

# LIFCO HYDRAULICS INC

[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326



100% GENUINE  
MADE IN USA  
& GERMANY



**2025  
DISTRIBUTOR  
OF THE YEAR**



**SERIES P2145  
AXIAL PISTON PUMP**

**Variable Displacement**





[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## TABLE OF CONTENTS

<b>Specifications &amp; Features</b>	<b>03</b>
<b>Control Option "PA"</b>	<b>04</b>
<b>Control Option "RA"</b>	<b>05</b>
<b>Control Option "LA" and "LB"</b>	<b>06</b>
<b>Control Option "TA", "TB", "TC" &amp; "TD"</b>	<b>07</b>
<b>Typical Torque Control Characteristics</b>	<b>08</b>
<b>Hydr. Generated Noise/Performance Curves</b>	<b>09</b>
<b>Performance Curves</b>	<b>10</b>
<b>Mounting Flange</b>	<b>16</b>
<b>Side Port</b>	<b>17</b>
<b>Thru-Drive Option</b>	<b>18</b>
<b>Shaft Options</b>	<b>20</b>
<b>General Installation Information</b>	<b>21</b>

# LIFCO HYDRAULICS INC

[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## INVENTORY STATUS

[CHECK PRICING](#)

Unit Availability	
Parts Availability	
Ability to Solve Problems	

## FEATURES

- Dedicated envelope design and unique port layout
- High self-priming speed
- Standard integrated pre-compression volume
- Heavy duty approval (size 105 and 145) for increased power density
- Cost saving installation by direct PTO mount
- High productivity by maximized output flow
- High altitude operation capability
- Low noise level and reduced flow ripple

## SPECIFICATIONS

<b>Max. displacement</b>	[cm <sup>3</sup> /rev]	145
<b>Self-priming speed at 1 bar absolute inlet pressure <sup>1)</sup></b>	[rpm]	2200
<b>Nominal pressure <sup>2)</sup></b>	[bar]	350
<b>Min. inlet pressure, absolute <sup>1)</sup></b>	[bar]	0.8
<b>Max. inlet pressure, absolute</b>	[bar]	10
<b>Max. case drain pressure, absolute</b>	[bar]	1.5
<b>Min. outlet pressure, absolute</b>	[bar]	15
<b>Noise level at full flow at 1800 rpm and 250 bar</b>	[dbA]	80
<b>Weight with load sense control</b>	[kg]	78
<b>Mass moment of inertia (at axis of shaft)</b>	[kg m <sup>2</sup> ]	0.0241

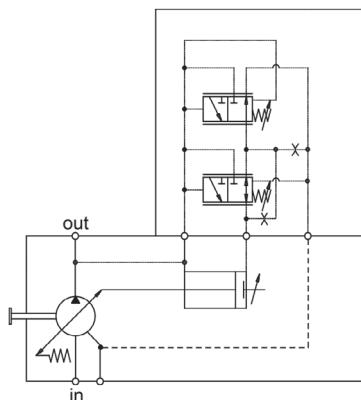
<sup>1)</sup> Detailed inlet characteristics can be taken from further in this catalogue

<sup>2)</sup> For maximum operating pressures exceeding above mentioned nominal ratings please consult manufacturer

## CONTROL OPTION "PA"

The pressure control is used to limit the maximum system pressure. The control acts such that full pump displacement is achieved unless 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.

Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.

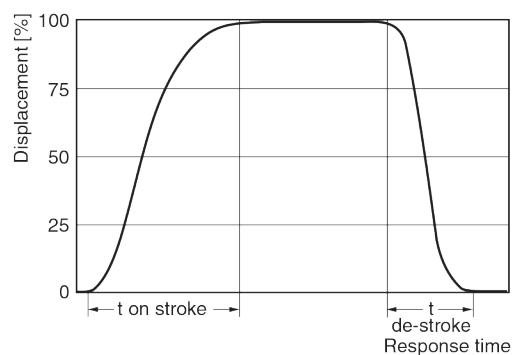


	time on stroke [ms]		time de-stroke [ms]
	against 50 bar	against 220 bar	
P2060	70	65	30
P2075	70	70	30
P2105	120	90	30
P2145	160	130	30

Dynamic characteristic of flow control \*

Compensator oil consumption PA control	max. 3.0 l/min
Pressure compensator adjusting range	Size 105 and 145 100 ... 350 bar Size 60 and 75 100 ... 320 bar
Hysteresis and repetitive accuracy	max. 3 bar

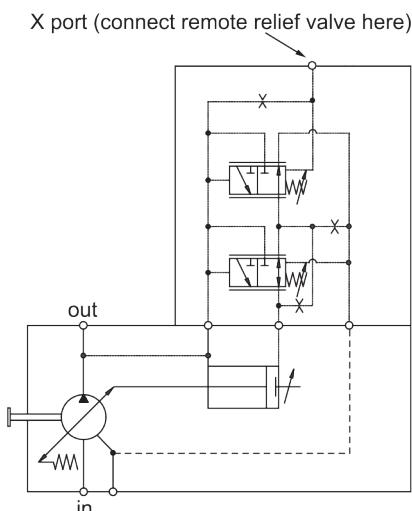
\* Curve shown exaggerated



## CONTROL OPTION "RA"

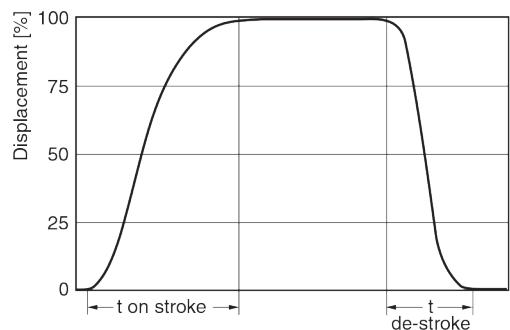
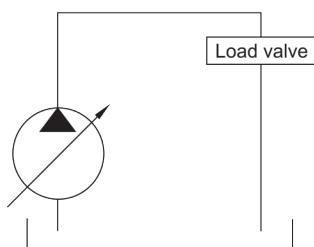
This control allows the pump pressure compensator setting to be adjusted from a remote relief valve. The control acts such that when full pump displacement is achieved the load pressure reaches the maximum setting of the remote relief valve. If pump flow is restricted by the system valve, the pump will 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 de-stroke to zero displacement and maintain the pressure at the setting of the remote relief valve.

Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



time on stroke [ms]	time de-stroke [ms]	
stand by to 250 bar	250 bar to stand by	50 bar to stand by
120	45	50
<b>Compensator oil consumption RA control</b>		
max. 3.0 l/min		
<b>Pilot pressure valve oil consumption</b>		max. 2.0 l/min
<b>Delta P compensator adjusting range</b>		10 ... 35 bar
<b>Pressure compensator adjusting range</b>		100 ... 350 bar
<b>Hysteresis and repetitive accuracy</b>		max. 3 bar

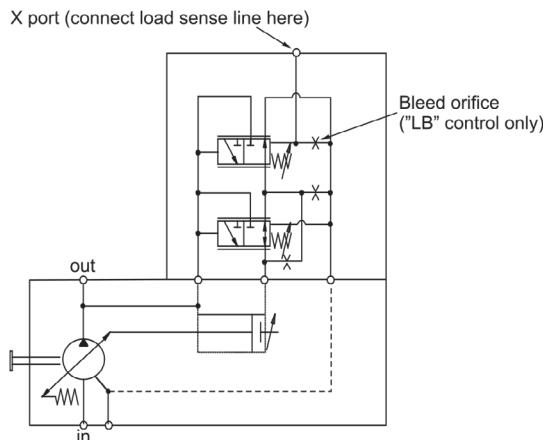
Dynamic characteristic of flow control \*



## CONTROL OPTIONS "LA" AND "LB"

Load sensing control with maximum pressure control

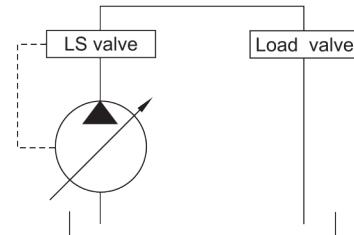
These controls feature load sensing and maximum pressure compensation. Load sense controls are used to match pump flow to system demands.



