



Gear Pumps

Series PGP
Fixed Displacement Pumps,
Aluminium Designs

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.

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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 502, 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 280 bar continuous operation**
High strength materials and large journal diameters provide low bearing loads for high pressure operation.
- **Low noise**
PGP 502 - 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.

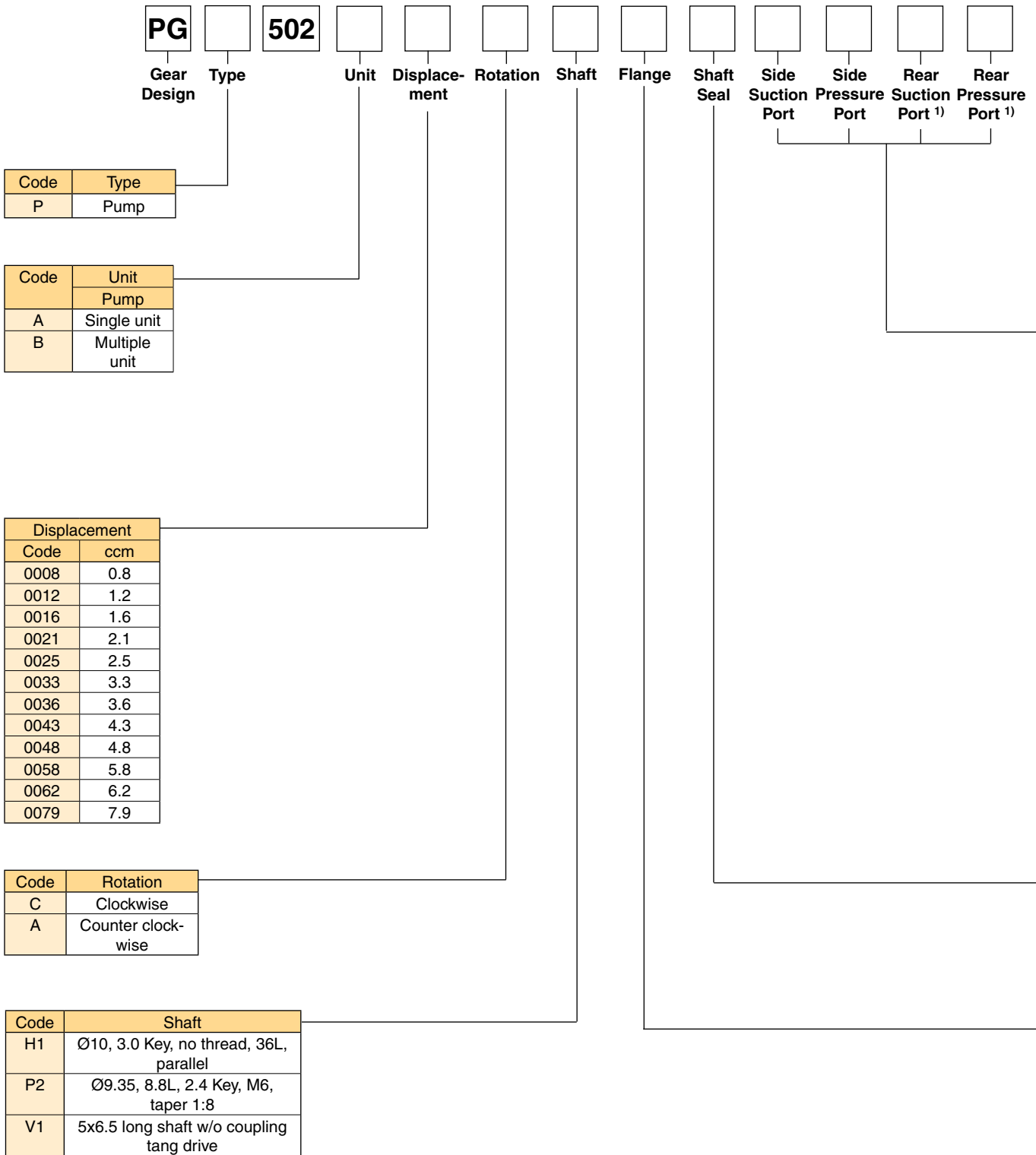
- **High efficiency**
Pressure balanced bearing blocks assure maximum efficiency under all operating conditions.
- **Application flexibility**
International mounts and connections, integrated valve capabilities and common inlet multiple pump configurations provide unmatched design and application versatility.
- **Large range of integrated valves**



Characteristics

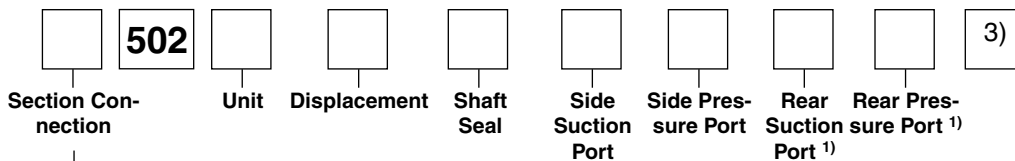
Pump type	Heavy-duty, aluminium, external gear.
Mounting	SAE, rectangular, thru-bolt standard specials on request.
Ports	SAE and metric split flanges and others
Shaft style	SAE splined, keyed, tapered, cylindrical tang drive, specials on request
Speed	500 - 5000 rpm, see Technical Data
Theor. displacement	See Technical Data
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. Min. inlet pressure 0.5 bar abs. Short time without load. Consultation is recommended.
Outlet pressure	See Technical Data
Pressure rising rate	Max. 3000 bar/s
Flow velocity	See Nomograph for Pipe Velocity
Hydraulic fluids	Hydraulic oil HLP, DIN 51524-2
Fluid temperature	Range of operating temperature -15 to +80 °C. Max. permissible operating pressure dependent on fluid temperature. Temperature for cold start -20 to -15 °C at speed ≤ 1500 rpm.

Fluid viscosity	Range of operating viscosity 8 to 1000 mm ² /s (511 & 517) 20 to 1000 mm ² /s (502 & 505) Max. permissible operating pressure dependent on viscosity. Viscosity range for cold start 1000 to 2000 mm ² /s at operating pressure p≤10 bar and speed n ≤1500 rpm.
Range of ambient temperature	-40 °C to +70 °C
Filtration	According to ISO 4406 Cl. 18/16/13
Direction of rotation (looking at the drive shaft)	Clockwise, counter-clockwise or double. Attention! Drive pump only in indicated direction of rotation.
Multiple pump assemblies	<ul style="list-style-type: none"> • Available in two or three section the limitations shown in the shaft loading rating table in this catalogue. • 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: <ul style="list-style-type: none"> • Each gear housing has individual inlet and outlet ports. Common inlet configuration: <ul style="list-style-type: none"> • Two gear sets share a common inlet.



Not all variances of ordering codes can be offered. Please check available part numbers first. For not yet implemented part numbers or special requests please contact Parker Hannifin.

1) Only coded for the last section.



Code	Section Connection
S	Separate inlets
C	Common inlets

Code	Port Options
B1	No ports
D2 ²⁾	9/16 - 18 UNF thread
D3 ^{2)*}	3/4 - 16 UNF thread
E1	1/4 - 19 BSP thread
E2	3/8 - 19 BSP thread
E3*	1/2 - 14 BSP thread
G1 ²⁾	M14x1.5 thread
G3 ^{2)*}	M18x1.5 thread
J1*	8 mm - Ø26 mm - M5 square flange
J2*	10 mm - Ø26 mm - M5 square flange
J3*	8 mm - Ø30 mm - M6 square flange
J4*	12 mm - Ø30 mm - M6 square flange

2) Non standard, on request only

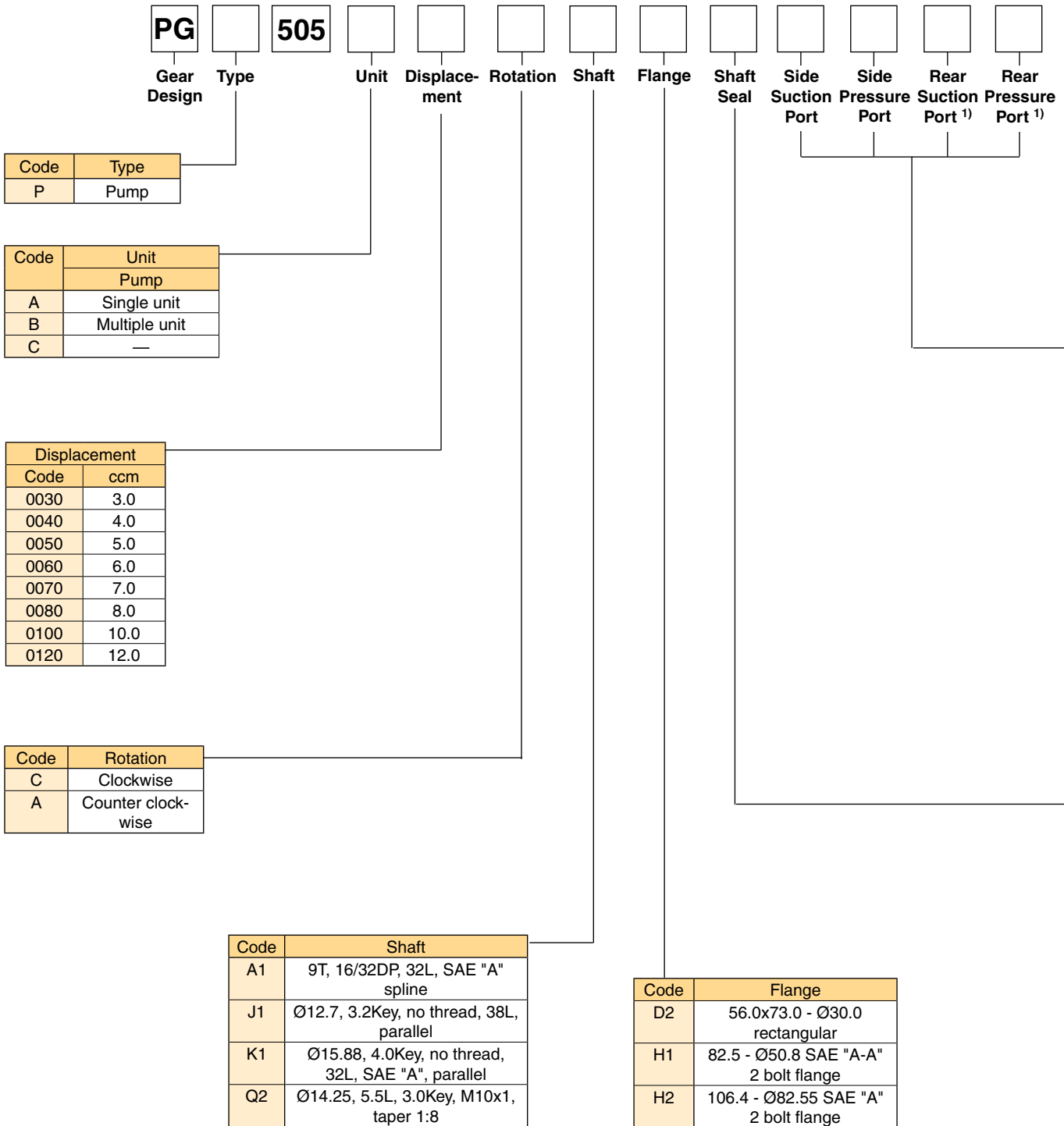
*) Not usable for rear ports

Code	Shaft Seal
X	No seal
N	NBR
V	FPM, FKM

Code	Flange
D1	52.2x72.0 - Ø25.4 rectangular
H1	82.5 - Ø50.8 SAE "A-A" 2 bolt flange
P1	40.0x40.0 - Ø32.0 w/ seal ported, thru bolt flange

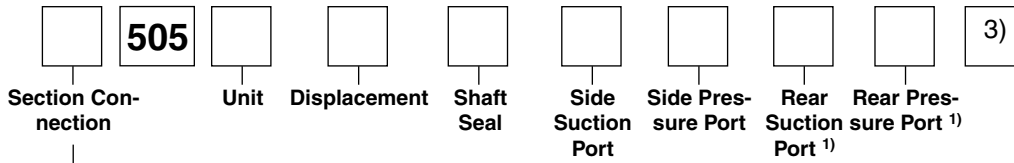
³⁾ For further "B" triple unit repeat displacement, shaft seal between sections, side suction port, side pressure port, rear suction port, rear pressure port.





Not all variances of ordering codes can be offered. Please check available part numbers first. For not yet implemented part numbers or special requests please contact Parker Hannifin.

¹⁾ Only coded for the last section.



Code	Section Connection
S	Separate inlets
C	Common inlets

Code	Port Options
B1	No ports
D2 ²⁾	9/16 - 18 UNF thread
D3 ²⁾	3/4 - 16 UNF thread
D4*	7/8 - 14 UNF thread
D5*	1 1/16 - 12UN
E2	3/8 - 19 BSP thread
E3*	1/2 - 14 BSP thread
E5*	3/4 - 16 BSP thread
G1	M14x1.5 thread
G3*	M18x1.5 thread
G4*	M22x1.5 thread
J3*	8 mm - Ø30 mm - M6 square flange
J4*	12 mm - Ø30 mm - M6 square flange
J5*	15 mm - Ø35 mm - M6 square flange
J7*	20 mm - Ø40 mm - M6 square flange

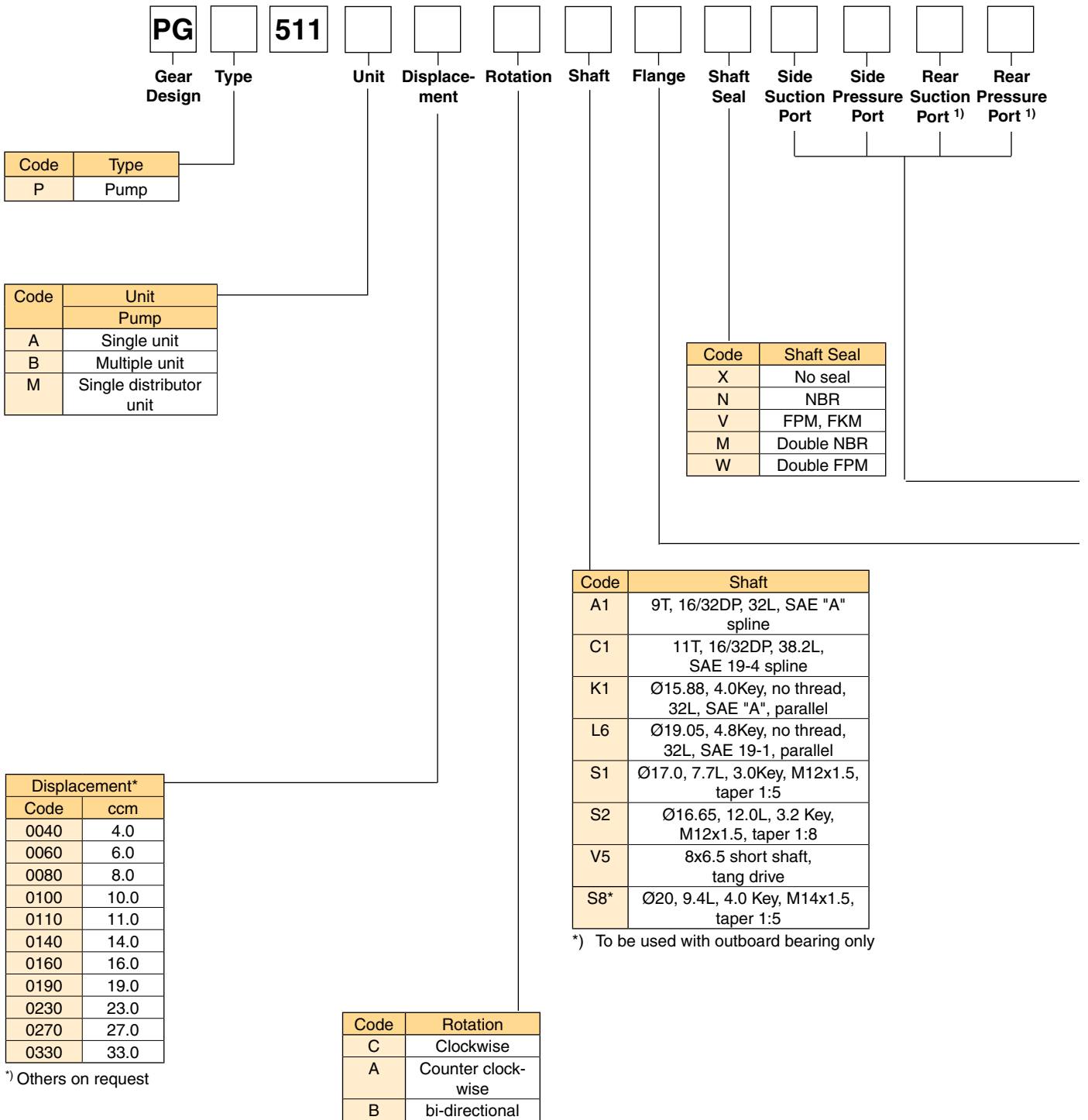
2) Non standard, on request only

*) Not usable for rear ports

Code	Shaft Seal
X	No seal
N	NBR
M	Double NBR
W	Double FPM

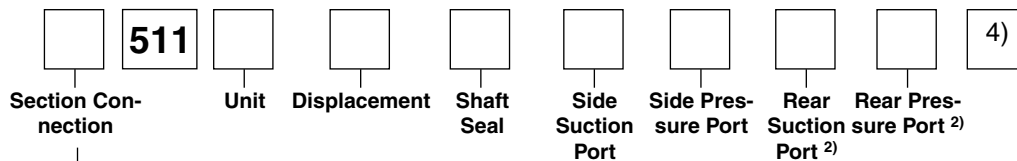
3) For further "B" triple unit repeat displacement, shaft seal between sections, side suction port, side pressure port, rear suction port, rear pressure port.





Not all variances of ordering codes can be offered. Please check available part numbers first. For not yet implemented part numbers or special requests please contact Parker Hannifin.

1) Only coded for the last section.



Code	Section Connection
S	Separate inlets
C	Common inlets

Code	Flange
D3	71.4x96.0 - Ø36.47 rectangular
D4	72.0x100.0 - Ø80 rectangular
H2	106.4 - Ø82.55 SAE "A" 2 bolt flange
H3	146.1 - Ø101.6 SAE "B" 2 bolt flange
Q1 ²⁾	60.0x60.0 - Ø52.0 w/o seal ,O' thru bolt flange
Q2	60.0x60.0 - Ø50.0 w. seal ,O' thru bolt flange
Q3 ²⁾	60.0x60.0 - Ø52.0 w/o seal ,O' thru bolt flange
Q4	60.0x60.0 - Ø50.0 w. seal ,O', thru bolt flange
F4	72.0x100.0 - Ø80.0 rect., w. OBB and cont. drive shaft

2) Non standard, on request only

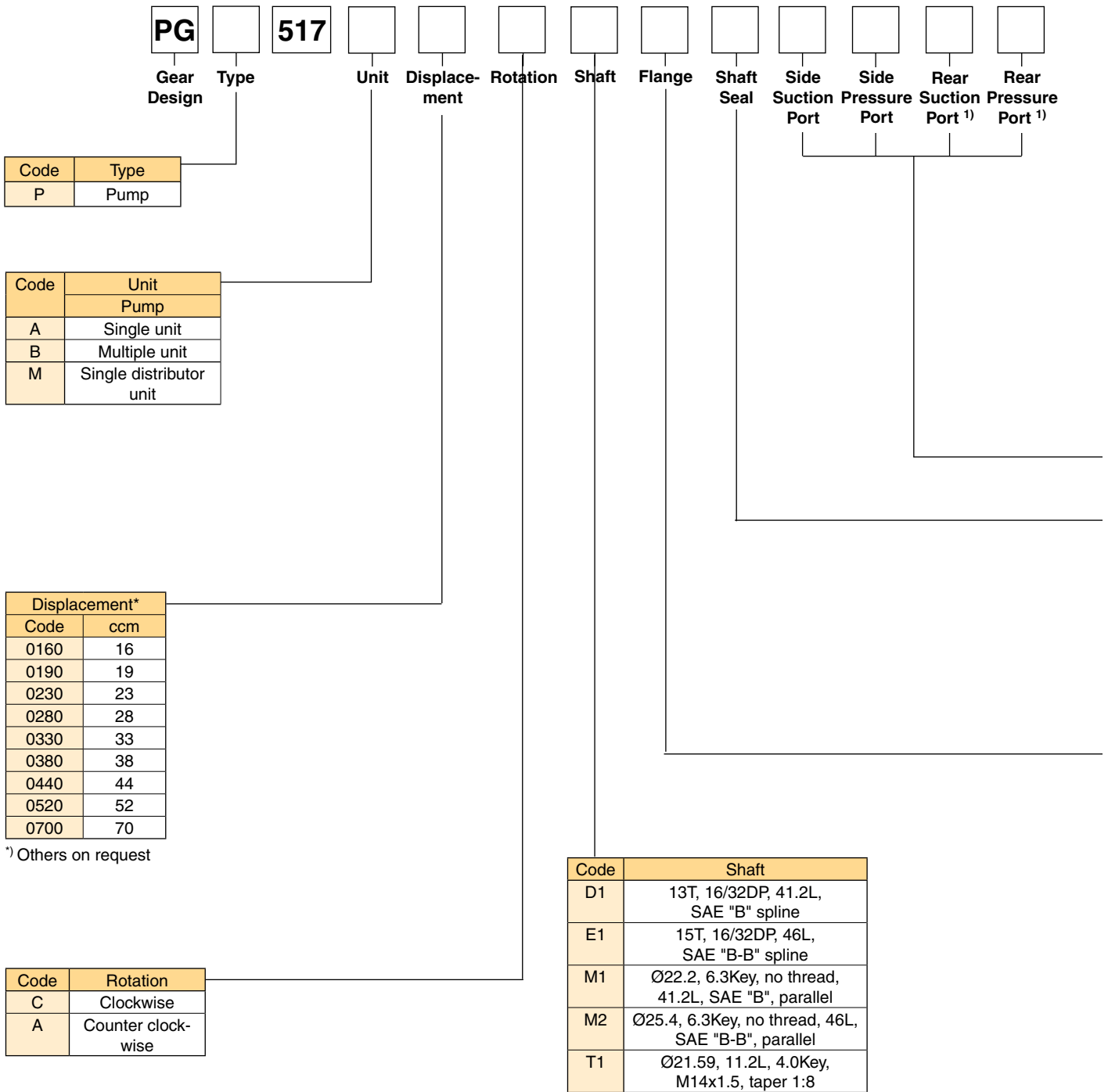
Code	Port Options	Code	Port Options
B1	No ports	L1*	13 mm-Ø30 mm-M6 diamond
D2 ²⁾	9/16 - 18 UNF thread	L2*	19 mm-Ø40 mm-M8 diamond
D3 ²⁾	3/4 - 16 UNF thread	N1 ²⁾ *	1/2"-5/16-18UNC SAE Split Flange
D4 ²⁾	7/8 - 14 UNF thread	N2 ²⁾ *	3/4"-3/8-16UNC SAE Split Flange
D5 ²⁾	1 1/16 - 12 UN thread	N3 ²⁾ *	1"-3/8-16UNC SAE Split Flange
D6 ²⁾ *	1 5/16 - 12 UN thread	N4 ²⁾ *	1 1/4"-7/16-14UNC SAE Split Flange
D7 ²⁾ *	1 5/8 - 12 UN thread	P1*	12.7 mm - M8 Metric Split Flange
E2	3/8 - 19 BSP thread	P2*	19.0 mm - M10 Metric Split Flange
E3	1/2 - 12 BSP thread	P3*	25.4 mm - M10 Metric Split Flange
E4*	5/8 - 14 BSP thread	P4*	31.8 mm - M10 Metric Split Flange
E5*	3/4 - 14 BSP thread		
E6*	1 - 11 BSP thread		
E7*	1 1/4 - 11 BSP thread		
G1 ²⁾	M14x1.5 thread		
G3 ²⁾	M18x1.5 thread		
G4 ²⁾	M22x1.5 thread		
G5 ²⁾ *	M26x1.5 thread		
G7 ²⁾ *	M30x1.5 thread		
J3 ²⁾ *	8mm - Ø30mm - M6 square		
J4 ²⁾ *	12mm - Ø30mm - M6 square		
J5*	15mm - Ø40mm - M6 square		
J6 ²⁾ *	15mm - Ø40mm - M8 square		
J7*	20mm - Ø40mm - M6 square		
J8*	18mm - Ø55mm - M8 square		
J9*	26mm - Ø55mm - M8 square		

2) Non standard, on request only

*) Not usable for rear ports

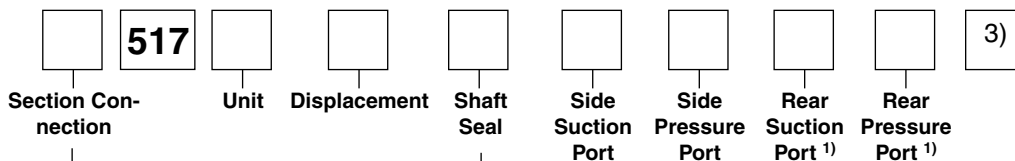
4) For further "B" triple unit repeat displacement, shaft seal between sections, side suction port, side pressure port, rear suction port, rear pressure port.





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1) Only coded for the last section.



