2900 Series

Roller Bearing Gear Pumps and Motors (Uni-Directional)

► DESCRIPTION:

The 2900 Series Pump/Motor utilizes the many design and application features of the widely accepted Hydreco gear pump and motor technology. The pump contains pressure-balanced wear plates. The series is available in a uni-directional pump or motor.

Key Features:

- Displacements: 9.76 cir, (159.9 ccr) - 14.43 cir (236.5)
- Operating as pumps, 2750 RPM and 3000 psi (206.9)
- Operating as motors, 3100 RPM and 3000 psi (206.9)
- The 2900 can be used as a pump or motor by adding a case drain as a motor.

► PERFORMANCE:

Max Operating Pressure:	206.9 bar (3000 psi)
Drain flow rate	≤ 0.21 [≤ 0.8]
Ambient temperature range	-20 to +60 °F (-4 to 140 °C)
Fluid temperature range	-20 to +80 °F (-4 to 176 °C)
Fluid viscosity range	10 - 400 cSt
Recommended viscosity	25 cSt
Fluid contamination degree	according to ISO 4406:1999 class 20/18/15

2900 RPM RATINGS				
Model	**Max. Continuous psi (bar)**	**Max. rpm as pump**	**Max. rpm as motor**	**Mass:**
2942	3000 (206.9)	3000	3100	104 lbs
2950	3000 (206.9)	2500	3100	104 lbs
2956	3000 (206.9)	2500	3100	104 lbs
2962	2500 (172.4)	2500	3100	104 lbs

► FLUIDS:

FIRE RESISTANT FLUIDS

Non-Mineral Based Fluids change the rating of units due to specific gravity and lubricity of the fluid.

FLUIDS					
Type	**Maximum RPM**	**Maximum Pressure**	**Maximum Temperature**	**Minimum inlet Pressure**	**Bearing life in comparison to petroleum based fluid**
Synthetic	2200	2500 psi (172.0 bar)	180° F (82.2° C)	5 inches of Hg.	100%
Water Glycol	1800	1550 psi (103.3 bar)	130° F (54.4° C)	3 inches of Hg.	100%
Invert Emulsion	1800	1250 psi (86.0 bar)	130° F (54.4° C)	3 inches of Hg.	100%

