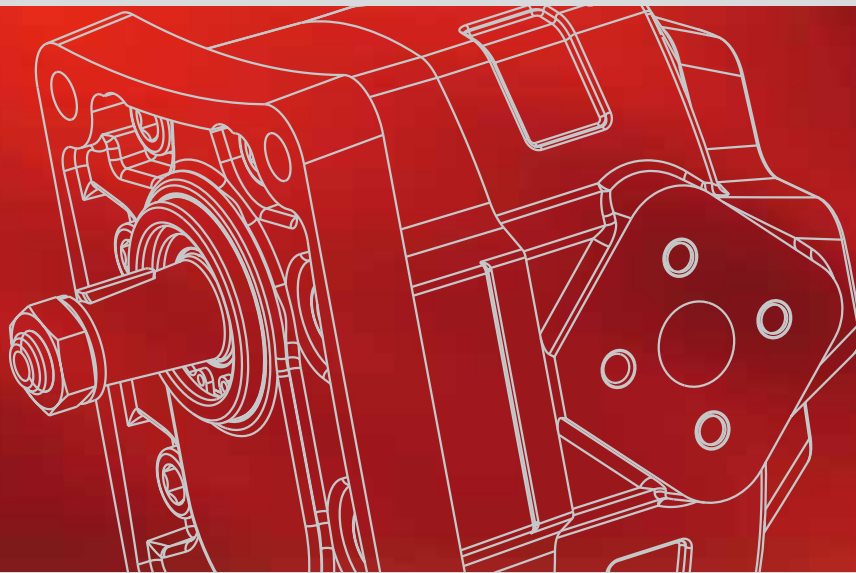




HYDRAULIC GEAR  
PUMPS AND  
MOTORS

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## FEATURES

KAPPA pump and motor units consist essentially of a housing and a mounting flange in cast iron of superior mechanical specifications. KAPPA is available with 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.

## DISPLACEMENTS

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

## PRESSURE

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

## MAX. SPEED

Max. 4000 min<sup>-1</sup>

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



Modification from former edition.

05/03.2012

## FEATURES

|                                                       |                                                                                                                                                             |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 <sub>1</sub> (continuous) max 73 psi (5 bar)                                                                                                              |
|                                                       | p <sub>2</sub> (for 20 s) max 116 psi (8 bar)                                                                                                               |
|                                                       | p <sub>3</sub> (for 8 s) max 218 psi (15 bar)                                                                                                               |
| Max drain line pressure on reversible rotation motors | 73 psi (5 bar)                                                                                                                                              |
| Max back pressure on the series motors                | 2175 psi (150 bar)                                                                                                                                          |
| Fluid temperature range                               | See table (1)                                                                                                                                               |
| Fluid                                                 | Mineral oil based hydraulic fluids to ISO/DIN and fire resistant fluids [see table (1)].<br>For other fluids please consult our technical sales department. |
| Viscosity range                                       | From 60 to 456 SSU<br>[12 to 100 mm <sup>2</sup> /s (cSt)] recommended                                                                                      |
| Filtering requirement                                 | See table (2)                                                                                                                                               |

Tab. 1

| Type    | Fluid composition                            | Max pressure<br>psi - (bar) | Max speed<br>min <sup>-1</sup> | Temperature °F - (°C) |                |           | Seals<br>(◆) |
|---------|----------------------------------------------|-----------------------------|--------------------------------|-----------------------|----------------|-----------|--------------|
|         |                                              |                             |                                | Min                   | Max continuous | Max peak  |              |
| ISO/DIN | Mineral oil based hydraulic fluid to ISO/DIN | See page 3, 4<br>75, 76     | See page 3, 4<br>75, 76        | -13 (-25)             | 176 (80)       | 212 (100) | N            |
|         |                                              |                             |                                | -13 (-25)             | 230 (110)      |           | N-H          |
| HFA     | Oil emulsion in water<br>5 ÷ 15% of oil      | 725 (50)                    | 1500                           | 36 (2)                | 131 (55)       | 257 (125) | V            |
| HFB     | Water emulsion in oil<br>40 % of water       | 1740 (120)                  | 1500                           | 36 (2)                | 140 (60)       |           | N            |
| HFC     | Water - glycol                               | 1450 (100)                  | 1500                           | -4 (-20)              | 140 (60)       |           | N Bz         |
| HFD     | Phosphate ester                              | 2175 (150)                  | 1500                           | 14 (-10)              | 176 (80)       |           | V Bz         |

(◆) N= Buna N (standard) - N-H= Buna N and high back pressure shaft seals - V= Viton

N Bz= Buna N and Bronze thrust plates - V Bz= Viton and Bronze thrust plates

Tab. 2

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

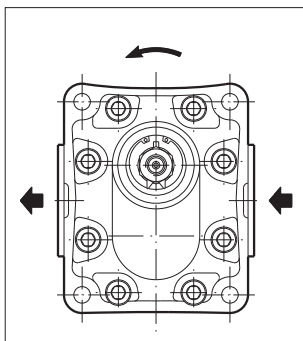
Casappa recommends to use its own production filters:



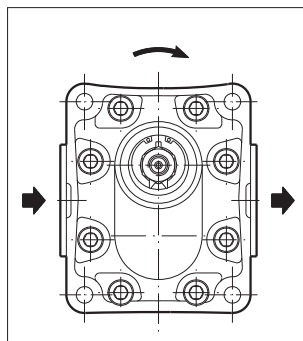
## GENERAL NOTES

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.

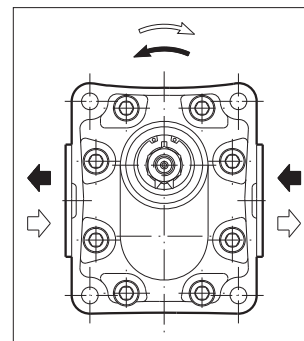
## DEFINITION OF ROTATION DIRECTION LOOKING AT THE DRIVE SHAFT



**Anti-clock rotation**

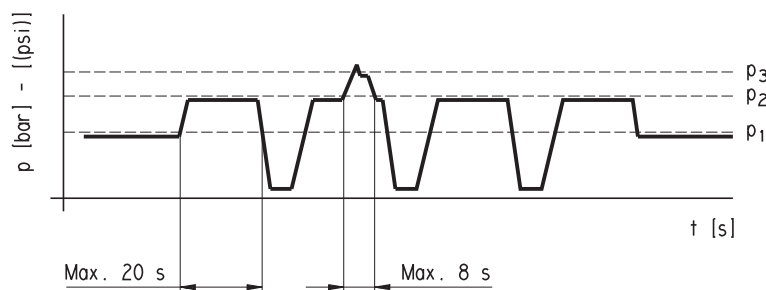


**Clockwise rotation**



**Reversible rotation**

## PRESSURE DEFINITION



$p_1$  Max. continuous pressure

$p_2$  Max. intermittent pressure

$p_3$  Max. peak pressure

01/03.2002

## KAPPA 20 GENERAL DATA PUMPS

**KP 20**

| Pump type  | Displacement         | Max. pressure  |                |                | Max. speed        | Min. speed |
|------------|----------------------|----------------|----------------|----------------|-------------------|------------|
|            |                      | p <sub>1</sub> | p <sub>2</sub> | p <sub>3</sub> |                   |            |
|            | in³/rev<br>(cm³/rev) | psi<br>(bar)   |                |                | min <sup>-1</sup> |            |
| KP 20•4    | 0.30<br>(4,95)       | 4133<br>(285)  | 4350<br>(300)  | 4785<br>(330)  | 4000              | 350        |
| KP 20•6,3  | 0.40<br>(6,61)       | 4133<br>(285)  | 4350<br>(300)  | 4785<br>(330)  | 4000              | 350        |
| KP 20•8    | 0.50<br>(8,26)       | 4133<br>(285)  | 4350<br>(300)  | 4785<br>(330)  | 3500              | 350        |
| KP 20•11,2 | 0.69<br>(11,23)      | 3988<br>(275)  | 4205<br>(290)  | 4640<br>(320)  | 3500              | 350        |
| KP 20•14   | 0.89<br>(14,53)      | 3843<br>(265)  | 4205<br>(290)  | 4640<br>(320)  | 3500              | 350        |
| KP 20•16   | 1.03<br>(16,85)      | 3770<br>(260)  | 4205<br>(290)  | 4640<br>(320)  | 3000              | 300        |
| KP 20•20   | 1.29<br>(21,14)      | 3045<br>(210)  | 3335<br>(230)  | 3625<br>(250)  | 3000              | 300        |
| KP 20•25   | 1.61<br>(26,42)      | 2610<br>(180)  | 2900<br>(200)  | 3190<br>(220)  | 2500              | 300        |
| KP 20•31,5 | 2.01<br>(33,03)      | 2030<br>(140)  | 2320<br>(160)  | 2610<br>(180)  | 2000              | 300        |

p<sub>1</sub>= Max. continuous pressure

p<sub>2</sub>= Max. intermittent pressure

p<sub>3</sub>= Max. peak pressure

The values in the table refer to unidirectional pumps.

Reversible pump max pressures are 15% lower than those shown in table.

For different working conditions please consult our sales department.

01/03.2002

# KAPPA 30 GENERAL DATA PUMPS

**KP 30**

| Pump type | Displacement         | Max. pressure  |                |                | Max. speed        | Min. speed |
|-----------|----------------------|----------------|----------------|----------------|-------------------|------------|
|           |                      | p <sub>1</sub> | p <sub>2</sub> | p <sub>3</sub> |                   |            |
|           | in³/rev<br>(cm³/rev) | psi<br>(bar)   |                |                | min <sup>-1</sup> |            |
| KP 30•27  | 1.63<br>(26,7)       | 4060<br>(280)  | 4350<br>(300)  | 4495<br>(310)  | 3000              | 350        |
| KP 30•34  | 2.11<br>(34,56)      | 3770<br>(260)  | 4060<br>(280)  | 4350<br>(300)  | 3000              | 350        |
| KP 30•38  | 2.40<br>(39,27)      | 3770<br>(260)  | 4060<br>(280)  | 4350<br>(300)  | 3000              | 350        |
| KP 30•43  | 2.68<br>(43,98)      | 3625<br>(250)  | 3915<br>(270)  | 4205<br>(290)  | 3000              | 350        |
| KP 30•51  | 3.16<br>(51,83)      | 3335<br>(230)  | 3625<br>(250)  | 3915<br>(270)  | 2500              | 350        |
| KP 30•56  | 3.45<br>(56,54)      | 3118<br>(215)  | 3408<br>(235)  | 3698<br>(255)  | 2500              | 350        |
| KP 30•61  | 3.74<br>(61,26)      | 2900<br>(200)  | 3190<br>(220)  | 3480<br>(240)  | 2500              | 350        |
| KP 30•73  | 4.50<br>(73,82)      | 2610<br>(180)  | 2900<br>(200)  | 3190<br>(220)  | 2500              | 350        |

p<sub>1</sub>= Max. continuous pressure

p<sub>2</sub>= Max. intermittent pressure

p<sub>3</sub>= Max. peak pressure

The values in the table refer to unidirectional pumps.

Reversible pump max pressures are 15% lower than those shown in table.

For different working conditions please consult our sales department.

01/03.2002

## DESIGN CALCULATIONS FOR PUMPS

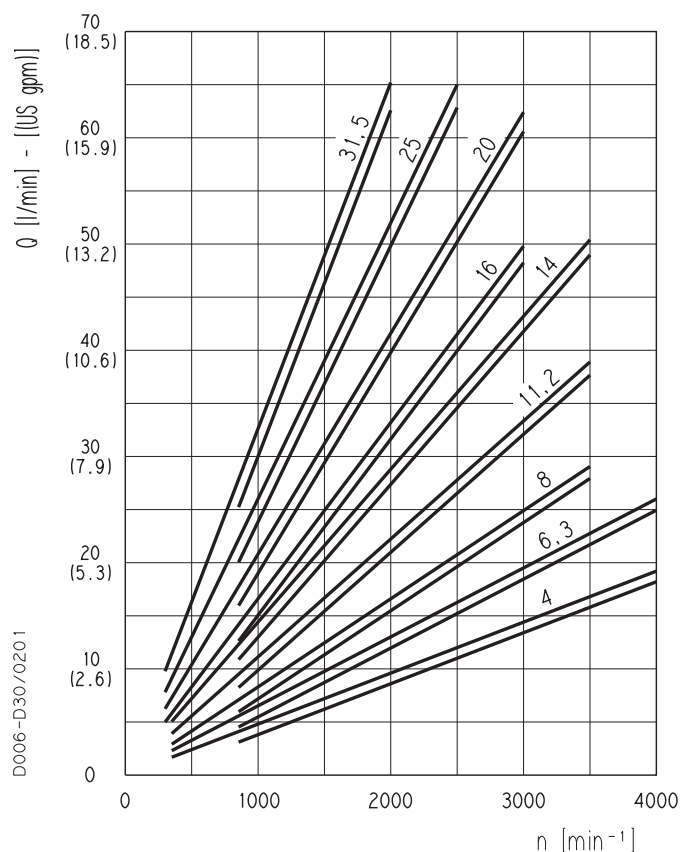
|                                                              |                                             |                             |
|--------------------------------------------------------------|---------------------------------------------|-----------------------------|
| <b>Q</b>                                                     | US gpm (l/min)                              | Delivery                    |
| <b>M</b>                                                     | lbf in (Nm)                                 | Torque                      |
| <b>P</b>                                                     | HP (kW)                                     | Power                       |
| <b>V</b>                                                     | in <sup>3</sup> /rev (cm <sup>3</sup> /rev) | Displacement                |
| <b>n</b>                                                     | min <sup>-1</sup>                           | Speed                       |
| <b>Δp</b>                                                    | psi (bar)                                   | Pressure                    |
| $\eta_v = \eta_v(V, \Delta p, n) \quad (\approx 0,98)$       |                                             | Volumetric efficiency       |
| $\eta_{hm} = \eta_{hm}(V, \Delta p, n) \quad (\approx 0,90)$ |                                             | Hydro-mechanical efficiency |
| $\eta_t = \eta_v \cdot \eta_m \quad (\approx 0,88)$          |                                             | Overall efficiency          |

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

$$\begin{aligned}
 \textcircled{O} \quad Q &= Q_{\text{theor.}} \cdot \eta_v \\
 Q_{\text{theor.}} &= \frac{V \text{ (cm}^3\text{/rev)} \cdot n \text{ (min}^{-1}\text{)}}{1000} \quad [\text{l/min}] \\
 M &= \frac{M_{\text{theor.}}}{\eta_{hm}} \quad [\text{Nm}] \\
 M_{\text{theor.}} &= \frac{\Delta p \text{ (bar)} \cdot V \text{ (cm}^3\text{/rev)}}{62,83} \\
 P_{\text{IN}} &= \frac{P_{\text{OUT}}}{\eta_t} \quad [\text{kW}] \\
 P_{\text{OUT}} &= \frac{\Delta p \text{ (bar)} \cdot Q \text{ (l/min)}}{600}
 \end{aligned}$$

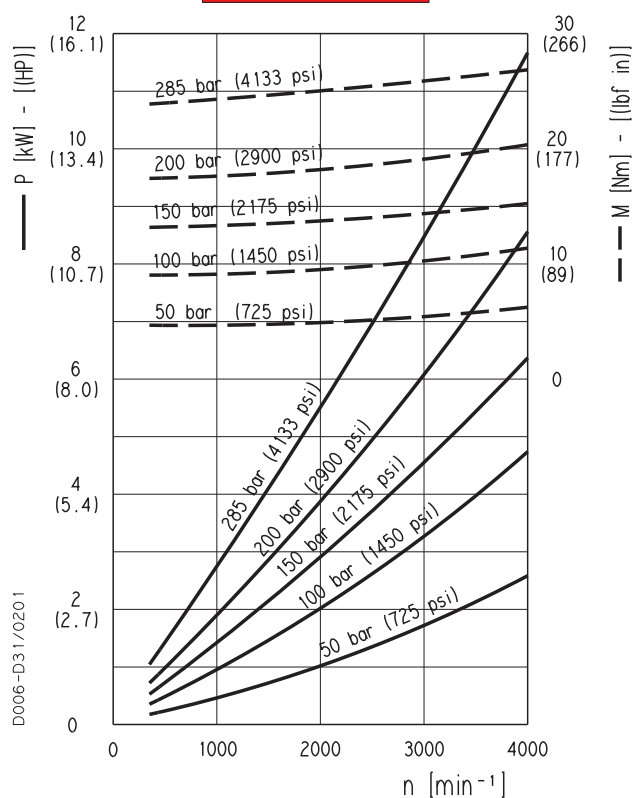
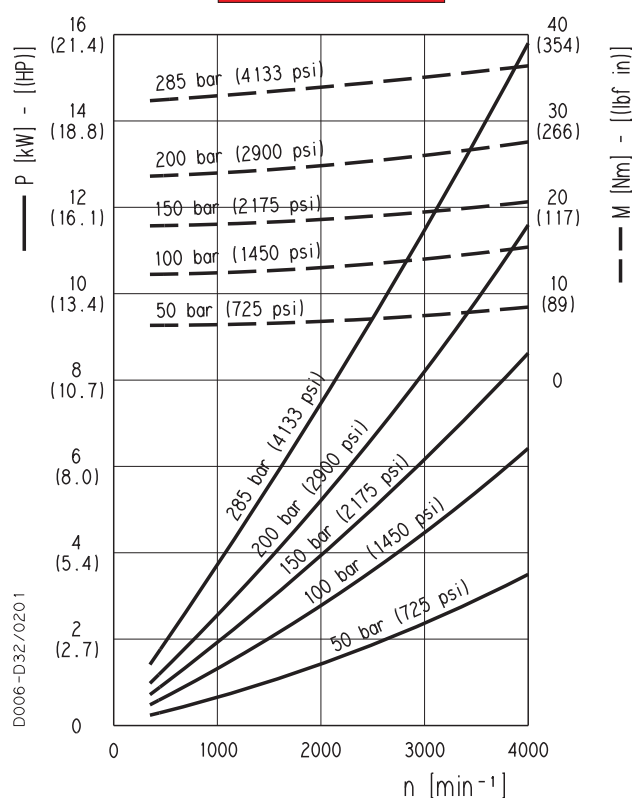
**Note:** Diagrams providing approximate selection data will be found on subsequent pages.

# 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:

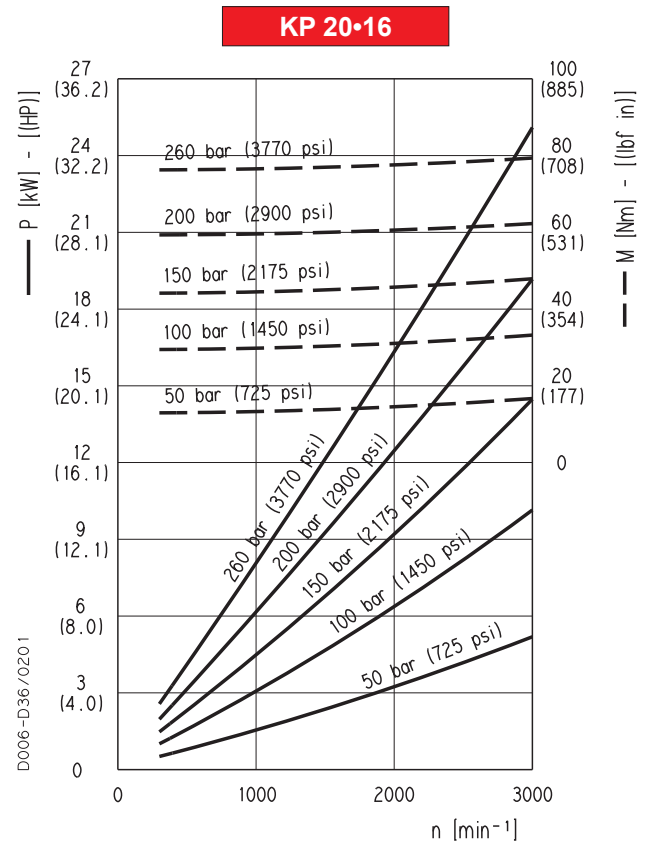
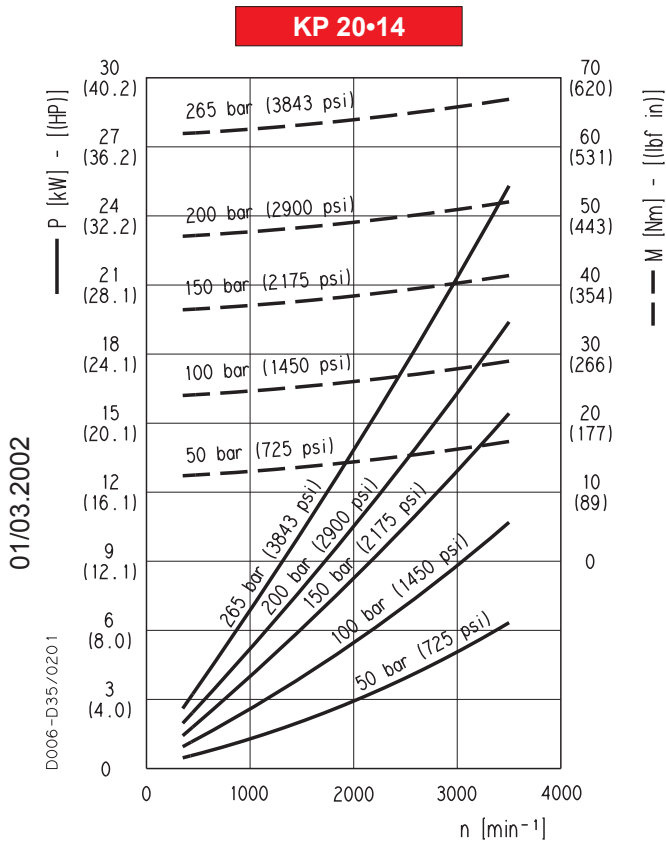
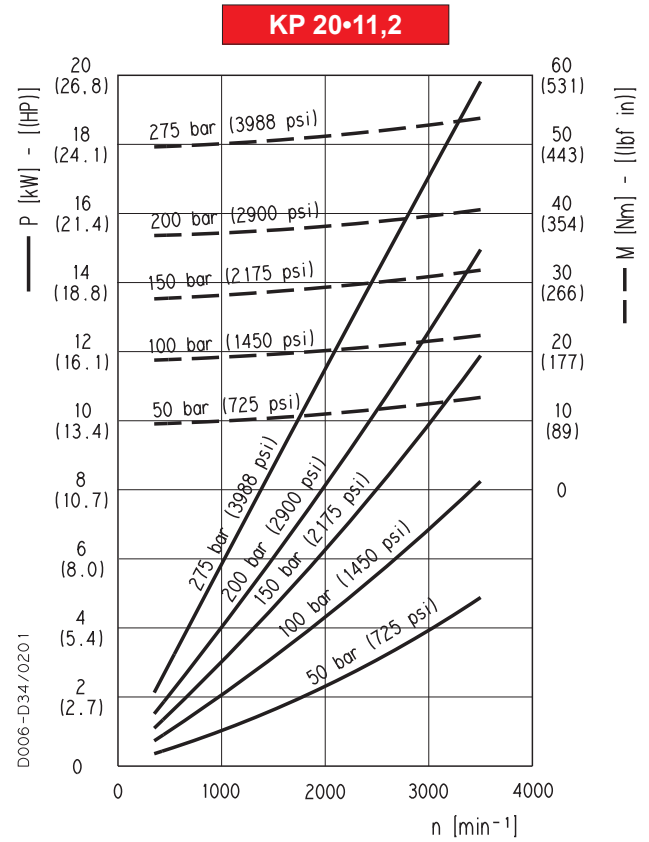
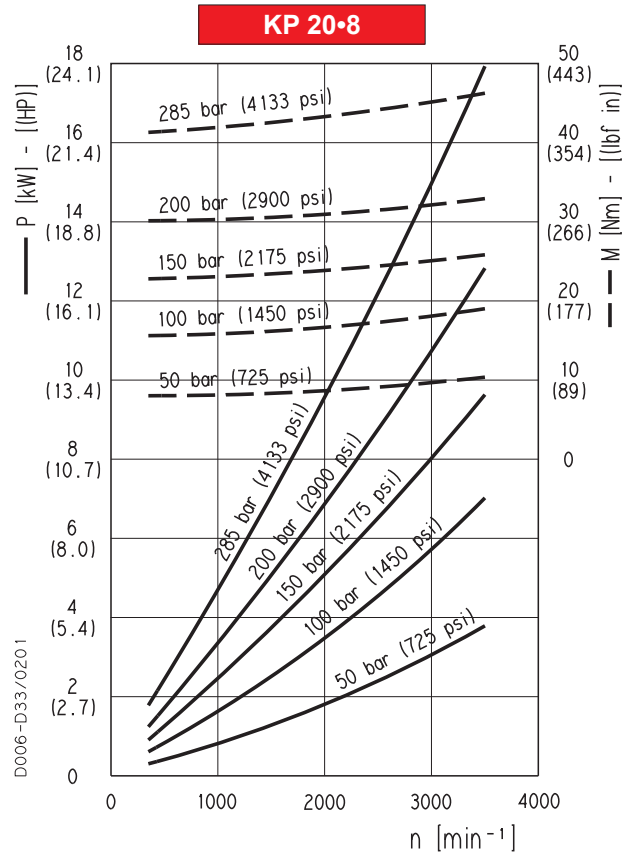
|                  |                           |
|------------------|---------------------------|
| KP 20•4. ....    | 290-4133 psi (20-285 bar) |
| KP 20•6,3. ....  | 290-4133 psi (20-285 bar) |
| KP 20•8. ....    | 290-4133 psi (20-285 bar) |
| KP 20•11,2. .... | 290-3988 psi (20-275 bar) |
| KP 20•14. ....   | 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**


01/03.2002

**KAPPA 20 GEAR PUMPS PERFORMANCE CURVES**

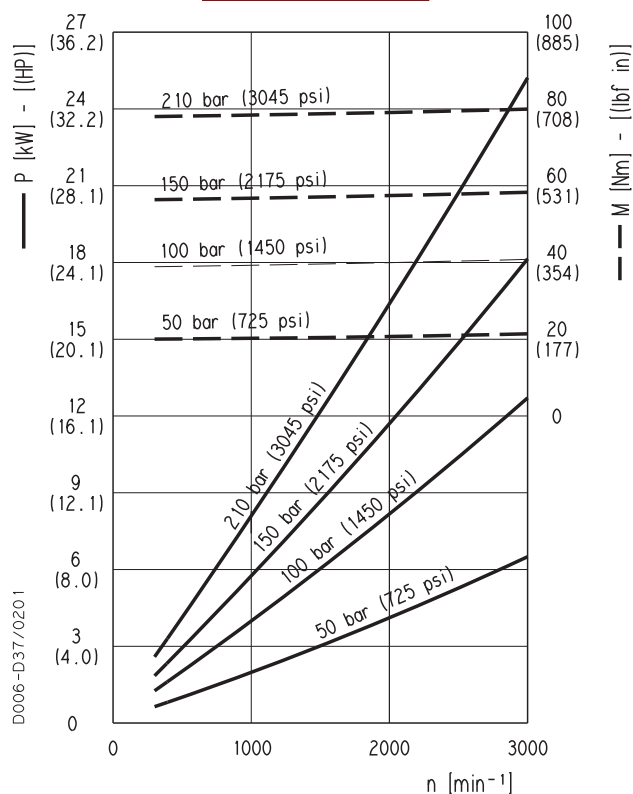
**KP 20**



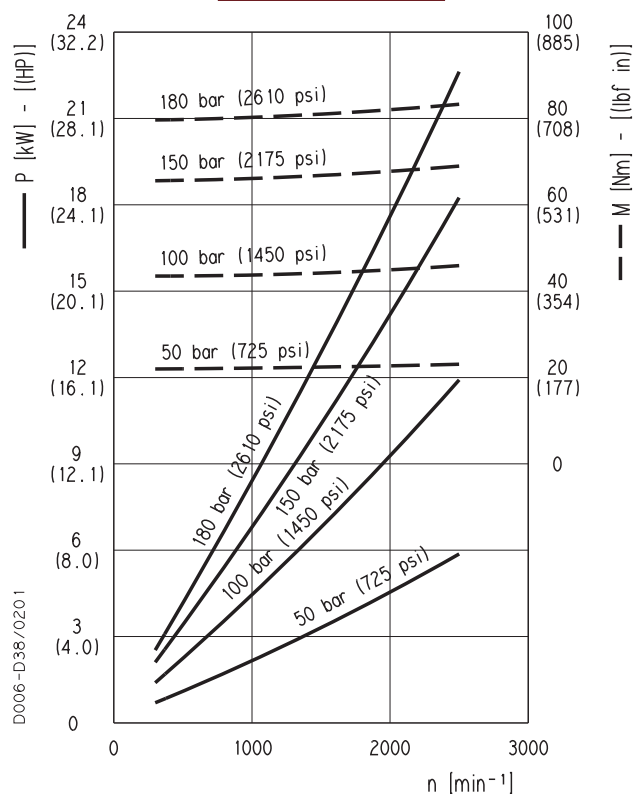
# KAPPA 20 GEAR PUMPS PERFORMANCE CURVES

**KP 20**

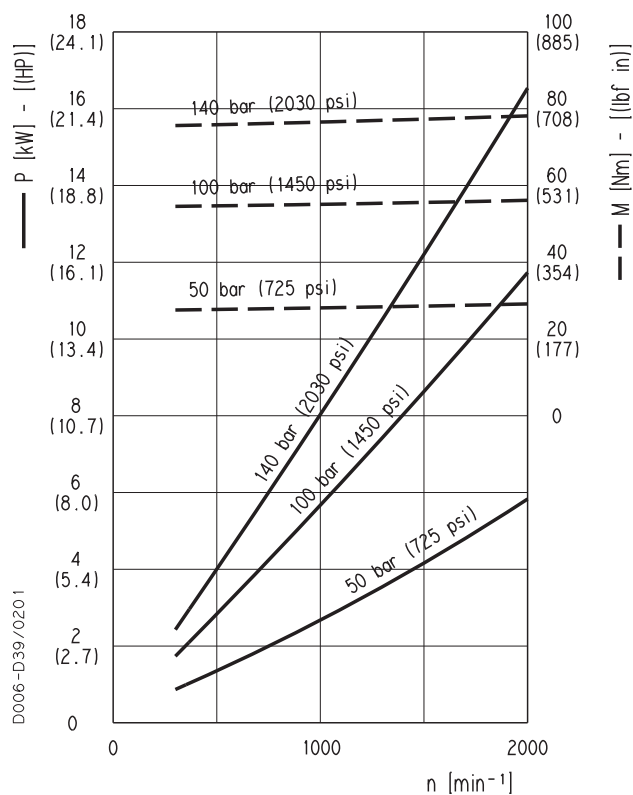
**KP 20•20**



**KP 20•25**



**KP 20•31,5**

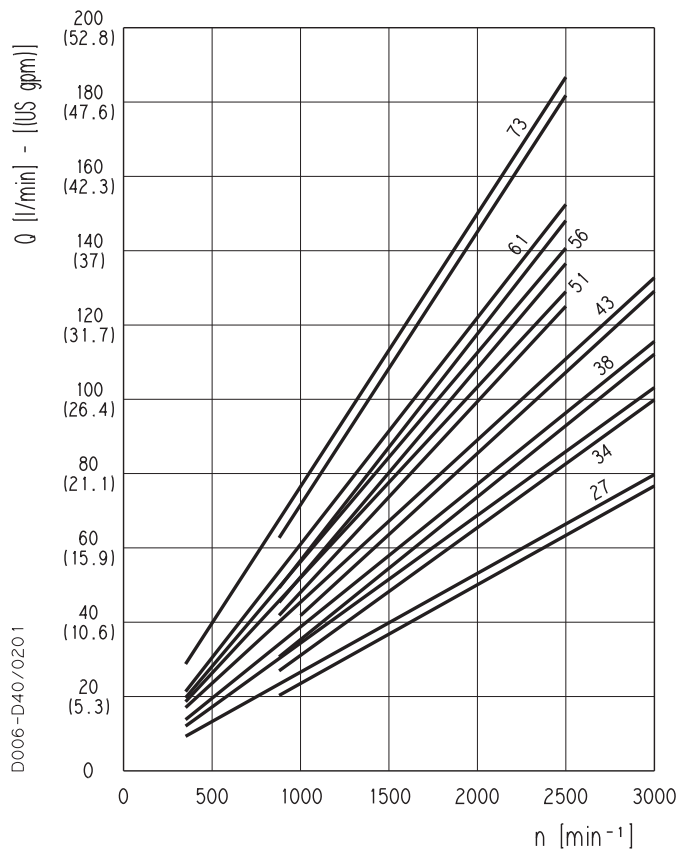


01/03.2002

# KAPPA 30 GEAR PUMPS PERFORMANCE CURVES

**KP 30**

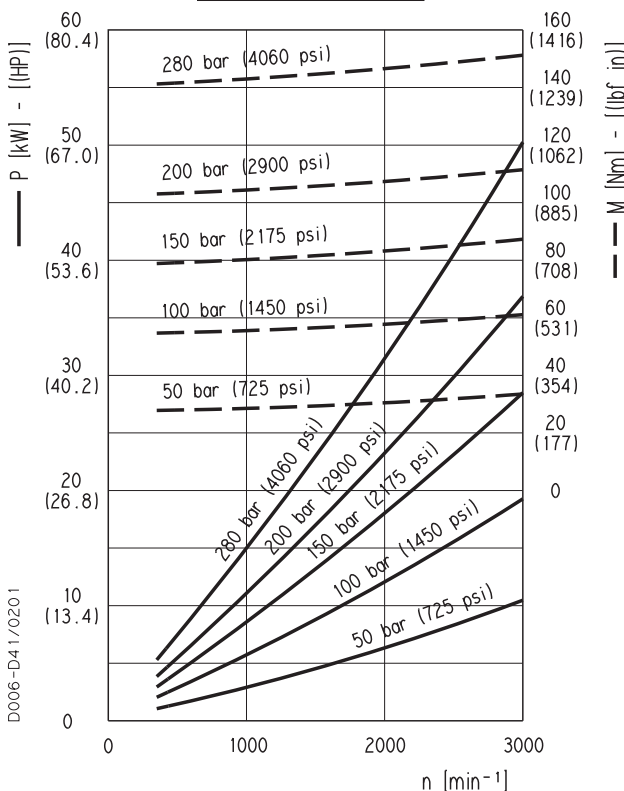
## KP 30



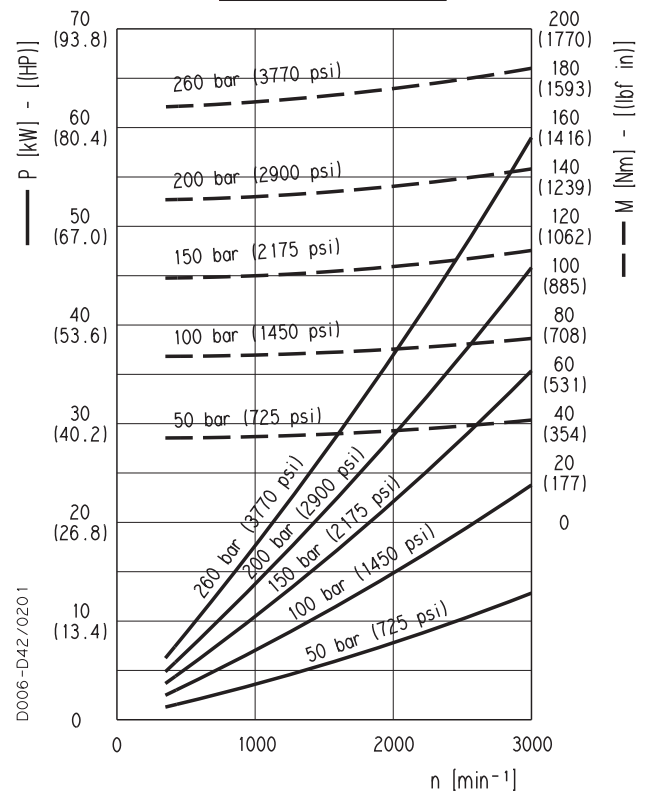
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures:

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

## KP 30•27



## KP 30•34

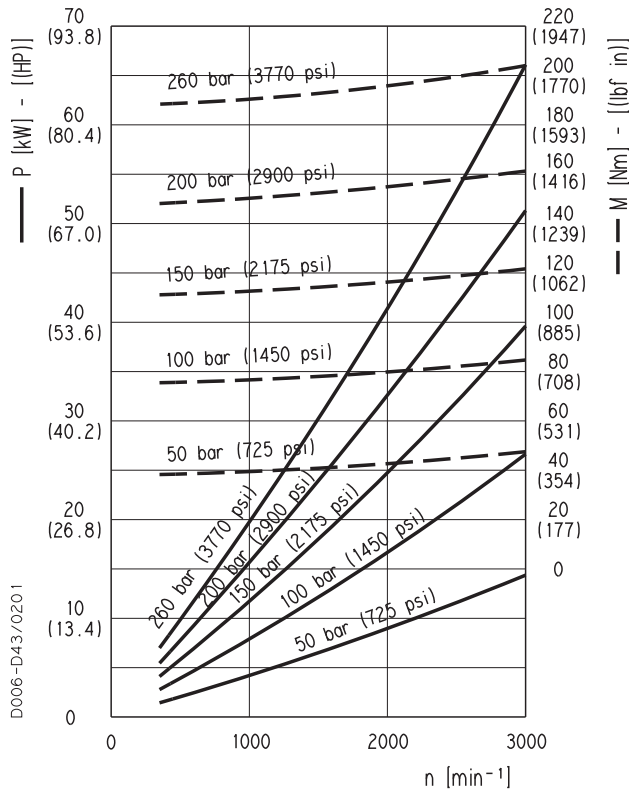


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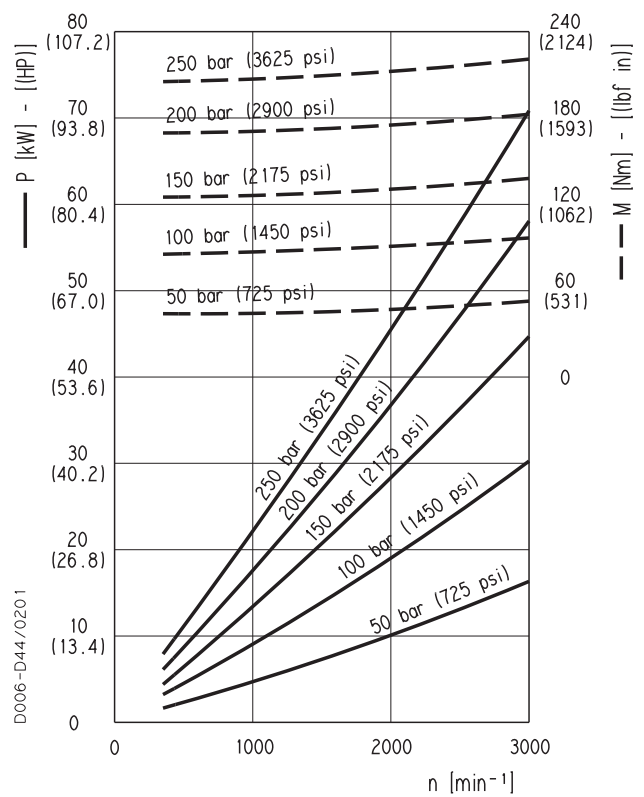
**KAPPA 30 GEAR PUMPS PERFORMANCE CURVES**

**KP 30**

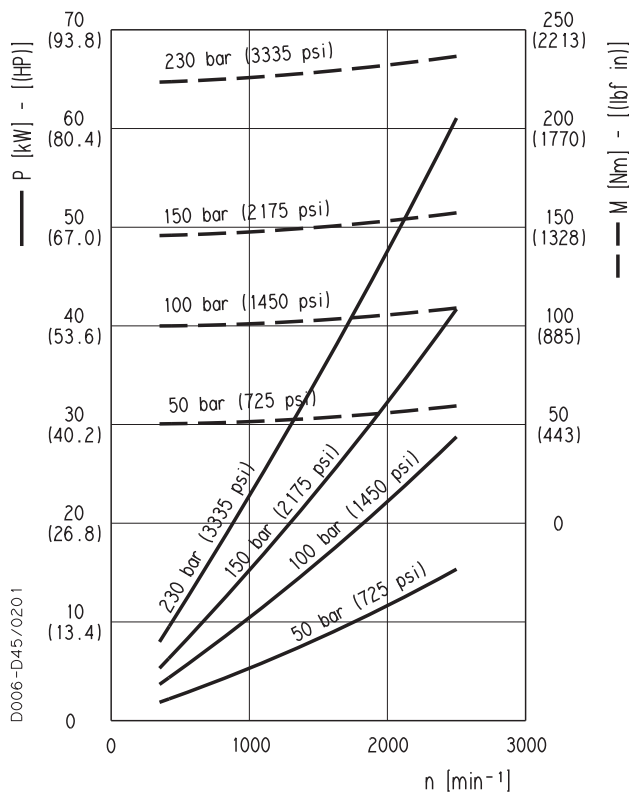
**KP 30•38**



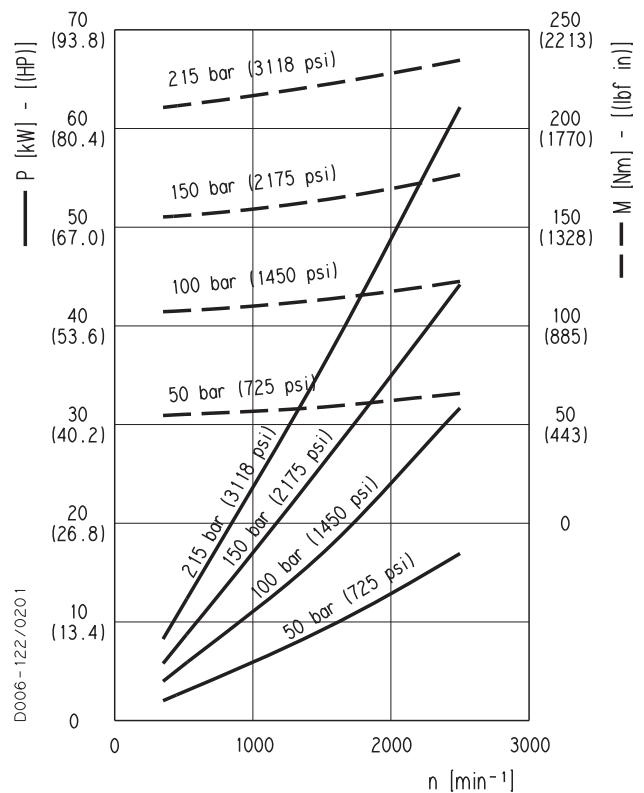
**KP 30•43**



**KP 30•51**



**KP 30•56**

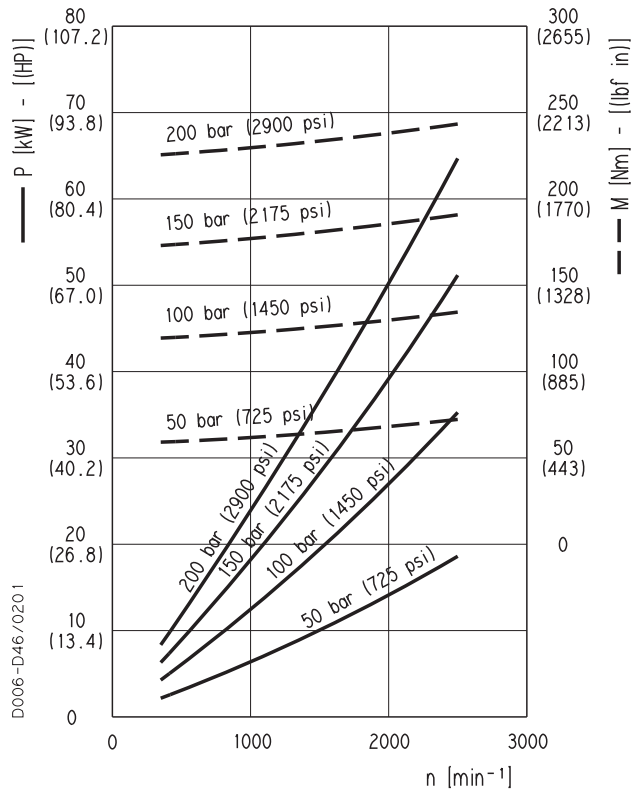


01/03.2002

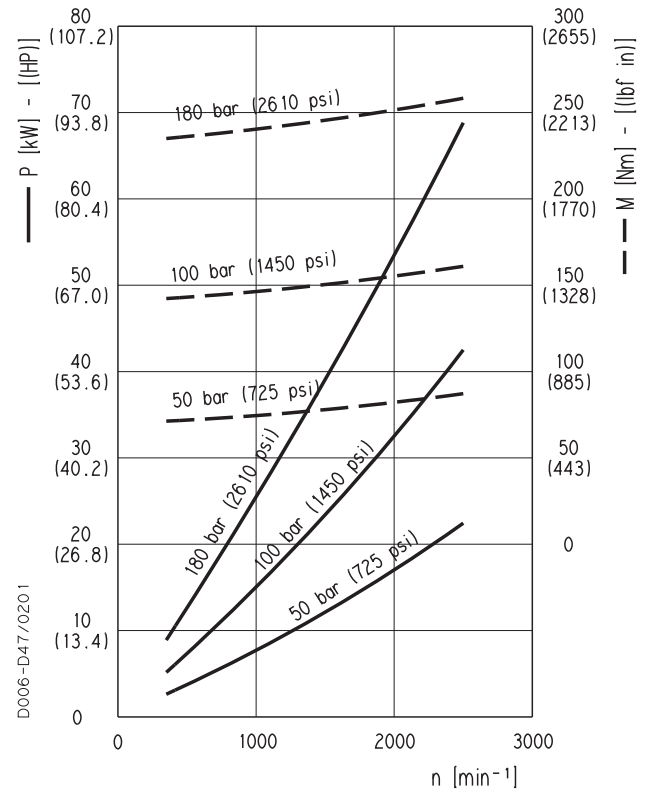
**KAPPA 30 GEAR PUMPS PERFORMANCE CURVES**

