

H25

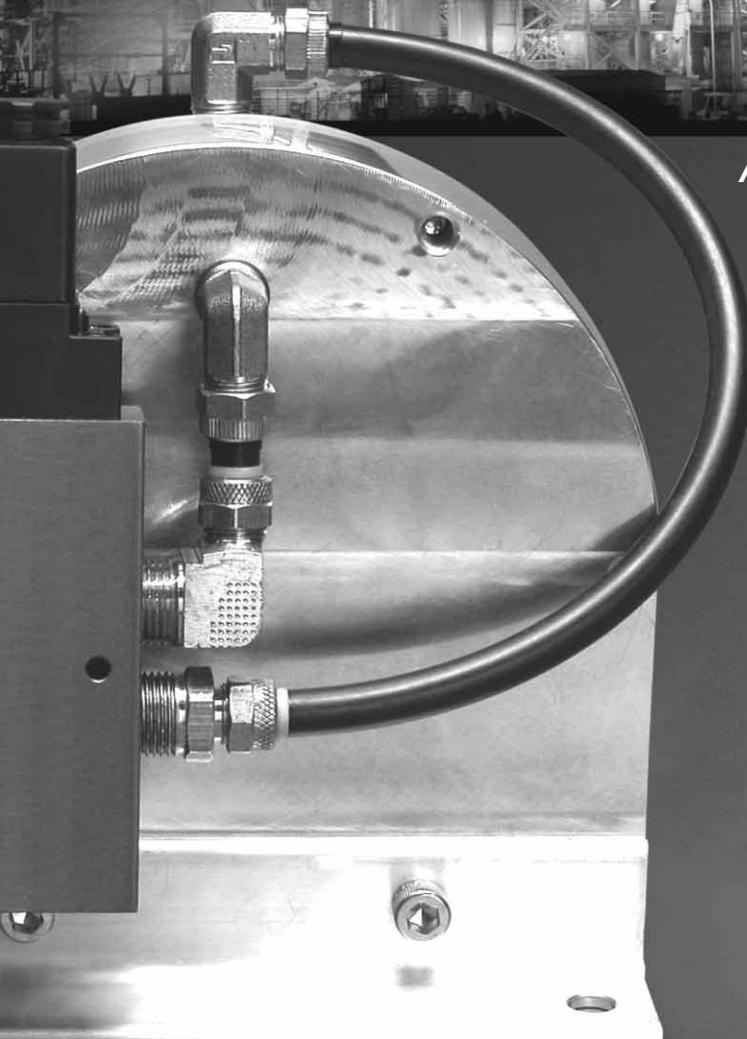
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Engineering
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**High
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ACCUFLO™
SOLENOID PUMP TECHNOLOGY

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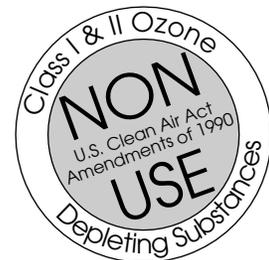
A DOVER COMPANY



WIL-11180-E-02
Replaces EOM Rhino 1600S 8/03

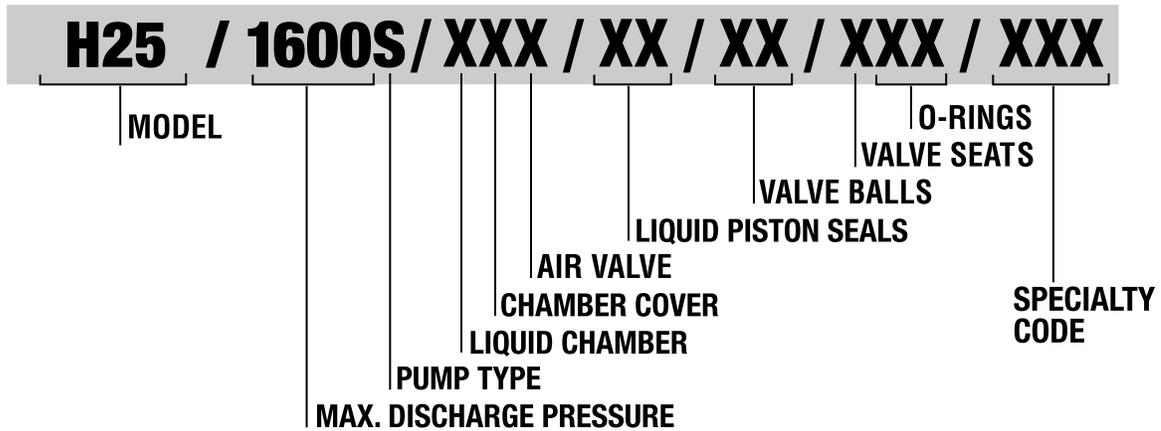
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SECTION 1

WILDEN PUMP DESIGNATION SYSTEM



MODEL H25/1600S MATERIAL CODES

MODEL

H25 = 6 mm (1/4") CONNECTIONS

AIR VALVE

A = ALUMINUM

VALVE SEATS

S = STAINLESS STEEL

MAX. DISCHARGE PRESSURE

1600 = 110.3 BAR (1,600 PSIG)

LIQUID PISTON SEALS

PU = POLYURETHANE

VALVE SEAT O-RINGS

BN = BUNA-N

PUMP TYPE

S = SIMPLEX

VALVE BALLS

SS = STAINLESS STEEL

SPECIALTY CODES

150 = 24V DC COIL

151 = 24V AC COIL

153 = 24V AC, NEMA 7 COIL

154 = 24V DC, NEMA 7 COIL

155 = 110V AC COIL

156 = 110V AC, NEMA 7 COIL

157 = INTERNATIONAL 24V DC COIL*

LIQUID CHAMBER

A = ALUMINUM

CHAMBER COVER

A = ALUMINUM

* International 24V DC Coil is explosion proof per PTB File #EX-91.C.2027

SECTION 2

H25/1600S — HOW IT WORKS

The Wilden piston pump is an air-operated, positive displacement, self-priming pump. These drawings show the flow pattern through the pump upon its initial stroke. It is assumed the pump has no fluid in it prior to its initial stroke.

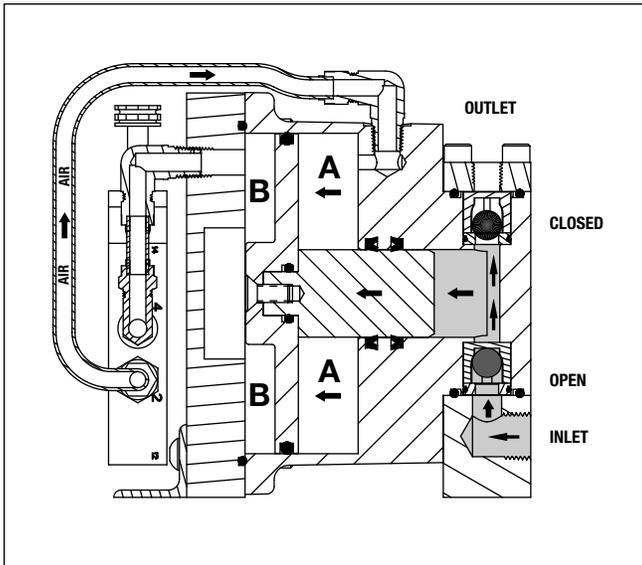


FIGURE 1: When air pressure is supplied to the pump and the solenoid coil is unpowered, the air valve directs air pressure to the front side (A) of the power/liquid piston through the tubing connected to the air valve. At this time, the power/liquid piston is on its suction stroke. At the same time, the air on the back side (B) of the power/liquid piston is being forced out to atmosphere through the exhaust port located towards the top of the air valve. Movement of the power/liquid piston away from the liquid chamber creates a vacuum within the wetted portion of the pump, atmospheric pressure on the inlet fluid forces the inlet valve ball off its seat and allows the fluid being pumped to fill the liquid chamber.