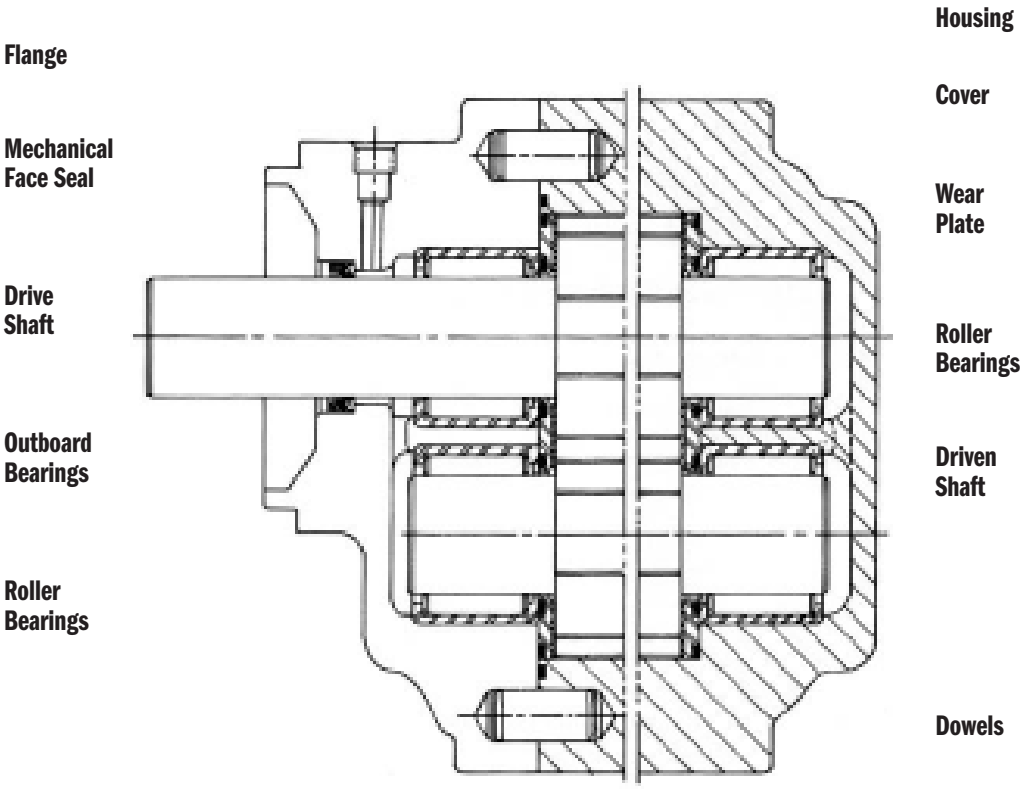
PLAIN BEARINGS

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

► FEATURES:

- Rated to 3000 PSI and 2500 RPM (motors to 3100 RPM) the 2900 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 2900 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.
- Long life, precision roller bearings are continuously pressure lubricated even when pump is under no load.
- 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 unidirectional 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 2900 SERIES PUMP/MOTOR - ROLLER BEARING GEAR PUMP



► IDENTIFICATION CODE:

2900 [ ] [ ] [ ] [ ] [ ]

PUMP SERIES 2900	
CODE	**GPM / 1000 RPM CIR (CCR)**
42	9.76 cir (159.9 ccr)
50	11.59 cir (189.9 ccr)
56	13.0 cir (213 ccr)
62	14.43 cir (236.5 ccr)

ADAPTERS	
CODE	**DESCRIPTION**
C	(Standard) SAE "C" 2&4-Bolt

COVERS	
CODE	**DESCRIPTION**
1	See Chart Below (**)

ROTATIONS	
CODE	**DESCRIPTION**
R	(Standard) Clockwise
L	Counter Clockwise

DESIGN	
CODE	**DESCRIPTION**
A	(Standard) No outbound bearing

SHAFT				
CODE	**NAME**	**DIA.**	**DESCRIPTION**	**ADAPTERS**
1	SAE "C" Spline	1-1/4"	2-3/16" Long Full spline 14 teeth	C
2	SAE "C" Parallel ST. Shaft W/Key	1-1/4"	2-3/16" Long 5/16" Sq. Key 1-3/8" Long	C

TYPICAL ORDERING CODE:
2956A1C1R

NOTE: Additional adapters, shaft, and port options are available. Consult Factory.

SHAFT

- Pump rotation as viewed from the shaft end: clockwise rotation - outlet on right; counter-cockwise 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.

2900 MAXIMUM RECOMMENDED DRIVE SHAFT TORQUE TRANSMISSION CAPACITY

Satisfactory drive shaft torque transmission capacity is indicated with the product of pressure (P) and is displacement (D) is less then or equal to (<) a given constant. The unit of "P" and "D" are expressed in psig and in^3/rev. (cir) respectively.

COVERS**												
COVER NO.	**INLET SIZE**	**OUTLET SIZE**	**PORT LOCATION**	**PUMP SIZE**				**SINGLE**	**FRONT**	**CENTER**	**REAR**	**UNI-ROTATION**
				42	**50**	**56**	**62**					
1	2" S.F	1.25" S.F	Side	X				X			X	X
	2.5" S.F	1.5" S.F	Side		X	X	X	X			X	X

► SHAFT OPTIONS:

