

HOW TO ORDER - SINGLE UNITS

PHP20.14 D 0 82 E2 L EA/EA N EL - - - FS
 1 2 3 4 5 6 7 8 9 10 11 12 13

--PHP 20•19--L--0--82--E2--L--EB/EA--N--EL--D--*--GB--FS--

| 1 | Type | Pump type | Motor type |
|---|-------------------------------------|--------------------|--------------------|
| | 8,26 cm³/rev (0.50 in³/rev) | PHP 20•8 | PHM 20•8 |
| | 10,9 cm³/rev (0.66 in³/rev) | PHP 20•10,5 | PHM 20•10,5 |
| | 11,23 cm³/rev (0.68 in³/rev) | PHP 20•11,2 | PHM 20•11,2 |
| | 14,53 cm³/rev (0.88 in³/rev) | PHP 20•14 | PHM 20•14 |
| | 16,85 cm³/rev (1.02 in³/rev) | PHP 20•16 | PHM 20•16 |
| | 18,29 cm³/rev (1.11 in³/rev) | PHP 20•18 | PHM 20•18 |
| | 19,09 cm³/rev (1.16 in³/rev) | PHP 20•19 | PHM 20•19 |
| | 21,14 cm³/rev (1.29 in³/rev) | PHP 20•20 | PHM 20•20 |
| | 23,32 cm³/rev (1.42 in³/rev) | PHP 20•23 | PHM 20•23 |
| | 24,84 cm³/rev (1.52 in³/rev) | PHP 20•24,5 | PHM 20•24,5 |
| | 26,42 cm³/rev (1.61 in³/rev) | PHP 20•25 | PHM 20•25 |
| | 28,21 cm³/rev (1.72 in³/rev) | PHP 20•27,8 | PHM 20•27,8 |
| | 33,03 cm³/rev (2.01 in³/rev) | PHP 20•31,5 | PHM 20•31,5 |

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

| 3 | Outboard bearing options | Code |
|---|---------------------------------|-----------|
| | Without outboard bearing | 0 |
| | Version | W8 |
| | Version | 4 |
| | Version | 5 |
| | Version | 6 |
| | Version | 7 |
| | Version | 8 |
| | Version | 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 |
| | Straight | 49 |
| | Straight | 50 |

| Code | Drive shaft | 4 |
|-----------|-------------------------------|---|
| 04 | SAE "B" spline | |
| 32 | SAE "B" straight | |
| 12 | DIN 54 82 spline | |
| 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 | |
| S9 | SAE "A" 2 bolt | |
| S5 | SAE "B" 2 bolt | |
| W8 | German | |

| Code | Ports position | 6 |
|----------|--------------------|----------|
| L | IN/OUT side | |
| H | IN side / OUT rear | 0 |
| K | IN rear / OUT side | 0 |
| P | Rear | |

| Code | Ports IN/OUT | 7 |
|--------------------------------|---------------|------------------------------------|
| GERMAN FLANGED PORTS | | |
| Side | Rear | Type 0 |
| BE/BC | PHP 20 | 8-10,5-11,2,14-16-18-19-20-23-24,5 |
| BC/BE | PHM 20 | 25-27,8-31,5 |
| EUROPEAN FLANGED PORTS | | |
| Side | Rear | Type 0 |
| EA/EA | PHP 20 | 8-10,5-11,2 |
| EA/EA | PHM 20 | |
| EB/EA | PHP 20 | 14-16-18-19-20 |
| EA/EB | PHM 20 | 23-24,5-25-27,8-31,5 |
| SAE FLANGED PORTS (SSM) | | |
| Side | Rear | Type 0 |
| MA/MA | PHP 20 | 8-10,5-11,2 |
| MA/MA | PHM 20 | |
| MB/MA | PHP 20 | 14-16-18-19-20 |
| MA/MB | PHM 20 | |
| MC/MB | PHP 20 | 23-24,5-25-27,8-31,5 |
| MB/MC | PHM 20 | |

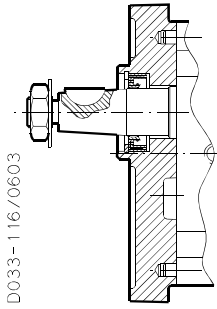
Replaces: 01/06.2009

04/01.2019

OUTBOARD BEARING OPTIONS

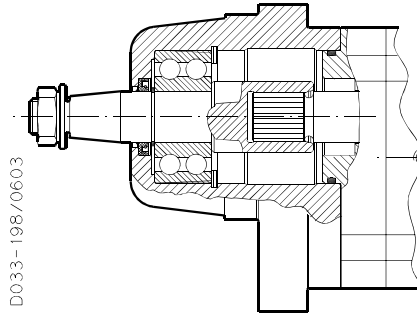
For each version, the possible combination between drive shafts and mounting flanges are shown on pages 34 ÷ 37.
For the outboard bearing life expectancy, diagrams providing approximate selection data will be found on subsequent pages.
For particular applications please consult our pre-sales department.