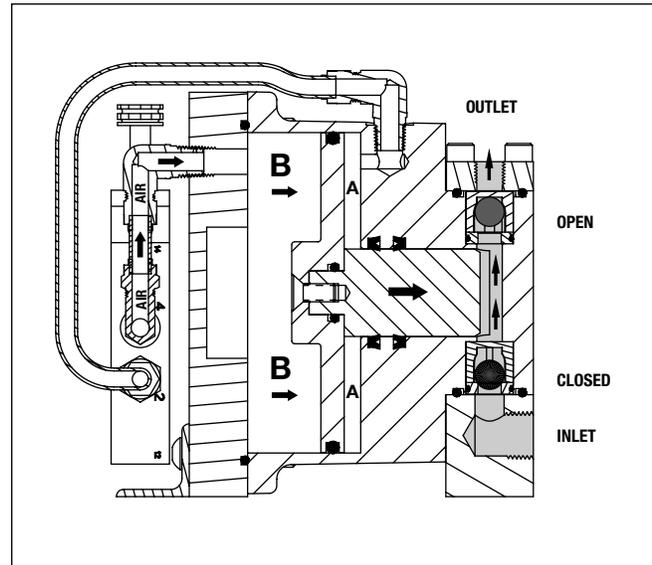


FIGURE 2: When the solenoid is powered, the air valve redirects pressurized air to the back side (B) of the power/liquid piston which forces the power/liquid piston to move towards the liquid chamber. The movement of the power/liquid piston towards the liquid chamber moves the discharge valve ball off its seat and allows the fluid being pumped to exit the discharge port. At this same time, the air on the front side (A) of the power/liquid piston is being forced out to atmosphere through the exhaust port located towards the bottom of the air valve. This constitutes one complete pumping cycle. The pump may take several cycles to completely prime depending on the conditions of the application.

SECTION 3

WILDEN MODEL H25/1600S CAUTIONS — READ FIRST!



PUMP TEMPERATURE LIMITS

-12.2°C to 65.6°C 10°F to 150°F



CAUTION: The H25/1600S is designed for open loop systems.



CAUTION: The liquid discharge pressure generated by this pump is approximately 13 times the inlet air pressure supplied.



CAUTION: Do not apply compressed air to the exhaust ports — pump will not function.



CAUTION: The model H25/1600S is designed to pump clean fluid such as hydraulic fluid and should not be used for pumping solid objects or particles. Whenever the possibility exists that solid objects or particles may be sucked into the pump, a strainer should be used on the suction line.



CAUTION: Only explosion proof (NEMA 7) solenoid valves should be used in areas where explosion proof equipment is required.



CAUTION: The H25/1600S pump is designed to operate lubrication free.



CAUTION: Maximum temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult Wilden's Chemical Resistance Guide (see publication E-4) for chemical compatibility and temperature limits.



WARNING: Prevention of static sparking — If static sparking occurs, fire or explosion could result. Pump, valves, and containers must be grounded to a proper grounding point when handling flammable fluids and whenever discharge of static electricity is a hazard.



CAUTION: Do not exceed 8.6 bar (125 psig) air supply pressure.



CAUTION: The process fluid and cleaning fluids must be chemically compatible with all wetted components (see publication E-4).



CAUTION: Pumps should be thoroughly flushed with water before installing into process lines.



CAUTION: Always wear safety glasses and proper protection when operating and maintaining pump.



CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from the pump. Before disassembly of the pump, or removal from process lines, all pressure must also be bled from the liquid side of the pump and all fluid drained into a suitable container. Failure to do so may result in product under pressure being sprayed on user.



CAUTION: Blow out air line for 10 to 20 seconds before attaching to pump to make sure all pipeline debris is clear. Use an in-line air filter. A 5µ (micron) air filter is suggested.



CAUTION: Pump is not rated for UL 79 service.



CAUTION: H25 pumps are not submersible.



CAUTION: Tighten all hardware prior to installation.

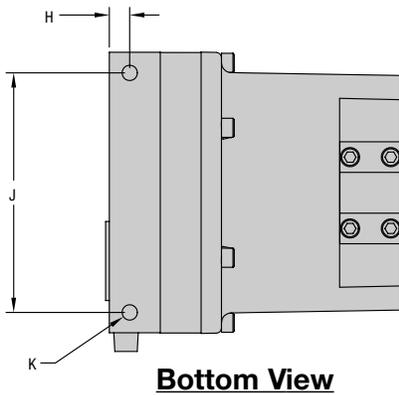
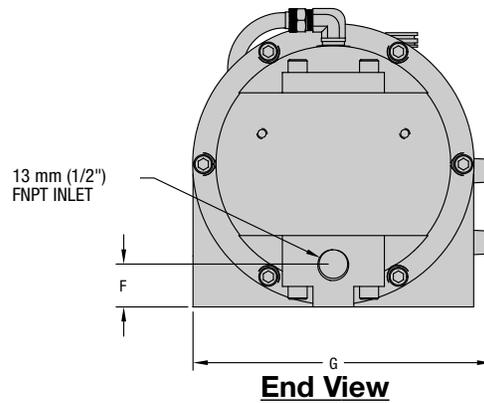
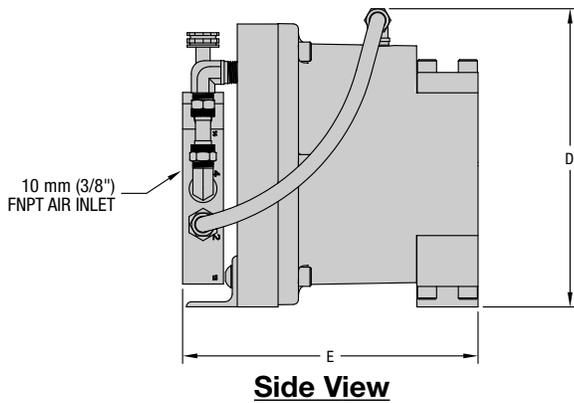
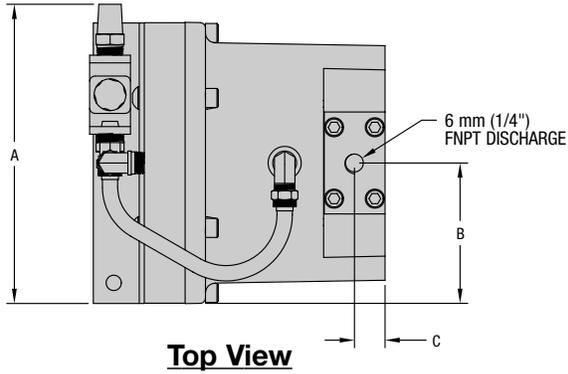


CAUTION: All piping valves, gauges and other components installed on the liquid discharge must have a minimum pressure rating of 110.3 bar (1,600 psig).

