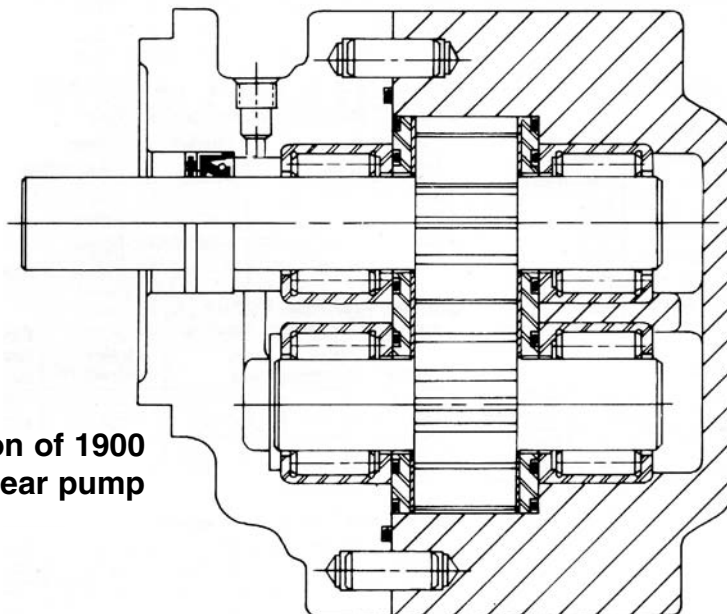


Single and Multiple Gear Pump Features

1900 High Performance Gear Pump

- Rated to 3000 PSI and 3000 RPM (motors to 3600 RPM) the 1900 series pumps & motors utilize a very rigid, doweled, two piece construction. This simplified construction method is combined with integral gears and shafts and HYDRECO's four-bolt design which places all four high strength assembly bolts within the area of greatest internal pressure. This design maintains perfect alignment and thus eliminates any decrease in efficiency due to "center section shift" at high pressures. The four-bolt design further reduces internal distortion and the resulting wear on working parts.
- Roller bearing 1900 series units have a pressure balanced seal plate, on each side of the gears. By balancing pressure forces on these plates, a precise balance is obtained between minimum clearances for high volumetric efficiencies, and minimum contact with rotating parts for low mechanical losses. This design results in exceptionally high overall efficiency.
- Specify one of the integral priority flow control covers or one of the built-in relief valve covers, existing and new hydraulic circuits can be simplified.
- Long life, precision roller bearings are continuously pressure lubricated even when the pump is under no load.
- The "versatile cover" provides a 'B' spline and 'A' or 'B' pad for mounting any SAE 'A' or 'B' rear pump.
- Rugged high density cast iron construction further maintains high volumetric efficiency even at high operating temperatures.
- Pumps exhibit high horsepower-to-weight ratios. May be used as a uni-directional motor. Mounting flanges are of the versatile HYDRECO combination SAE two or four bolt design.
- Multiple units are of a modular design. This allows assembly of modules from stock to meet any multiple pump requirement.
- Modular design allows field replacement of any one section.
- Units are repairable due to roller bearing design.
- Roller bearing construction is relatively insensitive to moderate amounts of contamination.
- Professional applications and engineering assistance available upon request. Consult your Hydreco sales representative.

**Cross section of 1900
Roller bearing gear pump**



Single and Multiple Gear Pump Model Number System

Model Number System

P **19** **10** **A** **4** **B** **9** **L** **0** **00**
 P- Plain Bearing Model Pump Size Design Shaft Adapter Cover Rotation Priority Flow Relief Setting
 R- Roller Bearing (GPM / 1000 RPM) Setting (#14, 15, 17, (#13, 15, 16, & 18 covers only) 18 covers only)

Model

- 19- 1900 Series
Front Pump Size (GPM/1000)
 10- 2.53 cir (41.47 ccr)
 13- 3.16 cir (51.79 ccr)
 16- 3.80 cir (62.28 ccr)
 19- 4.53 cir (74.28 ccr)
 23- 5.58 cir (91.46 ccr)

Design

- A- Standard Roller Bearing
 C- Outboard Bearing (Roller Bearing)
 E- Telltale Drain (Roller Bearing)

Shafts

- 1- SAE "C" Splined Shaft
 3- SAE "B-B" St. Keyed Shaft
 4- SAE "B" Splined Shaft
 11- SAE "B-B" Straight Keyed Shaft (Long Shaft)
 12- SAE "B-B" Splined Shaft
 6- Splined Shaft for Rear Pumps. Used with adapter D only
 7- Splined Shaft for Center

Adapter

- B- SAE "B" 2 & 4 Bolt
 C- SAE "C" 2 & 4 Bolt
 D- Center & Rear Pumps Used with shaft 6 & 7 only

Covers

1910 Single & Rear Pumps

Cover No.	Inlet Size	Outlet Size	Port Location
1-	1" S.F.	.75" S.F.	Side
5-	1.25" S.F.	1" S.F.	Side
6-	1.62" S.F.	1.62" S.F.	Rear
7-	1.62" S.T.	1.62" S.T.	Side
9-	1" ANPT	1" ANPT	Both (Side Plugged)

Front and Center Pumps

Model	Cover Number	Inlet Size	Outlet Size	Port Location
1910	2-	1.5" S.F.	.75" S.F.	Side
1913	2-	1.5" S.F.	1" S.F.	Side
1916				
1919	2-	2" S.F.	1" S.F.	Side
1923				

1913 Single & Rear Pumps

Cover No.	Inlet Size	Outlet Size	Port Location
1-	1.25" S.F.	1" S.F.	Side
6-	1.62" S.T.	1.62" S.T.	Rear
7-	1.62" S.T.	1.62" S.T.	Side
9-	1" ANPT	1" ANPT	Both (Side Plugged)

1916 Single and Rear Pumps

Cover No.	Inlet Size	Outlet Size	Port Location
1-	1.5" S.F.	1.25" S.F.	Side
3-	1.87" S.T.	1.87" S.T.	Rear
7-	1.87" S.T.	1.87" S.T.	Side
9-	1.25" ANPT	1.25" ANPT	Both (Side Plugged)

1919 Single and Rear Pumps

Cover No.	Inlet Size	Outlet Size	Port Location
1-	1.5" S.F.	1.25" S.F.	Side
3-	1.87" S.T.	1.87" S.T.	Rear
7-	1.87" S.T.	1.87" S.T.	Side
9-	1.25" ANPT	1.25" ANPT	Both (Side Plugged)
21-	1.62" S.T.	1.06" S.T.	Rear

1923 Single and Rear Pumps

Cover No.	Inlet Size	Outlet Size	Port Location
1-	1.5" S.F.	1.25" S.F.	Side
3-	1.87" S.T.	1.87" S.T.	Rear
7-	1.87" S.T.	1.87" S.T.	Side
9-	1.25" ANPT	1.25" ANPT	Both (Side Plugged)

Single and Rear Pumps with Flow Control Covers

Model	Cover Number	Inlet Size	Outlet Priority	Port Secondary
1910 & 1913	14- 17-	1.25" ANPT 1.62" S.T.	.75" ANPT 1.06" S.T.	.75" ANPT 1.06" S.T.
1916 & 1919	14- 17-	1.25" ANPT 1.62" S.T.	.75" ANPT 1.06" S.T.	1" ANPT 1.31" S.T.

Single and Rear Pumps with Relief & Flow Control Covers

Model	Cover Number	Side Inlet Size	Rear Priority	Rear Secondary	Rear Tank Port
1910 & 1913	15- 18-	1.25" ANPT 1.62" S.T.	.75" ANPT 1.06" S.T.	.75" ANPT 1.06" S.T.	.75" ANPT 1.06" S.T.
1916 & 1919	15- 18-	1.25" ANPT 1.62" S.T.	.75" ANPT 1.06" S.T.	1" ANPT 1.31" S.T.	.75" ANPT 1.06" S.T.

Note: Blocking Priority flow ports also blocks secondary flow ports.

Single and Rear Pumps with Relief Valve Covers

Model	Cover Number	Side Inlet Size	Side Outlet Size	Rear Tank Port
1910 & 1913	13- 16-	1.25" ANPT 1.62" S.T.	1" ANPT 1.31" S.T.	.75" ANPT 1.06" S.T.
1916 & 1919	13- 16-	1.25" ANPT 1.62" S.T.	1" ANPT 1.31" S.T.	1" ANPT 1.31" S.T.

