Series MXG Pump

Installation, Operation, and Maintenance Manual

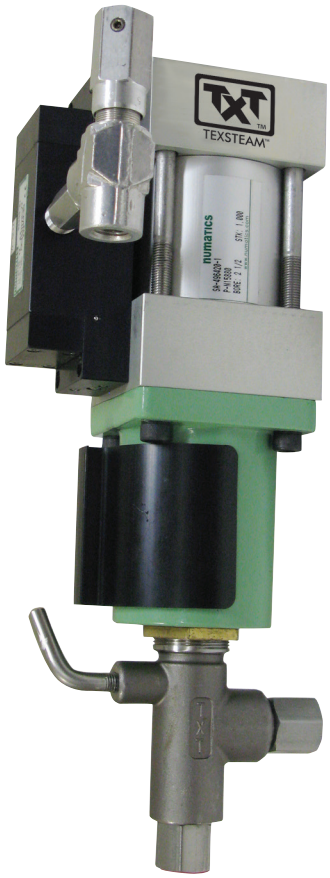


Table of Contents

Tables

Introduction

WARNING

PPE

Site-approved personal protective equipment (PPE) must be worn.

Notice

The information contained in this manual is essential to safe, successful, long-term operation of your MXG pump. Read and follow the requirements concerning storage, installation and adjustments. Failure to do so could void the warranty covering your pump.

WARNING

PPE

Minimum personal protection equipment (PPE) required for installation and maintenance of this unit: safety goggles, gloves, steel toe shoes, hardhat, fire-retardant suit, earplugs.

WARNING

This equipment is designed to operate at temperatures between -40°F and 140°F. Prior to going on-site for installation or maintenance and before handling the equipment, make sure proper safety equipment is worn.

The MXG series pump is a pneumatic model that is designed for simplicity and efficiency. Four different plunger sizes are driven by a power unit that requires very little maintenance and disassembly. The power unit is constructed to provide years of trouble-free operation without the replacement of components, lowering operating costs.

Key features:

- "Green pump" gas recapture ability
- Rangeability
- Lighter weight
- Simplicity
- Efficiency

1. Installation & Instructions

WARNING

PPE

Site-approved personal protective equipment (PPE) must be worn.

WARNING

Moving Parts

Internal moving parts and pinch point hazard. Keep hands clear during operation.

1. Plan ahead for proper pump mounting position to provide for efficient routing of suction and discharge lines, as well as utility supply air/gas.
2. Avoid long suction lines
3. Provide a flooded suction line whenever possible
4. Pump fluid lines operate best when there is minimum restriction to the medium flow

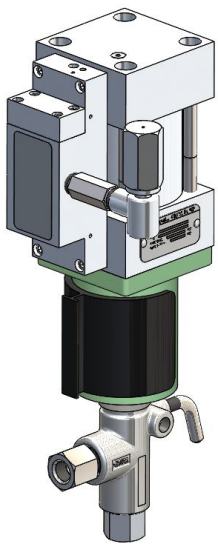
1.1 Mounting Arrangements

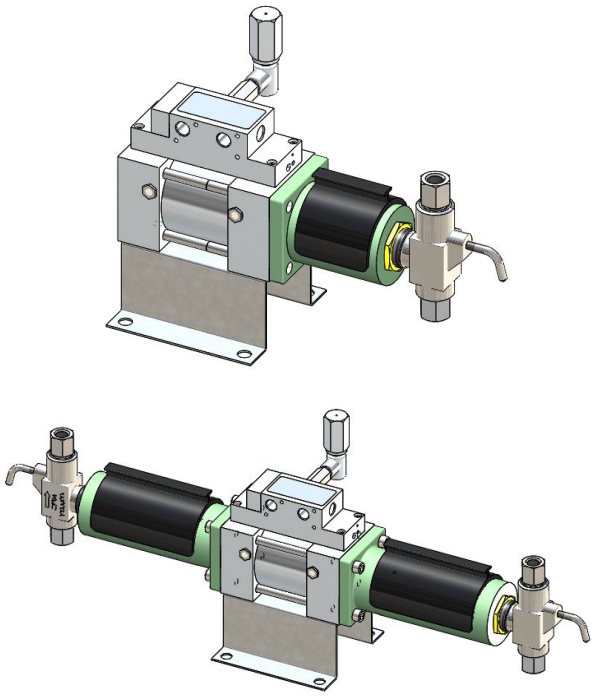
Notice

Simplex pumps should be mounted in vertical position with the suction facing down (brackets are available to assist with mounting). Duplex pumps should be mounted in horizontal position with suction ports facing down (mounting feet are available).