VERSION 0

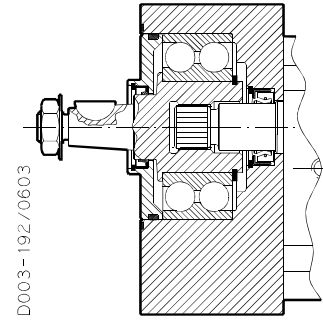


Version for applications without radial and axial load on the drive shaft.

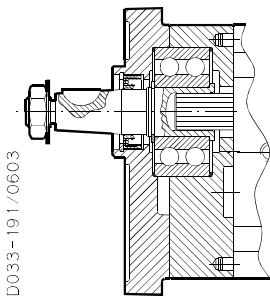
VERSION W8



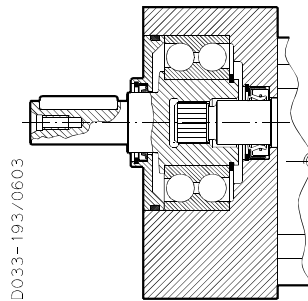
VERSION 4



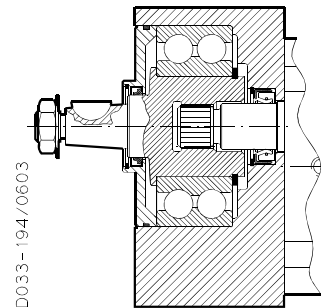
VERSION 5



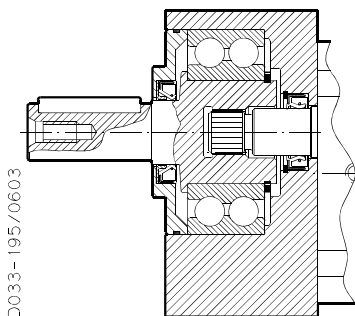
VERSION 6



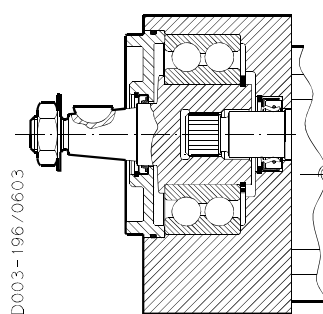
VERSION 7



VERSION 8



VERSION 9



DRIVE SHAFTS

EUROPEAN TAPERED 1:8

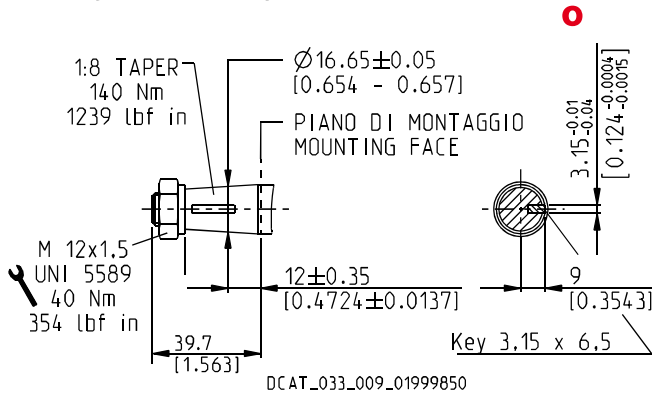
82

Not available with size:

20•24,5

Mounting face refer to flange code E2

Replaces: 02/06.2010



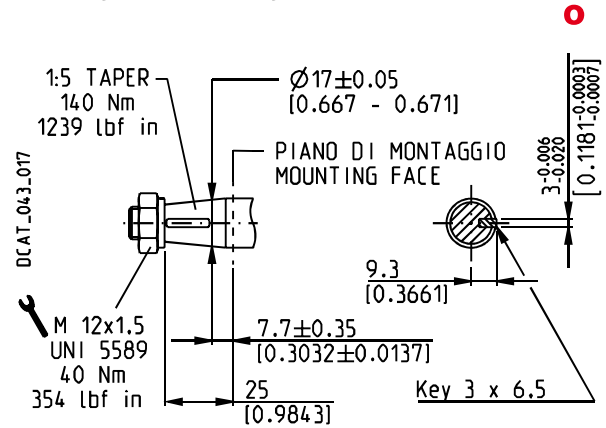
GERMAN TAPERED 1:5

54

Not available with size:

20•24,5

Mounting face refer to flange code B2

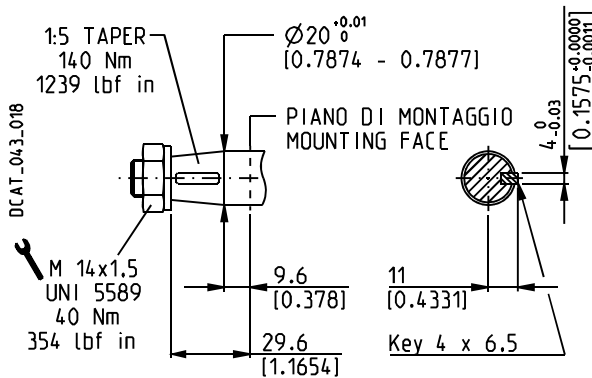


GERMAN TAPERED 1:5

55

Only for version 5, 9 and W8 with outboard bearing

Mounting face refer to flange code B2



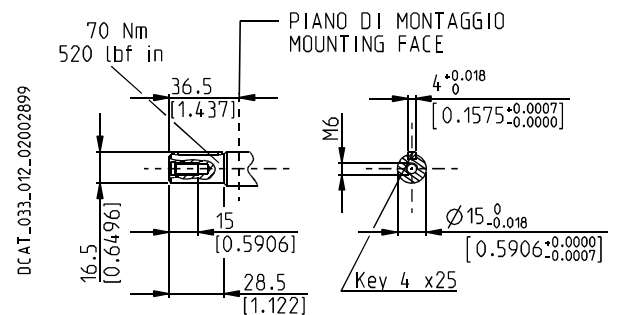
STRAIGHT

46

Not available with size:

20•10,5 - 20•18 - 20•19 - 20•23 - 20•24,5 - 20•27,8

Mounting face refer to flange code E2

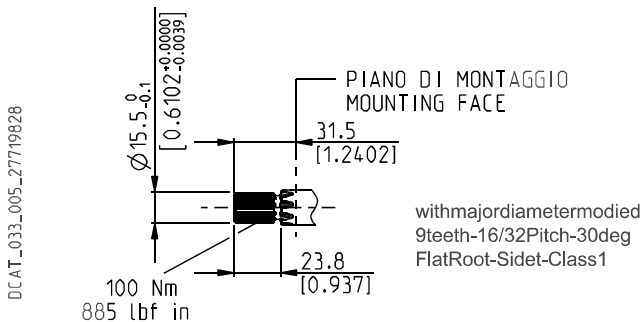


SAE "A" SPLINE

03

Mounting face refer to flange code S9

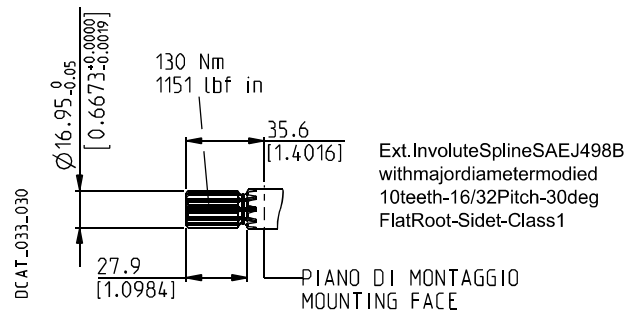
04/01.2019



SPLINE

01

Mounting face refer to flange code S9

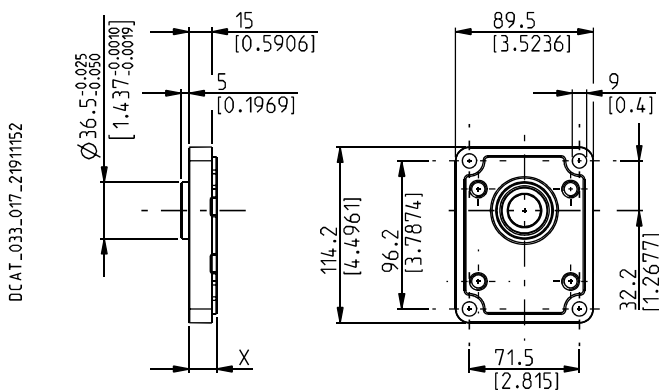


MOUNTING FLANGES AND TABLE OF COMPATIBILITY

EUROPEAN

E2

Material: cast iron and aluminium



DRIVE SHAFTS

See page 31 ÷ 33

| VERSIONS See page 26 | X mm (in) | 82 | 46 | B1 | 03 | 04 | 07 | 12 | 31 | 48 | 49 | 50 | 54 |
|-------------------------|--------------|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 18 (0.71) | # | # | | X | X | X | X | X | X | X | X | X |
| 4 | 55,4 (2.18) | # | | | | | | | | | | | |
| 5 | 43,6 (1.72) | # | | X | X | | | | | | X | X | X |
| 6 | 55,4 (2.18) | | | | | | | | | # | | | |
| 7 | 59,4 (2.34) | # | | | | | | | | | | | |
| 8 | 59,4 (2.34) | | | # | | | | | | | | | |

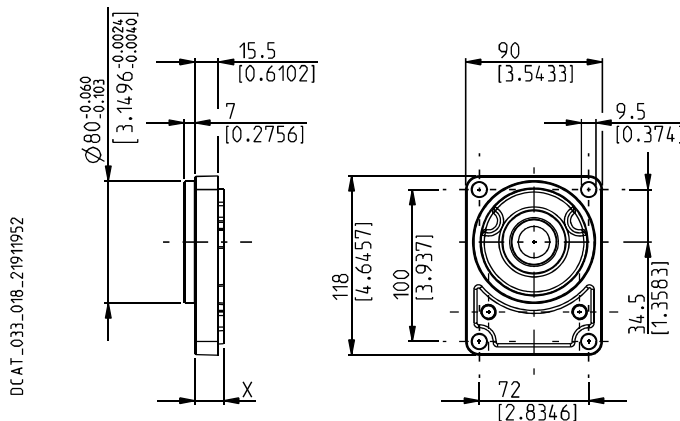
Standard combination

X Available combination

GERMAN

B2

Material: cast iron and aluminium



DRIVE SHAFTS

See page 31 ÷ 33

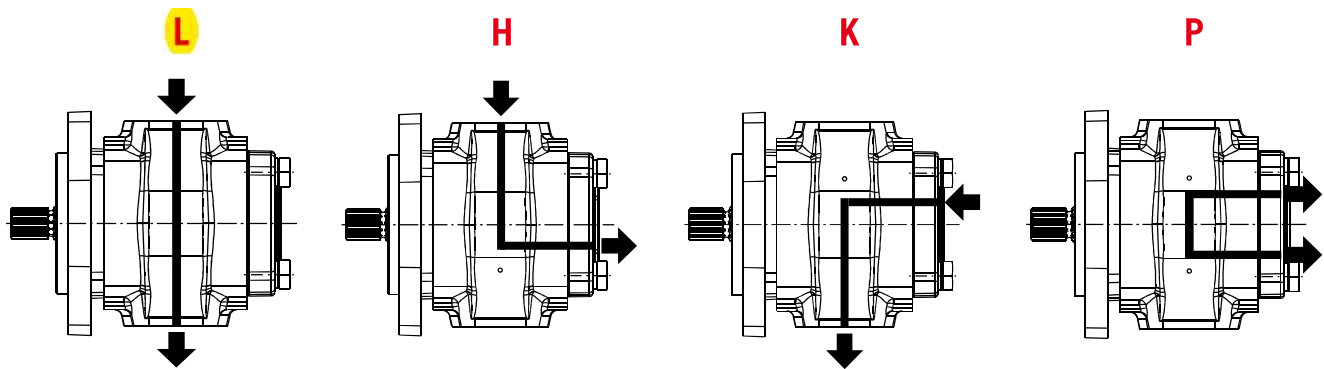
| VERSIONS See page 26 | X mm (in) | 12 | 54 | 55 | 01 | 03 | 31 | 46 | 49 | 82 |
|-------------------------|--------------|----|----|----|----|----|----|----|----|----|
| 0 | 18,8 (0.74) | # | # | | X | X | X | X | X | X |
| 5 | 44,4 (1.75) | | X | X | | X | | | X | X |
| 9 | 59,4 (2.34) | | | X | | | | | | |

