

HYDRAULIC GEAR
PUMPS AND
MOTORS

POLARIS[®]

HOW TO ORDER POLARIS 20 SINGLE UNITS

PLPM20.6,3 R 0 82 E2 L GD/GD N EL - - - -
 1 2 3 4 5 6 7 8 9 10 11 12 13
- - PLP-20-4 - - L - - - 0 - - - - 82 - - - E2 - - - L - - EA/EA - - - N - - - - EL - - - C - - - - GB - - - - FS - - -

| 1 | Type | Pump type | Motor type |
|---|--|--------------------|--------------------|
| | 0.30 in ³ /rev (4,95 cm ³ /rev) | PLP 20-4 | PLM 20-4 |
| | 0.40 in³/rev (6,61 cm³/rev) | PLP 20-6,3 | PLM 20-6,3 |
| | 0.44 in ³ /rev (7,29 cm ³ /rev) | PLP 20-7,2 | PLM 20-7,2 |
| | 0.50 in ³ /rev (8,26 cm ³ /rev) | PLP 20-8 | PLM 20-8 |
| | 0.56 in ³ /rev (9,17 cm ³ /rev) | PLP 20-9 | PLM 20-9 |
| | 0.66 in ³ /rev (10,9 cm ³ /rev) | PLP 20-10,5 | PLM 20-10,5 |
| | 0.69 in ³ /rev (11,23 cm ³ /rev) | PLP 20-11,2 | PLM 20-11,2 |
| | 0.89 in ³ /rev (14,53 cm ³ /rev) | PLP 20-14 | PLM 20-14 |
| | 1.03 in ³ /rev (16,85 cm ³ /rev) | PLP 20-16 | PLM 20-16 |
| | 1.16 in ³ /rev (19,09 cm ³ /rev) | PLP 20-19 | PLM 20-19 |
| | 1.29 in ³ /rev (21,14 cm ³ /rev) | PLP 20-20 | PLM 20-20 |
| | 1.52 in ³ /rev (24,84 cm ³ /rev) | PLP 20-24,5 | PLM 20-24,5 |
| | 1.61 in ³ /rev (26,42 cm ³ /rev) | PLP 20-25 | PLM 20-25 |
| | 1.72 in ³ /rev (28,21 cm ³ /rev) | PLP 20-27,8 | PLM 20-27,8 |
| | 2.01 in ³ /rev (33,03 cm ³ /rev) | PLP 20-31,5 | PLM 20-31,5 |

| 2 | Rotation | Code |
|---|---------------------------------------|----------|
| | Left | S |
| | Right | D |
| | Reversible rear external drain | R |
| | Reversible side external drain | L |
| | Reversible internal drain | B |

| 3 | Version | Code |
|---|---------------------------------|-----------|
| | Without outboard bearing | 0 |
| | With outboard bearing | W8 |
| | With outboard bearing | 4 |
| | With outboard bearing | 5 |
| | With outboard bearing | 6 |
| | With outboard bearing | 7 |
| | With outboard bearing | 8 |
| | With outboard bearing | 9 |

| 4 | Drive shaft | Code |
|---|-----------------------------|-----------|
| | European tapered 1:8 | 82 |
| | German tapered 1:5 | 54 |
| | German tapered 1:5 | 55 |
| | Straight | 46 |
| | SAE "A" spline (9 teeth) | 03 |
| | SAE spline (10 teeth) | 01 |
| | SAE "A" spline (11 teeth) | 07 |
| | SAE "A" straight | 31 |

| Code | Drive shaft | 4 |
|-----------|-------------------------------|---|
| 49 | Straight | |
| 50 | Straight | |
| 04 | SAE "B" spline | |
| 32 | SAE "B" straight | |
| 12 | DIN 54 82 | |
| 48 | Straight (only for version 6) | |
| B1 | Straight (only for version 8) | |
| 95 | Tang | |

