Commercial Hydraulics

Pump & Motor Division

Roller Bearing Series – 020, 031, 051, 076 Frame Sizes

Parker

ENGINEERING YOUR SUCCESS.

⚠ WARNING — User Responsibility

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by usershaving technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

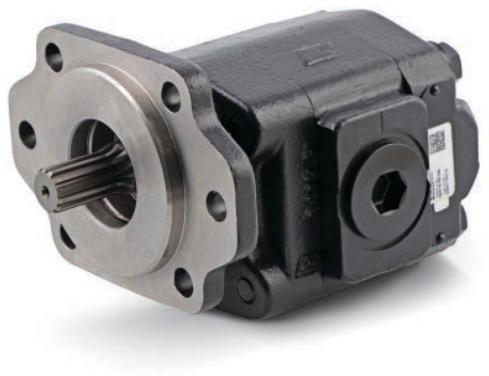
The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the “Offer of Sale”.

⚠ **WARNING:** This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

Table of Contents

Commercial Roller Bearing Series

- Original Commerical pump design
- Three-piece cast iron construction for assembly flexibility
- Balanced thrust plates optimize pump efficiency
- Roller bearings for durability and resistance to fluid contamination
- Multiple sections available



Product Features	Description
Pump Type	Fixed
Mounting	SAE
Ports	Flange, NPT, ODT
Shaft Style	SAE
Pump Speed	900 to 2400 RPM
Motor Speed	800 to 2000 RPM
Maximum Displ.	3.9 in^3/rev
Maximum Operating Pressure	3000 PSI
Fluids	Mineral oil, fire resistant fiuids: - water-oil emulsions 60/40, HFB - water-glycol, HFC - phosphate-esters, HFD

Product Features	Description
Fluid Temperature	Range of operating temperature -15 to +80°C (5 to 176° F). Max. permissible operating pressure dependent on fluid temperature. Temperature for cold start -20 to -15°C (-4 to 5° F) at speed ≤ 1500 RPM.
Fluid Viscosity	50-7500 SUS
Direction of Rotation (looking at the driveshaft)	Clockwise, Counter Clockwise, Bi-Rotational

NOTE: Different types of pump options are available in terms of shaft, mounting and port type. Please contact Parker.

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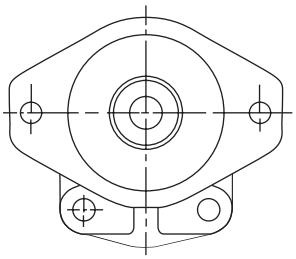
PGP/PGM020 Specifications

PGP020 Frame Size	05	07	10	12	15	17	20
Displacement – cm3/rev (in3/rev)	16.1 (0.99)	24.2 (1.48)	32.3 (1.97)	40.4 (2.46)	48.4 (2.96)	56.5 (3.45)	64.6 (3.94)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)
Max Speed – RPM	2,400	2,400	2,400	2,400	2,400	2,400	2,400
Approximate Weight – Lbs. [kg]	26 [12]	27 [12.5]	28 [13]	29 [13]	31 [14]	33 [15]	34 [15.5]

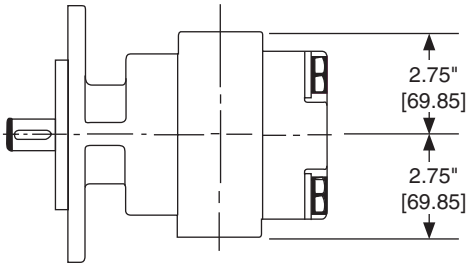
PGM020 Frame Size	05	07	10	12	15	17	20
Displacement – cm^3/rev (in^3/rev)	16.1 (0.99)	24.2 (1.48)	32.3 (1.97)	40.4 (2.46)	48.4 (2.96)	56.5 (3.45)	64.6 (3.94)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)
Max Speed – RPM	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Approximate Weight – Lbs. [kg]	26 [12]	27 [12.5]	28 [13]	29 [13]	31 [14]	33 [15]	34 [15.5]

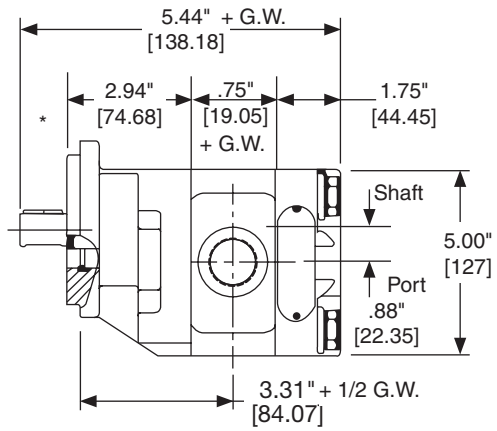
PGP/PGM020 Dimensions

Dimensional Data inches [mm] for reference only. Refer to unit assembly drawings.

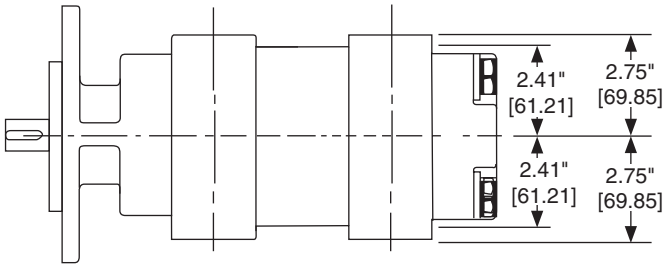


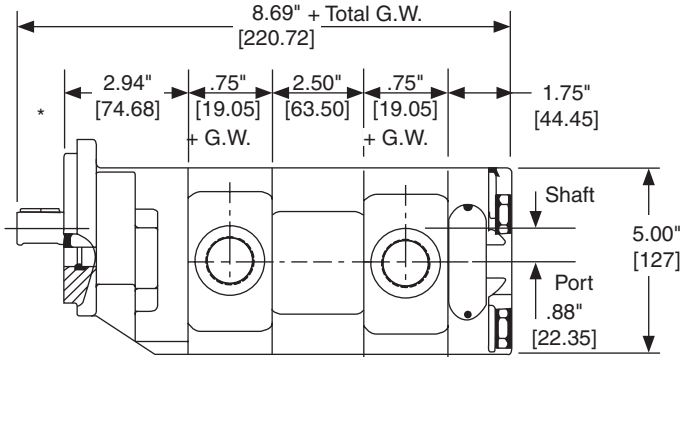
Single Units





Multiple Units





*This dimension will vary with type of driveshaft.

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Pump Speed	Gear Width – Output (GPM)				
	1"	1-1/4"	1-1/2"	1-3/4"	2"
900	6.5	8.0	10.0	12.0	13.5
1200	9.0	11.5	14.0	16.0	18.5
1500	11.5	14.5	17.5	20.5	23.5
2100	16.5	21.0	25.0	29.5	34.0

Motor Speed	Gear Width					
	1" Torque in lbs.	GPM	1-1/2" Torque in lbs.	GPM	2" Torque in lbs.	GPM
800	550	9.0	870	13.0	1150	17.0
1200	550	13.0	870	18.0	1150	23.5
1600	550	16.0	860	23.0	1140	30.5
2000	550	19.5	850	28.0	1125	37.0

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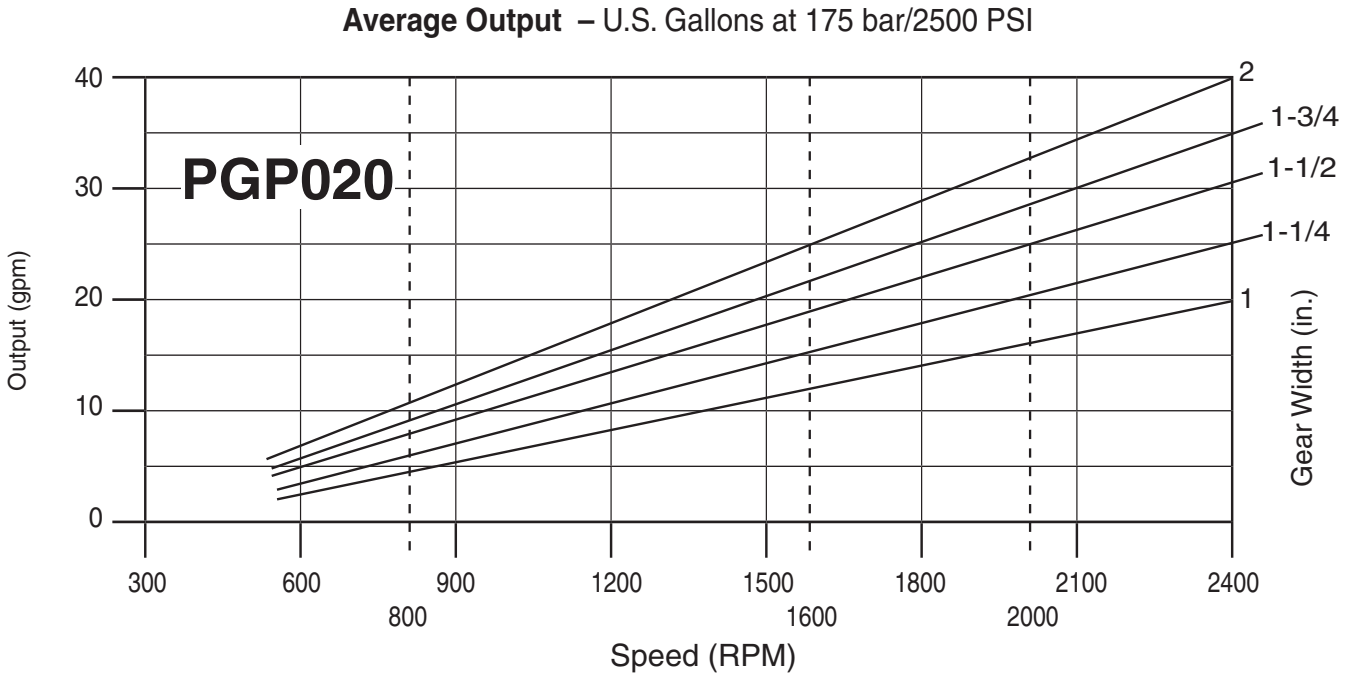
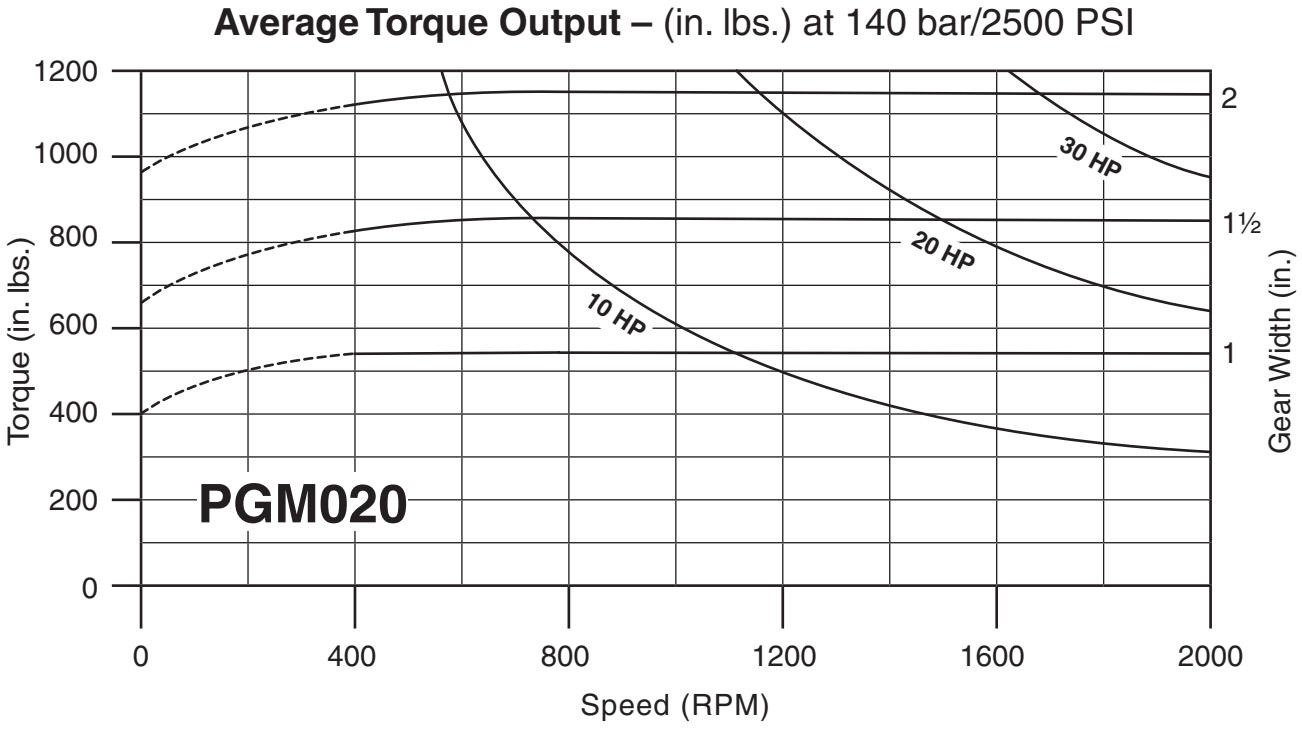
PGP020



PGM020



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NPT Port ≤ 3000 PSI

Order Code	NPT Porting Port Size		Gear Width Availability						
	Left	Right	05	07	10	12	15	17	20
AB	None	None	X	X	X	X	X	X	X
IL	1/2	None	X	X	X	-	-	-	-
IM	None	1/2	X	X	X	-	-	-	-
IR	1/2	1/2	X	X	-	-	-	-	-
IC	3/4	None	-	X	X	X	X	X	X
ID	None	3/4	-	X	X	X	X	X	X
IF	3/4	3/4	-	X	X	X	X	X	X
IG	3/4	1	-	-	X	X	X	X	X
IH	3/4	1-1/4	-	-	-	-	X	X	-
IJ	1	3/4	-	-	X	X	X	X	X
IK	1-1/4	3/4	-	-	-	-	X	X	-
YC	1	None	-	-	X	X	X	X	X
YD	None	1	-	-	X	X	X	X	X
YF	1	1	-	-	X	X	X	X	X
YG	1	1-1/4	-	-	-	X	X	X	X
YH	1	1-1/2	-	-	-	-	-	-	-
YJ	1-1/4	1	-	-	-	-	X	X	X
YK	1-1/2	1	-	-	-	-	-	-	-
IA	1-1/4	None	-	-	-	-	X	X	X
IB	None	1-1/4	-	-	-	-	X	X	X
YL	1-1/4	1-1/4	-	-	-	-	X	X	X

ODT Tube Ports ≤ 2500 PSI

Order Code	ODT Tube Porting Port Size		Gear Width Availability						
	Left	Right	05	07	10	12	15	17	20
AB	None	None	X	X	X	X	X	X	X
EC	3/4	None	-	X	X	X	X	X	X
ED	None	3/4	-	X	X	X	X	X	X
EF	3/4	3/4	-	X	X	X	X	X	X
EG	3/4	1	-	-	X	X	X	X	X
EH	3/4	1-1/4*	-	-	-	X*	X	X	X
IN	3/4	1-1/2	-	-	-	-	-	X	X
EJ	1	3/4	-	-	X	X	X	X	X
EK	1-1/4*	3/4	-	-	-	X*	X	X	X
IP	1-1/2	3/4	-	-	-	-	-	X	X
EZ	7/8	None	-	-	-	X	-	-	-
EL	7/8	1	-	-	X	-	-	-	-
EM	1	7/8	-	-	X	-	-	-	-
AC	1	None	-	-	X	X	X	X	X
AD	None	1	-	-	X	X	X	X	X
AF	1	1	-	-	-	X*	X	X	X
AG	1	1-1/4*	-	-	-	X*	X	X	X
AH	1	1-1/2	-	-	-	-	-	X	X
AJ	1-1/4*	1	-	-	-	X*	X	X	X
AK	1-1/2	1	-	-	-	-	-	X	X
AA	1-1/4*	None	-	-	-	X*	X	X	X
AO	None	1-1/4*	-	-	-	X*	X	X	X
AL	1-1/4	1-1/4	-	-	-	-	X	X	X
AM	1-1/4	1-1/2	-	-	-	-	-	X	X
AP	1-1/2	1-1/4	-	-	-	-	-	X	X
AE	1-1/2	None	-	-	-	-	-	X	X
AU	None	1-1/2	-	-	-	-	-	X	X

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

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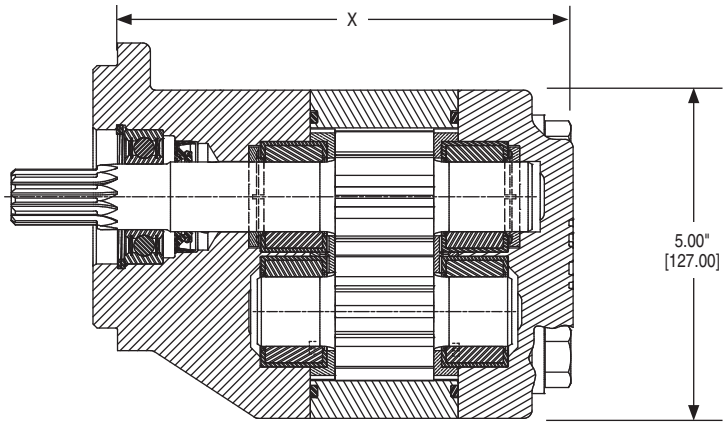
ODT Tube Ports ≤ 3000 PSI

Order Code	ODT Tube Porting Port Size		Gear Width Availability						
	Left	Right	05	07	10	12	15	17	20
AB	None	None	X	X	X	X	X	X	X
EC	3/4	None	-	X	X	X	X	X	X
ED	None	3/4	-	X	X	X	X	X	X
EF	3/4	3/4	-	X	X	X	X	X	X
EG	3/4	1*	-	-	X*	X	X	X	X
EH	3/4	1-1/4*	-	-	-	-	X*	X	X
IN	3/4	1-1/2*	-	-	-	-	-	X*	X
EJ	1*	3/4	-	-	X*	X	X	X	X
EK	1-1/4*	3/4	-	-	-	-	X*	X	X
IP	1-1/2*	3/4	-	-	-	-	-	X*	X
EZ	7/8	None	-	-	-	X	-	-	-
EL	7/8	1*	-	-	X*	-	-	-	-
EM	1*	7/8	-	-	X*	-	-	-	-
AC	1*	None	-	-	X*	X	X	X	X
AD	None	1*	-	-	X*	X	X	X	X
AF	1	1	-	-	-	X*	X	X	X
AG	1	1-1/4*	-	-	-	X*	X*	X	X
AH	1	1-1/2*	-	-	-	-	-	X*	X
AJ	1-1/4*	1	-	-	-	X*	X*	X	X
AK	1-1/2*	1	-	-	-	-	-	X*	X
AA	1-1/4*	None	-	-	-	X*	X*	X	X
AO	None	1-1/4*	-	-	-	X*	X*	X	X
AL	1-1/4	1-1/4	-	-	-	-	-	X	X
AM	1-1/4	1-1/2*	-	-	-	-	-	X*	X
AP	1-1/2*	1-1/4	-	-	-	-	-	X*	X
AE	1-1/2*	None	-	-	-	-	-	X*	X
AU	None	1-1/2*	-	-	-	-	-	X*	X

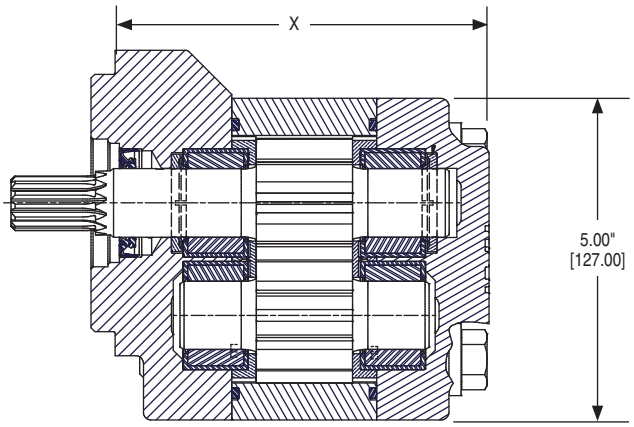
* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

Split Flange Porting ≤ 3000 PSI

Order Code	Split Flange Porting Port Size		Gear Width Availability						
	Left	Right	05	07	10	12	15	17	20
AB	None	None	X	X	X	X	X	X	X
UC	3/4	None	-	X	X	X	X	X	X
UD	None	3/4	-	X	X	X	X	X	X
UF	3/4	3/4	-	X	X	X	X	X	-
UG	3/4	1	-	-	X	X	X	X	X
UH	3/4	1-1/4	-	-	-	X	X	X	X
UJ	1	3/4	-	-	X	X	X	X	X
UK	1-1/4	3/4	-	-	-	X	X	X	X
OC	1	None	-	-	-	X	X	X	X
OD	None	1	-	-	-	X	X	X	X
OF	1	1	-	-	X	X	X	X	X
OG	1	1-1/4	-	-	-	X	X	X	X
OH	1	1-1/2	-	-	-	-	-	X	X
OJ	1-1/4	1	-	-	-	X	X	X	X
OK	1-1/2	1	-	-	-	-	-	X	X
OA	1-1/4	None	-	-	-	X	X	X	X
OB	None	1-1/4	-	-	-	X	X	X	X
OL	1-1/4	1-1/4	-	-	-	-	X	X	X
OM	1-1/4	1-1/2	-	-	-	-	-	X	X
OP	1-1/2	1-1/4	-	-	-	-	-	X	X
OE	1-1/2	None	-	-	-	-	-	X	X
OU	None	1-1/2	-	-	-	-	-	X	X



X DIMENSION – Type 1							
SEC CODE	**05**	**07**	**10**	**12**	**15**	**17**	**20**
05	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
42	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
46	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
94	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
97	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]



X DIMENSION – Type 2							
SEC CODE	**05**	**07**	**10**	**12**	**15**	**17**	**20**
10	4.81" [122.17]	5.06" [128.52]	5.31" [134.87]	5.56" [141.22]	5.81" [147.57]	6.06" [153.92]	6.31" [160.27]
27	6.56" [166.62]	6.81" [172.97]	7.06" [179.32]	7.31" [185.67]	7.56" [192.02]	7.81" [198.37]	8.06" [204.72]
96	4.81" [122.17]	5.06" [128.52]	5.31" [134.87]	5.56" [141.22]	5.81" [147.57]	6.06" [153.92]	6.31" [160.27]

