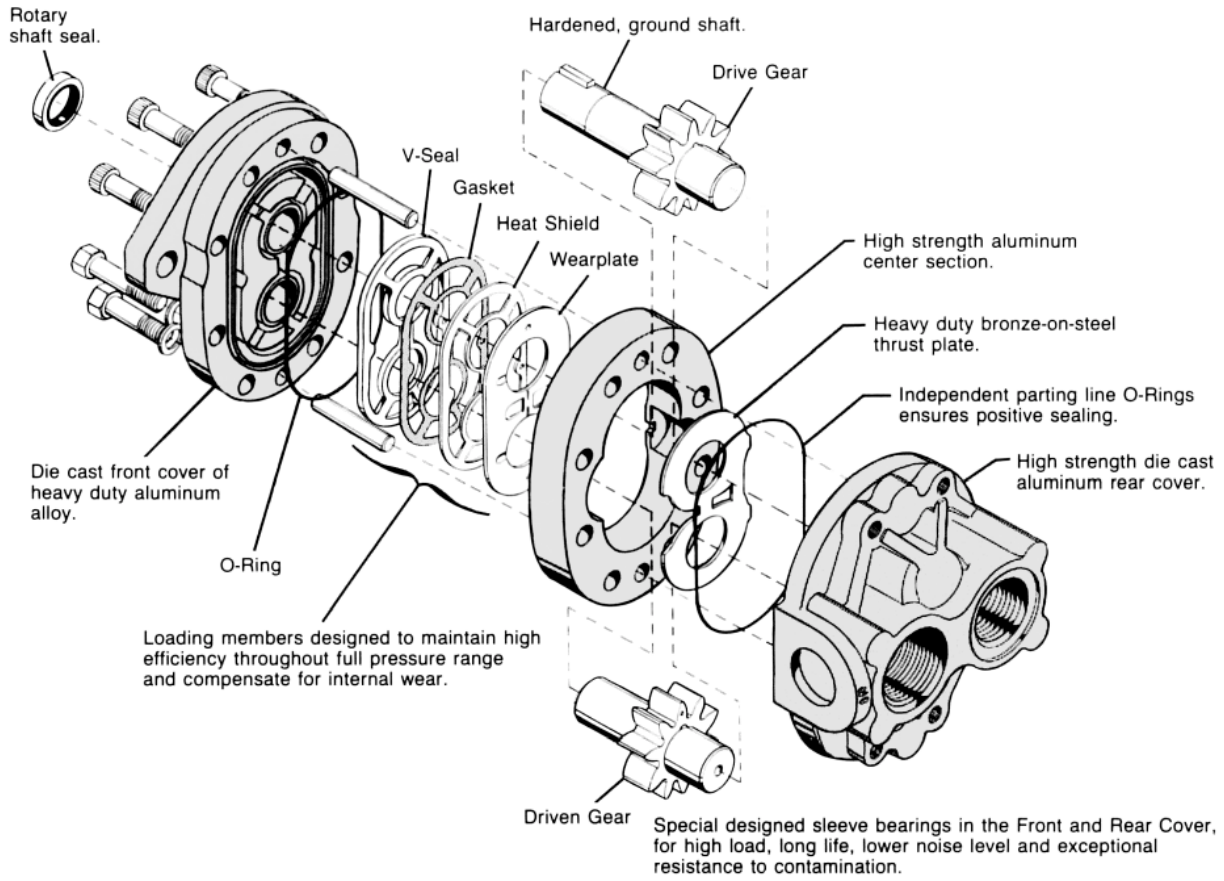
Parker Hydraulics

Fixed Displacement Gear Pumps

D/H/HD Series

Catalog HY09-D/H/HD/US

Commercial Hydraulics



A Parker pressure-loaded gear pump consists of two, intermeshing, hardened-steel, precision-ground gear assemblies. These precision gears are enclosed by a high-strength, die-cast aluminum front cover, back cover and a high-yield, strength-extruded aluminum center section.

