

HOW TO ORDER POLARIS 20 MULTIPLE PUMPS

1	2	3	4	5	6	7	8	9	10	11	12							
PLP 20-4	-	82	E2	-	L	EA/EA	/											
Front section																		
20-4	-			L	EA/EA	/												
Intermediate section																		
20-4	-			L	**/EA	-	S7	-	S	0	-	N	-	EL	-	C	/	FS
Rear section																		

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

2	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
SAE "B" spline		04
SAE "B" straight		32
DIN 54 82 spline		12
Straight (only for version 6)		48
Straight (only for version 8)		B1
Tang		95

Code	Mounting flange	3
E2	European	
B2	German	
B4	German 2 bolt	
B5	German 2 bolt	
B6	German 4 bolt	
U2	German 2 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	4
L	Side	

Code	Ports IN/OUT	5
GERMAN FLANGED PORTS		
Side	Type	
BE/BC	PLP 20	4-6,3-7,2-8-9-10,5-11,2 14-16-19-20-24,5-25 27,8-31,5
EUROPEAN FLANGED PORTS		
Side	Type	
EA/EA	PLP 20	4-6,3-7,2-8-9-10,5-11,2
EB/EA	PLP 20	14-16-19-20-24,5-25 27,8-31,5
SAE FLANGED PORTS (SSM)		
Side	Type	
MA/MA	PLP 20	4-6,3-7,2-8-9-10,5-11,2
MB/MA	PLP 20	14-16-19-20
MC/MB	PLP 20	24,5-25-27,8-31,5
SAE FLANGED PORTS (SSS)		
Side	Type	
SA/SA	PLP 20	4-6,3-7,2-8-9-10,5-11,2
SB/SA	PLP 20	14-16-19-20
SC/SB	PLP 20	24,5-25-27,8-31,5

Replaces: 01/10.2003

04/10.2020

HOW TO ORDER POLARIS 20 MULTIPLE PUMPS

Replaces: 02/07.2006

5	Ports IN/OUT	Code
GAS STRAIGHT THREAD PORTS (BSPP)		
Type		Rear
4-6,3-7,2-8-9-10,5-11,2	PLP 20	GD/GD
14-16-19-20-24,5-25-27,8-31,5	PLP 20	GE/GD
SAE STRAIGHT THREAD PORTS (ODT)		
Type		Rear
4-6,3-7,2-8-9-10,5-11,2	PLP 20	OC/OC
14-16-19-20-24,5 25-27,8-31,5	PLP 20	OD/OC

6	Combination type	Code
Standard		S6
Common inlet		S7
Separate stages		Z6

7	Rotation	Code
Left		S
Right		D

8	Versions - Outboard bearing options ○	Code
Without outboard bearing (standard) no code		0
With outboard bearing		W8
With outboard bearing		5
With outboard bearing		7
With outboard bearing		8
With outboard bearing		9

Code	○	Seals (a)	9
N		Buna (standard)	
V		Viton	
T-PV		Hydrogenated buna HNBR seals with Viton-FKM shaft seals	

Code	Cover options (b)	10
	Cast iron mounting flange and rear cover (standard - no code)	
E	Aluminium mounting flange and cast iron rear cover	
L	Cast iron mounting flange and aluminium rear cover	
EL	Aluminium mounting flange and rear cover	

Code	○	Shaft seal options	11
D		Standard shaft seals with wiper seal	
C1		High back pressure seal	

Code	Shaft arrangement	12
FS	Female spline	

- (a) Choose the seals according to the temperature shown on page 5.
- (b) Mounting flange material on page 61 ÷ 66
Rear cover material on page 45