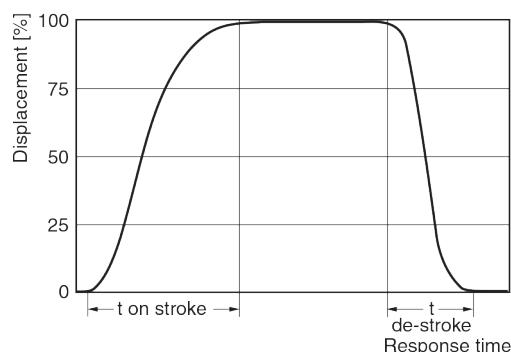
	time on stroke [ms]		time de-stroke [ms]
	stand by to 250 bar	250 bar to stand by	50 bar to stand by
P2060	60	30	40
P2075	80	35	40
P2105	100	40	45
P2145	120	45	50

Compensator oil consumption LA control	max. 3.0 l/min
Compensator oil consumption LB control	max. 4.5 l/min
Load sensing compensator adjusting range	10 ... 35 bar
Pressure compensator adjusting range	Size 105 and 145 100 ... 350 bar
	Size 60 and 75 100 ... 320 bar
Hysteresis and repetitive accuracy	max. 3 bar

\* Curve shown exaggerated



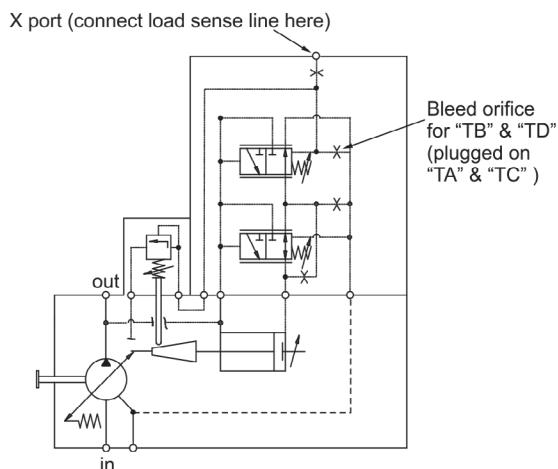
Dynamic characteristic of flow control \*



## CONTROL OPTIONS "TA", "TB", "TC" & "TD"

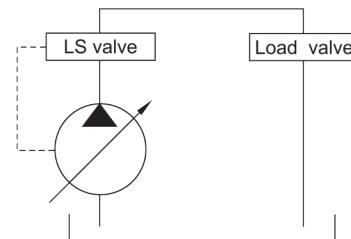
Torque limiting control with load sensing and maximum pressure control limiter

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.

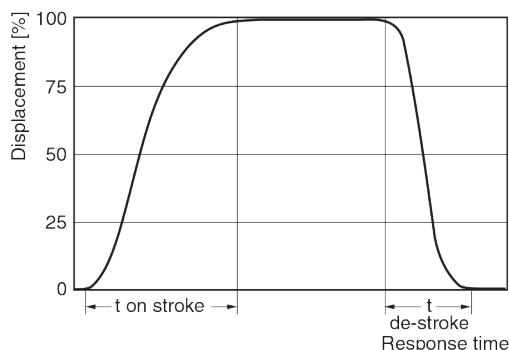


	time on stroke [ms]	time de-stroke [ms]	
	stand by to 250 bar	250 bar to stand by	50 bar to stand by
P2060	60	30	40
P2075	80	35	40
P2105	100	40	45
P2145	120	45	50

Compensator oil consumption TA, TC control	max. 3.0 l/min
Compensator oil consumption TB, TD control	max. 4.5 l/min
Torque control valve oil consumption	max. 2.0 l/min
Load sensing compensator adjusting range	10 ... 35 bar
Pressure compensator adjusting range	Size 105 and 145 100 ... 350 bar
	Size 60 and 75 100 ... 320 bar
Hysteresis and repetitive accuracy	max. 3 bar



Dynamic characteristic of flow control \*



\* Curve shown exaggerated

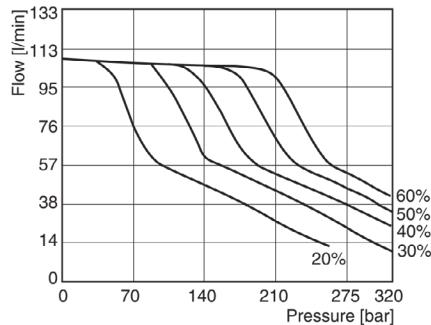
# LIFCO

## HYDRAULICS INC

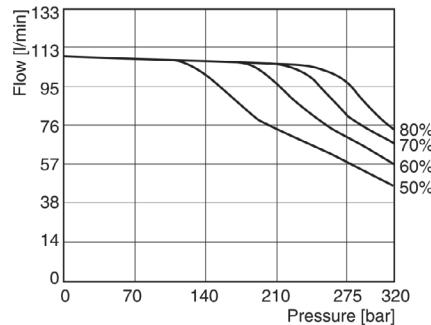
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## TYPICAL TORQUE CONTROL CHARACTERISTICS

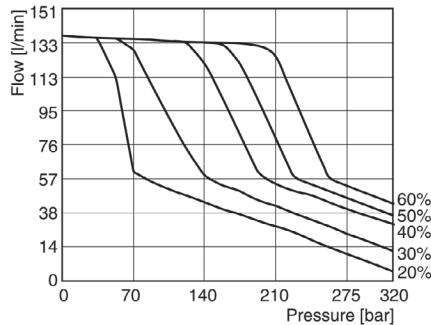
P2060 - 20...60 % Torque (1800 rpm)



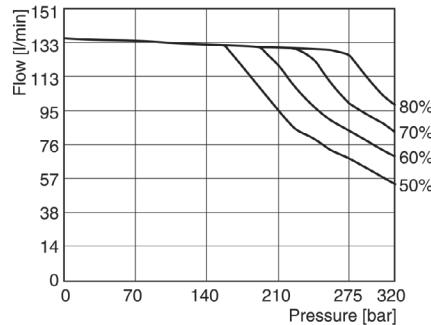
P2060 - 50...90 % Torque (1800 rpm)



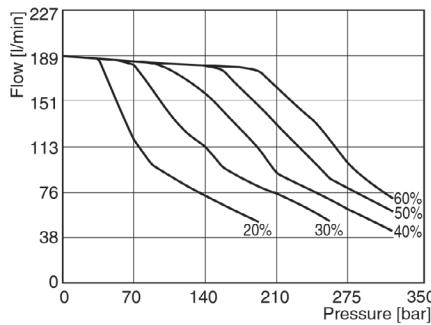
P2075 - 20...60 % Torque (1800 rpm)



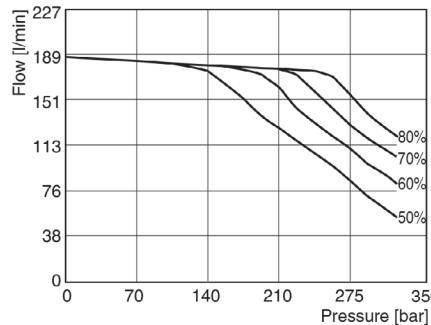
P2075 - 50...90 % Torque (1800 rpm)



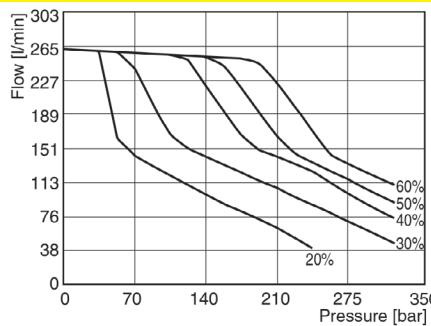
P2105 - 20...60 % Torque (1800 rpm)



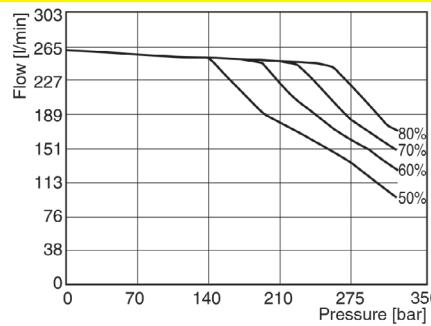
P2105 - 50...90 % Torque (1800 rpm)



P2145 - 20...60 % Torque (1800 rpm)



P2145 - 50...90 % Torque (1800 rpm)



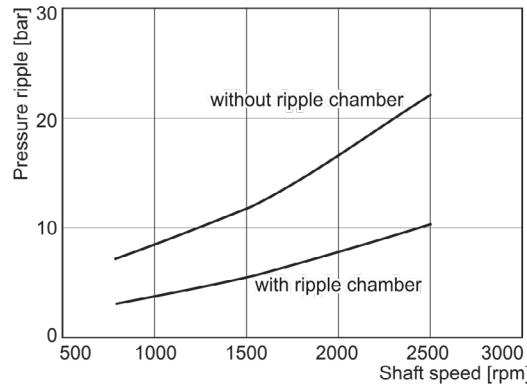
## HYDR. GENERATED NOISE / PERFORMANCE CURVES

### Ripple chamber

#### Pressure ripple at 200 bar

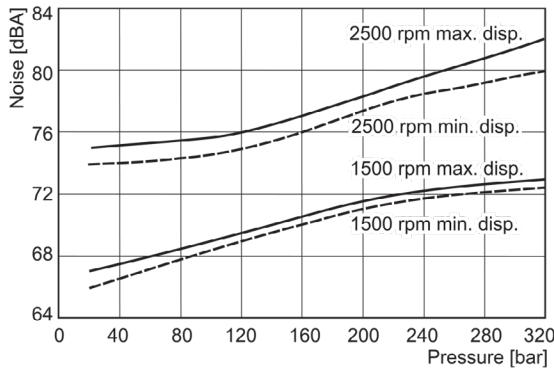
The chart on the right refers to the "Ripple Chamber" technology engineered into the P2 and P3 series pumps. The ripple chamber reduces flow pulsation and due to this pressure pulsation (called "ripple") at the outlet of the pump. This technology reduces the ripple by 40–60% and leads to a significant reduction in overall system noise without additional components or cost.