Rear Versatile Covers

Model	Cover Number	Side Inlet Size	Side Outlet Size	Rear Mount
1910	19 27	1.31" S.T. 1.314" S.T.	1.31" S.T. 1.31" S.T.	SAE 'B' SAE 'A'
1910, 1913, 1916 & 1919,	20 27 28 19	1.25" ANPT 1.62" S.T. 1.25" ANPT 1.62" S.T.	1.25" ANPT 1.62" S.T. 1.25" ANPT 1.62" S.T.	SAE 'B' SAE 'A' SAE 'A' SAE 'B'

Rotation (viewed from shaft end)

- R - Clockwise
 L - Counter Clockwise
 B - Bi-Rotational

Priority Flow Setting (Adjustable)

- 5 - 3.5 to 6.5 GPM
 10 - 7.0 to 13.0 GPM
 19 - 13.3 to 24.7 GPM

Relief Setting (Example)

- 8=800 PSI setting
 17=1700 PSI setting

Uni-directional Only

Range 100 PSI to 3000 PSI indicate on model no. system for setting (If not specified, relief will be set at 2000 PSI)

Single and Multiple Gear Pump Shafts and Fluids

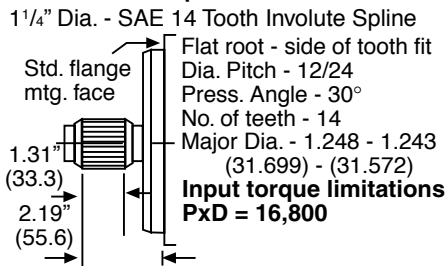
Shafts

- Pump rotation as viewed from the shaft end-clockwise rotation-outlet on right; counter-clockwise rotation-outlet on left.
 - Motor rotation as viewed from the shaft end-clockwise rotation- inlet on left; counter-clockwise rotation - inlet on right.
- (1) SAE volumetric rating is per SAE J745C. (2) Mounting flanges noted as SAE conform to SAE J744C.

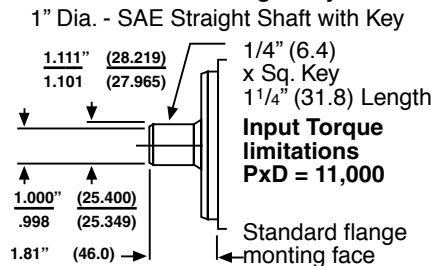
1900 Max. Input Torque Limitations

The drive shaft can withstand the input torque if the product of pressure (PSIG) times displacement (cubic inches/rev.) does not exceed the P x D constant indicated. Pump sections must be added together and not exceed P x D constant listed below.

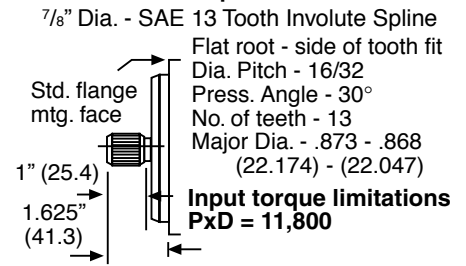
No. 1 SAE "C" Splined Shaft



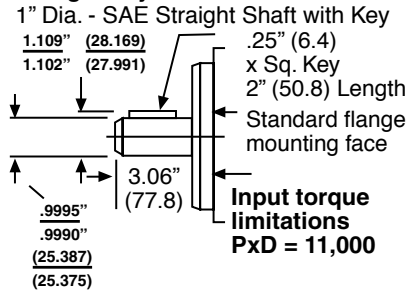
No. 3 SAE "B-B" Straight Keyed Shaft



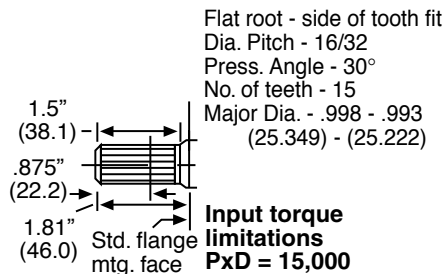
No. 4 SAE "B" Splined Shaft



No. 11 SAE "B-B" Long Straight Keyed Shaft



No. 12 SAE "B-B" Splined Shaft



General Fluid Rating

Fluid:

Synthetic

- 2200 RPM maximum
- 2500 PSI (172 bar) maximum
- 180°F (82.2°C) maximum
- 5 inches of Hg. minimum inlet pressure
- 100% bearing life compared to oil

Invert Emulsion

- 1800 RPM maximum
- 1250 PSI (86 bar) maximum
- 130°F (54.400) maximum
- 3 inches of Hg. minimum inlet pressure
- 100% bearing life compared to oil.

Water Glycol

- 1800 RPM maximum
- 1500 PSI (103.3 bar) maximum
- 130°F (54.400) maximum
- 3 inches of Hg. minimum inlet pressure
- 100% bearing life compared 10 oil.

Plain Bearings

- Fluid Cleanliness
- ISO 4406
- Start up period 21/17
- Maximum inservice 19/15
- Optimum 16/11
- Maximum water 0.1%

Single Gear Pump Performance Data

■ Shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F and viscosity 150 SSU at 100° F. Requests for more specific data should be directed to our Technical Service Department through our Sales Representatives.

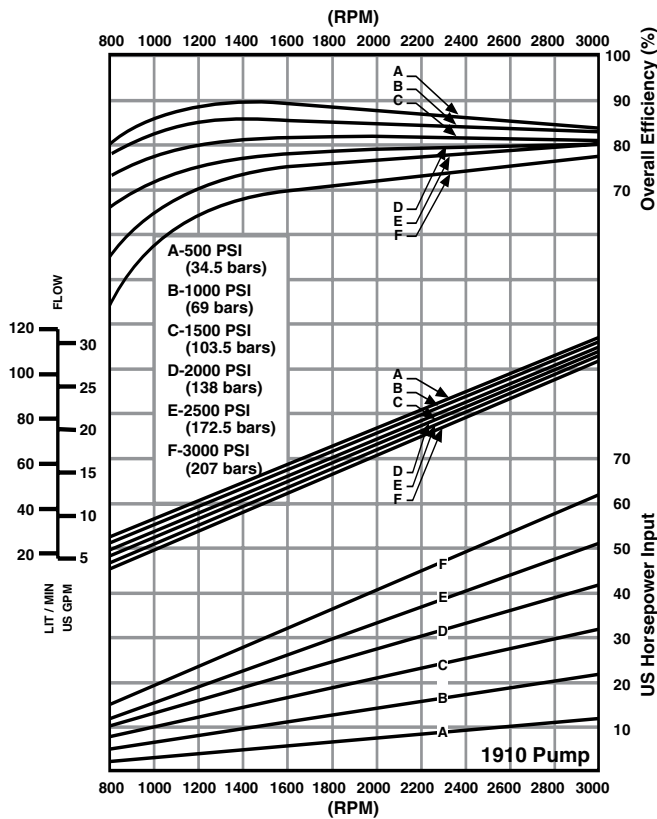
Pressure rating may be higher depending on duty cycle. Contact factory.

■ Consult your Hydreco Sales Representative for operation of pumps at (1) pressures and speeds above those shown on charts, (2) temperatures above 180°F, (3) speeds under 400 rpm when under load.

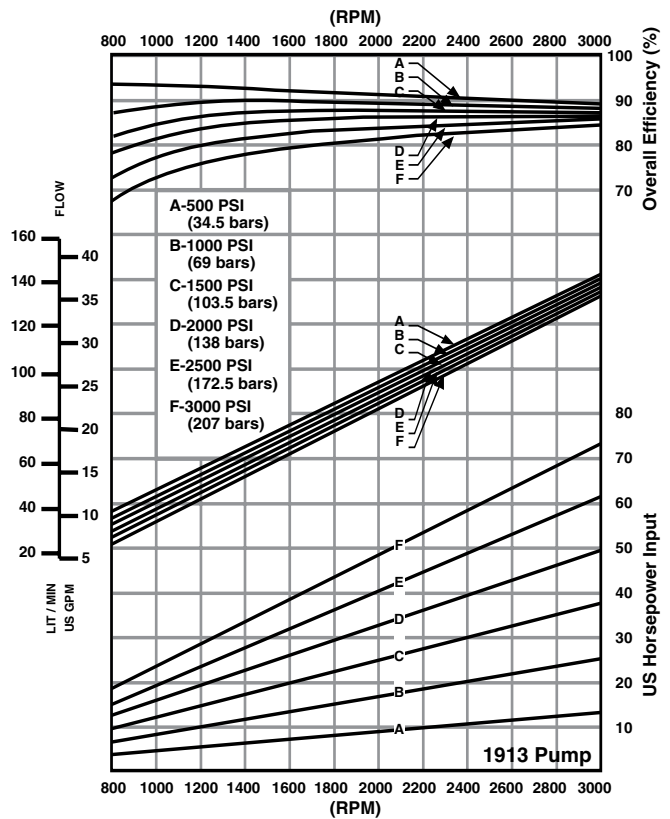
■ Inlet Conditions: Max. 5" HG. at rated speed.