○ 04/10.2020

PORTS POSITION AND TYPE

PORTS TYPE	SIDE PORTS												REAR PORTS				
	German		European		Split SSM		Spit SSS		Gas BSPP		SAE ODT		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	
PL. 10•1	BB	BA								GC	GC	OB	OA	GC	GC	OB	OA
PL. 10•1,5	BB	BA								GC	GC	OB	OA	GC	GC	OB	OA
PL. 10•2	BB	BA								GC	GC	OB	OA	GC	GC	OB	OA
PL. 10•2,5	BB	BA								GC	GC	OB	OA	GC	GC	OB	OA
PL. 10•3,15	BB	BA								GC	GC	OB	OA	GC	GC	OB	OA
PL. 10•4	BB	BA								GC	GC	OB	OA	GC	GC	OB	OA
PL. 10•5	BB	BA								GD	GD	OB	OA	GD	GD	OB	OA
PL. 10•5,8	BB	BA								GD	GD	OB	OA	GD	GD	OB	OA
PL. 10•6,3	BB	BA								GD	GD	OB	OA	GD	GD	OB	OA
PL. 10•8	BB	BA								GD	GD	OC	OB	GD	GD	OB	OB
PL. 10•10	BB	BA								GD	GD	OC	OB	GD	GD	OB	OB
PL. 20•4	BE	BC	EA	EA	MA	MA	SA	SA	GD	GD	OC	OC	GD	GD	OC	OC	
PL. 20•6,3	BE	BC	EA	EA	MA	MA	SA	SA	GD	GD	OC	OC	GD	GD	OC	OC	
PL. 20•7,2	BE	BC	EA	EA	MA	MA	SA	SA	GD	GD	OC	OC	GD	GD	OC	OC	
PL. 20•8	BE	BC	EA	EA	MA	MA	SA	SA	GD	GD	OC	OC	GD	GD	OC	OC	
PL. 20•9	BE	BC	EA	EA	MA	MA	SA	SA	GD	GD	OC	OC	GD	GD	OC	OC	
PL. 20•10,5	BE	BC	EA	EA	MA	MA	SA	SA	GD	GD	OC	OC	GD	GD	OC	OC	
PL. 20•11,2	BE	BC	EA	EA	MA	MA	SA	SA	GD	GD	OC	OC	GD	GD	OC	OC	
PL. 20•14	BE	BC	EB	EA	MB	MA	SB	SA	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 20•16	BE	BC	EB	EA	MB	MA	SB	SA	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 20•19	BE	BC	EB	EA	MB	MA	SB	SA	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 20•20	BE	BC	EB	EA	MB	MA	SB	SA	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 20•24,5	BE	BC	EB	EA	MC	MB	SC	SB	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 20•25	BE	BC	EB	EA	MC	MB	SC	SB	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 20•27,8	BE	BC	EB	EA	MC	MB	SC	SB	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 20•31,5	BE	BC	EB	EA	MC	MB	SC	SB	GE	GD	OD	OC	GE	GD	OD	OC	
PL. 30•22	BM	BL	ED	EB	MB	MA	SB	SA	GF	GF	OF	OD					
PL. 30•27	BM	BL	ED	EB	MC	MB	SC	SB	GF	GF	OF	OD					
PL. 30•34	BM	BL	ED	EB	MC	MB	SC	SB	GF	GF	OF	OD					
PL. 30•38	BM	BL	ED	EB	MD	MC	SD	SC	GF	GF	OG	OF					
PL. 30•43	BM	BL	ED	EB	MD	MC	SD	SC	GF	GF	OG	OF					
PL. 30•51	BM	BL	ED	EB	MD	MC	SD	SC	GF	GF	OG	OF					
PL. 30•61	BM	BL	ED	EB	ME	MD	SE	SD	GG	GF	OH	OG					
PL. 30•73	BM	BL	EF	ED	ME	MD	SE	SD	GG	GF	OH	OG					
PL. 30•82	BM	BL	EF	ED	ME	MD	SE	SD	GH	GG	OH	OG					
PL. 30•90	BM	BL	EF	ED	MF	ME	SF	SE	GH	GG	OH	OG					

