

Over many years Parker Hydraulics has supplied gear pumps and motors for mobile and industrial markets worldwide, especially for materials handling, commercial grass cutting and construction equipment applications. Many Parker pumps and motors have been developed and tested for the specific needs of these industries.

Parker's defined strategy to provide engineered solutions, coupled with an award winning flexible manufacturing system, has resulted in a wide range of SAE/DIN/European and other special options being available as standard.



**Features**

- Patented interlocking body design
- 12 tooth gears, bronze balance plates
- Tandem, triple and cross-frame pumps available
- Common inlets available for tandem and triple pumps
- Continuous operating pressures up to 310 bar
- Production run-in available to suite OEM application conditions and to provide optimized volumetric efficiencies
- Pressure balanced design for high efficiency
- Reduced system noise levels compared to earlier models
- High power through-drive capability
- Wide range of integral valves for power steering, power brakes, fan drivers and implement hydraulics
- Load sense and solenoid operated unloading valves
- Low noise version as "stealth" pump

**Technical data**

Pump type	Heavy-duty, cast iron, 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 - 3500 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. Max. permissible operating pressure dependent on fluid temperature.

Fluid viscosity	Range of operating viscosity 8 to 1000 mm <sup>2</sup> /s. Max. permissible operating pressure dependent on viscosity. Viscosity range for cold start 1000 to 2000 mm <sup>2</sup> /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"> <li>• Available in two or three section configuration.</li> <li>• Max. shaft load must be conform to the limitations shown in the shaft loading rating table in this catalogue.</li> <li>• Max. load is determined by adding the torque values for each pumping section that will be simultaneously loaded.</li> </ul>
Separate or common inlet capability	Separate inlet configuration: <ul style="list-style-type: none"> <li>• Each gear housing has individual inlet and outlet ports.</li> </ul> Common inlet configuration: <ul style="list-style-type: none"> <li>• Two gear sets share a common inlet.</li> </ul>

PI PGP-PGM UK.PMD RH

<b>PG</b>		<b>620</b>										<b>B</b>	<b>1</b>	<b>B</b>	<b>1</b>	1)
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**Gear design**    **Type**    **Unit**    **Dis- placement**    **Rotation**    **Shaft**    **Flange**    **Shaft seal**    **Inlet side ports option**    **Outlet side ports option**    **No rear ports** (rear ports on request)

Code	Type
P	Pump
M	Motor

Code	Unit	
	Pump	Motor
A	Single unit	Standard motor with drain port
B	Multiple unit	Standard motor w. two checks
C	—	Standard motor w. one anti-cavitation check (ACC)

Displacement	
Code	ccm
0160	16.0
0190	19.0
0210	21.0
0230	23.0
0260	26.0
0290	29.0
0330	33.0
0360	36.0
0370	37.0
0410	41.0
0440	44.0
0460	46.0
0500	50.0
0520	52.0

Code	Rotation
C	Clockwise
A	Counter- clockwise
B	Bi-directional

Code	Shaft
D1 <sup>2)</sup>	13T, 16/32DP, 41.2L, SAE "B" spline
E1	15T, 16/32DP, 46L, SAE "B-B" spline
T1 <sup>3)</sup>	Ø21.59, 11.2L, 4.0key, M14x1.5, taper 1:8

Code	Port options (pumps)
E6E5	1"-11 BSP thread/ 3/4"-14 BSP thread rec. from 14 ccm to 26 ccm
E7E5	1¼"-11 BSP thread/ 3/4"-14 BSP thread rec. from 29 ccm to 41 ccm
E8E6	1½"-11 BSP thread/ 1"-11 BSP thread/ rec. from 41 ccm to 52 ccm
T3T2	1"-M10 SAE metric flange 3/4"-M10 SAE metric flange rec. from 16 ccm to 23 ccm
T4T3	1¼"-M10 SAE metric flange 1"-M10 SAE metric flange rec. from 26 ccm to 41 ccm
T5T3	1½"-M12 SAE metric flange 1"-M10 SAE metric flange rec. from 41 ccm to 52 ccm

Code	Port options (motors)
E5E5	3/4"-14 BSP thread 3/4"-14 BSP thread rec. from 16 ccm to 26 ccm
E6E6	1" - 11 BSP thread/ 1" - 11 BSP thread rec. from 29 ccm to 41 ccm
E7E7	1¼"-11 BSP thread/ 1¼"-11 BSP thread rec. from 41 ccm to 52 ccm

Example: T4 = inlet port  
T3 = outlet port

Code	Shaft seal
X	No seal
N	NBR (2 bar)
V <sup>4)</sup>	FPM (5 bar)

<sup>4)</sup> for motors recommended

Code	Flange
D7	98.4x128.2 - Ø50.77 rectangular
H2	106.4 - Ø82.55 SAE "A" 2bolt flange
H3	146.1 - Ø101.06 SAE "B" 2bolt flange
A4	114.5 x 114.5 - Ø127 SAE "C" 4bolt square

<sup>1)</sup> Code of drain line for PGM620 only.

**2 Options:**

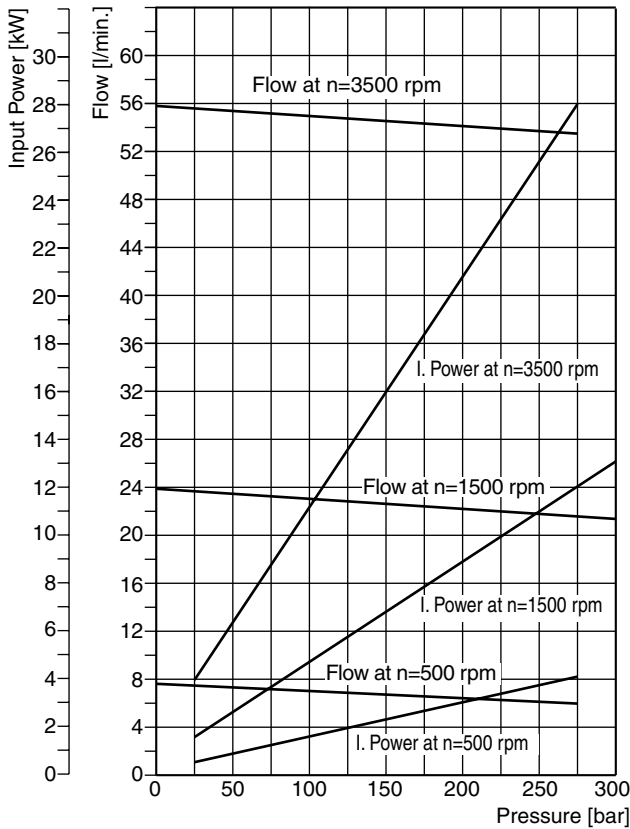
G4 = 1/4-19 BSP rear drain.

