•51-A8 E4-LED/ED/30•51-LED/ED/30•51-LED/ED S**

02/06.05

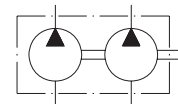
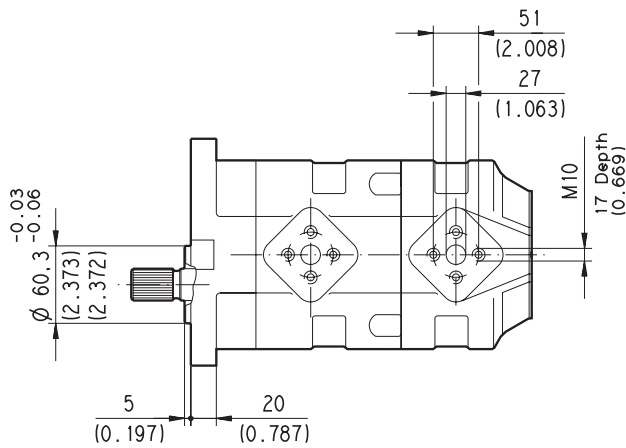
EUROPEAN FLANGED PORTS - 4 Bolts
Metric thread ISO 60° conforms to ISO/R 262



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



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

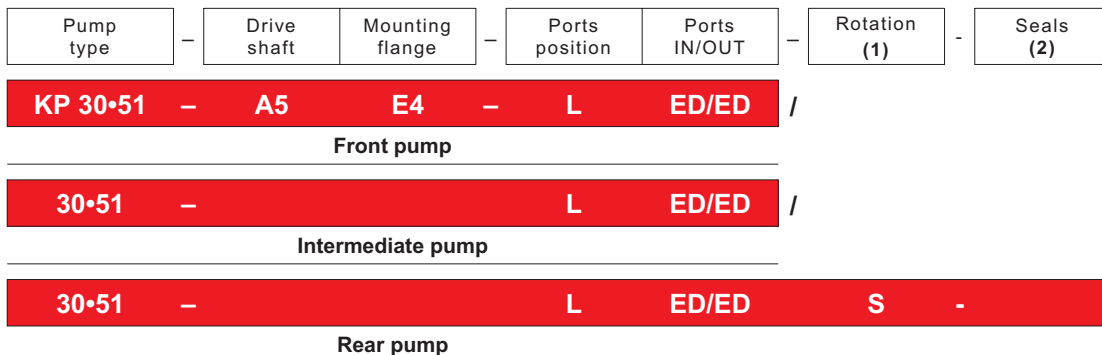
02/06.05

Pump type	A	B	C	D	E	F	G	H	Ports 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 length 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)



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

(2) For Buna N seals no code

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**

02/06.05

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	
CODICE					
	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	
ED	20 ⁺¹	177 ÷ 186	15 ⁺¹ (KP 30)	133 ÷ 142	
EF	25 ⁺¹	221 ÷ 230	30 ^{+2.5}	266 ÷ 288	
			50 ^{+2.5}	443 ÷ 465	

GAS STRAIGHT THREAD PORTS				BSPP	
CODICE					
	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 PORTS J514				ODT	
CODICE					
	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	
CODICE					
	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)

KAPPA 20 GENERAL DATA MOTORS
KM 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	
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

 p₁= Max. continuous pressure

 p₂= Max. intermittent pressure

 p₃= 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.

KAPPA 30 GENERAL DATA MOTORS
KM 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	
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

p₁= Max. continuous pressure

p₂= Max. intermittent pressure

p₃= 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.

DESIGN CALCULATIONS FOR MOTORS

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
$\eta_v = \eta_v(V, \Delta p, n) \quad (\approx 0,97)$		Volumetric efficiency
$\eta_m = \eta_m(V, \Delta p, n) \quad (\approx 0,88)$		Mechanical efficiency
$\eta_t = \eta_v \cdot \eta_m \quad (\approx 0,85)$		Overall efficiency

$$Q = \frac{V \text{ (cm}^3\text{/rev)} \cdot n \cdot 10^{-3}}{\eta_v} \quad [\text{Nm}]$$

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

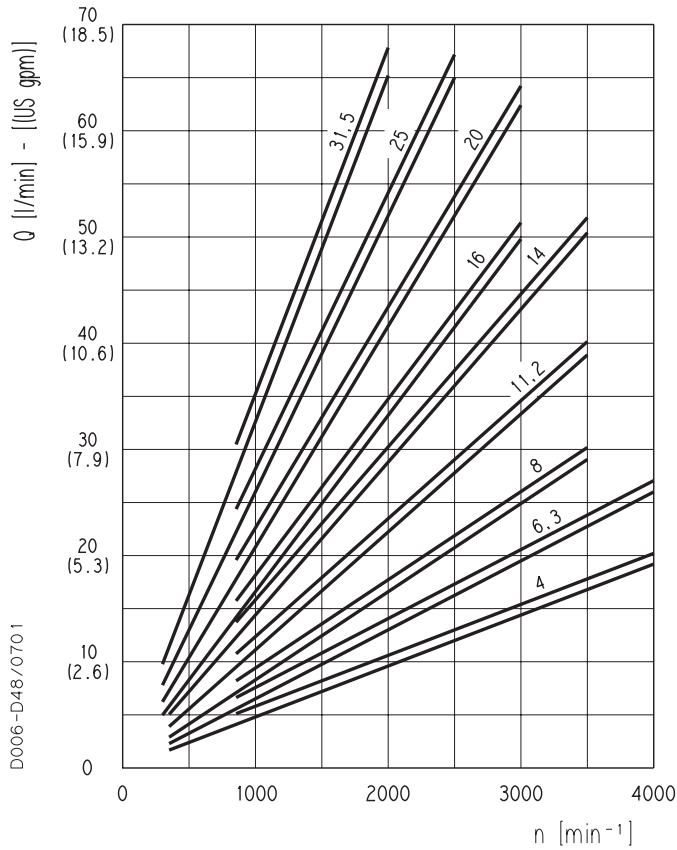
$$P = \frac{\Delta p \text{ (bar)} \cdot V \text{ (cm}^3\text{/rev)} \cdot n \cdot \eta_t}{600 \cdot 1000} \quad [\text{kW}]$$

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

KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

KM 20

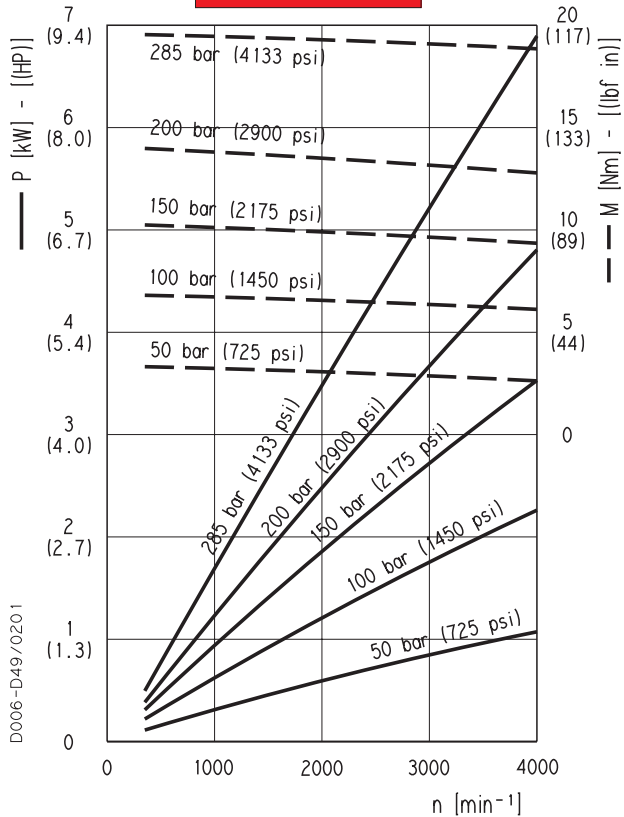
KM 20



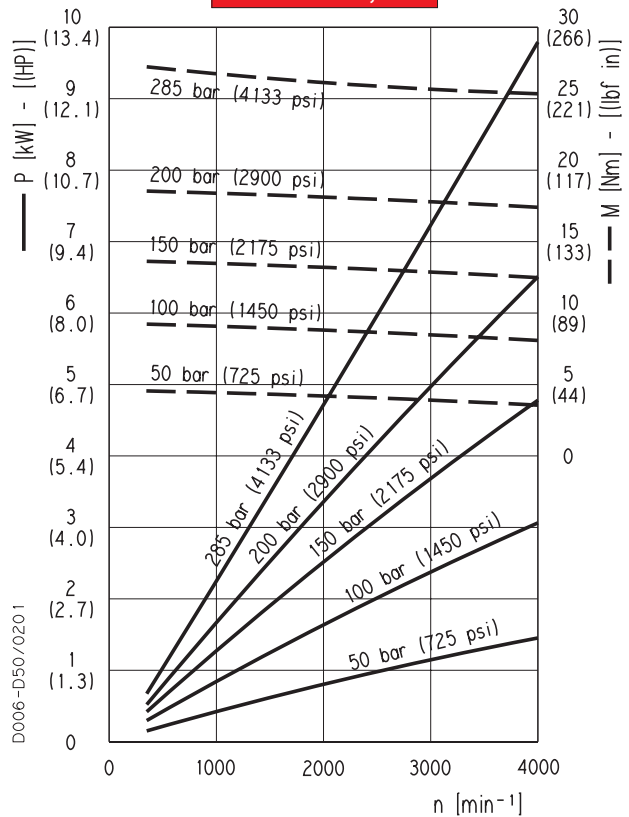
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures.

- 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

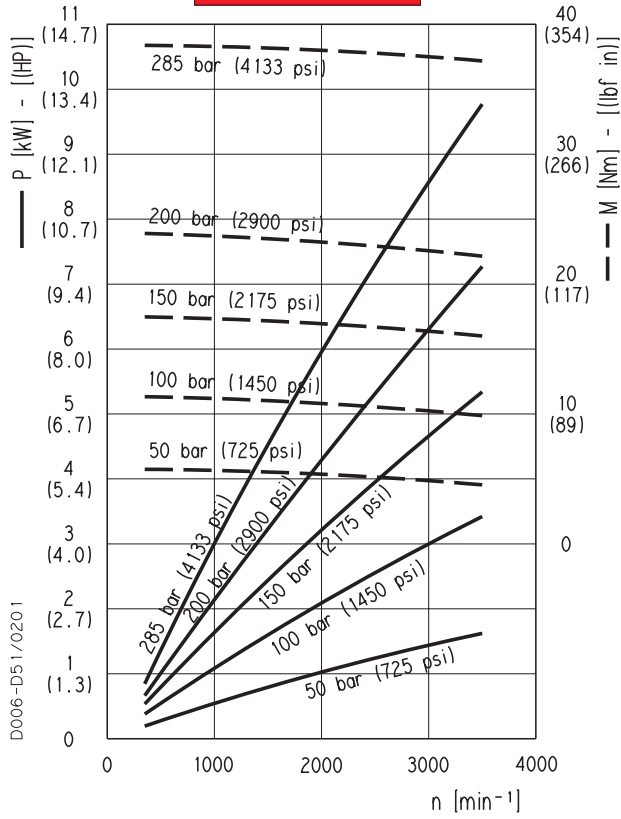


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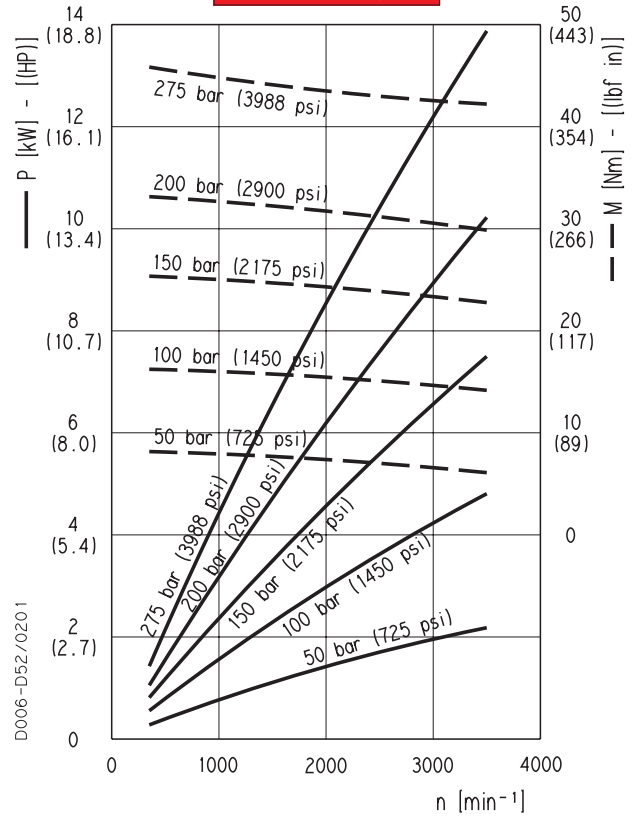
KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

KM 20

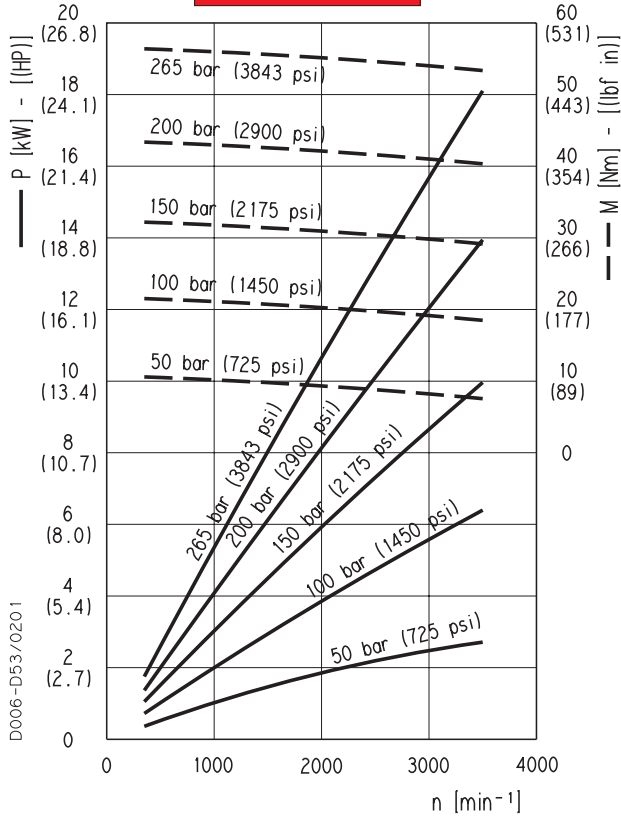
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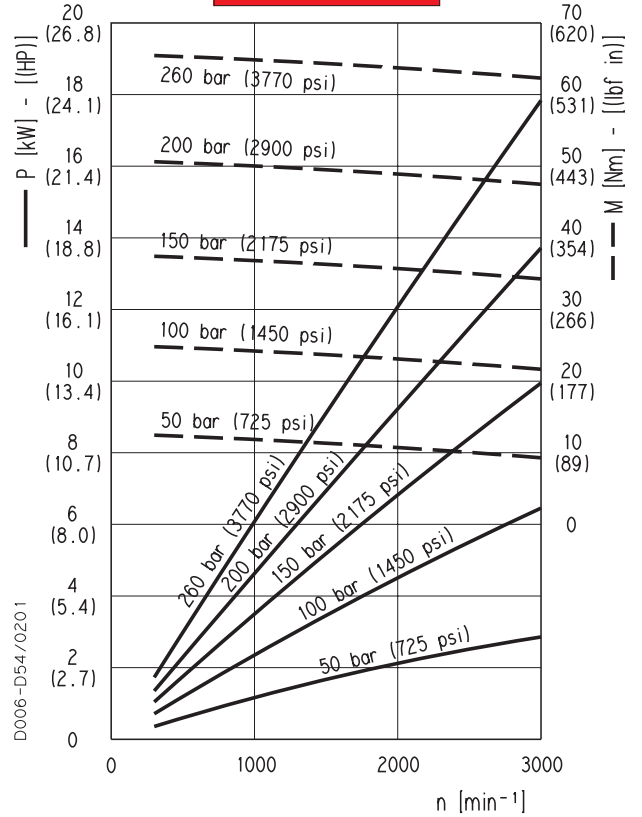
KM 20-11,2