01/10.2003

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

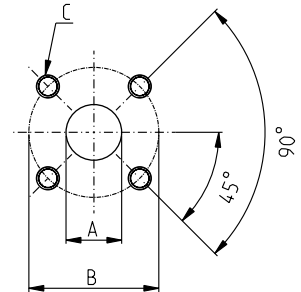
GERMAN FLANGED PORTS - 4 Bolts

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)
BA	8 (0.3150)	30 (1.1811)	M6 12 (0.4724)	8 ^{+0.5} (71 ÷ 75)	8 ^{+0.5} (71 ÷ 75)
BB	13 (0.5118)	30 (1.1811)	M6 12 (0.4724)	8 ^{+0.5} (71 ÷ 75)	8 ^{+0.5} (71 ÷ 75)
BC	15 (0.5906)	35 (1.3780)	M6 12 (0.4724)	8 ^{+0.5} (71 ÷ 75)	8 ^{+0.5} (71 ÷ 75)
BE	20 (0.7874)	40 (1.5748)	M6 12 (0.4724)	8 ^{+0.5} (71 ÷ 75)	8 ^{+0.5} (71 ÷ 75)
BL	19 (0.7480)	55 (2.1654)	M8 18 (0.7087)	15 ⁺¹ (133 ÷ 142)	20 ⁺¹ (177 ÷ 186)
BM	27 (1.0630)	55 (2.1654)	M8 18 (0.7087)	15 ⁺¹ (133 ÷ 142)	20 ⁺¹ (177 ÷ 186)



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EUROPEAN FLANGED PORTS - 4 Bolts

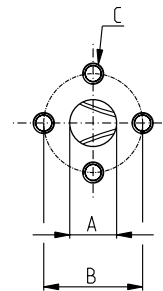
EUROPEAN

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 (0.5118)	30 (1.1811)	M 6 13 (0.5118)	8 ^{+0.5} (71 ÷ 75)	8 ^{+0.5} (71 ÷ 75)
EB	19 (0.7480)	40 (1.5748)	M 8 14 (0.5512)	15 ⁺¹ (133 ÷ 142)	15 ⁺¹ (133 ÷ 142)
			M 8 (◆) 18 (0.7087)	15 ⁺¹ (◆) (133 ÷ 142)	15 ⁺¹ (◆) (133 ÷ 142)
			M 10 18 (0.7087)	20 ⁺¹ (177 ÷ 186)	35 ^{+2.5} (310 ÷ 332)
ED	27 (1.0630)	51 (2.0079)	M 10 18 (0.7087)	20 ⁺¹ (177 ÷ 186)	35 ^{+2.5} (310 ÷ 332)
EF	33 (1.2992)	62 (2.4409)	M 12 18 (0.7087)	25 ⁺¹ (221 ÷ 230)	50 ^{+2.5} (443 ÷ 465)