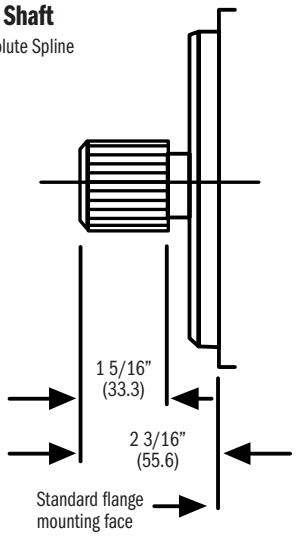
Dimensions:
inches (± .125")
millimeters (± 1 mm)

NO. 1 SAE "C" Splined Shaft

1 1/4" Dia. - SAE 14 Tooth Involute Spline

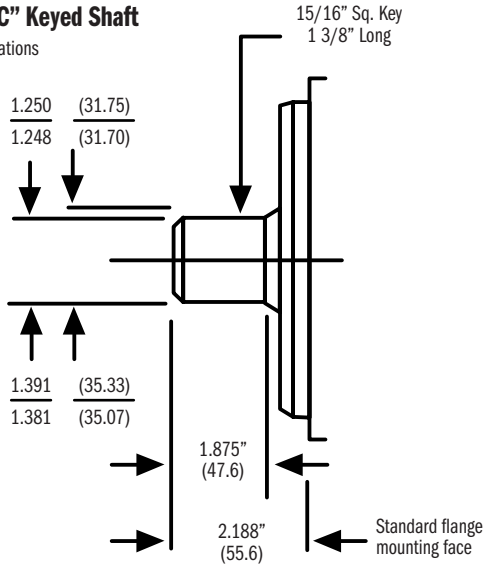
Flat root - side of tooth fit
Dia. Pitch - 12/24
Press. Angle - 30˚
No. of teeth - 14
Major Dia. - 1.248 - 1.247
(31.699) - (31.673)

Input torque limitations
PxD = 27,500



NO. 2 SAE "C" Keyed Shaft

Input torque limitations



SHAFT				
CODE	**NAME**	**DIA.**	**DESCRIPTION**	**ADAPTERS**
1	SAE "C" Spline	1-1/4"	2-3/16" Long Full spline 14 teeth	C
2	SAE "C" Parallel ST. Shaft W/Key	1-1/4"	2-3/16" Long 5/16" Sq. Key 1-3/8" Long	C

SHAFT

· Pump rotation as viewed from the shaft end: clockwise rotation - outlet on right; counter-cockwise rotation - outlet on left.

· Motor rotation as viewed from the shaft end: clockwise rotation - inlet on left; counter-clockwise rotation - inlet on right

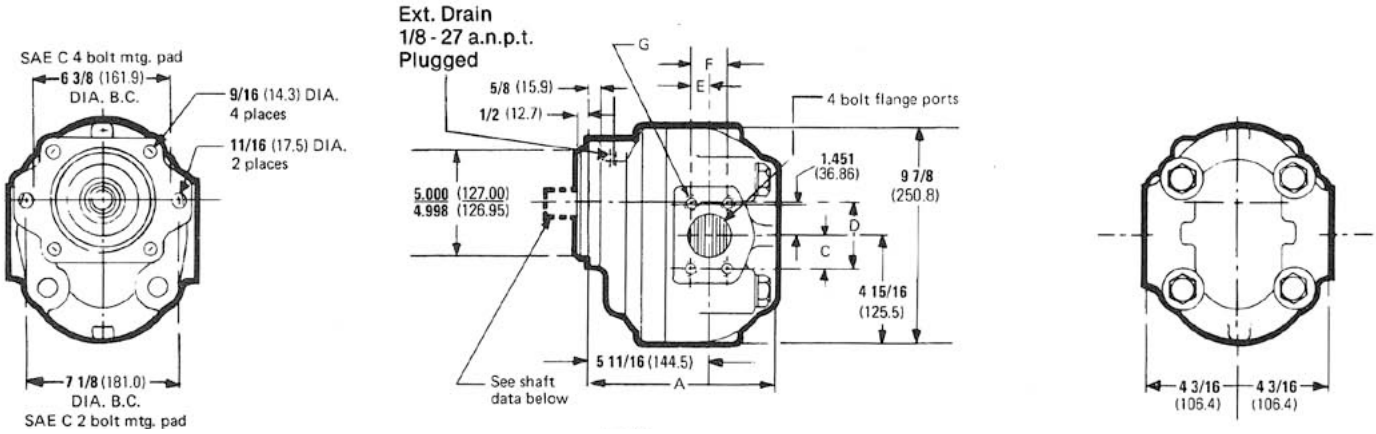
(1) SAE volumetric rating is per SAE J745C.

