

P2/P3 Series High Pressure Mobile Pump Service Manual



ENGINEERING YOUR SUCCESS.

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WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS 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 or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

OFFER OF SALE

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General Information

The newly developed variable displacement piston pumps from Parker Hannifin, designated “P2”, are intended for mobile applications, featuring a very compact design, low noise level and low pressure ripple.

The pumps are very stable and respond quickly to system demands in many different types of mobile machinery, and are designed for cost effective installation within the limited space available on modern mobile machines.

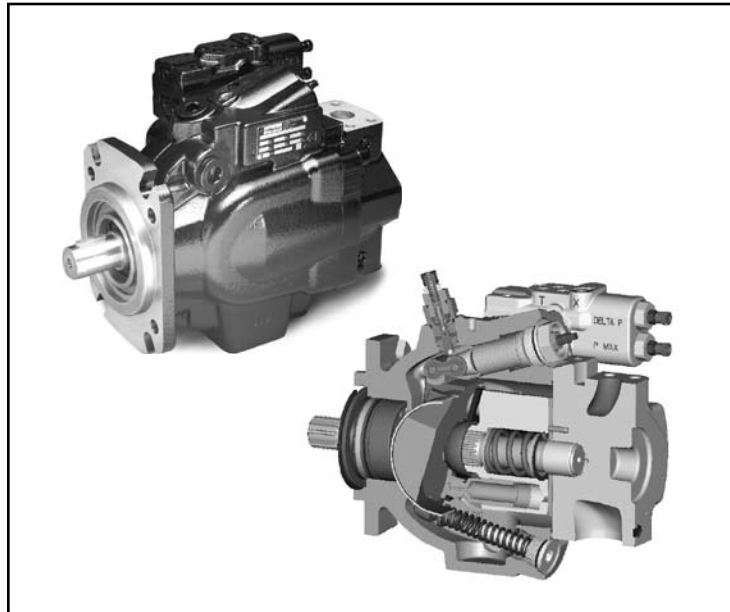
The P2 series is available in four frame sizes from 60 to 145 cm³/rev and features control options that are suitable for most mobile vehicle applications.

The P3 offers a built-in impeller to suit applications requiring higher self-priming speeds or when the vehicle is operating in high altitudes.

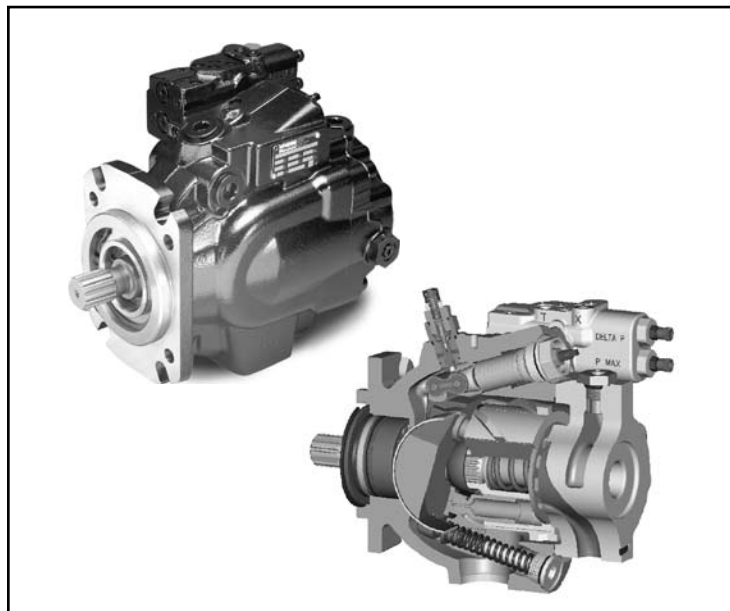
The P3 pump line is available in three frame sizes from 75 to 145 cm³/rev and features control options that are suitable for most mobile applications. Both of these pumps offer benefits like:

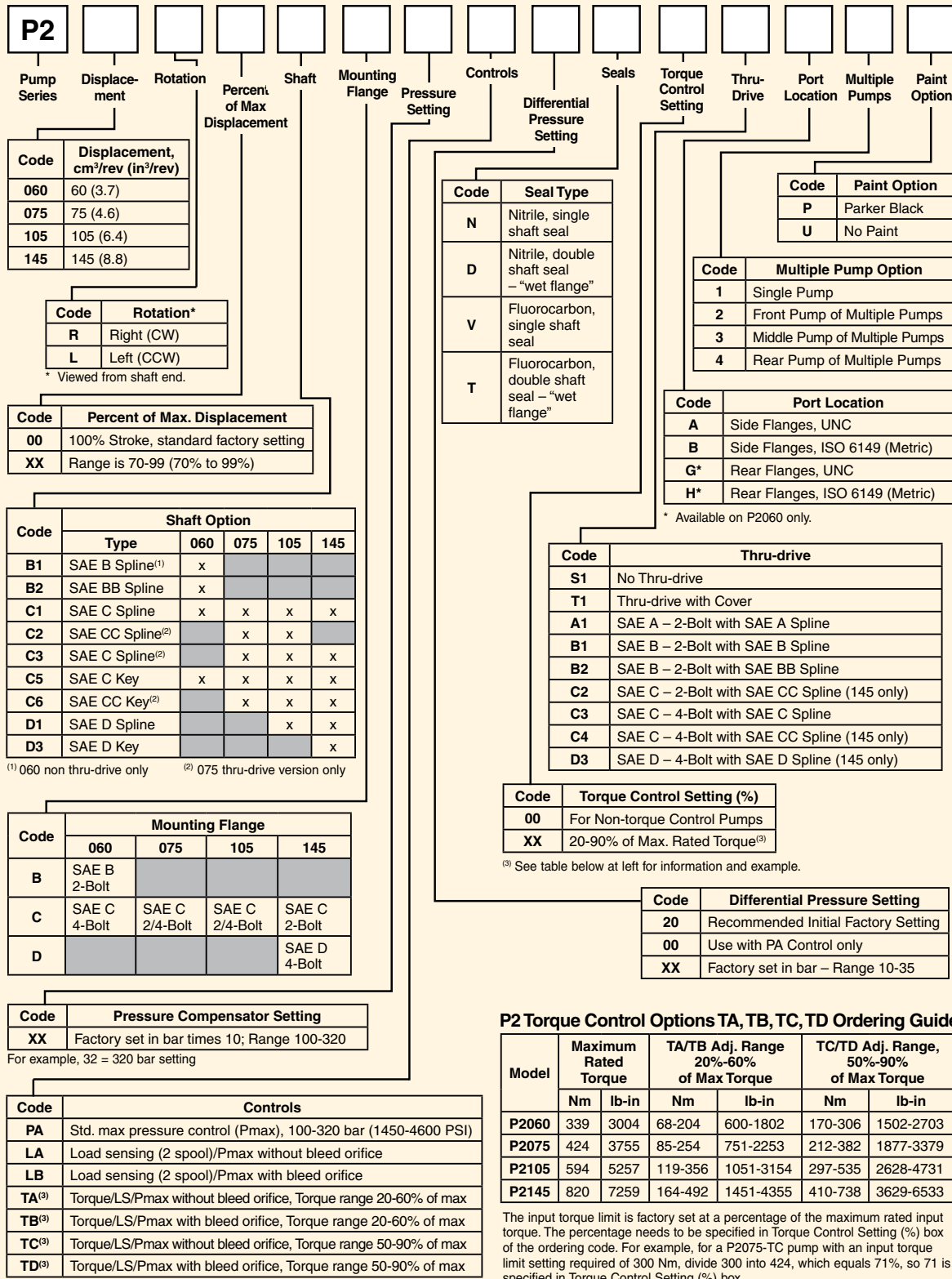
- **Compact and easy to install**
- **Less noise to insulate**
- **High self-priming speeds**
- **Gauge ports are standard**

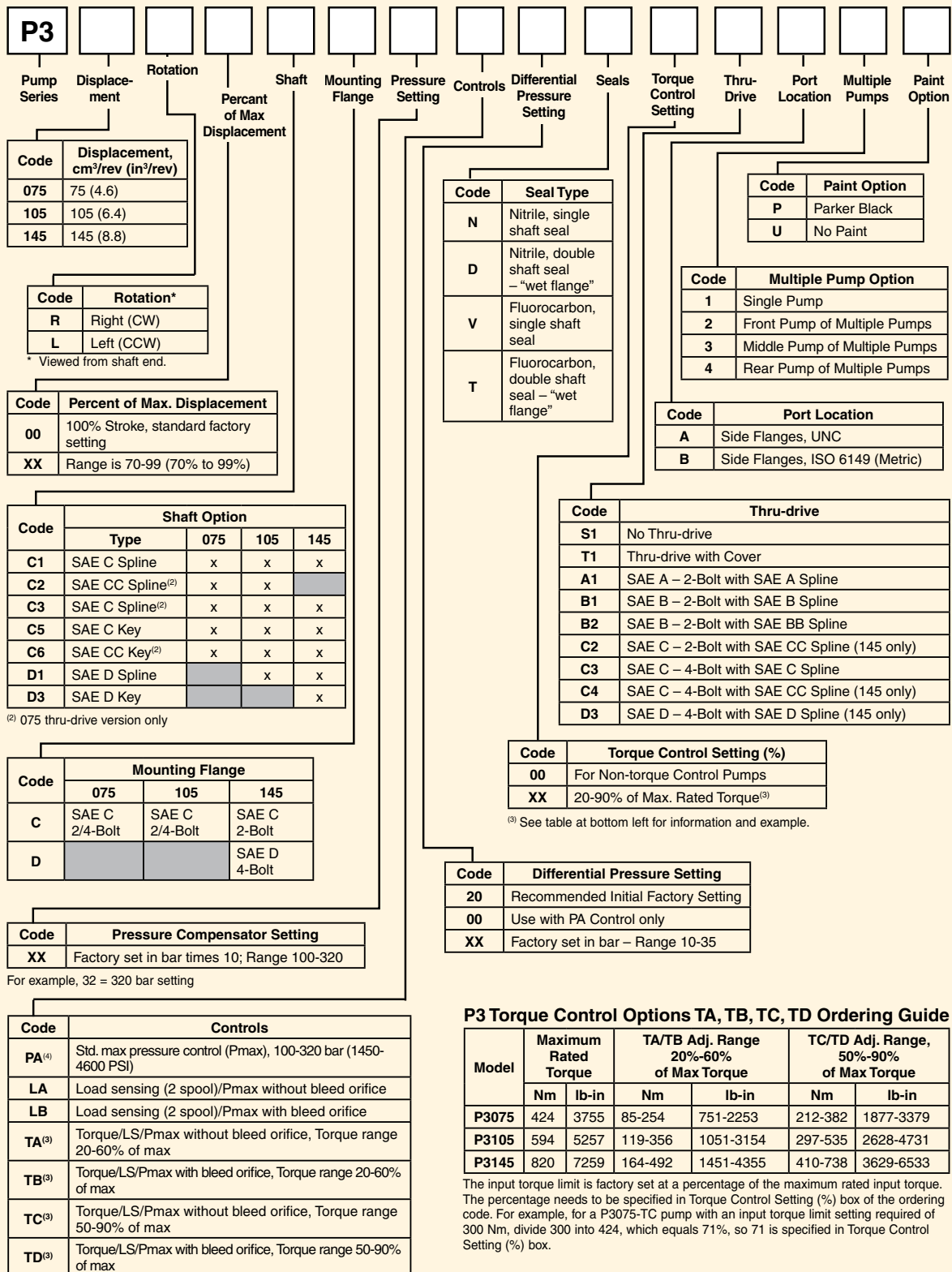
P2 Series



P3 Series







P3

Pump Series Displacement Rotation Percent of Max Displacement Shaft Mounting Flange Pressure Setting Controls Differential Pressure Setting Seals Torque Control Setting Thru-Drive Port Location Multiple Pumps Paint Option

Code	Displacement, cm ³ /rev (in ³ /rev)
075	75 (4.6)
105	105 (6.4)
145	145 (8.8)

Code	Rotation*
R	Right (CW)
L	Left (CCW)

* Viewed from shaft end.

Code	Percent of Max. Displacement
00	100% Stroke, standard factory setting
XX	Range is 70-99 (70% to 99%)

Code	Shaft Option			
	Type	075	105	145
C1	SAE C Spline	x	x	x
C2	SAE CC Spline ⁽²⁾	x	x	
C3	SAE C Spline ⁽²⁾	x	x	x
C5	SAE C Key	x	x	x
C6	SAE CC Key ⁽²⁾	x	x	x
D1	SAE D Spline		x	x
D3	SAE D Key			x

⁽²⁾ 075 thru-drive version only

Code	Mounting Flange		
	075	105	145
C	SAE C 2/4-Bolt	SAE C 2/4-Bolt	SAE C 2-Bolt
D			SAE D 4-Bolt

Code	Pressure Compensator Setting
XX	Factory set in bar times 10; Range 100-320

For example, 32 = 320 bar setting

Code	Controls
PA ⁽⁴⁾	Std. max pressure control (Pmax), 100-320 bar (1450-4600 PSI)
LA	Load sensing (2 spool)/Pmax without bleed orifice
LB	Load sensing (2 spool)/Pmax with bleed orifice
TA ⁽³⁾	Torque/LS/Pmax without bleed orifice, Torque range 20-60% of max
TB ⁽³⁾	Torque/LS/Pmax with bleed orifice, Torque range 20-60% of max
TC ⁽³⁾	Torque/LS/Pmax without bleed orifice, Torque range 50-90% of max
TD ⁽³⁾	Torque/LS/Pmax with bleed orifice, Torque range 50-90% of max

⁽³⁾ See table at left for information and example.
⁽⁴⁾ For Remote Pressure Compensator, order the "PA" model and remove plug from "X" port.

■ = Not Available

Code	Seal Type
N	Nitrile, single shaft seal
D	Nitrile, double shaft seal – "wet flange"
V	Fluorocarbon, single shaft seal
T	Fluorocarbon, double shaft seal – "wet flange"

Code	Paint Option
P	Parker Black
U	No Paint

Code	Multiple Pump Option
1	Single Pump
2	Front Pump of Multiple Pumps
3	Middle Pump of Multiple Pumps
4	Rear Pump of Multiple Pumps

Code	Port Location
A	Side Flanges, UNC
B	Side Flanges, ISO 6149 (Metric)

Code	Thru-drive
S1	No Thru-drive
T1	Thru-drive with Cover
A1	SAE A – 2-Bolt with SAE A Spline
B1	SAE B – 2-Bolt with SAE B Spline
B2	SAE B – 2-Bolt with SAE BB Spline
C2	SAE C – 2-Bolt with SAE CC Spline (145 only)
C3	SAE C – 4-Bolt with SAE C Spline
C4	SAE C – 4-Bolt with SAE CC Spline (145 only)
D3	SAE D – 4-Bolt with SAE D Spline (145 only)

Code	Torque Control Setting (%)
00	For Non-torque Control Pumps
XX	20-90% of Max. Rated Torque ⁽³⁾

⁽³⁾ See table at bottom left for information and example.

Code	Differential Pressure Setting
20	Recommended Initial Factory Setting
00	Use with PA Control only
XX	Factory set in bar – Range 10-35

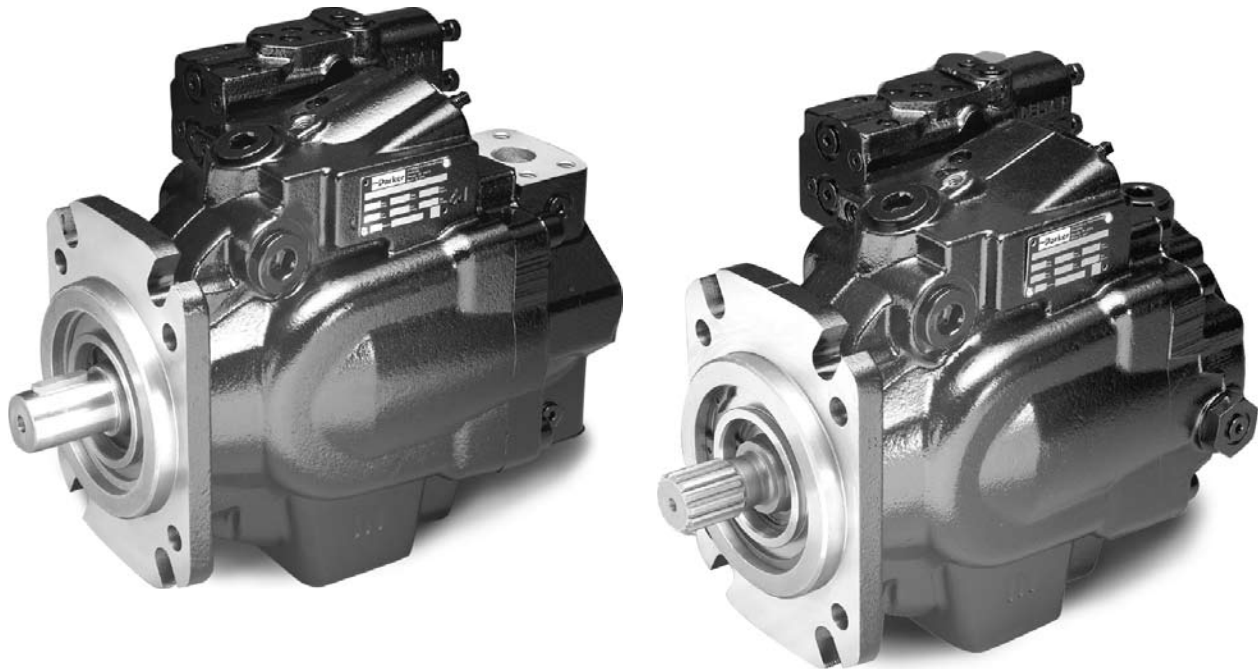
P3 Torque Control Options TA, TB, TC, TD Ordering Guide

Model	Maximum Rated Torque		TA/TB Adj. Range 20%-60% of Max Torque		TC/TD Adj. Range, 50%-90% of Max Torque	
	Nm	lb-in	Nm	lb-in	Nm	lb-in
P3075	424	3755	85-254	751-2253	212-382	1877-3379
P3105	594	5257	119-356	1051-3154	297-535	2628-4731
P3145	820	7259	164-492	1451-4355	410-738	3629-6533

The input torque limit is factory set at a percentage of the maximum rated input torque. The percentage needs to be specified in Torque Control Setting (%) box of the ordering code. For example, for a P3075-TC pump with an input torque limit setting required of 300 Nm, divide 300 into 424, which equals 71%, so 71 is specified in Torque Control Setting (%) box.



Technical Data



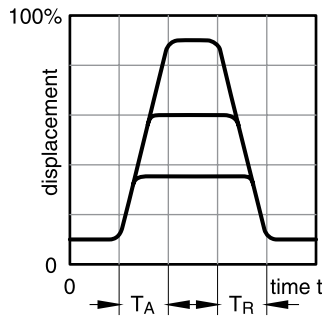
	P2 Series				P3 Series		
Frame size	P2060	P2075	P2105	P2145	P3075	P3105	P3145
Max displacement cm ³ /rev [cu in/rev]	60 3.66	75 4.58	105 6.41	145 8.85	75 4.58	105 6.41	145 8.85
Self-priming speed at 1 bar/14.5 psi abs. inlet pressure [rpm]	2800	2500	2300	2200	3000	2600	2500
Max continuous pressure bar [psi]	320 4600	320 4600	320 4600	320 4600	320 4600	320 4600	320 4600
Peak pressure bar [psi]	370 5365	370 5365	370 5365	370 5365	370 5365	370 5365	370 5365
Minimum Inlet Pressure bar abs at max speed [in Hg vacuum]	.8 5.8	.8 5.8	.8 5.8	.8 5.8	.8 5.8	.8 5.8	.8 5.8
Maximum Inlet Pressure bar [psi]	10 145	10 145	10 145	10 145	1.5 22.7	1.5 22.7	1.5 22.7
Maximum Case Drain Pressure bar continuous psi	.5 7.75	.5 7.75	.5 7.75	.5 7.75	1 14.5	1 14.5	1 14.5
Noise level at full flow, 1800 rpm, and 250 bar (3600 psi) [dB(A)]	74	76	78	80	76	78	80
Weight with load sense control kg [lbs]	37 81	44 97	63 139	78 172	42 92	62 136	76 167
Mass moment of inertia kg m ² (about axis of shaft)	.0061	.0101	.0168	.0241	.00106	.0177	.0264

P2/P3 Typical Control Characteristics

Typical Response Times

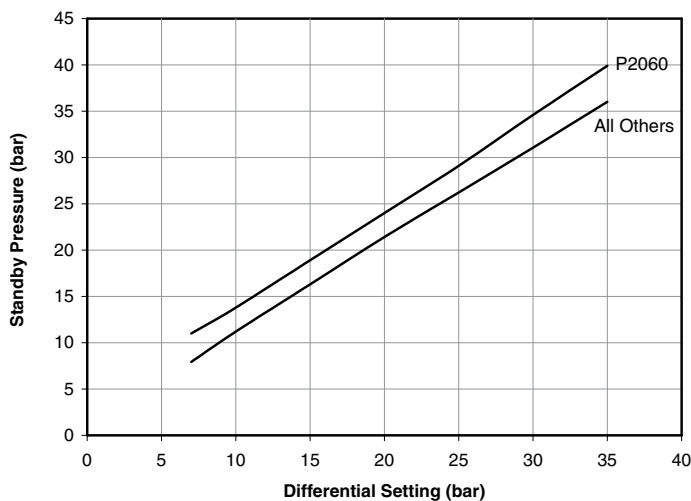
Input Speed: 1500 RPM

Fluid: Mineral Oil ISO VG 32 @ 40° C



Size	Pressure Condition				
	Stand by to 250 bar	250 bar to stand by	50 bar to stand by	Stand by to 300 bar	300 bar to stand by
	Flow Condition				
	TA (ms) 0-100%	TR (ms) 100%-0	TR (ms) 100%-0	TA (ms) 0-100%	TR (ms) 100%-0
P2060	60	35	35	70	40
P2075	80	35	35	70	40
P2105	100	35	35	80	40
P2145	120	35	35	100	40
P3075	80	35	35	70	35
P3105	100	35	35	80	35
P3145	110	35	35	100	35

Differential Setting vs Standby Pressure

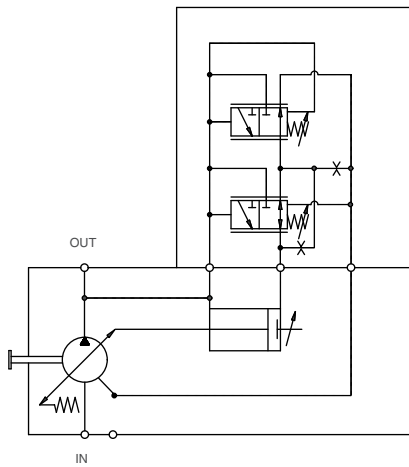
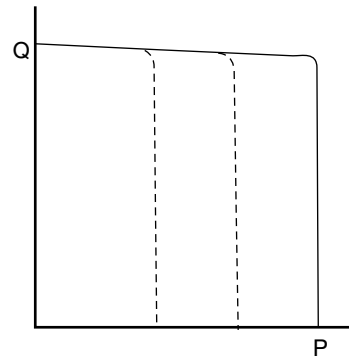


This chart shows the difference between differential pressure setting and stand by pressure. The P2060 utilizes a different control from the rest of the product family. "All others" refers to all other pump sizes P2 and P3 075 thru 145.

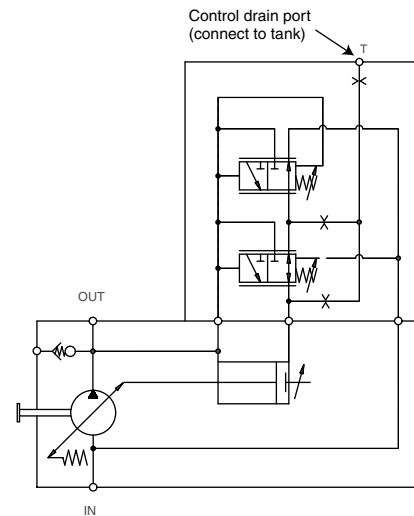
Control Option “PA”

Pressure Compensator Control

The pressure compensator control is used to limit the maximum system pressure. The control acts such that full pump displacement is achieved unless the system valve restricts the output flow or the load pressure reaches the maximum setting of the control. If pump flow is restricted by the system valve, the pump will provide only the flow demanded, but at the maximum pressure setting of the compensator control. If the outlet flow is completely blocked, the pump will destroke to zero displacement and maintain the pressure at the setting of the compensator spring.



P2 Control Schematic

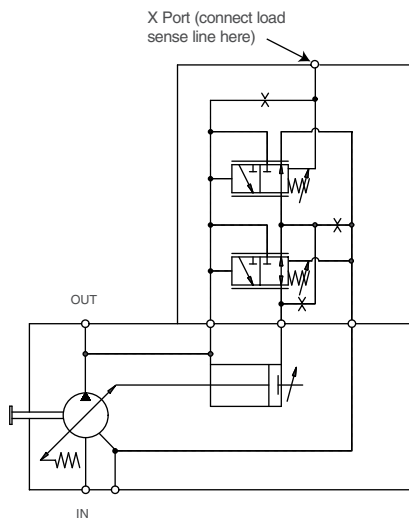
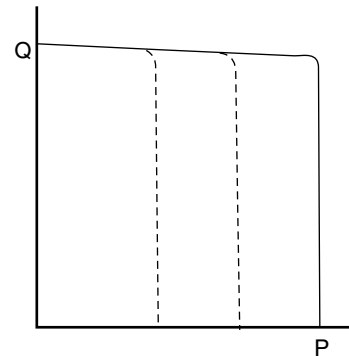


P3 Control Schematic

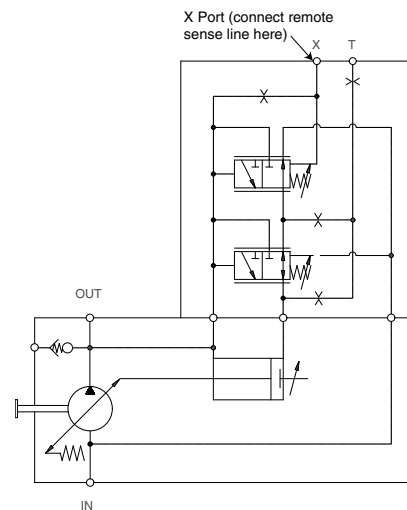
Control Option “RA”

Remote Pressure Compensator Control

This control allows the pump pressure compensator setting to be adjusted from a remote relief valve. The control acts such that full pump displacement is achieved unless the system valve restricts the output flow or the load pressure reaches the maximum setting of the control. If pump flow is restricted by the system valve, the pump will provide only the flow demanded, but at the maximum pressure setting of the compensator control. If the outlet flow is completely blocked, the pump will destroke to zero displacement and maintain the pressure at the setting of the remote relief valve.



