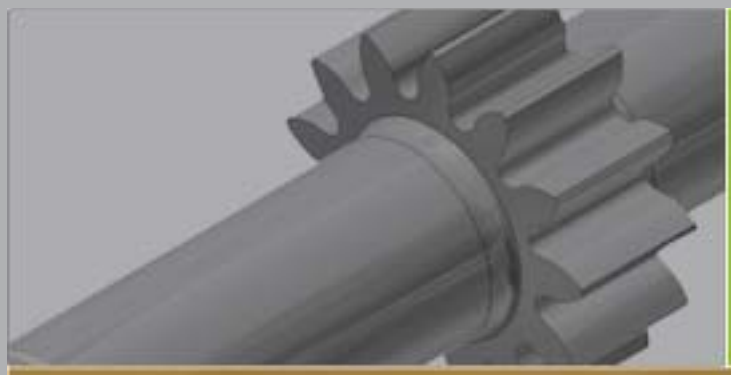
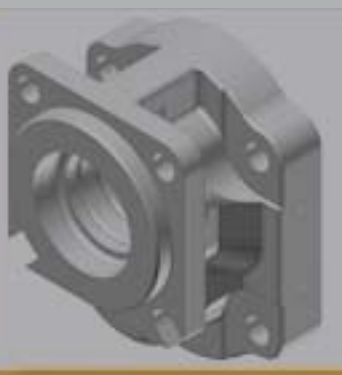
# Gear Pumps / Motors
# Series PGP / PGM

***Cast-Iron and Aluminium Designs***

*Catalogue HY11-3302/UK*
*February 2005*





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Note

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PGP 500 pumps offer superior performance, high efficiency and low noise operation at high operating pressures. They are produced in four frame sizes (PGP 503, PGP 505, PGP 511, PGP 517) with displacements ranging from 0.8 to 70 cm³/rev. A wide variety of standard options is available to meet specific application requirements.

### Characteristics

- **Up to 275 bar continuous operation**
  High strength materials and large journal diameters provide low bearing loads for high pressure operation.
- **Low noise**
  PGP 503 - 9 tooth gear profile, PGP 505 and 517 - 13 tooth gear profile, PGP 511 - 12 tooth gear profile and optimized flow metering provide reduced pressure pulsation and exceptionally quiet operation (PGP511 also available as noise reduced “stealth“ version).
- **High efficiency**
  Pressure balanced bearing blocks assure maximum efficiency under all operating conditions.
- **Application flexibility**
  International mounts and connections, integrated valve capabilities and common inlet multiple pump configurations provide unmatched design and application versatility.
- **Large range of integrated valves**

### Technical data

| | |
|---|---|
| Pump type | Heavy-duty, aluminium, external gear. |
| Mounting | SAE, rectangular, thru-bolt standard specials on request. |
| Ports<br>Shaft style | SAE and metric split flanges and others<br>SAE splined, keyed, tapered, cylindrical tang drive, specials on request. |
| Speed | 500 - 4000 rpm, see tables |
| Theor. displacement | See tables |
| Drive | Drive direct with flexible coupling is recommended. |
| Axial / Radial load | Units subject to axial or radial loads must be specified with an outboard bearing. |
| Inlet pressure | Operating range 0.8 to 2 bar abs.<br>Min. inlet pressure 0.5 bar abs. Short time without load. Consultation is recommended. |
| Outlet pressure | See tables |
| Hydraulic fluids | Hydraulic oil H-LP, DIN 51525 |
| Fluid temperature | Range of operating temperature -15 to +80°C.<br>Max. permissible operating pressure dependent on fluid temperature.<br>Temperature for cold start -20 to -15°C at speed ≤ 1500 rpm.<br>Max. permissible operating pressure dependent on fluid temperature. |

| | |
|---|---|
| Fluid viscosity | Range of operating viscosity 8 to 1000 mm²/s.<br>Max. permissible operating pressure dependent on viscosity.<br>Viscosity range for cold start 1000 to 2000 mm²/s at operating pressure p≤10 bar and speed n ≤1500 rpm. |
| Range of ambient temperature | -40°C - +70°C |
| Filtration | According to ISO 4406 Cl. 16/13 |
| Direction of rotation (looking at the drive shaft) | Clockwise, counter-clockwise or double.<br>Attention! Drive pump only in indicated direction of rotation. |
| Multiple pump assemblies | • Available in two or three section configuration.<br>• Max. shaft loading must be conform to the limitations shown in the shaft loading rating table in this catalogue.<br>• Max. load is determined by adding the torque values for each pumping section that will be simultaneously loaded. |
| Separate or common inlet capability | Separate inlet configuration:<br>• Each gear housing has individual inlet and outlet ports.<br>Common inlet configuration:<br>• Two gear sets share a common inlet. |

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| PG | | 503 | | | | | | | | | | B | 1 | B | 1 | 1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gear design** | **Type** | | **Unit** | **Dis-placement** | **Rotation** | **Shaft** | **Flange** | **Shaft seal** | **Inlet** | **Outlet** | **side ports option** | **No rear ports** (rear ports on request) | | | | |

| Code | Type |
|---|---|
| **P** | **Pump** |
| M | Motor |

| Code | Unit | |
|---|---|---|
| | Pump | Motor |
| **A** | **Single unit** | **Standard motor w/o checks** |
| B | Multiple unit | Standard motor w. two checks |
| C | — | Standard motor w. one anti-cavitation check (ACC) |

| Displacement | |
|---|---|
| Code | ccm |
| **0008** | **0.8** |
| **0012** | **1.2** |
| **0016** | **1.6** |
| **0021** | **2.1** |
| **0025** | **2.5** |
| **0033** | **3.3** |
| **0043** | **4.3** |
| **0058** | **5.8** |
| **0079** | **7.9** |

| Code | Rotation |
|---|---|
| **C** | **Clockwise** |
| A | Counter-clockwise |
| B | Bi-directional |

| Code | Shaft |
|---|---|
| H1 [2] | Ø10, 3.0key, no thread, 36L, parallel |
| **P2 [3]** | **Ø9.35, 8.8L, 2.4key, M6, taper 1:8** |
| V1 [4] | 5x6.5 long shaft w/o coupling tang drive |
| V2 [5] | 5x4.5 short shaft w/o coupling tang drive |

[2] Only used with flange H1, D1.
[3] Only used with flange D1.
[4] Only used with flange H1.
[5] Only used with flange P3, P4.

| Code | Port options (pumps) |
|---|---|
| **E3E2** | **1/2 - 14 BSP thread/ 3/8 - 19 BSP thread** |
| J4J3 | 12mm - Ø30mm - M6 square flange/ 8mm - Ø30mm - M6 square flange |
| Code | Port options (motors) |
| E3E3 | 1/2 - 14 BSP thread 1/2 - 14 BSP thread |
| J4J4 | 12mm - Ø30mm - M6 square flange 12mm - Ø30mm - M6 square flange |

Example: E3 = inlet port
E2 = outlet port

| Code | Shaft seal |
|---|---|
| X | No seal |
| **N** | **NBR** |

| Code | Flange |
|---|---|
| **D1** | **52.2x72.0 - Ø25.4 rectangular** |
| H1 | 82.5 - Ø50.8 SAE "A-A" 2bolt flange |
| P3 | 40.0x40.0 - Ø32.0 w/ seal, thrubolt flange |
| P4 | 40.0x40.0 - Ø32.0 w/ seal f. short shaft, thrubolt flange |

[1] Code of drain dine for PGM503 only.
**2 Options:**
N4 = M10x1, rear drain.
B1 = no drain, product type must be “B“ or “C“.

**Bold letters =**
Short-term availability

PI PGP-PGM UK.PMD RH



**Parker Hannifin GmbH**
Hydraulic Controls Division
Kaarst, Germany

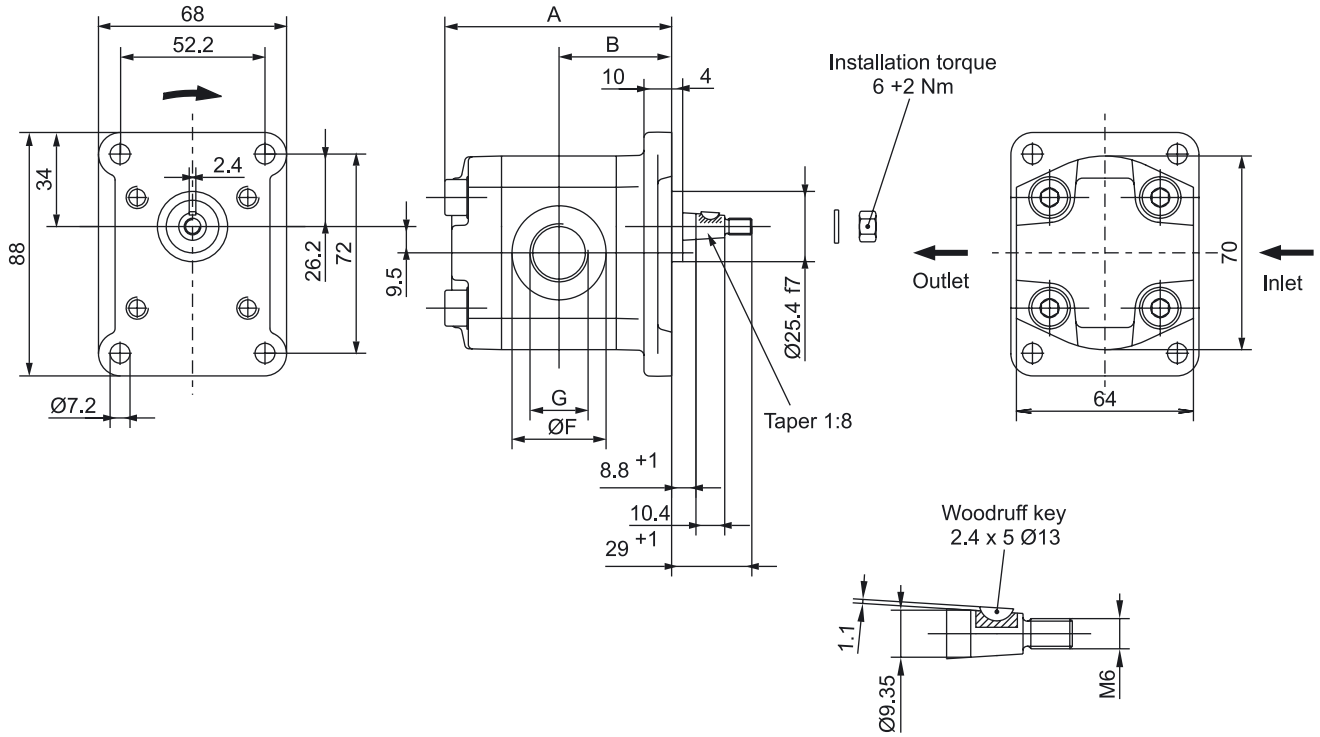
**PGP503 A XXXX Y P2 D1 N E3 E2 B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | Inlet port | | | Outlet port | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | | G | F | | G | F | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0008 | 0.8 | 75.2 | 37.6 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 4000 | 275 | **330 9111 196** | 330 9112 159 |
| 0012 | 1.2 | 76.7 | 38.4 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 4000 | 275 | **330 9111 197** | 330 9112 172 |
| 0016 | 1.6 | 78.2 | 39.1 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 4000 | 275 | **330 9111 198** | 330 9112 173 |
| 0021 | 2.1 | 79.8 | 39.9 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 4000 | 275 | **330 9111 199** | 330 9112 174 |
| 0025 | 2.5 | 81.4 | 40.7 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 4000 | 275 | **330 9111 200** | 330 9112 175 |
| 0033 | 3.3 | 84.4 | 42.2 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 4000 | 275 | **330 9111 201** | 330 9112 176 |
| 0036 | 3.6 | 85.5 | 42.8 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 4000 | 250 | **330 9111 202** | 330 9112 177 |
| 0043 | 4.3 | 88.4 | 44.2 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 3500 | 210 | **330 9111 203** | 330 9112 160 |
| 0048 | 4.8 | 89.9 | 45.0 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 3000 | 160 | **330 9111 204** | 330 9112 178 |
| 0058 | 5.8 | 93.7 | 46.9 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 3000 | 160 | **330 9111 205** | 330 9112 179 |
| 0062 | 6.2 | 95.2 | 47.6 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 3000 | 150 | **330 9111 206** | 330 9112 180 |
| 0079 | 7.9 | 101.5 | 50.8 | E3 | G ½" | 34.0 | E2 | G 3/8" | 30.0 | 500 | 2500 | 120 | **330 9111 180** | 330 9112 161 |

PGM 503 min. displacement 4.00 ccm

**Dimensions (clockwise rotation shown)**



| PG | | 505 | | | | | | | | | B | 1 | B | 1 | 1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear design | Type | | Unit | Dis-placement | Rotation | Shaft | Flange | Shaft seal | Inlet | Outlet | No rear ports (rear ports on request) | | | | |

1

| Code | Type |
|---|---|
| **P** | **Pump** |
| M | Motor |

| Code | Unit | |
|---|---|---|
| | Pump | Motor |
| **A** | **Single unit** | **Standard motor w/o checks** |
| M | Single distributor unit | — |
| B | Multiple unit | Standard motor w. two checks |
| C | — | Standard motor w. one anti-cavitation check (ACC) |

| Displacement | |
|---|---|
| Code | ccm |
| **0030** | **3.0** |
| **0040** | **4.0** |
| **0060** | **6.0** |
| **0080** | **8.0** |
| **0100** | **10.0** |
| **0120** | **12.0** |

| Code | Rotation |
|---|---|
| **C** | **Clockwise** |
| A | Counter-clockwise |
| B | Bi-directional |

| Code | Shaft |
|---|---|
| **A1** [2] | **9T, 16/32DP, 32L, SAE "A" spline** |
| J1 [2] | Ø12.7, 3.2key, no thread, 38L, parallel |
| K1 [3] | Ø15.88, 4.0key, no thread, 32L, SAE "A", parallel |
| **Q2** [4] | **Ø14.25, 5.5L, 3.0key, M10x1, taper 1:8** |

[2] Only used with flange H1, H2.
[3] Only used with flange H2.
[4] Only used with flange D2.

| Code | Port options (pumps) |
|---|---|
| **E5E3** | **3/4 - 14 BSP thread/ 1/2 - 14 BSP thread** |
| **J7J5** | **20mm - Ø40mm - M6 square flange/ 15mm - Ø35mm - M6 square flange** |
| Code | Port options (motors) |
| E3E3 | 3/4 - 14 BSP thread 3/4 - 14 BSP thread |
| J5J5 | 15mm - Ø35mm - M6 square flange 15mm - Ø35mm - M6 square flange |

Example: J7 = inlet port
J5 = outlet port

| Code | Shaft seal |
|---|---|
| X | No seal |
| **N** | **NBR** |

| Code | Flange |
|---|---|
| **D2** [5] | **56.0x73.0 - Ø30.0 rectangular** |
| H1 | 82.5 - Ø50.8 SAE "A-A" 2bolt flange |
| **H2** [6] | **106.4 - Ø82.55 SAE "A" 2bolt flange** |

[5] Only used with ports J*J*.
[6] Only used with ports E*E*.

[1] Code of drain line for PGM505 only.
**2 Options:**
G4 = 1/4-19 BSP rear drain.
B1 = no drain, product type must be “B“ or “C“.