KM 20-14



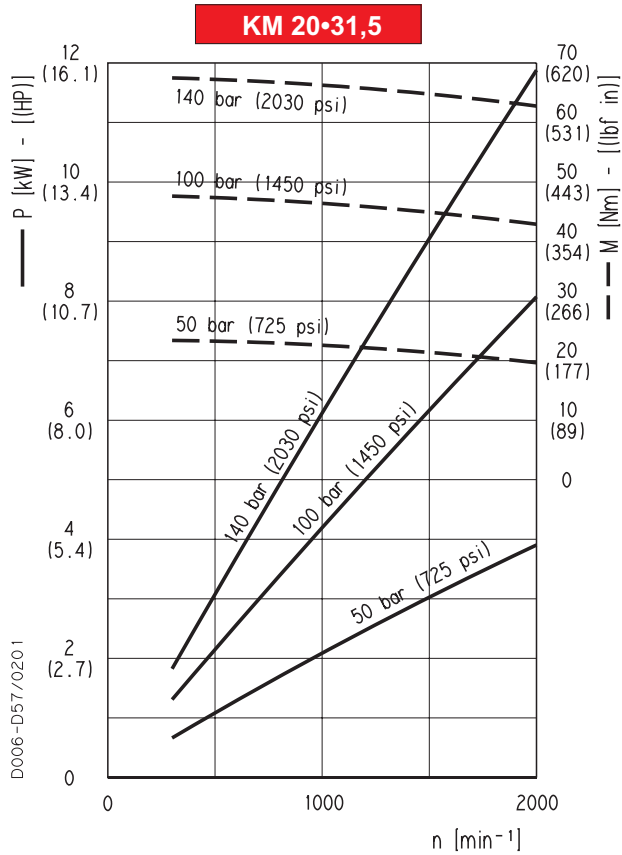
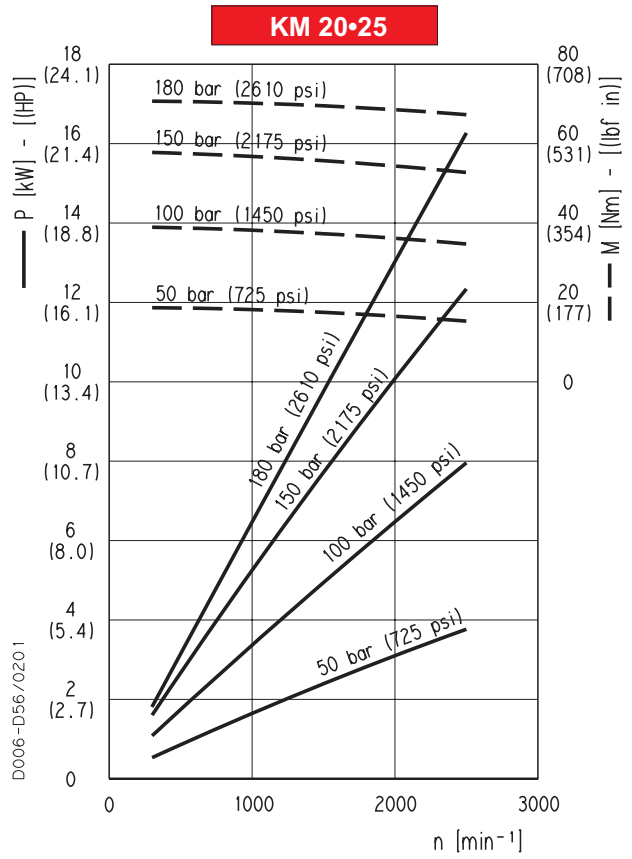
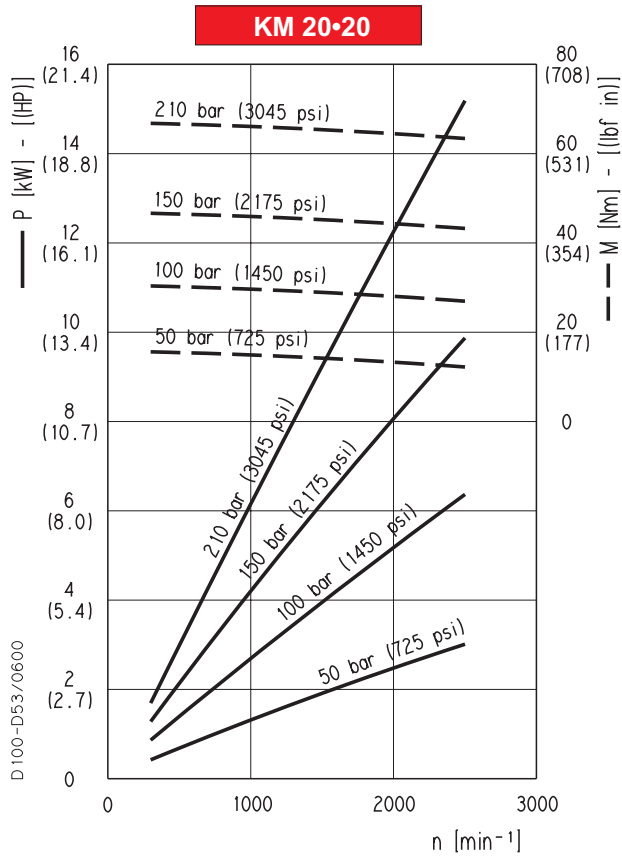
KM 20-16



01/03.02

KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

KM 20

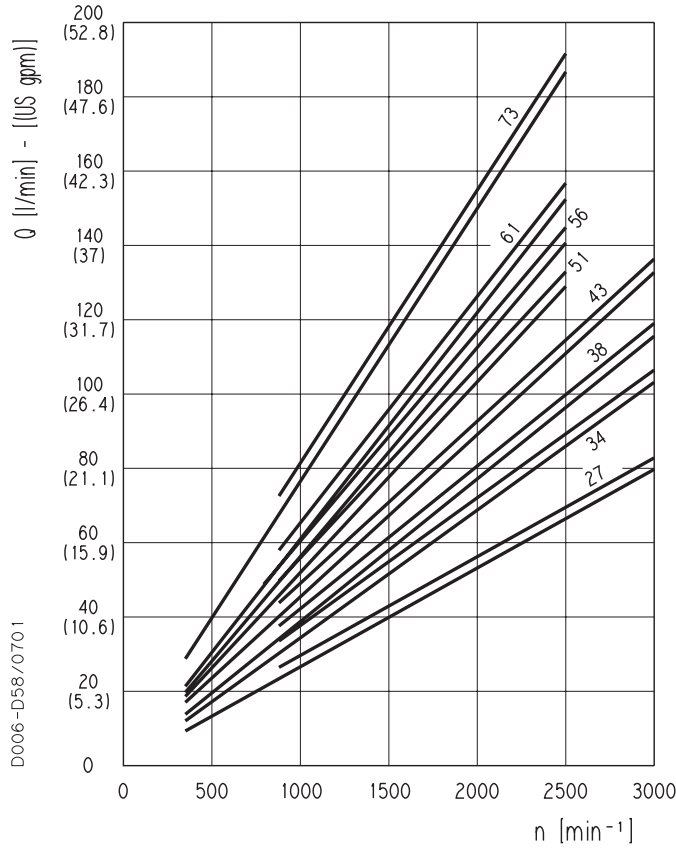


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KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

KM 30

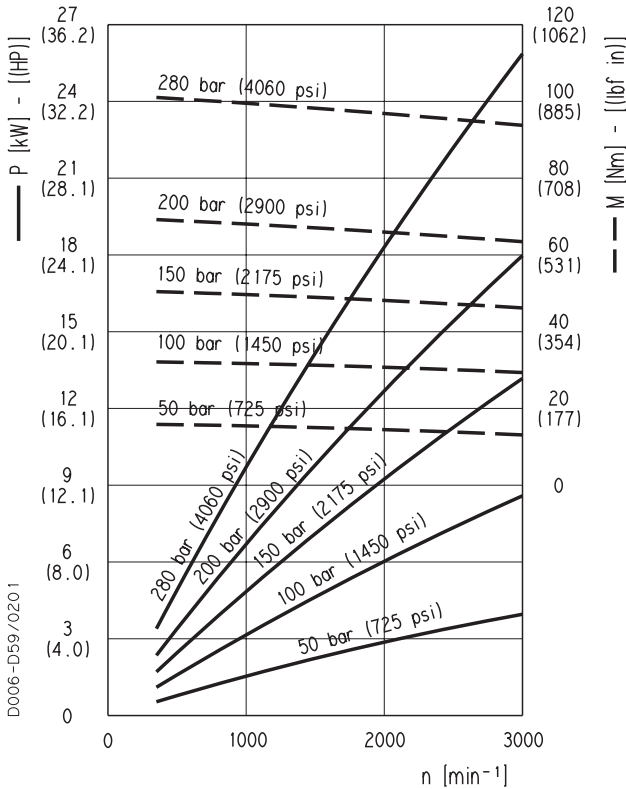
KM 30



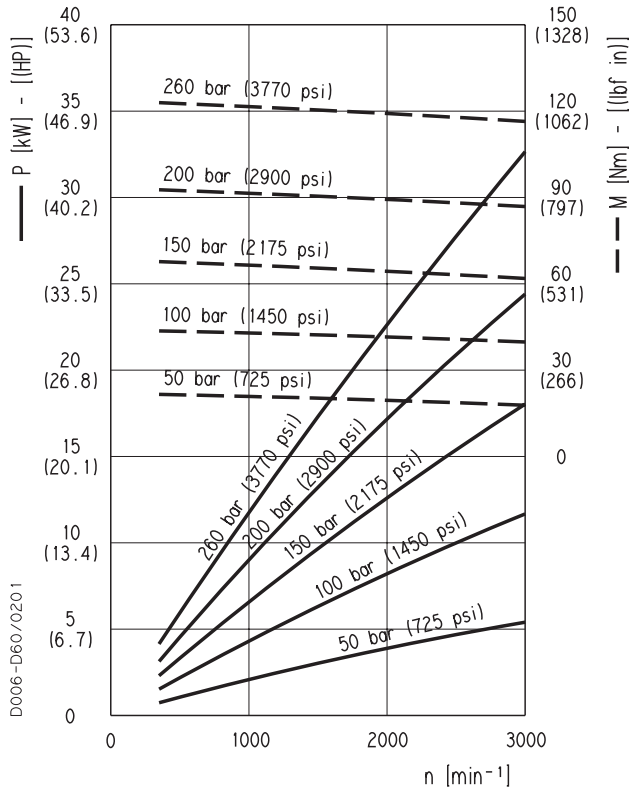
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures.

- 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

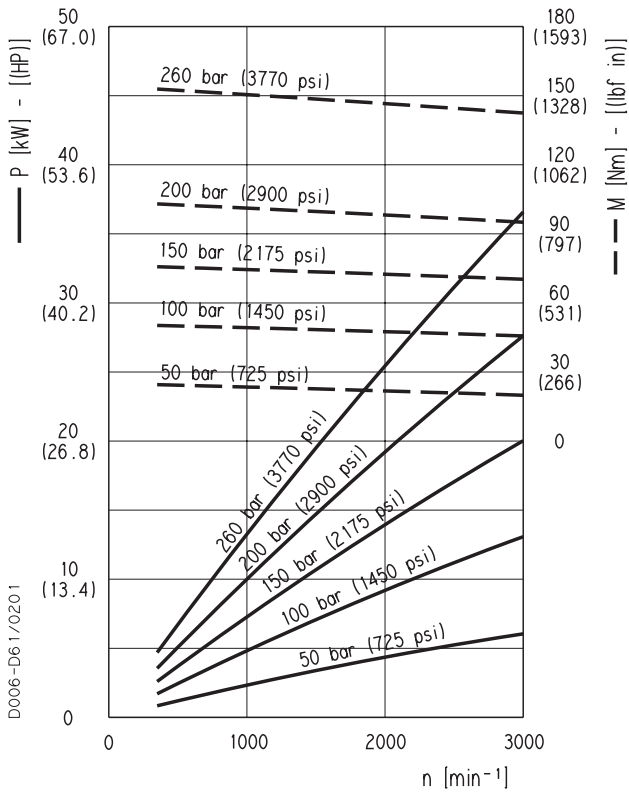


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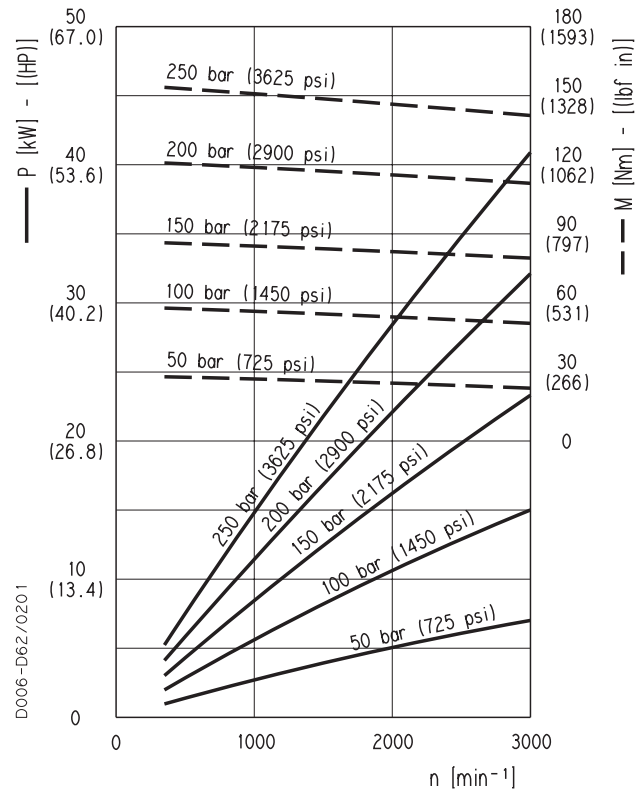
KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

