



Miniature Piston Pumps 5 Piston & Cartridge Design

Pressures to 276 bar (4000 psi)
Displacements from .156 to .865cc/rev (.01 to .05 in³/rev)

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.

Miniature Piston Pumps: Pumping Efficiencies up to 90% Allow Effective Use of .156 to .865 cc/rev Piston Pumps at Pressures to 276 bar (4000 psi)

Breakthrough designs come and go, succeed and fail. The really good designs pass the test of time and continue to succeed. The Oildyne Division mini pump is one of these good designs.

Mini pumps handle hydraulic oil, brake fluid, ultra-low viscosity fluids and many non-water based fluids with equal ease. Need greater versatility? These fixed displacement axial piston pumps are efficient and powerful too. Tests run on 15.1 cSt (78 SSU) fluid at 38°C (100°F) at 207 bar (3000 psi) showed a 90% volumetric

efficiency. Capable of 276 bar (4000 psi) operation, mini pumps are available in nine displacements ranging from .156 to .865 cc/rev (.01 to .053 in³/rev).

Compact size, versatility, efficiency, power and speed are combined in a very competitive package in the Oildyne mini pumps. They're suitable for many applications requiring compact power including automotive, marine, medical and military uses.

Mini Pump Features

- .156 to .865 cc (.01 to .053 in³) displacement per revolution
- Designed for open circuit systems
- Fixed displacement – Output flow is determined by motor drive speed.
- Operating temperature range: -40° to +149°C (-40° to 300°F)
- Inlet port on side or rear
- Will operate efficiently on extremely thin (5 cSt) fluid
- Tandem pumps, special configurations and bi-rotational pumps are available.

Cartridge Piston Pumps: Compact Fluid Power Redefined by the Oildyne Division.

This cartridge piston pump raises the standard for compact fluid power! This three-piston cartridge style pump is an efficient, fixed displacement pump that provided high performance at a very economical price. Pressure ratings up to 276 bar (4000 psi), driven speeds up to 5000 RPM, and the ability to provide a variety of seal types make this the solution to your unique application. This uni-rotational pump is capable of pumping non-water based fluids ranging in viscosity from solvents to thick fluids.

The three-piston cartridge pump maintains the performance and flexibility of the Oildyne five-piston, standalone pump while reducing the overall package dimensions.

This ultra-compact cartridge piston pump, approximately

33 mm (1.3 in) in diameter and 51 mm (2 in) long, is designed to fit into your specially machined manifold allowing for a custom package that fits your space needs.

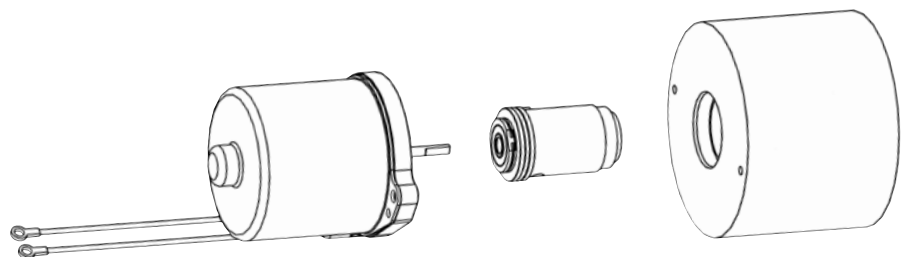
Three standard displacements are available all within the existing physical size. (The internal cam angle determines the displacement).

Contact Oildyne Division for a drawing showing the cavity details as well as the motor shaft and flange details needed for your motor to drive and mount this pump to your manifold.

Cartridge Pump Features

- .1 to .33 cc (.006 to .020 in³) displacement per revolution
- Designed for manifold mounting
- Fixed displacement – Output flow is determined by motor drive speed.
- Operating temperature range: -40° to +149°C (-40° to 300°F)
- Will operate efficiently on extremely thin (5 cSt) fluid
- Counter clockwise rotation (from pump drive end)