(◆) For POLARIS 30

DCAT_006_024_21060533



01/10.2003

FEATURES

Replaces: 01/10.2003

04/10.2020

Series	Pump type PLP Motor type PLM	Displacement cm ³ /rev (in ³ /rev)	Max. pressure			Max. speed	Min. speed min ⁻¹
			P ₁	P ₂	P ₃		
			bar (psi)				
POLARIS 10	PL. 10•1	1,07 (0.07)	260 (3770)	280 (4060)	290 (4205)	4000	650
	PL. 10•1,5	1,60 (0.10)	260 (3770)	280 (4060)	290 (4205)	4000	650
	PL. 10•2	2,13 (0.13)	260 (3770)	280 (4060)	290 (4205)	4000	650
	PL. 10•2,5	2,67 (0.16)	260 (3770)	280 (4060)	290 (4205)	4000	650
	PL. 10•3,15	3,34 (0.20)	260 (3770)	280 (4060)	290 (4205)	4000	650
	PL. 10•4	4,27 (0.26)	250 (3625)	270 (3915)	280 (4060)	4000	650
	PL. 10•5	5,34 (0.33)	250 (3625)	270 (3915)	280 (4060)	4000	650
	PL. 10•5,8	6,20 (0.38)	230 (3335)	250 (3625)	260 (3770)	3500	650
	PL. 10•6,3	6,67 (0.41)	230 (3335)	250 (3625)	260 (3770)	3500	650
	PL. 10•8	8,51 (0.52)	180 (2610)	200 (2900)	210 (3045)	3500	650
PL. 10•10	10,67 (0.65)	140 (2030)	160 (2320)	170 (2465)	3500	650	
POLARIS 20	PL. 20•4	4,95 (0.30)	250 (3625)	280 (4060)	300 (4350)	4000	600
	PL. 20•6,3	6,61 (0.40)	250 (3625)	280 (4060)	300 (4350)	4000	600
	PL. 20•7,2	7,29 (0.44)	250 (3625)	280 (4060)	300 (4350)	4000	600
	PL. 20•8	8,26 (0.50)	250 (3625)	280 (4060)	300 (4350)	3500	600
	PL. 20•9	9,17 (0.56)	250 (3625)	280 (4060)	300 (4350)	3500	600
	PL. 20•10,5	10,9 (0.66)	250 (3625)	280 (4060)	300 (4350)	3500	600
	PL. 20•11,2	11,23 (0.69)	250 (3625)	280 (4060)	300 (4350)	3500	600
	PL. 20•14	14,53 (0.89)	250 (3625)	280 (4060)	300 (4350)	3500	500
	PL. 20•16	16,85 (1.03)	250 (3625)	280 (4060)	300 (4350)	3000	500
	PL. 20•19	19,09 (1.16)	200 (2900)	220 (3190)	3480 (240)	3000	500
	PL. 20•20	21,14 (1.29)	200 (2900)	220 (3190)	3480 (240)	3000	500
	PL. 20•24,5	24,84 (1.52)	170 (2465)	190 (2755)	210 (3045)	2500	500
	PL. 20•25	26,42 (1.61)	170 (2465)	190 (2755)	210 (3045)	2500	500
	PL. 20•27,8	28,21 (1.72)	130 (1885)	150 (2175)	170 (2465)	2000	500
PL. 20•31,5	33,03 (2.01)	130 (1885)	150 (2175)	170 (2465)	2000	500	
POLARIS 30	PL. 30•22	21,99 (1.34)	250 (3625)	270 (3915)	280 (4060)	3000	350
	PL. 30•27	26,70 (1.63)	250 (3625)	270 (3915)	280 (4060)	3000	350
	PL. 30•34	34,55 (2.11)	240 (3480)	260 (3770)	270 (3915)	3000	350
	PL. 30•38	39,27 (2.40)	240 (3480)	260 (3770)	270 (3915)	3000	350
	PL. 30•43	43,98 (2.68)	230 (3335)	250 (3625)	260 (3770)	3000	350
	PL. 30•51	51,83 (3.16)	210 (3045)	230 (3335)	240 (3480)	2500	350
	PL. 30•61	61,26 (3.74)	190 (2755)	210 (3045)	220 (3190)	2500	350
	PL. 30•73	73,82 (4.50)	170 (2465)	190 (2755)	200 (2900)	2500	350
	PL. 30•82	81,68 (4.98)	160 (2320)	170 (2465)	180 (2610)	2200	350
PL. 30•90	91,10 (5.56)	150 (2175)	160 (2320)	170 (2465)	2200	350	

Pressure values in the table refer to side ports unidirectional pumps and motors.

