

HYDRAULIC GEAR  
PUMPS AND  
MOTORS

**POLARIS**<sup>®</sup>

## HOW TO ORDER POLARIS 10 SINGLE UNITS

**PLP10.3,15**   **D**   **0**   **81**   **E1**   **L**   **BB/BA**   **N**   **EL**   **-**   **-**   **-**   **FS**  
 1   2   3   4   5   6   7   8   9   10   11   12   13

--- PLP 10-1 --- L --- 0 --- 81 --- E1 --- L --- BB/BA --- N --- EL --- C --- L --- GA --- FS ---

1	Type	Pump type	Motor type
	0.07 in <sup>3</sup> /rev (1,07 cm <sup>3</sup> /rev)	<b>PLP 10-1</b>	<b>PLM 10-1</b>
	0.10 in <sup>3</sup> /rev (1,60 cm <sup>3</sup> /rev)	<b>PLP 10-1,5</b>	<b>PLM 10-1,5</b>
	0.13 in <sup>3</sup> /rev (2,13 cm <sup>3</sup> /rev)	<b>PLP 10-2</b>	<b>PLM 10-2</b>
	0.16 in <sup>3</sup> /rev (2,67 cm <sup>3</sup> /rev)	<b>PLP 10-2,5</b>	<b>PLM 10-2,5</b>
	<b>0.20 in<sup>3</sup>/rev (3,34 cm<sup>3</sup>/rev)</b>	<b>PLP 10-3,15</b>	<b>PLM 10-3,15</b>
	0.26 in <sup>3</sup> /rev (4,27 cm <sup>3</sup> /rev)	<b>PLP 10-4</b>	<b>PLM 10-4</b>
	0.33 in <sup>3</sup> /rev (5,34 cm <sup>3</sup> /rev)	<b>PLP 10-5</b>	<b>PLM 10-5</b>
	0.38 in <sup>3</sup> /rev (6,20 cm <sup>3</sup> /rev)	<b>PLP 10-5,8</b>	<b>PLM 10-5,8</b>
	0.41 in <sup>3</sup> /rev (6,67 cm <sup>3</sup> /rev)	<b>PLP 10-6,3</b>	<b>PLM 10-6,3</b>
	0.52 in <sup>3</sup> /rev (8,51 cm <sup>3</sup> /rev)	<b>PLP 10-8</b>	<b>PLM 10-8</b>
	0.65 in <sup>3</sup> /rev (10,67 cm <sup>3</sup> /rev)	<b>PLP 10-10</b>	<b>PLM 10-10</b>

2	Rotation	Code
	Left	<b>S</b>
	<b>Right</b>	<b>D</b>
	Reversible rear external drain	<b>R</b>
	Reversible side external drain	<b>L</b>
	Reversible internal drain	<b>B</b>

3	Version	Code
	<b>Without outboard bearing</b>	<b>0</b>

4	Drive shaft	Code
	<b>European tapered 1:8</b>	<b>81</b>
	European tapered 1:8	<b>86</b>
	SAE "AA" spline (9 teeth)	<b>02</b>
	SAE "AA" straight	<b>30</b>
	SAE straight	<b>36</b>
	Straight	<b>29</b>

5	Mounting flange	Code
	<b>European</b>	<b>E1</b>
	European	<b>E7</b>
	European	<b>E8</b>
	German 2 bolt	<b>B1</b>
	German 4 bolt	<b>K2</b>
	SAE "AA" 2 bolt	<b>S0</b>
	SAE "AA" 2-4 bolt	<b>R9</b>
	SAE 2-4 bolt	<b>R8</b>
	SAE 2 bolt	<b>W9</b>

Code	Ports position	6
<b>L</b>	<b>Side</b>	
<b>P</b>	Rear	

Code	Ports IN/OUT	7
<b>GERMAN FLANGED PORTS</b>		
Side	Rear	Type
<b>BB/BA</b>	<b>PLP 10</b>	1-1,5-2-2,5-3,15
<b>BA/BB</b>	PLM 10	4-5-5,8-6,3-8-10
<b>GAS STRAIGHT THREAD PORTS (BSPP)</b>		
Side	Rear	Type
<b>GC/GC</b>	<b>GC/GC</b>	PLP 10 PLM 10
<b>GD/GD</b>	<b>GD/GD</b>	PLP 10 PLM 10
		1-1,5-2-2,5-3,15-4 5-5,8-6,3-8-10