See Page 34 for Cartridge Pump ordering code

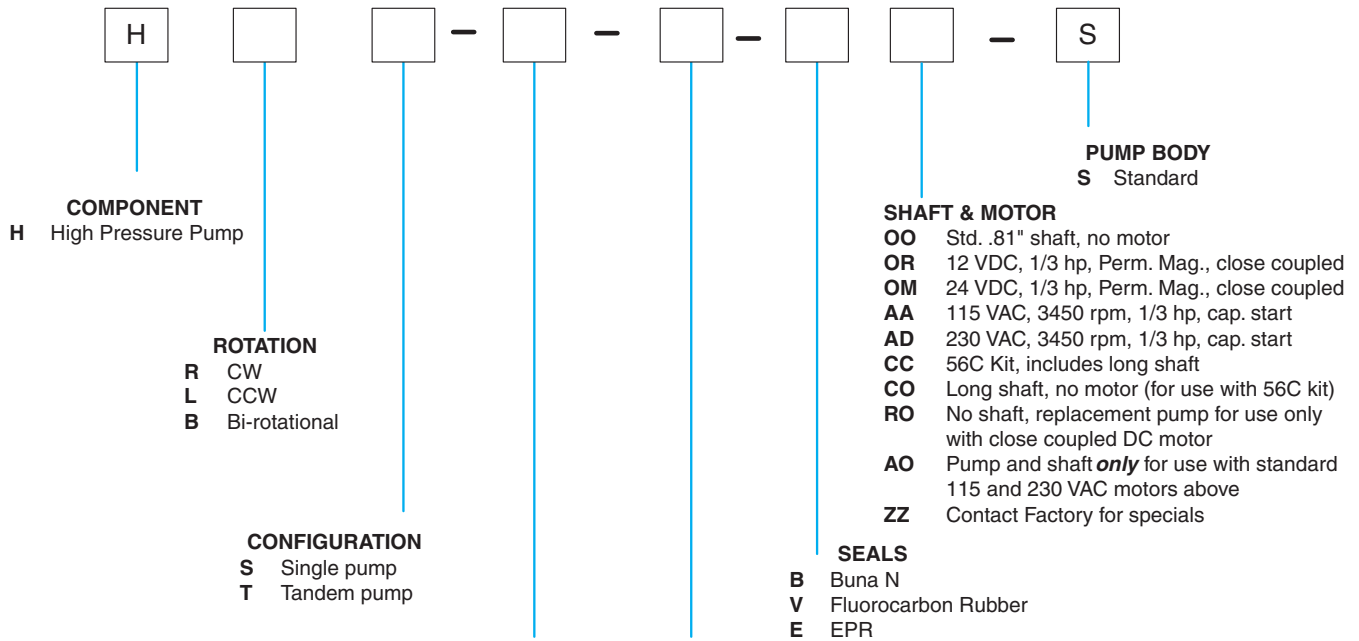


Your Motor

Pump

Your Manifold Package

Miniature Piston Pump Standard Product Model Code



SINGLE or 1st PUMP SIZE		2nd PUMP SIZE	
CODE	DISP.	CODE	DISP.
156	.156 cc/rev	156	.156 cc/rev
206	.206 cc/rev	206	.206 cc/rev
259	.259 cc/rev	259	.259 cc/rev
311	.311 cc/rev	311	.311 cc/rev
346	.346 cc/rev	346	.346 cc/rev
417	.417 cc/rev	417	.417 cc/rev
519	.519 cc/rev	519	.519 cc/rev
692	.692 cc/rev	692	.692 cc/rev
865	.865 cc/rev	865	.865 cc/rev

Notes:

1. Tandem pumps must have the larger displacement called out first
2. Tandem pumps are not available with the standard AC or DC motors - only standard shaft or 56C kit
3. Drive shaft input torque must be under 3.5 Nm (525 in-oz) (equivalent to HRS865 operating at 207 bar (3000 psi); refer to catalog performance curves for torque data)
4. Bi-rotational pumps require the side port as case drain
5. For configurations not shown above please contact Oildyne