Code	Section Connection
S	Separate inlets
C	Common inlets

Code	Shaft Seal
X	No seal
N	NBR
V	FPM, FKM
M	Double NBR
W	Double FPM

Code	Flange
D7	98.4x128.2 - Ø50.77 rectangular
H3	146.1 - Ø101.6 SAE "B" 2 bolt flange
K6	146.1 - Ø101.6 SAE "B" 2 bolt flange, aluminium

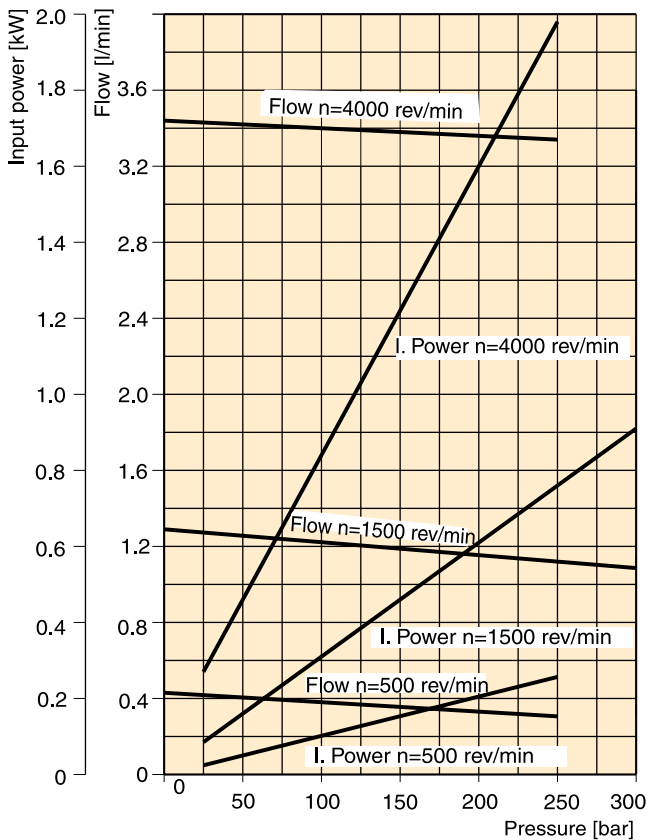
Code	Port Options	Code	Port Options
B1	No ports	L1*	13 mm-Ø30 mm-M6 diamond
D3 ²⁾	3/4 - 16 UNF thread	L2*	19 mm-Ø40 mm-M8 diamond
D4 ²⁾	7/8 - 14 UNF thread	L3*	27 mm-Ø51 mm-M10 diamond
D5 ²⁾	1 1/16 - 12 UN thread	N1 ²⁾ *	1/2"-5/16-18UNC SAE Split Flange
D6 ²⁾	1 5/16 - 12 UN thread	N2 ²⁾ *	3/4"-3/8-16UNC SAE Split Flange
D7 ²⁾ *	1 5/8 - 12 UN thread	N3 ²⁾ *	1"-3/8-16UNC SAE Split Flange
D8*	1 7/8 - 12 UN thread	N4 ²⁾ *	1 1/4"-7/16-14UNC SAE Split Flange
E3	1/2 - 12 BSP thread	N5 ²⁾ *	1 1/2"-1/2-13UNC SAE Split Flange
E4	5/8 - 14 BSP thread	P1 ²⁾ *	12.7mm - M8 Metric Split Flange
E5	3/4 - 16 BSP thread	P2*	19.0mm - M10 Metric Split Flange
E6	1 - 11 BSP thread	P3*	25.4mm - M10 Metric Split Flange
E7*	1 1/4 - 11 BSP thread	P4*	31.8mm - M10 Metric Split Flange
E8*	1 1/2 - 11 BSP thread	P5*	38.1mm - M12 Metric Split Flange
G4 ²⁾	M22x1.5 thread		
G5 ²⁾	M26x1.5 thread		
G7 ²⁾	M30x1.5 thread		
G8 ²⁾	M33x2 thread		
G9 ²⁾ *	M42x2 thread		
J5*	15 mm - Ø35 mm - M6 square		
J7*	20 mm - Ø40 mm - M6 square		
J8*	18 mm - Ø55 mm - M8 square		
J9*	26 mm - Ø55 mm - M8 square		

2) Non standard, on request only

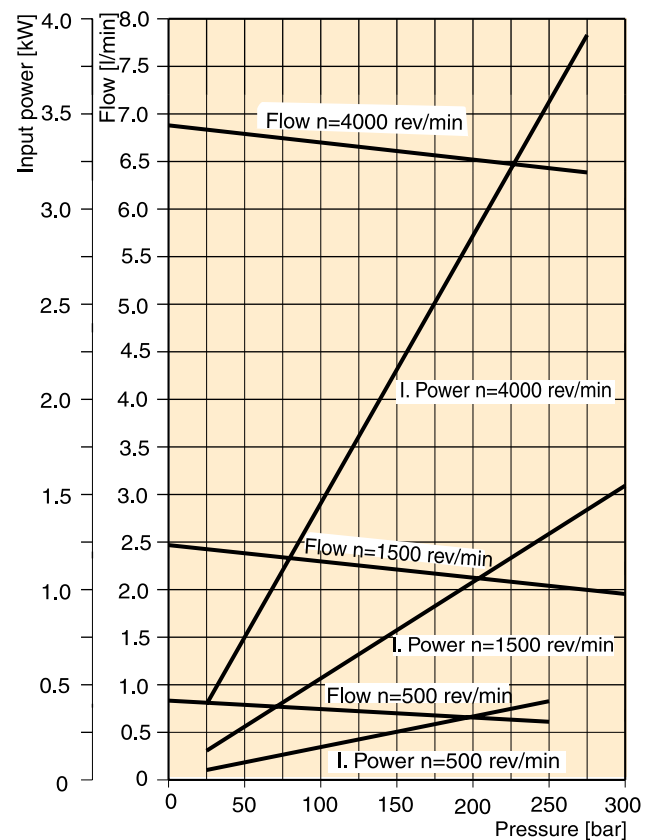
*) Not usable for rear ports

3) For further "B" triple unit repeat displacement, shaft seal between sections, side suction port, side pressure port, rear suction port, rear pressure port.

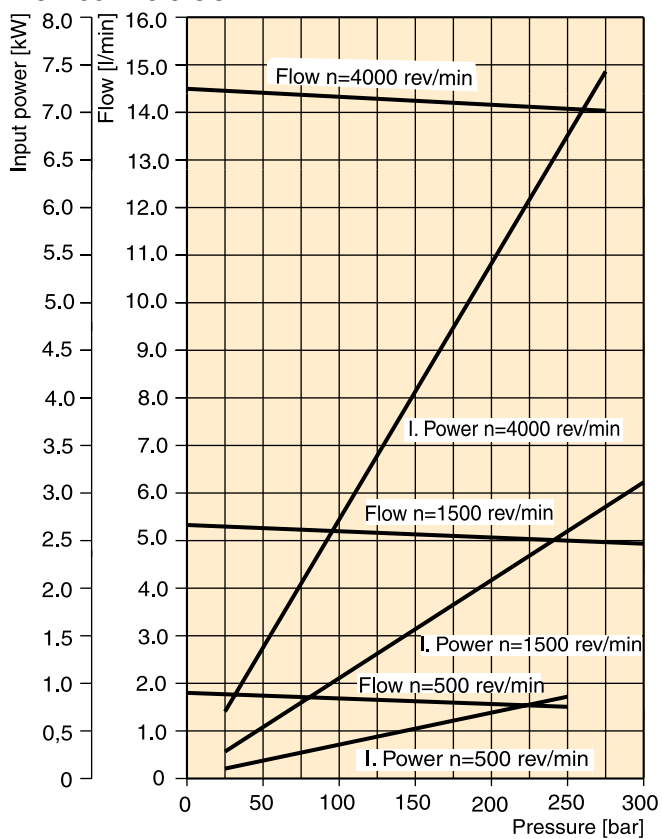
PGP 502 - 0.8 CC



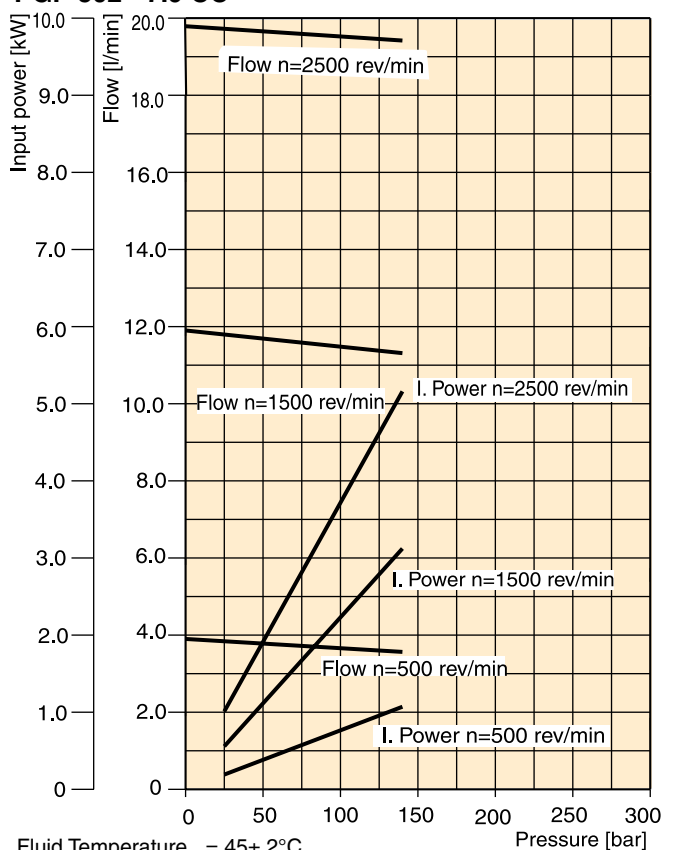
PGP 502 - 1.6 CC



PGP 502 - 3.6 CC



PGP 502 - 7.9 CC

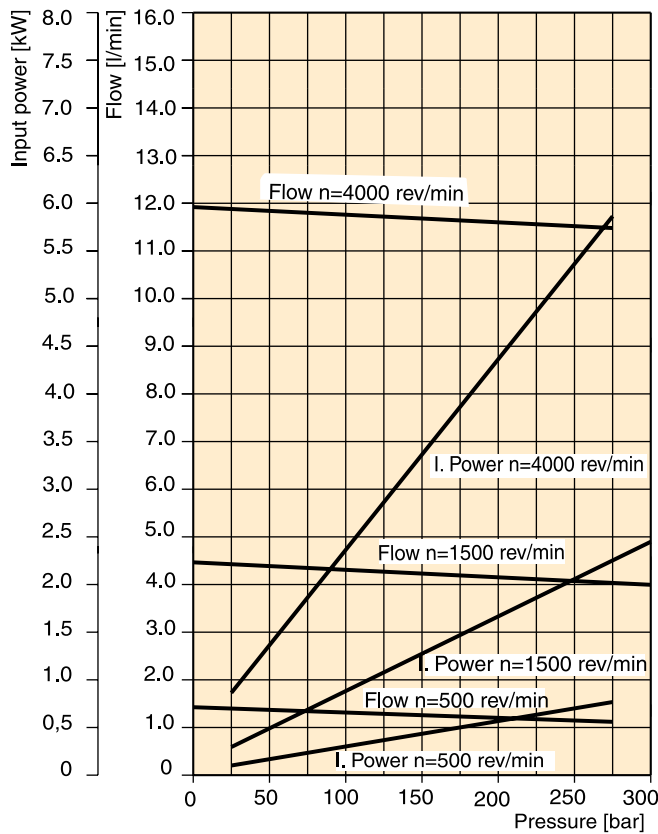


Fluid Temperature = 45 ± 2°C
 Viscosity = 36 mm²/s
 Inlet Pressure = 0.9 + 0.1 bar absolute

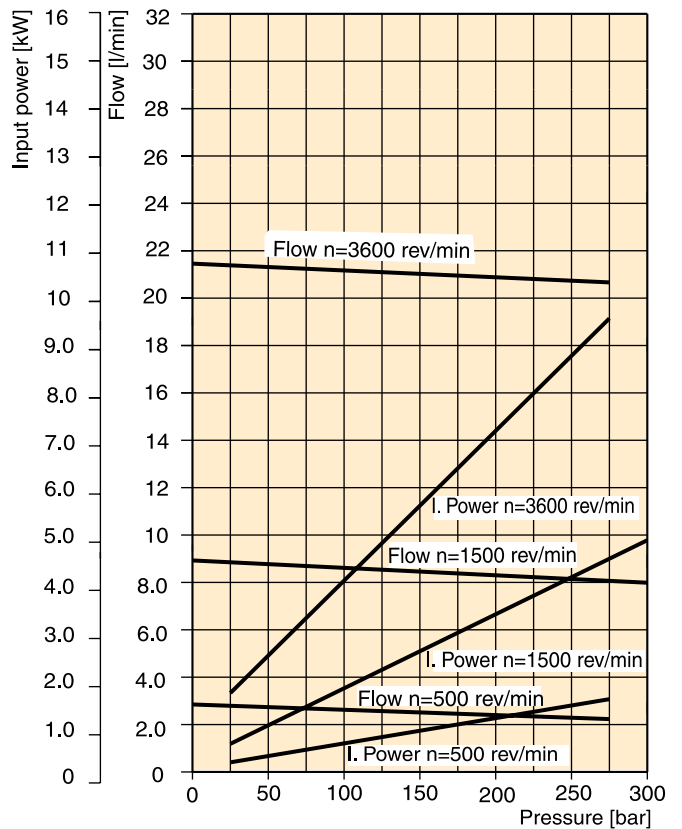
PI PGP-PGM UK.PMD RH



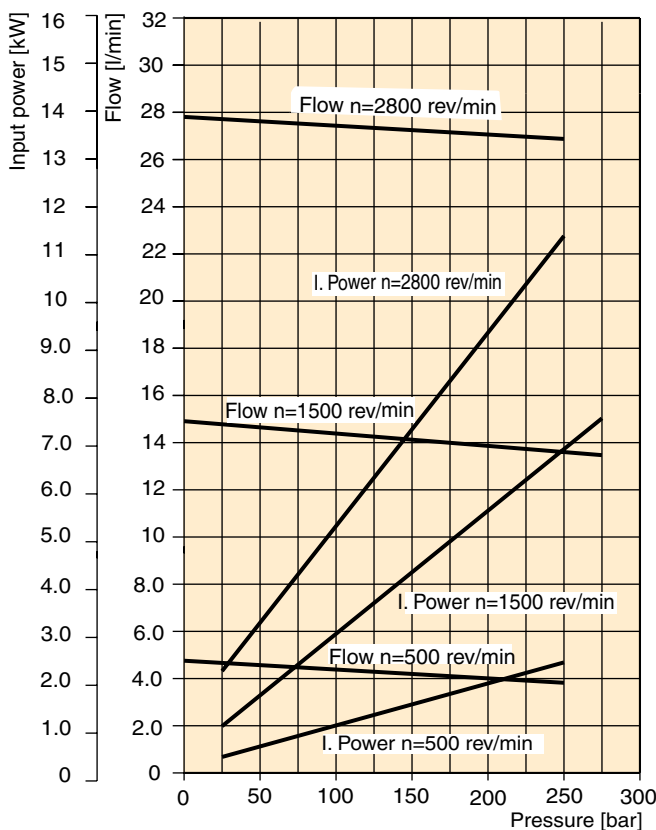
PGP 505 - 3.0CC



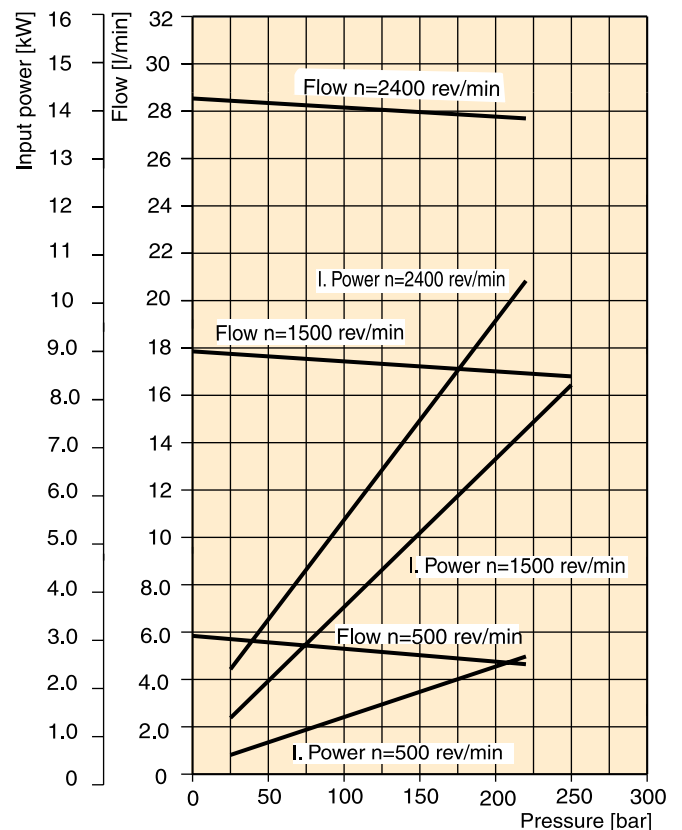
PGP 505 - 6.0 CC



PGP 505 - 10.0 CC

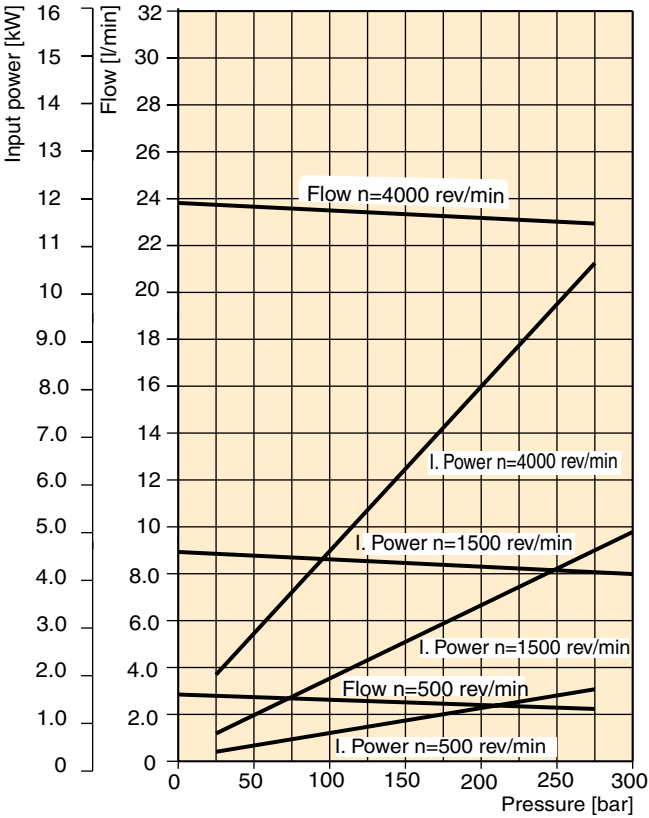


PGP 505 - 12.0 CC

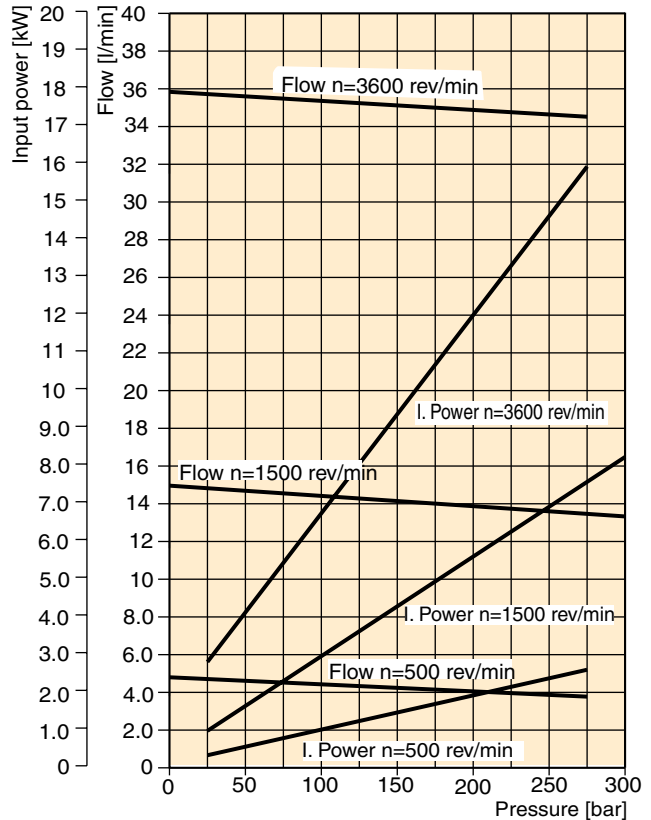


Fluid Temperature = 45± 2°C
 Viscosity = 36 mm²/s
 Inlet Pressure = 0.9 + 0.1 bar absolute

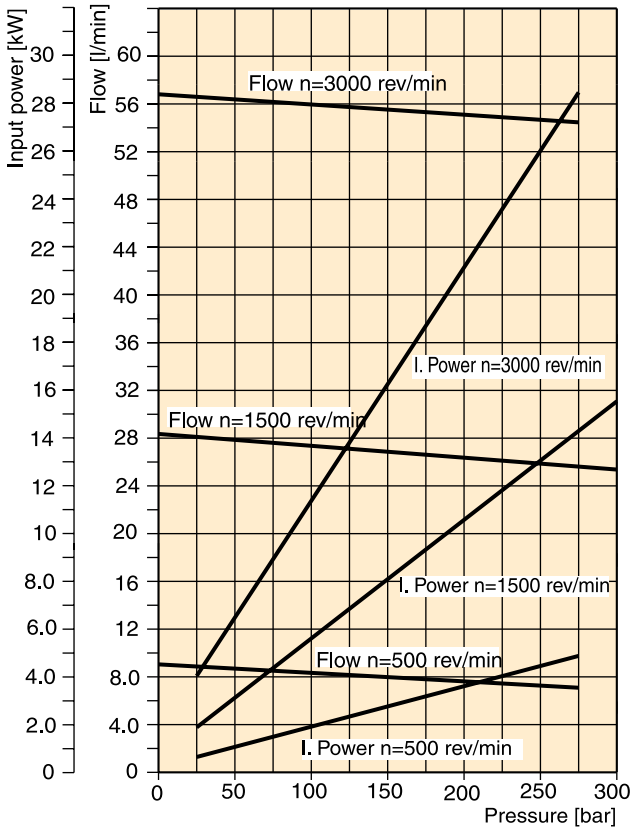
PGP 511 - 6.0 CC



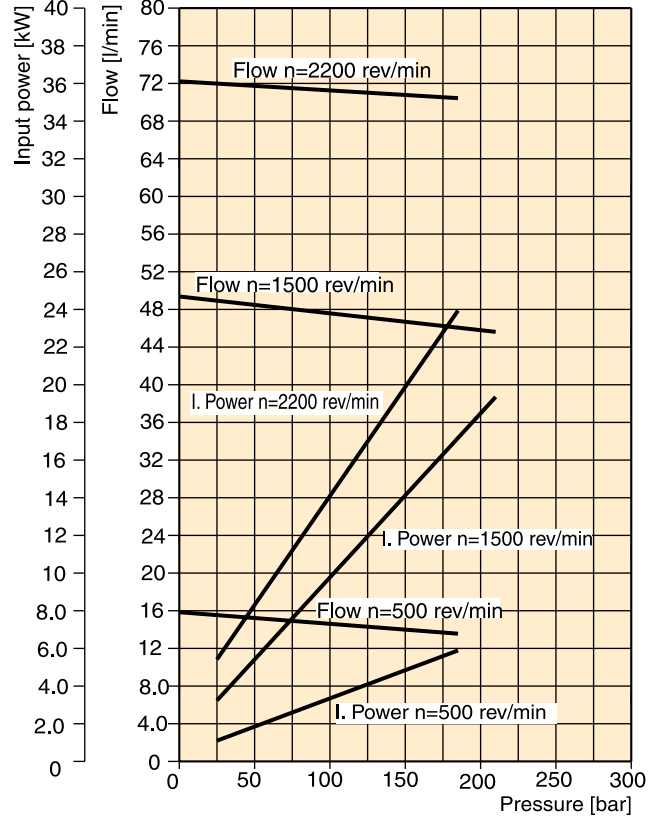
PGP 511 - 10.0 CC



PGP 511 - 19.0 CC



PGP 511 - 33.0 CC

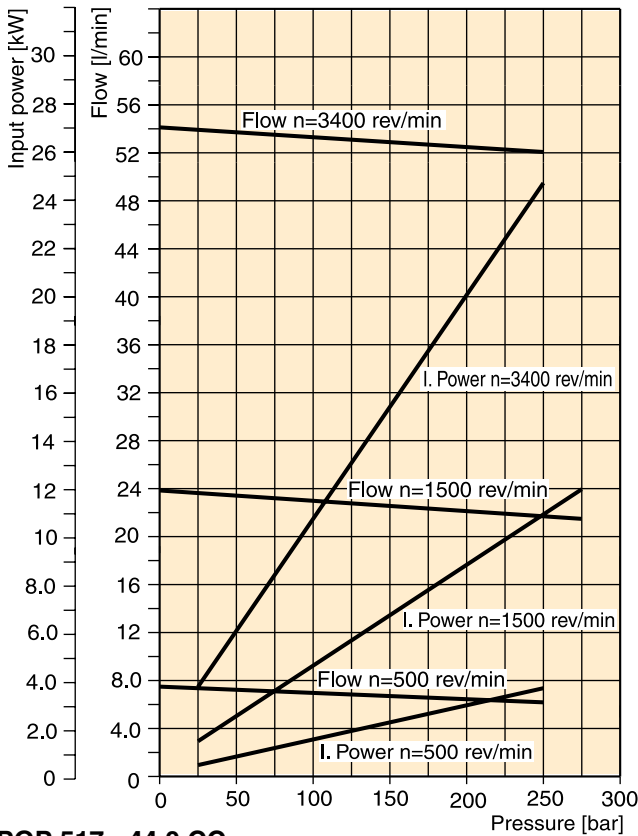


Fluid Temperature = $45 \pm 2^\circ\text{C}$
 Viscosity = $36 \text{ mm}^2/\text{s}$
 Inlet Pressure = $0.9 + 0.1 \text{ bar absolute}$