Refer to individual model listings to determine which sizes are available as single, front, center or rear modules.

1910 Pump

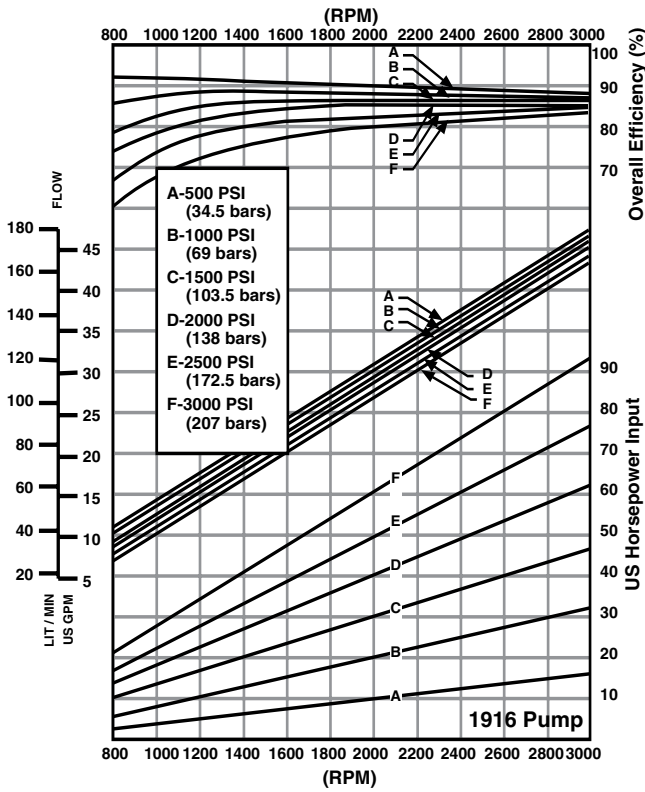


1913 Pump

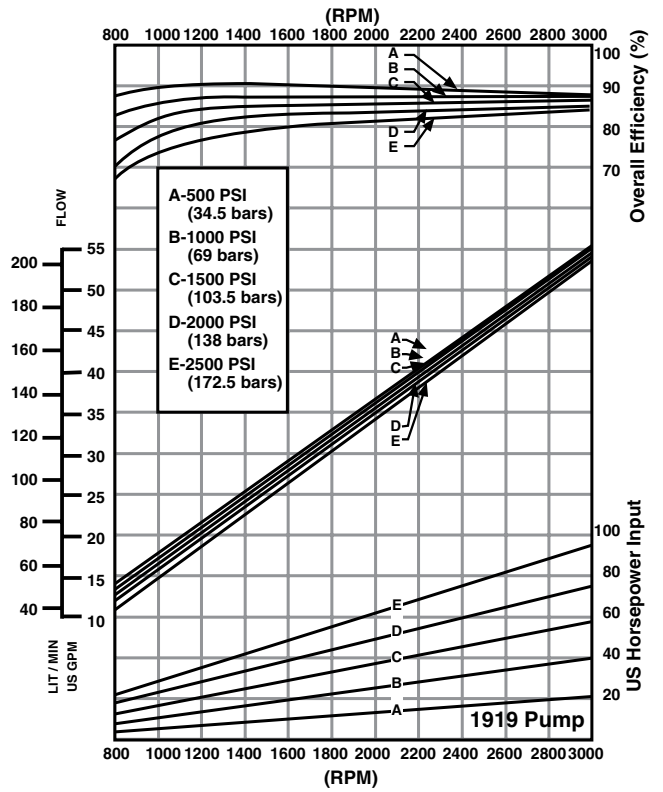


Single Gear Pump Performance Data

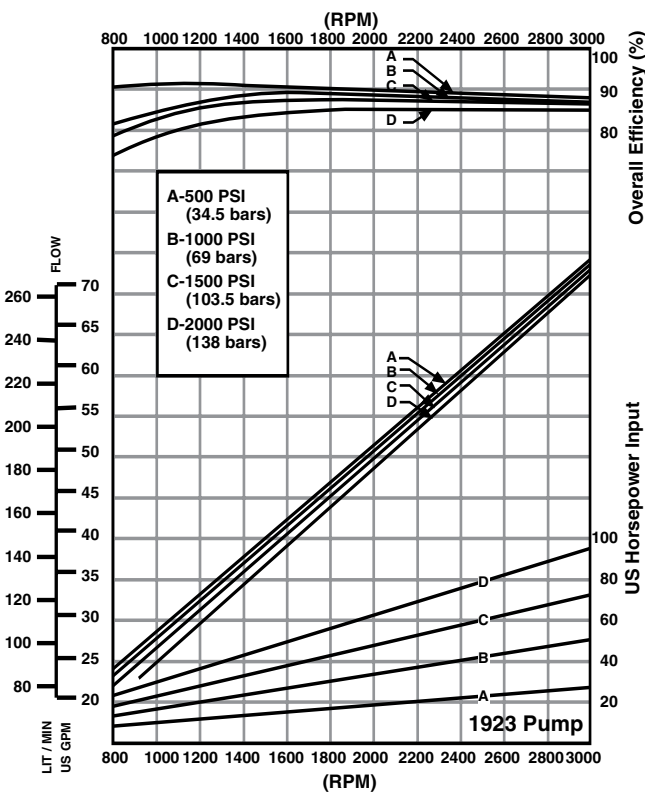
1916 Pump



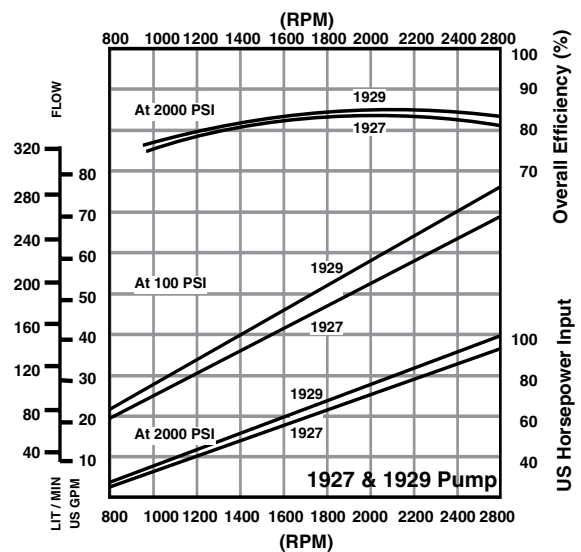
1919 Pump



1923 Pump



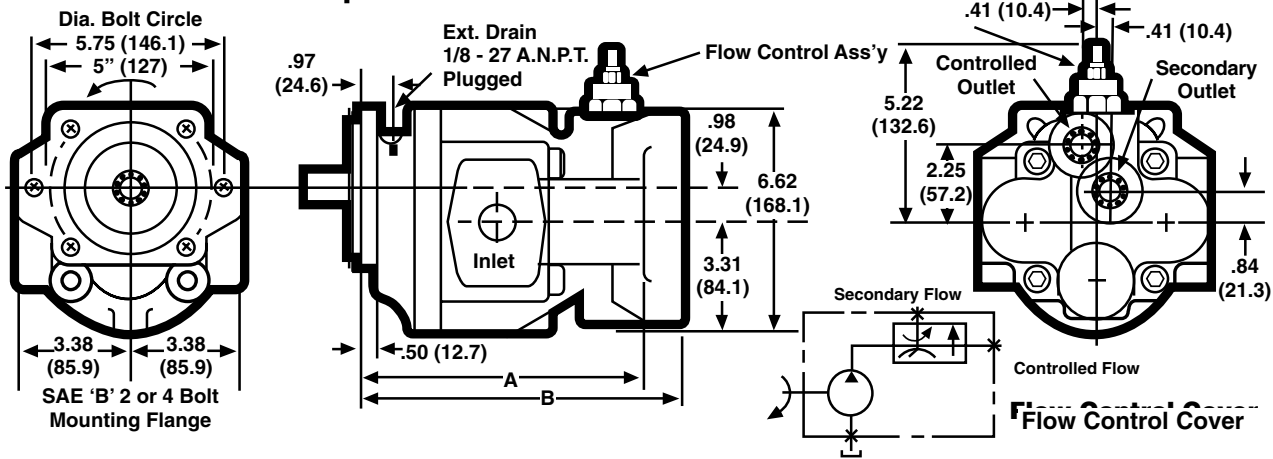
1927 & 1929 Pump



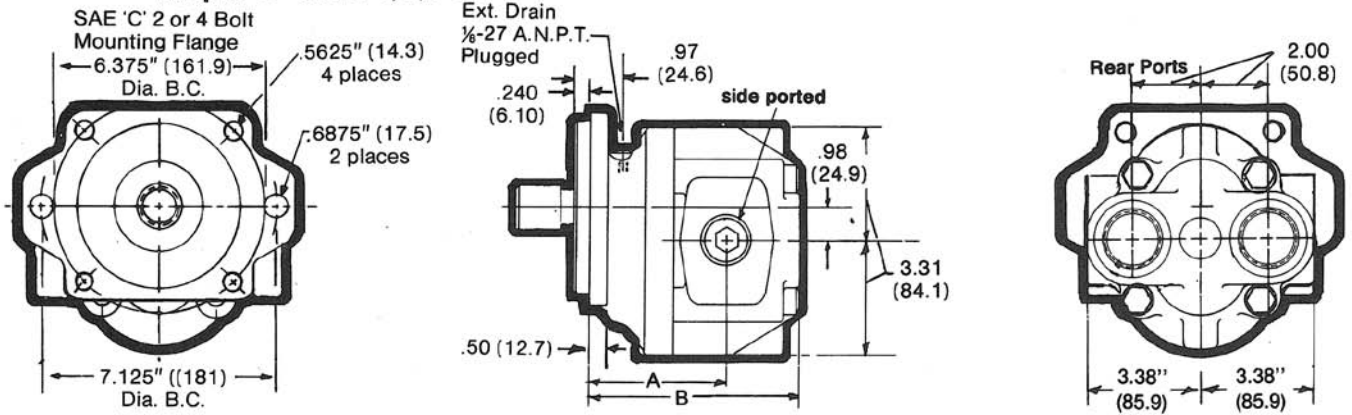