B1 = no drain, unit code must be "B" or "C".

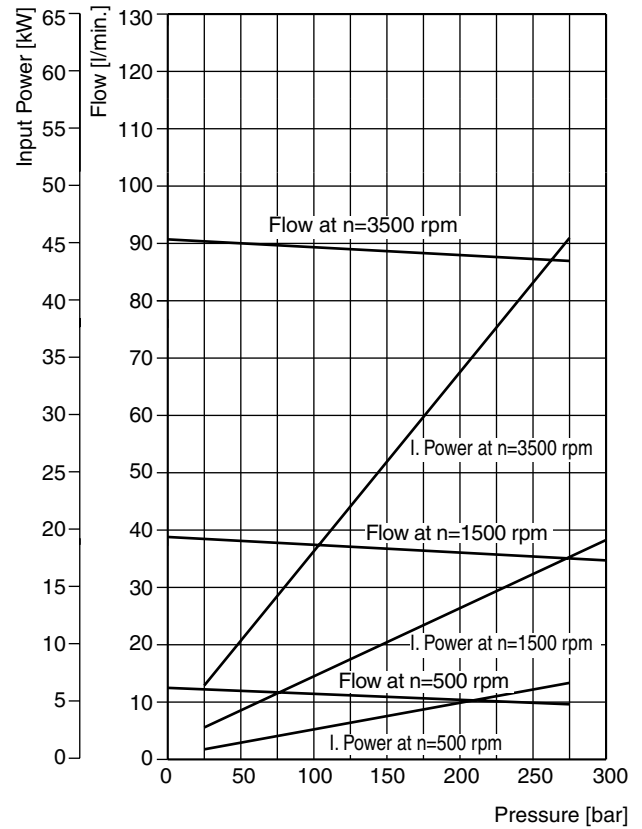
<sup>2)</sup> Only used with flange H2, H3.

<sup>3)</sup> Only used with flange D7.

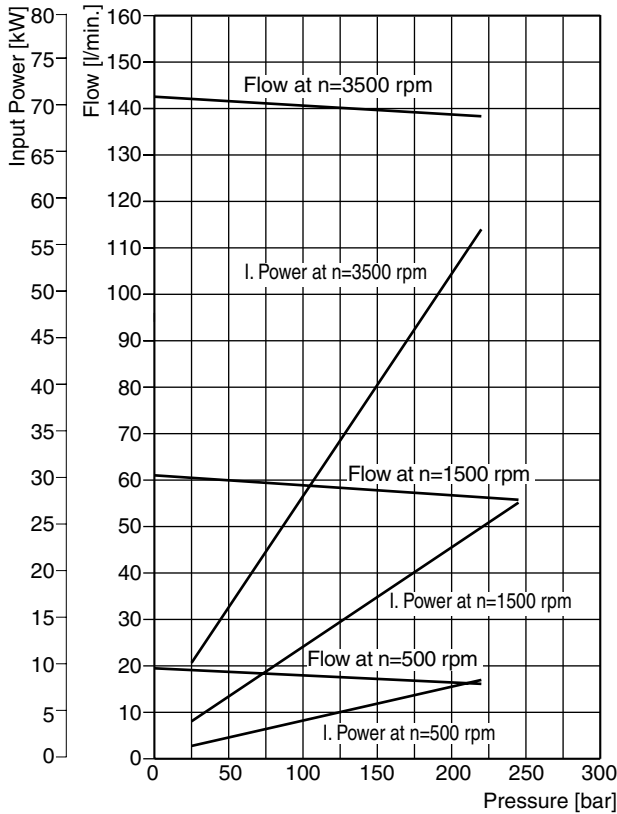
**PGP620 - 16.0 CC**



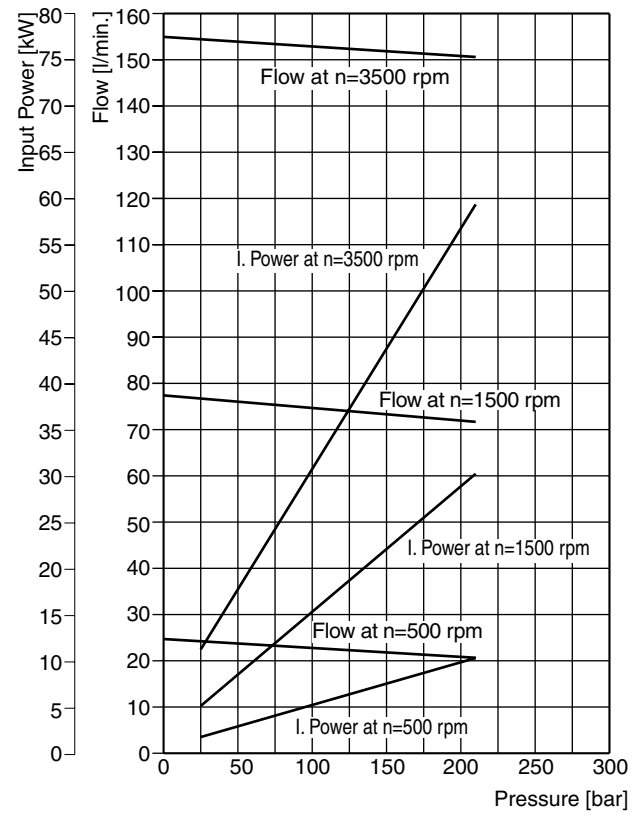
**PGP620 - 26.0 CC**



**PGP620 - 41.0 CC**



**PGP620 - 52.0 CC**



Fluid temperature: 45 °C ± 2K ; Viscosity: 36mm<sup>2</sup>/s ; Inlet pressure: 0.9 + 0.1 bar absolute