KM 30

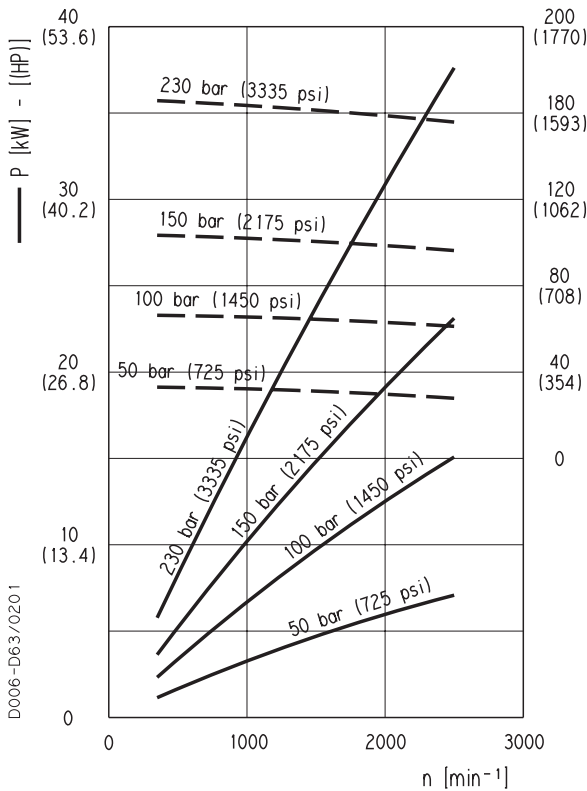
KM 30•38



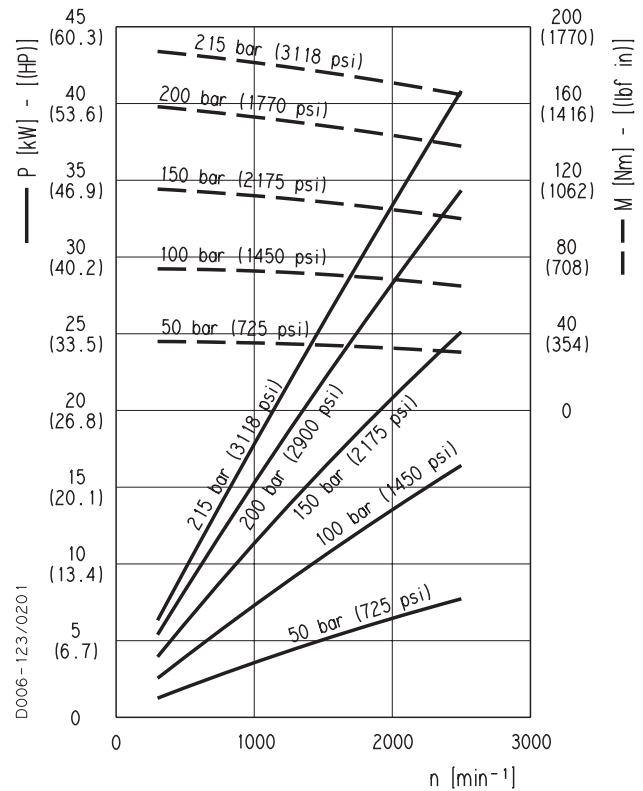
KM 30•43



KM 30•51



KM 30•56

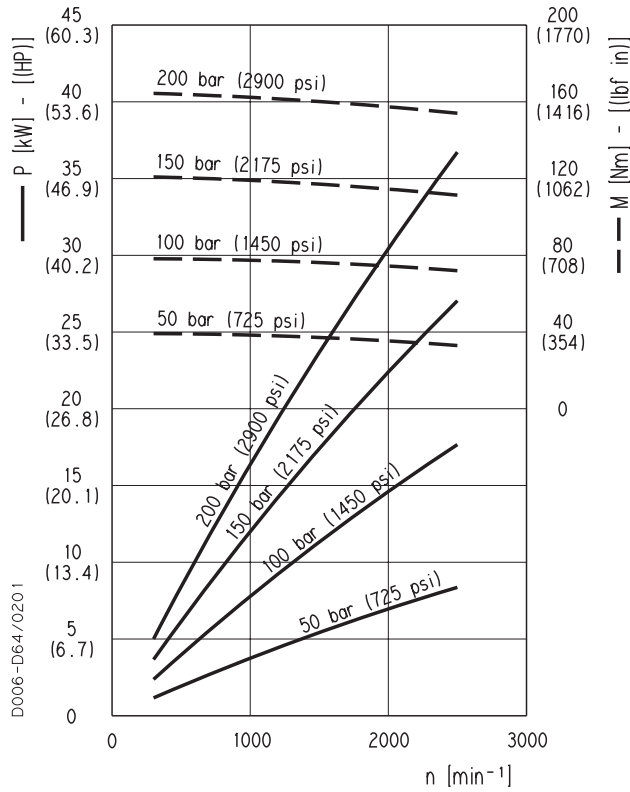


01/03.02

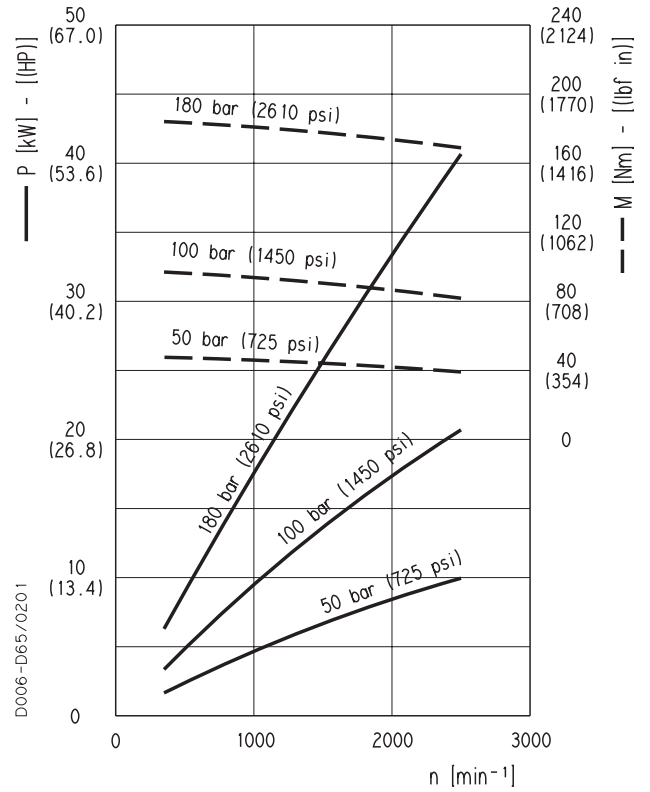
KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

KM 30

KM 30•61



KM 30•73



01/03.02

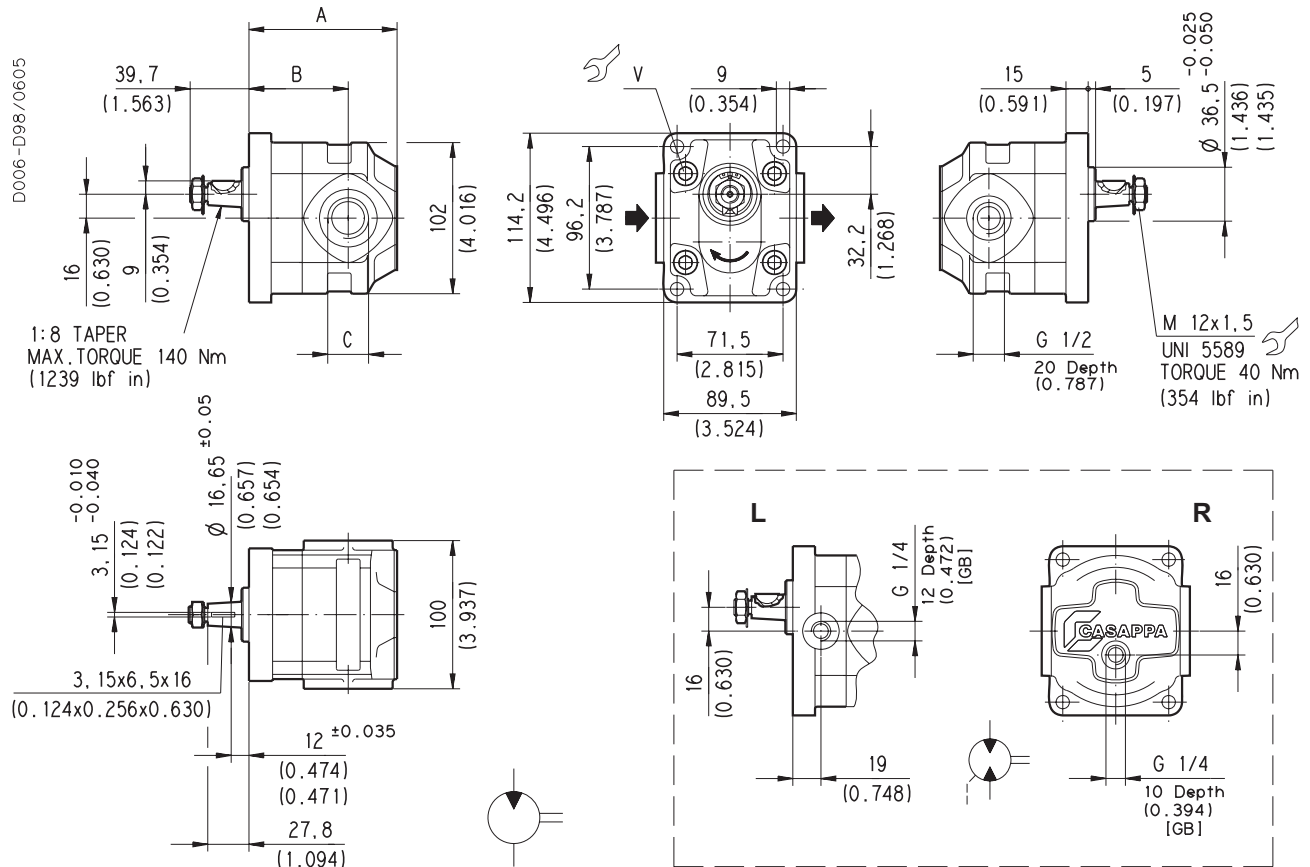
KAPPA 20

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

02/06.05

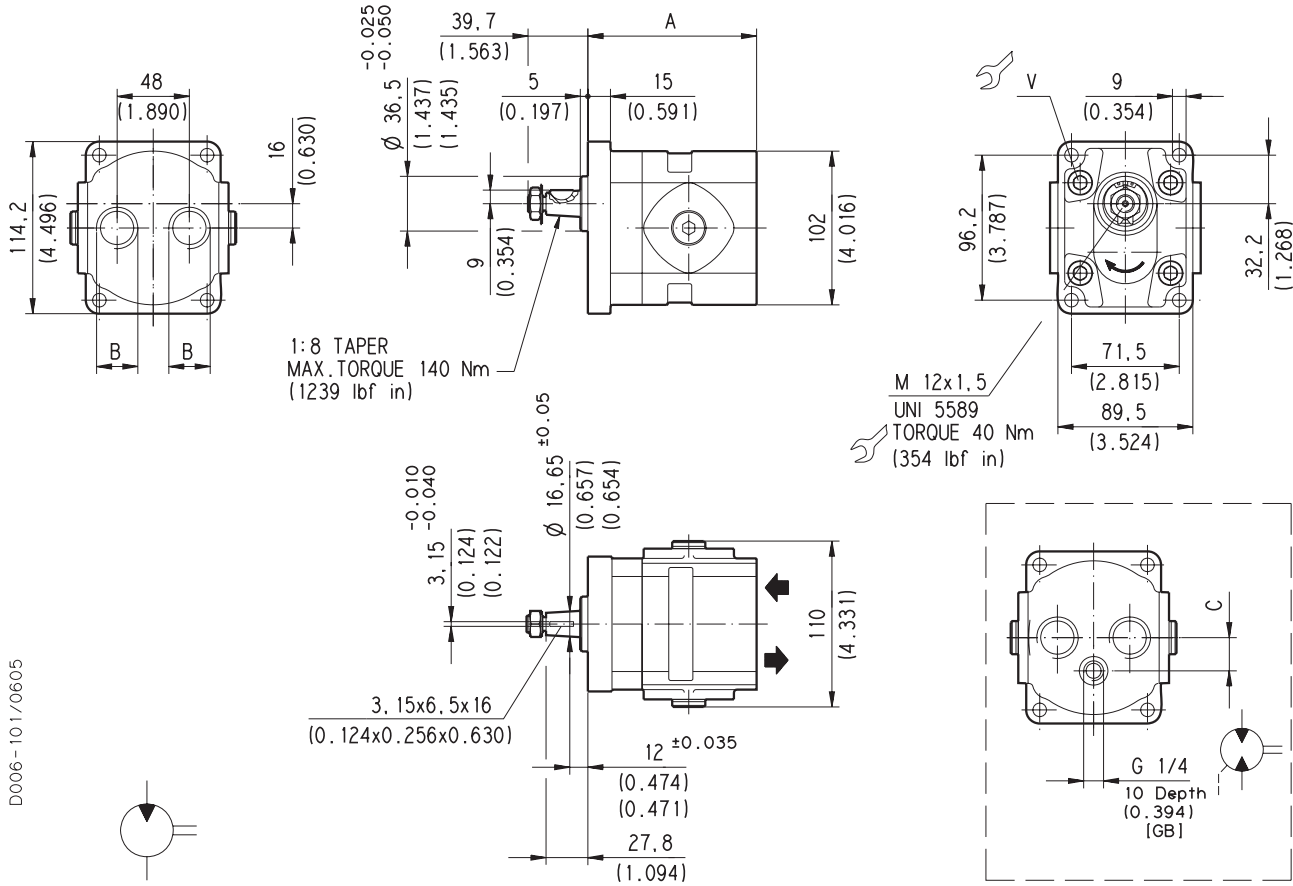
KAPPA 20

HYDRAULIC GEAR MOTORS EUROPEAN STANDARD

82 E2 - P

GAS STRAIGHT THREAD PORTS

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



D006-10.1/0605

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

Rear ports version.