| Code | Mounting flange | 5 |
|-----------|-----------------|---|
| E2 | European | |
| B2 | German | |
| B4 | German 2 bolt | |
| B5 | German 2 bolt | |
| B6 | German 4 bolt | |
| S1 | SAE "A" 2 bolt | |
| S2 | SAE "A" 2 bolt | |
| S9 | SAE "A" 2 bolt | |
| S5 | SAE "B" 2 bolt | |
| W8 | German | |

| Code | Ports position | 6 |
|----------|----------------|---|
| L | Side | |
| P | Rear | |

| Code | Ports IN/OUT | 7 |
|-------------------------------|--------------|----------------------------------|
| GERMAN FLANGED PORTS | | |
| Side | Rear | Type |
| BE/BC | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| BC/BE | PLM 20 | 14-16-19-20-24,5-25 27,8-31,5 |
| EUROPEAN FLANGED PORTS | | |
| Side | Rear | Type |
| EA/EA | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| | PLM 20 | |
| EB/EA | PLP 20 | 14-16-19-20-24,5-25 |
| EA/EB | PLM 20 | 27,8-31,5 |

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HOW TO ORDER POLARIS 20 SINGLE UNITS

Replaces: 01/10.03

| 7 | Ports IN/OUT | Code |
|---|---------------|--------------|
| SAE FLANGED PORTS (SSM) | | |
| Type | Side | Rear |
| 4-6,3-7,2-8-9-10,5-11,2 | PLP 20 | MA/MA |
| | PLM 20 | MA/MA |
| 14-16-19-20 | PLP 20 | MB/MA |
| | PLM 20 | MA/MB |
| 24,5-25-27,8-31,5 | PLP 20 | MC/MB |
| | PLM 20 | MB/MC |
| SAE FLANGED PORTS (SSS) | | |
| Type | Side | Rear |
| 4-6,3-7,2-8-9-10,5-11,2 | PLP 20 | SA/SA |
| | PLM 20 | SA/SA |
| 14-16-19-20 | PLP 20 | SB/SA |
| | PLM 20 | SA/SB |
| 24,5-25-27,8-31,5 | PLP 20 | SC/SB |
| | PLM 20 | SB/SC |
| GAS STRAIGHT THREAD PORTS (BSPP) | | |
| Type | Side | Rear |
| 4-6,3-7,2-8-9 10,5-11,2 | PLP 20 | GD/GD |
| | PLM 20 | GD/GD |
| 14-16-19-20-24,5-25 27,8-31,5 | PLP 20 | GE/GD |
| | PLM 20 | GD/GE |
| SAE STRAIGHT THREAD PORTS (ODT) | | |
| Type | Side | Rear |
| 4-6,3-7,2-8-9-10,5-11,2 | PLP 20 | OC/OC |
| | PLM 20 | OC/OC |
| 14-16-19-20-24,5-25 27,8-31,5 | PLP 20 | OD/OC |
| | PLM 20 | OC/OD |

| 8 | Seals (a) | Code |
|---|------------------------|----------|
| | Buna (standard) | N |
| | Viton | V |

| 9 | Cover options (b) | Code |
|---|---|-----------|
| | Cast iron mounting flange and rear cover (standard - no code) | |
| | Aluminium mounting flange and cast iron rear cover | E |
| | Cast iron mounting flange and aluminium rear cover | L |
| | Aluminium mounting flange and rear cover | EL |

| 10 | Shaft seal options | Code |
|----|---|----------|
| | High back pressure seal with wiper seal | C |
| | Standard seal with wiper seal | D |
| | High back pressure seal | H |

| Code | Drain port position - Rev. rotation L | 11 |
|----------|---------------------------------------|----|
| L | Side drain with side port position | |
| * | Side drain with bottom port position | |

| Code | Drain port | 12 |
|------------------------------------|------------|-------------------------|
| IN/OUT GERMAN FLANGED PORTS | | |
| Side | Rear | Type |
| TA | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| | PLM 20 | 24,5-25-27,8-31,5 |

| IN/OUT EUROPEAN FLANGED PORTS | | |
|-------------------------------|--------|-------------------------|
| Side | Rear | Type |
| GB | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| | PLM 20 | 24,5-25-27,8-31,5 |