**KP 30**

**KP 30•61**

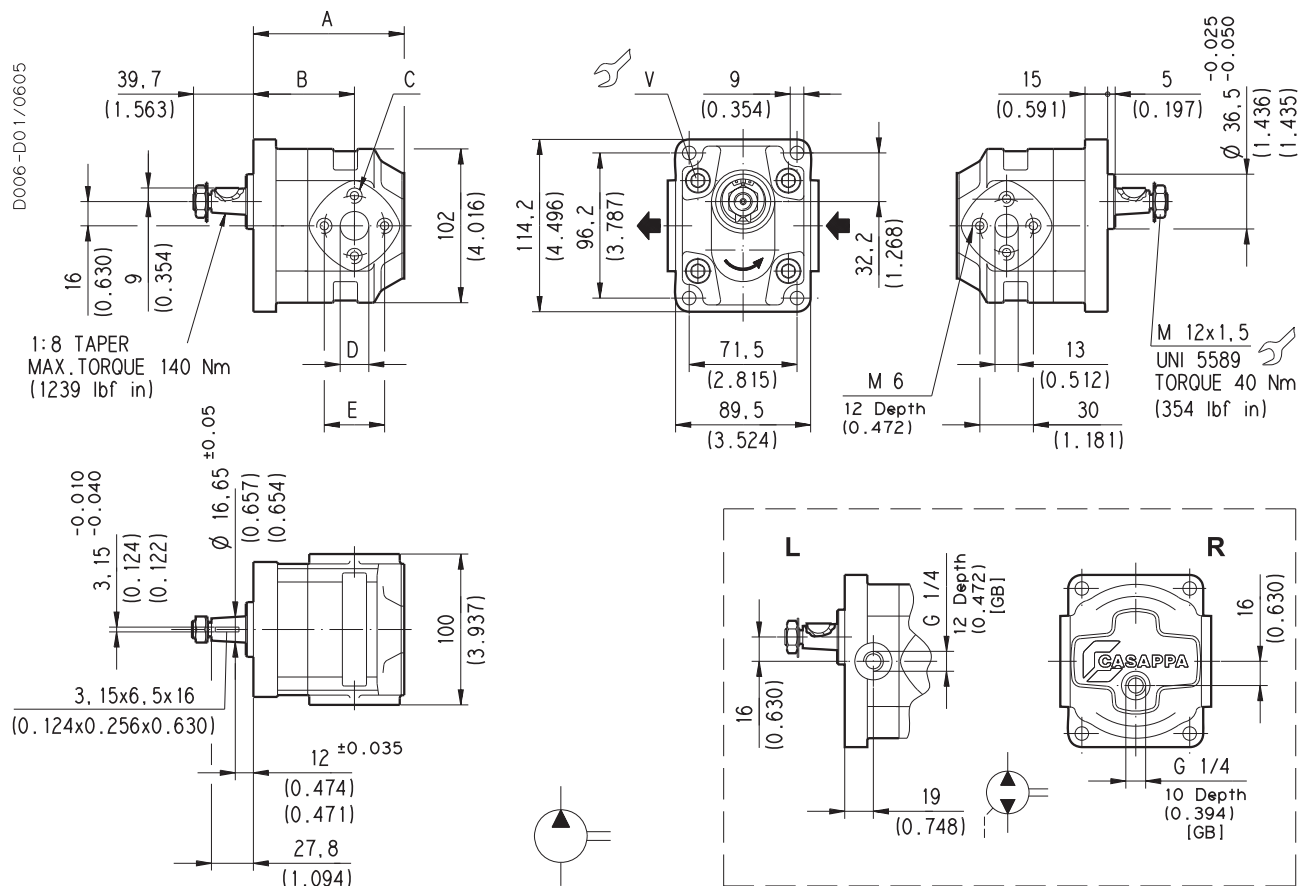


**KP 30•73**



01/03.2002

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

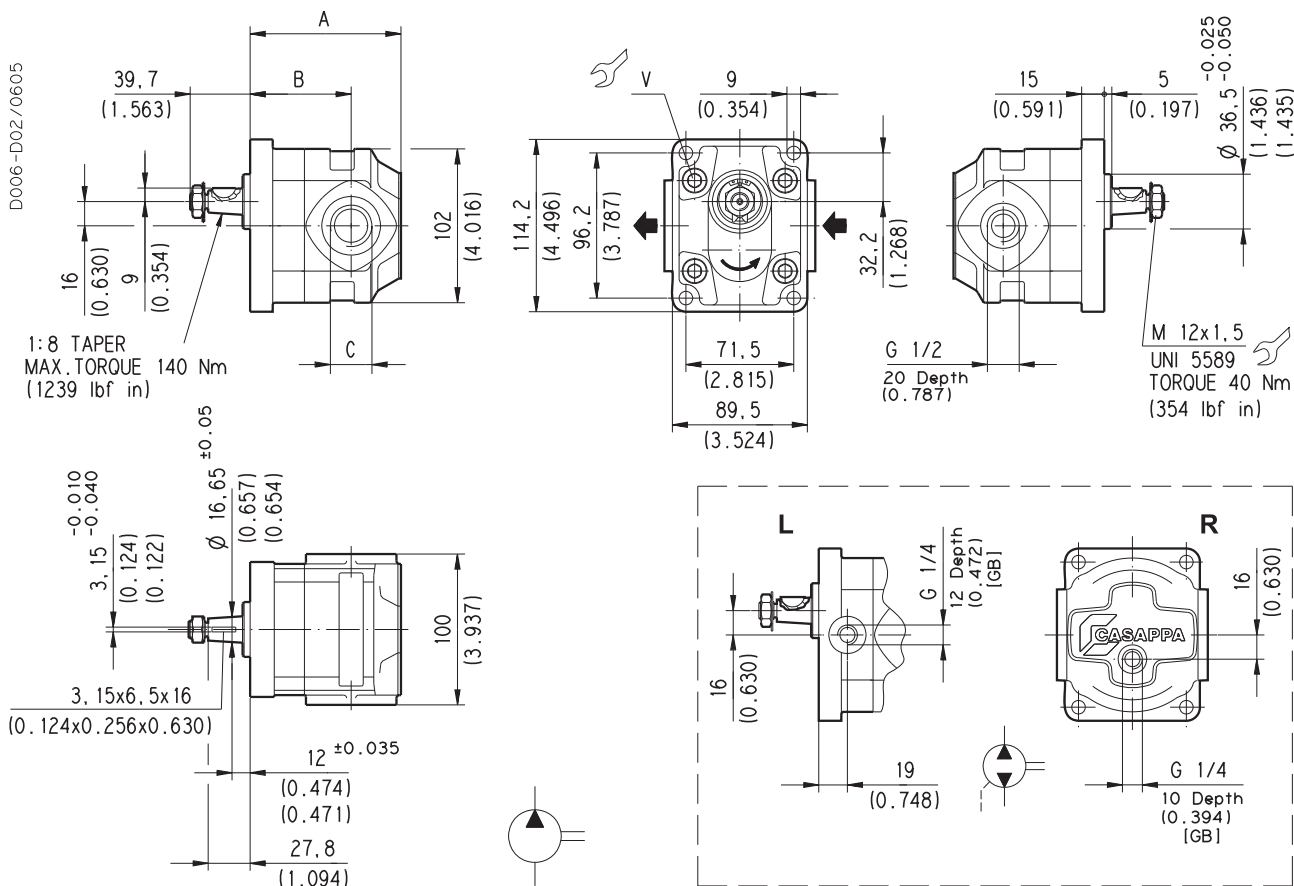
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

**KP 20•4 S0-82 E2-L EA/EA-N**

## GAS STRAIGHT THREAD PORTS

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



**V** Screws tightening torque Nm (lbf in)

 $70^{+7} (558 \div 682)$ 

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

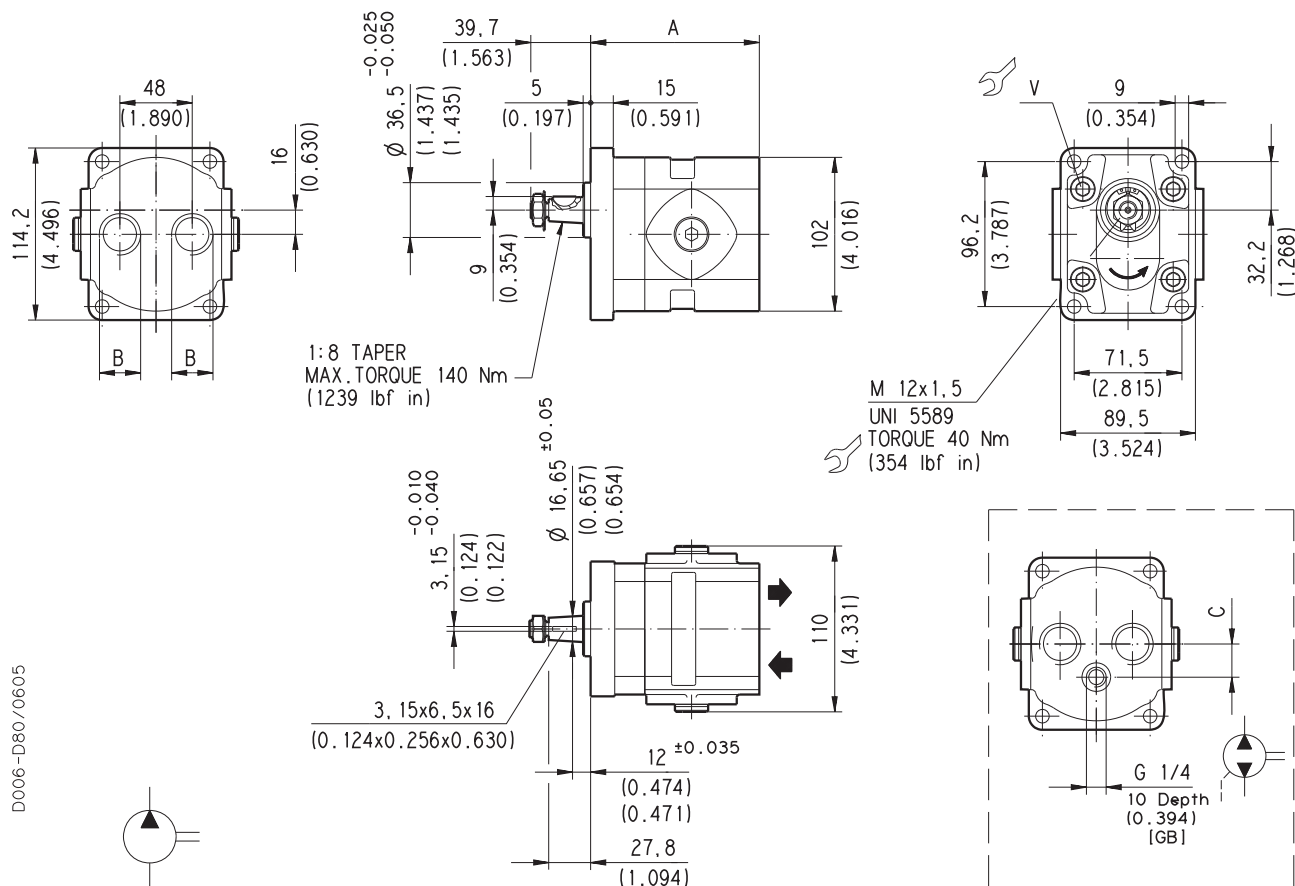
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

**KP 20•4 S0-82 E2-L GD/GD-N**

**GAS STRAIGHT THREAD PORTS**

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



**V Screws tightening torque Nm (lbf in)**

70  $\pm 7$  (558  $\div$  682)

**Rear ports version**

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

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

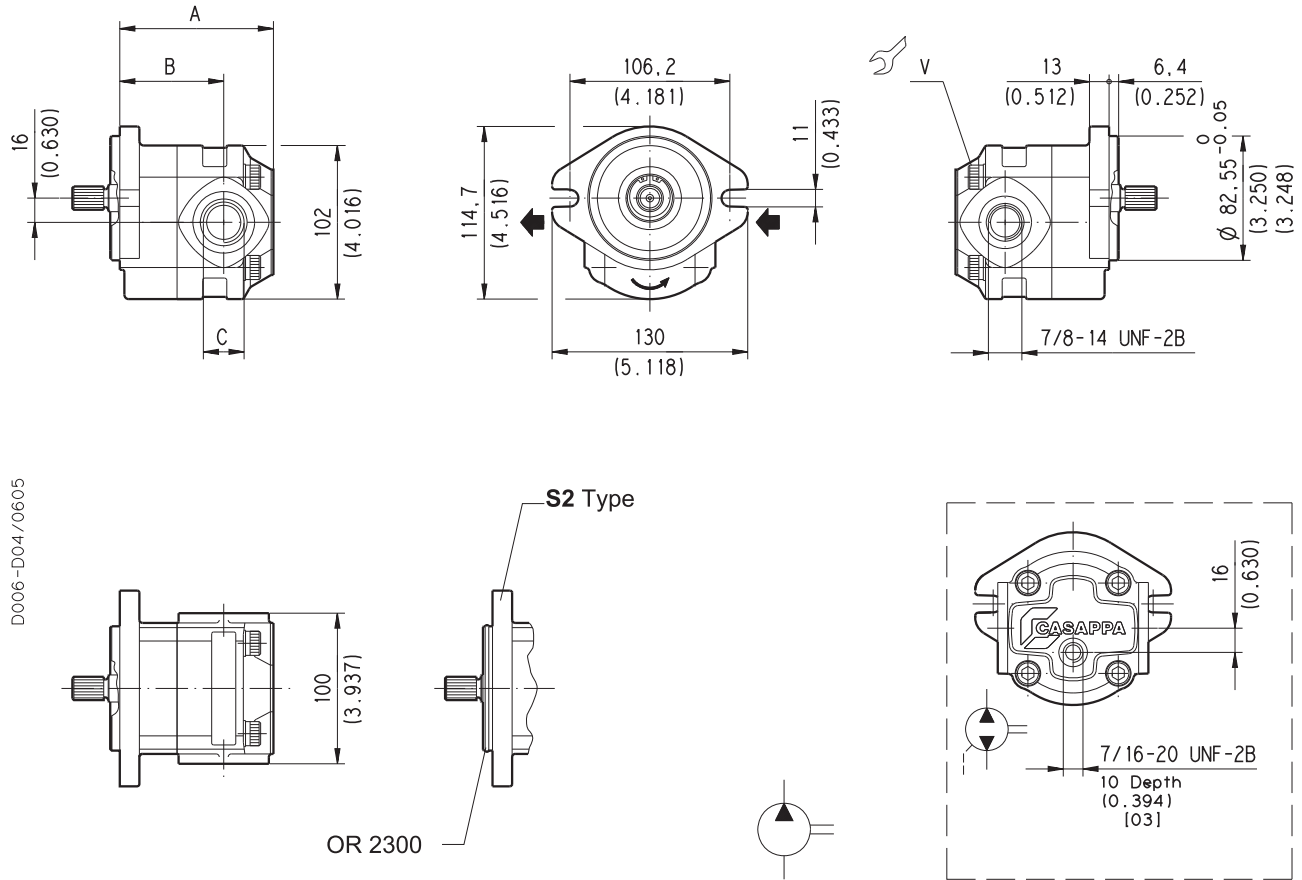
How to order:

**KP 20•4 S0-82 E2-P GD/GD-N**

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

SAE STRAIGHT THREAD PORTS J514

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


**V** Screws tightening torque Nm (lbf in)

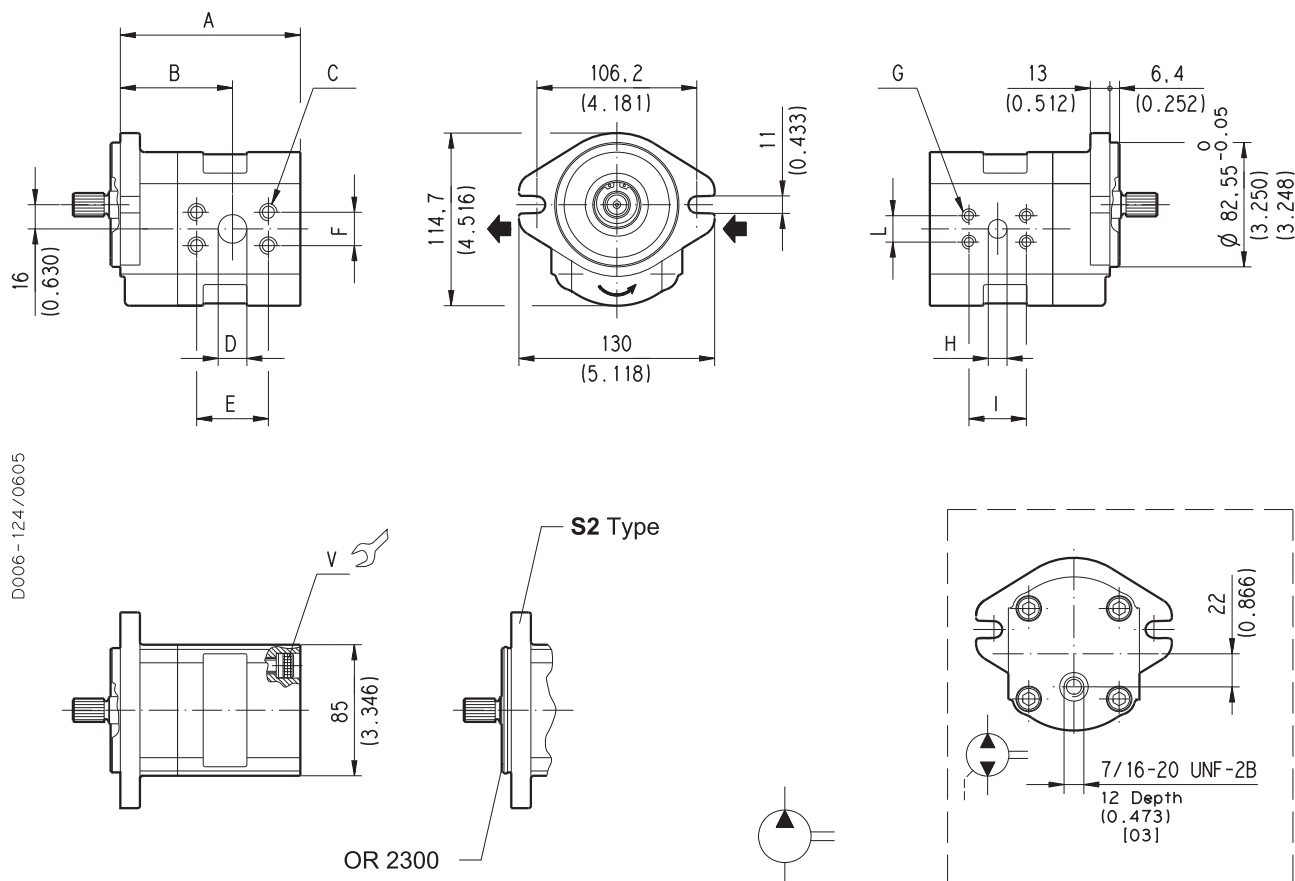
70 <sup>±7</sup> (558 ÷ 682)

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

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

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

Metric thread ISO 60° conforms to ISO/R 262


**V** Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

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

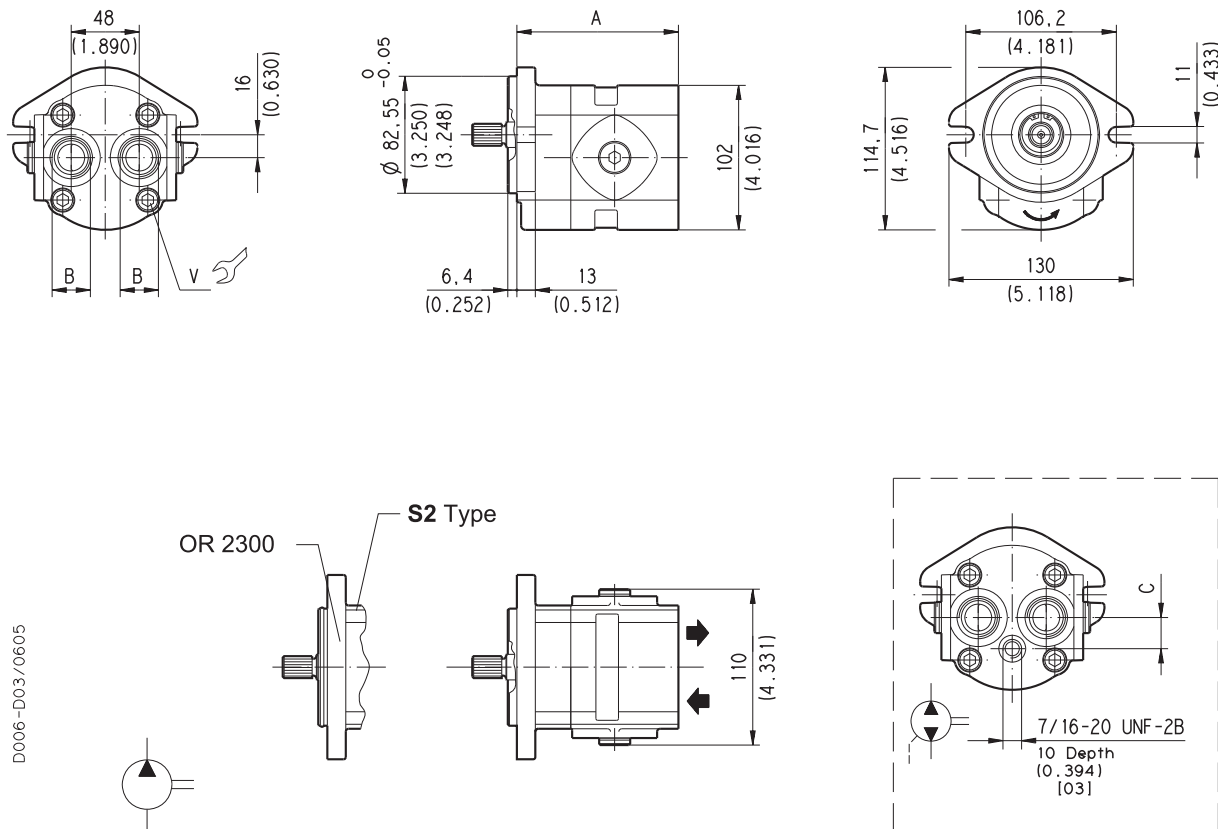
| Pump type         | A                | B               | C                             | D               | E               | F               | G                             | H               | I               | L               | Ports code |           |
|-------------------|------------------|-----------------|-------------------------------|-----------------|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

02/06.2005

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

SAE STRAIGHT THREAD PORTS J514

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


**V** Screws tightening torque Nm (lbf in)

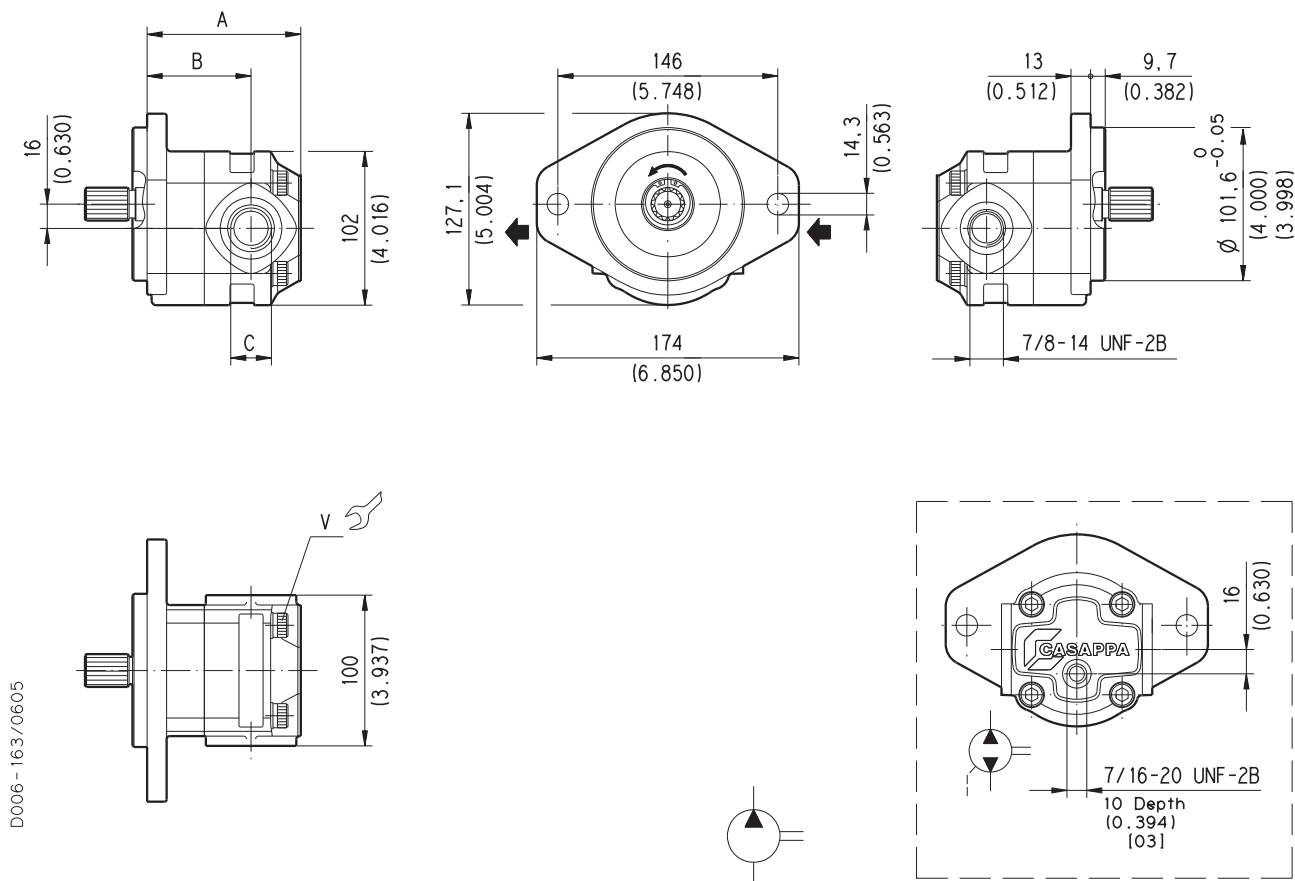
70 ±7 (558 ÷ 682)

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

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

**SAE STRAIGHT THREAD PORTS J514**

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


**V Screws tightening torque Nm (lbf in)**

70 ±7 (558 ÷ 682)

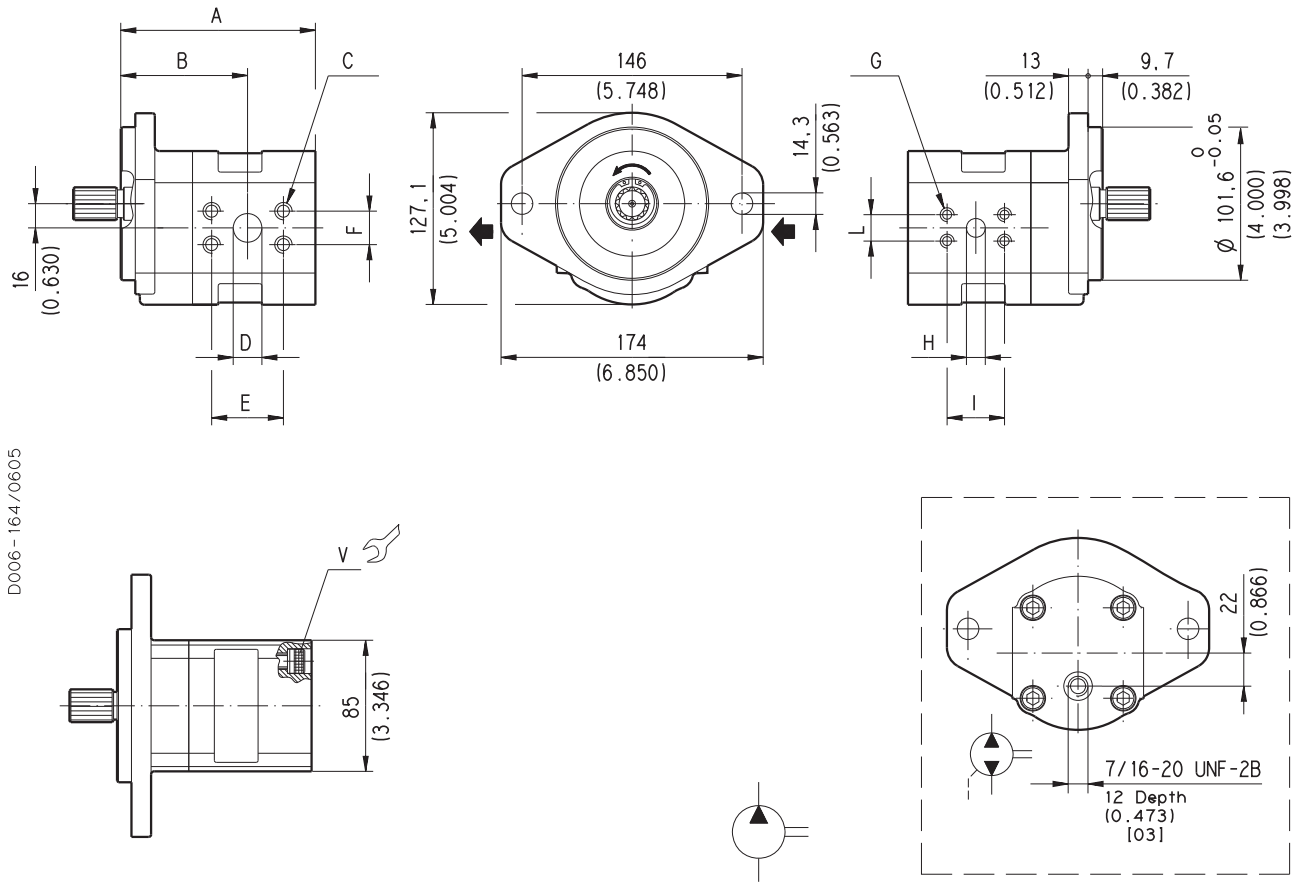
**Side ports version (L) - To order see page 22**

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

02/06.2005

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

Metric thread ISO 60° conforms to ISO/R 262



D006 - 164 / 0605

**V** Screws tightening torque Nm (lbf in)

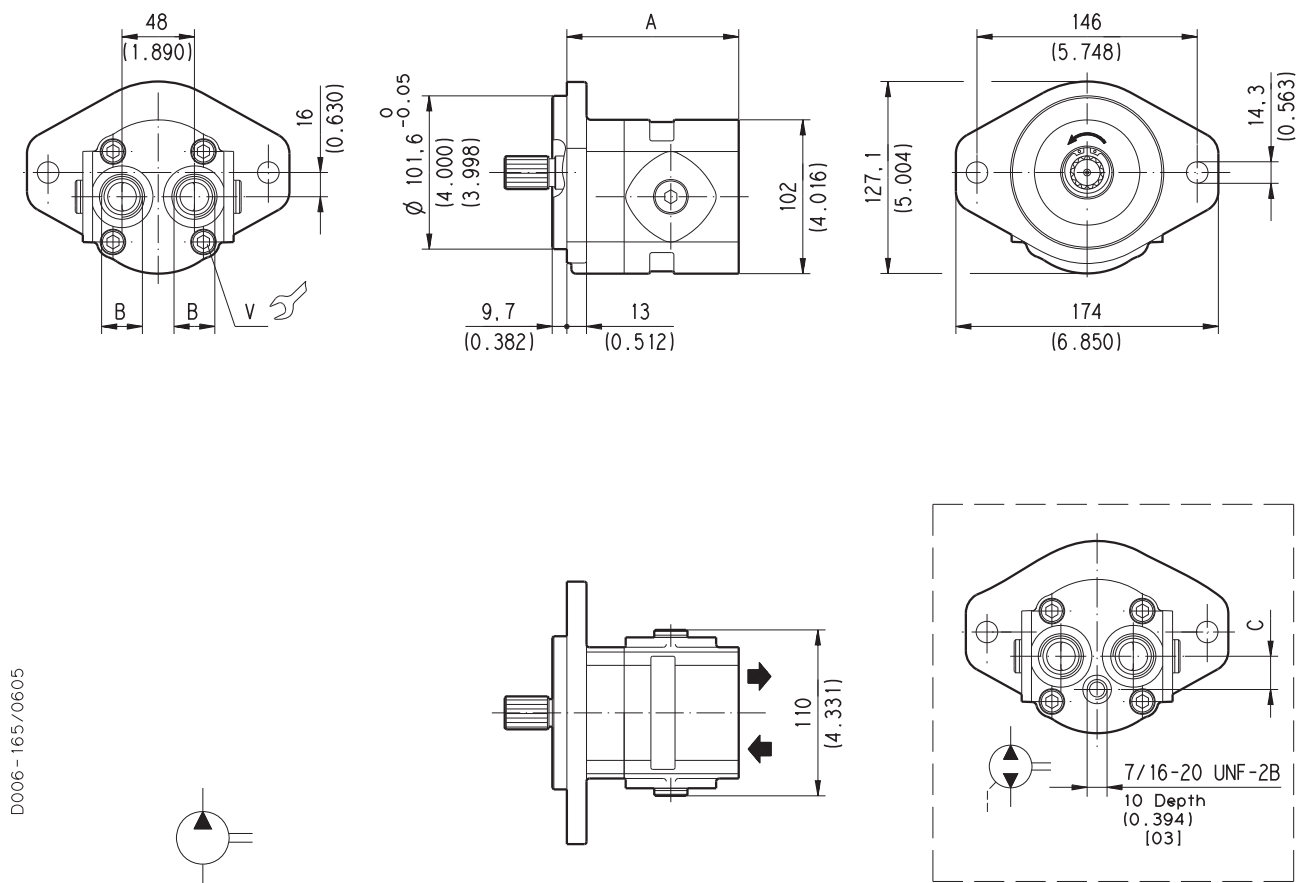
70 ±7 (558 ÷ 682)

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

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

**SAE STRAIGHT THREAD PORTS J514**

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


**V** Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

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

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

02/06.2005

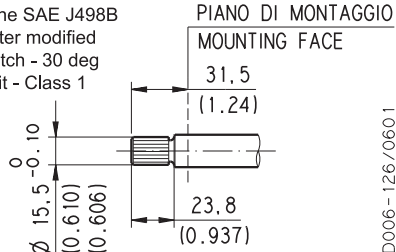
## KAPPA 20 END DRIVE SHAFTS

SAE

## SAE "A" SPLINE

03

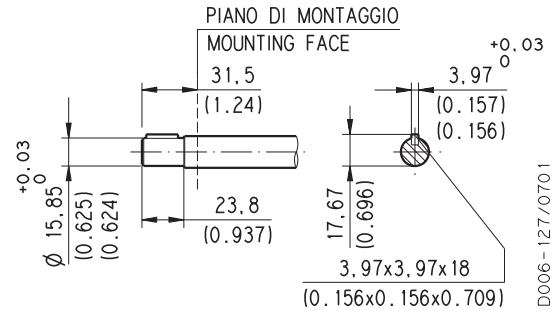
Ext. Involute Spline SAE J498B  
with major diameter modified  
9 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



MAX 885 lbf in (100 Nm)

## SAE "A" STRAIGHT

31

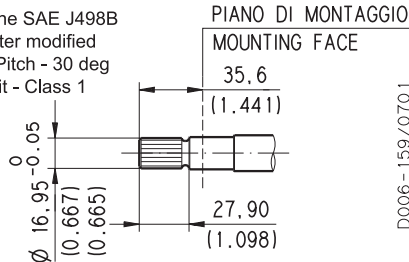


MAX 620 lbf in (70 Nm)

## SAE SPLINE

01

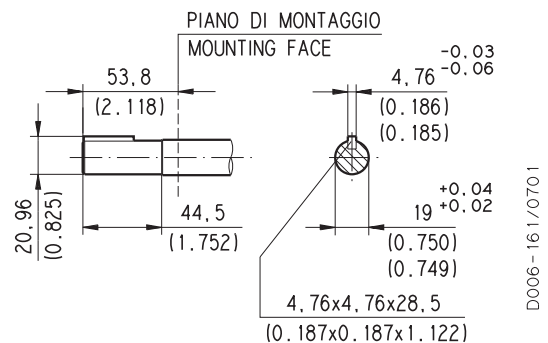
Ext. Involute Spline SAE J498B  
with major diameter modified  
10 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



MAX 1151 lbf in (130 Nm)

## STRAIGHT

49

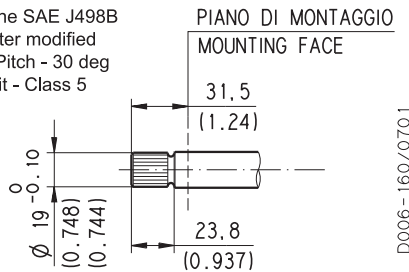


MAX 1239 lbf in (140 Nm)

## SAE SPLINE

07

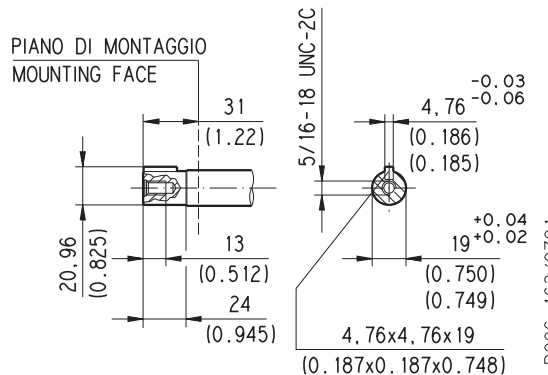
Ext. Involute Spline SAE J498B  
with major diameter modified  
11 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 5



MAX 1505 lbf in (170 Nm)

## STRAIGHT

50

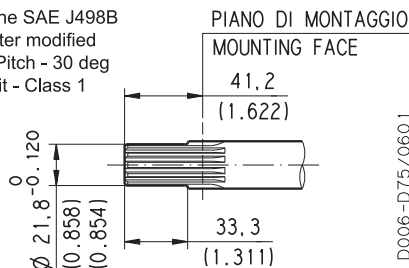


MAX 885 lbf in (100 Nm)

## SAE "B" SPLINE

04

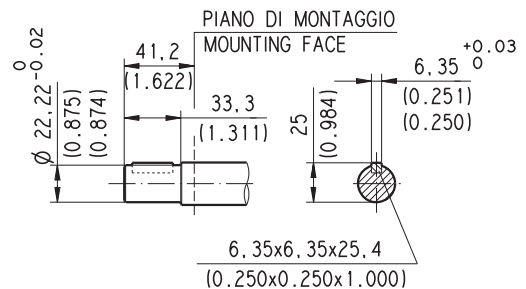
Ext. Involute Spline SAE J498B  
with major diameter modified  
13 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



MAX 2478 lbf in (280 Nm)

## SAE "B" STRAIGHT

32



MAX 1770 lbf in (200 Nm)

Replaces: 01/03.2002

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 |
| KP30•17   | S        | 0       | 03          | S1              | L              | OC/OC        | N     |

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

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

| 3 | Version                  | CODE |
|---|--------------------------|------|
|   | Without outboard bearing | 0    |

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

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

| CODE | 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 |              |            |
| 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

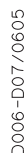
KP 20•4 S0 - 03 S1 - L OC/OC - N

Special version pump

KP 20•4 S0 - 04 S5 - L MA/MA - V Bz

01/03.2002

Metric thread ISO 60° conforms to ISO/R 262

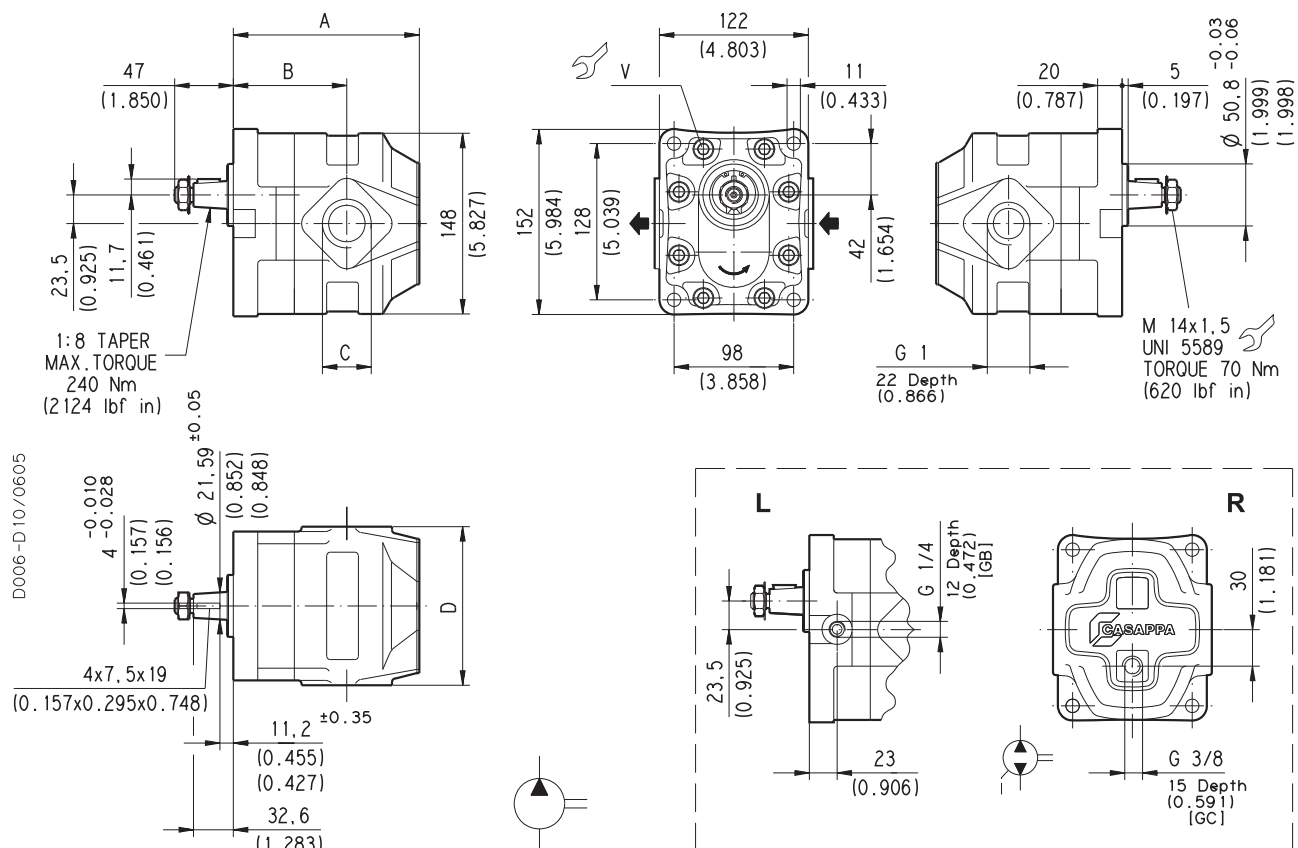
 $70 \pm 7$  (558 ÷ 682)02/06.2005

How to order:

23

## GAS STRAIGHT THREAD PORTS

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



**V** Screws tightening torque Nm (lbf in)

 $70^{+7} (558 \div 682)$ 

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

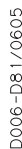
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

**KP 30•27 S0-83 E3-L GF/GF-N**

02/06.2005

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

 $70 \pm 7$  (558 ÷ 682)

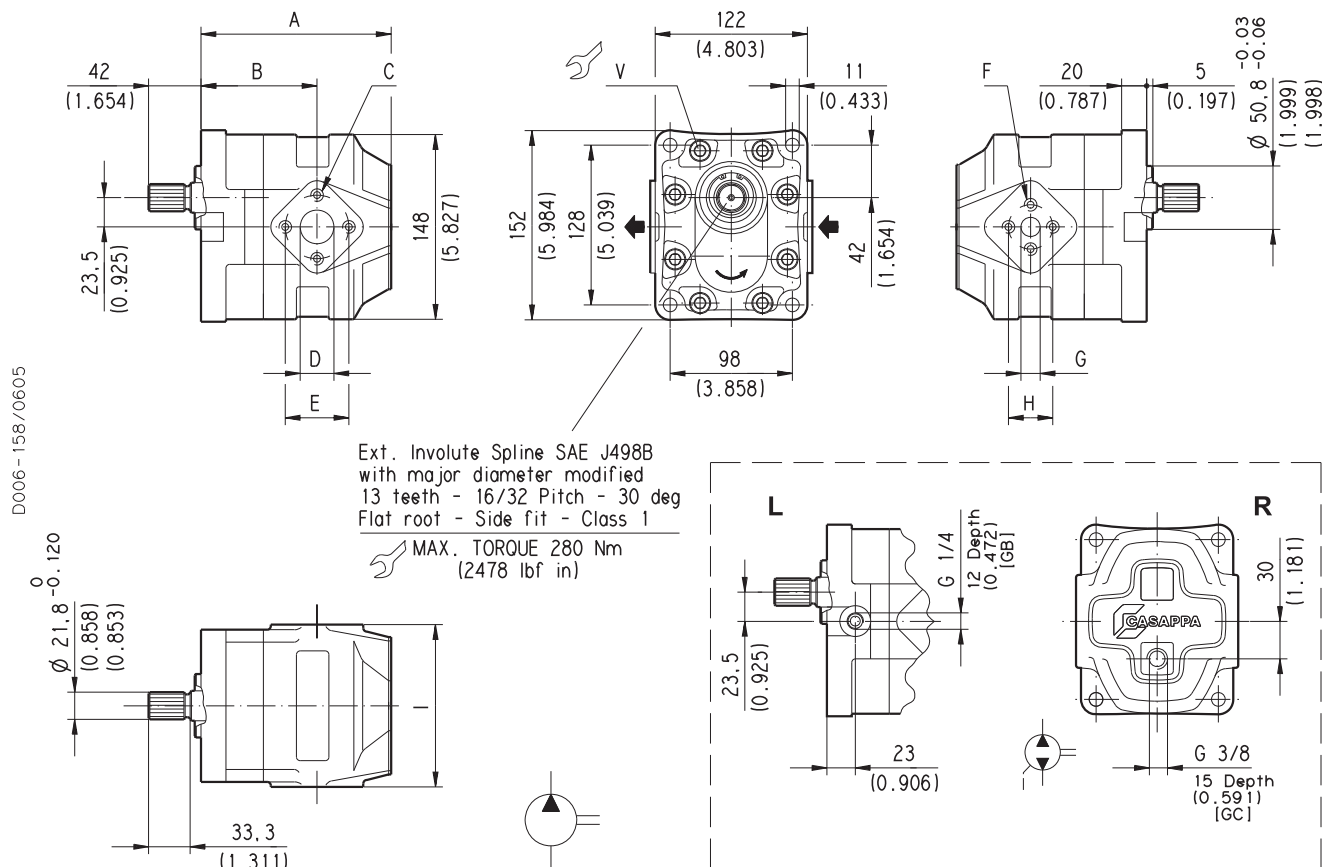
### Rear ports version (P)

02/06.2005

How to order:

**KP 30•27 S0-83 E3-P GF/GF-N**

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<br>(in)     | mm<br>(in)     | mm<br>(in)                  | mm<br>(in)    | mm<br>(in)    | mm<br>(in)                  | mm<br>(in)    | mm<br>(in)    | mm<br>(in)     |
| <b>KP 30•27</b> | <b>S<br/>D<br/>L<br/>R<br/>B</b> | 133<br>(5.236) | 85<br>(3.346)  | M 10<br>Depth 17<br>(0.669) | 27<br>(1.063) | 51<br>(2.008) | M 8<br>Depth 17<br>(0.669)  | 19<br>(0.748) | 40<br>(1.575) | 130<br>(5.118) |
| <b>KP 30•34</b> |                                  | 138<br>(5.433) | 90<br>(3.543)  |                             |               |               |                             |               |               |                |
| <b>KP 30•38</b> |                                  | 141<br>(5.551) | 93<br>(3.661)  |                             |               |               |                             |               |               |                |
| <b>KP 30•43</b> |                                  | 144<br>(5.669) | 96<br>(3.780)  |                             |               |               |                             |               |               |                |
| <b>KP 30•51</b> |                                  | 149<br>(5.866) | 93<br>(3.661)  |                             |               |               |                             |               |               |                |
| <b>KP 30•56</b> |                                  | 152<br>(5.984) | 97<br>(3.819)  |                             |               |               |                             |               |               |                |
| <b>KP 30•61</b> | <b>S<br/>D<br/>L<br/>R<br/>B</b> | 155<br>(6.102) | 100<br>(3.937) | M 12<br>Depth 17<br>(0.669) | 33<br>(1.299) | 62<br>(2.441) | M 10<br>Depth 17<br>(0.669) | 27<br>(1.063) | 51<br>(2.008) | 135<br>(5.315) |
| <b>KP 30•73</b> |                                  | 163<br>(6.417) | 108<br>(4.252) |                             |               |               |                             |               |               |                |

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

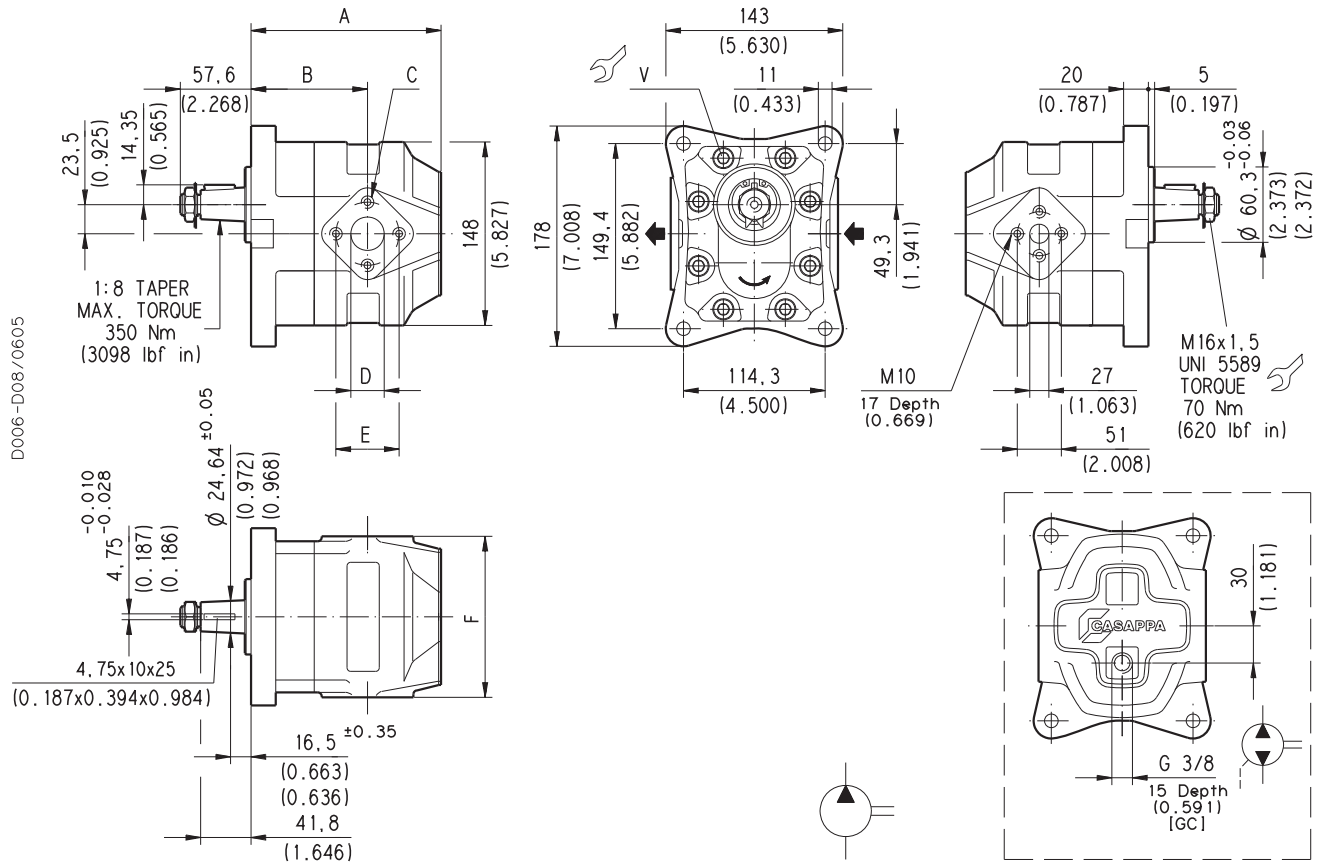
How to order:

**KP 30•27 S0-83 E3-L ED/EB-N**

02/06.2005

EUROPEAN FLANGED PORTS - 4 Bolts

Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

02/06.2005

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

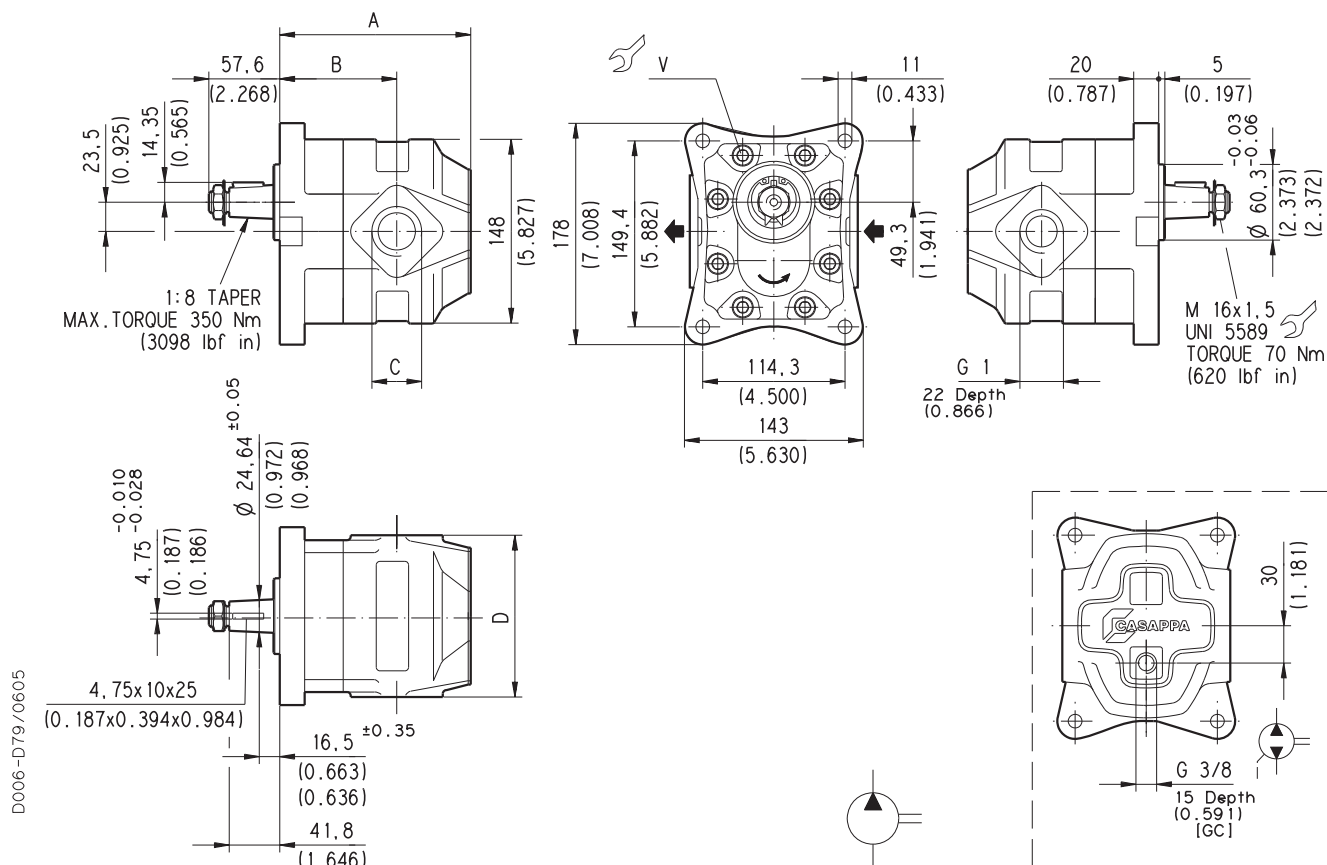
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

**KP 30-51 S0-84 E4-L ED/ED-N**

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

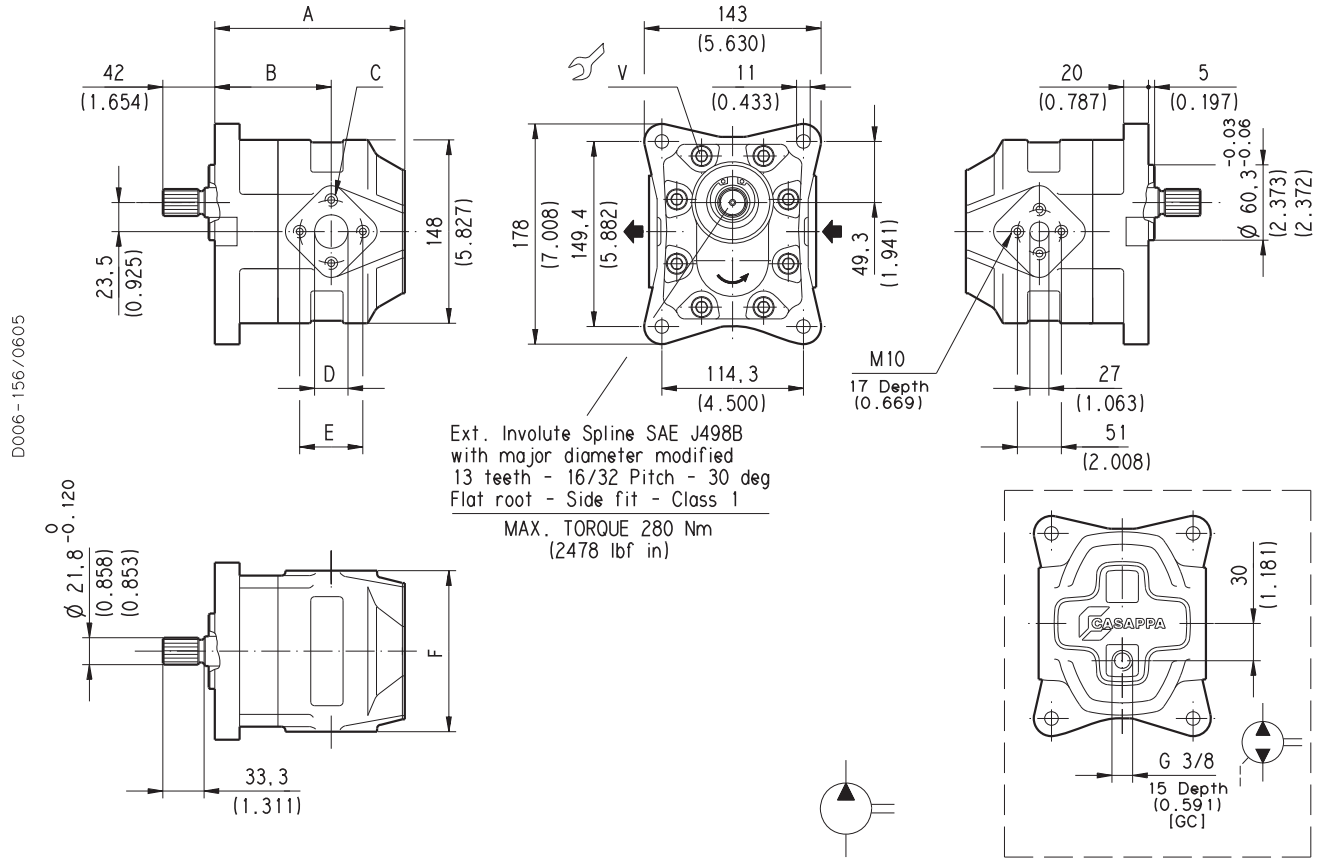
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

**KP 30-51 S0-84 E4-L GF/GF-N**

EUROPEAN FLANGED PORTS - 4 Bolts

Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

02/06.2005

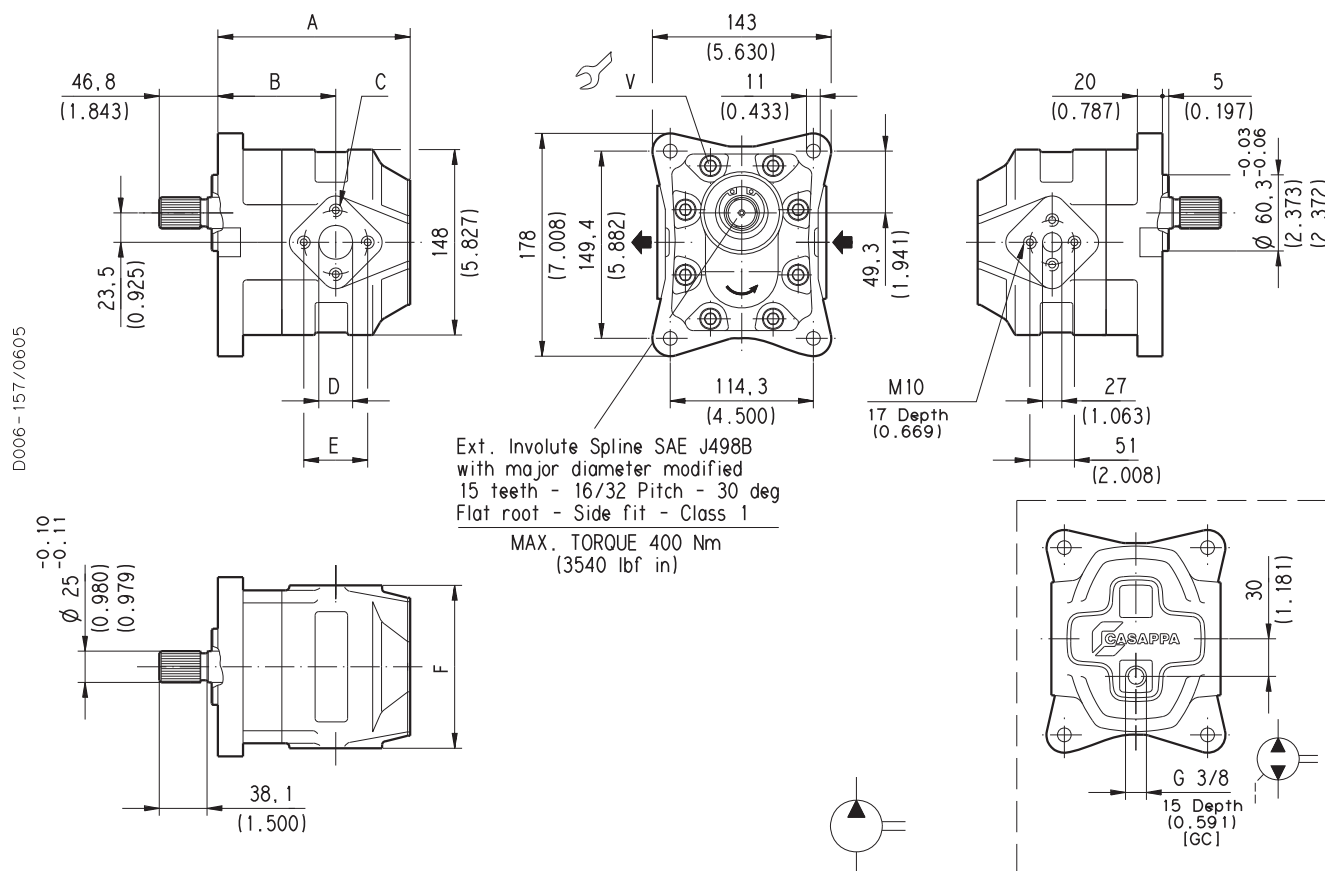
| Pump type                                             |                                              | A                        | B          | C                           | D             | E             | F              |
|-------------------------------------------------------|----------------------------------------------|--------------------------|------------|-----------------------------|---------------|---------------|----------------|
|                                                       |                                              | mm<br>(in)               | mm<br>(in) | mm<br>(in)                  | mm<br>(in)    | mm<br>(in)    | mm<br>(in)     |
| <b>KP 30-51</b><br><b>KP 30-61</b><br><b>KP 30-73</b> | <b>S</b><br><b>D</b><br><b>R</b><br><b>B</b> | <b>0-A8 E4-L ED/ED-N</b> |            | M 10<br>Depth 17<br>(0.669) | 27<br>(1.063) | 51<br>(2.008) | 130<br>(5.118) |
|                                                       |                                              |                          |            | M 12<br>Depth 17<br>(0.669) | 33<br>(1.299) | 62<br>(2.441) | 135<br>(5.315) |
|                                                       |                                              | <b>0-A8 E4-L EF/ED-N</b> |            |                             |               |               |                |

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**

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<br>(in)               | mm<br>(in) | mm<br>(in)                  | mm<br>(in)    | mm<br>(in)    | mm<br>(in)     |
| <b>KP 30-51</b><br><b>KP 30-61</b><br><b>KP 30-73</b> | <b>S</b><br><b>D</b><br><b>R</b><br><b>B</b> | <b>0-A5 E4-L ED/ED-N</b> |            | M 10<br>Depth 17<br>(0.669) | 27<br>(1.063) | 51<br>(2.008) | 130<br>(5.118) |
|                                                       |                                              | <b>0-A5 E4-L EF/ED-N</b> |            | M 12<br>Depth 17<br>(0.669) | 33<br>(1.299) | 62<br>(2.441) | 135<br>(5.315) |
|                                                       |                                              |                          |            |                             |               |               |                |

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

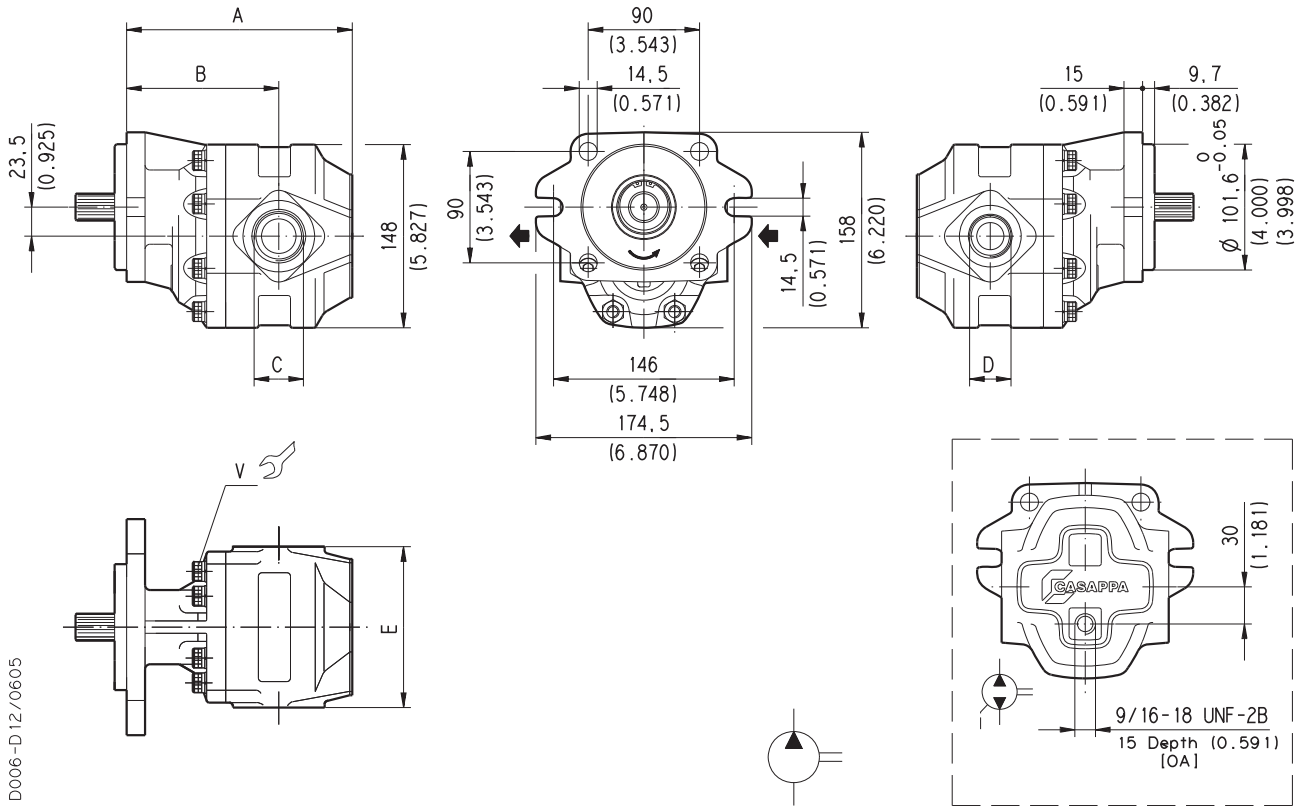
How to order:

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

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

SAE STRAIGHT THREAD PORTS J514

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



D006-D12/0605

**V** Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

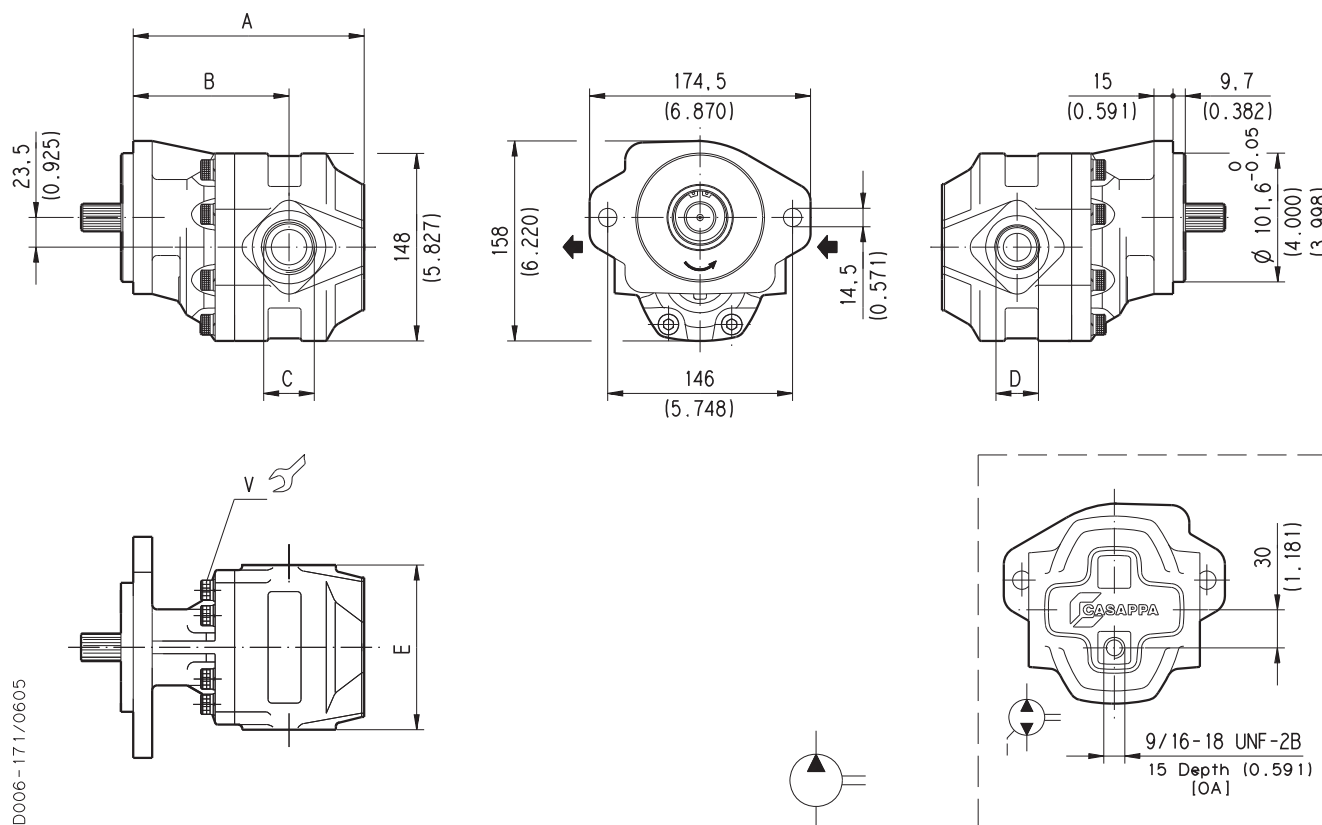
To order see page 33 - 34

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

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

SAE STRAIGHT THREAD PORTS J514

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



**V** Screws tightening torque Nm (lbf in)

 $70^{\pm 7} (558 \div 682)$ 

**To order see page 33 - 34**

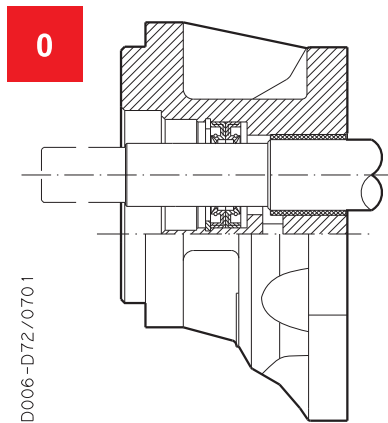
| Pump type | A              | B              | C               | D               | E              | Ports code |     |
|-----------|----------------|----------------|-----------------|-----------------|----------------|------------|-----|
|           | mm<br>(in)     | mm<br>(in)     |             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

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

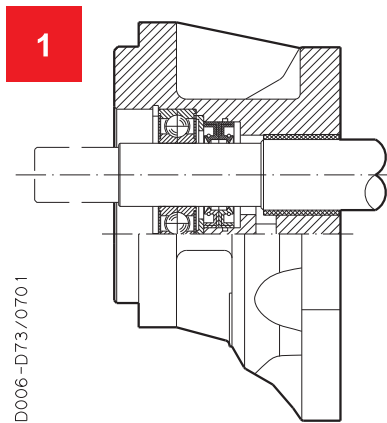
**KAPPA 30 SAE VERSION**

**SAE**

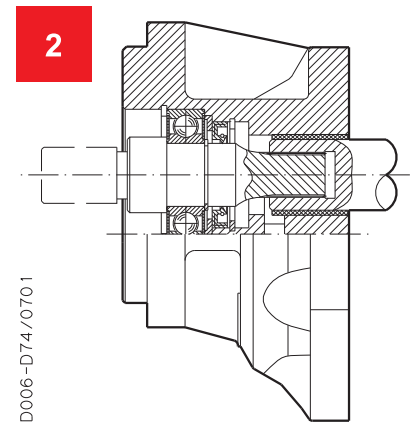
Replaces: 01/03.2002



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.

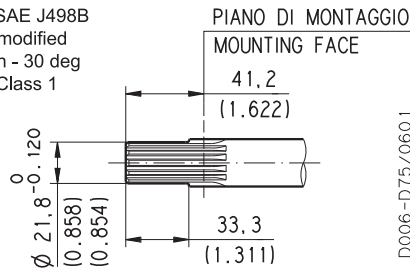
**KAPPA 30 END DRIVE SHAFTS**

**SAE**

**SAE "B" SPLINE**

**04**

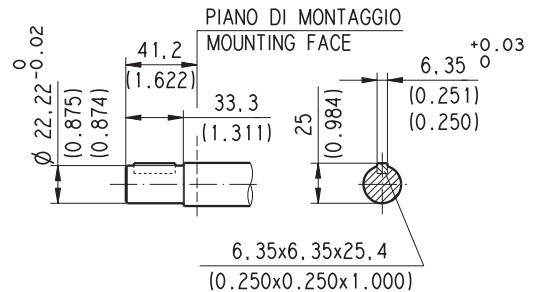
Ext. Involute Spline SAE J498B  
with major diameter modified  
13 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



MAX 2921 lbf in (330 Nm) ◆

**SAE "B" STRAIGHT**

**32**

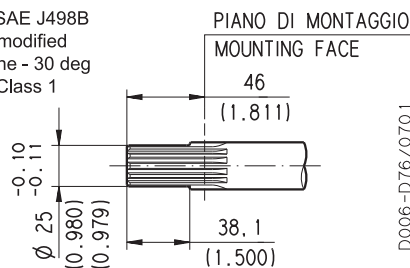


MAX 1770 lbf in (200 Nm) ◆

**SAE "BB" SPLINE**

**05**

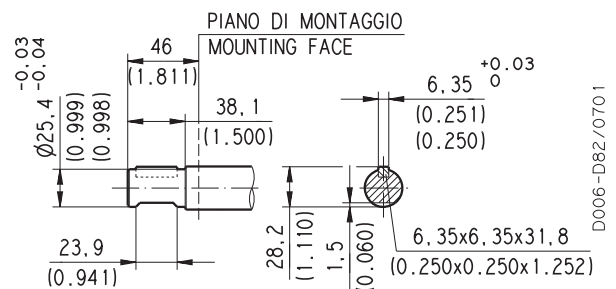
Ext. Involute Spline SAE J498B  
with major diameter modified  
15 teeth - 16/32 Spline - 30 deg  
Flat Root - Side fit - Class 1



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)

## 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 |
| KP30-27   | S        | 0       | – | 04          | S3              | – | L              | OF/OD        | – | N     |

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

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

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

| 4                          | Drive shaft | CODE |
|----------------------------|-------------|------|
| SAE "B" spline (13 teeth)  |             | 04   |
| SAE "B" straight           |             | 32   |
| SAE "BB" spline (15 teeth) |             | 05   |
| SAE "BB" straight          |             | 33   |

| 5                 | Mounting flange | CODE |
|-------------------|-----------------|------|
| SAE "B" 2-4 holes |                 | S3   |
| SAE "B" 2 holes   |                 | S5   |

| CODE | 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.

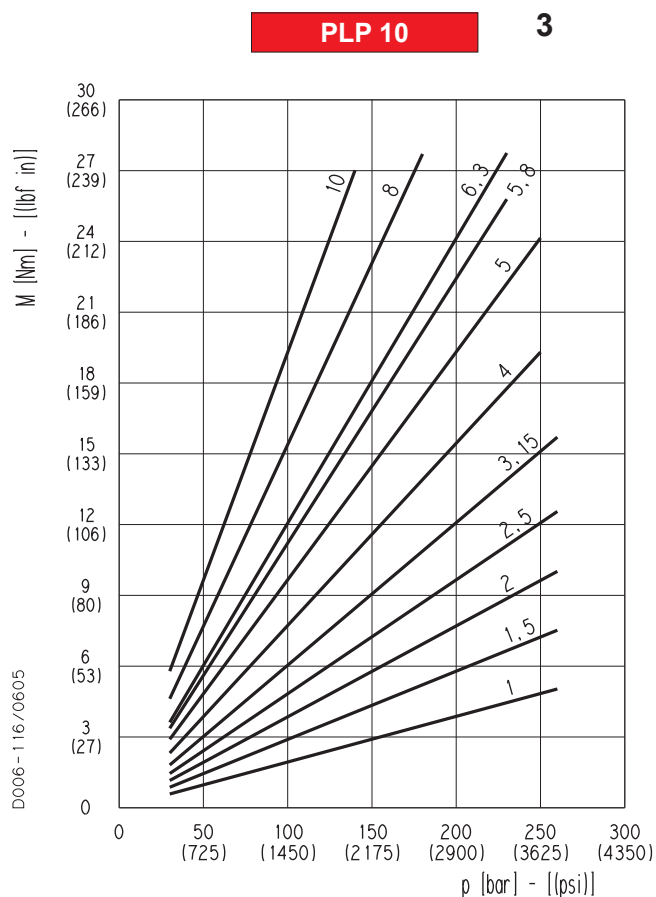
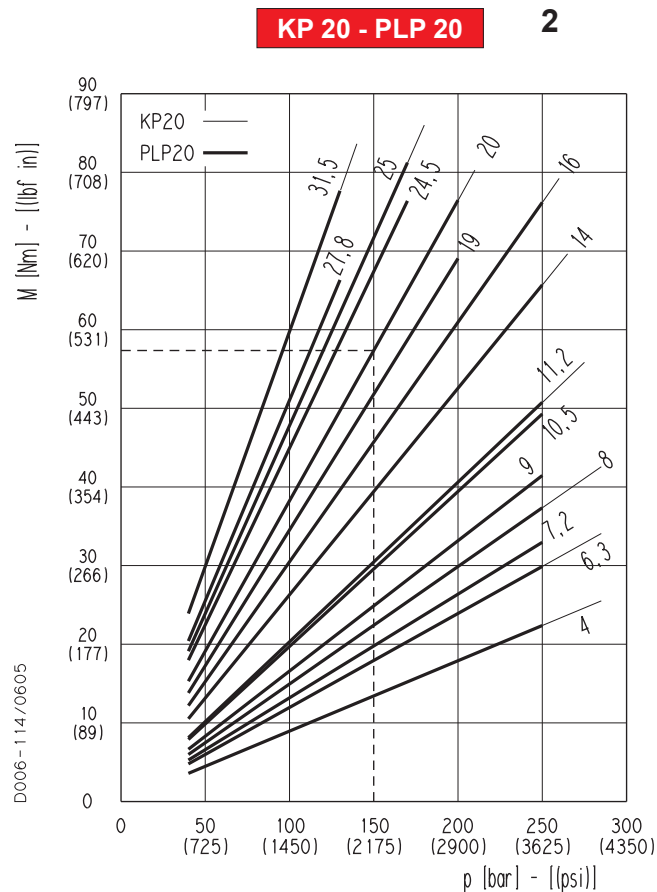
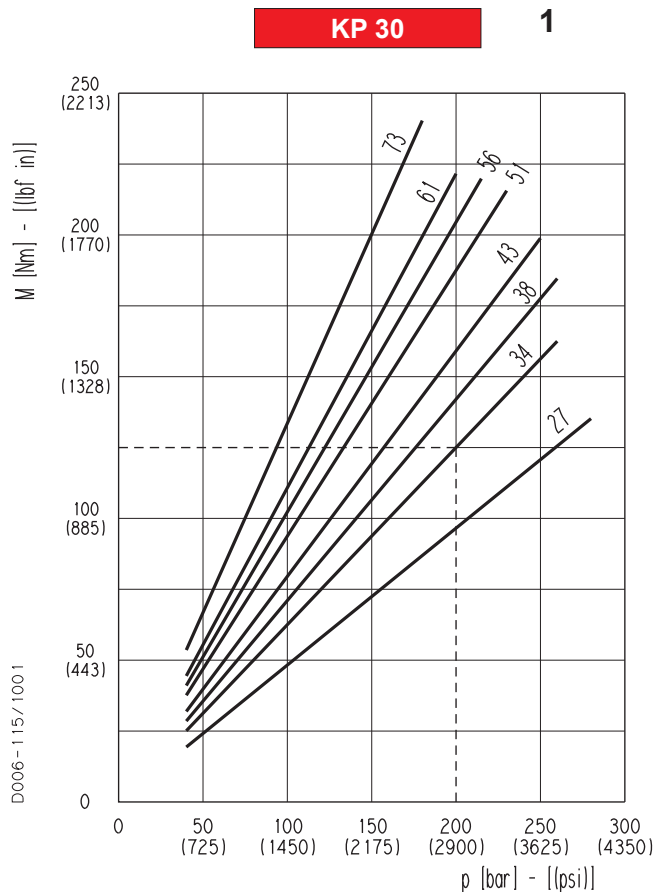
|                                                              |                                             |                             |
|--------------------------------------------------------------|---------------------------------------------|-----------------------------|
| <b>M</b>                                                     | lbf in (Nm)                                 | Torque                      |
| <b>V</b>                                                     | in <sup>3</sup> /rev (cm <sup>3</sup> /rev) | Displacement                |
| <b>Δp</b>                                                    | psi (bar)                                   | Pressure                    |
| $\eta_{hm} = \eta_{hm}(V, \Delta p, n) \quad (\approx 0,90)$ |                                             | Hydro-mechanical efficiency |

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

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

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

## ABSORBED TORQUE

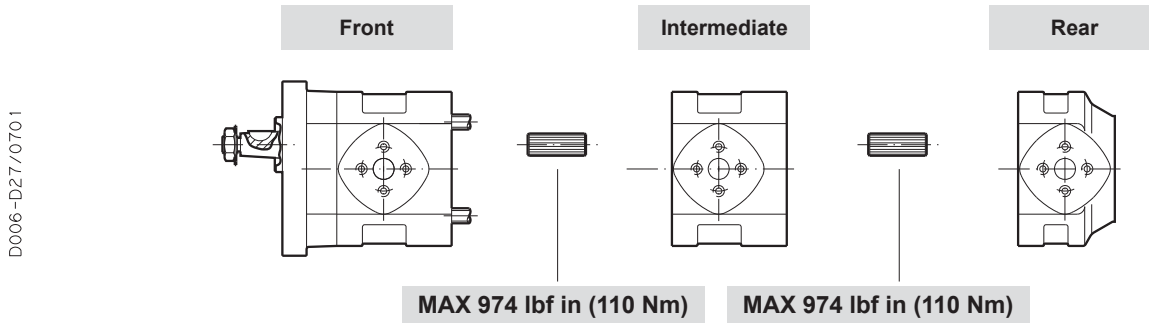


### DRIVE SHAFT SELECTION

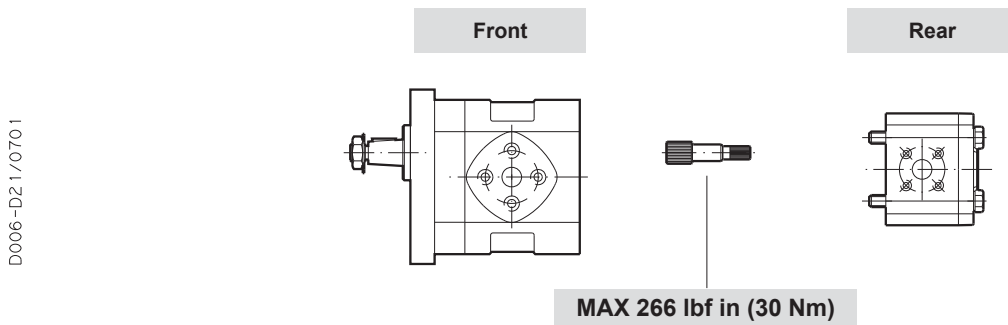
Let us consider a double pump KP30•34+KP20•20. If we suppose that we have to work with the first pump at a pressure of 2900 psi (200 bar) and the second pump at a pressure of 2175 psi (150 bar), the graph 1 shows that the torque absorbed by KP30•34 is 1106 lbf in (125 Nm) and the graph 2 shows that the 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.