SECTION 4

DIMENSIONAL DRAWING

WILDEN MODEL H25/1600S PUMP



DIMENSIONS - H25/1600S		
ITEM	METRIC (mm)	STANDARD (inch)
A	188	7.4
B	86	3.4
C	20	0.8
D	236	9.3
E	183	7.2
F	28	1.1
G	188	7.4
H	13	0.5
J	150	5.9
K	10	0.4

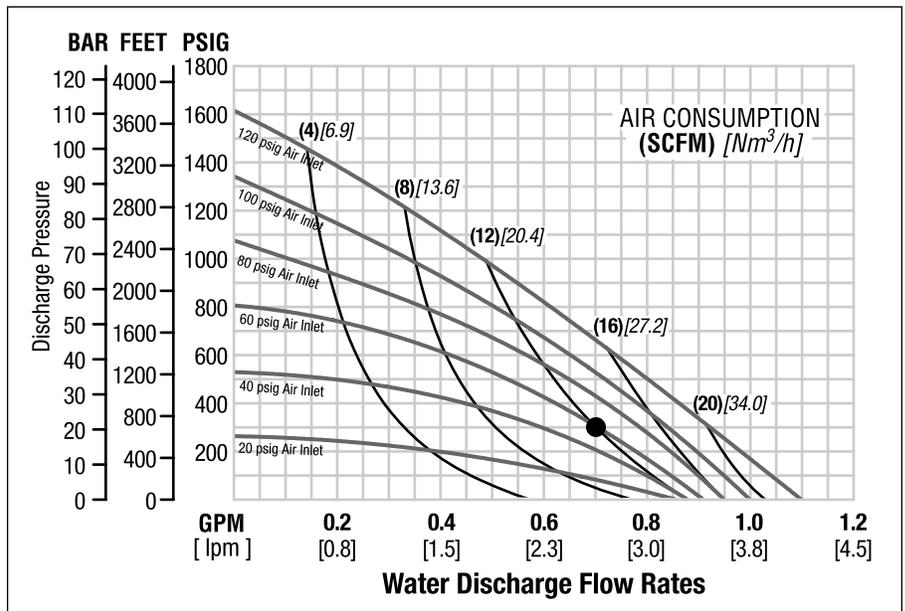
SECTION 5

PERFORMANCE CURVE WILDEN H25/1600S PUMP

Height236 mm (9.3")
 Width188 mm (7.4")
 Depth183 mm (7.2")
 Ship WeightAluminum 7 kg (16 lbs)
 Air Inlet.....10 mm (3/8")
 Inlet.....13 mm (1/2")
 Outlet6 mm (1/4")
 Suction Lift.....7.8 m Dry (25.5')
 9.2 m Wet (30.1')
 Max. Flow Rate4.1 lpm (1.1 gpm)

Example: To pump 2.6 lpm (0.7 gpm) against a discharge head of 20.7 bar (300 psig) requires 4.1 bar (60 psig) and 20.4 Nm³/h (12 scfm) air consumption (see dot on chart).

Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.



Flow rates indicated on chart were determined by pumping water.

SECTION 6A

SUGGESTED INSTALLATION

The H25/1600S has a 13 mm (1/2") inlet and 6 mm (1/4") outlet and is designed for discharge pressure to 110.3 bar (1600 psig). Refer to Section 5 for performance characteristics. The H25/1600S pump is manufactured with wetted parts of aluminum. The H25/1600S is available with an aluminum air valve.

The suction pipe size should be at least 13 mm (1/2") diameter or larger if highly viscous material is being pumped. The suction hose must be non-collapsible, reinforced type as the H25/1600S is capable of pulling a high vacuum. Discharge piping should be at least 6 mm (1/4") and must have a minimum pressure rating of 110.3 bar (1,600 psig); larger diameter can be used to reduce friction losses. It is critical that all fittings and connections are airtight or a reduction of pump suction capability will result.

All wiring used to operate the pump should be placed and connected according to all applicable electrical codes. It is important that the wiring be of adequate gauge to carry the current required to operate the pump. In addition, it is necessary that the electrical power supply be large enough to supply the current required to operate the pump. Wiring should be above ground level if possible (in case of fluid spill or leakage), and all wiring and connections which could become wet or damp should be made watertight.

INSTALLATION: Months of careful planning, study, and selection efforts can result in unsatisfactory pump performance if installation details are left to chance.

Premature failure and long term dissatisfaction can be avoided if reasonable care is exercised throughout the installation process.

LOCATION: Noise, safety, and other logistical factors usually dictate where equipment will be situated on the production floor. Multiple installations with conflicting requirements can result in congestion of utility areas, leaving few choices for additional pumps.

Within the framework of these and other existing conditions, every pump should be located in such a way that five key factors are balanced against each other to maximum advantage.

ACCESS: First of all, the location should be accessible. If it's easy to reach the pump, maintenance personnel will have an easier time carrying out routine inspections and adjustments. Should major repairs become necessary, ease of access can play a key role in speeding the repair process and reducing total downtime.

AIR SUPPLY: Every pump location should have an air line large enough to supply the volume of air necessary to achieve the desired pumping rate (see Section 5). Use air pressure up to a maximum of 8.6 bar (125 psig) depending on pumping requirements.

For best results, the pumps should use a 5 μ (micron) air filter, needle valve and regulator. The use of an air filter before the pump will ensure that the majority of any pipeline contaminants will be eliminated.

ELEVATION: Selecting a site that is well within the pump's dynamic lift capability will assure that loss-of-prime troubles will be eliminated. In addition, pump efficiency can be adversely affected if proper attention is not given to site location.

PIPING: Final determination of the pump site should not be made until the piping problems of each possible location have been evaluated. The impact of current and future installations should be considered ahead of time to make sure that inadvertent restrictions are not created for any remaining sites.

The best choice possible will be a site involving the shortest and straightest hook-up of suction and discharge piping. Unnecessary elbows, bends, and fittings should be avoided. Pipe sizes should be selected so as to keep friction losses within practical limits. All piping should be supported independently of the pump. In addition, the piping should be aligned so as to avoid placing stress on the pump fittings.

If the pump is to be bolted down to a solid location, a mounting pad placed between the pump and the foundation will assist in minimizing pump vibration.

If the pump is to be used in a self-priming application, be sure that all connections are airtight and that the suction lift is within the model's ability.

When pumps are installed in applications involving flooded suction or suction head pressures, a gate valve should be installed in the suction line to permit closing of the line for pump service.

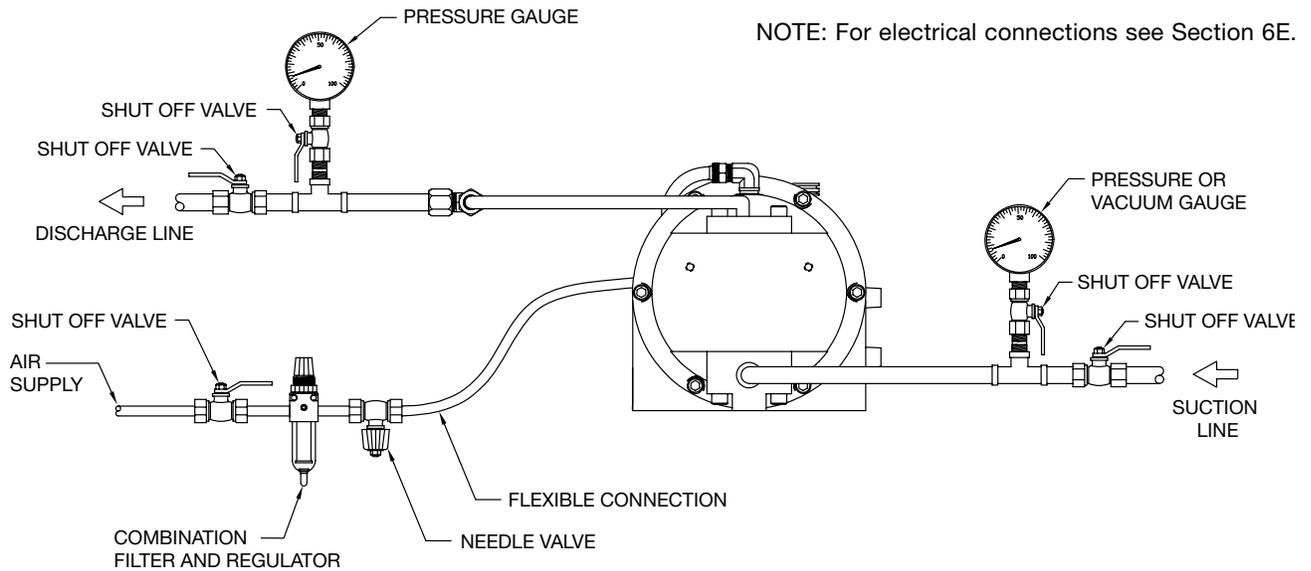
THE MODEL H25/1600S SHOULD NOT BE USED WITH MEDIA CONTAINING SOLIDS. WHENEVER THE POSSIBILITY EXISTS THAT SOLID OBJECTS MAY BE SUCKED INTO THE PUMP, A STRAINER SHOULD BE USED ON THE SUCTION LINE.