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

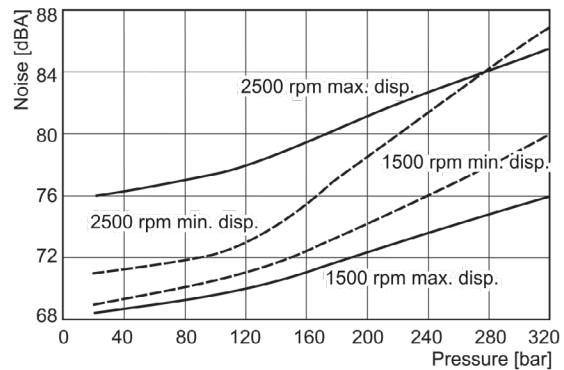


### P2 Noise characteristics at max./min. displacement

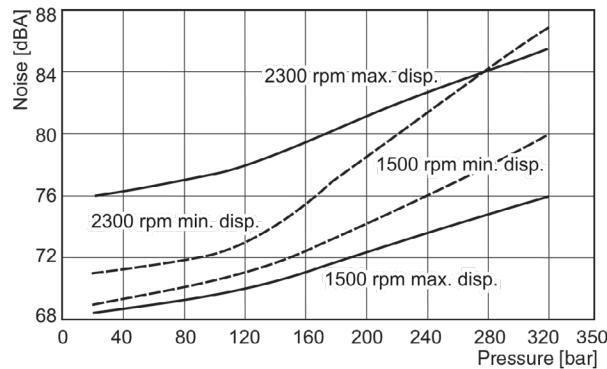
#### P2060 Noise characteristics



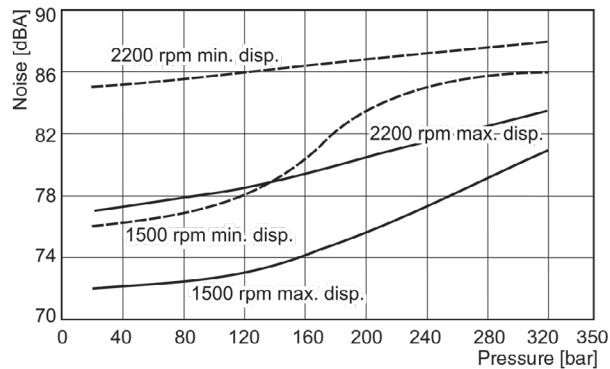
#### P2075 Noise characteristics



#### P2105 Noise characteristics



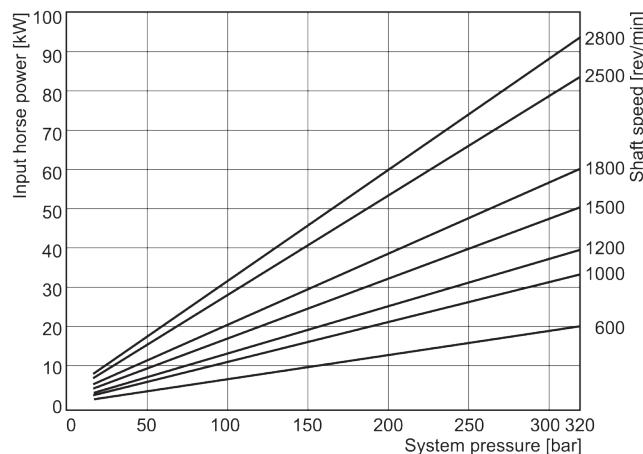
#### P2145 Noise characteristics



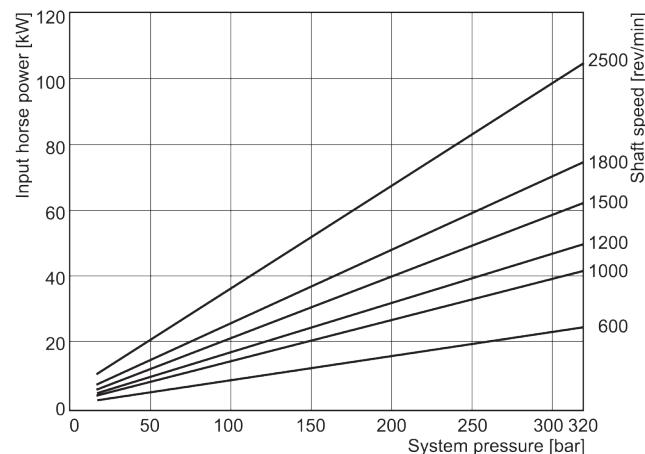
## PERFORMANCE CURVES

P2 Series - typical drive power at full displacement

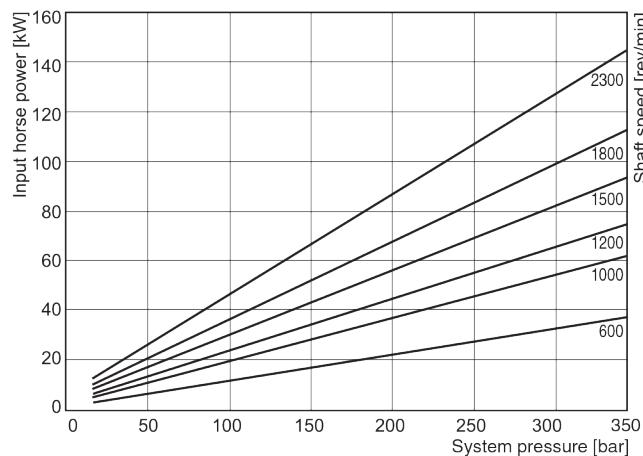
P2060 Input power - full stroke



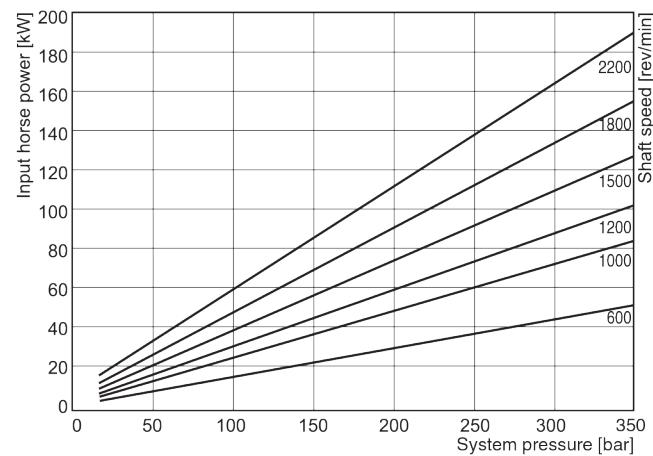
P2075 Input power - full stroke



P2105 Input power - full stroke



P2145 Input power - full stroke



Fluid: Mineral oil ISO VG 32 at 40°C ; Inlet pressure: 1.0 bar (absolute) measured at inlet port.

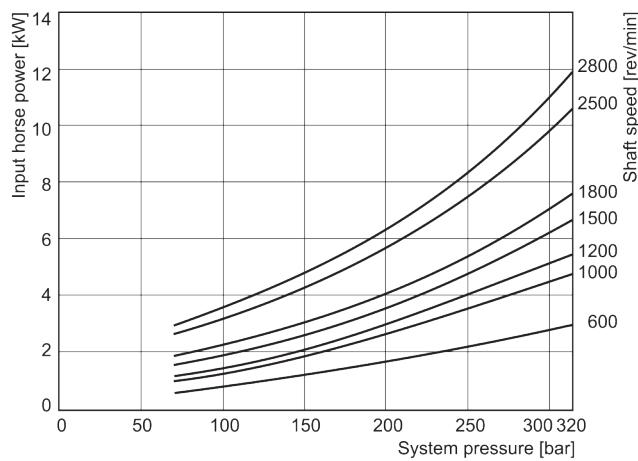
# LIFCO

## HYDRAULICS INC

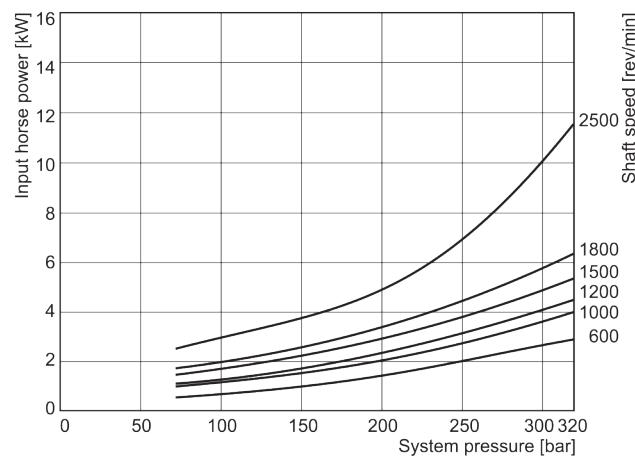
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