Motor type		A	B	C
		mm (in)	mm (in)	mm (in)
KM 20•4	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)		

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

02/06.05

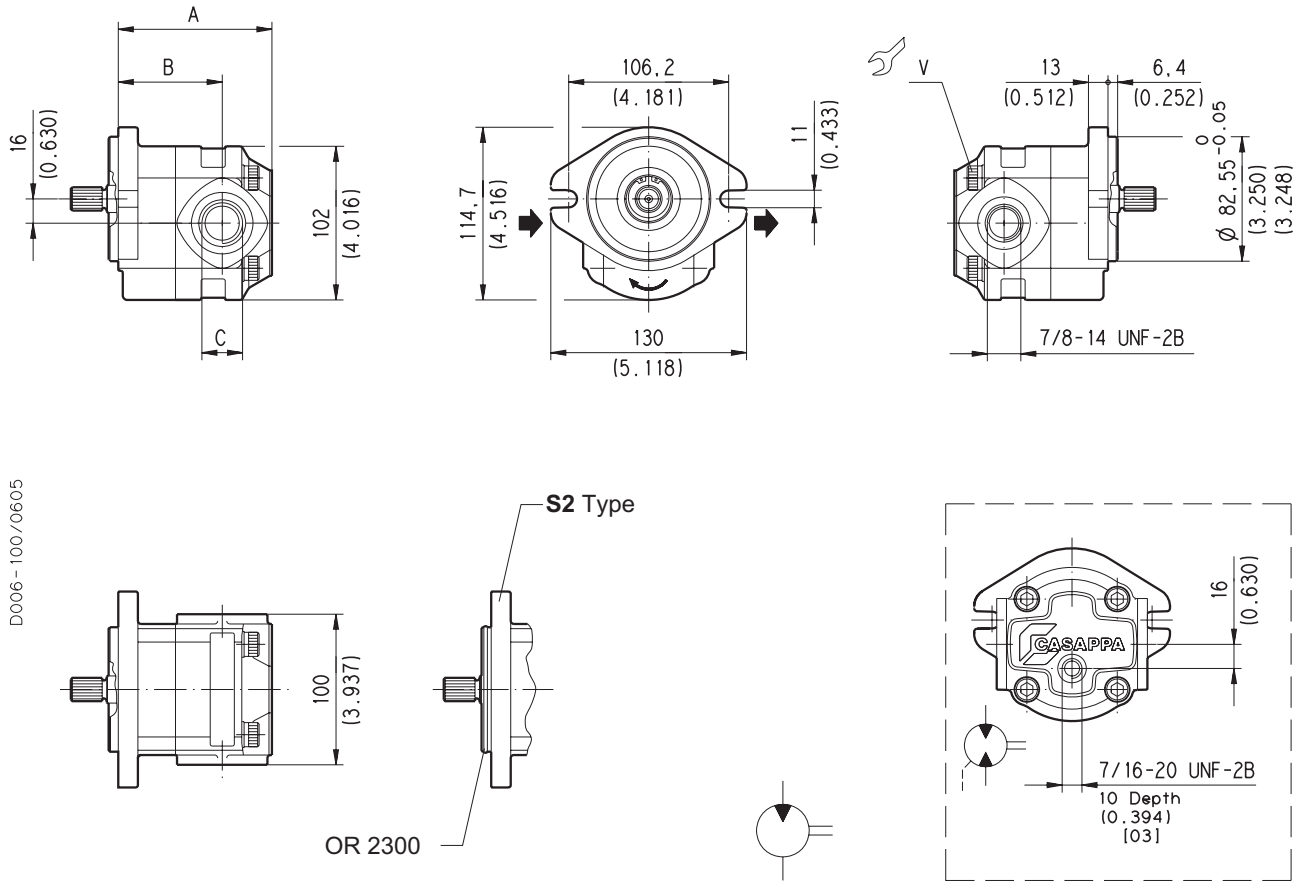
KAPPA 20

HYDRAULIC GEAR MOTORS SAE STANDARD

... S1

SAE STRAIGHT THREAD PORTS J514

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



D006-100/0605

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

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

02/06.05

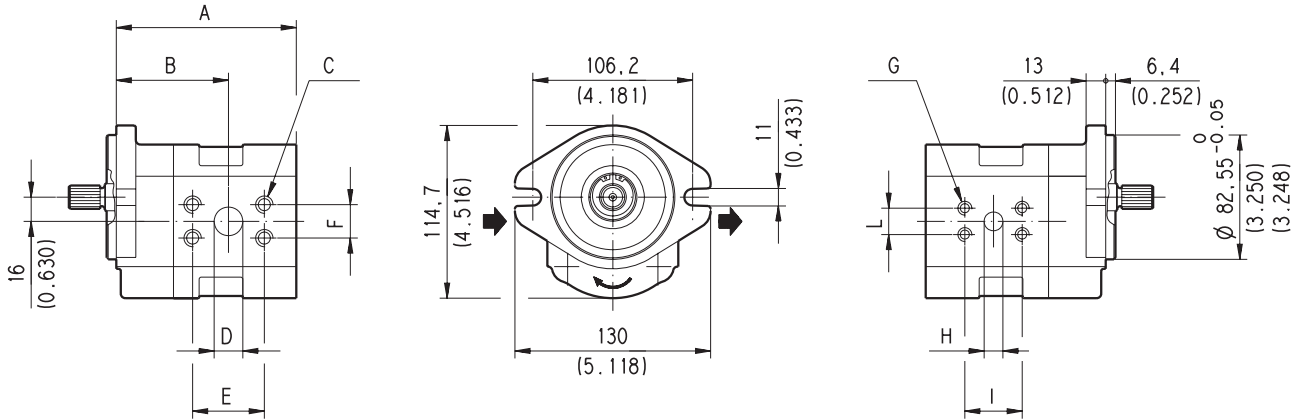
Motor type	A	B	C	Ports code	
	mm (in)	mm (in)	mm (in)	IN	OUT
KM 20•4	89,5 (3.524)	62 (2.441)	7/8-14 UNF-2B	OC	OC
KM 20•6,3	92 (3.622)	64,5 (2.539)			
KM 20•8	94,5 (3.720)	67 (2.638)			
KM 20•11,2	98 (3.858)	70,5 (2.776)			
KM 20•14	102 (4.016)	69 (2.717)	1-1/16-12 UN-2B	OC	OD
KM 20•16	107,5 (4.232)	74,5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

KAPPA 20

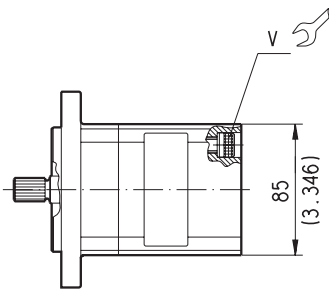
HYDRAULIC GEAR MOTORS SAE STANDARD

... S1

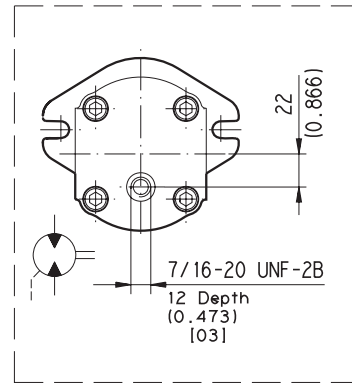
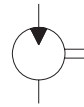
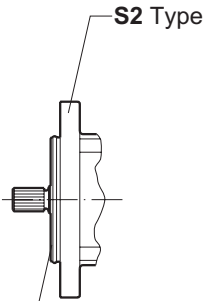
SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI
Metric thread ISO 60° conforms to ISO/R 262



D006-125/0605



OR 2300



V Screws tightening torque Nm (lbf in)

70 ^{±7} (558 ÷ 682)

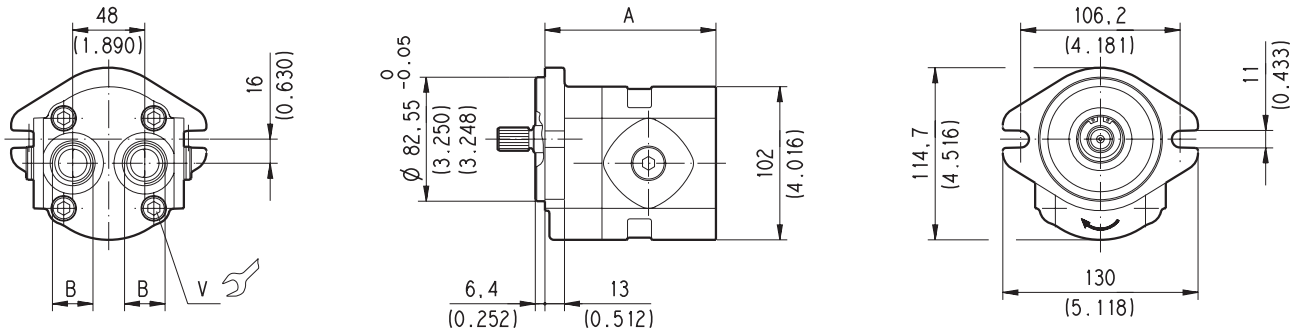
Side ports version (L) - To order see page 93 e 94

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)	M 8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M 8 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)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MB	MC
KM 20•14	116 (4.567)	69 (2.717)										
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)										
KM 20•31,5	144 (5.669)	84 (3.307)										

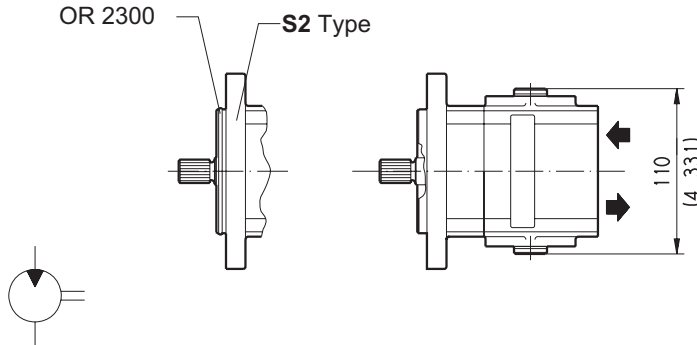
02/06.05

SAE STRAIGHT THREAD PORTS J514

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



D006-D99/0605



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)	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)	OC	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)				

02/06.05

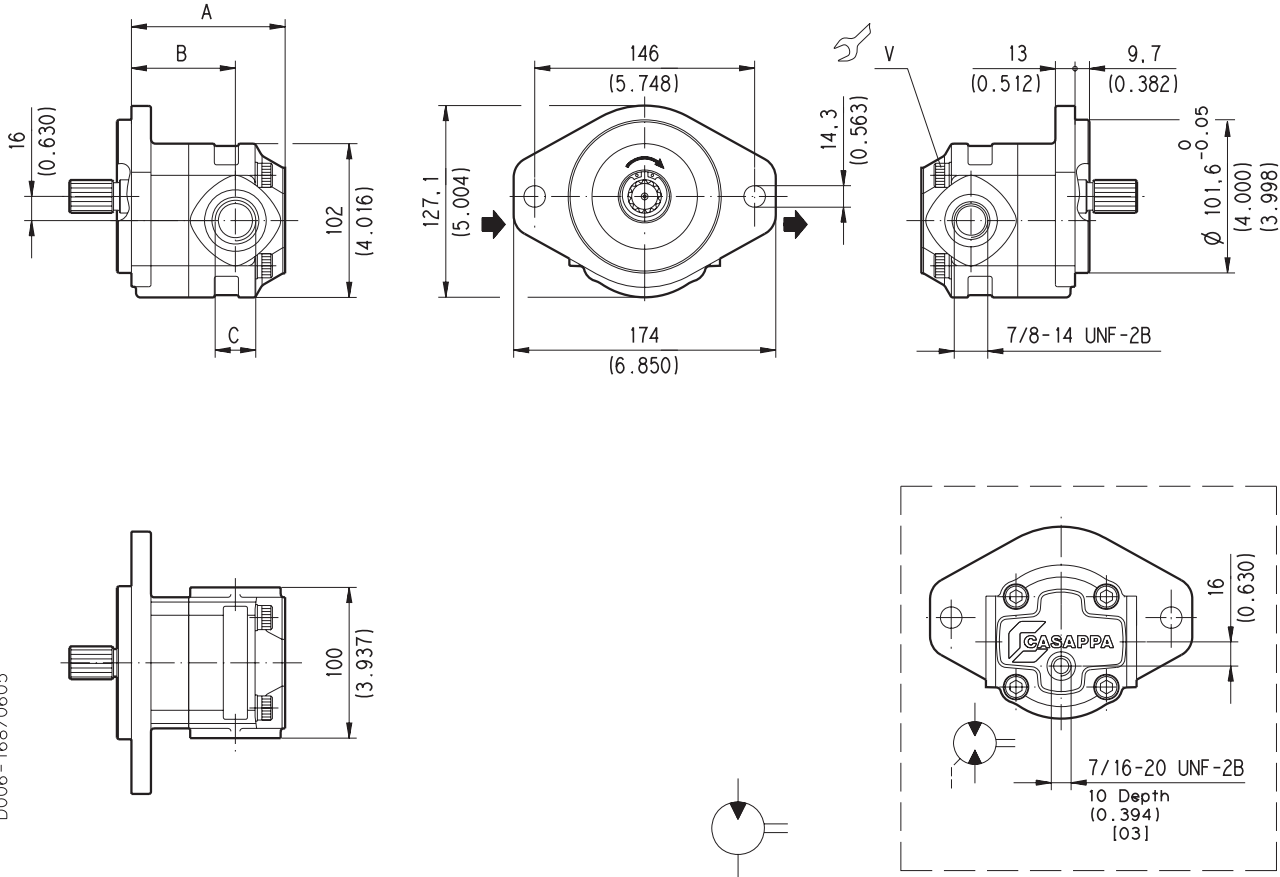
KAPPA 20

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)

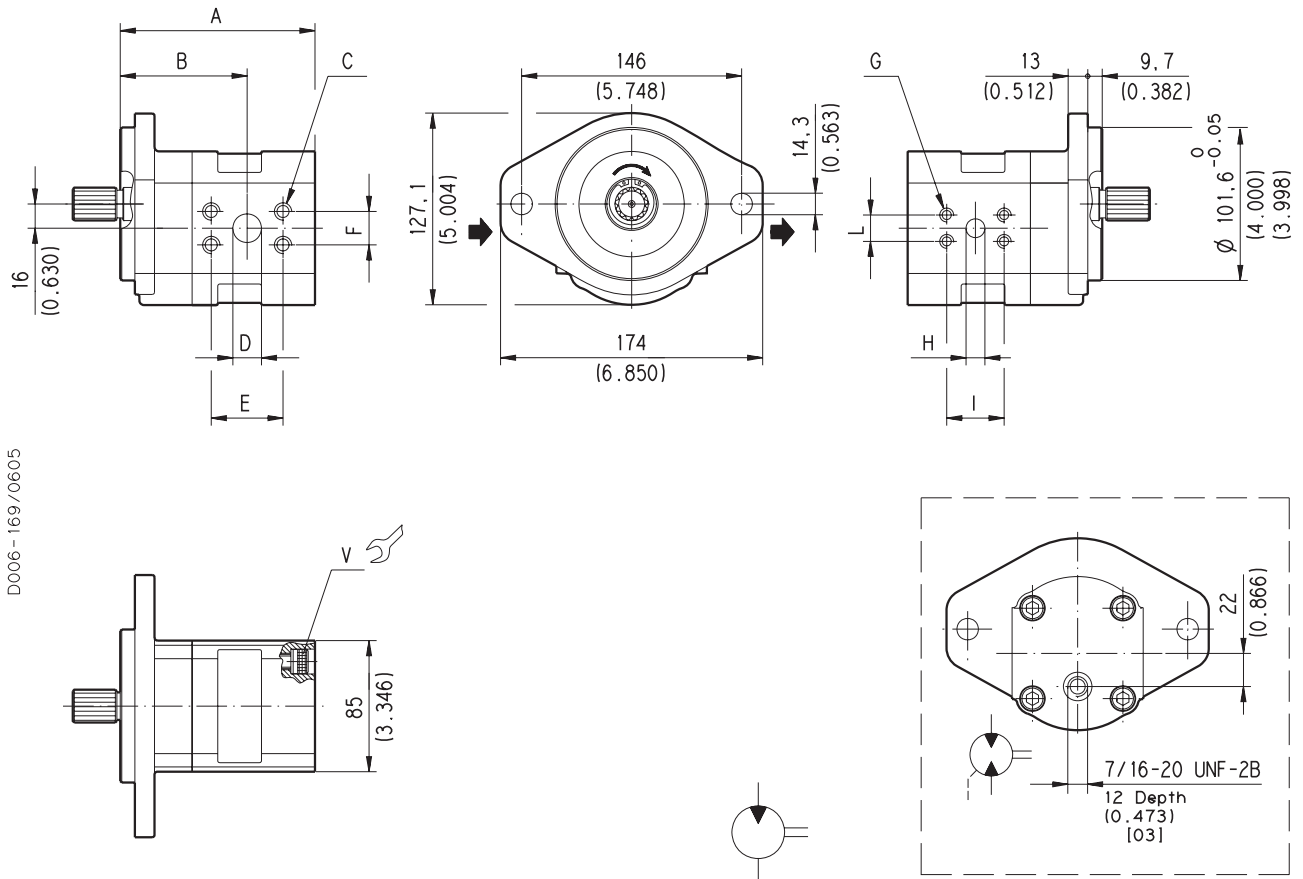
70 ±7 (558 ÷ 682)