CAUTION: THE H25/1600S PUMP IS DESIGNED FOR OPEN LOOP SYSTEMS.

CAUTION: DO NOT EXCEED 8.6 BAR (125 PSIG) AIR SUPPLY PRESSURE.

SECTION 6B

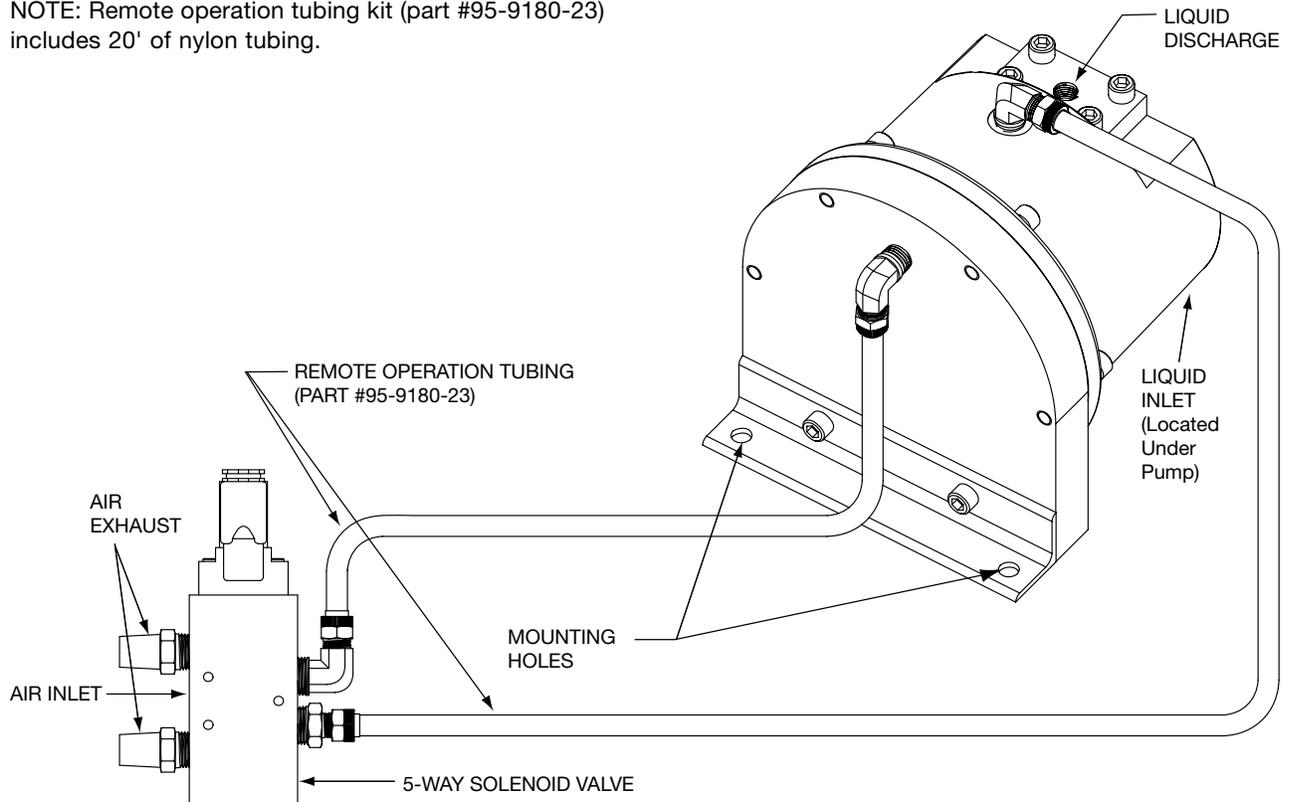
SUGGESTED INSTALLATION — WETTED PATH



SECTION 6C

SUGGESTED INSTALLATION — REMOTE SOLENOID

NOTE: Remote operation tubing kit (part #95-9180-23) includes 20' of nylon tubing.



SECTION 6D

SUGGESTED OPERATION AND MAINTENANCE INSTRUCTIONS

OPERATION: The H25/1600S is pre-lubricated and does not require in-line lubrication. Additional lubrication will not damage the pump, however if the pump is heavily lubricated by an external source, the pump operation may be affected. It may need to be disassembled and re-lubricated as described in the ASSEMBLY/DISASSEMBLY INSTRUCTIONS.

Pump discharge rate can be controlled by limiting the volume and/or pressure of the air supply to the pump (preferred method). A regulator is used to control air pressure while a needle valve is used to control volume. Pump discharge rate can also be controlled by throttling the pump discharge by partially closing a valve in the discharge line of the pump. This action increases friction loss which reduces flow rate. (See Section 5.) This is useful when the need exists to control the pump from a remote location. When the pump discharge pressure equals or exceeds approximately 13 times the air inlet pressure, the pump will stop; no bypass or pressure relief valve is needed, and pump damage will not occur. The pump has reached a “deadhead” situation and can be restarted by reducing the fluid discharge pressure or increasing the air inlet pressure. The Wilden R.025/1600S pump runs solely on compressed air and generates little heat, therefore your process fluid temperature will not be affected.

MAINTENANCE AND INSPECTIONS: Since each application is unique, maintenance schedules may be different for every pump. Frequency of use, line pressure, viscosity and abrasiveness of process fluid all affect the parts life of a Wilden pump. Periodic inspections have been found to offer the best means for preventing unscheduled pump downtime. Personnel familiar with the pump’s construction and service should be informed of any abnormalities that are detected during operation.

RECORDS: When service is required, a record should be made of all necessary repairs and replacements. Over a period of time, such records can become a valuable tool for predicting and preventing future maintenance problems and unscheduled downtime. In addition, accurate records make it possible to identify pumps that are poorly suited to their applications.