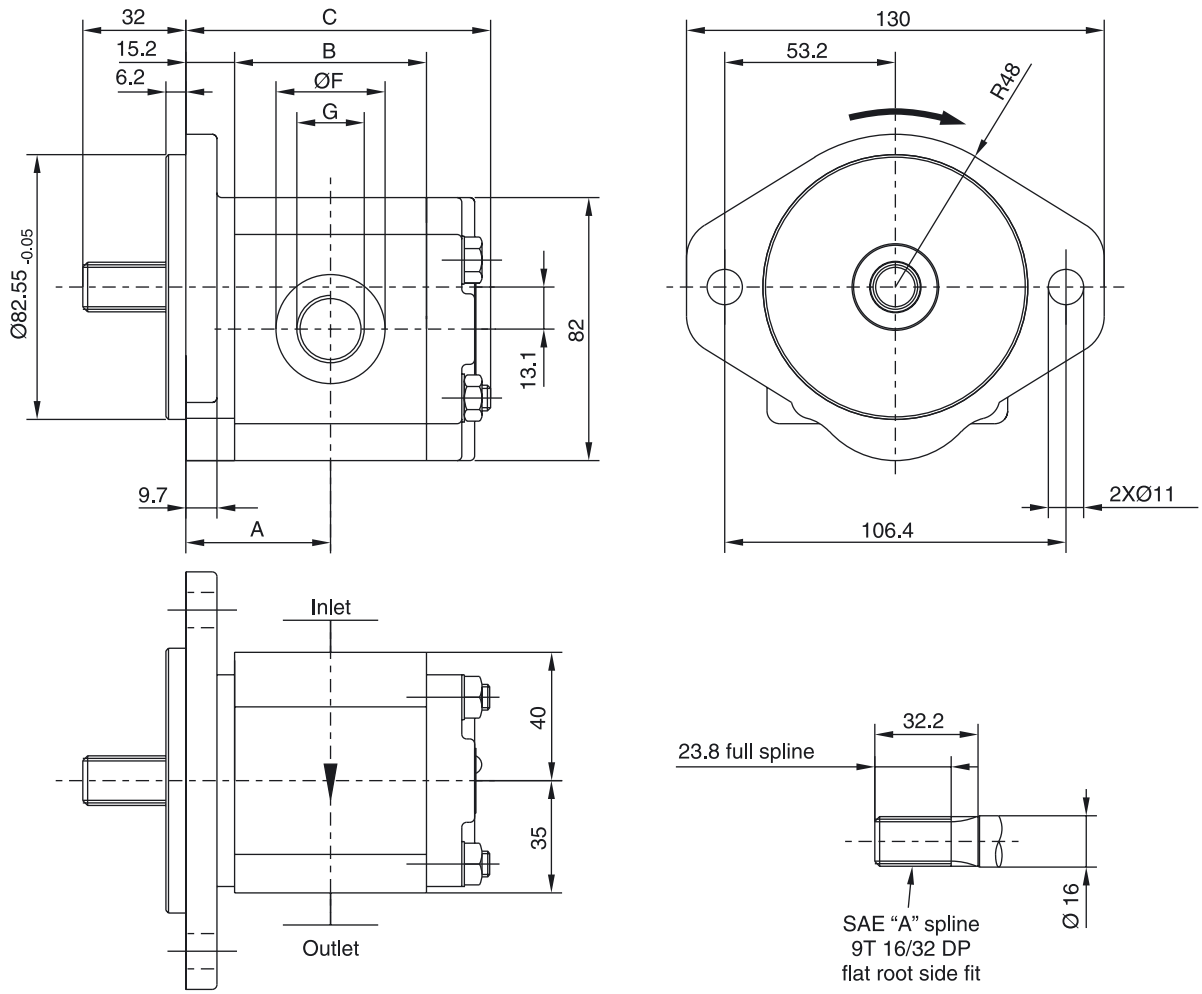
**Bold letters =**
Short-term availability

**PGP505 A XXXX Y A1 H2 N E5 E3 B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | | Inlet port | | | Outlet port | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | $cm^3$/rev | A | B | C | | G | F | | G | F | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0030 | 3.0 | 35.9 | 41.1 | 79.8 | E5 | 3/4" -14 BSP | 42.0 | E3 | 1/2" -14 BSP | 34.0 | 500 | 4000 | 275 | **331 9111 385** | |
| 0040 | 4.0 | 37.2 | 43.8 | 79.8 | E5 | 3/4" -14 BSP | 42.0 | E3 | 1/2" -14 BSP | 34.0 | 500 | 4000 | 275 | **331 9111 386** | |
| 0060 | 6.0 | 39.8 | 49.1 | 84.8 | E5 | 3/4" -14 BSP | 42.0 | E3 | 1/2" -14 BSP | 34.0 | 500 | 3600 | 275 | **331 9111 387** | |
| 0080 | 8.0 | 42.5 | 54.5 | 89.8 | E5 | 3/4" -14 BSP | 42.0 | E3 | 1/2" -14 BSP | 34.0 | 500 | 3000 | 275 | **331 9111 383** | 331 9112 136 |
| 0100 | 10.0 | 45.2 | 59.8 | 100.8 | E5 | 3/4" -14 BSP | 42.0 | E3 | 1/2" -14 BSP | 34.0 | 500 | 2800 | 250 | **331 9111 388** | |
| 0120 | 12.0 | 47.9 | 65.2 | 104.8 | E5 | 3/4" -14 BSP | 42.0 | E3 | 1/2" -14 BSP | 34.0 | 500 | 2400 | 220 | **331 9111 389** | |

**Dimensions (clockwise rotation shown)**



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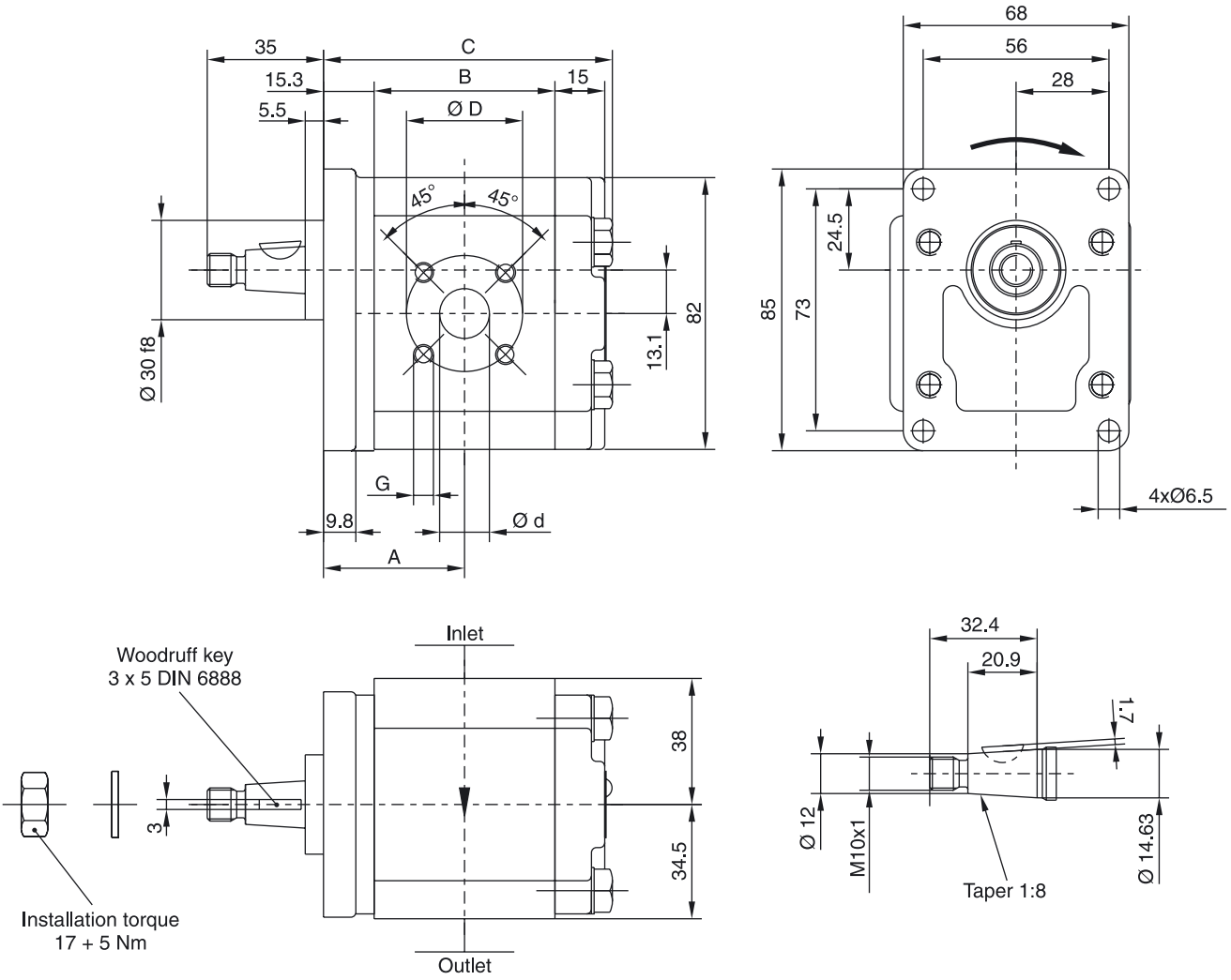
**PGP505 A XXXX Y Q2 D2 N J7 J5 B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | C | | d | D | G | | d | D | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0030 | 3.0 | 35.9 | 41.1 | 74.3 | J7 | 20.0 | 40.0 | M6 | J5 | 15.0 | 35.0 | M6 | 500 | 4000 | 275 | **331 9111 334** | |
| 0040 | 4.0 | 37.2 | 43.8 | 76.4 | J7 | 20.0 | 40.0 | M6 | J5 | 15.0 | 35.0 | M6 | 500 | 4000 | 275 | **331 9111 039** | 331 9112 061 |
| 0060 | 6.0 | 39.8 | 49.1 | 81.7 | J7 | 20.0 | 40.0 | M6 | J5 | 15.0 | 35.0 | M6 | 500 | 3600 | 275 | **331 9111 040** | 331 9112 077 |
| 0080 | 8.0 | 42.5 | 54.5 | 87.1 | J7 | 20.0 | 40.0 | M6 | J5 | 15.0 | 35.0 | M6 | 500 | 3000 | 275 | **331 9111 041** | 331 9112 078 |
| 0100 | 10.0 | 45.2 | 59.8 | 92.4 | J7 | 20.0 | 40.0 | M6 | J5 | 15.0 | 35.0 | M6 | 500 | 2800 | 250 | **331 9111 087** | 331 9112 033 |
| 0120 | 12.0 | 47.9 | 65.2 | 97.8 | J7 | 20.0 | 40.0 | M6 | J5 | 15.0 | 35.0 | M6 | 500 | 2400 | 220 | **331 9111 246** | 331 9112 135 |

**Dimensions (clockwise rotation shown)**

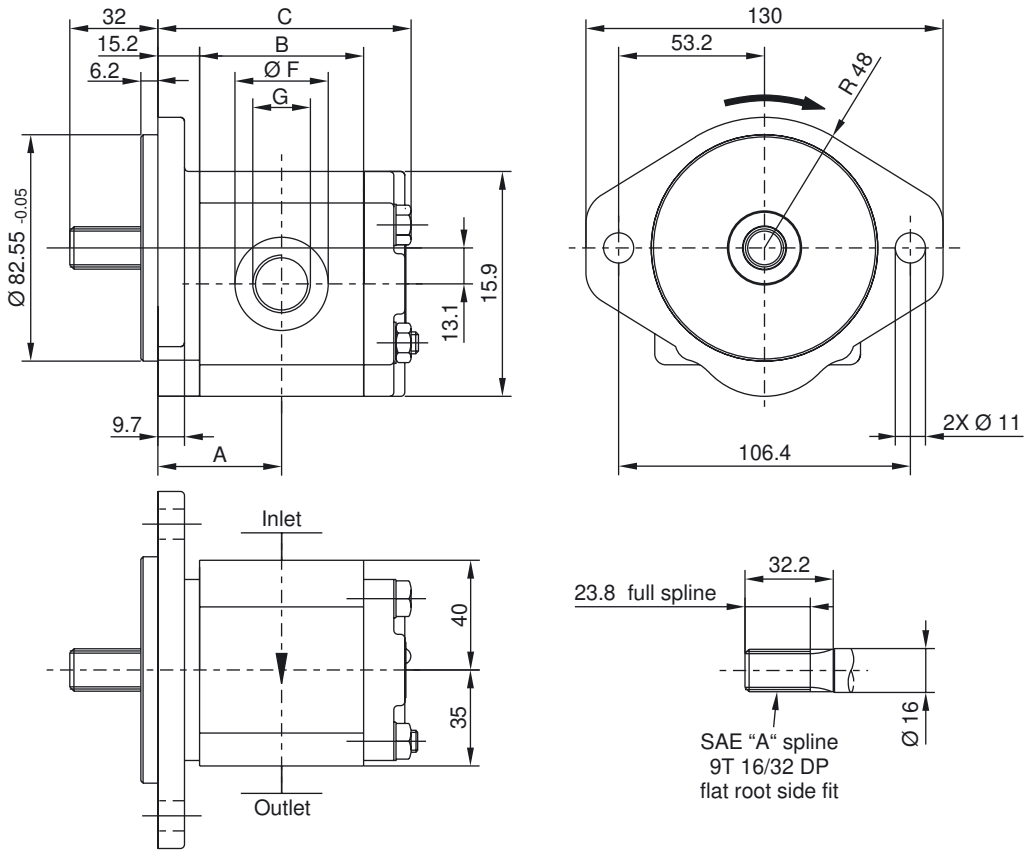


**PGP505 A XXXX Y A1 H2 N SS PP B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | | Inlet port | | | Outlet port | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | $cm^3$/rev | A | B | C | SS | G | F | PP | G | F | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0020 | 2.0 | 34.5 | 38.5 | 71.1 | D4 | 7/8" -14 UNF | 34.0 | D3 | 3/4"-16" UNF | 30.0 | 500 | 4000 | 275 | **331 9111 235** | 331 9112 131 |
| 0030 | 3.0 | 35.8 | 41.1 | 73.7 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 4000 | 275 | **331 9111 033** | 331 9112 004 |
| 0040 | 4.0 | 37.2 | 43.8 | 76.4 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 4000 | 275 | **331 9111 034** | 331 9112 090 |
| 0050 | 5.0 | 38.5 | 46.5 | 79.1 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 4000 | 275 | **331 9111 236** | 331 9112 091 |
| 0060 | 6.0 | 39.8 | 49.1 | 81.7 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 3600 | 275 | **331 9111 016** | 331 9112 007 |
| 0080 | 8.0 | 42.5 | 54.5 | 87.1 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 3000 | 275 | **331 9111 045** | 331 9112 009 |
| 0100 | 10.0 | 45.2 | 59.8 | 92.4 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 2800 | 250 | **331 9111 046** | 331 9112 010 |
| 0110 | 11.0 | 46.5 | 62.5 | 95.1 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 2400 | 250 | **331 9111 047** | 331 9112 092 |
| 0120 | 12.0 | 47.9 | 65.2 | 97.8 | D5 | 1 1/16" -12 UNF | 41.0 | D4 | 7/8"-14" UNF | 34.0 | 500 | 2400 | 220 | **331 9111 014** | 331 9112 012 |

**Dimensions (clockwise rotation shown)**



| PG | | 511 | | | | | | | | | | | | 1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gear design** | **Type** | | **Unit** | **Dis-placement** | **Rotation** | **Shaft** | **Flange** | **Shaft seal** | **Inlet** | **Outlet** | **side ports option** | **No rear ports** (rear ports on request) | | |

1

| Code | Type |
|---|---|
| **P** | **Pump** |
| M | Motor |

| Code | Unit | |
|---|---|---|
| | Pump | Motor |
| **A** | **Single unit** | **Standard motor w/o checks** |
| M | Single distributor unit | — |
| B | Multiple unit | Standard motor w. two checks |
| C | — | Standard motor w. one anti-cavitation check (ACC) |

| Displacement | |
|---|---|
| Code | ccm |
| **0040** | **4.0** |
| **0060** | **6.0** |
| **0080** | **8.0** |
| **0100** | **10.0** |
| **0110** | **11.0** |
| **0140** | **14.0** |
| **0160** | **16.0** |
| **0190** | **19.0** |
| **0230** | **23.0** |
| **0270** | **27.0** |
| **0310** | **31.0** |
| **0330** | **33.0** |

| Code | Rotation |
|---|---|
| **C** | **Clockwise** |
| A | Counter-clockwise |
| B | Bi-directional |

| Code | Shaft |
|---|---|
| **A1** [2] | **9T, 16/32DP, 32L, SAE "A" spline** |
| C1 [3] | 11T, 16/32DP, 38.2L, SAE 19-4 spline |
| F1 [4] | 9T, B17x14, 23L, DIN 5482 spline |
| K1 [2] | Ø15.88, 4.0key, no thread, 32L, SAE "A", parallel |
| L6 [2] | Ø19.05, 4.8key, no thread, 32L, SAE 19-1, parallel |
| **S1** [4] | **Ø17.0, 7.7L, 3.0key, M12x1.5, taper 1:5** |
| **S2** [5] | **Ø16.65, 12.0L, 3.2key, M12x1.5, taper 1:8** |
| S4 [5] | Ø16.65, 12.0L, 4.0key, M12x1.5, taper 1:8 |

[2] Only used with flange H2.
[3] Only used with flange H2, H3.
[4] Only used with flange D4, Q2, Q4.
[5] Only used with flange D3.

| Code | Shaft seal |
|---|---|
| X | No seal |
| **N** | **NBR** |

| Code | Port options (Pumps) |
|---|---|
| E5E3 | 3/4 - 14 BSP thread/ 1/2 - 14 BSP thread only from 4ccm to 11ccm |
| E6E5 | 1-11 BSP thread/ 3/4-14 BSP thread only from 14ccm to 23ccm |
| E7E5 | 1 1/4-11 BSP thread/ 3/4-14 BSP thread only from 27ccm to 33ccm |
| **J7J5** | **20mm-Ø40mm-M6 square flange 15mm-Ø35mm-M6 square flange only from 4ccm to 11ccm** |
| **J9J8** | **26mm-Ø55mm-M8 square flange 18mm-Ø55mm-M8 square flange only from 14ccm to 33ccm** |
| **L1L1** | **13mm-Ø30mm-M6 diamond flange 13mm-Ø30mm-M6 diamond flange only from 4ccm to 8ccm** |
| **L2L1** | **19mm-Ø40mm-M8 diamond flange 13mm-Ø30mm-M6 diamond flange only from 10ccm to 16ccm** |
| **L2L2** | **19mm-Ø40mm-M8 diamond flange 19mm-Ø40mm-M8 diamond flange only from 19ccm to 33ccm** |
| Code | Port options (Motors) |
| E3E3 | 1/2 - 14 BSP thread/ 1/2 - 14 BSP thread only from 4ccm to 11ccm |
| E5E5 | 3/4 - 14 BSP thread/ 3/4 - 14 BSP thread only from 14ccm to 33ccm |
| J5J5 | 15mm-Ø35mm-M6 square flange 15mm-Ø35mm-M6 square flange only from 4ccm to 16ccm |
| J7J7 | 20mm-Ø40mm-M6 square flange 20mm-Ø40mm-M6 square flange only from 19ccm to 33ccm |

Example: L2 = inlet port
L1 = outlet port

| Code | Flange |
|---|---|
| **D3** [6] | **71.4x96.0 - Ø36.47 rectangular** |
| **D4** [7] | **72.0x100.0 - Ø80 rectangular** |
| **H2** [6] | **106.4 - Ø82.55 SAE "A" 2bolt flange** |
| H3 | 146.1 - Ø101.06 SAE "B" 2bolt flange |
| Q2 | 60.0x60.0 - Ø50.0 w. seal O', thrubolt flange |
| Q4 | 60.0x60.0 - Ø50.0 w. seal O', thrubolt flange |

[6] Only used with ports L*L*.
[7] Only used with ports J*J*.