(Pressure rating may be higher depending on duty cycle. Contact factory.)

Single Gear Pump Installation Dimensions

Adapter B Cover 14 & 17
Adapter B Cover 14 & 17

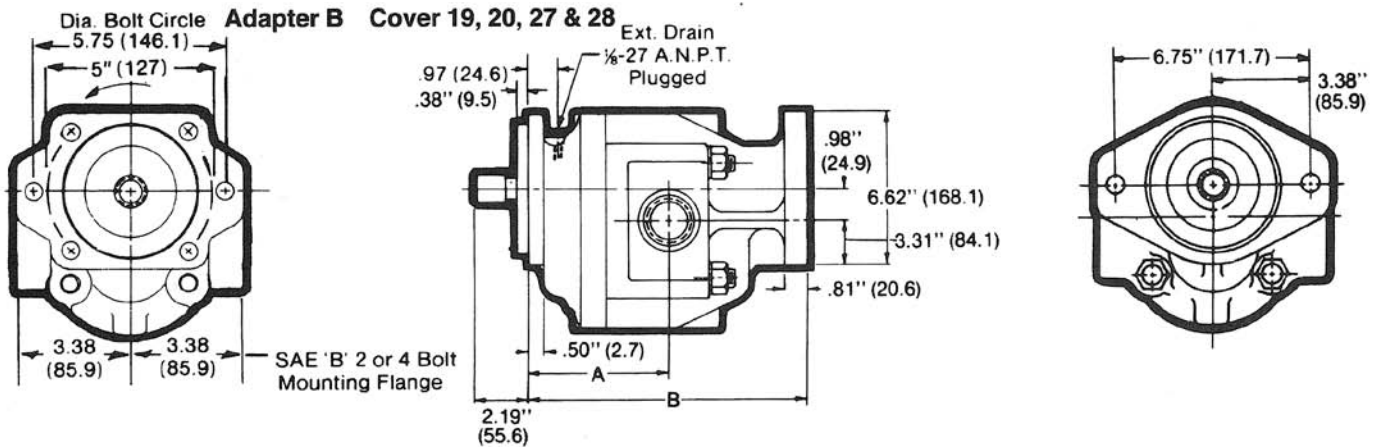
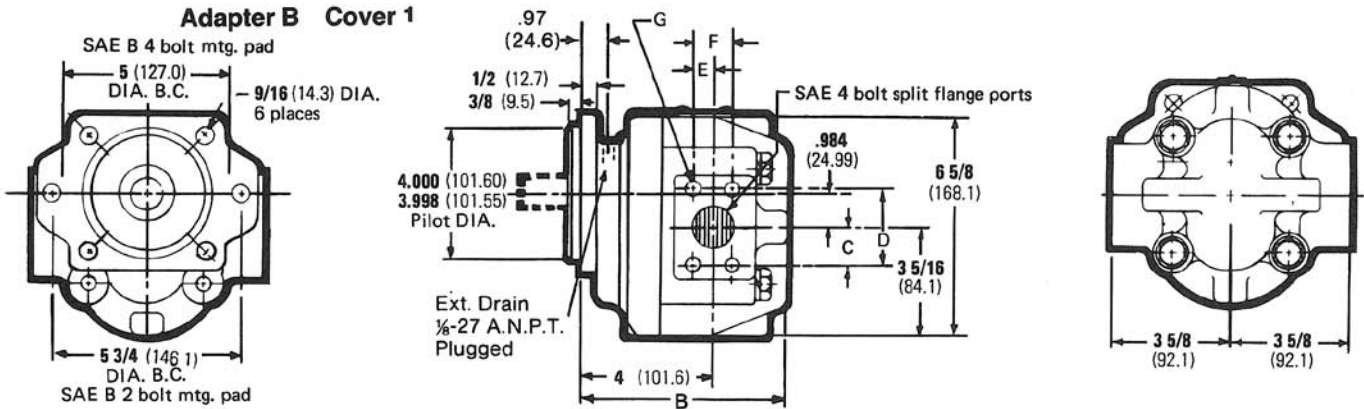


Adapter C Cover 3, 6, 7 & 9



Approx. weight of 1900 series Bi-rotational pump/motor is 41½ lbs. or (18.82 kg.) Mounting flanges conform to SAE J744C except two bolt & four bolt are combined. NOTE: Shafts conform to SAE J744C.