Gear assemblies consist of one drive gear, shrink-fitted on a precision-ground and polished drive shaft. This shaft extends outside the pump to permit coupling to an external prime mover. The second gear, being the driven gear, is also shrink-fitted on a precision-ground and polished driven shaft. Retaining rings, which are installed in grooves provided on the shaft, ensure that the gears will not move axially, and a key keeps the drive gear from moving radially.

A lip-type, shaft seal is provided at the drive shaft to prevent external leakage of pump fluid. The sealing lip in contact with the fluid is spring-loaded. Vent passages within the housings and driven shaft communicate pump inlet pressure to the rotary seal area, thus imposing the lowest possible pressure at the rotary seal for extended seal life.

The phenolic heat shield, backup gasket, and molded rubber seal form chambers behind the steel-backed bronze wearplate. These chambers are connected either to inlet or discharge pressure. Discharge pressure, acting within the chambers, axially loads and deflects the wear plate toward the gear faces to take up gear side clearances. This pressure-loading on the wear plate increases pump efficiency by reducing internal leakage to a minimum, providing longer pump life.

Pump rotation is dependent upon the proper orientation of the heat shield, backup gasket, and rubber seal in the front cover housing, the center section and rear cover, respectively.

Pumping action is achieved by connecting the pump drive shaft to a prime mover, and rotating the gears away from the inlet port. Rotation causes the gear mesh to increase on the inlet side and decrease on the outlet (pressure) side.

D								K
Frame Size Code "D"	Displacement	Front Cover	Shaft	Rotation	Port Options	Relief Valve Setting	Seals	Bushings

Code	Front Cover
A	SAE AA 2-Bolt
B	4-Bolt

Code	Dir.
1	CCW
2	CW

Seals	
Code	Type
Omit	Buna-N
V	Viton

Bushings	
Code	Type
K	Teflon® - "DU"

Displacement	
Code	Gals. Per 1000 RPM
05	.48
07	.71
09	.89
11	1.10
14	1.39
17	1.71
22	2.20
27	2.71

Code	Shaft
A	1/2" Dia. Woodruff Key
*R	.250" Wide Tang
**S	.147" Wide Tang
Others Consult Factory	

*Available on "B" Front Cover only.

**Reduce pressure ratings 2000 PSI (138 Bar) on D22, and 1500 PSI (103 Bar) on D27.

Relief Valve Setting PSI ± 2.5%		
Available in any PSI rating up to 2500 PSI except: D27 rated at 2000 PSI max.		
3 Digit Code	Times (X) 10	= Relief Valve Setting PSI
150	X 10	= 1500 PSI
175	X 10	= 1750 PSI
Etc.....		

Port Options			
Code	Porting Location	Inlet	Outlet
A	Side	7/8"-14 UNF-2B SAE Straight Thread	3/4"-16 UNF-2B SAE Straight Thread
D	Rear	7/8"-14 UNF-2B SAE Straight Thread	3/4"-16 UNF-2B SAE Straight Thread
*L	Rear W/Relief Valve	1/2" NPTF Threaded	.312" Dia. Manifold Type
*N	Rear W/Relief Valve	7/8"-14 UNF-2B SAE Straight Thread	3/4"-16 UNF-2B SAE Straight Thread
Others Consult Factory			

*Relief Valve is preset at factory. Specify setting.

Accessories For "D" Pump	
P & T Subplate Kit	73555K
D01 — Subplate Kit	825602K
2 Qt. Tank Kit	715631
4 Qt. Tank Kit	715632
6 Qt. Tank Kit	735560
"R" Shaft Coupling	825387K
"S" Shaft Coupling	825386K
Buna-N Seal Kit	686632K
Viton™ Seal Kit	745083K

Performance Data

Series D Fixed Displacement, Pressure-Loaded Gear Pump

Features

- Pressure-loaded design
- Efficient, simple design - few moving parts
- Exceptionally compact and lightweight for their capacity
- Efficient at high pressure operation
- Resistant to cavitation effects
- High tolerance to system contamination
- Reliable under cold weather operation
- Sleeve-bearing construction
- Multi-fluid compatibility