### P2 Series - typical compensated input power

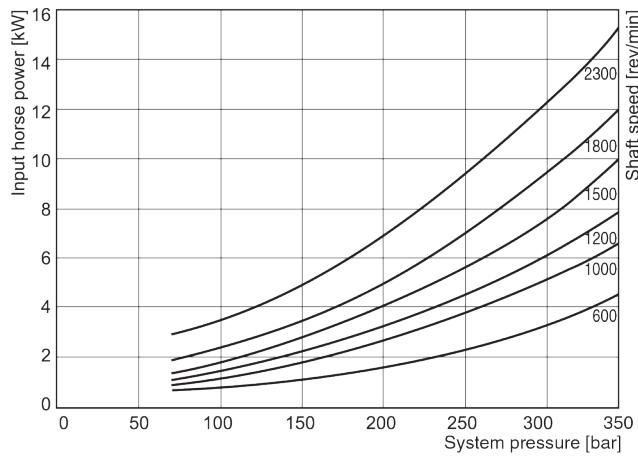
**P2060 Input power - zero stroke**



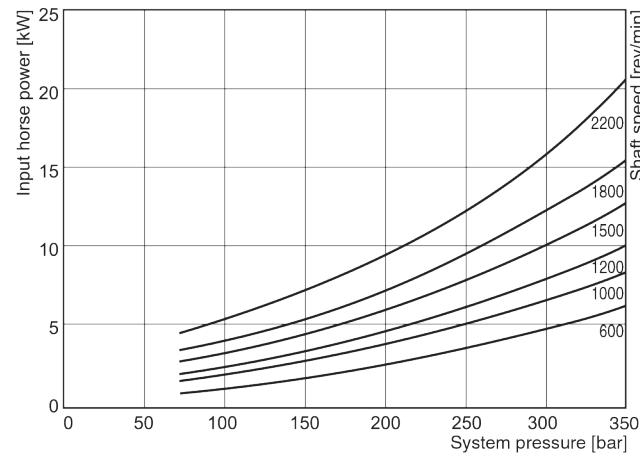
**P2075 Input power - zero stroke**



**P2105 Input power - zero stroke**



**P2145 Input power - zero stroke**



Fluid: Mineral oil ISO VG 32 at 40°C ; Inlet pressure: 1.0 bar (absolute) measured at inlet port.

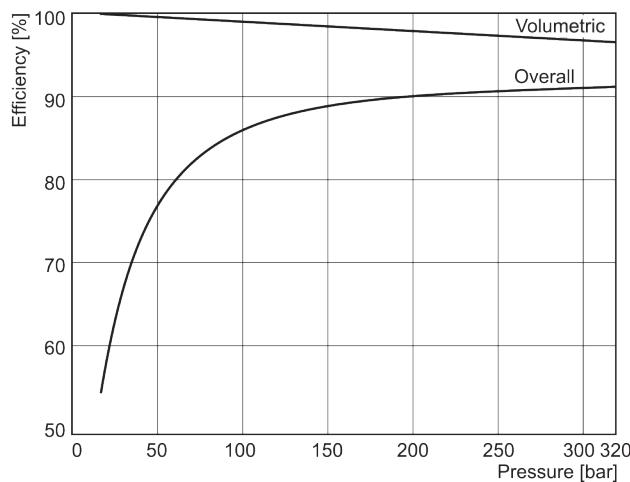
# LIFCO

## HYDRAULICS INC

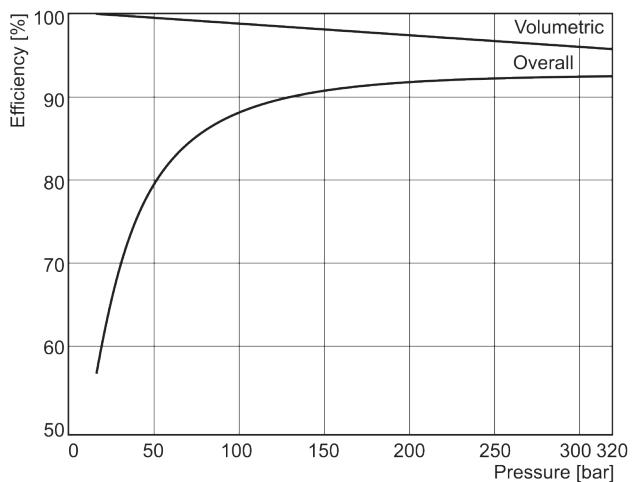
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

P2 Series - typical efficiency at full displacement at 1800 rpm

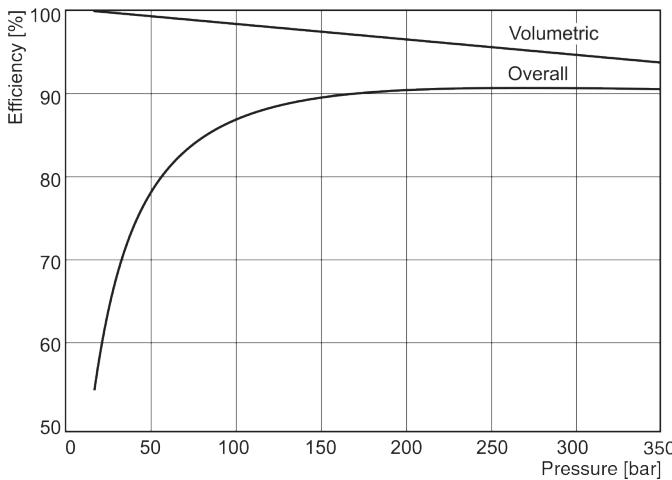
P2060 Efficiency at 1800 rpm



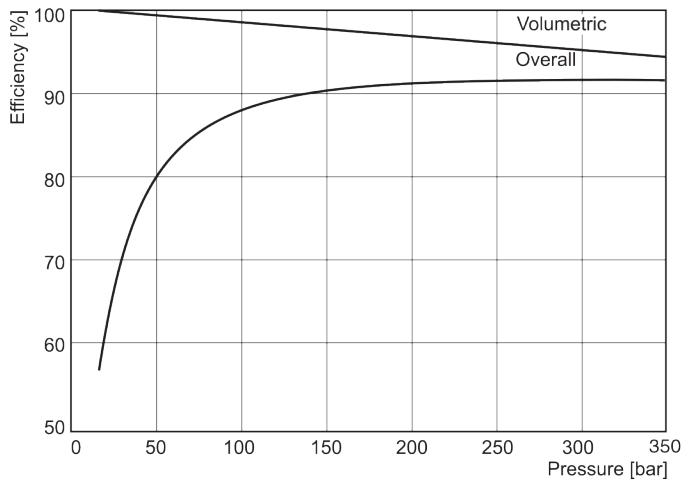
P2075 Efficiency at 1800 rpm



P2105 Efficiency at 1800 rpm



P2145 Efficiency at 1800 rpm



Fluid: Mineral oil ISO VG 32 at 40°C ; Inlet pressure: 1.0 bar (absolute) measured at inlet port.

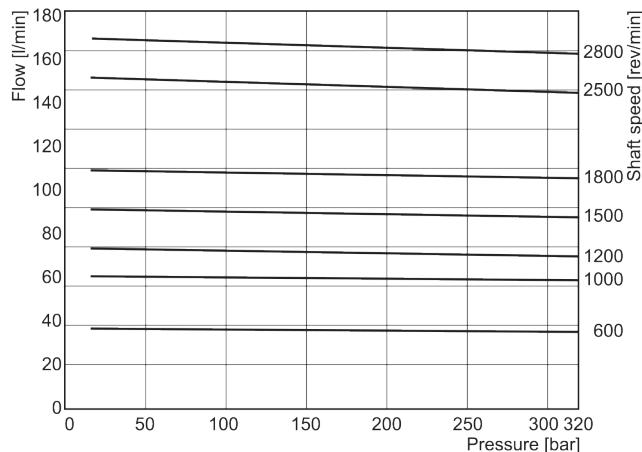
# LIFCO

## HYDRAULICS INC

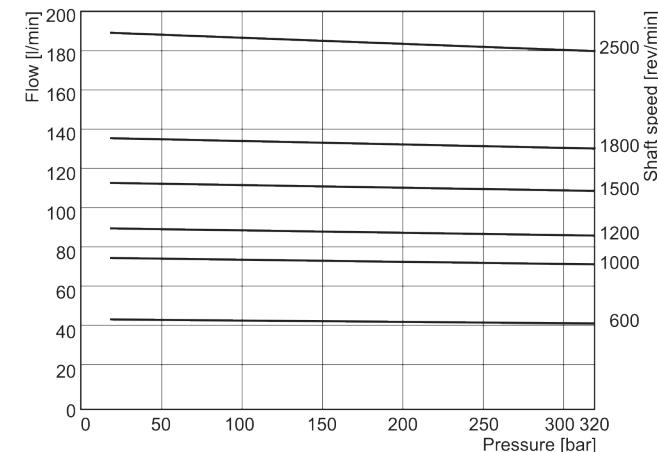
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