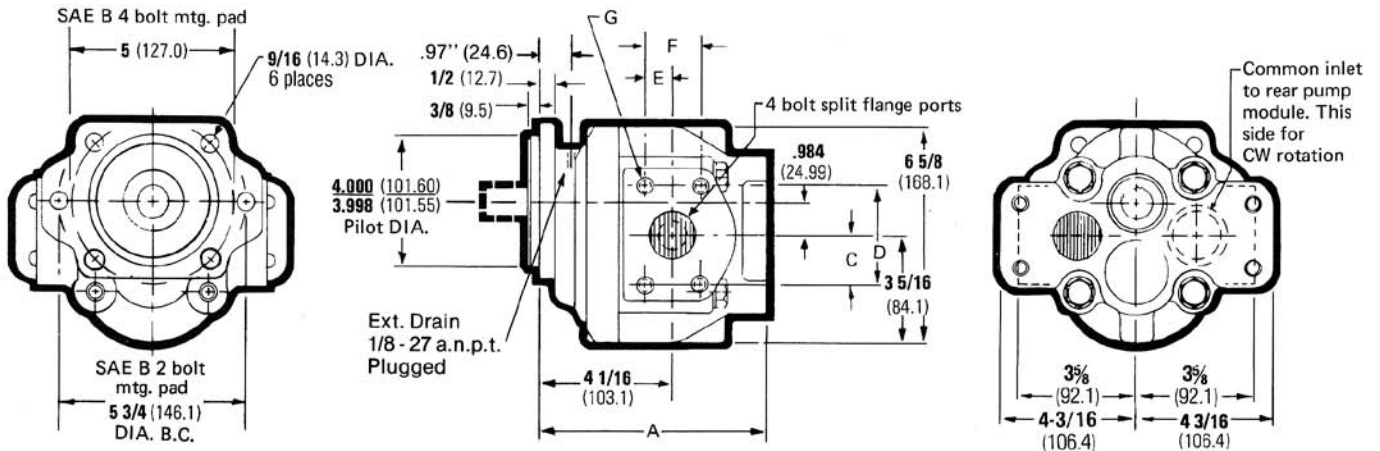
Single Gear Pump Installation Dimensions



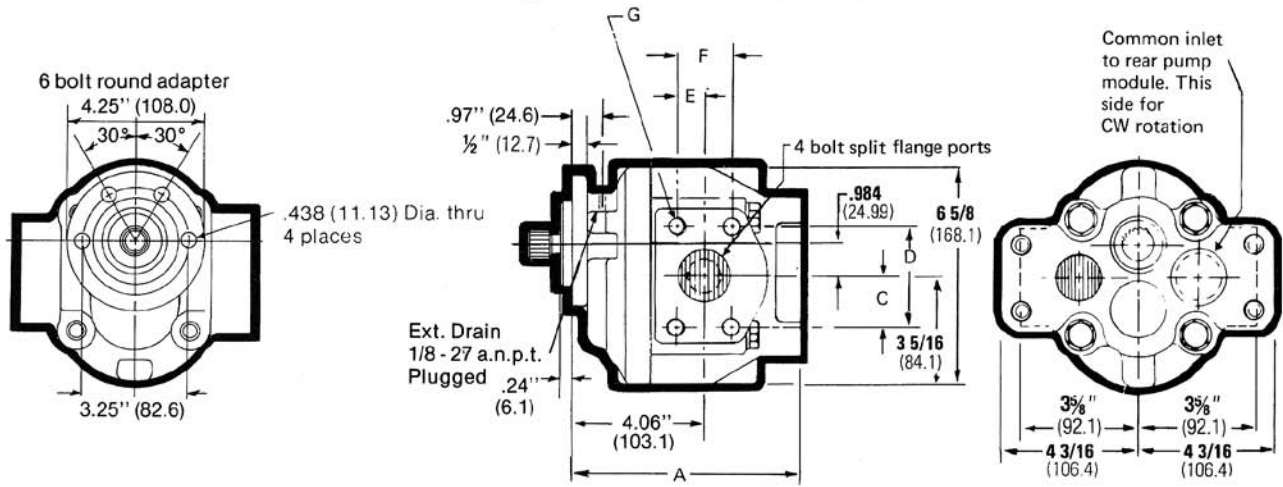
Model with No. 3, 6, 7 & 9 Covers	Dimensions with Cover Numbers 3, 6, 7, & 9.		Dimensions with Cover Number 1.	Dimensions with Cover Numbers 13, 14, 15, 16, 11 & 18.		Dimensions with Versatile Cover Numbers 19, 20, 27 & 28.	
	Dim 'A' with Adapter B, C & F	Dim 'B' with Adapter B, C & F	Dim 'B' with Adapter B, C & F	Dim 'A' with Adapter B, C & F	Dim 'B' with Adapter B, C & F	Dim 'A'	Dim 'B'
1910-2.53 cir	3.75" (95.3)	6.00" (152.4)	6.25" (158.8)	8.04" (204.2)	9.13" (231.9)	4.13" (104.9)	8.44" (214.4)
1913-3.16 cir	4" (101.6)	6.25" (158.8)	6.25" (158.8)	8.04" (204.2)	9.13" (231.9)	4.13" (104.9)	8.44" (214.4)
1916-3.80 cir	4" (101.6)	6.25" (158.8)	6.75" (171.4)	8.5" (215.9)	9.59" (243.6)	4.60" (116.8)	8.91" (226.3)
1919-4.53 cir	4" (101.6)	6.88" (174.8)	6.75" (171.4)	8.5" (215.9)	9.59" (243.6)	4.60" (116.8)	8.91" (226.3)
1923-5.58 cir	4" (101.6)	6.88" (174.8)	-	-	-	-	-
1927-6.20 cir	4.09" (103.9)	7.47" (189.7)	-	-	-	-	-
1929-6.70 cir	4.09" (103.9)	7.47" (189.7)	-	-	-	-	-

To get A & B Dim with Adapter 'E' add .384" (9.75) to all Dimensions

Front Gear Pump Installation Dimensions



NOTE: See Page 42 For Dimensions on Split Flange Port.

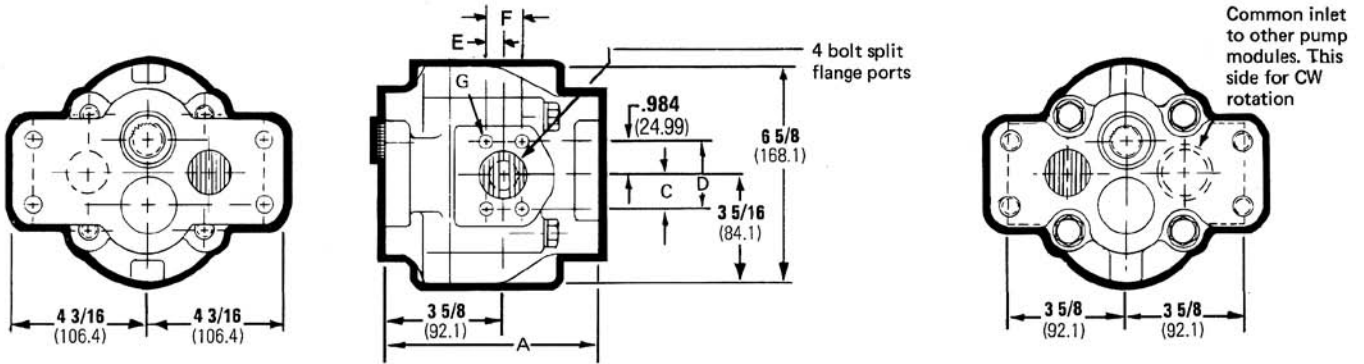


All 1900 Series Front Pumps are Available in R or L Rotation (see model no. page)

Model No. & Displacement	Max. Operating PSI (bars)	Max. Operating R.P.M.	Shaft Type	Dim "A"
1913A4B2 3.16 cir	3000 (207.0)	3000	SAE "B" splined	7" (177.8)
1913A3B2 3.16 cir	3000 (207.0)	3000	SAE "B - B" str. keyed	7" (177.8)
1913A1C2 3.16 cir	3000 (207.0)	3000	SAE "C" splined	7" (177.8)
1916A4B2 3.79 cir	3000 (207.0)	3000	SAE "B" splined	7" (177.8)
1916A3B2 3.79 cir	3000 (207.0)	3000	SAE "B - B" str. keyed	7" (177.8)
1916A1C2 3.79 cir	3000 (207.0)	3000	SAE "C" splined	7" (177.8)

Approx. weight of 1900 series front pumps is 411/2 lbs. or (18.82 kg.)
Mounting flanges are per SAE 744C except two bolt and four bolt mounts are combined.