(2) Mounting flanges noted as SAE conform to SAE J744C.

2900 MAXIMUM RECOMMENDED DRIVE SHAFT TORQUE TRANSMISSION CAPACITY

Satisfactory drive shaft torque transmission capacity is indicated with the product of pressure (P) and is displacement (D) is less then or equal to (<) a given constant. The unit of "P" and "D" are expressed in psig and in^3/rev. (cir) respectively.

► FLANGE OPTIONS: Single Gear Pump Installation Dimensions



All 2900 Series Single 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"
2942A1C1 9.76cir	2900 (200.1)	2500	SAE "C" Splined	8.41"
2950A1C1 11.59cir	2500* (172.5)	2500	SAE "C" Splined	8.81"
2956A1C1 13.0cir	2200* (151.8)	2500	SAE "C" Splined	
2962A1C1 14.43cir	2000* (138.0)	2500	SAE "C" Splined	

Mounting flanges conform to SAE J744 except 2 bolt and 4 bolt mounts are combined. Approx. weight of 2900 series single pump is 104 lbs. or (47.40 kg)

**Due to input shaft torque limitations.*

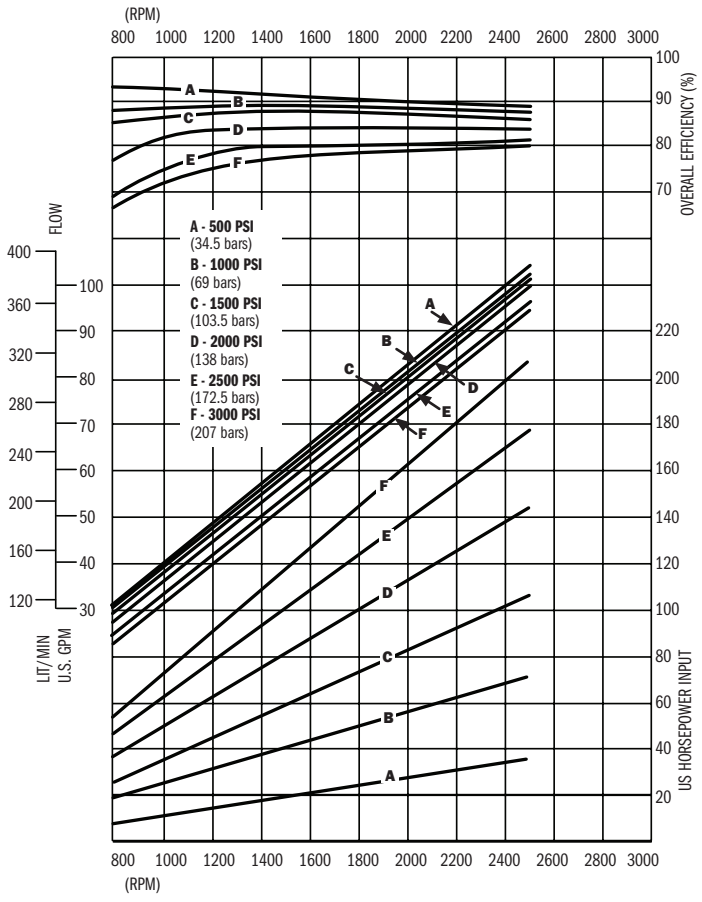
▶ PERFORMANCE DATA: Single Gear

- 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.
- 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.