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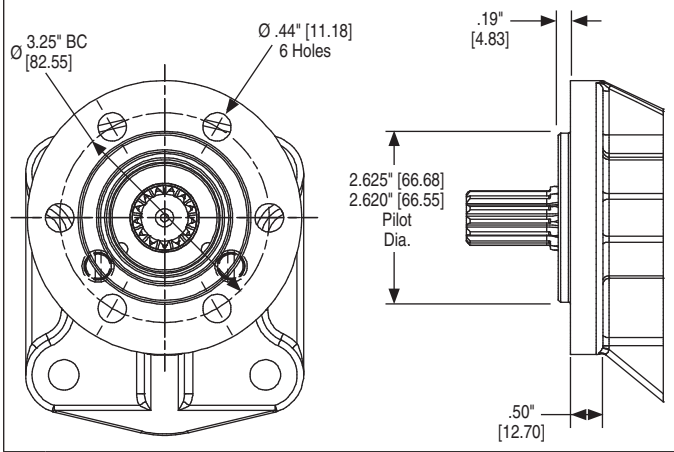
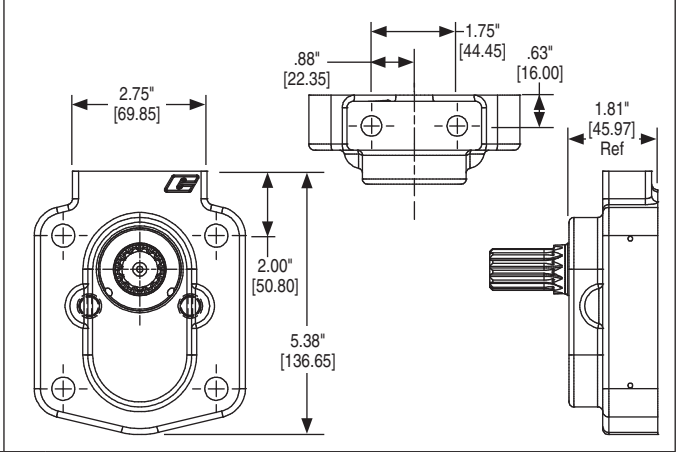
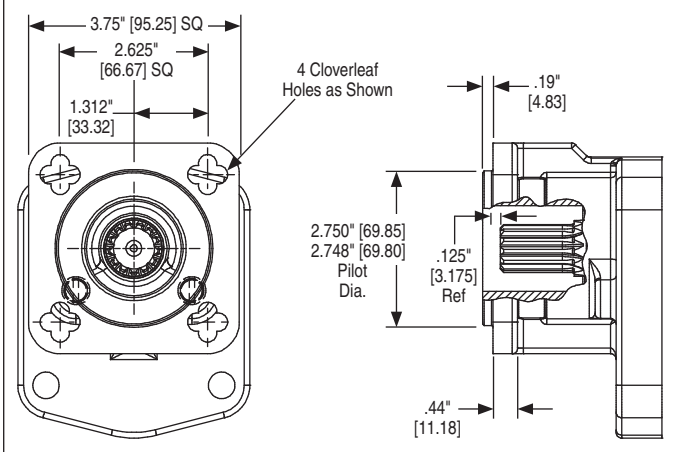
05 6-Bolt Round — **Type 1**



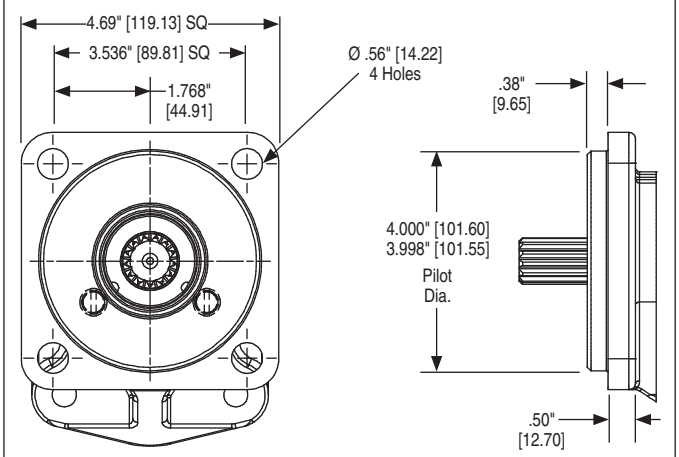
10 2-Bolt Pad Mount — **Type 2**



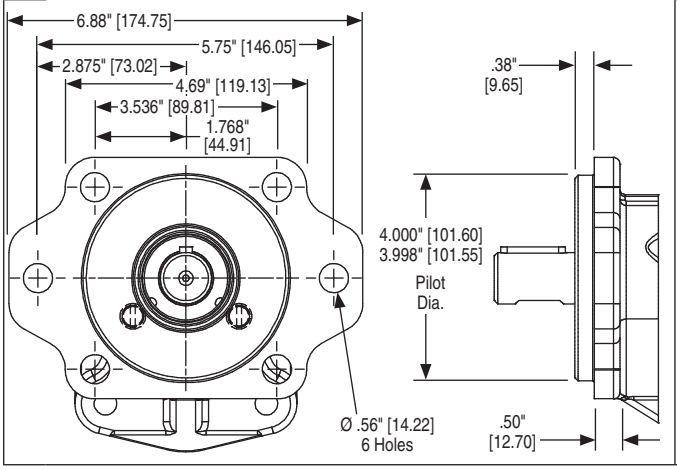
27 4-Bolt Cloverleaf — **Type 2**



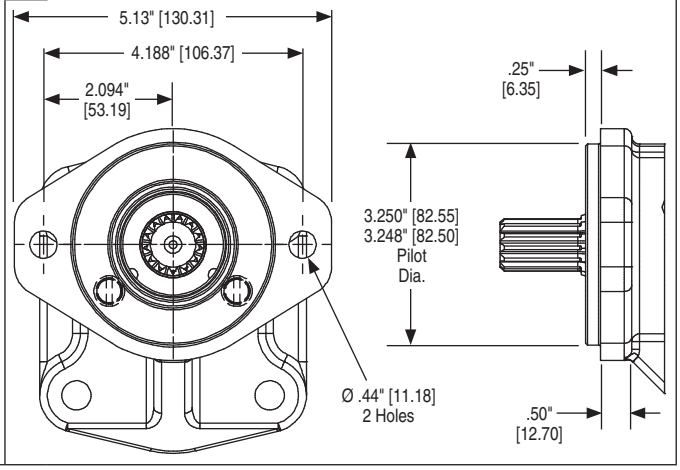
42 SAE B 4-Bolt — **Type 1**



46 SAE B 2/4-Bolt — **Type 1**



94 SAE A 2-Bolt — **Type 1**



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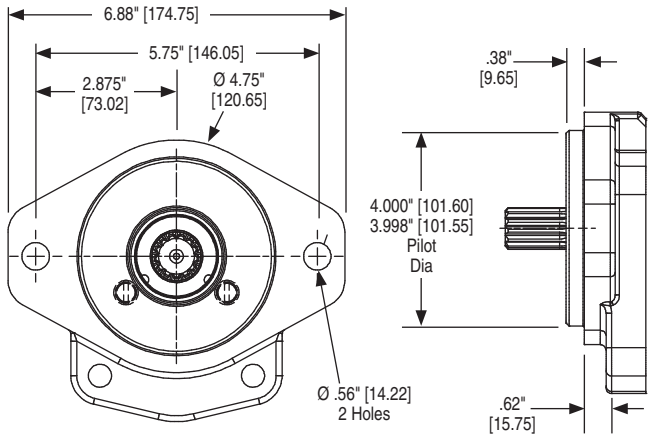
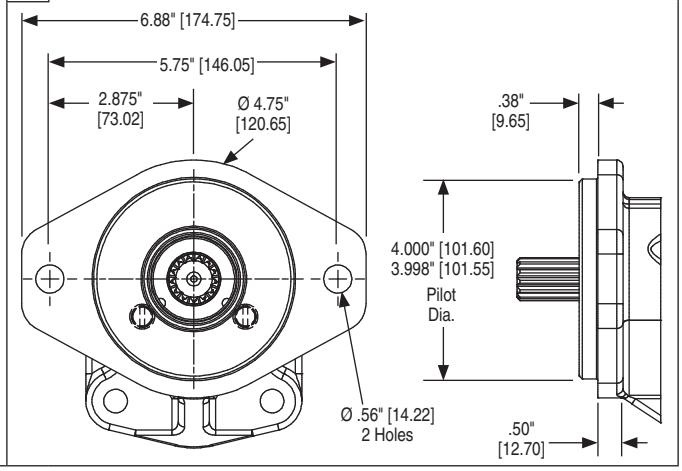
96 **SAE B 2-Bolt** **Type 2**



97 **SAE B 2-Bolt** **Type 1**



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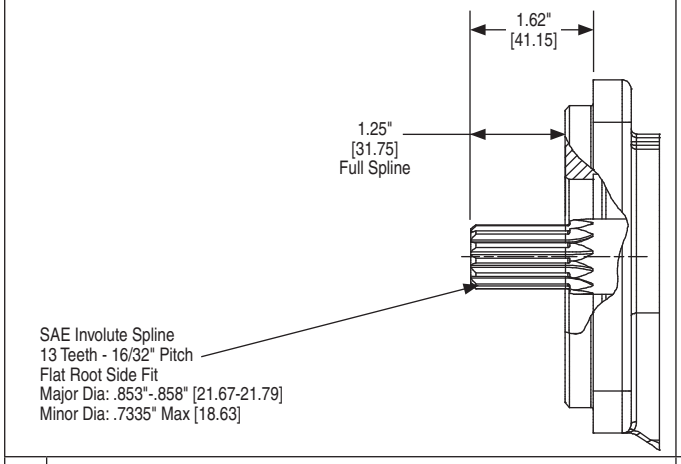
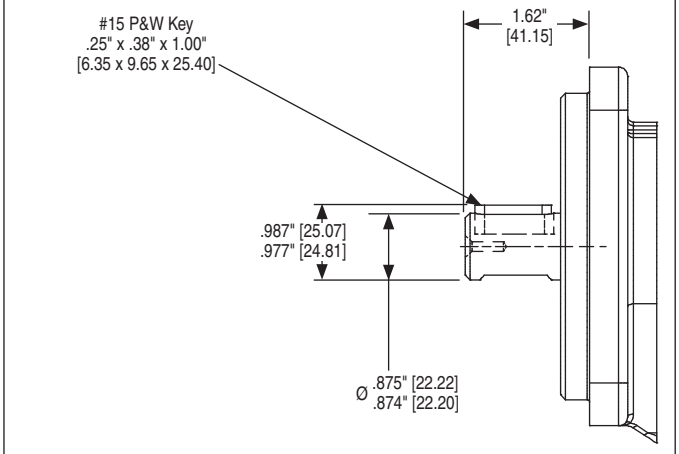
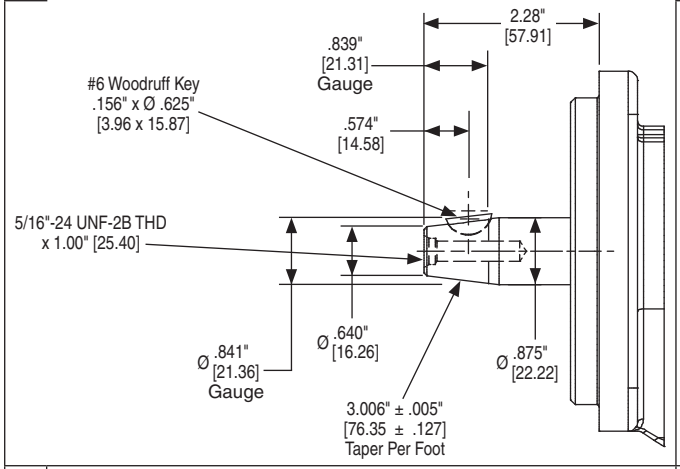
25 SAE B Spline — **Type 1**



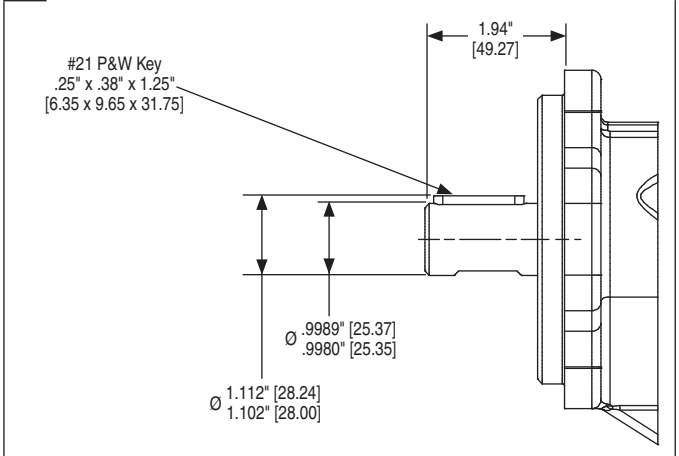
30 SAE B Keyed — **Type 1**



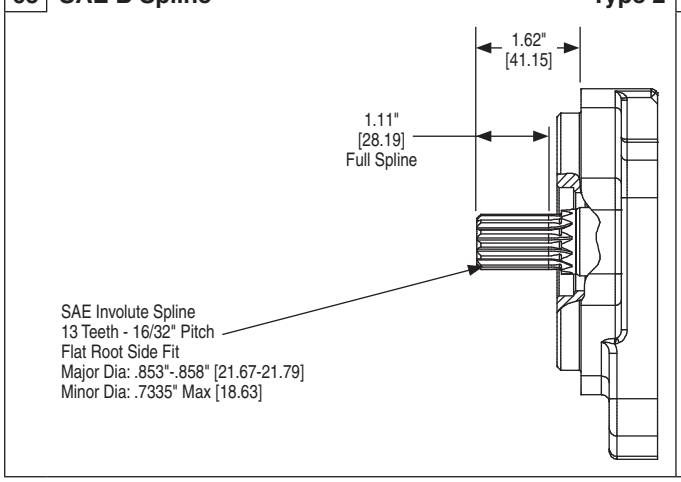
32 Taper / Clutch — **Type 1**



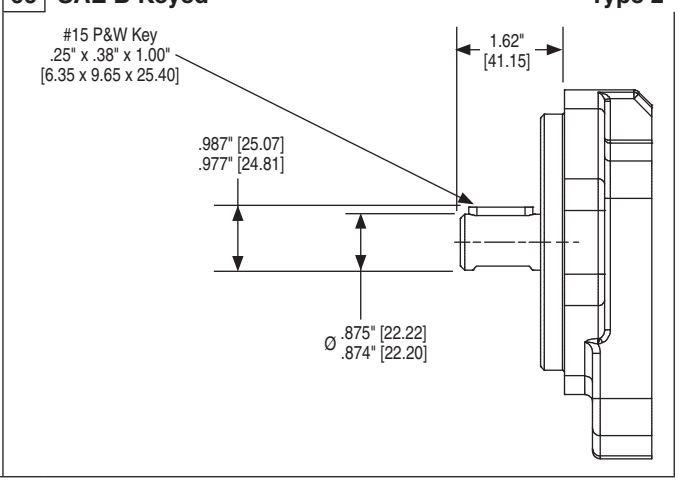
43 SAE BB Keyed — **Type 1**



65 SAE B Spline — **Type 2**



66 SAE B Keyed — **Type 2**



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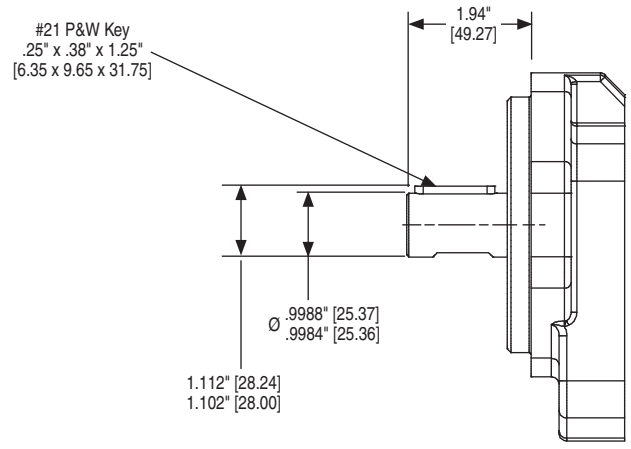
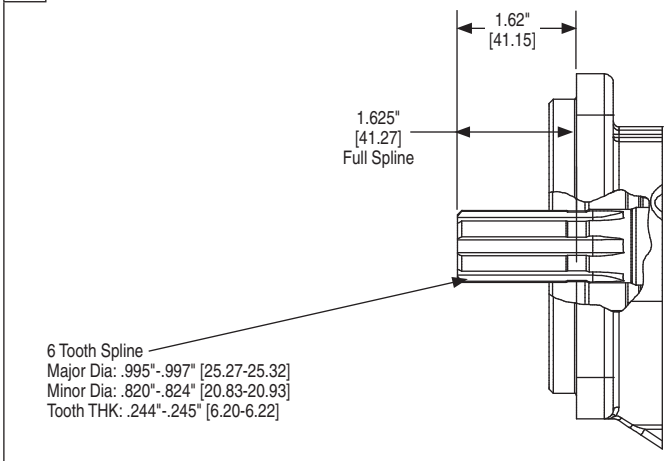
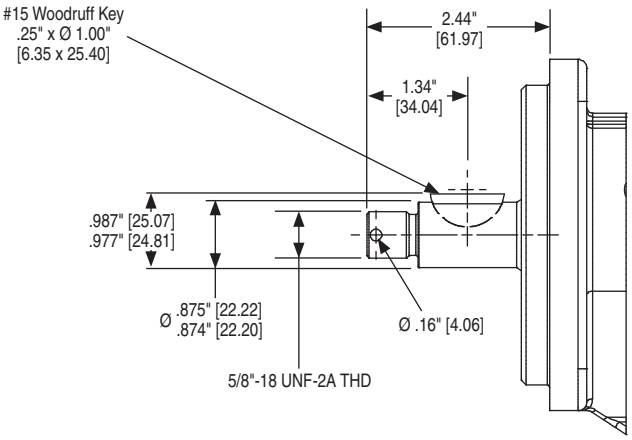
67 SAE BB Keyed — Type 2



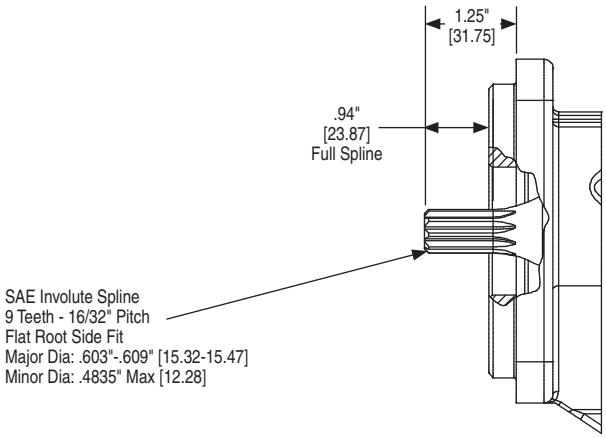
68 6 Tooth Spline — Type 1



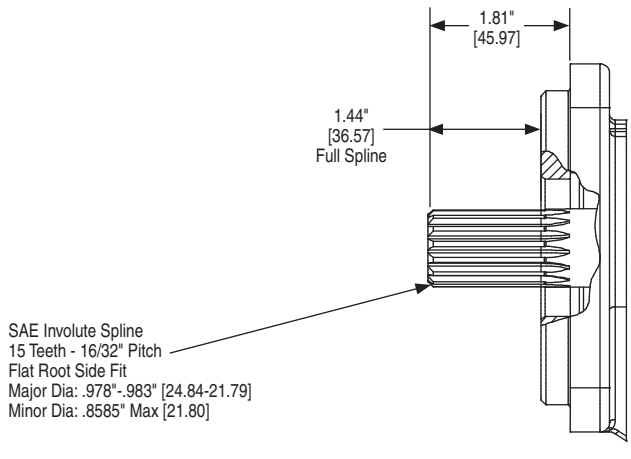
90 SAE B Keyed + THD — Type 1



95 SAE A Spline — Type 1



98 SAE BB Spline — Type 1



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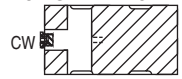
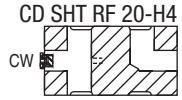
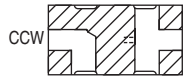
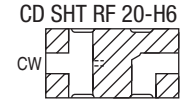
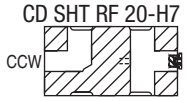
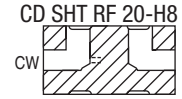
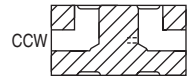
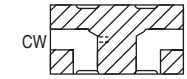
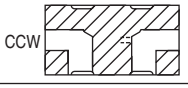
Pumps

Rotation Flow Path	NPT Porting Port size			ODT Porting Port Size			Split Flange Porting Port Size		
	Code	Left	Right	Code	Left	Right	Code	Left	Right
CD SHT RF 20-H1 	C	none	none	CB	1	none	LB	1	none
	TB	1	none	DB	1-1/4	none	-	-	-
	VB	1-1/4	none	FB	1-1/2	none	-	-	-
CD SHT RF 20-H4 	TX	1	3/4	CJ	1	3/4	LR	1	3/4
	VX	1-1/4	3/4	DJ	1-1/4	3/4	BR	none	3/4
	VZ	1-1/4	1	DK	1-1/4	1	-	-	-
	-	-	-	FJ	1-1/2	3/4	-	-	-
	-	-	-	FK	1-1/2	1	-	-	-
CD SHT RF 20-H5 	JT	3/4	1	RC	3/4	1	XL	3/4	1
	JV	3/4	1-1/4	RD	3/4	1-1/4	-	-	-
	KV	1	1-1/4	RF	3/4	1-1/2	-	-	-
	-	-	-	SD	1	1-1/4	-	-	-
	-	-	-	SF	1	1-1/2	-	-	-
CD SHT RF 20-H6 	TJ	1	3/4	CR	1	3/4	LX	1	-
	VJ	1-1/4	3/4	DR	1-1/4	3/4	-	-	-
	VK	1-1/4	1	DS	1-1/4	1	-	-	-
	-	-	-	FR	1-1/2	3/4	-	-	-
	-	-	-	FS	1-1/2	1	-	-	-
CD SHT RF 20-H7 	XT	3/4	1	JC	3/4	1	RB	3/4	none
	XV	3/4	1-1/4	JD	3/4	1-1/4	RL	3/4	1
	ZV	1	1-1/4	JP	3/4	none	-	-	-
	-	-	-	JF	3/4	1-1/2	-	-	-
	-	-	-	KD	1	1-1/4	-	-	-
	-	-	-	KF	1	1-1/2	-	-	-
CD SHT RF 20-H8 	ZX	1	3/4	KJ	1	3/4	SR	1	3/4
CD SHT RF 20-H9 	XZ	3/4	1	JK	3/4	1	RS	3/4	1
CD SHT RF 20-H10 	ZS	1	3/4	KX	1	3/4	RZ	1	3/4
CD SHT RF 20-H11 	SZ	3/4	1	XK	3/4	1	ZR	3/4	1

CW = Clockwise CCW = Counter Clockwise

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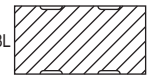
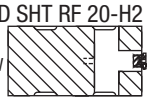
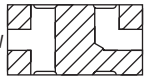
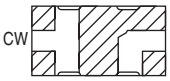
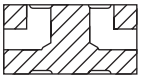
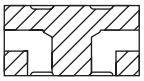
Motors

Rotation Flow Path	NPT Porting Port Size			ODT Porting Port Size			Split Flange Porting Port Size		
	Code	Left	Right	Code	Left	Right	Code	Left	Right
CD SHT RF 20-H16 DBL 	B	-	-	B	-	-	B	-	-

CW = Clockwise CCW = Counter Clockwise

Flow Dividers

Rotation Flow Path	NPT Porting Port Size			ODT Porting Port Size			Split Flange Porting Port Size		
	Code	Left	Right	Code	Left	Right	Code	Left	Right
CD SHT RF 20-H2 CCW 	D	none	none	BC	none	1	BL	none	1
	BT	none	1	BD	none	1-1/4	-	-	-
	BV	none	1-1/4	BF	none	1-1/2	-	-	-
CD SHT RF 20-H21 CW 	M	1	none	F	1	none	J	1	none
	N	1-1/4	none	G	1-1/4	none	-	-	-
	E	none	none	H	1-1/2	none	-	-	-
CD SHT RF 20-H24 CW 	BX	none	3/4	GJ	none	3/4	GR	none	3/4
	GX	1	3/4	HJ	1	3/4	HR	1	3/4
	HZ	1-1/4	3/4	MJ	1-1/4	3/4	MT	none	1
	LZ	1-1/4	1	RJ	1-1/2	3/4	-	-	-
	KZ	none	1	PK	1-1/4	1	-	-	-
	-	-	-	RK	1-1/2	1	-	-	-
	-	-	-	BK	none	1	-	-	-
CD SHT RF 20-H26 CW 	CV	none	3/4	JH	none	3/4	FD	none	3/4
	GV	1	3/4	PH	1	3/4	GD	1	3/4
	MV	1-1/4	3/4	RH	1-1/4	3/4	JG	none	1
	TK	1-1/4	1	WH	1-1/2	3/4	-	-	-
	NK	none	1	QC	1-1/4	1	-	-	-
	-	-	-	VC	1-1/2	1	-	-	-
	-	-	-	PC	none	1	-	-	-
CD SHT RF 20-H28 CW 	VG	1	3/4	MC	1	3/4	WL	1	3/4
CD SHT RF 20-H29 CW 	WG	1	3/4	SC	1	3/4	ZL	1	3/4