[1] Code of drain line for PGM511 only.
**2 Options:**
G4 = 1/4-19 BSP rear drain.
B1 = no drain, product type must be "B" or "C".

**Bold letters =**
Short-term availability

PI PGP-PGM UK.PMD RH



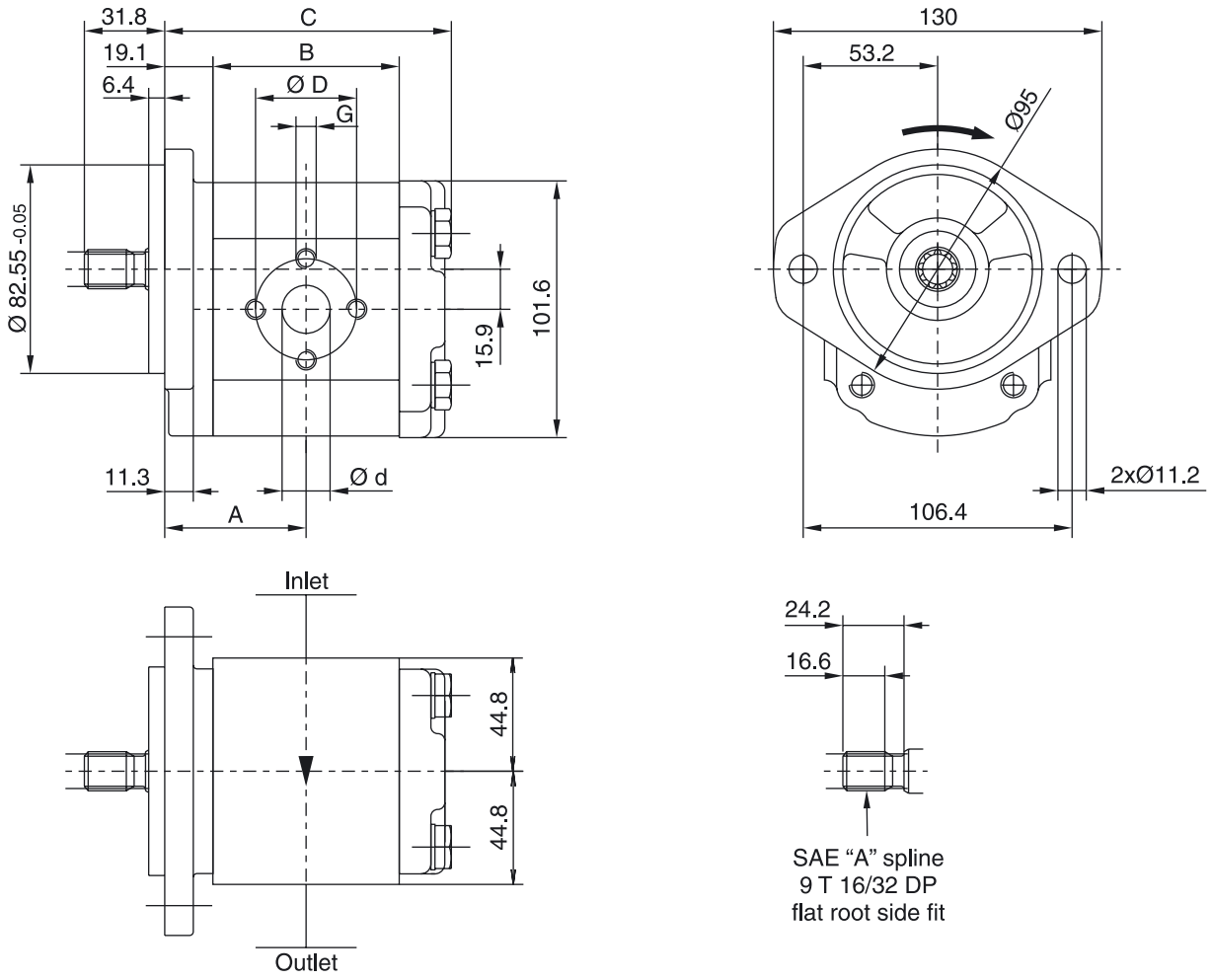
**Parker Hannifin GmbH**
Hydraulic Controls Division
Kaarst, Germany

**PGP511 A XXXX Y A1 H2 N SS PP B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | C | SS | d | D | G | PP | d | D | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0040 | 4.0 | 42.6 | 47.0 | 86.7 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 182** | 334 9112 092 |
| 0060 | 6.0 | 44.1 | 50.1 | 89.8 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 183** | 334 9112 093 |
| 0080 | 8.0 | 45.7 | 53.3 | 93.0 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 2500 | 250 | **334 9111 734** | |
| 0100 | 10.0 | 47.3 | 56.5 | 96.1 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 185** | 334 9112 095 |
| 0110 | 11.0 | 48.1 | 58.0 | 97.7 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 186** | 334 9112 096 |
| 0140 | 14.0 | 50.4 | 62.8 | 102.4 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 3100 | 250 | **334 9111 187** | 334 9112 097 |
| 0160 | 16.0 | 52.0 | 65.9 | 105.6 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 2700 | 250 | **334 9111 737** | |
| 0190 | 19.0 | 54.4 | 70.6 | 110.3 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 2300 | 250 | **334 9111 966** | |
| 0230 | 23.0 | 57.5 | 76.9 | 116.6 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1900 | 210 | **334 9111 754** | 334 9112 485 |
| 0270 | 27.0 | 60.7 | 83.2 | 122.9 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1600 | 180 | **334 9111 576** | |
| 0310 | 31.0 | 63.8 | 89.5 | 129.2 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1500 | 160 | **334 9111 967** | |
| 0330 | 33.0 | 65.4 | 92.6 | 132.3 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1500 | 150 | **334 9111 191** | 334 9112 101 |

**Dimensions (clockwise rotation shown)**



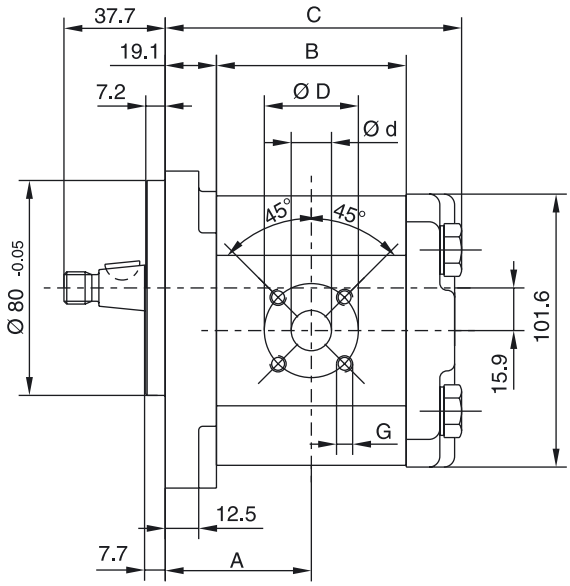
1

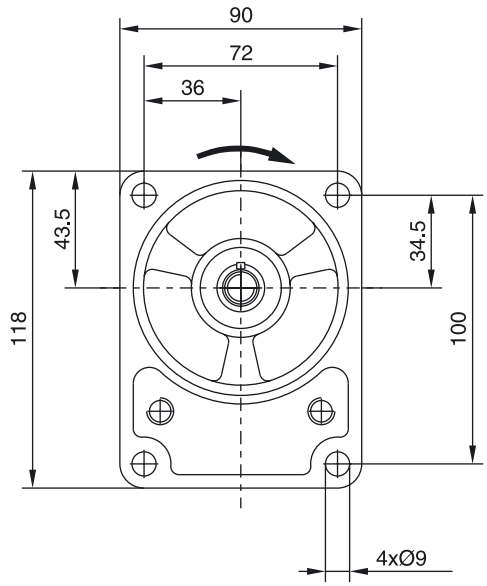
**PGP511 A XXXX Y S1 D4 N SS PP B1 B1**

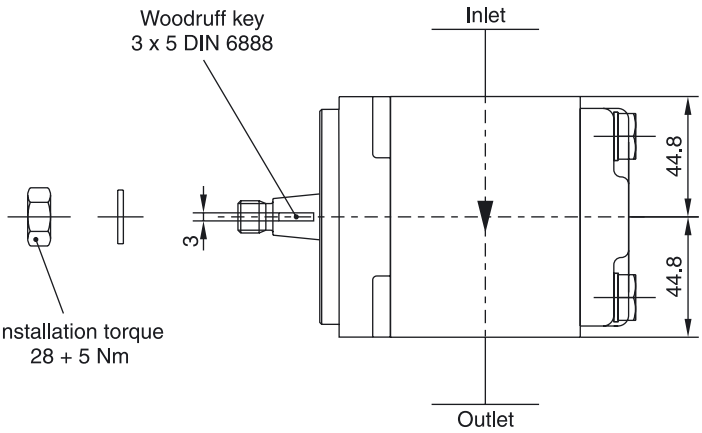
"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

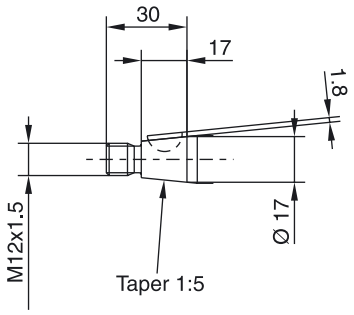
| Displacement | | Dimension | | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | C | SS | d | D | G | PP | d | D | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0040 | 4.0 | 42.6 | 47.0 | 86.7 | J7 | 20 | 40 | M6 | J5 | 15 | 35 | M6 | 500 | 3500 | 250 | **334 9111 149** | 334 9112 289 |
| 0060 | 6.0 | 44.1 | 50.1 | 89.8 | J7 | 20 | 40 | M6 | J5 | 15 | 35 | M6 | 500 | 3500 | 250 | **334 9111 465** | 334 9112 298 |
| 0080 | 8.0 | 45.7 | 53.3 | 93.0 | J7 | 20 | 40 | M6 | J5 | 15 | 35 | M6 | 500 | 3500 | 250 | **334 9111 151** | 334 9112 291 |
| 0100 | 10.0 | 47.4 | 56.5 | 96.2 | J7 | 20 | 40 | M6 | J5 | 15 | 35 | M6 | 500 | 3500 | 250 | **334 9111 466** | 334 9112 292 |
| 0110 | 11.0 | 48.1 | 58.0 | 97.7 | J7 | 20 | 40 | M6 | J5 | 15 | 35 | M6 | 500 | 3500 | 250 | **334 9111 152** | 334 9112 238 |
| 0140 | 14.0 | 50.4 | 62.8 | 102.4 | J9 | 26 | 55 | M8 | J8 | 18 | 55 | M8 | 500 | 3500 | 250 | **334 9111 968** | |
| 0160 | 16.0 | 52.0 | 65.9 | 105.6 | J9 | 26 | 55 | M8 | J8 | 18 | 55 | M8 | 500 | 3500 | 250 | **334 9111 969** | |
| 0190 | 19.0 | 54.4 | 70.6 | 110.3 | J9 | 26 | 55 | M8 | J8 | 18 | 55 | M8 | 500 | 3250 | 250 | **334 9111 970** | |
| 0230 | 23.0 | 57.5 | 76.9 | 116.6 | J9 | 26 | 55 | M8 | J8 | 18 | 55 | M8 | 500 | 2750 | 225 | **334 9111 971** | |
| 0270 | 27.0 | 60.7 | 83.2 | 122.9 | J9 | 26 | 55 | M8 | J8 | 18 | 55 | M8 | 500 | 2350 | 190 | **334 9111 972** | |
| 0310 | 31.0 | 63.8 | 89.5 | 129.2 | J9 | 26 | 55 | M8 | J8 | 18 | 55 | M8 | 500 | 2100 | 165 | **334 9111 526** | |
| 0330 | 33.0 | 65.4 | 92.6 | 132.3 | J9 | 26 | 55 | M8 | J8 | 18 | 55 | M8 | 500 | 2000 | 155 | **334 9111 973** | |

**Dimensions (clockwise rotation shown)**



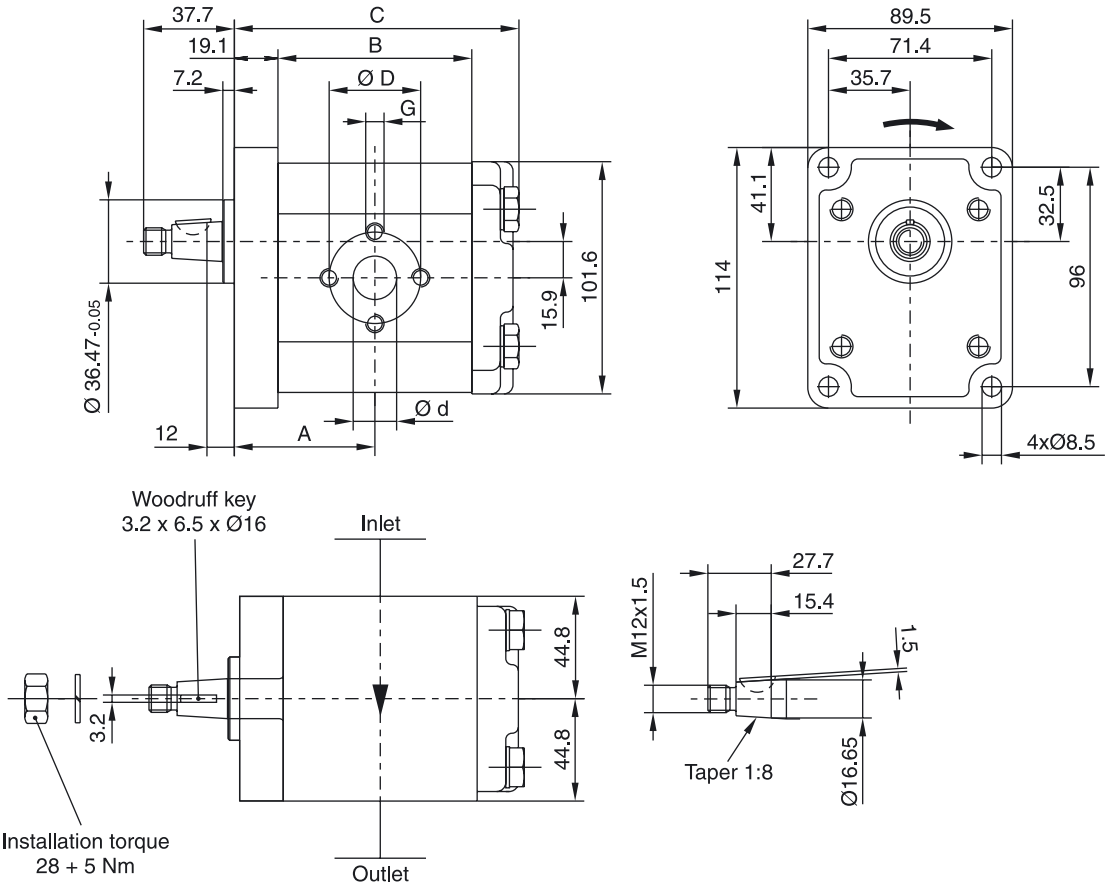



**PGP511 A XXXX Y S2 D3 N SS PP B1 B1**

"Y" = C (clockwise rotation)
= A (counter clockwise rotation)

| Displacement | | Dimension | | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | C | SS | d | D | G | PP | d | D | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0040 | 4.0 | 42.6 | 47.0 | 86.7 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 403** | 334 9112 398 |
| 0060 | 6.0 | 44.1 | 50.1 | 89.8 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 404** | 334 9112 395 |
| 0080 | 8.0 | 45.7 | 53.3 | 93.0 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 2500 | 250 | **334 9111 091** | 334 9112 397 |
| 0100 | 10.0 | 47.3 | 56.5 | 96.1 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 975** | |
| 0110 | 11.0 | 48.1 | 58.0 | 97.7 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9111 976** | 334 9112 399 |
| 0140 | 14.0 | 50.4 | 62.8 | 102.4 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 3100 | 250 | **334 9111 292** | 334 9112 400 |
| 0160 | 16.0 | 52.0 | 65.9 | 105.6 | L2 | 19 | 40 | M8 | L1 | 13 | 30 | M6 | 500 | 2700 | 250 | **334 9111 293** | |
| 0190 | 19.0 | 54.4 | 70.6 | 110.3 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 2300 | 250 | **334 9111 977** | |
| 0230 | 23.0 | 57.5 | 76.9 | 116.6 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1900 | 225 | **334 9111 295** | |
| 0270 | 27.0 | 60.7 | 83.2 | 122.9 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1600 | 190 | **334 9111 296** | |
| 0310 | 31.0 | 63.8 | 89.5 | 129.2 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1500 | 165 | **334 9111 978** | |
| 0330 | 33.0 | 65.4 | 92.6 | 132.3 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 1500 | 155 | **334 9111 297** | |