02/06.2005

## KAPPA 20 + KAPPA 20



## KAPPA 20 + POLARIS 10

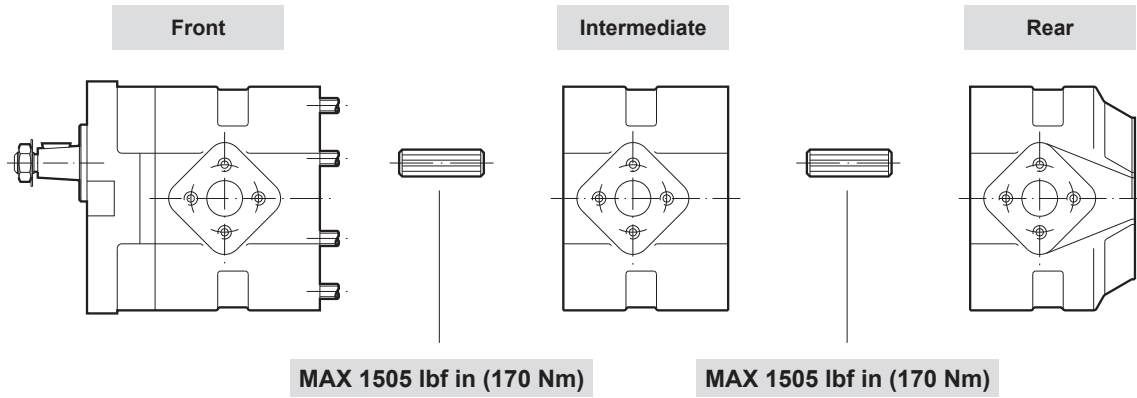


## KAPPA 20 END DRIVE SHAFT

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

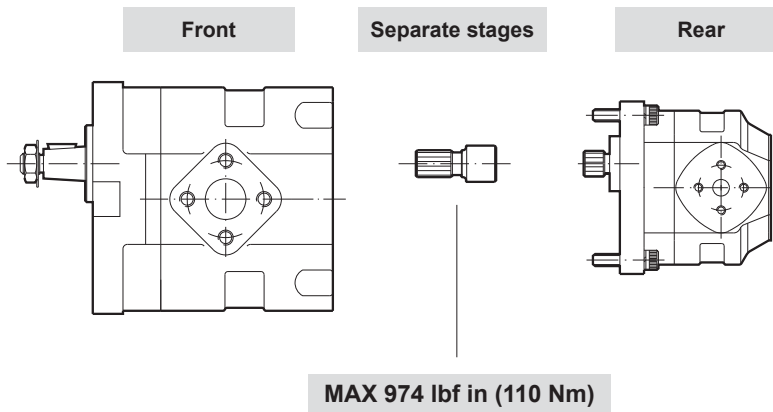
## KAPPA 30 + KAPPA 30

D006-D23/0701



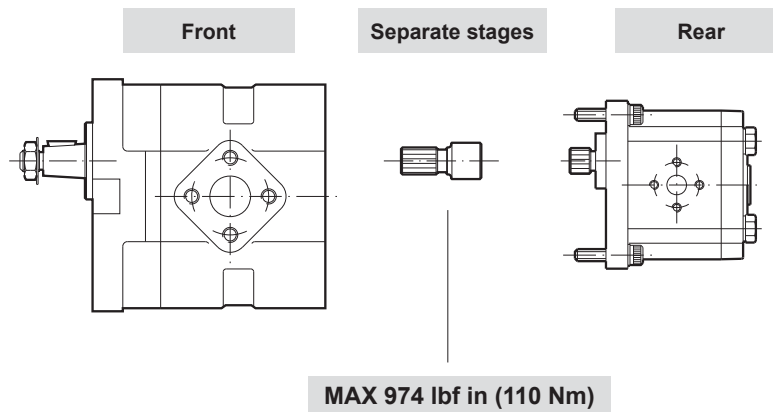
## KAPPA 30 + KAPPA 20

D006-D22/0701



## KAPPA 30 + POLARIS 20

D006-D26/0701



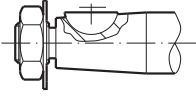
01/03.2002

## KAPPA 30 END DRIVE SHAFTS

Replaces: 01/03.2002

EUROPEAN TAPERED 1:8

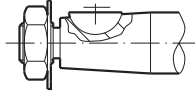
83



MAX 2124 lbf in (240 Nm)

EUROPEAN TAPERED 1:8

84



MAX 3098 lbf in (350 Nm)

SAE "B" SPLINE

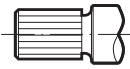
04



MAX 2921 lbf in (330 Nm)

SAE SPLINE

A8



MAX 2478 lbf in (280 Nm)

SAE SPLINE

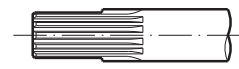
A5



MAX 3540 lbf in (400 Nm)

SAE "BB" SPLINE

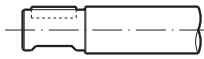
05



MAX 4426 lbf in (500 Nm)

SAE "B" STRAIGHT

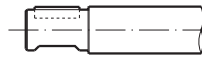
32



MAX 1770 lbf in (200 Nm)

SAE "BB" STRAIGHT

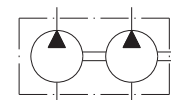
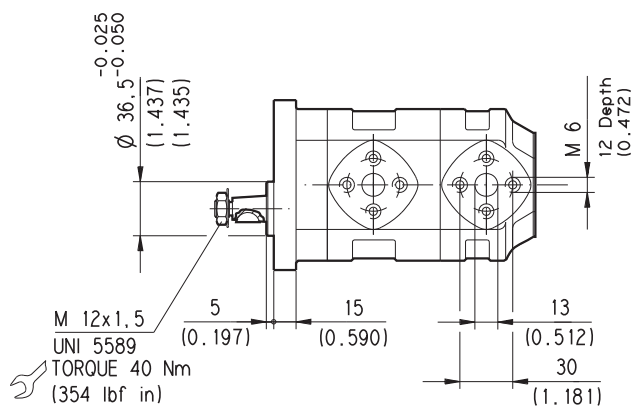
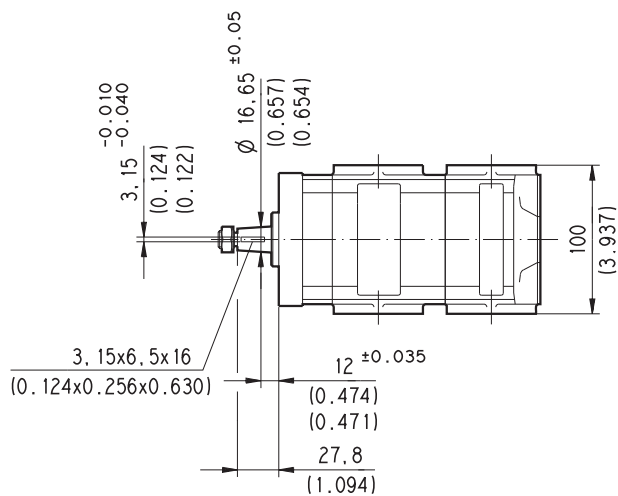
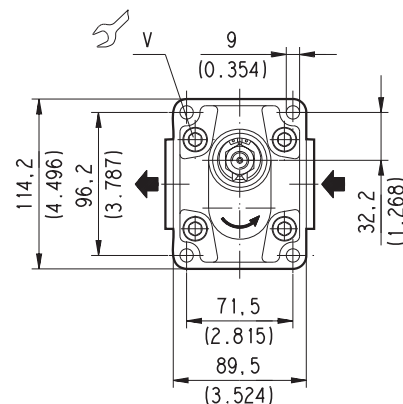
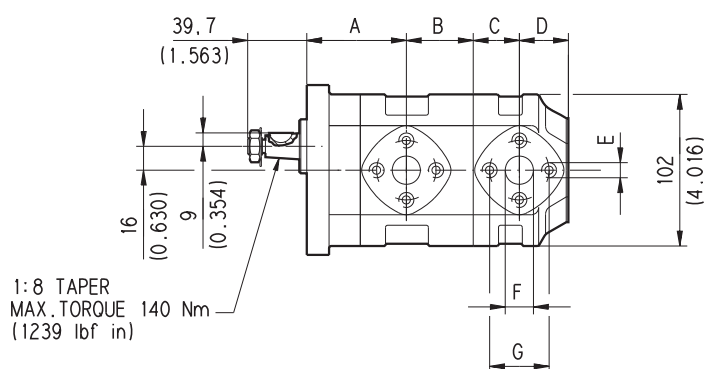
33



MAX 2478 lbf in (280 Nm)

03/03.2006

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             |
|------------|-----------------|-----------------|-----------------|-----------------|----------------------------|---------------|---------------|
|            | mm<br>(in)      | mm<br>(in)      | mm<br>(in)      | mm<br>(in)      | mm<br>(in)                 | mm<br>(in)    | mm<br>(in)    |
| KP 20•4    | 60<br>(2.362)   | 37,5<br>(1.476) | 24<br>(0.945)   | 27,5<br>(1.083) | M 6<br>Depth 12<br>(0.472) | 13<br>(0.512) | 30<br>(1.181) |
| KP 20•6,3  | 62,5<br>(2.461) |                 | 26,5<br>(1.043) |                 |                            |               |               |
| KP 20•8    | 65<br>(2.559)   |                 | 29<br>(1.142)   |                 |                            |               |               |
| KP 20•11,2 | 68,5<br>(2.697) |                 | 32,5<br>(1.280) |                 |                            |               |               |
| KP 20•14   | 67<br>(2.638)   | 45<br>(1.772)   | 31<br>(1.220)   | 33<br>(1.299)   | M 8<br>Depth 14<br>(0.551) | 19<br>(0.748) | 40<br>(1.575) |
| KP 20•16   | 72,5<br>(2.854) | 43<br>(1.693)   | 36,5<br>(1.437) |                 |                            |               |               |
| KP 20•20   | 79<br>(3.110)   |                 | 43<br>(1.693)   |                 |                            |               |               |
| KP 20•25   | 72<br>(2.835)   | 58<br>(2.283)   | 36<br>(1.417)   | 48<br>(1.890)   |                            |               |               |
| KP 20•31,5 | 82<br>(3.228)   |                 | 46<br>(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<br>pump | /        | Intermediate<br>pump | /        | Rear<br>pump | /        | Rotation<br>(1) | /        | Seals<br>(2) |
| <b>KP20•4</b> | <b>/</b> | <b>20•4</b>          | <b>/</b> | <b>20•4</b>  | <b>/</b> | <b>S</b>        | <b>-</b> | <b>FS</b>    |

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

(2) For Buna N seals no code

### ORDER EXAMPLE

Double pump

**KP20•4/20•4 S/FS**

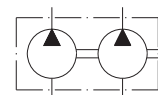
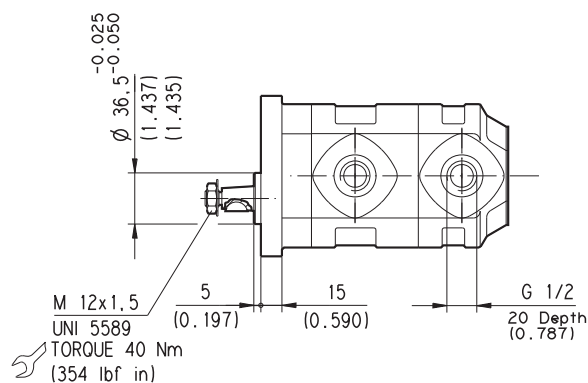
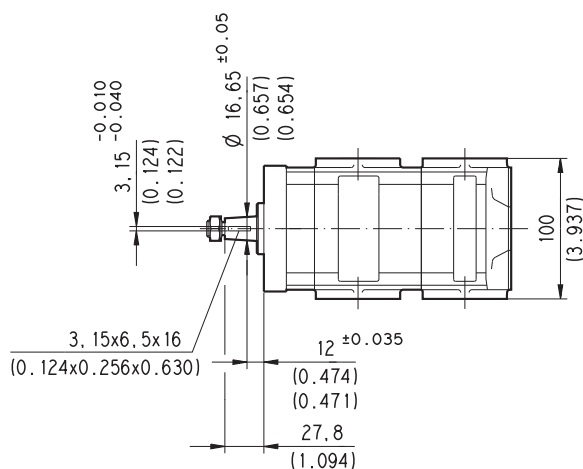
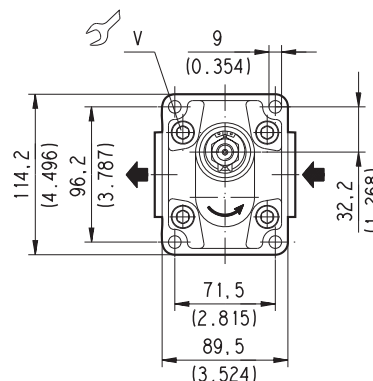
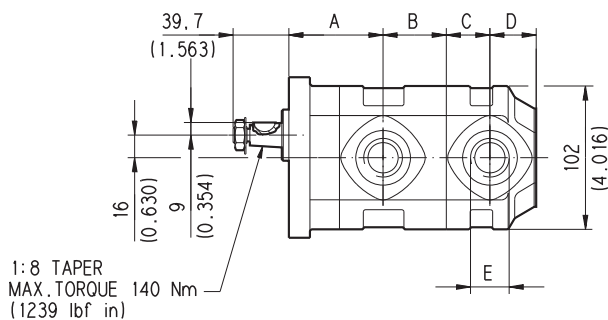
Triple pump

**KP20•4/20•4/20•4 S/FS**

02/06.2005

**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            | 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<br>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) | 33 (1.299)   | G 3/4<br>Depth 22 (0.866) | GE         |     |
| KP 20•14   | 67 (2.638)   | 45 (1.772)   | 31 (1.220)   |              |                           |            |     |
| KP 20•16   | 72,5 (2.854) | 43 (1.693)   | 36,5 (1.437) |              |                           |            |     |
| KP 20•20   | 79 (3.110)   |              | 43 (1.693)   | 48 (1.890)   |                           |            |     |
| KP 20•25   | 72 (2.835)   | 58 (2.283)   | 36 (1.417)   |              |                           |            |     |
| KP 20•31,5 | 82 (3.228)   |              | 46 (1.811)   |              |                           |            |     |

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

### How to order a triple pump

(for double pump omit the intermediate pump)

|                          |   |                |   |              |   |              |   |           |           |
|--------------------------|---|----------------|---|--------------|---|--------------|---|-----------|-----------|
| Pump type                | / | Ports position | / | Ports IN/OUT | - | Rotation (1) | / | -         | Seals (2) |
| <b>KP20•4</b>            | / | <b>L</b>       | / | <b>GD/GD</b> | / |              |   |           |           |
| <b>Front pump</b>        |   |                |   |              |   |              |   |           |           |
| <b>20•4</b>              | / | <b>L</b>       | / | <b>GD/GD</b> | / |              |   |           |           |
| <b>Intermediate pump</b> |   |                |   |              |   |              |   |           |           |
| <b>20•4</b>              | / | <b>L</b>       | / | <b>GD/GD</b> |   | <b>S</b>     | / | <b>FS</b> | <b>-</b>  |
| <b>Rear pump</b>         |   |                |   |              |   |              |   |           |           |

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

(2) For Buna N seals no code

### ORDER EXAMPLE

Double pump

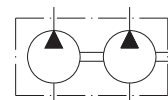
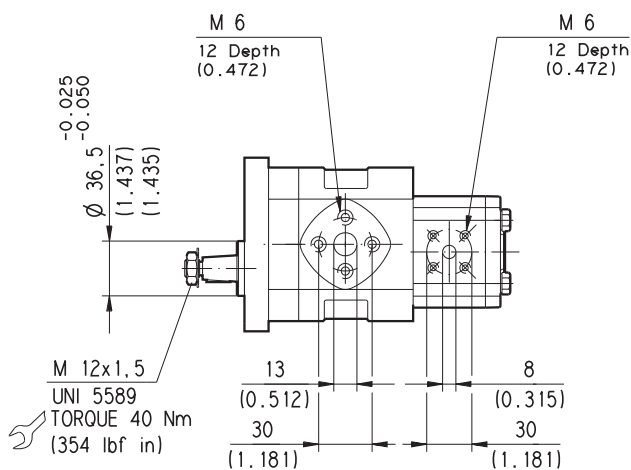
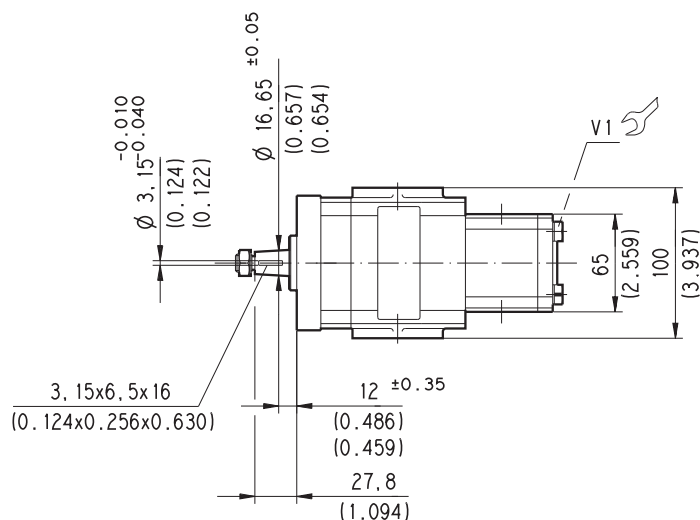
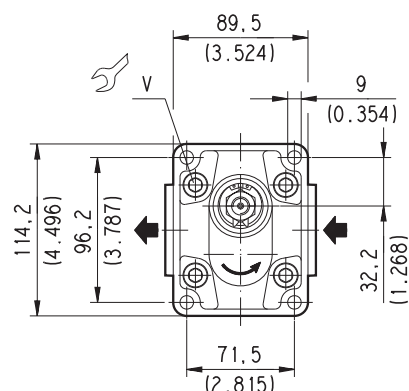
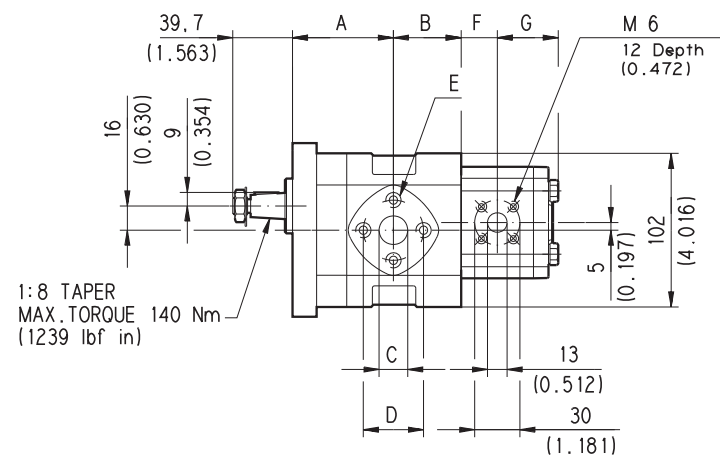
**KP20•4-LGD/GD/20•4-LGD/GD S/FS**

Triple pump

**KP20•4-LGD/GD/20•4-LGD/GD/20•4-LGD/GD S/FS**

02/06.2005

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



D006-D06/0605

02/06.2005

| Screws tightening torque Nm (lbf in) |                     |
|--------------------------------------|---------------------|
| V                                    | V1                  |
| 70 ±7 (558 ÷ 682)                    | 25 ±2.5 (199 ÷ 243) |

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

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

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

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

**How to order a double pump**

|               |   |              |   |                 |   |              |
|---------------|---|--------------|---|-----------------|---|--------------|
| Front<br>pump | / | Rear<br>pump | / | Rotation<br>(1) | / | Seals<br>(2) |
|---------------|---|--------------|---|-----------------|---|--------------|

**KP20•4 / PLP10•1 / S / FS -**

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

(2) For Buna N seals no code

**ORDER EXAMPLE**

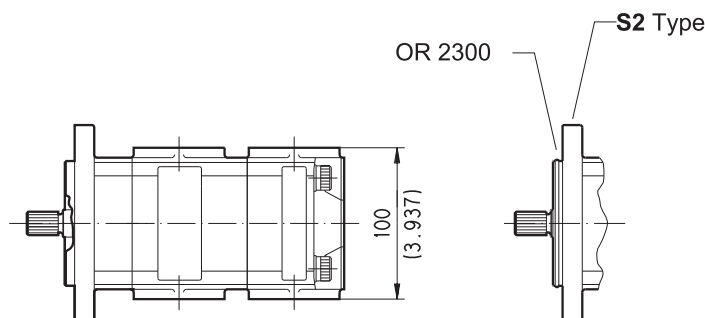
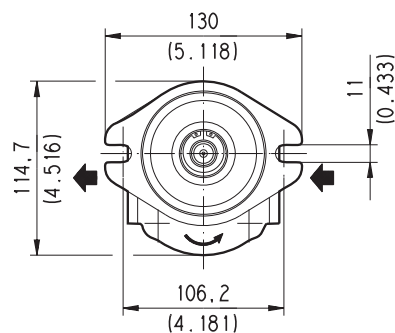
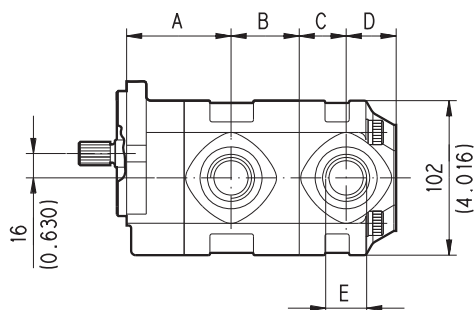
Double pump

**KP20•4/PLP10•1 S/FS**

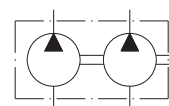
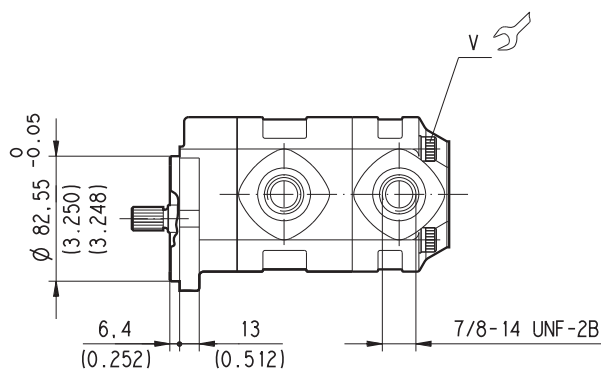
02/06.2005

SAE STRAIGHT THREAD PORTS J514

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



D006-D93/0605



02/06.2005

**V Screws tightening torque Nm (lbf in)**

**70 ±7 (558 ± 682)**

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

| Pump type  | A            | B            | C            | D            | E               | Ports code |     |
|------------|--------------|--------------|--------------|--------------|-----------------|------------|-----|
|            | mm (in)      | mm (in)      | mm (in)      | mm (in)      |                 | IN         | OUT |
| KP 20•4    | 62 (2.441)   | 37,5 (1.476) | 24 (0.945)   | 27,5 (1.083) | 7/8-14 UNF-2B   | OC         | OC  |
| KP 20•6,3  | 64,5 (2.539) |              | 26,5 (1.043) |              |                 |            |     |
| KP 20•8    | 67 (2.638)   |              | 29 (1.142)   |              |                 |            |     |
| KP 20•11,2 | 70,5 (2.776) | 38,5 (1.51)  | 32,5 (1.280) | 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)   |              |                 |            |     |

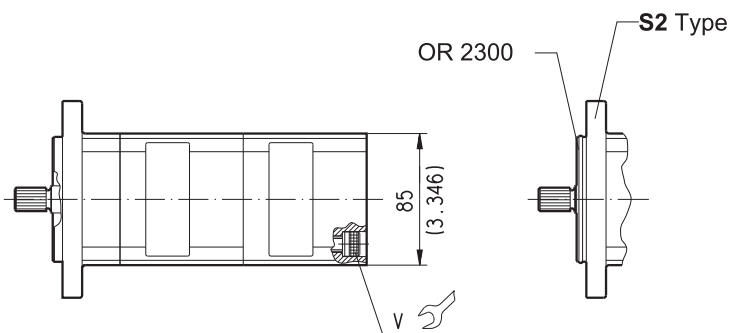
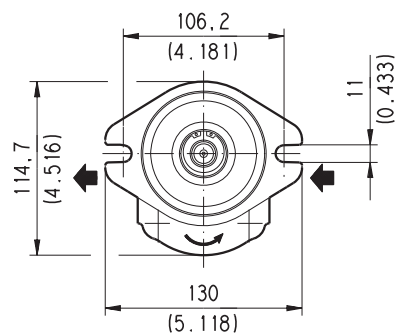
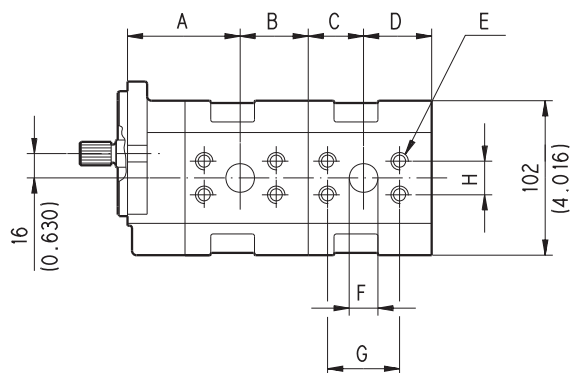
The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D**.

**To order see page 54 e 55**

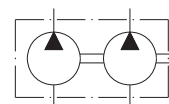
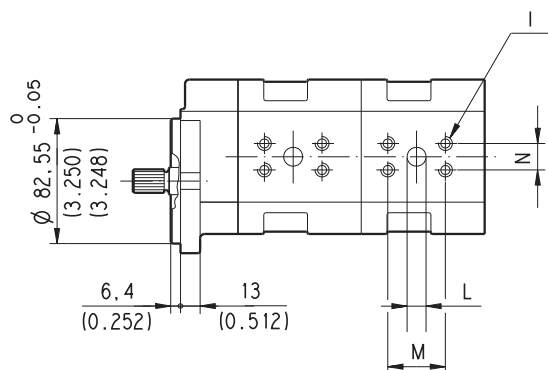
02/06.2005

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

Metric thread ISO 60° conforms to ISO/R 262



D006-128/0605



02/06.2005

**V Screws tightening torque Nm (lbf in)**

**70 ±7 (558 ± 682)**

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

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

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

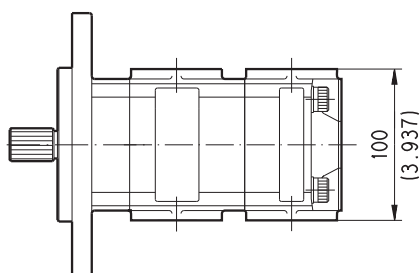
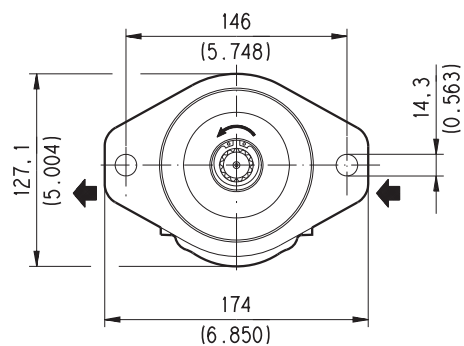
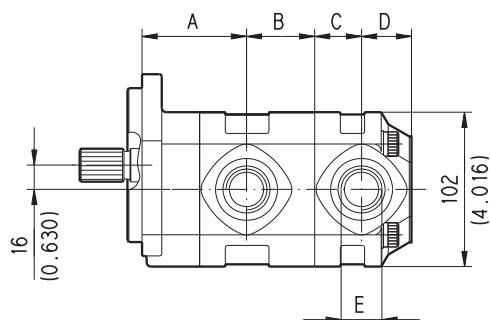
| Pump type  | E                        | F            | G            | H            | I                       | L            | M            | N            | Port code |     |
|------------|--------------------------|--------------|--------------|--------------|-------------------------|--------------|--------------|--------------|-----------|-----|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

To order see page 54 e 55

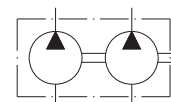
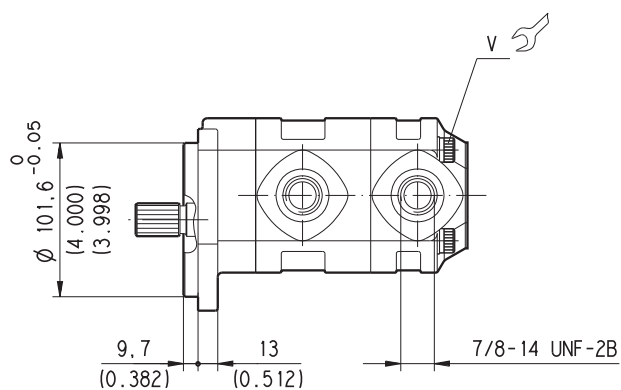
02/06.2005

SAE STRAIGHT THREAD PORTS J514

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



D006-166/0605



02/06.2005

**V Screws tightening torque Nm (lbf in)**

**70 ±7 (558 ÷ 682)**

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

| Pump type  | A            | B            | C            | D            | E               | Ports code |     |
|------------|--------------|--------------|--------------|--------------|-----------------|------------|-----|
|            | mm (in)      | mm (in)      | mm (in)      | mm (in)      |                 | IN         | OUT |
| KP 20•4    | 62 (2.441)   | 37,5 (1.476) | 24 (0.945)   | 27,5 (1.083) | 7/8-14 UNF-2B   | OC         | OC  |
| KP 20•6,3  | 64,5 (2.539) |              | 26,5 (1.043) |              |                 |            |     |
| KP 20•8    | 67 (2.638)   |              | 29 (1.142)   |              |                 |            |     |
| KP 20•11,2 | 70,5 (2.776) | 38,5 (1.51)  | 32,5 (1.280) | 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)   |              |                 |            |     |

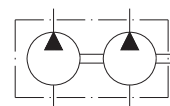
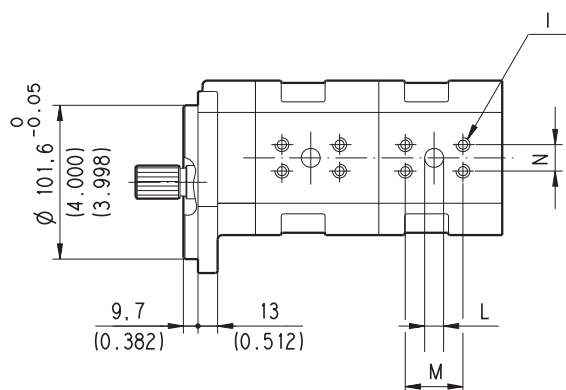
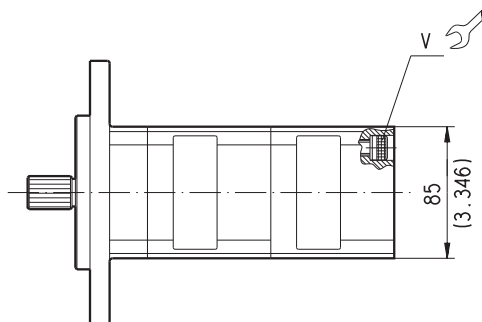
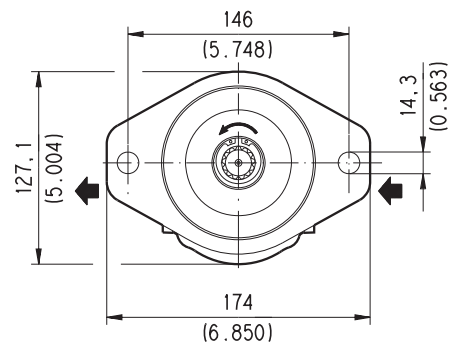
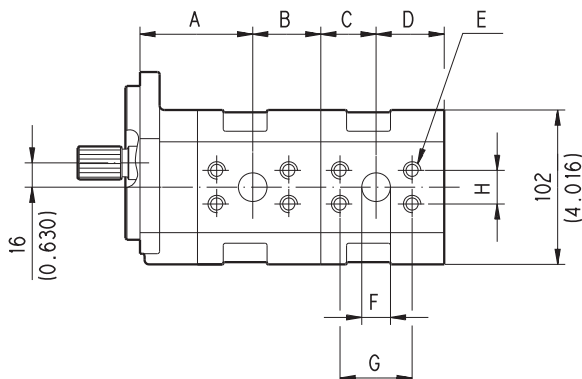
The lenght of a triple pump is obtained with the sum of the following dimensions: **A+B+C+B+C+D**.

**To order see page 54 e 55**

02/06.2005

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

Metric thread ISO 60° conforms to ISO/R 262



**V Screws tightening torque Nm (lbf in)**

**70 ±7 (558 ± 682)**

D006-167/0605

02/06.2005

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

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

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

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

To order see page 54 e 55

02/06.2005

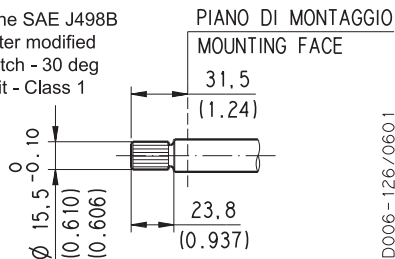
**KAPPA 30 SAE VERSION**

**SAE**

**SAE "A" SPLINE**

**03**

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

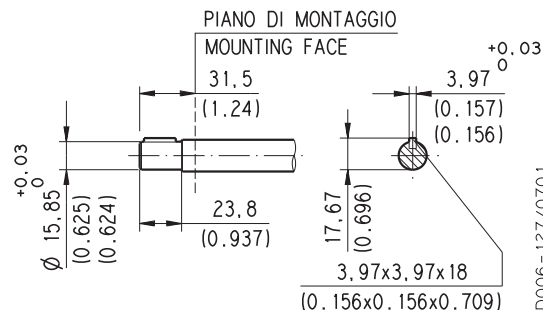


D006-126/0601

**MAX 885 lbf in (100 Nm)**

**SAE "A" STRAIGHT**

**31**



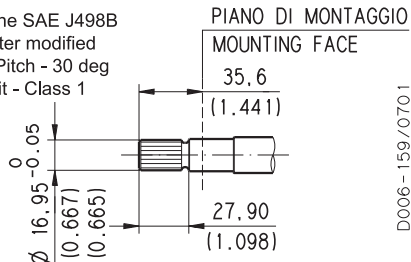
D006-127/0701

**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

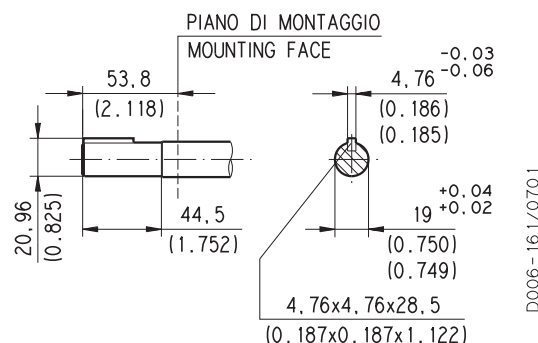


D006-159/0701

**MAX 1151 lbf in (130 Nm)**

**STRAIGHT**

**49**



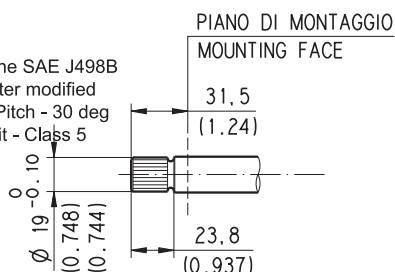
D006-161/0701

**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

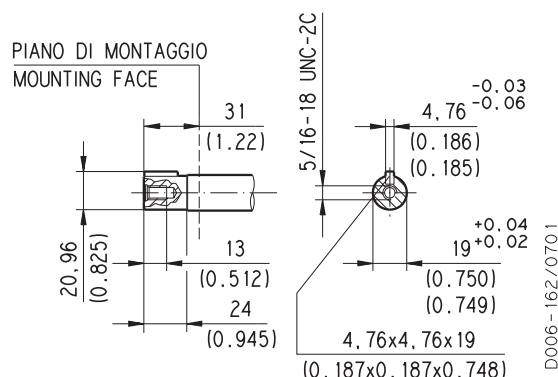


D006-160/0701

**MAX 1505 lbf in (170 Nm)**

**STRAIGHT**

**50**



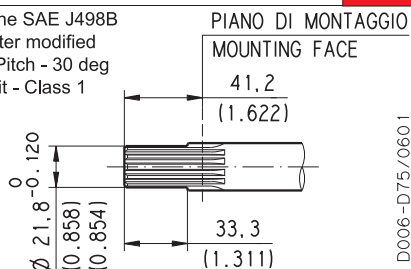
D006-162/0701

**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

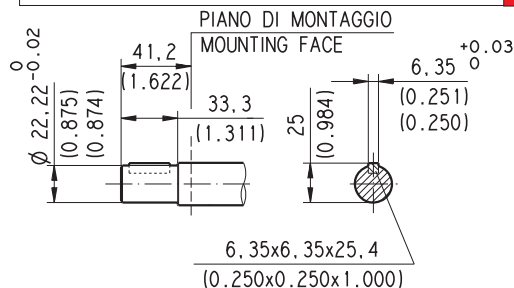


D006-D75/0601

**MAX 2478 lbf in (280 Nm)**

**SAE "B" STRAIGHT**

**32**



D006-D77/0601

**MAX 1770 lbf in (200 Nm)**

Replaces: 01/03.2002

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        |
| <b>KP 20•4</b>          | <b>–</b>    | <b>03</b>       | <b>S1</b>      | <b>–</b>     | <b>L</b> | <b>OC/OC</b> |
| <b>Front ump</b>        |             |                 |                |              |          |              |
| <b>20•4</b>             | <b>–</b>    |                 | <b>L</b>       | <b>O/COC</b> | <b>/</b> |              |
| <b>Intermediate ump</b> |             |                 |                |              |          |              |
| <b>20•4</b>             | <b>–</b>    |                 | <b>L</b>       | <b>OC/OC</b> | <b>S</b> | <b>– 0 N</b> |
| <b>Rear ump</b>         |             |                 |                |              |          |              |

| 1 Pump Type          |                        | CODE       |
|----------------------|------------------------|------------|
| in <sup>3</sup> /rev | (cm <sup>3</sup> /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)  |      |
| 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                    |      |
| SAE "A" 2 holes (with o-ring seal) | S2   |
| SAE "B" 2 holes (a)                | S5   |

| 4 Ports position              | CODE |
|-------------------------------|------|
| Side                          |      |
| 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 |       |              |   |
| MA/MA                             |       | KP 20•4      |   |
| MA/MA                             |       | KP 20•6,3    |   |
| MA/MA                             |       | KP 20•8      |   |
| MA/MA                             |       | KP 20•11,2   |   |
| MB/MA                             |       | KP 20•14     |   |
| MB/MA                             |       | KP 20•20     |   |
| MB/MA                             |       | KP 20•16     |   |
| MC/MB                             |       | KP 20•25     |   |
| MC/MB                             |       | KP 20•31,5   |   |

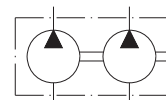
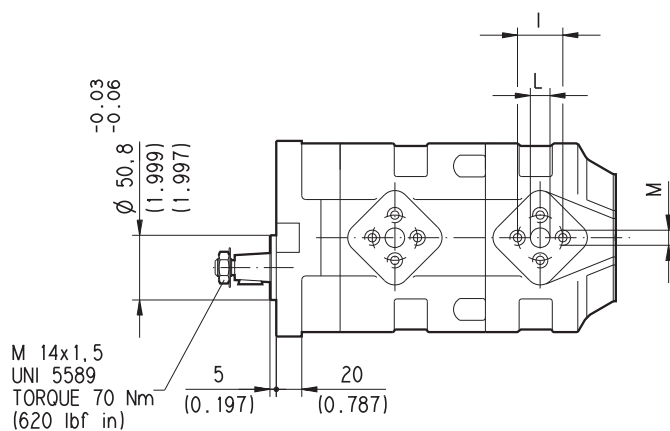
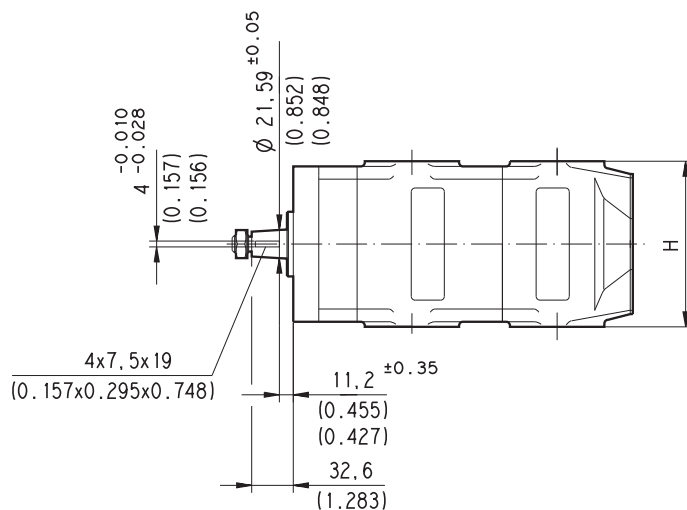
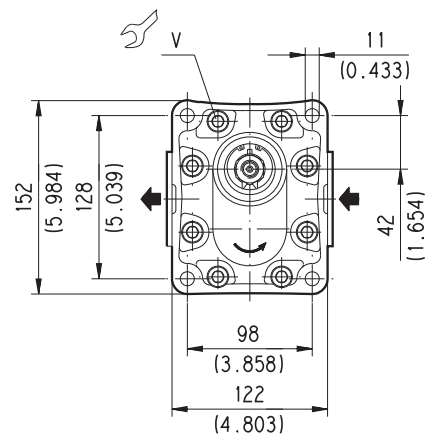
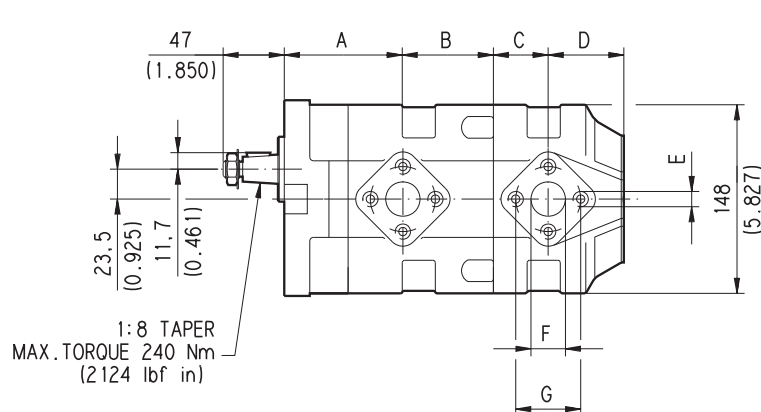
| CODE | Ports position | 6 |
|------|----------------|---|
| S    | Left           |   |
| D    | Right          |   |

| 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



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

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

|               |   |                      |   |              |  |                 |   |              |
|---------------|---|----------------------|---|--------------|--|-----------------|---|--------------|
| Front<br>pump | / | Intermediate<br>pump | / | Rear<br>pump |  | Rotation<br>(1) | - | Seals<br>(2) |
|---------------|---|----------------------|---|--------------|--|-----------------|---|--------------|