### P2 Series - typical flow vs. pressure

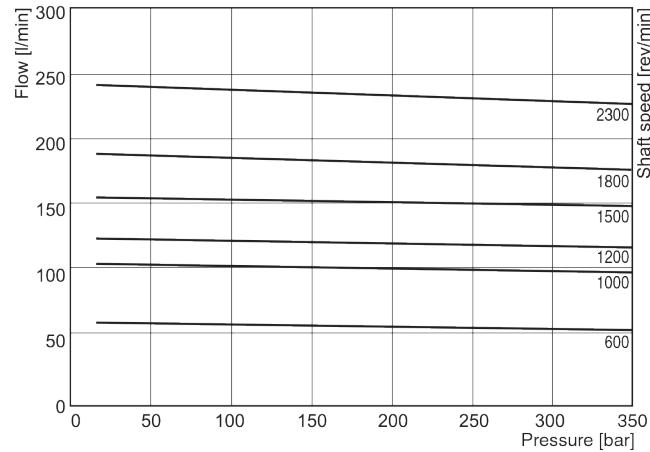
**P2060 Outlet flow - full stroke**



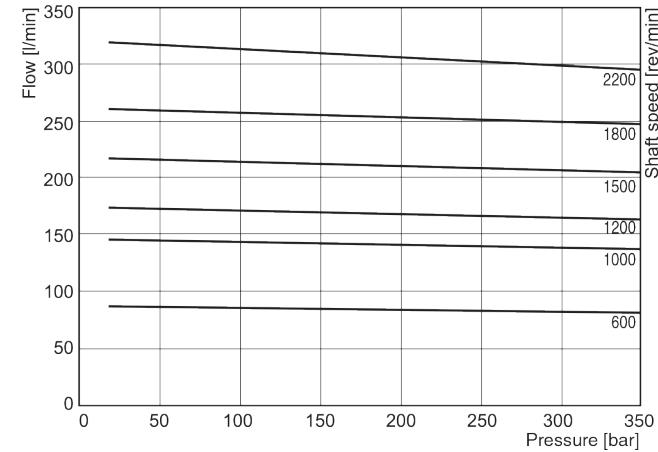
**P2075 Outlet flow - full stroke**



**P2105 Outlet flow - full stroke**



**P2145 Outlet flow - full stroke**



Fluid: Mineral oil ISO VG 32 at 40°C ; Inlet pressure: 1.0 bar (absolute) measured at inlet port.

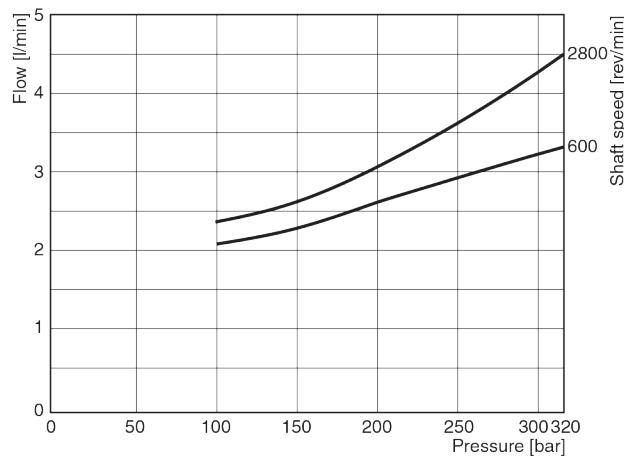
# LIFCO

## HYDRAULICS INC

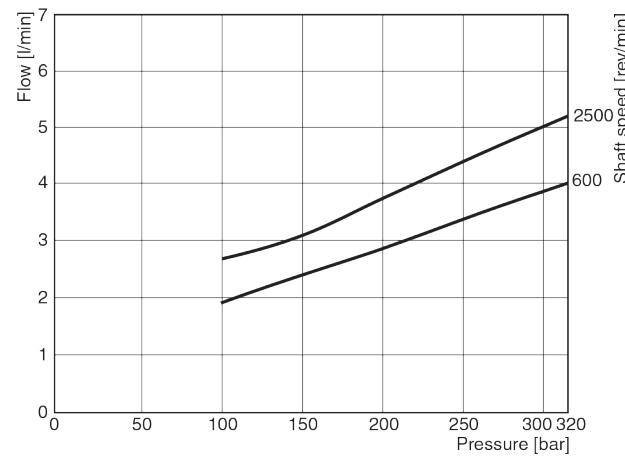
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

### P2 Series - typical compensated case drain flow

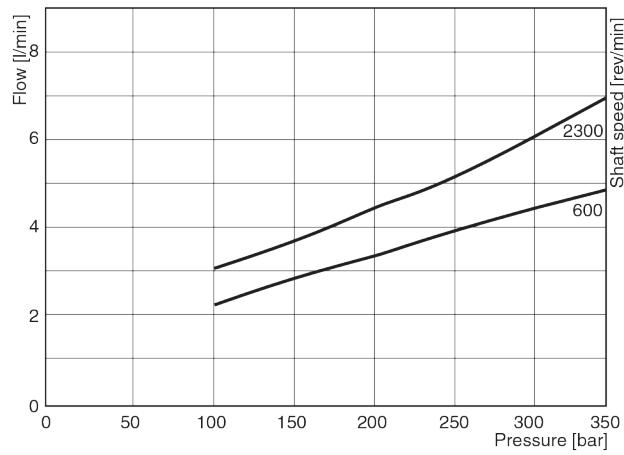
**P2060 Drain flow at zero stroke**



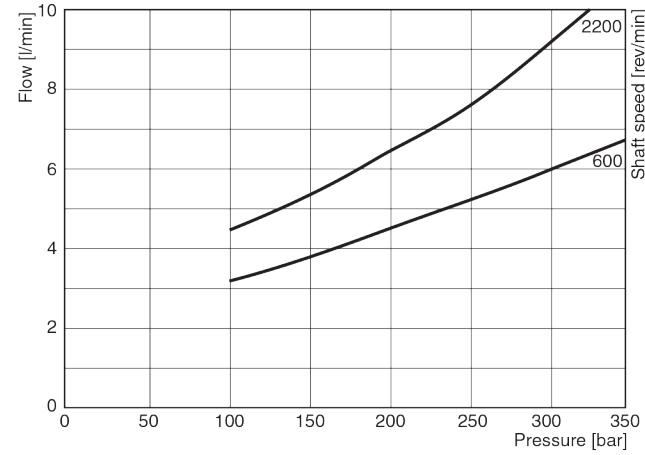
**P2075 Drain flow at zero stroke**



**P2105 Drain flow at zero stroke**



**P2145 Drain flow at zero stroke**



Fluid: Mineral oil ISO VG 32 at 40°C ; Inlet pressure: 1.0 bar (absolute) measured at inlet port.

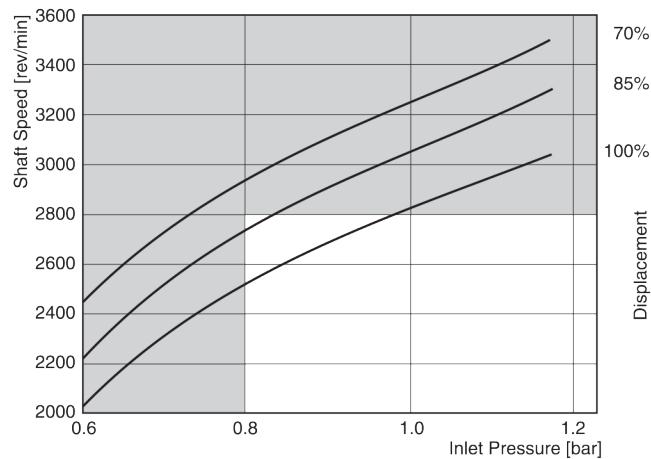
# LIFCO

## HYDRAULICS INC

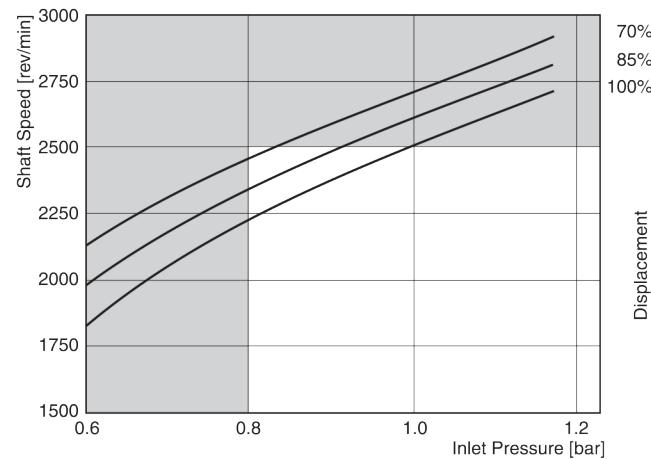
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