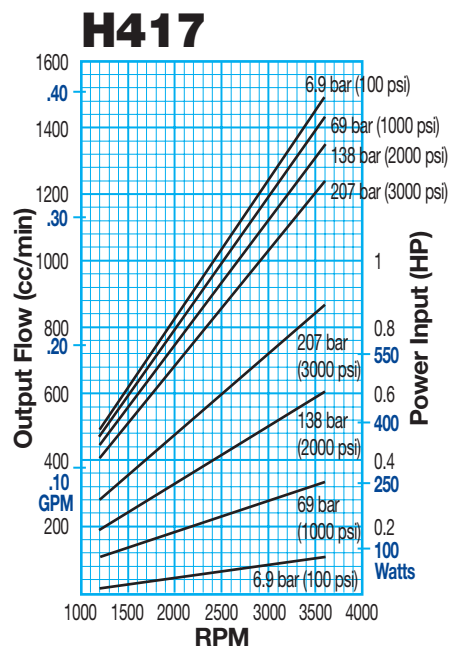
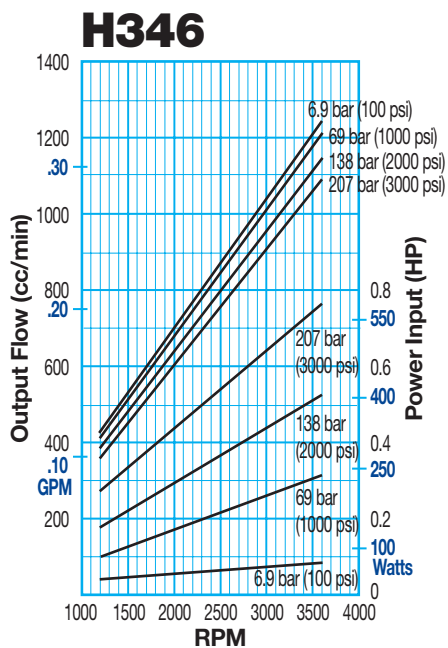
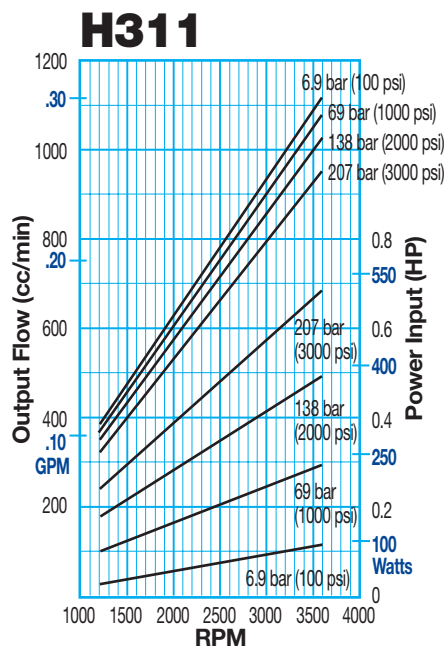
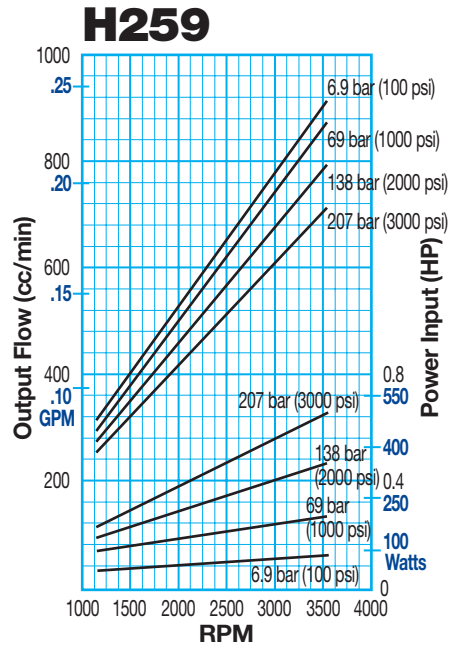
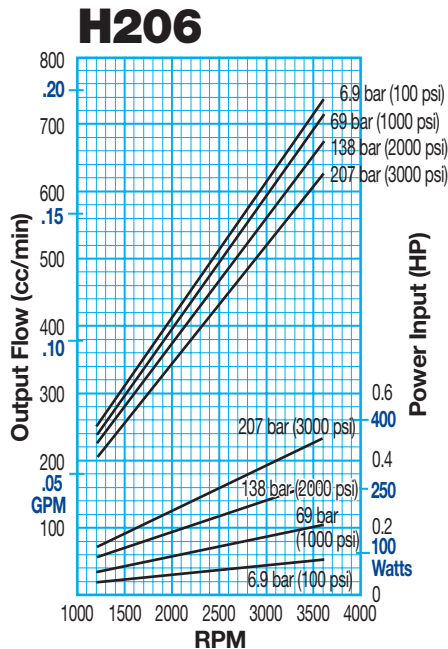
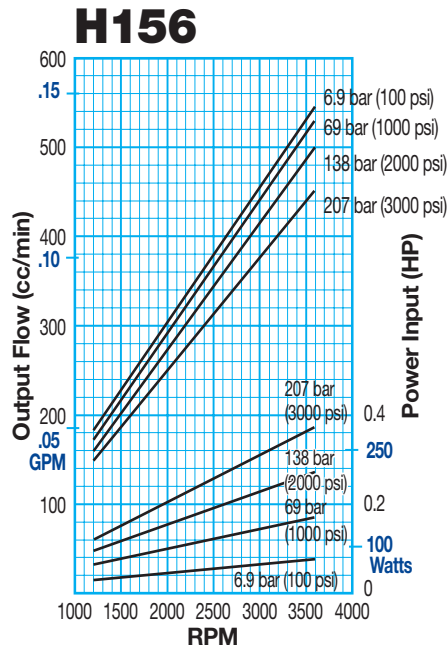
Miniature Piston Pump Basic Specifications

Model	156	206	259	311	346	417	519	692	865
Displacement									
In ³ per rev.	.0095	.0126	.0158	.0190	.0211	.0255	.0317	.0422	.0527
cc /rev	.156	.206	.259	.311	.346	.417	.519	.692	.865
Max RPM @ rated pressure W/O supercharge	4400	4200	4000	3800	3800	3700	3700	3600	3500
Operating Pressure (psi)									
Continuous bar (psi)	241 (3500)	241 (3500)	241 (3500)	241 (3500)	241 (3500)	241 (3500)	241 (3500)	224 (3250)	207 (3000)
Intermittent bar (psi)	258 (3750)	258 (3750)	258 (3750)	258 (3750)	258 (3750)	258 (3750)	258 (3750)	241 (3500)	241 (3500)
Maximum bar (psi)	276 (4000)	276 (4000)	276 (4000)	276 (4000)	276 (4000)	276 (4000)	276 (4000)	258 (3750)	241 (3500)