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PGP/PGM020 Ordering Code

															Multiple Units: Repeat if Necessary							
PG	1	020	2	3	4	4	5	5	6	6	7	7	8	8	9	9	6	6	7	7	10	10

1 – Description	
P	Pump
M	Motor

2 – Unit	
A	Single
B	Tandem

3 – Rotation / Shaft	
1	cw rotation
2	ccw rotation; no outboard bearing
3	Double rotation; no outboard bearing
4	cw rotation; with outboard bearing
5	ccw rotation; with outboard bearing
6	Double rotation; with outboard bearing
8	Double rotation; with outboard bearing (motor); 1/4" NPT drain
9	Double rotation; no outboard bearing (motor); 1/4" NPT drain

4 – Mount	
05	6-Bolt Flange 3.25" Dia. Bolt Circle
10	2-Bolt Pad Mount
27	4-Bolt Cloverleaf
42	SAE B 4-Bolt, ANSI 101-4
46	SAE B 2/4-Bolt, ANSI 101 – 2/4
94	SAE A 2-Bolt, ANSI 82-2
96	SAE B 2-Bolt, ANSI 101-2 Type II
97	SAE B 2-Bolt, ANSI 101-2

5 – Port Options			
Single Units		Port Size	
w/o ST	w/ST	Left	Right
NPT Porting			
BE	BY	No Port	No Port
KE	KY	3/4	None
LE	LY	None	3/4
ME	MY	3/4	3/4
QU	QQ	1	1
AI		3/4	1
EI		1	3/4
Tandem Units			
w/o ST	w/ST		
BI	BY	No Port	No Port
KI	KY	3/4	None
LI	LY	None	3/4
MI	MY	3/4	3/4
QD	QQ	1	1
AI		3/4	1
EI		1	3/4

5 – Port Options			
Single Units		Port Size	
w/o ST	w/ST	Left	Right
ODT Porting			
CE	CY	3/4	None
DE	DY	None	3/4
FE	FY	3/4	3/4
GE	GY	1	3/4
HE	HY	3/4	1
JE	JY	1	1
MA	YO	1	None
RA	RO	None	1
Tandem Units			
w/o ST	w/ST		
CI	CY	3/4	None
DI	DY	None	3/4
FI	FY	3/4	3/4
GI	GY	1	3/4
HI	HY	3/4	1
JI	JY	1	1
MU	YO	1	None
SU	RO	None	1

NOTE: w/o ST columns denote units without support studs w/ST columns denote units with support studs

6 – Gear Housing		
	Port Size	
	Left	Right
NPT Ports ≤ 3000 PSI		
AB	None	None
IL	1/2	None
IM	None	1/2
IR	1/2	1/2
IC	3/4	None
ID	None	3/4
IF	3/4	3/4
IG	3/4	1
IH	3/4	1-1/4
IJ	1	3/4
IK	1-1/4	3/4
YC	1	None
YD	None	1
YF	1	1
YG	1	1-1/4
YH	1	1-1/2
YJ	1-1/4	1
YK	1-1/2	1
IA	1-1/4	None
IB	None	1-1/4
YL	1-1/4	1-1/4

See chart on page 5

Continued on Next Page

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															Multiple Units: Repeat if Necessary							
PG	1	020	2	3	4	4	5	5	6	6	7	7	8	8	9	9	6	6	7	7	10	10

6 – Gear Housing		
	Port Size	
	Left	Right
ODT Tube Ports ≤ 2500 PSI		
AB	None	None
EC	3/4	None
ED	None	3/4
EF	3/4	3/4
EG	3/4	1
EH	3/4	1-1/4*
IN	3/4	1-1/2
EJ	1	3/4
EK	1-1/4*	3/4
IP	1-1/2	3/4
EZ	7/8	None
EL	7/8	1
EM	1	7/8
AC	1	None
AD	None	1
AF	1	1
AG	1	1-1/4*
AH	1	1-1/2
AJ	1-1/4*	1
AK	1-1/2	1
AA	1-1/4*	None
AO	None	1-1/4*
AL	1-1/4	1-1/4
AM	1-1/4	1-1/2
AP	1-1/2	1-1/4
AE	1-1/2	None
AU	None	1-1/2
* Ports designated by an asterisk * are for use as the low-pressure inlet port only.		
See chart on page 6		

6 – Gear Housing		
	Port Size	
	Left	Right
ODT Tube Ports ≤ 3000 PSI		
AB	None	None
EC	3/4	None
ED	None	3/4
EF	3/4	3/4
EG	3/4	1*
EH	3/4	1-1/4*
IN	3/4	1-1/2*
EJ	1*	3/4
EK	1-1/4*	3/4
IP	1-1/2*	3/4
EZ	7/8	None
EL	7/8	1*
EM	1*	7/8
AC	1*	None
AD	None	1*
AF	1	1
AG	1	1-1/4*
AH	1	1-1/2*
AJ	1-1/4*	1
AK	1-1/2*	1
AA	1-1/4*	None
AO	None	1-1/4*
AL	1-1/4	1-1/4
AM	1-1/4	1-1/2*
AP	1-1/2*	1-1/4
AE	1-1/2*	None
AU	None	1-1/2*
* Ports designated by an asterisk * are for use as the low-pressure inlet port only.		
See chart on page 7		

6 – Gear Housing		
	Port Size	
	Left	Right
Split Flange Porting ≤ 3000 PSI		
AB	None	None
UC	3/4	None
UD	None	3/4
UF	3/4	3/4
UG	3/4	1
UH	3/4	1-1/4
UJ	1	3/4
UK	1-1/4	3/4
OC	1	None
OD	None	1
OF	1	1
OG	1	1-1/4
OH	1	1-1/2
OJ	1-1/4	1
OK	1-1/2	1
OA	1-1/4	None
OB	None	1-1/4
OL	1-1/4	1-1/4
OM	1-1/4	1-1/2
OP	1-1/2	1-1/4
OE	1-1/2	None
OU	None	1-1/2
See chart on page 8		

Continued on Next Page

Continued on Next Page

PGP/PGM020 Ordering Code (cont.)

															Multiple Units: Repeat if Necessary							
PG	1	020	2	3	4	4	5	5	6	6	7	7	8	8	9	9	6	6	7	7	10	10

7 – Gear Housing		
NPT Ports ≤ 3000 PSI		
ODT Tube Ports ≤ 2500 and ≤ 3000 PSI		
Split Flange Ports ≤ 3000 PSI		
05	16.1 cm^3/rev	0.99 in^3/rev
07	24.2 cm^3/rev	1.48 in^3/rev
10	32.3 cm^3/rev	1.97 in^3/rev
12	40.4 cm^3/rev	2.46 in^3/rev
15	48.4 cm^3/rev	2.96 in^3/rev
17	56.5 cm^3/rev	3.45 in^3/rev
20	64.6 cm^3/rev	3.94 in^3/rev

8 – Drive Shafts	
25	SAE B Spline / ANSI 22-4
30	SAE B Keyed / ANSI 22-1
32	Clutch Pump Shaft
43	SAE B-B Keyed / ANSI 25-1 Modified
65	SAE B Spline / ANSI 22-4 Type II
66	SAE B Keyed / ANSI 22-1 Type II
67	SAE B Keyed / ANSI 22-1 Type II
68	1" DIA. 6 Tooth Spline Shaft
90	SAE B Threaded + Keyed / ANSI 22-2 Modified
95	SAE A Spline / ANSI 16-4
98	SAE B-B Spline / ANSI 25-4
See drawings on pages 12-13	

9 – Bearing Carrier / Pumps		
	Port Size	
	Left	Right
NPT Ports		
C	none	none
TB	1	none
VB	1-1/4	none
TX	1	3/4
VX	1-1/4	3/4
VZ	1-1/4	1
JT	3/4	1
JV	3/4	1-1/4
KV	1	1-1/4
TJ	1	3/4
VJ	1-1/4	3/4
VK	1-1/4	1
XT	3/4	1
XV	3/4	1-1/4
ZV	1	1-1/4
ZX	1	3/4
XZ	3/4	1
ZS	1	3/4
SZ	3/4	1
See chart on page 14		

9 – Bearing Carrier / Motors		
NPT Ports		
B	-	-
See chart on page 15		

9 – Bearing Carrier / Pumps		
	Port Size	
	Left	Right
ODT Ports		
CB	1	none
DB	1-1/4	none
FB	1-1/2	none
CJ	1	3/4
DJ	1-1/4	3/4
DK	1-1/4	1
FJ	1-1/2	3/4
FK	1-1/2	1
RC	3/4	1
RD	3/4	1-1/4
RF	3/4	1-1/2
SD	1	1-1/4
SF	1	1-1/2
CR	1	3/4
DR	1-1/4	3/4
DS	1-1/4	1
FR	1-1/2	3/4
FS	1-1/2	1
JC	3/4	1
JD	3/4	1-1/4
JP	3/4	none
JF	3/4	1-1/2
KD	1	1-1/4
KF	1	1-1/2
KJ	1	3/4
JK	3/4	1
KX	1	3/4
XK	3/4	1
See chart on page 14		

9 – Bearing Carrier / Motors		
ODT Ports		
B	-	-
See chart on page 15		

Continued on Next Page

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM020 Ordering Code (cont.)

															Multiple Units: Repeat if Necessary							
PG	1	020	2	3	4	4	5	5	6	6	7	7	8	8	9	9	6	6	7	7	10	10

9 – Bearing Carrier / Pumps		
	Port Size	
	Left	Right
Split Flange Porting		
LB	1	none
LR	1	3/4
BR	none	3/4
XL	3/4	1
LX	1	
RB	3/4	none
RL	3/4	1
SR	1	3/4
RS	3/4	1
RZ	1	3/4
ZR	3/4	1
See chart on page 14		

9 – Bearing Carrier / Motors		
Split Flange Porting		
B	-	-
See chart on page 15		

9 – Bearing Carrier / Flow Dividers		
	Port Size	
	Left	Right
NPT Ports		
D	none	none
BT	none	1
BV	none	1-1/4
M	1	none
N	1-1/4	none
E	none	none
BX	none	3/4
GX	1	3/4
HZ	1-1/4	3/4
LZ	1-1/4	1
KZ	none	1
CV	none	3/4
GV	1	3/4
MV	1-1/4	3/4
TK	1-1/4	1
NK	none	1
VG	1	3/4
WG	1	3/4
See chart on page 15		

9 – Bearing Carrier / Flow Dividers		
	Port Size	
	Left	Right
ODT Tube Ports		
BC	none	1
BD	none	1-1/4
BF	none	1-1/2
F	1	none
G	1-1/4	none
H	1-1/2	none
GJ	none	3/4
HJ	1	3/4
MJ	1-1/4	3/4
RJ	1-1/2	3/4
PK	1-1/4	1
RK	1-1/2	1
BK	none	1
JH	none	3/4
PH	1	3/4
RH	1-1/4	3/4
WH	1-1/2	3/4
QC	1-1/4	1
VC	1-1/2	1
PC	none	1
MC	1	3/4
SC	1	3/4
See chart on page 15		

9 – Bearing Carrier / Flow Dividers		
	Port Size	
	Left	Right
Split Flange Porting		
BL	none	1
J	1	none
GR	none	3/4
HR	1	3/4
MT	none	1
FD	none	3/4
GD	1	3/4
JG	none	1
WL	1	3/4
ZL	1	3/4
See chart on page 15		

10 – Connecting Shaft	
-1	For connecting tandem units. Connecting Shaft - Multiple Units

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

- Original Commerical pump design
- Three-piece cast iron construction for assembly flexibility
- Durable high-strength cast iron body for excellent power to weight ratio
- Balanced thrust plates optimize pump efficiency
- Roller bearings for durability and resistance to fluid contamination
- Multiple sections available

Product Features	Description
Pump Type	Cast iron roller bearing, external gear
Mounting	SAE, Pad, 6-Bolt
Ports	SAE Straight Thread, Split Flange, NPT
Shaft Style	SAE splined, keyed or tapered
Pump Speed	900 to 2400 RPM
Motor Speed	800 to 2000 RPM
Maximum Displ.	3.9 in^3/rev
Maximum Operating Pressure	3000 PSI

Product Features	Description
Fluids	Mineral oil
Fluid Temperature	Range of Operating Temperature -20 to 80°C (0 to 180°F)
Fluid Viscosity	50-7500 SUS
Direction of Rotation (looking at the driveshaft)	Clockwise, Counter Clockwise, Bi-Direction

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM031 Specifications

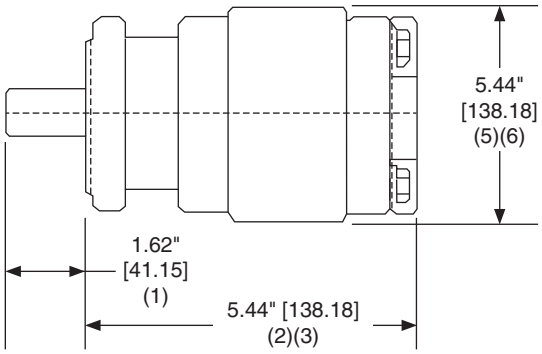
PGP031 Frame Size	05	07	10	12	15	17	20
Displacement – cm^3/rev (in^3/rev)	16.1 (0.99)	24.2 (1.48)	32.3 (1.97)	40.4 (2.46)	48.4 (2.96)	56.5 (3.45)	64.6 (3.94)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)
Max Speed – RPM	2,400	2,400	2,400	2,400	2,400	2,400	2,400
Approximate Weight – Lbs. [kg]	30 [13.5]	31 [14]	33 [15]	34 [15.5]	35 [16]	36 [16.5]	37 [17]

PGM031 Frame Size	05	07	10	12	15	17	20
Displacement – cm^3/rev (in^3/rev)	16.1 (0.99)	24.2 (1.48)	32.3 (1.97)	40.4 (2.46)	48.4 (2.96)	56.5 (3.45)	64.6 (3.94)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)
Max Speed – RPM	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Approximate Weight – Lbs. [kg]	30 [13.5]	31 [14]	33 [15]	34 [15.5]	35 [16]	36 [16.5]	37 [17.0]

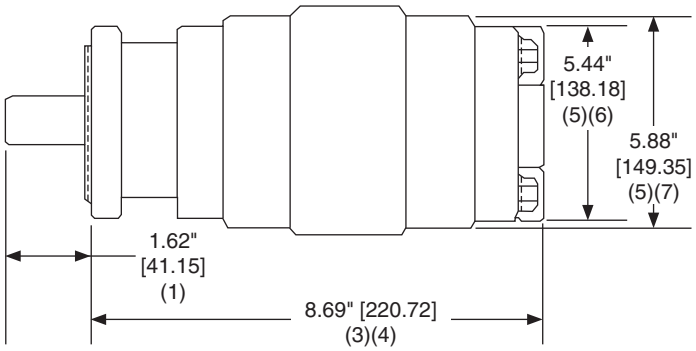
PGP/PGM031 Dimensions

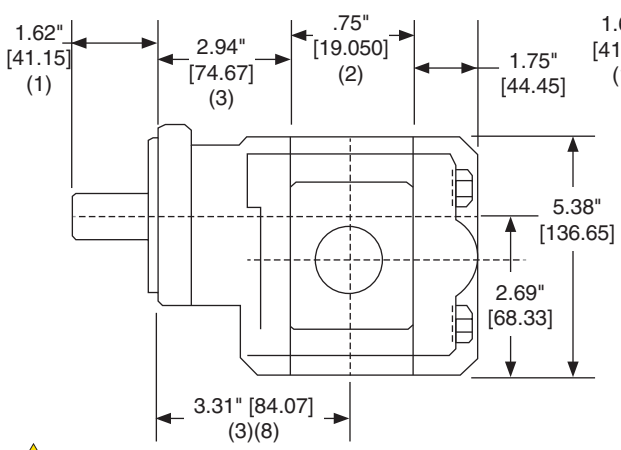
NOTES
1. Dimension will vary with shaft type
2. Dimension + gear width
3. Dimension is for Type 1 SEC. For Type 2: subtract 1.12" (28.4 mm) for 031
4. Dimension + total gear width
5. Dimension will vary with port type. Subtract 0.25" (6.4 mm) for S.F. ports.
6. Dimension is for wide B-C. Narrow B-C dimensions: 5.00" (127 mm) for 031
7. Dimension + ½ front section gear width

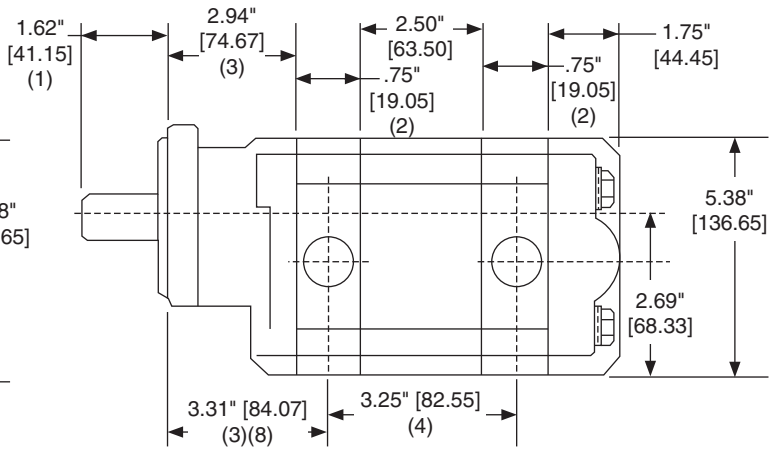
Single Units



Multiple Units







WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP031

Flow data at 2500 PSI (172 bar) unless noted

Speed RPM	Gear Width Output (gpm/lpm)				
	1"	1 ¼"	1 ½"	1 ¾"	2"
900	**6.5** 24.5	**8** 30	**10** 38	**12** 45.5	**13.5** 51
1200	**9** 34	**11.5** 43.5	**14** 53	**16** 60.5	**18.5** 70
1500	**11.5** 43.5	**14.5** 55	**17.5** 66	**20.5** 77.5	**23.5** 89
1800	**14** 53	**18** 68	**21.5** 81.5	**25** 94.5	**29** 110
2100	**16.5** 62.5	**21** 79.5	**25** 94.5	**29.5** 112	**34** 129
2400	**19** 72	**24** 91	**29** 110	**34** 129	**39** 148

*Flow data at 2000 PSI (138 bar) rated pressure.

PGP031

Input power at 2500 PSI (172 bar) unless noted

Speed RPM	Gear Width Inches (HP/kW)				
	1"	1 ¼"	1 ½"	1 ¾"	2"
900	**14** 11	**17** 13	**20** 15	**23** 17	**25** 19
1200	**19** 14	**22** 17	**26** 20	**30** 22	**33** 25
1500	**23** 17	**28** 21	**33** 24	**37** 27	**42** 31
1800	**27** 20	**33** 25	**39** 29	**44** 33	**50** 37
2100	**32** 24	**38** 29	**45** 34	**51** 38	**58** 43
2400	**36** 26	**44** 33	**51** 38	**58** 43	**66** 49

*Input power at 2000 PSI (138 bar)

PGM031

Motor performance data at 2500 PSI (172 bar) unless noted.

Speed RPM	1" Gear			1 ½" Gear			2" Gear		
	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	**675** 76.5	**8.5** 6.5	**9** 34	**1035** 117	**13** 9.5	**13** 49	**1385** 156.5	**17.5** 13	**17** 64.5
1200	**685** 77.5	**13** 9.5	**13** 49	**1055** 119	**20** 15	**18** 68	**1410** 159.5	**27** 20	**23.5** 89
1600	**680** 77	**17.5** 13	**16** 60.5	**1030** 116.5	**26** 19.5	**23** 87	**1390** 157	**35** 26	**30.5** 115
2000	**660** 74.5	**21** 15.5	**19.5** 74	**1010** 114	**32** 24	**28** 106	**1370** 155	**43.5** 32.5	**37** 140

U.S./Metric Torque: **In.-lbs.** / Nm Flow: **GPM** / LPM Power: **HP** / kW

*Motor performance data at 2000 PSI (138 bar).

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No Porting ≤ 2500 PSI

Order Code		Port Size		Gear Width Availability	
CW	CCW	In	Out	17	20
AB	AB	None	None	X	X

CW = Clockwise CCW = Counter Clockwise

No Porting ≤ 3000 PSI

Order Code		Port Size		Gear Width Availability		
CW	CCW	In	Out	10	12	15
AB	AB	None	None	X	X	X

ODT Tube Ports ≤ 2500 PSI

Order Code		ODT Tube Porting Port Size		Gear Width Availability	
CW	CCW	In	Out	17	20
EC	ED	3/4"*	-	X	X
ED	EC	-	3/4"	X	X
EF	EF	3/4"	3/4"	X	X
EK	EH	1-1/4"*	3/4"	X*	
IP	IN	1-1/2"*	3/4"	X*	
AC	AD	1"*	-	X	X
AD	AC	-	1"	X	X
AF	AF	1"	1"	X	X
AJ	AG	1-1/4"	1"	X*	X*
AK	AH	1-1/2"	1"	X*	X*
AA	AO	1-1/4"*	-	X*	
AL	AL	1-1/4"	1-1/4"		X
AP	AM	1-1/2"	1-1/4"		X*
AE	AU	1-1/2"	-		X*

ODT Tube Ports ≤ 3000 PSI

Order Code		ODT Tube Porting Port Size		Gear Width Availability		
CW	CCW	In	Out	10	12	15
EC	ED	3/4"*	-	X*	X	X
ED	EC	-	3/4"		X	X
EF	EF	3/4"	3/4"		X	X
EJ	EG	1"*	3/4"		X*	X*
EK	EH	1-1/4"*	3/4"			X*
AC	AD	1"*	-	X*	X*	2500
AD	AC	-	1"			2500
AF	AF	1"	1"			2500
AJ	AG	1-1/4"	1"			2500
AA	AO	1-1/4"*	-			X*

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

NOTES

1. ■ Shaded cells are acceptable for motor codes.
2. X means both codes are available.
3. 2500 indicates maximum pressure rating on port.
4. CW = Clockwise; CWW = Counter Clockwise.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

Split Flange Porting ≤ 3000 PSI

Order Code		Split Flange Porting Port Size		Gear Width Availability		
CW	CCW	In	Out	10	12	15
UC	UD	3/4"	-	X	X	X
UD	UC	-	3/4"	X	X	X
UF	UF	3/4"	3/4"	X	X	X
UJ	UG	1"*	3/4"	X*	X	
UK	UH	1-1/4"*	3/4"		X*	X*
OC	OD	1"*	-	2500	X	X
OD	OC	-	1"	2500	X	X
OF	OF	1"	1"	2500	X	X
OJ	OG	1-1/4"*	1"		X*	X*
OA	OB	1-1/4"*	-		X*	2500
OB	OA	-	1-1/4""			2500

Split Flange Porting ≤ 2500 PSI

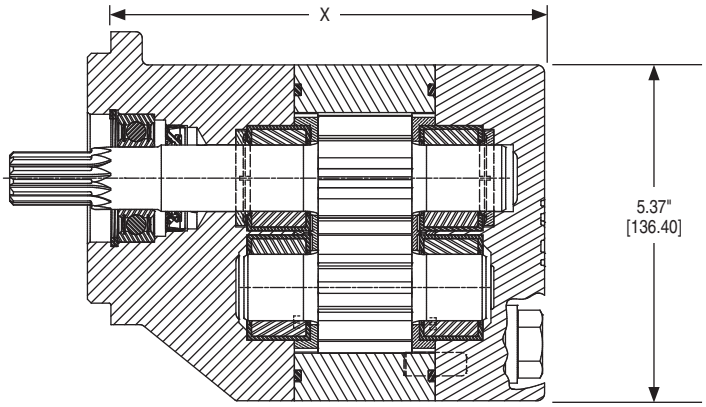
Order Code		Split Flange Porting Port Size		Gear Width Availability	
CW	CCW	In	Out	17	20
UC	UD	3/4"	-	X	
UD	UC	-	3/4"	X	
OF	OF	1"	1"	X	X
OJ	OG	1-1/4"*	1"	X	X
OK	OH	1-1/2"*	1"	X*	X*
OL	OL	1-1/4"	1-1/4"	X	X
OP	OM	1-1/2"*	1-1/4"	X*	X*
OE	OU	1-1/2"*	-	X*	X
OU	OE	-	1-1/2"		X