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

Motor type	A	B	C	Ports code	
	mm (in)	mm (in)	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	OC	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)			

02/06.05

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 \pm 7 (558 ÷ 682)

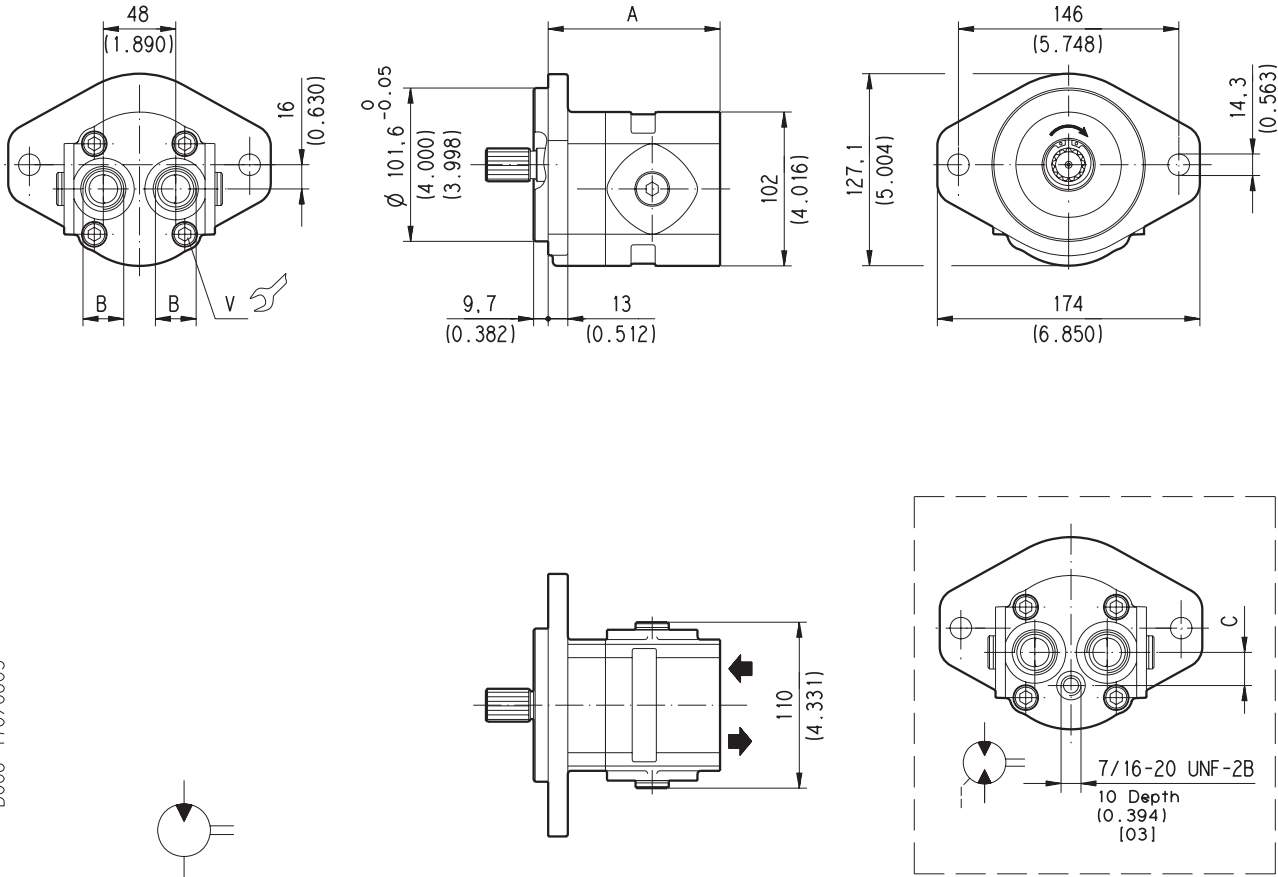
Side ports version (L) - To order see page 93 e 94

02/06.05

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)	M 8 Depth 12 (0.472)	12,5 (0.492)	38,1 (1.500)	17,5 (0.689)	M 8 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)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	M 10 Depth 12 (0.472)	19 (0.748)	47,6 (1.874)	22,2 (0.874)	MB	MC
KM 20•14	116 (4.567)	69 (2.717)										
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)										
KM 20•31,5	144 (5.669)	84 (3.307)										

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
KM 20•4	86,5 (3.406)	7/8-14 UNF-2B	19 (0.748)	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)	OC	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)				

02/06.05

KAPPA 20 END DRIVE SHAFTS

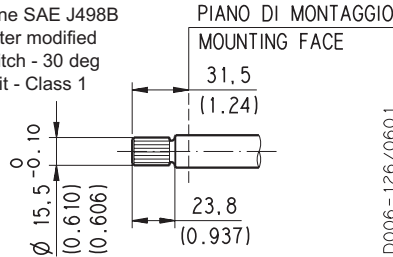
SAE

Replaces: 01/03.02

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

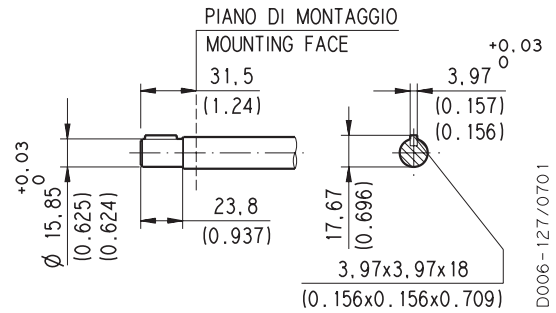


D006-126/0601

MAX 885 lbf in (100 Nm)

SAE "A" STRAIGHT

31



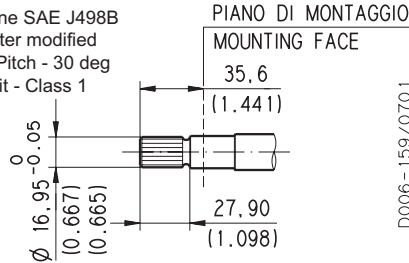
D006-127/0701

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

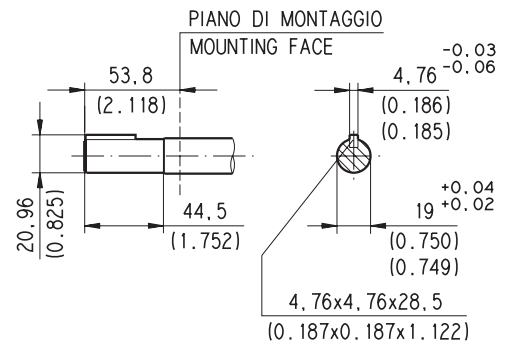


D006-159/0701

MAX 1151 lbf in (130 Nm)

STRAIGHT

49



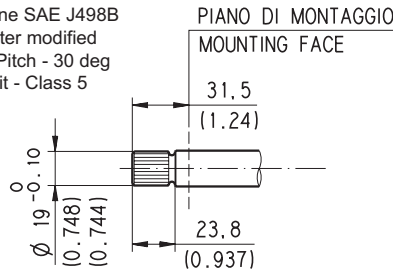
D006-161/0701

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

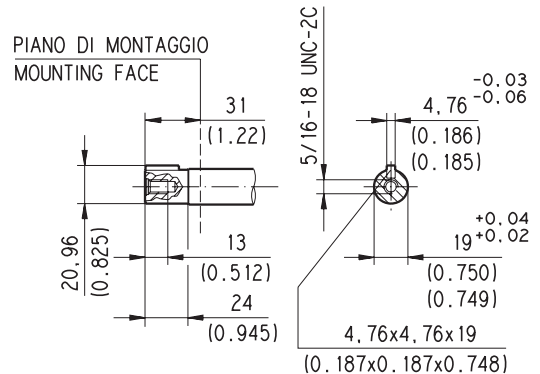


D006-160/0701

MAX 1505 lbf in (170 Nm)

STRAIGHT

50



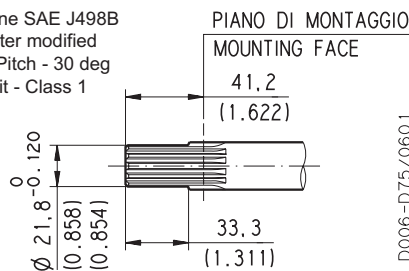
D006-162/0701

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

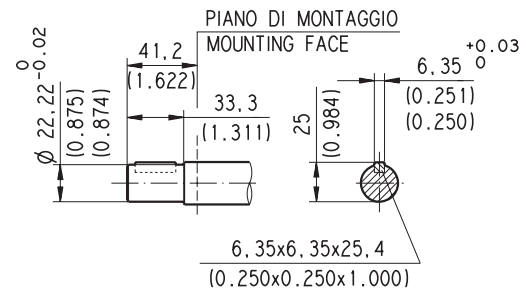


D006-D75/0601

MAX 2478 lbf in (280 Nm)

SAE "B" STRAIGHT

32



D006-D77/0601

MAX 1770 lbf in (200 Nm)

03/03.2006

HOW TO ORDER SAE STANDARD MOTORS

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

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

2	Rotation	CODE
	Left	S
	Right	D
	Reversible	R
	Reversible 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	Ports position	6
L	Side	
P	Rear	

CODE	Ports IN/OUT		7
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			
	Side	Rear	Motor type
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	Seals (b)	8
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

ORDER EXAMPLE

Standard motor

KM 20•4 S0 - 03 S1 - L OC/OC - N

Special version motor

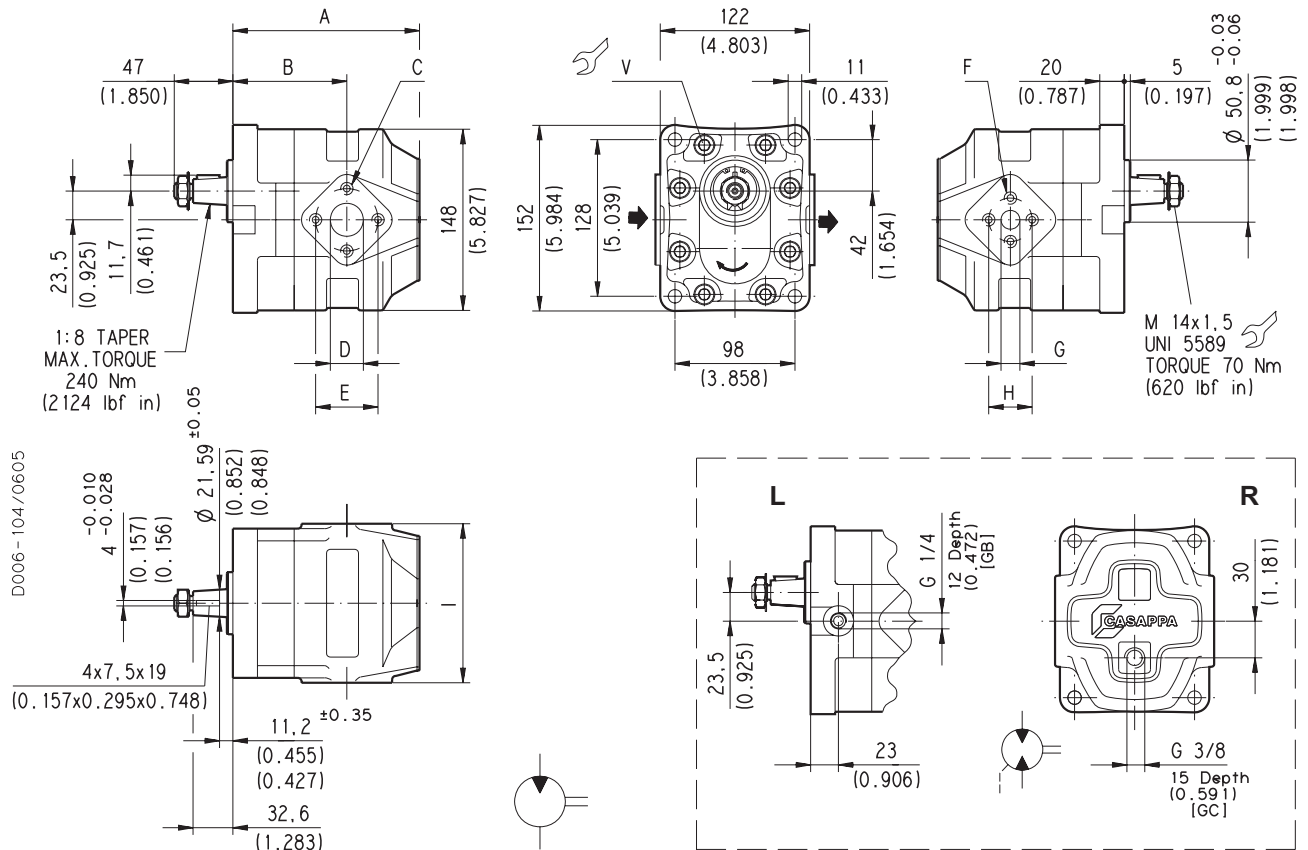
KM 20•4 S0 - 04 S5 - L MA/MA - V Bz

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)

The following version are also available:

KM 30•22 L0-83 E3-Z EV/EZ-N **KM 30•22 B0-83 E3-Z EV/EZ-N**
(For more information please consult our technical sales department).