Controls

- Optional built-in relief valve
- Consult factory for special controls

Specifications

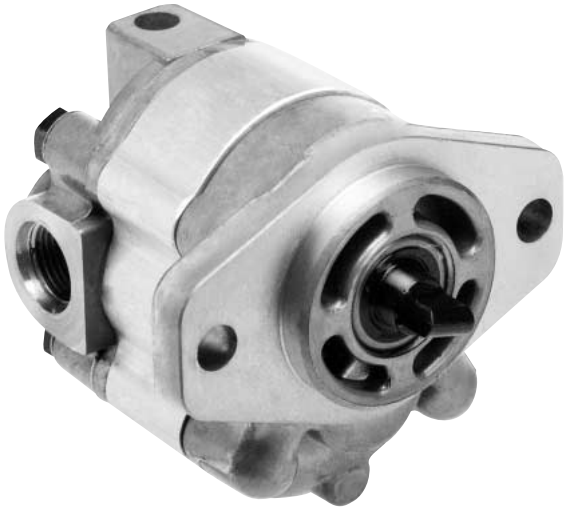
Flow Ratings:
.5 GPM (1.9 LPM) to 2.7 GPM (10.2 LPM)
(At 1000 RPM) See next page for additional flow data.

Pressure Ratings:
D05 thru D22 - 2500 PSI (172 Bar) continuous
D27 - 2000 PSI (138 Bar) continuous

Speed Ratings:
D05 thru D22 - 500 to 4000 RPM
D27 - 3000 RPM

Mounting:
SAE-AA - 2-Bolt Flange
4-Bolt Flange

Housing Material:
Die-Cast Aluminum



Schematic Symbol

(Basic Pump)

Installation Data

Inlet Conditions:
10 in. hg. max. vacuum condition
(At 1800 RPM)
5 in. hg. max. vacuum condition
(At max. RPM)
20 PSI (1.4 Bar) max. positive pressure

Operating Temperature Range:
-40°F to 185°F
(-40°C to 85°C)

Filtration:
Maintain SAE Class 4

Installation Note:
See page 28 for specific recommendations pertaining to system cleanliness, fluids, start-up, inlet conditions, shaft alignment, and other important factors relative to the proper installation and use of these pumps.

Performance Data

Flow in Gallons Per Minute – GPM (LPM)

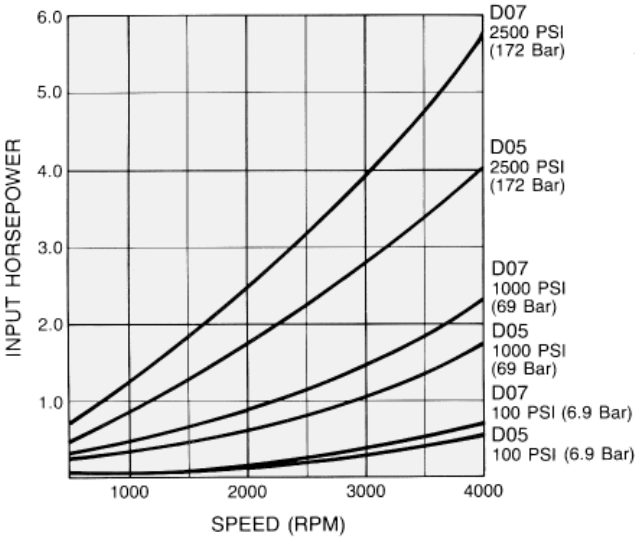
Data Based on 100 SSU
Viscosity Fluids at 120°F (49°C)