P2 Control Schematic

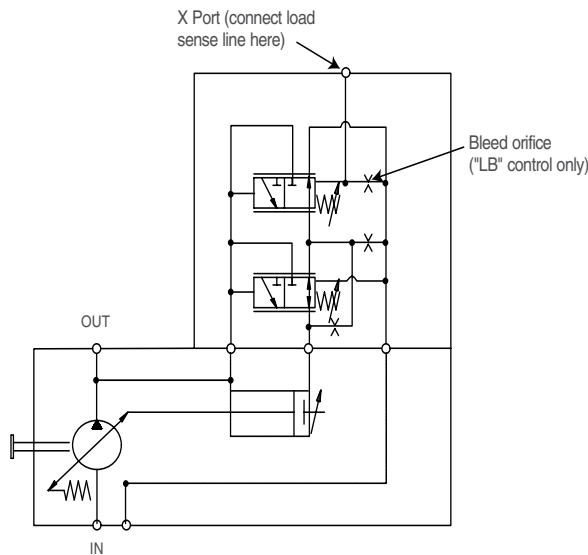
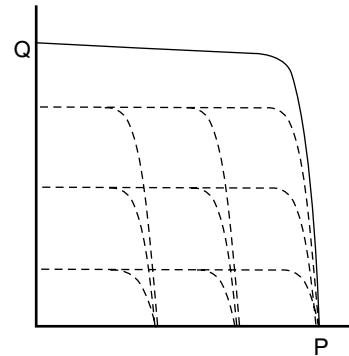


P3 Control Schematic

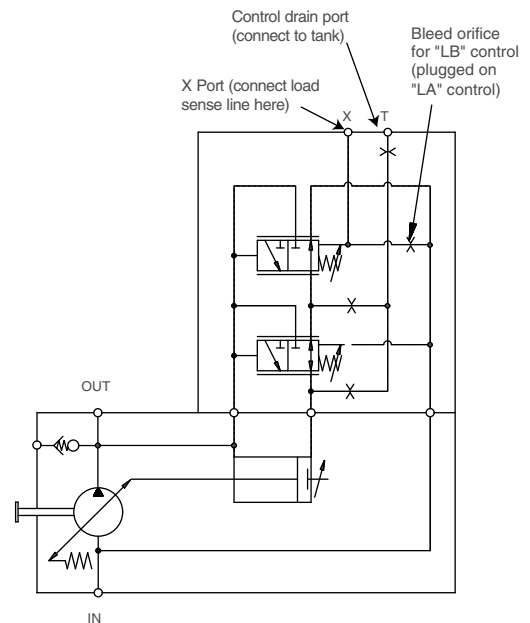
Control Options “LA” and “LB”

Load sensing controls with maximum pressure cut off

These controls feature load sensing and maximum pressure compensation. Load sense controls are used to match pump flow and pressure to system demands, thus minimizing losses due to wasted horsepower. The pump automatically adjusts for changes in drive speed and load pressures to match the pump output flow to the load requirement. Since the pump load sense control will maintain a constant pressure drop across the main system throttling valve, the flow rate will remain constant, independent of changes in load pressure and pump shaft speed.



P2 Control Schematic

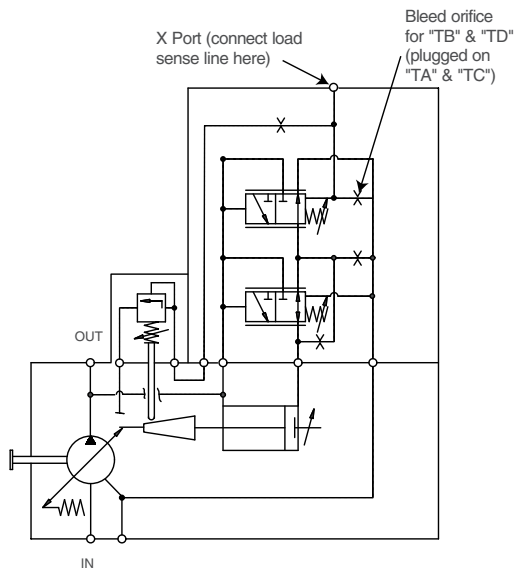
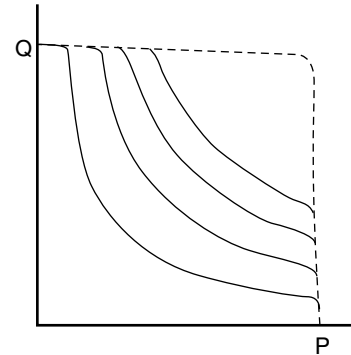


P3 Control Schematic

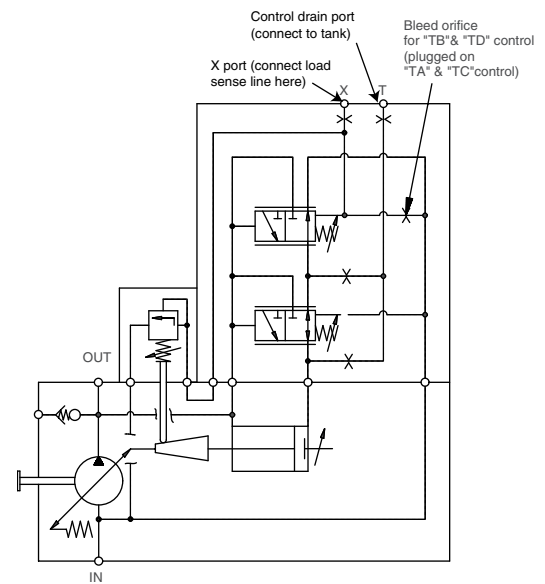
Control Options "TA", "TB", "TC" and "TD"

Torque limiting control with load sensing and maximum pressure limiter

These controls provide the benefits of the load sensing and pressure limiting controls, plus the ability to limit the input torque the pump will draw. These controls are beneficial when the power available from the prime mover for the hydraulics is limited or the application power demand has both high flow / low pressure and low flow / high pressure duty cycles.

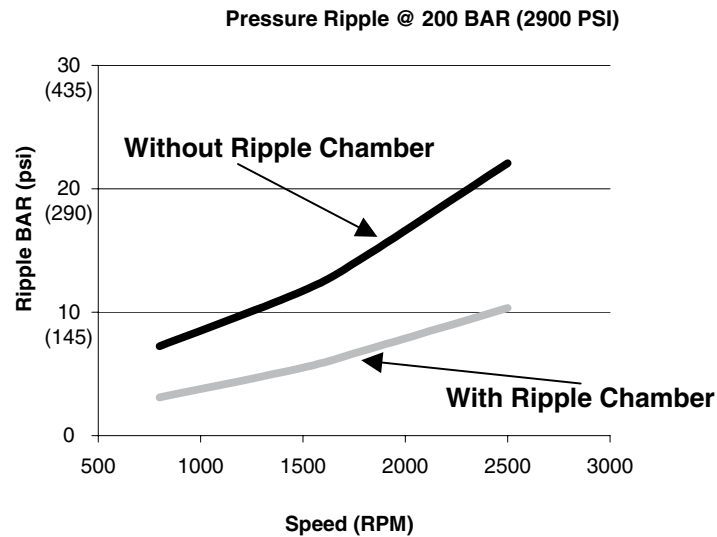


P2 Control Schematic



P3 Control Schematic

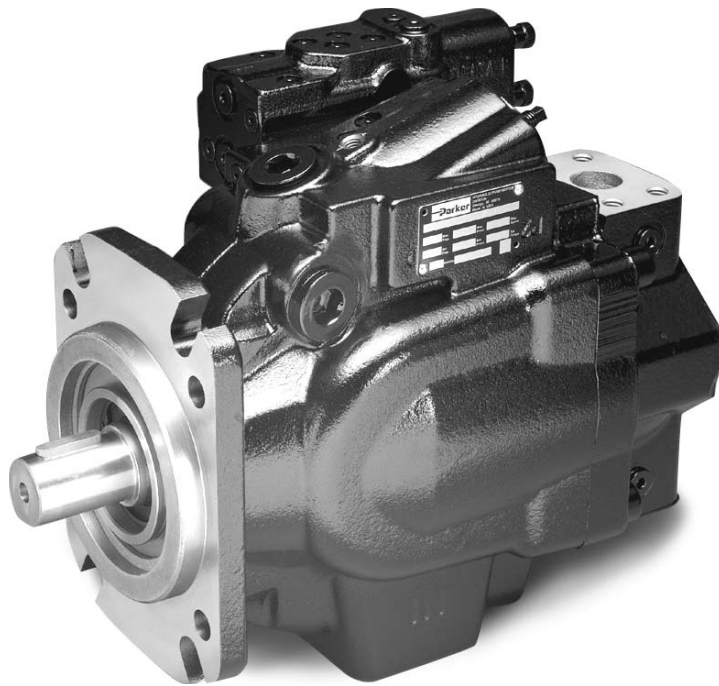
Ripple Chamber



The chart above refers to the “Ripple Chamber” technology that has been engineered into the P2 and P3 series pumps. The ripple chamber reduces pressure pulsation “ripple” at the outlet of the pump. This technology reduces the ripple by 40-60%. This leads to a significant reduction in overall system noise without additional components or cost.

The ripple chamber is standard on all P2 and P3 series side ported pumps.

P2 Performance and Dimension Section

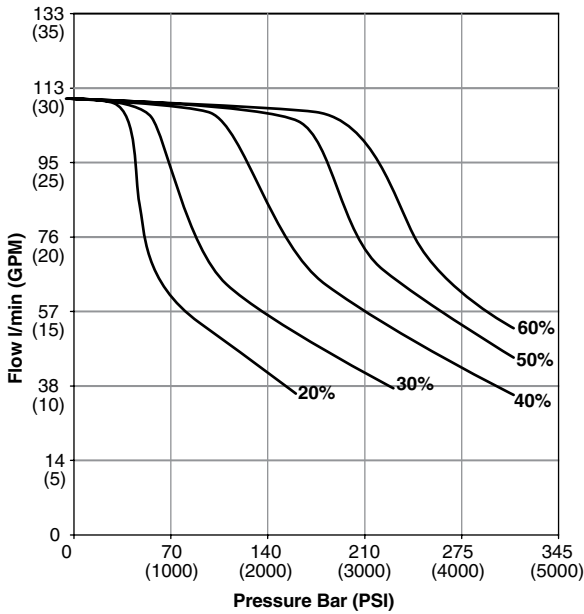


P2 Series Typical Torque Control Characteristics

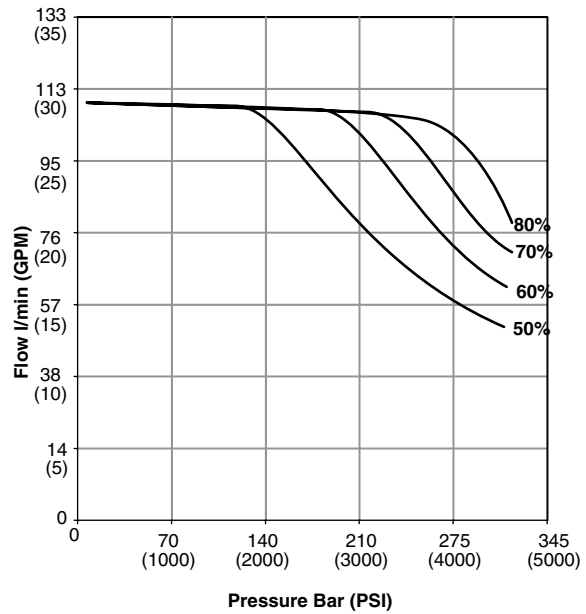
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

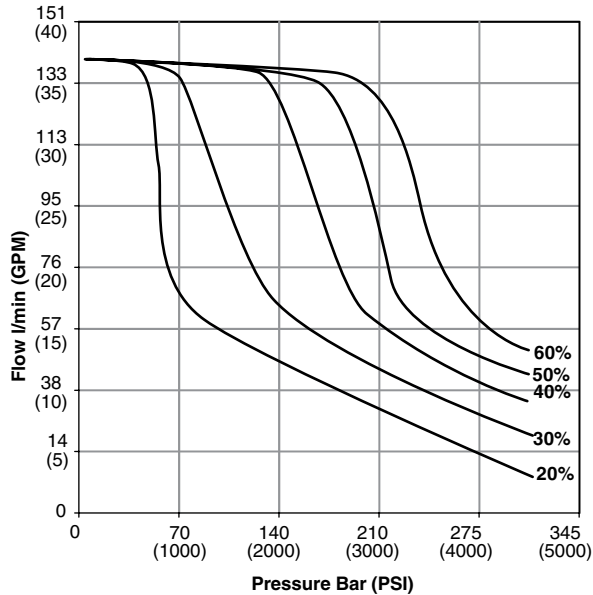
**P2060 20 - 60% Torque
 1800 RPM**



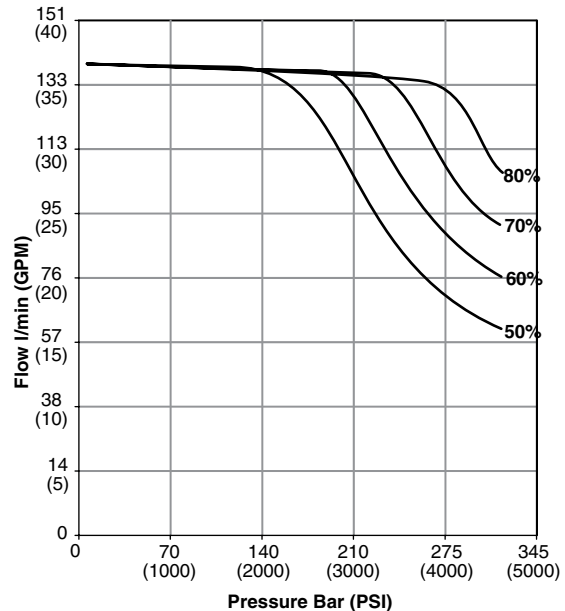
**P2060 50 - 90% Torque
 1800 RPM**



**P2075 20 - 60% Torque
 1800 RPM**



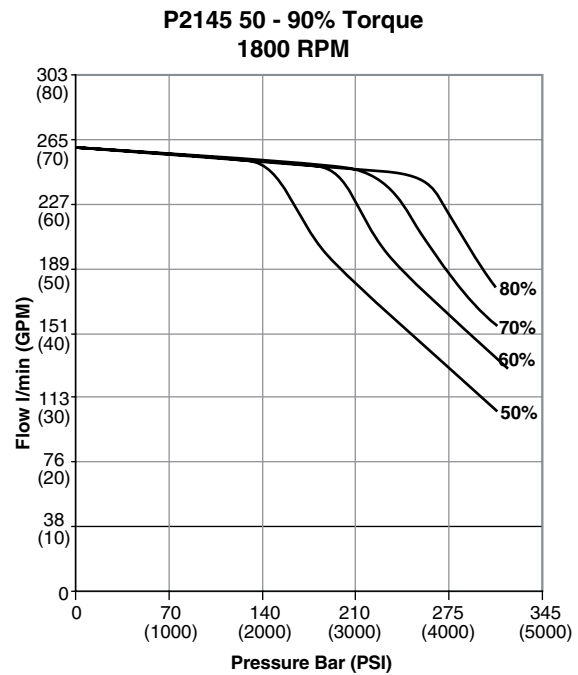
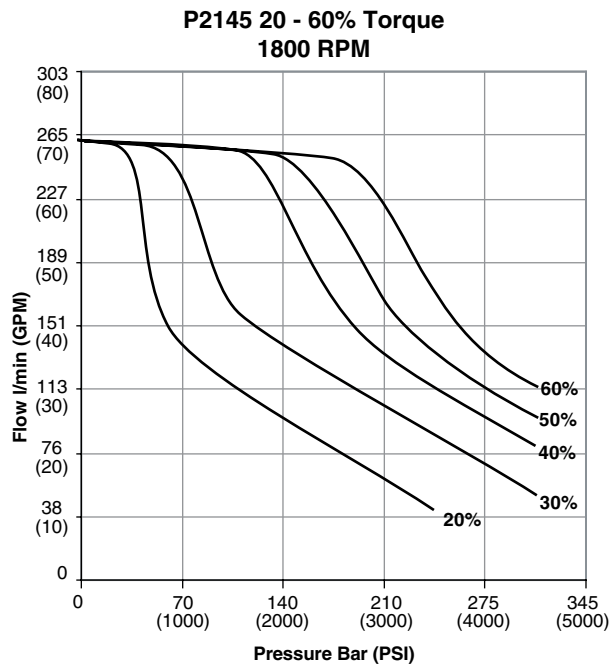
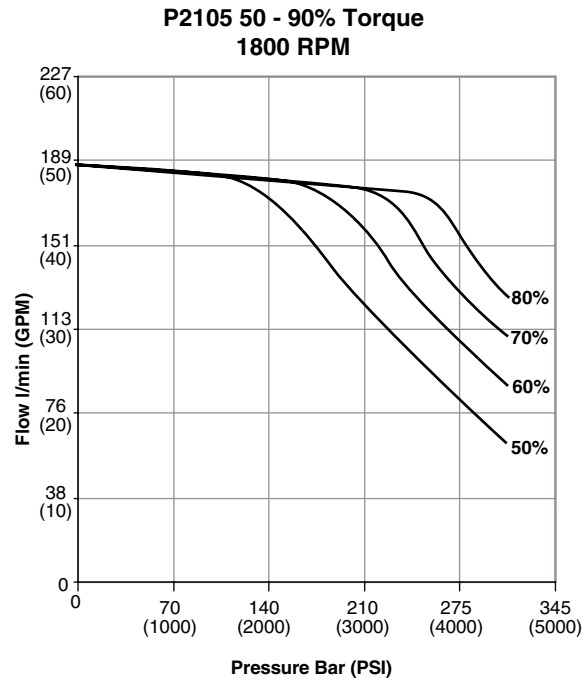
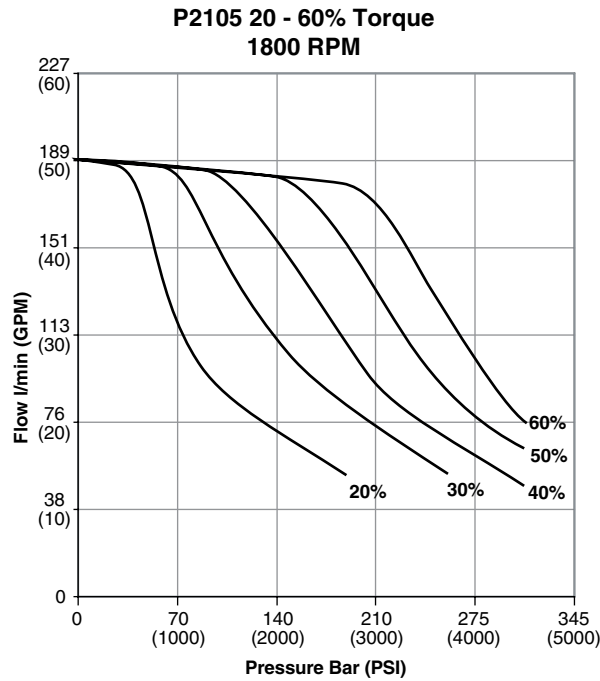
**P2075 50 - 90% Torque
 1800 RPM**



P2 Series Typical Torque Control Characteristics

Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

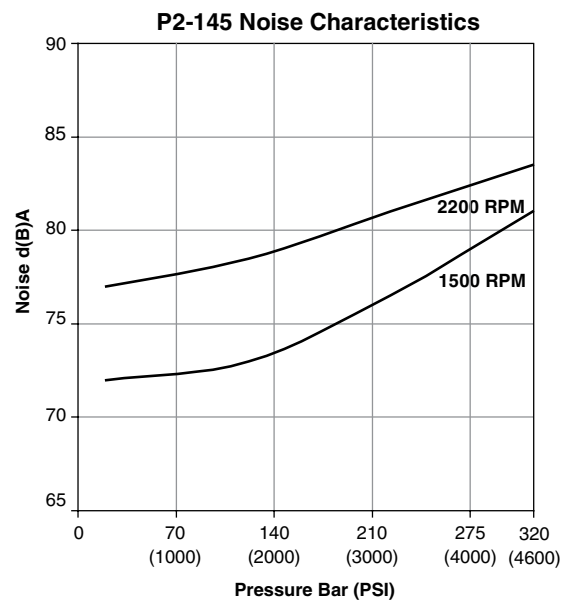
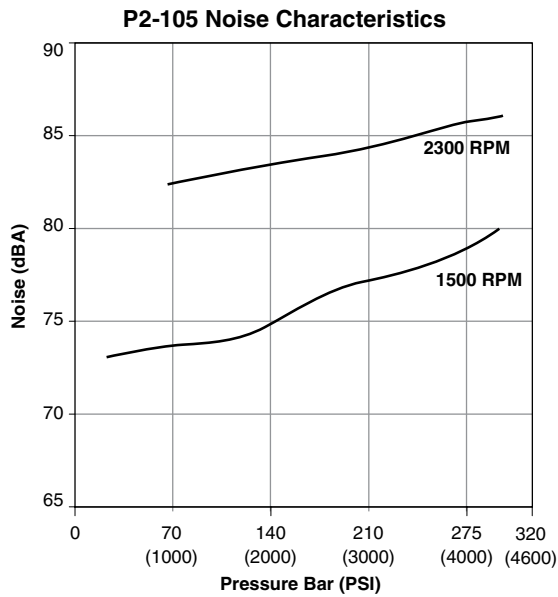
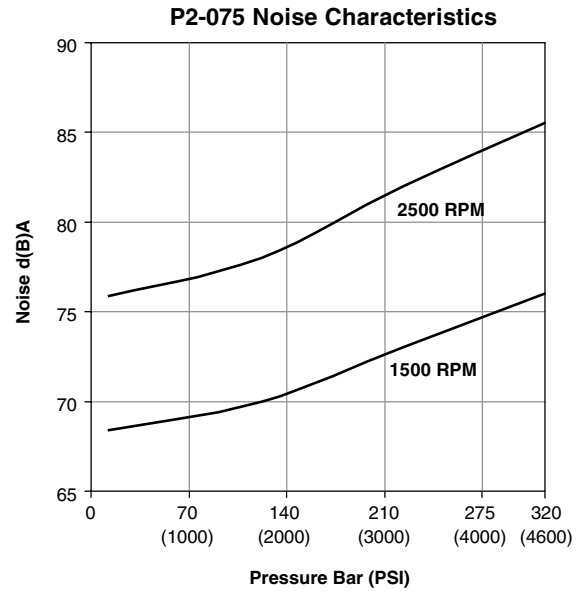
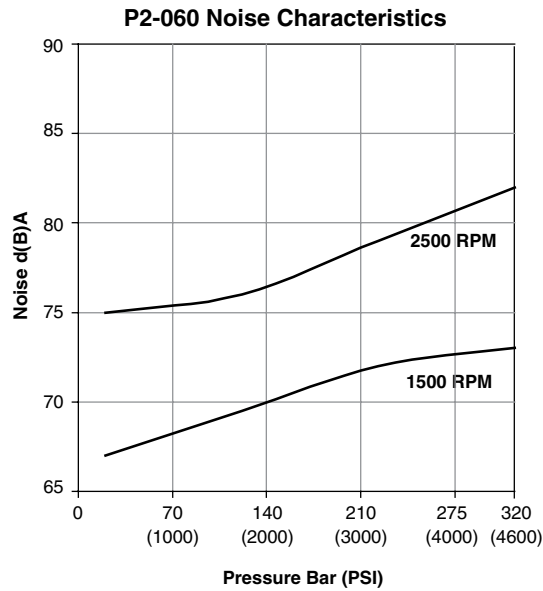


P2 Series Typical Noise Characteristics at Max Displacement

(These are anechoic sound pressure readings.)

Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

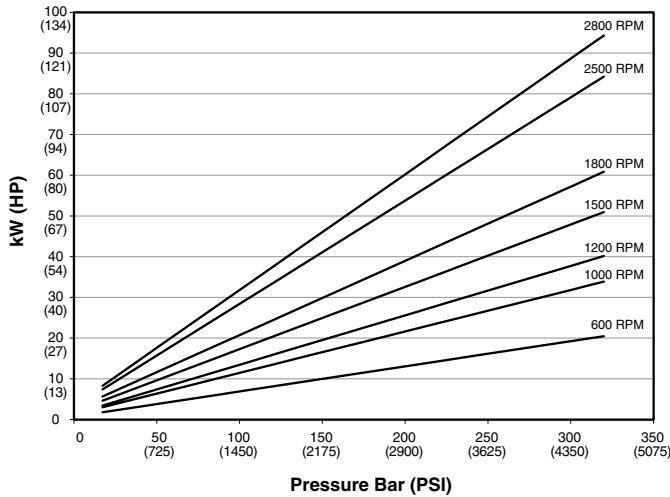


P2 Series Typical Drive Power at Full Displacement

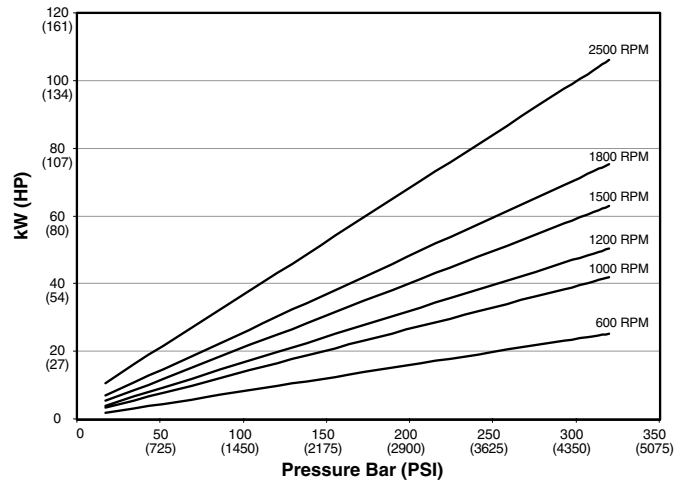
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

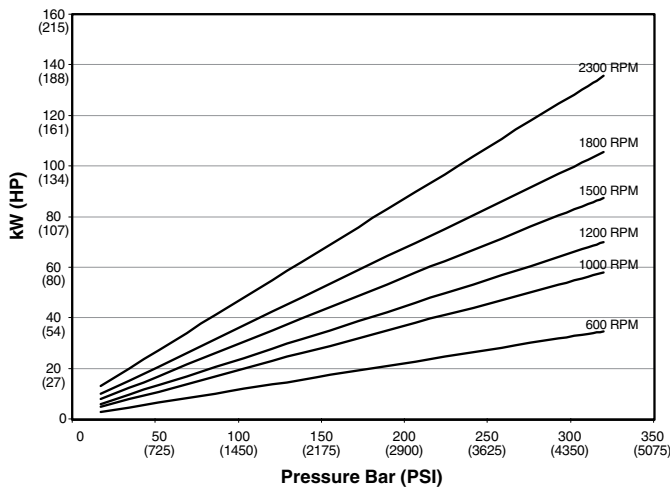
P2060 Input Power - Full Stroke



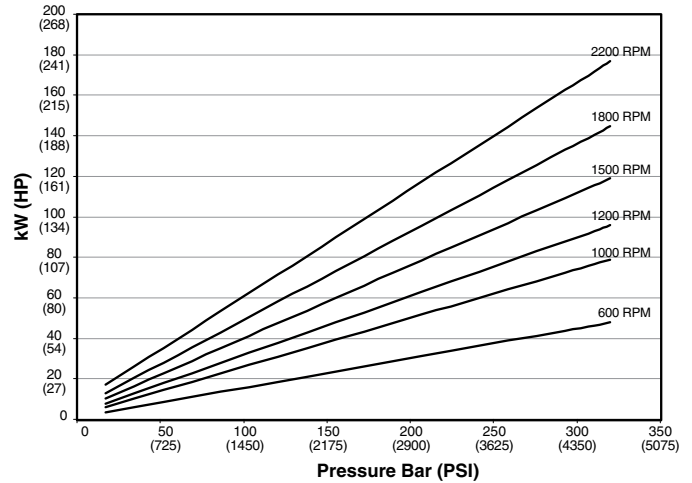
P2075 Input Power - Full Stroke



P2105 Input Power - Full Stroke



P2145 Input Power - Full Stroke

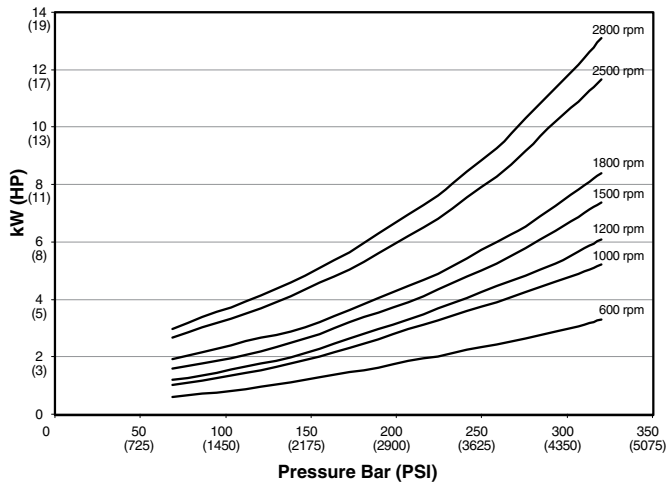


P2 Series Typical Compensated Power

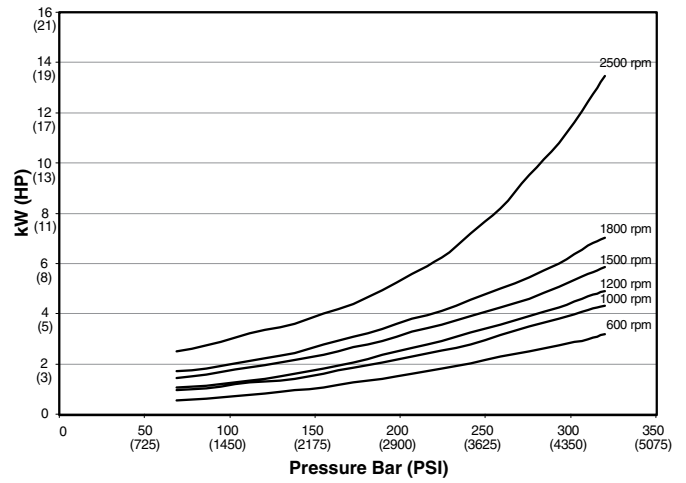
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

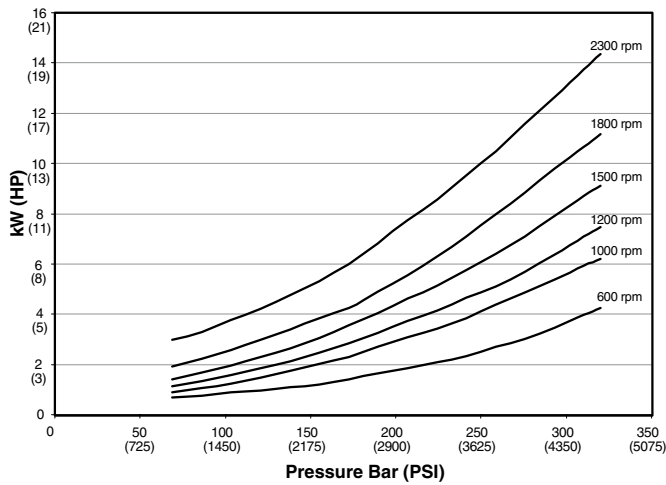
P2060 Input Power - Zero Stroke



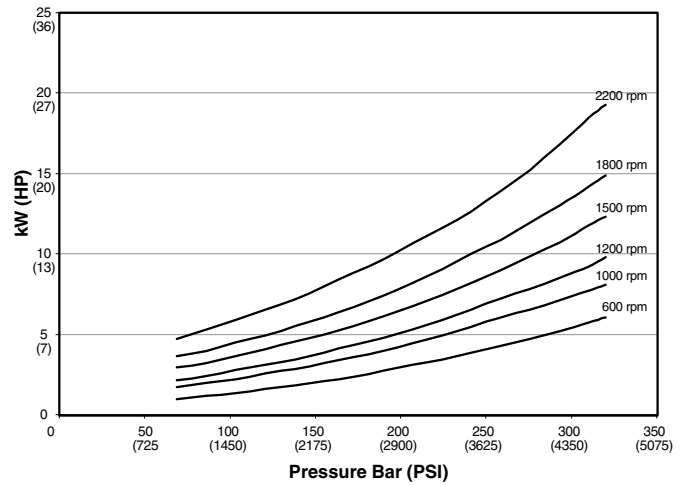
P2075 Input Power - Zero Stroke



P2105 Input Power - Zero Stroke



P2145 Input Power - Zero Stroke

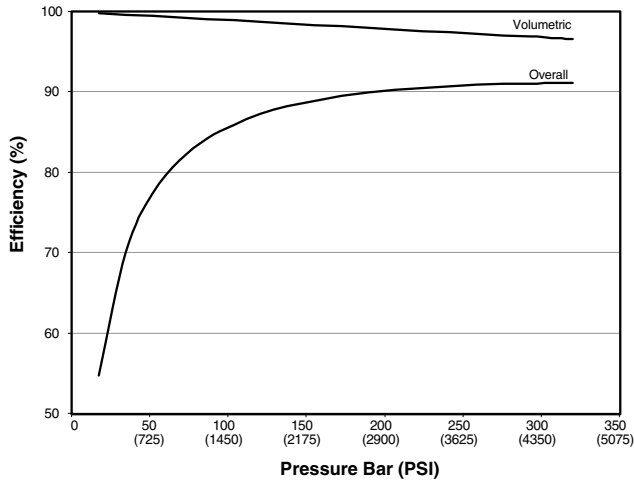


P2 Series Typical Efficiency at Full Displacement @ 1800 RPM

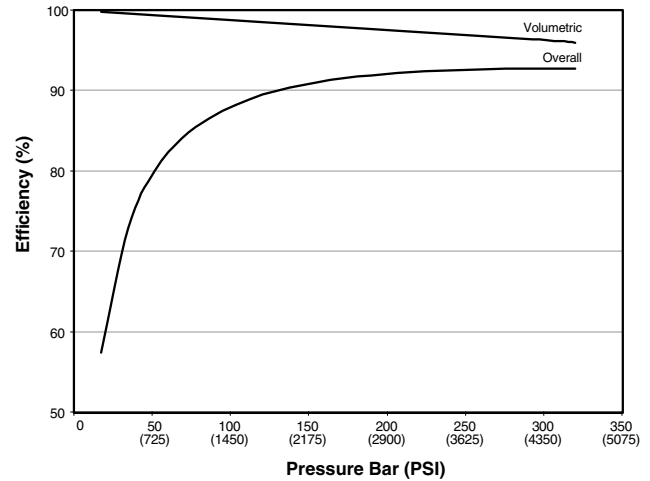
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

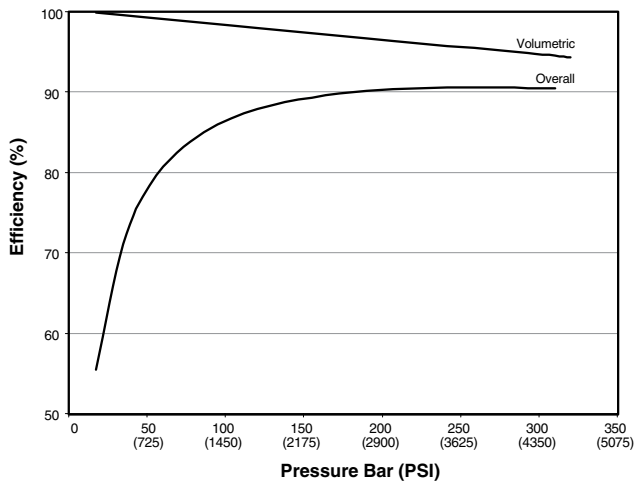
P2060 Efficiency at 1800 RPM



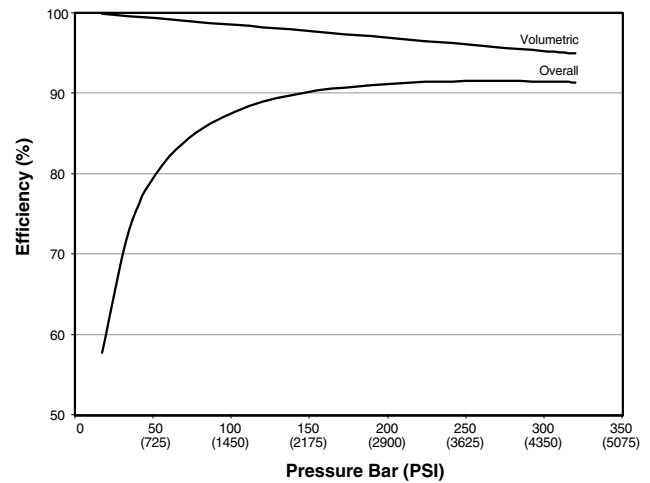
P2075 Efficiency at 1800 RPM



P2105 Efficiency at 1800 RPM



P2145 Efficiency at 1800 RPM

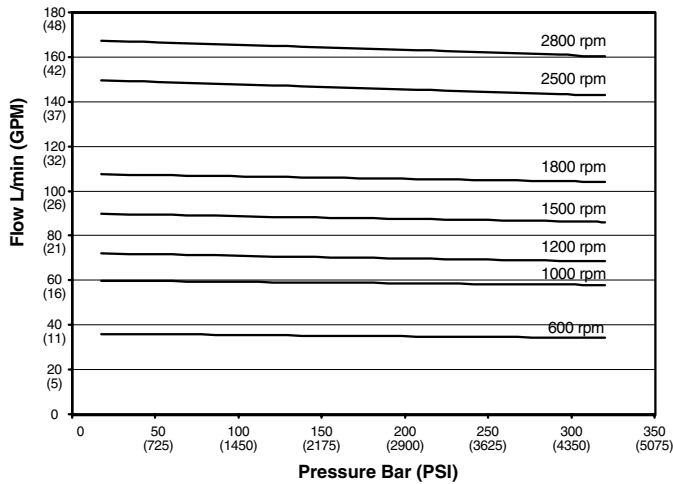


P2 Series Typical Flow vs. Pressure

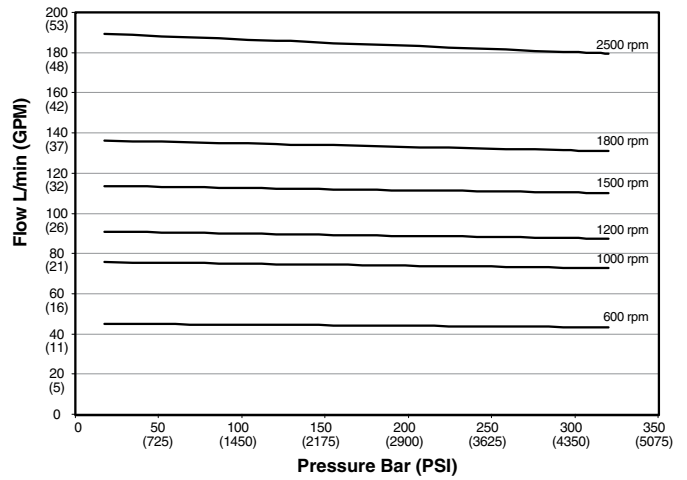
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

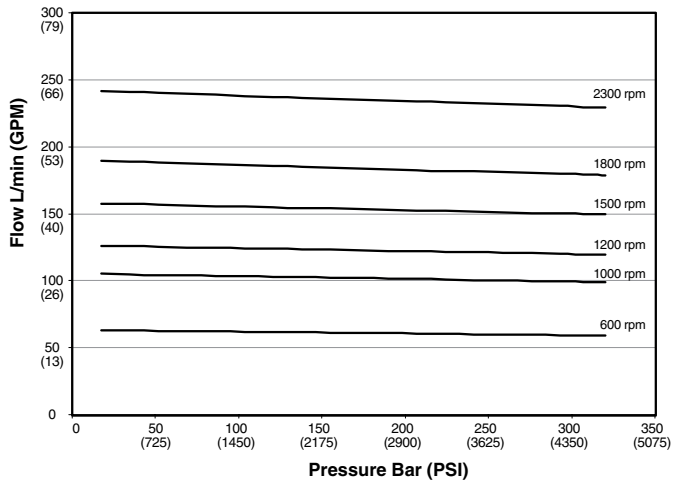
P2060 Outlet Flow - Full Stroke



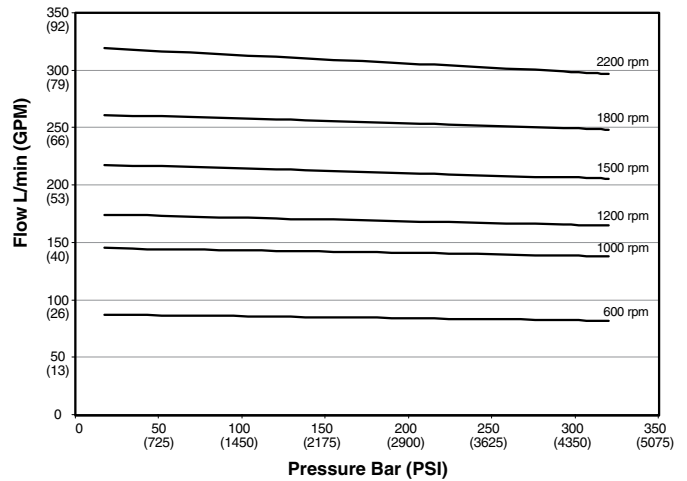
P2075 Outlet Flow - Full Stroke



P2105 Outlet Flow - Full Stroke



P2145 Outlet Flow - Full Stroke

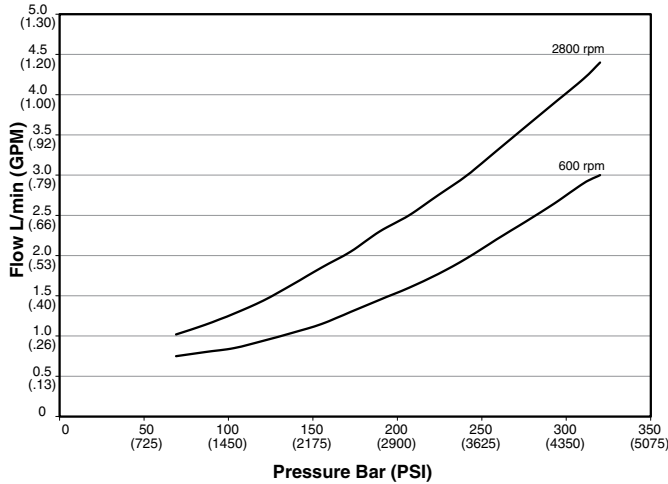


P2 Series Typical Compensated Case Drain Flow

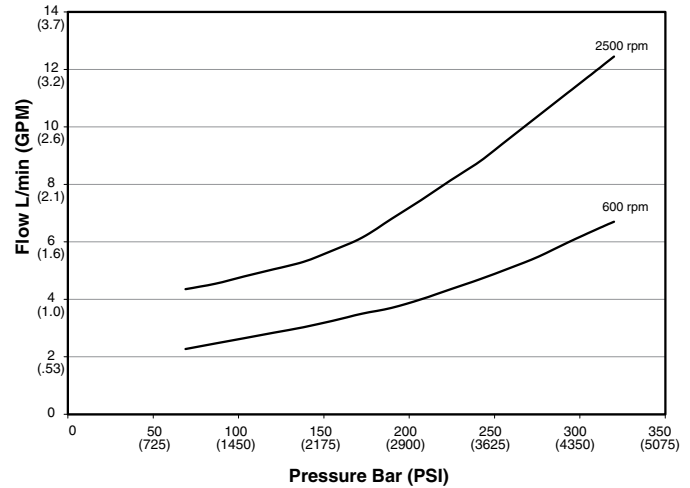
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

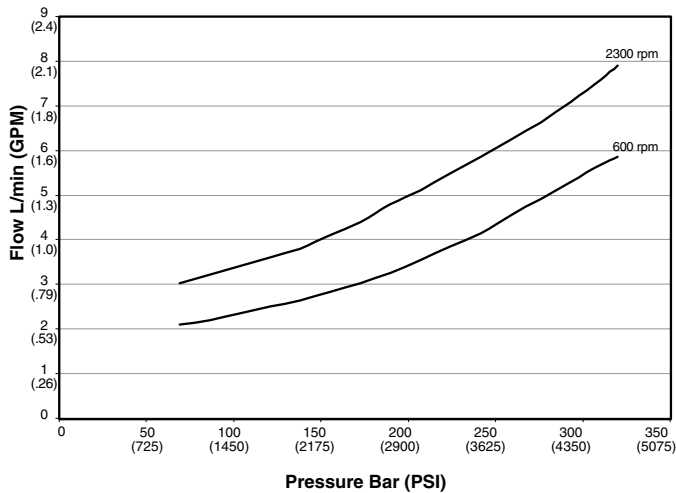
P2060 Drain Flow at Zero Stroke



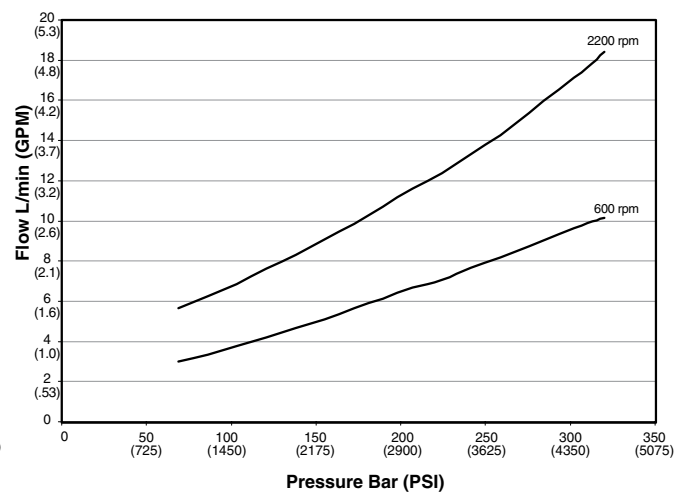
P2075 Drain Flow at Zero Stroke



P2105 Drain Flow at Zero Stroke



P2145 Drain Flow at Zero Stroke

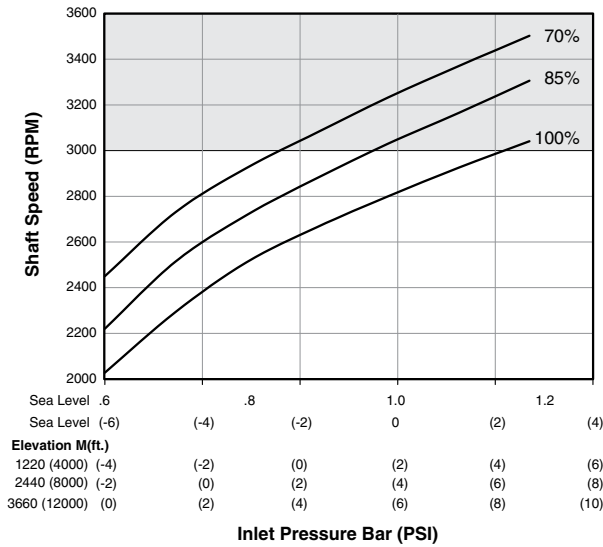


P2 Series Typical Inlet Characteristics vs. Speed at various percentage displacements

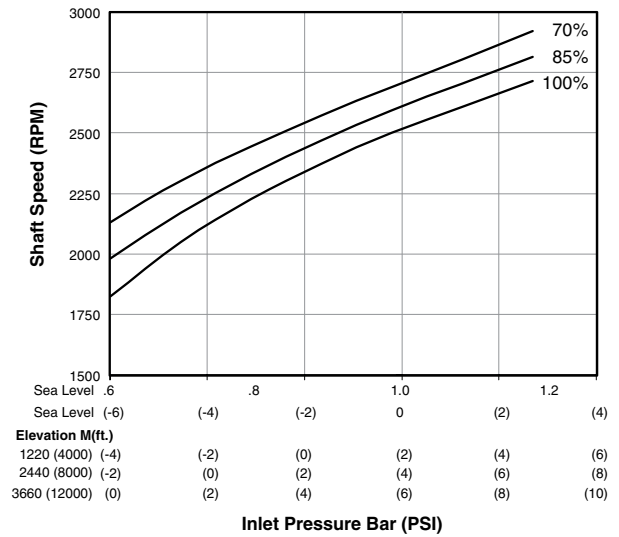
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) measured at inlet port.

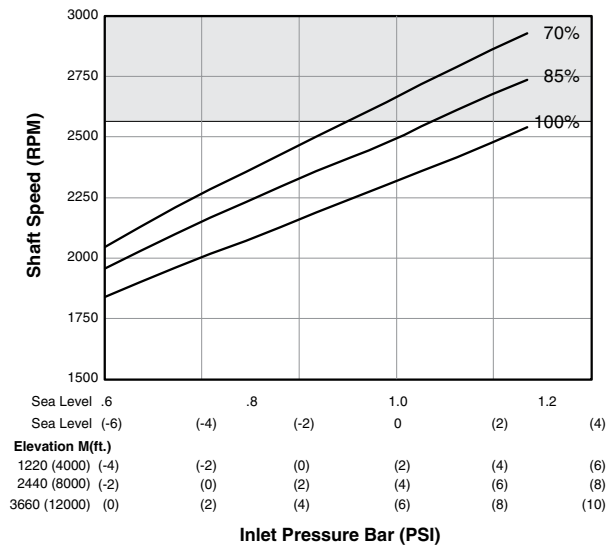
P2060 Inlet Characteristics



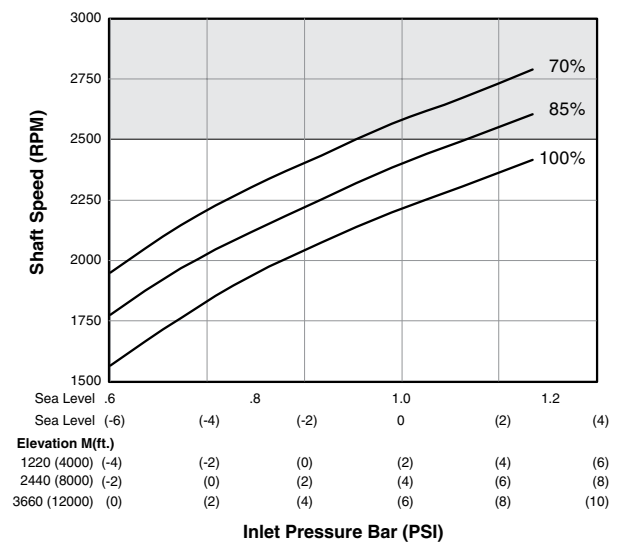
P2075 Inlet Characteristics




P2105 Inlet Characteristics



P2145 Inlet Characteristics

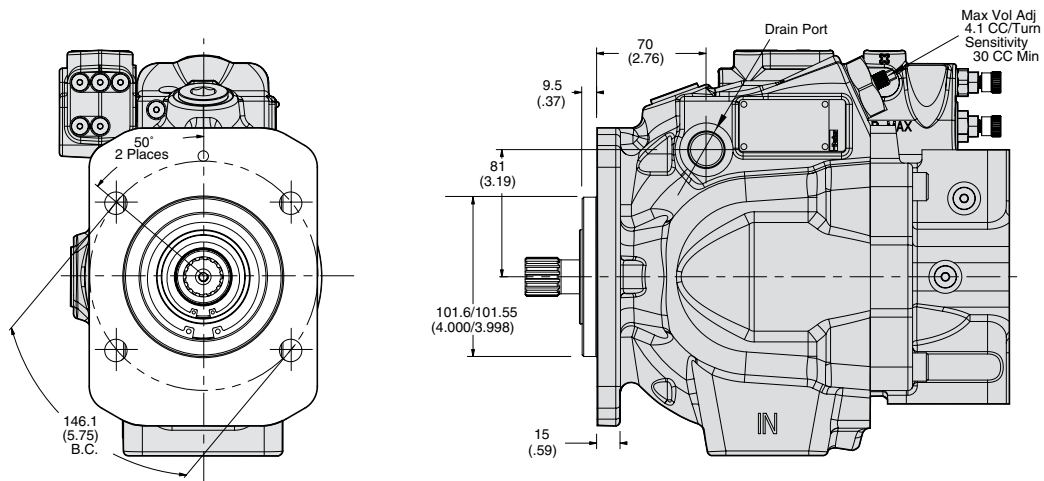


 For operation at these speeds, please consult factory for approval.