02/06.05

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	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)

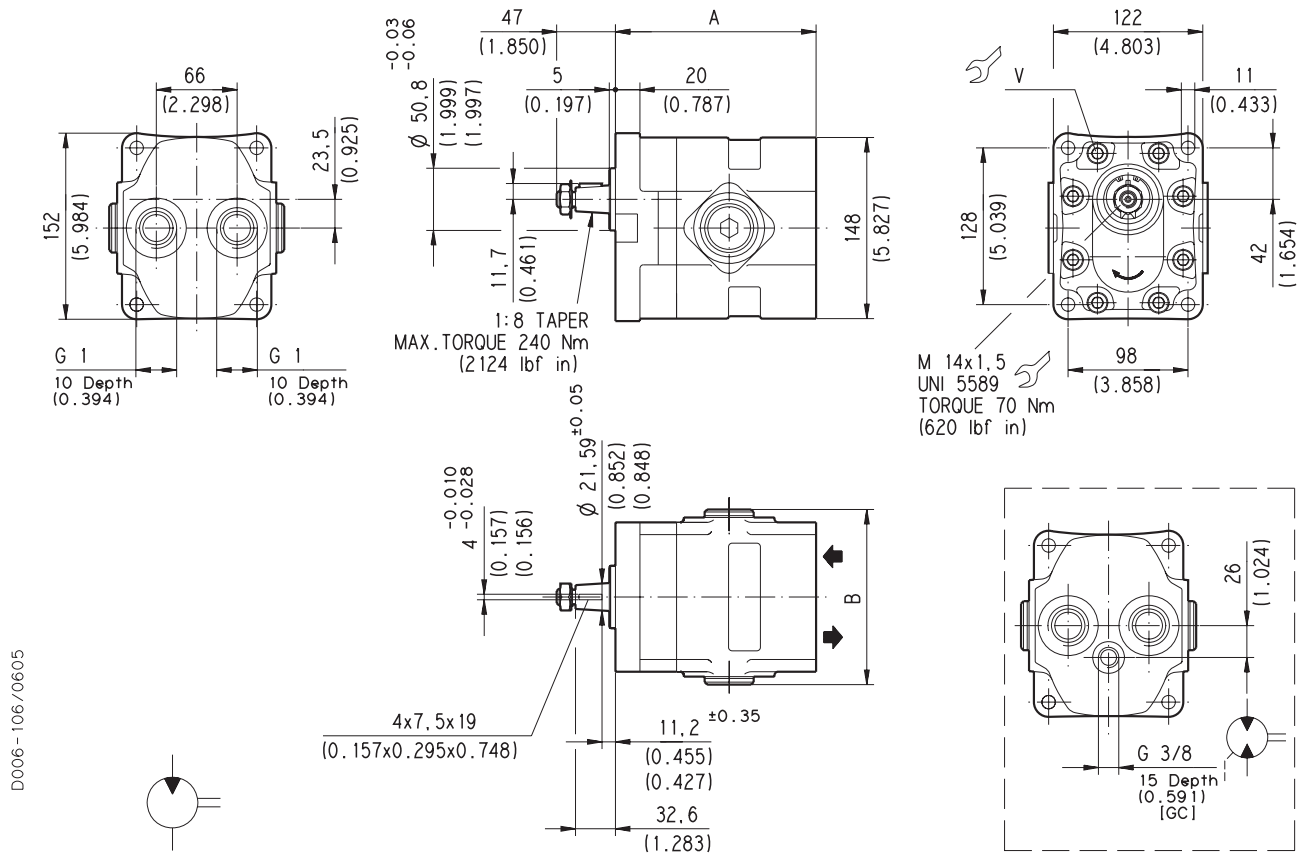
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•27 S0-83 E3-L EB/ED-N

GAS STRAIGHT THREAD PORTS

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



D006-106/0605

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	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)		

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

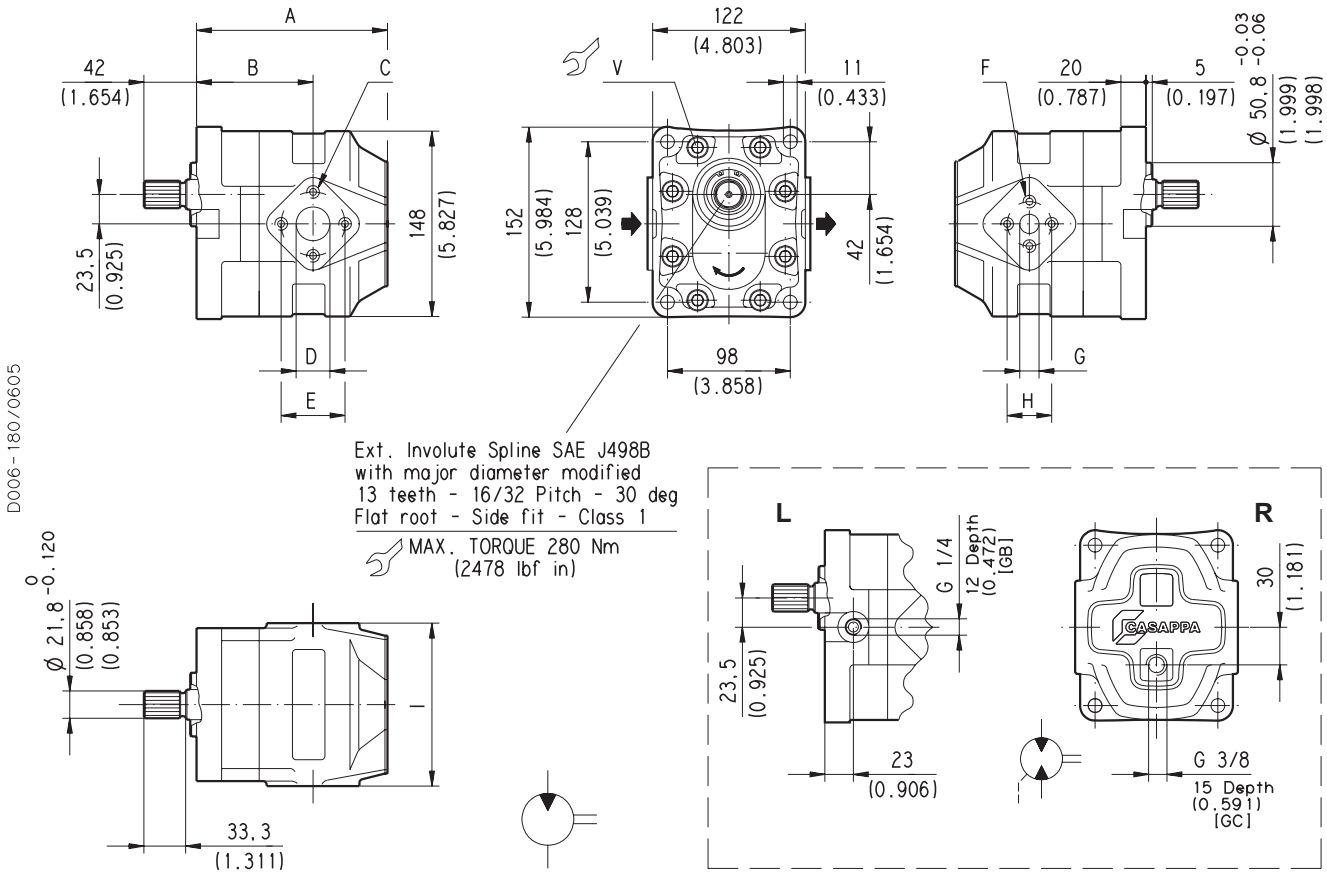
02/06.05

KAPPA 30

HYDRAULIC GEAR MOTORS EUROPEAN STANDARD

A8 E3

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



D006 - 180/0605

0
-0.120

Ø 21.8
(0.858)
(0.853)

33.3
(1.311)

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)	
KM 30-27 KM 30-34 KM 30-38 KM 30-43 KM 30-51 KM 30-56 KM 30-61	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)
			138 (5.433)	90 (3.543)							
			141 (5.551)	93 (3.661)							
			144 (5.669)	96 (3.780)							
			149 (5.866)	93 (3.661)							
			152 (5.984)	97 (3.819)							
			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)

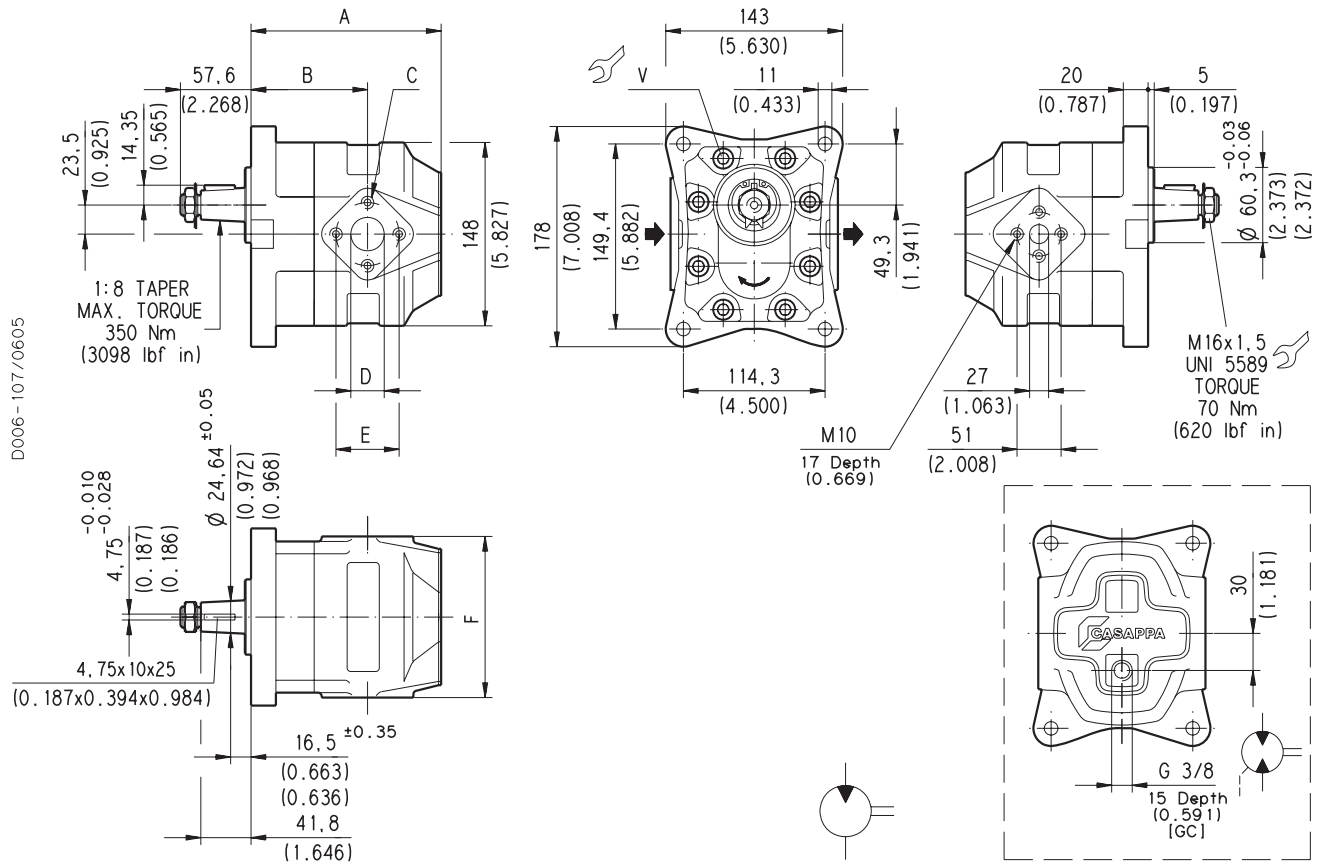
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

KP 30-27 S0-83 E3-L ED/EB-N

02/06.05

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	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	D		156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
KM 30-73	B	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

02/06.05

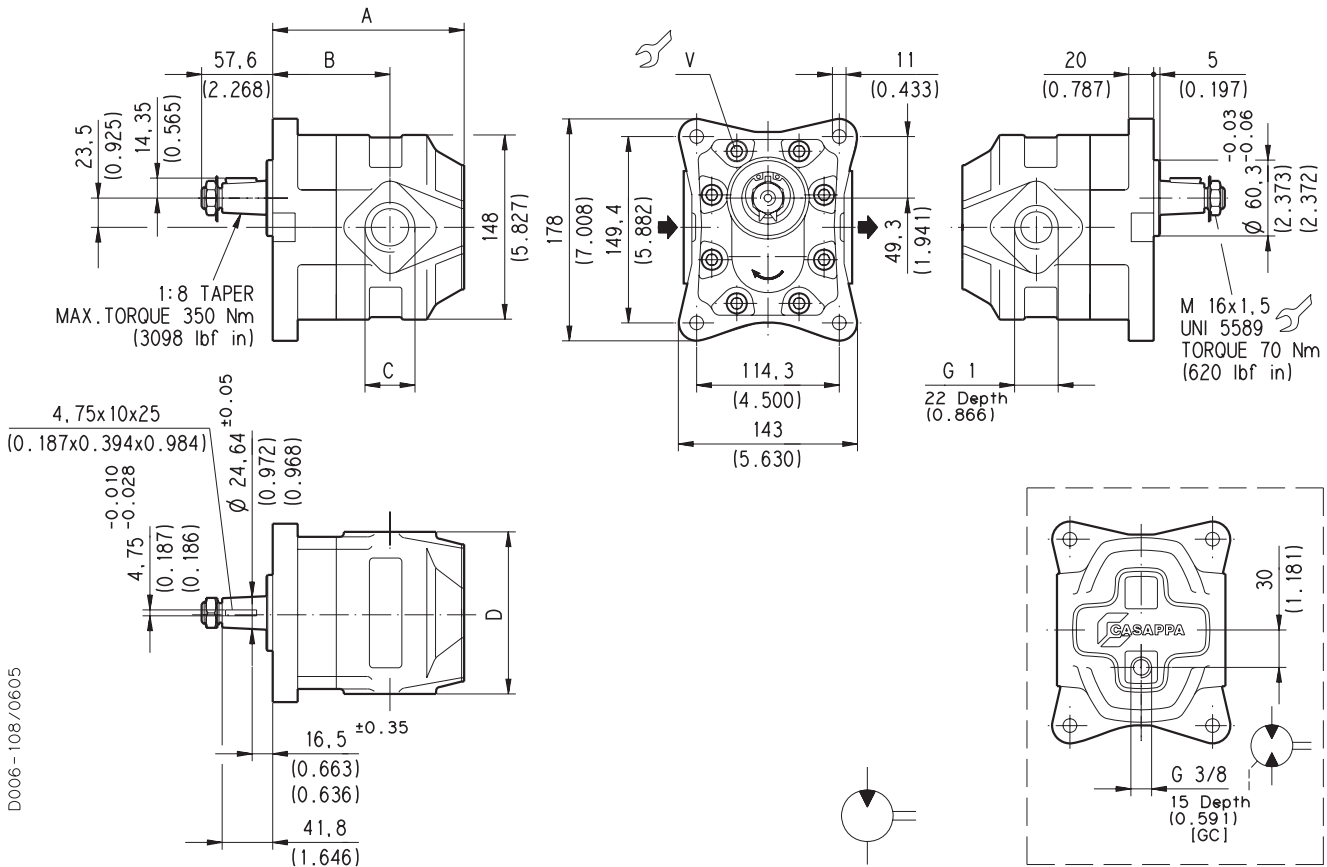
KAPPA 30

HYDRAULIC GEAR MOTORS EUROPEAN STANDARD

84 E4

GAS STRAIGHT THREAD PORTS

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



D006-108/0605

V
70 ± 0.07 (558 ÷ 682)