Pump Model	Displacement IN³ (CC/REV.)	RPM	100 PSI (6.9 Bar)	1000 PSI (69 Bar)	1500 PSI (103 Bar)	2000 PSI (138 Bar)	2500 PSI (172 Bar)
D05	.114 (1.87)	1200	.58 (2.20)	.48 (1.82)	.42 (1.59)	.37 (1.40)	.32 (1.21)
		1800	.87 (3.30)	.77 (2.92)	.71 (2.69)	.66 (2.50)	.61 (2.31)
		3600	1.73 (6.56)	1.65 (6.25)	1.61 (6.10)	1.56 (5.91)	1.52 (5.76)
D07	.168 (2.76)	1200	.85 (3.22)	.73 (2.77)	.68 (2.58)	.62 (2.35)	.56 (2.12)
		1800	1.28 (4.85)	1.16 (4.40)	1.10 (4.17)	1.05 (3.98)	.99 (3.75)
		3600	2.56 (9.70)	2.47 (9.36)	2.42 (9.17)	2.37 (8.98)	2.33 (8.83)
D09	.210 (3.45)	1200	1.06 (4.02)	.94 (3.56)	.87 (3.30)	.81 (3.07)	.75 (2.84)
		1800	1.60 (6.06)	1.48 (5.61)	1.41 (5.34)	1.35 (5.12)	1.29 (4.89)
		3600	3.19 (12.09)	3.09 (11.71)	3.04 (11.52)	2.99 (11.33)	2.94 (11.14)
D11	.262 (4.29)	1200	1.32 (5.00)	1.19 (4.51)	1.12 (4.24)	1.06 (4.02)	.99 (3.75)
		1800	1.99 (7.54)	1.86 (7.05)	1.79 (6.78)	1.73 (6.56)	1.66 (6.29)
		3600	3.97 (15.05)	3.86 (14.63)	3.81 (14.44)	3.76 (14.25)	3.70 (14.02)
D14	.329 (5.38)	1200	1.66 (6.29)	1.52 (5.76)	1.44 (5.46)	1.37 (5.19)	1.30 (4.92)
		1800	2.49 (9.44)	2.35 (8.91)	2.27 (8.60)	2.20 (8.34)	2.13 (8.07)
		3600	4.99 (18.91)	4.88 (18.50)	4.82 (18.27)	4.76 (18.04)	4.70 (17.81)
D17	.404 (6.62)	1200	2.04 (7.73)	1.88 (7.13)	1.80 (6.82)	1.72 (6.52)	1.64 (6.22)
		1800	3.07 (11.64)	2.91 (11.03)	2.83 (10.73)	2.75 (10.42)	2.67 (10.12)
		3600	6.14 (23.27)	6.01 (22.78)	5.95 (22.55)	5.88 (22.29)	5.82 (22.06)
D22	.522 (8.55)	1200	2.64 (10.00)	2.46 (9.32)	2.37 (8.98)	2.28 (8.64)	2.19 (8.30)
		1800	3.97 (15.05)	3.79 (14.36)	3.70 (14.02)	3.61 (13.68)	3.52 (13.34)
		3600	7.93 (30.05)	7.79 (29.52)	7.71 (29.22)	7.64 (28.96)	7.57 (28.69)
D27	.641 (10.50)	1200	3.25 (12.32)	3.05 (11.56)	2.95 (11.18)	2.85 (10.80)	——
		1800	4.87 (18.46)	4.67 (17.70)	4.57 (17.32)	4.47 (16.94)	——
		3000	8.12 (30.77)	7.96 (30.17)	7.88 (29.86)	7.80 (29.56)	——