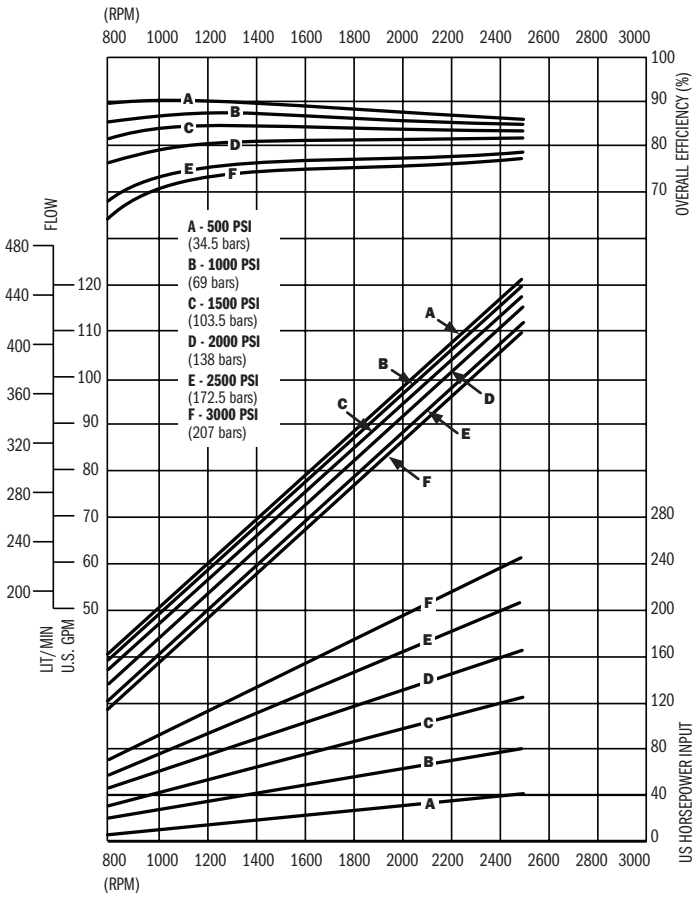
Refer to individual model listings to deter-mine which sizes are available as single, front, center or rear modules.