**KP30•27 / 30•27 / 30•27 / S -**

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

(2) For Buna N seals no code

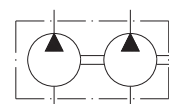
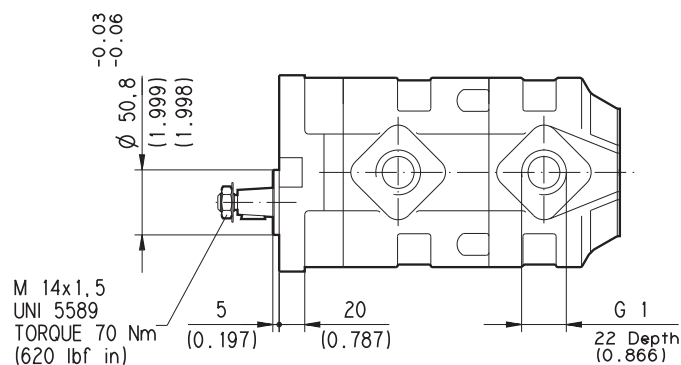
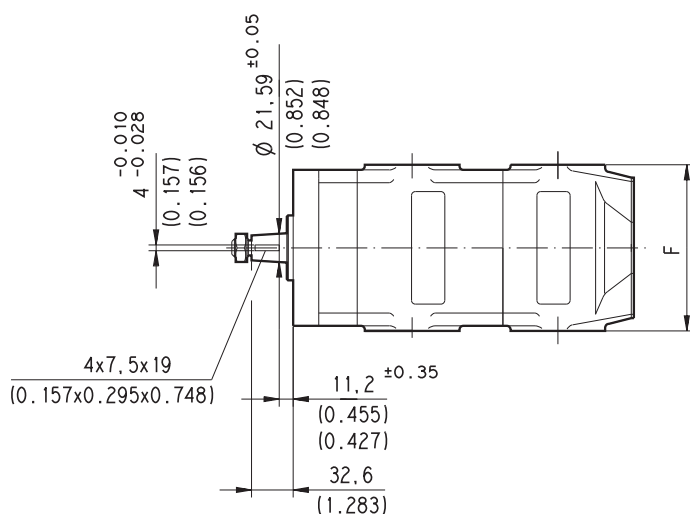
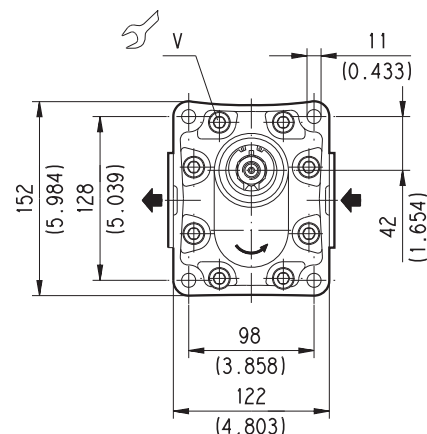
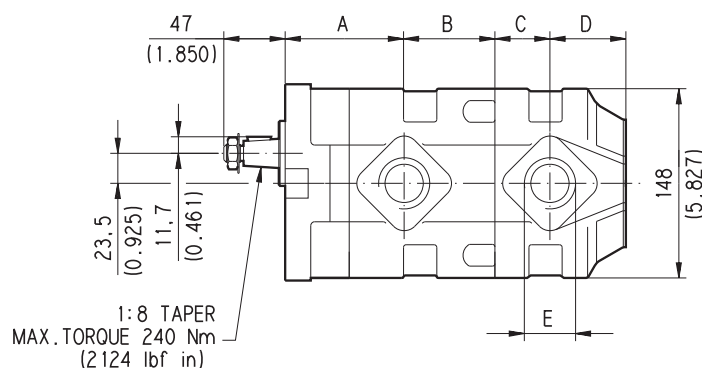
### ORDER EXAMPLE

Double pump **KP30•27/30•27 S**

Triple pump **KP30•27/30•27/30•27 S**

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

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) |
| <b>KP 30•27</b>          | / | <b>L</b>       | / | <b>GF/GF</b> | / |              |   |           |
| <b>Front pump</b>        |   |                |   |              |   |              |   |           |
| <b>30•27</b>             | / | <b>L</b>       | / | <b>GF/GF</b> | / |              |   |           |
| <b>Intermediate pump</b> |   |                |   |              |   |              |   |           |
| <b>30•27</b>             | / | <b>L</b>       | / | <b>GF/GF</b> |   | <b>S</b>     | / | <b>-</b>  |
| <b>Rear pump</b>         |   |                |   |              |   |              |   |           |

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

(2) For Buna N seals no code

### ORDER EXAMPLE

Double pump

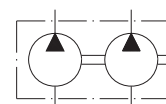
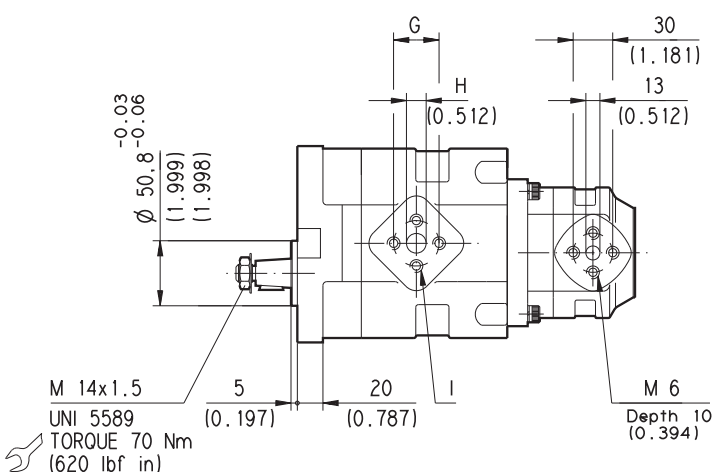
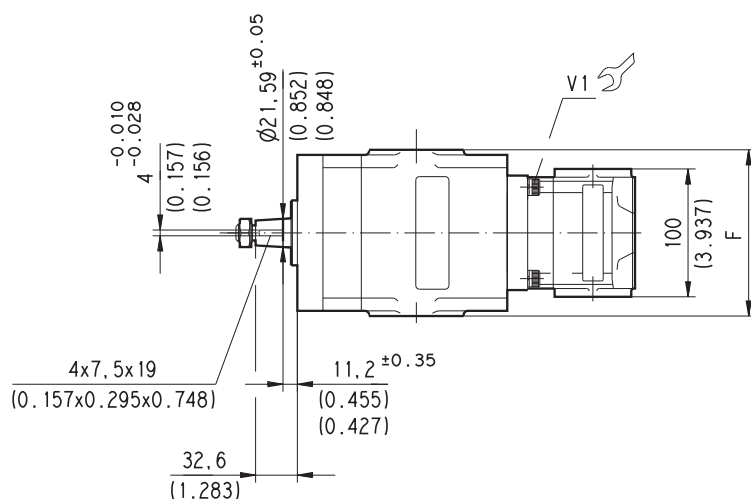
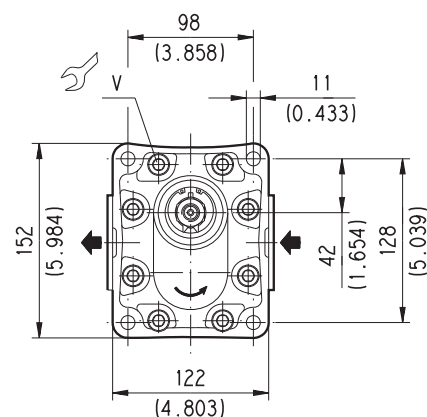
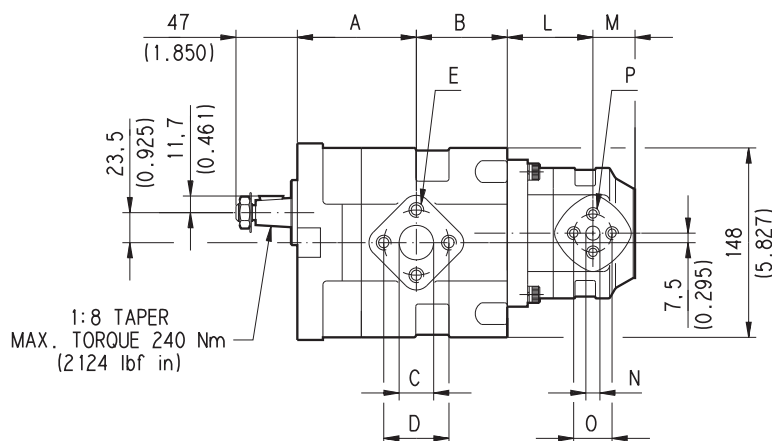
**KP30•27-LGF/GF/30•27-LGF/GF S**

Triple pump

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

02/06.2005

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)

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

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

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

**How to order a double pump**

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

**KP30•27 / 67 / 20•4 / S -**

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

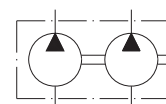
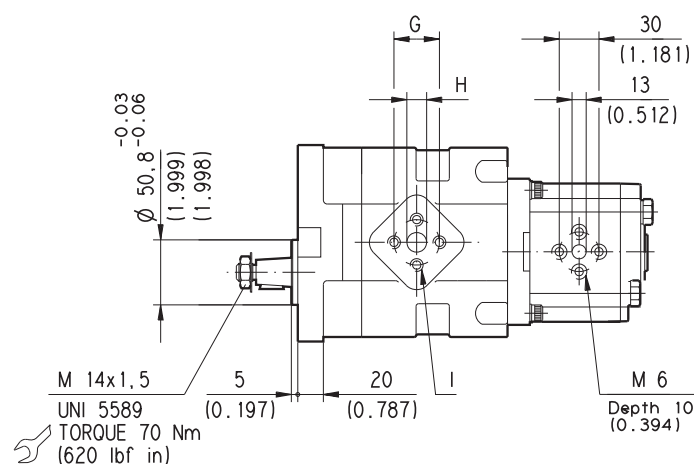
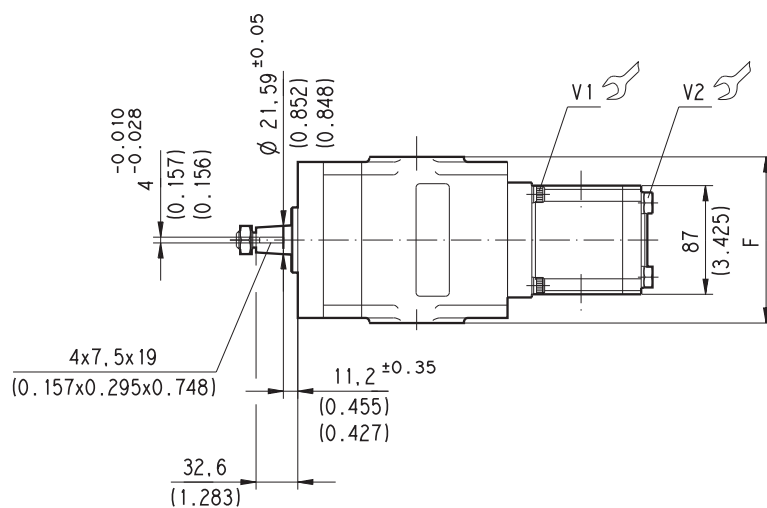
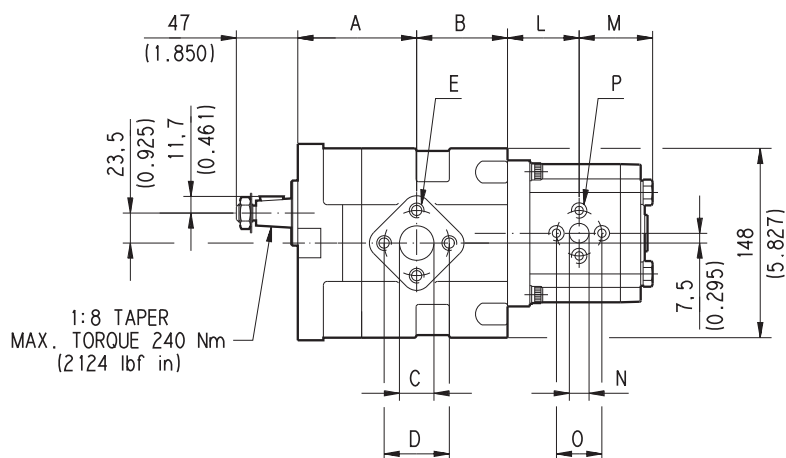
(2) For Buna N seals no code

**ORDER EXAMPLE**

Double pump

**KP30•27-67/20•4 S/FS**

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



D006-D19/0605

02/06.2005

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

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

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

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

**How to order a double pump**

|            |   |   |           |  |              |   |           |
|------------|---|---|-----------|--|--------------|---|-----------|
| Front pump | — | / | Rear pump |  | Rotation (1) | — | Seals (2) |
|------------|---|---|-----------|--|--------------|---|-----------|

**KP30•27 / 67 / PLP20•4 S -**

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

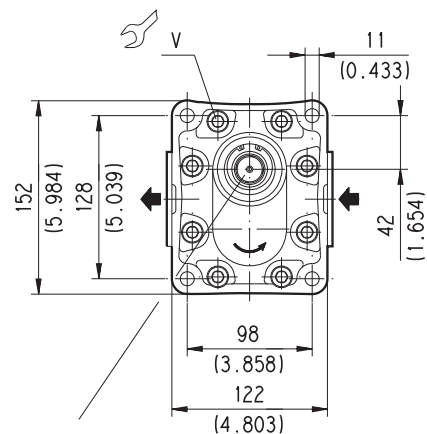
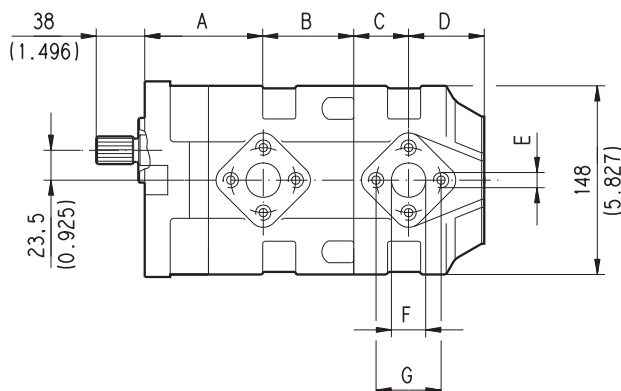
(2) For Buna N seals no code

**ORDER EXAMPLE**

Double pump

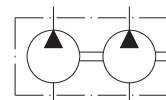
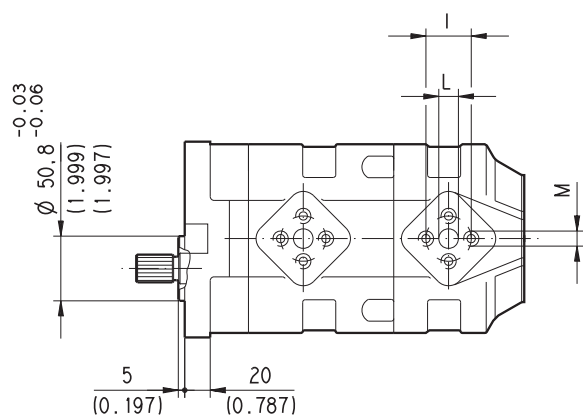
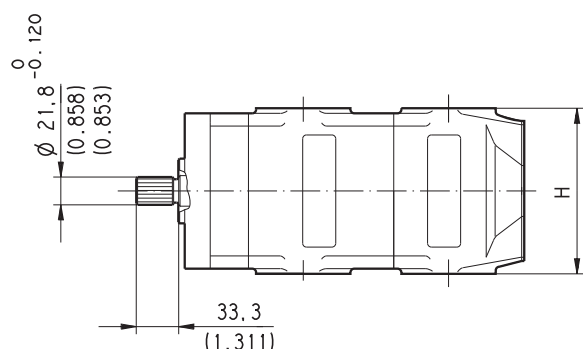
**KP30•27-67/PLP20•4 S/FS**

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)



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ± 682)

**KAPPA 30**
**HYDRAULIC GEAR PUMPS EUROPEAN STANDARD**
**A8 E3**

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

|            |   |             |   |                   |   |           |  |              |   |           |
|------------|---|-------------|---|-------------------|---|-----------|--|--------------|---|-----------|
| Front pump | – | Drive shaft | / | Intermediate pump | / | Rear pump |  | Rotation (1) | – | Seals (2) |
|------------|---|-------------|---|-------------------|---|-----------|--|--------------|---|-----------|

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

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

(2) For Buna N seals no code

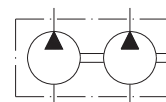
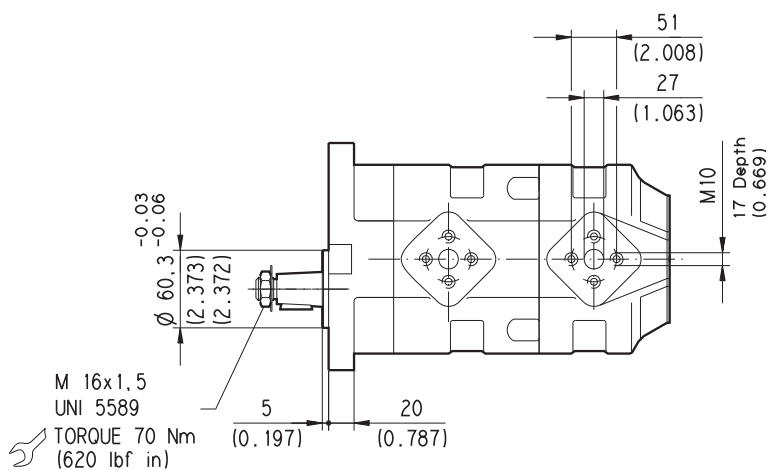
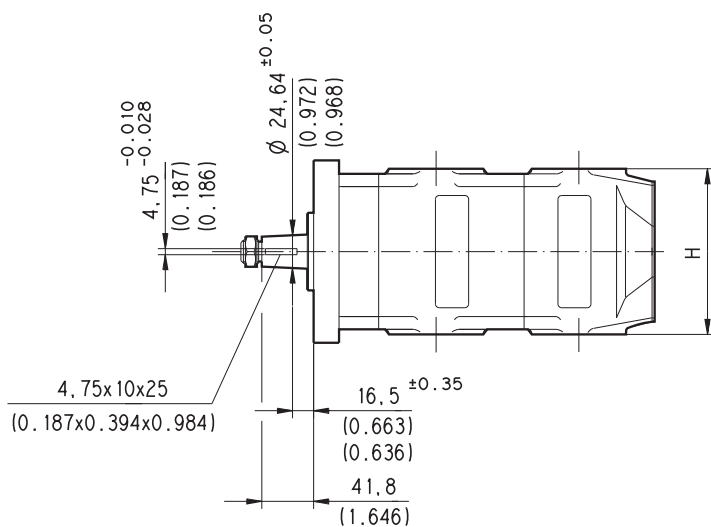
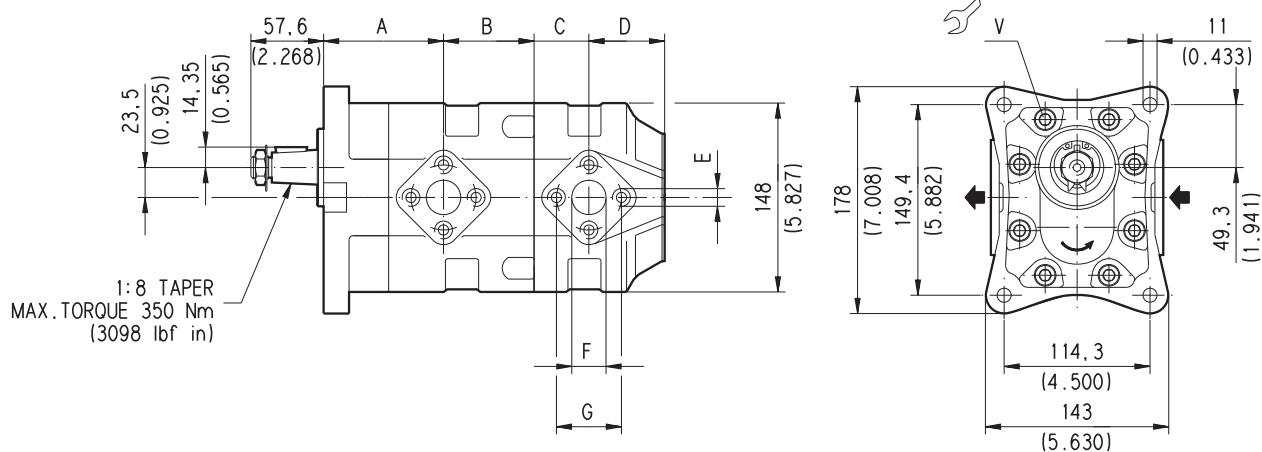
### ORDER EXAMPLE

Double pump **KP30•27-A8/30•27 S**

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

02/06.2005

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



02/06.2005

**V** Screws tightening torque Nm (lbf in)

 $70^{+7} (558 \div 682)$

**KAPPA 30**
**HYDRAULIC GEAR PUMPS EUROPEAN STANDARD**
**84 E4**

| Pump type | A           | B          | C          | D          | E                        | F          | G          | H           | Port code |     |
|-----------|-------------|------------|------------|------------|--------------------------|------------|------------|-------------|-----------|-----|
|           | mm (in)     | mm (in)    | mm (in)    | mm (in)    | mm (in)                  | mm (in)    | mm (in)    | mm (in)     | IN        | OUT |
| KP 30•51  | 94 (3.701)  | 71 (2.795) | 43 (1.693) | 56 (2.205) | M 10<br>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<br>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)

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

(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**

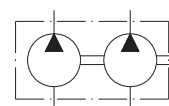
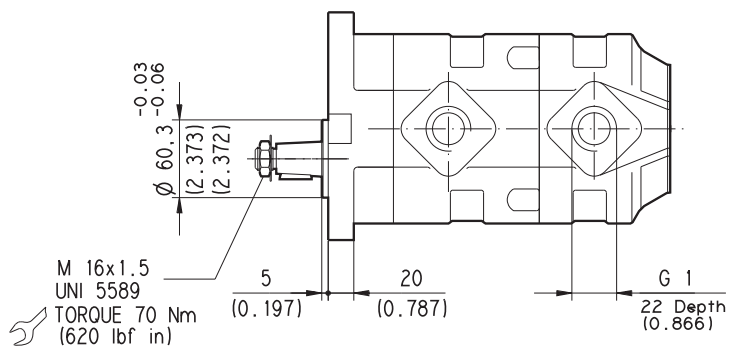
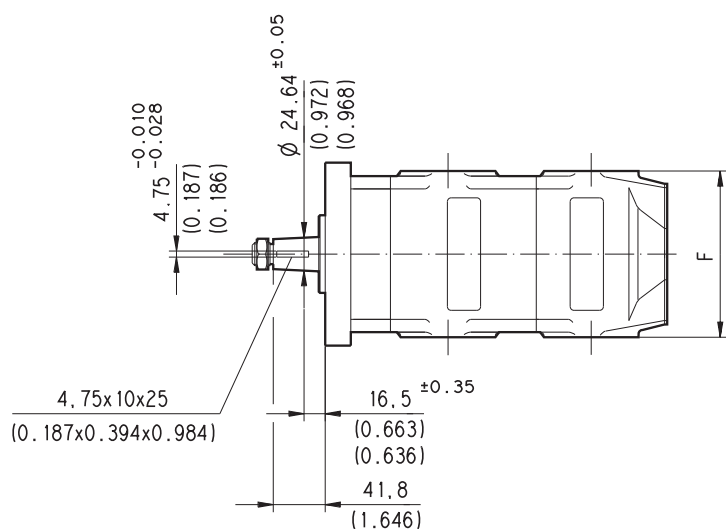
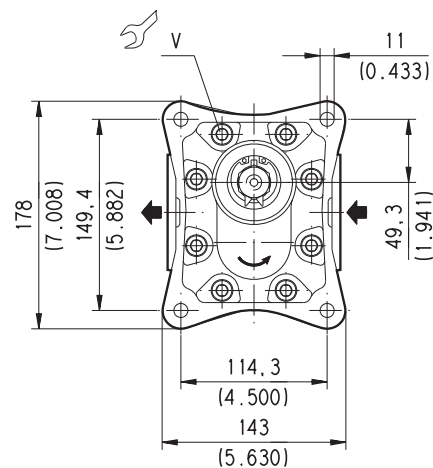
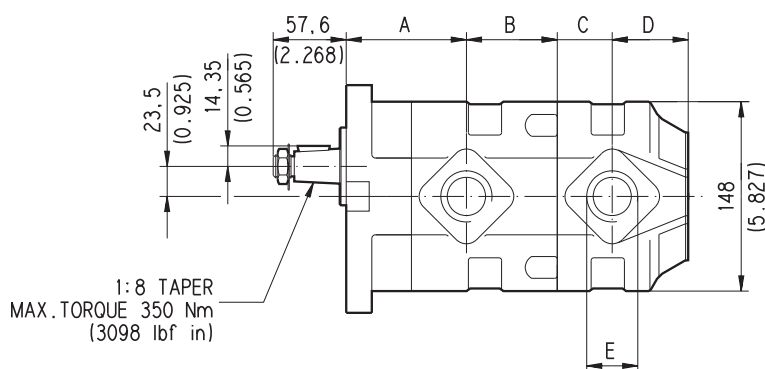
Triple pump

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

02/06.2005

**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)**

**KAPPA 30**
**HYDRAULIC GEAR PUMPS EUROPEAN STANDARD**
**84 E4**

| Pump type | A              | B             | C             | D             | E                              | F              | Port code |     |
|-----------|----------------|---------------|---------------|---------------|--------------------------------|----------------|-----------|-----|
|           | mm<br>(in)     | mm<br>(in)    | mm<br>(in)    | mm<br>(in)    | mm<br>(in)                     | mm<br>(in)     | IN        | OUT |
| KP 30•51  | 94<br>(3.701)  | 71<br>(2.795) | 43<br>(1.693) | 56<br>(2.205) | G 1<br>Depth 22<br>(0.866)     | 130<br>(5.118) | GF        | GF  |
| KP 30•61  | 101<br>(3.976) | 70<br>(2.756) | 50<br>(1.969) | 55<br>(2.165) | G 1 1/4<br>Depth 24<br>(0.945) | 135<br>(5.315) | GG        |     |
| KP 30•73  | 109<br>(4.291) |               | 58<br>(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) |
|--------------------------|---|-------------|---|-----------------|---|----------------|--------------|---|--------------|---|-----------|
| <b>KP 30•51</b>          | – | <b>84</b>   |   | <b>E4</b>       | – | <b>L</b>       | <b>GF/GF</b> | / |              |   |           |
| <b>Front pump</b>        |   |             |   |                 |   |                |              |   |              |   |           |
| <b>30•51</b>             | – |             |   |                 |   | <b>L</b>       | <b>GF/GF</b> | / |              |   |           |
| <b>Intermediate pump</b> |   |             |   |                 |   |                |              |   |              |   |           |
| <b>30•51</b>             | – |             |   |                 |   | <b>L</b>       | <b>GF/GF</b> |   | <b>S</b>     | – |           |
| <b>Rear pump</b>         |   |             |   |                 |   |                |              |   |              |   |           |

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

(2) For Buna N seals no code

### ORDER EXAMPLE

Double pump

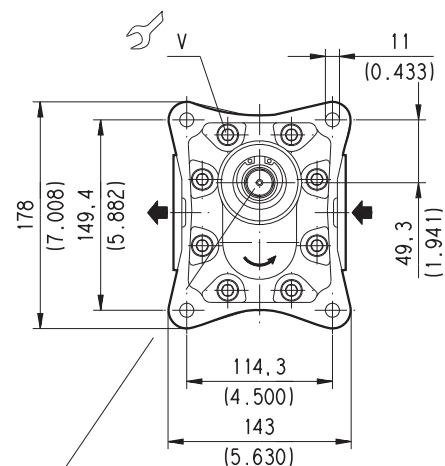
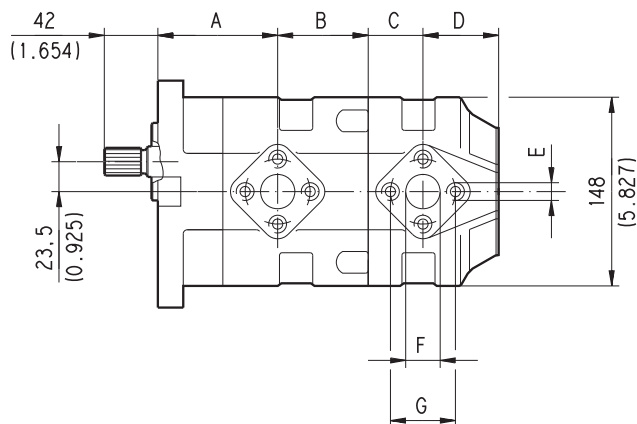
**KP30•51-84 E4-LGF/GF/30•51-LGF/GF S**

Triple pump

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

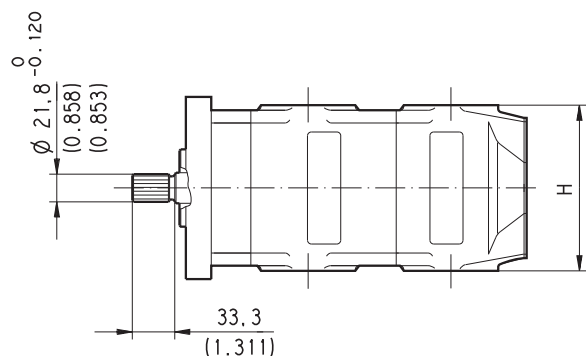
02/06.2005

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

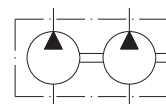
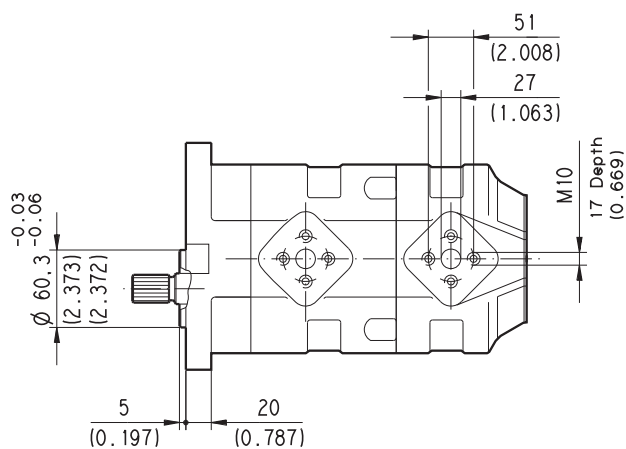


Ext. Involute Spline SAE J498B  
with major diameter modified  
13 teeth - 16/32 Pitch - 30 deg  
Flat root - Side fit - Class 1

MAX. TORQUE 280 Nm  
(2478 lbf in)



D006 - 152 / 0605



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ± 682)

| Pump type | A              | B             | C             | D             | E                           | F             | G             | H              | Port code |     |
|-----------|----------------|---------------|---------------|---------------|-----------------------------|---------------|---------------|----------------|-----------|-----|
|           | mm<br>(in)     | mm<br>(in)    | mm<br>(in)    | mm<br>(in)    | mm<br>(in)                  | mm<br>(in)    | mm<br>(in)    | mm<br>(in)     | IN        | OUT |
| KP 30•51  | 94<br>(3.701)  | 71<br>(2.795) | 43<br>(1.693) | 56<br>(2.205) | M 10<br>Depth 17<br>(0.669) | 27<br>(1.063) | 51<br>(2.008) | 130<br>(5.118) | ED        | ED  |
| KP 30•61  | 101<br>(3.976) | 70<br>(2.756) | 50<br>(1.969) | 55<br>(2.165) | M 12<br>Depth 17<br>(0.669) | 33<br>(1.299) | 62<br>(2.441) | 135<br>(5.315) | EF        |     |
| KP 30•73  | 109<br>(4.291) |               | 58<br>(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) |
|--------------------------|---|-------------|---|-----------------|---|----------------|--------------|---|--------------|---|-----------|
| <b>KP 30•51</b>          | – | <b>A8</b>   |   | <b>E4</b>       | – | <b>L</b>       | <b>ED/ED</b> | / |              |   |           |
| <b>Front pump</b>        |   |             |   |                 |   |                |              |   |              |   |           |
| <b>30•51</b>             | – |             |   |                 |   | <b>L</b>       | <b>ED/ED</b> | / |              |   |           |
| <b>Intermediate pump</b> |   |             |   |                 |   |                |              |   |              |   |           |
| <b>30•51</b>             | – |             |   |                 |   | <b>L</b>       | <b>ED/ED</b> |   | <b>S</b>     | – |           |
| <b>Rear pump</b>         |   |             |   |                 |   |                |              |   |              |   |           |

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

(2) For Buna N seals no code

### ORDER EXAMPLE

Double pump

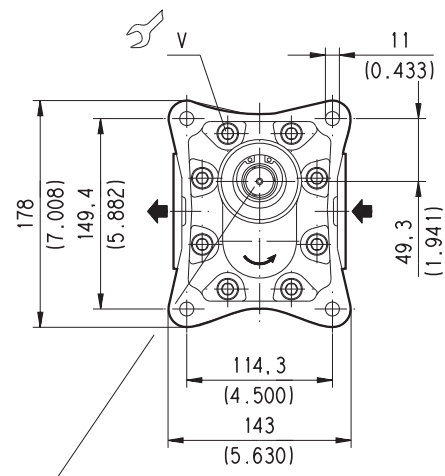
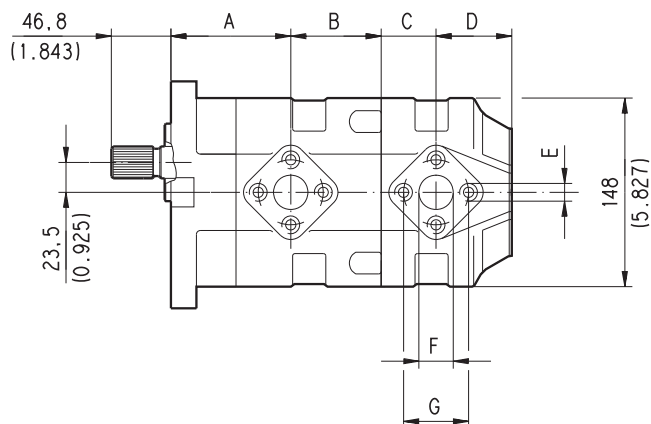
**KP30•51-A8 E4-LED/ED/30•51-LED/ED S**

Triple pump

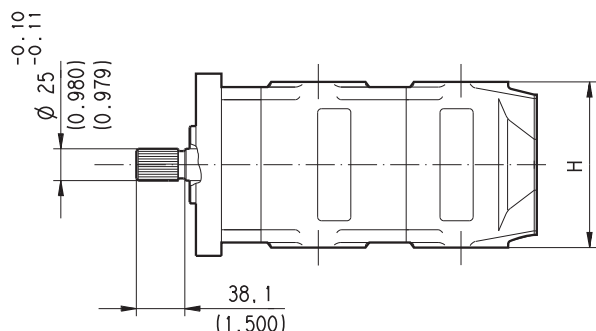
**KP30•51-A8 E4-LED/ED/30•51-LED/ED/30•51-LED/ED S**

02/06.2005

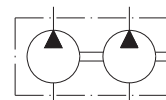
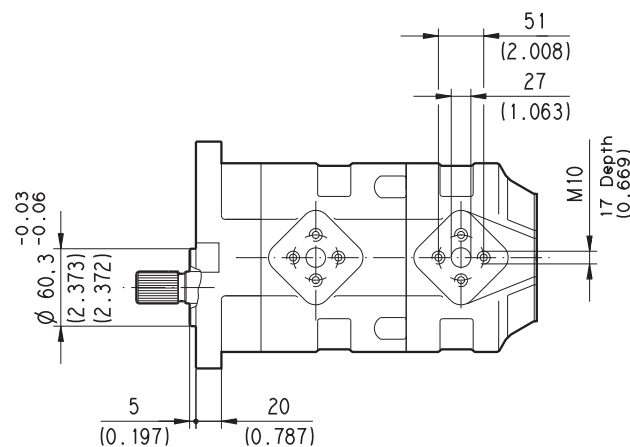
EUROPEAN FLANGED PORTS - 4 Bolts  
Metric thread ISO 60° conforms to ISO/R 262



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)

| Pump type | A           | B          | C          | D          | E                        | F          | G          | H           | Port code |     |
|-----------|-------------|------------|------------|------------|--------------------------|------------|------------|-------------|-----------|-----|
|           | mm (in)     | mm (in)    | mm (in)    | mm (in)    | mm (in)                  | mm (in)    | mm (in)    | mm (in)     | IN        | OUT |
| KP 30•51  | 94 (3.701)  | 71 (2.795) | 43 (1.693) | 56 (2.205) | M 10<br>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<br>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)

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

(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**

02/06.2005

## PORTS CONNECTORS TIGHTENING TORQUE

 Tightening torque for low pressure side port.

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

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

| EUROPEAN FLANGED PORTS - 4 Bolts                           |                                                                                     |           |                                                                                       |             | EUROPEAN |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|-------------|----------|
| CODE                                                       |    |           |    |             |          |
|                                                            | Nm                                                                                  | (lbf in)  | Nm                                                                                    | (lbf in)    |          |
| EA                                                         | 8 <sup>+0,5</sup>                                                                   | 71 ÷ 75   | 8 <sup>+0,5</sup>                                                                     | 71 ÷ 75     |          |
| EB                                                         | 15 <sup>+1</sup>                                                                    | 133 ÷ 142 | 20 <sup>+1</sup> (KP 20)                                                              | 177 ÷ 186   |          |
|                                                            |                                                                                     |           | 15 <sup>+1</sup> (KP 30)                                                              | 133 ÷ 142   |          |
| ED                                                         | 20 <sup>+1</sup>                                                                    | 177 ÷ 186 | 30 <sup>+2,5</sup>                                                                    | 266 ÷ 288   |          |
| EF                                                         | 25 <sup>+1</sup>                                                                    | 221 ÷ 230 | 50 <sup>+2,5</sup>                                                                    | 443 ÷ 465   |          |
| GAS STRAIGHT THREAD PORTS                                  |                                                                                     |           |                                                                                       |             | BSPP     |
| CODE                                                       |    |           |    |             |          |
|                                                            | Nm                                                                                  | (lbf in)  | Nm                                                                                    | (lbf in)    |          |
| GB (◆)                                                     | 15 <sup>+1</sup>                                                                    | 133 ÷ 142 | —                                                                                     | —           |          |
| GC (■)                                                     | 15 <sup>+1</sup>                                                                    | 133 ÷ 142 | —                                                                                     | —           |          |
| GD                                                         | 20 <sup>+1</sup>                                                                    | 177 ÷ 186 | 50 <sup>+2,5</sup>                                                                    | 443 ÷ 465   |          |
| GE                                                         | 30 <sup>+2,5</sup>                                                                  | 266 ÷ 288 | 90 <sup>+5</sup>                                                                      | 797 ÷ 841   |          |
| GF                                                         | 50 <sup>+2,5</sup>                                                                  | 443 ÷ 465 | 130 <sup>+10</sup>                                                                    | 1151 ÷ 1239 |          |
| GG                                                         | 60 <sup>+5</sup>                                                                    | 531 ÷ 575 | 170 <sup>+10</sup>                                                                    | 1505 ÷ 1593 |          |
| SAE STRAIGHT THREAD POTRS J514                             |                                                                                     |           |                                                                                       |             | ODT      |
| CODE                                                       |  |           |  |             |          |
|                                                            | Nm                                                                                  | (lbf in)  | Nm                                                                                    | (lbf in)    |          |
| 03 (✱)                                                     | 12 <sup>+1</sup>                                                                    | 106 ÷ 115 | —                                                                                     | —           |          |
| OA (■)                                                     | 15 <sup>+1</sup>                                                                    | 133 ÷ 142 | —                                                                                     | —           |          |
| OC                                                         | 30 <sup>+2,5</sup>                                                                  | 266 ÷ 288 | 70 <sup>+5</sup>                                                                      | 620 ÷ 664   |          |
| OD                                                         | 40 <sup>+2,5</sup>                                                                  | 354 ÷ 376 | 120 <sup>+10</sup>                                                                    | 1062 ÷ 1151 |          |
| OF                                                         | 60 <sup>+5</sup>                                                                    | 531 ÷ 575 | 170 <sup>+10</sup>                                                                    | 1505 ÷ 1593 |          |
| OG                                                         | 70 <sup>+5</sup>                                                                    | 620 ÷ 664 | 200 <sup>+10</sup>                                                                    | 1770 ÷ 1859 |          |
| OH                                                         | 100 <sup>+5</sup>                                                                   | 885 ÷ 929 | 270 <sup>+15</sup>                                                                    | 2390 ÷ 2523 |          |
| SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI |                                                                                     |           |                                                                                       |             | SSM      |
| CODE                                                       |  |           |  |             |          |
|                                                            | Nm                                                                                  | (lbf in)  | Nm                                                                                    | (lbf in)    |          |
| MA                                                         | 12 <sup>+1</sup>                                                                    | 106 ÷ 115 | 12 <sup>+1</sup>                                                                      | 106 ÷ 115   |          |
| MB                                                         | 20 <sup>+1</sup>                                                                    | 177 ÷ 186 | 25 <sup>+1</sup>                                                                      | 221 ÷ 230   |          |
| MC                                                         | 20 <sup>+1</sup>                                                                    | 177 ÷ 186 | 25 <sup>+1</sup>                                                                      | 221 ÷ 230   |          |

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

(✱) Drain port: KAPPA 20 rear drain (R)

(■) Drain port: KAPPA 30 rear drain (R)

02/06.2005

**KAPPA 20 GENERAL DATA MOTORS**
**KM 20**

| Motor type | Displacement         | Max. pressure  |                |                | Max. speed        | Min. speed |
|------------|----------------------|----------------|----------------|----------------|-------------------|------------|
|            |                      | p <sub>1</sub> | p <sub>2</sub> | p <sub>3</sub> |                   |            |
|            | in³/rev<br>(cm³/rev) | psi<br>(bar)   |                |                | min <sup>-1</sup> |            |
| KM 20•4    | 0.30<br>(4,95)       | 4133<br>(285)  | 4350<br>(300)  | 4785<br>(330)  | 4000              | 350        |
| KM 20•6,3  | 0.40<br>(6,61)       | 4133<br>(285)  | 4350<br>(300)  | 4785<br>(330)  | 4000              | 350        |
| KM 20•8    | 0.50<br>(8,26)       | 4133<br>(285)  | 4350<br>(300)  | 4785<br>(330)  | 3500              | 350        |
| KM 20•11,2 | 0.69<br>(11,23)      | 3988<br>(275)  | 4205<br>(290)  | 4640<br>(320)  | 3500              | 350        |
| KM 20•14   | 0.89<br>(14,53)      | 3843<br>(265)  | 4205<br>(290)  | 4640<br>(320)  | 3500              | 350        |
| KM 20•16   | 1.03<br>(16,85)      | 3770<br>(260)  | 4205<br>(290)  | 4640<br>(320)  | 3000              | 300        |
| KM 20•20   | 1.29<br>(21,14)      | 3045<br>(210)  | 3335<br>(230)  | 3625<br>(250)  | 3000              | 300        |
| KM 20•25   | 1.61<br>(26,42)      | 2610<br>(180)  | 2900<br>(200)  | 3190<br>(220)  | 2500              | 300        |
| KM 20•31,5 | 2.01<br>(33,03)      | 2030<br>(140)  | 2320<br>(160)  | 2610<br>(180)  | 2000              | 300        |

p<sub>1</sub>= Max. continuous pressure

p<sub>2</sub>= Max. intermittent pressure

p<sub>3</sub>= Max. peak pressure

The values in the table refer to unidirectional motors.

Reversible motors max pressures are 15% lower than those shown in table.