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

NOTES

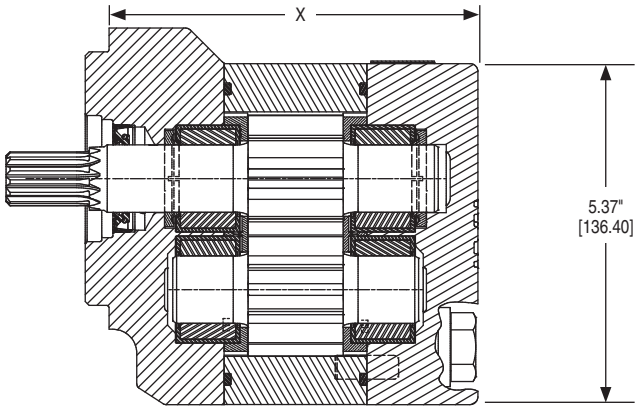
1. ■ Shaded cells are acceptable for motor codes.
2. X means both codes are available.
3. 2500 indicates maximum pressure rating on port.
4. CW = Clockwise; CWW = Counter Clockwise.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov



X DIMENSION – Type 1							
SEC CODE	**05**	**07**	**10**	**12**	**15**	**17**	**20**
00	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
05	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
42	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
78	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
94	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]
97	5.94" [150.88]	6.19" [157.23]	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]

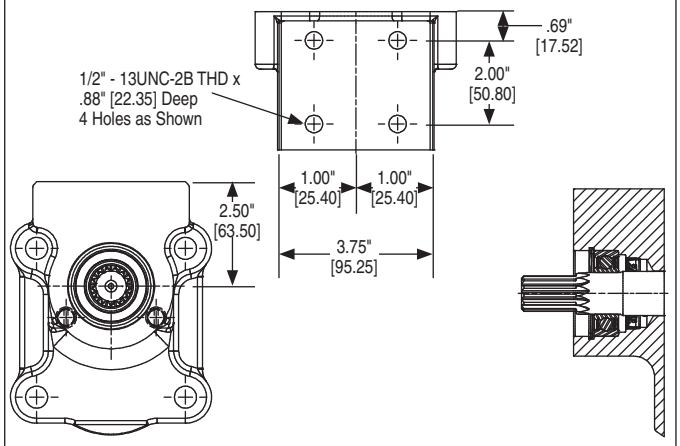
X DIMENSION – Type 1 (w/Extra Wide PEC 312 3420 100)							
SEC CODE	**05**	**07**	**10**	**12**	**15**	**17**	**20**
00	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]	7.69" [195.33]	7.94" [201.68]
05	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]	7.69" [195.33]	7.94" [201.68]
42	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]	7.69" [195.33]	7.94" [201.68]
78	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]	7.69" [195.33]	7.94" [201.68]
94	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]	7.69" [195.33]	7.94" [201.68]
97	6.44" [163.58]	6.69" [169.93]	6.94" [176.28]	7.19" [182.63]	7.44" [188.98]	7.69" [195.33]	7.94" [201.68]



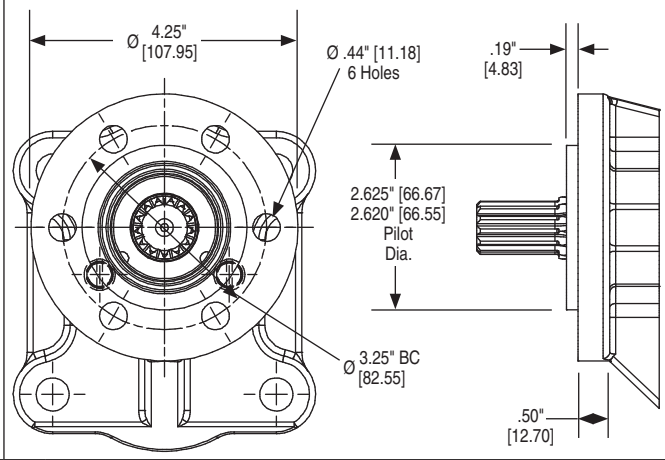
X DIMENSION – Type 2							
SEC CODE	**05**	**07**	**10**	**12**	**15**	**17**	**20**
96	4.81" [122.17]	5.06" [128.52]	5.31" [134.87]	5.56" [141.22]	5.81" [147.57]	6.06" [153.92]	6.31" [160.27]

X DIMENSION – Type 2 (w/Extra Wide PEC 312 3420 100)							
SEC CODE	**05**	**07**	**10**	**12**	**15**	**17**	**20**
96	5.31" [134.87]	5.56" [141.22]	5.81" [147.57]	6.06" [153.92]	6.31" [160.27]	6.56" [166.62]	6.81" [172.97]

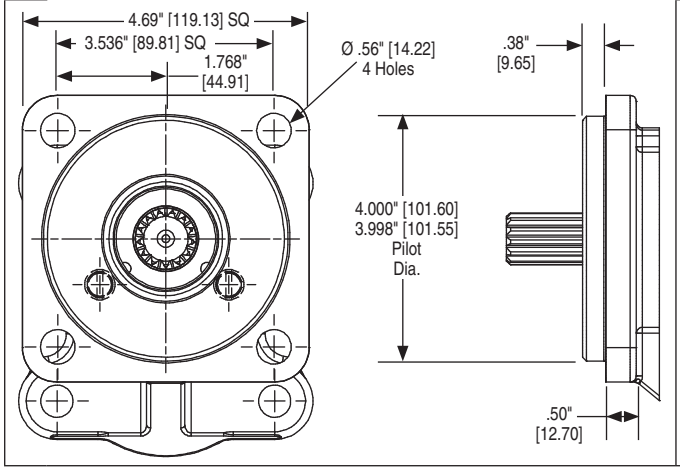
00 Pad Mount **Type 1**



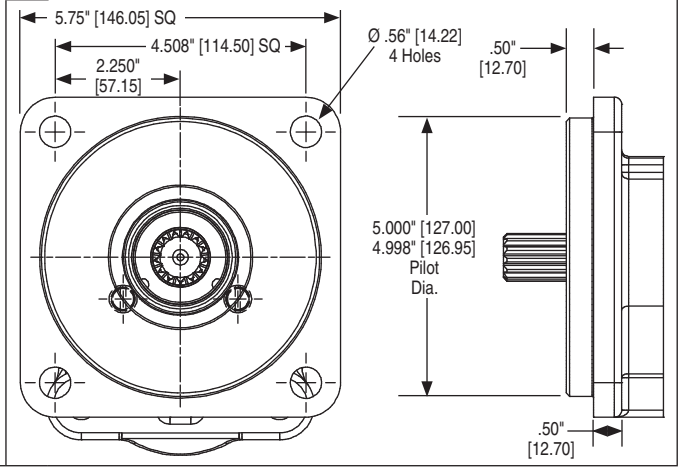
05 6-Bolt Round **Type 1**



42 SAE B 4-Bolt **Type 1**

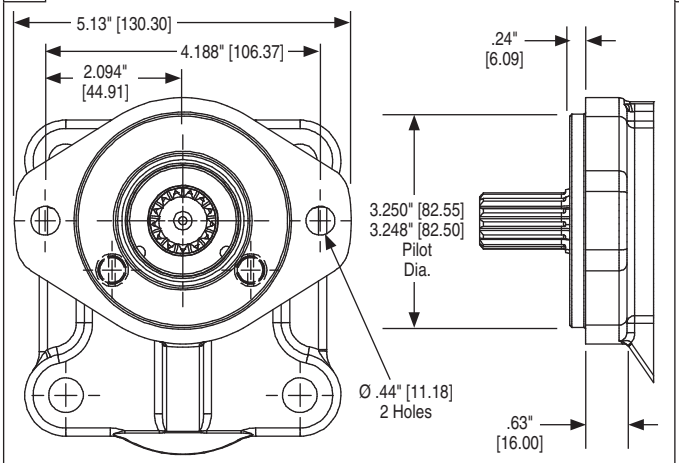


78 SAE C 4-Bolt **Type 1**

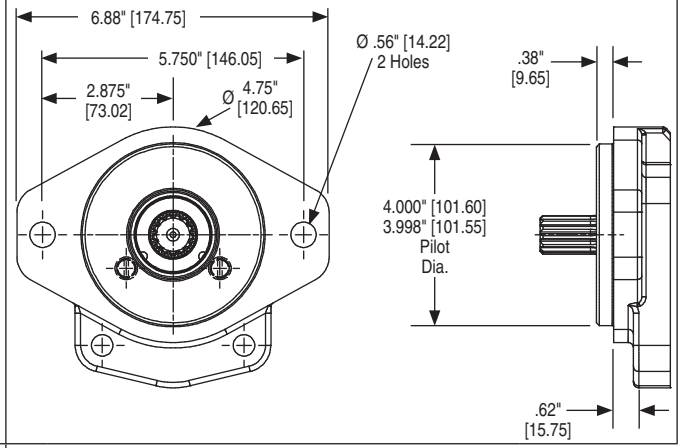


WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

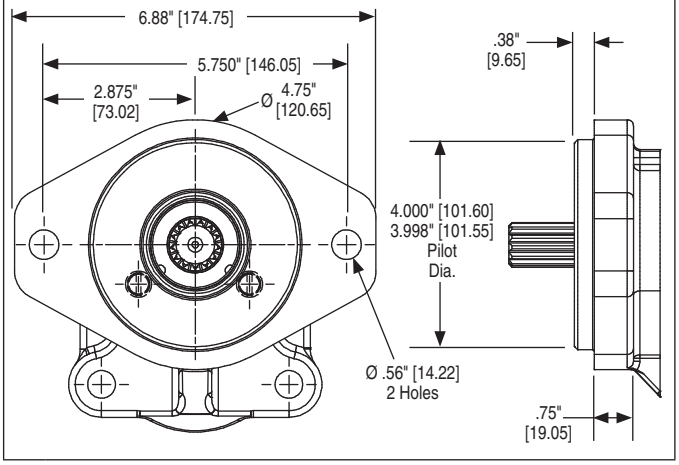
94 SAE A 2-Bolt **Type 1**



96 SAE B 2-Bolt **Type 2**

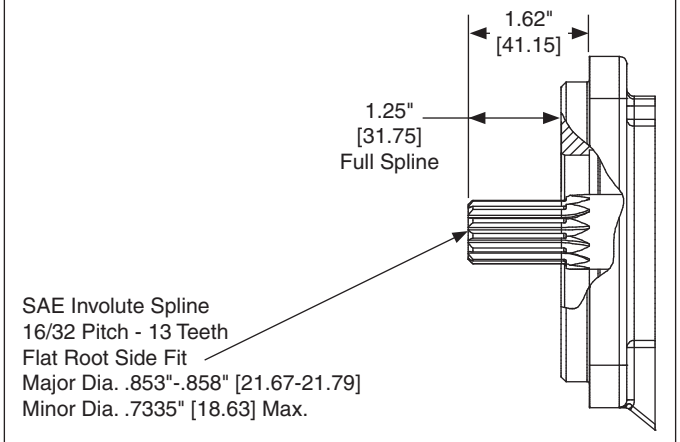


97 SAE B 2-Bolt **Type 1**

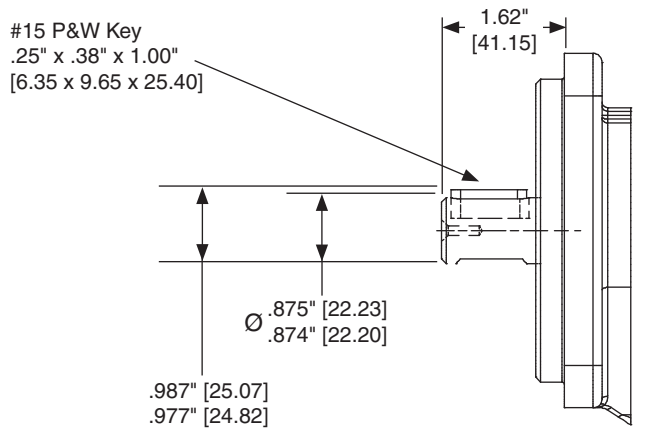


WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

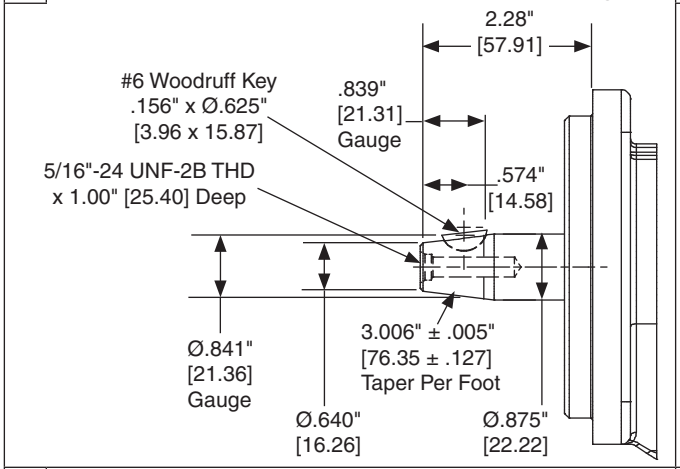
25 SAE B Spline / ANSI 22-4 Type 1



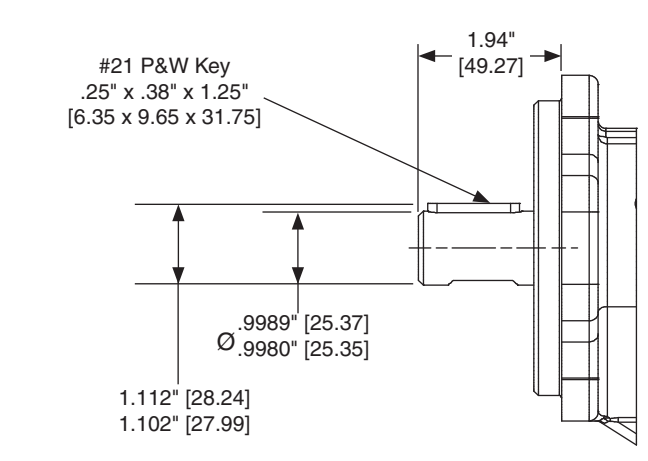
30 SAE B Keyed / ANSI 22-1 Type 1



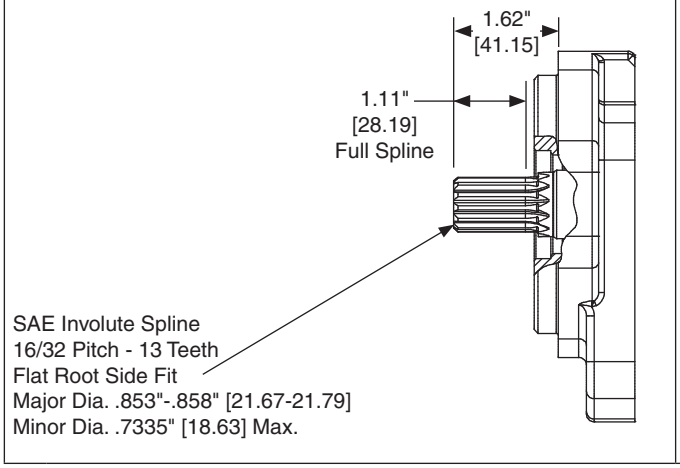
32 Clutch Pump Shaft Type 1



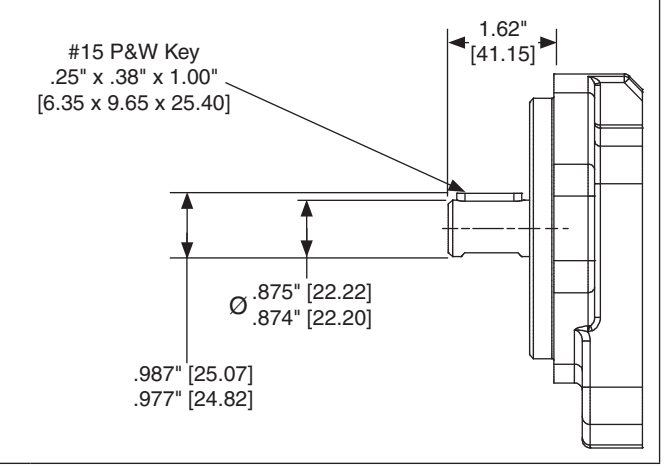
43 SAE BB Keyed / ANSI 25-1 Type 1



65 SAE B Spline / ANSI 22-4 Type 2

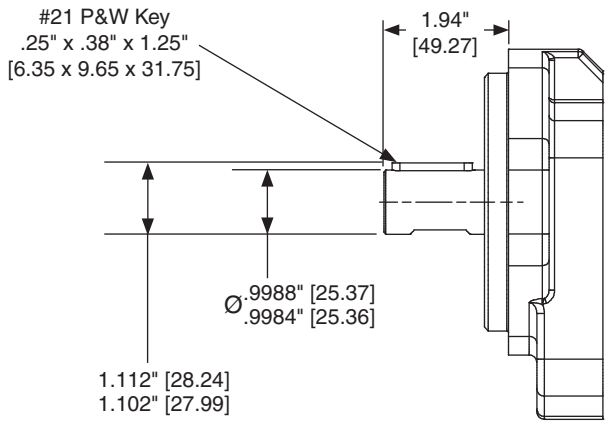


66 SAE B Keyed, Type 2

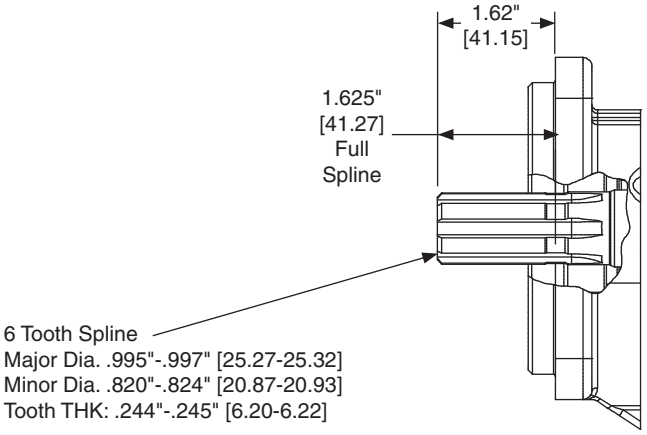


WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

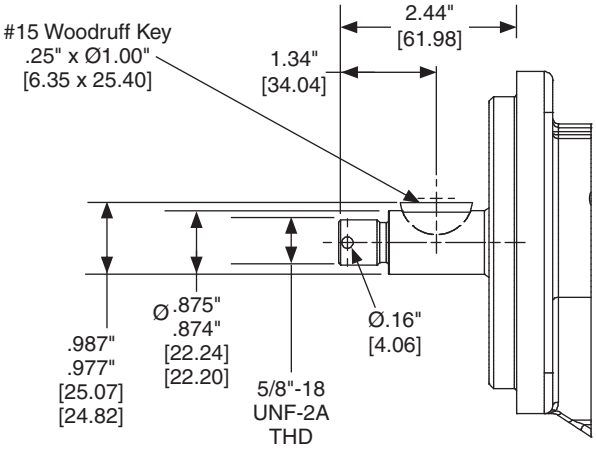
67 **SAE BB Keyed / ANSI 25-1 Modified,,** **Type 2**



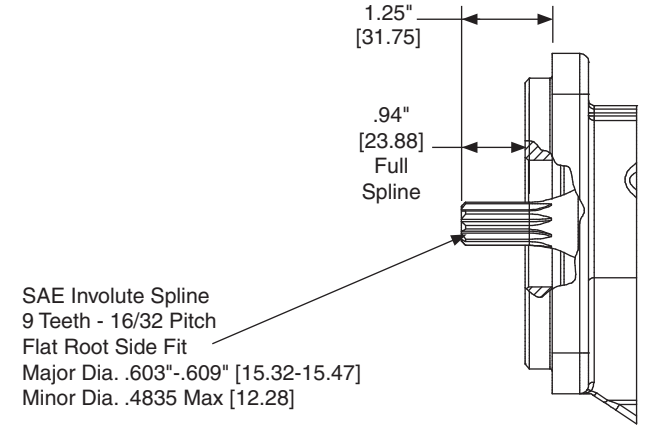
68 **1.00" Dia. 6 Tooth Spline Shaft** **Type 1**



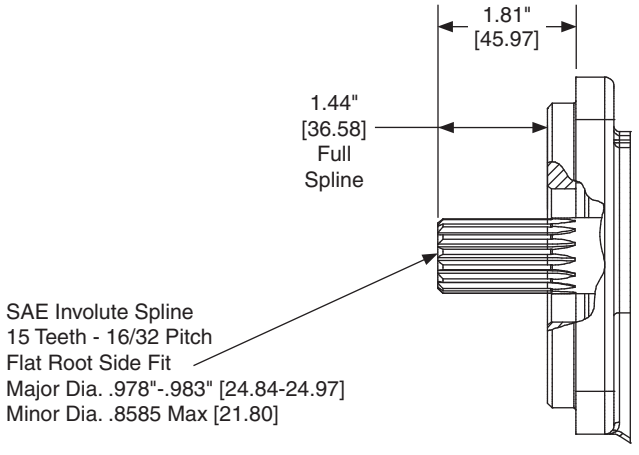
90 **SAE B Keyed / ANSI 22-2 Modified** **Type 1**



95 **SAE A Spline / ANSI 16-4** **Type 1**



98 **SAE BB Spline / ANSI 25-4** **Type 1**



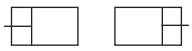
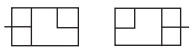
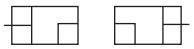
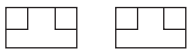
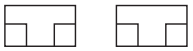
Pumps

Common Inlet Passage			
			
-	-	C	D
-	-	A	U

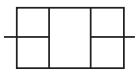
Used when only one adjacent gear housing has an inlet port.