PI PGP-PGM UK.PMD RH

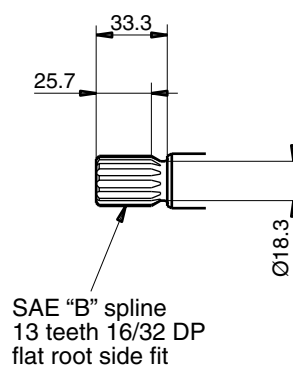
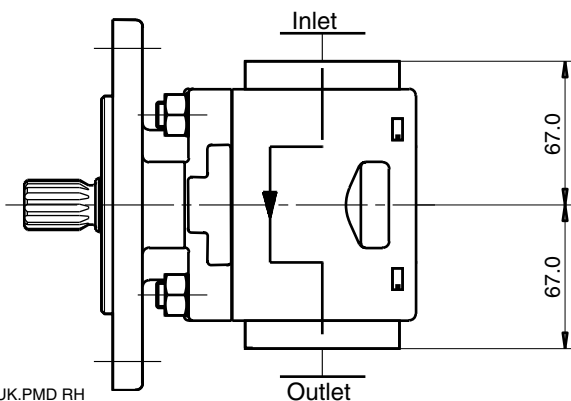
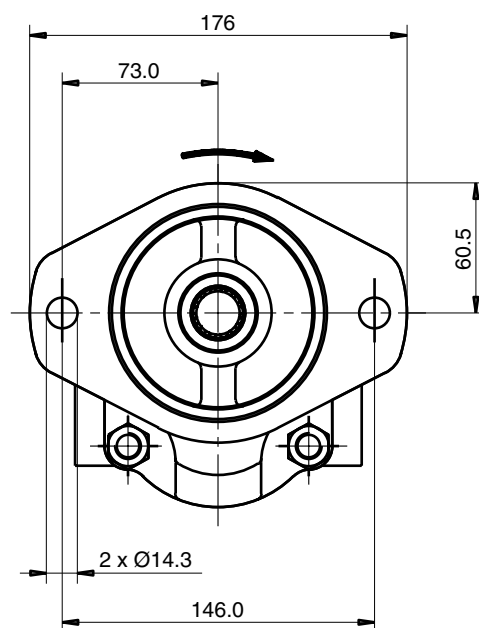
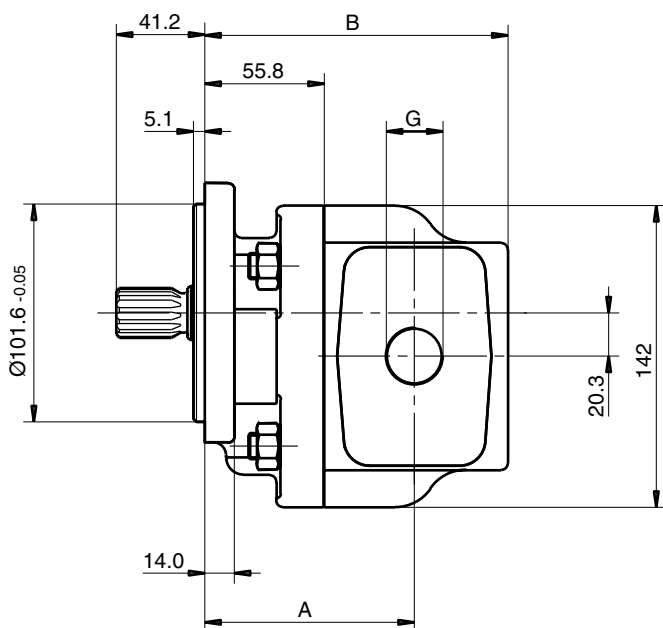
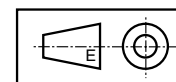


**PGP620 A XXXX Y D1 H3 N SS PP B1 B1**

“Y” = C (clockwise rotation)  
 = A (counter-clockwise rotation)

Displacement XXXX	cm <sup>3</sup> /rev	Dimension		Inlet port		Outlet port		Speed of rotation		Working pressure max. bar	Order number direction of rotation	
		A	B	SS	G	PP	G	min. rpm	max. rpm		clockwise	counter-clockwise
0160	16.0	79.2	122.7	E6	1"-11	E5	3/4"-14	500	3000	275	702 9111 052	702 9112 053
0190	19.0	82.5	126.0	E6	1"-11	E5	3/4"-14	500	3000	275	702 9111 186	
0210	21.0	84.7	128.2	E6	1"-11	E5	3/4"-14	500	3000	275	702 9111 168	
0230	23.0	86.9	130.4	E6	1"-11	E5	3/4"-14	500	2700	275	702 9111 098	702 9112 054
0260	26.0	90.2	133.7	E6	1"-11	E5	3/4"-14	500	2400	275	702 9111 112	702 9112 093
0290	29.0	93.5	137.0	E7	1 1/4"-11	E5	3/4"-14	500	3000	275		
0330	33.0	97.9	141.4	E7	1 1/4"-11	E5	3/4"-14	500	3000	275		
0360	36.0	101.2	144.7	E7	1 1/4"-11	E5	3/4"-14	500	2900	250		
0370	37.0	102.3	145.8	E7	1 1/4"-11	E5	3/4"-14	500	2900	250	702 9111 164	702 9112 046
0410	41.0	106.7	150.2	E7	1 1/4"-11	E5	3/4"-14	500	2600	220		702 9112 071
0440	44.0	110.0	153.5	E8	1 1/2"-11	E6	1"-11	500	3000	210		702 9112 105
0460	46.0	112.2	155.7	E8	1 1/2"-11	E6	1"-11	500	3000	210		
0500	50.0	116.6	160.1	E8	1 1/2"-11	E6	1"-11	500	3000	210		
0520	52.0	118.8	162.3	E8	1 1/2"-11	E6	1"-11	500	3000	210		702 9112 104