**Dimensions (clockwise rotation shown)**

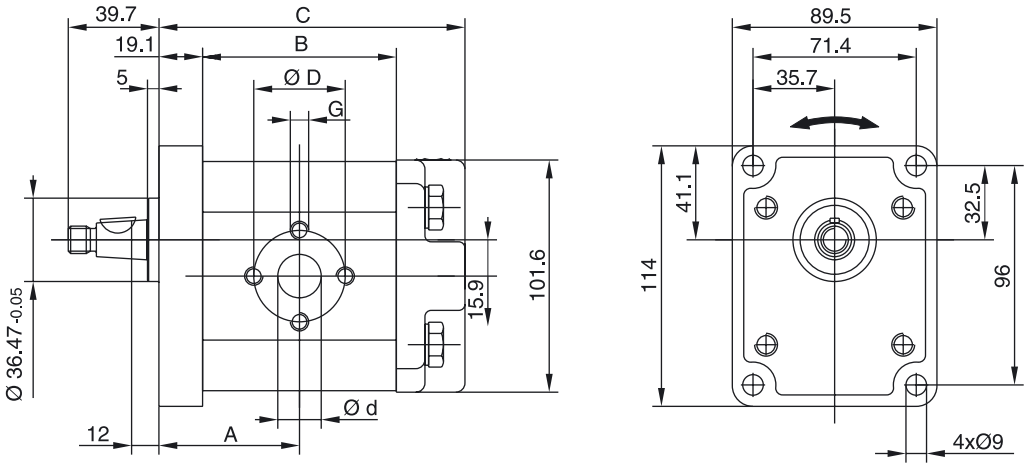


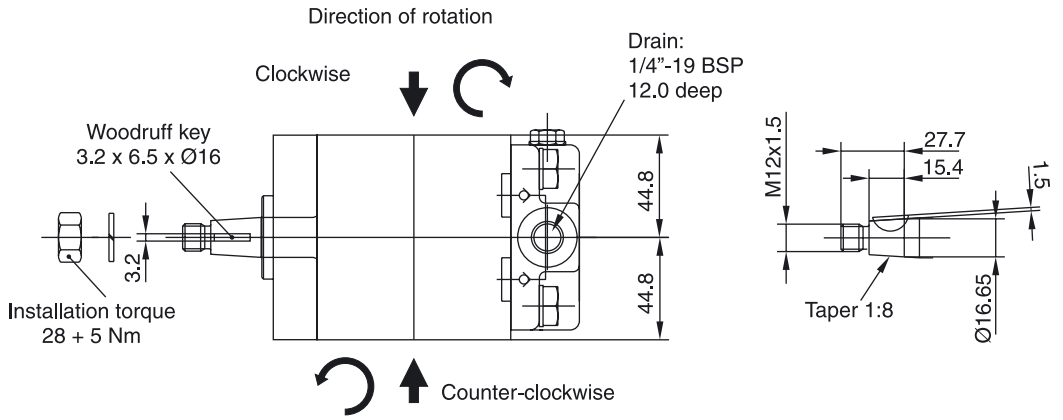
1

**PGM511 B XXXX B S2 D3 N SS PP B1 B1 G3** "B" = B (bi-directional)

| Displacement | | Dimension | | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | C | SS | d | D | G | PP | d | D | G | min. rpm | max. rpm | max. bar | bi-directional | |
| 0060 | 6.0 | 44.1 | 50.1 | 99.2 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9219 117** | |
| 0080 | 8.0 | 45.7 | 53.3 | 102.4 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9219 118** | |
| 0110 | 11.0 | 48.1 | 58.0 | 107.1 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 3500 | 250 | **334 9219 119** | |
| 0140 | 14.0 | 50.4 | 62.8 | 111.9 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 3500 | 250 | **334 9219 120** | |
| 0160 | 16.0 | 52.0 | 65.9 | 115.0 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 3500 | 250 | **334 9219 121** | |
| 0190 | 19.0 | 54.4 | 70.6 | 119.7 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 3400 | 210 | **334 9219 122** | |
| 0230 | 23.0 | 57.5 | 76.9 | 126.0 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 2800 | 210 | **334 9219 123** | |
| 0270 | 27.0 | 60.7 | 83.2 | 132.3 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 2400 | 190 | **334 9219 124** | |
| 0310 | 31.0 | 63.8 | 89.5 | 138.6 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 2100 | 185 | **334 9219 125** | |
| 0330 | 33.0 | 65.4 | 92.6 | 141.7 | L2 | 19 | 40 | M8 | L2 | 19 | 40 | M8 | 500 | 2000 | 185 | **334 9219 126** | |

**Dimensions (bi-directional motor shown)**



| PG | | 517 | | | | | | | | | | | | | | 1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gear design** | **Type** | | **Unit** | **Dis-place-ment** | **Rotation** | **Shaft** | **Flange** | **Shaft seal** | **Inlet side ports option** | | **Outlet** | | **No rear ports** (rear ports on request) | | | |



| Code | Type |
|---|---|
| **P** | **Pump** |
| M | Motor |

| Code | Unit | |
|---|---|---|
| | Pump | Motor |
| **A** | **Single unit** | **Standard motor w/o checks** |
| M | Single distributor unit | — |
| B | Multiple unit | Standard motor w. two checks |
| C | — | Standard motor w. one anti-cavitation check (ACC) |

| Displacement | |
|---|---|
| Code | ccm |
| **0140** | **14.0** |
| **0160** | **16.0** |
| **0190** | **19.0** |
| **0230** | **23.0** |
| **0250** | **25.0** |
| **0280** | **28.0** |
| **0330** | **33.0** |
| **0380** | **38.0** |
| **0440** | **44.0** |
| **0520** | **52.0** |
| 0700 | 70.0 |

| Code | Rotation |
|---|---|
| **C** | **Clockwise** |
| A | Counter-clockwise |
| B | Bi-directional |

| Code | Shaft |
|---|---|
| **D1** [2] | **13T, 16/32DP, 41.2L, SAE "B" spline** |
| M1 [2] | Ø22.2, 6.3key, no thread, 41.2L, SAE "B", parallel |
| M2 [2] | Ø25.4, 6.3key, no thread, 46L, SAE "B-B", parallel |
| **T1** [3] | **Ø21.59, 11.2L, 4.0key, M14x1.5, taper 1:8** |

[2] Only used with flange H2, H3.
[3] Only used with flange D7.

| Code | Port options (pumps) |
|---|---|
| E6E5 | 1-11 BSP thread/ 3/4-14 BSP thread only from 14ccm to 19ccm |
| E7E6 | 1 1/4-11 BSP thread/ 1-11 BSP thread only from 23ccm to 38ccm |
| E8E6 | 1 1/2-11 BSP thread/ 1-11 BSP thread only from 44ccm to 70ccm |
| J9J8 | 26mm-Ø55mm-M8 square flange 18mm-Ø55mm-M8 square flange only from 14ccm to 52ccm |
| **L3L2** | **27mm-Ø51mm-M10 diamond flange 19mm-Ø40mm-M8 diamond flange only from 14ccm to 52ccm** |
| P3P2 | 1"-M10 SAE metric flange 3/4"-M10 SAE metric flange only from 16ccm to 23ccm |
| P4P3 | 1 1/4"-M10 SAE metric flange 1"-M10 SAE metric flange only from 25ccm to 38ccm |
| P5P3 | 1 1/2"-M12 SAE metric flange 1"-M10 SAE metric flange only from 44ccm to 70ccm |
| Code | Port options (motors) |
| E6E6 | 1- 11 BSP thread/ 1 - 11 BSP thread only from 14ccm to 52ccm |
| L3L3 | 27mm-Ø51mm-M10 diamond flange 27mm-Ø51mm-M10 diamond flange only from 14ccm to 52ccm |
| P3P3 | 1"-M10 SAE metric flange 1"-M10 SAE metric flange only from 16ccm to 52ccm |

Example: L3 = inlet port
L2 = outlet port

| Code | Shaft seal |
|---|---|
| X | No seal |
| **N** | **NBR** |
| T [4] | PTFE |

[4] Must be used for motors.

| Code | Flange |
|---|---|
| **D7** | **98.4x128.2 - Ø50.77 rectangular** |
| H2 | 106.4 - Ø82.55 SAE "A" 2bolt flange |
| **H3** | **146.1 - Ø101.06 SAE "B" 2bolt flange** |

[1] Code of drain line for PGM517 only.
**3 Options:**
G3 = 1/4-19 BSP top drain.
G4 = 1/4-19 BSP rear drain.
B1 = no drain, product type must be "B" or "C".

**Bold letters =**
Short-term availability

PI PGP-PGM UK.PMD RH



**Parker Hannifin GmbH**
Hydraulic Controls Division
Kaarst, Germany

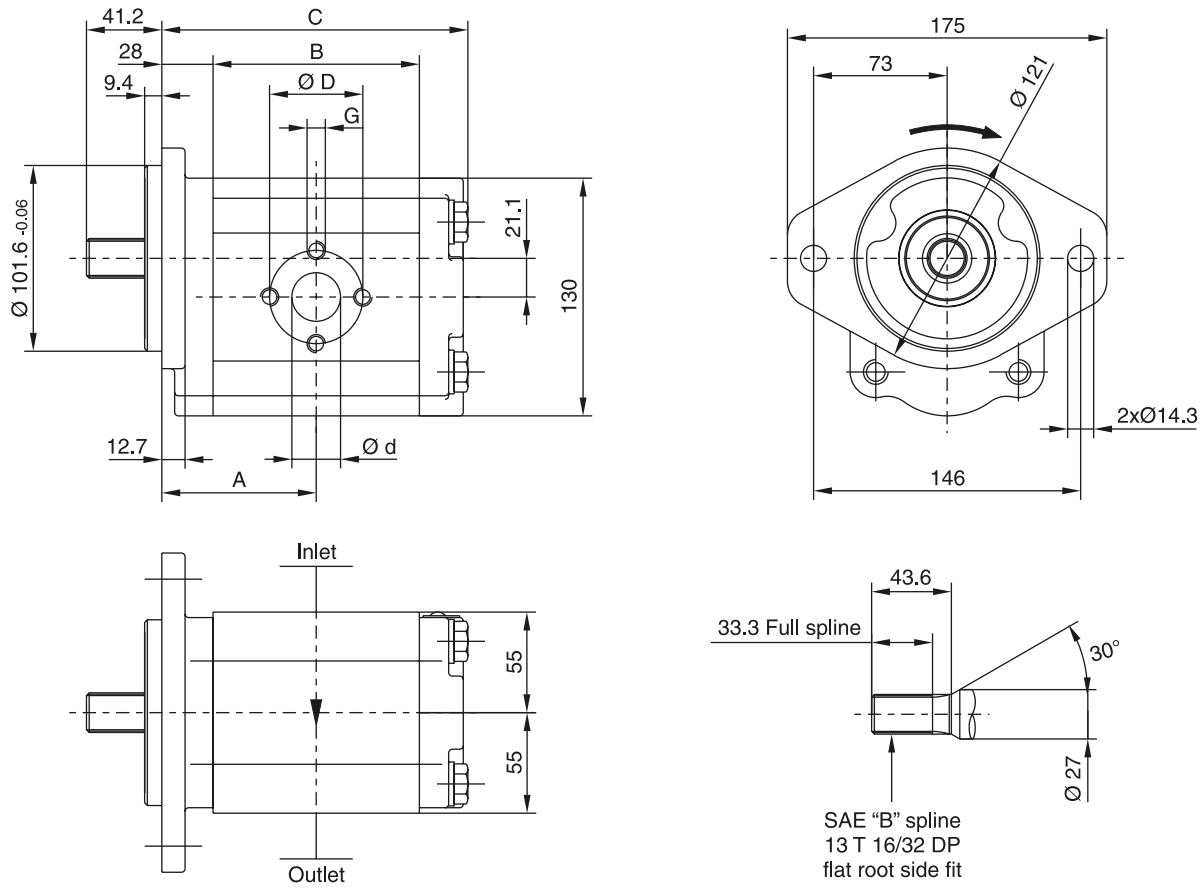
1

**PGP517 A XXXX Y D1 H3 N L3 L2 B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | C | | d | D | G | | d | D | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0140 | 14.0 | 62.1 | 68.3 | 122.8 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3400 | 250 | **333 9111 506** | |
| 0160 | 16.0 | 63.2 | 70.3 | 124.8 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3400 | 250 | **333 9111 507** | |
| 0190 | 19.0 | 64.7 | 73.3 | 127.8 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3300 | 250 | **333 9111 378** | |
| 0230 | 23.0 | 66.7 | 77.4 | 131.9 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3300 | 250 | **333 9111 151** | 333 9112 113 |
| 0250 | 25.0 | 67.7 | 79.4 | 133.9 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3100 | 250 | **333 9111 061** | 333 9112 114 |
| 0280 | 28.0 | 69.2 | 82.4 | 136.9 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3100 | 250 | **333 9111 508** | |
| 0330 | 33.0 | 71.7 | 87.5 | 142.0 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 2600 | 250 | **333 9111 048** | 333 9112 080 |
| 0380 | 38.0 | 74.3 | 92.5 | 147.0 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 2300 | 250 | **333 9111 004** | 333 9112 102 |
| 0440 | 44.0 | 77.3 | 98.6 | 153.1 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 2000 | 220 | **333 9111 106** | 333 9112 115 |
| 0520 | 52.0 | 81.3 | 106.7 | 161.2 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 1700 | 200 | **333 9111 509** | 333 9112 151 |

**Dimensions (clockwise rotation shown)**

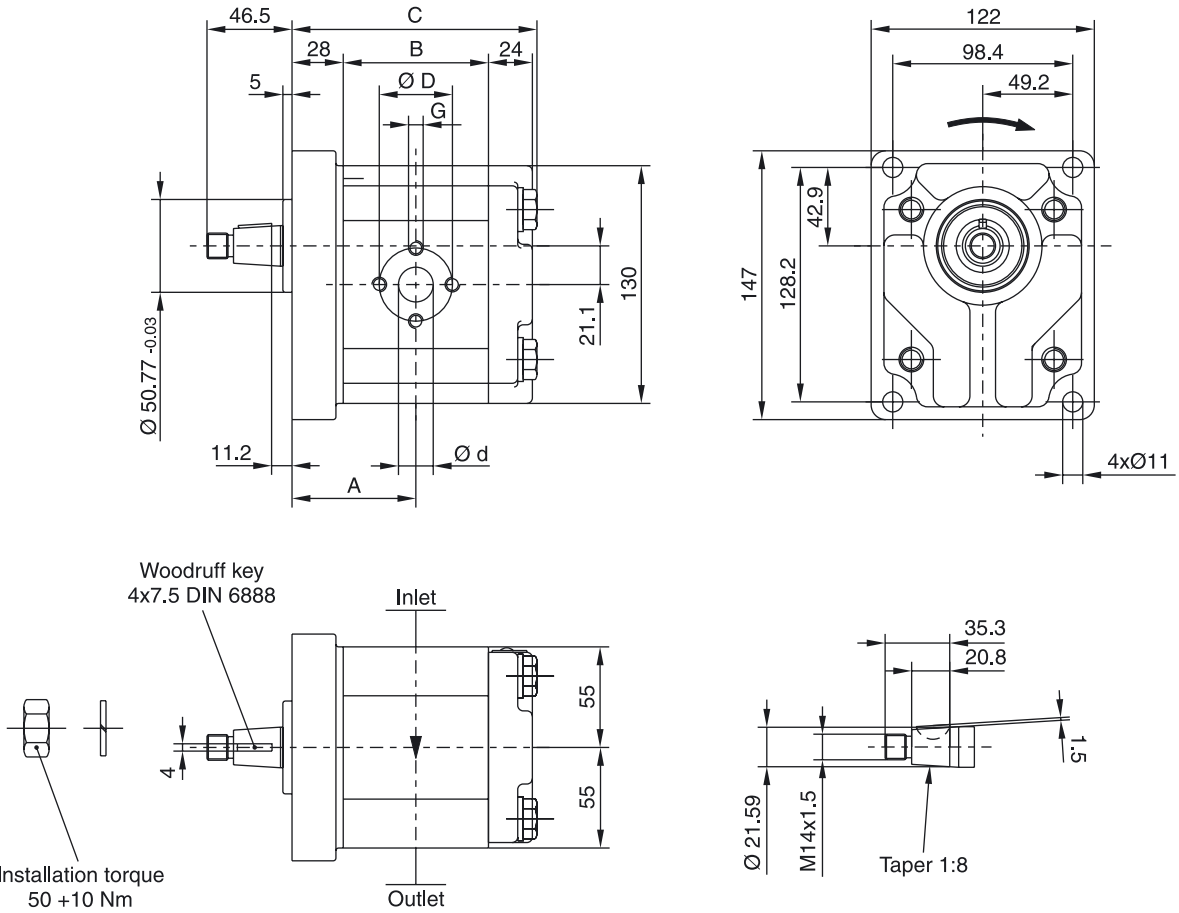


**PGP517 A XXXX Y T1 D7 N L3 L2 B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | C | | d | D | G | | d | D | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0140 | 14.0 | 62.1 | 68.3 | 122.8 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3400 | 250 | **333 9111 503** | |
| 0160 | 16.0 | 63.2 | 70.3 | 124.8 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3400 | 250 | **333 9111 505** | |
| 0190 | 19.0 | 64.7 | 73.3 | 127.8 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3300 | 250 | **333 9111 285** | 333 9112 212 |
| 0230 | 23.0 | 66.7 | 77.4 | 131.9 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3300 | 250 | **333 9111 119** | 333 9112 213 |
| 0250 | 25.0 | 67.7 | 79.4 | 133.9 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3100 | 250 | **333 9111 047** | 333 9112 068 |
| 0280 | 28.0 | 69.2 | 82.4 | 136.9 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 3100 | 250 | **333 9111 287** | 333 9112 214 |
| 0330 | 33.0 | 71.7 | 87.5 | 142.0 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 2600 | 250 | **333 9111 014** | 333 9112 035 |
| 0380 | 38.0 | 74.3 | 92.5 | 147.0 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 2300 | 250 | **333 9111 015** | 333 9112 036 |
| 0440 | 44.0 | 77.3 | 98.6 | 153.1 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 2000 | 220 | **333 9111 046** | 333 9112 040 |
| 0520 | 52.0 | 81.3 | 106.7 | 161.2 | L3 | 27 | 51 | M10 | L2 | 19 | 40 | M8 | 500 | 1700 | 200 | **333 9111 242** | 333 9112 215 |