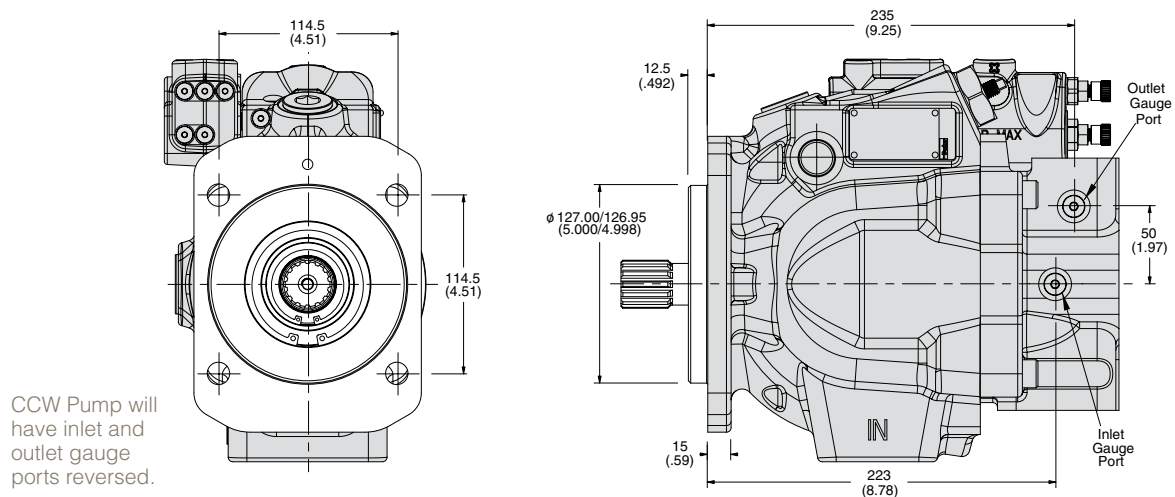
Pump Installation - P2-060 Mounting Flange (side port)

Port Options	Drain Port	Inlet Gauge Port Outlet Gauge Port Signal Port
"A" Side - UNC	SAE-10 Straight Thread O-ring Port 7/8-14 UN Thread	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M22 x 1.5 Thread	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

SAE B 2-BOLT MOUNTING FLANGE - DIAGONAL MOUNT

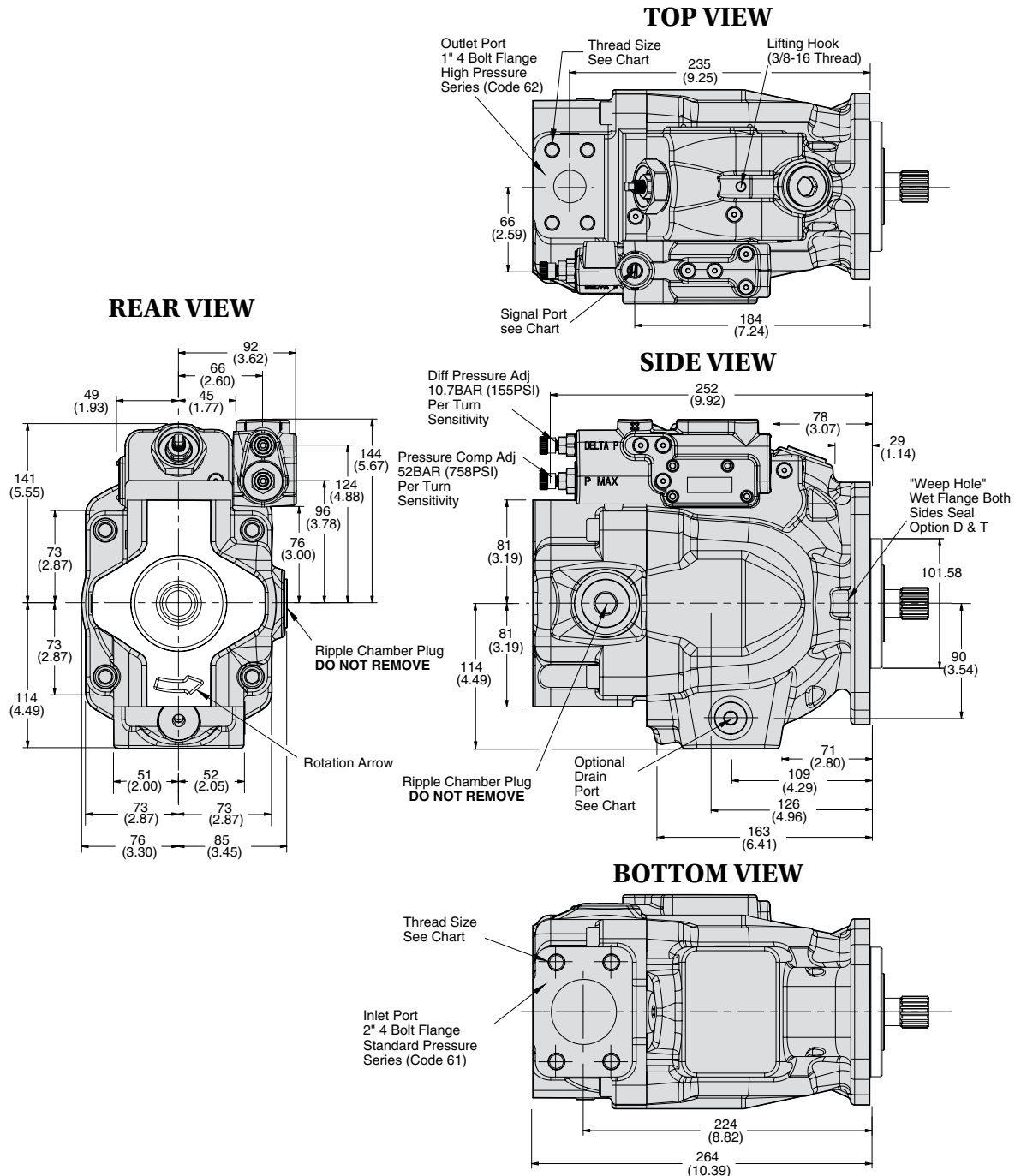


SAE C 4-BOLT MOUNTING FLANGE



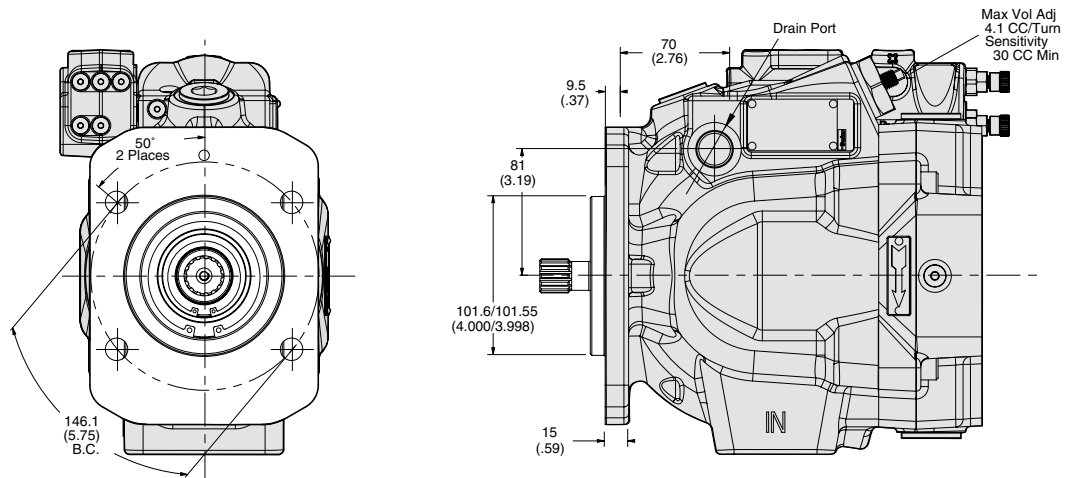
Pump Installation - P2-060 Side Port

Port Options	Drain Port	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Signal Port
"A" Side - UNC	SAE-12 Straight Thread O-ring Port 1-1/16-12 Thread	1/2-13 UN	7/16-14 UN	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M27 x 2 Thread	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

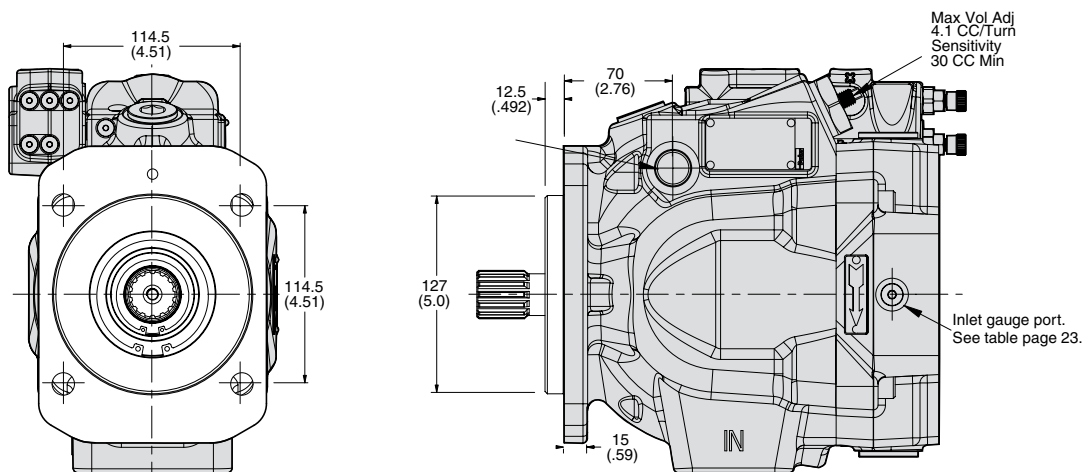


Pump Installation - P2-060 Mounting Flange (rear port)

SAE B 2-BOLT MOUNTING FLANGE - DIAGONAL MOUNT



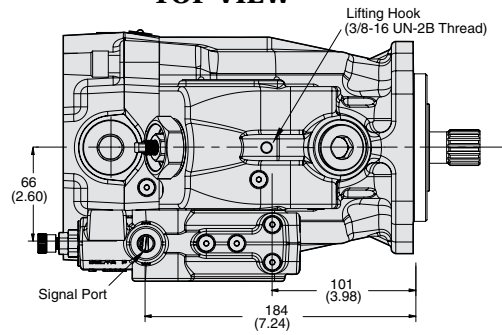
SAE C 4-BOLT MOUNTING FLANGE



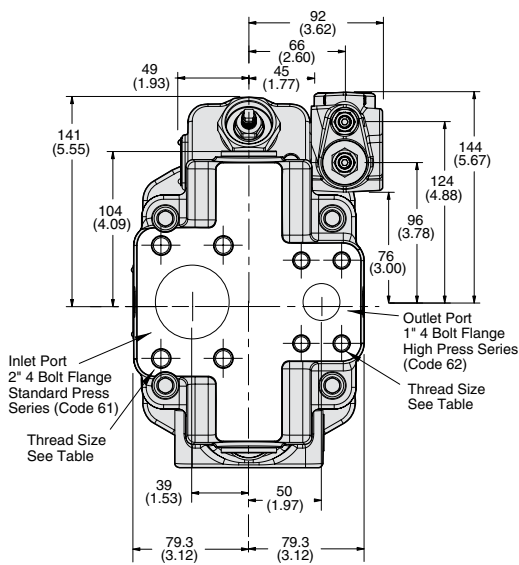
Pump Installation - P2-060 Rear Port

Port Options	Drain Port	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Signal Port
"G" Rear - UNC	SAE-12 Straight Thread O-ring Port 1-1/16-12 Thread	1/2-13 UN	7/16-14 UN	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"H" Rear - Metric	ISO 6149 Straight Thread O-ring Port M27 x 2 Thread	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

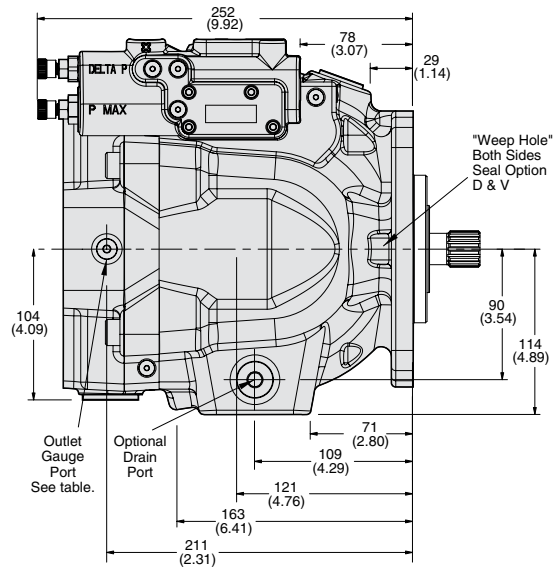
TOP VIEW



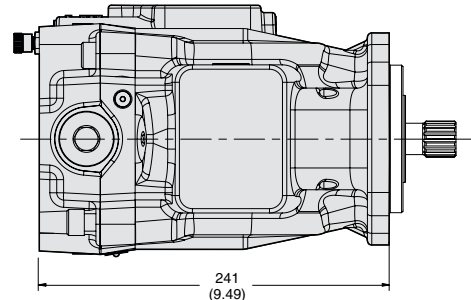
REAR VIEW



SIDE VIEW



BOTTOM VIEW

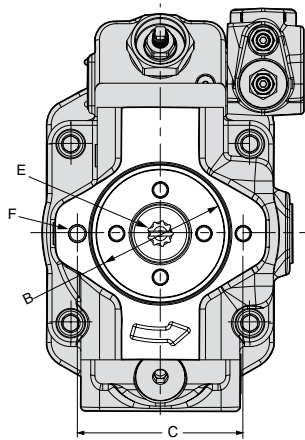


1. Pump shown is a clockwise rotation P2-060 series axial piston pump with load sense and maximum pressure.
2. CCW rotation pump will have inlet and outlet ports reversed.

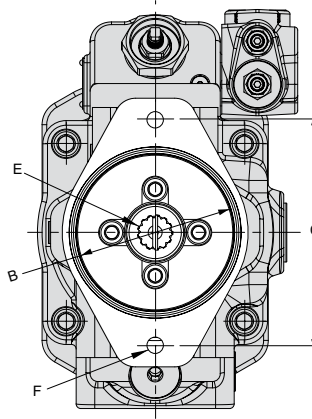
Pump Installation - P2-060 Thru-Shaft Option

Thru-Shaft Option	A	B	C	D	E	F UNC	F Metric	G UNC	G Metric	Pump Weight
A1	264 (10.4)	82.625/ 82.575/ (3.252/ 3.250)	106.38 (4.19)	N/A	SAE-A Spline 9 Tooth 16/32 Pitch	3/8-16 UNC-2B THD	M10 x 1.5 THD	N/A	N/A	36.2 kg (80 lbs)
B1	297 (11.7)	101.676/ 101.625 (4.002/ 4.000)	146.05 (5.75)	N/A	SAE-B Spline 13 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	38.9 kg (86 lbs)
B2	297 (11.7)	101.676/ 101.625 (4.002/ 4.000)	146.05 (5.75)	N/A	SAE-BB Spline 15 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	38.9 kg (86 lbs)
C1 C3	299 (11.8)	127.076/ 127.025 (5.002/ 5.000)	180.98 (7.125)	114.5 (4.58)	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	40.2 kg (89 lbs)

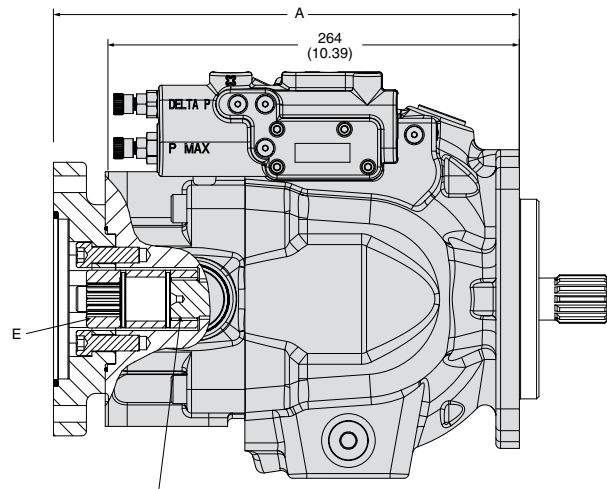
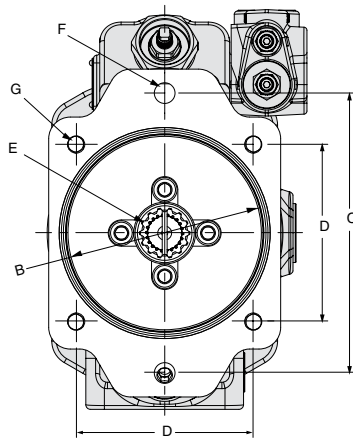
A1 CONFIGURATION



B1 & B2 CONFIGURATION



C1 & C3 CONFIGURATION

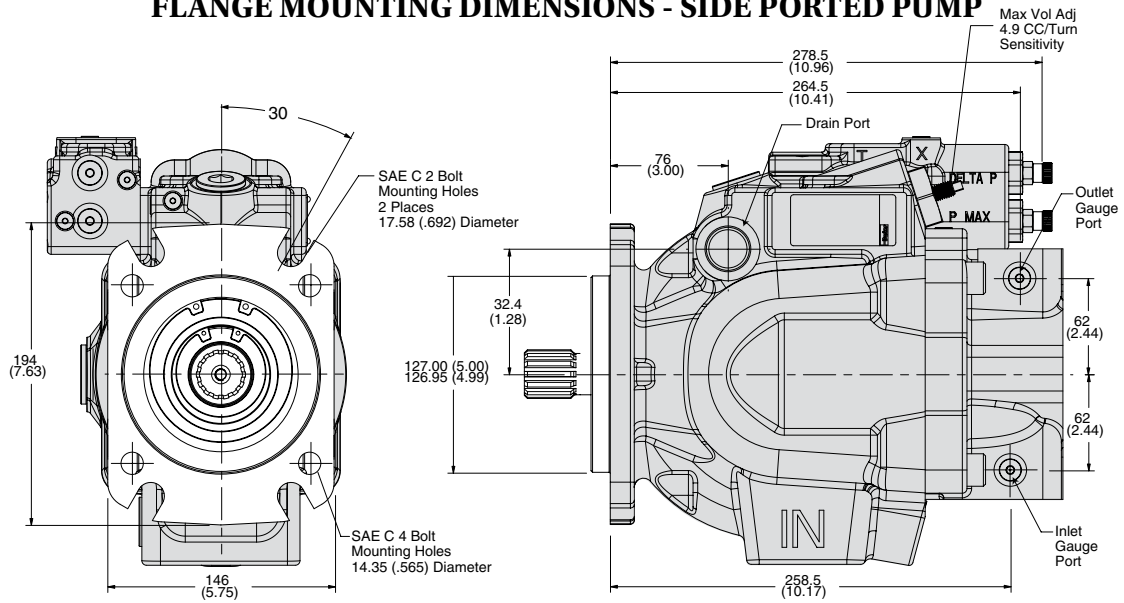


Max Thru-Drive Torque is 336 Nm (2980 lb in)

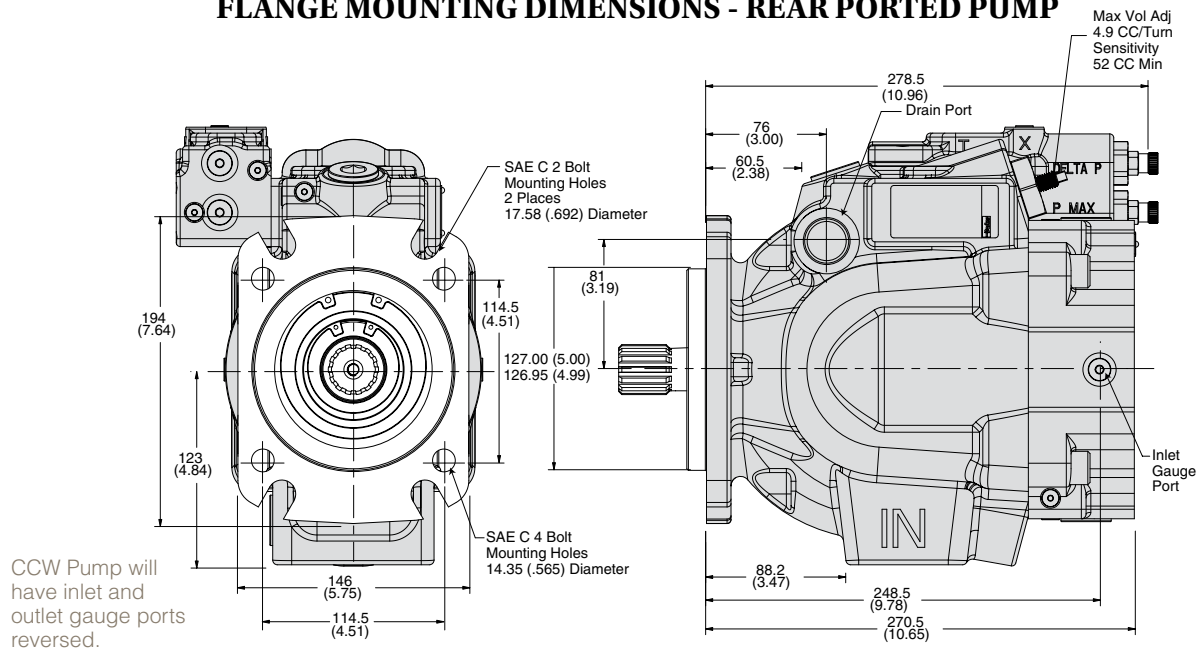
Pump Installation - P2-075 Mounting Flange

Port Options	Drain Port	Inlet Gauge Port Outlet Gauge Port
"A" Side - UNC	SAE-12 Straight Thread O-ring Port 1-1/16-12 UN Thread	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M27 x 2 Thread	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

FLANGE MOUNTING DIMENSIONS - SIDE PORTED PUMP

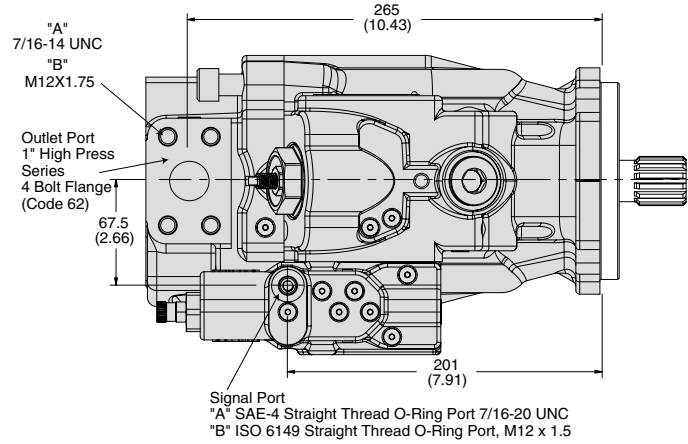


FLANGE MOUNTING DIMENSIONS - REAR PORTED PUMP

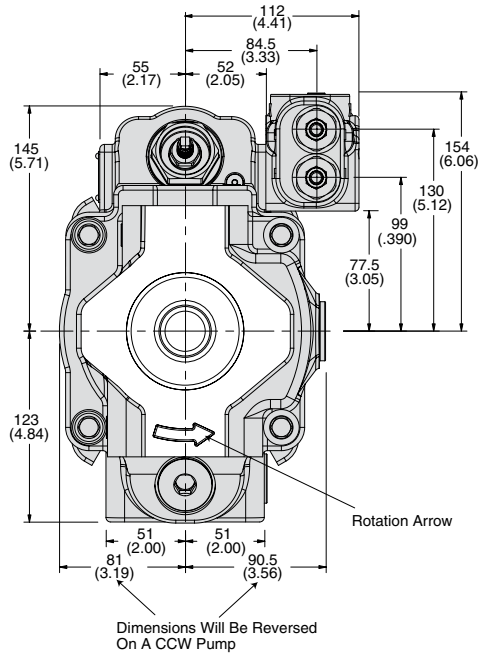


Pump Installation - P2-075 Side Port

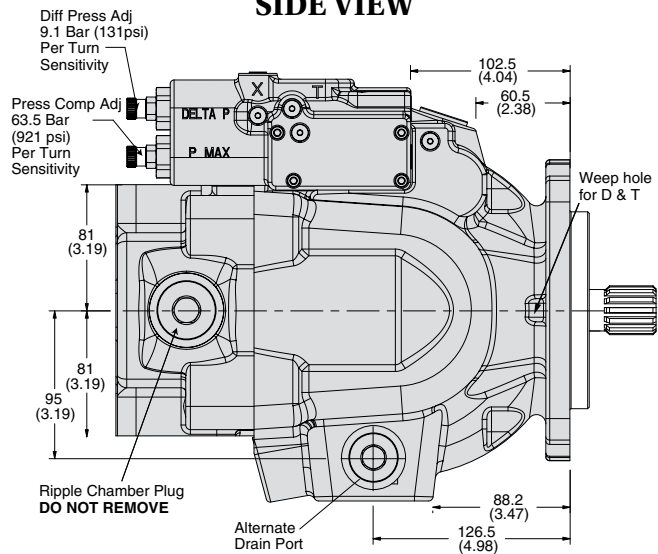
TOP VIEW



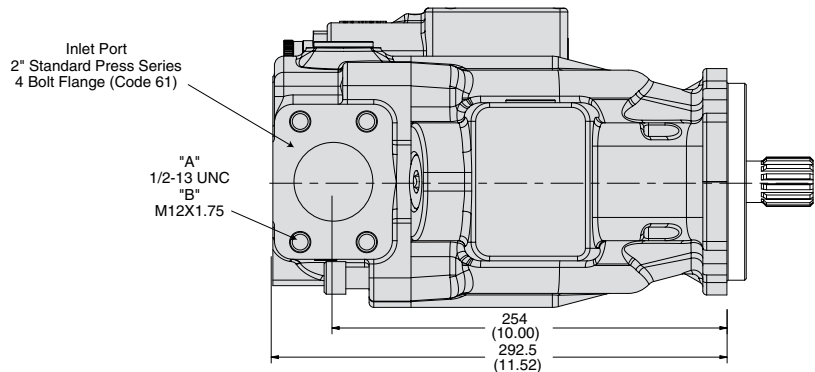
REAR VIEW



SIDE VIEW



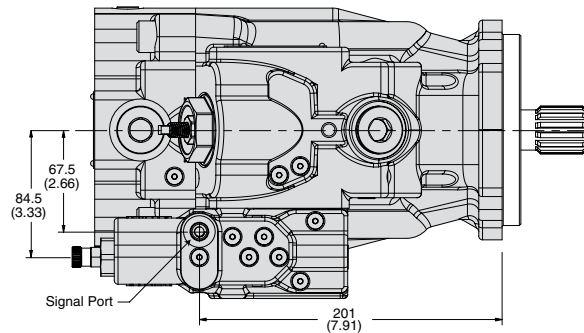
BOTTOM VIEW



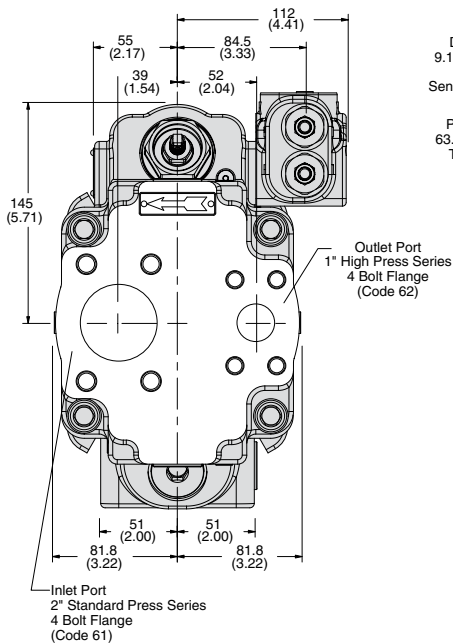
Pump Installation - P2-075 Rear Port

Port Options	Drain Port	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Signal Port
"G" Rear - UNC	SAE-12 Straight Thread O-ring Port 1-1/16-12 Thread	1/2-13 UN	7/16-14 UN	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"H" Rear - Metric	ISO 6149 Straight Thread O-ring Port M27 x 2 Thread	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

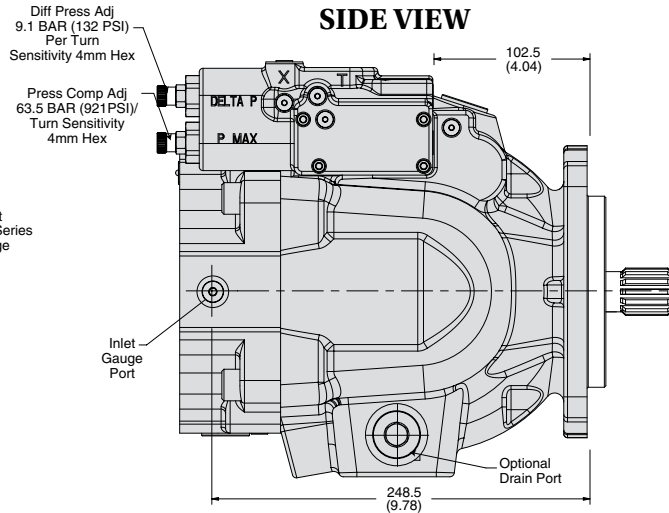
TOP VIEW



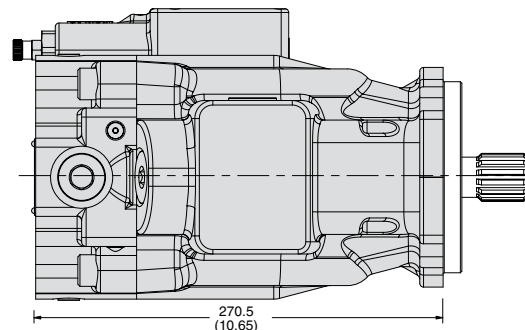
REAR VIEW



SIDE VIEW



BOTTOM VIEW

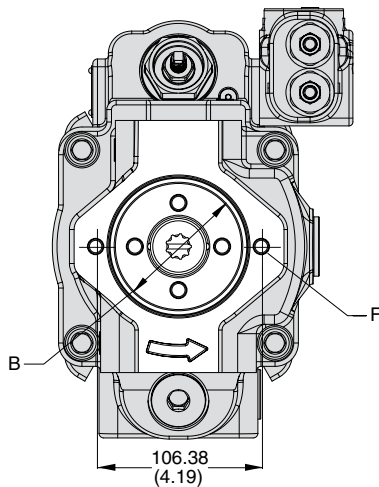


1. Pump shown is a clockwise rotation P2-075 series axial piston pump with load sense and maximum pressure.
2. CCW rotation pump will have inlet and outlet ports reversed.