P2 Series - typical inlet characteristics vs. speed at various percentage displacements

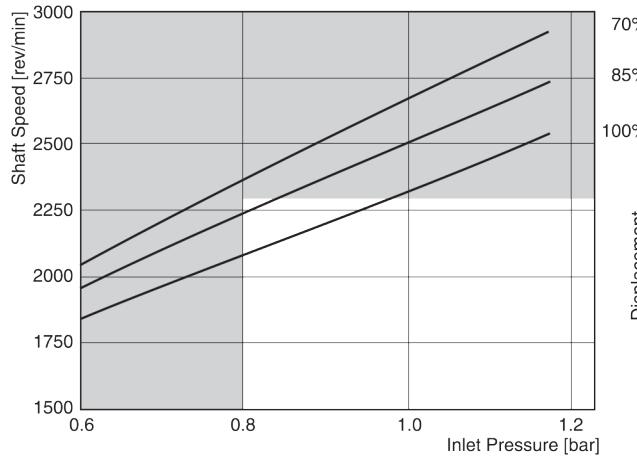
**P2060 Inlet characteristics**



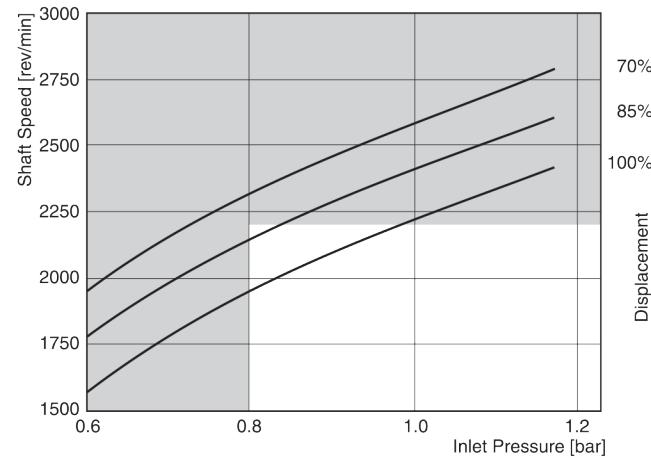
**P2075 Inlet characteristics**



**P2105 Inlet characteristics**



**P2145 Inlet characteristics**



Fluid: Mineral oil ISO VG 32 at 40°C ; Inlet pressure: 1.0 bar (absolute) measured at inlet port.

For operation at these conditions, please consult manufacturer for approval.

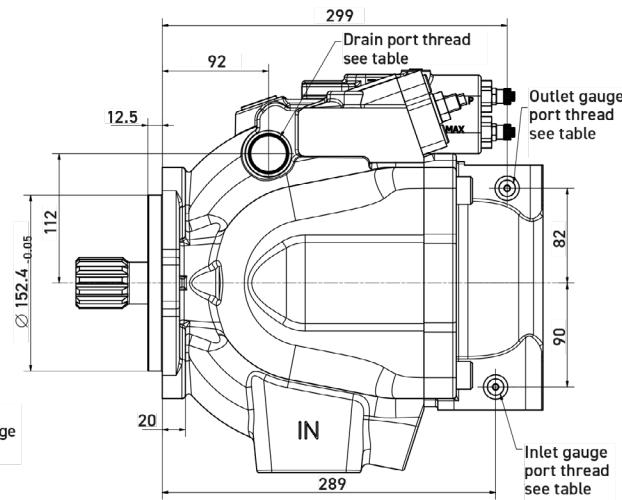
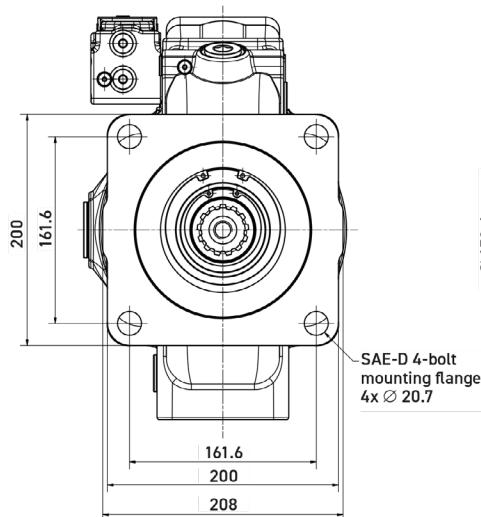
# LIFCO

## HYDRAULICS INC

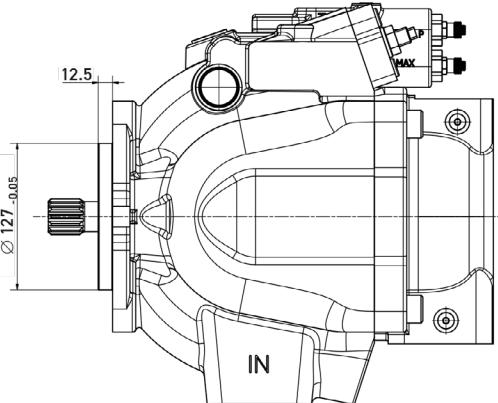
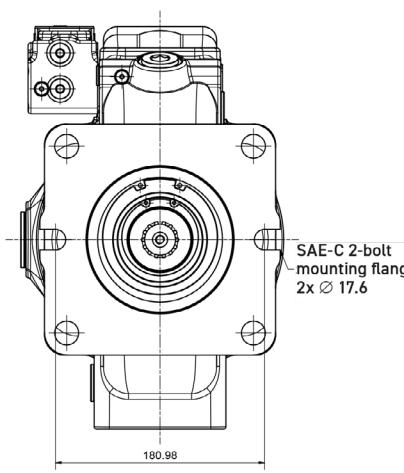
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## MOUNTING FLANGE

SAE D 4-bolt mounting flange



SAE C 2-bolt mounting flange



CW pump shown.

CCW pump will have inlet and outlet gauge ports opposite side.



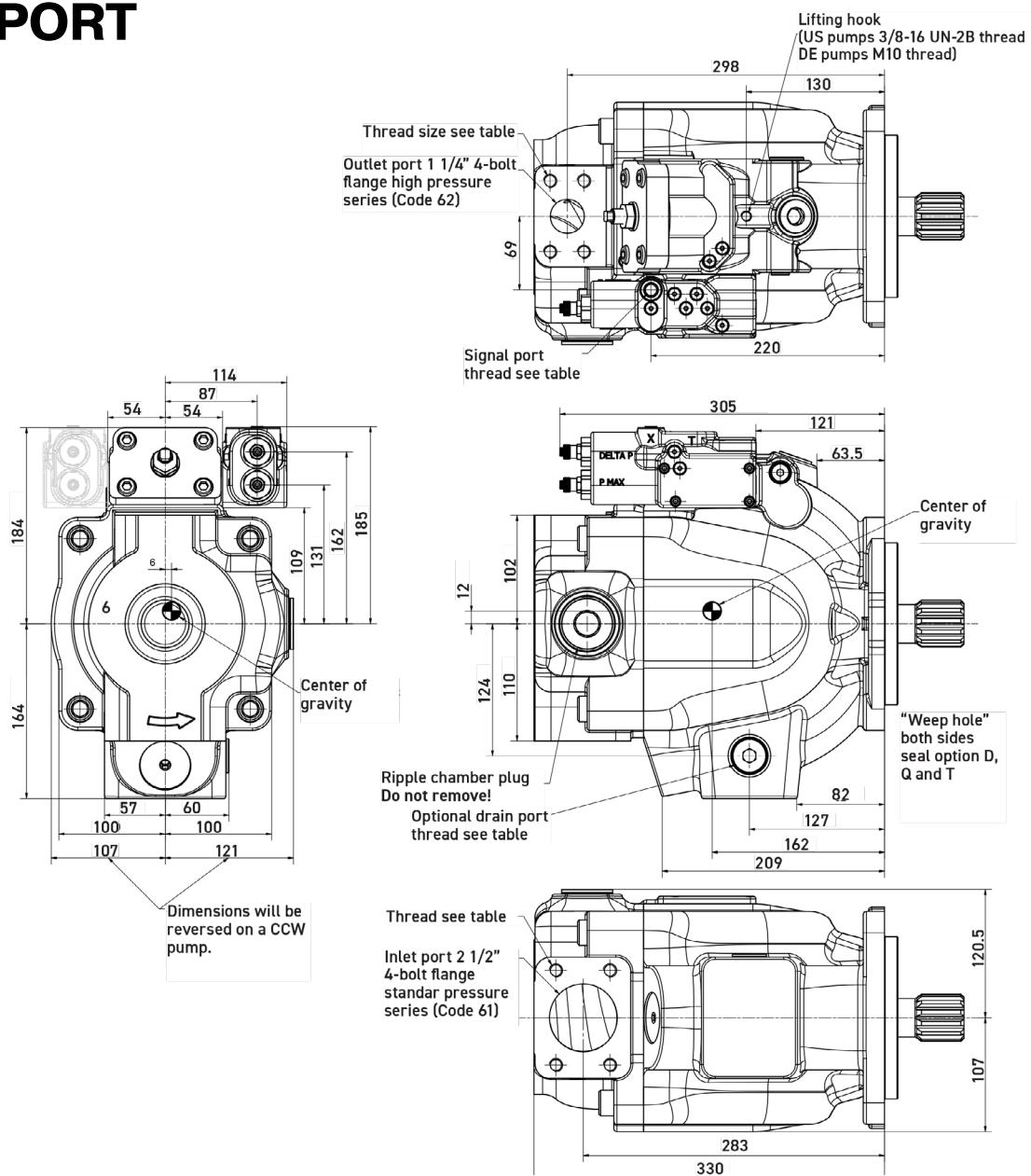
Port ordering code	Drain port	Inlet gauge port / Outlet gauge port
"A" side - UNC	SAE-12 straight thread / O-ring port: 1-1/16-12 UN thread	SAE-4 straight thread / O-ring port: 7/16-20 UN thread
"B" side - metric	ISO 6149 straight thread / O-ring port: M27 x 2 thread	ISO 6149 straight thread / O-ring port: M12 x 1.5 thread

