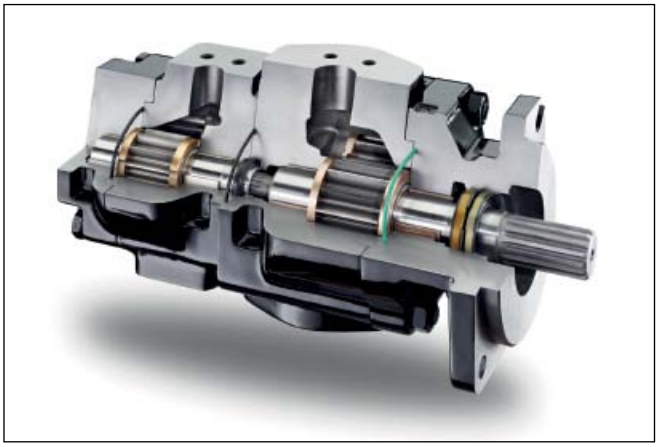
Over many years Parker Hydraulics has supplied gear pumps and motors for mobile and industrial markets worldwide, especially for materials handling, commercial grass cutting and construction equipment applications. Many Parker pumps and motors have been developed and tested for the specific needs of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



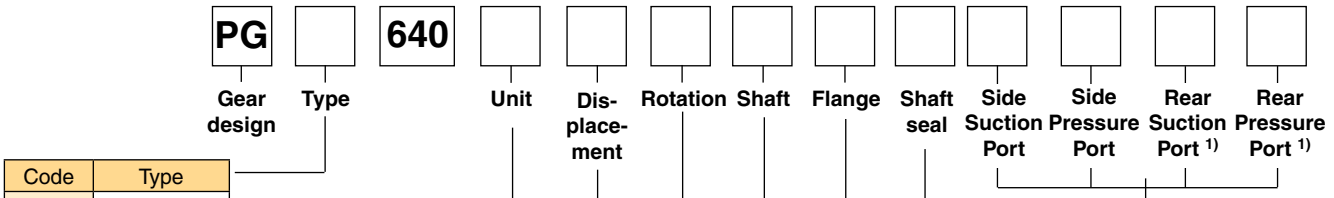
Features

- Unique interlocking body design
- 12 tooth gears, optimize 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

Characteristics

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
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 mm²/s. Max. permissible operating pressure dependent on viscosity. Viscosity range for cold start 1000 to 2000 mm²/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. 19/17/13
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	• Available in two or three section configuration. • Max. shaft load must be conform to 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: • Each gear housing has individual inlet and outlet ports. Common inlet configuration: • Two gear sets share a common inlet.



Code	Type
P	Pump
M	Motor

Code	Unit	
	Pump	Motor
A	Single unit	Standard Motor without checks
B	Multiple unit	Standard Motor with 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
0900*	90.0
1000	100.0

*) Non standard, on request only

Code	Rotation
C	Clockwise
A	Counter clockwise
B	Bi-directional

Code	Shaft
D1	13T, 16/32DP, 41.2L, SAE ”B” spline
E1	15T, 16/32DP, 46.0L, SAE ”B-B” spline
E4	14T, 12/24DP, 55.6L, SAE ”C” spline
N1	1 1/4" Keyed SAE-C

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

Code	Flange
A3	89.8x89.8 - Ø101.06, SAE "B" 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

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.
2) Only for motors

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Chemnitz, Germany

B	1	B	1				640								3)
No rear ports (rear ports on request)				**Motor Drain Option** [2]	**Drain Position** [2]		**Section Connection**	**Unit**	**Displacement**	**Shaft Seal**	**Side Suction Port**	**Side Pressure Port**	**Rear Suction Port** [1]	**Rear Pressure Port** [1]	

Code	Section Connection
S	Separate inlets
C	Common inlets

Code	Drain Position
2	Drain on bottom
3	Drain on top
4	Rear drain

Code	Motor Drain Option
B1	no drain
C	9/16-18 UNF thread
G	1/4 BSP thread

Code	Port Options
B1	No ports
D5[4]	1 1/16 - 12 UN thread
D6[4]*	1 5/16 - 12 UN thread
D7[4]*	1 5/8 - 12 UN thread
D8[4]*	1 7/8 - 12 UN thread
E4	5/8 - 14 BSP thread
E5	3/4 - 16 BSP thread
E6*	1 - 11 BSP thread
E7*	1 1/4 - 11 BSP thread
E8*	1 1/2 - 11 BSP thread
J8*	18 mm - Ø55 mm - M8 square
J9*	26 mm - Ø55 mm - M8 square
L2*	19 mm-Ø40 mm-M8 diamond
L3*	27 mm-Ø51 mm-M10 diamond