**Dimensions (clockwise rotation shown)**



PI PGP-PGM UK.PMD RH

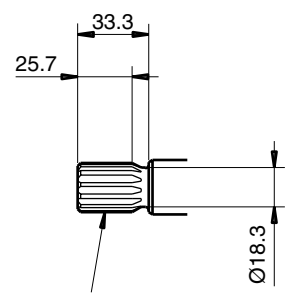
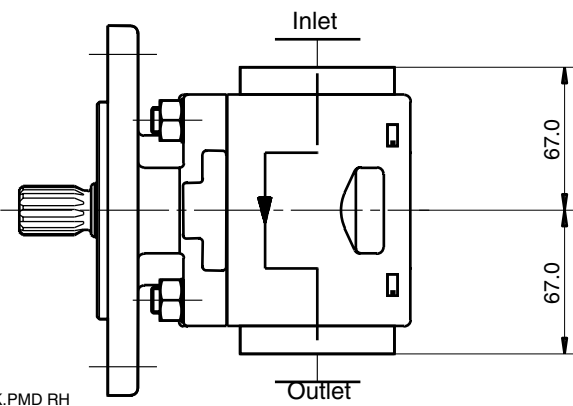
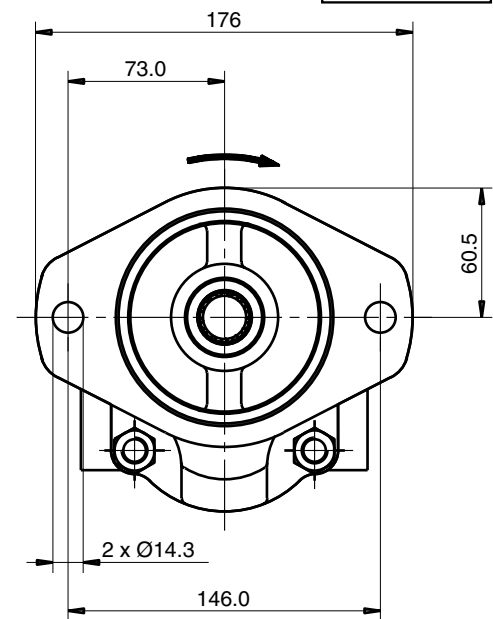
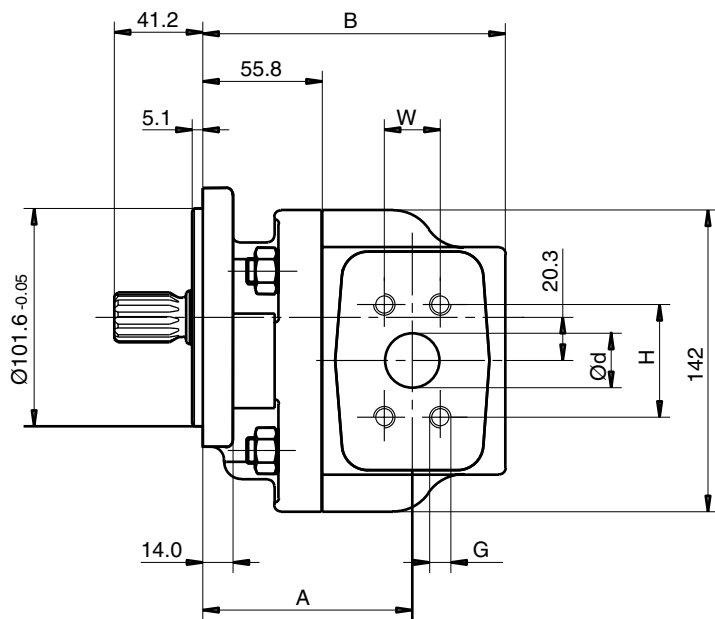
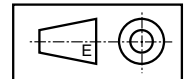


**PGP620 A XXXX Y T1 D7 N SS PP B1 B1**

“Y” = C (clockwise rotation)  
 = A (counter-clockwise rotation)

Displacement XXXX	cm <sup>3</sup> / rev	Dimension		Inlet port					Outlet port					Speed of rotation		Working pressure max. bar	Order number direction of rotation	
		A	B	SS	d	G	H	W	SS	d	G	H rpm	W rpm	min.	max.		clockwise	counter-clockw.
0160	16	79.2	122.7	T3	1"	M10	52.37	26.19	T2	3/4"	M10	47.63	22.23	500	1500	275		
0190	19	82.5	126.0	T3	1"	M10	52.37	26.19	T2	3/4"	M10	47.63	22.23	500	2300	275		702 9112 062
0210	21	84.7	128.2	T3	1"	M10	52.37	26.19	T2	3/4"	M10	47.63	22.23	500	2000	275		
0230	23	86.9	130.4	T3	1"	M10	52.37	26.19	T2	3/4"	M10	47.63	22.23	500	1900	275		
0260	26	90.2	133.7	T4	1 1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	1600	275		
0290	29	93.5	137.0	T4	1 1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	3000	275	702 9111 151	
0330	33	97.9	141.4	T4	1 1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	2600	275	702 9111 087	702 9112 070
0360	36	101.2	144.7	T4	1 1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	2400	250		
0370	37	102.3	145.8	T4	1 1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	2300	250		
0410	41	106.7	150.2	T5	1 1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	2100	220	702 9111 179	702 9112 117
0440	44	110.0	153.5	T5	1 1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	2000	210		702 9112 037
0460	46	112.2	155.7	T5	1 1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	1900	210	702 9111 117	
0500	50	116.6	160.1	T5	1 1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	1700	210	702 9111 150	
0520	52	118.8	162.3	T5	1 1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	1700	210		702 9112 022

**Dimensions (clockwise rotation shown)**



SAE "B" spline  
 13 teeth 16/32 DP  
 flat root side fit

PI PGP-PGM UK.PMD RH



<b>PG</b>		<b>640</b>											<b>B</b>	<b>1</b>	<b>B</b>	<b>1</b>	1)
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**Gear design**

**Type**

**Unit**

**Displacement**

**Rotation**

**Shaft**

**Flange**

**Shaft seal**

**Inlet side ports option**

**Outlet side ports option**

**No rear ports**  
(rear ports on request)

Code	Type
P	Pump
M	Motor

Code	Unit	
	Pump	Motor
A	Single unit	Standard motor with drain port
B	Multiple unit	Standard motor w. two checks
C	—	Standard motor w. one anti-cavitation check (ACC)

Displacement	
Code	ccm
0300	30.0
0350	35.0
0400	40.0
0450	45.0
0500	50.0
0550	55.0
0600	60.0
0650	65.0
0700	70.0
0750	75.0
0800	80.0

Code	Rotation
C	Clockwise
A	Counter-clockwise
B	Bi-directional

Code	Shaft
D1 <sup>2)</sup>	13T, 16/32DP, 41.2L, SAE "B" spline
E1 <sup>2)</sup>	15T, 16/32DP, 46.0L, SAE "B-B" spline
E4 <sup>3)</sup>	14T, 12/24DP, 55.6L, SAE "C" spline

Code	Port options (pumps)
E8E7	1½" -11 BSP Thread / 1¼" -11 BSP Thread rec. from 30 ccm to 50 ccm
T4T3	1¼" - M10 SAE metr. split flange 1" - M10 SAE split flange rec. from 30 ccm to 40 ccm
T5T3	1½" - M12 SAE metr. split flange 1" - M10 SAE split flange rec. from 45 ccm to 60 ccm
T6T4	2" - M12 SAE metr. split flange 1¼" - M10 SAE metr. split flange rec. from 65 ccm to 80 ccm