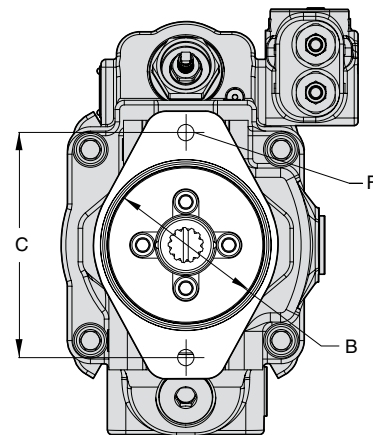
Pump Installation - P2-075 Thru-Shaft Option

Thru-Shaft Option	A	B	C	D	E	F UNC	F Metric	G UNC	G Metric	Pump Weight
A1	292.5 (10.4)	82.625/ 82.575 (3.252/ 3.250)	106.38 (4.19)	N/A	SAE-A Spline 9 Tooth 16/32 Pitch	3/8-16 UNC-2B THD	M10 x 1.5 THD	N/A	N/A	44 kg (97 lbs)
B1	325.5 (11.7)	101.676/ 101.625 (4.002/ 4.000)	146.05 (5.75)	N/A	SAE-B Spline 13 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	46.5 kg (102.5 lbs)
B2	325.5 (11.7)	101.676/ 101.625 (4.002/ 4.000)	146.05 (5.75)	N/A	SAE-BB Spline 15 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	46.5 kg (102.5 lbs)
C1 C3	299 (11.8)	127.076/ 127.025 (5.002/ 5.000)	180.98 (7.125)	114.5 (4.58)	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	48 kg (105.9 lbs)

A1 CONFIGURATION

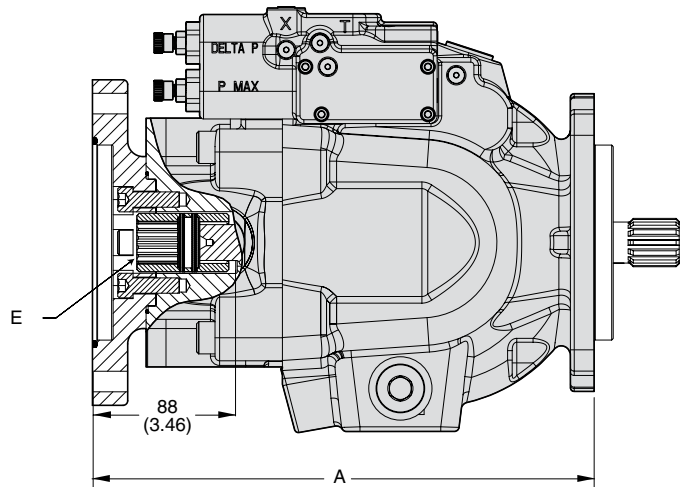
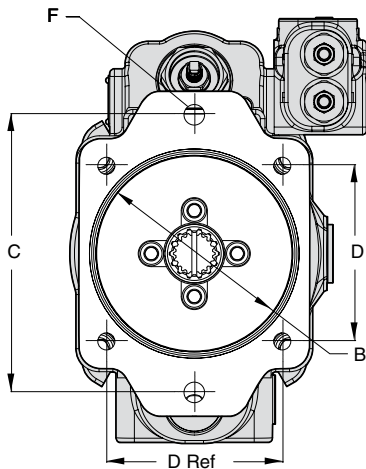


B1 & B2 CONFIGURATION



**Pumps will be assembled with flange adapters as shown.
 Options B1, B2, C1 and C3 can be rotated 90°.**

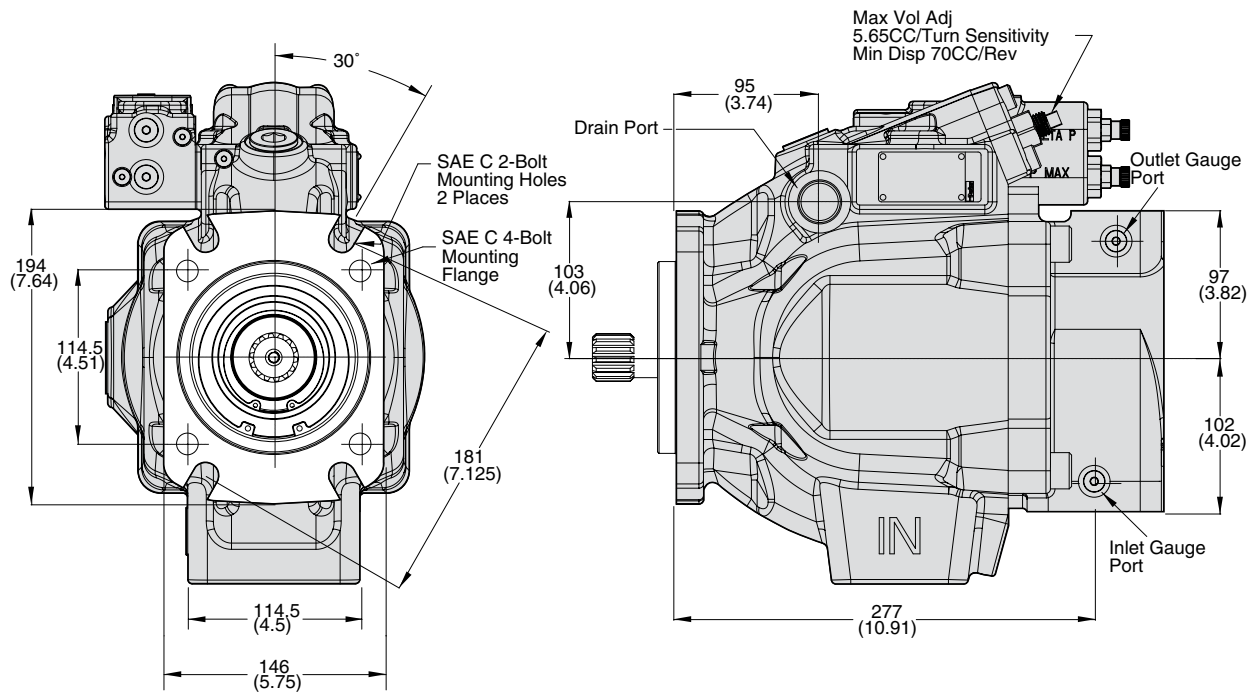
C1 & C3 CONFIGURATION



Max Thru-Drive Torque is 336 Nm (2973 lb in)

Pump Installation - P2-105 Mounting Flange

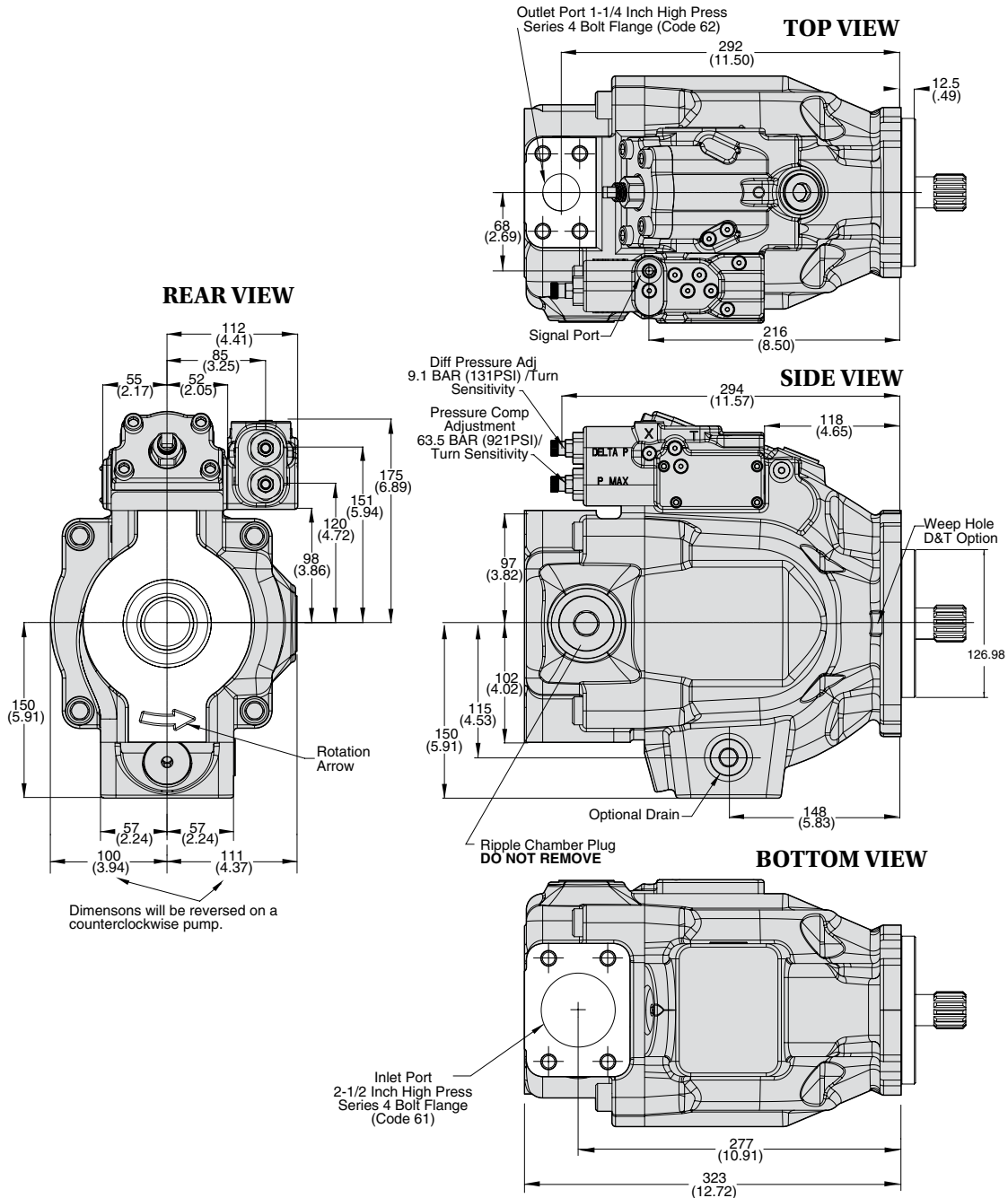
Port Options	Drain Port	Inlet Gauge Port Outlet Gauge Port
"A" Side - UNC	SAE-12 Straight Thread O-ring Port 1-1/16-12 UN-2B	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M27 x 2 Thread	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread



CCW Pump will have inlet and outlet gauge ports reversed.

Pump Installation - P2-105 Side Port

Port Options	Drain Port	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Signal Port
"A" Side - UNC	SAE-12 Straight Thread O-ring Port 1-1/16-12 UN-2B	1/2-13 UN	1/2-13 UN	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M27 x 2 Thread	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread



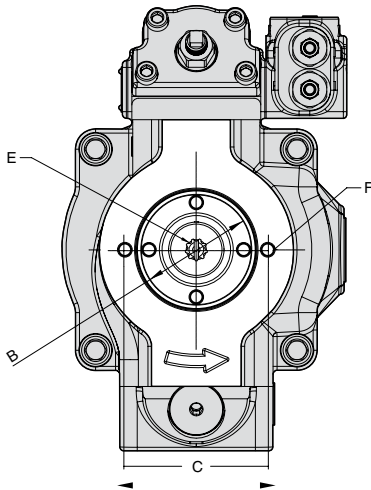
Pump Installation - P2-105 Thru-Shaft Option

Thru-Shaft Option	A	B	C	D	E	F UNC	F Metric	G UNC	G Metric	Pump Weight
A1	323 (12.72)	Ø 82.626/ 82.575 (3.252/ 3.250)	106.3 (4.19)	N/A	SAE-A Spline 9 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M10 x 1.5 THD	N/A	N/A	61 (134)
B1	356 (14.02)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.1 (5.75)	N/A	SAE-B Spline 13 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	64 (140)
B2	356 (14.02)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.1 (5.75)	N/A	SAE-BB Spline 15 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	64 (140)
C1	358 (14.09)	Ø 127.075/ 127.025 (5.003/ 5.001)	181 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	5/8-11 UNC-2B THD	M16 x 2 THD	65 (143)
C3	358 (14.09)	Ø 127.075/ 127.025 (5.003/ 5.001)	181 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	5/8-11 UNC-2B THD	M16 x 2 THD	65 (143)

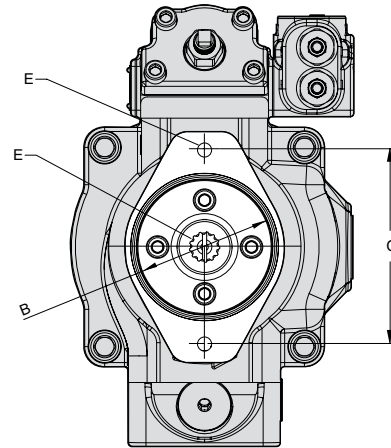
* All shaft Couplings 30 Degrees Involute Spline Flat Root Side Fit

*** Maximum Thru Drive Capability is Limited to 587Nm (5195 lb in)

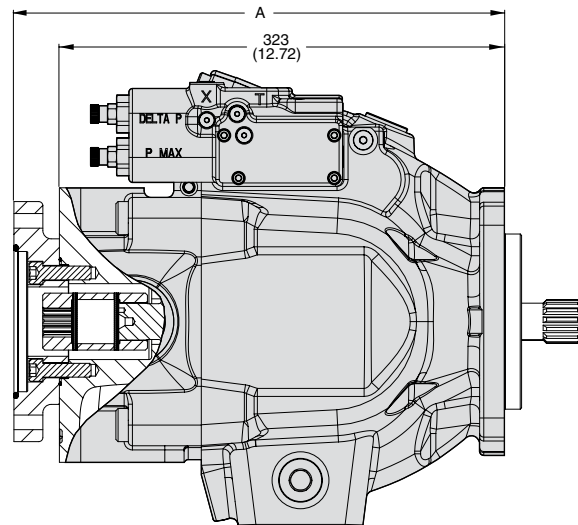
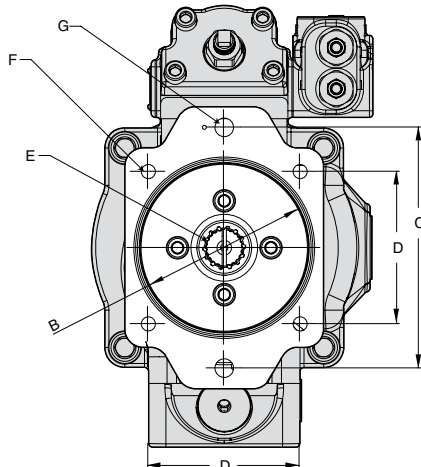
A1 CONFIGURATION



B1 & B2 CONFIGURATION

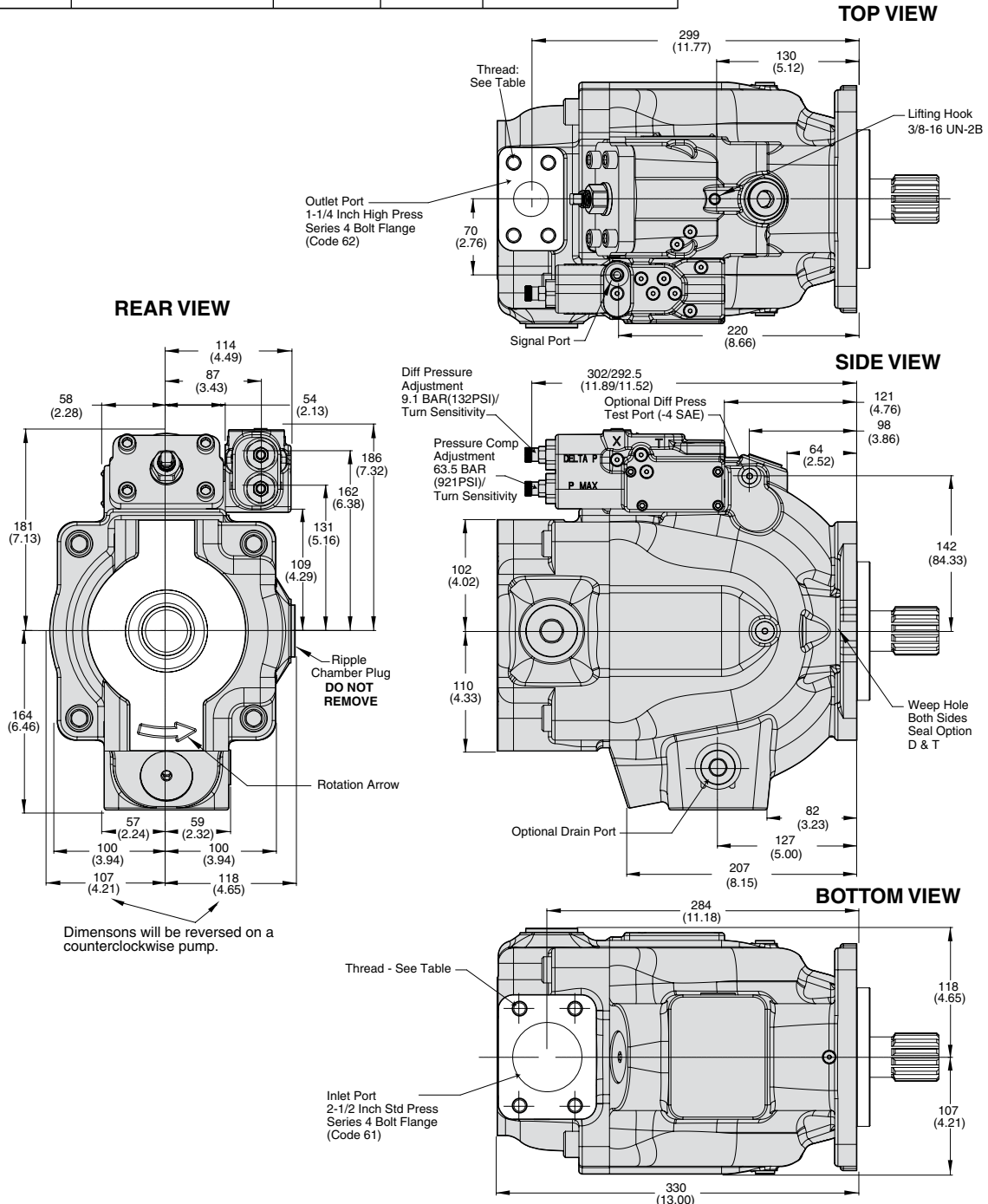


C1 & C3 CONFIGURATION



Pump Installation - P2-145 Side Port

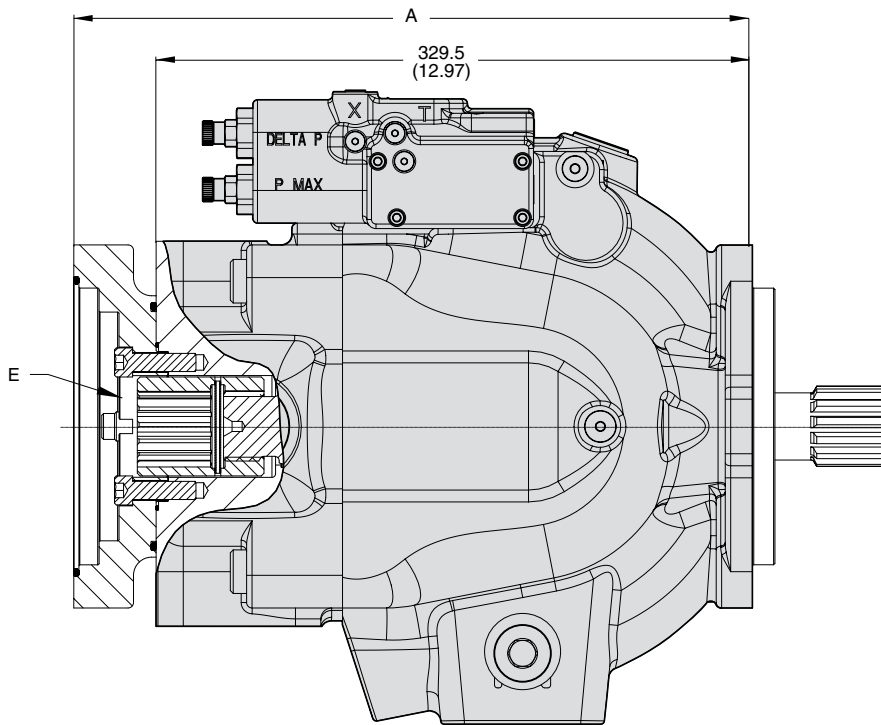
Port Options	Drain Port	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Signal Port
"A" Side - UNC	SAE-12 Straight Thread O-ring Port 1-1/16-12 UN-2B	1/2-13 UN	1/2-13 UN	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M27 x 2 Thread	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread



Pump Installation - P2-145 Thru-Shaft Option

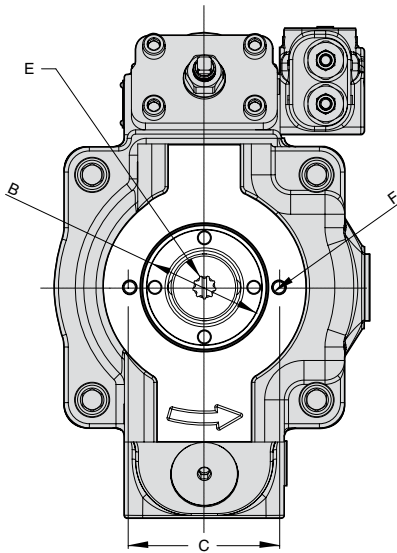
Thru-Shaft Option	A	B	C	D	E	F UNC	F Metric	G UNC	G Metric	Pump Weight
A1	329.5 (13.0)	Ø 82.626/ 82.575 (3.252/ 3.250)	106.38 (4.19)	N/A	SAE-A Spline 9 Tooth 16/32 Pitch	3/8-16 UNC-2B THD	M10 x 1.5 THD	N/A	N/A	79.8 (176)
B1	362.5 (14.27)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.05 (5.75)	N/A	SAE-B Spline 13 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	82.6 (182)
B2	362.5 (14.27)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.05 (5.75)	N/A	SAE-BB Spline 15 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	82.6 (182)
C1	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	N/A	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	83.9 (185)
C2	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	N/A	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	83.9 (185)
C3	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	83.9 (185)
C4	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	114.5	SAE-CC Spline 17 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	83.9 (185)
D3	375 (14.76)	Ø 152.475/ 152.425 (6.003/ 6.001)	N/A	161.65	SAE-D Spline 13 Tooth 8/16 Pitch	N/A	N/A	3/4-10 UNC-2B THD	M16 x 2 THD	88.0 (194)

*** Maximum Thru Drive Capability is Limited to 1217Nm (10777 lb in)

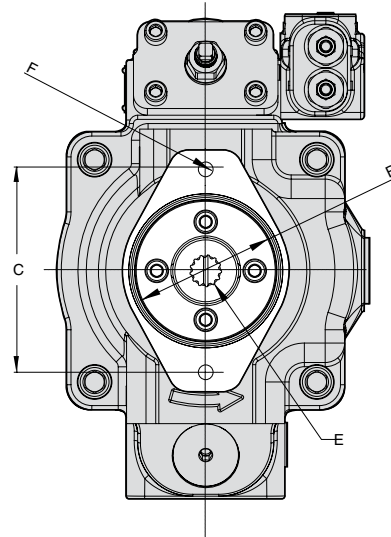


Pump Installation - P2-145 Thru-Shaft Option

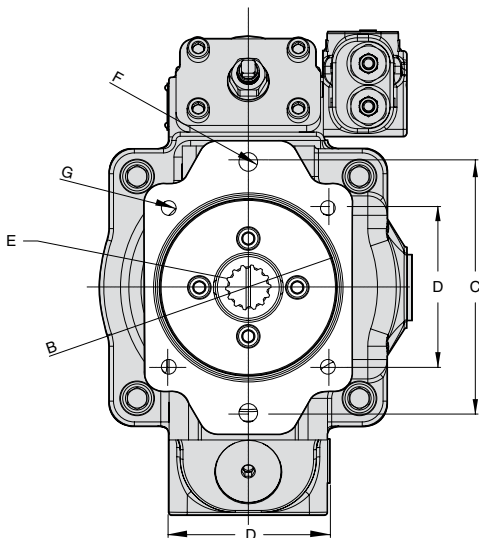
A1 CONFIGURATION



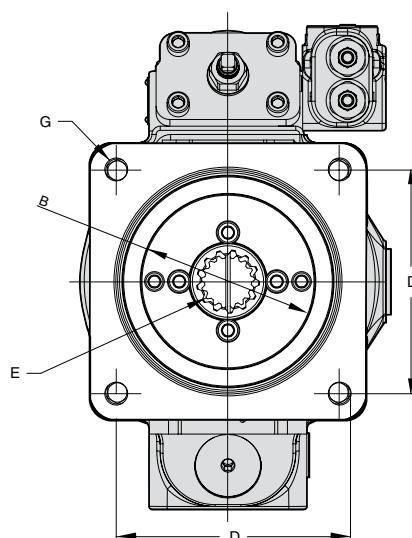
B1 & B2 CONFIGURATION



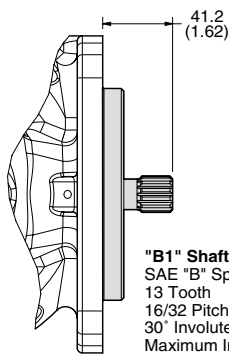
C1, C2, C3 & C4 CONFIGURATION



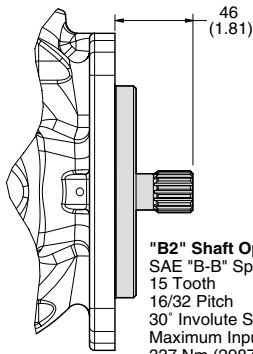
D3 CONFIGURATION



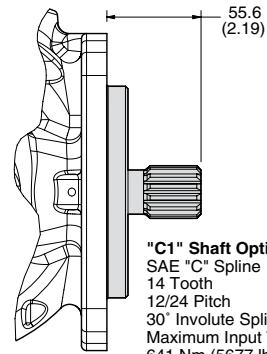
Pump Installation- P2 Shaft Options



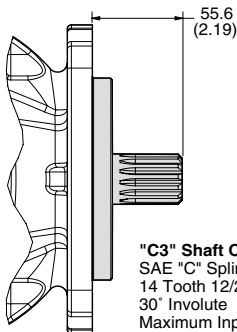
"B1" Shaft Option
 SAE "B" Spline
 13 Tooth
 16/32 Pitch
 30° Involute Spline
 Maximum Input Torque:
 209 Nm (1852 lb in)