Orientation
Rear Section

Front Section

Rotation Flow Path	ODT Porting		Split Flange Porting		Port Size	
	CW	CCW	CW	CCW	In	Out
	CB	BC	LB	BL	1"	-
	DB	BD	MB	BM	1-1/4"	-
	FB	BF	NB	BN	1-1/2"	-
	-	-	BR	RB	-	3/4"
	CJ	JC	LR	RL	1"	3/4"
	DJ	JD	MR	RM	1-1/4"	3/4"
	FJ	JF	NR	RN	1-1/2"	3/4"
	DK	KD	MS	SM	1-1/4"	1"
	FK	KF	NS	SN	1-1/2"	1"
	CR	RC	LX	XL	1"	3/4"
	DR	RD	MX	XM	1-1/4"	3/4"
	DS	SD	MZ	ZM	1-1/4"	1"
	FS	SF	NZ	ZN	1-1/2"	1"
	KJ	JK	SR	RS	1"	3/4"
	KX	XK	RZ	ZR	1"	3/4"

CW = Clockwise CCW = Counter Clockwise

Rotation Flow Path	ODT Porting	Split Flange Porting	Port Size	
	DUAL	DUAL	In	Out
	CC	LL	1"	1"
	BB	MM	1-1/4"	1-1/4"
	FF	NN	1-1/2"	1-1/2"

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

																Multiple Units: Repeat if Necessary					
PG	1	031	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	6	6	7	7	10	10

1 – Description	
P	Pump
M	Motor

2 – Unit	
A	Single
B	Tandem
C	Single or Tandem w/2-pc Shaft (O.B. bearing required)

3 – Rotation / Shaft	
1	Pump, cw w/o O.B. bearing
2	Pump, ccw w/o O.B. bearing
4	Pump, cw with O.B. bearing
5	Pump, ccw with O.B. bearing
8	Motor, bi-rot. with O.B. bearing; 1/4" NPT drain
9	Motor, bi-rot. w/o O.B. bearing; 1/4" NPT drain

4 – Mount	
00	Pad mount
05	6-Bolt Flange - 3.25" dia. bolt circle: Port Dia. 2-5/8"
42	SAE 4-Bolt B ANSI 101-4: Port Dia. 4"
78	SAE 4-Bolt C ANSI 127-4: Port Dia. 5"
94	SAE 2-Bolt A ANSI 82-2: Port Dia. 3-1/4"
96*	SAE 2-Bolt B ANSI 101-2, **type 2**: Port Dia. 4"
97	SAE 2-Bolt B ANSI 101-2: Port Dia. 4"

*(not available with O.B. bearing)

5 – Port Options					
Single Units		Tandem Units		Port Size	
w/o ST	w/ST	w/o ST	w/ST	Left	Right
Unported					
BE	BY	BI	BY	-	-
ODT Rear Ported					
CE	CY	CI	CY	3/4"	-
DE	DY	DI	DY	-	3/4"
FE	FY	FI	FY	3/4"	3/4"
GE	GY	GI	GY	1"	3/4"
HE	HY	HI	HY	3/4"	1"
ODT Rear Ported - Modified Casting*					
CA	CO	CU	CO	3/4"	-
DA	DO	DU	DO	-	3/4"
JA	BO	JU	BO	3/4"	3/4"
KA	-	KU	-	1"	3/4"
LA	-	LU	-	3/4"	1"
MA	YO	MU	YO	1"	-
RA	RO	SU	RO	-	1"
ZA	ZO	ZU	ZO	1"	1"
GU	-	GU	-	1-1/4"	1"
HU	-	HU	-	1"	1-1/4"
ODT Side Ported - Modified Casting*					
TU	-	TU	-	1-1/4"	1"
XU	-	XU	-	1	1-1/4"
Piggyback Port End - Pump Only					
Type 031-031		CW	CCW	Double	
		KO	LO	MO	

NOTE: w/o ST columns denote units without support studs; w/ST columns denote units with support studs
*Modified PEC casting is for higher pressure/larger port applications.

FOR ALL UNITS
To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The inlet pump port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

Continued on Next Page

																Multiple Units: Repeat if Necessary							
PG	1	031	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	6	6	7	7	10	10

6 – Gear Housing			
Order Code		Port Size	
CW	CCW	In	Out
No Porting ≤ 3000 PSI			
AB	AB	None	None
No Porting ≤ 2500 PSI			
AB	AB	None	None
See chart on page 24			

6 – Gear Housing			
Order Code		Port Size	
CW	CCW	In	Out
ODT Tube Porting ≤ 3000 PSI			
EC	ED	3/4"*	-
ED	EC	-	3/4"
EF	EF	3/4"	3/4"
EJ	EG	1"*	3/4"
EK	EH	1-1/4"*	3/4"
AC	AD	1"*	-
AD	AC	-	1"
AF	AF	1"	1"
AJ	AG	1-1/4"	1"
AA	AO	1-1/4"*	-
ODT Tube Porting ≤ 2500 PSI			
EC	ED	3/4"*	-
ED	EC	-	3/4"
EF	EF	3/4"	3/4"
EK	EH	1-1/4"*	3/4"
IP	IN	1-1/2"*	3/4"
AC	AD	1"*	-
AD	AC	-	1"
AF	AF	1"	1"
AJ	AG	1-1/4"	1"
AK	AH	1-1/2"	1"
AA	AO	1-1/4"*	-
AL	AL	1-1/4"	1-1/4"
AP	AM	1-1/2"	1-1/4"
AE	AU	1-1/2"	-
*Ports designated by an asterisk * are for use as the low-pressure inlet port only.			
See chart on page 24			

6 – Gear Housing			
Order Code		Port Size	
CW	CCW	In	Out
Split Flange Porting ≤ 3000 PSI			
UC	UD	3/4"	-
UD	UC	-	3/4"
UF	UF	3/4"	3/4"
UJ	UG	1"*	3/4"
UK	UH	1-1/4"*	3/4"
OC	OD	1"*	-
OD	OC	-	1"
OF	OF	1"	1"
OJ	OG	1-1/4"*	1"
OA	OB	1-1/4"*	-
OB	OA	-	3/4"
Split Flange Porting ≤ 2500 PSI			
UC	UD	3/4"	-
UD	UC	-	3/4"
OF	OF	1"	1"
OJ	OG	1-1/4"*	1"
OK	OH	1-1/2"*	1"
OL	OL	1-1/4"	1-1/4"
OP	OM	1-1/2"*	1-1/4"
OE	OU	1-1/2"*	-
OU	OE	-	1-1/2"
*Ports designated by an asterisk * are for use as the low-pressure inlet port only.			
See chart on page 25			

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM031 Ordering Code

																Multiple Units: Repeat if Necessary							
PG	1	031	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	6	6	7	7	10	10

7 – Gear Width					
Order Code	Gear Width	in.³ /rev.	cm³ /rev.	Max Pressure PSI	Max Pressure bar
ODT Tube Ports ≤ 2500 and ≤ 3000 PSI Split Flange Ports ≤ 2500 and ≤ 3000 PSI					
05	1/2"	0.99	16.1	3000	207
07	3/4"	1.48	24.2	3000	207
10	1"	1.97	32.3	3000	207
12	1-1/4"	2.46	40.4	3000	207
15	1-1/2"	2.96	48.4	3000	207
17	1-3/4"	3.45	56.5	2500	172
20	2"	3.94	64.6	2500	172

8 – Drive Shafts (type 1 unless noted) For single, tandem, or two-piece shaft unless noted.	
25	SAE B 13 tooth spline .88" dia., ANSI 22-4
30	SAE B keyed .88" dia., 1/4" x 3/8" x 1" key, ANSI 22-1
32	Clutch pump shaft, tapered & keyed, 1:4 taper (single & two piece), #6 woodruff key
43	SAE BB keyed 1.00" dia, 1/4" x 3/8" x 1-1/4" key, ANSI 25-1 modified length
65	SAE B 13 tooth spline .875" dia., ANSI 22-4, **type 2** (single & tandem)
66	SAE B keyed .88" dia., 1/4"x3/8"x1" key, **type 2** (single & tandem)
67	SAE BB keyed 1.00" dia., 1/4" x 3/8" x 1-1/4" key, ANSI 25-1 modified length, **type 2** (single & tandem)
68	6 tooth spline 1.00" dia.
90	SAE B keyed w/ 5/8"-18 thread, .875" dia., ANSI 22-2 modified length (single & tandem)
95	SAE A 9 tooth spline, .62" dia., ANSI 16-4 (single only)
98	SAE BB 15 tooth spline, 1.00" dia., ANSI 25-4 (single & tandem)
See drawings on pages 30-31	

9 – Bearing Carrier / Pumps			
CW	CCW	Port Size In	Port Size Out
ODT Porting			
CB	BC	1"	-
DB	BD	1-1/4"	-
FB	BF	1-1/2"	-
CJ	JC	1"	3/4"
DJ	JD	1-1/4"	3/4"
FJ	JF	1-1/2"	3/4"
DK	KD	1-1/4"	1"
FK	KF	1-1/2"	1"
CR	RC	1"	3/4"
DR	RD	1-1/4"	3/4"
DS	SD	1-1/4"	1"
FS	SF	1-1/2"	1"
KJ	JK	1"	3/4"
KX	XK	1"	3/4"
Split Flange Porting			
LB	BL	1"	-
MB	BM	1-1/4"	-
NB	BN	1-1/2"	-
BR	RB	-	3/4"
LR	RL	1"	3/4"
MR	RM	1-1/4"	3/4"
NR	RN	1-1/2"	3/4"
MS	SM	1-1/4"	1"
NS	SN	1-1/2"	1"
LX	XL	1"	3/4"
MX	XM	1-1/4"	3/4"
MZ	ZM	1-1/4"	1"
NZ	ZN	1-1/2"	1"
SR	RS	1"	3/4"
RZ	ZR	1"	3/4"
See chart on page 32			

9 – Bearing Carrier / Motors		
DUAL	Port Size In	Port Size Out
ODT Porting		
CC	1"	1"
BB	1-1/4"	1-1/4"
FF	1-1/2"	1-1/2"
Split Flange Porting		
LL	1"	1"
MM	1-1/4"	1-1/4"
NN	1-1/2"	1-1/2"
See chart on page 32		

10 – Connecting Shaft	
For connecting tandem units.	
01	Connecting Shaft - Multiple Units
14	Piggyback Pump Connecting Shaft 031 to 031
22	Piggyback Pump Connecting Shaft 051 to 031
23	Piggyback Pump Connecting Shaft 076 to 031

NOTE: Split flange thread depths may be more shallow than SAE standard. Contact Product Support Department for actual dimensions.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

- Original Commerical pump design
- Three-piece cast iron construction for assembly flexibility
- Durable high-strength cast iron body for excellent power to weight ratio
- Balanced thrust plates optimize pump efficiency
- Roller bearings for durability and resistance to fluid contamination
- Multiple sections available

Product Features	Description
Pump Type	Cast iron, Fixed
Mounting	SAE, DIN
Ports	SAE, Split Flange, NPT
Shaft Style	SAE, DIN
Pump Speed	900 to 2400 RPM
Motor Speed	800 to 2000 RPM
Maximum Displ.	6.4 in^3/rev
Maximum Operating Pressure	3000 PSI

Product Features	Description
Fluids	Standard Hydraulic Fluid, Phosphate Ester
Fluid Temperature	Range of Operating Temperature -20 to 80°C (0 to 180°F)
Fluid Viscosity	50-7500 SUS
Direction of Rotation (looking at the driveshaft)	Clockwise, Counter Clockwise, Bi-Rotational

NOTE: Different types of pump options are available in terms of shaft, mounting and port type. Please contact Parker.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM051 Specifications

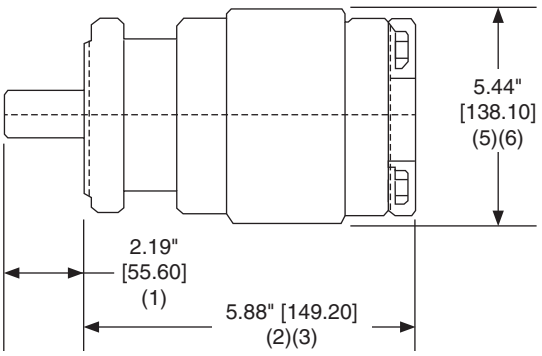
PGP051 Frame Size	05	07	10	12	15	17	20	22	25
Displacement – cm^3/rev (in^3/rev)	20.9 (1.28)	31.3 (1.91)	41.8 (2.55)	52.2 (3.19)	62.7 (3.83)	73.1 (4.46)	83.6 (5.10)	94.0 (5.74)	104.5 (6.38)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)	172 (2,500)
Max Speed – RPM	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400
Approximate Weight – Lbs. [kg]	34 [15.5]	35.5 [16]	37 [17]	38.5 [17.5]	40 [18]	41.5 [19]	43 [19.5]	48.5 [22]	50 [22.5]

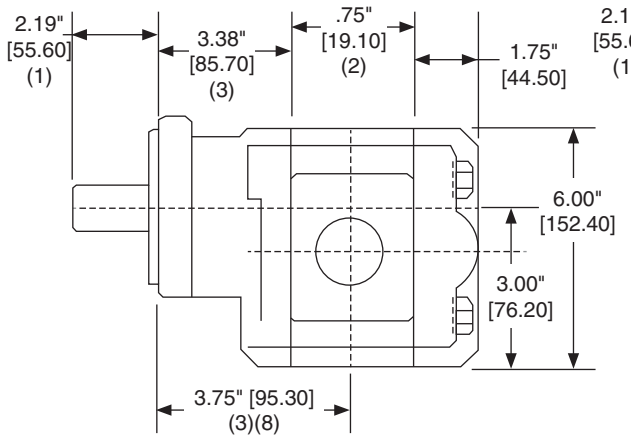
PGM051 Frame Size	05	07	10	12	15	17	20	22	25
Displacement – cm^3/rev (in^3/rev)	20.90 (1.28)	31.30 (1.91)	41.80 (2.55)	52.20 (3.19)	62.70 (3.83)	73.10 (4.46)	83.60 (5.10)	94.00 (5.74)	104.50 (6.38)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)	172 (2,500)
Max Speed – RPM	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Approximate Weight – Lbs. [kg]	34 [15.5]	35.5 [16.0]	37 [17.0]	38.5 [17.5]	40 [18]	41.5 [19]	43 [19.5]	48.5 [22]	50 [22.5]

PGP/PGM051 Dimensions

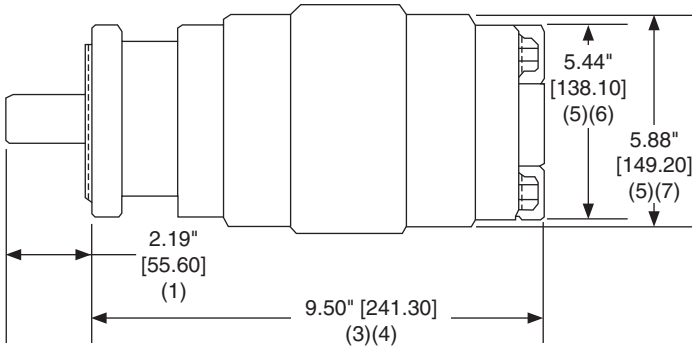
NOTES
1. Dimension will vary with shaft type
2. Dimension + gear width
3. Dimension is for Type 1 SEC.
   Type 2: subtract 1.00" (25.4 mm)
4. Dimension + total gear width
5. Dimension will vary with port type. Subtract 0.25" (6.4 mm) for S.F. ports.
6. For 2.25" and 2.50" gear width, dimension is 6.75" (171.5 mm).
7. Dimension is for wide B-C. Narrow B-C dimensions: 5.00" (127 mm)
8. Dimension + ½ front section gear width

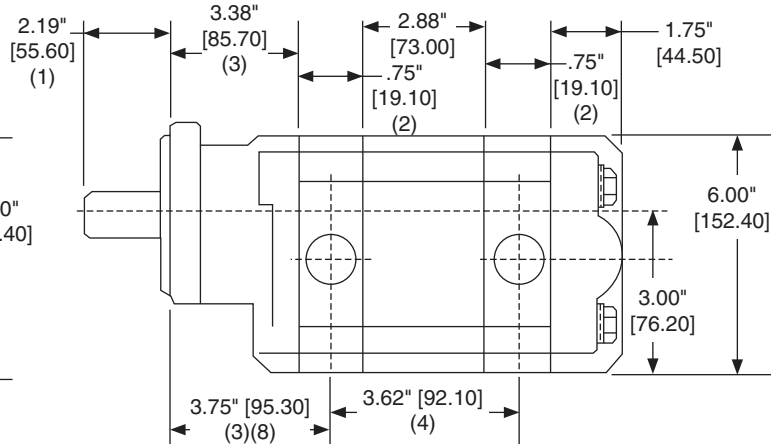
Single Units





Multiple Units





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PGP051

Flow data at 2500 PSI (172 bar) unless noted

Speed RPM	Gear Width Output (gpm/lpm)						
	1"	1 ¼"	1 ½"	1 ¾"	2"	2 ¼"	2 ½"
900	**8.5** 32	**10.5** 39.5	**13** 49	**15** 57	**17.5** 66	**20** 75.5	**22** 83.5
1200	**12** 45.5	**15** 57	**18** 68	**21** 79.5	**24** 91	**27** 102	**30** 114
1500	**15** 57	**19** 72	**23** 87	**27** 102	**31** 117	**35** 132	**39** 148
1800	**18** 68	**23** 87	**27.5** 104	**32.5** 123	**37.5** 142	**42** 159	**47** 178
2100	**21.5** 81.5	**27** 102	**32.5** 123	**38.5** 146	**44** 167	**49.5** 187	**55** 208
2400	**25** 94.5	**31** 117	**37** 140	**44** 167	**51** 193	**57** 216	**63.5** 240

*Flow data at 2000 PSI (138 bar) rated pressure.

PGP051

Input power at 2500 PSI (172 bar) unless noted

Speed RPM	Gear Width Inches (HP/Kw)						
	1"	1 ¼"	1 ½"	1 ¾"	2"	2 ¼"	2 ½"
900	**19** 14	**22** 17	**26** 20	**30** 23	**34** 26	**38** 29	**42** 32
1200	**25** 18	**30** 22	**34** 26	**40** 30	**45** 34	**51** 38	**56** 42
1500	**31** 23	**37** 27	**43** 32	**50** 37	**56** 42	**63** 47	**69** 51
1800	**36** 27	**44** 33	**51** 38	**59** 44	**67** 50	**75** 56	**82** 61
2100	**42** 31	**51** 38	**60** 44	**69** 51	**78** 58	**87** 65	**96** 72
2400	**47** 35	**57** 43	**68** 51	**79** 59	**89** 66	**99** 74	**110** 82

*Input power at 2000 PSI (138 bar)

PGM051

Motor performance data at 2500 PSI (172 bar) unless noted.

Speed RPM	1" Gear			1 ½" Gear			2" Gear			2½" Gear		
	Output		Input	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	**825** 93	**10.5** 8	**10.5** 39.5	**1310** 148	**16.5** 12.5	**15.5** 58.5	**1810** 204.5	**23** 17	**21** 79.5	**2330** 263.5	**29.5** 22	**26** 98.5
1200	**850** 96	**16** 12	**15.5** 58.5	**1340** 151.5	**25.5** 19	**22.5** 85	**1830** 207	**35** 26	**30.5** 115	**2340** 264.5	**44.5** 33	**37.5** 142
1600	**830** 94	**21** 15.5	**20** 75.5	**1330** 150.5	**34** 25.5	**30** 114	**1805** 204	**46** 34.5	**40** 151	**2300** 260	**58.5** 43.5	**49.5** 187
2000	**800** 90.5	**25.5** 19	**25** 94.5	**1290** 146	**41** 30.5	**37** 140	**1770** 200	**56** 42	**49** 185	**2250** 254	**71.5** 53.5	**61.5** 233

U.S./Metric Torque: **In.-lbs.** / Nm Flow: **GPM** / LPM Power: **HP** / kW

*Motor performance data at 2000 PSI (138 bar).

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

No Porting ≤ 3000 PSI

Order Code		Port Size		Gear Width Availability			
CW	CCW	In	Out	10	12	15	17
AB	AB	None	None	X	X	X	X

CW = Clockwise CCW = Counter Clockwise

No Porting ≤ 2500 PSI

Order Code		Port Size		Gear Width Availability		
CW	CCW	In	Out	20	22	25
AB	AB	None	None	X	X	X

CW = Clockwise CCW = Counter Clockwise

ODT Tube Porting ≤ 3000 PSI

Order Code		ODT Tube Porting Port Size		Gear Width Availability			
CW	CCW	In	Out	10	12	15	17
EC	ED	3/4"*	-	X*	X*		X
ED	EC	-	3/4"				X
EF	EF	3/4"	3/4"			2500	X
EJ	EG	1"*	3/4"				X*
EK	EH	1-1/4"*	3/4"			2500*	X
AC	AD	1"*	-	X*	X*	X*	X*
AA	AO	1-1/4"*	-			X*	X*

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

ODT Tube Porting ≤ 2500 PSI

Order Code		ODT Tube Porting Port Size		Gear Width Availability		
CW	CCW	In	Out	20	22	25
AC	AD	1"*	-	X		
AD	AC	-	1"	X		
AF	AF	1"	1"	X	X	X
AJ	AG	1-1/4"*	1"	X*		
AK	AH	1-1/2"*	1"	X*		X
AA	AO	1-1/4"*	-		X	X
AO	AA	-	1-1/4"		X	X
AL	AL	1-1/4"	1-1/4"		X	X
AP	AM	1-1/2"*	1-1/4"		X	X
AE	AU	1-1/2"*	-	X*	X	X
AU	AE	-	1-1/2"			X
AR	AR	1-1/2"	1-1/2"			X

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

NOTES

1. ■ Shaded cells are acceptable for motor codes.
2. X means both codes are available.
3. 2500 indicates maximum pressure rating on port.
4. CW = Clockwise; CWW = Counter Clockwise.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

Split Flange Porting ≤ 3000 PSI

Order Code		Split Flange Porting Port Size		Gear Width Availability			
CW	CCW	In	Out	10	12	15	17
UC	UD	3/4"	-	2500	X		
UD	UC	-	3/4"	2500	X		
UF	UF	3/4"	3/4"	2500	X	X	
UJ	UG	1"*	3/4"	2500*	X*	X*	
UK	UH	1-1/4"*	3/4"		X*	X*	X*
OC	OD	1"*	-		X*	2500	X
OD	OC	-	1"			2500	X
OF	OF	1"	1"			2500	X
OJ	OG	1-1/4"*	1"			2500*	X*
OK	OH	1-1/2"*	1"			2500*	X*
OA	OB	1-1/4"*	-		X*	X*	
OE	OU	1-1/2"*	-			X*	X*

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

Split Flange Porting ≤ 2500 PSI

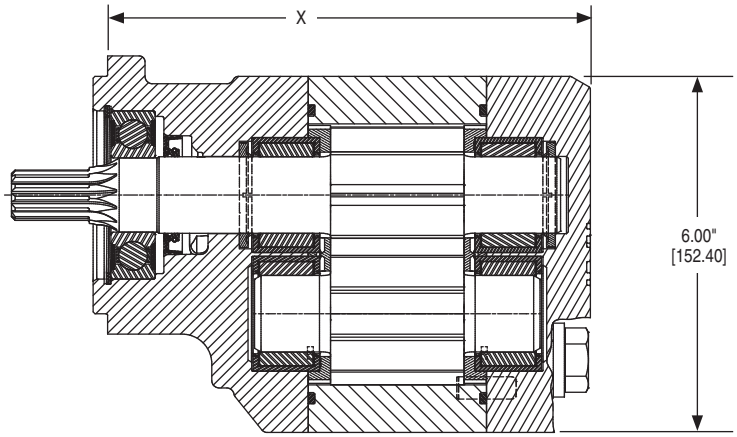
Order Code		Split Flange Porting Port Size		Gear Width Availability		
CW	CCW	In	Out	20	22	25
OC	OD	1"*	-	X		
OD	OC	-	1"	X		
OF	OF	1"	1"	X	X	X
OJ	OG	1-1/4"*	1"	X*		
OK	OH	1-1/2"*	1"	X*	X	X
OL	OL	1-1/4"	1-1/4"	X	X	X
OP	OM	1-1/2"*	1-1/4"	X*	X	X
OE	OU	1-1/2"*	-	X*		
OR	OR	1-1/2"	1-1/2"		X	X
XB	ZB	2"*	-	X*		
OQ	ON	2"*	1-1/4"	X*	X*	X*
OV	OS	2"*	1-1/2"		X*	X*

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

NOTES

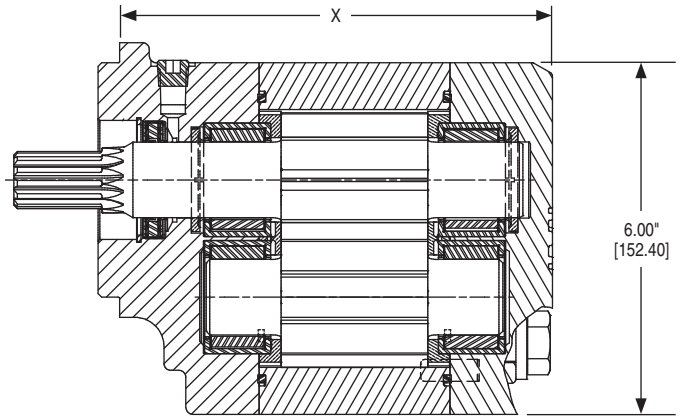
1. ■ Shaded cells are acceptable for motor codes.
2. X means both codes are available.
3. 2500 indicates maximum pressure rating on port.
4. CW = Clockwise; CWW = Counter Clockwise.