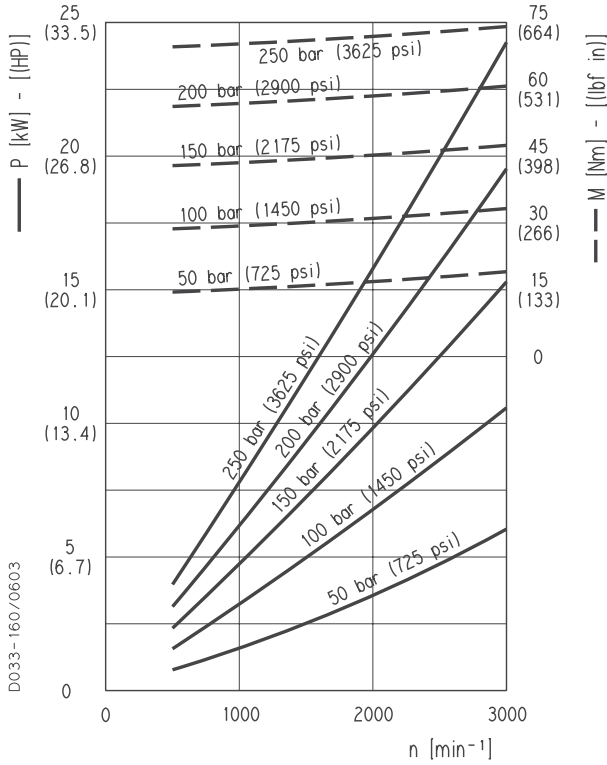
For reversible pumps and motors, max pressures are 250 bar (3600 psi) excepted those with lower pressure values. ●

For different configurations and working conditions please consult our pre-sales department.