Code	Port options (motors)
E7E7	1¼"-11 BSP thread/ 1¼"-11 BSP thread

Example: T5 = inlet port  
T3 = outlet port

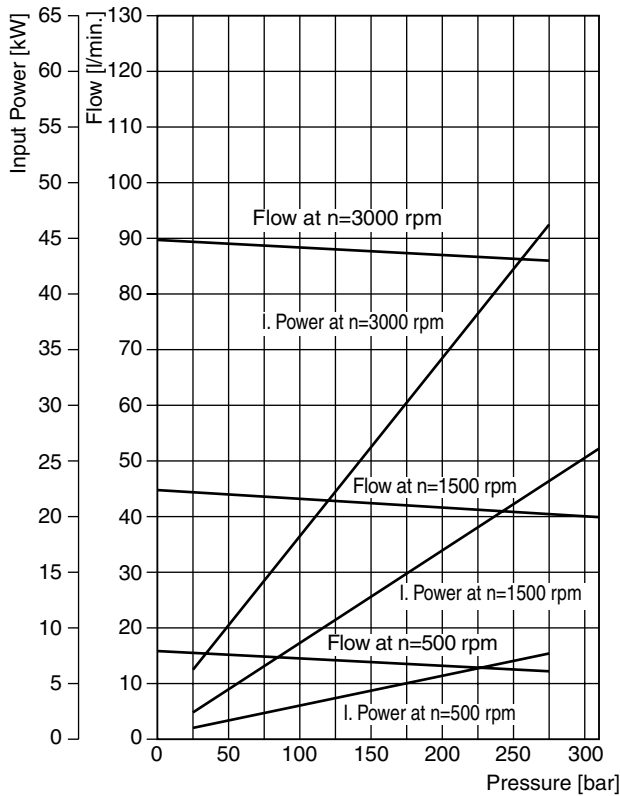
Code	Shaft seal
X	No seal
N	NBR
V	FPM
T	PTFE (motors only)

Code	Flange
A3	89.8x89.8 - Ø101.06 4 bolt square flange
A4	114.5x114.5 - Ø127 SAE "C" 4 bolt square flange
H3	146.1 - Ø101.06 SAE "B" 2 bolt flange
K3	181.0 - Ø127 SAE "C" 2 bolt flange

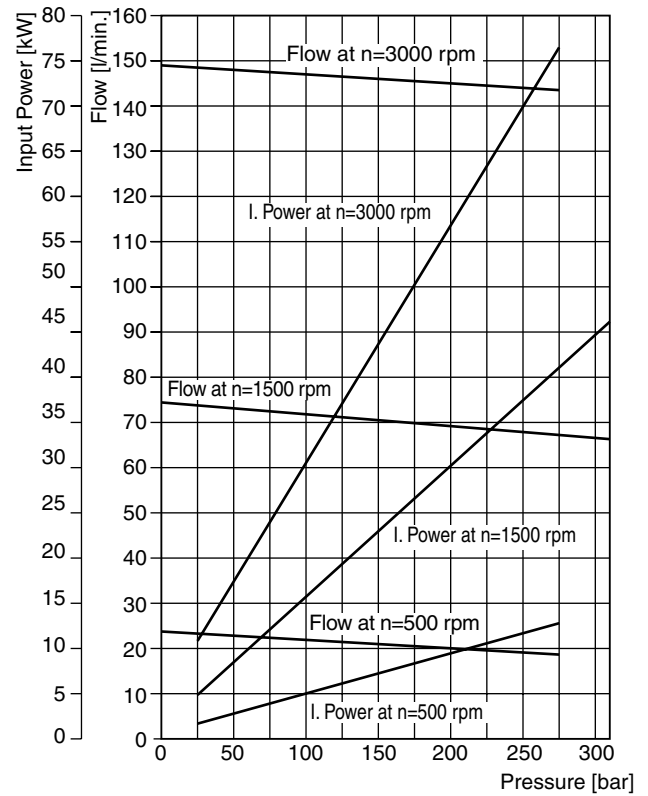
<sup>2)</sup> Only used with flange A3, H3.  
<sup>3)</sup> Only used with flange A4, K3.

<sup>1)</sup> Code of drain line for PGM640 only.  
**2 Options:**  
G4 = 1/4"-19 BSP rear drain.  
B1 = no drain, unit code must be "B" or "C".

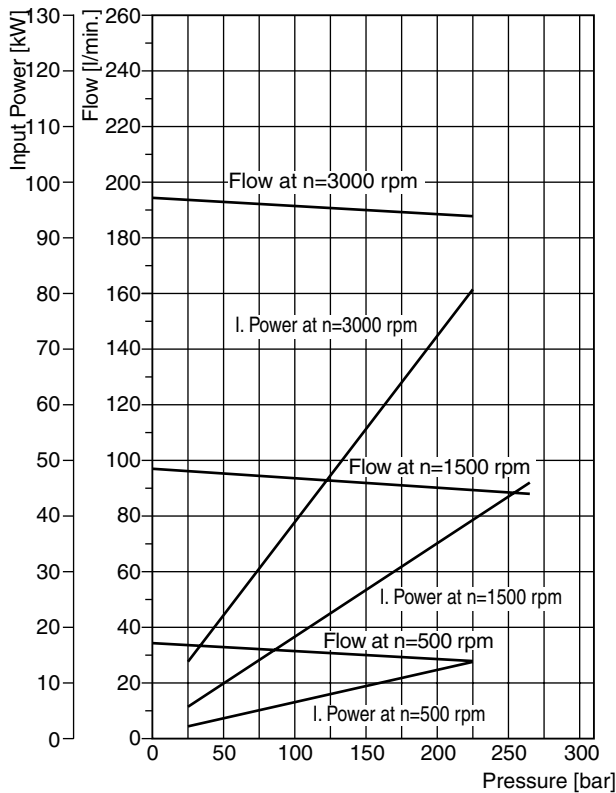
**PGP640 - 30.0 CC**



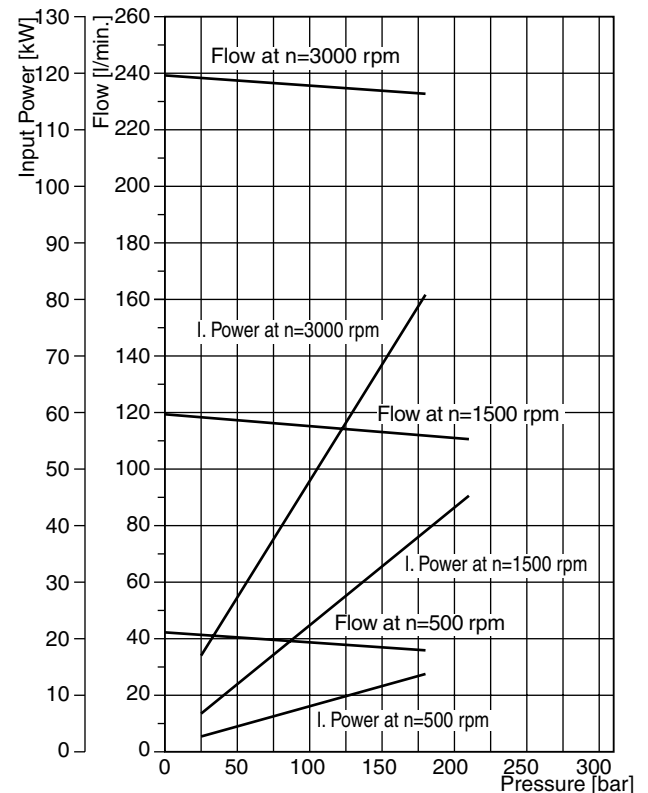
**PGP640 - 50.0 CC**



**PGP640 - 65.0 CC**



**PGP640 - 80.0 CC**



Fluid temperature: 45 °C ± 2K ; Viscosity: 36mm<sup>2</sup>/s ; Inlet pressure: 0.9 + 0.1 bar absolute