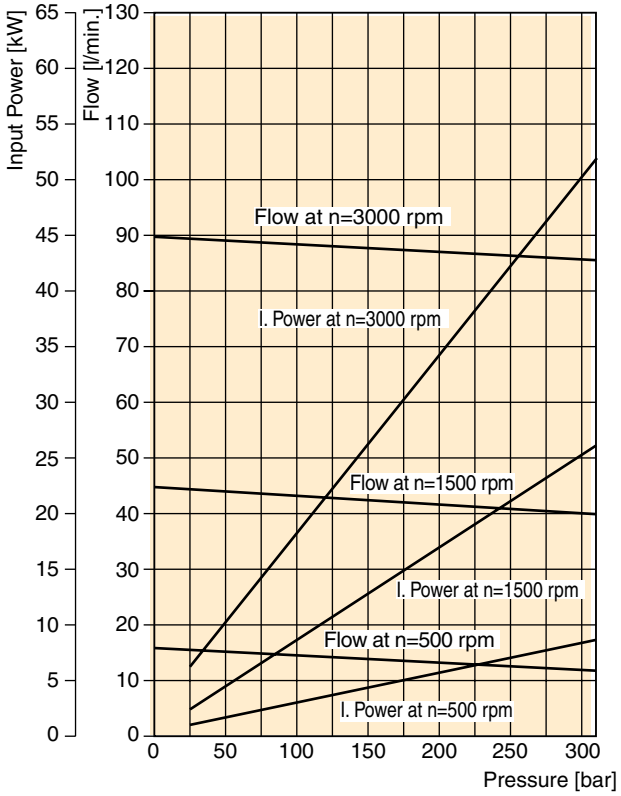
Code	Port Options
S2[4]*	3/4"-3/8-16 UNC SAE Split Flange
S3[4]*	1"-3/8-16 UNC SAE Split Flange
S4[4]*	1 1/4"-7/16-14 UNC SAE Split Flange
S5[4]*	1 1/2"-1/2-13 UNC SAE Split Flange
S6[4]*	2"-1/2-13 UNC SAE Split Flange
T2*	19.0 mm - M10 3/4" Metric Split Flange
T3*	25.4 mm - M10 1" Metric Split Flange
T4*	31.8 mm - M10 1 1/4" Metric Split Flange
T5*	38.1 mm - M12 1 1/2" Metric Split Flange
T6*	50.8 mm - M12 2" Metric Split Flange