SECTION 6E

INSTALLATION—ELECTRICAL CONNECTIONS

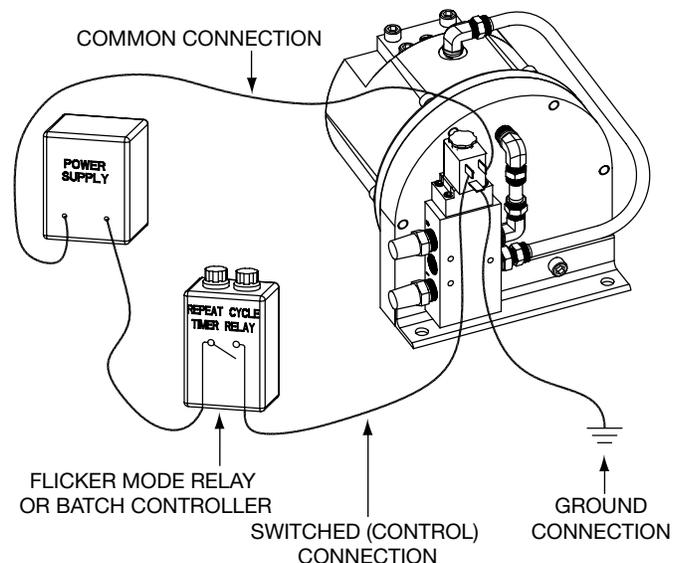
When the solenoid is unpowered, the back side of the power piston is pressurized with air and the power/liquid piston assembly is in its full discharge stroke position. When electric power is applied, the solenoid valve shifts and the pressure on the back side of the power piston is exhausted while the front side of the power piston is pressurized with air. By alternately applying and removing power, the solenoid operated pump reciprocates.

The speed of the pump is controlled electrically. Since each stroke is controlled by an electrical signal, the pump is ideal for batching and other electrically controlled dispensing applications.

Although the speed of the pump is controlled electrically, the air pressure is important. Air pressure displaces the fluid, and if the pressure is insufficient to complete the physical stroke before an electronic impulse signals the pump to shift, the shift will not be completed, and the displacement per stroke will be reduced. This does not harm the unit in any way, but it may cause inaccuracy when attempting to batch specific quantities with high precision if this effect is not taken into account.

There are three coil voltage options available. One coil allows for 24V DC operation. The second coil option allows for operation with either 12V DC or 24V AC at 50 or 60 Hz and the third coil option allows for 110V AC operation.

ELECTRICAL CONNECTIONS



SECTION 6F

TROUBLESHOOTING

Pump will not run or runs slowly.

1. Check for pressurized air at the inlet.
2. Check air inlet and filter for debris.
3. Connect a test lamp to the two wires which run to pump and ensure that the lamp cycles on and off.
4. Make sure that the air valve manual override (small red knob on front of valve) is switched to the "0" position.
5. Check pilot pressure vent at the top of the operator/coil assembly to ensure that it is not clogged.
6. Check for a worn out air valve. If air continually blows out the exhaust in very large quantities, the air valve seals may be worn beyond their ability to function. In this case, the valve must be replaced.

NOTE: It is possible that a malfunctioning valve can be saved by completely disassembling the valve, cleaning and re-lubricating for proper operation.

7. Disassemble pump and check for obstructions in the air passageways or objects which would obstruct the movement of internal parts.
8. Remove shipping plugs.

Pump runs but little or no product flows.

1. Check that the discharge isolation valve is not closed.
2. Check that the electric signal is slow enough that the pump is able to complete each physical stroke before it is signaled to change direction. The time required to complete the stroke is determined by a variety of factors which include fluid viscosity and head pressure.
3. Check for pump cavitation; slow pump speed down to match the thickness of the material being pumped.
4. Check for sticking ball and check valves. If the material being pumped is not compatible with the pump elastomers, swelling may occur. Replace seals with the proper elastomers.
5. Check to make sure that all suction connections are air tight, and that the fasteners are properly tightened.

Air bubbles in pump discharge.

1. Check for damaged or worn liquid piston seal.
2. Check tightness of fasteners, and the integrity of the O-rings, especially at intake manifold plate.

Product comes out air exhaust.

1. Check for damaged or worn power piston seal.
2. Check tightness of liquid piston to liquid piston screw.

Solenoid buzzes or solenoid burnout.

1. Incorrect voltage, faulty or dirty solenoid.

Solenoid valve fails to shift electrically but shifts with manual override.

1. Incorrect voltage, defective coil or wiring.

Valve shifts but fails to return.

1. Broken spring, mechanical binding.

Excessive leaking from air valve vent.

1. Worn seals in air valve.

SECTION 7A

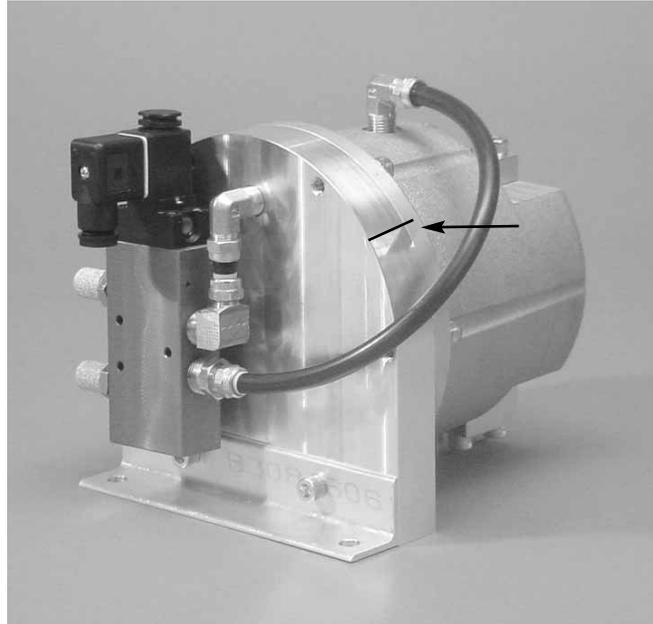
MODEL H25/1600S PUMP DIRECTIONS FOR DISASSEMBLY/REASSEMBLY

CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from the pump. Disconnect all intake, discharge, and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of the hazardous effects associated with contact with your process fluid.

The H25/1600S metal pump has a 13 mm ($\frac{1}{2}$ ") inlet and 6 mm ($\frac{1}{4}$ ") outlet and is designed for flows up to 4.1 lpm (1.1 gpm). The H25/1600S is available with aluminum wetted parts, chamber cover and air valve.

TOOLS REQUIRED:

6 mm ($\frac{1}{4}$ ") Hex Head Wrench
5 mm ($\frac{3}{16}$ ") Hex Head Wrench
14 mm ($\frac{9}{16}$ ") Wrench
O-ring Pick
Air Nozzle (rubber dipped)
Adjustable Wrench
Vise equipped w/soft jaws
(such as plywood, plastic or other suitable material)



DISASSEMBLY:

Step 1.

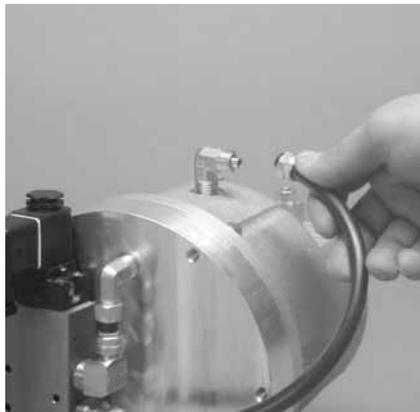
Figure 1

Before starting disassembly, mark a line from the liquid chamber to the chamber cover. This line will assist in proper alignment during reassembly.



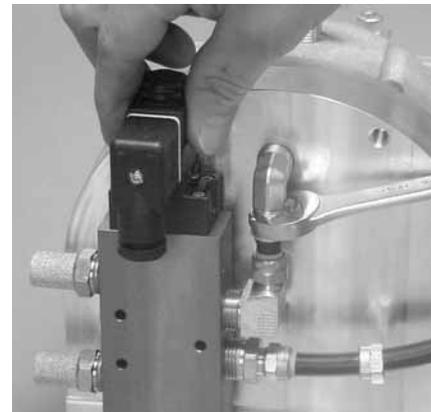
Step 2. *Figure 2*

Using a 14mm ($\frac{9}{16}$ ") wrench, loosen fastener connecting nylon tube to liquid chamber by turning counter-clockwise.