# LIFCO

## HYDRAULICS INC

[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## SIDE PORT



Pump shown is a CW rotation P2145 series pump with load sense and max. pressure compensator.

As an option the compensator unit can be positioned at opposite side of the pump. Please consult manufacturer for details.

CCW pump will have inlet and outlet gauge ports opposite side.



Port option	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	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

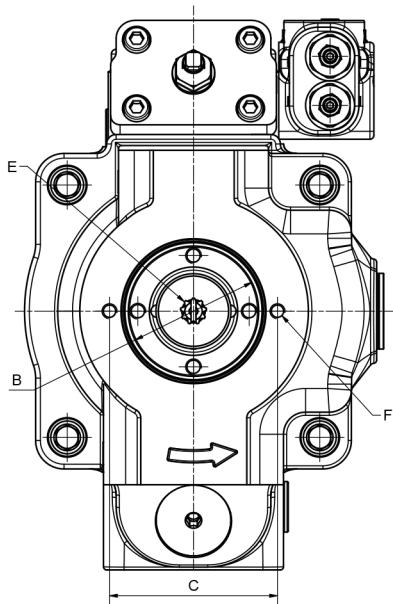
# LIFCO

## HYDRAULICS INC

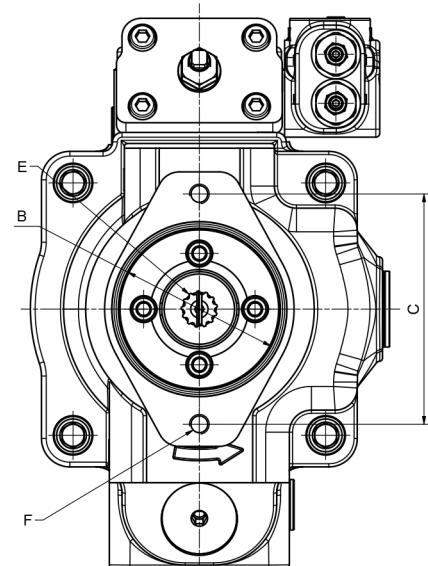
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## THRU-DRIVE OPTION