[4] Non standard, on request only

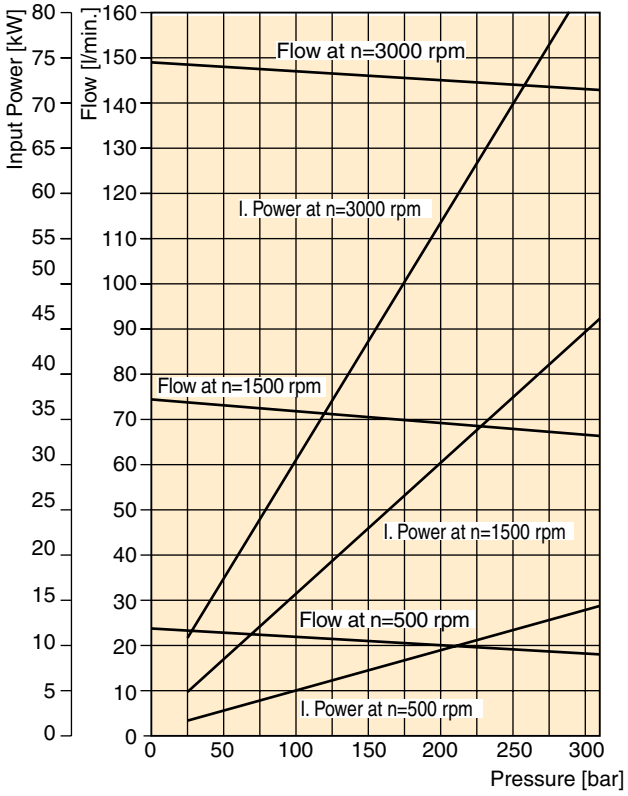
*) Not usable for rear ports

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

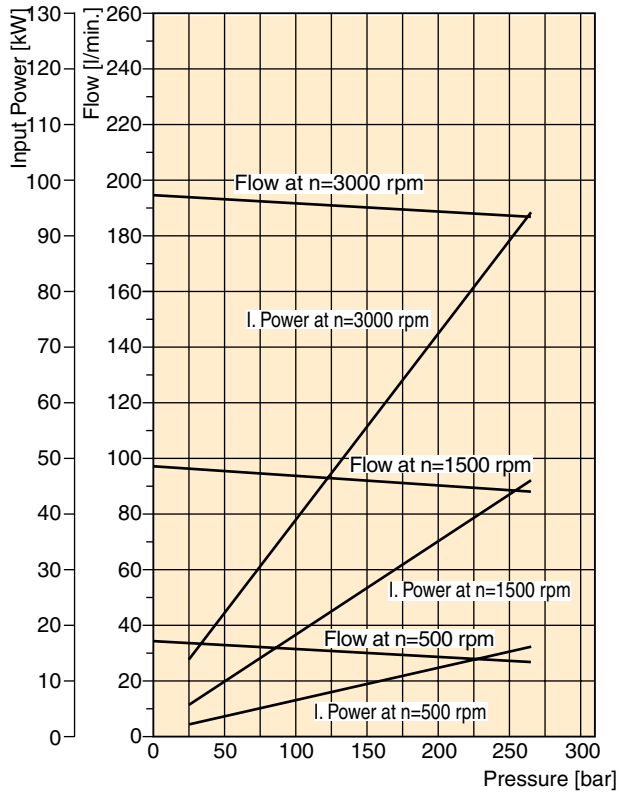
PGP640 - 30.0 CC



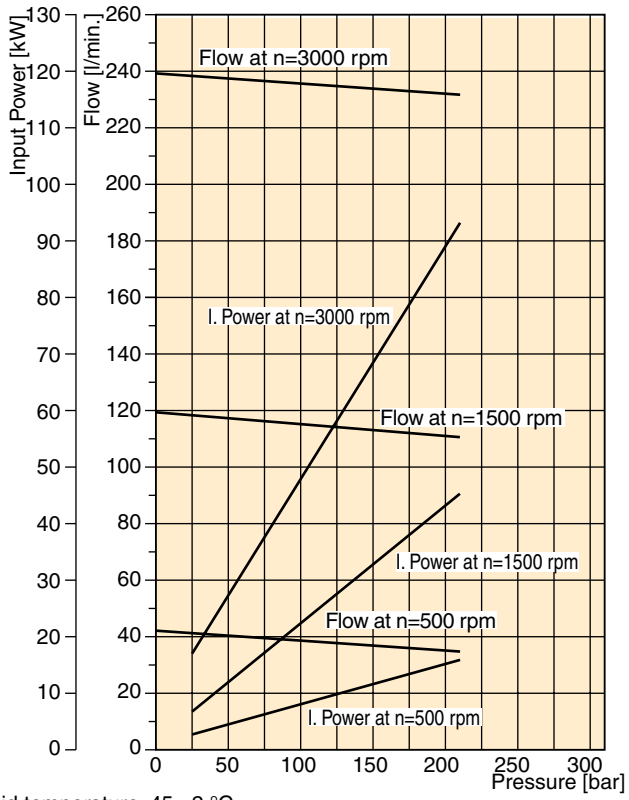
PGP640 - 50.0 CC



PGP640 - 65.0 CC



PGP640 - 80.0 CC



Fluid temperature: 45± 2 °C
Viscosity: 36 mm^2/s
Inlet pressure: 0.9 + 0.1 bar absolute

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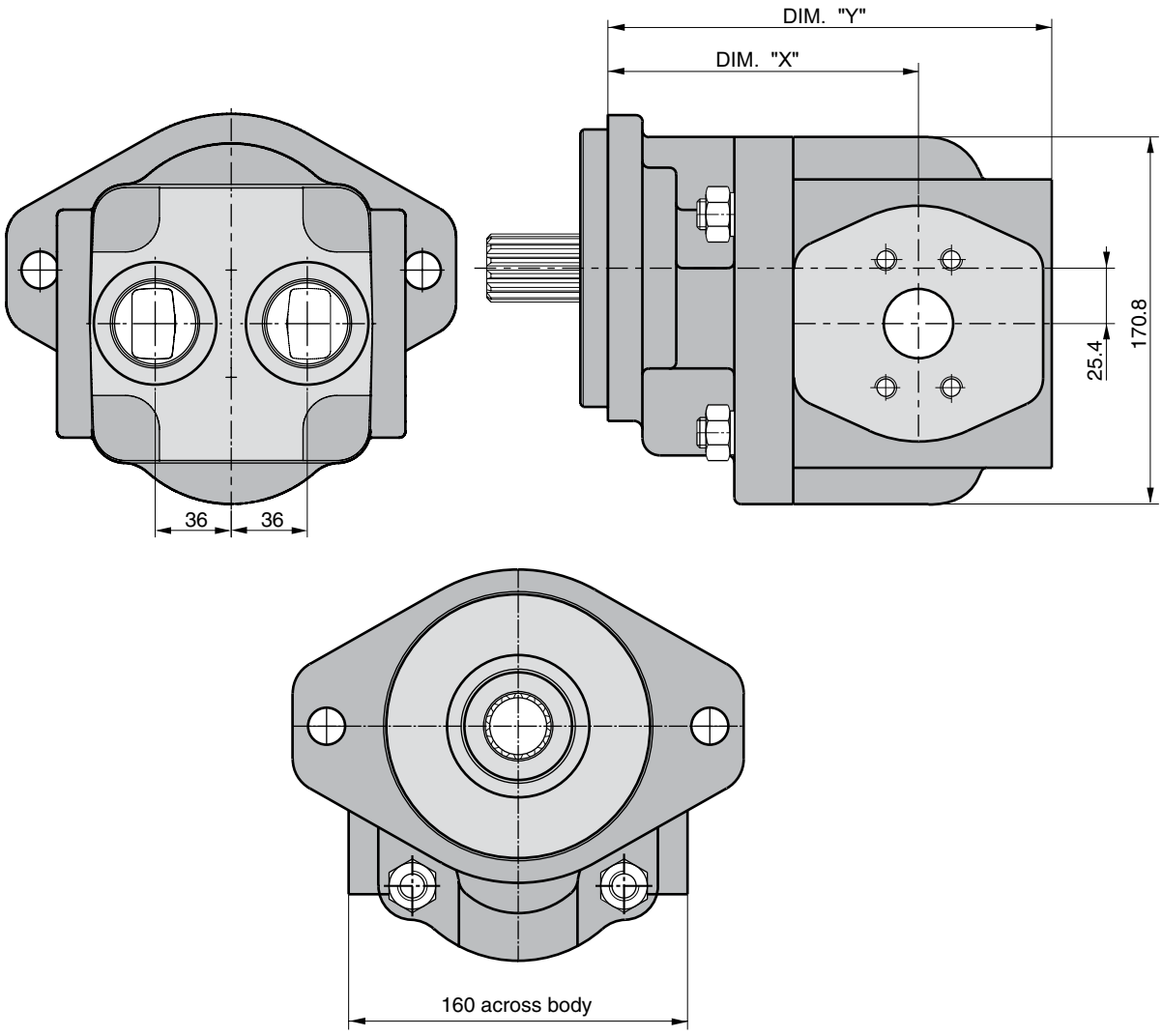
Pump and Motor Division
Chemnitz, Germany

PGP/PGM 640 Specification - Standard Displacements - Single Unit

Pump Displ	Code	300	350	400	450	500	550	600	650	700	750	800	900	1000
	cm³/rev	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	90.0	100.0
Max. Continuous Pressure	bar	310	310	310	310	310	310	290	265	245	225	210	190	180
Minimum Speed at max. outlet pressure	rpm	500	500	500	500	500	500	500	500	500	500	500	500	500
Maximum Speed at = inlet & max. Outlet pressure	rpm	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
Dimension "X"	mm	128.6	128.6	131.8	131.8	135.6	135.6	138.4	138.4	142.2	142.2	142.2	149.8	149.8
Dimension "Y"	mm	176.1	176.1	182.7	182.7	189.3	189.3	195.8	195.8	203.2	203.2	203.2	216.4	216.4
Aprox. Weight	Kg	20.6	20.6	21.2	21.2	22.0	22.0	22.6	22.6	23.3	23.3	25.0	25.5	25.5