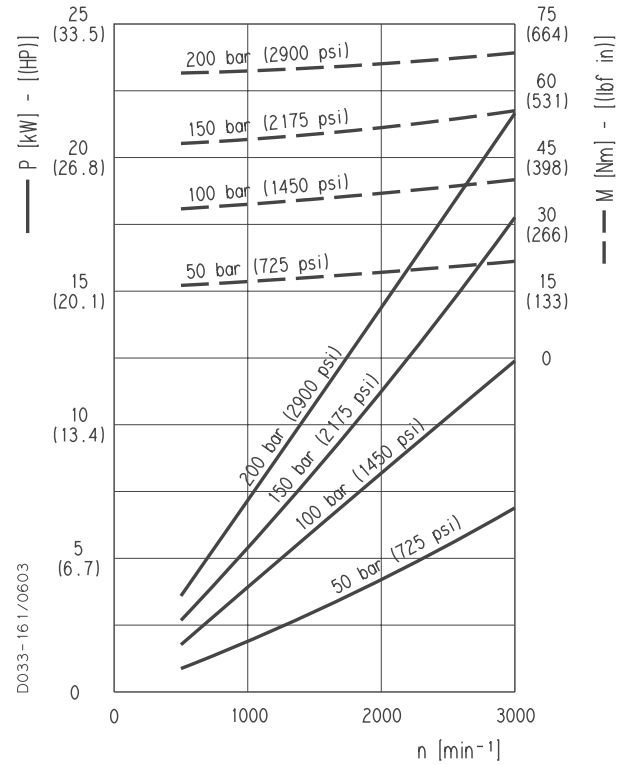
PLP 20

POLARIS 20 GEAR PUMPS PERFORMANCE CURVES

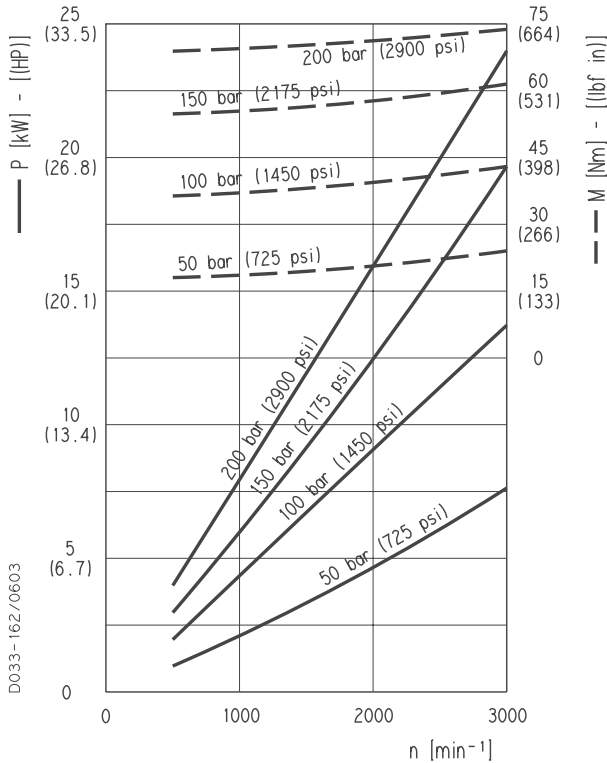
PLP 20•16



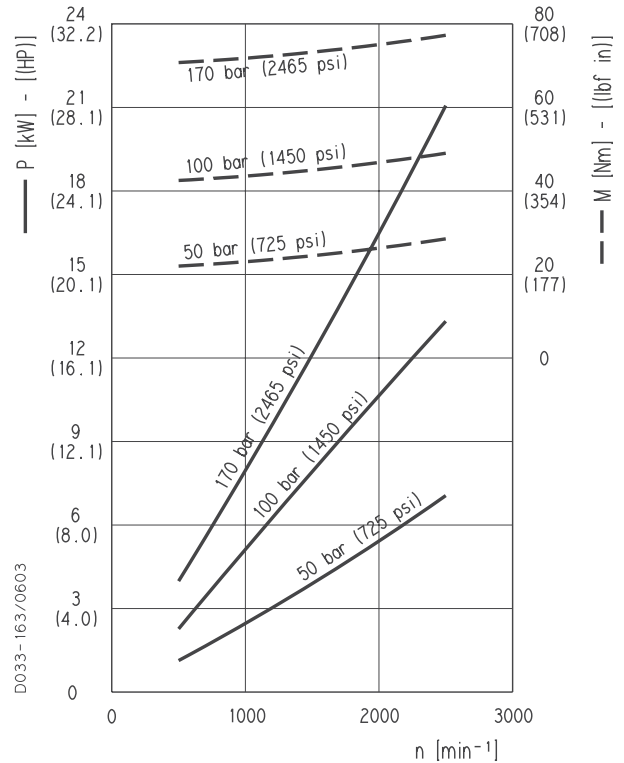
PLP 20•19



PLP 20•20



PLP 20•24,5



01/10.2003

POLARIS 20

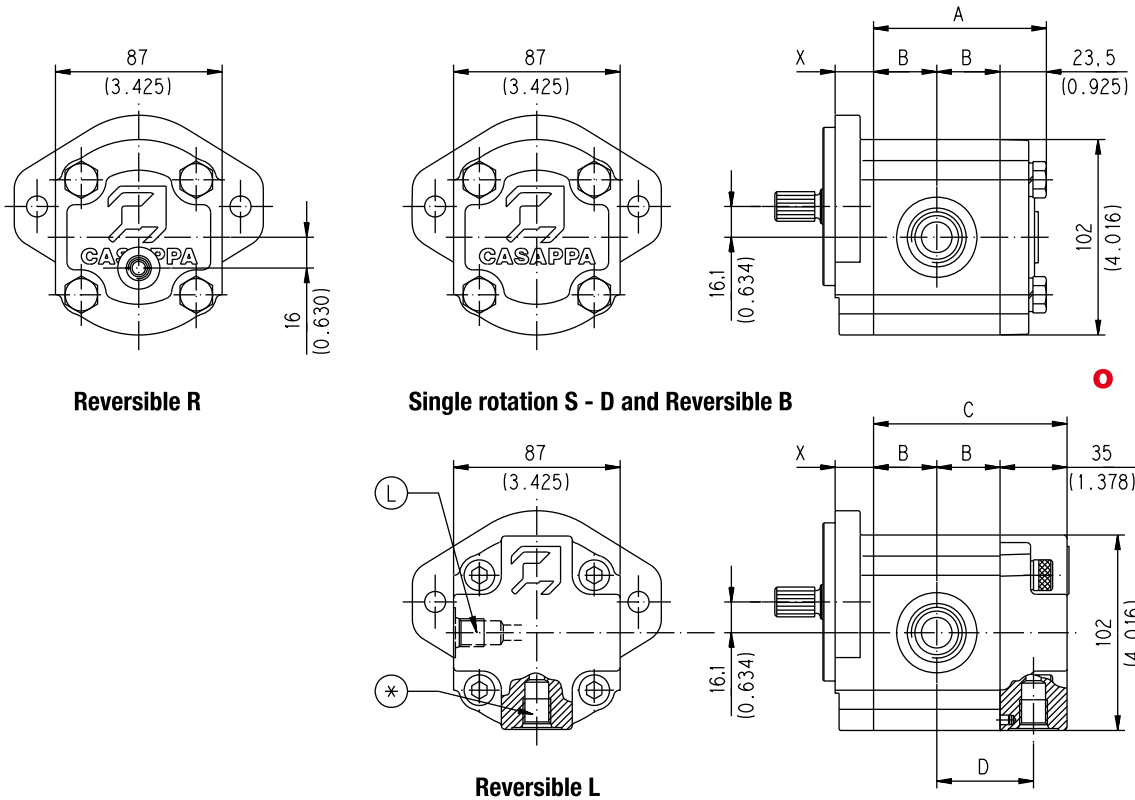
SINGLE UNITS DIMENSIONS - SIDE PORTS

L

Drive shafts: page 53 ÷ 55
Mounting flange: for X dimension see page 61 ÷ 66

Ports availability: European, Split, Gas, SAE German. See page 70

D033-182/0903



Replaces: 02/07.2006

For single rotation S - D and reversible B and R the rear cover is available in cast iron and aluminium.
For reversible rotation L the rear cover is in aluminium only.

Reversible L drain port position:
L = Side
* = Bottom

Pump type Motor type	A	B	C	D
	mm (in)	mm (in)	mm (in)	mm (in)
PL. 20•4	75 (2.9528)	25,75 (1.0138)	86,5 (3.4055)	43,25 (1.7028)