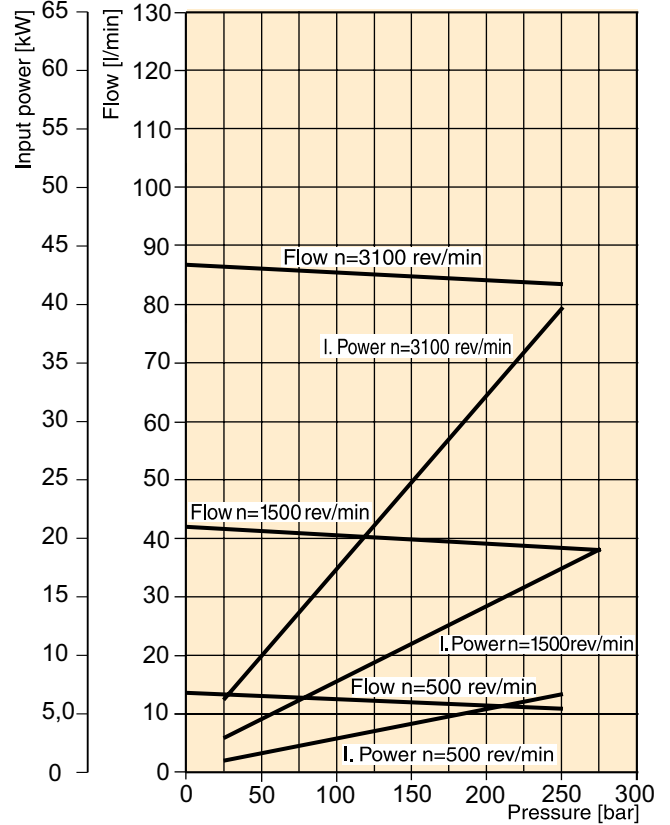
PI PGP-PGM UK.PMD RH



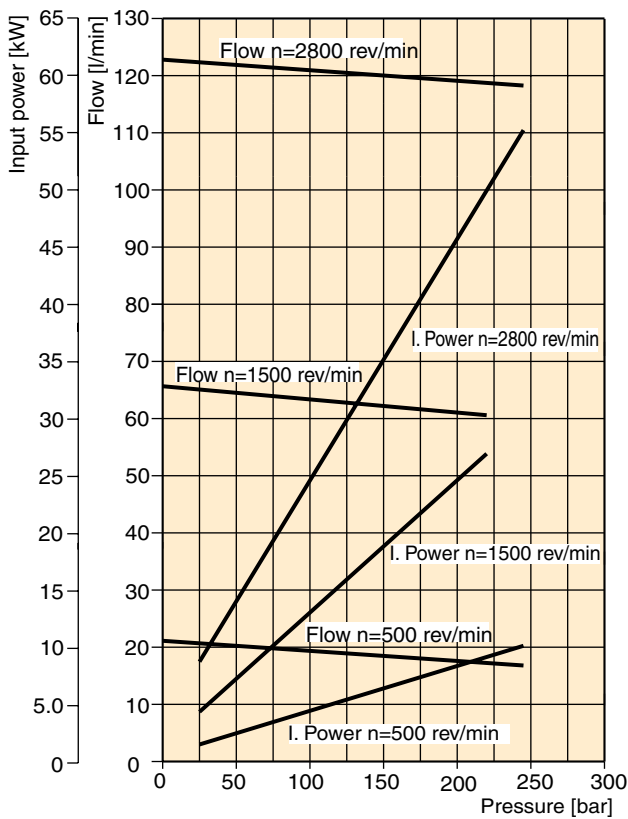
PGP 517- 16.0 CC



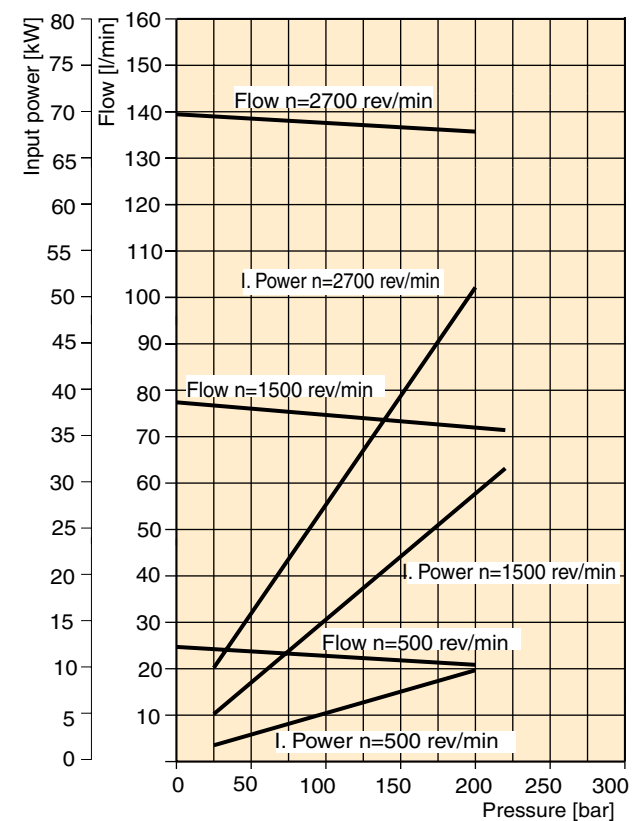
PGP 517 -28.0 CC



PGP 517 - 44.0 CC



PGP 517- 52.0 CC



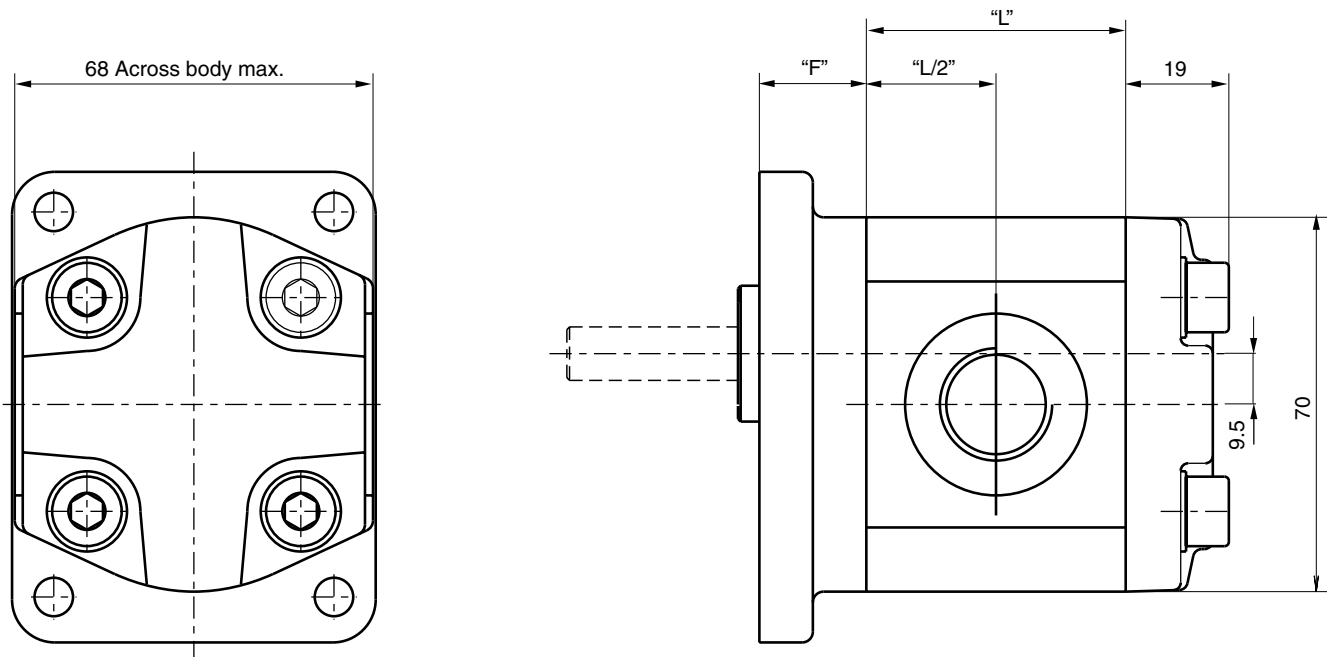
Fluid Temperature = 45± 2°C
 Viscosity = 36 mm²/s
 Inlet Pressure = 0.9 + 0.1 bar absolute

PGP 502 Pump Specification - Standard Displacements

Pump Displacement	Code	0008	0012	0016	0021	0025	0033	0036	0043	0048	0058	0062	0079
	cm ³ /rev	0.8	1.2	1.6	2.1	2.5	3.3	3.6	4.3	4.8	5.8	6.2	7.9
Max. Continuous Pressure	bar	280	280	280	280	280	280	260	250	230	200	180	160
Minimum Speed @ Max. outlet press.	rpm	500	500	500	500	500	500	500	500	500	500	500	500
Maximum Speed @ 0 Inlet & Max. outlet press.	rpm	5000	5000	5000	4500	4500	4000	4000	3500	3000	3000	3000	3000
Pump Input Power @ Max. Press. and 1500 rpm	kW	0.82	1.1	1.4	1.7	2.0	2.5	2.6	2.6	2.4	2.8	2.9	3.0
Dimension "L"	mm	35.3	36.8	38.3	39.9	41.5	44.5	45.6	48.5	50.0	53.8	55.3	61.6
Approximate Weight ¹⁾	kg	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.4	1.4	1.5	1.6

¹⁾ Single pump with Flange D1 and Port end cover B1

Single Unit PGP 502

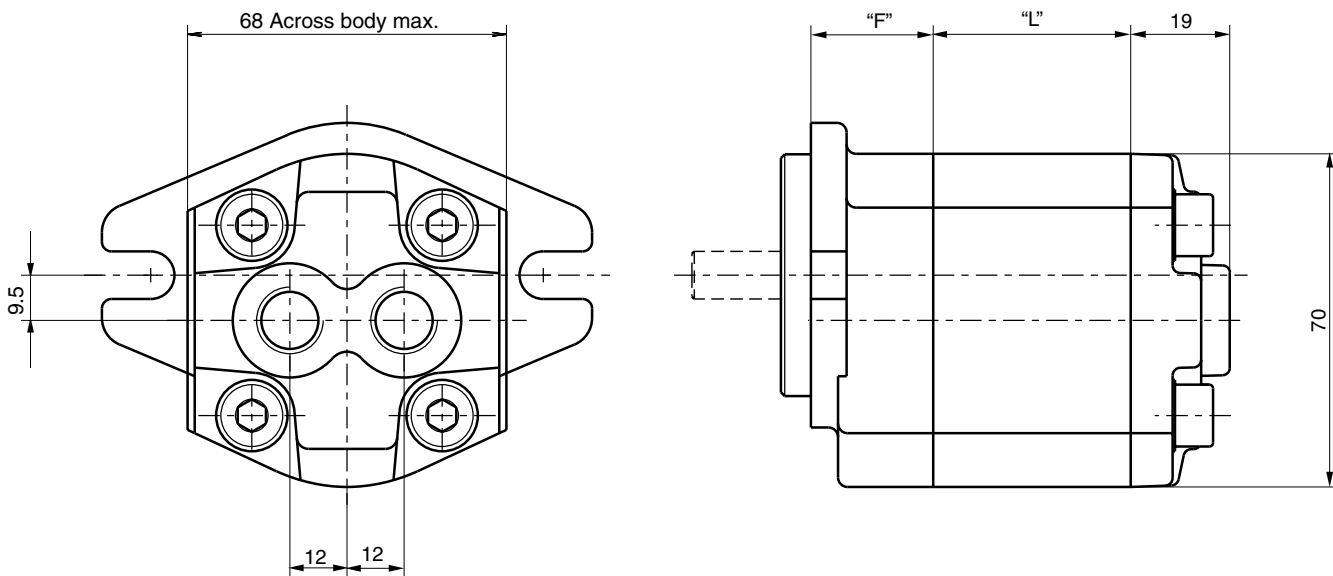


Dimension "L" see table above

Dimension "F" see flanges on page 20

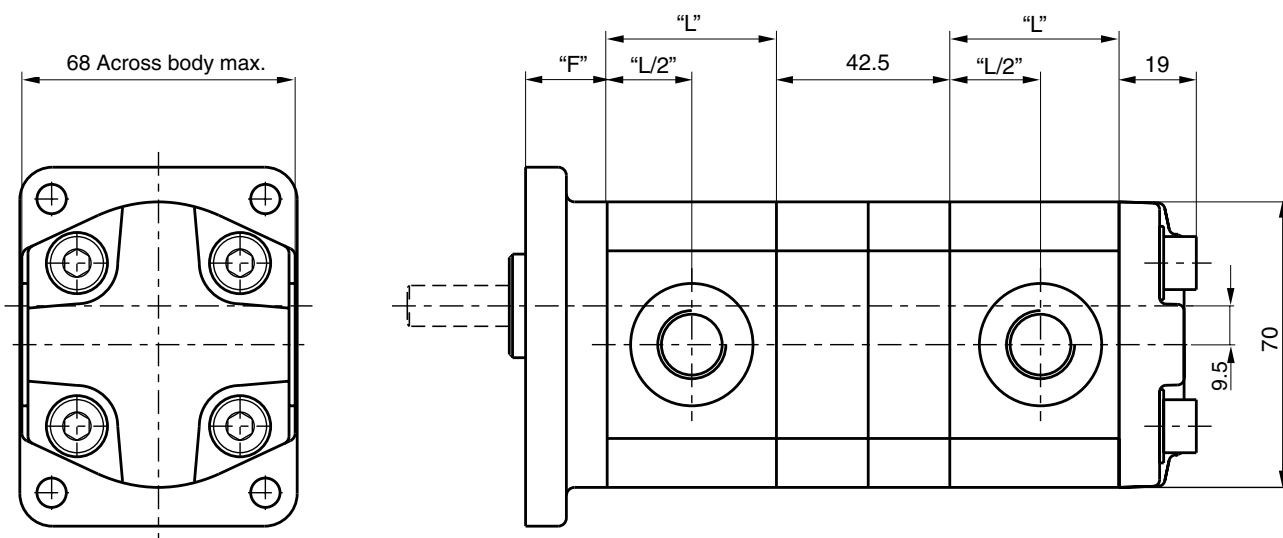
Dimension Shafts see page 22

Single Unit PGP 502 with rear ports



Dimension "L" see table on page 18
Dimension "F" see flanges on page 20
Dimension Shafts see page 22

Tandem Unit PGP 502



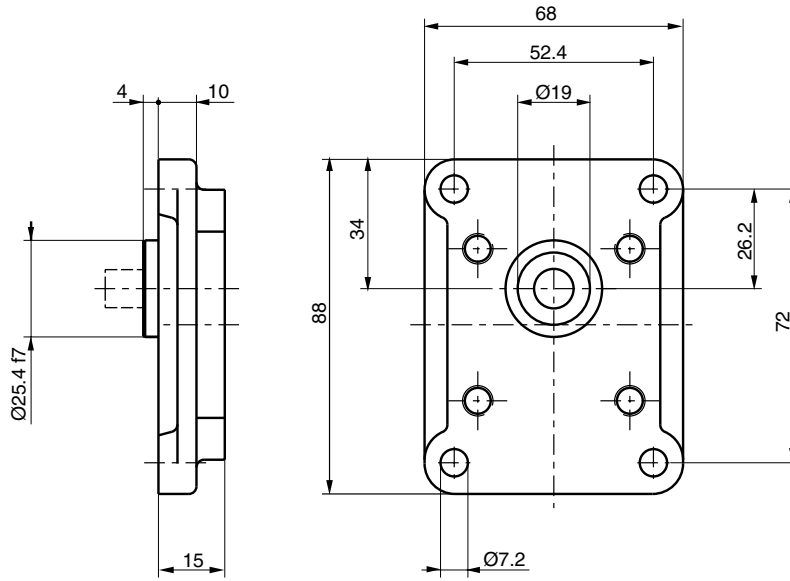
Dimension "L" see table on page 18
Dimension "F" see flanges on page 20
Dimension Shafts see page 22

PI PGP-PGM UK.PMD RH

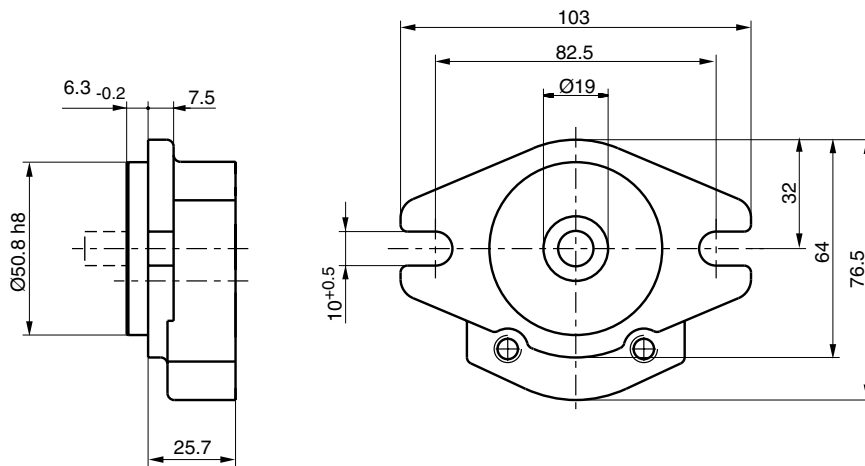


PGP 502 Mounting Flange

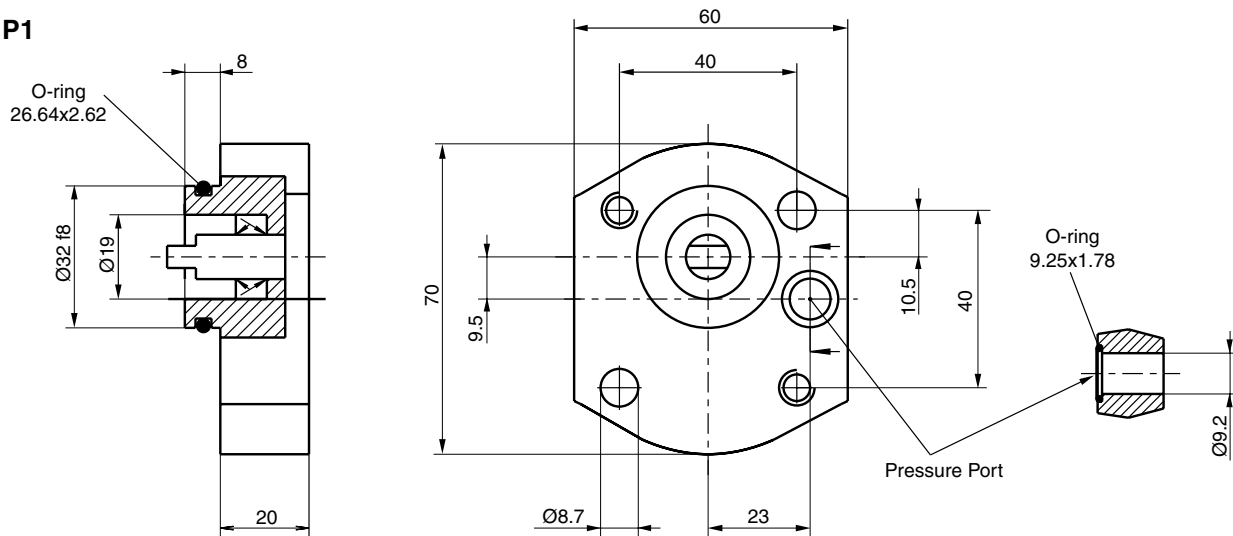
Code D1



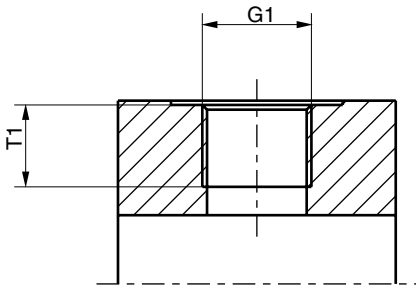
Code H1



Code P1

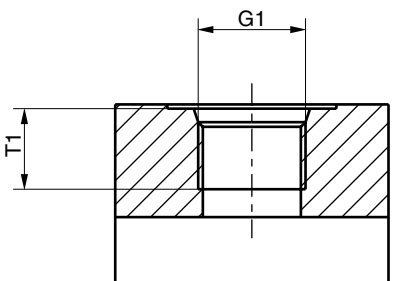
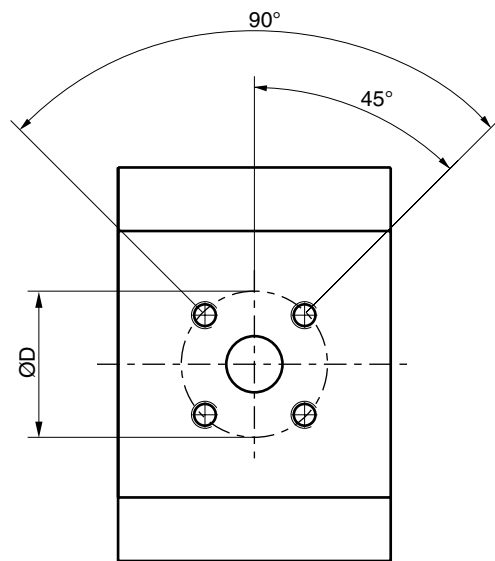
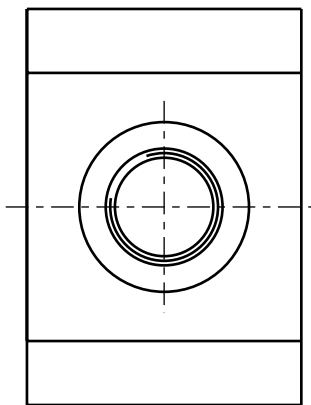
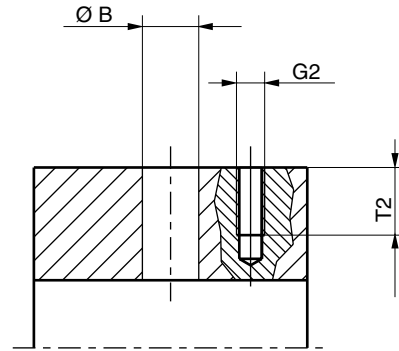


PGP 502 Porting



Code E British Standard Pipe Parallel (BSPP)

Code G Metric straight thread



Code J European flange

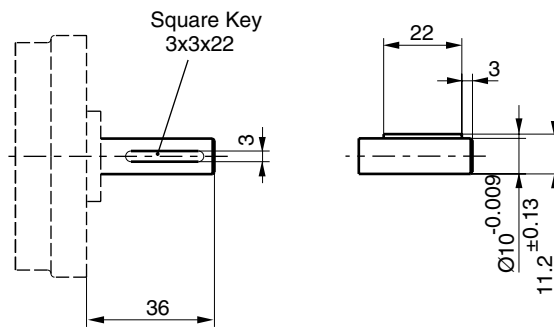
Code D SAE straight thread

PGP 502

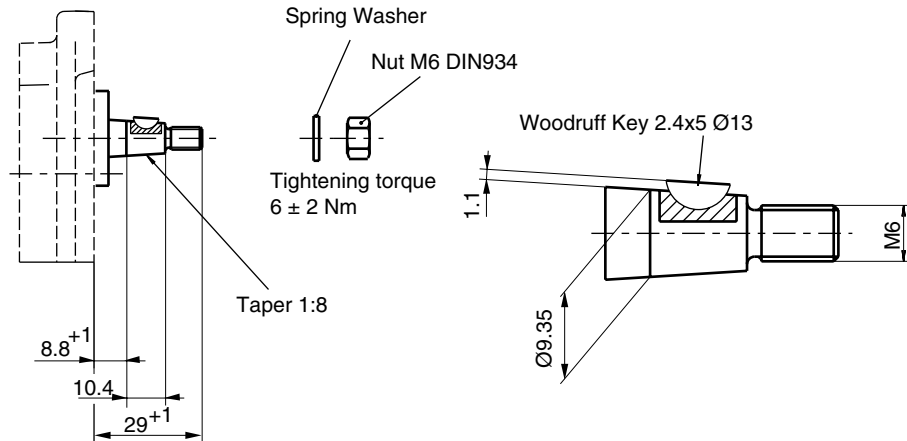
Code	G1	G2	T1	Ø B	Ø D	T2
D2	9/16-18 UNF		12.7			
D3	3/4-16 UNF		14.3			
E1	1/4-19 BSP		12.0			
E2	3/8-19 BSP		12.0			
E3	1/2-14 BSP		14.0			
G1	M14x1.5		12.0			
G3	M18x1.5		12.0			
J1		M5		8.0	26.0	12.0
J2		M5		10.0	26.0	12.0
J3		M6		8.0	30.0	12.0
J4		M6		12.0	30.0	12.0

PGP 502 Drive Shaft

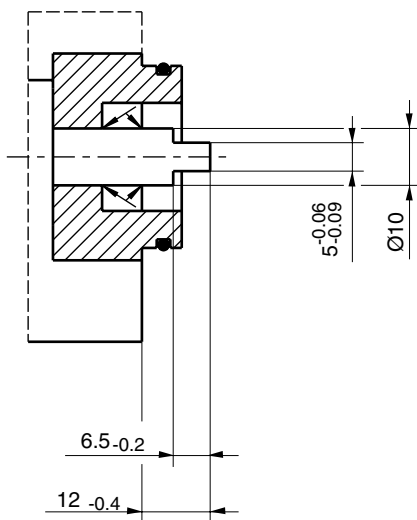
Code H1



Code P2



Code V1



PGP 502 - Shaft Load Capacity

Code	Description	Torque Rating [Nm]
H1	Ø10,3.0 KEY, no thread, 36L parallel	30
P2	Ø9.95, 8.8L, 2.4 KEY, M6 taper 1:8	30
V1	5x6.5 long shaft w/o coupling tang drive	20