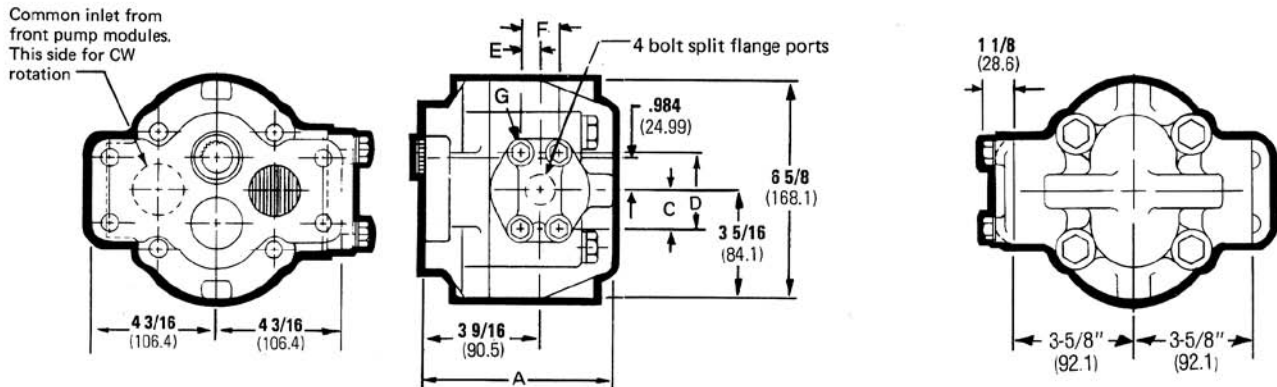
Center and Rear Gear Pump Installation Dimensions



All 1900 Series Front Pumps are Available in R or L Rotation (see model no. page)

Model No. & Displacement	Max. Operating PSI (bars)	Max. Operating R.P.M.	Shaft Type	Dim "A"
1913A7D2 3.16 cir	3000 (207.0)	3000	None	6-9/16" (166.7)
1916A7D2 3.79 cir	3000 (207.0)	3000	None	6-9/16" (166.7)

Approx. weight of 1900 series center pumps is 40 lbs. or (18.14 kg.)



All 1900 Series Front Pumps are Available in R or L Rotation (see model no. page)

Model No. & Displacement	Max. Operating PSI (bars)	Max. Operating R.P.M.	Shaft Type	Dim "A"
1913A6D1 3.16 cir	3000 (207.0)	3000	None	5-13/16" (147.6)
1916A6D1 3.79 cir	3000 (207.0)	3000	None	6-5/16" (160.3)

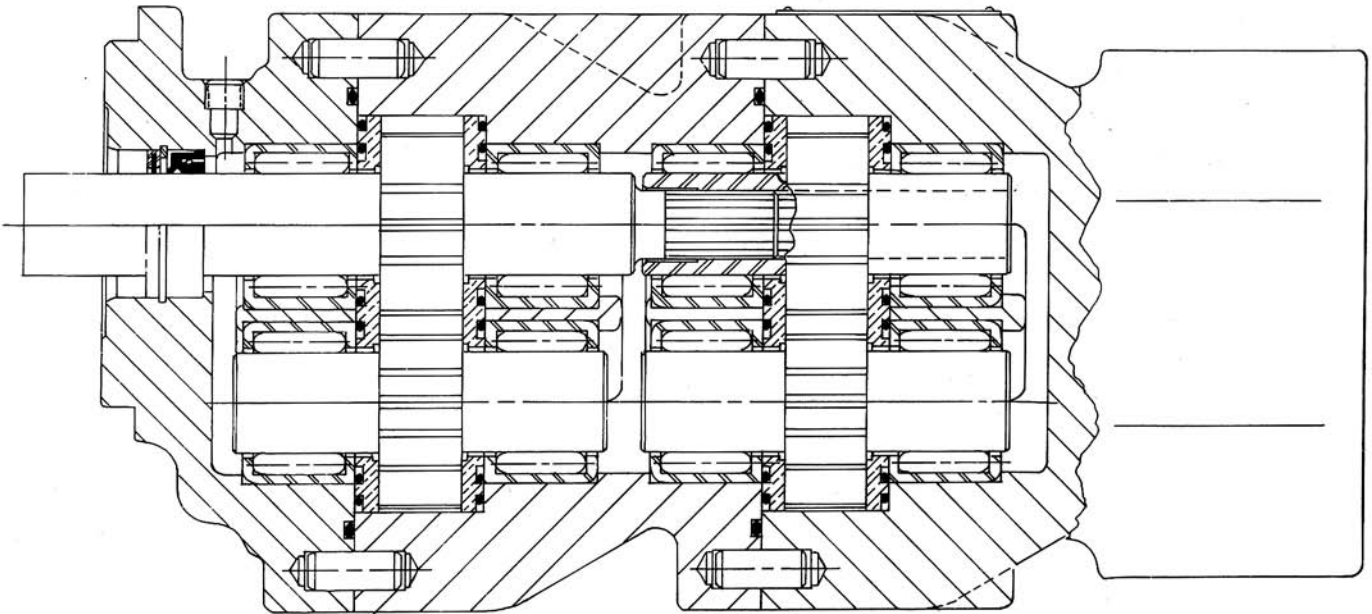
Approx. weight of 1900 series rear pumps is 40 lbs. or (18.14kg.)

Dual Short Stack Gear Pump Features

1900 High Performance Gear Pump

- Hydreco's 1900 series short stack dual gear pumps are rated at pressures up to 3000 PSI and speeds to 3000 RPM. As dual motors the 1900 series speed capability is further increased to 3600 RPM with the same high pressure capability of 3000 PSI.
- The dual 1900 series pumps/motors utilize a very rigid, doweled, two piece construction with high density cast iron and precision pressure balanced seal plates. In addition to high volumetric efficiency and exceptionally high overall efficiency this design has been "close coupled" to reduce its installation envelope size.
- Applied as a pump, this compact design delivers economical horsepower and cost saving versatility. This is achieved by supplying two or three hydraulic circuits with flow from one single pump drive. By specifying one of the integral priority flow control covers or one of the built-in relief valve covers, existing and new hydraulic circuits can be simplified. The integral component covers are designed to reduce installation time and help eliminate external components, connectors, lines and fittings with their associated mounting and overhead costs.
- Specially designed, long life roller bearings are continuously pressure lubricated even when the pump is under no load.
- Roller bearing construction is relatively insensitive to moderate amounts of contamination. Rugged high density cast iron construction assures high volumetric efficiency during and after periods of operation at high temperatures.
- An optional outboard bearing allows additional side loading of the drive shaft.
- Cushion valves are recommended for the motors if surge pressures will be generated by rapid stopping or directional changes.
- Relief valves are recommended between motors running in series.
- The "versatile cover" provides a 'B' spline and 'A' or 'B' pad for mounting any SAE 'A' or 'B' rear pump.
- Professional applications and engineering assistance available upon request. Modifications such as port size shafts are available. Contact Hydreco.

Cross section 1900 series dual short stack roller bearing gear pump/motor



Dual Short Stack Gear Pump Model Number System

Model Number System

P 19 10 10 **A** 11 **B** **A** 18 **L** 10 20
 P- Plain Bearing Model Rear Pump Size (GPM at 1000 RPM) Rear Pump Size (GPM at 1000 RPM) Design Shaft Adapter Front Housing Rear Cover Housing Rotation Priority Flow Setting (Cover #14, 15, 17, & 18 only) Relief Setting (Cover #13, 15, 16 & 18 only)

Model

19-1900 Series
Front Pump Size (GPM/1000)
 10-2.53 cir (41.47 ccr)
 13-3.16 cir (51.79 ccr)
 16-3.80 cir (62.28 ccr)
 19-4.53 cir (74.28 ccr)
 23-5.58 cir (91.46 ccr)

Model

19-1900 Series
Rear Pump Size (GPM/1000)
 10-2.53 cir (41.47 ccr)
 13-3.16 cir (51.79 ccr)
 16-3.80 cir (62.28 ccr)
 19-4.53 cir (74.28 ccr)
 23-5.58 cir (91.46 ccr)

Design

A-Standard Roller Bearing
C-Outboard Bearing (Roller Bearing)
E-Telltale Drain (Roller Bearing)

Shafts

1- SAE "C" Splined Shaft
 3- SAE "B-B" St. Keyed Shaft
 4- SAE "B" Splined Shaft
 11-SAE "B-B" Straight Keyed Shaft (Long Shaft)
 12-SAE "B-B" Splined Shaft

See Page 25 for Shaft Dimension Drawing and Performance with Different Fluids.