**Dimensions (clockwise rotation shown)**



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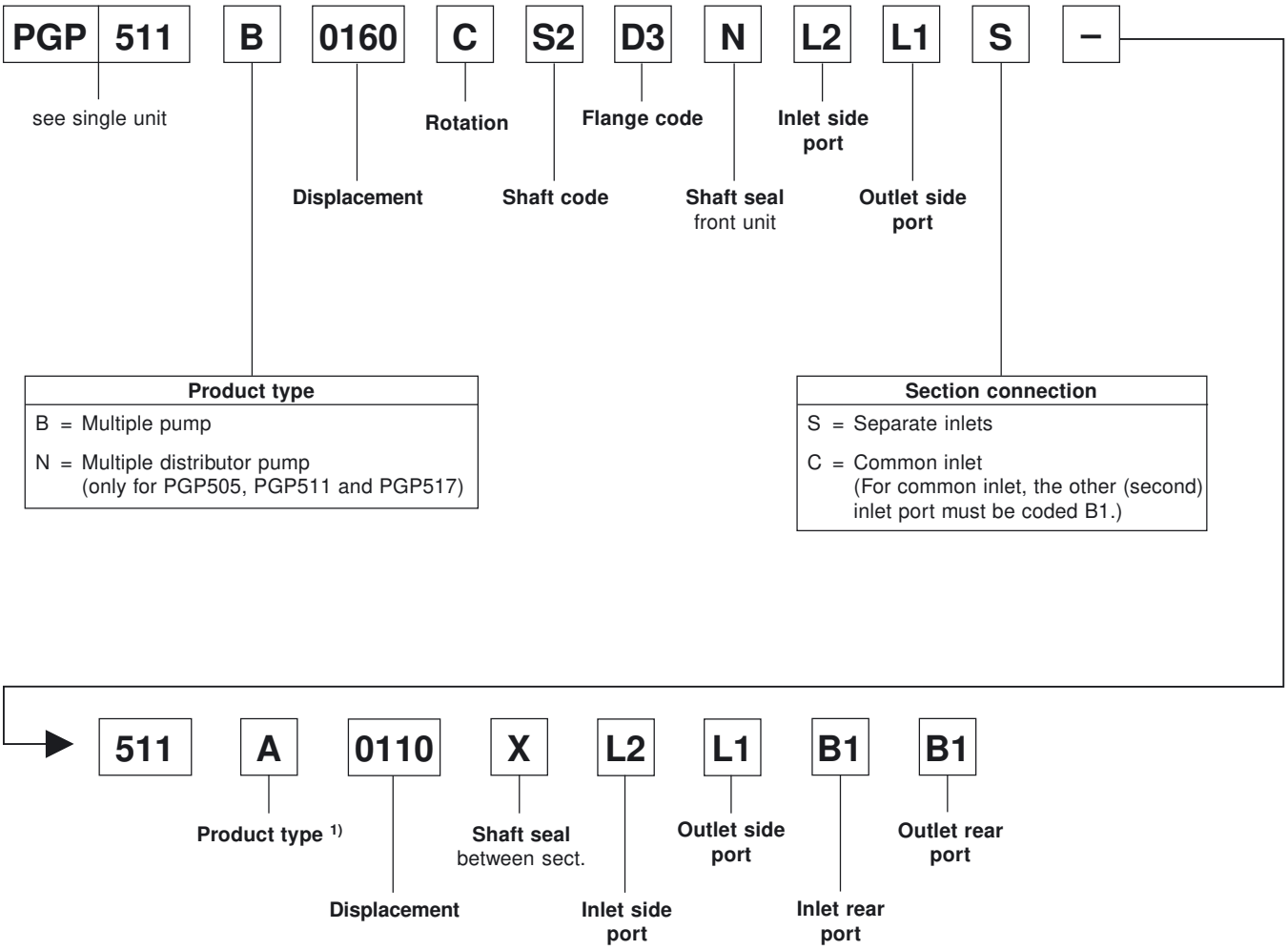
## Code for multiple units




1) Further B possible for triple units

This coding system can be used for all pumps series 500.

Over many years Parker Hydraulics has supplied gear pumps and motors for mobile and industrial markets worldwide, especially for materials handling, commercial grass cutting and construction equipment applications. Many Parker pumps and motors have been developed and tested for the specific needs of these industries.

Parker's defined strategy to provide engineered solutions, coupled with an award winning flexible manufacturing system, has resulted in a wide range of SAE/DIN/ European and other special options being available as standard.

### Features

- Patented interlocking body design
- 12 tooth gears, bronze balance plates
- Tandem, triple and cross-frame pumps available
- Common inlets available for tandem and triple pumps
- Continuous operating pressures up to 310 bar
- Production run-in available to suite OEM application conditions and to provide optimized volumetric efficiencies
- Pressure balanced design for high efficiency
- Reduced system noise levels compared to earlier models
- High power through-drive capability
- Wide range of integral valves for power steering, power brakes, fan drivers and implement hydraulics
- Load sense and solenoid operated unloading valves
- Low noise version as "stealth" pump

### Technical data

| | |
|---|---|
| Pump type | Heavy-duty, cast iron, external gear. |
| Mounting | SAE, rectangular, specials on request. |
| Ports | SAE and metric split flanges and others. |
| Shaft style | SAE splined, keyed, tapered, cylindrical. Specials on request |
| Speed | 500 - 3500 rpm, see tables. |
| Theor. displacement | See tables |
| Drive | Drive direct with flexible coupling is recommended. |
| Inlet pressure | Operating range 0.8 to 2 bar abs.<br>Min. inlet pressure 0.5 bar short time without load, consultation is recommended.<br>Outlet pressure see tables |
| Axial / radial load | Axial or radial loading is not allowed. |
| Hydraulic fluids | Mineral oil<br>Fire resistant fluids:<br>- water-oil emulsions 60/40, HFB<br>- water-glycol, HFC<br>- phosphate-esters, HFD<br>Consultation is recommended. |
| Fluid temperature | Range of operating temperature<br>-15 ... +80°C.<br>Max. permissible operating pressure depending on fluid temperature.<br>Temperature for cold start<br>-20 to -15°C at speed ≤ 1500 rpm. |

| | |
|---|---|
| Fluid viscosity | Range of operating viscosity<br>20 to 100 mm²/s.<br>Max. operating viscosity should not exceed 1600 mm²/s recommended<br>min. viscosity 8 mm²/s. |
| Filtration | According to ISO 4406 Cl. 16/13 |
| Direction of rotation (looking at shaft) | Clockwise, counter-clockwise or double.<br>Attention! Drive pump only in indicated drive direction of rotation. |
| Multiple pump assemblies | • Available in two or three section configurations.<br>• Max. shaft loading must conform to the limitations shown in the shaft load rating table in this catalogue.<br>• The max. load is determined by adding the torque values for each pumping section that will be simultaneously loaded. |
| Separate or common inlet capability | Separate Inlet configuration:<br>• Each gear housing has individual inlet and outlet ports.<br>• Common Inlet configuration:<br>Two gear sets share a common inlet. |

| PG | | 620 | | | | | | | | | | B | 1 | B | 1 | 1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear design | Type | | Unit | Dis-placement | Rotation | Shaft | Flange | Shaft seal | Inlet side ports option | | Outlet | No rear ports (rear ports on request) | | | | |

1

| Code | Type |
|---|---|
| P | Pump |
| M | Motor |

| Code | Unit | |
|---|---|---|
| | Pump | Motor |
| A | Single unit | Standard motor w/o checks |
| B | Multiple unit | Standard motor w. two checks |
| C | — | Standard motor w. one anti-cavitation check (ACC) |

| Displacement | |
|---|---|
| Code | ccm |
| 0160 | 16.0 |
| 0190 | 19.0 |
| 0210 | 21.0 |
| 0230 | 23.0 |
| 0280 | 28.0 |
| 0290 | 29.0 |
| 0330 | 33.0 |
| 0360 | 36.0 |
| 0370 | 37.0 |
| 0410 | 41.0 |
| 0440 | 44.0 |
| 0460 | 46.0 |
| 0500 | 50.0 |
| 0520 | 52.0 |

| Code | Rotation |
|---|---|
| C | Clockwise |
| A | Counter-clockwise |
| B | Bi-directional |

| Code | Shaft |
|---|---|
| C1 2) | 11T, 16/32DP, 38.2L, SAE 19-4 spline |
| D1 2) | 13T, 16/32DP, 41.2L, SAE "B" spline |
| T1 3) | Ø21.59, 11.2L, 4.0key, M14x1.5, taper 1:8 |

2) Only used with flange H2, H3.
3) Only used with flange D7.

| Code | Port options (pumps) |
|---|---|
| E6E5 | 1-11 BSP thread/ ¾-14 BSP thread only from 14ccm to 21ccm |
| E7E5 | 1¼-11 BSP thread/ ¾-14 BSP thread only from 23ccm to 52ccm |
| L3L2 | 27mm-Ø51mm-M10 diamond flange 19mm-Ø40mm-M8 diamond flange only from 29ccm to 52ccm |
| T4T3 | 1¼"-M10 SAE metric flange 1"-M10 SAE metric flange only from 16ccm to 33ccm |
| T5T3 | 1½"-M12 SAE metric flange 1"-M10 SAE metric flange only from 36ccm to 52ccm |
| **Code** | **Port options (motors)** |
| E6E6 | 1 - 11 BSP thread/ 1 - 11 BSP thread only from 16ccm to 33ccm |
| E7E7 | 1¼"-11 BSP thread/ 1¼"-11 BSP thread only from 36ccm to 52ccm |

Example: T4 = inlet port
T3 = outlet port

| Code | Shaft seal |
|---|---|
| X | No seal |
| N | NBR |
| H 4) | High pressure (5bar) |

4) for motors recommended

| Code | Flange |
|---|---|
| D7 | 98.4x128.2 - Ø50.77 rectangular |
| H2 | 106.4 - Ø82.55 SAE "A" 2bolt flange |
| H3 | 146.1 - Ø101.06 SAE "B" 2bolt flange |
| A4 | 114.5 x 114.5 - Ø127 SAE "C" 4bolt square |

1) Code of drain line for PGM620 only.
**2 Options:**
G4 = 1/4-19 BSP rear drain.
B1 = no drain, product type must be "B" or "C".

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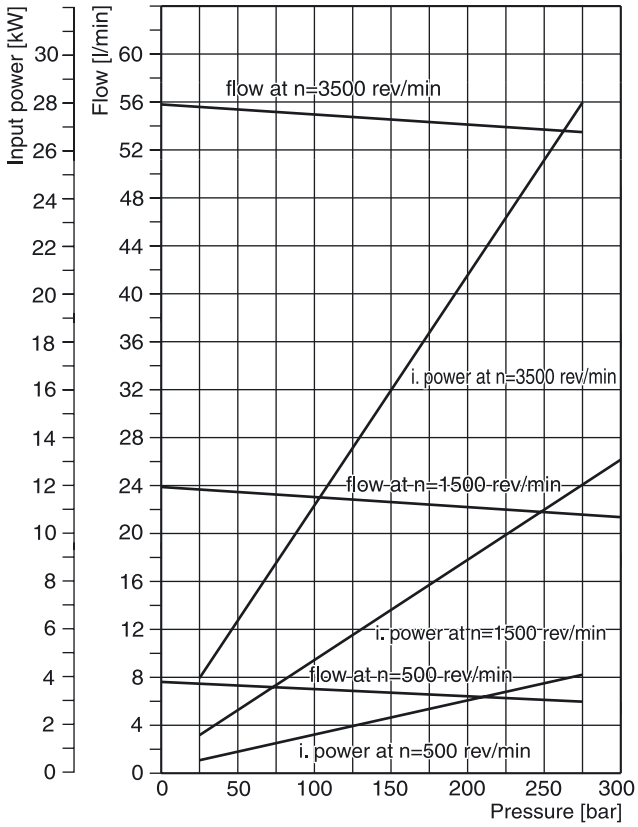
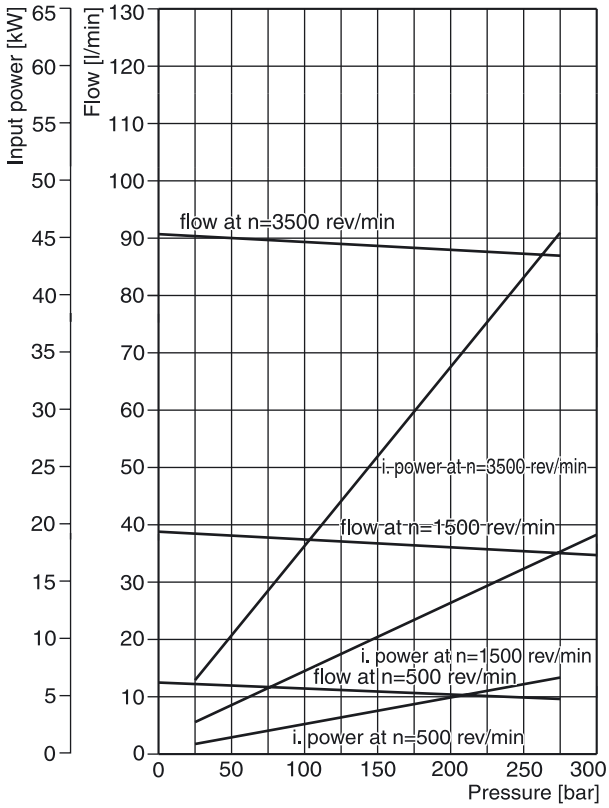
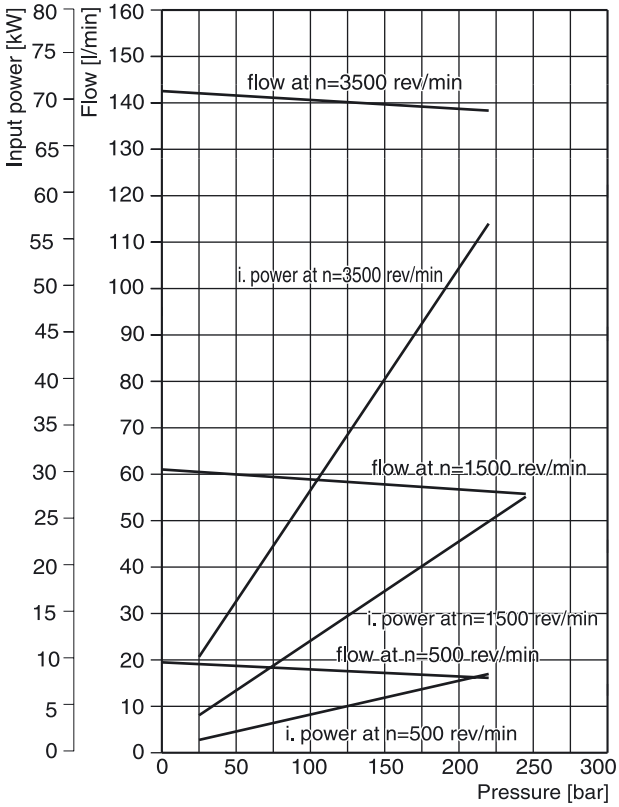
### PGP 620 - 16.0 CC