| IN/OUT SAE FLANGED PORTS (SSM) | | |
|--------------------------------|--------|-------------------------|
| Side | Rear | Type |
| GB | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| | PLM20 | 24,5-25-27,8-31,5 |

| IN/OUT SAE FLANGED PORTS (SSS) | | |
|--------------------------------|--------|-------------------------|
| Side | Rear | Type |
| 03 | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| | PLM 20 | 24,5-25-27,8-31,5 |

| IN/OUT GAS STRAIGHT THREAD PORTS (BSPP) | | |
|---|--------|-------------------------|
| Side | Rear | Type |
| GB | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| | PLM 20 | 24,5-25-27,8-31,5 |

| IN/OUT SAE STRAIGHT THREAD PORTS (ODT) | | |
|--|--------|-------------------------|
| Side | Rear | Type |
| 03 | PLP 20 | 4-6,3-7,2-8-9-10,5-11,2 |
| | PLM 20 | 24,5-25-27,8-31,5 |

| Code | Shaft arrangement | 13 |
|-----------|-------------------|----|
| FS | Female spline | |

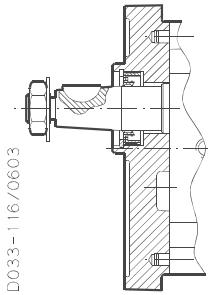
- (a) Choose the seals according to the temperature shown on page 4.
- (b) Mounting flange material on page 61 ÷ 65
Rear cover material on page 34 ÷ 35

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VERSIONS

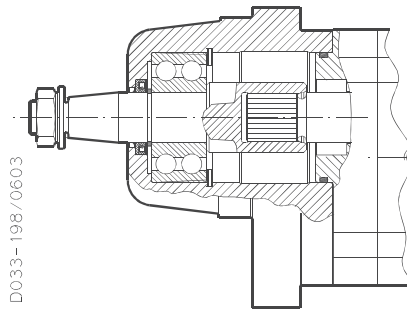
For each version, the possible combination between drive shafts and mounting flanges are shown on pages 58 ÷ 68.

| | | | |
|----------------------|-----------|-----------|----------|
| VERSION | | | 0 |
| Available for group: | | | |
| 10 | 20 | 30 | |

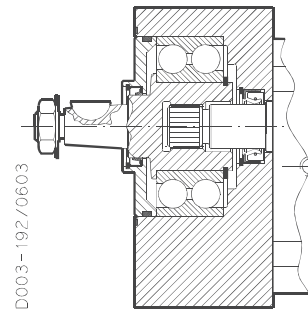


Version for applications without radial and axial load on the drive shaft.

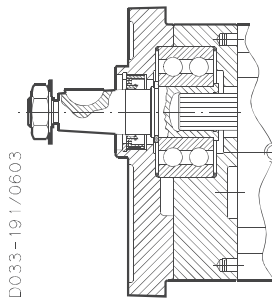
| | | |
|----------------------|--|-----------|
| VERSION | | W8 |
| Available for group: | | |
| 20 | | |



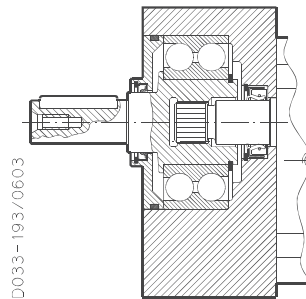
| | | |
|----------------------|--|----------|
| VERSION | | 4 |
| Available for group: | | |
| 20 | | |



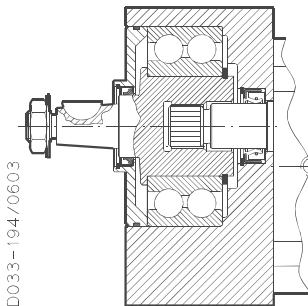
| | | |
|----------------------|--|----------|
| VERSION | | 5 |
| Available for group: | | |
| 20 | | |