Adapter

B-SAE "B" 2 & 4 Bolt
C-SAE "C" 2 & 4 Bolt
D-Center & Rear Pumps

Covers

Front Housing

Model	Housing Number	Inlet Size	Outlet Size	Port Location
1910	A	1.62" S.T.	1.62" S.T.	Side
	B	1" ANPT	1" ANPT	Side
	D	1.31" S.T.	1.31" S.T.	Side
1913	A	1.62" S.T.	1.62" S.T.	Side
	B	1" ANPT	1" ANPT	Side
1916 & 1919	A	1.87" S.T.	1.87" S.T.	Side
	B	1.25" ANPT	1.25" ANPT	Side
1923	D	1.62" S.T.	1.62" S.T.	Side

Rear Cover Housing

Model	Cover Number	Inlet Size	Outlet Size	Port Location
1910	1	1" S.F.	.75" S.F.	Side
	5	1.25" S.F.	1" S.F.	Side
1910 & 1913	6	1.62" S.T.	1.62" S.T.	Rear
	7	1.62" S.T.	1.62" S.T.	Side
	9	1" ANPT	1" ANPT	Both (Side Plugged)
1913	1	1.25" S.F.	1" S.F.	Side
1916 & 1919	1	1.5" S.F.	1.25" S.F.	Side
	3	1.87" S.T.	1.87" S.T.	Rear
	7	1.87" S.T.	1.87" S.T.	Side
	9	1" ANPT	1" ANPT	Both (Side Plugged)
1923	1	1.5" S.F.	1.5" S.F.	Side
	9	1.25" ANPT	1.25" ANPT	Both (Side Plugged)
1923	3	1.87" S.T.	1.87" S.T.	Rear

Rear Relief Valve Covers

Model	Cover Number	Side Inlet Size	Side Outlet Size	Rear Tank Port
1910 & 1913	13	1.25" ANPT	1" ANPT	.75" ANPT
	16	1.62" S.T.	1.62" S.T.	1.06" S.T.
1916 & 1919	13	1.25" ANPT	1" ANPT	1" ANPT
	16	1.62" S.T.	1.31" S.T.	1.31" S.T.

Rear Flow Control Covers

Model	Cover Number	Inlet Size	Outlet Priority	Secondary Port
1910 & 1913	14	1.25" ANPT	.75" ANPT	.75" ANPT
	17	1.62" S.T.	1.06" S.T.	1.06" S.T.
1916 & 1919	14	1.25" ANPT	.75" ANPT	1" ANPT
	17	1.62" S.T.	1.06" S.T.	1.31" S.T.

Rear Relief & Flow Control Covers

Model	Cover Number	Side Inlet Size	Rear Priority	Rear Secondary	Rear Tank Port
1910 & 1913	15	1.25" ANPT	.75" ANPT	.75" ANPT	.75" ANPT
	18	1.62" S.T.	1.06" S.T.	1.06" S.T.	1.06" S.T.
1916 & 1919	15	1.25" ANPT	.75" ANPT	1" ANPT	.75" ANPT
	18	1.62" S.T.	1.06" S.T.	1.31" S.T.	1.06" S.T.

Rear Versatile Covers

Model	Cover Number	Side Inlet Size	Side Outlet Size	Rear Mount
1910	19	1.31" S.T.	1.31" S.T.	SAE 'B'
1913	27	1.31" S.T.	1.31" S.T.	SAE 'A'
1910, 1913, 1916 & 1919	20	1.25" ANPT	1.25" ANPT	SAE 'B'
	27	1.62" S.T.	1.62" S.T.	SAE 'A'
	28	1.25" ANPT	1.25" ANPT	SAE 'A'
	19	1.62" S.T.	1.62" S.T.	SAE 'B'

Rotation (viewed from shaft end)

R - Clockwise
L - Counter Clockwise
B - Bi-Rotational

Priority Flow Setting (Adjustable)

5 - 3.5 to 6.5 GPM
 10 - 7.0 to 13.0 GPM
 19 - 13.3 to 24.7 GPM

Relief Setting (Example)

8=800 PSI setting
 17=1700 PSI setting

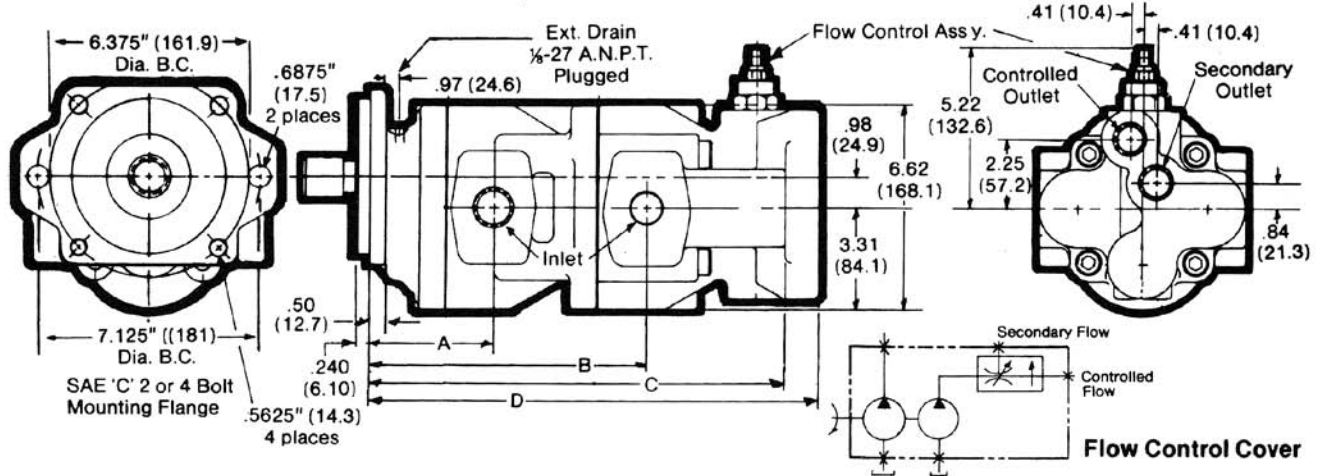
Unarotational Only

Range 100 PSI to 3000 PSI indicate on model no. system for setting (If not specified, relief will be set at 2000 PSI)

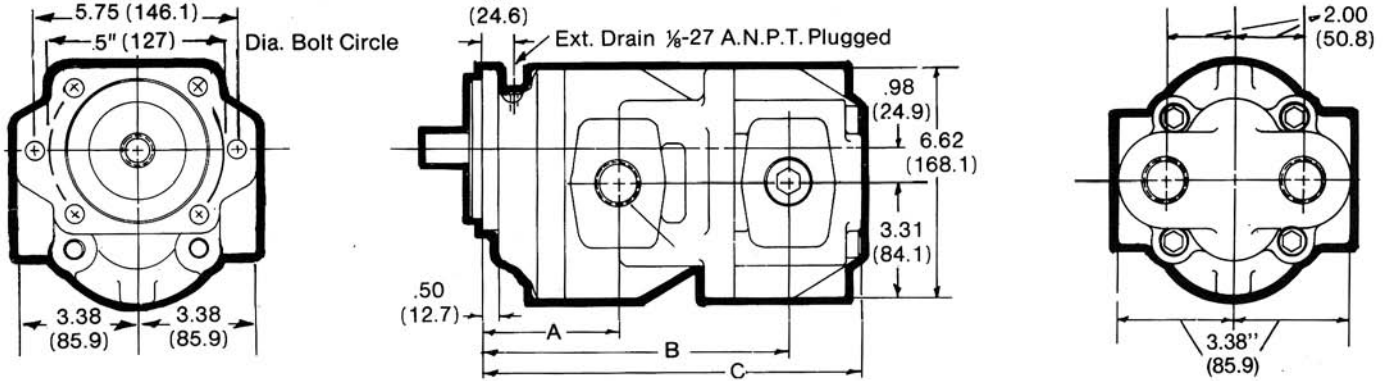
Note - Plain Bearing offered in Unarotational only