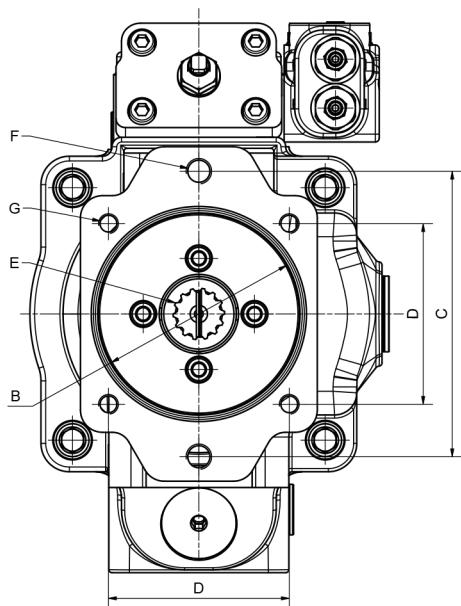
A1 configuration



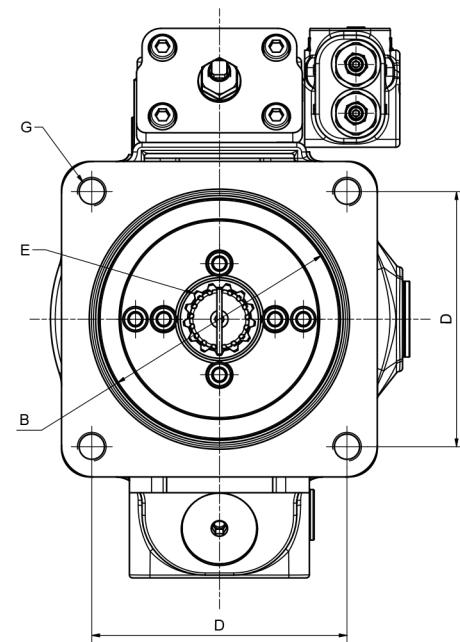
B1 and B2 configurations



C1, C2, C3 and C4 configurations



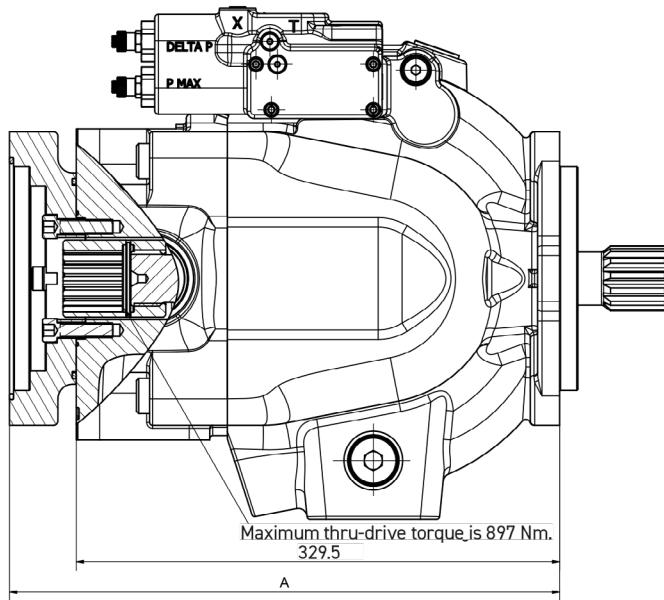
D3 configuration



# LIFCO

## HYDRAULICS INC

[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326



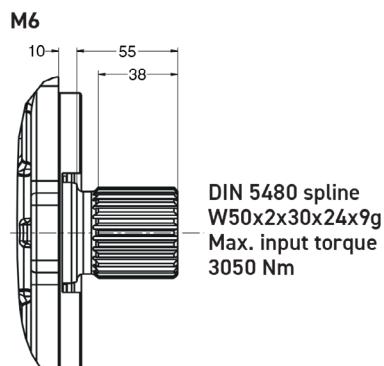
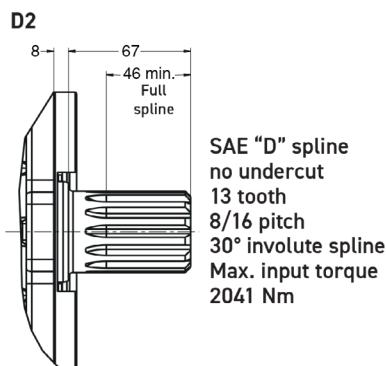
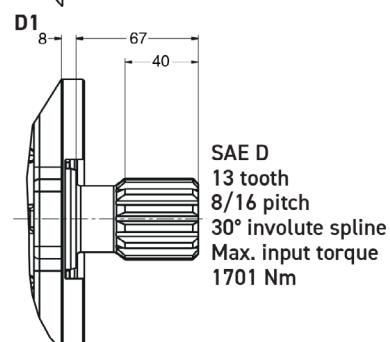
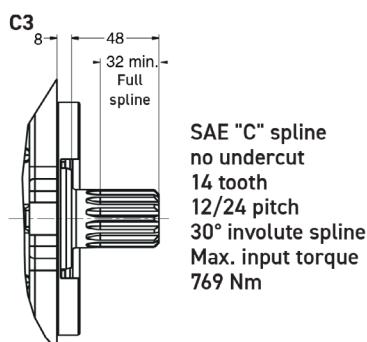
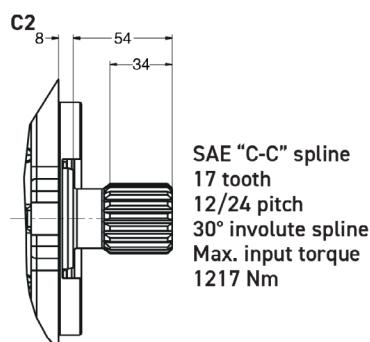
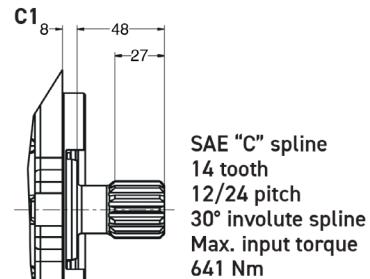
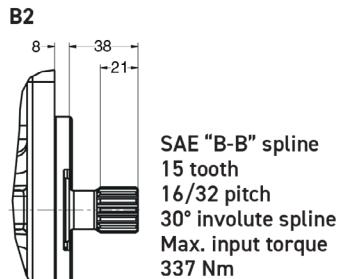
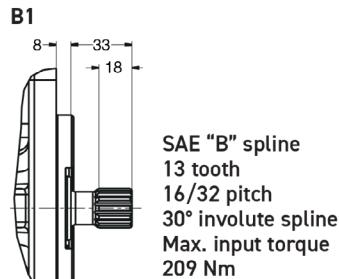
Thru-shaft option	A	B Ø	C	D	E	F UNC	F metric	G UNC	G metric	Weight
A1	329.5	82.626 82.575	82.626 82.575	106.38	N/A	SAE-A spline 9 tooth 16/32 pitch	3/8-16 UNC-2B THD	M10 x 1.5 THD	N/A	N/A 79.8 kg
B1	362.5	101.676 101.625	101.676 101.625	146.05	N/A	SAE-B spline 13 tooth 16/32 pitch	1/2-13 UNC-2B THD	M12 x 1.75 THD	N/A	N/A 82.6 kg
B2	362.5	101.676 101.625	101.676 101.625	146.05	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 kg
C1 & C2	364.5	127.075 127.025	127.075 127.025	180.98	NA	SAE-C spline 14 tooth 2/24 pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD 83.9 kg
C3	364.5	127.075 127.025	127.075 127.025	180.98	114.5	SAE-C spline 14 tooth 2/24 pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD 83.9 kg
C4	364.5	127.075 127.025	127.075 127.025	180.98	114.5	SAE-CC spline 17 tooth 2/24 pitch	5/8-11 UNC-2B THD	M16 x 2 THD	1/2-13 UNC-2B THD	M12 x 1.75 THD 83.9 kg
D3	375	152.475 152.425	NA	161.65	SAE-D spline 13 tooth 8/16 pitch	NA	NA	3/4-10 UNC-2B THD	M16 x 2 THD	88 kg

# LIFCO

## HYDRAULICS INC

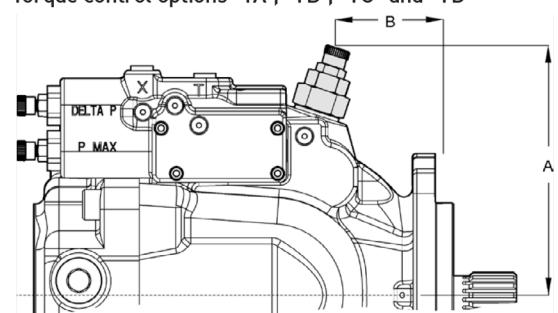
[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## SHAFT OPTIONS



### Torque control dimensions

Torque control options "TA", "TB", "TC" and "TD"



	P2060	P2075	P2105	P2145
A	163	171	190	202
B	34	69	69	69
C	161	154	175	186

## GENERAL INSTALLATION INFORMATION

Multiple pump combinations - Maximum moment

To avoid excessive front flange loads combinations of multiple pumps might require additional pump support.

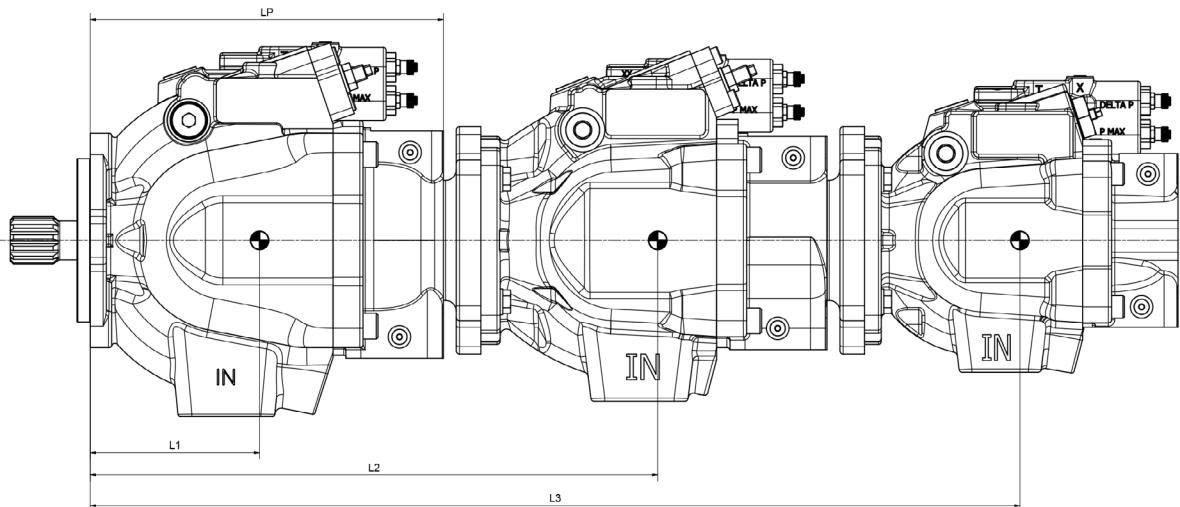


Chart 1. Maximum moment and pump dimensions

	P2060	P2075	P2105	P2145
Maximum Moment	[Nm]	197	266	425
Weight Force	[N]	358	431	618
Distance L1	[mm to C/G]	126	145	165
Distance Lp	[mm]	264	292	323

Chart 2. Through drive adapter plate thickness

LF	P2060	P2075	P2105	P2145
SAE - A Flange	[mm]	0	0	0
SAE - B Flange	[mm]	33	33	33
SAE - C Flange	[mm]	35	35	35
SAE - D Flange	[mm]	—	—	45.5

Resulting moment can be calculated by using the following formula:

$$\text{Moment M} = (L1 \cdot W1 + L2 \cdot W2 + L3 \cdot W3 + \dots)$$

If resulting moment exceeds the maximum value given in chart 1 additional support is mandatory.

Multiple pump combinations - Maximum thru drive torque

	P2060	P2075	P2105/ P3105	P2145/ P3145
Torque	[Nm]	339	424	650

# LIFCO HYDRAULICS INC

[lifcohydraulics.com](http://lifcohydraulics.com) • 1-800-895-4326

## Fluid recommendations

The fluid recommended for use in these pumps has a petroleum base and contains agents which provide oxidation inhibition and anti-rust, anti-foam and de-aerating properties as described in PARKER standard HF-1. Where anti-wear additive fluids are specified, see PARKER standard HF-0.

## Viscosity

Min. viscosity for short periods:	10 mm <sup>2</sup> /s (cSt)
Normal operating viscosity:	15...40 mm <sup>2</sup> /s (cSt)
Max. viscosity for short periods:	1000 mm <sup>2</sup> /s (cSt)

## Filtration

For maximum pump and system component functionality and life, the system should be protected from contamination by effective filtration.

Fluid cleanliness should be in accordance with ISO classification ISO 4406. The quality of filter elements should be in accordance with ISO standards.

### Recommendation for filtration:

Class 21/18/14, according to ISO 4406

## Seals

Check hydraulic fluid specification for chemical resistance of seal material.

Check temperature range of seal material and compare with max. system and ambient temperature.

N/D - NBR seals, FPM shaft seal(s)	-25 ... +90 °C
B/Q - NBR seals, NBR shaft seal(s)	-40 ... +90 °C
V/T - FPM seals, FPM shaft seal(s)	-25 ... +115 °C

**Note:** Above limitations refer to average case drain temperature, which can be up to 20 °C higher than in the reservoir.

## Axial / Radial Loads

Units subjected to radial loads require the installation of an outboard bearing. Axial Loads are not permitted.



## 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.