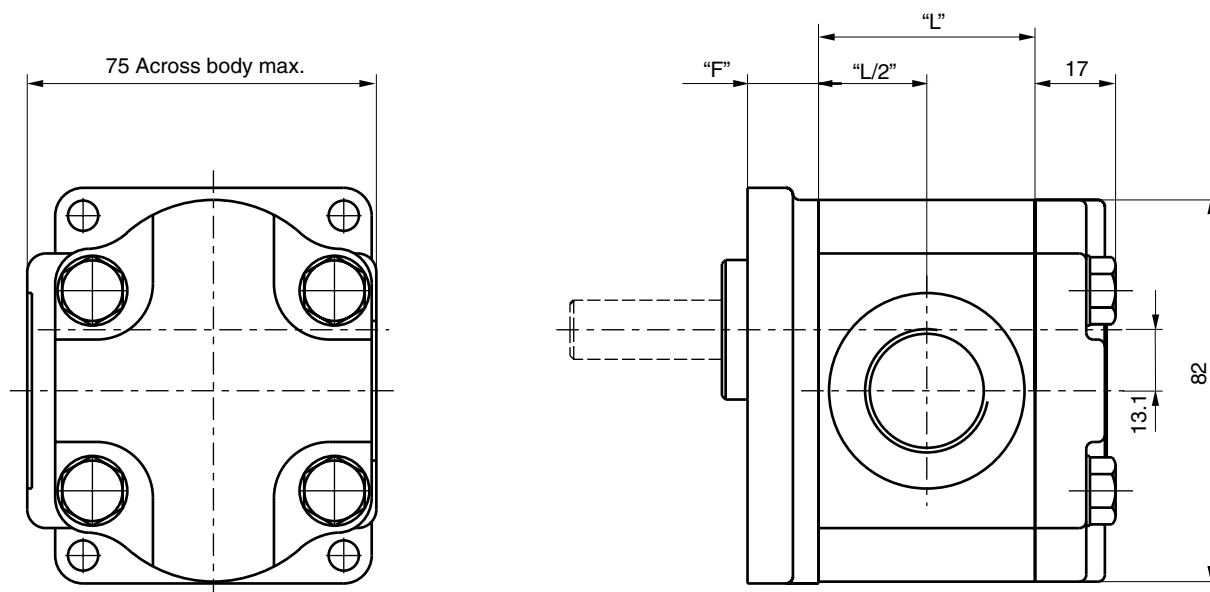
$$\text{Torque [Nm]} = \frac{\text{Displacement [cm}^3\text{/rev]} \times \text{Pressure [bar]}}{57.2}$$

PGP 505 Specification - Standard Displacements

Pump Displacement	Code	0030	0040	0050	0060	0070	0080	0100	0110	0120
	cm ³ /rev	3.0	4.0	5.0	6.0	7.0	8.0	10.0	11.0	12.0
Max. Continuous Pressure	bar	275	275	275	275	275	275	250	250	220
Minimum Speed @ Max. outlet pressure	rpm	500	500	500	500	500	500	500	500	500
Maximum Speed @ 0 Inlet & Max. outlet pressure	rpm	4000	4000	4000	3600	3300	3000	2800	2400	2400
Pump Input Power @ Max. Pressure and 1500 rpm	kW	2.3	3.0	3.8	4.5	5.3	6.0	6.9	7.6	7.5
Dimension "L"	mm	41.1	43.8	46.5	49.1	51.8	54.5	59.8	62.5	65.2
Approximate Weight1)	kg	2.22	2.27	2.32	2.38	2.43	2.48	2.58	2.63	2.68

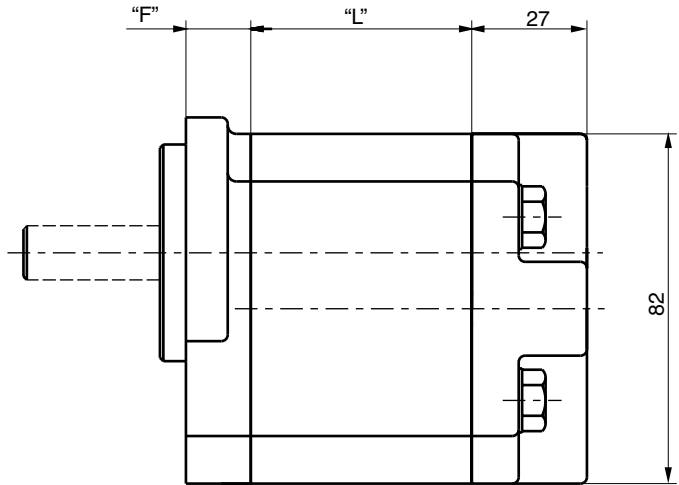
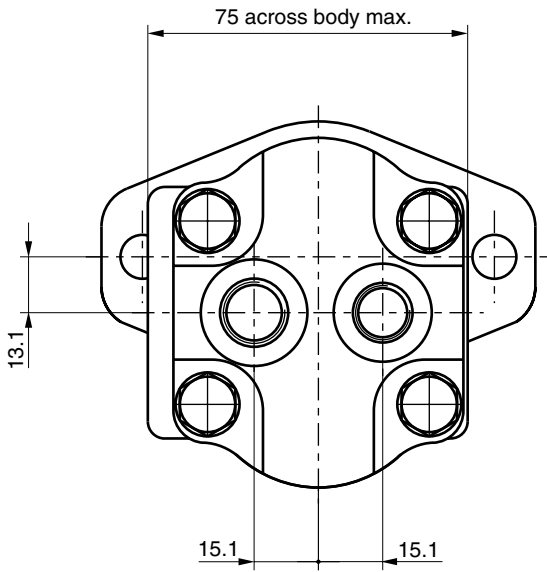
1) Single pump with Flange D3 and Port end cover B1

Single Unit PGP 505



Dimension "L" see table above
Dimension "F" see flanges on pages 25
Dimension Shafts see pages 27 and 28

Single Unit PGP 505 with rear ports

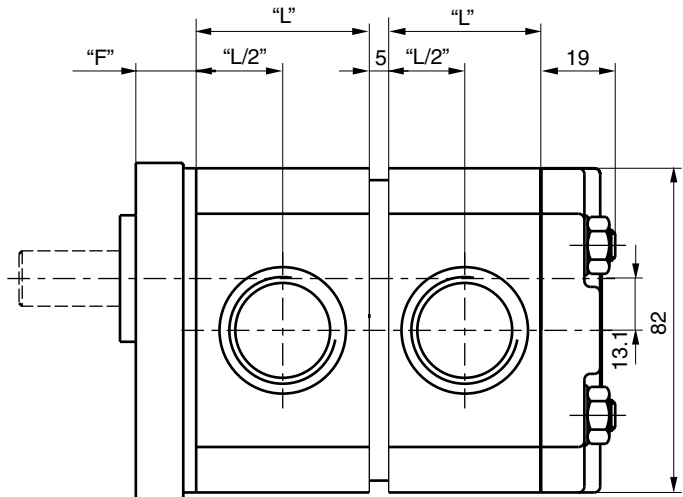
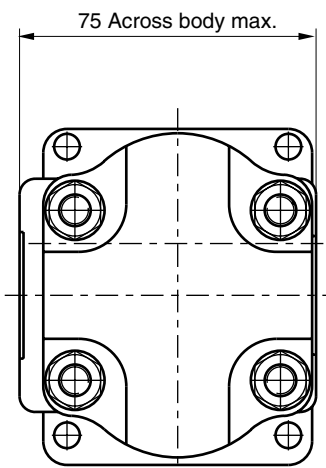


Dimension "L" see table on page 23

Dimension "F" see flanges on pages 25

Dimension Shafts see pages 27 and 28

Tandem Unit PGP 505



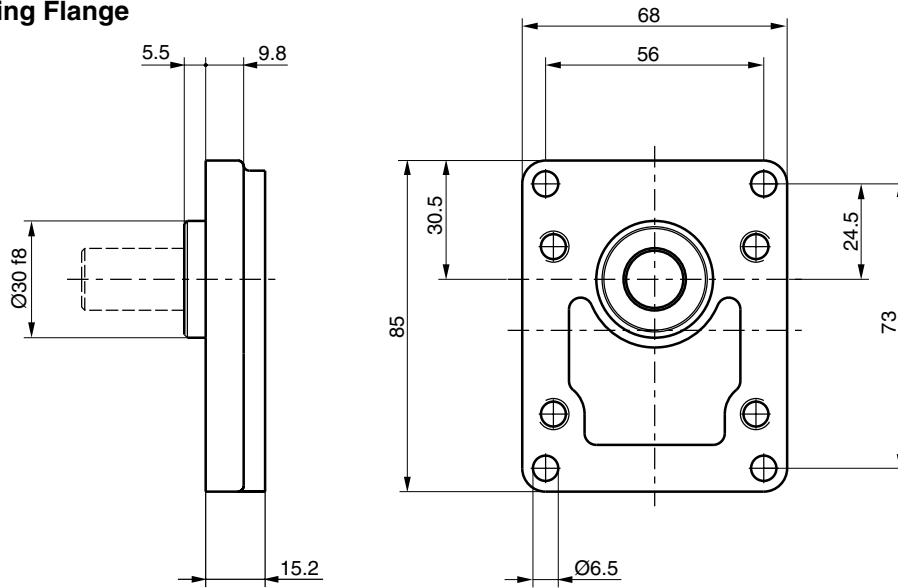
Dimension "L" see table on page 23

Dimension "F" see flanges on pages 25

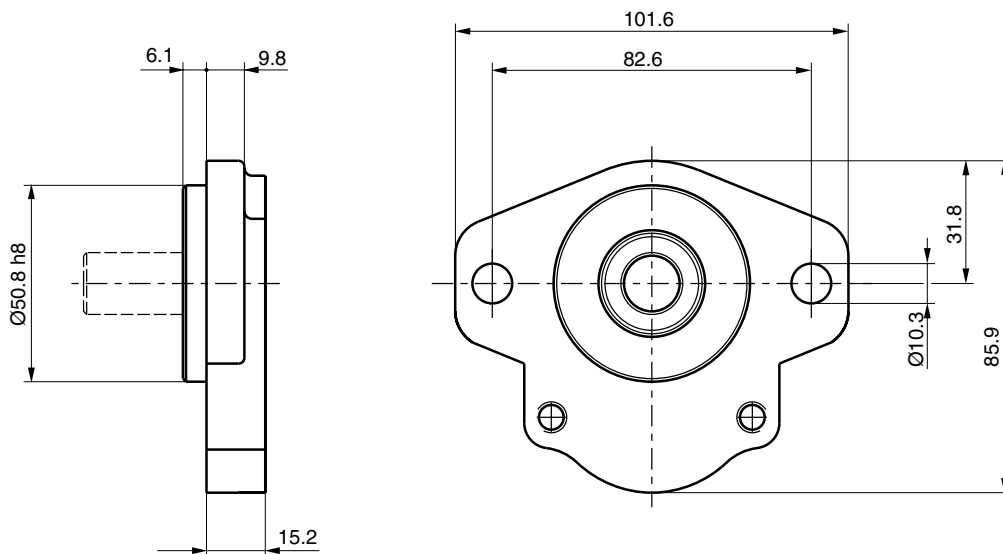
Dimension Shafts see pages 27 and 28

PGP 505 Mounting Flange

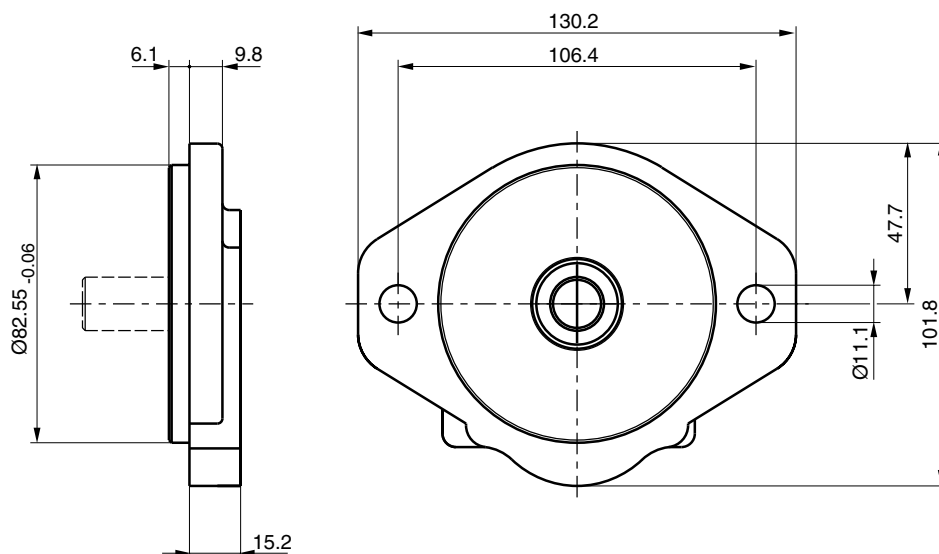
Code D2



Code H1



Code H2

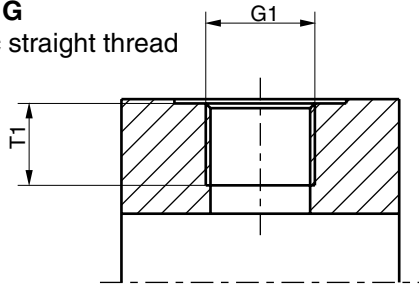


PI PGP-PGM UK.PMD RH

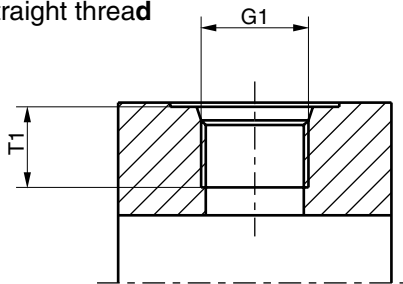
PGP 505 Porting

Code E
 British Standard Pipe

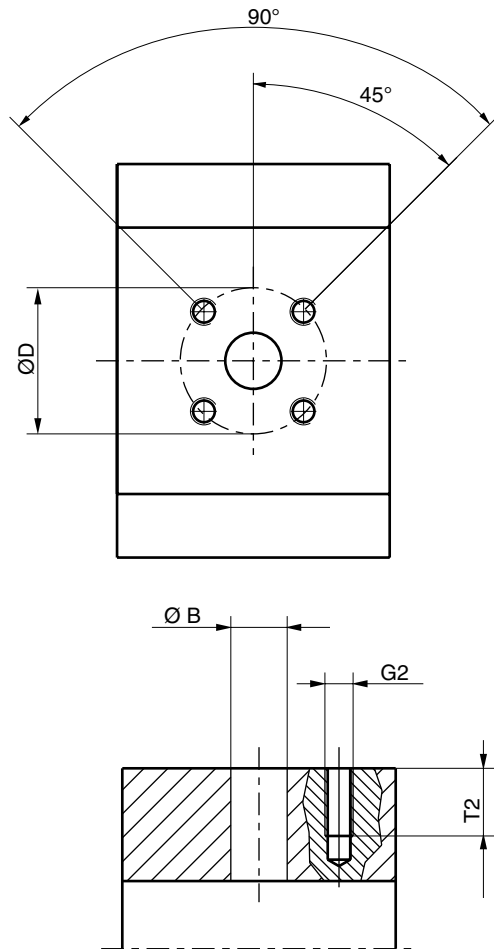
Code G
 Metric straight thread



Code D
 SAE straight thread



Code J
 European flange

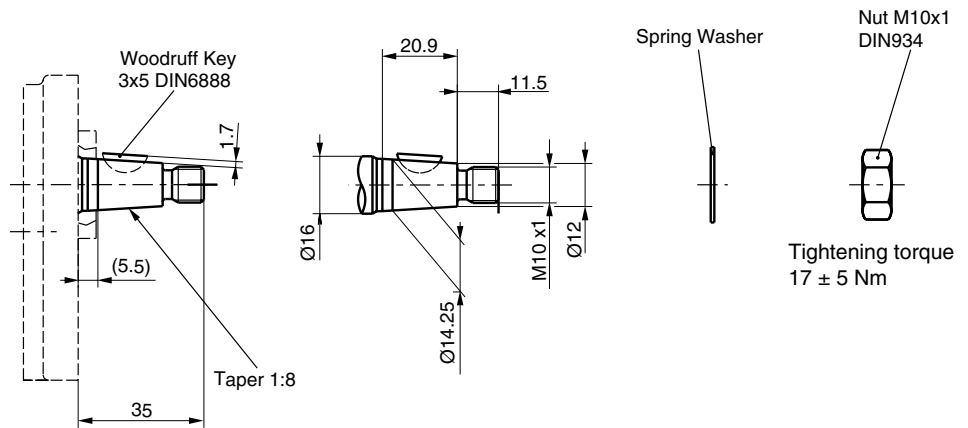


PGP 505

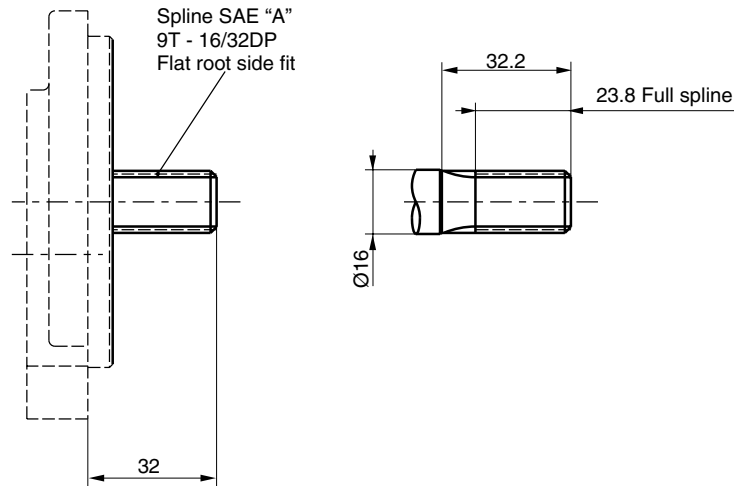
Code	G1	G2	T1	Ø B	Ø D	S	T2
Thread	Thread	Dimensions					
D2	9/16-18 UNF		12.7				
D3	3/4-16 UNF		14.3				
D4	7/8-14 UNF		16.7				
D5	1 1/16-12 UN		19.0				
E2	3/8-19 BSP		12.0				
E3	1/2-14 BSP		14.0				
E5	3/4-14 BSP		16.0				
G1	M 14x1.5		12.0				
G3	M 18x1.5		12.0				
G4	M 22x1.5		14.0				
J3		M6		8.0	30.0		12.0
J4		M6		12.0	30.0		12.0
J5		M6		15.0	35.0		12.5
J7		M6		20.0	40.0		13.0
K5		1/4UNC	14.2			25.15	13.0

PGP 505 Drive Shaft

Code Q2

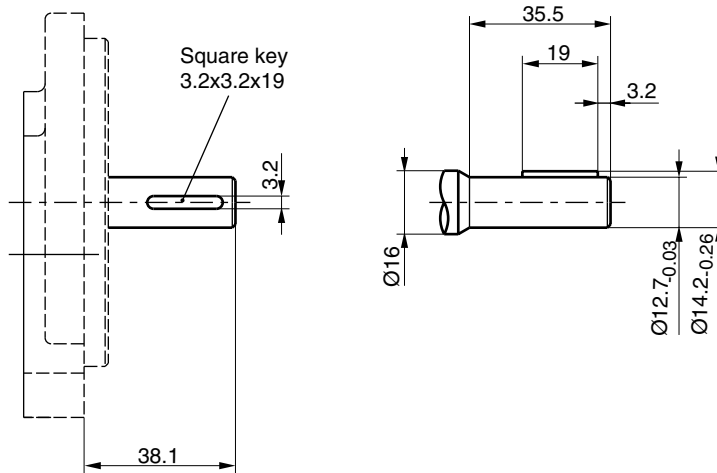


Code A1

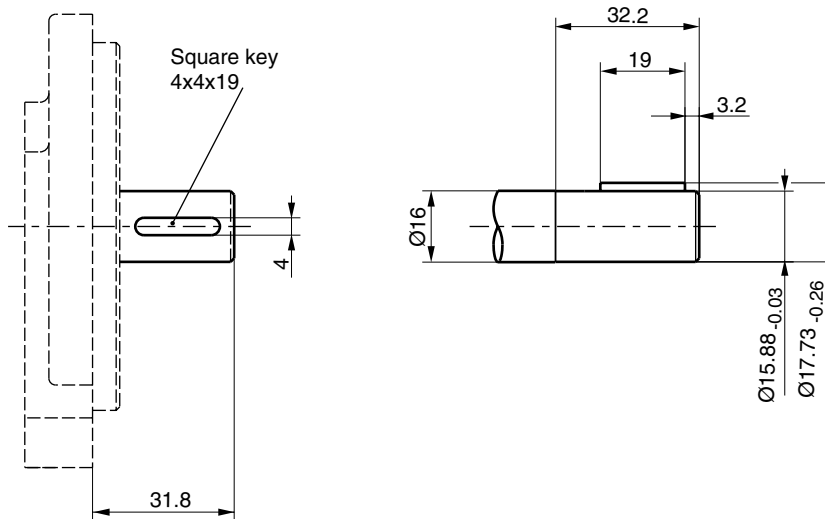


PGP 505 Drive Shaft

Code J1



Code K1



PGP 505 - Shaft Load Capacity

Code	Description	Torque Rating [Nm]
A1	9T,16/32DP, 32L, SAE“A” spline	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
	Multiple pump connection shaft	36

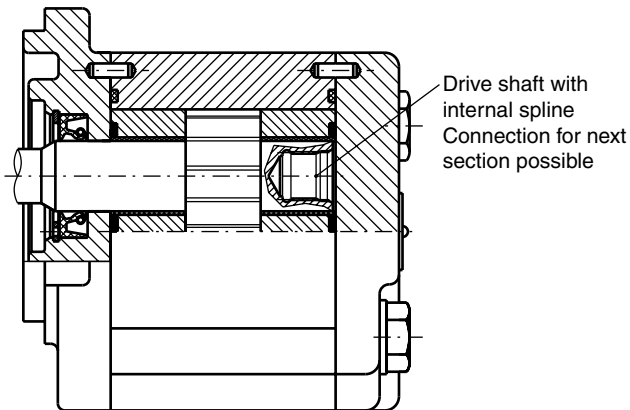
$$\text{Torque [Nm]} = \frac{\text{Displacement [cm}^3\text{/rev]} \times \text{Pressure [bar]}}{57.2}$$

PGP 511 Specification - Standard Displacements

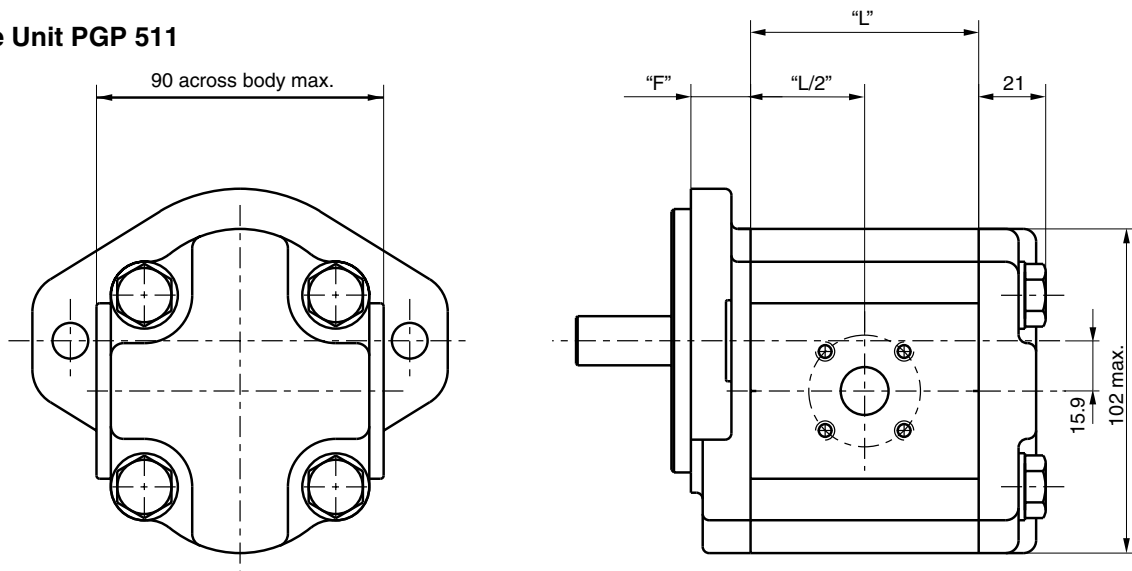
Pump Displacement	Code	0060	0080	0100	0110	0140	0160	0190	0230	0270	033
	cm ³ /rev	6.0	8.0	10.0	11.0	14.0	16.0	19.0	23.0	27.0	33.0
Max. Continuous Pressure	bar	250	250	250	250	250	250	250	225	190	155
Minimum Speed @ 0 Inlet & Max. outlet pressure	rpm	500	500	500	500	500	500	500	500	500	500
Maximum Speed @ 0 Inlet & Max. outlet pressure	rpm	3500	3500	3500	3500	3500	3500	3250	2750	2350	2000
Pump Input Power @ Max. Pressure and 1500 rpm	kW	4.5	6.0	7.5	8.3	10.5	12.0	14.3	14.7	14.9	17.3
Dimension "L"	mm	50.1	53.3	56.5	58.0	62.8	65.9	70.6	76.9	83.2	92.6
Approximate Weight ¹⁾	kg	3.40	3.47	3.55	3.57	3.71	3.79	3.91	4.06	4.21	4.45