For different working conditions please consult our sales department.

01/03.2002

# KAPPA 30 GENERAL DATA MOTORS

**KM 30**

| Motor type | Displacement                                   | Max. pressure  |                |                | Max. speed        | Min. speed |
|------------|------------------------------------------------|----------------|----------------|----------------|-------------------|------------|
|            |                                                | p <sub>1</sub> | p <sub>2</sub> | p <sub>3</sub> |                   |            |
|            | in <sup>3</sup> /rev<br>(cm <sup>3</sup> /rev) | psi<br>(bar)   |                |                | min <sup>-1</sup> |            |
| KM 30•27   | 1.63<br>(26,7)                                 | 4060<br>(280)  | 4350<br>(300)  | 4495<br>(310)  | 3000              | 350        |
| KM 30•34   | 2.11<br>(34,56)                                | 3770<br>(260)  | 4060<br>(280)  | 4350<br>(300)  | 3000              | 350        |
| KM 30•38   | 2.40<br>(39,27)                                | 3770<br>(260)  | 4060<br>(280)  | 4350<br>(300)  | 3000              | 350        |
| KM 30•43   | 2.68<br>(43,98)                                | 3625<br>(250)  | 3915<br>(270)  | 4205<br>(290)  | 3000              | 350        |
| KM 30•51   | 3.16<br>(51,83)                                | 3335<br>(230)  | 3625<br>(250)  | 3915<br>(270)  | 2500              | 350        |
| KM 30•56   | 3.45<br>(56,54)                                | 3118<br>(215)  | 3408<br>(235)  | 3698<br>(255)  | 2500              | 350        |
| KM 30•61   | 3.74<br>(61,26)                                | 2900<br>(200)  | 3190<br>(220)  | 3480<br>(240)  | 2500              | 350        |
| KM 30•73   | 4.50<br>(73,82)                                | 2610<br>(180)  | 2900<br>(200)  | 3190<br>(220)  | 2500              | 350        |

p<sub>1</sub>= Max. continuous pressure

p<sub>2</sub>= Max. intermittent pressure

p<sub>3</sub>= Max. peak pressure

The values in the table refer to unidirectional motors.

Reversible motors max pressures are 15% lower than those shown in table.

For different working conditions please consult our sales department.

01/03.2002

## DESIGN CALCULATIONS FOR MOTORS

|                                                             |                                             |                             |
|-------------------------------------------------------------|---------------------------------------------|-----------------------------|
| <b>Q</b>                                                    | US gpm (l/min)                              | Delivery                    |
| <b>M</b>                                                    | lbf in (Nm)                                 | Torque                      |
| <b>P</b>                                                    | HP (kW)                                     | Power                       |
| <b>V</b>                                                    | in <sup>3</sup> /rev (cm <sup>3</sup> /rev) | Displacement                |
| <b>n</b>                                                    | min <sup>-1</sup>                           | Speed                       |
| <b>Δp</b>                                                   | psi (bar)                                   | Pressure                    |
| $\eta_v = \eta_v (V, \Delta p, n)$ ( $\approx 0,97$ )       |                                             | Volumetric efficiency       |
| $\eta_{hm} = \eta_{hm} (V, \Delta p, n)$ ( $\approx 0,88$ ) |                                             | Hydro-mechanical efficiency |
| $\eta_t = \eta_v \cdot \eta_m$ ( $\approx 0,85$ )           |                                             | Overall efficiency          |

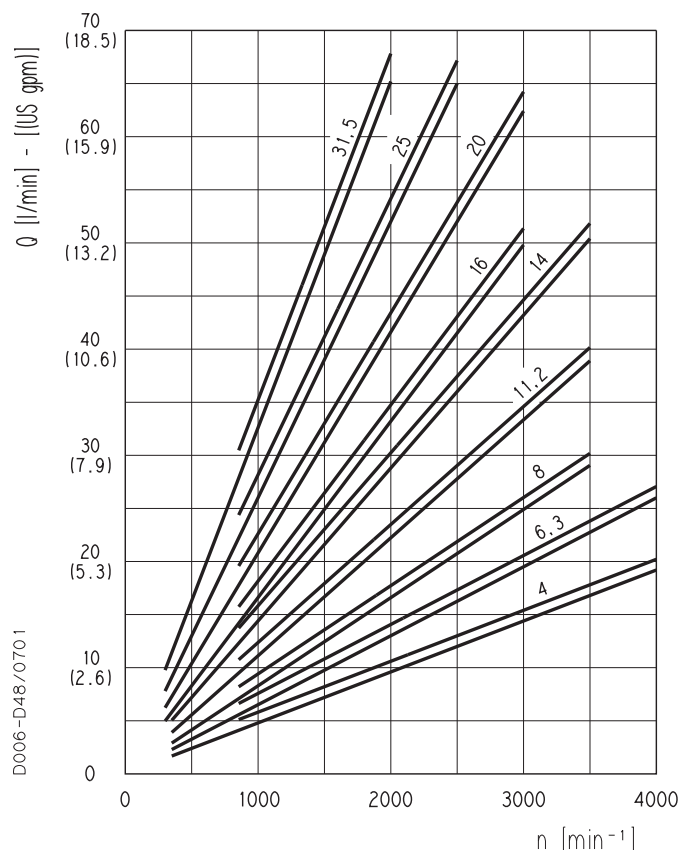
$$\begin{aligned}
 \text{○} \quad Q &= \frac{Q_{\text{theor.}}}{\eta_v} \quad [\text{l/min}] \\
 Q_{\text{theor.}} &= \frac{V \text{ (cm}^3\text{/rev)} \cdot n \text{ (min}^{-1}\text{)}}{1000} \\
 M &= M_{\text{theor.}} \cdot \eta_{hm} \quad [\text{Nm}] \\
 M_{\text{theor.}} &= \frac{\Delta p \text{ (bar)} \cdot V \text{ (cm}^3\text{/rev)}}{62,83} \\
 P_{\text{IN}} &= \frac{\Delta p \text{ (bar)} \cdot Q \text{ (l/min)}}{600} \quad [\text{kW}] \\
 P_{\text{OUT}} &= P_{\text{IN}} \cdot \eta_t
 \end{aligned}$$

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

# KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

**KM 20**

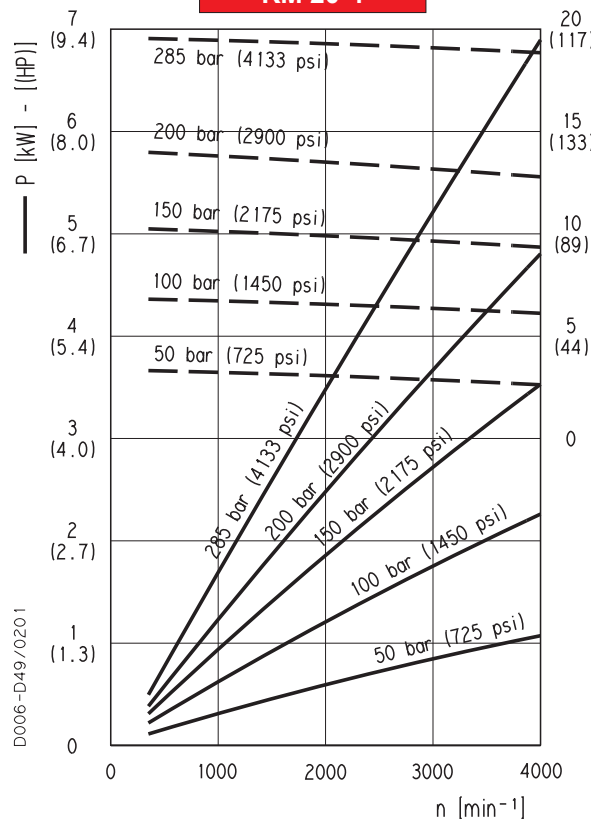
## KM 20



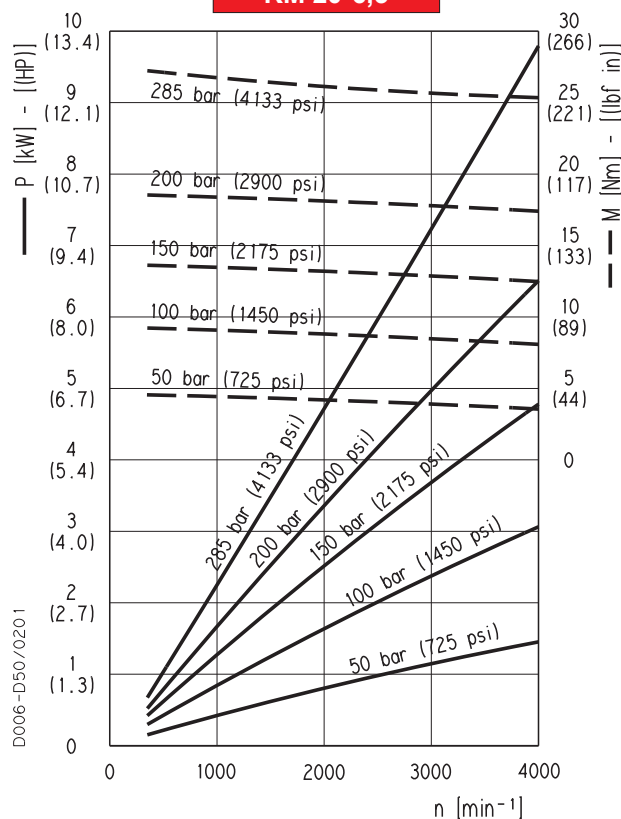
Each curve has been obtained at 122 °F (50 °C), using oil with viscosity 168 SSU (36 cSt) at 104 °F (40 °C) and at these pressures:

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

## KM 20•4



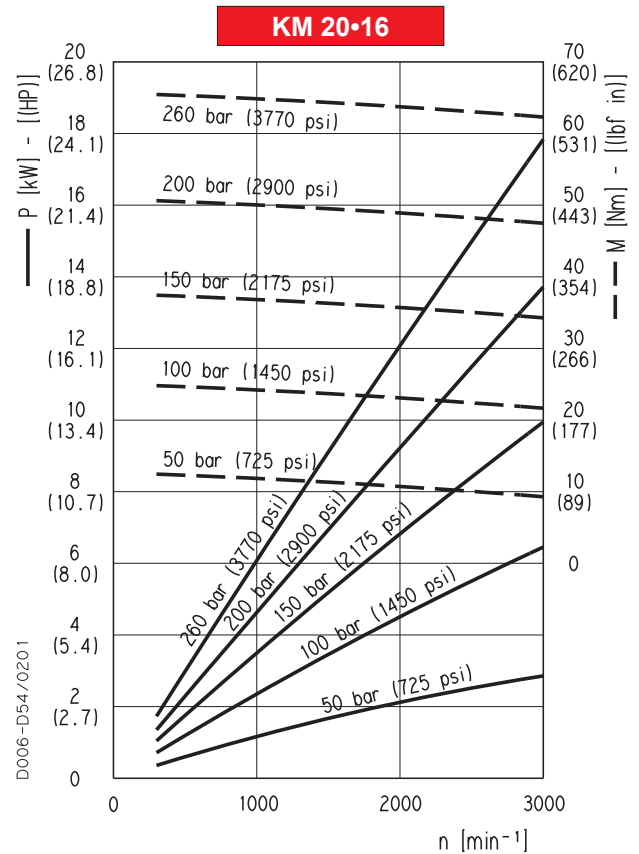
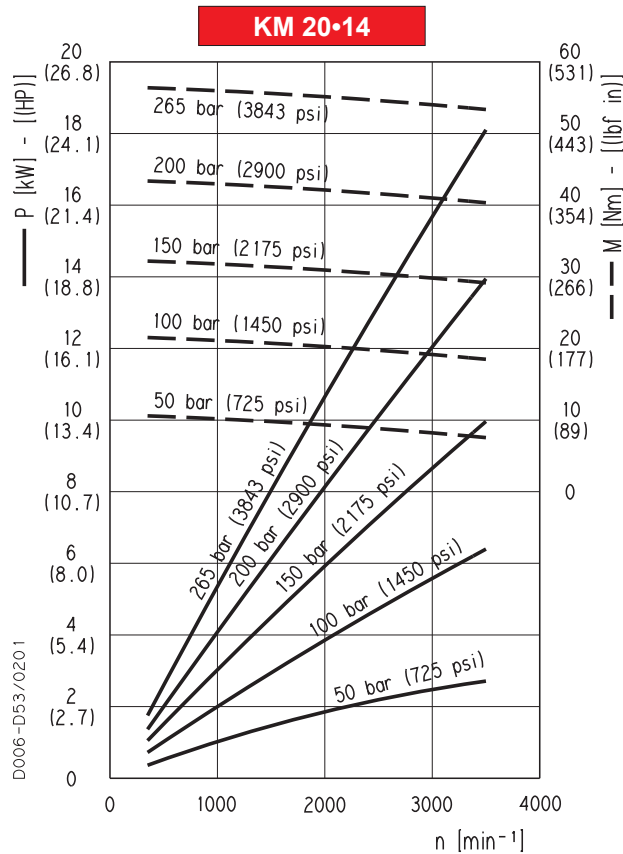
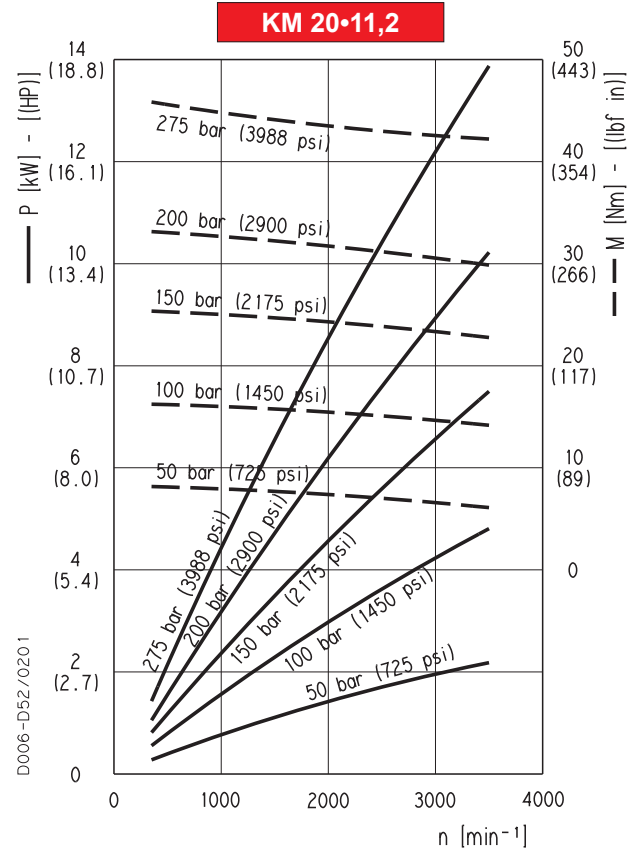
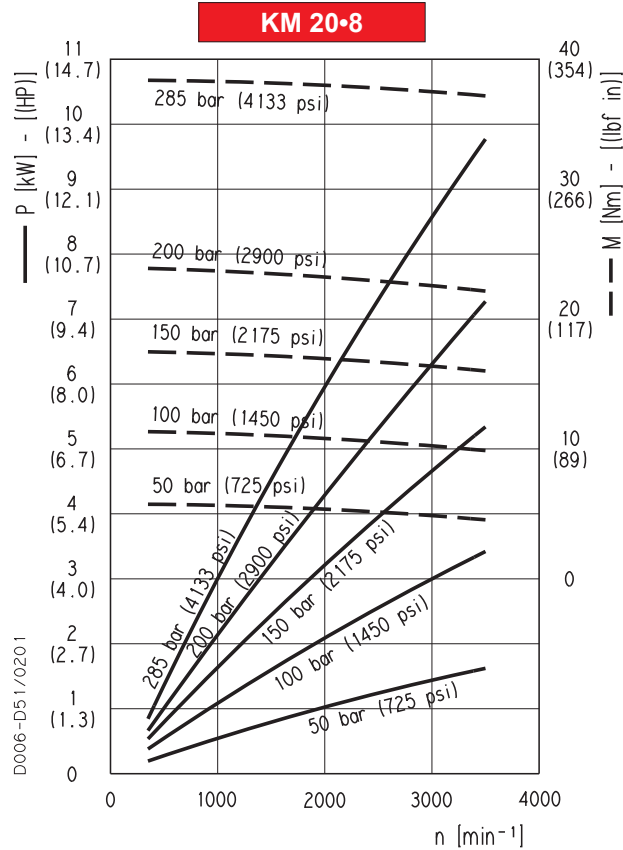
## KM 20•6,3



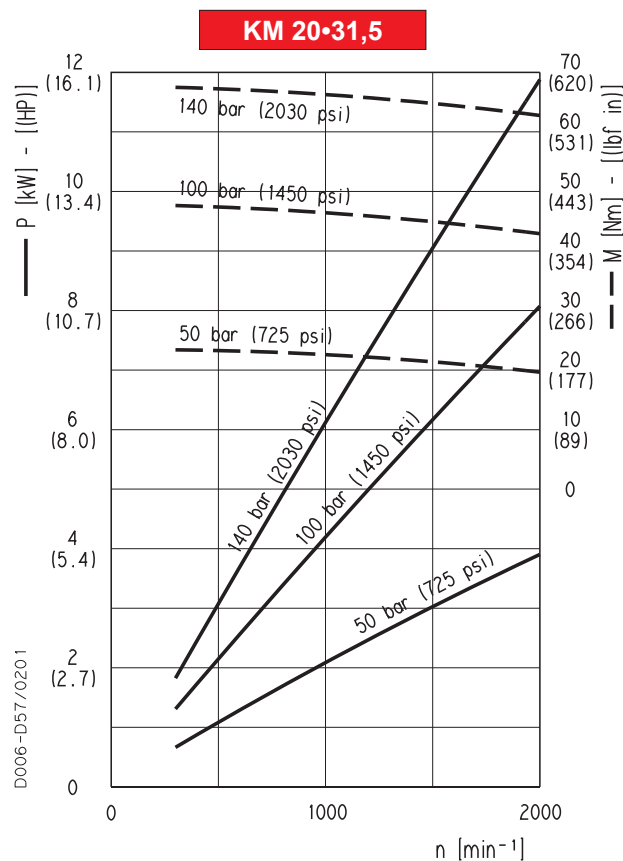
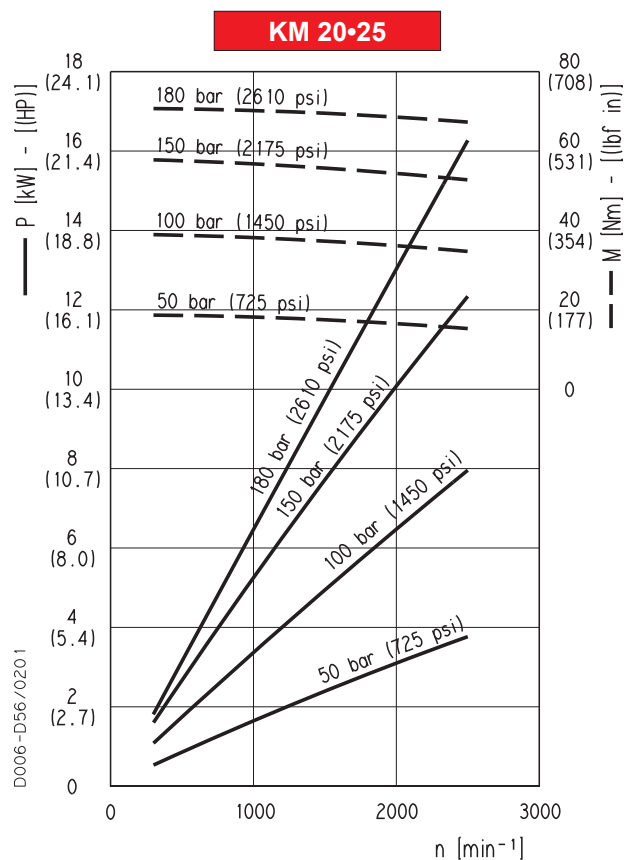
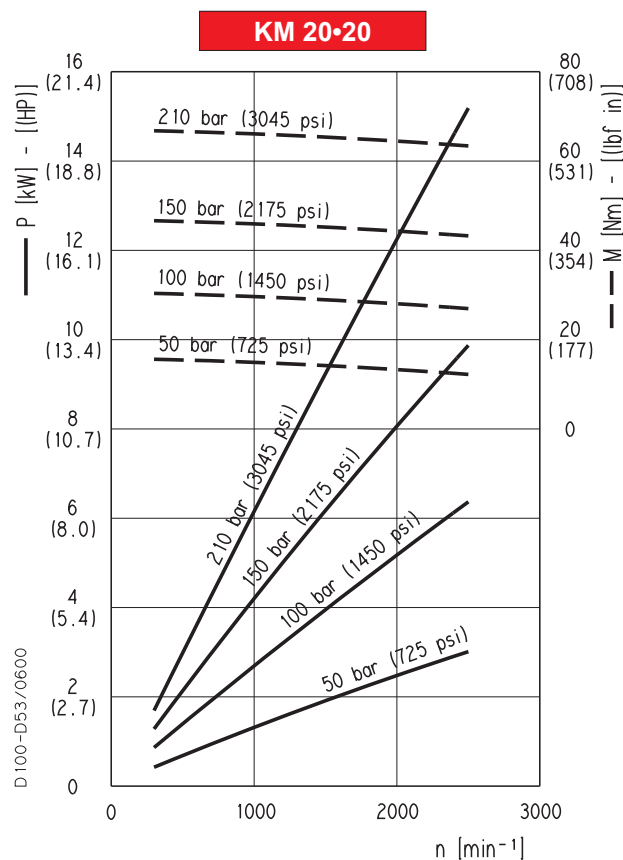
01/03.2002

**KAPPA 20 GEAR MOTORS PERFORMANCE CURVES**

**KM 20**



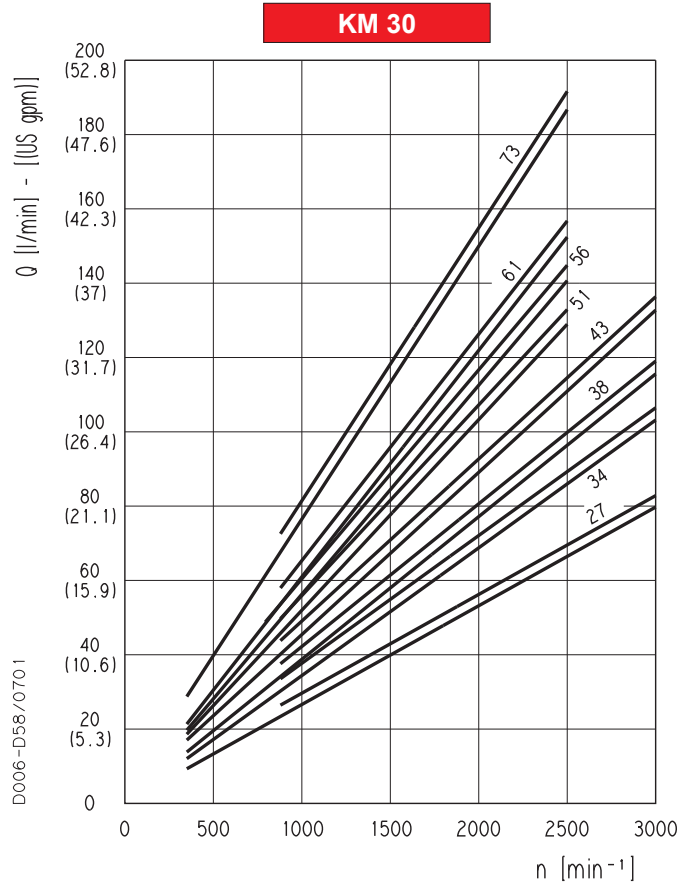
# KAPPA 20 GEAR MOTORS PERFORMANCE CURVES

**KM 20**


01/03.2002

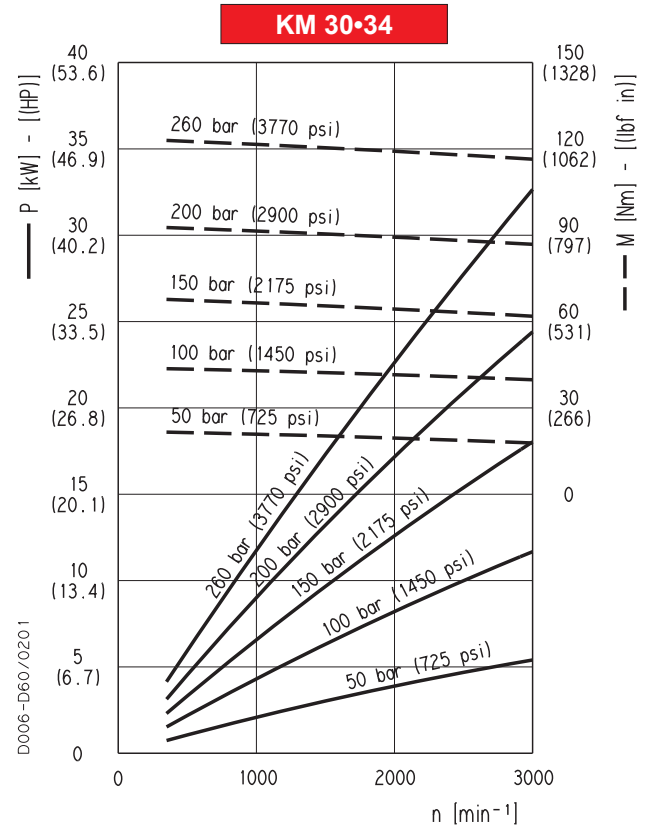
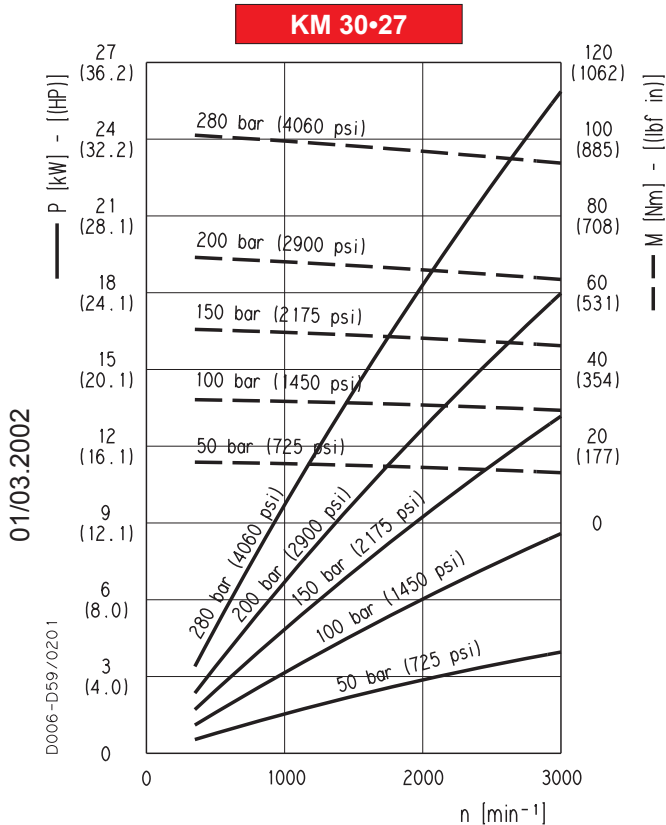
**KAPPA 30 GEAR MOTORS PERFORMANCE CURVES**

**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:

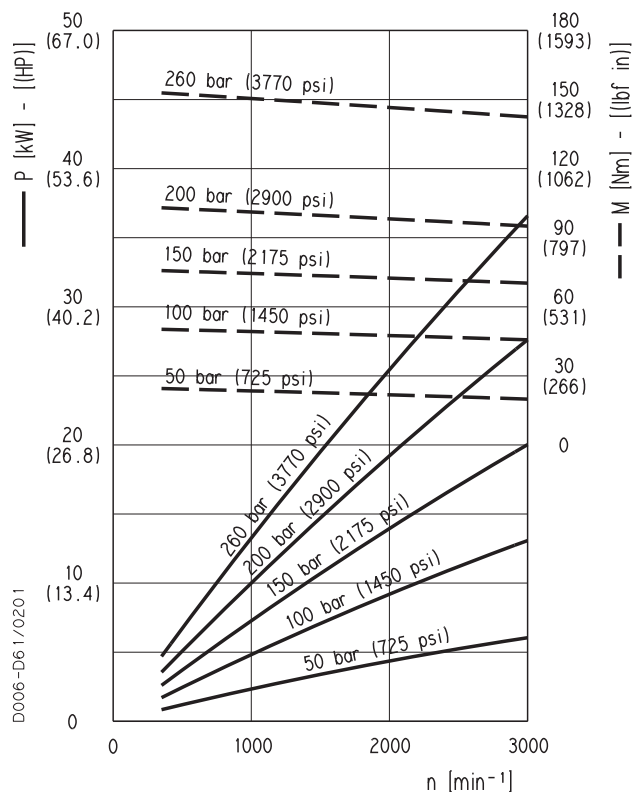
- KM 30•27 . . . . . 290-4060 psi (20-280 bar)
- KM 30•34 . . . . . 290-3770 psi (20-260 bar)
- KM 30•38 . . . . . 290-3770 psi (20-260 bar)
- KM 30•43 . . . . . 290-3625 psi (20-250 bar)
- KM 30•51 . . . . . 290-3335 psi (20-230 bar)
- KM 30•56 . . . . . 290-3118 psi (20-215 bar)
- KM 30•61 . . . .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



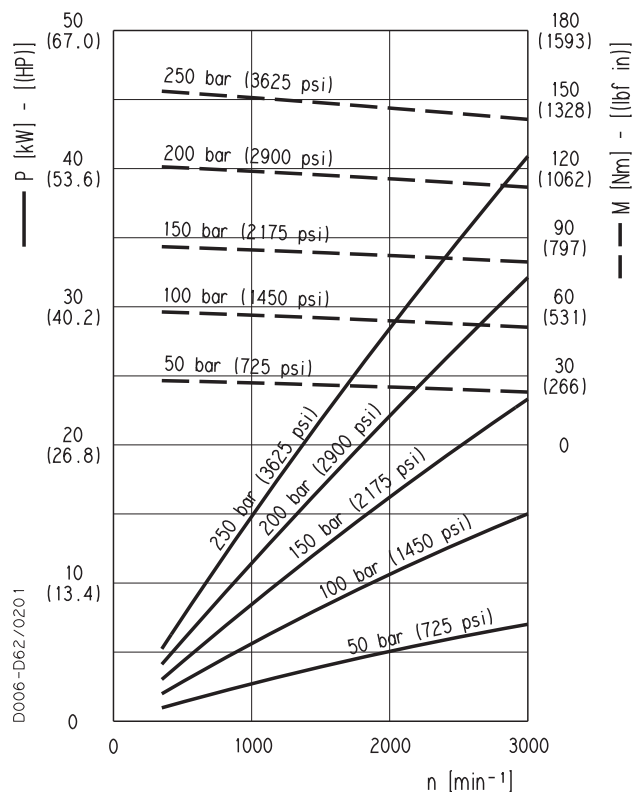
# KAPPA 30 GEAR MOTORS PERFORMANCE CURVES

**KM 30**

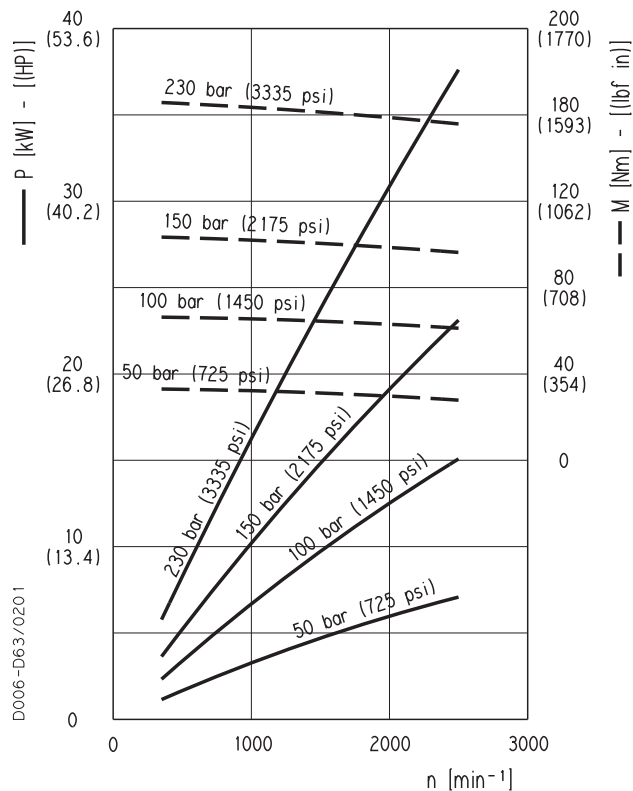
**KM 30-38**



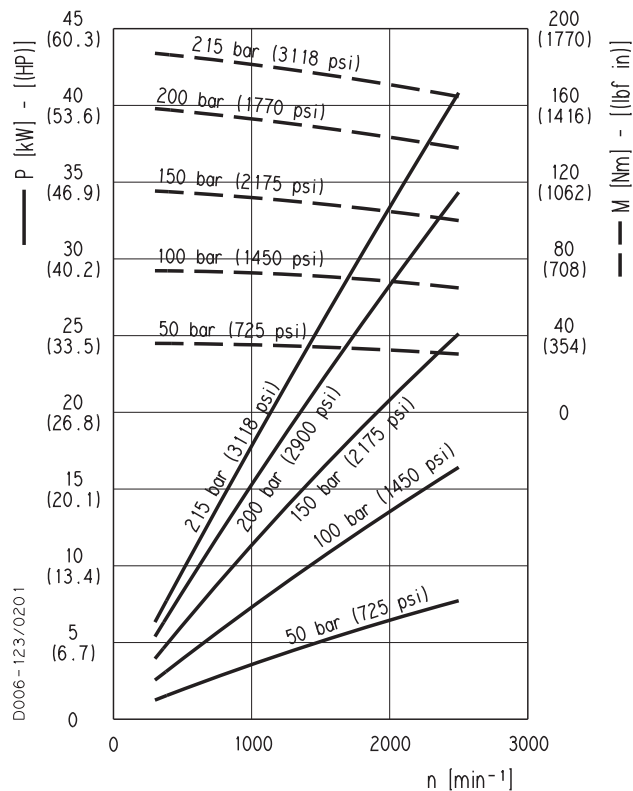
**KM 30-43**



**KM 30-51**



**KM 30-56**

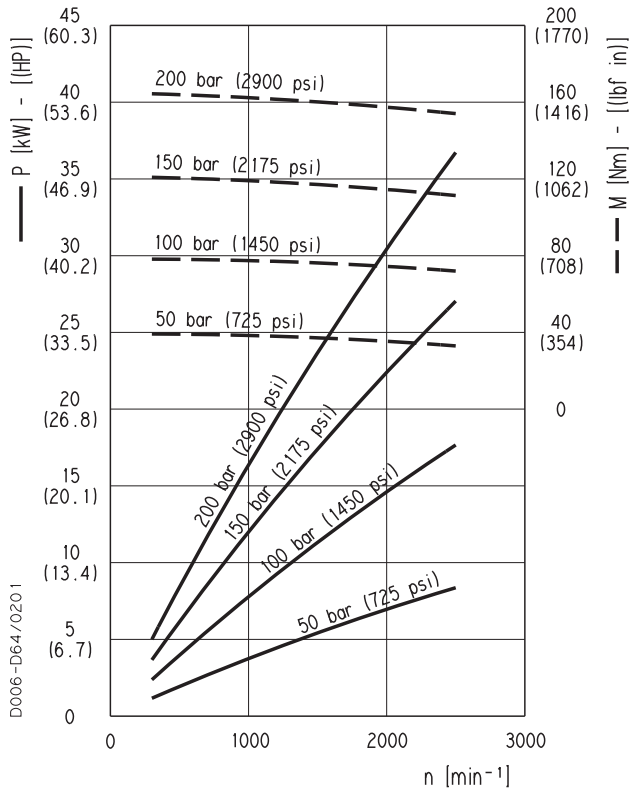


01/03.2002

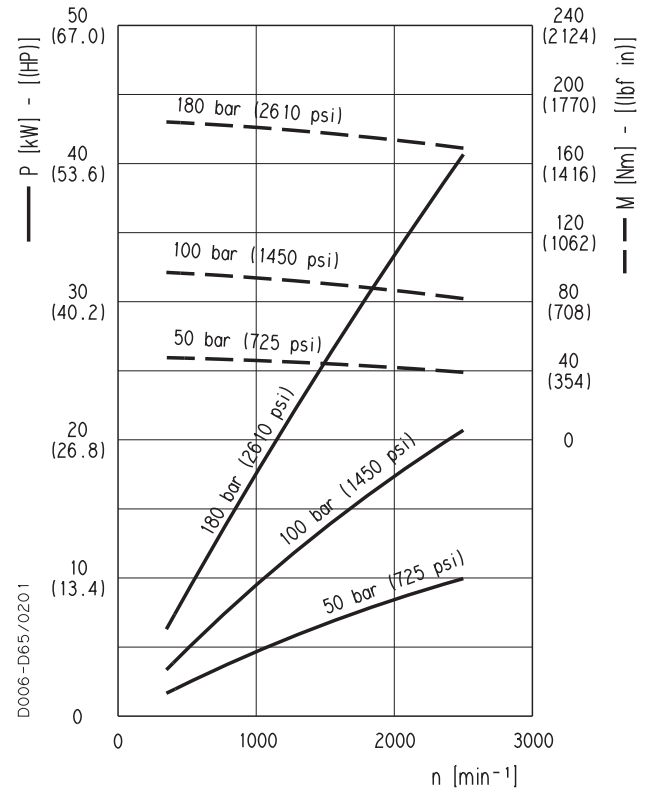
**KAPPA 30 GEAR MOTORS PERFORMANCE CURVES**

**KM 30**

**KM 30-61**

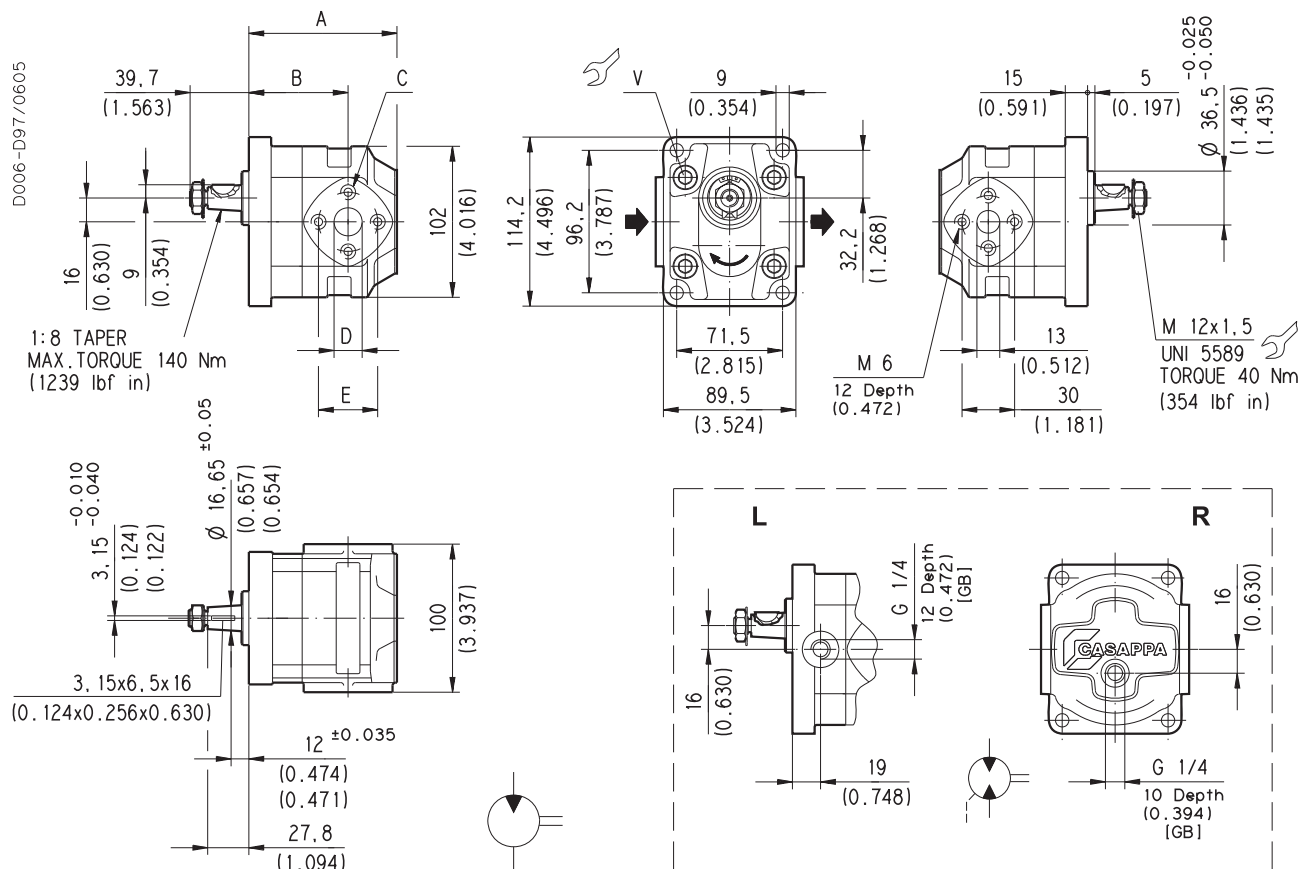


**KM 30-73**



01/03.2002

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



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

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

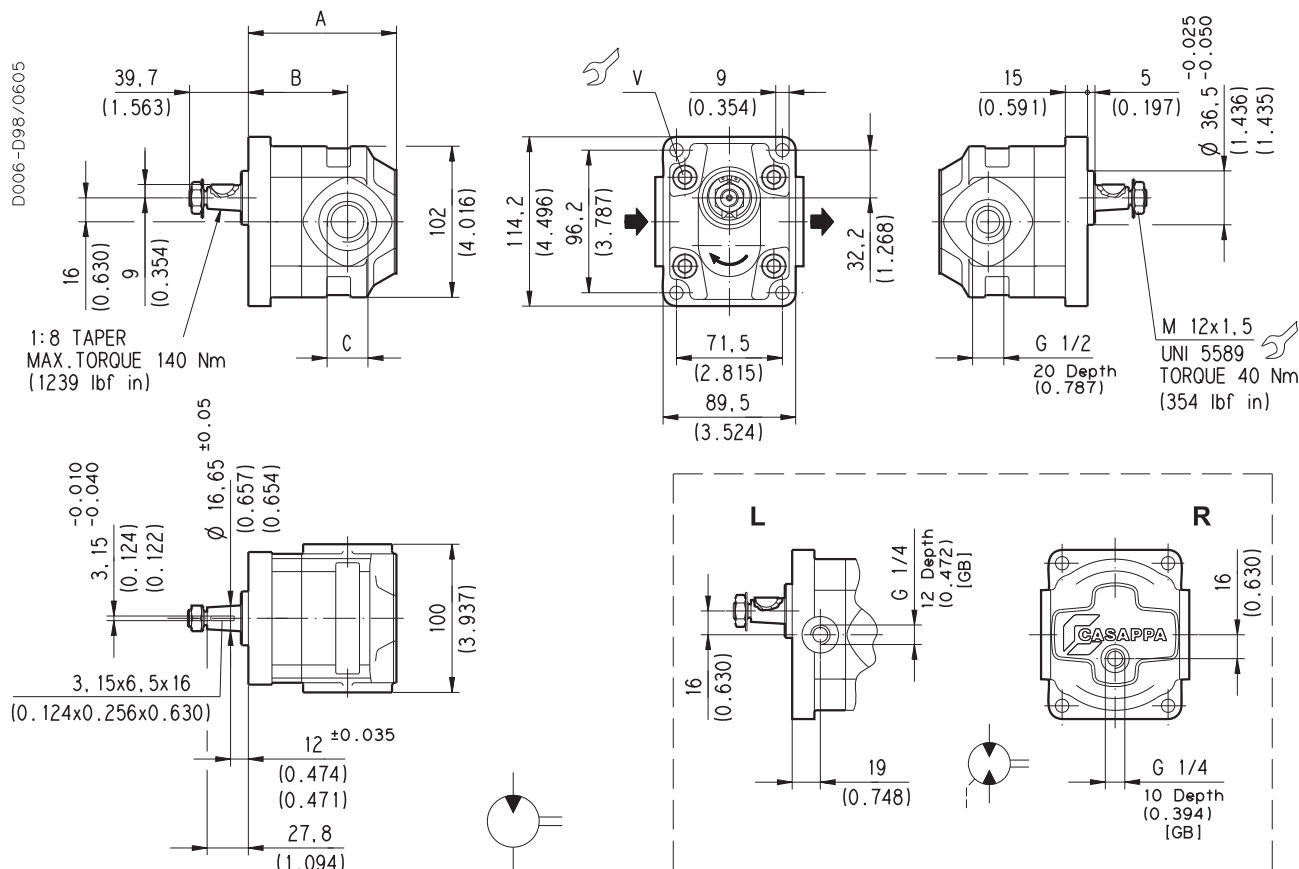
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