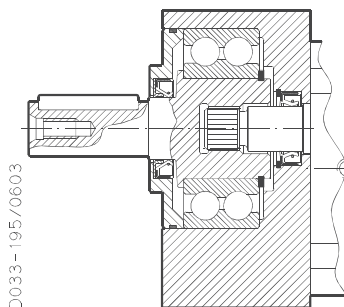
| | | |
|----------------------|--|----------|
| VERSION | | 6 |
| Available for group: | | |
| 20 | | |



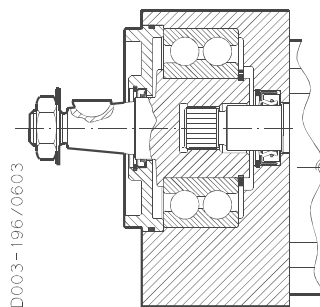
| | | |
|----------------------|--|----------|
| VERSION | | 7 |
| Available for group: | | |
| 20 | | |



| | | |
|----------------------|--|----------|
| VERSION | | 8 |
| Available for group: | | |
| 20 | | |



| | | |
|----------------------|--|----------|
| VERSION | | 9 |
| Available for group: | | |
| 20 | | |



01/10.03

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

POLARIS 20

DRIVE SHAFTS

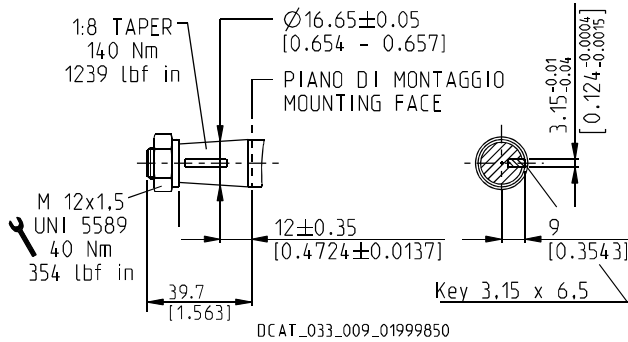
EUROPEAN TAPERED 1:8

82

Not available with size:

20•10,5 20•24,5 20•27,8

Mounting face refer to flange code **E2**



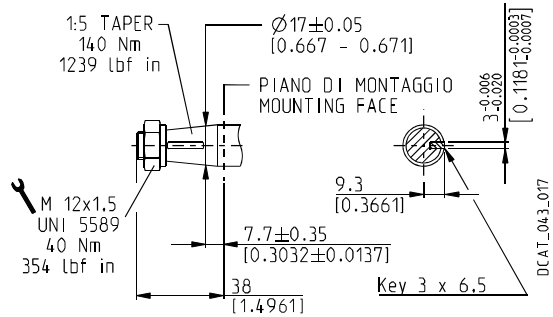
GERMAN TAPERED 1:5

54

Not available with size:

20•7,2 20•10,5 20•19 20•24,5 20•27,8 20•31,5

Mounting face refer to flange code **B2**

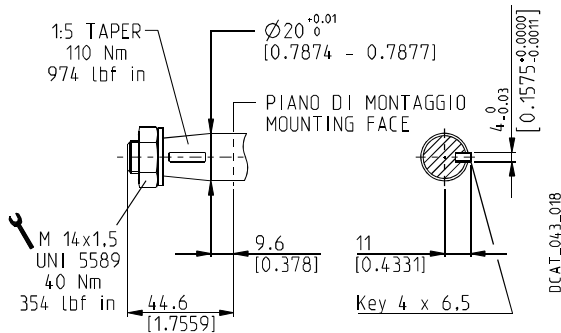


GERMAN TAPERED 1:5

55

Only for version **5, 9** and **W8** with outboard bearing

Mounting face refer to flange code **B2**



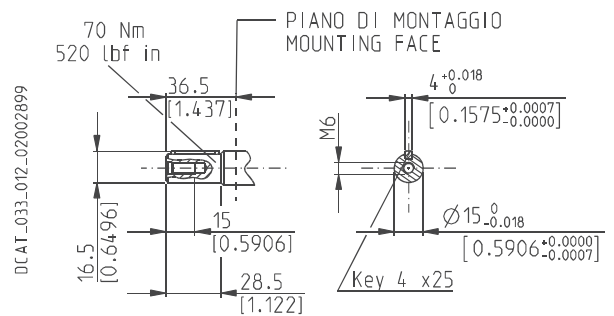
STRAIGHT

46

Not available with size:

20•7,2 20•10,5 20•19 20•24,5 20•25 20•27,8 20•31,5

Mounting face refer to flange code **E2**



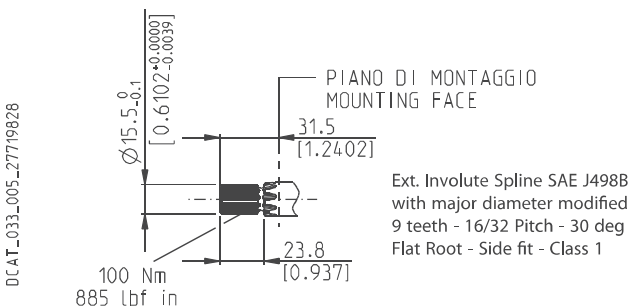
SAE "A" SPLINE

03

Not available with size:

20•24,5 20•27,8

Mounting face refer to flange code **S1**



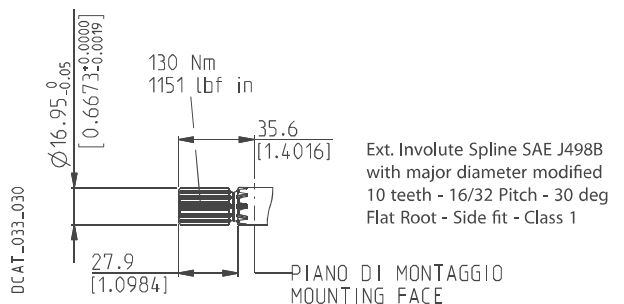
SPLINE

01

Not available with size:

20•6,3 20•9 20•10,5 20•19

Mounting face refer to flange code **S1**



01/10.03

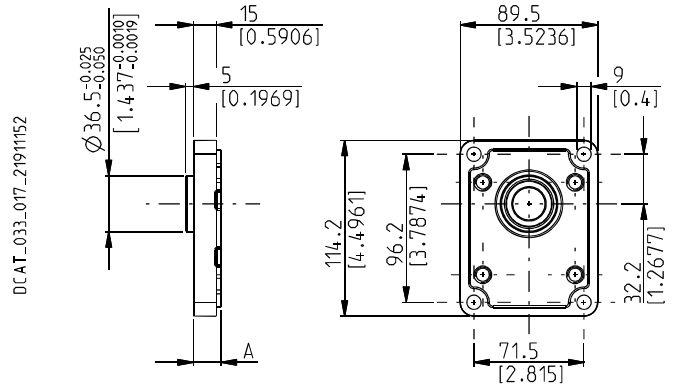
POLARIS 20

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

EUROPEAN

E2

Material: cast iron and aluminium



DRIVE SHAFTS

See page 53 ÷ 55

| VERSIONS See page 47 | A mm (in) | 82 | 46 | B1 | 03 | 04 | 07 | 12 | 31 | 48 | 49 | 50 | 54 |
|-------------------------|---------------|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 18 (0.7087) | # | # | | X | X | X | X | X | X | X | X | X |
| 4 | 55,4 (2.1811) | # | | | | | | | | | | | |
| 5 | 43,6 (1.7165) | # | | X | X | | | | | | X | X | X |
| 6 | 55,4 (2.1811) | | | | | | | | | # | | | |
| 7 | 59,4 (2.3386) | # | | | | | | | | | | | |
| 8 | 59,4 (2.3386) | | | # | | | | | | | | | |