¹⁾ Single pump with Flange Q1 and Port end cover B1

Distributor Unit PGP 511



Single Unit PGP 511



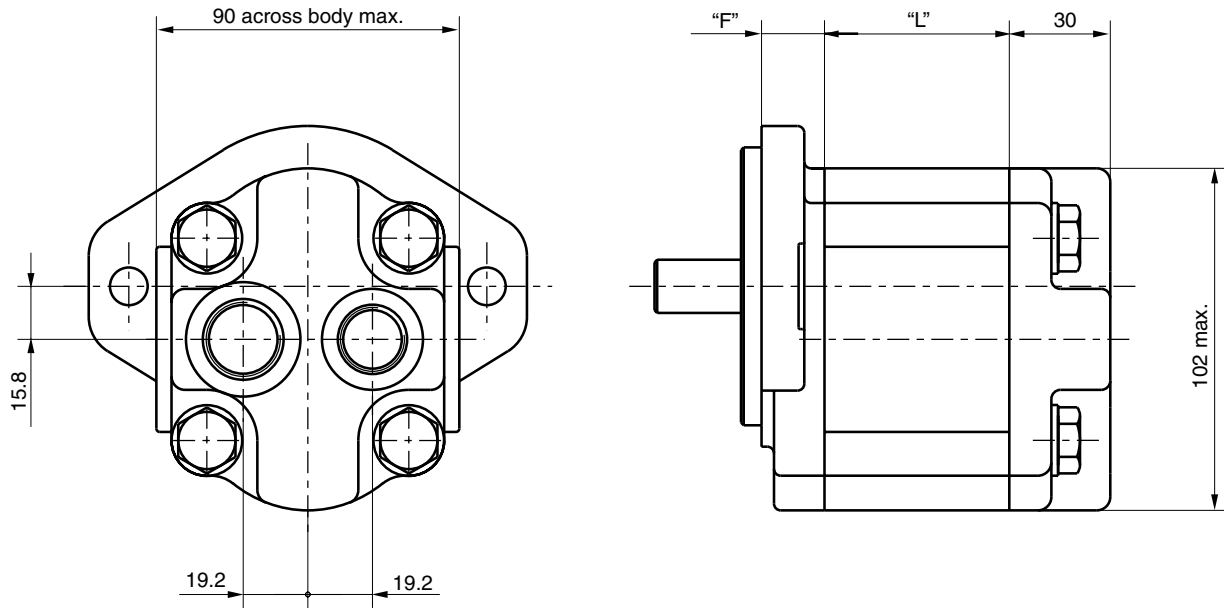
Dimension "L" see table above

Dimension "F" see flanges on pages 31 to 34

Dimension Shafts see pages 38 to 40

PI PGP-PGM UK.PMD RH

Single Unit PGP 511 with rear ports

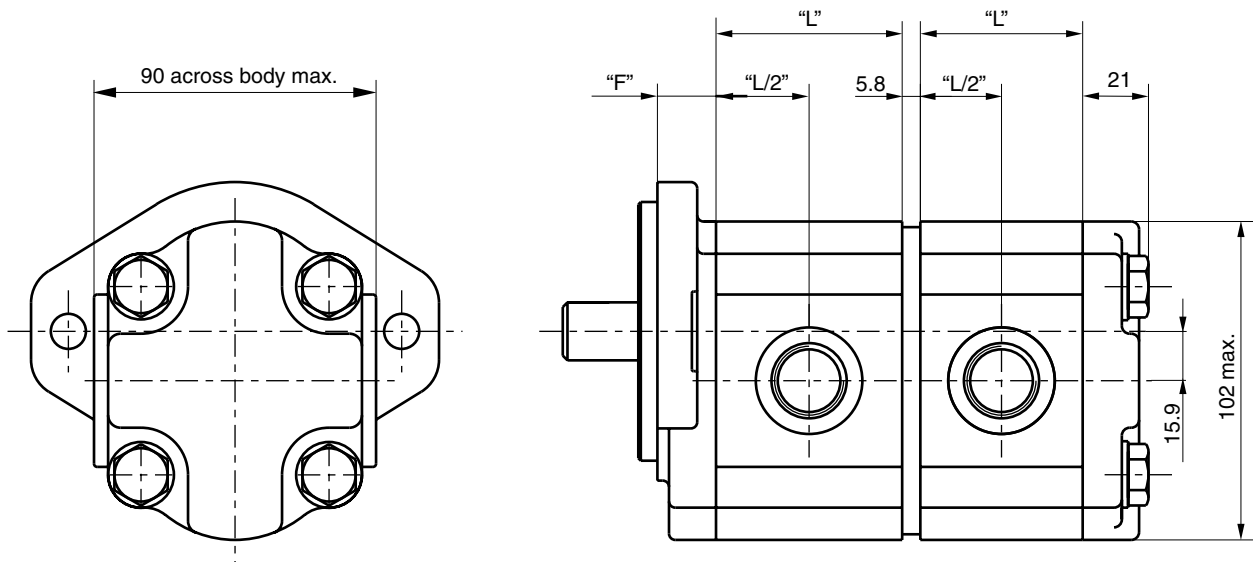


Dimension "L" see table on page 29

Dimension "F" see flanges on pages 31 to 34

Dimension Shafts see pages 38 to 40

Tandem Unit PGP 511



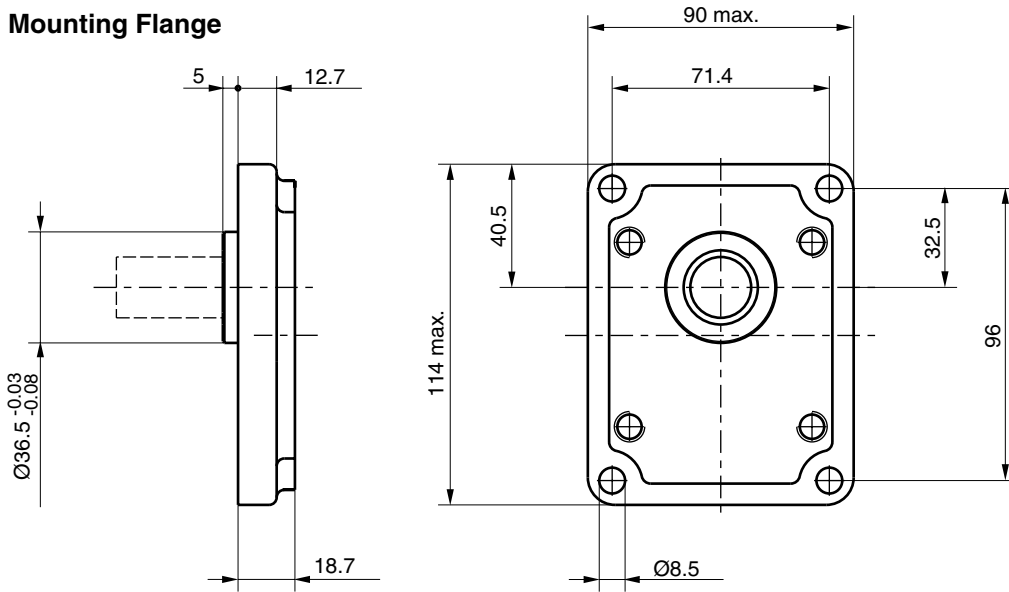
Dimension "L" see table on page 29

Dimension "F" see flanges on pages 31 to 34

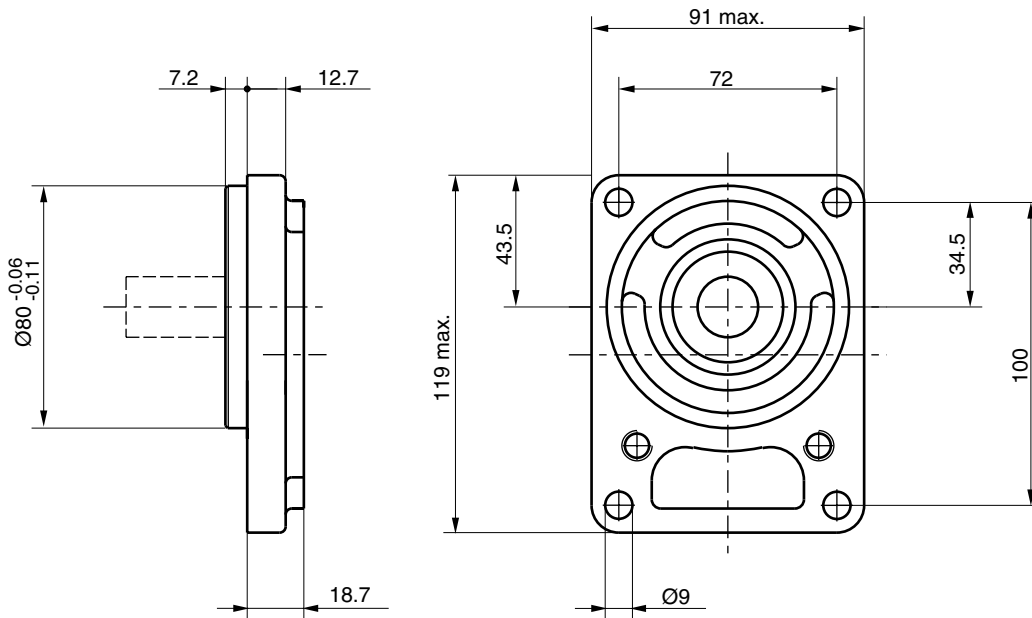
Dimension Shafts see pages 38 to 40

PGP 511 Mounting Flange

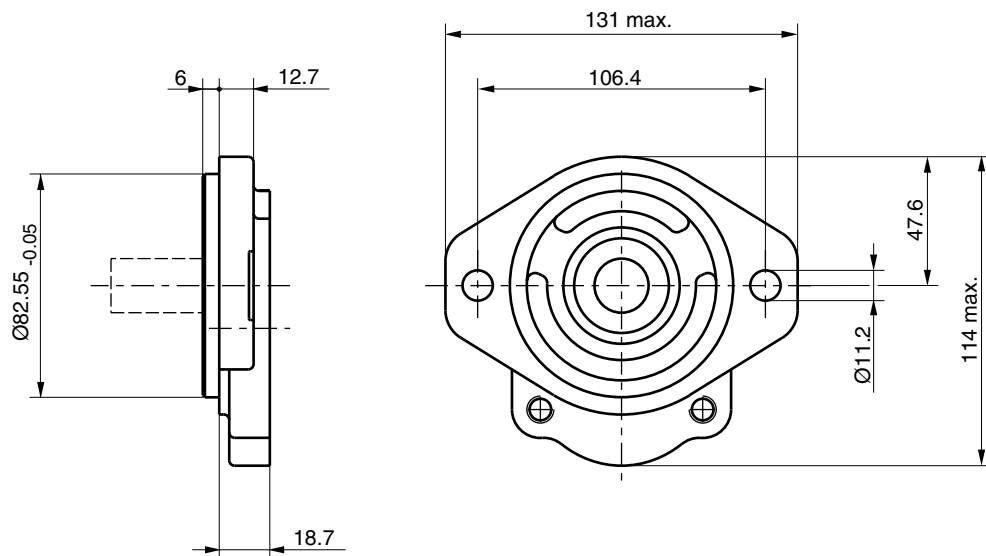
Code D3



Code D4



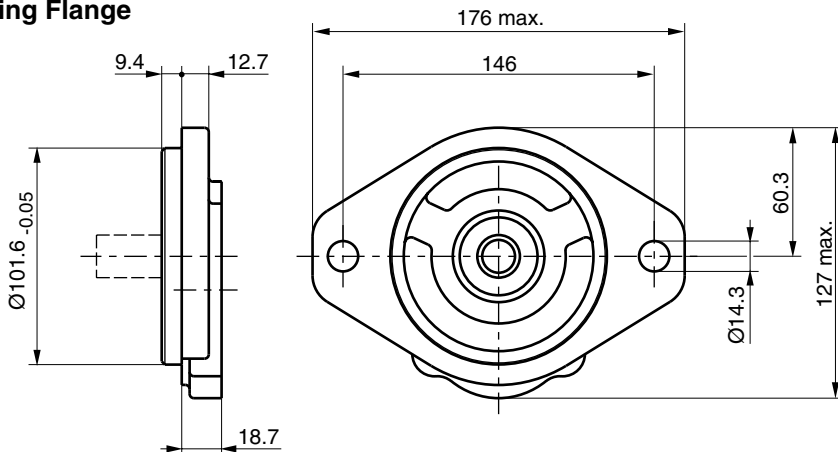
Code H2



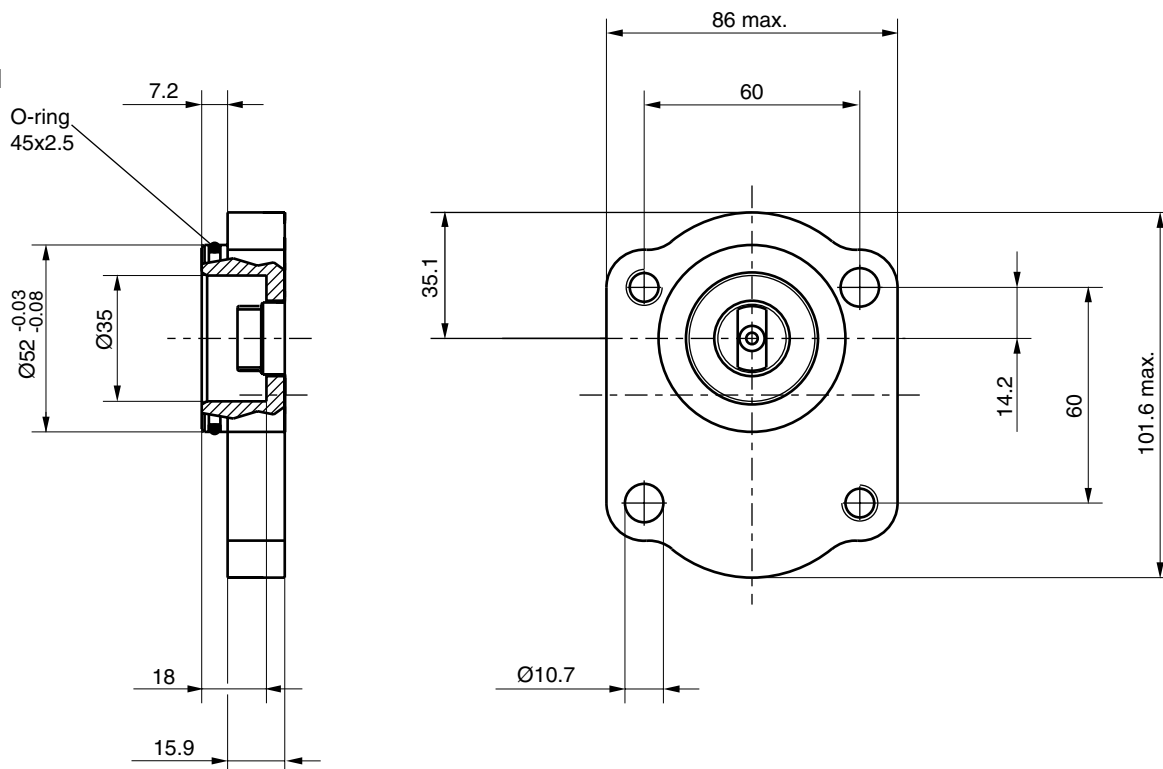
PI PGP-PGM UK.PMD RH

PGP 511 Mounting Flange

Code H3

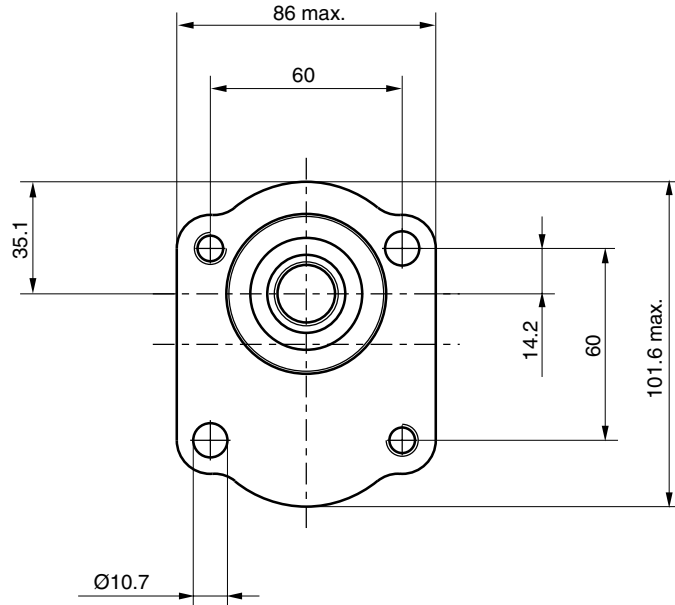
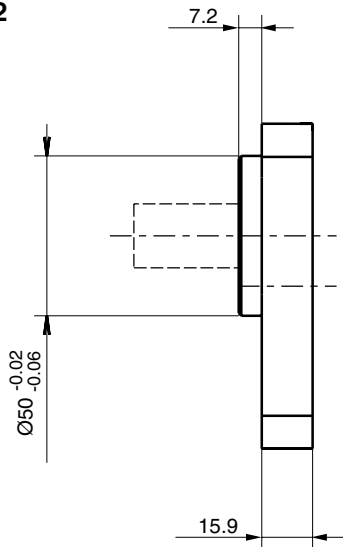


Code Q1

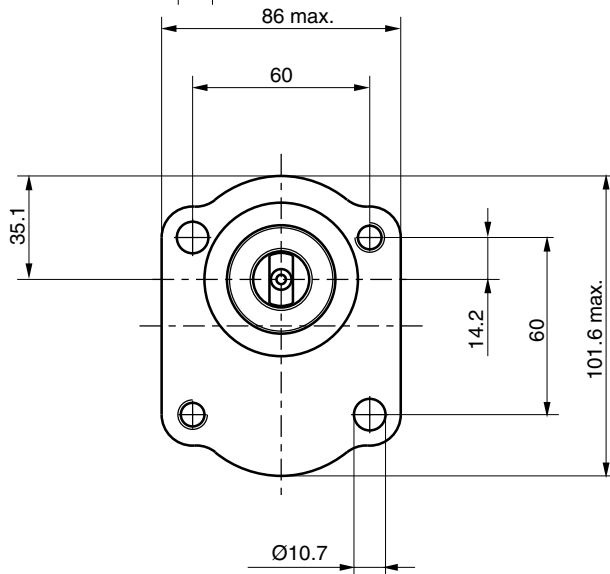
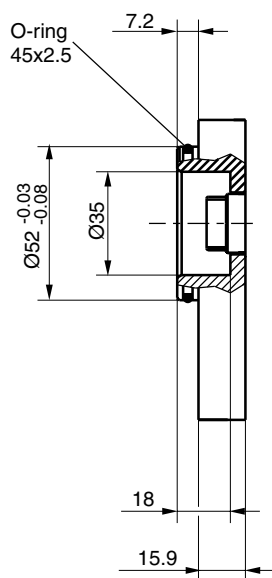


PGP 511 Mounting Flange

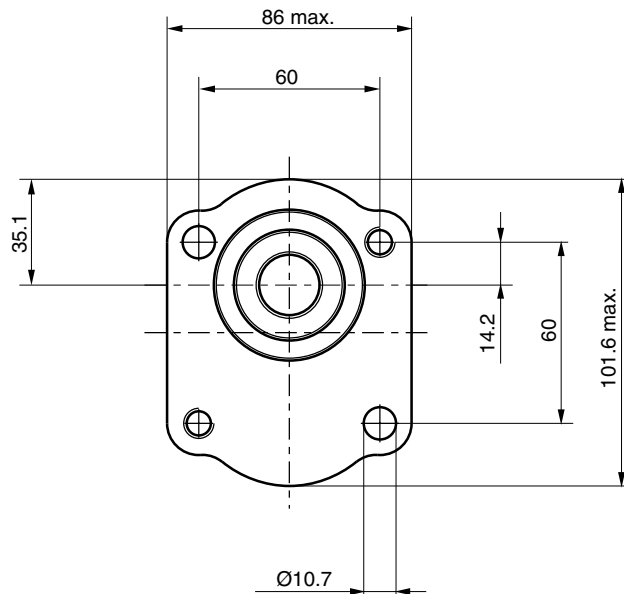
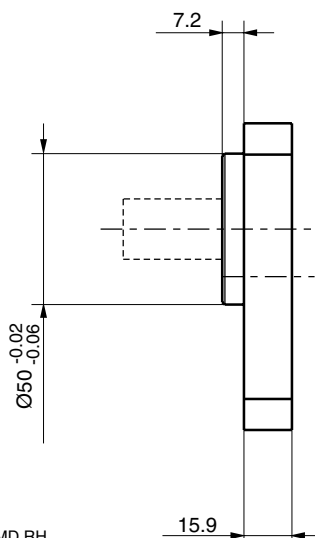
Code Q2



Code Q3



Code Q4

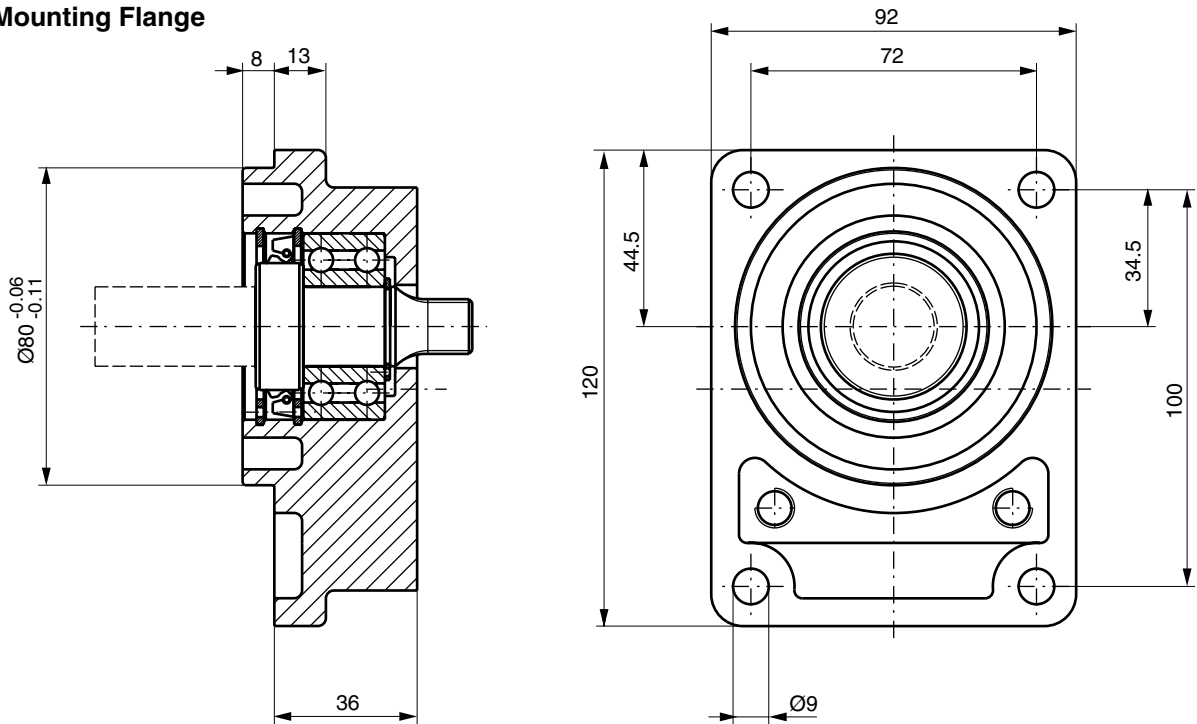


PI PGP-PGM UK.PMD RH



PGP 511 Mounting Flange

Code F4



Outboard Bearing PGP 511

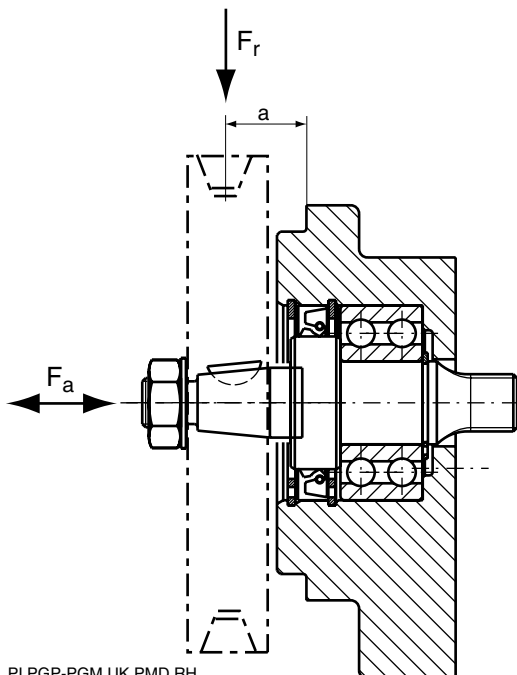
Bearing loads for code F4

Units subject to axial or radial loads, for instance drive with V-belts or gear wheels, must be specified with an outboard bearing.