Dual Short Stack Gear Pump Installation Dimensions

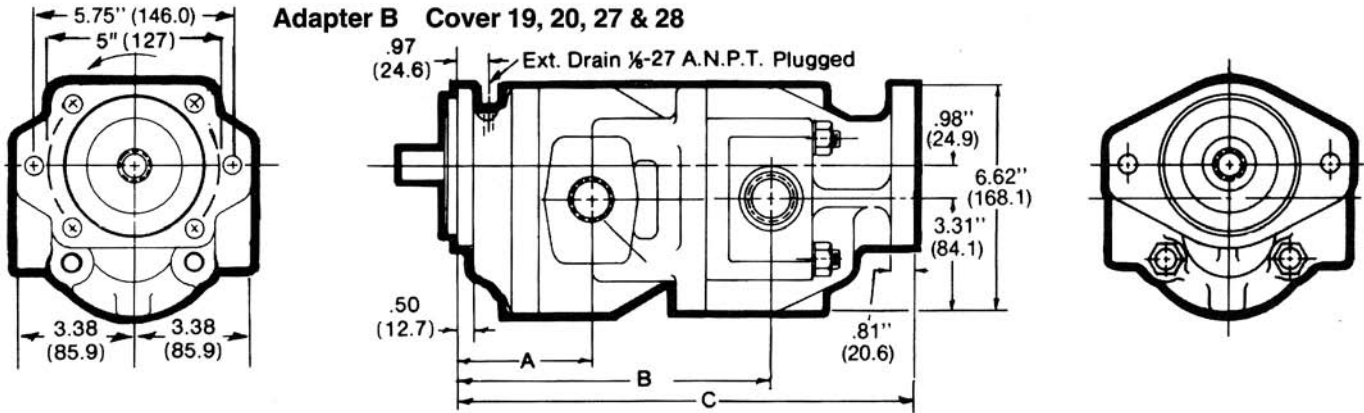
Adapter C Cover 14 & 17



Adapter B Cover 3, 6, 7 & 9



Adapter B Cover 19, 20, 27 & 28



Dual Short Stack Gear Pump Installation Dimensions

A, B, and C Dimensions with Covers #3, 6, 7 & 9				A, B, C & D Dimensions with Covers #13, 14, 15, 16, 17 & 18				A, B & C Dimensions w/Covers #19, 20, 27 & 28		
Model	Dim 'A'	Dim 'B'	Dim 'C'	Dim 'A'	Dim 'B'	Dim 'C'	Dim 'D'	Dim 'A'	Dim 'B'	Dim 'C'
191010	3.19 (81.0)	7.88 (200.2)	10.12 (257.0)	3.19 (81.0)	7.67 (194.8)	12.17 (309.1)	13.26 (336.8)	3.19 (81.0)	8.62 (218.9)	12.94 (328.7)
191310	3.19 (81.0)	7.88 (200.2)	10.12 (257.0)	3.19 (81.0)	7.67 (194.8)	12.17 (309.1)	13.26 (336.8)	3.19 (81.0)	8.62 (218.9)	12.94 (328.7)
191313	3.19 (81.0)	8.12 (206.2)	10.38 (263.7)	3.19 (81.0)	7.67 (194.8)	12.17 (309.1)	13.26 (336.8)	3.19 (81.0)	8.62 (218.9)	12.94 (328.7)
191610	3.62 (91.9)	8.31 (211.0)	10.56 (268.2)	3.62 (91.9)	8.11 (206.0)	12.61 (320.2)	13.70(348.0)	3.62 (91.9)	9.06 (230.1)	13.38 (339.9)
191613	3.62 (91.9)	8.56 (217.4)	10.81 (274.6)	3.62 (91.9)	8.11 (206.0)	12.61 (320.2)	13.70(348.0)	3.62 (91.9)	9.06 (230.1)	13.38 (339.9)
191616	3.62 (91.9)	8.56 (217.4)	10.81 (274.6)	3.62 (91.9)	8.56 (217.4)	13.07 (332.0)	14.16 (359.7)	3.62 (91.9)	9.53 (242.1)	13.84 (351.5)
191910	3.62 (91.9)	8.31 (211.0)	10.56 (268.2)	3.62 (91.9)	8.11 (206.0)	12.61 (320.2)	13.70(348.0)	3.62 (91.9)	9.06 (230.1)	13.38 (339.9)
191913	3.62 (91.9)	8.56 (217.4)	10.81 (274.6)	3.62 (91.9)	8.11 (206.0)	12.61 (320.2)	13.70(348.0)	3.62 (91.9)	9.06 (230.1)	13.38 (339.9)
191916	3.62 (91.9)	8.56 (217.4)	10.81 (274.6)	3.62 (91.9)	8.56 (217.4)	13.07 (332.0)	14.16 (359.7)	3.62 (91.9)	9.53 (242.1)	13.84 (351.5)
191919	3.62 (91.9)	8.56 (217.4)	11.44 (290.6)	3.62 (91.9)	8.56 (217.4)	13.07 (332.0)	14.16 (359.7)	3.62 (91.9)	9.53 (242.1)	13.84 (351.5)
192310	3.72 (94.5)	9.22 (234.2)	11.47 (291.3)	3.72 (94.5)	9.02 (229.1)	13.52 (343.4)	14.61 (371.1)	3.72 (94.5)	9.97 (253.2)	14.28 (362.7)
192313	3.72 (94.5)	9.47 (240.5)	11.72 (297.7)	3.72 (94.5)	9.02 (229.1)	13.52 (343.4)	14.61 (371.1)	3.72 (94.5)	9.97 (253.2)	14.28 (362.7)
192316	3.72 (94.5)	9.47 (240.5)	11.72 (297.7)	3.72 (94.5)	9.47 (240.5)	13.98 (335.1)	15.07 (382.8)	3.72 (94.5)	10.44 (265.2)	14.75 (374.7)
192319	3.72 (94.5)	9.47 (240.5)	12.34 (313.4)	3.72 (94.5)	9.47 (240.5)	13.98 (335.1)	15.07 (382.8)	3.72 (94.5)	10.44 (265.2)	14.75 (374.7)
192323	3.72 (94.5)	9.47 (240.5)	12.34 (313.4)					3.72 (94.5)	10.82 (274.8)	15.13 (384.3)
192710	3.72 (94.5)	9.22 (234.2)	11.47 (291.3)	3.72 (94.5)	9.02 (229.1)	13.52 (343.4)	14.61 (371.1)	3.72 (94.5)	9.97 (253.2)	14.28 (362.7)
192713	3.72 (94.5)	9.47 (240.5)	11.72 (297.7)	3.72 (94.5)	9.02 (229.1)	13.52 (343.4)	14.61 (371.1)	3.72 (94.5)	9.97 (253.2)	14.28 (362.7)
192716	3.72 (94.5)	9.47 (240.5)	11.72 (297.7)	3.72 (94.5)	9.47 (240.5)	13.98 (335.1)	15.07 (382.8)	3.72 (94.5)	10.44 (265.2)	14.75 (374.7)
192719	3.72 (94.5)	9.47 (240.5)	12.34 (313.4)	3.72 (94.5)	9.41 (240.5)	13.98 (335.1)	15.07 (382.8)	3.72 (94.5)	10.44 (265.2)	14.75 (374.7)
192723	3.72 (94.5)	9.47 (240.5)	12.34 (313.4)					3.72 (94.5)	10.82 (274.8)	15.13 (384.3)
192727	3.72 (94.5)	9.56 (242.8)	12.94 (328.7)					3.72 (94.5)	11.05 (280.7)	15.35 (389.9)
192910	3.72 (94.5)	9.22 (234.2)	11.47 (291.3)	3.72 (94.5)	9.02 (229.1)	13.52 (343.4)	14.61 (371.1)	3.72 (94.5)	9.97 (253.2)	14.28 (362.7)
192913	3.72 (94.5)	9.47 (240.5)	11.72 (297.7)	3.72 (94.5)	9.02 (229.1)	13.52 (343.4)	14.61 (371.1)	3.72 (94.5)	9.97 (253.2)	14.28 (362.7)
192916	3.72 (94.5)	9.47 (240.5)	11.72 (297.7)	3.72 (94.5)	9.47 (240.5)	13.98 (335.1)	15.07 (382.8)	3.72 (94.5)	10.44 (265.2)	14.75 (374.7)
192919	3.72 (94.5)	9.47 (240.5)	12.34 (313.4)	3.72 (94.5)	9.47 (240.5)	13.98 (335.1)	15.07 (382.8)	3.72 (94.5)	10.44 (265.2)	14.75 (374.7)
192923	3.72 (94.5)	9.47 (240.5)	12.34 (313.4)					3.72 (94.5)	10.82 (274.8)	15.13 (384.3)
192927	3.72 (94.5)	9.56 (242.8)	12.94 (328.7)					3.72 (94.5)	11.05 (280.7)	15.35 (389.9)
192929	3.72 (94.5)	9.56 (242.8)	12.94 (328.7)					3.72 (94.5)	11.23 (285.2)	15.53 (394.5)

Note:When using Adapter 'E' add .384" (9.75) to Dim. A, B, C & D.