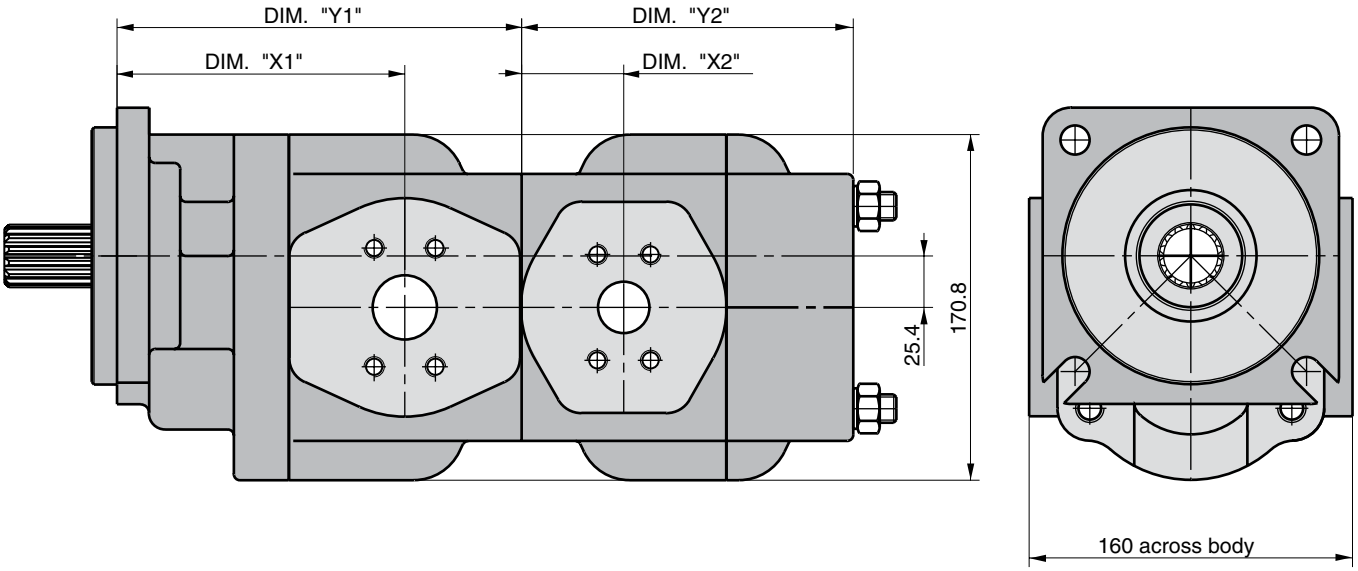
Dimension Flanges see pages 73 to 74
Dimension Shafts see page 77



PGP/PGM 640 Specification - Standard Displacements - Tandem Unit

Pump Displ	Code	300	350	400	450	500	550	600	650	700	750	800	900	1000
	cm³/rev	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	90.0	100.0
Dimension "X1"	mm	128.6	128.6	131.8	131.8	135.6	135.6	138.4	138.4	142.2	142.2	142.2	149.8	149.8
Dimension "Y1"	mm	176.1	176.1	182.7	182.7	189.3	189.3	195.8	195.8	203.2	203.2	203.2	216.4	216.4
Dimension "X2"	mm	44.3	44.3	47.8	47.8	50.5	50.5	54.3	54.3	57.8	57.8	57.8	63.4	63.4
Dimension "Y2"	mm	147.5	147.5	154.1	154.1	160.7	160.7	167.2	167.2	174.6	174.6	174.6	184.2	184.2
Aprox. Weight front section	Kg	20.6	20.6	21.2	21.2	22.0	22.0	22.6	22.6	23.3	23.3	25.0	25.5	25.5
Aprox. Weight rear section	Kg	20.1	20.1	20.7	20.7	21.5	21.5	22.1	22.1	22.8	22.8	24.5	25.0	25.0