<b>SAE STRAIGHT THREAD PORTS (ODT)</b>			
Side	Rear	Type	
<b>OB/OA</b>	<b>OB/OA</b>	PLP 10	1-1,5-2-2,5-3,15-4
<b>OA/OB</b>	<b>OA/OB</b>	PLM 10	5-5,8-6,3
<b>OC/OB</b>	<b>OB/OB</b>	PLP 10	8-10
<b>OB/OC</b>	<b>OB/OB</b>	PLM 10	

Code	Seals (a)	8
<b>N</b>	<b>Buna (standard)</b>	
<b>V</b>	Viton	

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

Code	Shaft seal options	10
<b>C</b>	High back pressure seal with wiper seal	
<b>D</b>	Standard seal with wiper seal	
<b>H</b>	High back pressure seal	

Replaces: 01/10.03

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## HOW TO ORDER POLARIS 10 SINGLE UNITS

Replaces: 01/10.03

11	Drain port position - Rev. Rotation L	Code
	Side drain with side port position	<b>L</b>
	Side drain with bottom port position	<b>*</b>

12	Drain port		Code
<b>IN/OUT GERMAN FLANGED PORTS</b>			
Type		Side	Rear
1-1,5-2-2,5-3,15	PLP 10	<b>GA</b>	
4-5-5,8-6,3-8-10	PLM 10		
<b>IN/OUT GAS STRAIGHT THREAD PORTS (BSPP)</b>			
Type		Side	Rear
1-1,5-2-2,5-3,15	PLP 10	<b>GA</b>	<b>GA</b>
4-5-5,8-6,3-8-10	PLM 10		
<b>IN/OUT SAE STRAIGHT THREAD PORTS (ODT)</b>			
Type		Side	Rear
1-1,5-2-2,5-3,15	PLP 10	<b>03</b>	<b>03</b>
4-5-5,8-6,3-8-10	PLM 10		

13	Shaft arrangement	Code
	Female spline	<b>FS</b>

- (a) Choose the seals according to the temperature shown on page 4.
- (b) Mounting flange material on page 58 ÷ 60  
Rear cover material on page 32 ÷ 33

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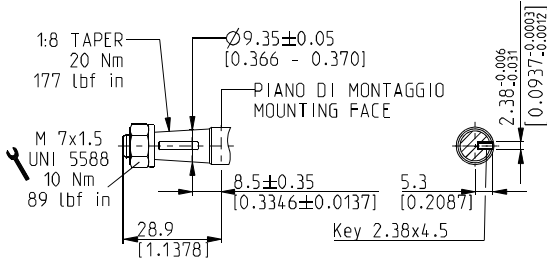
**POLARIS 10**

**DRIVE SHAFTS**

**EUROPEAN TAPERED 1:8**

**81**

Mounting face refer to flange code **E1**

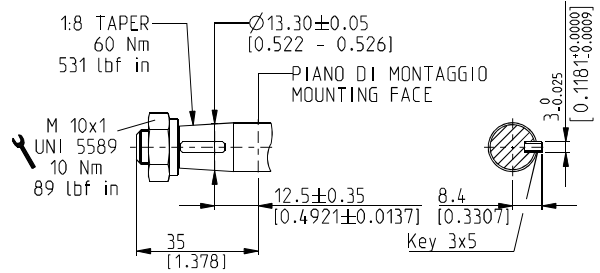


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**EUROPEAN TAPERED 1:8**

**86**

Mounting face refer to flange code **E7**



DCAT\_033\_042

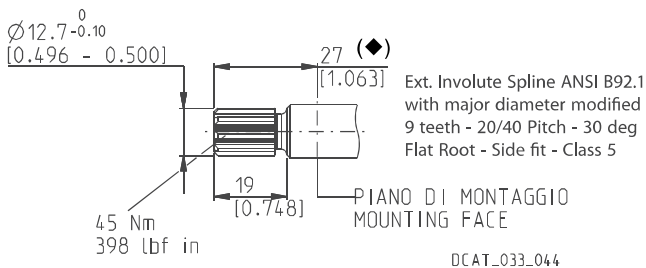
**SAE "AA" SPLINE**

**02**

Not available with size:

<b>10•8</b>	With flange: E1, E8, K2, S0
<b>10•1,5 - 10•2,5 - 10•5,8</b>	With flange: R8, R9

Mounting face refer to flange code **R9**



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(◆) 24 (0.9449) with flange code S0