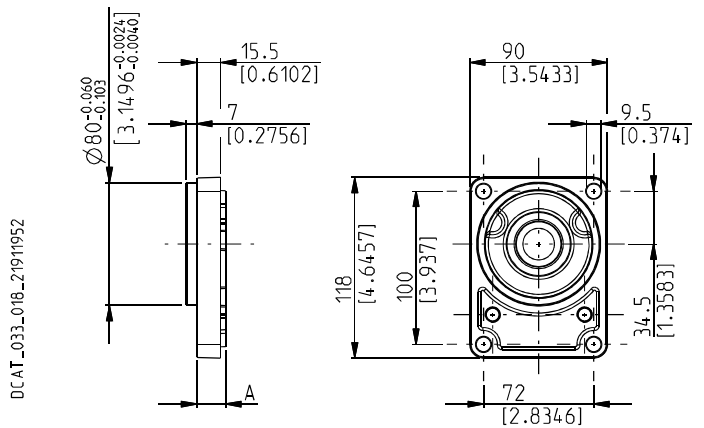
Standard combination

X Available combination

GERMAN

B2

Material: cast iron and aluminium



DRIVE SHAFTS

See page 53 ÷ 55

| VERSIONS See page 47 | A mm (in) | 12 | 54 | 55 | 01 | 03 | 31 | 46 | 49 | 82 |
|-------------------------|---------------|----|----|----|----|----|----|----|----|----|
| 0 | 18,8 (0.7402) | # | # | | X | X | X | X | X | X |
| 5 | 44,4 (1.7480) | | X | X | | X | | | X | X |
| 9 | 59,4 (1.7441) | | | X | | | | | | |


Standard combination


X Available combination

Replaces: 01/10.03

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PORTS SIZES

 Tightening torque for low pressure side port

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

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

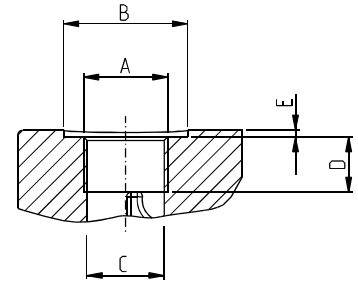
Replaces: 01/10.03





GAS STRAIGHT THREAD PORTS

BSPP

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

DCAT_006_026_21064779



| CODE | Nominal size | A | Ø B | Ø C | D | E |  |  |
|---|--------------|---------|--------------------|------------------|--------------------------------------|-------------------|---|---|
| | | | mm (in) | mm (in) | mm (in) | mm (in) | Nm (lbf in) | Nm (lbf in) |
| GC  | 3/8" | G 3/8 | 30 (#) (1.1811) | 15 (0.5906) | 10 (#) (0.3937) 14 (0.5512) | 2 (#) (0.0787) | 15 ⁺¹ (#) (133 ÷ 142) 15 ⁺¹ (133 ÷ 142) | — 25 ⁺¹ (221 ÷ 230) |
| GD  | 1/2" | G 1/2 | — | 19 (0.7480) | 14 (0.5512) 17 (◆) (0.6693) | — | 20 ⁺¹ (177 ÷ 186) | 50 ^{+2.5} (443 ÷ 465) |
| GE | 3/4" | G 3/4 | — | 24,5 (0.9646) | 18 (0.7087) | — | 30 ^{+2.5} (266 ÷ 288) | 90 ⁺⁵ (797 ÷ 841) |
| GF | 1" | G 1 | — | 30,5 (1.2008) | 18 (0.7086) | — | 50 ^{+2.5} (443 ÷ 465) | 130 ⁺¹⁰ (1151 ÷ 1239) |
| GG | 1" 1/4 | G 1 1/4 | — | 39 (1.5354) | 22 (0.8661) | — | 60 ⁺⁵ (531 ÷ 575) | 170 ⁺¹⁰ (1505 ÷ 1593) |
| GH | 1" 1/2 | G 1 1/2 | — | 45 (1.7716) | 24 (0.9448) | — | 70 ⁺⁵ (620 ÷ 664) | 210 ⁺¹⁵ (1859 ÷ 1992) |

(#) = Drain port

(◆) For POLARIS 20

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