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

2942 Pump

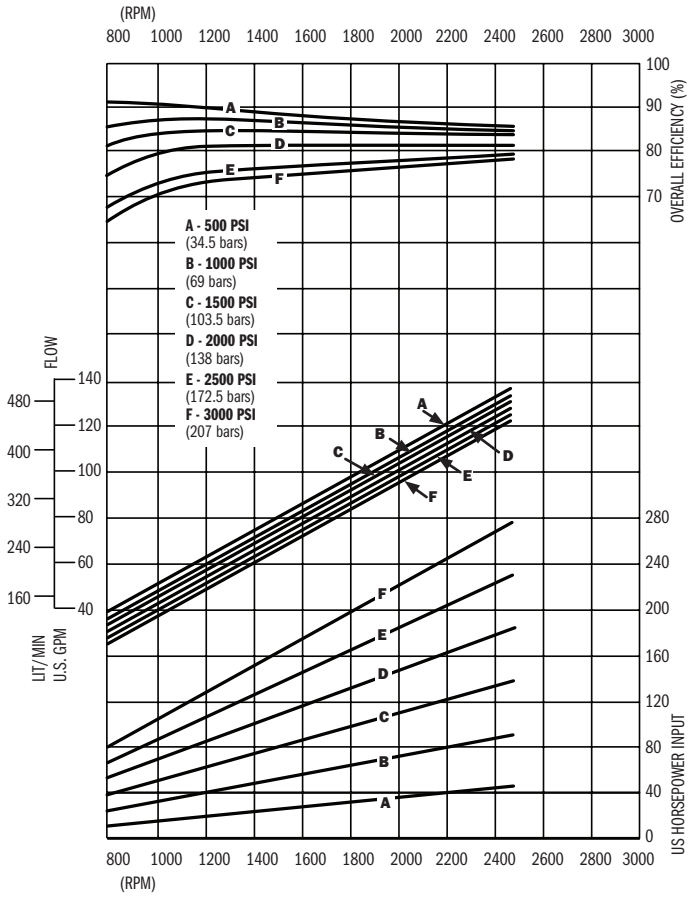


2950 Pump

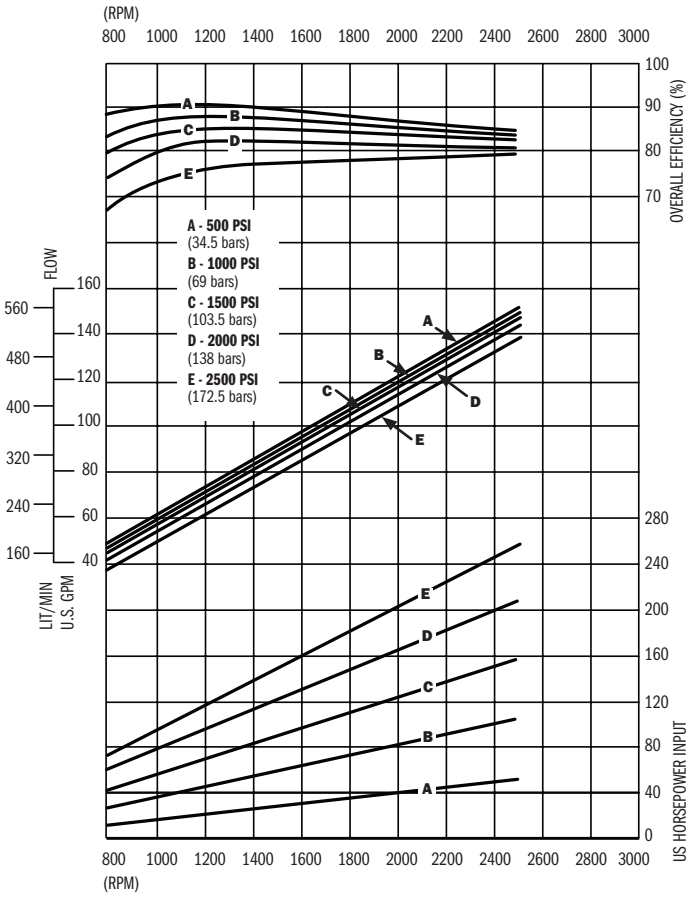


▶ PERFORMANCE DATA:

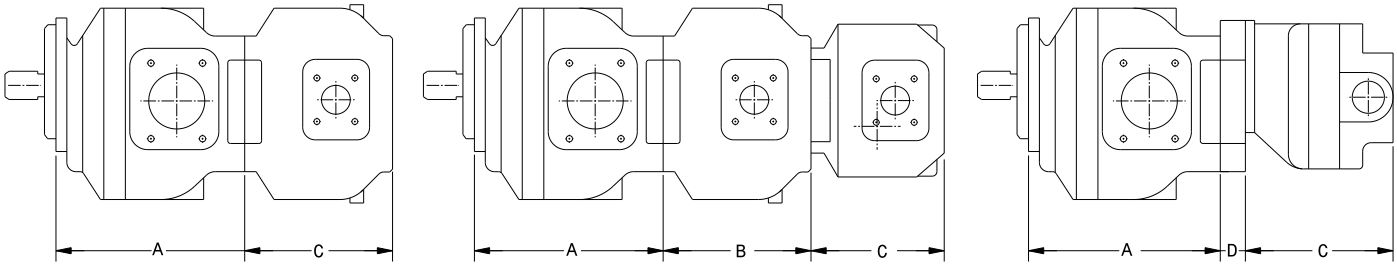
2956 Pump



2962 Pump



► CONNECTIONS: 2900 SERIES CAN BE CONNECTED TO OTHER SERIES HYDRECO PUMPS



To determine overall length from the mounting face of the front module add dimensions A, B, C, & D as required.