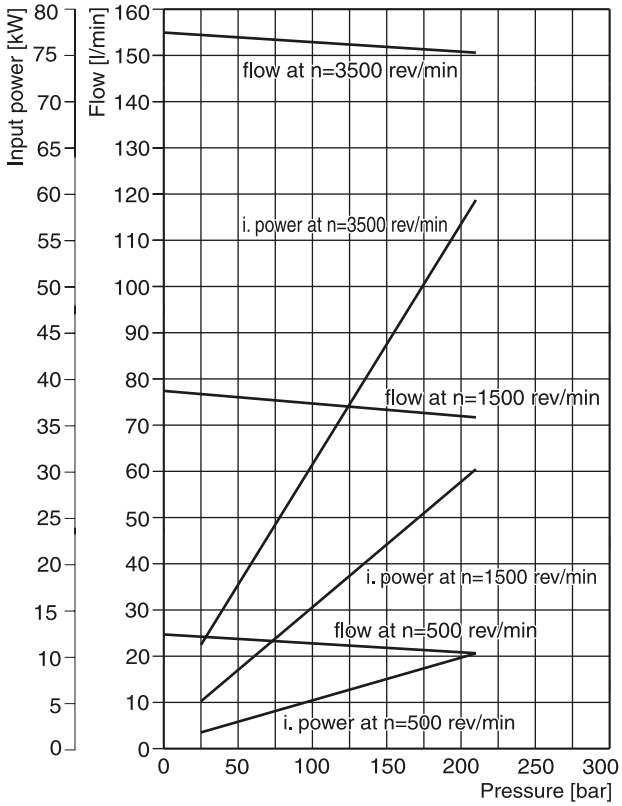

### PGP 620 - 26.0 CC




### PGP 620 - 41.0 CC




### PGP 620 - 52.0 CC




Fluid temperature: 45± 2°C ; Viscosity: 36mm$^2$/s ; Inlet pressure: 0.9 + 0.1 bar absolute

PI PGP-PGM UK.PMD RH



**Parker Hannifin GmbH**
Hydraulic Controls Division
Kaarst, Germany

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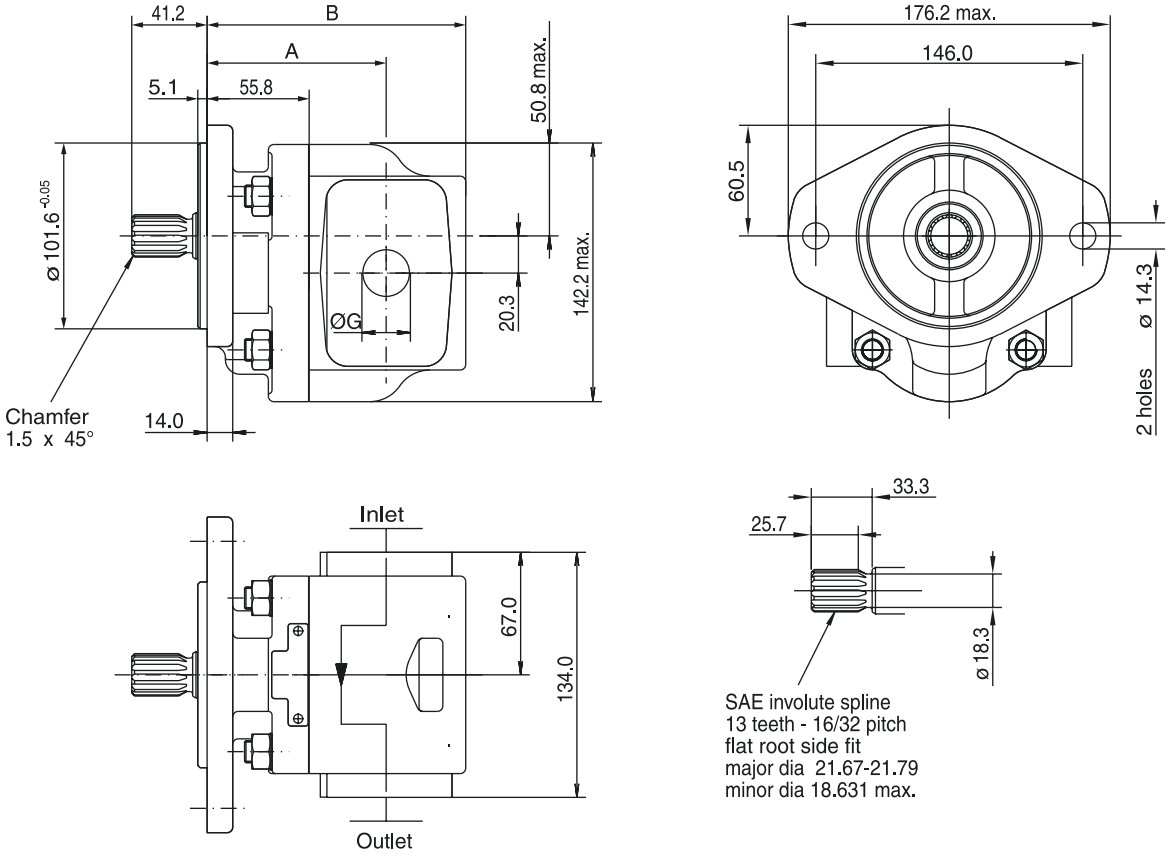
**PGP620 A XXXX Y D1 H3 N SS PP B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | Inlet port | | Outlet port | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | | G | | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0160 | 16 | 79.2 | 122.7 | E6 | 1"-11 | E5 | ¾"-14 | 500 | 3000 | 275 | 702 9111 052 | 702 9112 053 |
| 0190 | 19 | 82.5 | 126.0 | E6 | 1"-11 | E5 | ¾"-14 | 500 | 3000 | 275 | | |
| 0210 | 21 | 84.7 | 128.2 | E6 | 1"-11 | E5 | ¾"-14 | 500 | 3000 | 275 | | |
| 0230 | 23 | 86.9 | 130.4 | E6 | 1"-11 | E5 | ¾"-14 | 500 | 2700 | 275 | 702 9111 098 | 702 9112 054 |
| 0260 | 26 | 90.2 | 133.7 | E6 | 1"-11 | E5 | ¾"-14 | 500 | 2400 | 275 | 702 9111 112 | 702 9112 038 |
| 0290 | 29 | 93.5 | 137.0 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 3000 | 275 | | |
| 0330 | 33 | 97.9 | 141.4 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 3000 | 275 | | |
| 0360 | 36 | 101.2 | 144.7 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 2900 | 250 | | |
| 0370 | 37 | 102.3 | 145.8 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 2900 | 250 | | 702 9112 046 |
| 0410 | 41 | 106.7 | 150.2 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 2600 | 220 | | |
| 0440 | 44 | 110.0 | 153.5 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 2400 | 210 | | |
| 0460 | 46 | 112.2 | 155.7 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 2300 | 210 | | 702 9112 047 |
| 0500 | 50 | 116.6 | 160.1 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 2100 | 210 | 702 9111 096 | 702 9112 048 |
| 0520 | 52 | 118.8 | 162.3 | E7 | 1¼"-11 | E5 | ¾"-14 | 500 | 2000 | 210 | 702 9111 094 | 702 9112 039 |

**Dimensions (clockwise rotation shown)**

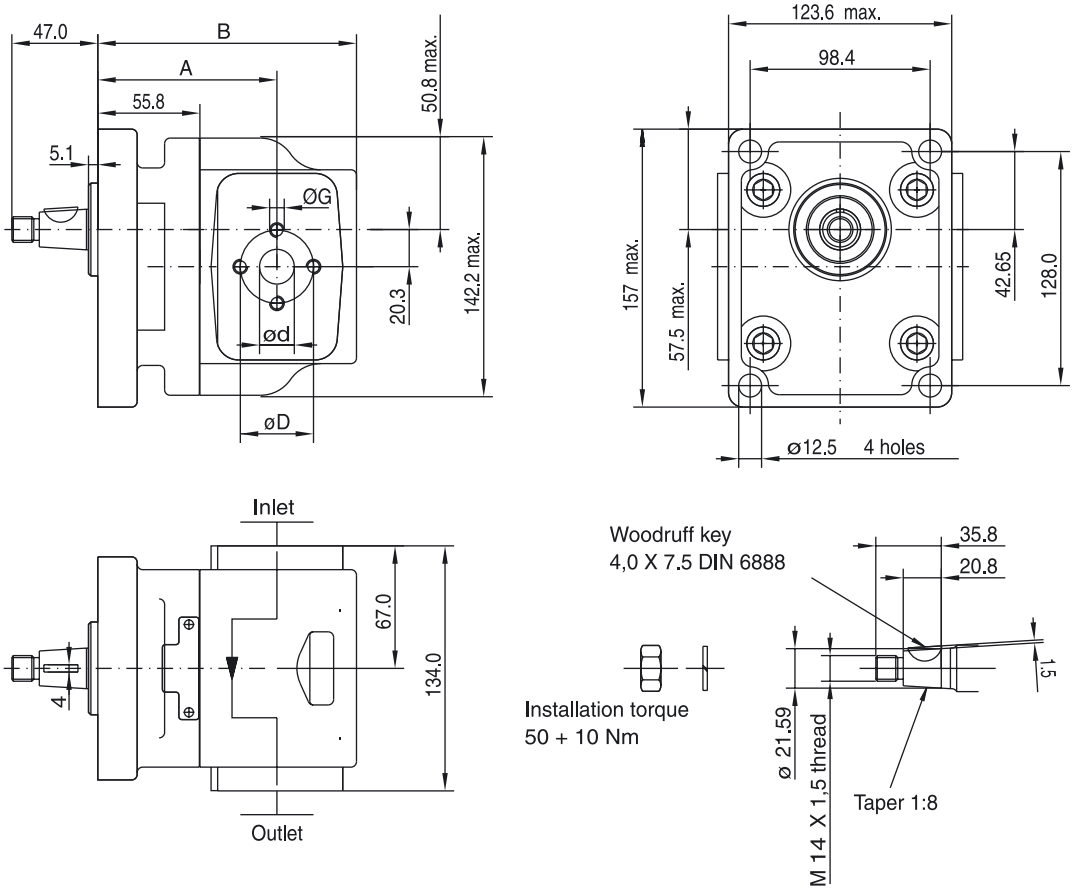


**PGP620 A XXXX Y T1 D7 N SS PP B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacem. | | Dimension | | Inlet port | | | | Outlet port | | | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/ rev | A | B | SS | d | D | G | SS | d | D | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockw. |
| 0160 | 16 | 79.2 | 122.7 | L1 | 13 | 30 | M6 | L1 | 13 | 30 | M6 | 500 | 1500 | 275 | 702 9111 031 | |
| 0190 | 19 | 82.5 | 126.0 | L2 | 19 | 40 | M8 | L2 | 13 | 30 | M8 | 500 | 2300 | 275 | 702 9111 032 | |
| 0210 | 21 | 84.7 | 128.2 | L2 | 19 | 40 | M8 | L2 | 13 | 30 | M8 | 500 | 2000 | 275 | | |
| 0230 | 23 | 86.9 | 130.4 | L2 | 19 | 40 | M8 | L2 | 13 | 30 | M8 | 500 | 1900 | 275 | 702 9111 033 | |
| 0260 | 26 | 90.2 | 133.7 | L2 | 19 | 40 | M8 | L2 | 13 | 30 | M8 | 500 | 1600 | 275 | 702 9111 034 | |
| 0290 | 29 | 93.5 | 137.0 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 3000 | 275 | 702 9111 021 | |
| 0330 | 33 | 97.9 | 141.4 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 2600 | 275 | 702 9111 020 | |
| 0360 | 36 | 101.2 | 144.7 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 2400 | 250 | 702 9111 082 | |
| 0370 | 37 | 102.3 | 145.8 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 2300 | 250 | 702 9111 014 | |
| 0410 | 41 | 106.7 | 150.2 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 2100 | 220 | 702 9111 019 | |
| 0440 | 44 | 110.0 | 153.5 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 2000 | 210 | 702 9111 018 | |
| 0460 | 46 | 112.2 | 155.7 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 1900 | 210 | | |
| 0500 | 50 | 116.6 | 160.1 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 1700 | 210 | 702 9111 017 | |
| 0520 | 52 | 118.8 | 162.3 | L3 | 27 | 51 | M10 | L2 | 13 | 30 | M8 | 500 | 1700 | 210 | | |

**Dimensions (clockwise rotation shown)**



| PG | | 640 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gear design** | **Type** | | **Unit** | **Dis-placement** | **Rotation** | **Shaft** | **Flange** | **Shaft seal** | **Inlet side ports option** | | **Outlet** | | B | 1 | B | 1 |
| | | | | | | | | | | | | | **No rear ports** (rear ports on request) | | | |

1

| Code | Type |
|---|---|
| P | Pump |
| M [1] | Motor |

[1] Available from 2005

| Code | Unit |
|---|---|
| A | Single unit |
| B | Multiple unit |

| Displacement | |
|---|---|
| Code | ccm |
| 0300 | 30.0 |
| 0350 | 35.0 |
| 0400 | 40.0 |
| 0450 | 45.0 |
| 0500 | 50.0 |
| 0550 | 55.0 |
| 0600 | 60.0 |
| 0650 | 65.0 |
| 0700 | 70.0 |
| 0750 | 75.0 |
| 0800 | 80.0 |

| Code | Rotation |
|---|---|
| C | Clockwise |
| A | Counter-clockwise |

| Code | Shaft |
|---|---|
| D1 [2] | 13T, 16/32DP, 41.2L, SAE "B" spline |
| E1 [2] | 15T, 16/32DP, 46.0L, SAE "B-B" spline |
| E4 [3] | 14T, 12/24DP, 55.6L, SAE "C" spline |

[2] Only used with flange A3, H3.
[3] Only used with flange A4, K3.

| Code | Port options (pumps) |
|---|---|
| E8E7 | 1½ -11 BSP Thread / 1¼ -11 BSP Thread only from 30ccm to 50ccm |
| S4S3 | 1¼“ - 7/16-14 UNC SAE split flange 1“ - 3/8-16 UNC SAE split flange only from 30ccm to 40ccm |
| S5S3 | 1½“ - ½-13 UNC SAE split flange 1“ - 3/8-16 UNC SAE split flange only from 45ccm to 55ccm |
| S6S3 | 2“ - ½-13 UNC SAE split flange 1“ - 3/8-16 UNC SAE split flange only for 60ccm |
| S6S4 | 2“ - ½-13 UNC SAE split flange 1¼“ - 7/16-14 UNC SAE split flange only from 65ccm to 80ccm |
| T4T3 | 1¼“ - M10 SAE metr. split flange 1“ - M10 SAE split flange only from 30ccm to 40ccm |
| T5T3 | 1½“ - M12 SAE metr. split flange 1“ - M10 SAE split flange only from 45ccm to 55ccm |
| T6T3 | 2“ - M12 SAE metr. split flange 1¼“ - M10 SAE metr. split flange only for 60ccm |
| T6T4 | 2“ - M12 SAE metr. split flange 1¼“ - M10 SAE metr. split flange only from 65ccm to 80ccm |

Example: T5 = inlet port
T4 = outlet port

| Code | Shaft seal |
|---|---|
| X | No seal |
| N | NBR |

| Code | Flange |
|---|---|
| A3 | 89.8x89.8 - Ø101.06 4bolt square flange |
| A4 | 114.5x114.5 - Ø127 SAE "C" 4bolt square flange |
| H3 | 146.1 - Ø101.06 SAE "B" 2bolt flange |
| K3 | 181.0 - Ø127 SAE "C" 2bolt flange |