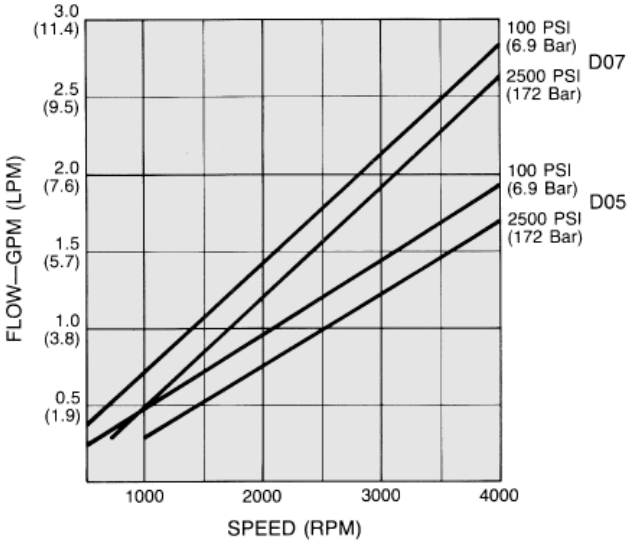
Performance Data

**Based On Oil Temperature of 120°F (49°C)
(100 SSU) Atmospheric Inlet**

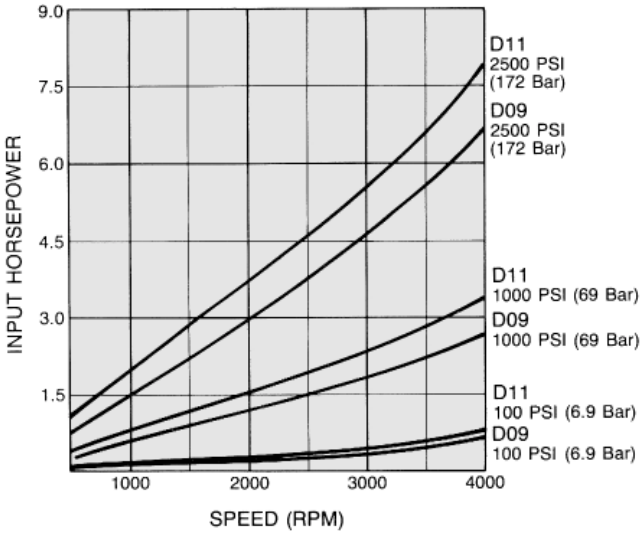
D05/D07 Horsepower/Speed



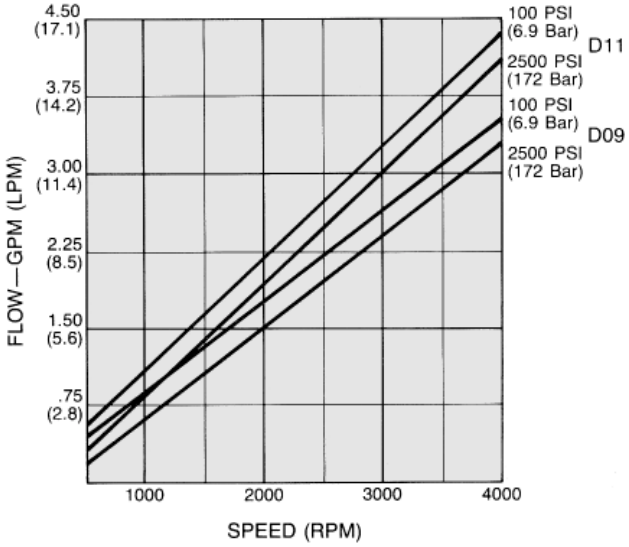
D05/D07 Flow/Speed



D09/D11 Horsepower/Speed