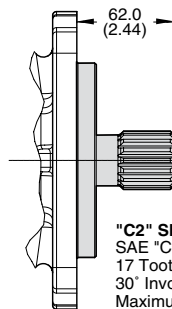
"B2" Shaft Option
 SAE "B-B" Spline
 15 Tooth
 16/32 Pitch
 30° Involute Spline
 Maximum Input Torque:
 337 Nm (2987 lb in)



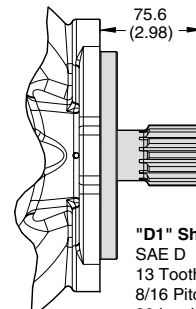
"C1" Shaft Option
 SAE "C" Spline
 14 Tooth
 12/24 Pitch
 30° Involute Spline
 Maximum Input Torque:
 641 Nm (5677 lb in)



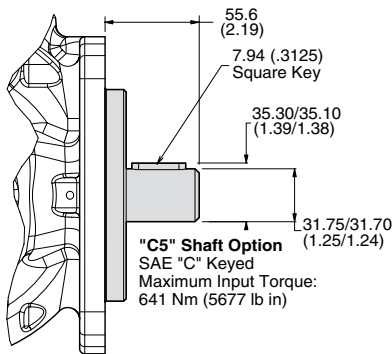
"C3" Shaft Option
 SAE "C" Spline No Undercut
 14 Tooth 12/24 Pitch
 30° Involute
 Maximum Input Torque:
 769 Nm (6812 lb in)



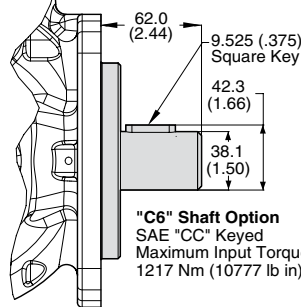
"C2" Shaft Option
 SAE "CC" Spline
 17 Tooth 12/24 Pitch
 30° Involute
 Maximum Input Torque:
 1217 Nm (10777 lb in)



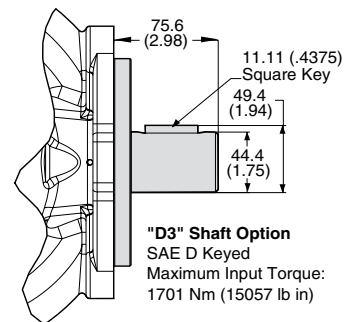
"D1" Shaft Option
 SAE D
 13 Tooth
 8/16 Pitch
 30 Involute Spline
 Maximum Input Torque:
 1701 Nm (15057 lb in)



"C5" Shaft Option
 SAE "C" Keyed
 Maximum Input Torque:
 641 Nm (5677 lb in)

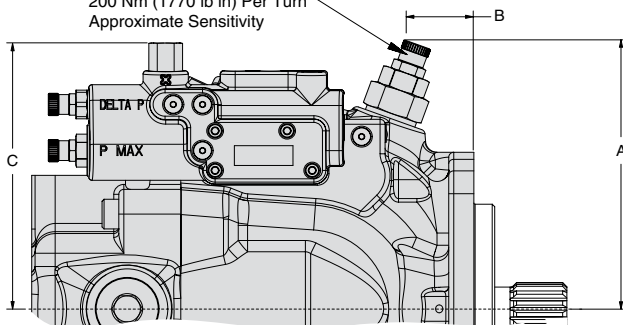


"C6" Shaft Option
 SAE "CC" Keyed
 Maximum Input Torque:
 1217 Nm (10777 lb in)



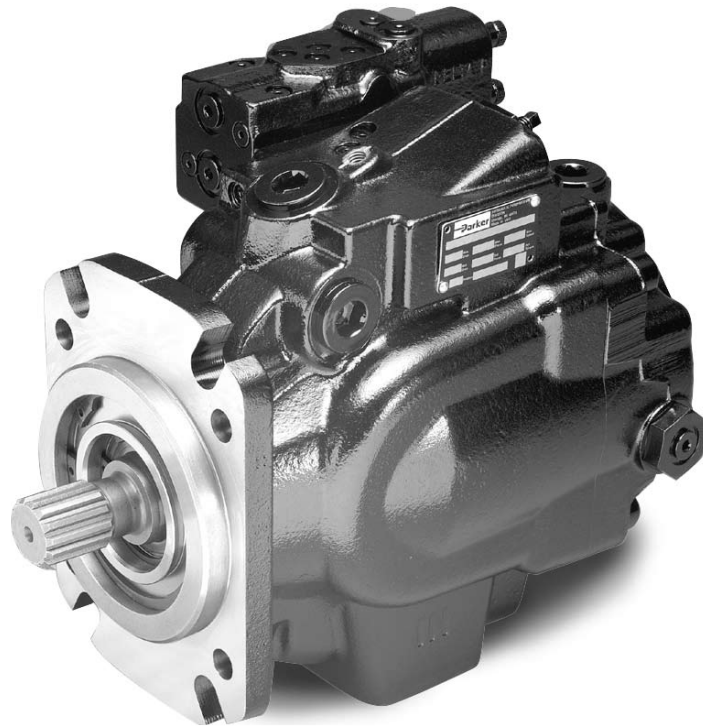
"D3" Shaft Option
 SAE D Keyed
 Maximum Input Torque:
 1701 Nm (15057 lb in)

Torque Control
 Options "TA", "TB", "TC" & "TD"
 200 Nm (1770 lb in) Per Turn
 Approximate Sensitivity



	P2 060	P2075	P2105	P2145
A	163 (6.42)	171 (6.73)	190 (7.48)	202 (7.95)
B	33.7 (1.33)	69 (2.72)	69 (2.72)	69 (2.72)
C	161 (6.34)	154 (6.06)	175 (6.89)	186 (7.32)

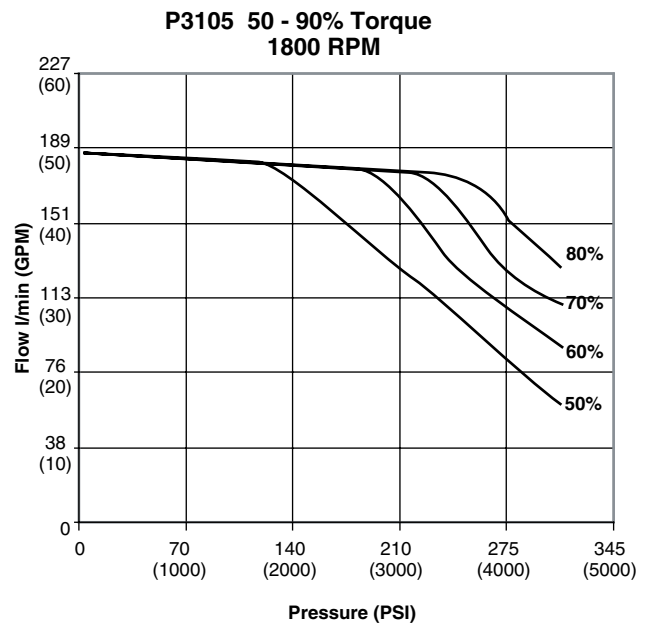
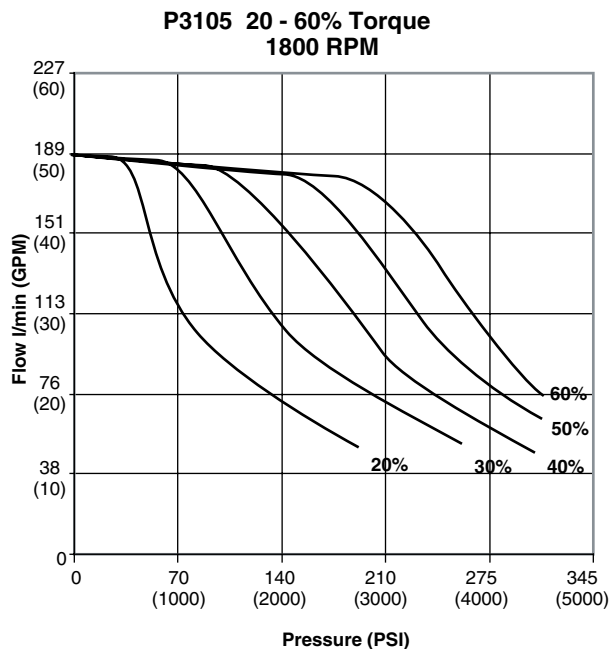
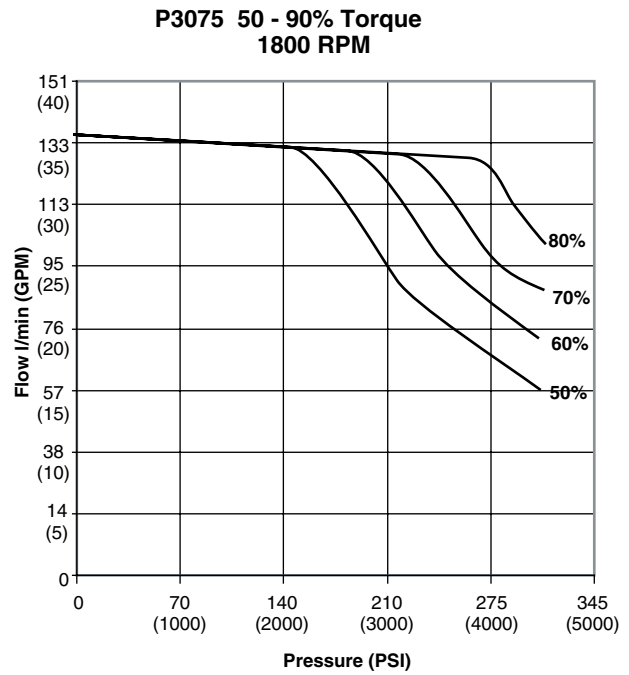
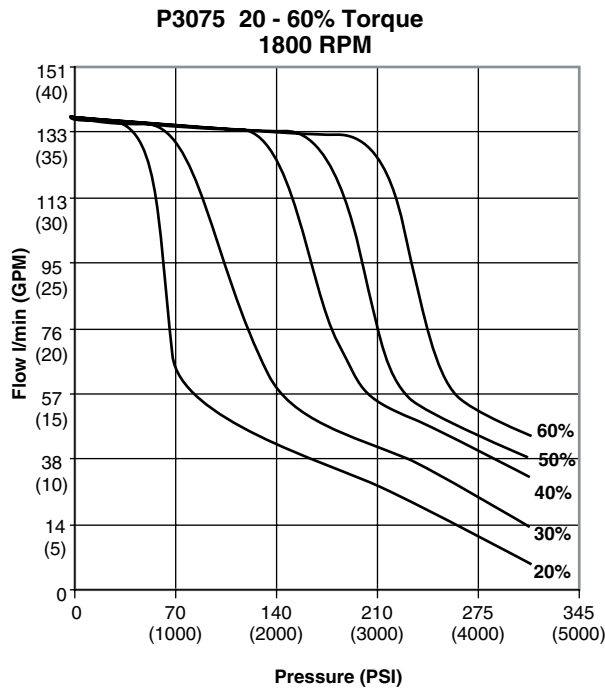
P3 Performance and Dimension Section



P3 Series Typical Torque Control Characteristics

Fluid: Mineral oil ISO VG 32 @ 40° C

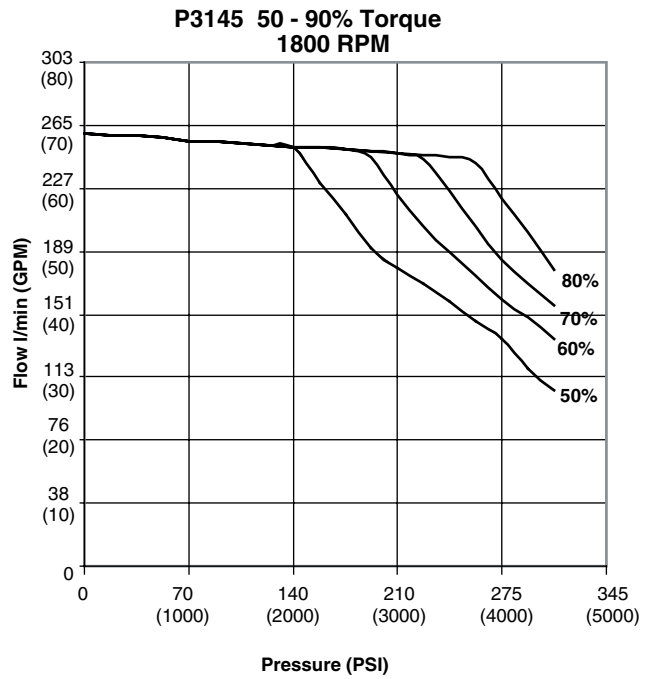
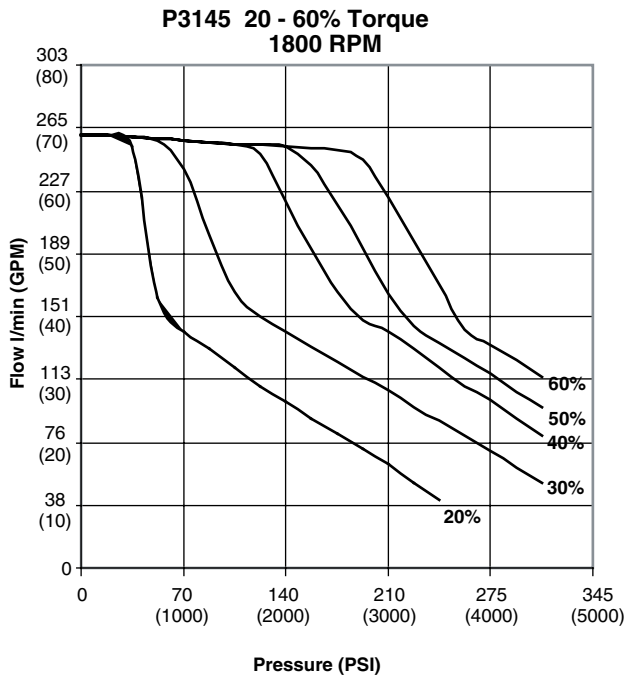
Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.



P3 Series Typical Torque Control Characteristics

Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.



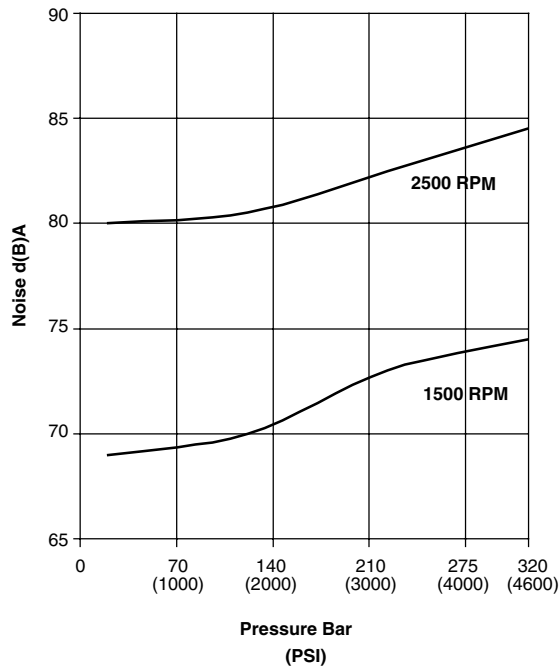
P3 Series Typical Noise Characteristics at Max Displacement

(These are anechoic sound pressure readings.)

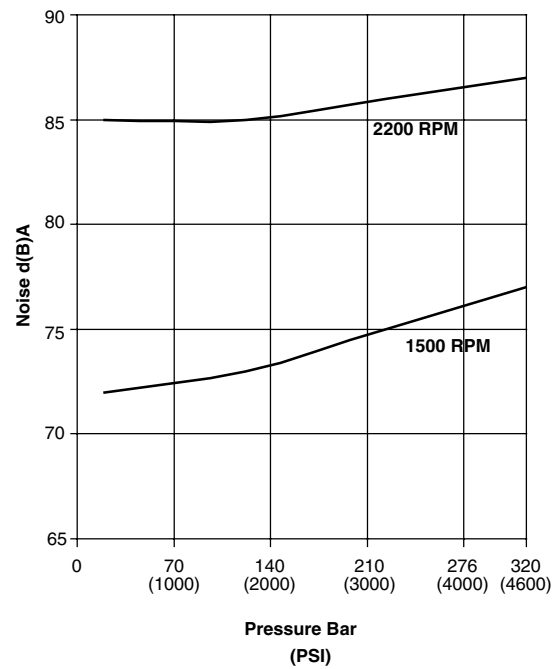
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

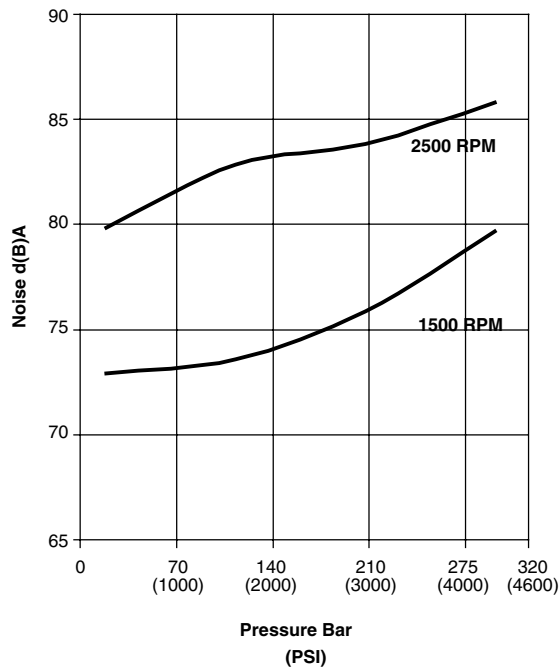
P3075 Noise Characteristics at Max Displacement



P3145 Noise Characteristics at Max Displacement



P3105 Noise Characteristics at Max Displacement

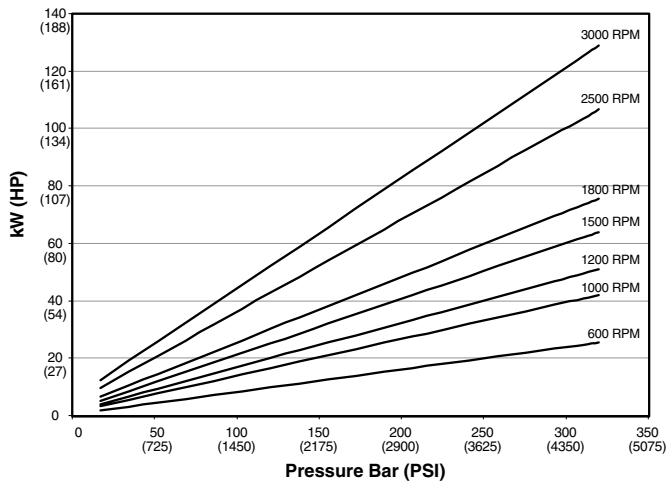


P3 Series Typical Drive Power at Full Displacement

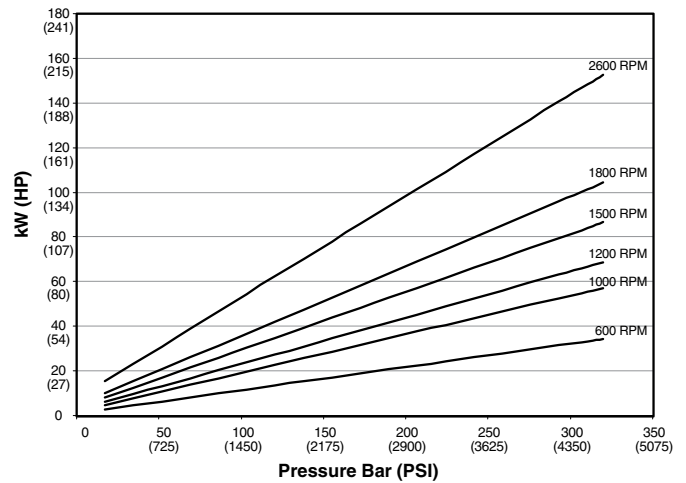
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

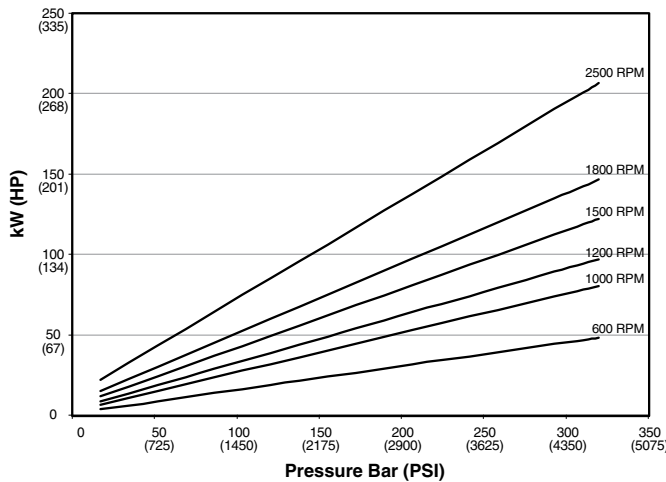
P3075 Input Power - Full Stroke



P3105 Input Power - Full Stroke



P3145 Input Power - Full Stroke

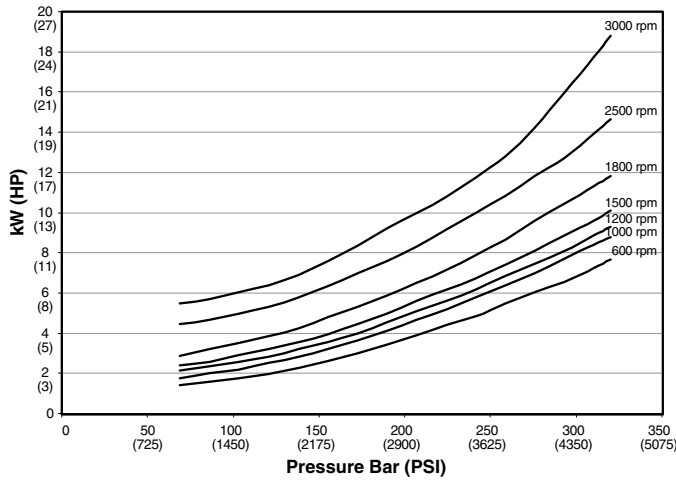


P3 Series Typical Compensated Power

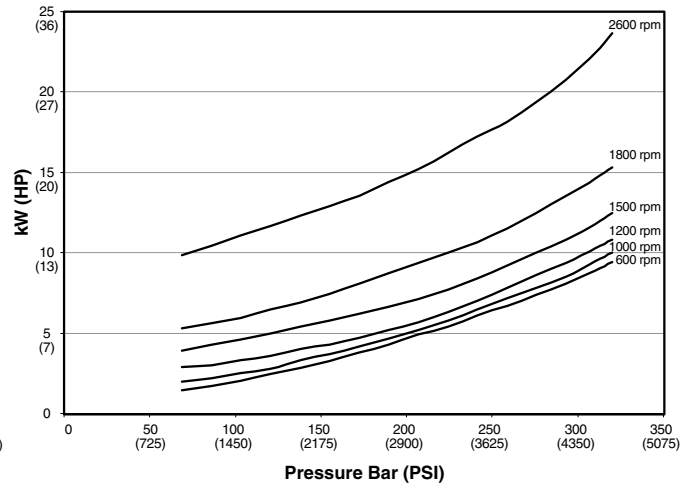
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

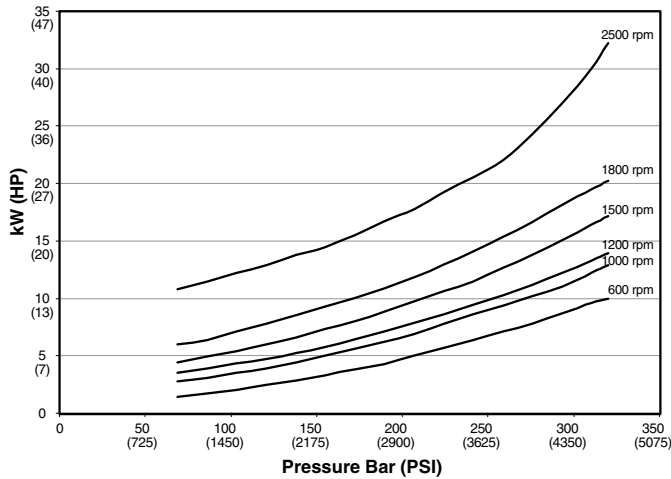
P3075 Input Power - Zero Stroke



P3105 Input Power - Zero Stroke



P3145 Input Power - Zero Stroke

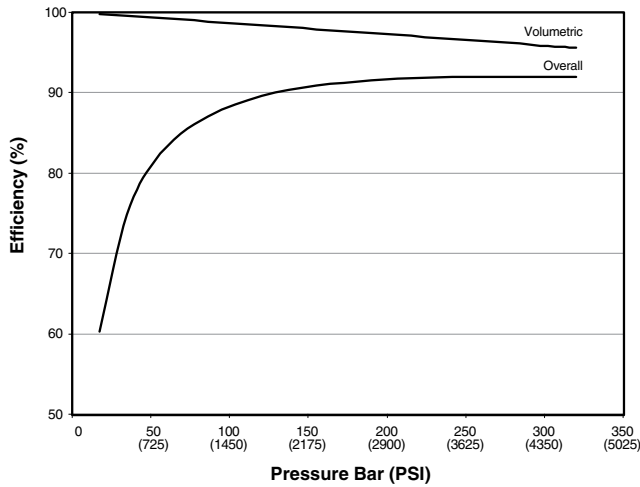


P3 Series Typical Efficiency at Full Displacement @ 1800 RPM

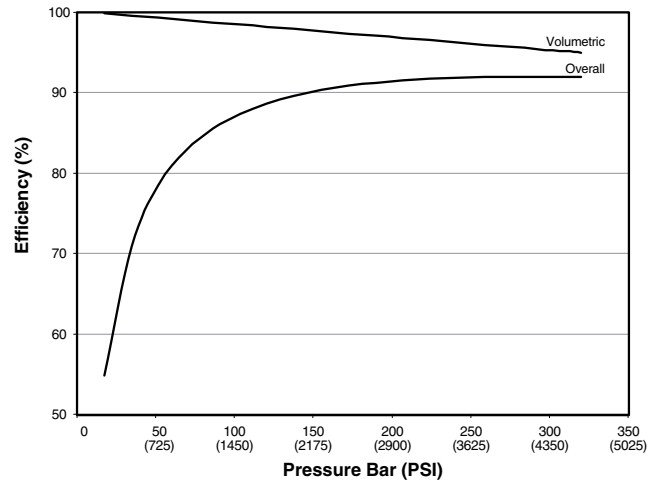
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