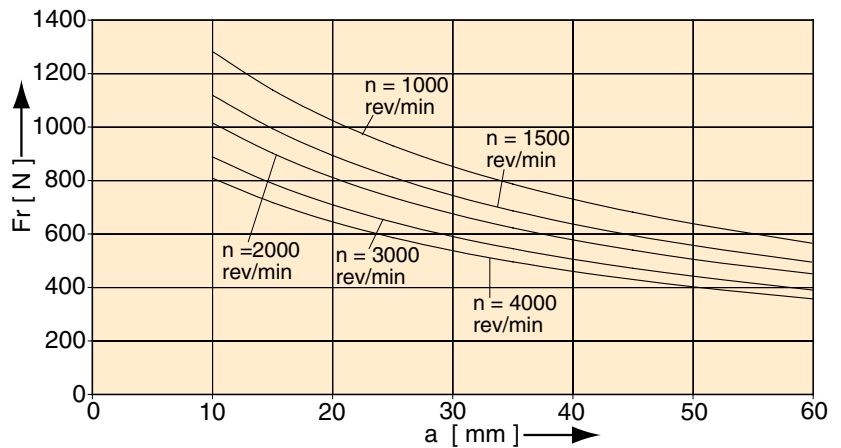
The diagrams below show the maximum axial or radial loads that can be tolerated referred to a bearing life of $L_H = 1000$ h.

F_r is reduced by 0,7 F_a when axial loading is applied.

Outboard Bearing Code F4

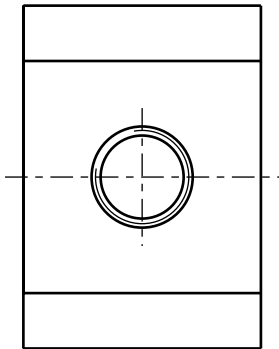


Shaft load for outboard bearings PGP 511

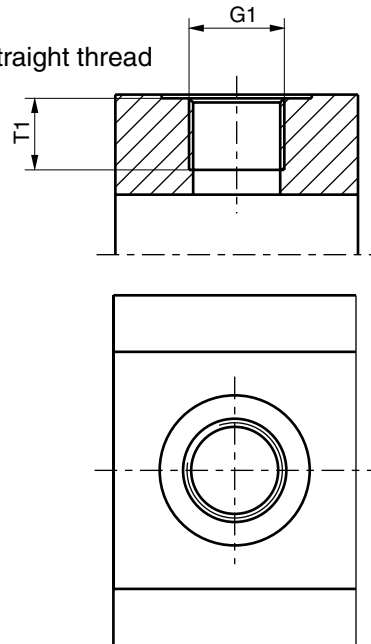


PI PGP-PGM UK.PMD RH

PGP 511 Porting

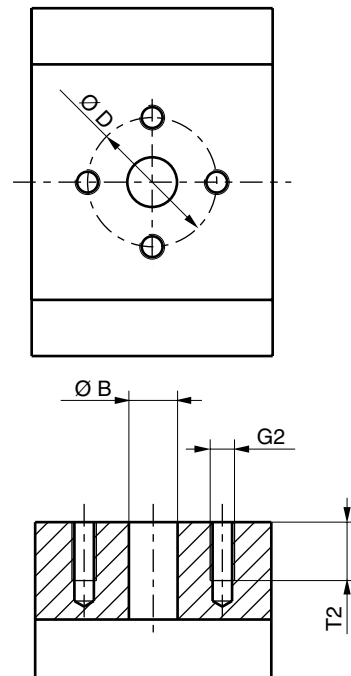


Code E
 British Standard Pipe
Code G
 Metric straight thread



Code D
 SAE straight thread

Code L
 4-Bolt flange



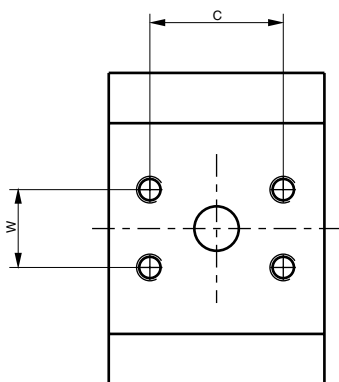
PGP 511

Code	G1	T1
	Thread	Dimensions
D2	9/16-18 UNF	12.7
D3	3/4-16 UNF	14.3
D4	7/8-14 UNF	16.7
D5	1 1/16-12 UN	19.0
D6	1 5/16-12 UN	19.0
D7	1 5/8-12 UN	19.0
E2	3/8-19 BSP	12.0
E3	1/2-14 BSP	14.0
E4	5/8-14 BSP	16.3
E5	3/4-16 BSP	16.0
E6	1-11 BSP	18.0
E7	1 1/4-11 BSP	20.0
G1	M 14x1.5	12.0
G3	M 18x1.5	12.0
G4	M 22x1.5	14.0
G5	M 26x1.5	16.0
G7	M 30x1.5	12.0

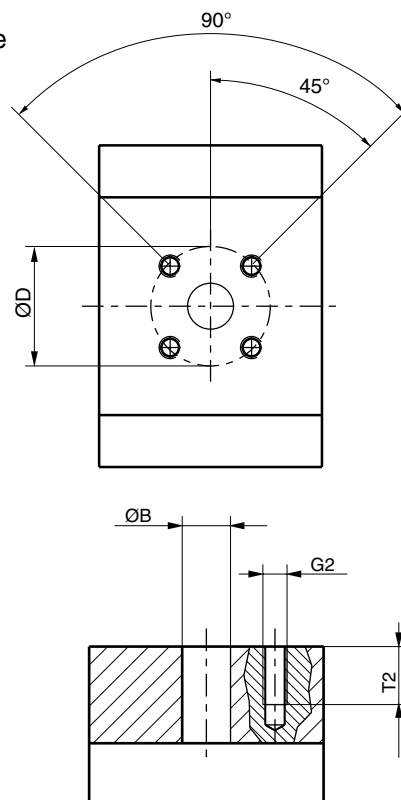
PGP 511 Porting

Code N
 SAE Split flange

Code P
 SAE Split flange
 metric thread



Code J
 European flange

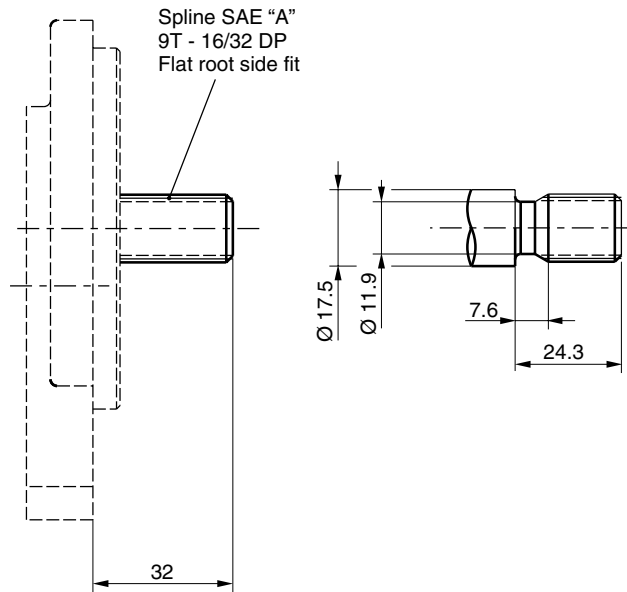


PGP 511

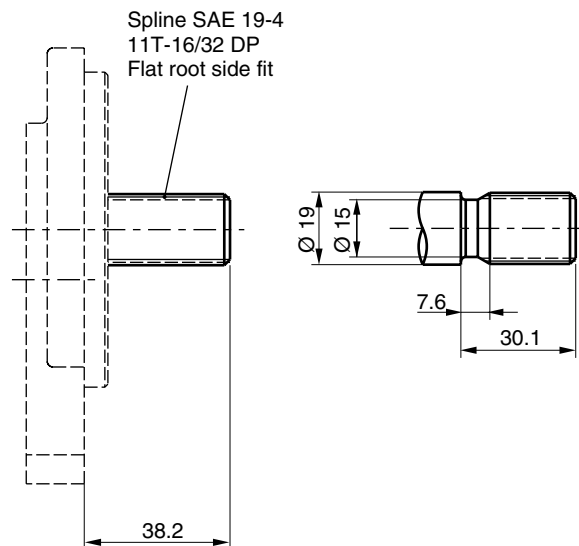
Code	G2	Ø B	Ø D	S	C	W	T2
	Thread						
J3	M6	8.0	30.0				12.0
J4	M6	12.0	30.0				12.0
J5	M6	15.0	35.0				12.5
J6	M8	15.0	40.0				15.0
J7	M6	20.0	40.0				13.0
J8	M8	18.0	55.0				15.0
J9	M8	26.0	55.0				15.0
K1	5/16-18 UNF	19.0		30.48			15.0
K2	M8	19.0		30.48			15.0
K3	M6	19.0		32.00			13.0
K4	M6	16.0		25.15			13.0
L1	M6	13.0	30.0				13.0
L2	M8	19.0	40.0				15.0
N1	5/16-18 UNC	12.7			38.10	17.48	15.0
N2	3/8-16 UNC	19.0			47.63	22.23	14.0
N3	3/8-16 UNC	25.4			52.37	26.19	20.6
N4	7/16-14 UNC	31.8			58.72	30.17	20.6
P1	M8	12.7			38.10	17.48	15.0
P2	M10	19.0			47.63	22.23	20.6
P3	M10	25.4			52.37	26.19	21.4
P4	M10	31.8			58.72	30.17	20.6

PGP 511 Drive Shaft

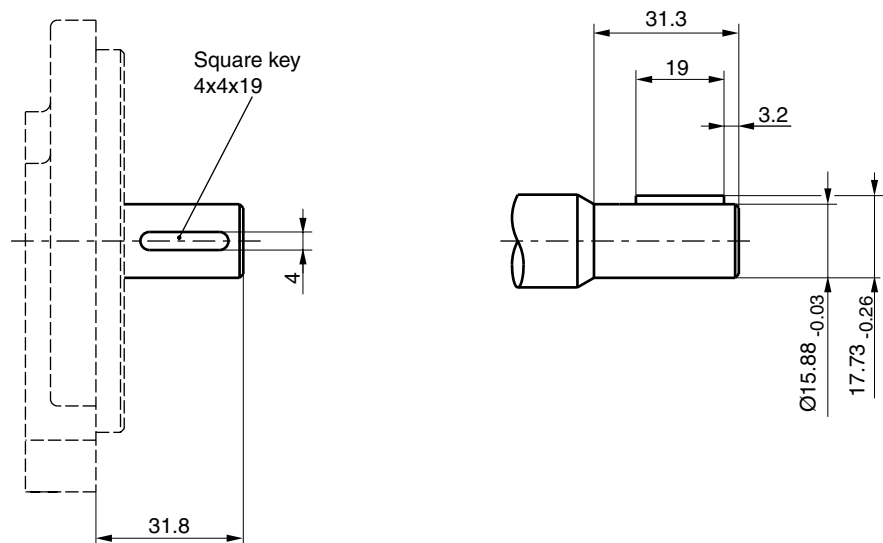
Code A1



Code C1

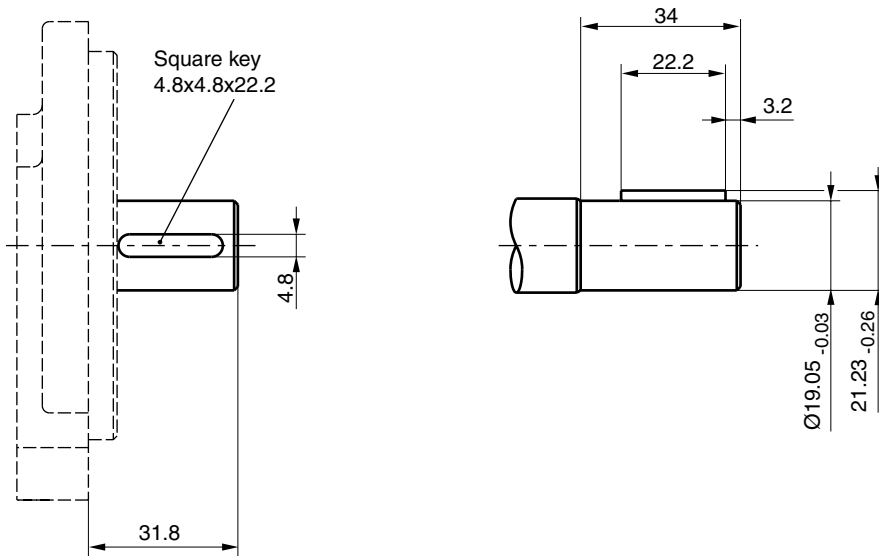


Code K1

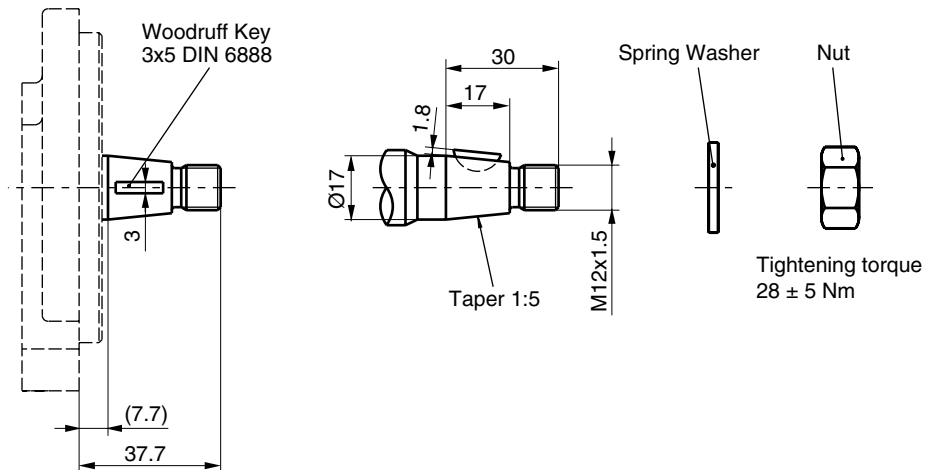


PGP 511 Drive Shaft

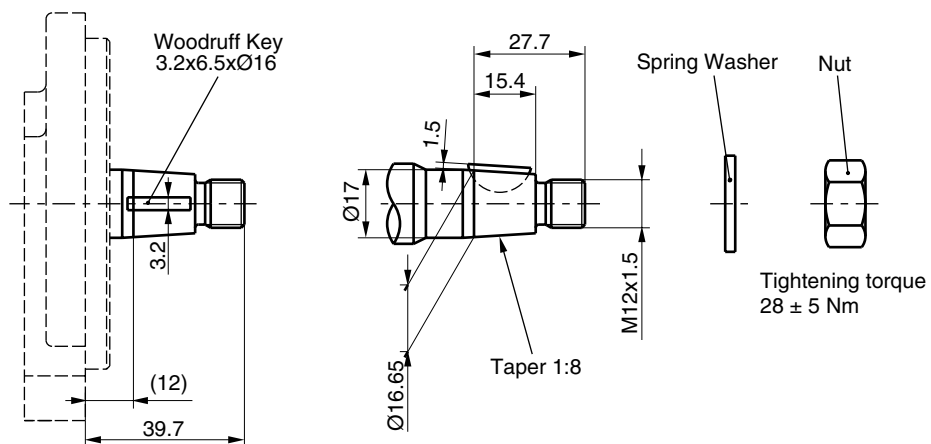
Code L6



Code S1

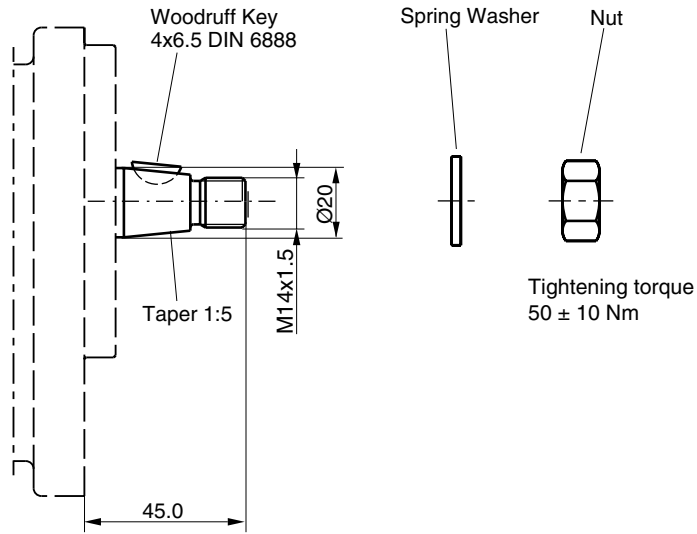


Code S2

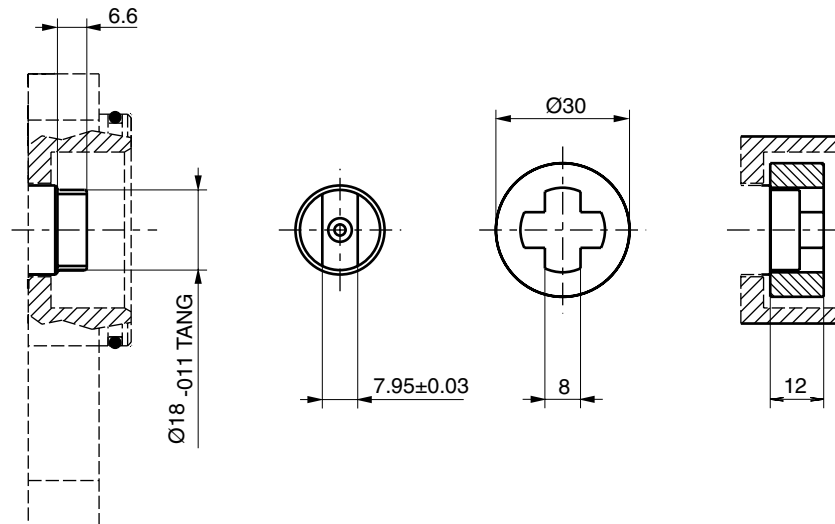


PGP 511 Drive Shaft

Code S8



Code V5



PGP 511 - Shaft Load Capacity

Code	Description	Torque Rating [Nm]
A1	9T, 16/32DP, 32L, SAE“A“ spline	86
C1	11T, 16/32DP, 38.2L, SAE 19-4 spline	184
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
S8	Ø20, 9.4L, 4.0 KEY, M14x1.5 taper 1:5	110
V5	8x6.5 short shaft tang drive	60
	Multiple pump connection shaft	110

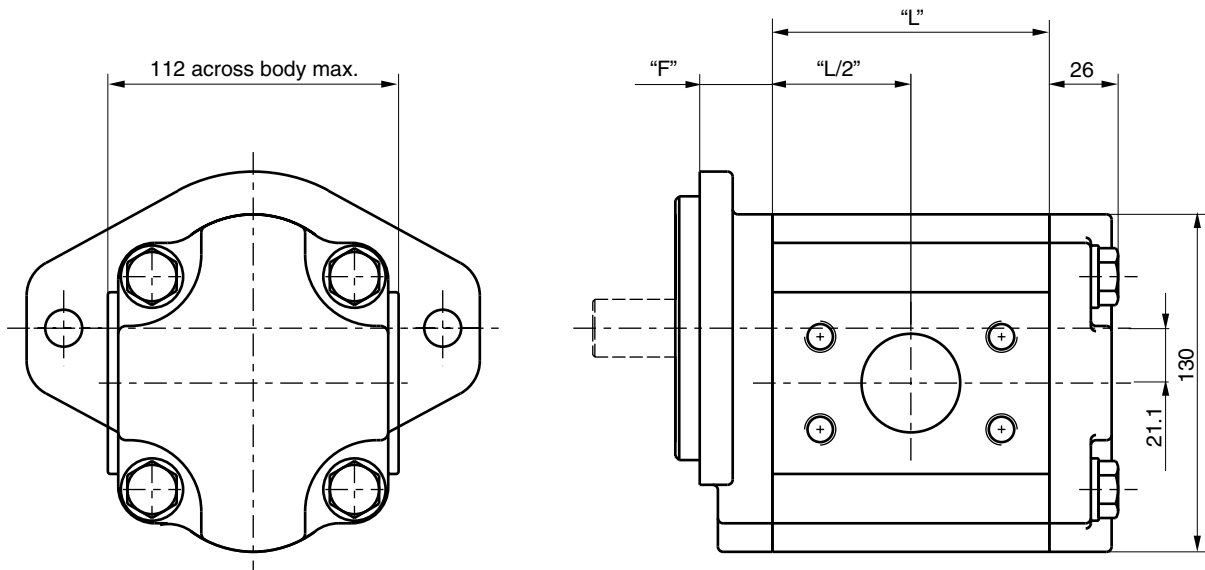
$$\text{Torque [Nm]} = \frac{\text{Displacement [cm}^3\text{/rev]} \times \text{Pressure [bar]}}{57.2}$$

PGP 517 Specification - Standard Displacements

Pump Displacement	Code	0160	0190	0230	0280	0330	0380	0440	0520	0700
	cm ³ /rev	16.0	19.0	23.0	28.0	33.0	38.0	44.0	52.0	70.0
Max. Continuous Pressure	bar	250	250	250	250	250	250	220	200	160
Minimum Speed @ Max. outlet pressure	rpm	500	500	500	500	500	500	500	500	500
Maximum Speed @ 0 Inlet & Max. outlet pressure	rpm	3400	3300	3300	3100	3000	3000	2800	2700	2400
Pump Input Power @ Max. Pressure and 1500 rpm	kW	11	13.1	15.8	19.3	22.7	26.1	27	28.6	31.2
Dimension "L"	mm	70.3	73.3	77.4	82.4	87.5	92.5	98.6	106.7	124.9
Approximate Weight ¹⁾	kg	8.00	8.12	8.29	8.50	8.70	8.91	9.16	9.49	10.24

¹⁾ Single pump with Flange H3 and Port end cover B1

Single Unit PGP 517

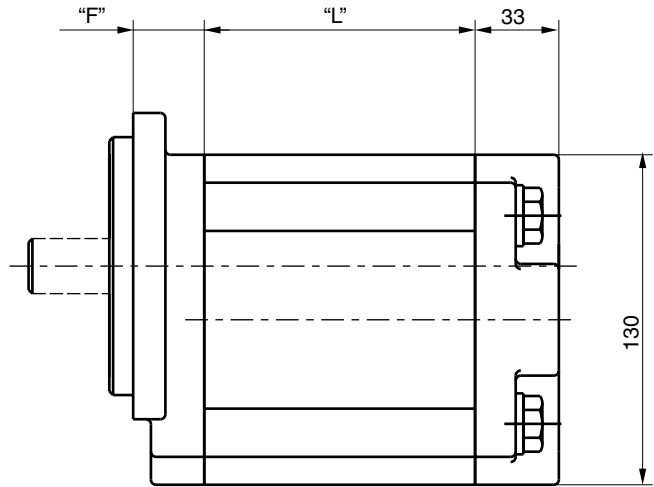
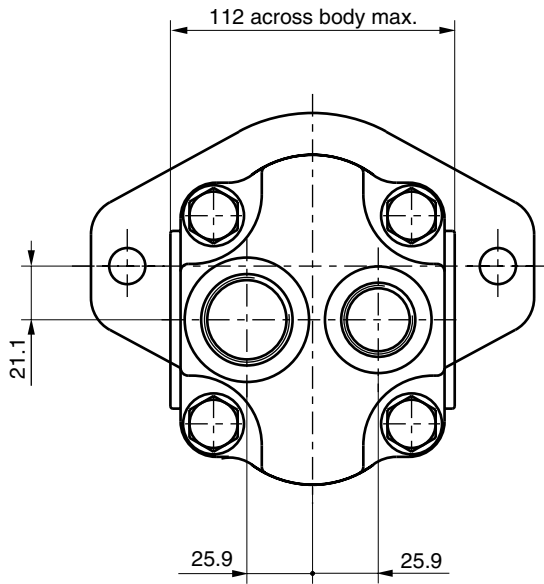


Dimension "L" see table above

Dimension "F" see flanges on page 43

Dimension Shafts see pages 46 to 48

Single Unit PGP 517 with rear ports

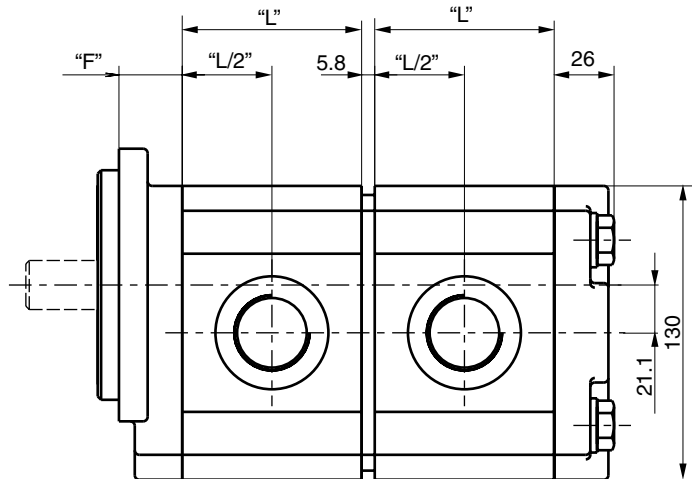
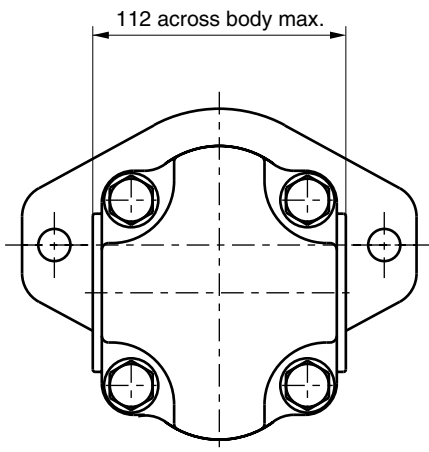