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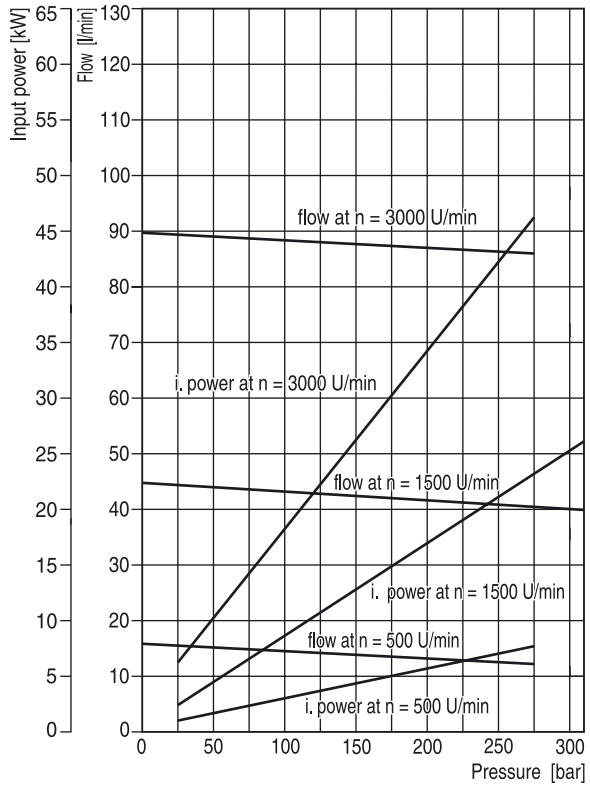
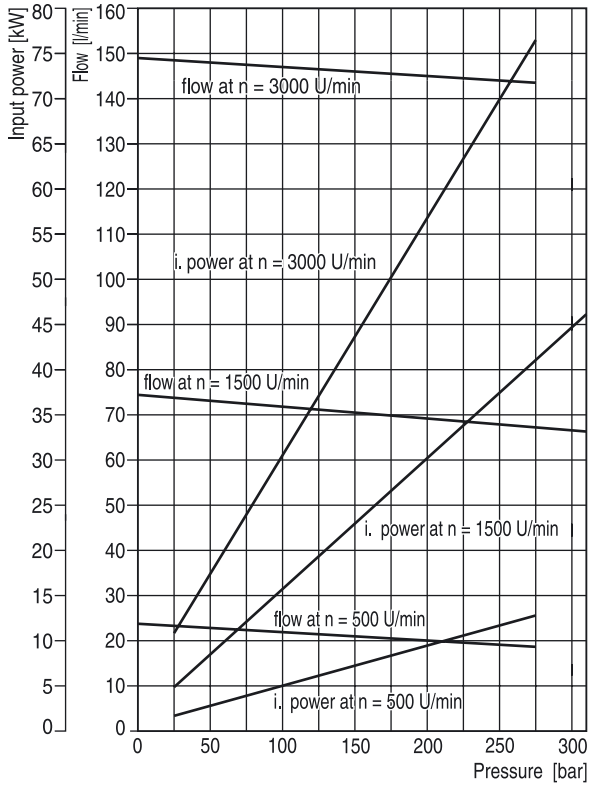
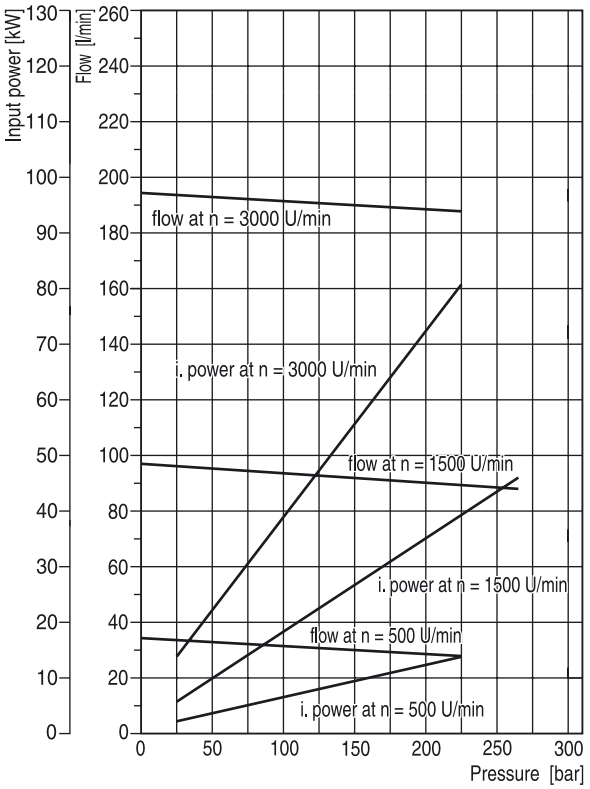
### PGP 640 - 30.0 CC



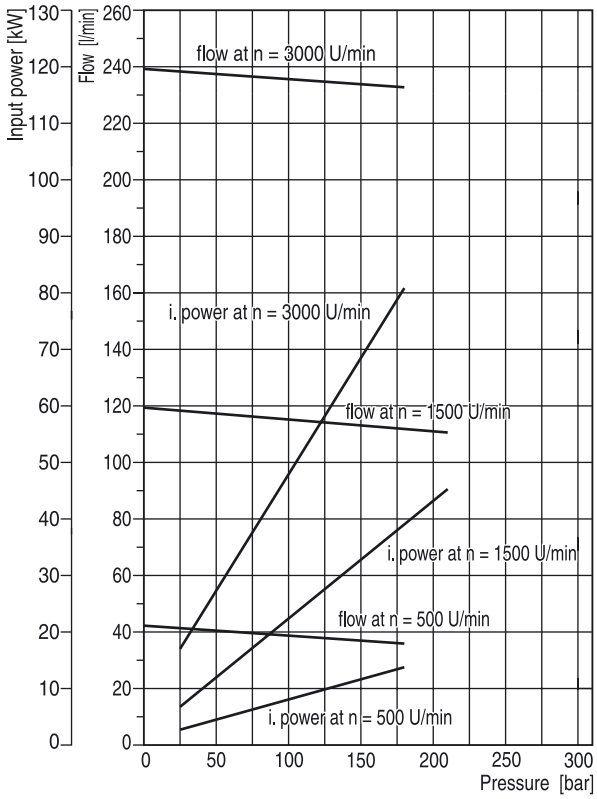

### PGP 640 - 50.0 CC




### PGP 640 - 65.0 CC




### PGP 640 - 80.0 CC




Fluid temperature: 45± 2°C ; Viscosity: 36mm$^2$/s ; Inlet pressure: 0.9 + 0.1 bar absolute

PI PGP-PGM UK.PMD RH



**Parker Hannifin GmbH**
Hydraulic Controls Division
Kaarst, Germany

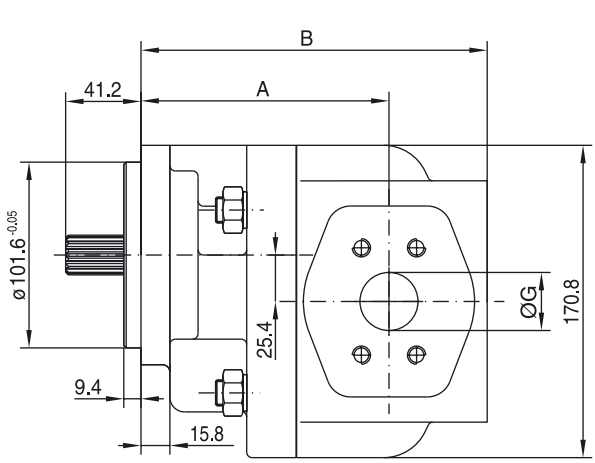
1

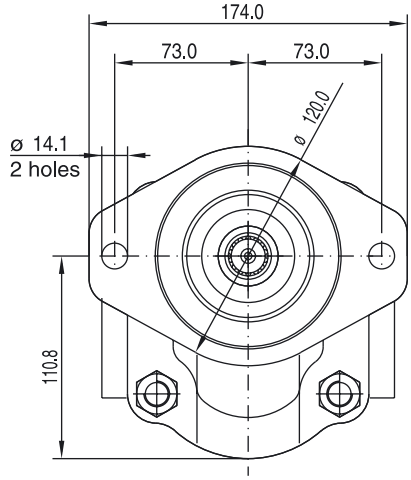
**PGP640 A XXXX Y D1 H3 N SS PP B1 B1**

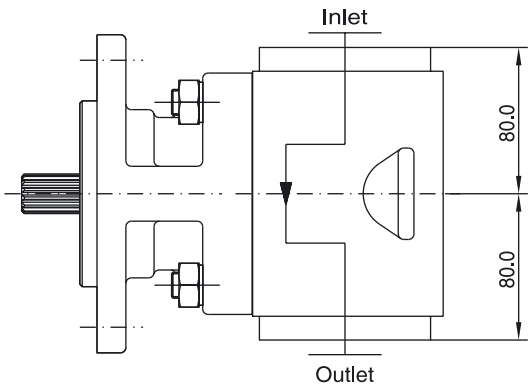
"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

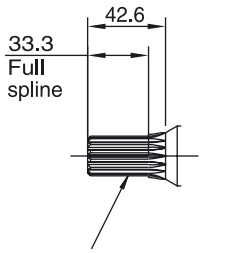
| Displacement | | Dimension | | Inlet port | | Outlet port | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | | G | | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0300 | 30 | 128.6 | 176.1 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0350 | 35 | 128.6 | 176.1 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0400 | 40 | 131.8 | 182.7 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0450 | 45 | 131.8 | 182.7 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0500 | 50 | 135.6 | 189.3 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0550 | 55 | 135.6 | 189.3 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0600 | 60 | 138.4 | 195.8 | T6 | 2" | T3 | 1" | 500 | 3000 | 290 | | |
| 0650 | 65 | 138.4 | 195.8 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 265 | | |
| 0700 | 70 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 245 | | |
| 0750 | 75 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 225 | | |
| 0800 | 80 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 210 | | |

**Dimensions (clockwise rotation shown)**



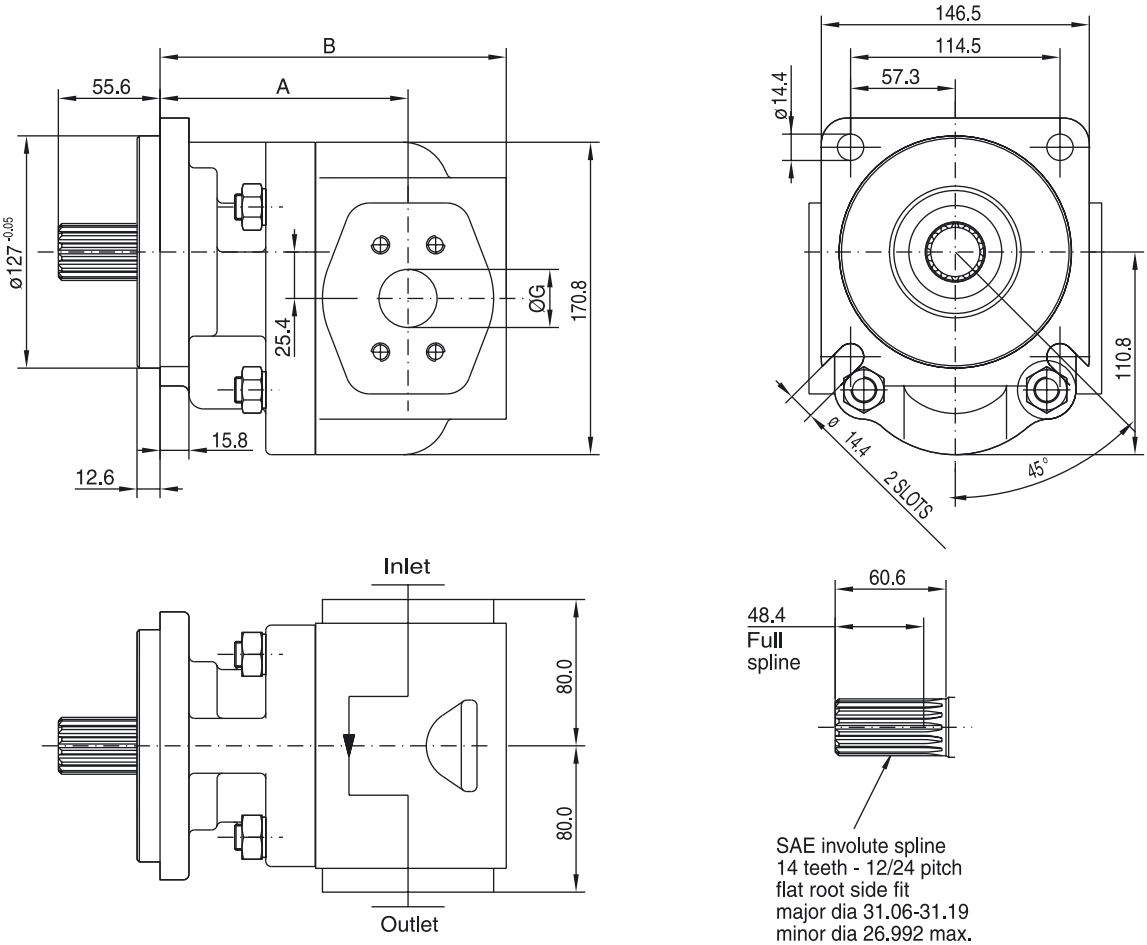

SAE involute spline
13 teeth - 16/32 pitch
flat root side fit
major dia 21.67-21.79
minor dia 18.631 max.

**PGP640 A XXXX Y E4 A4 N SS PP B1 B1**

"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | Inlet port | | Outlet port | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | | G | | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0300 | 30 | 128.6 | 176.1 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0350 | 35 | 128.6 | 176.1 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0400 | 40 | 131.8 | 182.7 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0450 | 45 | 131.8 | 182.7 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0500 | 50 | 135.6 | 189.3 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0550 | 55 | 135.6 | 189.3 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0600 | 60 | 138.4 | 195.8 | T6 | 2" | T3 | 1" | 500 | 3000 | 290 | | |
| 0650 | 65 | 138.4 | 195.8 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 265 | | |
| 0700 | 70 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 245 | | |
| 0750 | 75 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 225 | | |
| 0800 | 80 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 210 | | |