Dimension Flanges see pages 73 to 74
Dimension Shafts see page 77



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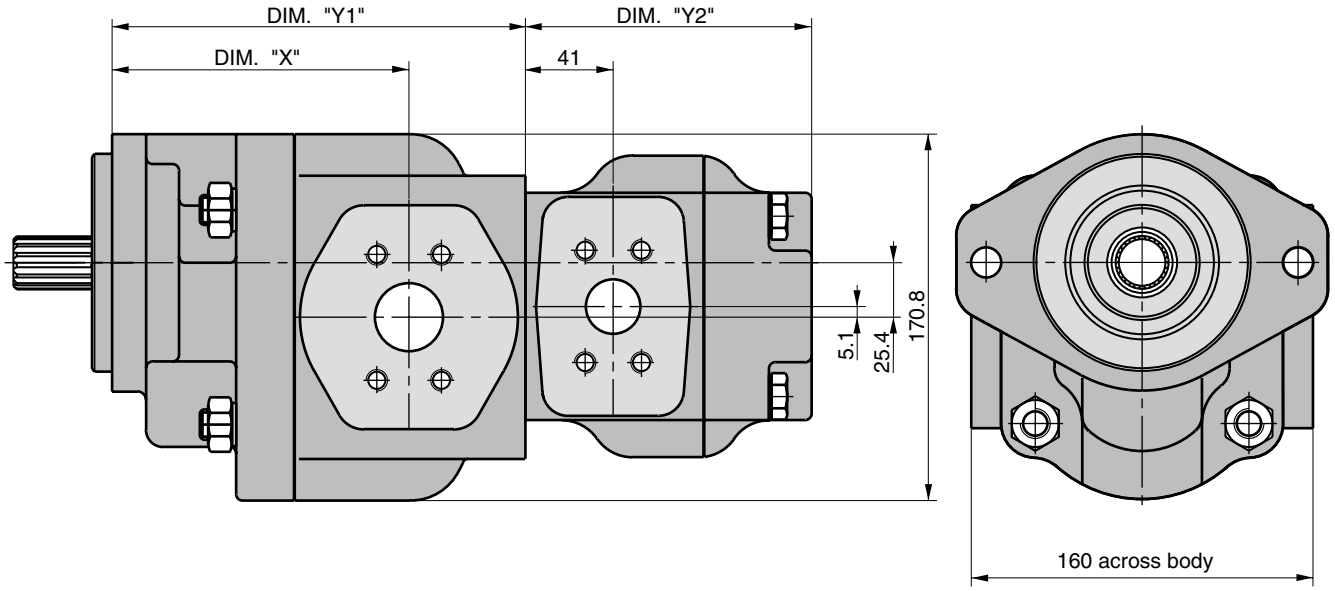
Chemnitz, Germany

PGP 640/620 Specification - Standard Displacements - Tandem Unit

Pump Displ. 640	Code	300	350	400	450	500	550	600	650	700	750	800	900	1000
	cm³/rev	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	90.0	100.0
Dimension "X1"	mm	128.6	128.6	131.8	131.8	135.6	135.6	138.4	138.4	142.2	142.2	142.2	149.8	149.8
Dimension "Y1"	mm	176.1	176.1	182.7	182.7	189.3	189.3	195.8	195.8	203.2	203.2	203.2	216.4	216.4
Pump Displ. 620	Code	160	190	210	230	260	290	330	360	370	410	440	500	520
	cm³/rev	16.0	19.0	21.0	23.0	26.0	29.0	33.0	36.0	37.0	41.0	44.0	50.0	52.0
Dimension "Y2"	mm	115.2	118.5	120.7	122.9	126.2	129.5	133.9	137.2	138.3	142.7	146	152.6	154.8
Aprox. Weight front section	Kg	20.6	20.6	21.2	21.2	22.0	22.0	22.6	22.6	23.3	23.3	25.0	25.5	25.5
Aprox. Weight rear section	Kg	10.4	10.5	10.5	10.6	10.7	11	11.1	11.2	11.3	11.4	11.5	11.7	11.8

Dimension Flanges see pages 73 to 74
Dimension Shafts see page 77



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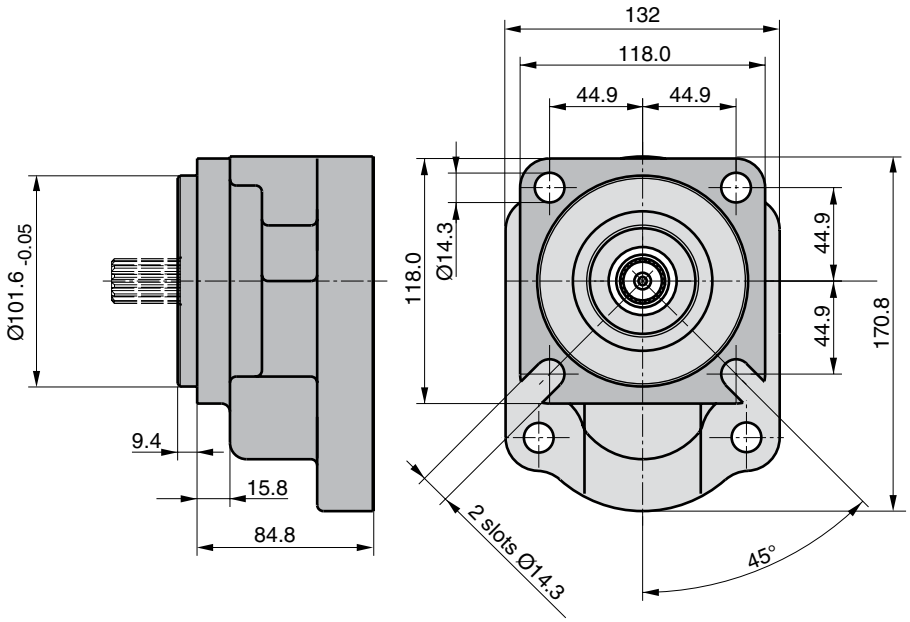
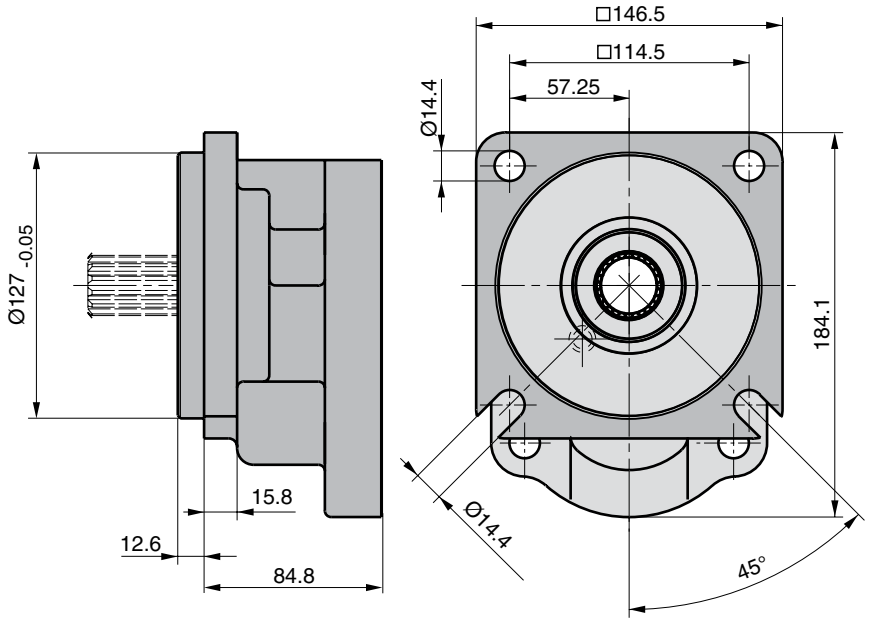
Chemnitz, Germany