PL. 20•6,3	77,5 (3.0512)	27 (1.0630)	89 (3.5039)	44,5 (1.7520)
PL. 20•7,2	78,5 (3.0917)	27,5 (1.083)	90 (3.5445)	45 (1.7722)
PL. 20•8	80 (3.1496)	28,25 (1.1122)	91,5 (3.6024)	45,75 (1.8012)
PL. 20•9	81,3 (3.2008)	28,9 (1.1378)	92,8 (3.6535)	46,4 (1.8268)
PL. 20•10,5	84 (3.3070)	30,25 (1.1909)	95,5 (3.7598)	47,75 (1.8799)
PL. 20•11,2	84,5 (3.3268)	30,5 (1.2008)	96 (3.7795)	48 (1.8898)
PL. 20•14	89,5 (3.5236)	33 (1.2992)	101 (3.9764)	50,5 (1.9882)
PL. 20•16	93 (3.6614)	34,75 (1.3681)	104,5 (4.1142)	52,25 (2.0571)
PL. 20•19	96,4 (3.7952)	36,45 (1.4350)	107,9 (4.2480)	53,9 (2.12)
PL. 20•20	99,5 (3.9173)	38 (1.4961)	111 (4.3701)	55,5 (2.1850)
PL. 20•24,5	105,1 (4.1378)	40,8 (1.6063)	116,6 (4.5905)	58,3 (2.2953)
PL. 20•25	107,5 (4.2323)	42 (1.6535)	119 (4.6850)	59,5 (2.3425)
PL. 20•27,8	110,2 (4.3386)	43,35 (1.7067)	121,7 (4.7913)	60,85 (2.3957)
PL. 20•31,5	117,5 (4.6260)	47 (1.8504)	129 (5.0787)	64,5 (2.5394)

04/10.2020