**KM 20•4 S0-82 E2-L EA/EA-N**

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

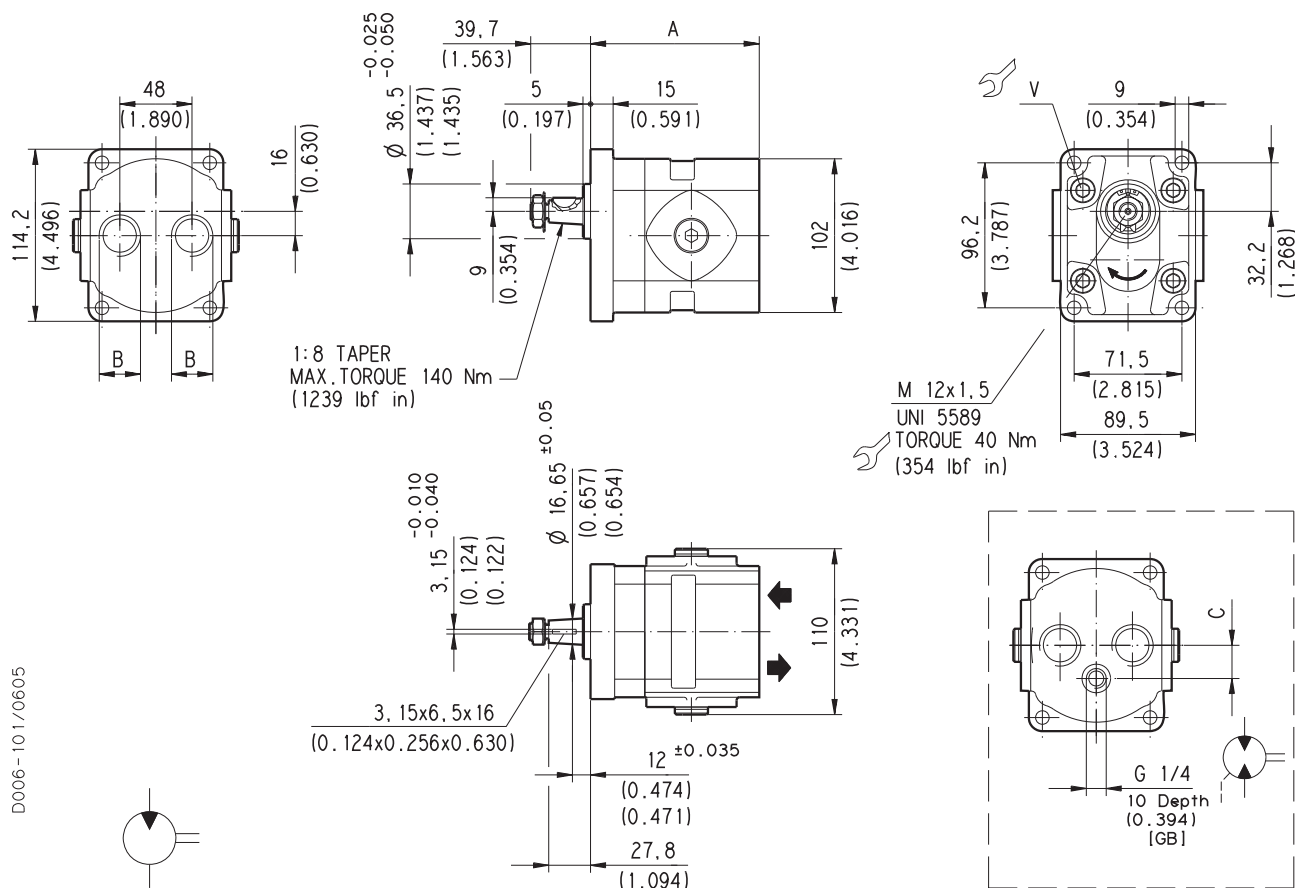
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

**KM 20•4 S0-82 E2-L GD/GD-N**

**GAS STRAIGHT THREAD PORTS**

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



**V** Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

**Rear ports version**

| Motor type        |          | A             | B                               | C             |
|-------------------|----------|---------------|---------------------------------|---------------|
|                   |          | mm<br>(in)    | mm<br>(in)                      | mm<br>(in)    |
| <b>KM 20•4</b>    | <b>S</b> | 84,5 (3.327)  | G 1/2<br>Depth<br>17<br>(0.670) | 19<br>(0.748) |
| <b>KM 20•6,3</b>  |          | 87 (3.425)    |                                 |               |
| <b>KM 20•8</b>    |          | 89,5 (3.524)  |                                 |               |
| <b>KM 20•11,2</b> |          | 93 (3.661)    |                                 |               |
| <b>KM 20•14</b>   | <b>R</b> | 112 (4.409)   | G 3/4<br>Depth<br>18<br>(0.709) | 22<br>(0.866) |
| <b>KM 20•16</b>   |          | 115,5 (4.547) |                                 |               |
| <b>KM 20•20</b>   |          | 122 (4.803)   |                                 |               |
| <b>KM 20•25</b>   |          | 130 (5.118)   |                                 |               |
| <b>KM 20•31,5</b> | <b>B</b> | 140 (5.512)   |                                 |               |

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

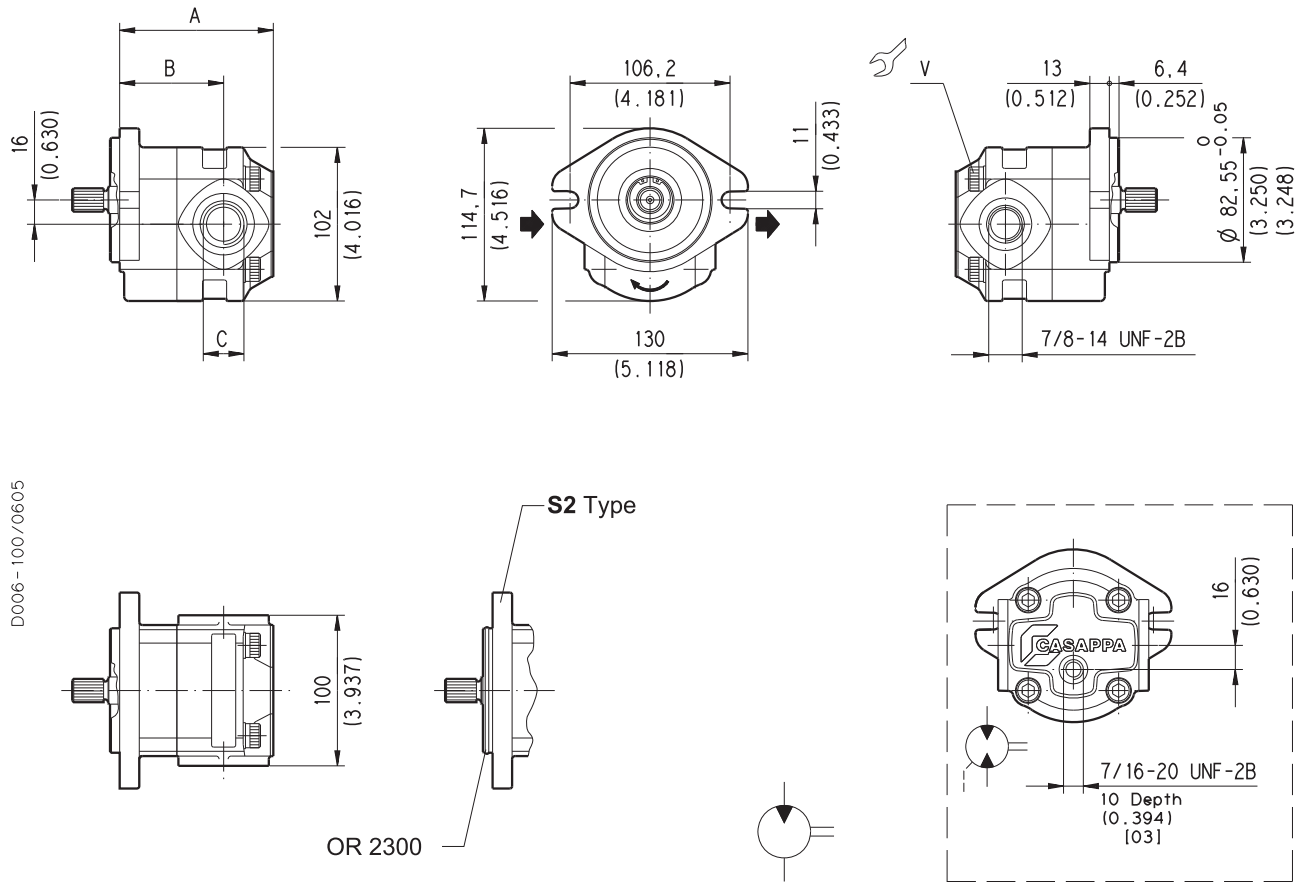
How to order:

**KM 20•4 S0-82 E2-P GD/GD-N**

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

SAE STRAIGHT THREAD PORTS J514

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


**V** Screws tightening torque Nm (lbf in)

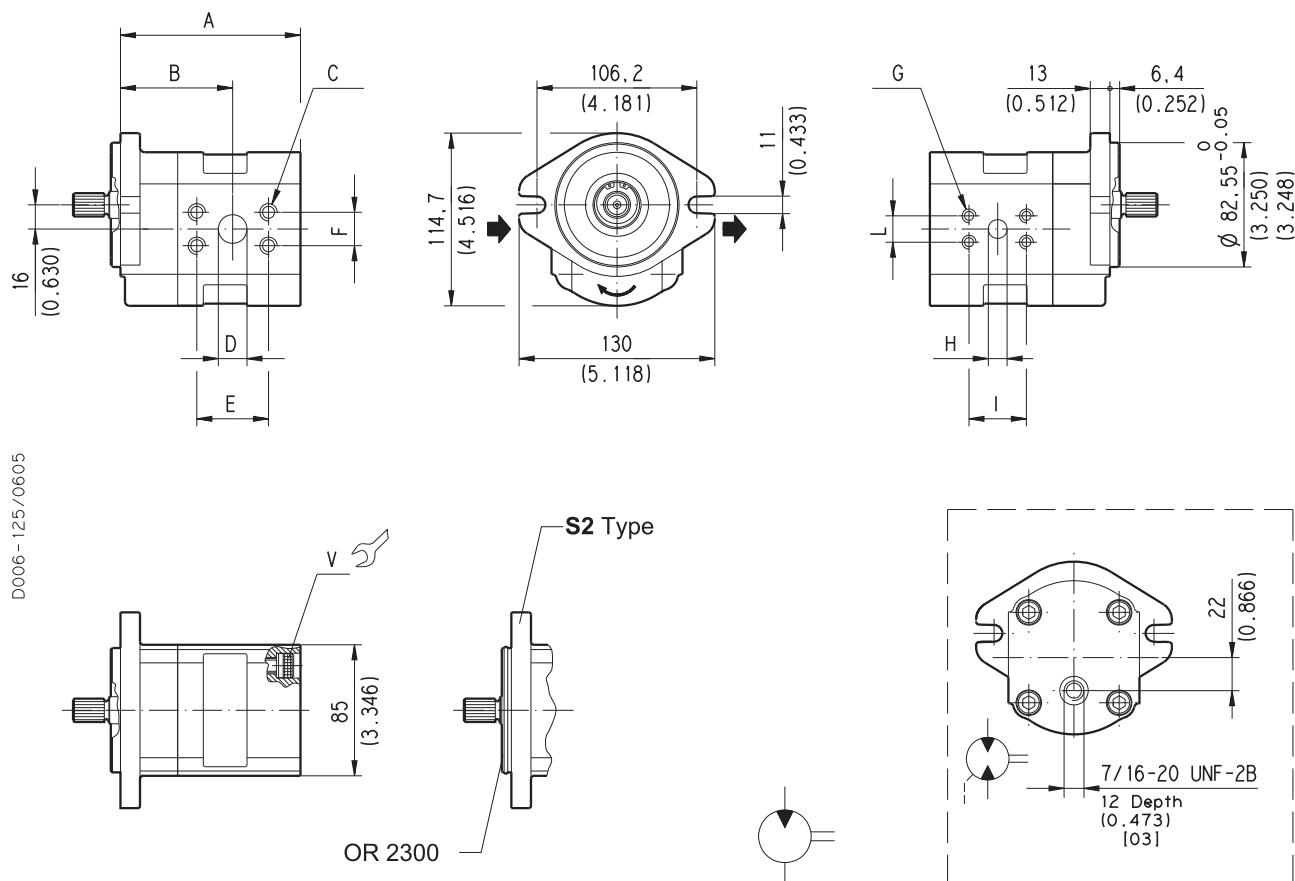
70 ±7 (558 ÷ 682)

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

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

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

Metric thread ISO 60° conforms to ISO/R 262


**V** Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

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

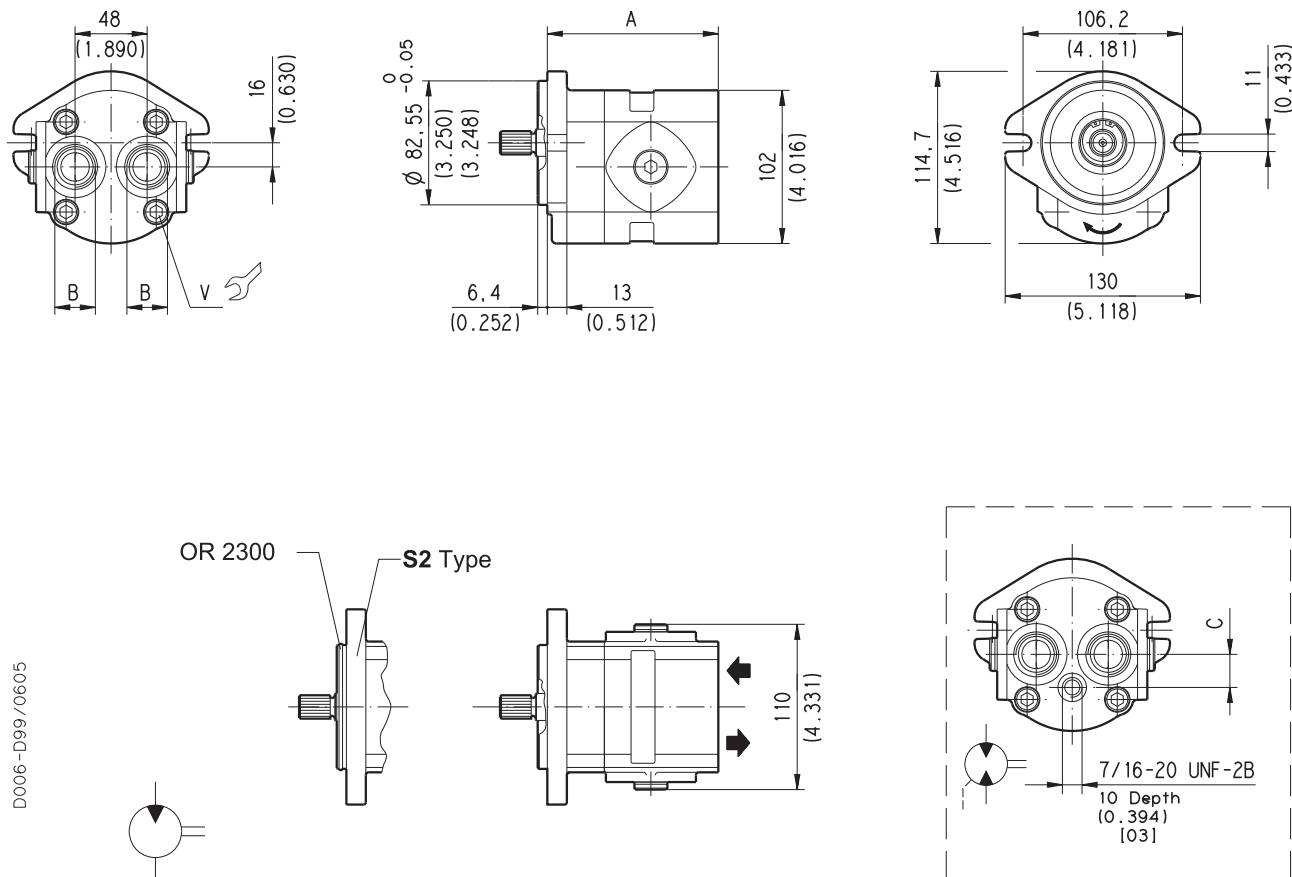
| Motor type | A                | B               | C                             | D               | E               | F               | G                             | H               | I               | L               | Ports code |     |
|------------|------------------|-----------------|-------------------------------|-----------------|-----------------|--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

02/06.2005

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

SAE STRAIGHT THREAD PORTS J514

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



D006-D99/0605

**V** Screws tightening torque Nm (lbf in)

 $70 \pm 7$  (558 ÷ 682)

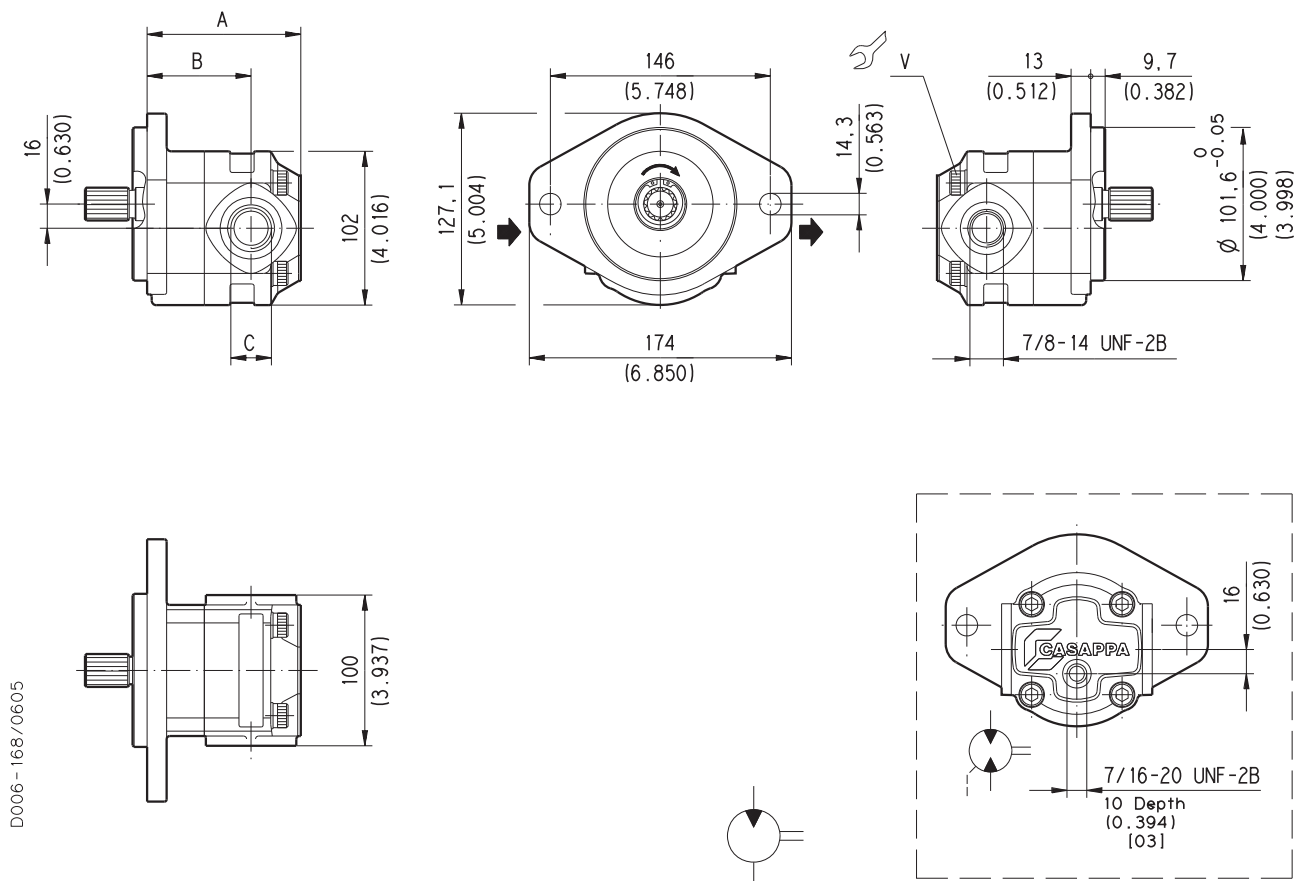
**Rear ports version (P) - To order see page 93 e 94**

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

02/06.2005

**SAE STRAIGHT THREAD PORTS J514**

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


**V Screws tightening torque Nm (lbf in)**

70 ±7 (558 ÷ 682)

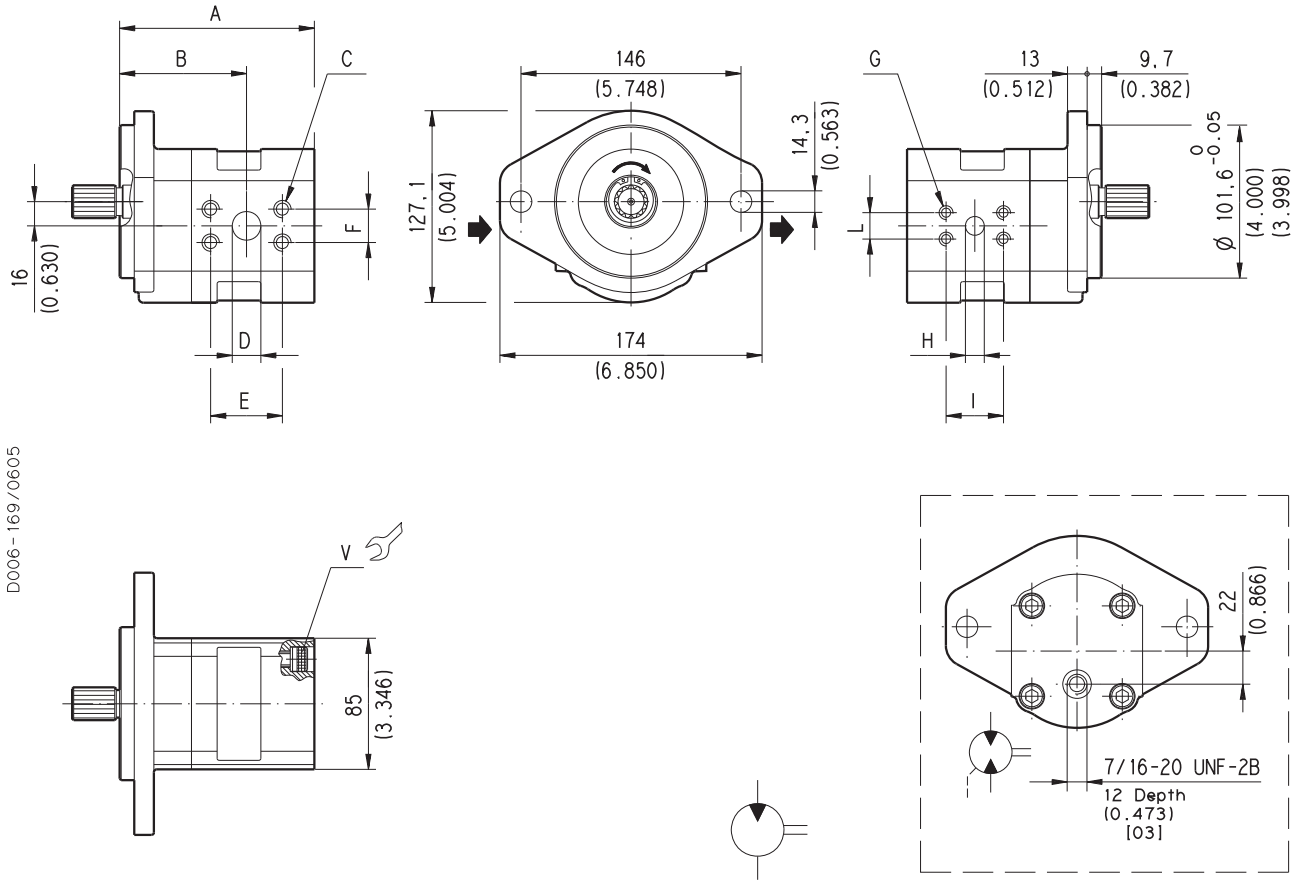
**Side ports version (L) - To order see page 93 e 94**

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

02/06.2005

SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

Metric thread ISO 60° conforms to ISO/R 262



D006 - 169 / 0605

**V** Screws tightening torque Nm (lbf in)

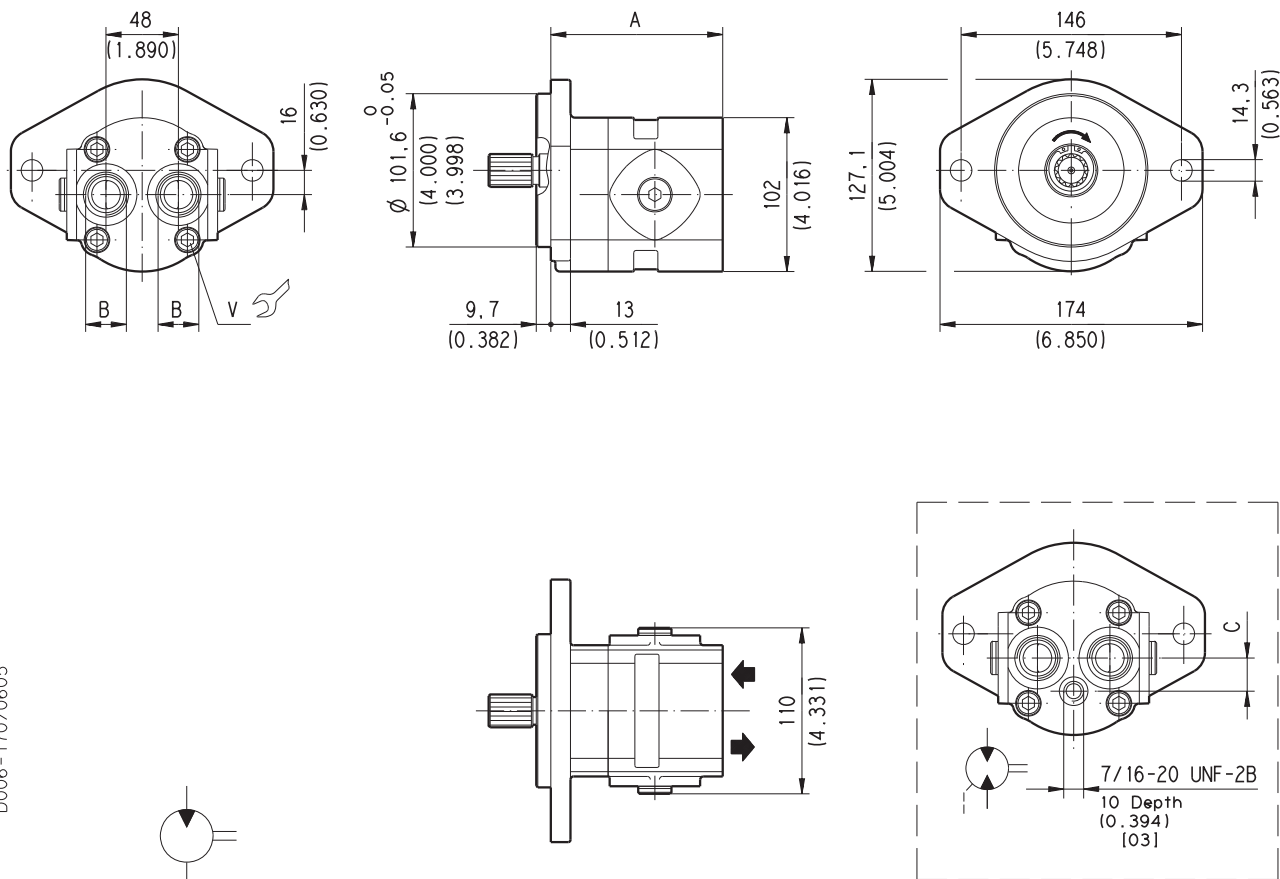
70 ±7 (558 ÷ 682)

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

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

**SAE STRAIGHT THREAD PORTS J514**

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


**V** Screws tightening torque Nm (lbf in)

 $70 \pm 7$  (558 ÷ 682)

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

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

02/06.2005

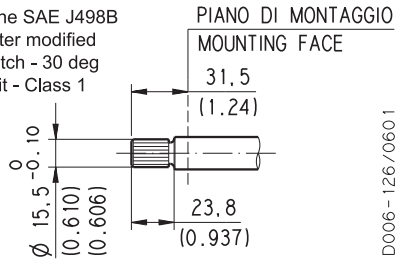
## KAPPA 20 END DRIVE SHAFTS

SAE

## SAE "A" SPLINE

03

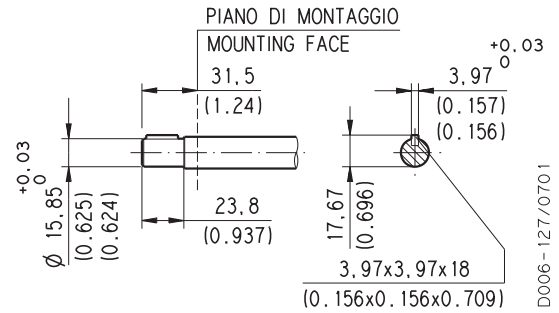
Ext. Involute Spline SAE J498B  
with major diameter modified  
9 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



MAX 885 lbf in (100 Nm)

## SAE "A" STRAIGHT

31

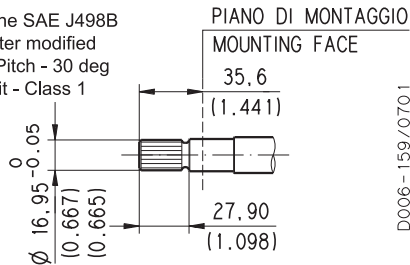


MAX 620 lbf in (70 Nm)

## SAE SPLINE

01

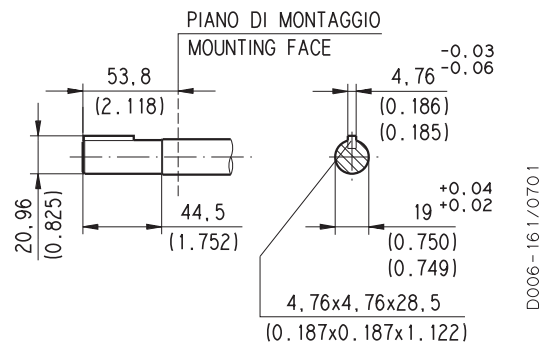
Ext. Involute Spline SAE J498B  
with major diameter modified  
10 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



MAX 1151 lbf in (130 Nm)

## STRAIGHT

49

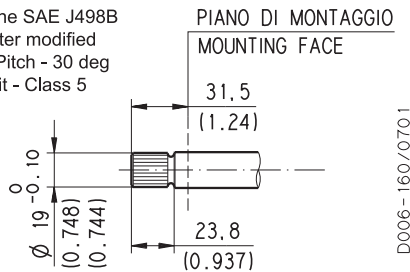


MAX 1239 lbf in (140 Nm)

## SAE SPLINE

07

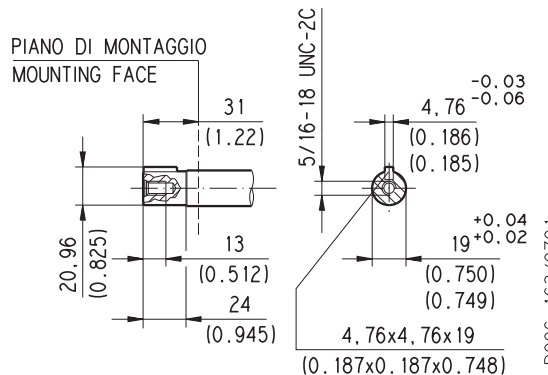
Ext. Involute Spline SAE J498B  
with major diameter modified  
11 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 5



MAX 1505 lbf in (170 Nm)

## STRAIGHT

50

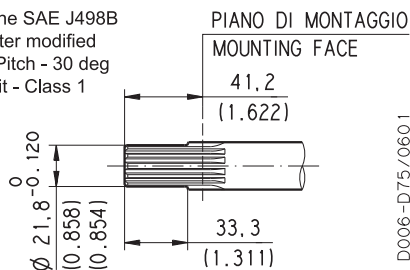


MAX 885 lbf in (100 Nm)

## SAE "B" SPLINE

04

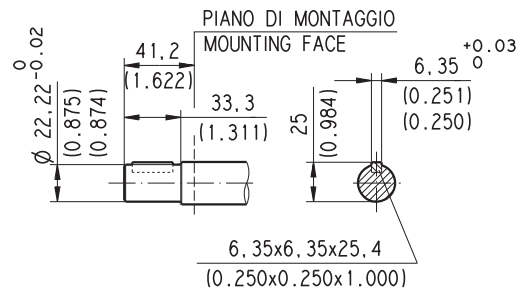
Ext. Involute Spline SAE J498B  
with major diameter modified  
13 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



MAX 2478 lbf in (280 Nm)

## SAE "B" STRAIGHT

32



MAX 1770 lbf in (200 Nm)

Replaces: 01/03.2002

03/03.2006

## HOW TO ORDER SINGLE MOTORS

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

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

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

| 3 | Version                  | CODE |
|---|--------------------------|------|
|   | Without outboard bearing | 0    |

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

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

| CODE     | Ports position | 6 |
|----------|----------------|---|
| <b>L</b> | Side           |   |
| <b>P</b> | Rear           |   |

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

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

01/03.2002

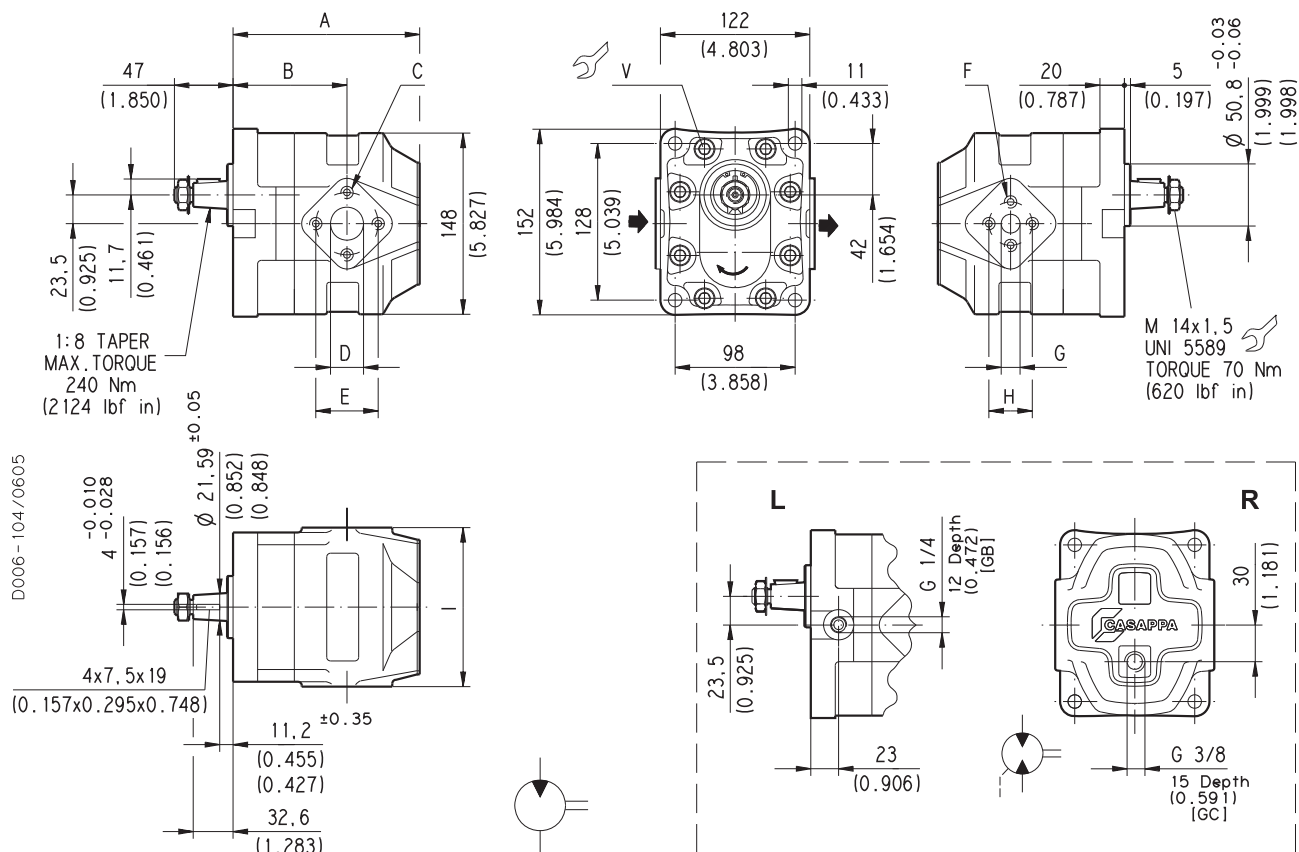
## KAPPA 30

## 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)

 $70 \pm 7$  (558 ÷ 682)

| Motor type |                       | A                 | B          | C                           | D             | E             | F                           | G             | H             | I              |
|------------|-----------------------|-------------------|------------|-----------------------------|---------------|---------------|-----------------------------|---------------|---------------|----------------|
|            |                       | mm<br>(in)        | mm<br>(in) | mm<br>(in)                  | mm<br>(in)    | mm<br>(in)    | mm<br>(in)                  | mm<br>(in)    | mm<br>(in)    | mm<br>(in)     |
| KM 30•27   | S<br>D<br>L<br>R<br>B | 0-83 E3-L EB/ED-N |            | M 10<br>Depth 17<br>(0.669) | 27<br>(1.063) | 51<br>(2.008) | M 8<br>Depth 17<br>(0.669)  | 19<br>(0.748) | 40<br>(1.575) | 130<br>(5.118) |
|            |                       |                   |            |                             |               |               |                             |               |               |                |
|            |                       |                   |            |                             |               |               |                             |               |               |                |
|            |                       |                   |            |                             |               |               |                             |               |               |                |
|            |                       |                   |            |                             |               |               |                             |               |               |                |
|            |                       |                   |            |                             |               |               |                             |               |               |                |
|            |                       |                   |            |                             |               |               |                             |               |               |                |
| KM 30•34   |                       |                   |            |                             |               |               |                             |               |               |                |
| KM 30•38   |                       |                   |            |                             |               |               |                             |               |               |                |
| KM 30•43   |                       |                   |            |                             |               |               |                             |               |               |                |
| KM 30•51   |                       |                   |            |                             |               |               |                             |               |               |                |
| KM 30•56   |                       |                   |            |                             |               |               |                             |               |               |                |
| KM 30•61   |                       |                   |            |                             |               |               |                             |               |               |                |
| KM 30•73   |                       | 0-83 E3-L ED/EF-N |            | M 12<br>Depth 17<br>(0.669) | 33<br>(1.299) | 62<br>(2.441) | M 10<br>Depth 17<br>(0.669) | 27<br>(1.063) | 51<br>(2.008) | 135<br>(5.315) |

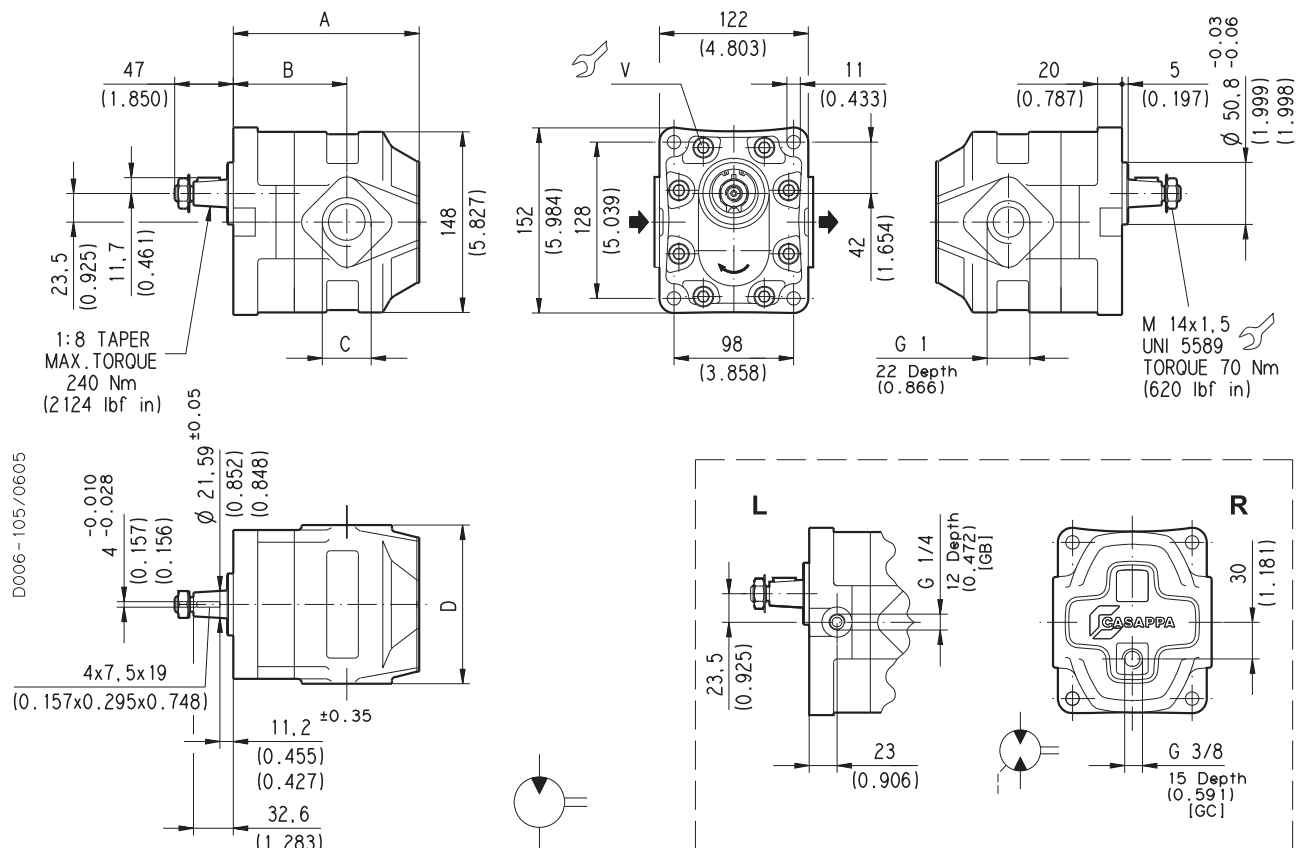
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

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



**V Screws tightening torque Nm (lbf in)**

70 ±7 (558 ÷ 682)