**Dimensions (clockwise rotation shown)**



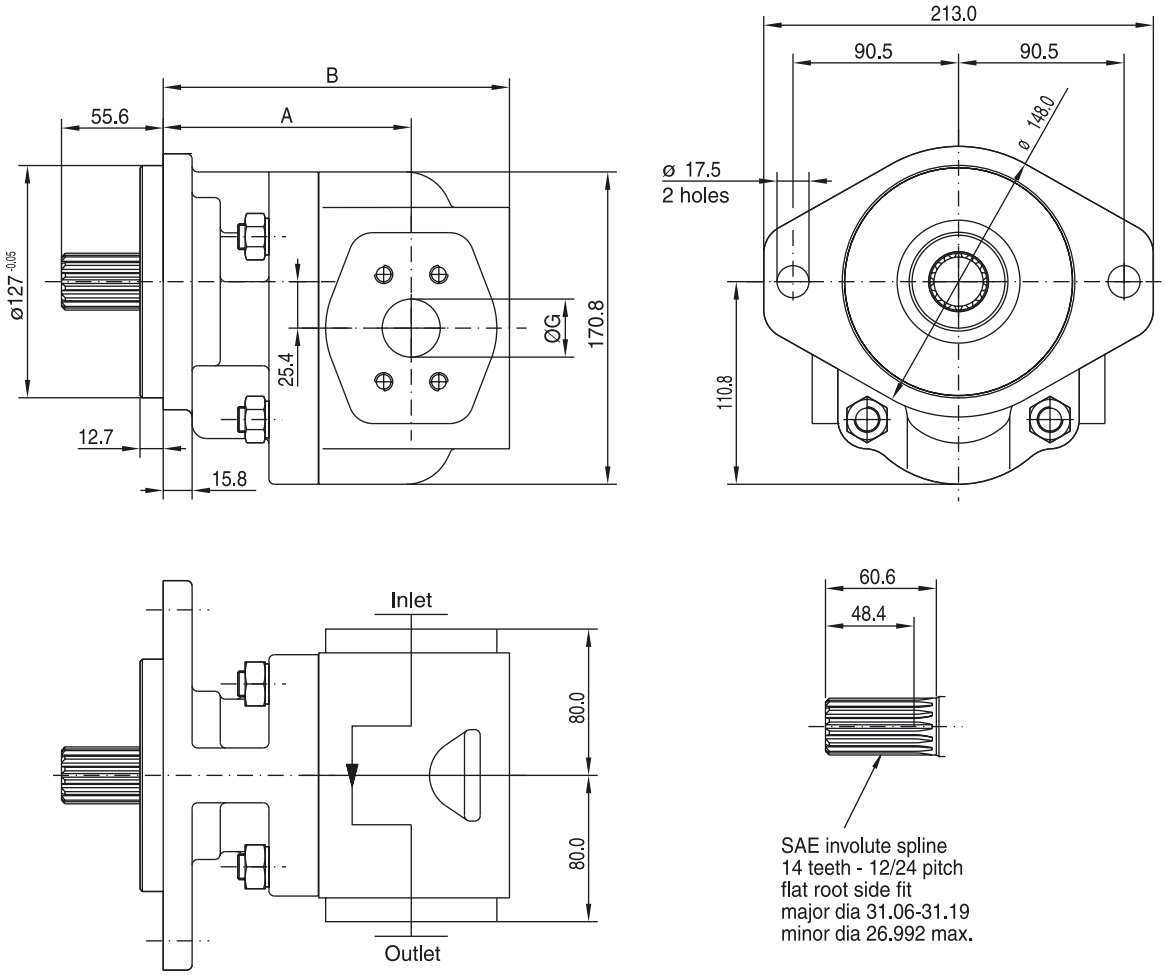
1

**PGP640 A XXXX Y E4 K3 N SS PP B1 B1**

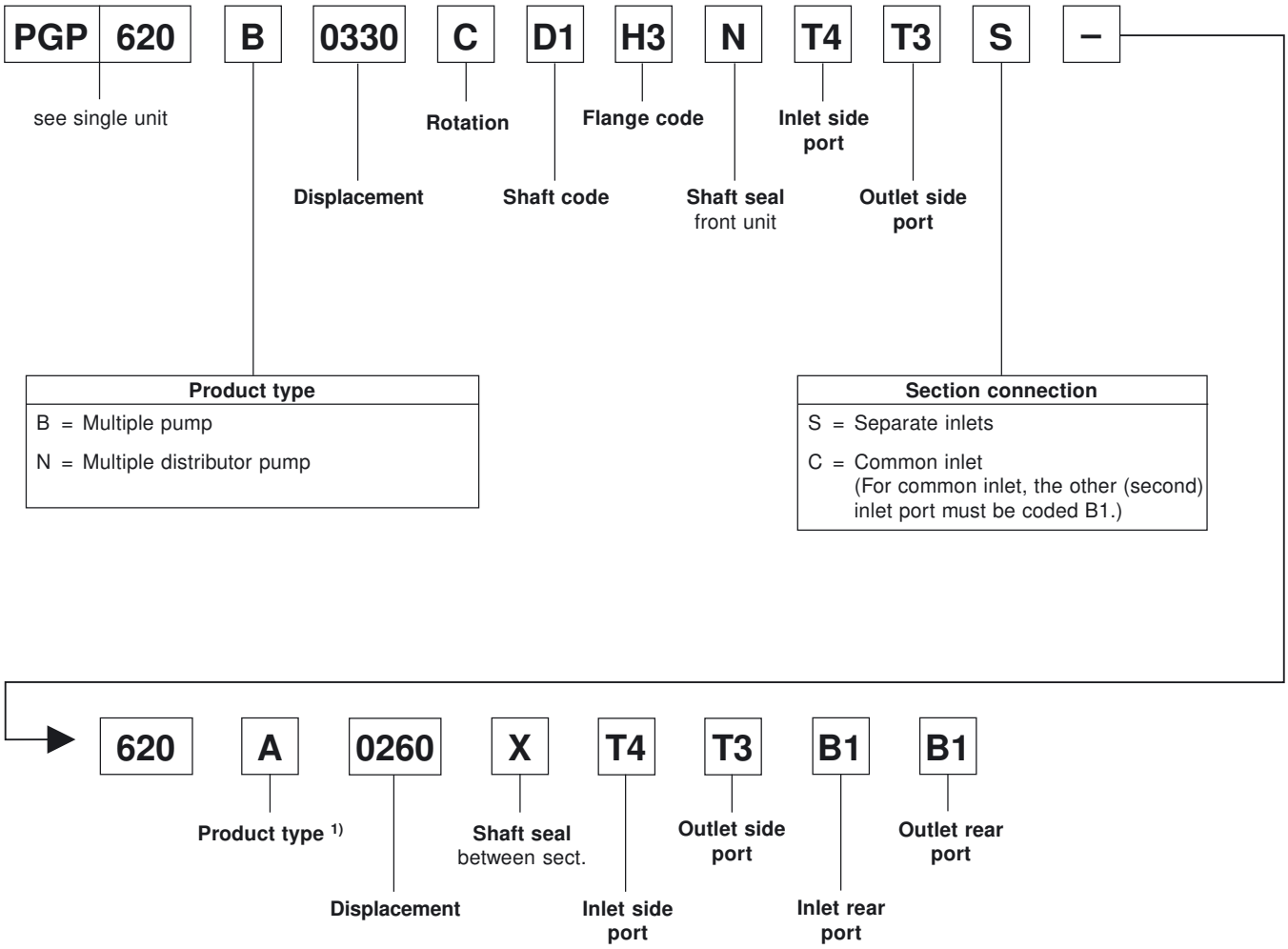
"Y" = C (clockwise rotation)
= A (counter-clockwise rotation)

| Displacement | | Dimension | | Inlet port | | Outlet port | | Speed of rotation | | Working pressure | Order number direction of rotation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XXXX | cm³/rev | A | B | | G | | G | min. rpm | max. rpm | max. bar | clockwise | counter-clockwise |
| 0300 | 30 | 128.6 | 176.1 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0350 | 35 | 128.6 | 176.1 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0400 | 40 | 131.8 | 182.7 | T4 | 1-¼" | T3 | 1" | 500 | 3000 | 310 | | |
| 0450 | 45 | 131.8 | 182.7 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0500 | 50 | 135.6 | 189.3 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0550 | 55 | 135.6 | 189.3 | T5 | 1-½" | T3 | 1" | 500 | 3000 | 310 | | |
| 0600 | 60 | 138.4 | 195.8 | T6 | 2" | T3 | 1" | 500 | 3000 | 290 | | |
| 0650 | 65 | 138.4 | 195.8 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 265 | | |
| 0700 | 70 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 245 | | |
| 0750 | 75 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 225 | | |
| 0800 | 80 | 142.2 | 203.2 | T6 | 2" | T4 | 1-¼" | 500 | 3000 | 210 | | |

**Dimensions (clockwise rotation shown)**



**Code for multiple units**




1) Further B possible for triple units

This coding system can be used for all pumps series 600.

**Quality pays**

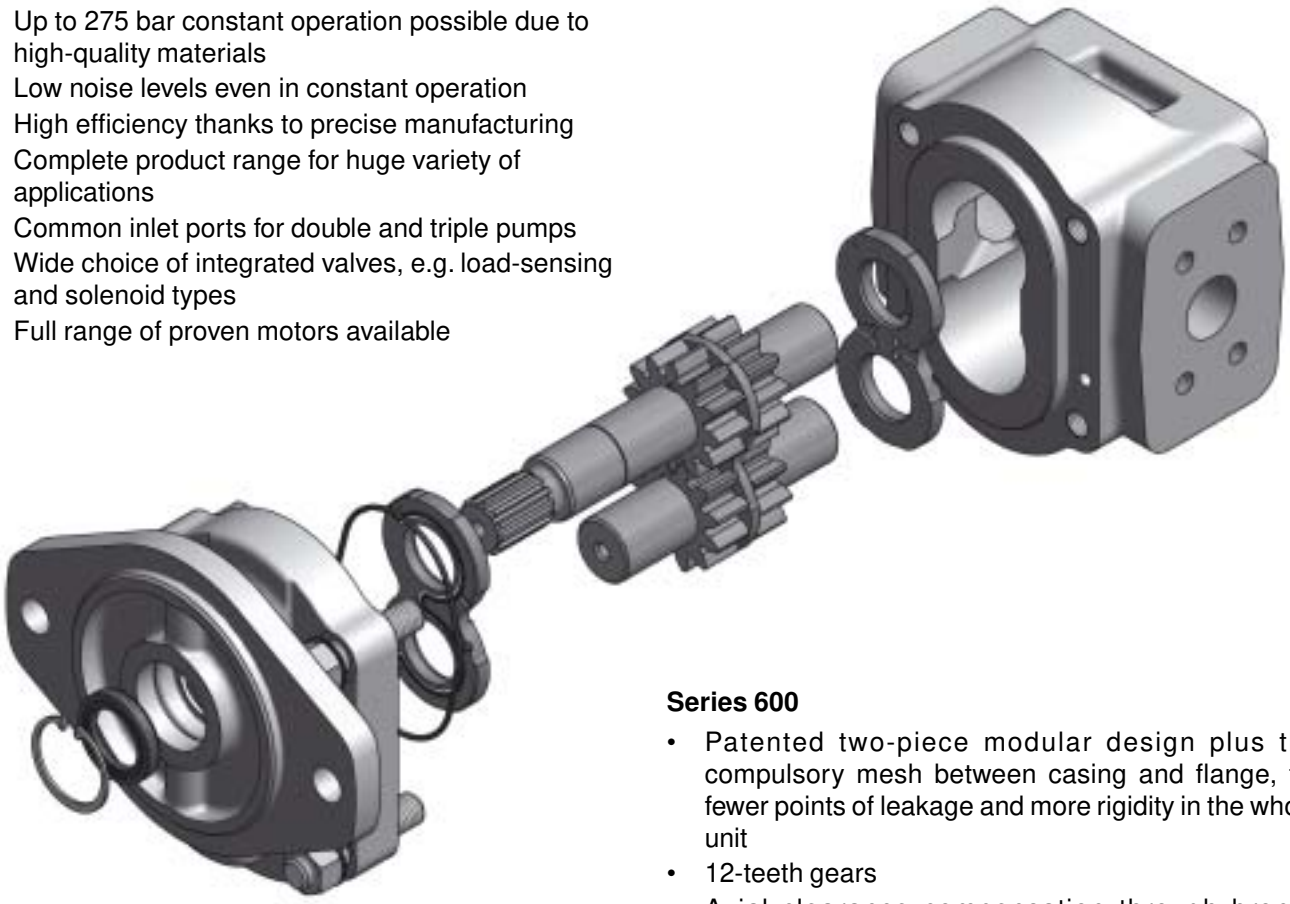
Aluminium or cast-iron bodied 'split-gear' gear pumps are designed for high pressure and speed ratings together with high efficiency and optimised noise levels.

The flow pulsation is considerably decreased by phased dual element gear sets, resulting in models with clearly lower noise levels. Common inlet available for multiple section units.

1

**Series 500**

- Up to 275 bar constant operation possible due to high-quality materials
- Low noise levels even in constant operation
- High efficiency thanks to precise manufacturing
- Complete product range for huge variety of applications
- Common inlet ports for double and triple pumps
- Wide choice of integrated valves, e.g. load-sensing and solenoid types
- Full range of proven motors available



**Series 600**

- Patented two-piece modular design plus the compulsory mesh between casing and flange, for fewer points of leakage and more rigidity in the whole unit
- 12-teeth gears
- Axial clearance compensation through bronze pressure plates for high all-over efficiency
- Double or triple pumps possible
- Stackable with other products
- Common inlet ports for double and triple pumps available
- Constant pressure up to 310 bar admissible
- Wide range of integrated valves, e.g. relief valves, priority flow dividers, unloader valves
- Load-sensing and solenoid valves available
- Full range of robust motors available for high-demand applications

### Shaft loads PGP/PGM500

| Code | Description | Type | Torque rating [Nm] | | | |
|---|---|---|---|---|---|---|
| | | | PGP/PGM503 | PGP/PGM505 | PGP/PGM511 | PGP/PGM517 |
| H1 | Ø10.0, 3.0 key, no thread, 36L | parallel | 30 | — | — | — |
| P2 | Ø9.95, 8.8L, 2.4 key, M6 | taper 1:8 | 30 | — | — | — |
| V1 | 5 x 6.5 long shaft w/o coupling | tang drive | 20 | — | — | — |
| V2 | 5 x 4.5 short shaft w/o coupling | tang drive | 20 | — | — | — |
| A1 | 9T, 16/32DP, 32L, SAE "A" | splined | — | 108 | — | — |
| J1 | Ø12.7, 3.2 key, no thread, 38L | parallel | — | 43 | — | — |
| K1 | Ø15.88, 4.0 key, no thread, 32L, SAE "A" | parallel | — | 85 | — | — |
| Q2 | Ø14.25, 5.5L, 3.0 key, M10x1 | taper 1:8 | — | 68 | — | — |
| A1 | 9T, 16/32DP, 32L, SAE "A" | splined | — | — | 86 | — |
| C1 | 11T, 16/32DP, 38.2L, SAE 19-4 | splined | — | — | 184 | — |
| F1 | 9T, B17x14.23L, DIN 5482 | splined | — | — | 101 | — |
| K1 | Ø15.88, 4.0 key, no thread, 32L, SAE "A" | parallel | — | — | 75 | — |
| L6 | Ø19.05, 4.8 key, no thread, 32L, SAE 19-1 | parallel | — | — | 145 | — |
| S1 | Ø17.0, 7.7L, 3.0 key, M12x1.5 | taper 1:5 | — | — | 193 | — |
| S2 | Ø16.65, 12.0L, 3.2 key, M12x1.5 | taper 1:8 | — | — | 198 | — |
| S4 | Ø16.65, 12.0L, 4.0 key, M12x1.5 | taper 1:8 | — | — | 198 | — |
| D1 | 13T, 16/32DP, 41.2L, SAE "B" | splined | — | — | — | 345 |
| M1 | Ø22.2, 6.3 key, no thread, 41.2L, SAE "B" | parallel | — | — | — | 251 |
| M2 | Ø25.4, 6.3 key, no thread, 46L, SAE "B-B" | parallel | — | — | — | 395 |
| T1 | Ø21.59, 11.2L, 4.0 key, M14x1.5 | taper 1:8 | — | — | — | 250 |

### Shaft loads PGP/PGM600

| Code | Description | Type | Torque rating 620 [Nm] | Torque rating 640 [Nm] |
|---|---|---|---|---|
| C1 | 11T, 16/32 DP, 38.2L, SAE 19-4 | splined | 144 | — |
| D1 | 13T, 16/32 DP, 41.2L, SAE "B" | splined | 272 | 328 |
| E1 | 15T, 16/32 DP, 46.0L, SAE "B-B" | splined | — | 503 |
| E4 | 14T, 12/24 DP, 5.6L, SAE "C" | splined | — | 960 |
| T1 | Ø21.59, 11.2L, 4.0key, M14x1.5 | tapered 1:8 | 218 | — |

### Formula to calculate shaft load

$$\text{Torque [Nm]} = \frac{\text{Displacement [cm}^3\text{/rev]} \bullet \text{Pressure [bar]}}{57.2}$$

### Hydraulic fluids

| Type | Fluid composition | Max. working pressure [bar] | Max. speed [$min^{-1}$] | Temperature | Seal |
|---|---|---|---|---|---|
| Hydraulic fluid | Mineral oil based on hydraulic fluid acc. to ISO/DIN | See table drawings | See table drawings | -15 ... +80°C<br>-15 ... +120°C | NBR<br>FPM |
| HFB | Water-in-oil emulsion 40/60 | 140 | 1500 | +2 ... +65°C | NBR |
| HFC | Water-glycol 40/60 | 140 | 1500 | -15 ... +65°C | NBR |
| HFD | Phosphate ester | 140 | 1500 | -10 ... +80°C | FPM |

### Flanges for suction and discharge ports

Please refer to Parker leaflet 4039-1/UK.

# Hydraulics Group Sales Offices

## Europe

***Austria***
*Wiener Neustadt*
Tel: +43 (0)2622 23501
Fax: +43 (0)2622 66212

***Belgium***
***Nivelles***
Tel: +32 (0)67 280 900
Fax: +32 (0)67 280 999

***Czech Republic***
***Prague***
Tel: +420 2 830 85 224
Fax: +420 2 830 85 360

***Denmark***
***Ballerup***
Tel: +45 4356 0400
Fax: +45 4373 8431

***Finland***
***Vantaa***
Tel: +358 (0)9 4767 31
Fax: +358 (0)9 4767 3200

***France***
***Contamine-sur-Arve***
Tel: +33 (0)450 25 80 25
Fax: +33 (0)450 03 67 37

***Germany***
***Kaarst***
Tel: +49 (0)2131 4016 0
Fax: +49 (0)2131 4016 9199

***Hungary***
***Budapest***
Tel: +36 (06)1 220 4155
Fax: +36 (06)1 422 1525

***Ireland***
***Dublin***
Tel: +353 (0)1 293 9999
Fax: +353 (0)1 293 9900

***Italy***
***Corsico (MI)***
Tel: +39 02 45 19 21
Fax: +39 02 4 47 93 40

***The Netherlands***
***Oldenzaal***
Tel: +31 (0)541 585000
Fax: +31 (0)541 585459

***Norway***
***Ski***
Tel: +47 64 91 10 00
Fax: +47 64 91 10 90

***Poland***
***Warsaw***
Tel: +48 (0)22 863 49 42
Fax: +48 (0)22 863 49 44

***Portugal***
***Leca da Palmeira***
Tel: +351 22 9997 360
Fax: +351 22 9961 527

***Slovakia***
*Ref. Czech Republic*

***Spain***
***Madrid***
Tel: +34 91 675 73 00
Fax: +34 91 675 77 11

***Sweden***
***Spånga***
Tel: +46 (0)8 597 950 00
Fax: +46 (0)8 597 951 10

***United Kingdom***
***Warwick***
Tel: +44 (0)1926 317 878
Fax: +44 (0)1926 317 855

## International

***Australia***
***Castle Hill***
Tel: +61 (0)2-9634 7777
Fax: +61 (0)2-9899 6184

***Canada***
***Milton, Ontario***
Tel: +1 905-693-3000
Fax: +1 905-876-0788

***China***
***Beijing***
Tel: +86 10 6561 0520
Fax: +86 10 6561 0526

***Asia Pacific Group***
***Hong Kong, Kowloon***
Tel: +852 2428 8008
Fax: +852 2425 6896

***India***
***Mumbai***
Tel: +91 22 7907081
Fax: +91 22 7907080

***Japan***
***Tokyo***
Tel: +(81) 3 6408 3900
Fax: +(81) 3 5449 7201

***Latin America Group***
***Brazil***
Tel: +55 12 3954-5100
Fax: +55 12 3954-5266

***South Africa***
***Kempton Park***
Tel: +27 (0)11-961 0700
Fax: +27 (0)11-392 7213

***USA***
***Cleveland (industrial)***
Tel: +1 216-896-3000
Fax: +1 216-896-4031
***Lincolnshire (mobile)***
Tel: +1 847-821-1500
Fax: +1 847-821-7600

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