Dimension "L" see table on page 41

Dimension "F" see flanges on page 43

Dimension Shafts see pages 46 to 48

Tandem Unit PGP 517



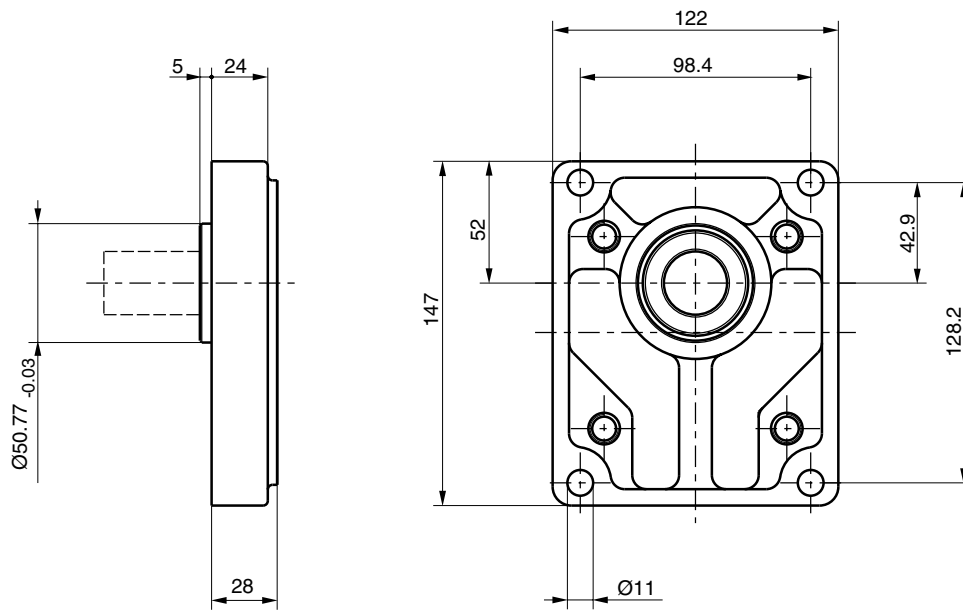
Dimension "L" see table on page 41

Dimension "F" see flanges on page 43

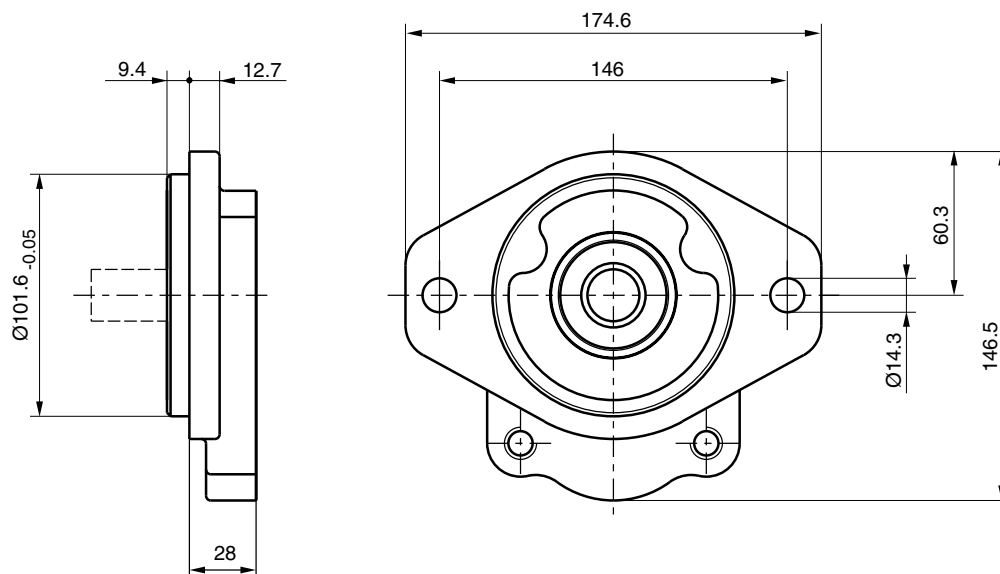
Dimension Shafts see pages 46 to 48

PGP 517 Mounting Flange

Code D7



Code H3/K6



PGP 517 Porting

Code E

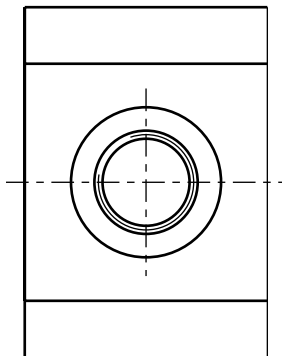
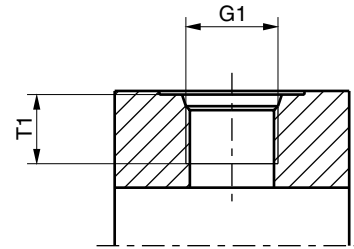
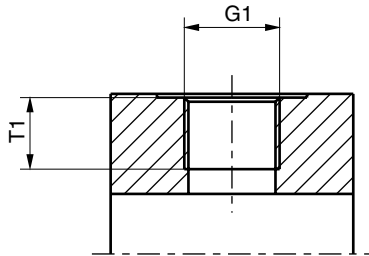
British Standard Pipe

Code G

Metric straight thread

Code D

SAE straight thread



PGP 517

Code	G1 Thread	T1 Dimensions
D2	9/16-18 UNF	12.7
D3	3/4-16 UNF	14.3
D4	7/8-14 UNF	16.7
D5	1 1/16-12 UN	19.0
D6	1 5/16-12 UN	19.0
D7	1 5/8-12 UN	19.0
D8	1 7/8-12 UN	19.0
E2	3/8-19 BSP	12.0
E3	1/2-14 BSP	14.0
E4	5/8-14 BSP	16.3
E5	3/4-16 BSP	16.0
E6	1-11 BSP	18.0
E7	1 1/4-11 BSP	20.0
E8	1 1/2-11 BSP	22.0
G4	M 22x1.5	14.0
G5	M 26x1.5	16.0
G7	M 30x1.5	12.0
G8	M 33x2	18.0
G9	M 42x2	20.0

PI PGP-PGM UK.PMD RH

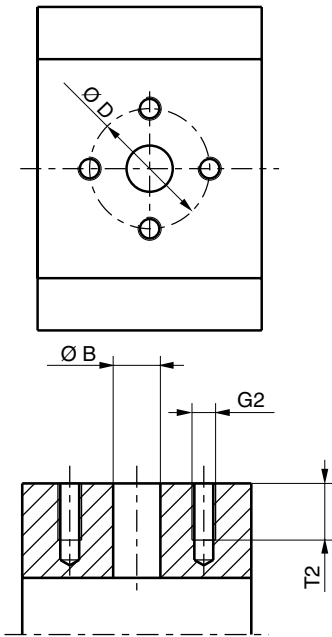


Port options

PGP 517 Porting

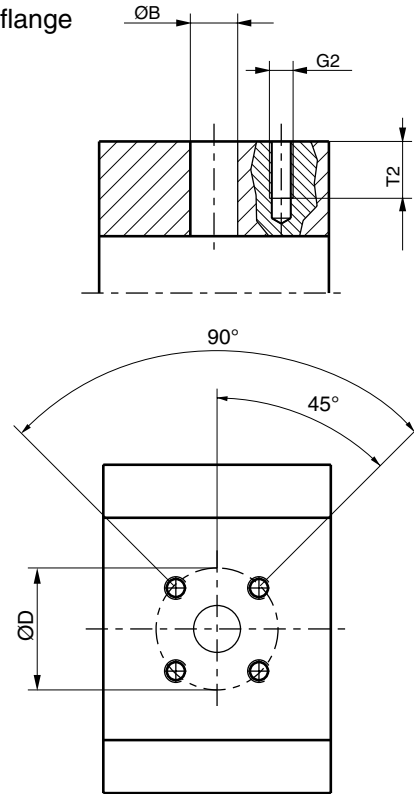
Code L

4-Bolt flange



Code J

European flange

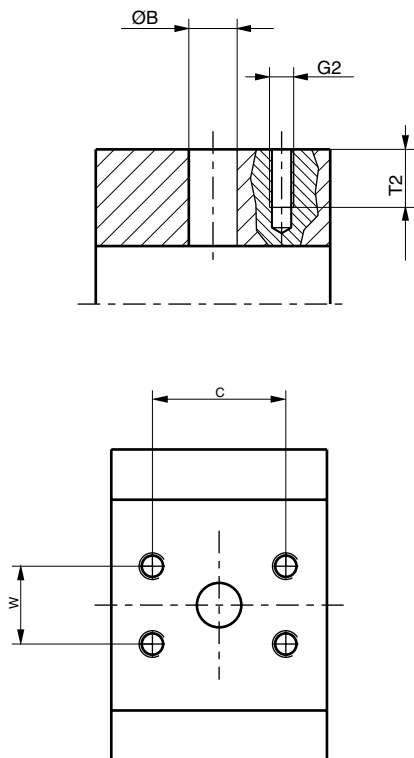


Code N

SAE split flange

Code P

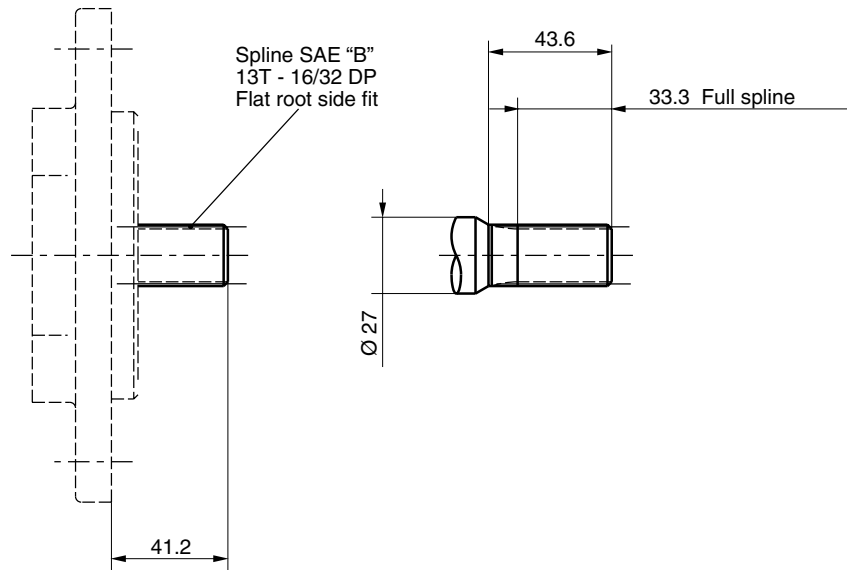
SAE split flange metric thread



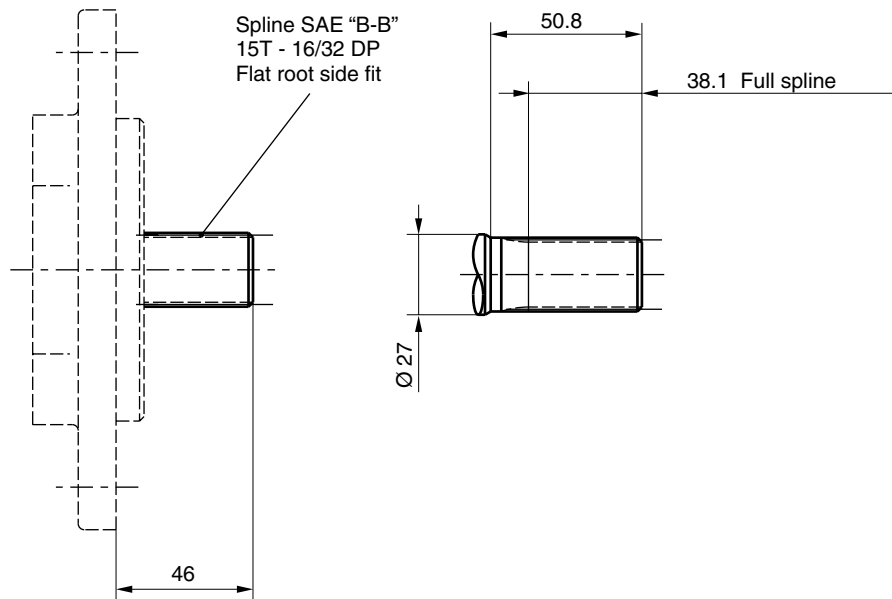
PGP 517

Code	G2	Ø B	Ø D	S	C	W	T2
	Thread						
J5	M6	15.0	35.0				12.5
J7	M6	20.0	40.0				13.0
J8	M8	18.0	55.0				15.0
J9	M8	26.0	55.0				15.0
L1	M6	13.0	30.0				13.0
L2	M8	19.0	40.0				15.0
L3	M10	27.0	51.0				18.0
L4	1/4-20 UNF	13.0	30.0				13.0
N1	5/16-18 UNC	12.7			38.10	17.48	15.0
N2	3/8-16 UNC	19.0			47.63	22.23	14.0
N3	3/8-16 UNC	25.4			52.37	26.19	20.6
N4	7/16-14 UNC	31.8			58.72	30.17	20.6
N5	1/2-13 UNC	38.1			69.82	35.71	20.6
P1	M8	12.7			38.10	17.48	15.0
P2	M10	19.0			47.63	22.23	20.6
P3	M10	25.4			52.37	26.19	21.4
P4	M10	31.8			58.72	30.17	20.6
P5	M12	38.1			69.82	35.71	20.6

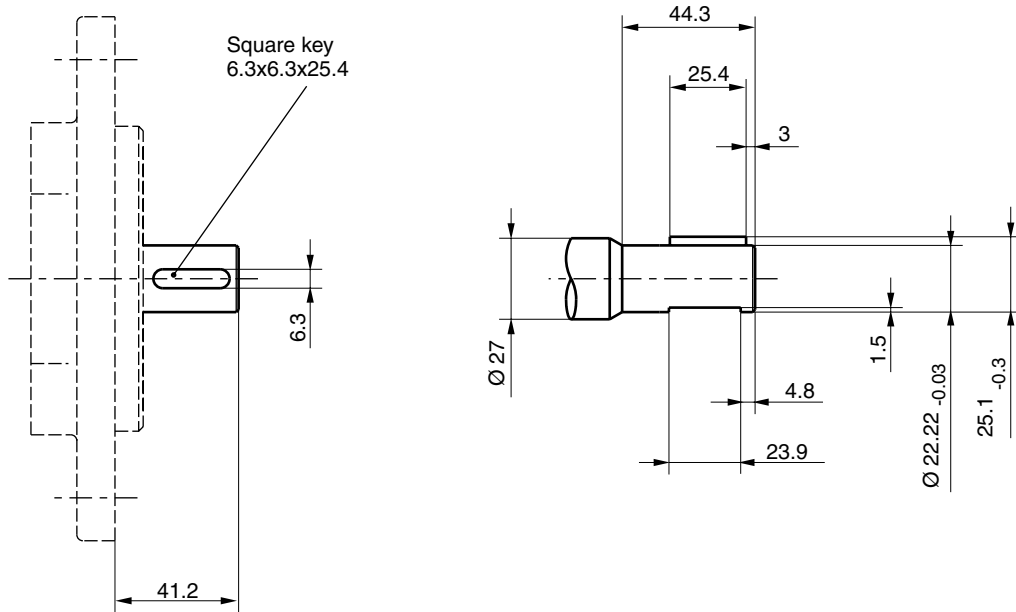
PGP 517 Drive Shaft
Code D1



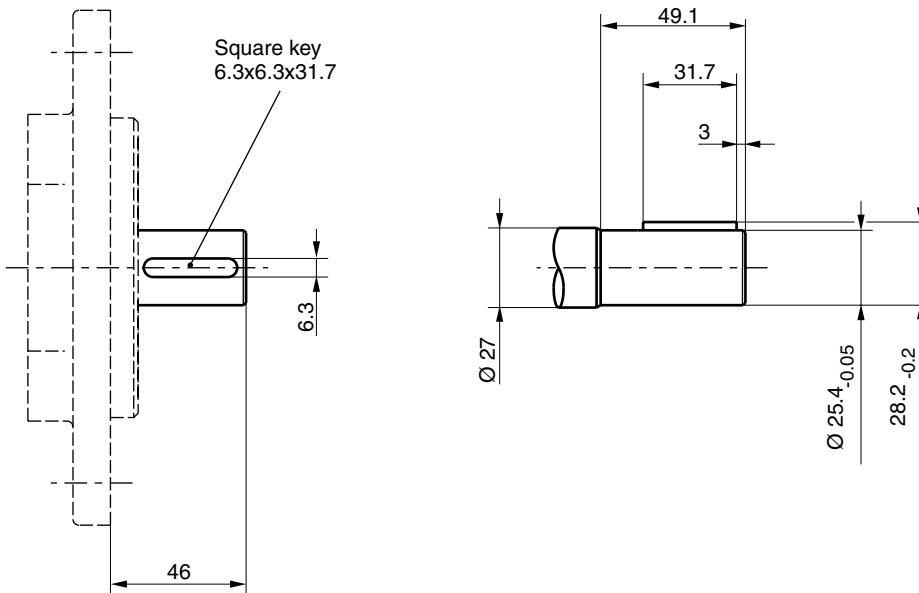
Code E1



PGP 517 Drive Shaft
Code M1

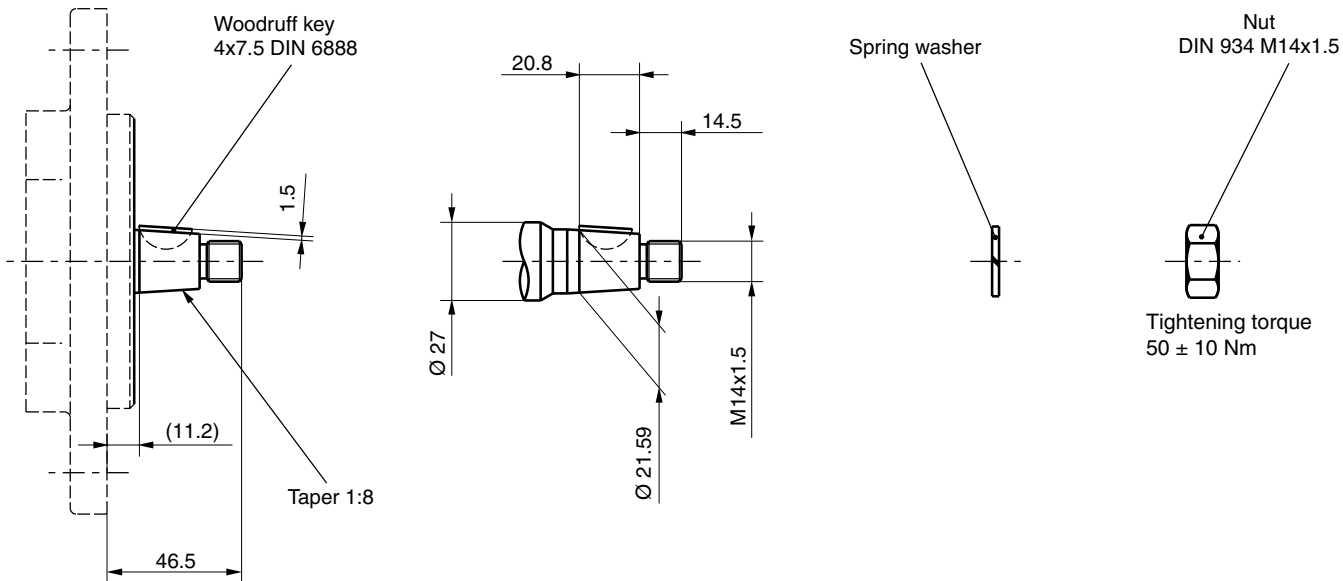


Code M2



PGP 517 Drive Shaft

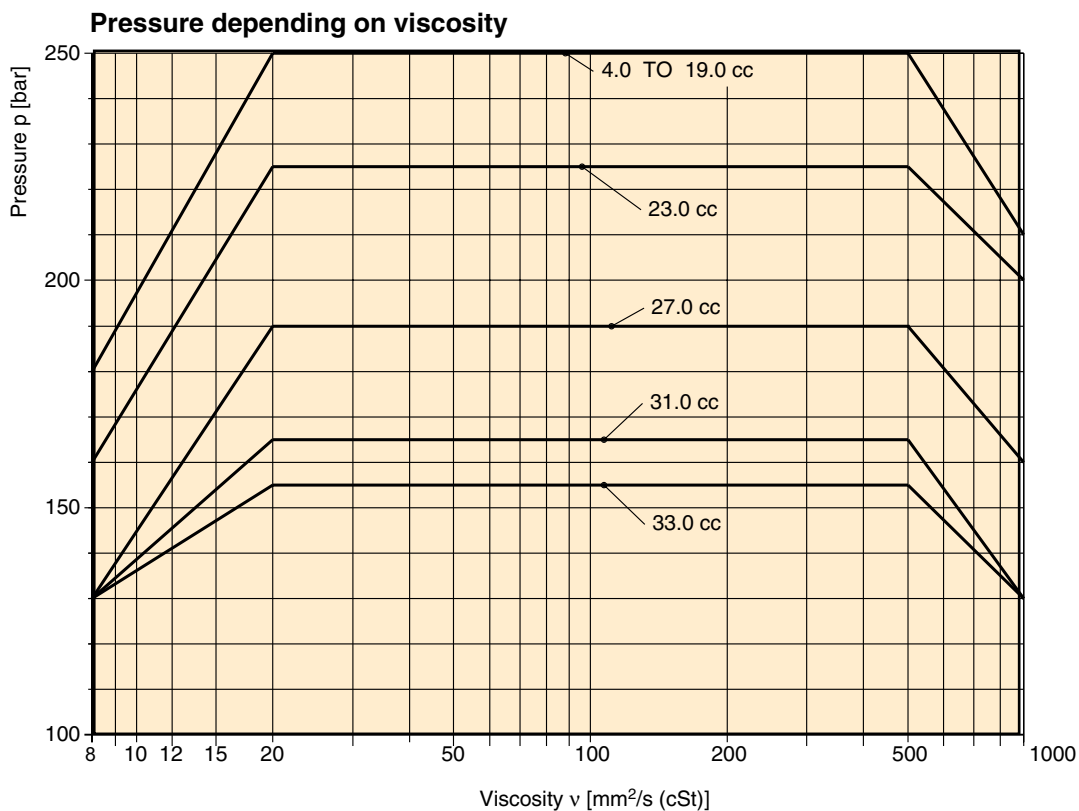
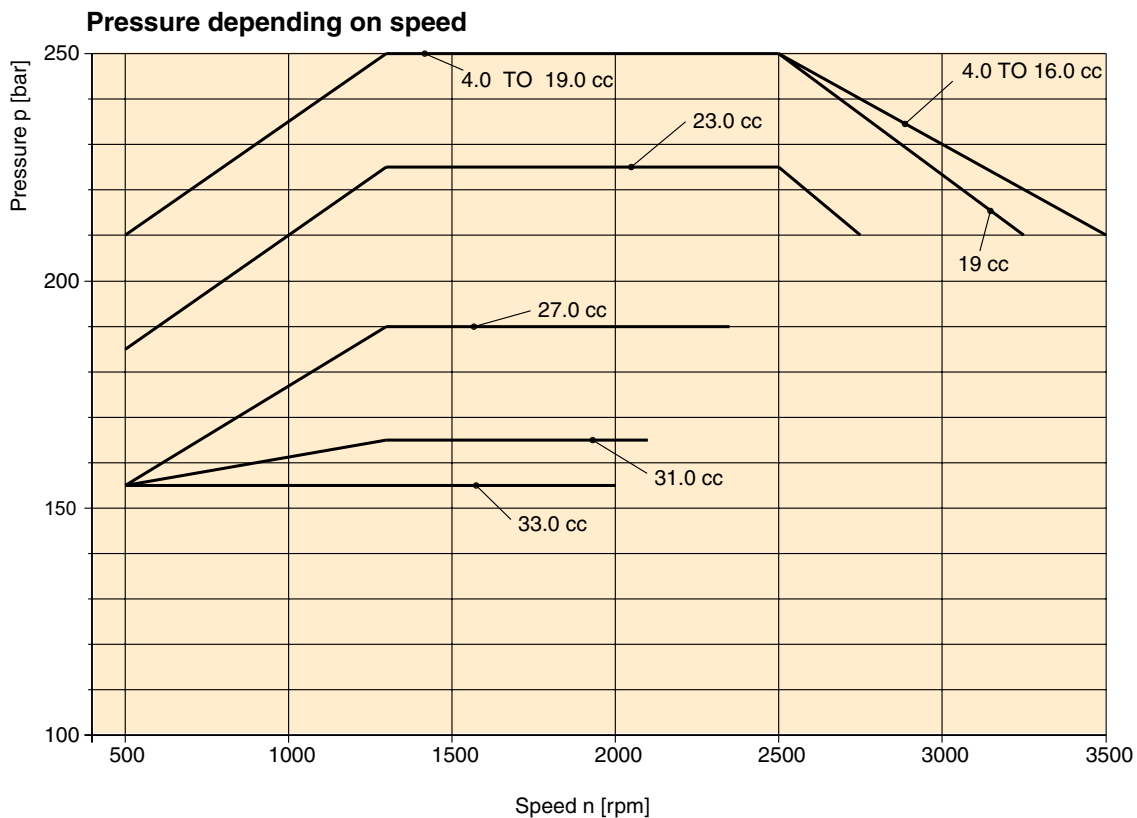
Code T1