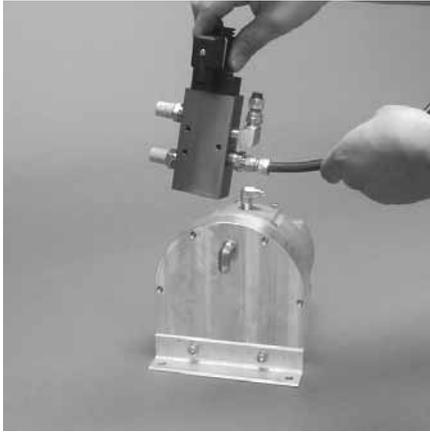
Step 3. *Figure 3*

Disconnect nylon tube by pulling tube away from brass elbow.

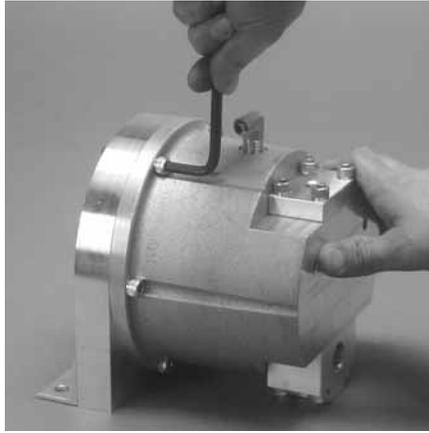


Step 4. *Figure 4*

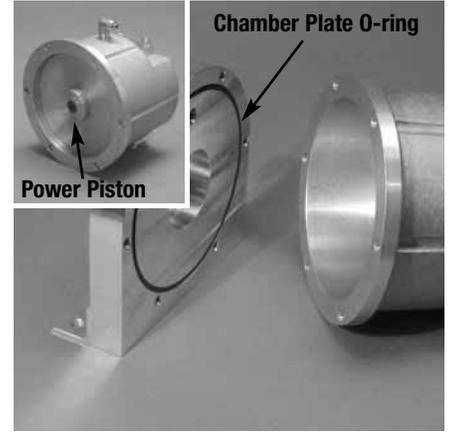
Using a 14mm ($\frac{9}{16}$ ") wrench, loosen fastener connecting nylon tube to chamber cover by turning counter-clockwise.



Step 5. *Figure 5*
After disconnecting nylon tube, lift air valve away from the pump.



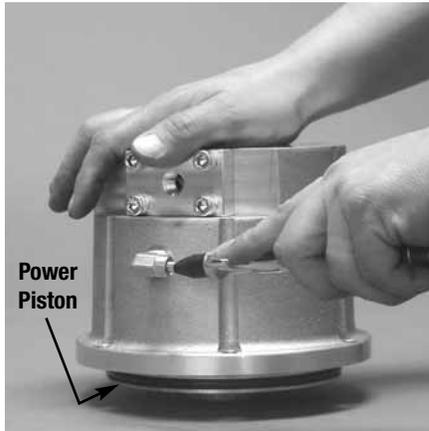
Step 6. *Figure 6*
Using a 6mm ($\frac{1}{4}$ ") hex head wrench, remove the liquid chamber bolts that connect the chamber cover to the liquid chamber.



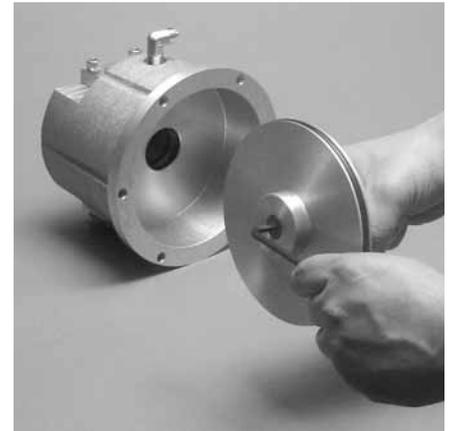
Step 7. *Figure 7*
Lift the chamber plate away to expose the chamber plate O-ring and the power piston. Inspect chamber plate O-ring for nicks, gouges, chemical attack or abrasive wear. Replace worn parts with genuine Wilden parts for reliable performance.



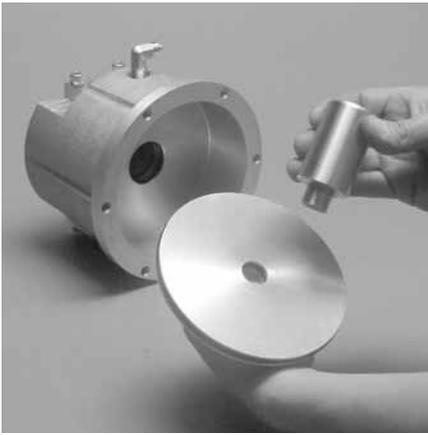
Step 8. *Figure 8*
To remove the power piston from the liquid chamber, first place the liquid chamber onto a table or sturdy flat surface. **Next, with the liquid chamber resting on the bolted flange,** apply 1.0 bar (15 psig) of air pressure, via a rubber tipped air nozzle, into the brass elbow located at the same side as the pump discharge port. CAUTION: The power piston may come out of the liquid chamber with considerable force. Altering the disassembly method above is not recommended and may cause physical harm.



Step 9. *Figure 9*
The air pressure will force the power piston away from the liquid chamber to allow for easy removal.

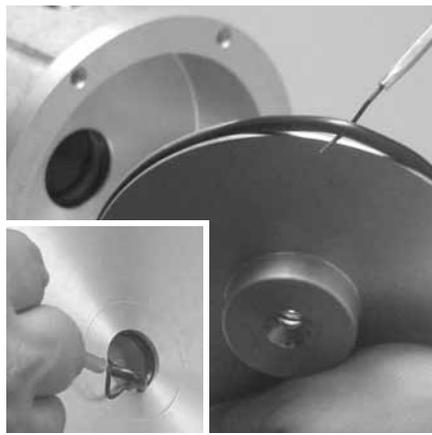


Step 10. *Figure 10*
Using a 5mm ($\frac{3}{16}$ ") hex head wrench, remove the liquid piston from the power piston by turning the power piston screw counter-clockwise.



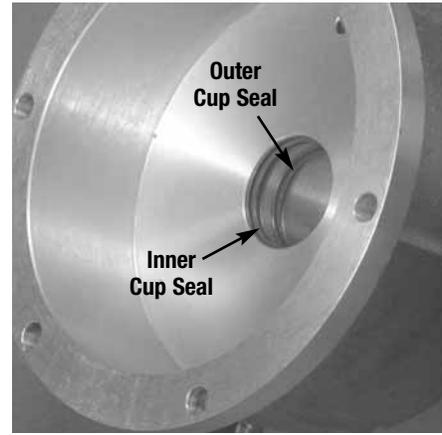
Step 11. *Figure 11*

Lift the liquid piston away from the power piston.



Step 12. *Figure 12*

Inspect the power piston O-rings for nicks, gouges, chemical attack or abrasive wear. Replace worn parts if necessary.



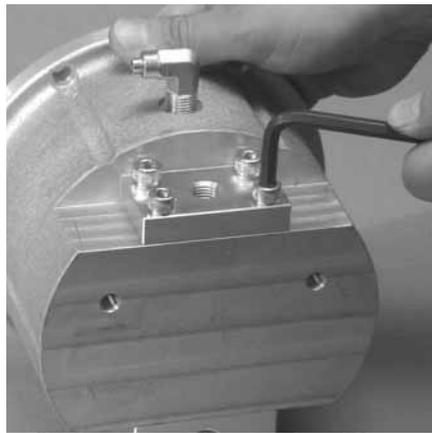
Step 13. *Figure 13*

Inspect the liquid piston bore cup seals for nicks, gouges, chemical attack or abrasive wear.