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

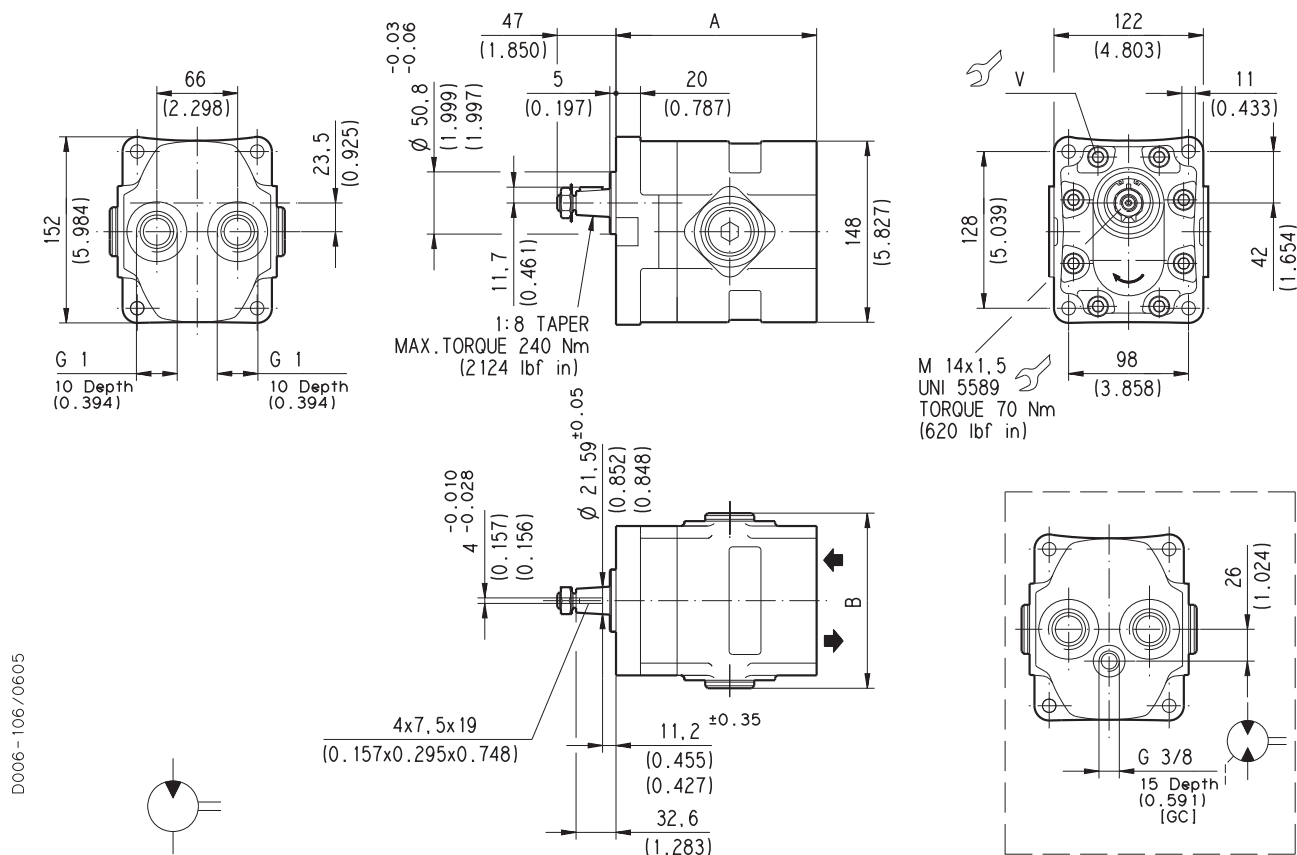
Rotation: S=left - D=right - L=reversible side drain - R=reversible rear drain - B=reversible internal drain

How to order:

**KM 30•27 S0-83 E3-L GF/GF-N**

## GAS STRAIGHT THREAD PORTS

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



**V** Screws tightening torque Nm (lbf in)

 $70 \pm 7$  (558 ÷ 682)

### Rear ports version (P)

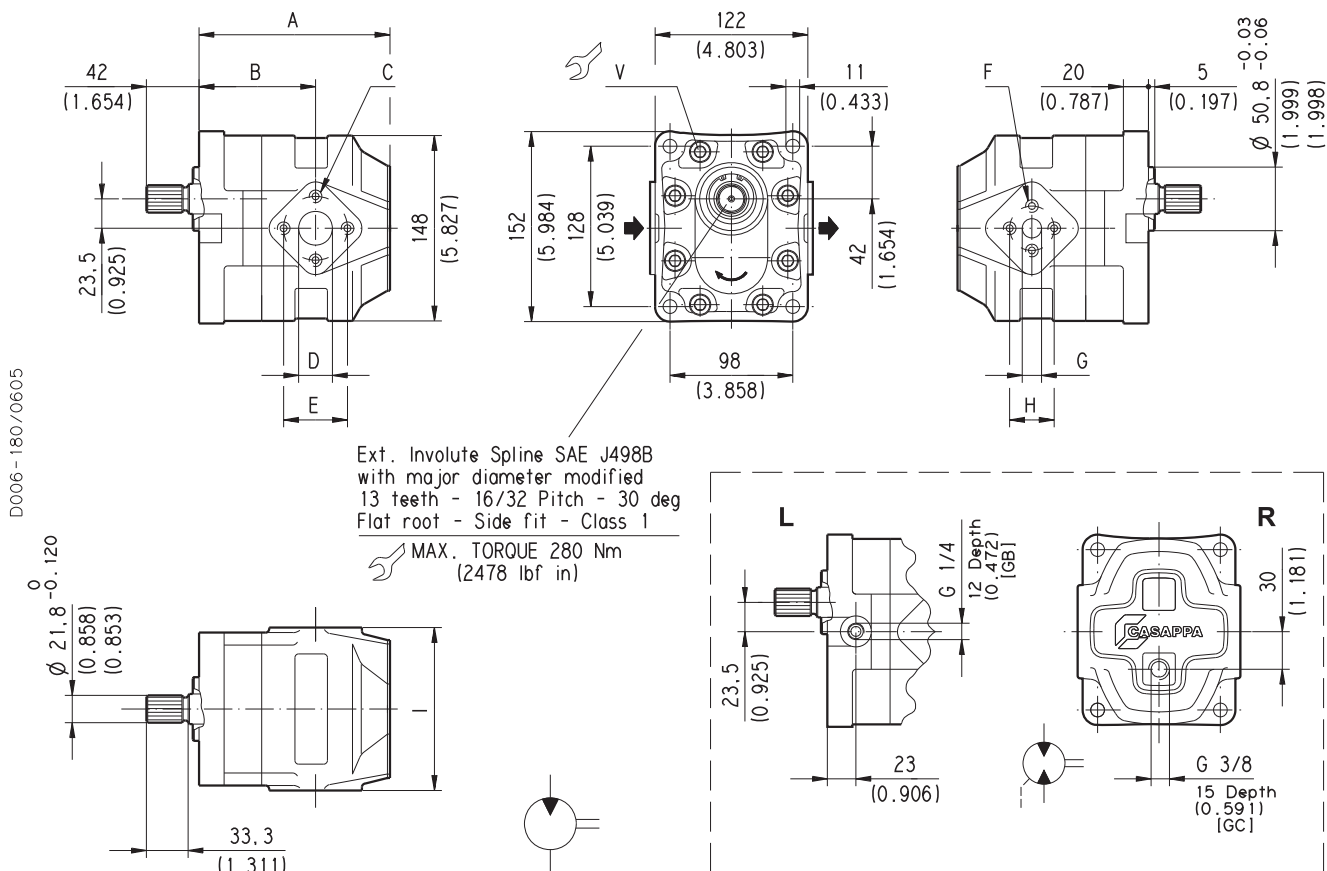
| Motor type |                  |                   | A           | B           |
|------------|------------------|-------------------|-------------|-------------|
|            |                  |                   | mm<br>(in)  | mm<br>(in)  |
| KM 30•27   | S<br>D<br>R<br>B | 0-83 E3-P GF/GF-N | 148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

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**

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



**V** Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

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

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

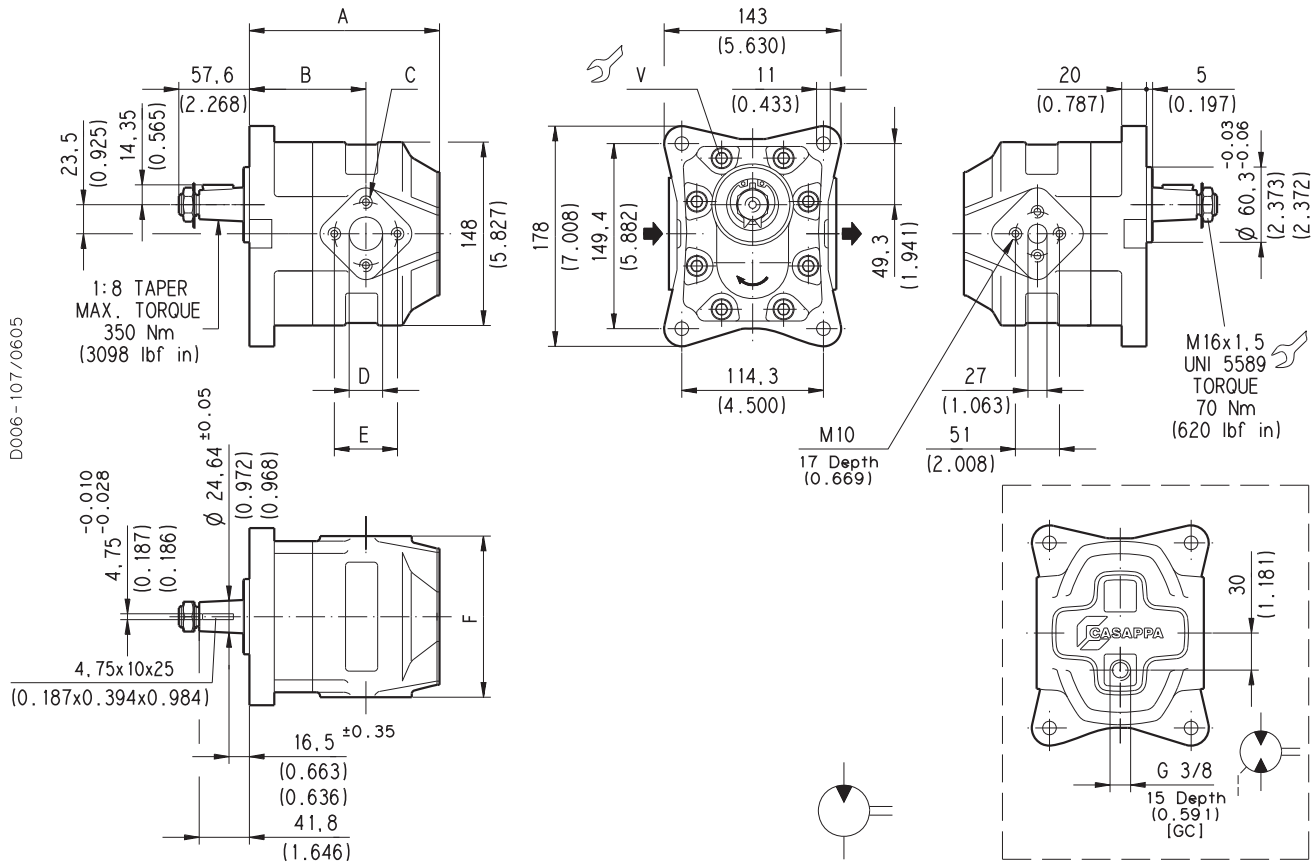
How to order:

**KM 30•27 S0-83 E3-L ED/EB-N**

02/06.2005

EUROPEAN FLANGED PORTS - 4 Bolts

Metric thread ISO 60° conforms to ISO/R 262



V Screws tightening torque Nm (lbf in)

70 ±7 (558 ÷ 682)

02/06.2005

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

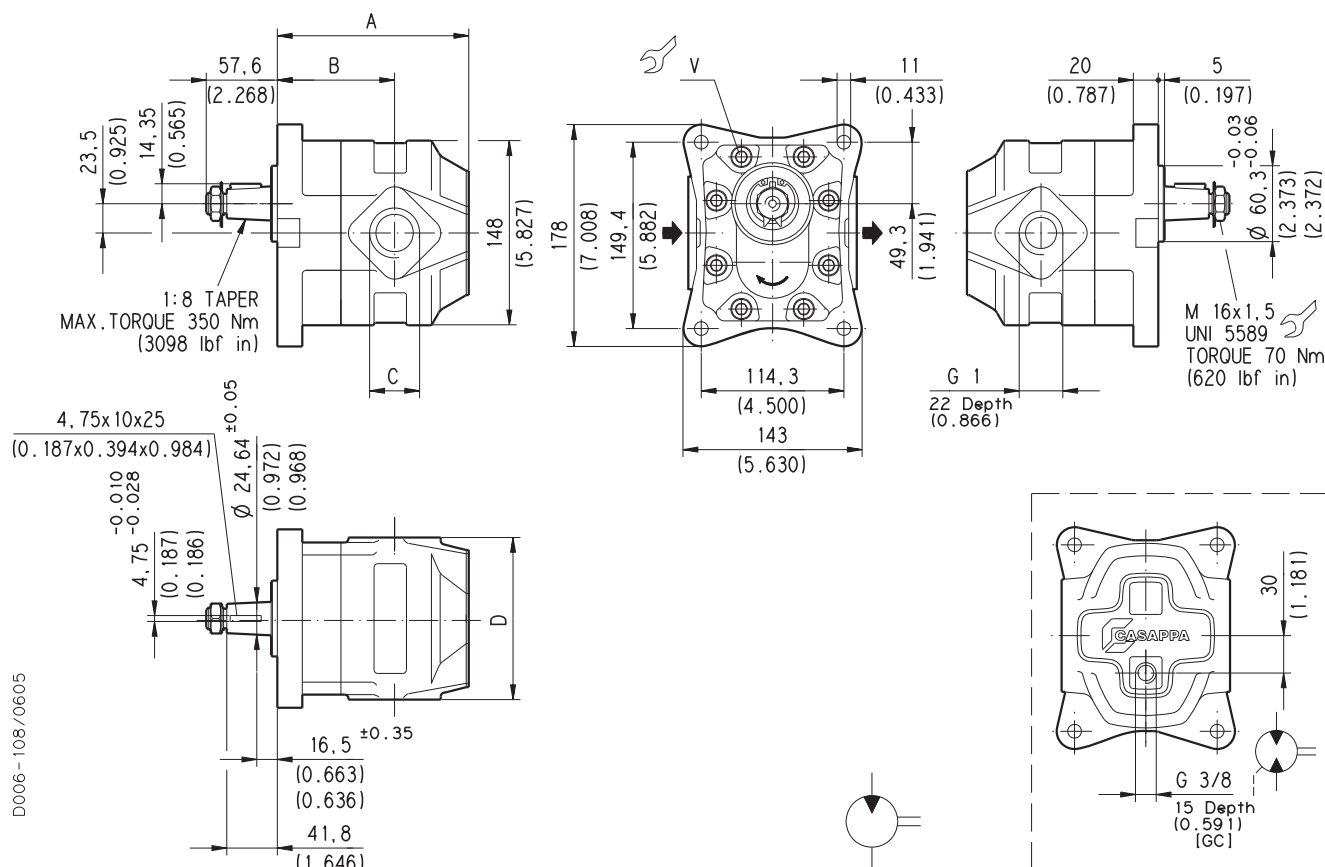
Rotation: S=left - D=right - R=reversible rear drain - B=reversible internal drain

How to order:

**KM 30•51 S0-84 E4-L ED/ED-N**

**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)

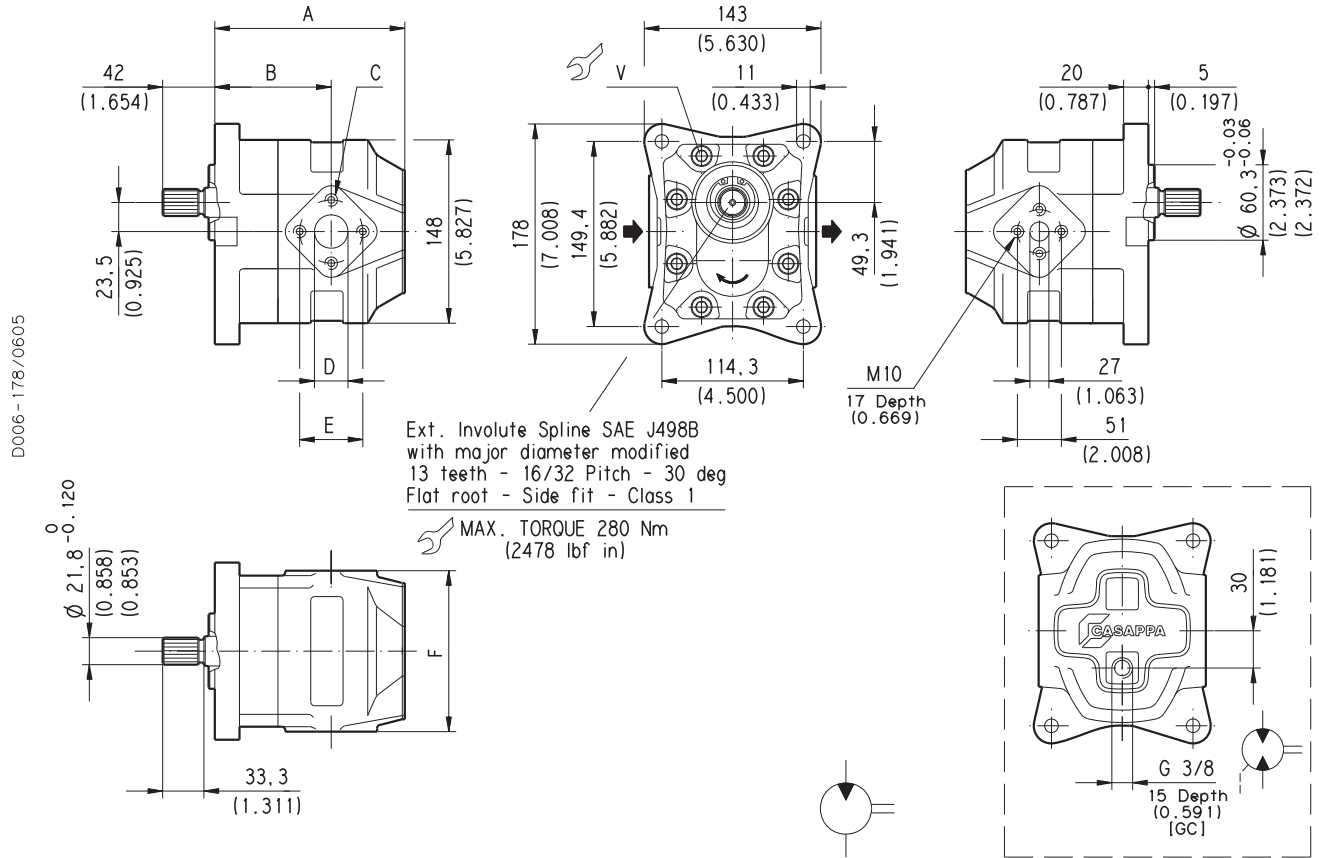
| Motor type      |                            |                          | <b>A</b>       | <b>B</b>       | <b>C</b>                       | <b>D</b>       |
|-----------------|----------------------------|--------------------------|----------------|----------------|--------------------------------|----------------|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

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)                      |

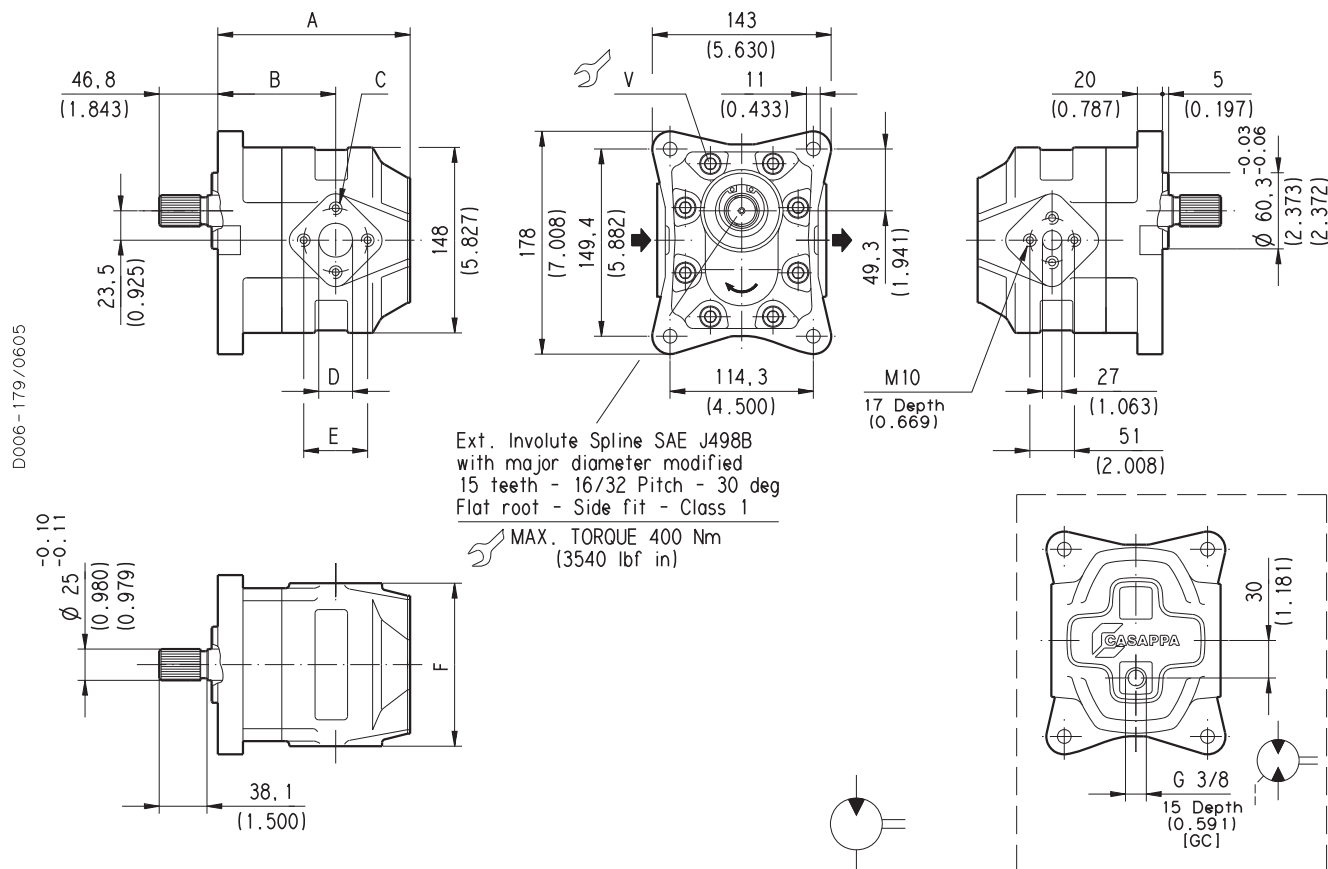
| Motor type                       |                  |                   |  | A              | B              | C                           | D             | E             | F              |
|----------------------------------|------------------|-------------------|--|----------------|----------------|-----------------------------|---------------|--------------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

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

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

How to order:

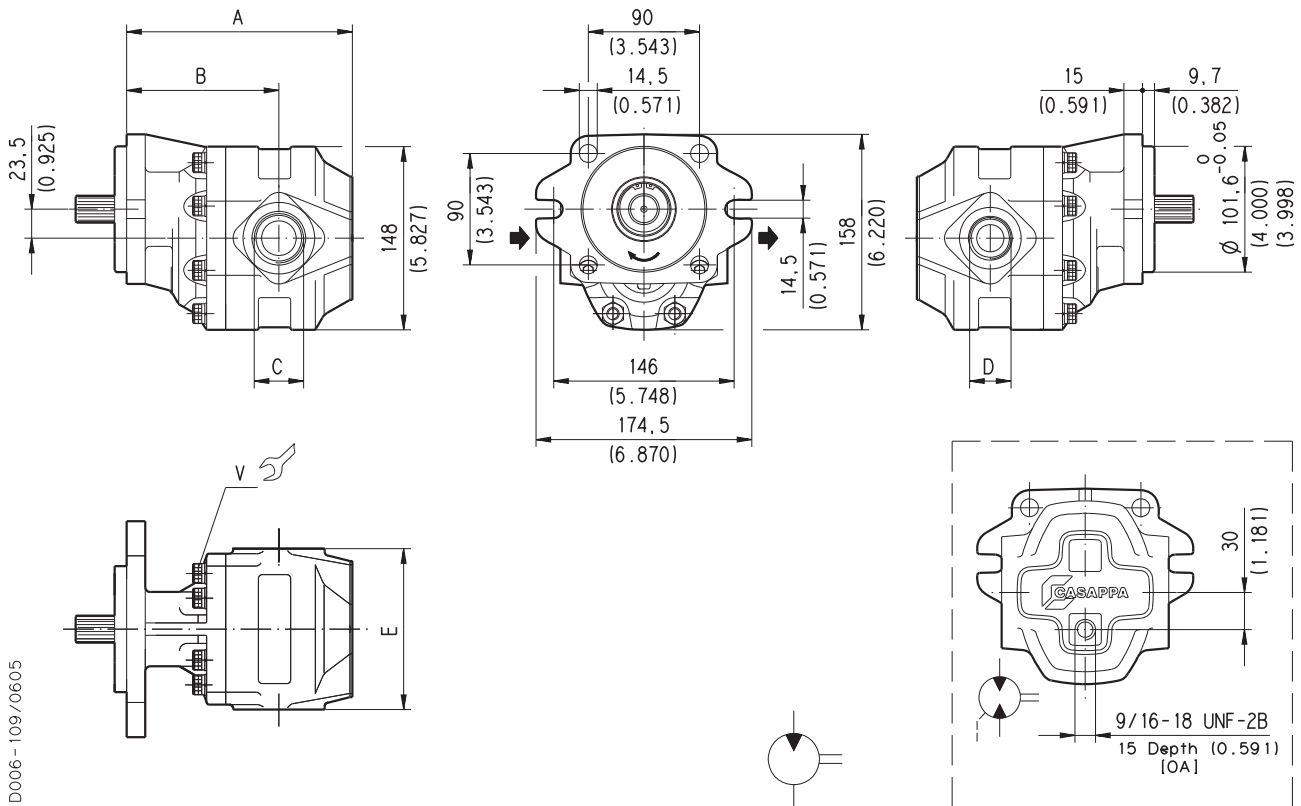
**KM 30•51 S0-A5 E4-L ED/ED-N**

02/06.2005

**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)

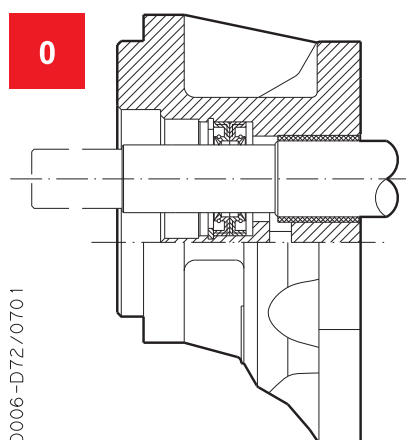
To order see page 104 e 105

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

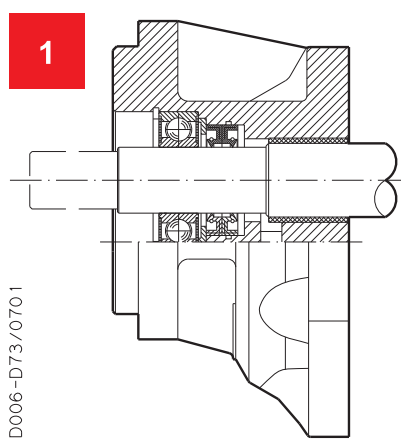
\* Available only with 04 and 32 shaft for 0 and 1 version.

# KAPPA 30 SAE VERSION

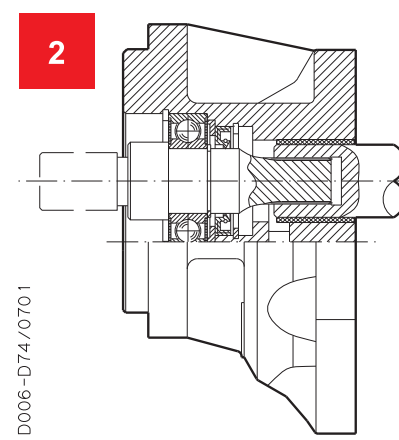
**SAE**



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: 01/03.2002

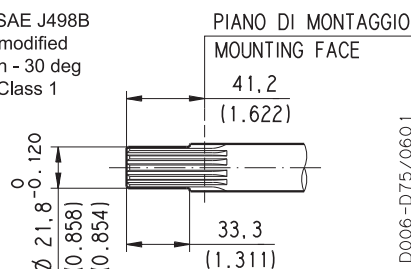
## KAPPA 30 END DRIVE SHAFTS

**SAE**

### SAE "B" SPLINE

**04**

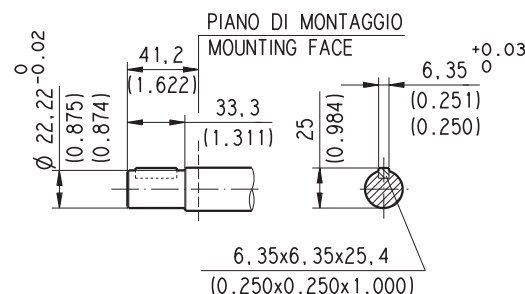
Ext. Involute Spline SAE J498B  
with major diameter modified  
13 teeth - 16/32 Pitch - 30 deg  
Flat Root - Side fit - Class 1



○ MAX 2921 lbf in (330 Nm) ◆

### SAE "B" STRAIGHT

**32**

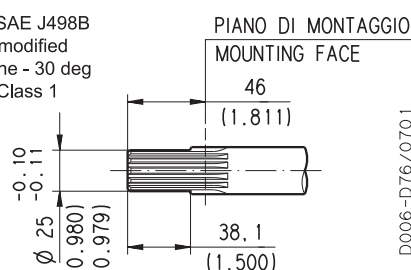


○ MAX 1770 lbf in (200 Nm) ◆

### SAE "BB" SPLINE

**05**

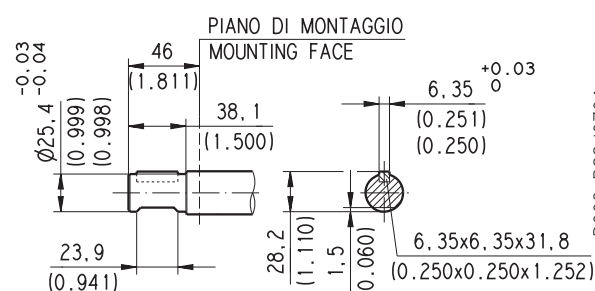
Ext. Involute Spline SAE J498B  
with major diameter modified  
15 teeth - 16/32 Spline - 30 deg  
Flat Root - Side fit - Class 1



○ MAX 4426 lbf in (500 Nm) ◆

### SAE "BB" STRAIGHT

**33**



○ MAX 2478 lbf in (280 Nm) ◆

○ 03/03.2006

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

## HOW TO ORDER SINGLE MOTORS

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

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

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

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

| 4                          | Drive shaft | CODE |
|----------------------------|-------------|------|
| SAE "B" spline (13 teeth)  |             | 04   |
| SAE "B" straight           |             | 32   |
| SAE "BB" spline (15 teeth) |             | 05   |
| SAE "BB" straight          |             | 33   |

| 5                 | Mounting flange | CODE |
|-------------------|-----------------|------|
| SAE "B" 2-4 holes |                 | S3   |

| CODE | Ports position | 6 |
|------|----------------|---|
| L    | Side           |   |

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

| CODE | 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

## ORDER EXAMPLE

Standard motor

KM 30•27 S0 - 04 S3 - L OD/OF - N

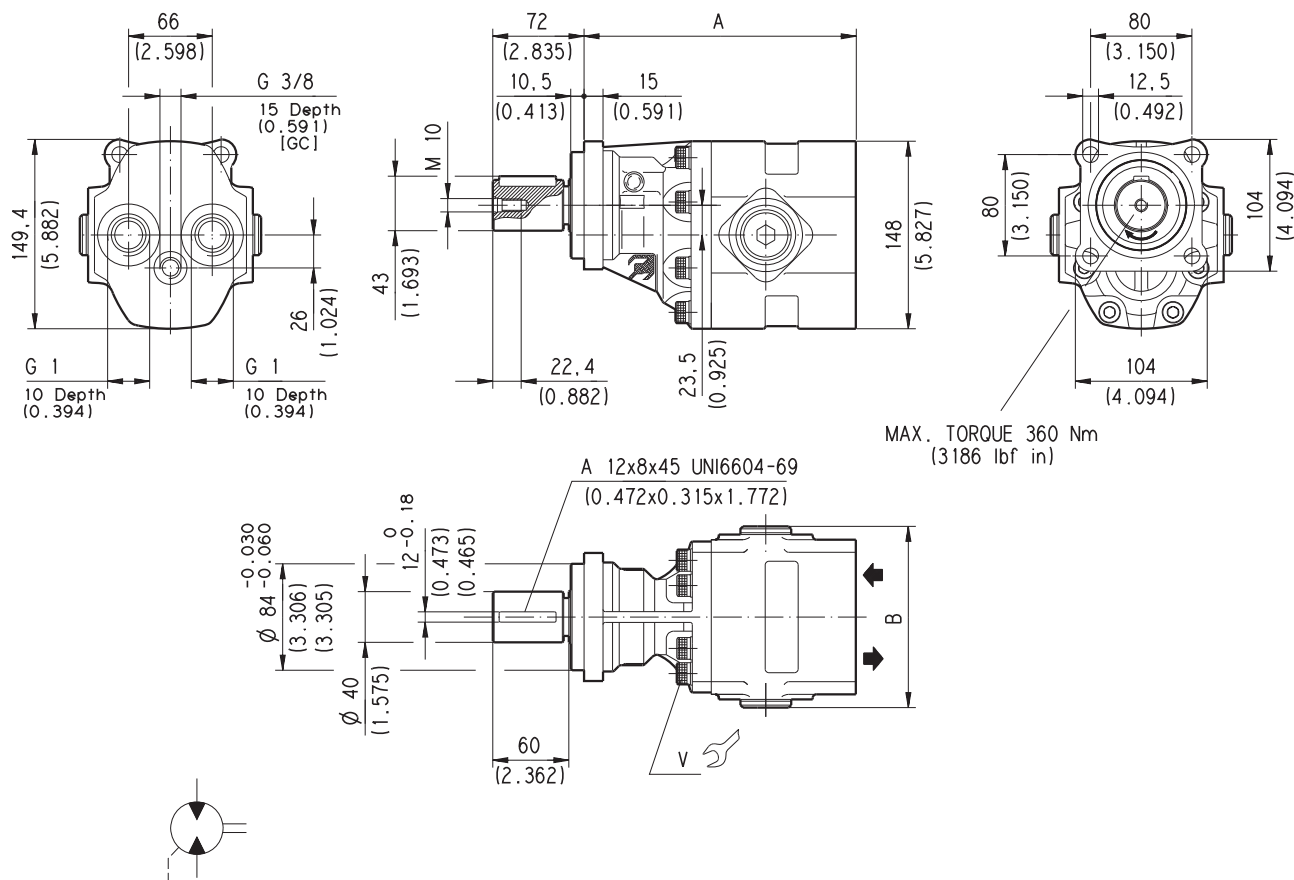
Special version motor

KM 30•27 S2 - 32 S3 - L OD/OF - V Bz

01/03.2002

**GAS STRAIGHT THREAD PORTS**

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

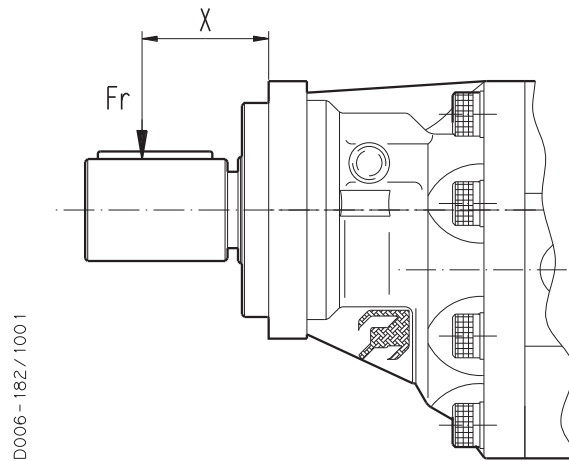

**V Screws tightening torque Nm (lbf in)**
**70 ±7 (558 ÷ 682)**

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

Rotation: R=reversible rear drain

How to order:

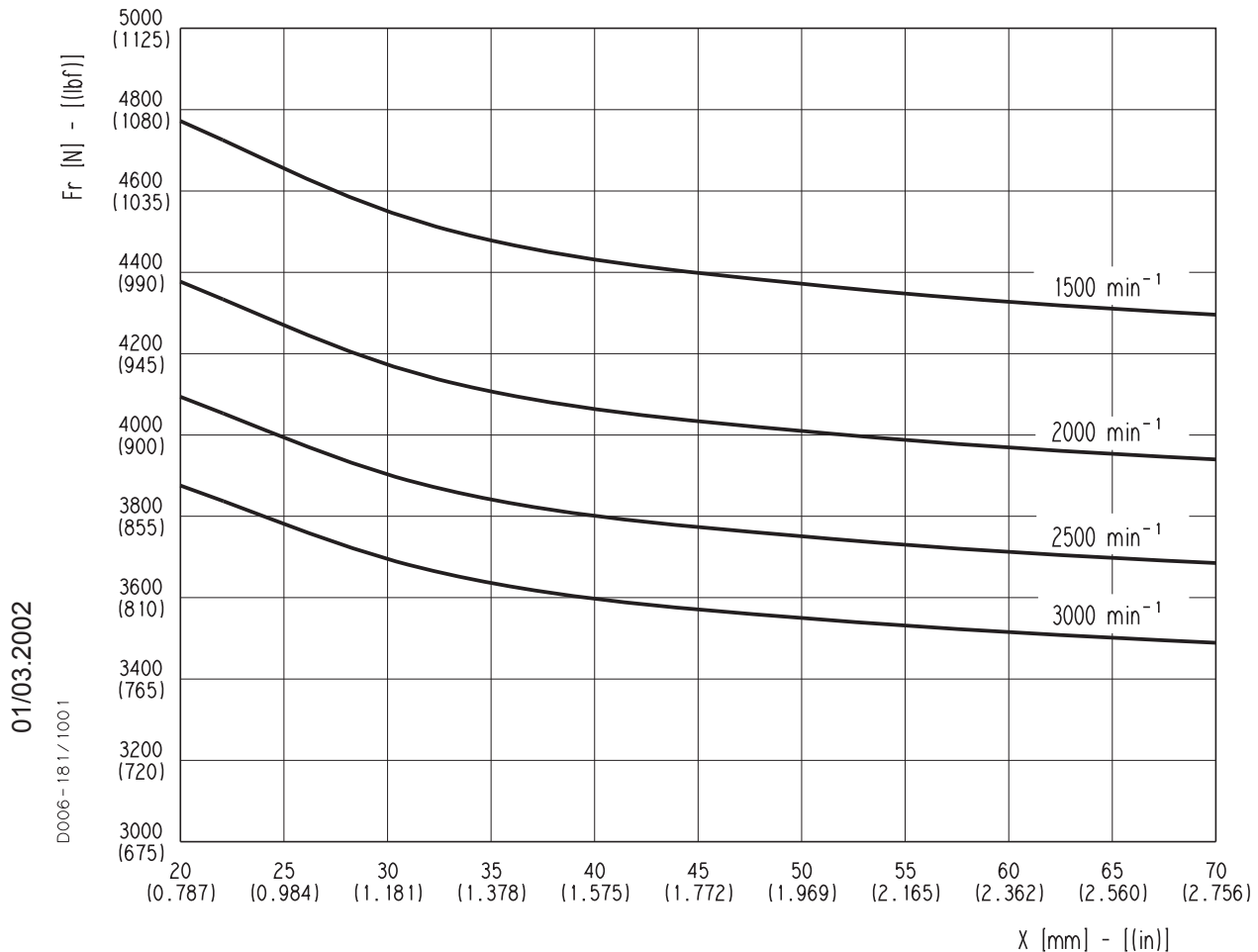
**KM 30•27 R5-42 Z0-P GF/GF-N**



**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]



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## INSTRUCTIONS

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### 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

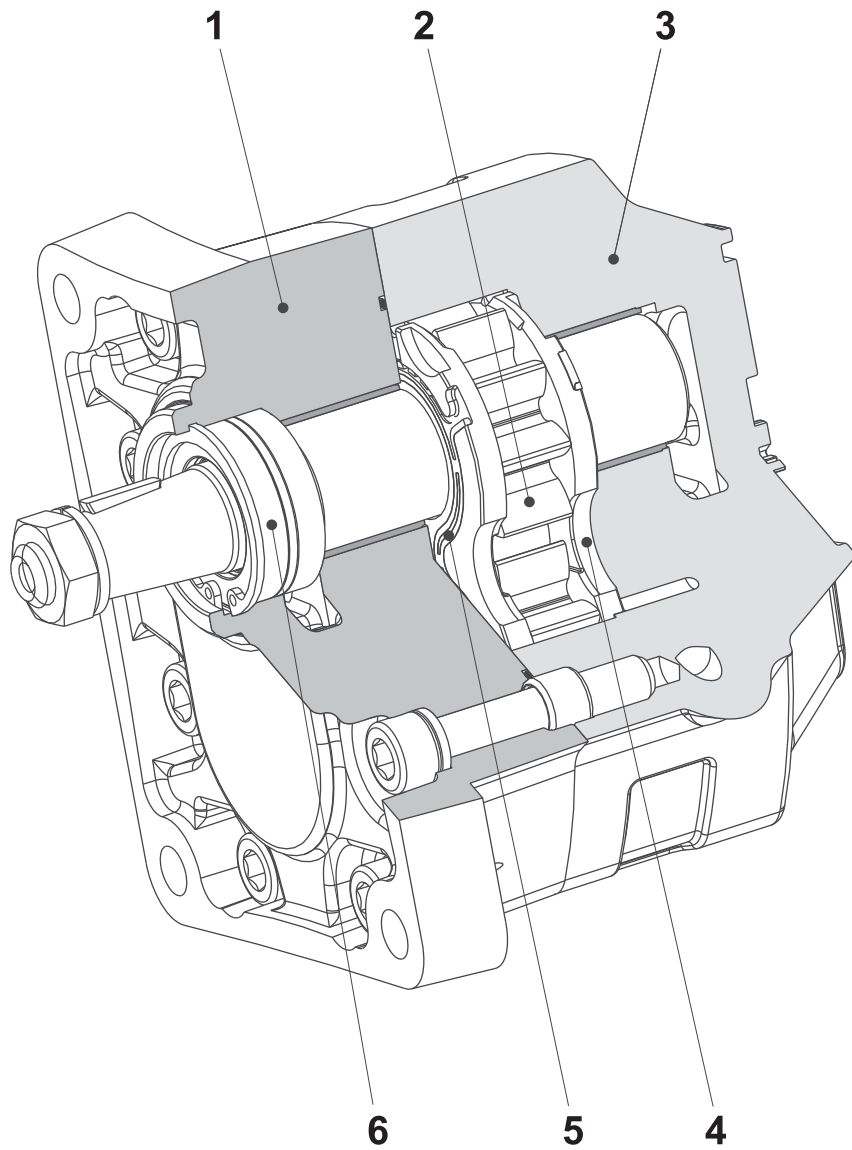
Check that all circuit connections are tight and that the entire system is completely clean. Insert the oil in the tank, using a filter. Bleed the circuit to assist in filling. Set the pressure relief valves to the lowest possible setting. Turn on the system for a few moments at minimum speed, then bleed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

02/06.2005

## INSTRUCTIONS



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

01/03.2002

**K 05 T A**

Edition: 05/03.2012

Replaces: K 04 T A



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