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

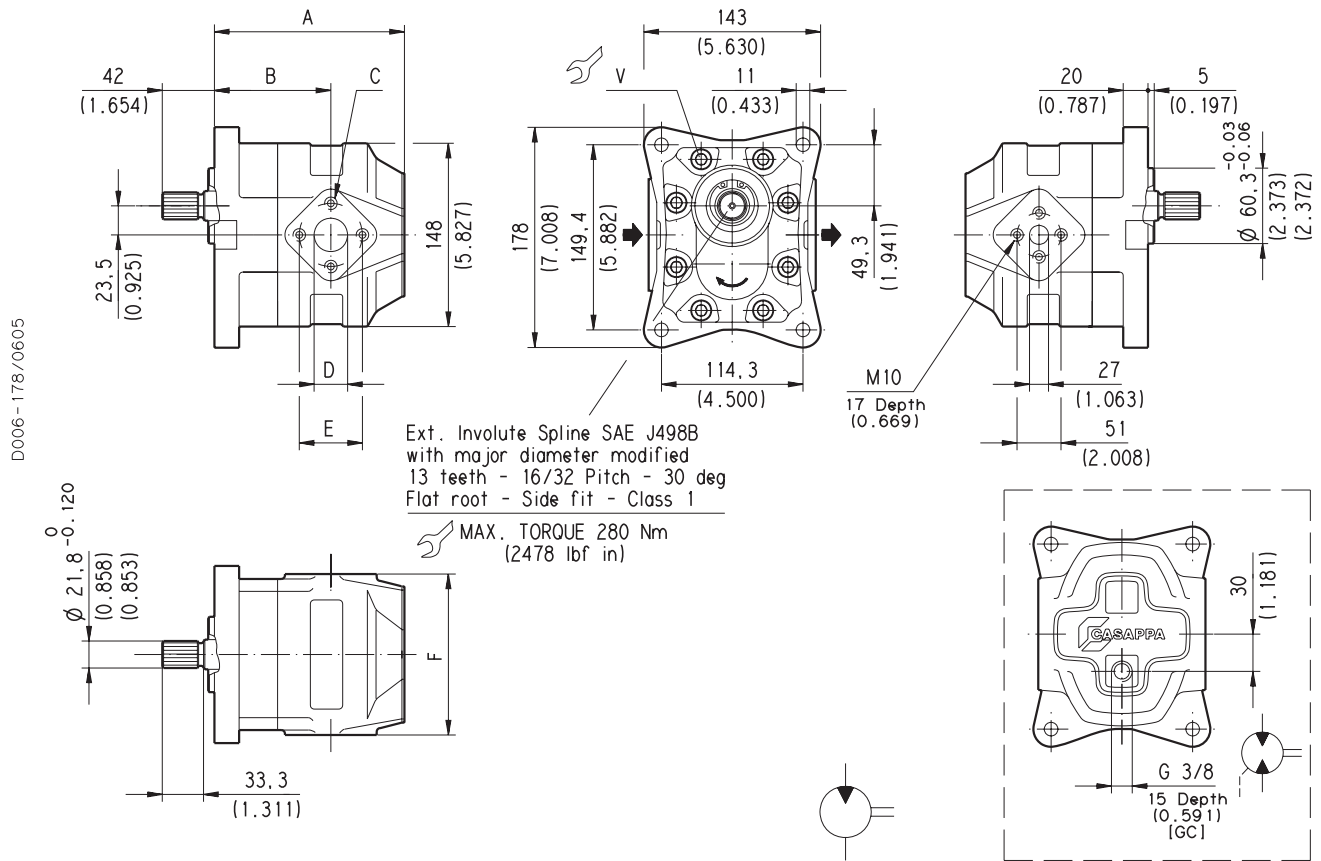
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

KM 30•51 S0-84 E4-L GF/GF-N

02/06.05

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	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	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)
KM 30-73	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-A8 E4-L ED/ED-N

02/06.05

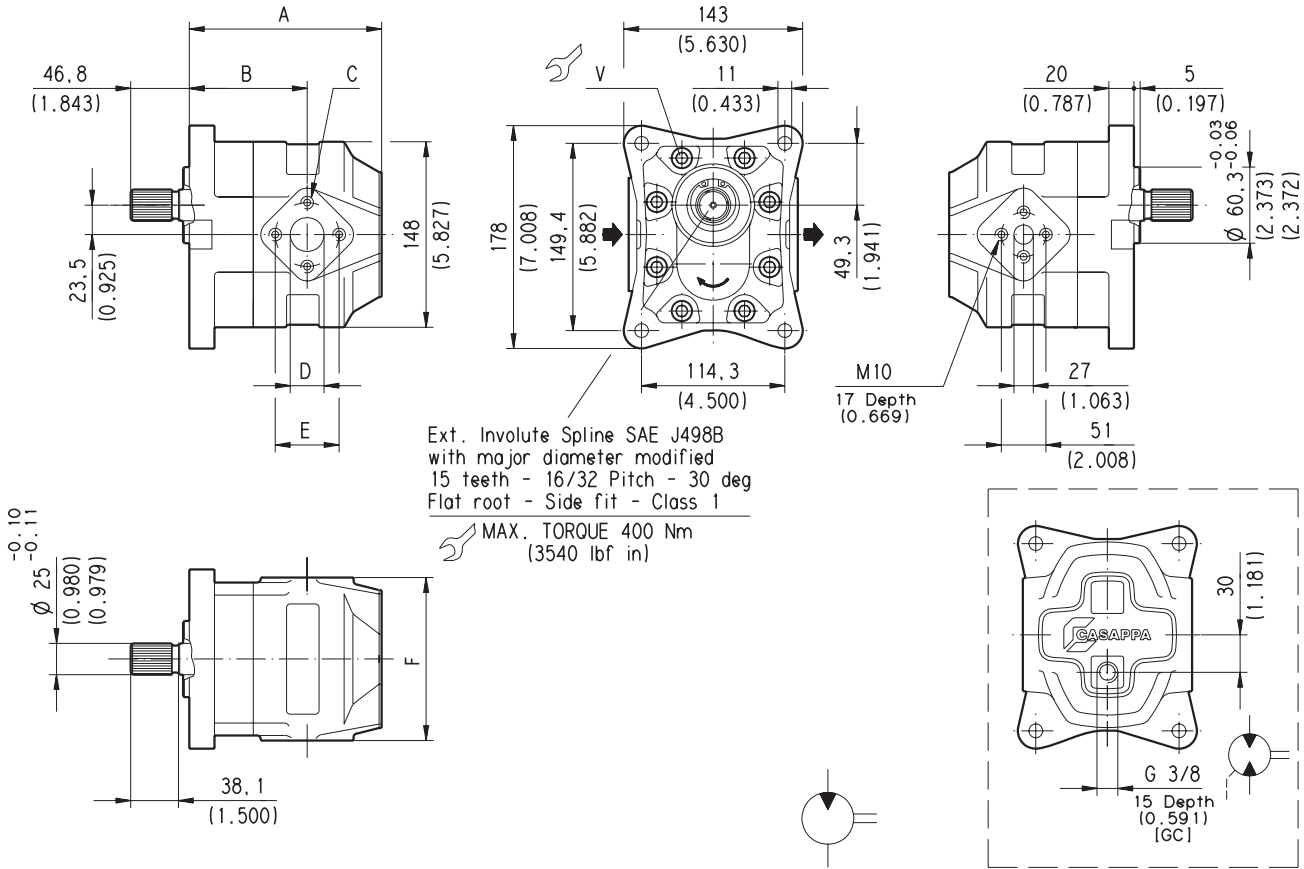
KAPPA 30

HYDRAULIC GEAR MOTORS EUROPEAN STANDARD

A5 E4

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

D006-179/0605



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	150 (5.906)	94 (3.701)	M 10 Depth 17 (0.669)	27 (1.063)	51 (2.008)	130 (5.118)
	D						
KM 30-61	R	156 (6.142)	101 (3.976)	M 12 Depth 17 (0.669)	33 (1.299)	62 (2.441)	135 (5.315)
	B						
KM 30-73		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-A5 E4-L ED/ED-N

02/06.05

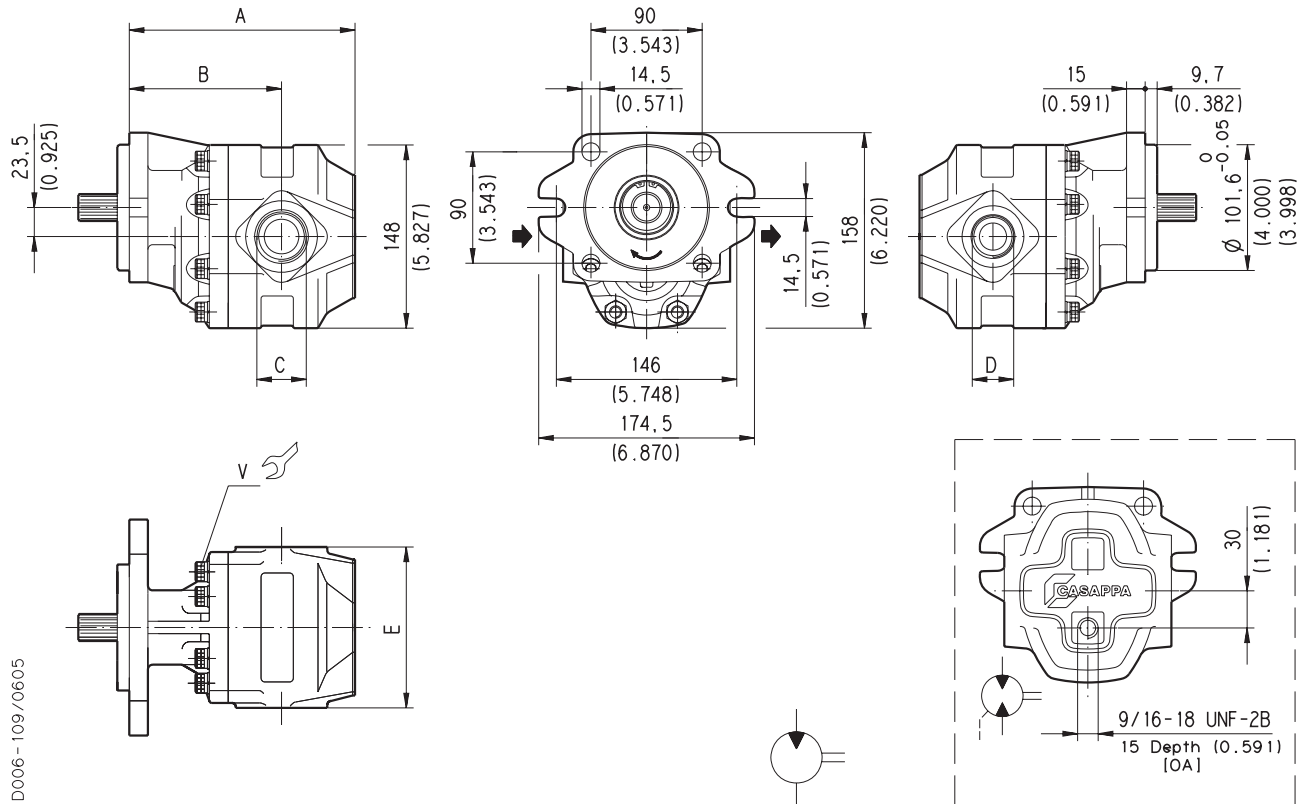
KAPPA 30

HYDRAULIC GEAR MOTORS SAE STANDARD

... S3

SAE STRAIGHT THREAD PORTS J514

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



D006-109/0605

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

To order see page 104 e 105.

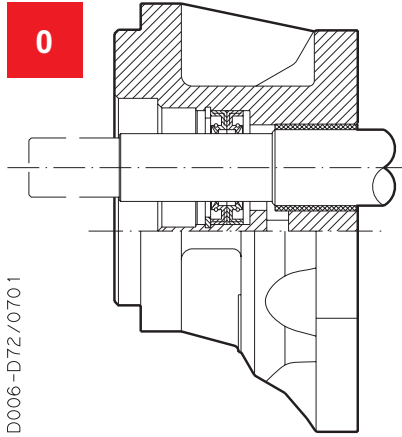
Motor type	A	B	C	D	E	Ports code	
	mm (in)	mm (in)			mm (in)	IN	OUT
KM 30-27	164 (6.457)	115 (4.528)	1-5/16-12 UN-2B	1-1/16-12 UN-2B	130 (5.118)	OD	OF
KM 30-34	169 (6.654)	120 (4.724)				OF	OG
KM 30-38	172 (6.772)	123 (4.843)	1-5/8-12 UN-2B	1-5/16-12 UN-2B		OG	OH
KM 30-43	175 (6.890)	126 (4.961)			1-7/8-12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

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

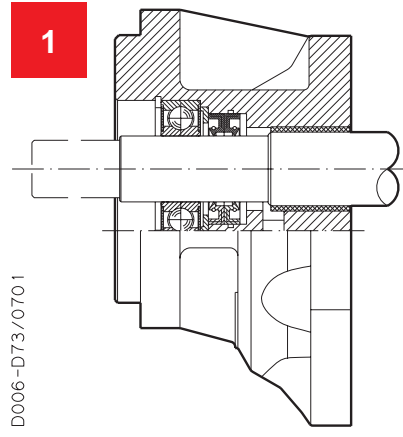
02/06.05

KAPPA 30 SAE VERSION

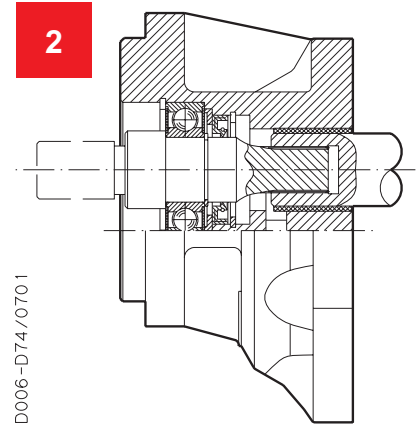
SAE



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



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



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

Replaces: 01/03.02

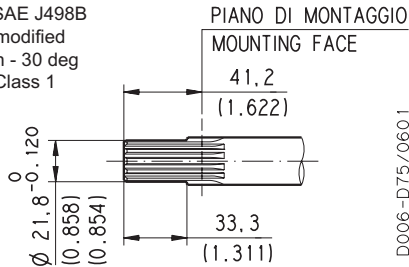
KAPPA 30 END DRIVE SHAFTS

SAE

SAE "B" SPLINE

04

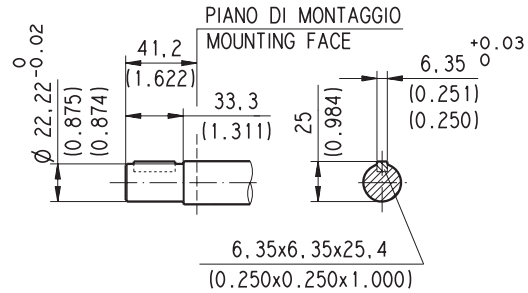
Ext. Involute Spline SAE J498B with major diameter modified 13 teeth - 16/32 Pitch - 30 deg Flat Root - Side fit - Class 1