⚠ **WARNING:** This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov



X DIMENSION – Type 1

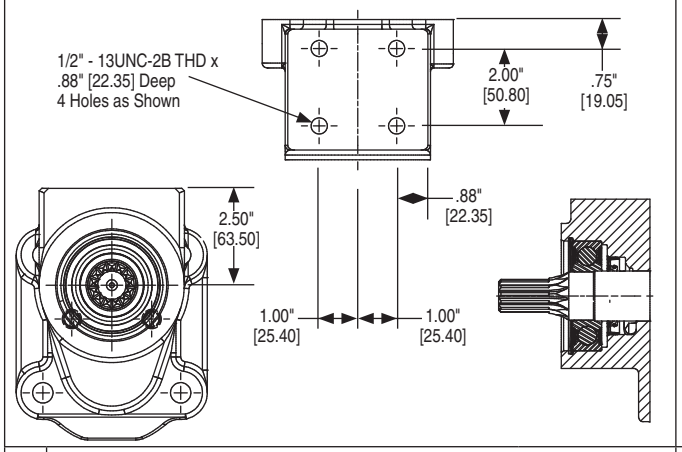
SEC CODE	05	07	10	12	15	17	20	22	25
00	6.62" [168.15]	6.87" [174.50]	7.12" [180.85]	7.37" [187.20]	7.62" [193.55]	7.87" [199.90]	8.12" [206.25]	8.37" [212.60]	8.62" [218.95]
42	6.38" [162.05]	6.63" [168.40]	6.88" [174.75]	7.13" [181.10]	7.38" [187.45]	7.63" [193.80]	7.88" [200.15]	8.13" [206.50]	8.38" [212.85]
78	6.38" [162.05]	6.63" [168.40]	6.88" [174.75]	7.13" [181.10]	7.38" [187.45]	7.63" [193.80]	7.88" [200.15]	8.13" [206.50]	8.38" [212.85]
97	6.38" [162.05]	6.63" [168.40]	6.88" [174.75]	7.13" [181.10]	7.38" [187.45]	7.63" [193.80]	7.88" [200.15]	8.13" [206.50]	8.38" [212.85]
98	6.38" [162.05]	6.63" [168.40]	6.88" [174.75]	7.13" [181.10]	7.38" [187.45]	7.63" [193.80]	7.88" [200.15]	8.13" [206.50]	8.38" [212.85]



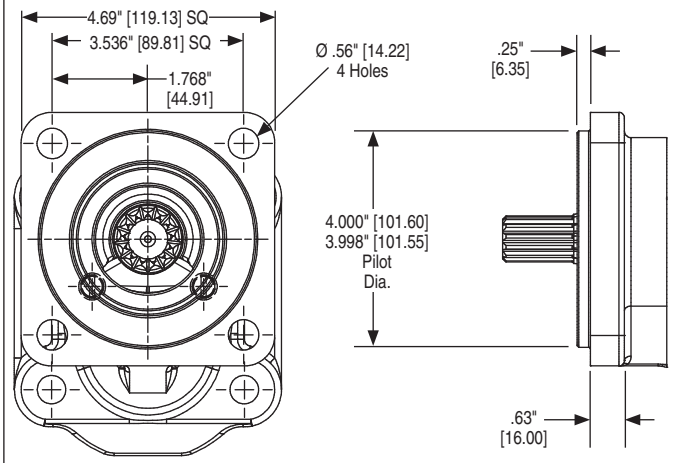
X DIMENSION – Type 2 (Standard PEC)									
SEC CODE	**05**	**07**	**10**	**12**	**15**	**17**	**20**	**22**	**25**
46	5.38" [136.65]	5.63" [143.00]	5.88" [149.35]	6.13" [155.70]	6.38" [162.05]	6.63" [168.40]	6.88" [174.75]	7.13" [181.10]	7.38" [187.45]
96	5.38" [136.65]	5.63" [143.00]	5.88" [149.35]	6.13" [155.70]	6.38" [162.05]	6.63" [168.40]	6.88" [174.75]	7.13" [181.10]	7.38" [187.45]
99	5.38" [136.65]	5.63" [143.00]	5.88" [149.35]	6.13" [155.70]	6.38" [162.05]	6.63" [168.40]	6.88" [174.75]	7.13" [181.10]	7.38" [187.45]

X DIMENSION – Type 2 (Large PEC)						
SEC CODE	**12**	**15**	**17**	**20**	**22**	**25**
46	6.76" [171.70]	7.01" [178.05]	7.26" [184.40]	7.51" [190.75]	7.76" [197.10]	8.01" [203.45]
96	6.76" [171.70]	7.01" [178.05]	7.26" [184.40]	7.51" [190.75]	7.76" [197.10]	8.01" [203.45]
99	6.76" [171.70]	7.01" [178.05]	7.26" [184.40]	7.51" [190.75]	7.76" [197.10]	8.01" [203.45]

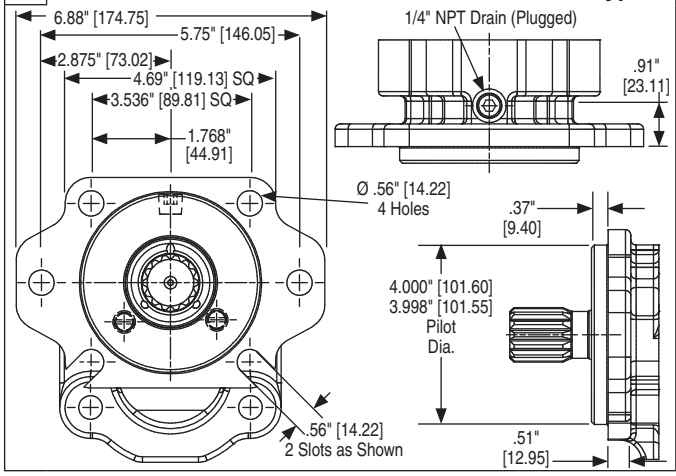
00 Pad Mount — **Type 1**



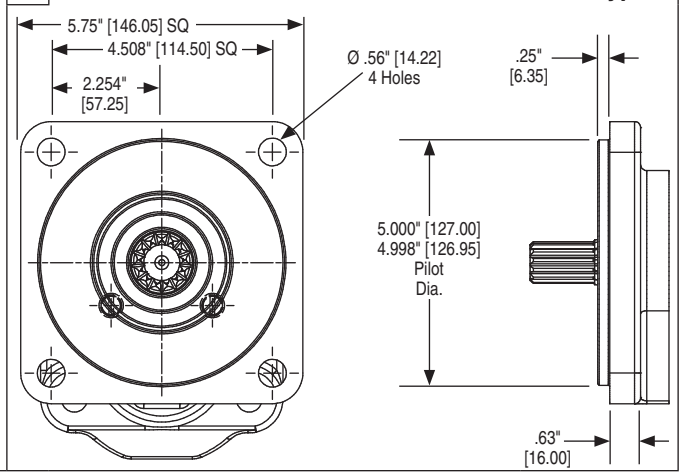
42 SAE B 4-Bolt — **Type 1**



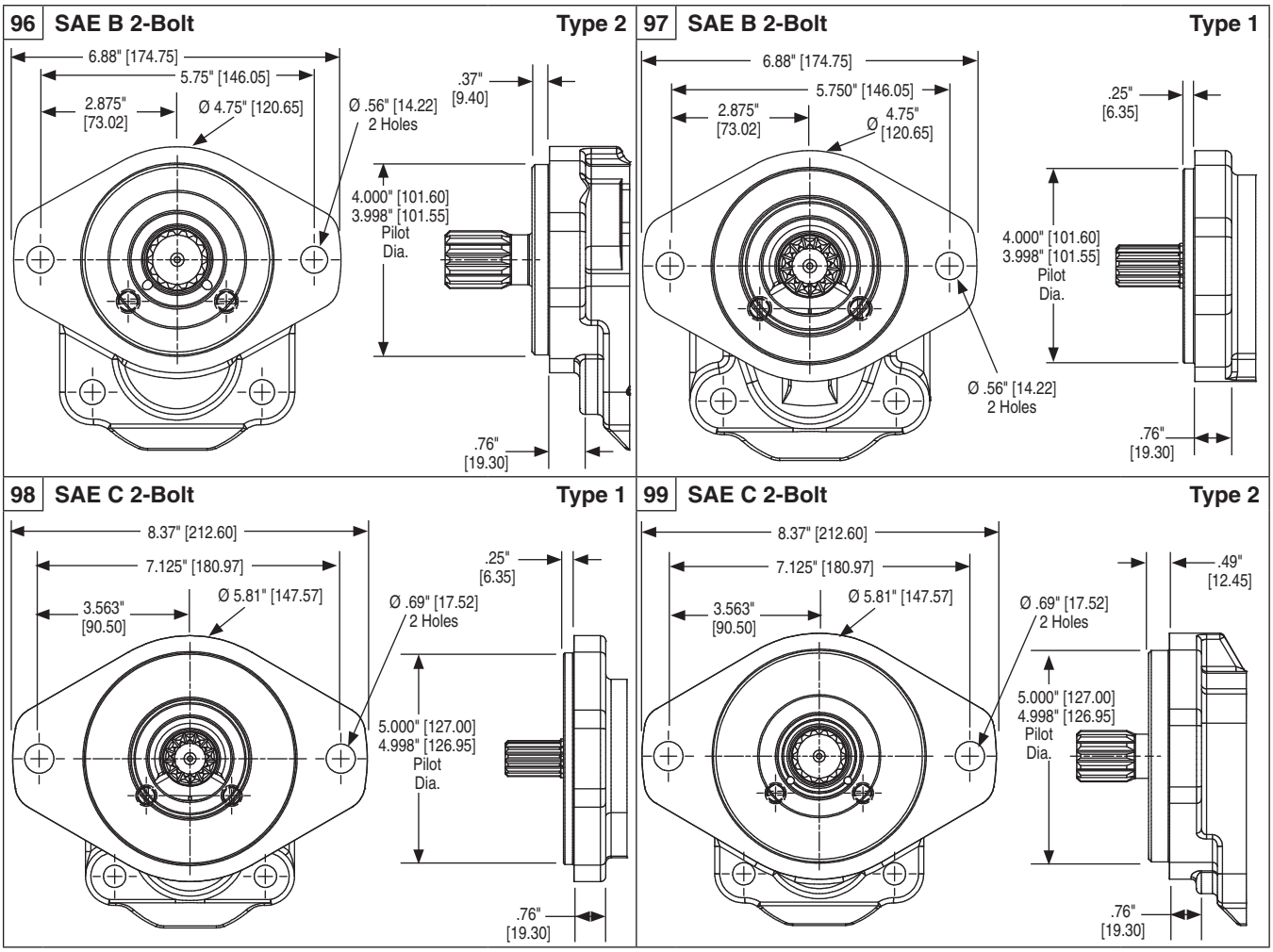
46 SAE B 2 or 4-Bolt — **Type 2**



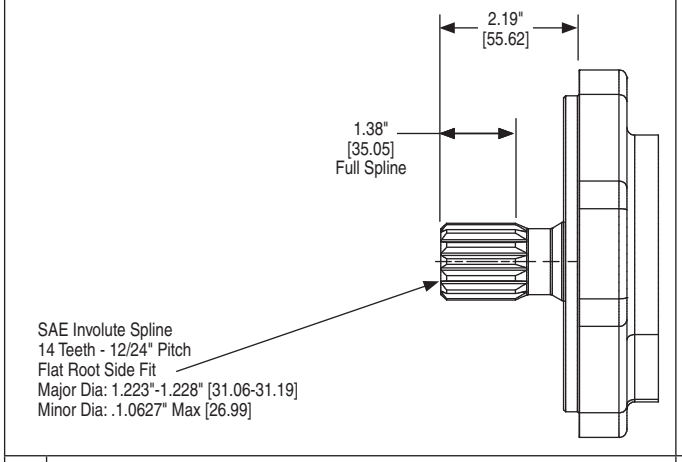
78 SAE C 4-Bolt — **Type 1**



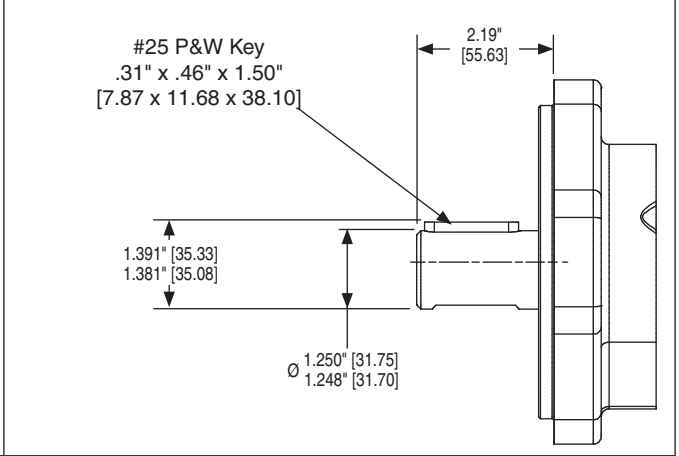
WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov



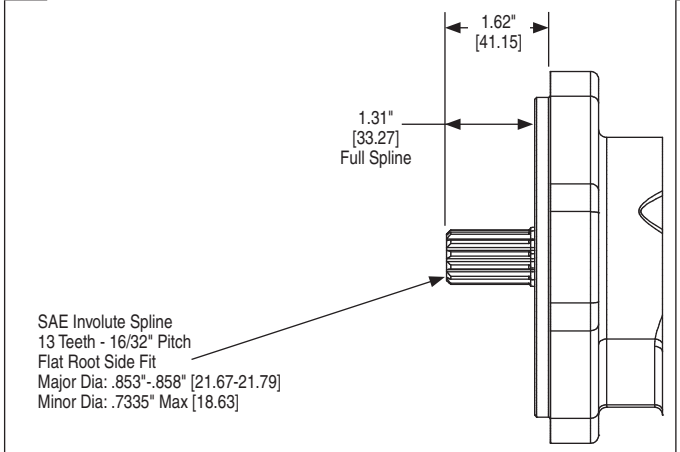
7 SAE C Spline — Type 1



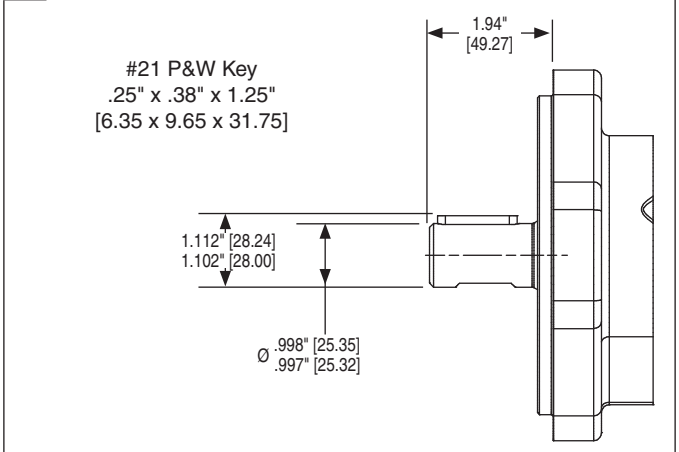
11 SAE C Keyed — Type 1



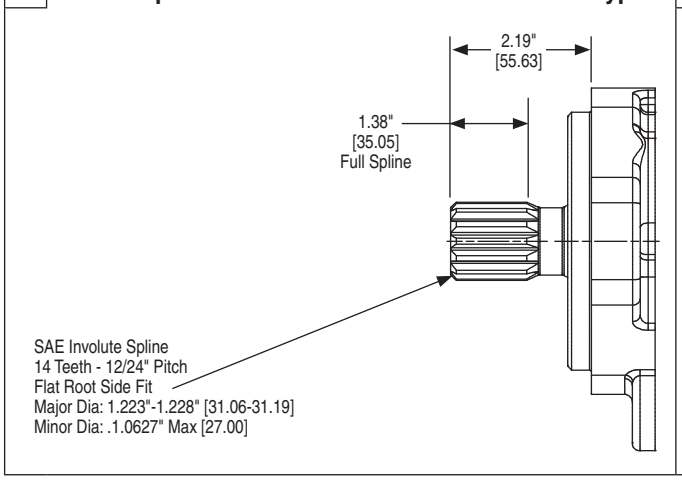
25 SAE B Spline — Type 1



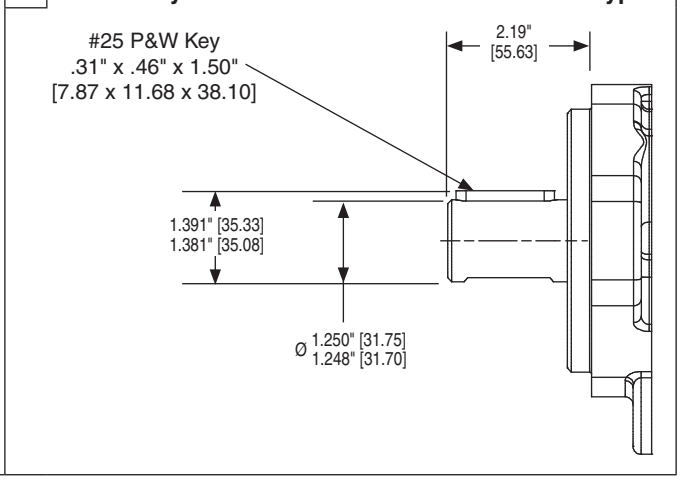
43 SAE BB Keyed — Type 1



53 SAE C Spline — Type 2

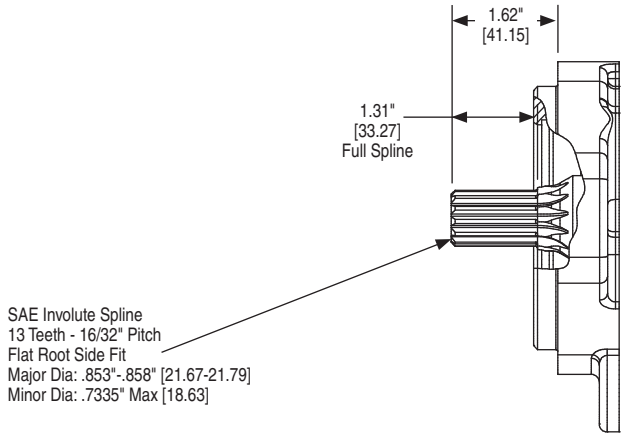


61 SAE C Keyed — Type 2

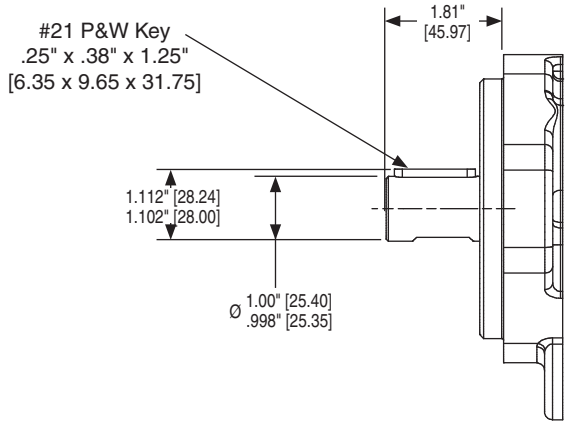


WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

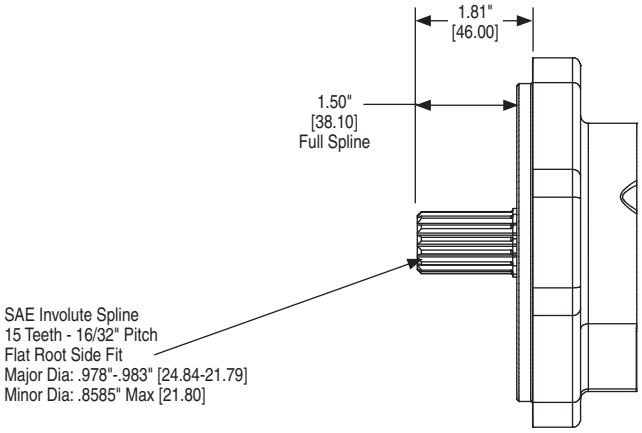
65 SAE B Spline **Type 2**



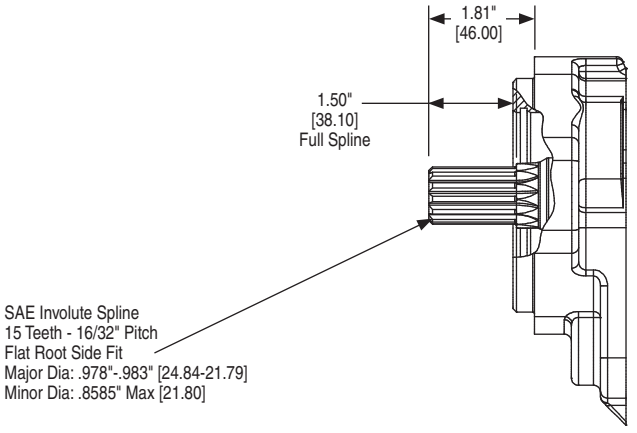
67 SAE BB Keyed **Type 2**



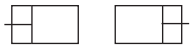
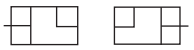
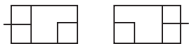
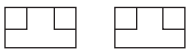
98 SAE BB Spline **Type 1**



**** SAE BB Spline** **Type 2**



PGP051

Rotation Flow Path	ODT Porting		Split Flange Porting		Port Size	
	CW	CCW	CW	CCW	In	Out
	CB	BC	LB	BL	1"	-
	DB	BD	MB	BM	1-1/4"	-
	FB	BF	NB	BN	1-1/2"	-
	PJ	JP	BR	RB	-	3/4"
	CJ	JC	LR	RL	1"	3/4"
	DJ	JD	MR	RM	1-1/4"	3/4"
	FJ	JF	NR	RN	1-1/2"	3/4"
	DK	KD	MS	SM	1-1/4"	1"
	FK	KF	NS	SN	1-1/2"	1"
	CR	RC	LX	XL	1"	3/4"
	DR	RD	MX	XM	1-1/4"	3/4"
	FR	RF	-	-	1-1/2"	3/4"
	DS	SD	MZ	ZM	1-1/4"	1"
	FS	SF	NZ	ZN	1-1/2"	1"
	HZ	ZH	-	-	-	1"
	KJ	JK	SR	RS	1"	3/4"

CW = Clockwise CCW = Counter Clockwise

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGM051

Rotation Flow Path	ODT Porting	Split Flange Porting	Port Size	
	DUAL	DUAL	In	Out
	CC	LL	1"	1"
	BB	MM	1-1/4"	1-1/4"
	FF	NN	1-1/2"	1-1/2"

PGP/PGM051 Ordering Code

PG	1	051	2	3	3	4	4	5	5	6	6	7	7	-	8	8	9	9	6	6	7	7	10	10
															Multiple Units: Repeat if Necessary									

1 – Description	
P	Pump
M	Motor

2 – Unit	
A	Single
B	Tandem
C	Single or Tandem w/2-pc Shaft (O.B. bearing required)

3 – Rotation / Shaft	
1	Pump, cw w/o O.B. bearing
2	Pump, ccw w/o O.B. bearing
4	Pump, cw with O.B. bearing
5	Pump, ccw with O.B. bearing
8	Motor, bi-rot. with O.B. bearing; 1/4" NPT drain
9	Motor, bi-rot. w/o O.B. bearing; 1/4" NPT drain

4 – Mount *(type 1 unless noted)*	
00	4-Bolt Pad mount
42	SAE 4-Bolt B ANSI 101-4: Port Dia. 4"
78	SAE 4-Bolt C ANSI 127-4: Port Dia. 5"
91	For piggyback: Port Dia. 4"
92	For piggyback: Port Dia. 5"
96	SAE 2-Bolt B ANSI 101-2, **type 2**: Port Dia. 4"
97	SAE 2-Bolt B ANSI 101-2: Port Dia. 4"
98	SAE 2-Bolt C ANSI 127-2: Port Dia. 5"
99	SAE 2-Bolt C ANSI 127-2: **type 2**: Port Dia. 5"

5 – Port Options			
Single Units		Port Size	
w/o ST	w/ST	Left	Right
Unported			
BE	BY	No Port	No Port
Tandem Units			
w/o ST	w/ST		
BI	BY	1"	1"
ODT Porting			
Single Units		Port Size	
w/o ST	w/ST	Left	Right
CE	CY	3/4"	-
DE	DY	-	3/4"
FE	FY	3/4"	3/4"
Tandem Units			
w/o ST	w/ST		
CI	CY	3/4"	-
DI	DY	-	3/4"
FI	FY	3/4"	3/4"
Piggyback Port End - Pump Only			
	CW	CCW	Double
Type 051-051	KO	LO	MO

NOTE: w/o ST columns denote units without support studs w/ST columns denote units with support studs

6 – Gear Housing			
Order Code		Port Size	
CW	CCW	In	Out
No Porting ≤ 3000 PSI			
AB	AB	None	None
No Porting ≤ 2500 PSI			
AB	AB	None	None

See chart on page 39

6 – Gear Housing			
Order Code		Port Size	
CW	CCW	In	Out
ODT Tube Porting ≤ 3000 PSI			
EC	ED	3/4"*	-
ED	EC	-	3/4"
EF	EF	3/4"	3/4"
EJ	EG	1"*	3/4"
EK	EH	1-1/4"*	3/4"
AC	AD	1"*	-
AA	AO	1-1/4"*	-
ODT Tube Porting ≤ 2500 PSI			
AC	AD	1"*	-
AD	AC	-	1"
AF	AF	1"	1"
AJ	AG	1-1/4"*	1"
AK	AH	1-1/2"*	1"
AA	AO	1-1/4"*	-
AO	AA	-	1-1/4"
AL	AL	1-1/4"	1-1/4"
AP	AM	1-1/2"*	1-1/4"
AE	AU	1-1/2"*	-
AU	AE	-	1-1/2"
AR	AR	1-1/2"	1-1/2"

*Ports designated by an asterisk * are for use as the low-pressure inlet port only.