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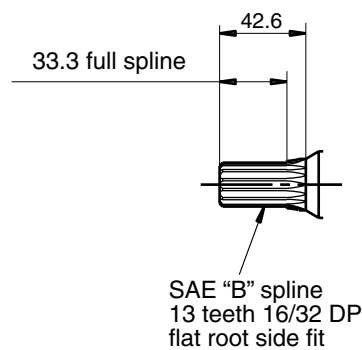
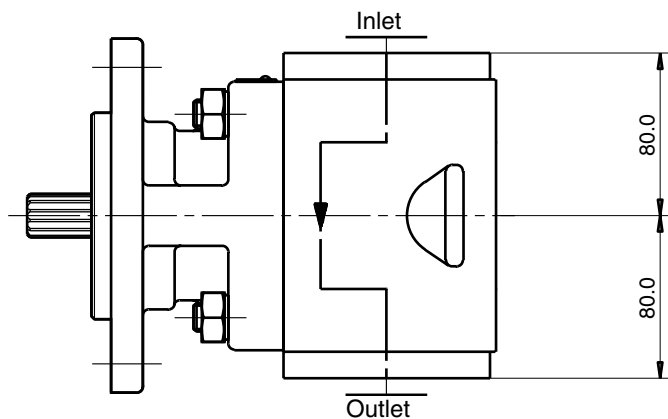
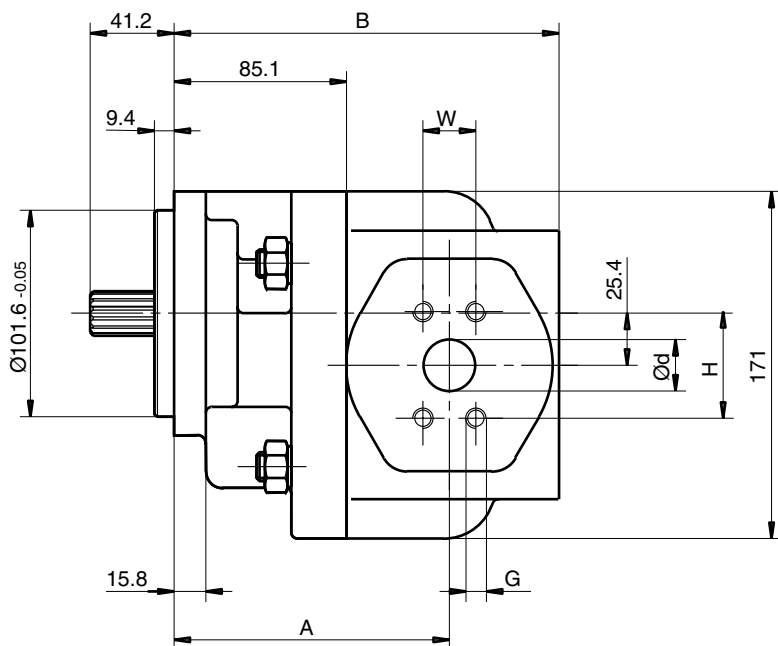
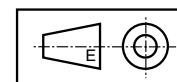


**PGP640 A XXXX Y D1 H3 N SS PP B1 B1**

“Y” = C (clockwise rotation)  
 = A (counter-clockwise rotation)

Displacement XXXX	cm <sup>3</sup> / rev	Dimension		Inlet port					Outlet port					Speed of rotation		Working pressure max. bar	Order number direction of rotation	
		A	B	SS	d	G	H	W	PP	d	G	H	W	min. rpm	max. rpm		clockwise	counter-clockwise
0300	30	128.6	176.1	T4	1-1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	3000	310		
0350	35	128.6	176.1	T4	1-1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	3000	310		
0400	40	131.8	182.7	T4	1-1/4"	M10	58.72	30.17	T3	1"	M10	52.37	26.19	500	3000	310	704 9111 055	704 9112 020
0450	45	131.8	182.7	T5	1-1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	3000	310		
0500	50	135.6	189.3	T5	1-1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	3000	310	704 9111 016	
0550	55	135.6	189.3	T5	1-1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	3000	310	704 9111 050	704 9112 019
0600	60	138.4	195.8	T5	1-1/2"	M12	69.82	35.71	T3	1"	M10	52.37	26.19	500	3000	290	704 9111 059	
0650	65	138.4	195.8	T6	2"	M12	77.77	42.88	T4	1-1/4"	M10	58.72	30.17	500	3000	265	704 9111 040	704 9112 022
0700	70	142.2	203.2	T6	2"	M12	77.77	42.88	T4	1-1/4"	M10	58.72	30.17	500	3000	245		
0750	75	142.2	203.2	T6	2"	M12	77.77	42.88	T4	1-1/4"	M10	58.72	30.17	500	3000	225		
0800	80	142.2	203.2	T6	2"	M12	77.77	42.88	T4	1-1/4"	M10	58.72	30.17	500	3000	210	704 9111 045	