PGP/PGM 640 Mounting Flange

Code A3

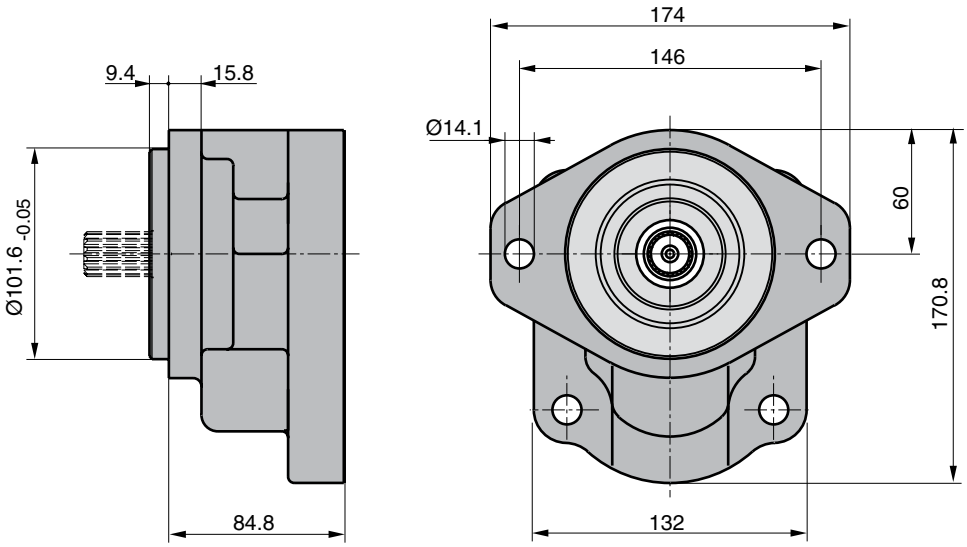


Code A4

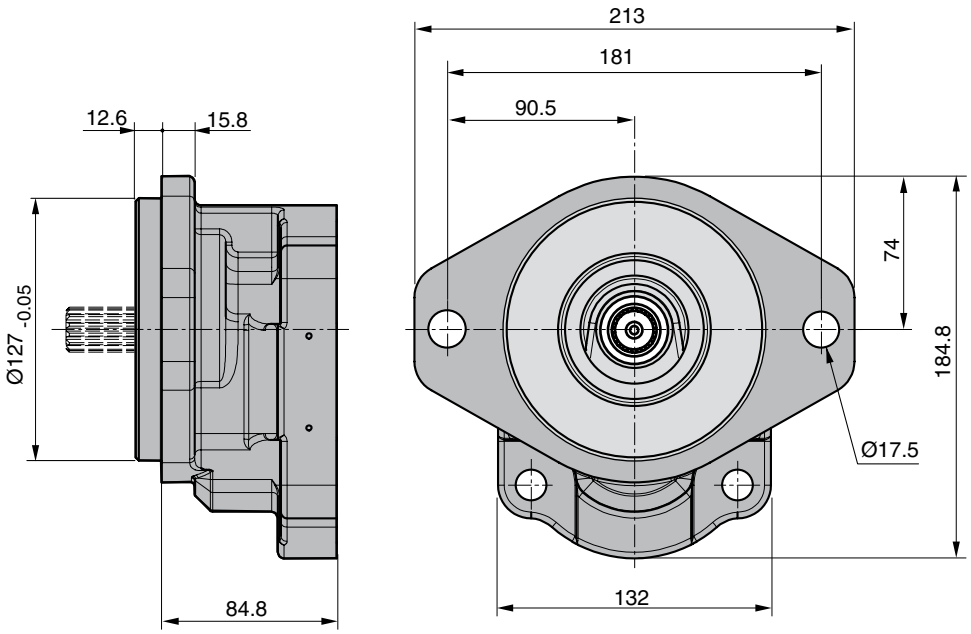


PGP/PGM 640 Mounting Flange

Code H3

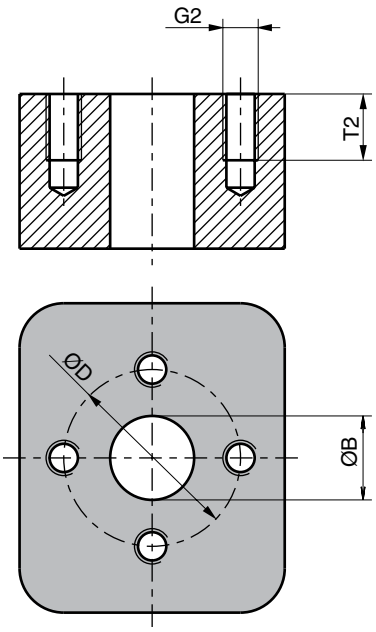


Code K3

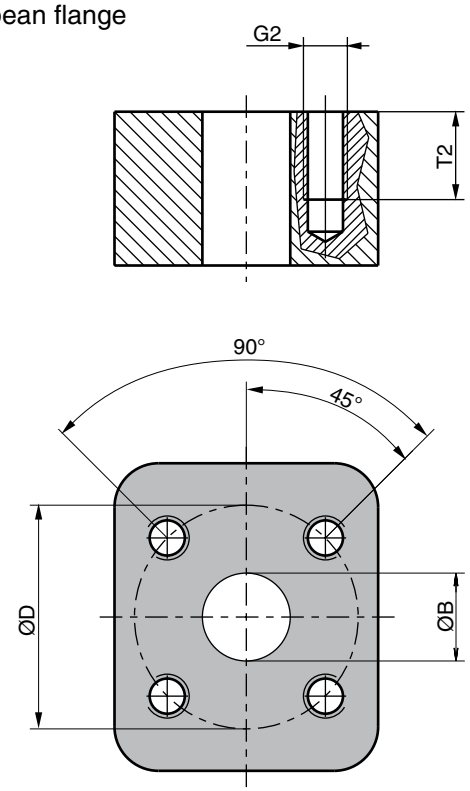


PGP/PGM 640 Porting

Code L
4-Bolt flange



Code J
European flange

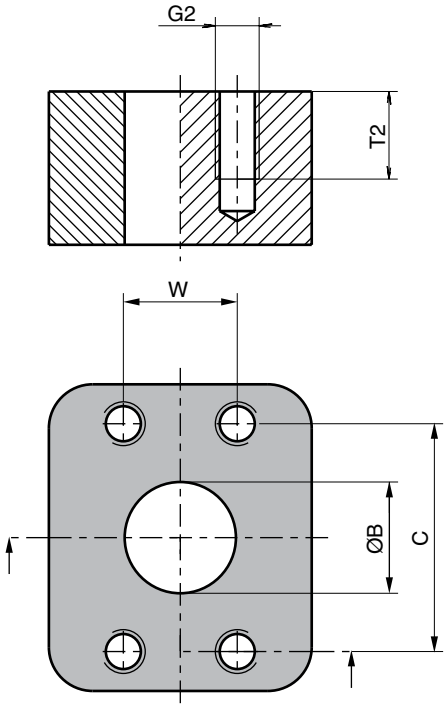


PGP/PGM 640

Code	G2	∅B	∅D	C	W	T2
	Thread	Dimensions				
J8	M8	18.0	55.0			15.0
J9	M8	26.0	55.0			15.0
L2	M8	19.0	40.0			15.0
L3	M10	27.0	51.0			18.0
S2	3/8-16 UNC	19.0		47.63	22.23	14.0
S3	3/8-16 UNC	25.4		52.37	26.19	20.6
S4	7/16-14 UNC	31.8		58.72	30.17	20.6
S5	1/2-13 UNC	38.1		69.82	35.71	20.6
S6	1/2-13 UNC	50.8		77.77	42.88	20.6
T2	M10	19.0		47.63	22.23	20.6
T3	M10	25.4		52.37	26.19	21.4
T4	M10	31.8		58.72	30.17	20.6
T5	M12	38.1		69.82	35.71	20.6
T6	M12	50.8		77.77	42.88	20.6