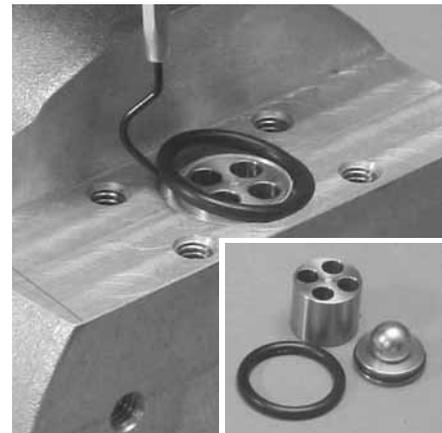
Step 14. *Figure 14*

If the cup seals are damaged and need to be replaced, install new cup seals. When installing new cup seals, cup side of both seals should face away from one-another. The cup on the inner cup seal should face towards the bolt flange on the liquid chamber. The cup on the outer cup seal should face towards the valve ball area of the liquid chamber.



Step 15. *Figure 15*

To inspect or replace the discharge manifold O-ring, valve seat O-ring, valve ball and ball cage, first remove the combo manifold plate located at the top of the liquid chamber. To inspect or replace the inlet manifold O-ring, valve seat O-ring, valve seat, valve ball and ball cage, repeat process.



Step 16. *Figure 16*

With the combo manifold plate removed, the manifold O-ring, valve seat O-ring, valve seat, valve ball and ball cage can be inspected for nicks, gouges, chemical attack or abrasive wear. Repeat process at inlet manifold plate. Replace worn parts with genuine Wilden parts for reliable performance.

SECTION 7B

REASSEMBLY HINTS & TIPS

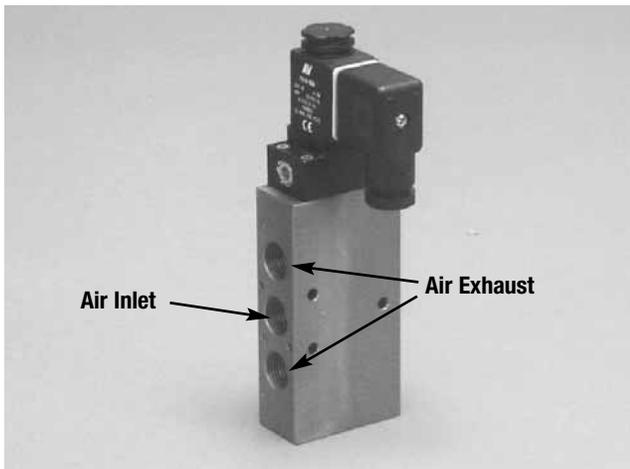
ASSEMBLY:

Upon performing applicable maintenance to the air distribution system, the pump can now be reassembled. Please refer to the disassembly instructions for photos and parts placement. To reassemble the pump, follow the disassembly instructions in reverse order. Please find the applicable torque specifications on this page. The following tips will assist in the assembly process.

- To ease in the reassembly process, mark a line from the liquid chamber to the chamber cover. This will assist with proper alignment during reassembly.
- Apply a small amount of Loctite® 242 to the power/liquid bolt threads.
- If air continually blows out the exhaust in very large quantities, it is possible that it may be saved by completely disassembling the valve, cleaning all components and re-lubricating the valve.
- If pump stops running or begins to run slowly, inspect return spring located at the bottom portion of air valve for damage.
- When installing inlet air or exhaust connections, use correct porting on the air valve or pump will not run. (See example below for correct connections).

MAXIMUM TORQUE SPECIFICATIONS

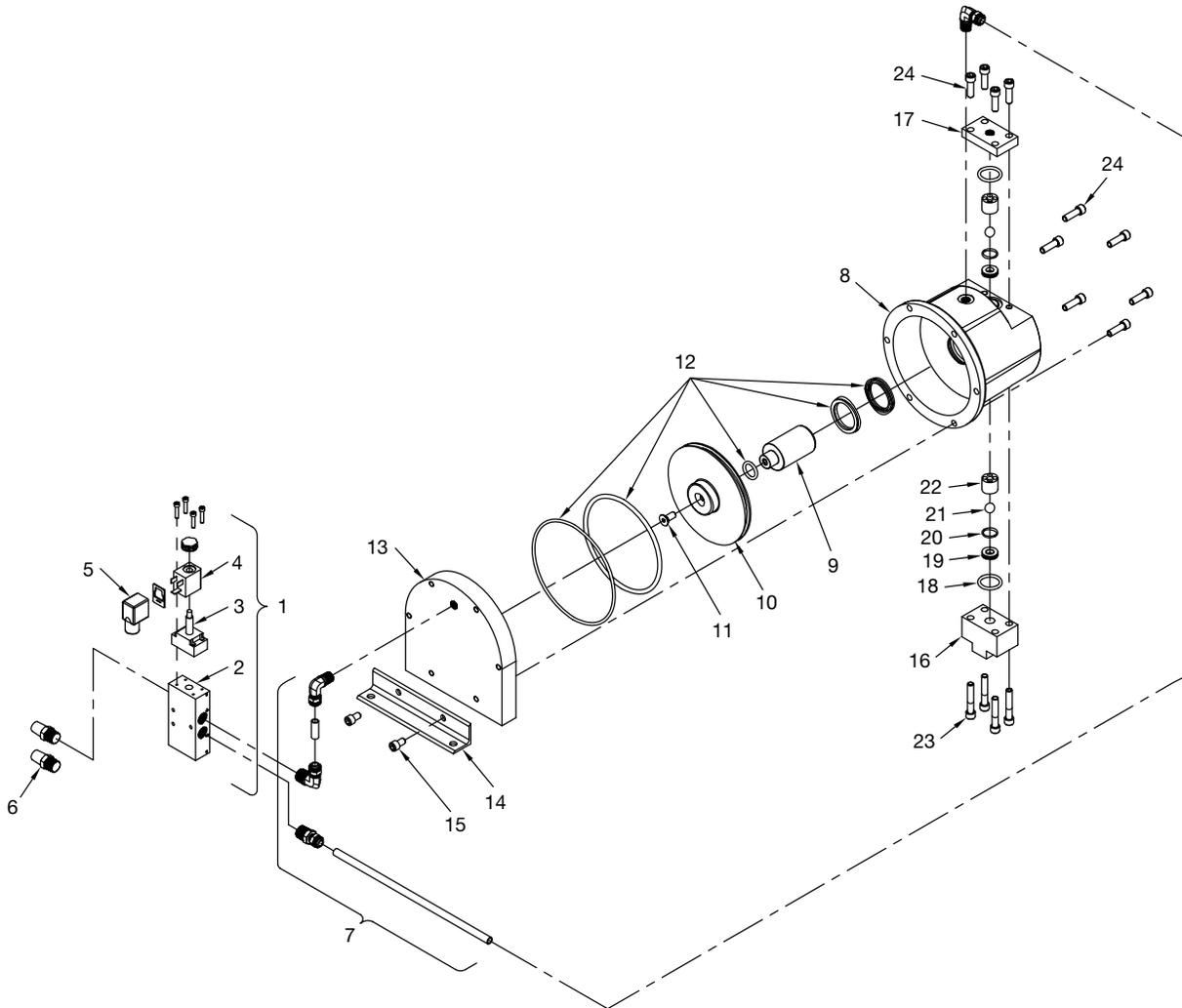
Description of Part	Torque
Inlet Manifold Plate	13.5 N•m [10 ft.-lbs.]
Combo Manifold Plate	13.5 N•m [10 ft.-lbs.]
Liquid Chamber	13.5 N•m [10 ft.-lbs.]