**Dimensions** (clockwise rotation shown)

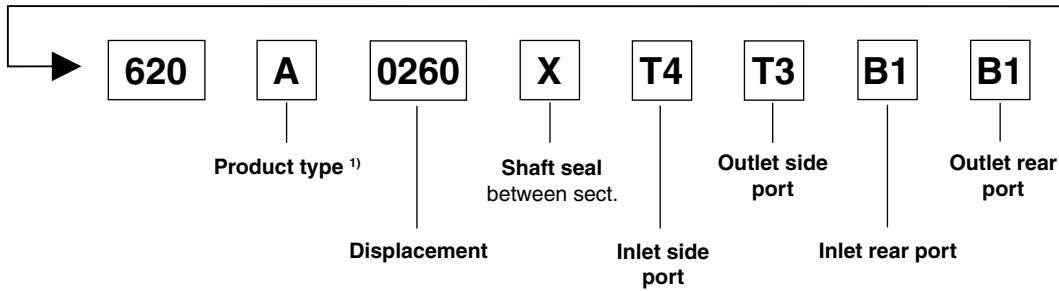
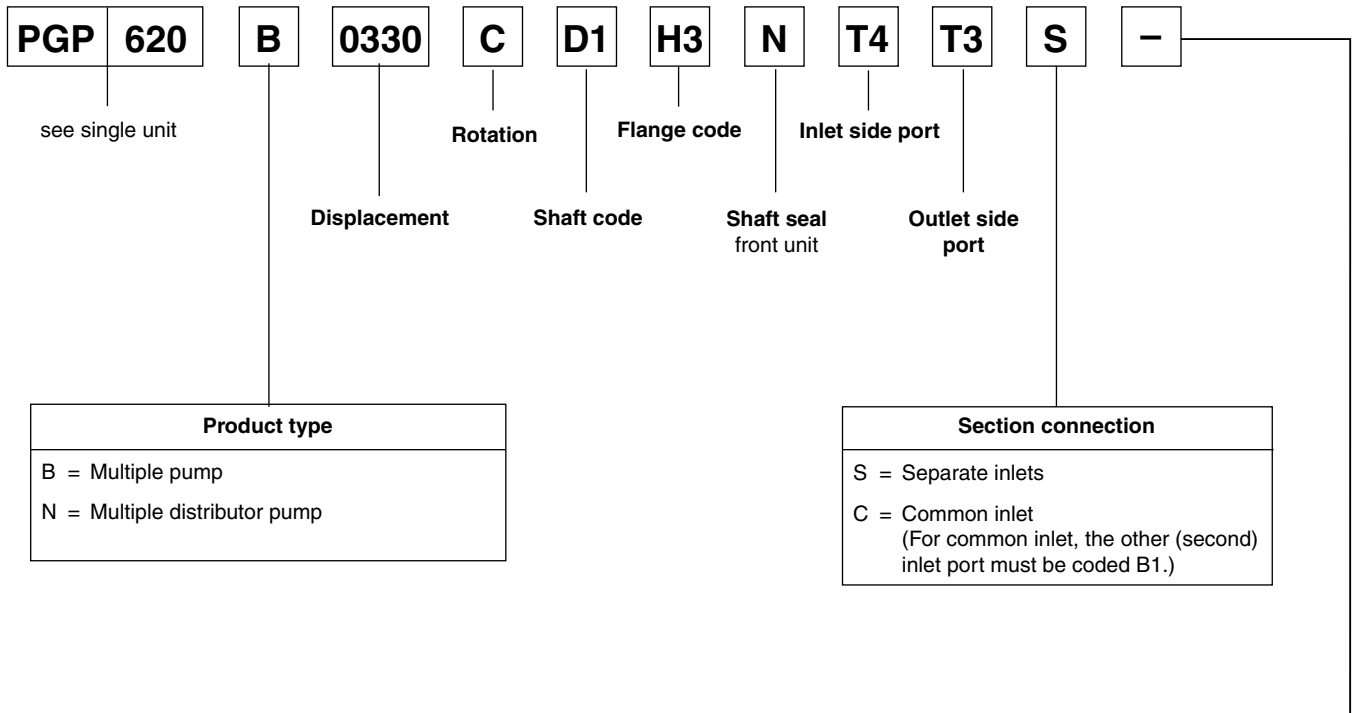


PI PGP-PGM UK.PMD RH





**Code for multiple units**



<sup>1)</sup> Further B possible for triple units

This coding system can be used for all pumps series 600.

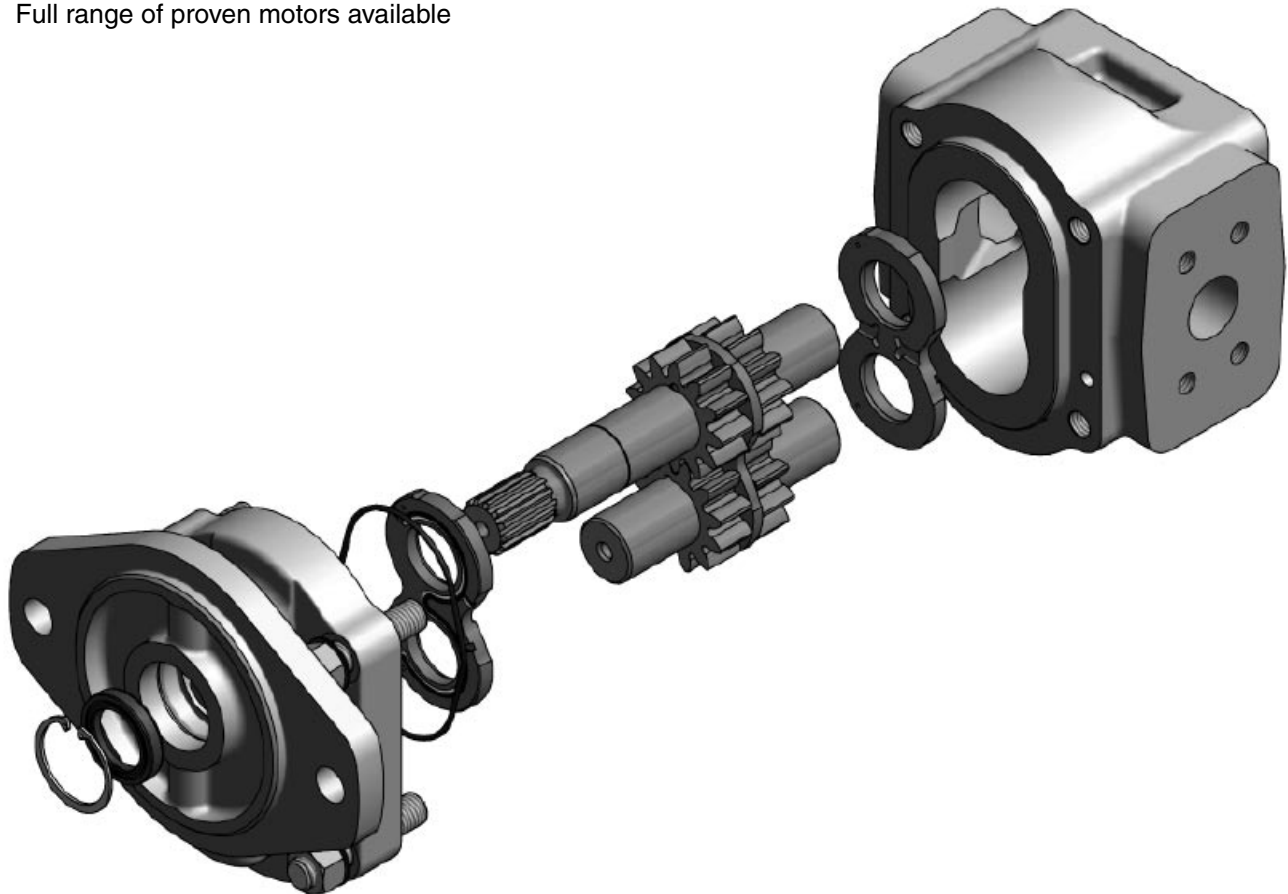
**Quality pays**

Aluminium or cast-iron bodied 'split-gear' gear pumps are designed for high pressure and speed ratings together with high efficiency and optimised noise levels.