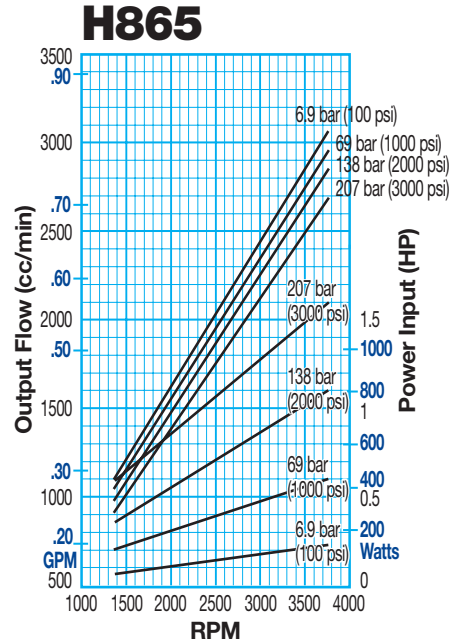
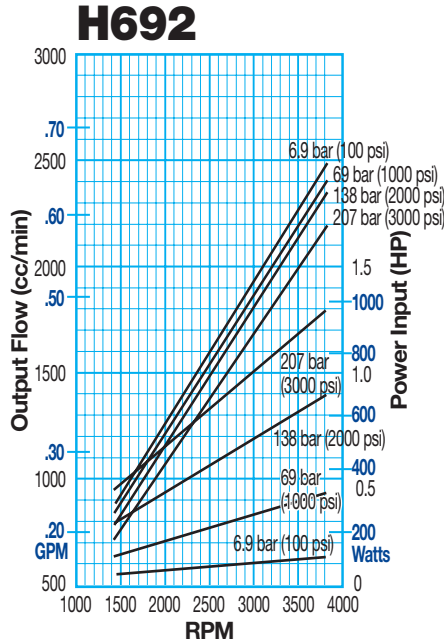
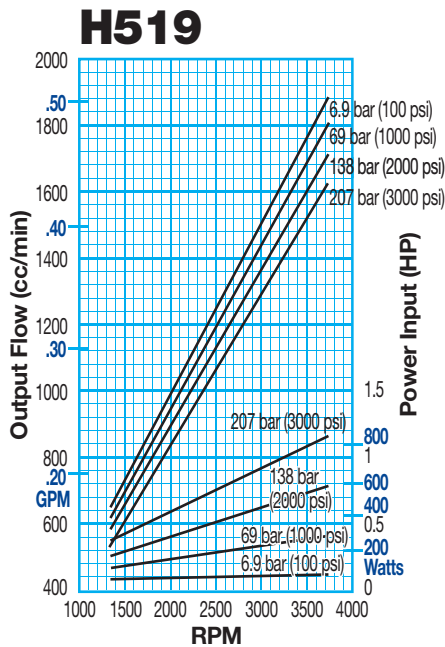
Performance Data

Performance data shown are the average results based upon a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with 15.1 cSt (78 SSU) fluid.

In accordance with our policy of continuing product development, we reserve the right to change specifications shown without notice.



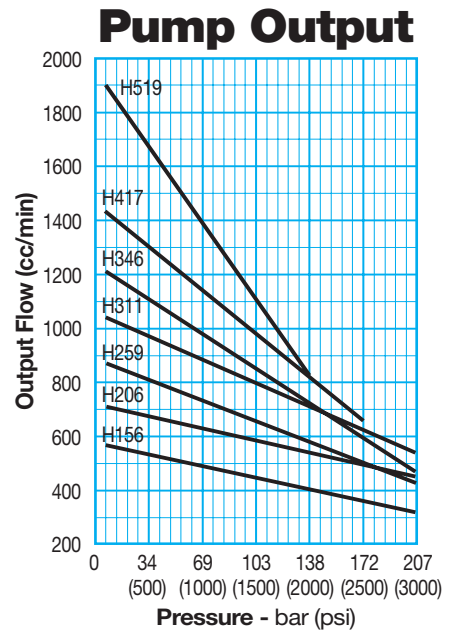
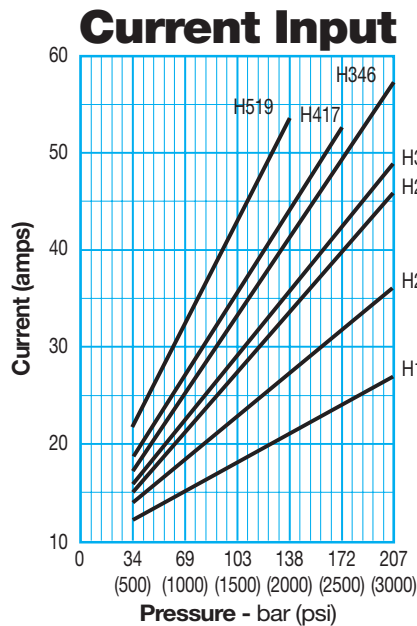
Note: Performance data is for reference only.



Typical Performance Data

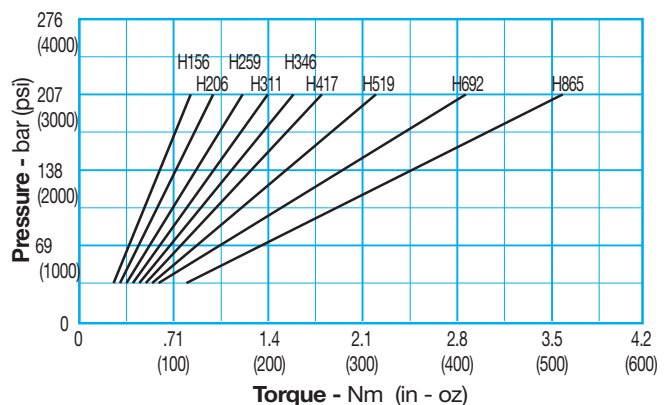
at 12 VDC as assembled with a standard DC motor

NOTE: 24 VDC motor current will be approximately 1/2 of the 12 VDC current shown here. Max current for continuous operation is:
 12 VDC: 12.6 A
 24 VDC: 9.6 A