● **MAX 2921 lbf in (330 Nm)** ◆

SAE "B" STRAIGHT

32

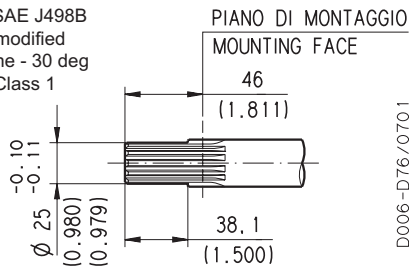


● **MAX 1770 lbf in (200 Nm)** ◆

SAE "BB" SPLINE

05

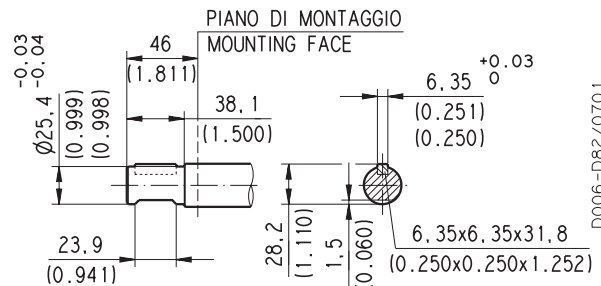
Ext. Involute Spline SAE J498B with major diameter modified 15 teeth - 16/32 Spline - 30 deg Flat Root - Side fit - Class 1



● **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 SAE STADARD MOTORS

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

1 Motor type		CODE
in ³ /rev	cm ³ /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 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	Ports position	6
L	Side	

CODE	Ports IN/OUT	7
SAE STRAIGHT THREAD PORTS (ODT)		
Side	Motor type	
OD/OF	KM 30•27	
O/DOF	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	Seals (a)	8
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

01/03.02

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**

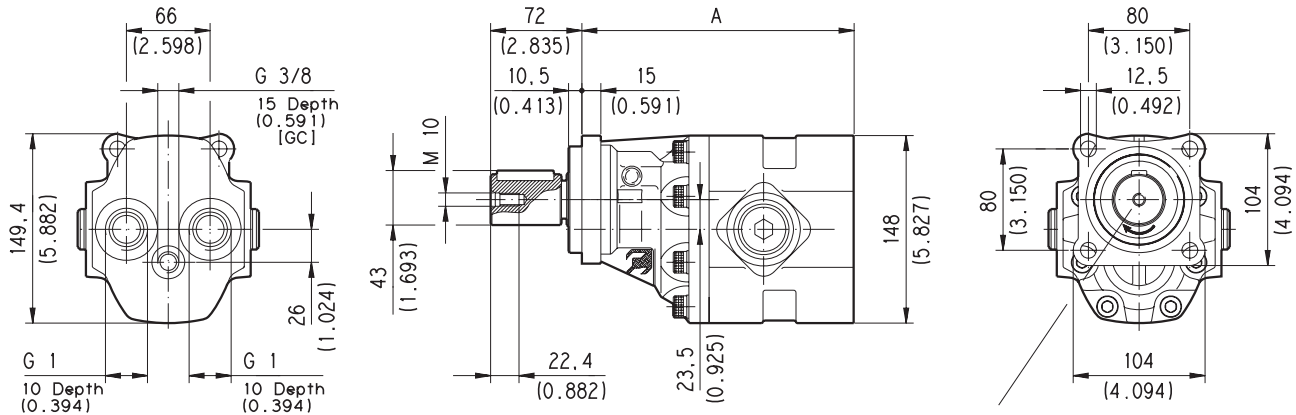
KAPPA 30

HYDRAULIC GEAR MOTORS ISO STANDARD

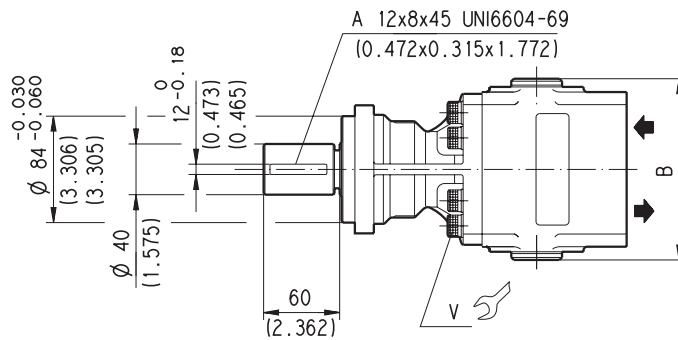
42 Z0

GAS STRAIGHT THREAD PORTS

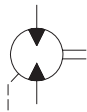
British standard pipe parallel (55°) conforms to UNI - ISO 228



MAX. TORQUE 360 Nm
(3186 lbf in)



D006-177/0605



V
70 ± 7 (558 ÷ 682)

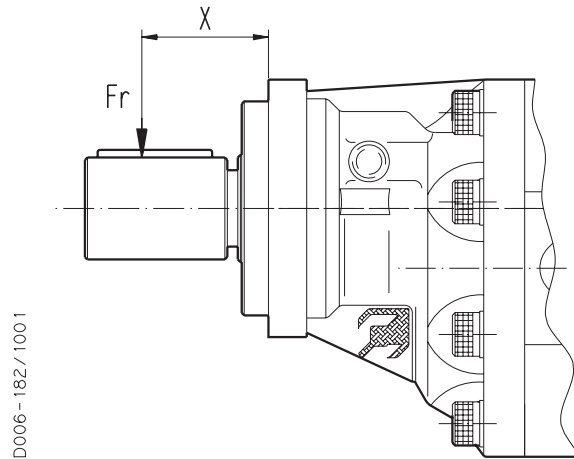
Motor type	A	B
	mm (in)	mm (in)
KM 30•27	198 (7.795)	143 (5.630)
KM 30•34	203,5 (8.012)	
KM 30•38	206,5 (8.130)	
KM 30•43	209,5 (8.248)	
R5-42 Z0-P GF/GF-N		

Rotation: R=reversible rear drain

How to order:

KM 30•27 R5-42 Z0-P GF/GF-N

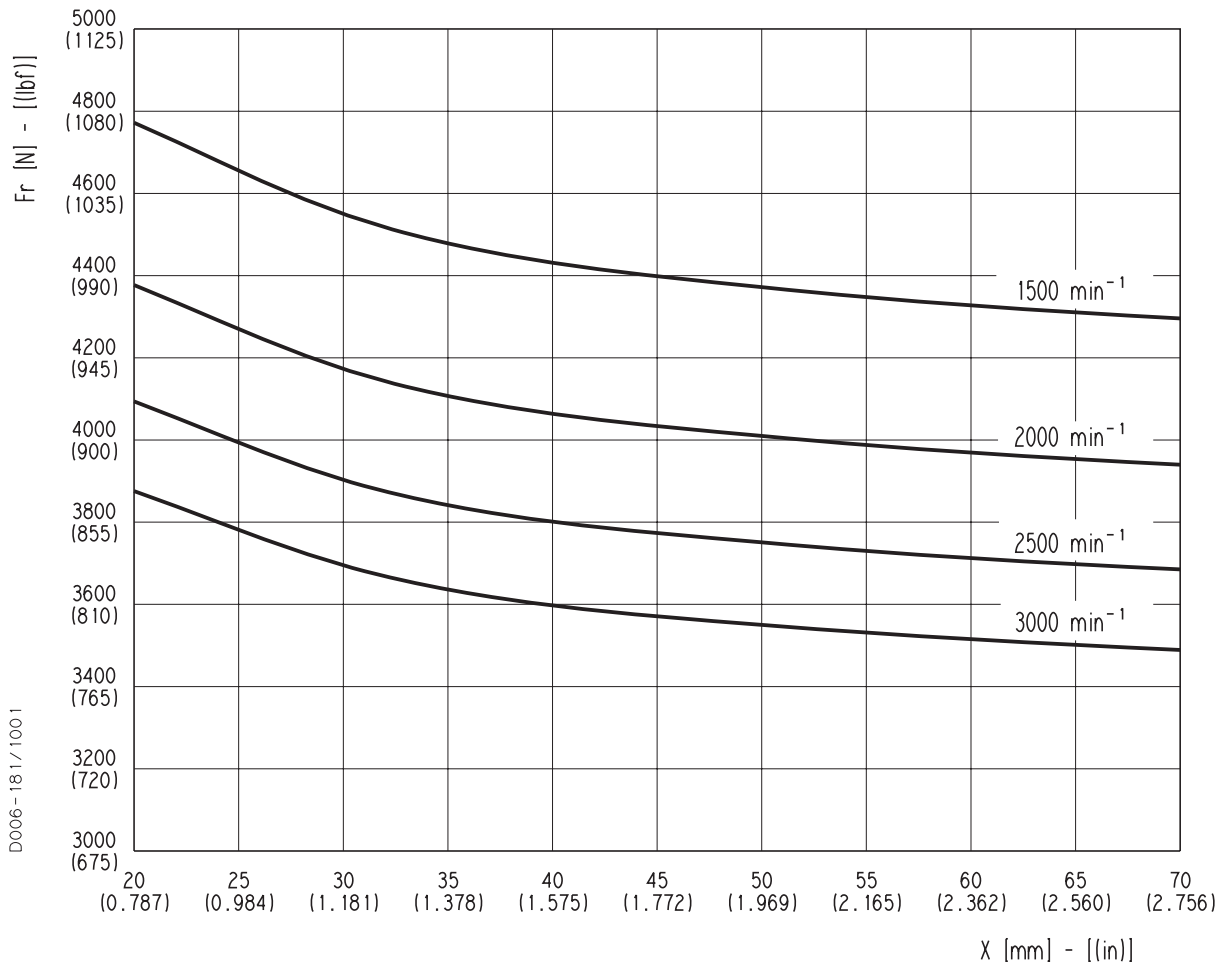
02/06.05



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

Each curve has been obtained at:

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



01/03.02

D006-181/1001

INSTRUCTIONS

INSTALLATION

Pump

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

Motor

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

TANK

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

LINES

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

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:



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.

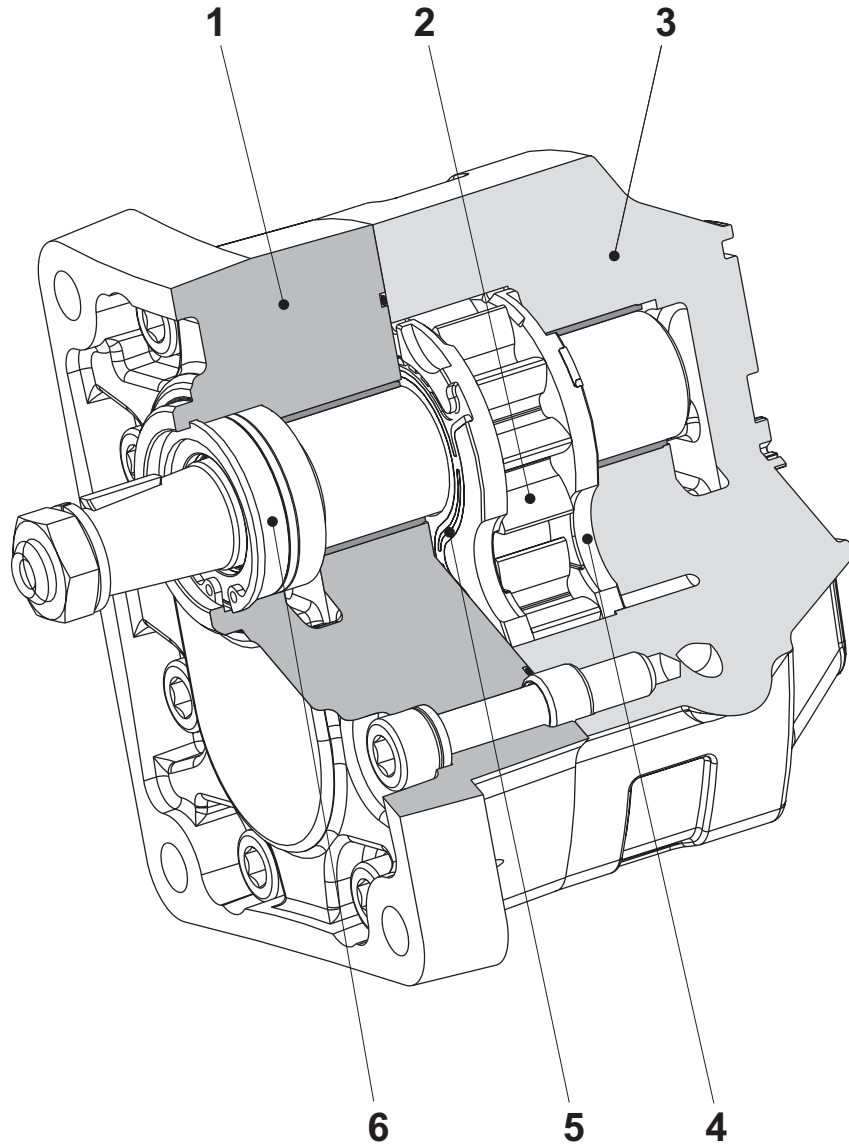
STARTING UP

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.

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.

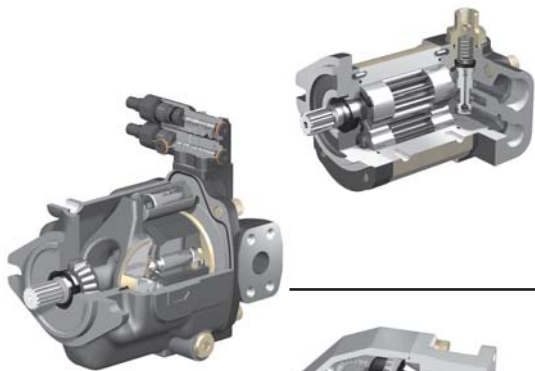
INSTRUCTIONS



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

01/03.02

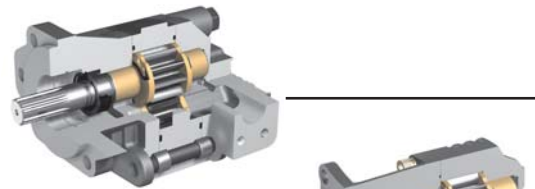
Casappa: Fluid Power Design at 360°



Gear pumps.
High performance, low noise.



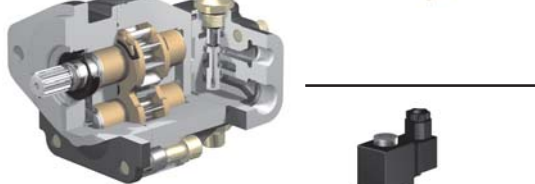
Variable displacement axial piston pumps,
for open circuit.



Fixed displacement bent axis piston pumps,
for truck applications.



Cast iron gear pumps and
motors of three part construction.



Cast iron gear pumps,
for truck applications.



Cast iron gear pumps and
motors of two part construction.



Gear pumps and
motors in aluminium.



Double acting hydraulic hand pumps
with or without reservoir.



Filters : suction filters, return filters, in line filters spin-on
type, for medium and high pressure filters.



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