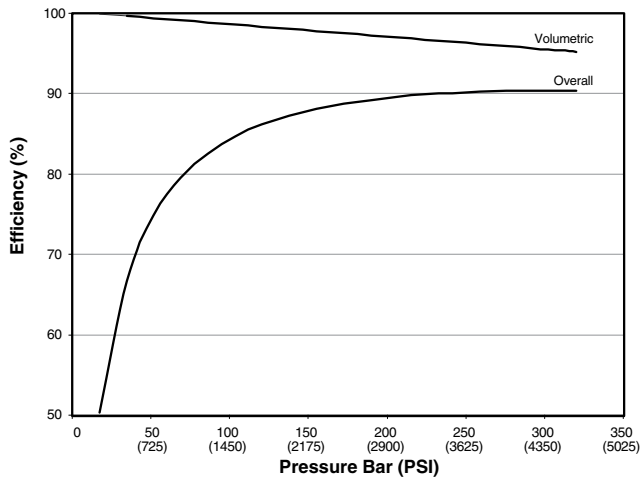
P3075 Efficiency at 1800 RPM



P3105 Efficiency at 1800 RPM



P3145 Efficiency at 1800 RPM

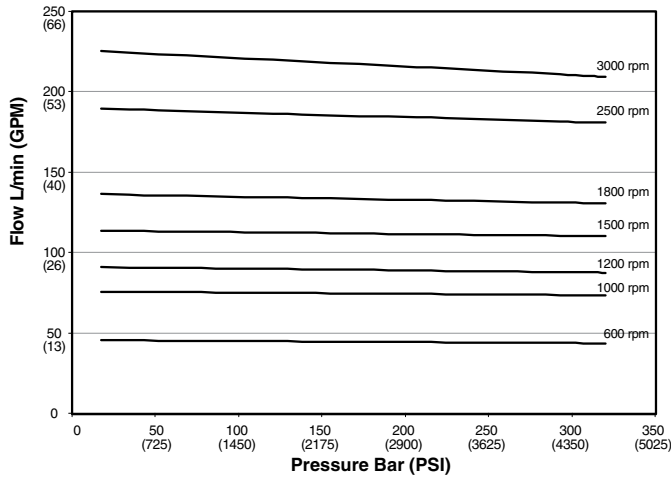


P3 Series Typical Flow vs. Pressure

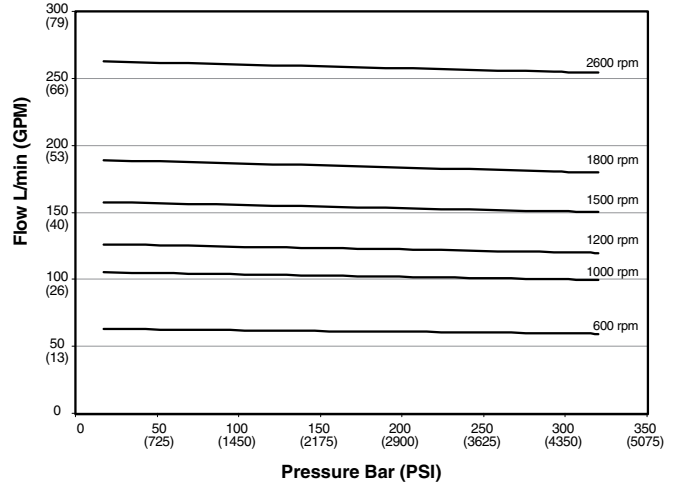
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

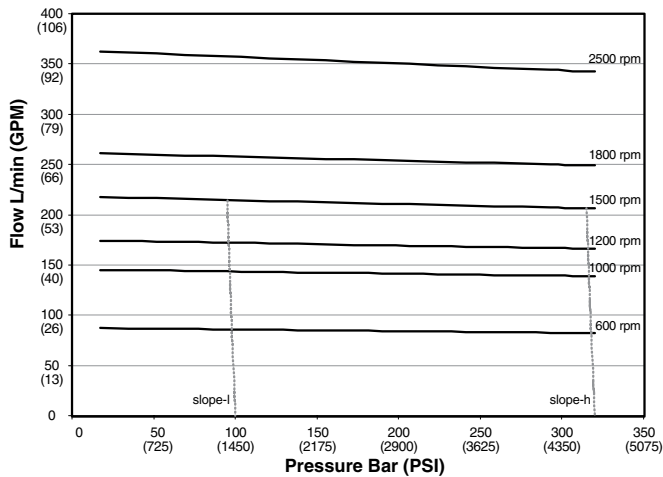
P3075 Outlet Flow - Full Stroke



P3105 Outlet Flow - Full Stroke



P3145 Outlet Flow - Full Stroke

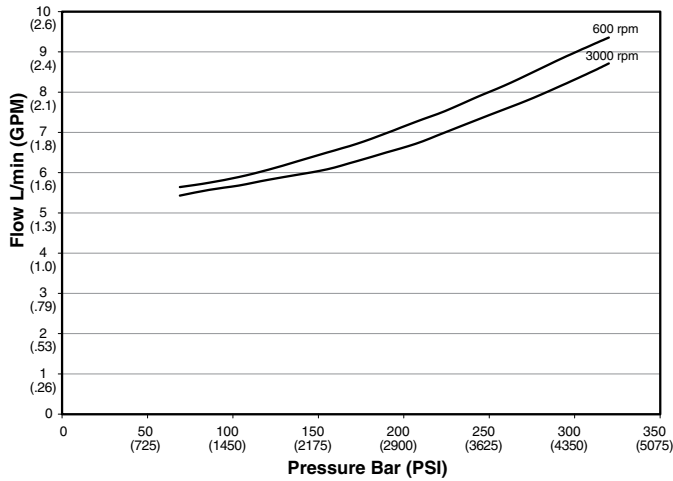


P3 Series Typical Compensated Control Drain Flow

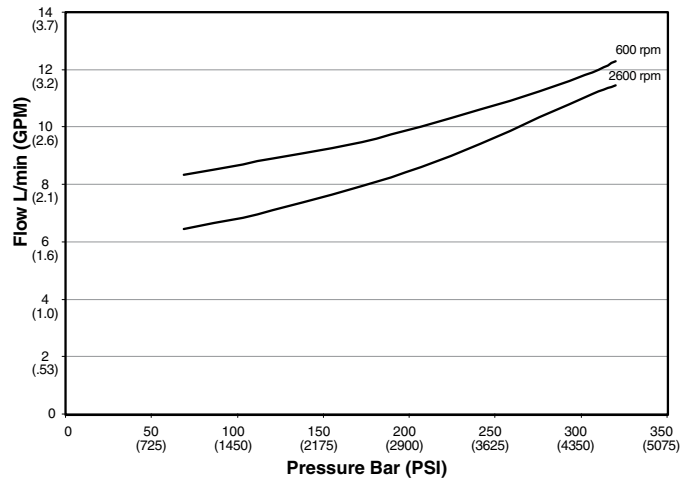
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

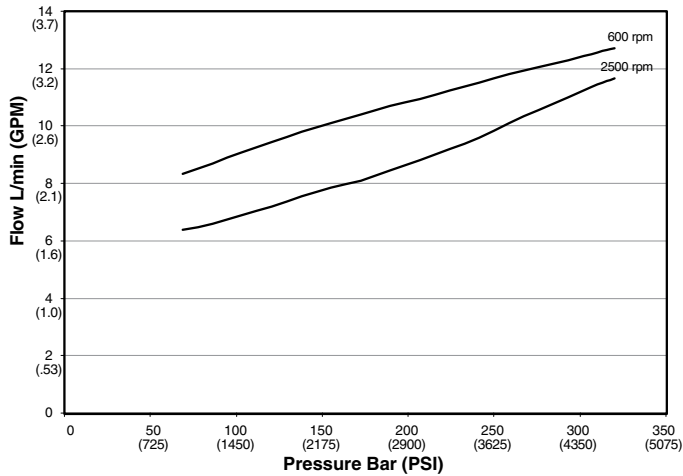
P3075 Control Drain Flow at Zero Stroke



P3105 Control Drain Flow at Zero Stroke



P3145 Control Drain Flow at Zero Stroke

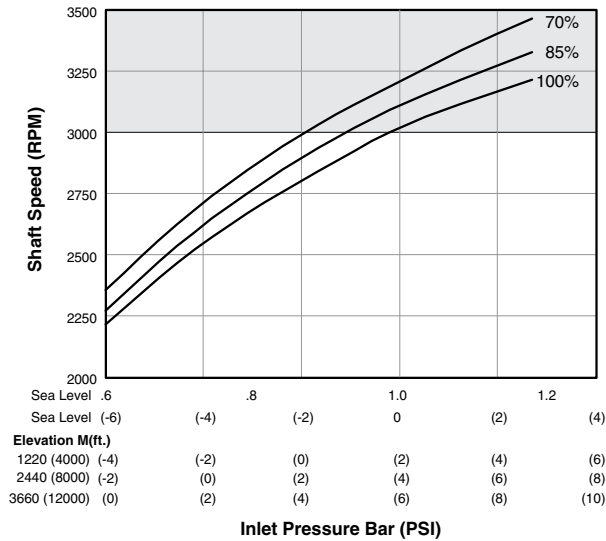


P3 Series Typical Inlet Characteristics vs. Speed at Various Percentage Displacements

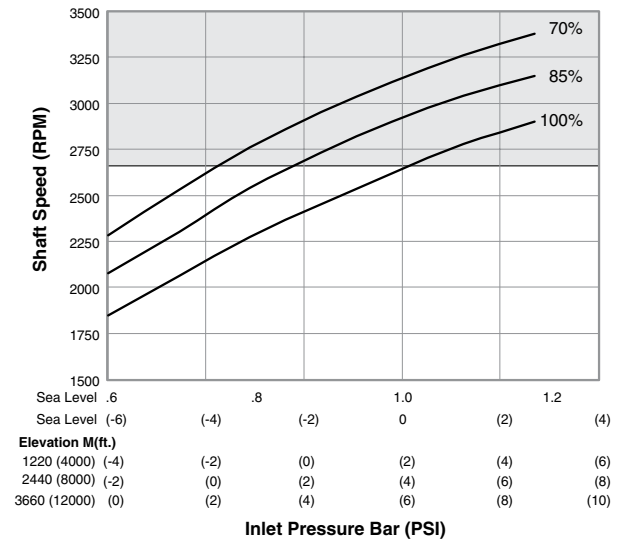
Fluid: Mineral oil ISO VG 32 @ 40° C

Inlet pressure: 1.0 Bar (14.5 PSI) (Absolute) measured at inlet port.

P3075 Inlet Characteristics



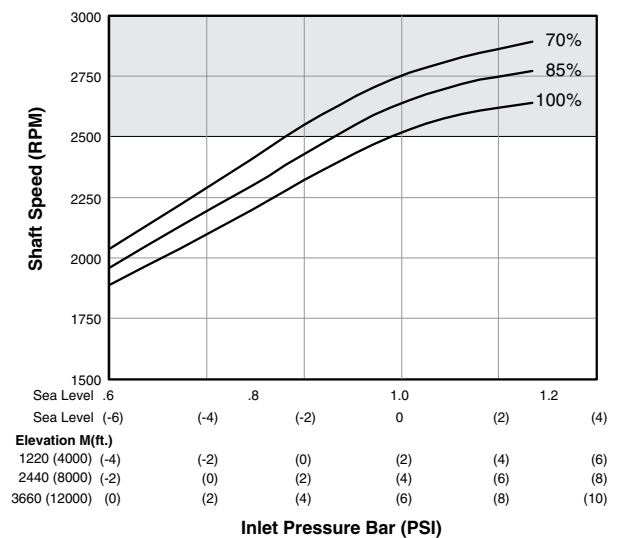
P3105 Inlet Characteristics




The charts on this page are used to determine the acceptable inlet pressure conditions at various shaft speeds and pump displacements. The data is also converted for inlet pressure levels at various elevations. To read the chart, from the vertical axis, select the shaft speed and go across to the appropriate displacement curve, then move down to the minimum acceptable inlet pressure for those conditions, at the desired elevation.

For example, for the P3075, at 3000 RPM, and 100% displacement (75 cc/r), the minimum acceptable inlet pressure at sea level is 0 psig. For these same speed displacement conditions, at 4000 feet, the minimum acceptable inlet pressure is 2 psig. If the maximum pump displacement is adjusted down to 60 cc/r, read across from 3000 RPM to the 80% displacement curve, and at 4000 ft., the minimum acceptable inlet pressure is .3 psig.

P3145 Inlet Characteristics

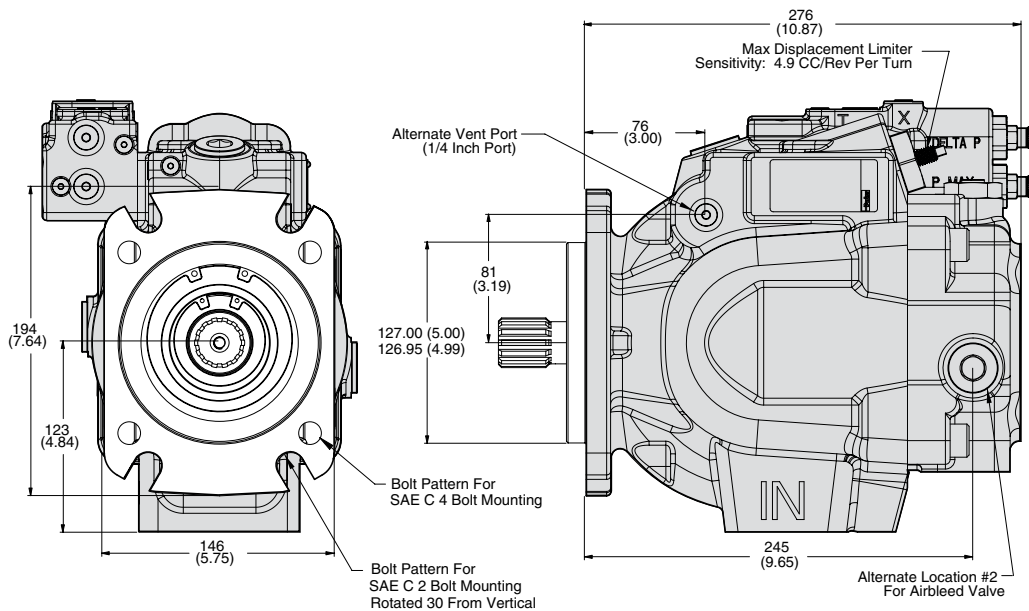


 For operation at these speeds, please consult factory for approval.

Pump Installation - P3-075 Mounting Flange

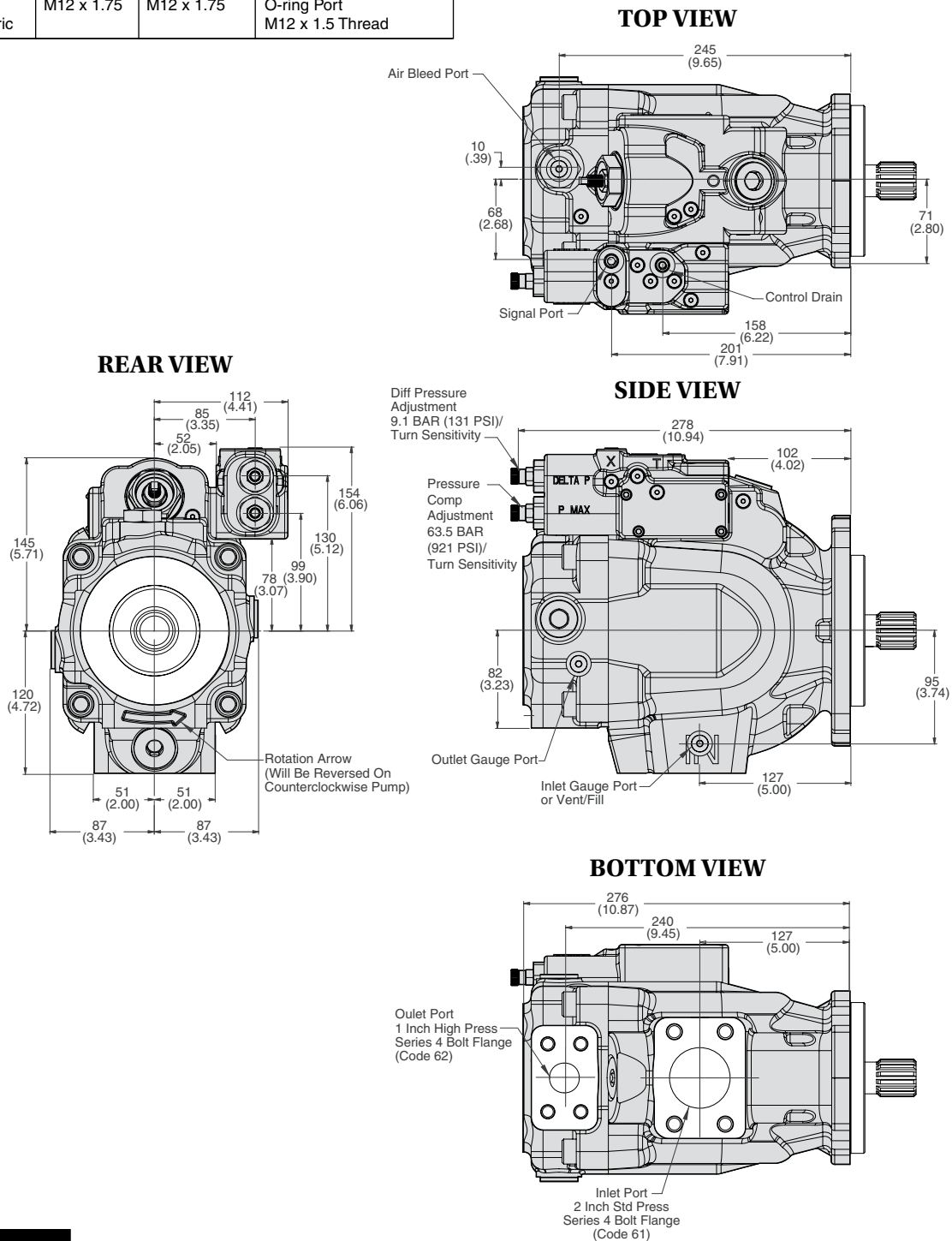
Port Options	Airbleed Port Vent Port
"A" Side - UNC	SAE-4 Straight Thread O-ring Port 7/8-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

SAE C 2-BOLT AND 4-BOLT MOUNTING FLANGE



Pump Installation - P3-075 Side Port

Port Options	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Airbleed Port Signal Port
"A" Side - UNC	1/2-13 UNC	7/16-14 UNC	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

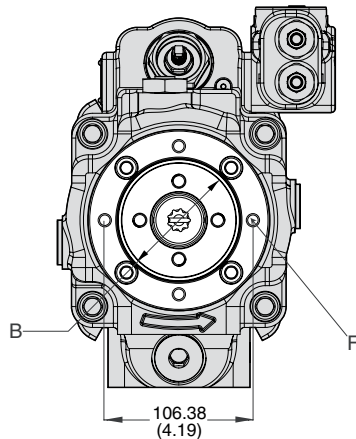


Pump Installation - P3-075 Thru-Shaft Option

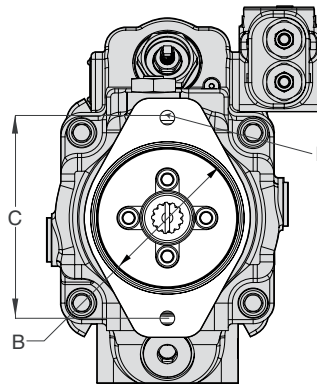
Thru-Shaft Option	A	B	C	D	E	F "A" & "G"	F "B" & "G"
A1	292.5 (11.51)	Ø 82.626/ 82.575 (3.252/ 3.250)	106.3 (4.19)	N/A	SAE-A Spline 9 Tooth 16/32 Pitch	3/8-16 UNC-2B THD	M10 x 1.5 THD
B1	325.5 (12.81)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.1 (5.75)	N/A	SAE-B Spline 13 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD
B2	325.5 (12.81)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.1 (5.75)	N/A	SAE-BB Spline 15 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD
C1	327.5 (12.89)	Ø 127.075/ 127.025 (5.003/ 5.001)	181 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD
C3	327.5 (12.89)	Ø 127.075/ 127.025 (5.003/ 5.001)	181 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD

* All shaft Couplings 30 Degrees Involute Spline Flat Root Side Fit

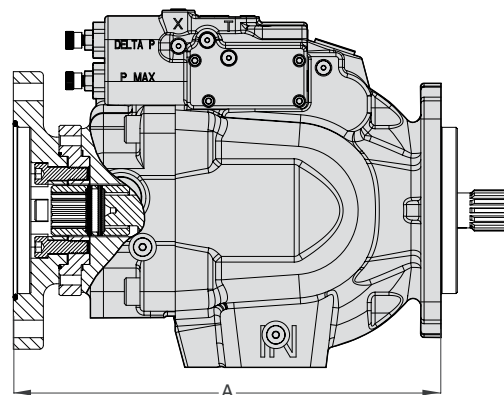
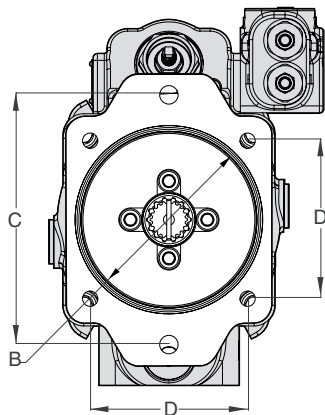
A1 CONFIGURATION



B1 & B2 CONFIGURATION



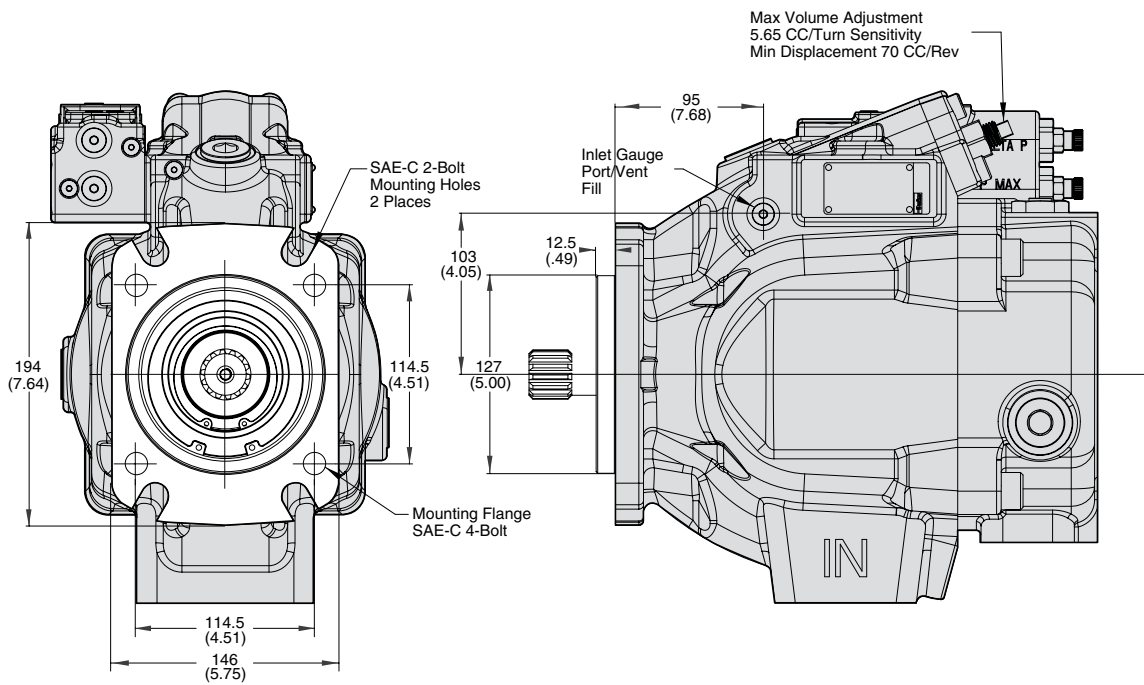
C1 & C3 CONFIGURATION



Max Thru-Drive Torque is 429 Nm (3800 lb in)

Pump Installation - P3-105 Mounting Flange

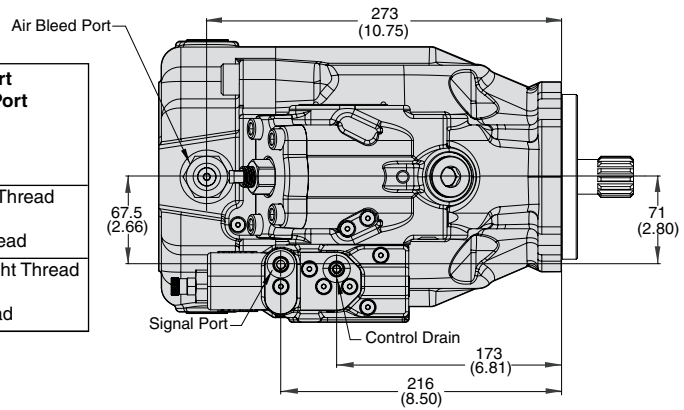
Port Options	Airbleed Port Vent Port
"A" Side - UNC	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread



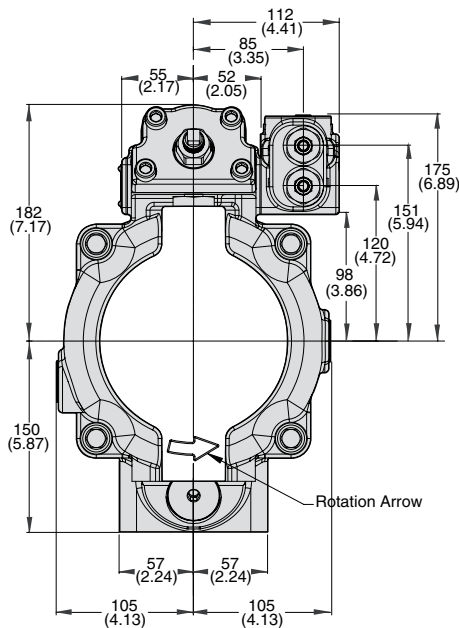
Pump Installation - P3-105 Side Port

Port Options	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Airbleed Port Control Drain Signal Port
"A" Side - UNC	1/2-13 UNC	1/2-13 UNC	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