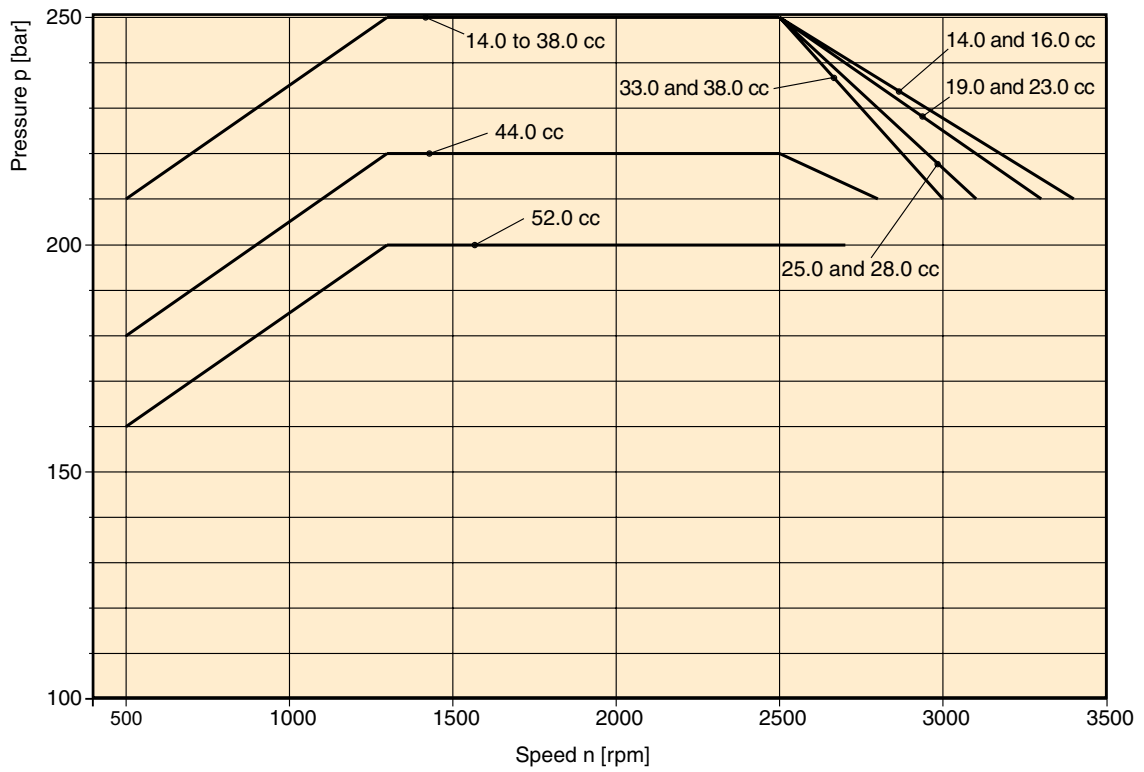
PGP 517 - Shaft Load Capacity

Code	Description	Torque Rating [Nm]
D1	13T,16/32DP, 41.2L, SAE“B“ spline	345
E1	15T, 16/32DP, 46L, SAE“B-B“ spline	530
M1	$\varnothing 22.2$, 6.3 KEY, no thd, 41.2L, SAE“B“ parallel	251
M2	$\varnothing 25.4$, 6.3 KEY, no thd, 46L, SAE“B-B“ parallel	395
T1	$\varnothing 21.59$, 11.2 L, 4.0 KEY, M14x1.5 taper 1:8	250
	Multiple pump connection shaft	228

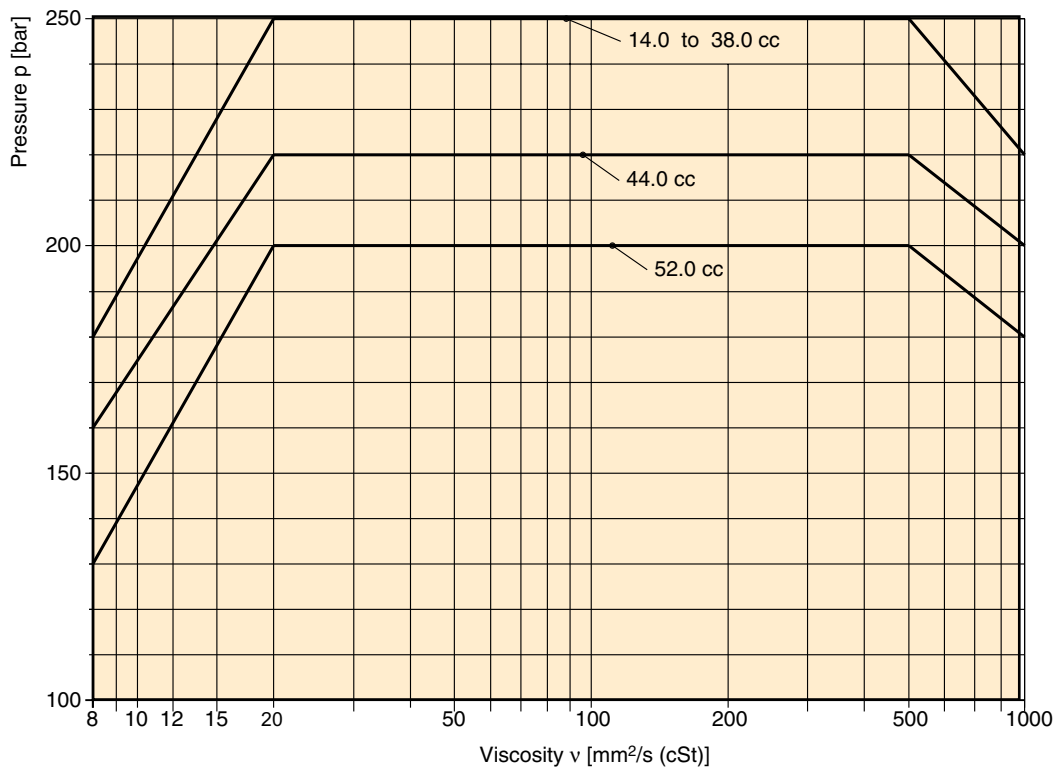
$$\text{Torque [Nm]} = \frac{\text{Displacement [cm}^3\text{/rev]} \times \text{Pressure [bar]}}{57.2}$$



Pressure depending on speed



Pressure depending on viscosity



Shaft loads PGP500

Code	Description	Type	Torque rating [Nm]			
			PGP 502	PGP 505	PGP 511	PGP 517
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	—	—	—
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	—
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	—
S8	Ø20.0, 9.0L, 4.0 key, M14x1.5	taper 1:5	—	—	110	—
D1	13T, 16/32DP, 41.2L, SAE "B"	splined	—	—	—	345
E1	15T, 16/32DP, 46.2L, SAE "B-B"	splined	—	—	—	530
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
	Connecting shaft for multiple units		20	36	110	228

Formula to calculate shaft load

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

Hydraulic fluids

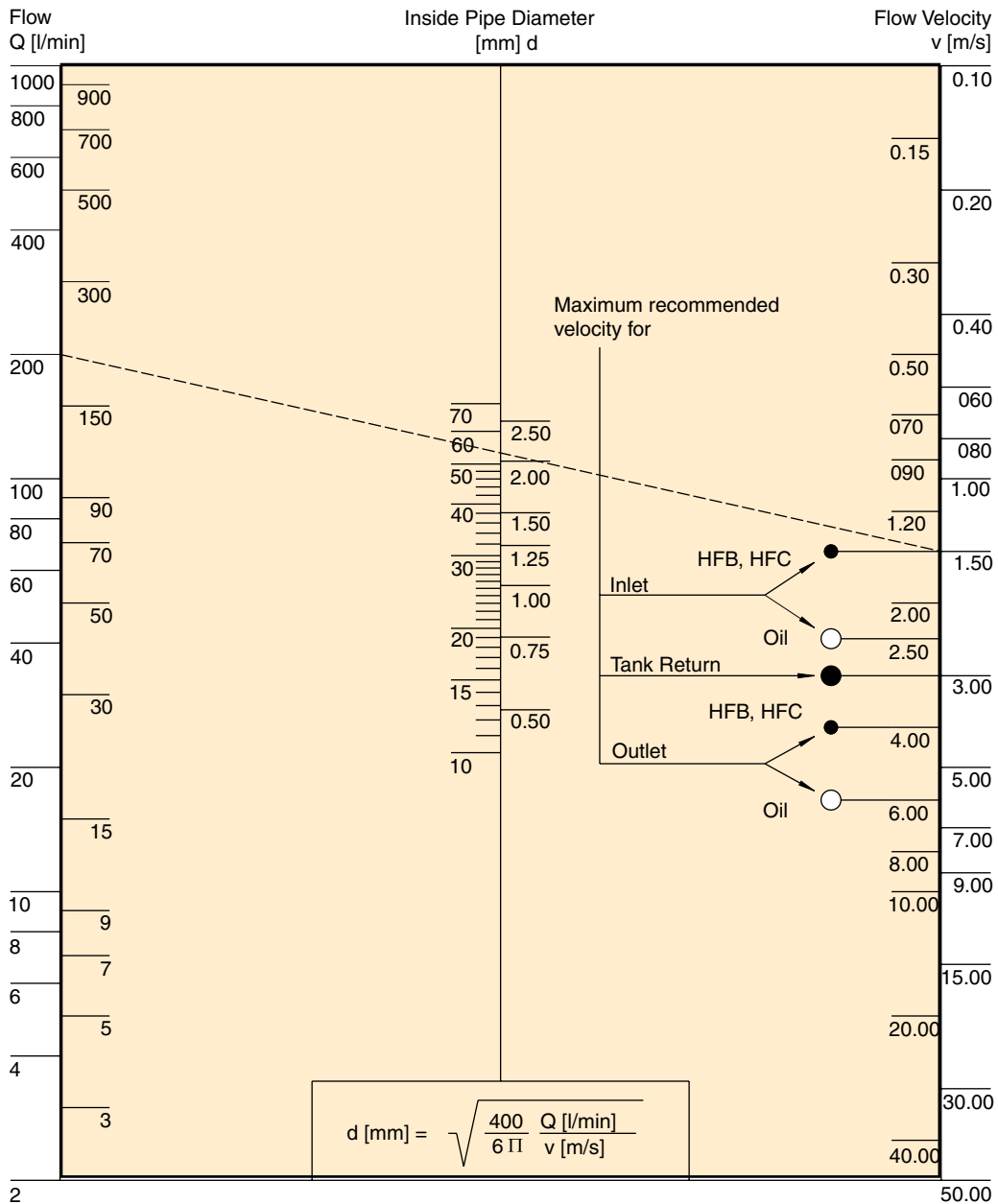
Type	Fluid composition	Max. working pressure [bar]	Max. speed [min-1]	Temperature	Seal
Hydraulic fluid	Mineral oil based on hydraulic fluid acc. to ISO/DIN	See table drawings	See table drawings	-15 ... +80 °C -15 ... +120 °C	NBR FPM
HFB	Water-in-oil emulsion 40/60	140	1500	+2 ... +65 °C	NBR
HFC	Water-glycol 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 Bulletin 4040/UK.

First pump	Second pump					
	PGP 502	PGP 505	PGP 511	PGP 517	PGP 620	PGP 640
PGP 502	X					
PGP 505		X				
PGP 511	X		X			
PGP 517			X	X		
PGP 620			X		X	
PGP 640			X		X	X

Nomograph for Pipe Velocity

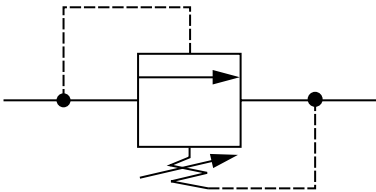


Pressure relief valve / adjustable internal vent

Introduction:

Parker’s valve program was developed in response to requests from OEM customers to reduce the number and total cost of components on their machines. We addressed this challenge by integrating the valves required for machine functions into our hydraulic pumps and motors.

This integration has reduced the number of purchased components, eliminated many of the hydraulic hoses and associated fittings (and potential leak points), and reduced assembly labor cost on the production line.

PGP 502 PGP 505 PGP 511				PGP 517	
CODE	Pressure bar		CODE	Pressure bar	
RDAA	10		RDPA	10	
RDAB	20		RDPB	20	
RDAC	30		RDPC	30	
RDAD	40		RDPD	40	
RDAE	50		RDPE	50	
RDAF	60		RDPF	60	
RDAG	70		RDPG	70	
RDAH	80		RDPH	80	
RDAJ	90		RDPJ	90	
RDAK	100		RDPK	100	
RDAL	110		RDPL	110	
RDAM	120		RDPM	120	
RDAN	130		RDPN	130	
RDAP	140		RDPQ	140	
RDAQ	150		RDPQ	150	
RDAR	160		R DPR	160	
RDAS	170		RDPS	170	
RDAT	180		RDPT	180	
RDAU	190		RDPU	190	
RDAV	200		RDPV	200	
RDAW	210		RDPW	210	
RDAX	220		RDPX	220	
RDAY	230		RDPY	230	
RDAZ	240		RDPZ	240	



Priority Flow Divider

1VP- / CVP100-

□

□

□

□

□

□

□

Port Configuration

Code	Port Configuration
A	End Priority, End Excess
B	Side Priority, Side Excess
C	End Priority, Side Excess
D	Side Priority, End Excess
E	Double Side Ported

Port Orientation

Code	Port Orientation
A	Priority Port on Pump Inlet Side
B	Priority Port on Pump Outlet Side

Function

Code	Function
A	Priority Flow Divider
B	PFD with Full Flow R/V
C	PFD with Pilot R/V

Priority Port

Code	Priority Port
J1	3/4-16UNF
J8	9/16-18UNF
T1	3/8 BSP
other on request	

Excess Port

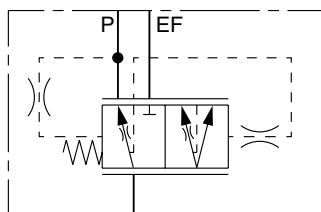
Code	Excess Port
J2	7/8-14UNF
J3	1-1/16-12UN
T2	1/2 BSP
T4	3/4 BSP
other on request	

Priority Flow

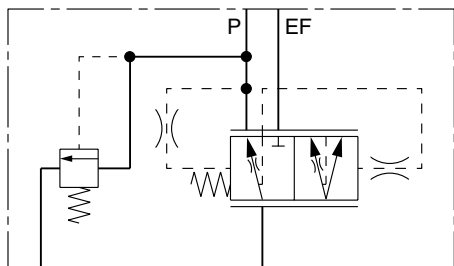
Code	Priority Flow
08	8 lpm
11	11 lpm
15	15 lpm
19	19 lpm
23	23 lpm
30	30 lpm
38	38 lpm
other on request	

R/V Setting

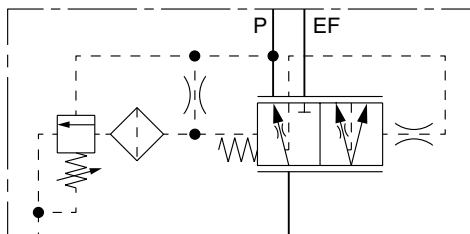
Code	R/V Setting
00	No Relief Valve
A05	Adjustable 40 - 120 bar
A15	Adjustable 130 - 250 bar
05	50 bar
08	80 bar
10	100 bar
11	110 bar
12	120 bar
13	130 bar
14	140 bar
15	150 bar
16	160 bar
17	170 bar
18	180 bar
20	200 bar
other on request	



Priority Flow Divider
 Function "A"



Priority Flow Divider With Full Flow R/V
 Function "B"



Priority Flow Divider With Pilot R/V
 Function "C"

Priority Flow Divider

Comments:

The Priority Flow Divider provides a constant and specified flow for power steering or other priority functions. The balance of flow produced by the pump is available from the EF port for additional functions such as open center directional control valves, fan drives , etc. It can also be fitted with a pressure relief valve

Variations for PGP511 / 517

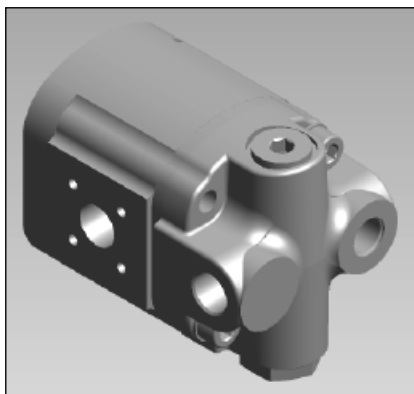
- without priority relief valve (Function "A")
- with full flow priority relief valve (Function "B")
- with pilot priority relief valve (Function "C")

Pressure Range	
P-port Maximum	230 bar
EF-port Maximum	250 bar

Maximum Flows	
for PGP511	
P-port	32 lpm
EF-port	70 lpm
max. input flow	70 lpm
for PGP517	
P-port	45 lpm
EF-port	100 lpm
max. input flow	100 lpm



Port Configuration „A“
 Port Orientation „B“



Port Configuration „D“
 Port Orientation „A“



Port Configuration „C“
 Port Orientation „B“

PI PGP-PGM UK.PMD RH

Side Mounted Priority Flow Divider (Load Sense or Fixed Flow)

Comments:

Priority Flow Dividers can also be direct mounted to the pressure port to provide a constant and specified flow for power steering or other priority functions.

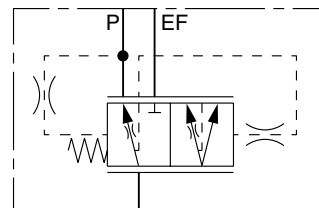
Variations for PGP511 / 517

- without priority relief valve (Function "A")
- with full flow priority relief valve (Function "B")
- with pilot priority relief valve (Function "C")

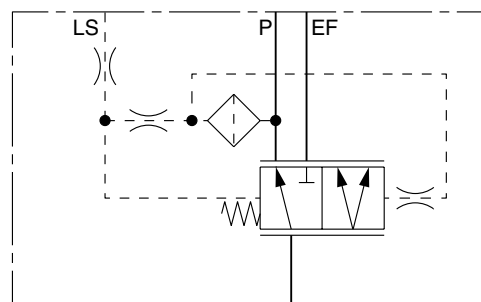
Note: relief valve in the steering unit is required.
 control pressure settings and priority flow settings on request

Pressure Range	
for PGP511/517	
P-port Maximum	230 bar
EF-port Maximum	250 bar
for 517	
P-port Maximum	250 bar
EF-port Maximum	310 bar

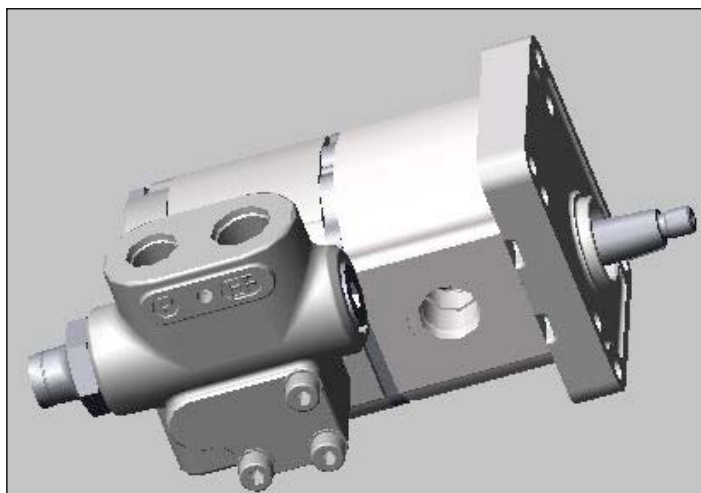
Maximum Flows	
for PGP511	
P-port	32 lpm
max. input flow	80 lpm
for 517	
P-port	45 lpm
max. input flow	160 lpm



Priority Flow Divider
 Function "A"



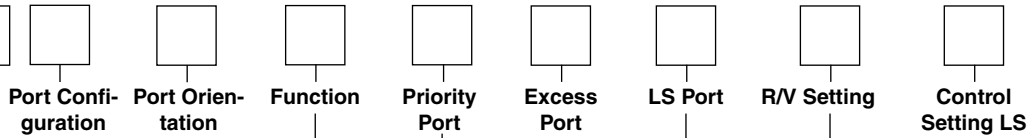
Load Sensing Priority Valve
 with Dynamic Load Sensing Signal
 Function "F"



PI PGP-PGM UK.PMD RH

Load Sensing Priority Valve

1VP- / CVP100-



Code	Port Configuration
A	End Priority, End Excess
B	Side Priority, Side Excess
C	End Priority, Side Excess
D	Side Priority, End Excess
E	Double Side Ported

Code	Port Orientation
A	Priority Port on Pump Inlet Side
B	Priority Port on Pump Outlet Side

Code	Function
D	LSPV, Static LS
E	LSPV, Static LS with Pilot R/V
F	LSPV, Dynamic LS
G	LSPV, Dynamic LS with Pilot R/V

Code	Priority Port
J1	3/4-16UNF
J8	9/16-18UNF
T1	3/8 BSP

other on request

Code	Excess Port
J2	7/8-14UNF
J3	1-1/16-12UN
T2	1/2 BSP
T4	3/4 BSP

other on request

Code	LS Port
X2	7/16- 20UNF female
Y1	1/4 BSP male
Y3	1/4 BSP
BX2	7/16- 20UNF Body Port

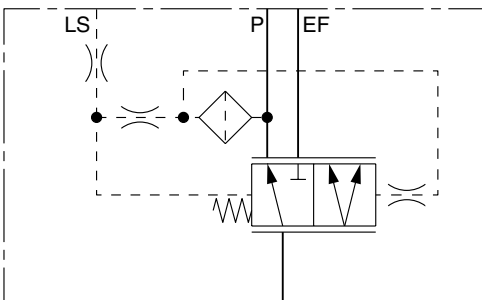
other on request

Code	Control Setting LS
052	5.2 bar static
056	5.6 bar dynamic
062	6.2 bar dynamic
063	6.3 bar static
070	7.0 bar static / dynamic
090	9.0 bar dynamic
093	9.3 bar static
104	10.4 bar dynamic
126	12.6 bar dynamic
140	14.0 bar dynamic
186	18.6 bar dynamic

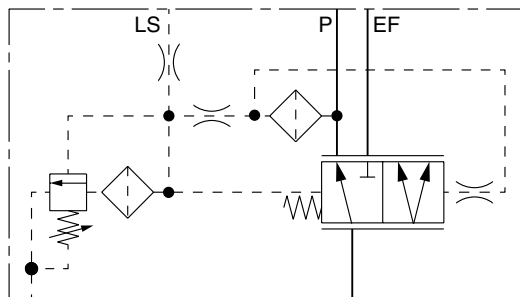
other on request

Code	R/V Setting
00	No Relief Valve
A05	Adjustable 40 - 120 bar
A15	Adjustable 130 - 250 bar
05	50 bar
08	80 bar
10	100 bar
12	120 bar
13	130 bar
14	140 bar
15	150 bar
16	160 bar
17	170 bar
18	180 bar
20	200 bar

other on request



Load Sensing Priority Valve with Dynamic Load Sensing Signal Function "F"



Load Sensing Priority Valve with Dynamic Load Sensing Signal Function "G"

Load Sensing Priority Valve

Comments:

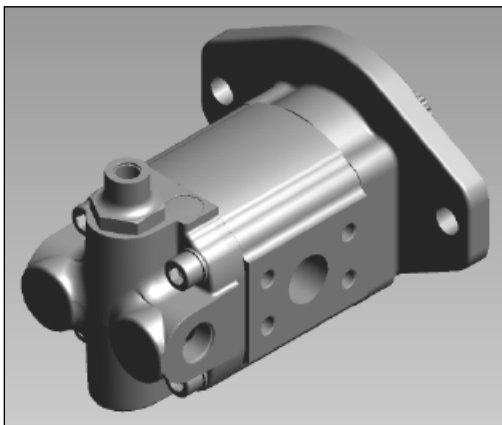
The Load sense Priority Valve provides priority flow on demand, typically for LS power steering: The balance of the flow produced by the pump is available from the EF port for additional functions such as open center directional control valves, fan drives , etc. When the power steering is idle, full pump flow is available for these functions
 The selection of pilot relief and static or dynamic signal is dependent on the characteristics of the selected steering unit.

Variations for PGP511 / 517

without pilot relief, dynamic LS signal (Function "G") / with pilot relief, dynamic LS signal (Function "F") without pilot relief, static LS signal / with pilot relief, static LS signal

Pressure Range	
P-port Maximum	230 bar
EF-port Maximum	equal to max. rating of pump

Maximum Flows	
for PGP511	
P-port	32 lpm
EF-port	70 lpm
max. input flow	70 lpm
for PGP517/620/640	
P-port	45 lpm
EF-port	100 lpm
max. input flow	100 lpm



Port Configuration „B“
 Port Orientation „A“



Port Configuration „D“
 Port Orientation „B“

Standard Seal Kits for pumps 500

Model Code	Pump Series	TDN
PGP502	Single	391 1832 810
	Tandem	
PGP505	Single (FPM)	391 1832 811
	Single	391 1822 101
PGP511	Tandem	391 1822 102
	Single	8611-023-00N
	Single (Large size shaft)	8611-023-Q1N
	Single (FPM)	8611-023-00V
	Triple (FPM unsealed)	391 1832 770
	Tandem	8677-023-0NE
	Tandem rear	8677-023-000
	Triple PGP511	8832-023-0NX
	Tandem (sealed section)	3911832766
	("S8F4") Pump with outboard bearing	3911832133
PGP511S	Split gear	8801-023-00N
	Split gear (Large size sh.)	8801-023-Q1N
	Split gear (FPM)	8801-023-00V
	Split gear tandem rear	8850-023-000
PGP517	Single	391 1822 071
	Single FPM	391 1832 772
	Tandem	391 1822 072
	Triple	391 1822 073
	FPM 517/517/511/511	391 1832 772
PGP517 / PGP505	Tandem	391 1822 254
PGP517 / PGP511	Tandem	391 1822 531

SERIES 600	Pump Series	TDN
PGP620/PGP511	Tandem	8766-023-00N
PGP620/PGP511	Tandem (FPM)	8766-023-00V
PGP620/ PGP511/511	Triple (sealed)	3911832720
PGP620/620/ PGP511	Triple (FPM)	3911832716
PGP640/PGP511	Tandem (M)	3911832798
PGP640/620/620	Triple Pump	3911832468