See chart on page 40

FOR ALL UNITS

To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The inlet pump port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

Continued on Next Page

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM051 Ordering Code (cont.)

																Multiple Units: Repeat if Necessary									
PG	1	051	2	3	3	4	4	5	5	6	6	7	7	-	8	8	9	9	6	6	7	7	10	10

6 – Gear Housing

Order Code		Port Size	
CW	CCW	In	Out
Split Flange Porting ≤ 3000 PSI			
UC	UD	3/4"	-
UD	UC	-	3/4"
UF	UF	3/4"	3/4"
UJ	UG	1"*	3/4"
UK	UH	1-1/4"*	3/4"
OC	OD	1"*	-
OD	OC	-	1"
OF	OF	1"	1"
OJ	OG	1-1/4"*	1"
OK	OH	1-1/2"*	1"
OA	OB	1-1/4"*	-
OE	OU	1-1/2"*	-
Split Flange Porting ≤ 2500 PSI			
OC	OD	1"*	-
OD	OC	-	1"
OF	OF	1"	1"
OJ	OG	1-1/4"*	1"
OK	OH	1-1/2"*	1"
OL	OL	1-1/4"	1-1/4"
OP	OM	1-1/2"*	1-1/4"
OE	OU	1-1/2"*	-
OR	OR	1-1/2"	1-1/2"
XB	ZB	2"*	-
OQ	ON	2"*	1-1/4"
OV	OS	2"*	1-1/2"

*Ports designated by an asterisk * are for use as the low-pressure inlet port only.

See chart on page 41

7 – Gear Width

Order Code	Gear Width	in.³ /rev.	cm³ /rev.	Max Pressure PSI	Max Pressure bar
ODT Tube Ports ≤ 2500 and ≤ 3000 PSI Split Flange Ports ≤ 2500 and ≤ 3000 PSI					
05	1/2"	1.28	20.9	3000	207
07	3/4"	1.91	31.3	3000	207
10	1"	2.55	41.8	3000	207
12	1-1/4"	3.19	52.2	3000	207
15	1-1/2"	3.83	62.7	3000	207
17	1-3/4"	4.46	73.1	3000	207
20	2"	5.10	83.6	2500	172
22	2-1/4"	5.74	94.0	2500	172
25	2-1/2"	6.38	104.5	2500	172

8 – Drive Shafts
(type 1 unless noted)
For single, tandem, or two-piece shaft unless noted.

07	SAE C 14 tooth spline 1.25" dia., ANSI 32-4
11	SAE C keyed 1.25" dia., 5/16" x 15/32" x 1-1/2" key, ANSI 32-1
25	SAE B 13 tooth spline .88" dia., ANSI 22-4
43	SAE BB keyed 1.00" dia. 1/4" x 3/8" x 1-1/4" key, ANSI 25-1
53	SAE C 14 tooth spline 1.25" dia., ANSI 32-4, **type 2** (single & tandem)
61	SAE C Keyed, **type 2**
65	SAE B 13 tooth spline .88" dia., ANSI 22-4, **type 2** (single & tandem)
67	SAE BB keyed 1.00" dia., 1/4"x3/8"x1-1/4" key, ANSI 25-1, **type 2** (single & tandem)
98	SAE BB 15 tooth spline, 1.00" dia., ANSI 25-4 (single & tandem)
**	SAE BB 15 tooth spline, **type 2**

Continued on Next Page

															Multiple Units: Repeat if Necessary									
PG	1	051	2	3	3	4	4	5	5	6	6	7	7	-	8	8	9	9	6	6	7	7	10	10

9 – Bearing Carriers			
Order Code		Port Size	
CW	CCW	IN	OUT
OD Tube Porting (pump)			
CB	BC	1"	-
DB	BD	1-1/4"	-
FB	BF	1-1/2"	-
PJ	JP	-	3/4"
CJ	JC	1"	3/4"
DJ	JD	1-1/4"	3/4"
FJ	JF	1-1/2"	3/4"
DK	KD	1-1/4"	1"
FK	KF	1-1/2"	1"
CR	RC	1"	3/4"
DR	RD	1-1/4"	3/4"
FR	RF	1-1/2"	3/4"
DS	SD	1-1/4"	1"
FS	SF	1-1/2"	1"
HZ	ZH	-	1"
KJ	JK	1"	3/4"
SAE Split Flange			
LB	BL	1"	-
MB	BM	1-1/4"	-
NB	BN	1-1/2"	-
BR	RB	-	3/4"
LR	RL	1"	3/4"
MR	RM	1-1/4"	3/4"
NR	RN	1-1/2"	3/4"
MS	SM	1-1/4"	1"
NS	SN	1-1/2"	1"
LX	XL	1"	3/4"
MX	XM	1-1/4"	3/4"
MZ	ZM	1-1/4"	1"
NZ	ZN	1-1/2"	1"
SR	RS	1"	3/4"
See chart on page 48			

9 – Bearing Carriers			
Order Code		Port Size	
CW	CCW	IN	OUT
OD Tube Porting (motor)			
DUAL	CC	1"	1"
DUAL	BB	1-1/4"	1-1/4"
DUAL	FF	1-1/2"	1-1/2"
OD Tube Porting (motor)			
DUAL	LL	1"	1"
DUAL	MM	1-1/4"	1-1/4"
DUAL	NN	1-1/2"	1-1/2"
See chart on page 49			

10 – Connecting Shaft	
For connecting tandem units.	
01	Connecting Shaft - Multiple Units
22	Piggyback Pump Connecting Shaft 051 to 051
23	Piggyback Pump Connecting Shaft 076 to 051

NOTE: Split flange thread depths may be more shallow than SAE standard. Contact Product Support Department for actual dimensions.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

- Original Commerical pump design
- Three-piece cast iron construction for assembly flexibility
- Durable high-strength cast iron body for excellent power to weight ratio
- Balanced thrust plates optimize pump efficiency
- Roller bearings for durability and resistance to fluid contamination
- Multiple sections available

Product Features	Description
Pump Type	Pump, cast iron roller bearing, external gear
Mounting	SAE 2-Bolt or 4-Bolt
Ports	SAE Straight Thread or Split Flange
Shaft Style	SAE C splined or keyed
Pump Speed	900 to 2400 RPM
Motor Speed	800 to 2000 RPM
Maximum Displ.	12.3 in^3/rev
Maximum Operating Pressure	3000 PSI

Product Features	Description
Fluids	Mineral oil
Fluid Temperature	Range of Operating Temperature -20 to 80°C (0 to 180°F).
Fluid Viscosity	50-7500 SUS
Direction of Rotation (looking at the driveshaft)	Clockwise, Counter Clockwise, Bi-Rotational

NOTE: Different types of pump options are available in terms of shaft, mounting and port type. Please contact Parker.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM076 Specifications

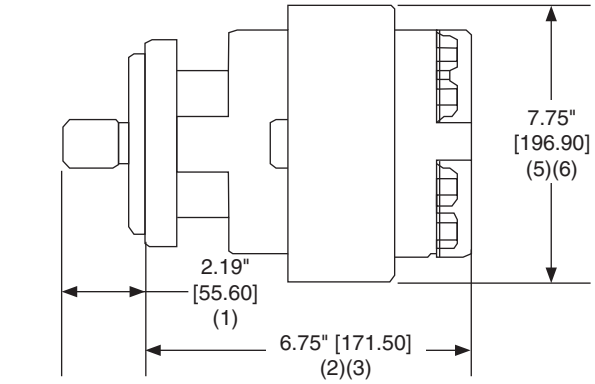
PGP076 Frame Size	7	10	12	15	17	20	22	25	27	30
Displacement – cm^3/rev (in^3/rev)	50.4 (3.08)	67.2 (4.10)	84.0 (5.13)	100.8 (6.15)	117.6 (7.18)	134.4 (8.20)	151.2 (9.23)	168.0 (10.25)	184.8 (11.28)	201.6 (12.30)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)	172 (2,500)	138 (2,000)	138 (2,000)
Max Speed – RPM	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400
Approximate Weight – Lbs. [kg]	70 [32]	72 [33]	75 [34]	77 [35]	80 [36]	82 [37]	85 [39]	87 [40]	90 [41]	92 [42]

PGM076 Frame Size	7	10	12	15	17	20	22	25	27	30
Displacement – cm^3/rev (in^3/rev)	50.4 (3.08)	67.2 (4.10)	84.0 (5.13)	100.8 (6.15)	117.6 (7.18)	134.4 (8.20)	151.2 (9.23)	168.0 (10.25)	184.8 (11.28)	201.6 (12.30)
Max continuous pressure – bar (PSI)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	207 (3,000)	172 (2,500)	172 (2,500)	172 (2,500)	138 (2,000)	138 (2,000)
Max Speed – RPM	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Approximate Weight – Lbs. [kg]	70 [32]	72 [33]	75 [34]	77 [35]	80 [36]	82 [37]	85 [39]	87 [40]	90 [41]	92 [42]

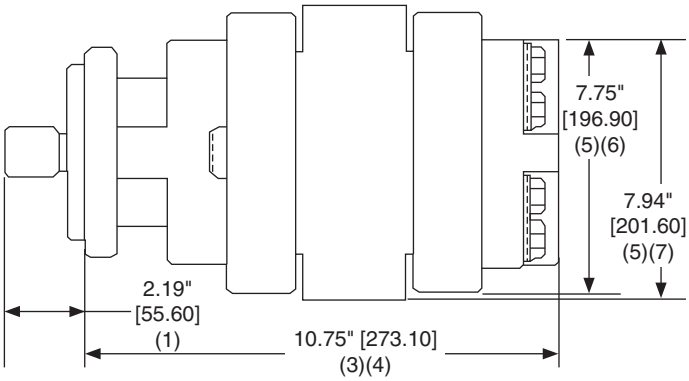
PGP/PGM076 Dimensions

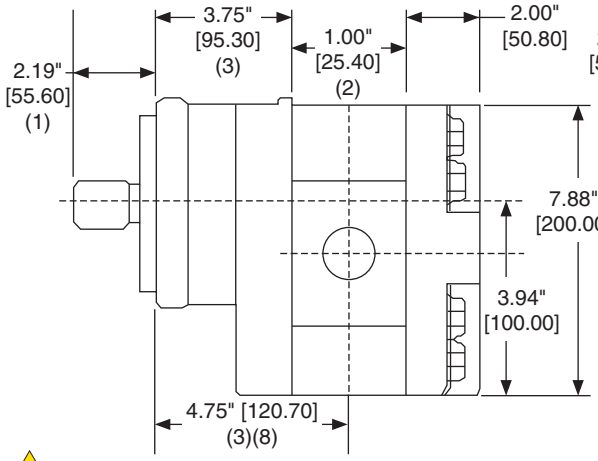
NOTES
1. Dimension will vary with shaft type
2. Dimension + gear width
3. Dimension is for Type 1 SEC.
4. Dimension + total gear width
5. Dimension will vary with port type. Subtract 0.25" (6.4 mm) for S.F. ports.
6. For 2.25" and 2.50" gear width, dimension is 6.75" (171.5 mm).
7. Dimension is for wide B-C. Narrow B-C dimensions: 7.19" (182.6 mm)
8. Dimension + ½ front section gear width

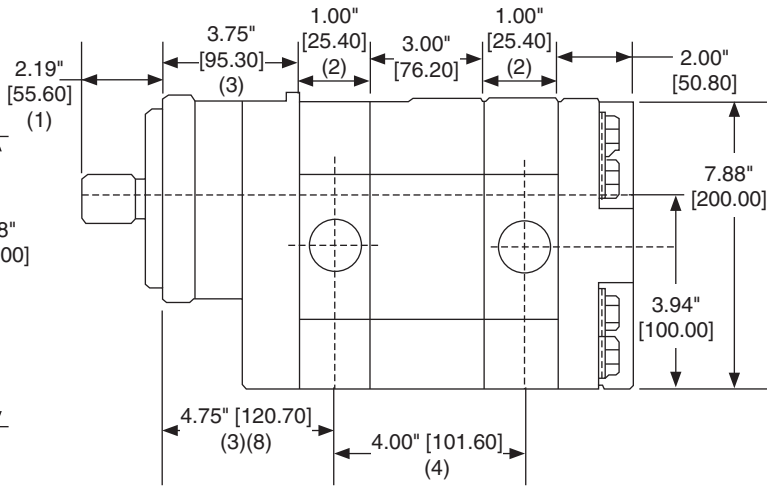
Single Units



Multiple Units







WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP076

Flow data at 2500 PSI (172 bar) unless noted

Speed RPM	Gear Width Output (gpm/lpm)								
	1"	1 ¼"	1 ½"	1 ¾"	2"	2 ¼"	2 ½"	2 ¾"*	3"*
900	**11.5**	**15.5**	**19.5**	**23**	**27**	**30.5**	**34.5**	**38**	**42**
	43.5	58.5	74	87	102	115.5	130.5	144	159
1200	**17**	**22**	**27**	**32**	**37.5**	**42**	**48**	**52.5**	**58**
	64.5	83.5	102	121	142	159	182	199	220
1500	**22**	**29**	**35.5**	**41.5**	**48**	**54.5**	**61**	**67**	**74**
	83.5	110	134	157	182	206	231	254	280
1800	**27.5**	**35.5**	**43.5**	**51**	**59**	**66**	**74**	**81.5**	**90**
	104	134	165	193	223	250	280	308	341
2100	**33**	**42**	**51.5**	**60**	**69.5**	**78**	**87**	**96.5**	**106**
	125	159	195	227	263	295	329	365	401
2400	**38**	**49**	**59.5**	**70**	**80**	**90**	**101**	**111**	**122**
	144	185	225	265	303	341	382	420	462

*Flow data at 2000 PSI (138 bar) rated pressure.

PGP076

Input power at 2500 PSI (172 bar) unless noted

Speed RPM	Gear Width Inches (HP/Kw)								
	1"	1 ¼"	1 ½"	1 ¾"	2"	2 ¼"	2 ½"	2 ¾"*	3"*
900	**26**	**32**	**39**	**45**	**51**	**58**	**64**	**57**	**62**
	19	24	29	34	38	43	48	42	46
1200	**35**	**43**	**52**	**60**	**69**	**78**	**86**	**76**	**83**
	26	32	39	45	51	58	64	57	62
1500	**44**	**55**	**65**	**76**	**87**	**98**	**109**	**96**	**105**
	33	41	49	57	65	73	81	72	78
1800	**53**	**66**	**79**	**93**	**106**	**119**	**132**	**116**	**127**
	39	49	59	69	79	89	99	87	95
2100	**62**	**77**	**93**	**108**	**124**	**139**	**154**	**136**	**148**
	46	58	69	81	92	104	115	101	111
2400	**71**	**88**	**106**	**124**	**141**	**159**	**176**	**155**	**169**
	53	66	79	92	105	118	132	116	126

*Input power at 2000 PSI (138 bar)

PGM076

Motor performance data at 2500 PSI (172 bar) unless noted.

Speed RPM	1" Gear			1 ½" Gear			2" Gear			2½" Gear			3" Gear*		
	Output		Input	Output		Input	Output		Input	Output		Input	Output		Input
	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow	Torque	Power	Flow
800	**1410**	**18**	**20.5**	**2140**	**27**	**28**	**2875**	**36.5**	**35.5**	**3650**	**46.5**	**43**	**3625**	**46**	**50.5**
	159.5	13.5	77.5	242	20	106	325	27	134	412.5	34.6	163	409.5	34.5	191
1200	**1400**	**26.5**	**27.5**	**2140**	**41**	**38**	**2870**	**54.5**	**49.5**	**3650**	**69.5**	**60.5**	**3575**	**68**	**72**
	158	20	104	242	30.5	144	324.5	40.5	187	412.5	52	229	404	50.5	273
1600	**1375**	**35**	**34**	**2110**	**53.5**	**49**	**2830**	**72**	**64**	**3600**	**91.5**	**78.5**	**3500**	**89**	**93**
	155.5	26	129	238.5	40	185	319.5	53.5	242	406.5	68	297	395.5	66.5	352
2000	**1350**	**43**	**41.5**	**2090**	**66.5**	**59**	**2800**	**89**	**78**	**3500**	**111**	**96.5**	**3425**	**109**	**114**
	152.5	32	157	236	49.5	223	316.5	66.5	295	395.5	83	365	387	81.5	431

U.S./Metric Torque: **In.-lbs.** / Nm Flow: **GPM** / LPM Power: **HP** / kW

*Motor performance data at 2000 PSI (138 bar).

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

No Porting ≤ 3000 PSI

Order Code		Port Size		Gear Width Availability			
CW	CCW	In	Out	10	12	15	17
AB	AB	None	None	X	X	X	X

CW = Clockwise CCW = Counter Clockwise

No Porting ≤ 2500 PSI

Order Code		Port Size		Gear Width Availability	
CW	CCW	In	Out	20	22
AB	AB	None	None	X	X

CW = Clockwise CCW = Counter Clockwise

No Porting ≤ 2000 PSI

Order Code		Port Size		Gear Width Availability	
CW	CCW	In	Out	27	30
AB	AB	None	None	X	X

CW = Clockwise CCW = Counter Clockwise

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

ODT Tube Porting ≤ 3000 PSI

Order Code		ODT Tube Porting Port Size		Gear Width Availability			
CW	CCW	In	Out	10	12	15	17
EJ	EG	1"*	3/4"	2500*	-	-	-
EK	EH	1-1/4"*	3/4"	-	X*	-	-
AC	AD	1"*	-	-	2500	X	-
AD	AC	-	1"	-	2500	X	-
AF	AF	1"	1"	-	2500	X	-
AJ	AG	1-1/4"*	1"	-	2500*	X*	-
AK	AH	1-1/2"*	1"	-	-	X*	-

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

NOTES

1. ■ Shaded cells are acceptable for motor codes.
2. X means both codes are available.
3. 2500 indicates maximum pressure rating on port.
4. CW = Clockwise; CWW = Counter Clockwise.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

Split Flange Porting ≤ 3000 PSI

Order Code		Split Flange Porting Port Size		Gear Width Availability			
CW	CCW	In	Out	10	12	15	17
UJ	UG	1"	3/4"	X			
OF	OF	1"	1"	X	X	X	X
OJ	OG	1-1/4"*	1"	X*	X*		
OK	OH	1-1/2"*	1"		X*	X*	X*
OL	OL	1-1/4"	1-1/4"		2500	X	X
OP	OM	1-1/2"*	1-1/4"		2500*	X*	X*
OQ	ON	2"*	1-1/4"				X*

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

Split Flange Porting ≤ 2500 PSI

Order Code		Split Flange Porting Port Size		Gear Width Availability	
CW	CCW	In	Out	20	22
OF	OF	1"	1"	X	
OL	OL	1-1/4"	1-1/4"	X	X
OP	OM	1-1/2"*	1-1/4"	X	
OE	OU	1-1/2"	-	X	
OU	OE	-	1-1/2"	X	
OR	OR	1-1/2"	1-1/2"	X	X
OQ	ON	2"*	1-1/4"	X*	X*
OV	OS	2"*	1-1/2"	X*	X*
OW	OT	2-1/2"*	1-1/2"		X*

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

NOTES

1. ■ Shaded cells are acceptable for motor codes.
2. X means both codes are available.
3. 2500 indicates maximum pressure rating on port.
4. CW = Clockwise; CWW = Counter Clockwise.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

Split Flange Porting ≤ 2000 PSI

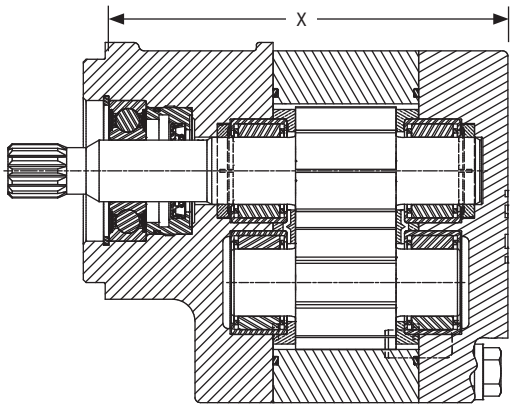
Order Code		Split Flange Porting Port Size		Gear Width Availability	
CW	CCW	In	Out	27	30
OJ	OG	1-1/4"*	1"		X
OL	OL	1-1/4"	1-1/4"	X	X
OP	OM	1-1/2"*	1-1/4"	X	X
OE	OU	1-1/2"	-	X	X
OU	OE	-	1-1/2"	X	X
OR	OR	1-1/2"	1-1/2"	X	X
OQ	ON	2"*	1-1/4"	X	X
OV	OS	2"*	1-1/2"	X	X
OX	OX	2"	2"	X	X
OW	OT	2-1/2"*	1-1/2"	X*	X*

* Ports designated by an asterisk * are for use as the low-pressure inlet port only.

NOTES

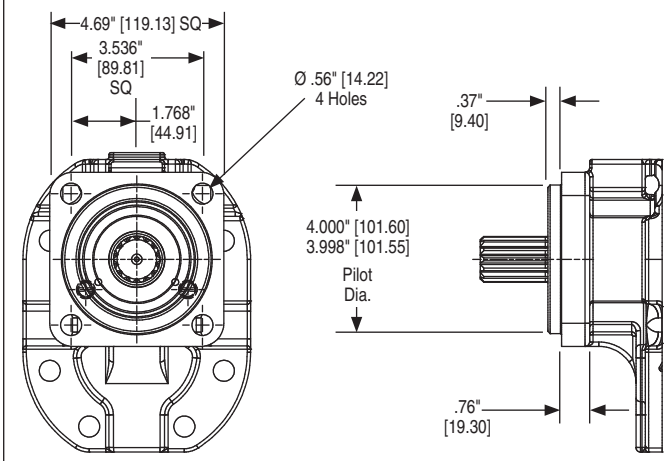
1. ■ Shaded cells are acceptable for motor codes.
2. X means both codes are available.
3. 2500 indicates maximum pressure rating on port.
4. CW = Clockwise; CWW = Counter Clockwise.