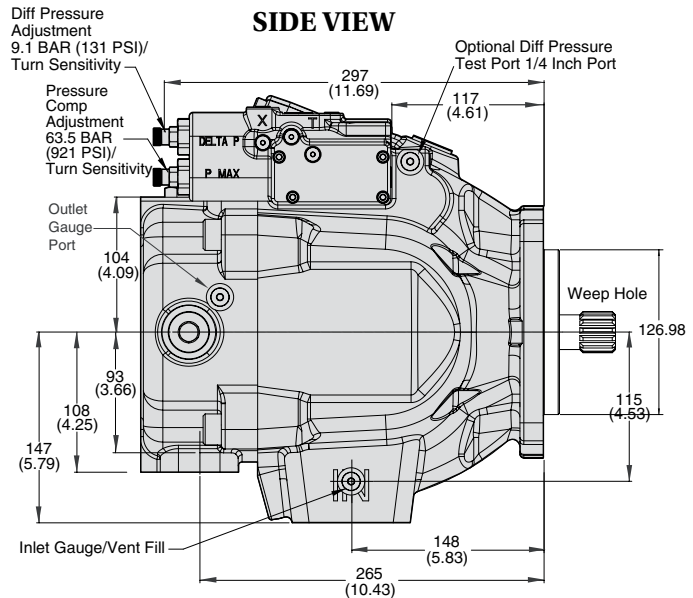
TOP VIEW



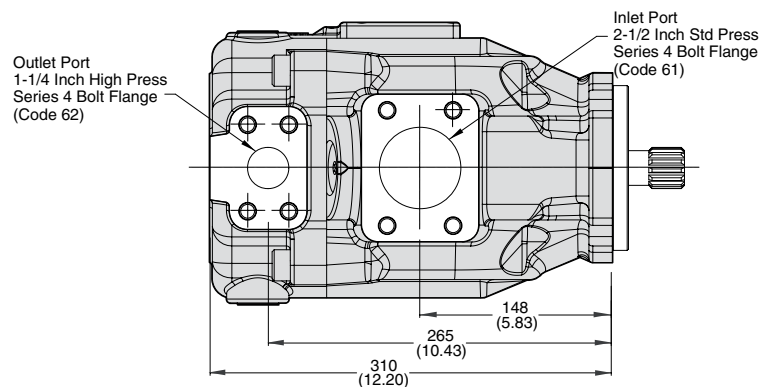
REAR VIEW



SIDE VIEW



BOTTOM VIEW



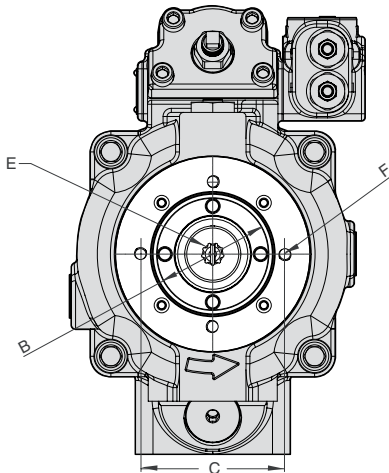
Pump Installation - P3-105 Thru-Shaft Option

Thru-Shaft Option	A	B	C	D	E	F UNC	F Metric	G UNC	G Metric
A1	292.5 (11.51)	Ø 82.626/ 82.575 (3.252/ 3.250)	106.3 (4.19)	N/A	SAE-A Spline 9 Tooth 16/32 Pitch	3/8-16 UNC-2B THD	M10 x 1.5 THD	N/A	N/A
B1	325.5 (12.81)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.1 (5.75)	N/A	SAE-B Spline 13 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A
B2	325.5 (12.81)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.1 (5.75)	N/A	SAE-BB Spline 15 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A
C1	327.5 (12.89)	Ø 127.075/ 127.025 (5.003/ 5.001)	181 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	5/8-11 UNC-2B THD	M16 x 2 THD
C3	327.5 (12.89)	Ø 127.075/ 127.025 (5.003/ 5.001)	181 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	5/8-11 UNC-2B THD	M16 x 2 THD

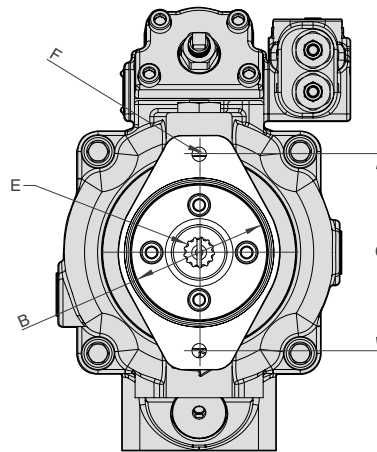
* All shaft Couplings 30 Degrees Involute Spline Flat Root Side Fit

*** Maximum Thru Drive Capability is Limited to 587Nm (5195 lb in)

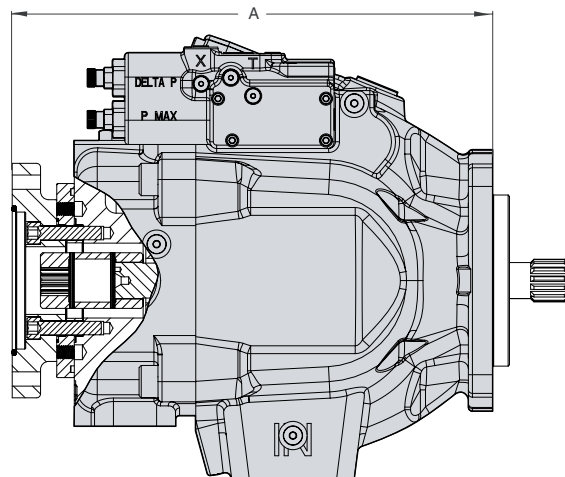
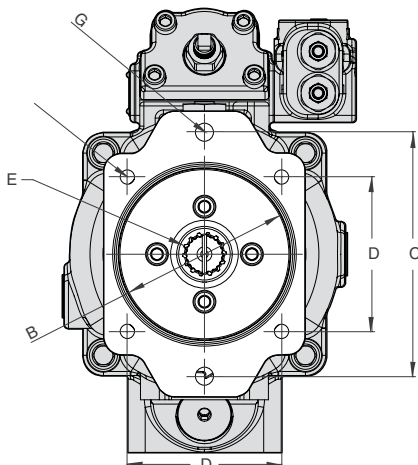
A1 CONFIGURATION



B1 & B2 CONFIGURATION



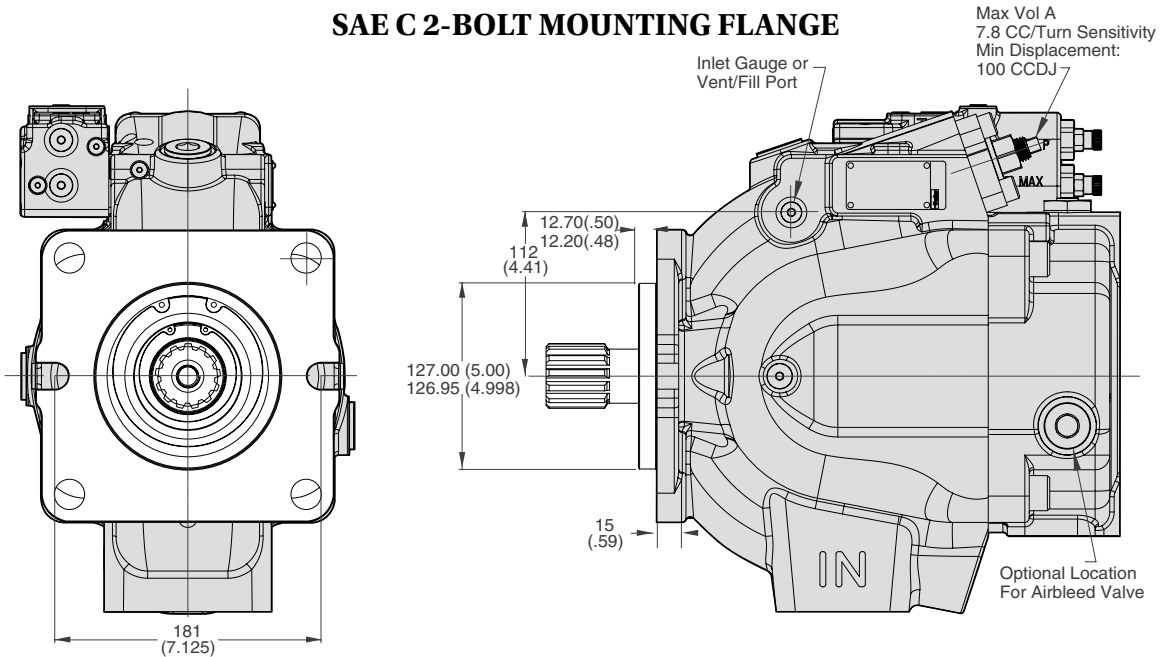
C1 & C3 CONFIGURATION



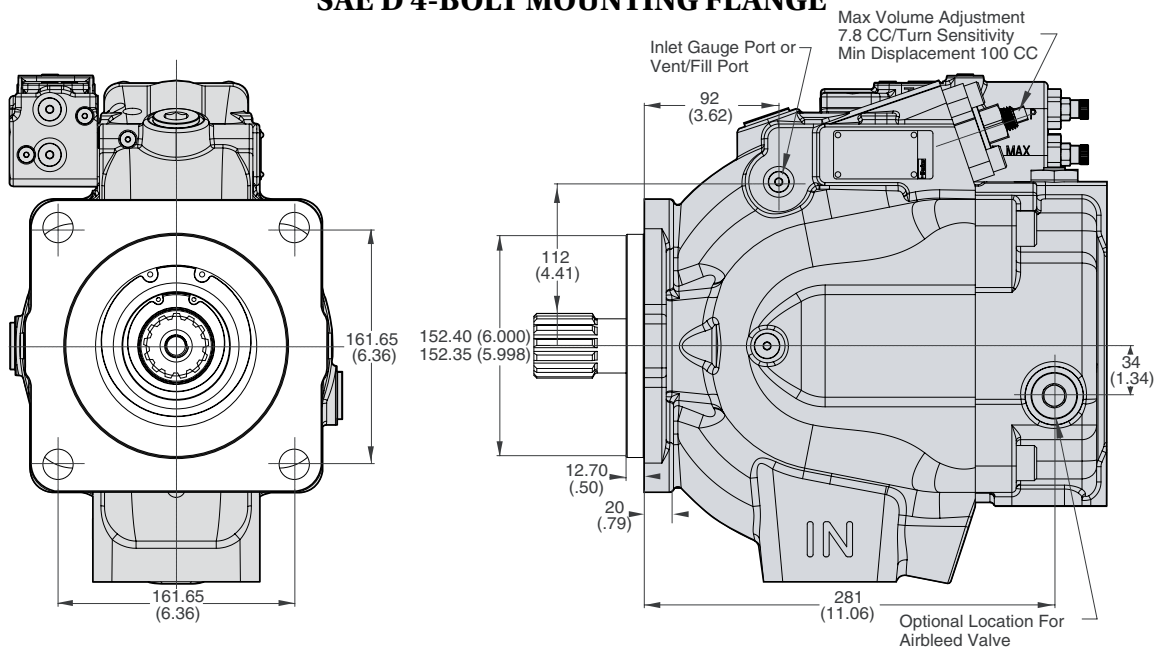
Pump Installation - P3-145 Mounting Flange

Port Options	Airbleed Port Vent Port
"A" Side - UNC	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

SAE C 2-BOLT MOUNTING FLANGE



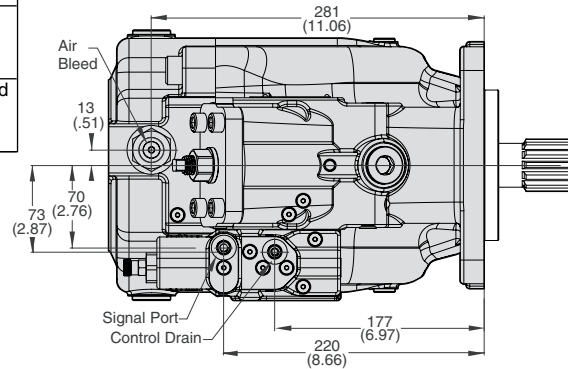
SAE D 4-BOLT MOUNTING FLANGE



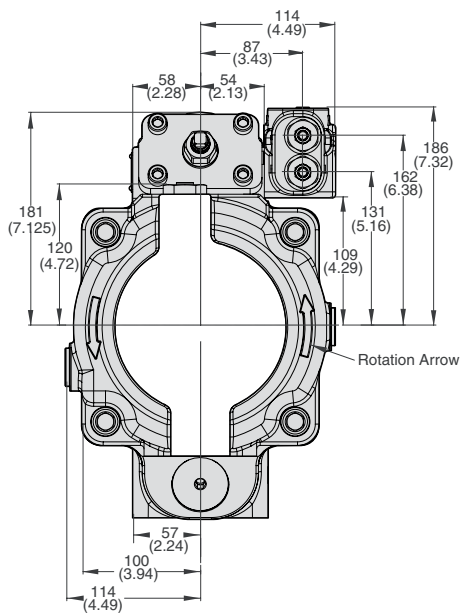
Pump Installation - P3-145 Side Port

Port Options	Inlet Port	Outlet Port	Inlet Gauge Port Outlet Gauge Port Airbleed Port Control Drain Signal Port
"A" Side - UNC	1/2-13 UNC	1/2-13 UNC	SAE-4 Straight Thread O-ring Port 7/16-20 UN Thread
"B" Side - Metric	M12 x 1.75	M12 x 1.75	ISO 6149 Straight Thread O-ring Port M12 x 1.5 Thread

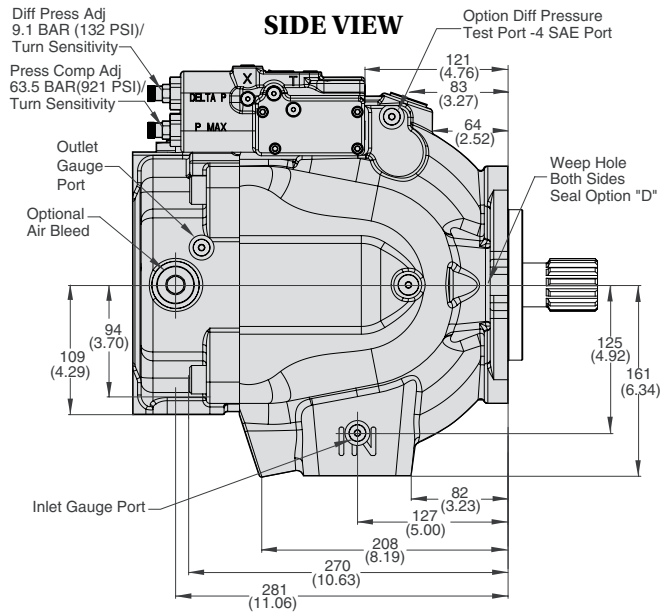
TOP VIEW



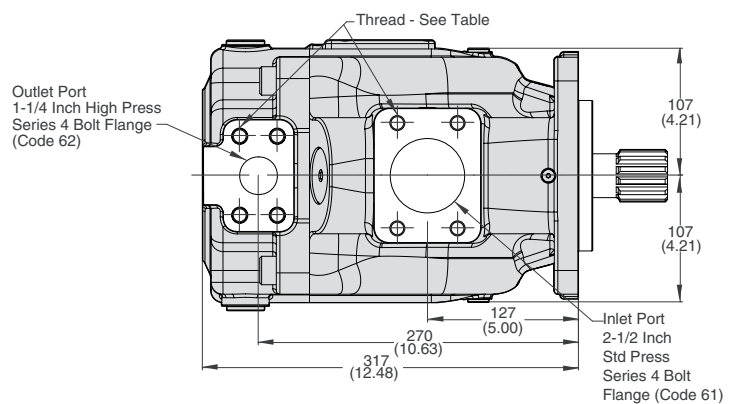
REAR VIEW



SIDE VIEW



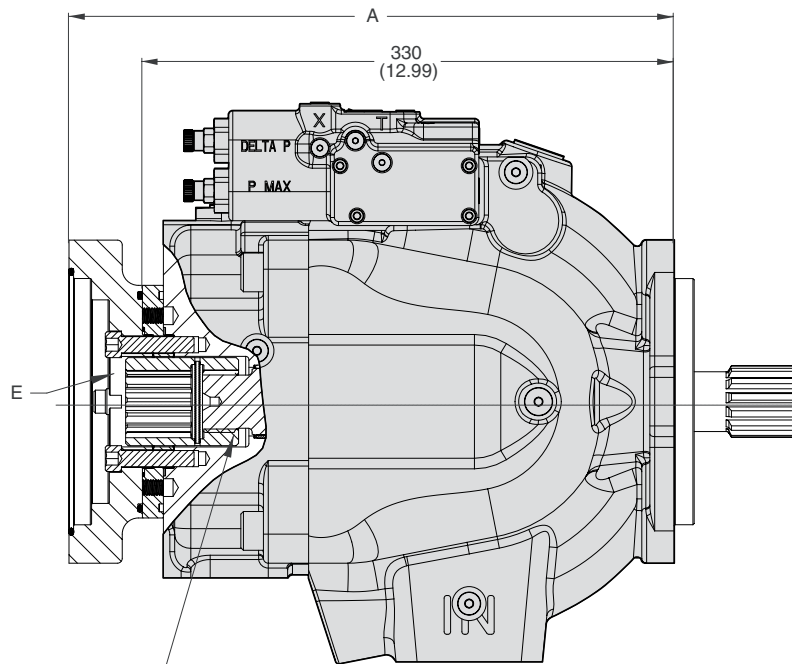
BOTTOM VIEW



Pump Installation - P3-145 Thru-Shaft Option

Thru-Shaft Option	A	B	C	D	E	F UNC	F Metric	G UNC	G Metric	Pump Weight
A1	329.5 (13.0)	Ø 82.626/ 82.575 (3.252/ 3.250)	106.38 (4.19)	N/A	SAE-A Spline 9 Tooth 16/32 Pitch	3/8-16 UNC-2B THD	M10 x 1.5 THD	N/A	N/A	75.7 (167)
B1	362.5 (14.27)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.05 (5.75)	N/A	SAE-B Spline 13 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	78.5 (173)
B2	362.5 (14.27)	Ø 101.676/ 101.625 (4.002/ 4.001)	146.05 (5.75)	N/A	SAE-BB Spline 15 Tooth 16/32 Pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A	78.5 (173)
C1	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	N/A	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	80.0 (176)
C2	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	N/A	SAE-C Spline 17 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	80.0 (176)
C3	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	114.5	SAE-C Spline 14 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	80.0 (176)
C4	364.5 (14.35)	Ø 127.075/ 127.025 (5.003/ 5.001)	180.98 (7.13)	114.5	SAE-CC Spline 17 Tooth 12/24 Pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD	80.0 (176)
D3	375 (14.76)	Ø 152.475/ 152.425 (6.003/ 6.001)	N/A	161.65	SAE-D Spline 13 Tooth 8/16 Pitch	N/A	N/A	3/4-10 UNC-2B THD	M16 x 2 THD	83.9 (185)

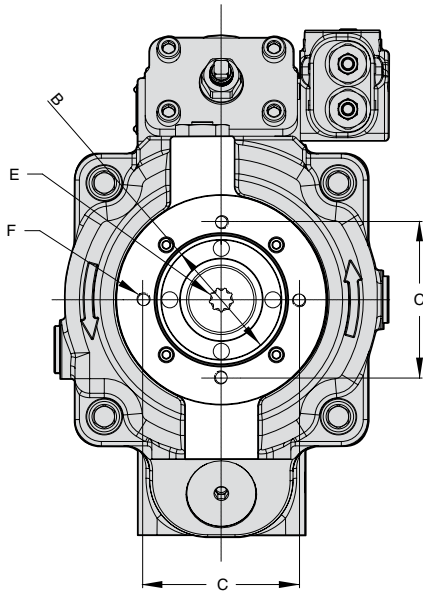
*** Maximum Thru Drive Capability is Limited to 1217Nm (10777 lb in)



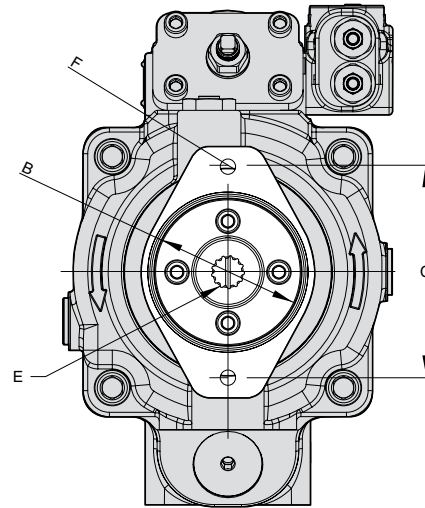
NOTE
 Maximum Thru-Drive Torque Capability is
 Limited to 1217 Nm (10777 lb in)

Pump Installation - P3-145 Thru-Shaft Option

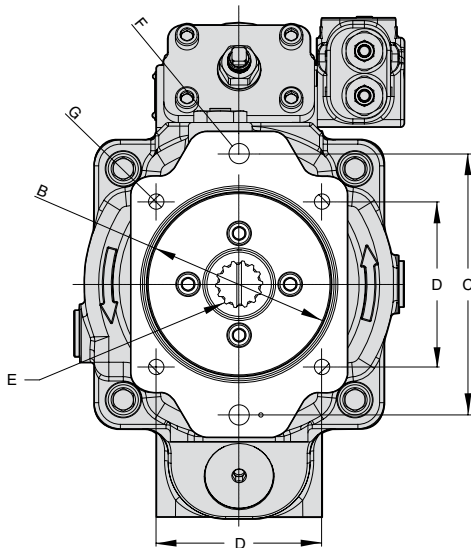
A1 CONFIGURATION



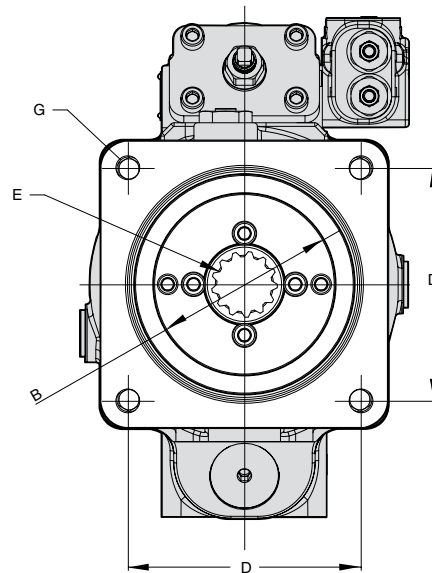
B1 & B2 CONFIGURATION



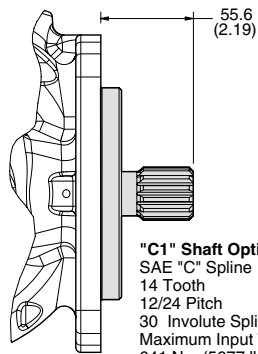
C1, C2, C3 & C4 CONFIGURATION



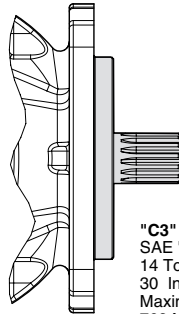
D3 CONFIGURATION



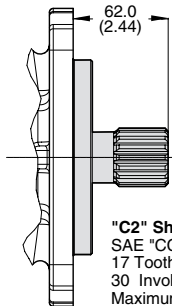
Pump Installation- P3 Shaft Options



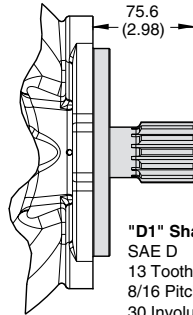
"C1" Shaft Option
 SAE "C" Spline
 14 Tooth
 12/24 Pitch
 30 Involute Spline
 Maximum Input Torque:
 641 Nm (5677 lb in)



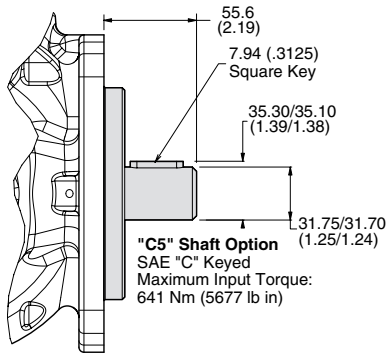
"C3" Shaft Option
 SAE "C" Spline No Undercut
 14 Tooth 12/24 Pitch
 30 Involute
 Maximum Input Torque:
 769 Nm (6812 lb in)



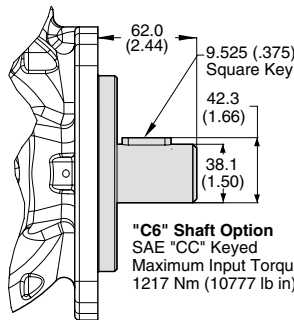
"C2" Shaft Option
 SAE "CC" Spline
 17 Tooth 12/24 Pitch
 30 Involute
 Maximum Input Torque:
 1217 Nm (10777 lb in)



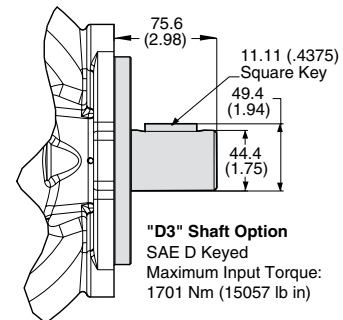
"D1" Shaft Option
 SAE D
 13 Tooth
 8/16 Pitch
 30 Involute Spline
 Maximum Input Torque:
 1701 Nm (15057 lb in)



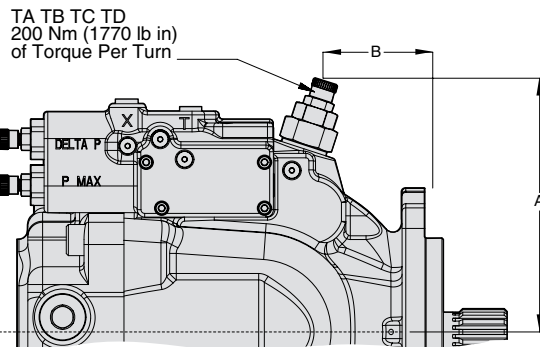
"C5" Shaft Option
 SAE "C" Keyed
 Maximum Input Torque:
 641 Nm (5677 lb in)



"C6" Shaft Option
 SAE "CC" Keyed
 Maximum Input Torque:
 1217 Nm (10777 lb in)



"D3" Shaft Option
 SAE D Keyed
 Maximum Input Torque:
 1701 Nm (15057 lb in)



TA TB TC TD
 200 Nm (1770 lb in)
 of Torque Per Turn

	P3075	P3105	P3145
A	171 (6.73)	190 (7.48)	202 (7.95)
B	69 (2.72)	69 (2.72)	69 (2.72)