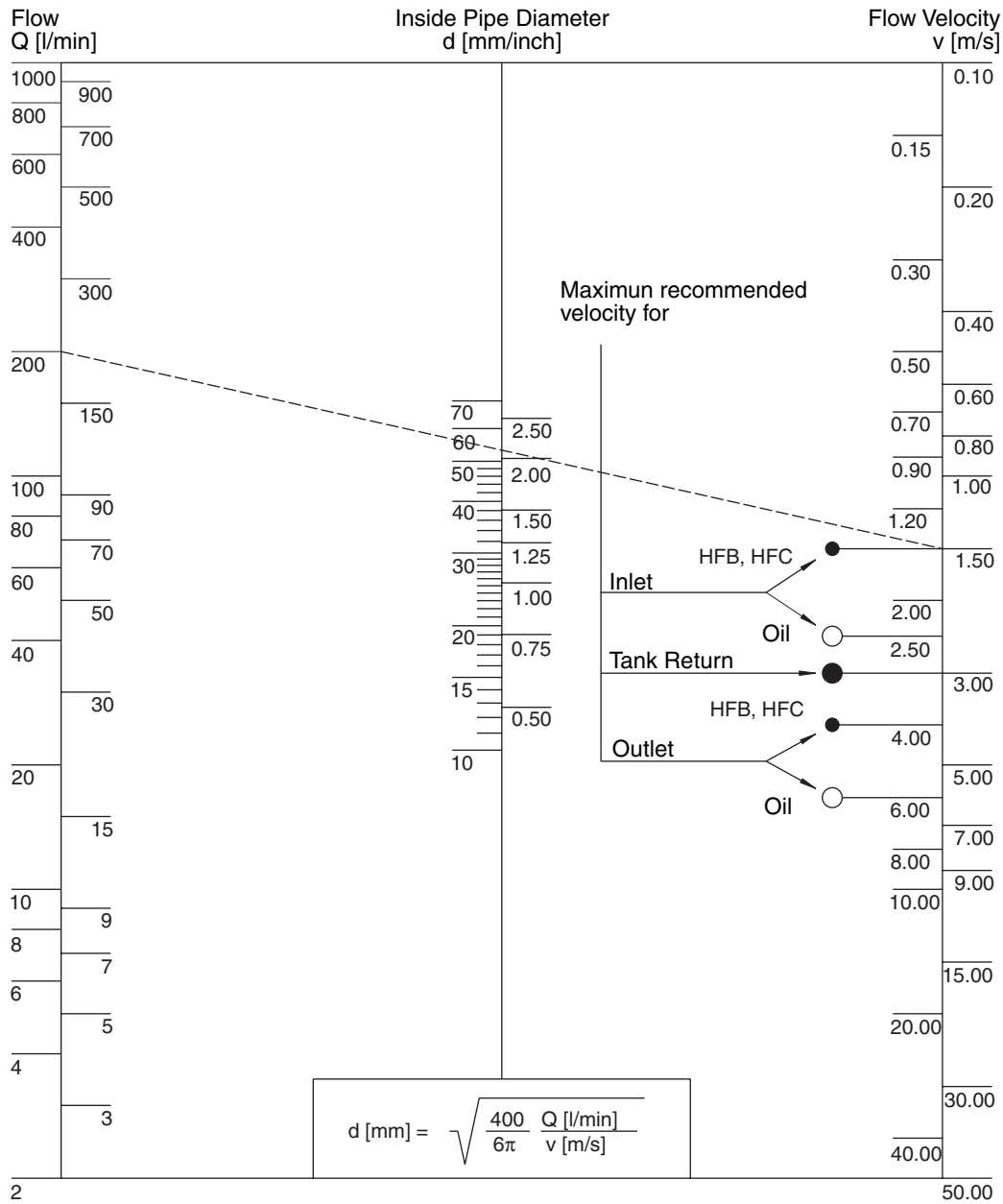
The flow pulsation is considerably decreased by phased dual element gear sets, resulting in models with clearly lower noise levels. Common inlet available for multiple section units.

**Series PGP511 / PGP620 (on request)**

- Up to 250 bar constant operation possible due to high-quality materials
- Low noise levels even in constant operation
- High efficiency thanks to precise manufacturing
- Complete product range for huge variety of applications
- Common inlet ports for double and triple pumps
- Wide choice of integrated valves, e.g. load-sensing and solenoid types
- Full range of proven motors available



**Nomograph for Pipe Velocity**



**Shaft loads PGP/PGM500**

Code	Description	Type	Torque rating [Nm]			
			PGP/PGM503	PGP/PGM505	PGP/PGM511	PGP/PGM517
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	—	—	—
V2	5 x 4.5 short 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	—
F1	9T, B17x14.23L, DIN 5482	splined	—	—	101	—
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	—
S4	Ø16.65, 12.0L, 4.0 key, M12x1.5	taper 1:8	—	—	198	—
D1	13T, 16/32DP, 41.2L, SAE "B"	splined	—	—	—	345
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

**Shaft loads PGP/PGM600**

Code	Description	Type	Torque rating 620 [Nm]	Torque rating 640 [Nm]
D1	13T, 16/32 DP, 41.2L, SAE "B"	splined	272	328
E1	15T, 16/32 DP, 46.0L, SAE "B-B"	splined	460	503
E4	14T, 12/24 DP, 5.6L, SAE "C"	splined	—	960
T1	Ø21.59, 11.2L, 4.0key, M14x1.5	tapered 1:8	218	—
	Connecting shaft for multiple units		228	407

**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 <sup>-1</sup> ]	Temperature	Seal
Hydraulic fluid	Mineral oil based on hydraulic fluid acc. to ISO/DIN	See Technical Data	See Technical Data	-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.