For Fire Resistant (Synthetic Fluids) Contact Factory Possible Multiple Combination with Assembly Kit No. & Hanger Kit No.

Front	Center	Assembly Kit No. Central Pump	Assembly Kit No. Rear	Hardware Kit Rear Pump	Star vice Gaster Kit Number	SEO No. *
1900 Series	1900	SKO 1019A	1900 1400 1500K	SKO 1019A SKO 1056A SKO 1056A	SKO 1053	SKO 1337 SKO 1338 SKO 1338
2400 Series	2400 2200 1900	SKO 796A SKO 795A SKO 795A	2440 2200 1900 1400 1500K	SKO 798A SKO 795A SKO 795A SKO 903A SKO 903A	SKO 1053 SKO 1054 SKO 1053	SKO 1345 SKO 1345 SKO 1346 SKO 1346 SKO 1346
2900 Series	2900 2400 2200 1900	SKO 1225A SKO 789A SKO 798A SKO 1300A	2900 2400 2200 1900 1400 1500K	SKO 800A SKO 799A SKO 798A SKO 1300A SKO 1296A SKO 1296A	SKO 1052 SKO 1053 SKO 1054 SKO 1053	SKO 1348 SKO 1350 SKO 1349 SKO 1349 SKO 1351 SKO 1351
2900 Short Stack			2200 1900	SKO 793A SKO 793A	SKO 1054 SKO 1053	SKO 1341 SKO 1341

***For field service requirements**

- To order assembled multiple pumps, list the individual module model numbers in the order that they are to be assembled (starting with the front) with a slash (/) between each model number. Hydreco will add the proper combining kits to your order and to the assembly price.
- Refer to input shaft torque limitations in the shaft listing to determine maximum number of modules that can be assembled into one unit.
- When 1500K is required as the rear pump, utilize standard single units with SAE “A” 2-bolt flange and SAE “A” 9 tooth splined shaft - without outboard bearing. Does not utilize common inlet.

Model	Dim. “A”	Dim. “B”	Dim. “C”	Dim. “D”
1506K	None	None	5 - 7/16 (138.2)	1 - 1/16 (27.0)
1510K	None	None	5 - 13/16 (147.6)	1 - 1/16 (27.0)
1512K	None	None	6 - 1/16 (153.9)	1 - 1/16 (27.0)
1515K	None	None	6 - 5/16 (160.3)	1 - 1/16 (27.0)
1913	7 (177.8)	6 - 9/16 (166.7)	5 - 13/16 (147.6)	1 - 1/4 (31.8) w/ 2900 only
1916	7 (177.8)	6 - 9/16 (166.7)	6 - 5/16 (160.3)	1 - 1/4 (31.8) w/ 2900 only
2428	8 - 1/4 (209.6)	Contact Factory	6- 7/16 (163.5)	1 - 1/4 (31.8) w/ 2900 only
2433	8 - 1/4 (209.6)	Contact Factory	6- 7/16 (163.5)	1 - 1/4 (31.8) w/ 2900 only
2436	8 - 7/16 (214.2)	Contact Factory	6- 3/4 (171.5)	1 - 1/4 (31.8) w/ 2900 only
2936	9 - 3/64 (229.9)	8 - 9/32 (210.3)	7 - 21/32 (194.6)	None
2942	9 - 1/4 (235.0)	8 - 3/16 (208.0)	7 - 3/4 (196.9)	None
2950	9 - 1/4 (235.0)	8 - 3/16 (208.0)	7 - 3/4 (196.9)	None
2956	9 - 13/16 (249.2)	8 - 3/4 (222.3)	7 - 3/4 (196.9)	None

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