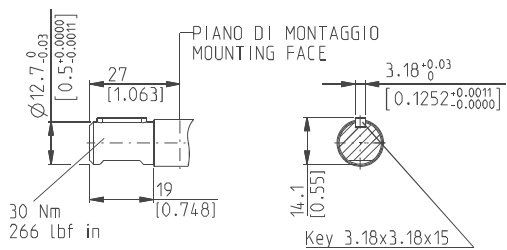
**SAE "AA" STRAIGHT**

**30**

Not available with size:

<b>10•1,5 - 10•2,5 - 10•5,8</b>	With flange: E7, B1, K2, R8, R9
<b>10•2,5 - 10•5,8</b>	With flange: S0

Mounting face refer to flange code **S0**



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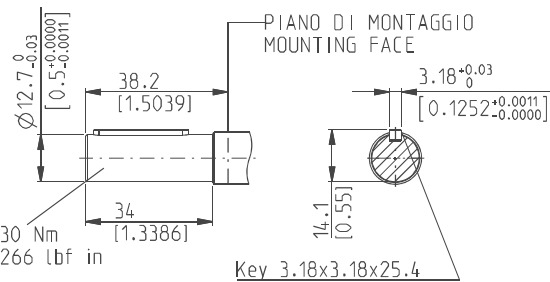
**SAE STRAIGHT**

**36**

Not available with size:

<b>10•1,5</b>	<b>10•2,5</b>
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Mounting face refer to flange code **R8**



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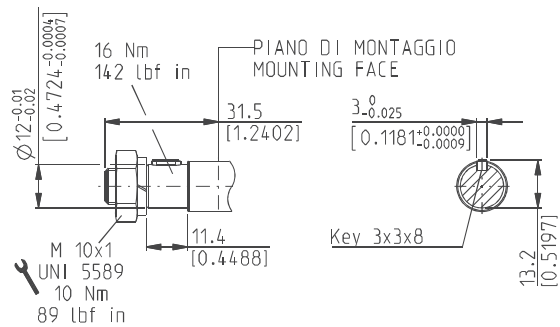
**STRAIGHT**

**29**

Not available with size:

<b>10•5,8</b>
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Mounting face refer to flange code **E8**



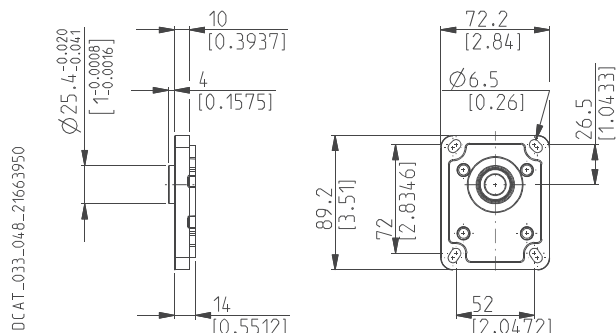
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01/10.03

# POLARIS 10 MOUNTING FLANGES AND TABLE OF COMPATIBILITY

## EUROPEAN E1

Material: cast iron and aluminium



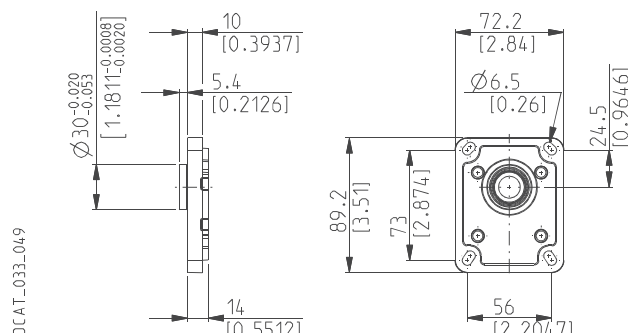
**DRIVE SHAFTS**  
See page 52

VERSIONS	81	02	29	86
See page 47				
<b>0</b>	#	X	X	X

# Standard combination  
X Available combination

## EUROPEAN E7

Material: cast iron and aluminium



**DRIVE SHAFTS**  
See page 52

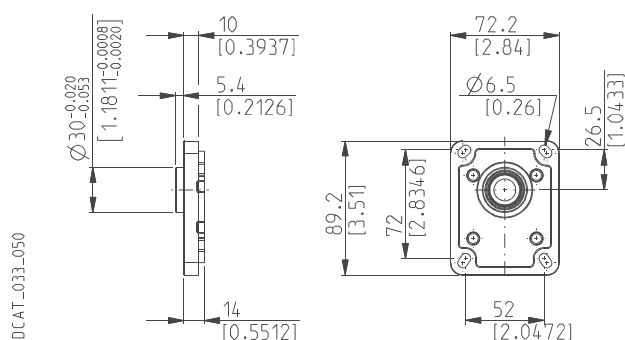
VERSIONS	86	29	30
See page 47			
<b>0</b>	#	X	X