SECTION 8

EXPLODED VIEW/PARTS LISTING

**H25/
1600S**



H25/1600S Pump

Item #	Part Description	Qty. per Pump	Part Number
1	Solenoid Valve Assy (Includes Items 2-5)	1	95-2000-99-150
2	Main Valve Body (Includes item 3)	1	95-2000-01-150
3	Solenoid Operator	1	00-2120-99
4	Coil	1	00-2110-99-150
5	Terminal Connector (NEMA 4 Only)	1	00-2130-99
6	3/8" Muffler	2	95-3240-07
7	Tube & Fitting Assy.	1	95-9230-99
8	Liquid Chamber	1	95-5000-01
9	Liquid Piston	1	95-3723-09
10	Power Piston, Simplex	1	95-3722-01
11	Screw, 5/16-18 X 3/4"	1	95-6222-08
12	Piston Seal Kit	1	95-9210-99
13	Chamber Cover	1	95-3001-01
14	Support Foot	1	95-5541-01
15	Screw, SHC, 5/16-18 X 1/2"	2	08-6031-08-60R
16	Inlet Manifold Plate	1	95-5080-01
17	Combo Manifold Plate	1	95-5050-01
18	Manifold O-ring	2	04-2390-52
19	Valve Seat	2	95-1120-03
20	Valve Seat O-ring	2	00-2390-52-700
21	Valve Ball	2	95-1080-03
22	Ball Cage	2	95-5350-03
23	Screw, SHC, 5/16-18 X 1-3/4"	4	95-6010-08
24	Screw, SHC, 5/16-18 X 1"	10	95-6011-08
	Remote Operation tubing (Not Showing)*	1	95-9180-23

*Not included with purchase of pump.

All boldface items are primary wear parts.

Item 1 Valve Assembly Options

(CONSISTS OF VALVE BODY, COIL, OPERATOR AND CONNECTOR)

Specialty Code	Part Number	Description
150	95-2000-99-150	24V DC Valve Assembly
151	95-2000-99-151	24V AC / 12V DC Valve Assembly
153	95-2000-99-153	24V AC / 12V DC Valve Assembly (NEMA 7)
154	95-2000-99-154	24V DC Valve Assembly (NEMA 7)
155	95-2000-99-155	110V AC Valve Assembly
156	95-2000-99-156	110V AC Valve Assembly (NEMA 7)
157	95-2000-99-157	International 24V DC Valve Assembly ¹

Item 2 Main Valve Body Options

Part Number	Description
95-2000-01-150	Main Valve Body
95-2000-01-154	Main Valve Body (NEMA 7)

Item 3 & 4 Coil & Operator Options

Specialty Code	Part Number	Description	Solenoid Operator P/N
150	00-2110-99-150	24V DC Coil	00-2120-99
151	00-2110-99-151	24V AC / 12V DC Coil	00-2120-99
153	00-2110-99-153	24V AC / 12V DC Coil (NEMA 7)	00-2121-99
154	00-2110-99-154	24V DC Coil (NEMA 7)	00-2121-99
155	00-2110-99-155	110V AC Coil	00-2120-99
156	00-2110-99-156	110V AC Coil (NEMA 7)	00-2121-99
157	00-2110-99-157	International 24V DC Coil ¹	00-2120-99

¹Meet European standards and regulations; CENELEC/PTB file # EX-9.C.2027.

SECTION 9

ELECTRICAL INFORMATION

NEMA 4 / UL / CSA

Part Number	Voltage $\pm 10\%$			Power (W) $\pm 10\%$	Current (A)			Resistivity (Ω)
	DC	AC			DC	AC		
		60 Hz	50 Hz			Inrush	Holding	
00-2110-99-150	24	48	44	4.8	.20	.20	.20	121
00-2110-99-151	12	24	22	4.8	.40	.40	.40	32
00-2110-99-155	60	120	110	4.8	.08	.08	.06	840

NEMA 7 / UL / CSA

Part Number	Voltage $\pm 10\%$			DC $\pm 10\%$	Current (A)			Resistivity (Ω)
	DC	AC			DC	AC		
		60 Hz	Power (W) 50 Hz			Inrush	Holding	
00-2110-99-153	12	24	22	7	.60	.55	.32	19
00-2110-99-154	24	48	44	7	.30	.30	.18	75
00-2110-99-156	60	120	110	7	.12	.13	.06	475

INTERNATIONAL EXPLOSION PROOF / CENELEC / PTB FILE # EX-91.C.2027

Part Number	DC Voltage $\pm 10\%$	Power (W) $\pm 10\%$	Current (A)		Resistivity (Ω)
			Inrush	Holding	
00-2110-99-157	24	3.3	.135	.135	177

WARRANTY

Each and every product manufactured by Wilden Pump and Engineering, LLC is built to meet the highest standards of quality. Every pump is functionally tested to insure integrity of operation.

Wilden Pump and Engineering, LLC warrants that pumps, accessories and parts manufactured or supplied by it to be free from defects in material and workmanship for a period of five (5) years from date of installation or six (6) years from date of manufacture, whichever comes first. Failure due to normal wear, misapplication, or abuse is, of course, excluded from this warranty.

Since the use of Wilden pumps and parts is beyond our control, we cannot guarantee the suitability of any pump or part for a particular application and Wilden Pump and Engineering, LLC shall not be liable for any consequential damage or expense arising from the use or misuse of its products on any application. Responsibility is limited solely to replacement or repair of defective Wilden pumps and parts.

All decisions as to the cause of failure are the sole determination of Wilden Pump and Engineering, LLC.

Prior approval must be obtained from Wilden for return of any items for warranty consideration and must be accompanied by the appropriate MSDS for the product(s) involved. A Return Goods Tag, obtained from an authorized Wilden distributor, must be included with the items which must be shipped freight prepaid.

The foregoing warranty is exclusive and in lieu of all other warranties expressed or implied (whether written or oral) including all implied warranties of merchantability and fitness for any particular purpose. No distributor or other person is authorized to assume any liability or obligation for Wilden Pump and Engineering, LLC other than expressly provided herein.

PLEASE PRINT OR TYPE AND FAX TO WILDEN

PUMP INFORMATION			
Item # _____		Serial # _____	
Company Where Purchased _____			
YOUR INFORMATION			
Company Name _____			
Industry _____			
Name _____		Title _____	
Street Address _____			
City _____		State _____	Postal Code _____
Country _____			
Telephone _____	Fax _____	E-mail _____	Web Address _____
Number of pumps in facility? _____		Number of Wilden pumps? _____	
Types of pumps in facility (check all that apply): <input type="checkbox"/> Diaphragm <input type="checkbox"/> Centrifugal <input type="checkbox"/> Gear <input type="checkbox"/> Submersible <input type="checkbox"/> Lobe			
<input type="checkbox"/> Other _____			
Media being pumped? _____			
How did you hear of Wilden Pump? <input type="checkbox"/> Trade Journal <input type="checkbox"/> Trade Show <input type="checkbox"/> Internet/E-mail <input type="checkbox"/> Distributor			
<input type="checkbox"/> Other _____			

ONCE COMPLETE, FAX TO (909) 783-3440

NOTE: WARRANTY VOID IF PAGE IS NOT FAXED TO WILDEN

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