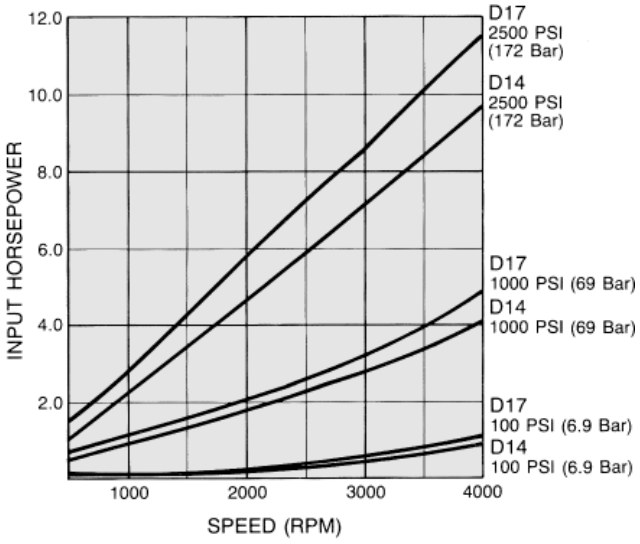
D09/D11 Flow/Speed



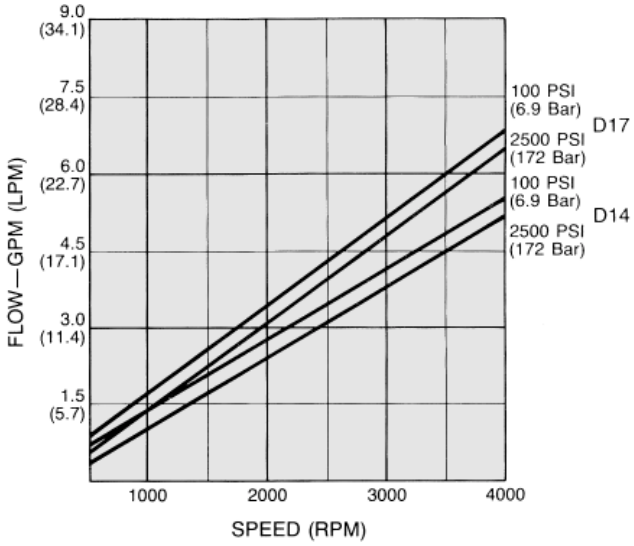
Performance Data

Based On Oil Temperature of 120°F (49°C)
(100 SSU) Atmospheric Inlet

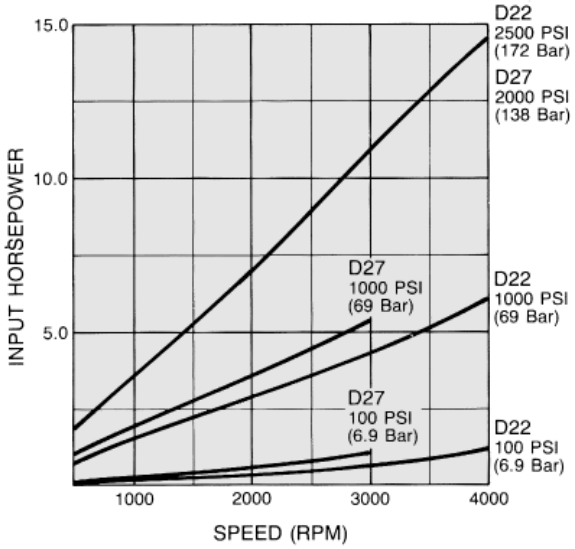
D14/D17 Horsepower/Speed



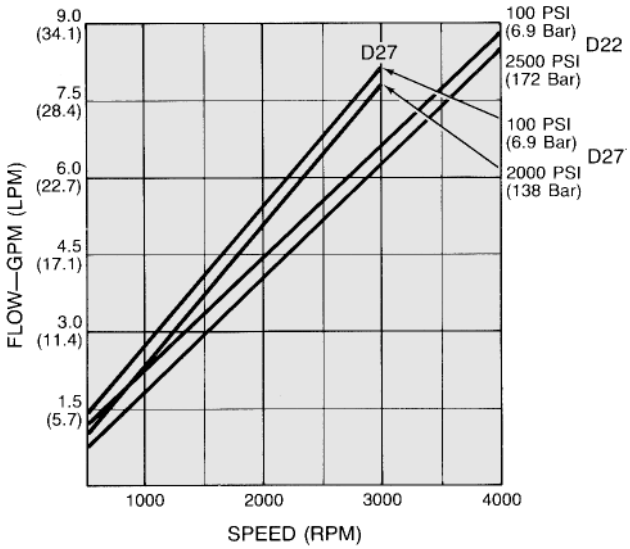
D14/D17 Flow/Speed