Average Input Torque

Speed: 3000 RPM

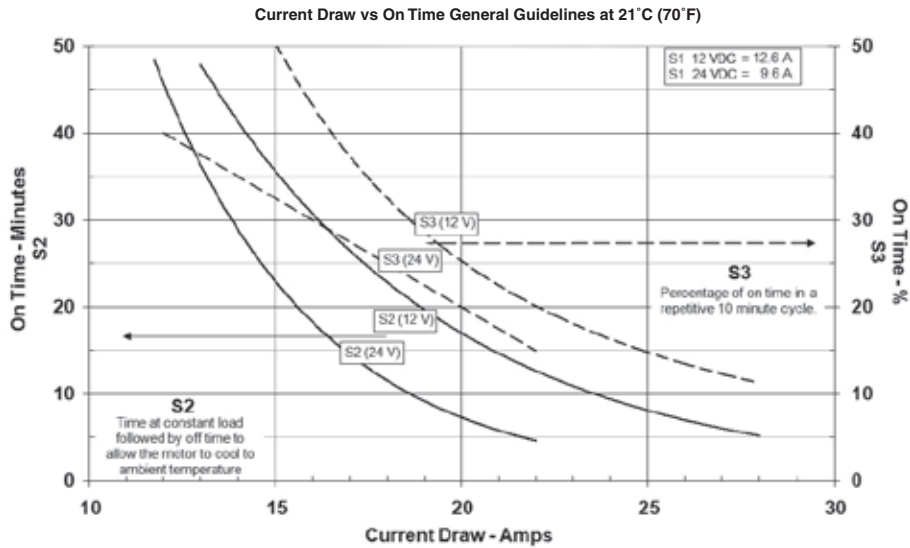


Note: Performance data is for reference only.



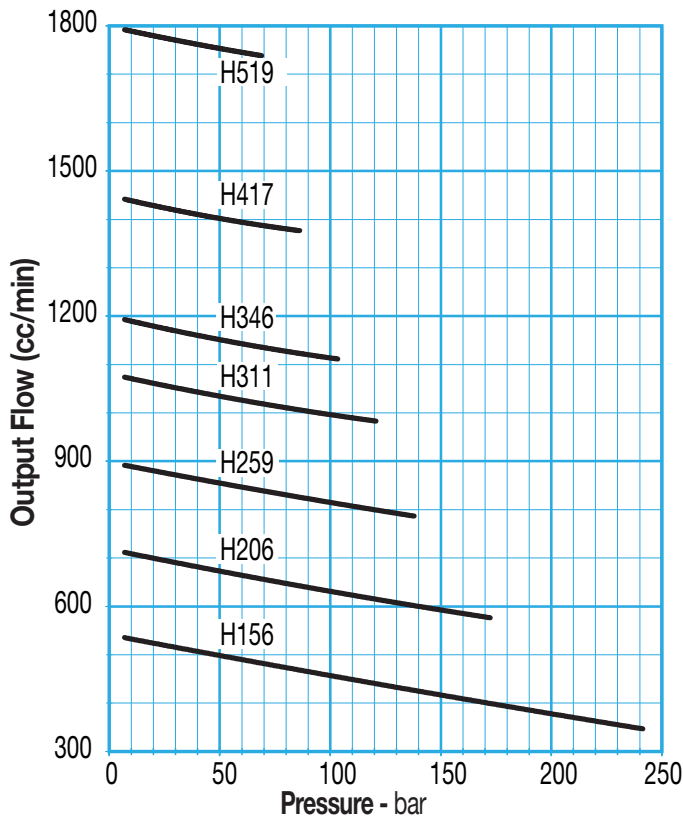
Performance Data

DC Motor Duty Cycle Characteristics

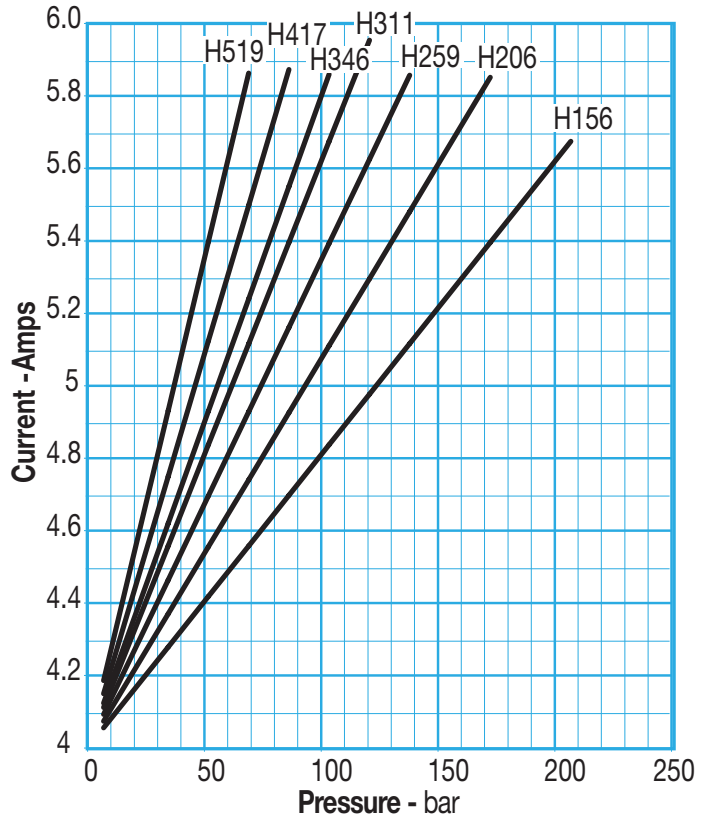


AC Motor and Miniature Piston Pump Performance

115 VAC Motor Flow Rate 60 Hz



115 VAC Motor Current 60 Hz

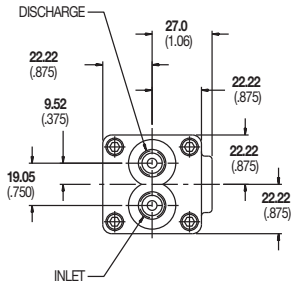


NOTES:

The 115 VAC performance shown is at 60 Hz.
 At 230 VAC the current draw will be approximately 1/2 of that shown.
 At 50 Hz, the flow will be about 5/6 of that shown and the current will be about 25% higher than the 60 Hz values.
 Performance data shown is for reference only.