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

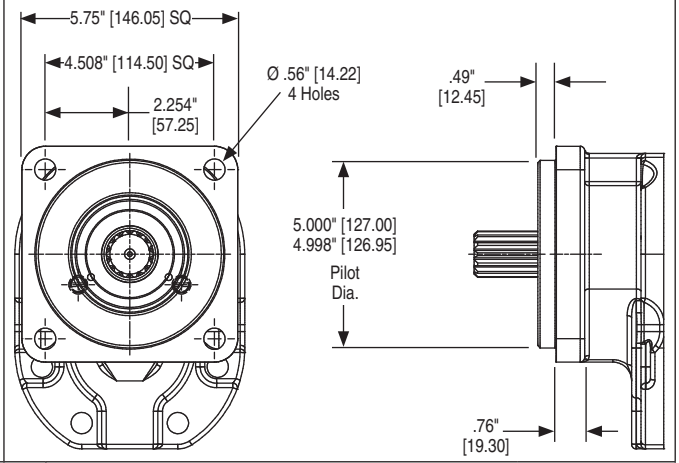


X DIMENSION										
SEC CODE	**07**	**10**	**12**	**15**	**17**	**20**	**22**	**25**	**27**	**30**
42	7.50" [190.50]	7.75" [196.85]	8.00" [203.20]	8.25" [209.55]	8.50" [215.90]	8.75" [222.25]	9.00" [228.60]	9.25" 234.95]	9.50" [241.30]	9.75" [247.65]
78	7.50" [190.50]	7.75" [196.85]	8.00" [203.20]	8.25" [209.55]	8.50" [215.90]	8.75" [222.25]	9.00" [228.60]	9.25" 234.95]	9.50" [241.30]	9.75" [247.65]
80	7.50" [190.50]	7.75" [196.85]	8.00" [203.20]	8.25" [209.55]	8.50" [215.90]	8.75" [222.25]	9.00" [228.60]	9.25" 234.95]	9.50" [241.30]	9.75" [247.65]
98	7.50" [190.50]	7.75" [196.85]	8.00" [203.20]	8.25" [209.55]	8.50" [215.90]	8.75" [222.25]	9.00" [228.60]	9.25" 234.95]	9.50" [241.30]	9.75" [247.65]

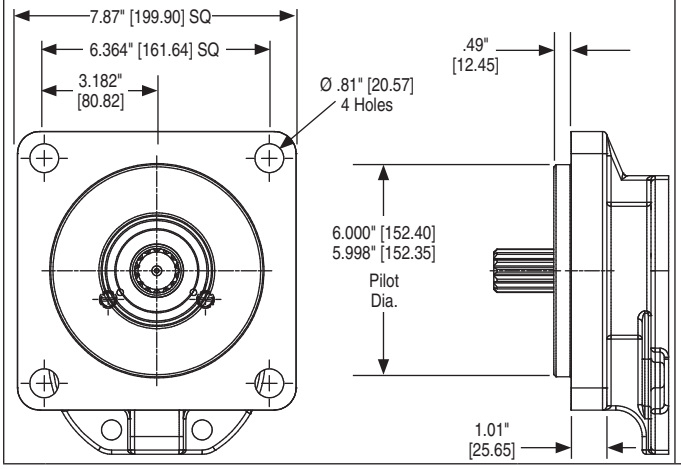
42 SAE B 4-Bolt



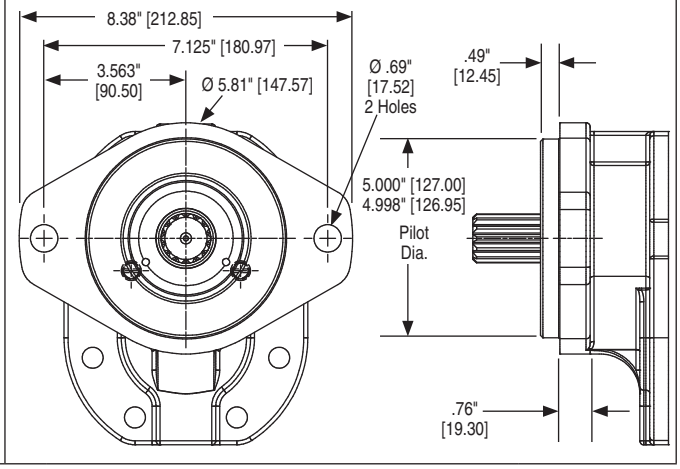
78 SAE C 4-Bolt



80 SAE D 4-Bolt

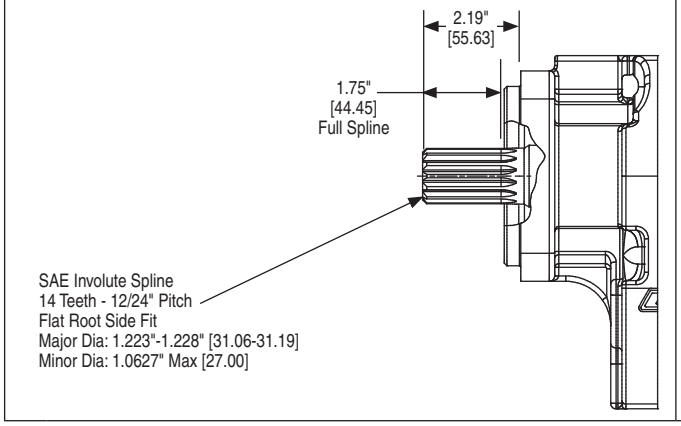


98 SAE C 2-Bolt

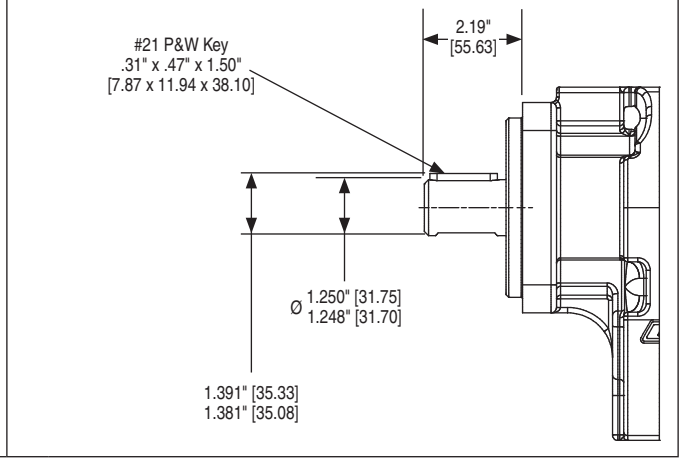


WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

7 SAE C Spline

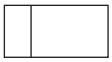
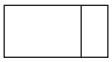


11 SAE C Keyed



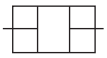
WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP076

Common Inlet Passage			
			
-	-	C	D
-	-	A	U

Used when only one adjacent gear housing has an inlet port.

PGM076

Rotation Flow Path	ODT Porting	Split Flange Porting	Port Size	
	DUAL	DUAL	In	Out
	CC	LL	1"	1"
	BB	MM	1-1/4"	1-1/4"
	-	NN	1-1/2"	1-1/2"

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM076 Ordering Code

PG	1	076	2	3	3	4	4	5	5	6	6	7	7	-	8	8	9	9	6	6	7	7	10	10
															Multiple Units: Repeat if Necessary									

1 – Description	
P	Pump
M	Motor

2 – Unit	
A	Single
B	Tandem
C	Single or Tandem w/2-pc Shaft (O.B. bearing required)

3 – Rotation / Shaft	
1	Pump, cw w/o O.B. bearing
2	Pump, ccw w/o O.B. bearing
4	Pump, cw with O.B. bearing
5	Pump, ccw with O.B. bearing
8	Motor, bi-rot. with O.B. bearing; 1/4" NPT drain
9	Motor, bi-rot. w/o O.B. bearing; 1/4" NPT drain

4 – Mount	
42	SAE 4-Bolt B ANSI 101-4: Port Dia. 4"
78	SAE 4-Bolt C ANSI 127-4: Port Dia. 5"
80	SAE 4-Bolt D ANSI 152-4: Port Dia. 6"
98	SAE 2-Bolt C ANSI 127-2: Port Dia. 5"

5 – Port Options			
Single Units		Port Size	
w/o ST	w/ST	Left	Right
NPT Porting			
BE	BY	No Port	No Port
JE	JY	1"	1"
Tandem Units			
w/o ST	w/ST		
BI	BY	No Port	No Port
JI	JY	1"	1"
Piggyback Port End - Pump Only			
	CW	CCW	Double
Type 076-051 076-031	KO	LO	MO

NOTE: w/o ST columns denote units without support studs w/ST columns denote units with support studs

6 – Gear Housing			
Order Code		Port Size	
CW	CCW	In	Out
No Porting ≤ 3000 PSI			
AB	AB	None	None
No Porting ≤ 2500 PSI			
AB	AB	None	None
No Porting ≤ 2000 PSI			
AB	AB	None	None

See chart on page 56

6 – Gear Housing			
Order Code		Port Size	
CW	CCW	In	Out
ODT Tube Porting ≤ 3000 PSI			
EJ	EG	1"*	3/4"
EK	EH	1-1/4"*	3/4"
AC	AD	1"*	-
AD	AC	-	1"
AF	AF	1"	1"
AJ	AG	1-1/4"*	1"
AK	AH	1-1/2"*	1"

*Ports designated by an asterisk * are for use as the low-pressure inlet port only.

See chart on page 57

FOR ALL UNITS

To determine direction of shaft rotation, view the unit with the shaft pointing toward you, and the idler (driven) gear beneath the shaft. With clockwise rotation, flow will be left to right. The inlet pump port will be on the left, outlet on the right. The flow is in the opposite direction with counter-clockwise rotation. Inverting the pump will reverse the inlet and outlet ports but not the direction of rotation.

Continued on Next Page

WARNING: This product can expose you to chemicals including lead or DEHP which are known to the state of California to cause cancer, birth defects, and other reproductive harm. www.p65warnings.ca.gov

PGP/PGM076 Ordering Code (cont.)

																Multiple Units: Repeat if Necessary									
PG	1	076	2	3	3	4	4	5	5	6	6	7	7	-	8	8	9	9	6	6	7	7	10	10

6 – Gear Housing

Order Code		Port Size	
CW	CCW	In	Out
Split Flange Porting ≤ 3000 PSI			
UJ	UG	1"	3/4"
OF	OF	1"	1"
OJ	OG	1-1/4"*	1"
OK	OH	1-1/2"*	1"
OL	OL	1-1/4"	1-1/4"
OP	OM	1-1/2"*	1-1/4"
OQ	ON	2"*	1-1/4"
Split Flange Porting ≤ 2500 PSI			
OF	OF	1"	1"
OL	OL	1-1/4"	1-1/4"
OP	OM	1-1/2"*	1-1/4"
OE	OU	1-1/2"	-
OU	OE	-	1-1/2"
OR	OR	1-1/2"	1-1/2"
OQ	ON	2"*	1-1/4"
OV	OS	2"*	1-1/2"
OW	OT	2-1/2"*	1-1/2"
Split Flange Porting ≤ 2000 PSI			
OJ	OG	1-1/4"*	1"
OL	OL	1-1/4"	1-1/4"
OP	OM	1-1/2"*	1-1/4"
OE	OU	1-1/2"	-
OU	OE	-	1-1/2"
OR	OR	1-1/2"	1-1/2"
OQ	ON	2"*	1-1/4"
OV	OS	2"*	1-1/2"
OX	OX	2"	2"
OW	OT	2-1/2"*	1-1/2"

*Ports designated by an asterisk * are for use as the low-pressure inlet port only.

See chart on page 58-59

7 – Gear Width

Order Code	Gear Width	in.³ /rev.	cm³ /rev.	Max Pressure PSI	Max Pressure bar
ODT Tube Ports ≤ 2500 Split Flange Ports ≤ 2000, ≤ 2500, and ≤ 3000 PSI					
07	3/4"	3.08	50.4	3000	207
10	1"	4.10	67.2	3000	207
12	1-1/4"	5.13	84.0	3000	207
15	1-1/2"	6.15	100.8	3000	207
17	1-3/4"	7.18	117.6	3000	207
20	2"	8.20	134.4	2500	172
22	2-1/4"	9.23	151.2	2500	172
25	2-1/2"	10.25	168.0	2500	172
27	2-3/4"	11.28	184.8	2000	138
30	3"	12.30	201.6	2000	138

8 – Drive Shafts
For single, tandem, or two-piece shaft unless noted.

07	SAE C 14 tooth spline 1.25" dia., ANSI 32-4
11	SAE C keyed 1.25" dia., 5/16" x 15/32" x 1-1/2" key, ANSI 32-1

9 – Bearing Carriers

Order Code		Port Size	
CW	CCW	IN	OUT
Inlet Porting (pump)			
C	D	-	-
A	U	-	-
SAE Split Flange (motor)			
DUAL	LL	1"	1"
DUAL	MM	1-1/4"	1-1/4"
DUAL	NN	1-1/2"	1-1/2"
OD Tube Porting (motor)			
DUAL	CC	1"	1"
DUAL	BB	1-1/4"	1-1/4"

10 – Connecting Shaft
For connecting tandem units.

01	Connecting Shaft - Multiple Units

NOTE: Split flange thread depths may be more shallow than SAE standard. Contact Product Support Department for actual dimensions.

Continued on Next Page

PARKER-HANNIFIN CORPORATION
OFFER OF SALE

1. **Definitions**. As used herein, the following terms have the meanings indicated.
"Buyer" means any customer receiving a Quote for Products.
"Buyer's Property" means any tools, patterns, plans, drawings, designs, specifications materials, equipment, or information furnished by Buyer, or which are or become Buyer's property.
"Confidential Information" means any technical, commercial, or other proprietary information of Seller, including, without limitation, pricing, technical drawings or prints and/or part lists, which has been or will be disclosed, delivered, or made available, whether directly or indirectly, to Buyer.
"Goods" means any tangible part, system or component to be supplied by Seller.
"Intellectual Property Rights" means any patents, trademarks, copyrights, trade dress, trade secrets or similar rights.
"Products" means the Goods, Services and/or Software as described in a Quote.
"Quote" means the offer or proposal made by Seller to Buyer for the supply of Products.
"Seller" means Parker-Hannifin Corporation, including all divisions, subsidiaries and businesses selling Products under these Terms.
"Seller's IP" means patents, trademarks, copyrights, or other intellectual property rights relating to the Products, including without limitation, names, designs, images, drawings, models, software, templates, information, any improvements or creations or other intellectual property developed prior to or during the relationship contemplated herein.
"Services" means any services to be provided by Seller.
"Software" means any software related to the Goods, whether embedded or separately downloaded.
"Special Tooling" means equipment acquired by Seller or otherwise owned by Seller necessary to manufacture Goods, including but not limited to tools, jigs, and fixtures.
"Terms" means the terms and conditions of this Offer of Sale.

2. Terms. All sales of Products by Seller will be governed by, and are expressly conditioned upon Buyer's assent to, these Terms. These Terms are incorporated into any Quote provided by Seller to Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms or conditions of purchase. Any Quote made by Seller to Buyer shall be considered a firm and definite offer and shall not be deemed to be otherwise despite any language on the face of the Quote. Seller reserves all rights to accept or reject any purported acceptance by Buyer to Seller's Quote if such purported acceptance attempts to vary the terms of the Quote. If Seller ships Products after Buyer issues an acceptance to the Quote, any additional or different terms proposed by Buyer will not become part of the parties' business relationship unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence. If the transaction proceeds without such agreement on the part of Seller, the business relationship will be governed solely by these Terms and the specific terms in Seller's Quote.

3. Price; Payment. The Products set forth in the Quote are offered for sale at the prices indicated in the Quote. Unless otherwise specifically stated in the Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices for any reason and at any time by giving ten (10) days prior written notice. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2020). All sales are contingent upon credit approval and full payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Under any circumstances, Buyer may not withhold or suspend payment of any amounts due and payable as a deduction, set-off or recoupment of any amount, claim or dispute with Seller. Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law. Seller reserves the right to require advance payment or provision of securities for first and subsequent deliveries if there is any doubt, in Seller's sole determination, regarding the Buyer's creditworthiness or for other business reasons. If the requested advance payment or securities are not provided to Seller's satisfaction, Seller reserves the right to suspend performance or reject the purchase order, in whole or in part, without prejudice to Seller's other rights or remedies, including the right to full compensation. Seller may revoke or shorten any payment periods previously granted in Seller's sole determination. The rights and remedies herein reserved to Seller are cumulative and in addition to any other or further rights and remedies available at law or in equity. No waiver by Seller of any breach by Buyer of any provision of these terms will constitute a waiver by Seller of any other breach of such provision.

4. Shipment; Delivery; Title and Risk of Loss. All delivery dates are approximate, and Seller is not responsible for damages or additional costs resulting from any delay. All deliveries are subject to our ability to procure materials from our suppliers. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the carrier at Seller's facility. Unless otherwise agreed prior to shipment and for domestic delivery locations only, Seller will select and arrange, at Buyer's sole expense, the carrier and means of delivery. When Seller selects and arranges the carrier and means of delivery, freight and insurance costs for shipment to the designated delivery location will be prepaid by Seller and added as a separate line item to the invoice. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions. Buyer shall not return or repackage any Products without the prior written authorization from Seller, and any return shall be at the sole cost and expense of Buyer.

5. Warranty. The warranty for the Products is as follows:
(i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the date of completion of the Services; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **EXEMPTION CLAUSE; DISCLAIMER OF WARRANTY, CONDITIONS, REPRESENTATIONS: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY, CONDITION, AND REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS, AND REPRESENTATIONS, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED, UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER, THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH-RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".**

6. Claims; Commencement of Actions. Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. LIMITATION OF LIABILITY. IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCTS, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING ANY LOSS OF REVENUE OR PROFITS, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.

8. Confidential Information. Buyer acknowledges and agrees that Confidential Information has been and will be received in confidence and will remain the property of Seller. Buyer further agrees that it will not use Seller's Confidential Information for any purpose other than for the benefit of Seller and shall return all such Confidential Information to Seller within thirty (30) days upon request.

9. Loss to Buyer's Property. Buyer's Property will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using Buyer's Property.

Also, Seller shall not be responsible for any loss or damage to Buyer's Property while it is in Seller's possession or control.

10. Special Tooling. Seller may impose a tooling charge for any Special Tooling. Special Tooling shall be and remain Seller's property. In no event will Buyer acquire any interest in the Special Tooling, even if such Special Tooling has been specially converted or adapted for manufacture of Goods for Buyer and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property owned by Seller in its sole determination at any time.

11. Security Interest. To secure payment of all sums due from Buyer, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect Seller's security interest.

12. User Responsibility. Buyer, through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and any technical information provided with the Quote or the Products, such as Seller's instructions, guides and specifications. If Seller provides options of or for Products based upon data or specifications provided by Buyer, Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event Buyer is not the end-user of the Products, Buyer will ensure such end-user complies with this paragraph.

13. Use of Products, Indemnity by Buyer. Buyer shall comply with all instructions, guides and specifications provided by Seller with the Quote or the Products. If Buyer uses or resells the Products in any way prohibited by Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Further, Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, arising out of or in connection with: (a) improper selection, design, specification, application, or any misuse of Products; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of Buyer's Property; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing, tampering with or repackaging the Products; or (e) Buyer's failure to comply with these Terms, including any legal or administrative proceedings, collection efforts, or other actions arising from or relating to such failure to comply. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

14. Cancellations and Changes. Buyer may not cancel or modify, including but not limited to movement of delivery dates for the Products, any order for any reason except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage and any additional expense. Seller, at any time, may change features, specifications, designs and availability of Products.

15. Assignment. Buyer may not assign its rights or obligations without the prior written consent of Seller.

16. Force Majeure. Seller is not liable for delay or failure to perform any of its obligations by reason of any events or circumstances beyond its reasonable control. Such circumstances include without limitation: accidents, labor disputes or stoppages, government acts or orders, acts of nature, pandemics, epidemics, other widespread illness, or public health emergency, cyber related disruptions, cyber-attacks, ransomware sabotage, delays or failures in delivery from carriers or suppliers, shortages of materials, sudden increases in the price of raw material or components, shutdowns or slowdowns affecting the supply of raw materials or components, or the transportation thereof, oil shortages or oil price increases, energy crisis, energy or fuel interruption, war (whether declared or not) or the serious threat of same, riots, rebellions, acts of terrorism, embargoes, fire or any reason whether similar to the foregoing or otherwise. Seller will resume performance as soon as practicable after the event of force majeure has been removed. All delivery dates affected by an event of force majeure shall be tolled for the duration of such event of force majeure and rescheduled for mutually agreed dates as soon as practicable after the event of force majeure ceases to exist. The right to allocate capacity is in the Seller's sole discretion. An event of force majeure shall not include financial distress, insolvency, bankruptcy, or other similar conditions affecting one of the parties, affiliates and/or subcontractors. An event of force majeure in the meaning of these Terms means any circumstances beyond Seller's control that permanently or temporarily hinders performance, even where that circumstance was already foreseen. Buyer shall not be entitled to cancel any orders following its claim of an event of force majeure.

17. Waiver and Severability. Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice either party's right to enforce that provision in the future. Invalidation of any provision of these Terms shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

18. Duration. Unless otherwise stated in the Quote, any agreement governed by or arising from these Terms shall: (a) be for an initial duration of one (1) year; and (b) shall automatically renew for successive one-year terms unless terminated by Buyer with at least 180-days written notice to Seller or if Seller terminates the agreement pursuant to Section 19 of these Terms.

19. Termination. Seller may, without liability to Buyer, terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms, (b) becomes or is deemed insolvent, (c) appoints or has appointed a trustee, receiver or custodian for all or any part of Buyer's property,(d) files a petition for relief in bankruptcy on its own behalf, or one is filed against Buyer by a third party, (e) makes an assignment for the benefit of creditors; or (f) dissolves its business or liquidates all or a majority of its assets.

20. Ownership of Rights. Buyer agrees that (a) Seller (and/or its affiliates) owns or is the valid licensee of Seller's IP and (b) the furnishing of information, related documents or other materials by Seller to Buyer does not grant or transfer any ownership interest or license in or to Seller's IP to Buyer, unless expressly agreed in writing. Without limiting the foregoing, Seller retains ownership of all Software supplied to Buyer. In no event shall Buyer obtain any greater right in and to the Software than a right in a license limited to the use thereof and subject to compliance with any other terms provided with the Software. Buyer further agrees that it will not, directly or through intermediaries, reverse engineer, decompile, or disassemble any Software (including firmware) comprising or contained within a Product, except and only to the extent that such activity may be expressly permitted, either by applicable law or, in the case of open source software, the applicable open source license.

21. Indemnity for Infringement of Intellectual Property Rights. Seller is not liable for infringement of any Intellectual Property Rights except as provided in this Section. Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on a third-party claim that one or more of the Products infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by Seller to Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products to render them non-infringing, or offer to accept return of the Products and refund the purchase price less a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer (including Seller's use of Buyer's Property); or (ii) directed to any Products for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for claims of infringement of Intellectual Property Rights.

22. Governing Law. These Terms, the terms of any Quote, and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

23. Entire Agreement. These Terms, along with the terms set forth in the Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale and purchase. In the event of a conflict between any term set forth in the Quote and these Terms, the terms set forth in the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with

respect to the subject matter shall have no effect. No modification to these Terms will be binding on Seller unless agreed to in a writing that is signed by an authorized representative of Seller, excluding email correspondence, 'clickwrap' or other purported electronic assent to different or additional terms. Sections 2-25 of these Terms shall survive termination or cancellation of any agreement governed by or arising from these Terms.

24. No 'Wrap' Agreements/No Authority to Bind. Seller's clicking any buttons or any similar action, such as clicking "I Agree" or "Confirm," to utilize Buyer's software or webpage for the placement of orders, is NOT an agreement to Buyer's Terms and Conditions. **NO EMPLOYEE, AGENT OR REPRESENTATIVE OF SELLER HAS THE AUTHORITY TO BIND SELLER BY THE ACT OF CLICKING ANY BUTTON OR SIMILAR ACTION ON BUYER'S WEBSITE OR PORTAL.**

25. Compliance with Laws. Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti-Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer represents that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Products from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws. Buyer agrees to promptly and reliably provide Seller all requested information or documents, including end-user statements and other written assurances, concerning Buyer's ongoing compliance with Export Law.

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