D22/D27 Horsepower/Speed



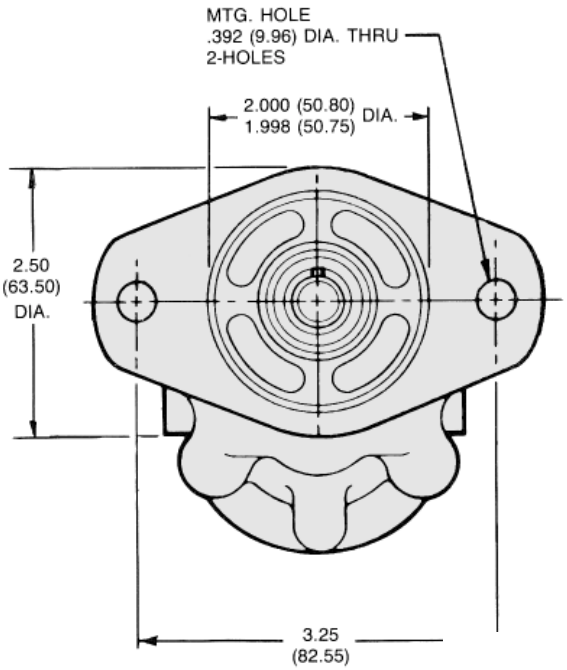
D22/D27 Flow/Speed



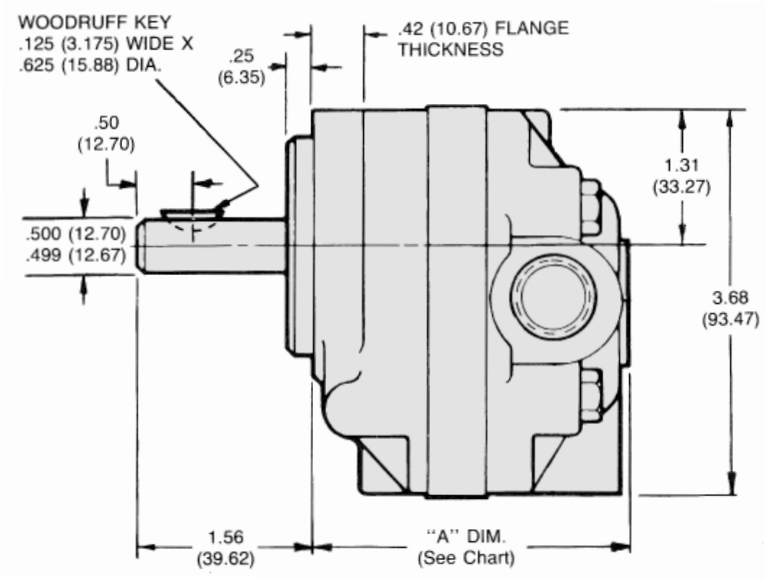
Dimensions – 2-Bolt Mounting

Clockwise rotation and "A" shaft shown
(Port locations reverse for CCW rotation)

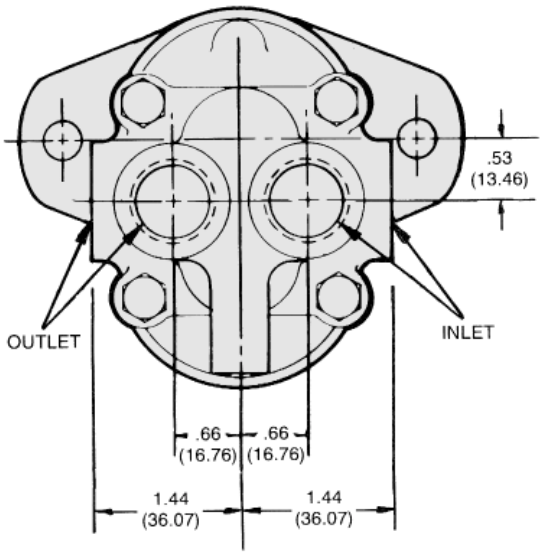
Dimensions: Inches (mm)