Standard combination

X Available combination

01/06.2009

PORTS POSITION AND TYPE



Replaces: 01/06.2009

| PORTS TYPE | SIDE PORTS | | | | | | | | | | | | REAR PORTS | | | |
|----------------------|------------|-----|-----------|-----|-----------|-----|----------|-----|---------|-----|--------|-----|------------|-----|---------|-----|
| | European | | Split SSM | | Split SSS | | Gas BSPP | | SAE ODT | | German | | Gas BSPP | | SAE ODT | |
| Pump type | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT |
| Motor type | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN | OUT | IN |
| PHP 20•8 ○ | EA | EA | MA | MA | SA | SA | GD | GD | OC | OC | BE | BC | GD | GD | OC | OC |
| PHP 20•10,5 ○ | EA | EA | MA | MA | SA | SA | GD | GD | OC | OC | BE | BC | GD | GD | OC | OC |
| PHP 20•11,2 ○ | EA | EA | MA | MA | SA | SA | GD | GD | OC | OC | BE | BC | GD | GD | OC | OC |
| PHP 20•14 ○ | EB | EA | MB | MA | SB | SA | GE | GD | OD | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•16 ○ | EB | EA | MB | MA | SB | SA | GE | GD | OD | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•18 ○ | EB | EA | MB | MA | SB | SA | GE | GD | OD | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•19 | EB | EA | MB | MA | SB | SA | GE | GD | OD | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•20 | EB | EA | MB | MA | SB | SA | GE | GD | OD | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•23 | EB | EA | MC | MB | SC | SB | GF | GD | OF | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•24,5 | EB | EA | MC | MB | SC | SB | GF | GD | OF | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•25 | EB | EA | MC | MB | SC | SB | GF | GD | OF | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•27,8 | EB | EA | MC | MB | SC | SB | GF | GD | OF | OC | BE | BC | GE | GD | OD | OC |
| PHP 20•31,5 | EB | EA | MC | MB | SC | SB | GF | GD | OF | OC | BE | BC | GE | GD | OD | OC |

Different inlet and outlet ports are available.
For more information please consult our pre-sales department.


EXTERNAL DRAIN PORTS


| IN/OUT PORTS TYPE | SIDE PORTS | | | | | | REAR PORTS | |
|-------------------|------------|----------|-----------|-----------|----------|---------|------------|---------|
| | German | European | Split SSM | Split SSS | Gas BSPP | SAE ODT | Gas BSPP | SAE ODT |
| PHP 20 | TA | GB | GB | 03 | GB | 03 | GB | 03 |

Dimensions on page 42

○ 04/01.2019

PORT SIZES

 Tightening torque for low pressure side port.



 Tightening torque for high pressure side port.

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

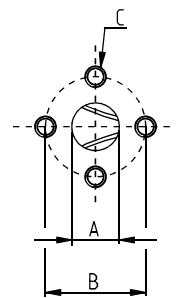
EUROPEAN FLANGED PORTS - 4 Bolts

EUROPEAN

Metric thread ISO 60° conforms to ISO/R 262

| CODE | A | B | C |  |  |
|-----------|--------------|--------------|-------------------------|---|---|
| | mm (in) | mm (in) | Thread Depth mm (in) | Nm (lbf in) | Nm (lbf in) |
| EA | 13 (0.51) | 30 (1.18) | M 6 13 (0.51) | 8 ^{0,5} (71 ÷ 75) | 8 ^{0,5} (71 ÷ 75) |
| EB | 19 (0.75) | 40 (1.57) | M 8, 14 (0.55) | 15 ⁺¹ (133 ÷ 142) | 20 ⁺¹ (177 ÷ 186) |

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SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI

SSM

Metric thread ISO 60° conforms to ISO/R 262

01/06.2009

| CODE | A | B | C | D |  |  |
|-----------|----------------|----------------|----------------|-------------------------|---|---|
| | mm (in) | mm (in) | mm (in) | Thread Depth mm (in) | Nm (lbf in) | Nm (lbf in) |
| MA | 12,5 (0.49) | 38,1 (1.50) | 17,5 (0.69) | M 8 14 (0.55) | 15 ⁺¹ (133 ÷ 142) | 15 ⁺¹ (133 ÷ 142) |
| MB | 19 (0.75) | 47,6 (1.87) | 22,2 (0.87) | M 10 14 (0.55) | 20 ⁺¹ (177 ÷ 186) | 25 ⁺¹ (266 ÷ 288) |
| MC | 25,4 (1.00) | 52,4 (2.06) | 26,2 (1.03) | M 10 14 (0.55) | 20 ⁺¹ (177 ÷ 186) | 25 ⁺¹ (266 ÷ 288) |

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