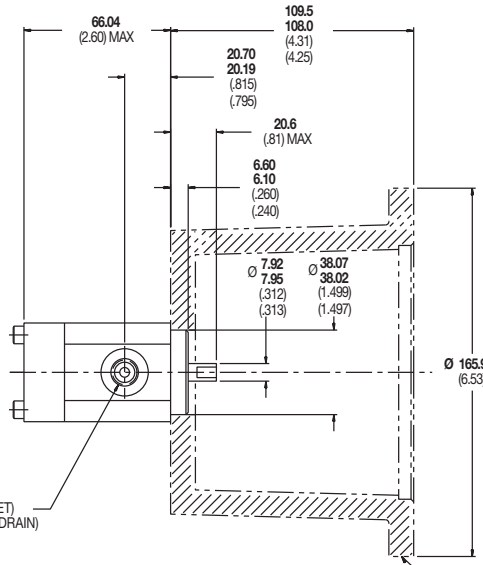
Dimensions

Miniature Piston Pump

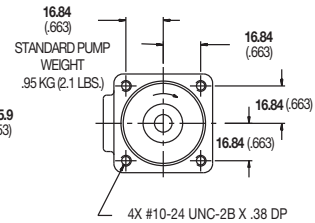


PORT SINGLE DIRECTION ROTATION (OPTIONAL INLET)
PORT BI-DIRECTIONAL ROTATION (REQUIRED CASE DRAIN)

ALL PORTS ARE #4 SAE 7/16-20 UNF-2B
PUMP SHOWN IS CLOCKWISE ROTATION
56C ADAPTER SUPPLIED WITH COUPLING AND MOUNTING SCREWS



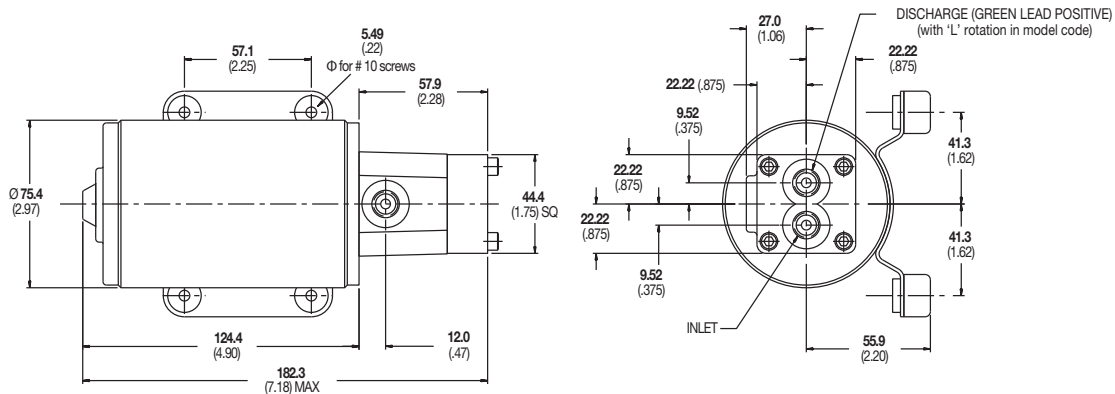
Basic Pump



STANDARD PUMP WEIGHT
95 KG (2.1 LBS)

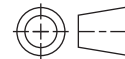
OPTIONAL 56C ADAPTER (REQUIRES LONG PUMP SHA)

Standard 1/3 HP DC Permanent Magnet Motor with Pump

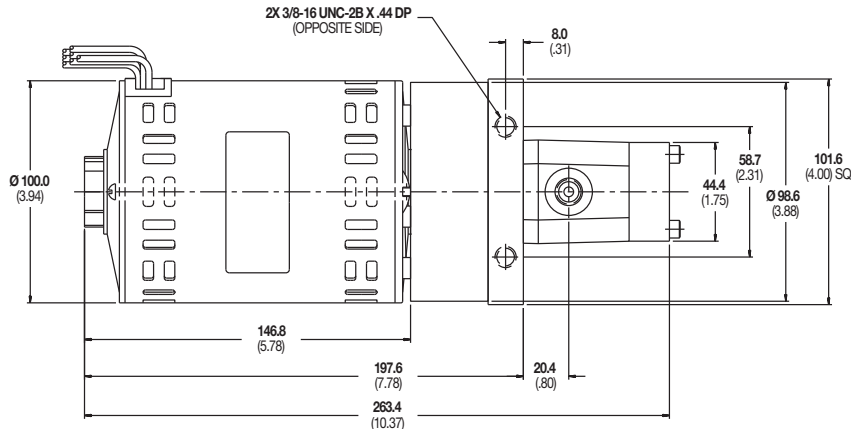


WEIGHT OF STANDARD MOTOR IS 1.82 KG (4 LBS)