Front View



Side View



Rear View

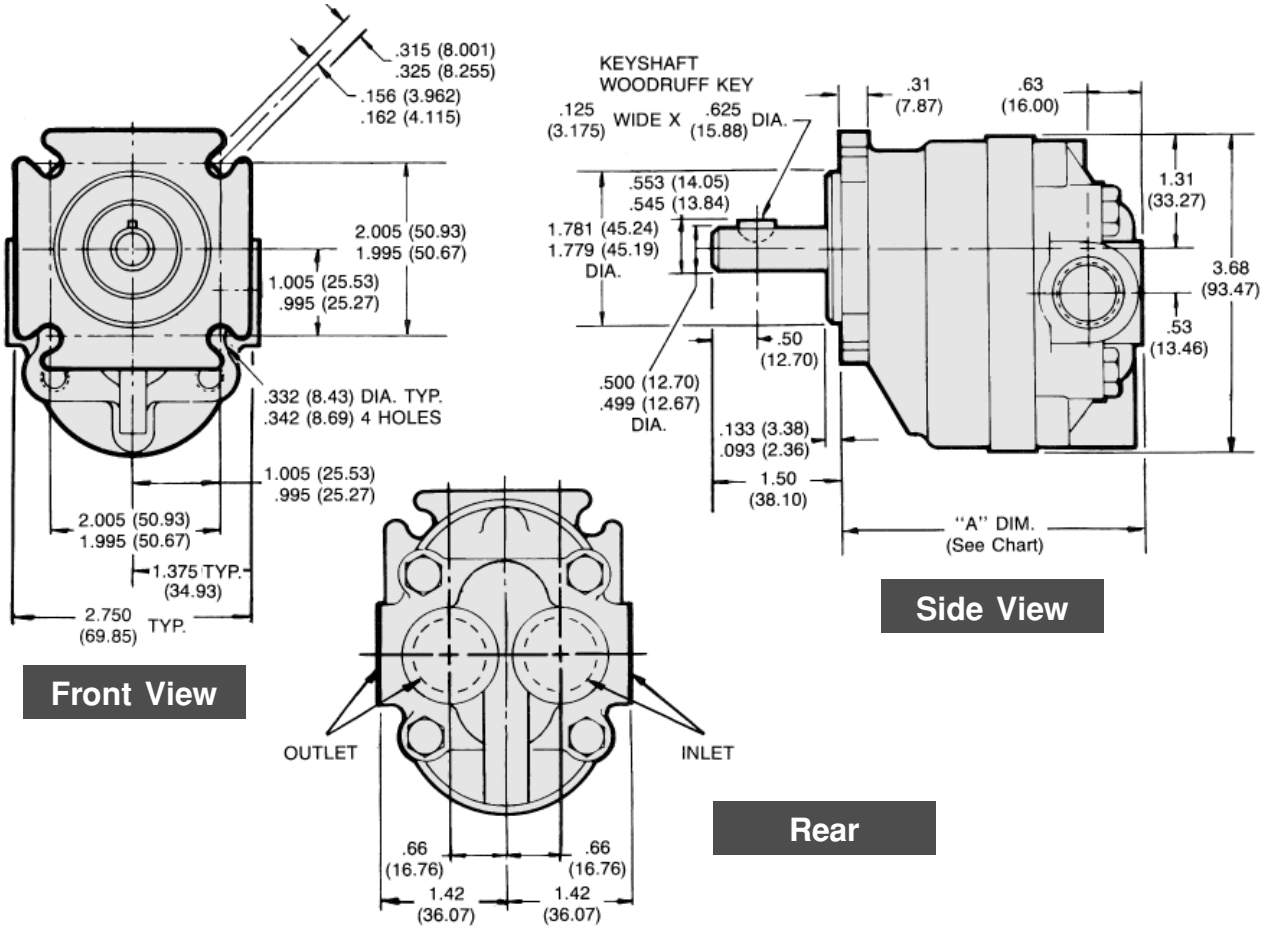
"A" Dimensions: Inches (mm)

D05	D07	D09	D11	D14	D17	D22	D27
2.48 (62.99)	2.57 (65.28)	2.64 (67.06)	2.72 (69.09)	2.83 (71.88)	2.96 (75.18)	3.15 (80.01)	3.34 (84.84)

Dimensions – 4-Bolt Mounting

Clockwise rotation and "A" shaft shown
(Port locations reverse for CCW rotation.)

Dimensions: Inches (mm)



"A" Dimensions: Inches (mm)

D05	D07	D09	D11	D14	D17	D22	D27
3.22 (81.79)	3.31 (84.07)	3.38 (85.85)	3.47 (88.14)	3.58 (90.93)	3.70 (93.98)	3.90 (99.06)	4.09 (103.89)

"S" Tang-end Shaft Option – For Use With 4-Bolt Mounting

Primarily used to direct-couple to electric motor drive.