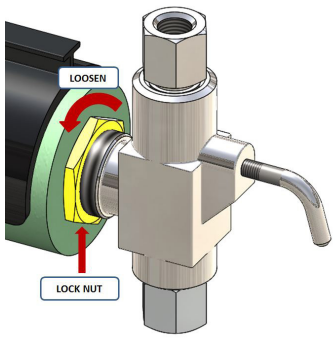
The MXG series is available in three configurations:

Orientation	Configuration	
	SPLX	DPLX
Horizontal	X	X
Vertical	X	





1. Loosen the lock nut on the fluid end/yoke connection and rotate the power unit to align the calibrated metering valve in a suitable location for installation requirements



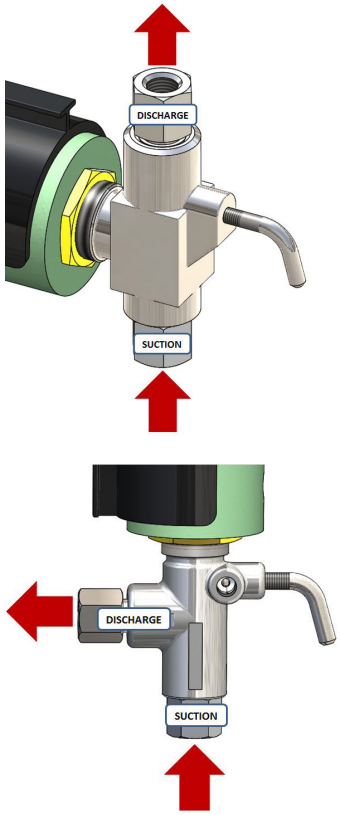
1.2 Fluid Connections

WARNING

HIGH DISCHARGE PRESSURE

Discharge pressures can reach as high as 10,000 PSIG (689.5 BAR). Plumbing should be handled by authorized personnel only.

1. Connect the chemical supply line to the pump suction port.
2. Connect tubing or piping to the discharge port of the pump.



Connection	FNPT
Suction	1/4"
Discharge	1/4"
Yoke Drain	1/4"
Bleed Hole (Vert. models only)	1/8"

1.3 Supply Air/Gas Connections

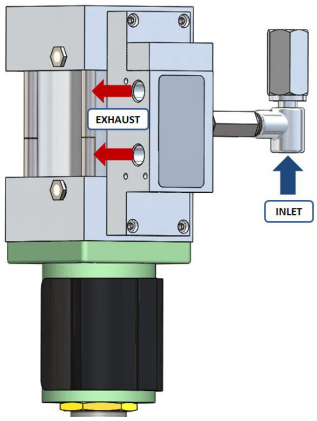
WARNING

HIGH SUPPLY PRESSURE

Supply pressure can reach as high as 250 PSIG (17.2 BAR). Plumbing should be handled by authorized personnel only.

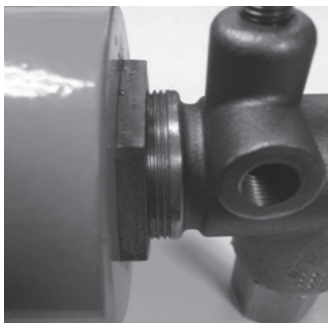
1. Install a shut-off valve in the air/gas supply line
2. Connect a ¼" line from the air/gas shut-off to the calibrated metering valve.
3. The pump supply air/gas pressure must be a minimum of 30 PSIG but no greater than 250 PSIG. If the available supply pressure is greater than 250 PSIG, a regulator must be installed to reduce the pressure to an acceptable level
4. Installing a filter and lubricator is recommended for prolonging the life of the unit and allowing for the best trouble-free performance.

5. The supply air/gas inlet and exhaust connections are 1/4" NPT. Exhaust gas can either be vented, or recaptured. Line pressure must be less than the pump exhaust pressure to recapture gas.



Connection	FNPT
Supply	1/4"
Exhaust	1/4"

1.4 Head Adjustment



Three to five threads of the fluid head assembly should be visible once it has been installed onto the main pump body.