THIRD ANGLE PROJECTION



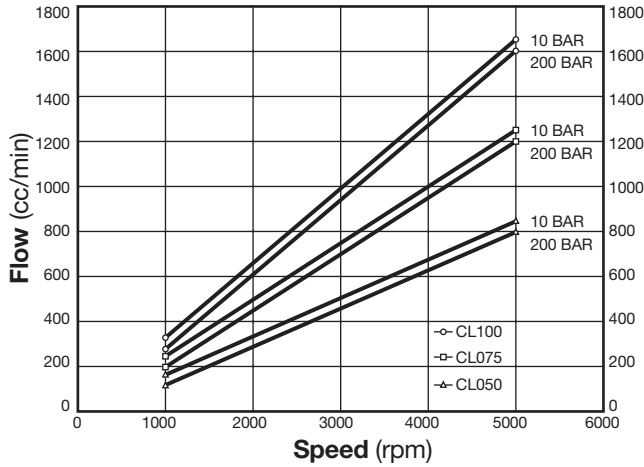
Standard 1/3 HP AC Motor with Pump



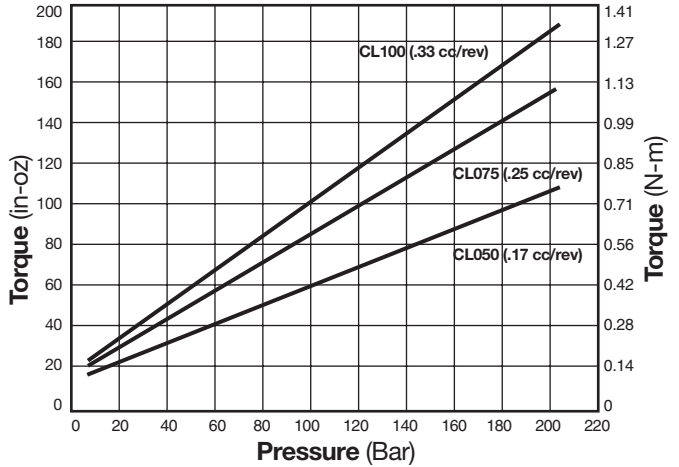
Note: All dimensions in mm (inches).

Cartridge Piston Pump Performance

Cartridge pump flow at 23°C on DOT 3 brake fluid



Cartridge pump input torque at 23°C on DOT 3 brake fluid



Specifications

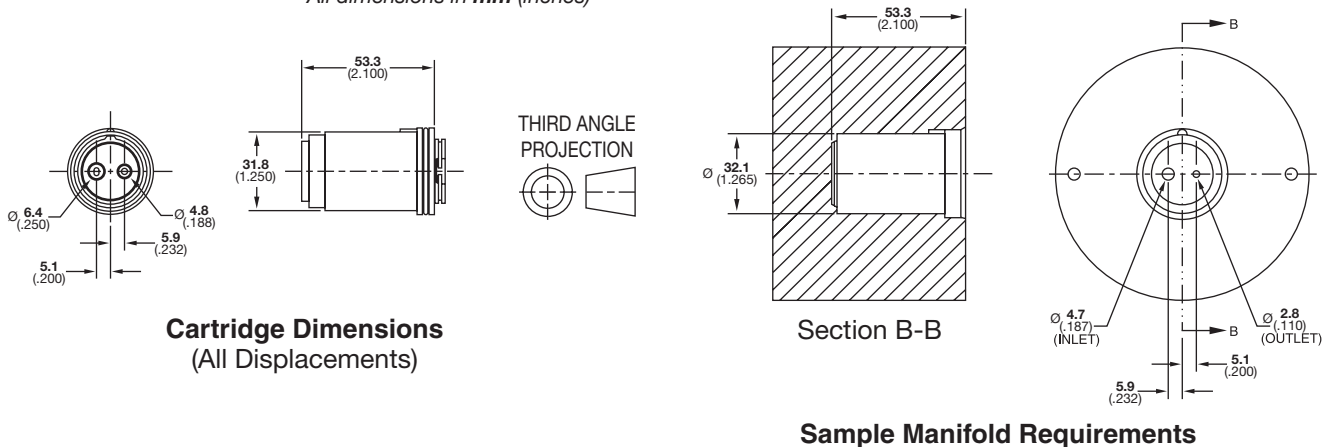
- Displacements:** .1 cc/rev. (.006 in³/rev.) to .33 cc/rev. (.020 in³/rev.)
- Speeds:** Up to 5000 rpm maximum
- Pressures:** 207 bar (3000 psi) maximum continuous
276 bar (4000 psi) maximum intermittent
- Temperature Ranges:** Up to 120°C (250°F)
- Seals Available:** Variety
- Weight:** .19 kg (.42 lbs)
- Fluids Compatibility:** Variety, not water-based

This cartridge piston pump continues Oildyne's tradition of producing innovative products which can be customized to specific industries. Please call us to discuss how this cartridge pump can be used in your unique application. **Detailed cavity and motor interface dimensions are available on request. Ask for Oildyne drawing 500059**

*Specifications subject to change without notice.
 Performance data is for reference only.*