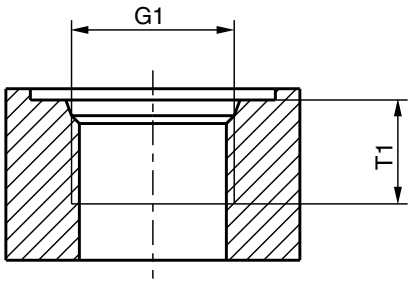
Code S
SAE split flange

Code T
SAE split flange metric thread

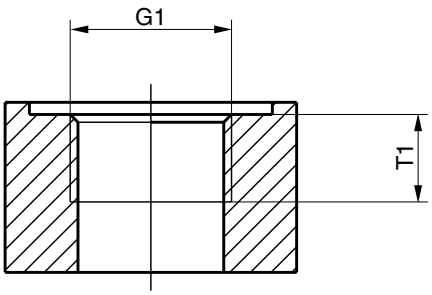


PGP/PGM 640 Porting

Code D
SAE straight thread



Code E
BSP - thread

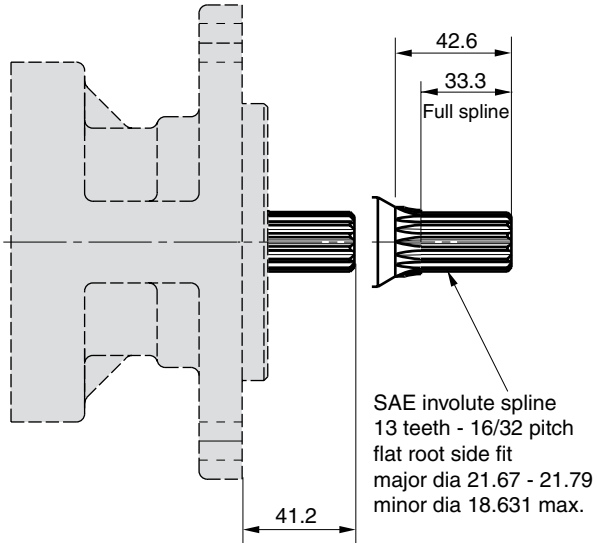


PGP/PGM 640

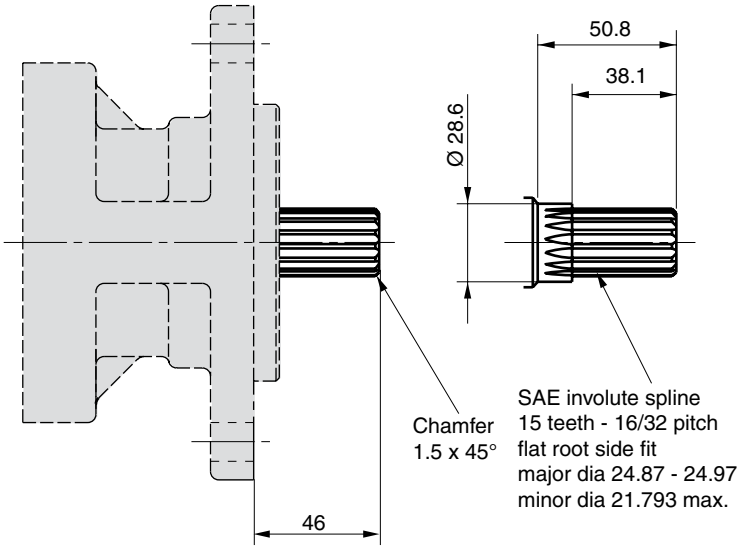
Code	G1	T1
	Thread	Dimensions
D5	1 1/16-12 UN	19.0
D6	1 5/16-12 UN	19.0
D7	1 5/8-12 UN	19.0
D8	1 7/8-12 UN	19.0
E4	5/8-14 BSP	16.3
E5	3/4-16 BSP	16.0
E6	1-11 BSP	18.0
E7	1 1/4-11 BSP	20.0
E8	1 1/2-11 BSP	22.0

PGP/PGM 640 Drive Shaft

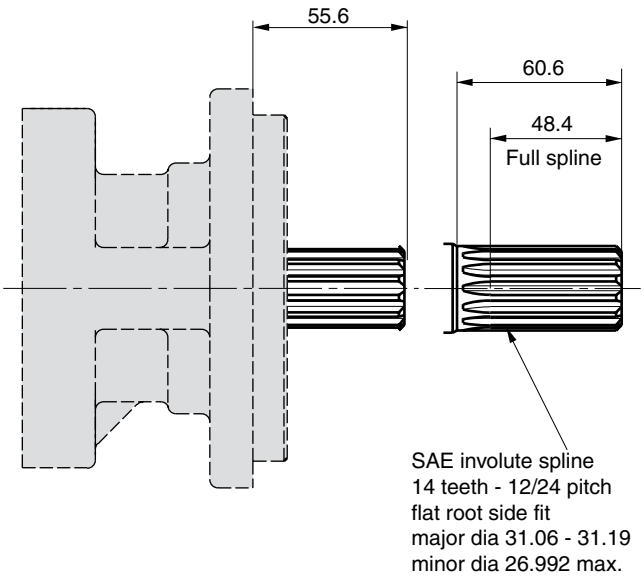
Code D1



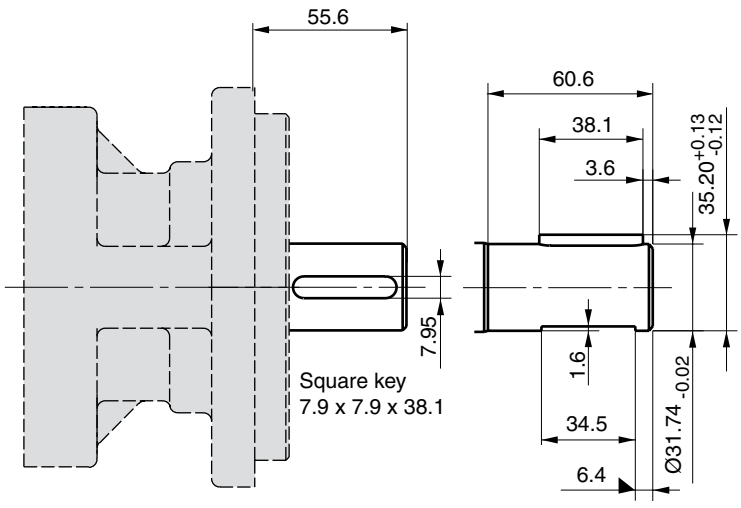
Code E1



Code E4



Code N1



Shaft loads PGP/PGM500

Code	Description	Type	Torque rating [Nm]			
			PGP 502	PGP 505	PGP/PGM511	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	—	—	166	—
F5	B8x32x36 DIN ISO 14 (similar to DIN 5462)	splined	—	—	166	—
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

Shaft loads PGP/PGM600

Code	Description	Type	Torque rating]		
			620 [Nm	625 [Nm]	640 [Nm]
D1	13T, 16/32 DP, 41.2L, SAE "B"	splined	272	272	328
E1	15T, 16/32 DP, 46.0L, SAE "B-B"	splined	460	460	503
E4	14T, 12/24 DP, 55.6L, SAE ”C”	splined	—	(272)	960
M3	Ø25.4, 6.3 KEY, M8, 46L, SAE “B-B“	parallel	325	325	—
T1	Ø21.59, 11.2L, 4.0key, M14x1.5	tapered 1:8	218	218	—
T2	Ø25.0, 12.0L, 5.0 KEY, M16x1.5	taper 1:5	301	—	—
N1	1 1/4" SAE-C	keyed	—	—	678
	connecting shaft		228	228	407

Formula to calculate shaft load

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

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

* to be used with cast iron pumps/motors only

Parker does not give an explicit recommendation for certain fluid product, fluid brand or fluid manufacturer
The risk of using different kind of fluids has to be taken by the customer.

Flanges for suction and discharge ports

Please refer to Parker Bulletin 4040/UK.