# Standard combination  
X Available combination

Replaces: 01/10.03

## EUROPEAN E8

Material: cast iron and aluminium



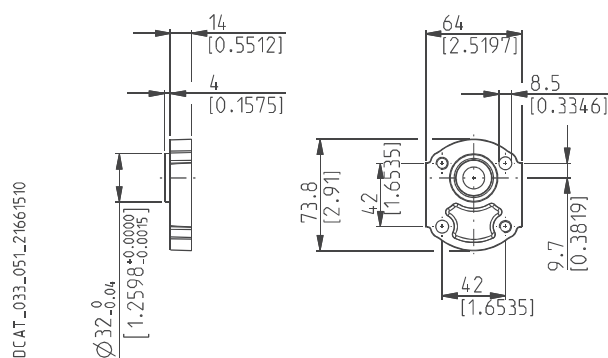
**DRIVE SHAFTS**  
See page 52

VERSIONS	29	02
See page 47		
<b>0</b>	#	X

# Standard combination  
X Available combination

## GERMAN 2 BOLTS B1

Material: aluminium



**DRIVE SHAFTS**  
See page 52

VERSIONS	30	86
See page 47		
<b>0</b>	#	X

# Standard combination  
X Available combination

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## PORTS SIZE



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

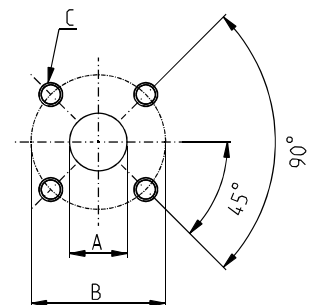
### GERMAN FLANGED PORTS - 4 Bolts

**GERMAN**

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)
<b>BA</b>	8 (0.3150)	30 (1.1811)	M6 12 (0.4724)	8 <sup>+0,5</sup> (71 ÷ 75)	8 <sup>+0,5</sup> (71 ÷ 75)
<b>BB</b>	13 (0.5118)	30 (1.1811)	M6 12 (0.4724)	8 <sup>+0,5</sup> (71 ÷ 75)	8 <sup>+0,5</sup> (71 ÷ 75)
<b>BC</b>	15 (0.5906)	35 (1.3780)	M6 12 (0.4724)	8 <sup>+0,5</sup> (71 ÷ 75)	8 <sup>+0,5</sup> (71 ÷ 75)
<b>BE</b>	20 (0.7874)	40 (1.5748)	M6 12 (0.4724)	8 <sup>+0,5</sup> (71 ÷ 75)	8 <sup>+0,5</sup> (71 ÷ 75)
<b>BL</b>	19 (0.7480)	55 (2.1654)	M8 18 (0.7087)	15 <sup>+1</sup> (133 ÷ 142)	20 <sup>+1</sup> (177 ÷ 186)
<b>BM</b>	27 (1.0630)	55 (2.1654)	M8 18 (0.7087)	15 <sup>+1</sup> (133 ÷ 142)	20 <sup>+1</sup> (177 ÷ 186)

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### EUROPEAN FLANGED PORTS - 4 Bolts

**EUROPEAN**

Metric thread ISO 60° conforms to ISO/R 262

01/10.03

CODE	A	B	C		
	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
<b>EA</b>	13 (0.5118)	30 (1.1811)	M 6 13 (0.5118)	8 <sup>+0,5</sup> (71 ÷ 75)	8 <sup>+0,5</sup> (71 ÷ 75)
<b>EB</b>	19 (0.7480)	40 (1.5748)	M 8 14 (0.5512)	15 <sup>+1</sup> (133 ÷ 142)	15 <sup>+1</sup> (133 ÷ 142)
			M 8 (◆) 18 (0.7087)	15 <sup>+1</sup> (◆) (133 ÷ 142)	15 <sup>+1</sup> (◆) (133 ÷ 142)
<b>ED</b>	27 (1.0630)	51 (2.0079)	M 10 18 (0.7087)	20 <sup>+1</sup> (177 ÷ 186)	30 <sup>+2,5</sup> (266 ÷ 288)
<b>EF</b>	33 (1.2992)	62 (2.4409)	M 12 18 (0.7087)	25 <sup>+1</sup> (221 ÷ 230)	50 <sup>+2,5</sup> (443 ÷ 465)

(◆) For POLARIS 30

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