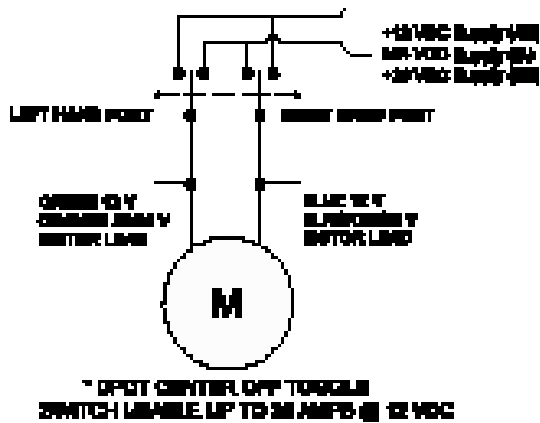
Cartridge Pump Dimensions

(with sample manifold requirements)
 All dimensions in mm (inches)

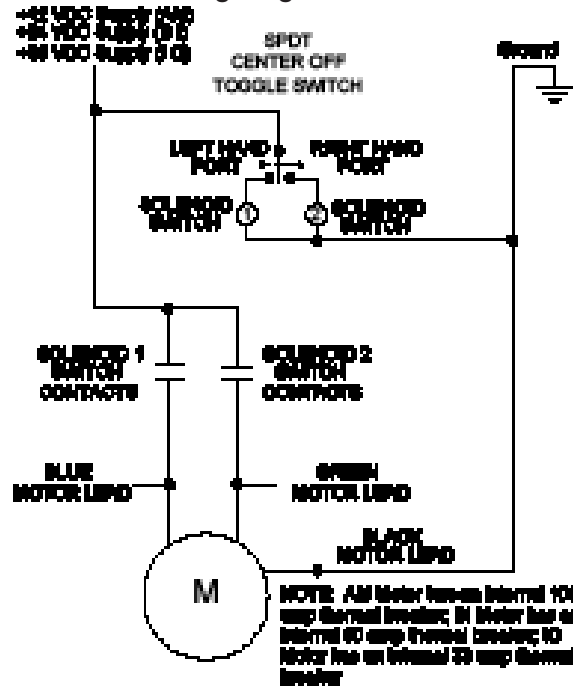


Suggested reversing electrical schematics

Wiring Diagram: AE/BE/IA

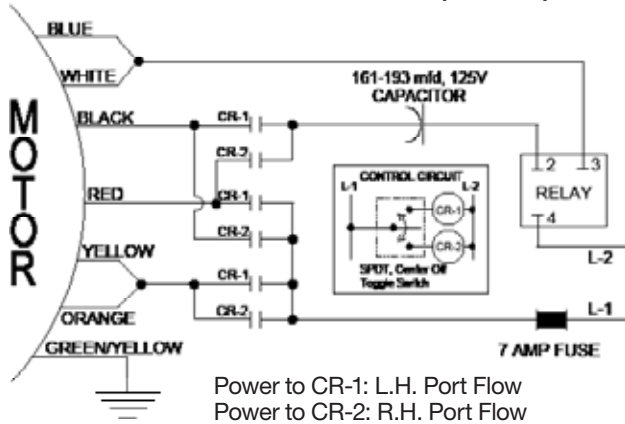


Wiring Diagram: AM/BI/IC

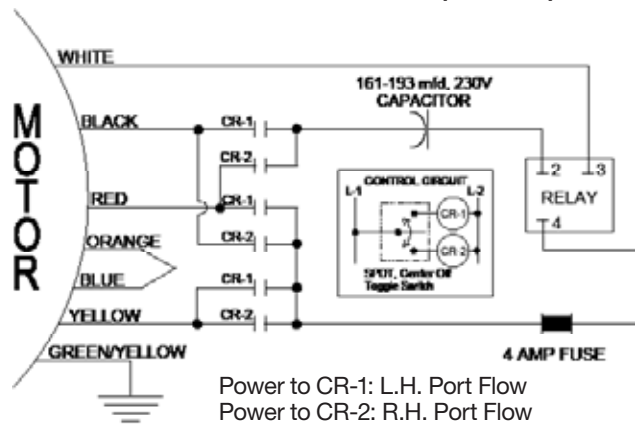


NOTE: If a Double Pole, Double Throw toggle switch with a current rating for your application is not available, refer to the "108/118 AE/BE/IA and 165/175 Motors" below for a possible reversing circuit using control relays.

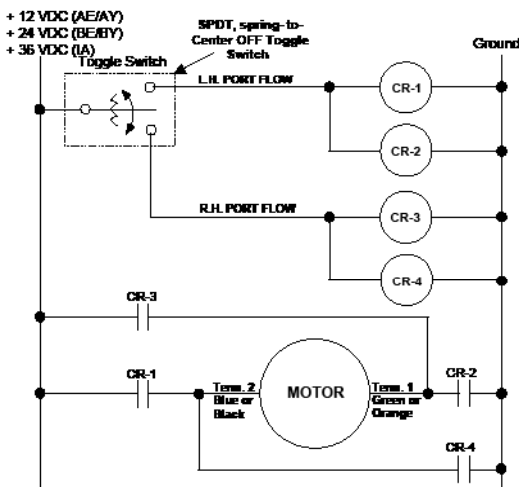
108/118 Series HA Motors (115 VAC)



108/118 Series HD Motors (230 VAC)



108/118 AE/BE/IA and 165/175 AY/BY Motors Using Control Relays



NOTE: The UP port corresponds to the Left Hand Port Flow in these schematics. The DN port corresponds to the Right Hand Port Flow. 108/118/165/175 Series power unit castings are marked above the pressure ports UP and DN.