1.5 Packing Tightness

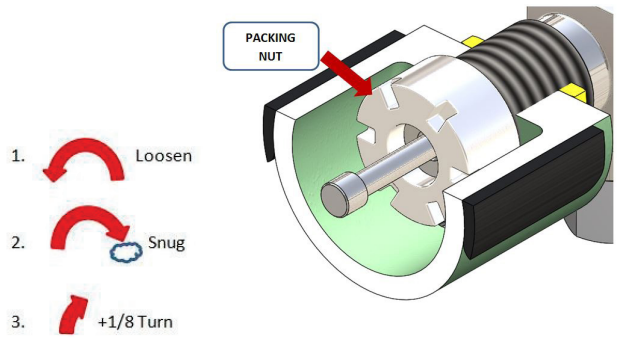
Notice

Do not adjust packing while pump is in operation.

Particular attention should be given to the tightness of the packing. Under-tightening will cause leaks, and over-tightening will cause too much friction, resulting in pre-mature seal packing failure, possible damage to the plunger, and loss of pump efficiency.

The proper tightening method is as follows:

1. Loosen the Packing Nut until you can feel that it's free.
2. Tighten it until you can feel a snug fit.
3. Tighten 1/8 turn past snug (the distance between notches in the Gland Nut).



1.6 Priming

WARNING

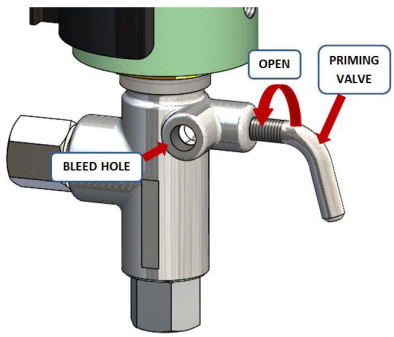
Beware of potentially harmful chemicals ejecting from the pump fluid head assembly when opening the priming valve. Take appropriate precautions to protect yourself from high temperature and/or harmful chemical exposure.

1. Open the supply line shut-off valve to the pump.

2. Control stroke rate by adjusting the calibrated metering valve

3. Exhaust air/gas should exit the power unit through the exhaust ports located on the opposite side as the calibrated metering valve connection into the power unit

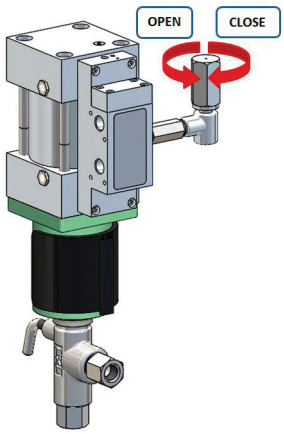
4. Open the priming valve on the side of the fluid housing (approximately ½ turn to allow trapped air to escape from head). Continue to cycle the pump with the priming valve open until air bubbles are no longer visible in the fluid stream coming from the bleed hole



1.7 Setting the Parameters

1. Control the output volume of the pump by adjusting the calibrated metering valve. Turning clockwise will decrease flow, and turning counter-clockwise will increase flow. The pump can be operated at a stroke rate between 1 SPM minimum to a maximum of 60 SPM

2. Once desired volume is established, the number on the barrel of the calibrated metering valve should be noted, for returning to the same stroke rate and pump volume in the future.



2. Servicing

WARNING

Beware of potentially harmful chemicals ejecting from the pump fluid head assembly when opening the priming valve. Take appropriate precautions to protect yourself from high temperature and/or harmful chemical exposure.

WARNING

ASPHYXIATION

This equipment can be installed in areas that may contain gases or vapors that can lead to oxygen depletion and/or personal asphyxiation. Additional protection and warnings should be followed and posted in such installations.

CAUTION

Avoid personal injury involving equipment that is in motion. Always shut off supply pressure prior to servicing the power unit.

1. Emergency field repairs by authorized service technicians are strongly advisable.
2. Repairs made by un-authorized technicians will void any warranty.
3. To assure safety of equipment and personnel, only GE recommended replacement parts she be installed.
4. Supply air/gas must be shut off before servicing pump.
5. Damage to operating equipment may be avoided by carefully reviewing the operating and installation procedures document by qualified personnel.

2.1 Lubrication Instructions

Every MXG pump is lubricated during assembly at the factory. Follow recommended maintenance schedule ES1242 for lubrication information.

Lubricants	
Recommended	**Manufacturer**
Mobilth SHC 007	Mobil
Substitute	**Manufacturer**
Amsoil Semi-Fluid 00 Synthetic EP Grease (GSF)	Amsoil

3. Pump Maintenance

Periodically check the packing and make sure that there are no leaks. Refer to the recommended Maintenance Schedule ES1242 to keep the MXG pump in prime operation.

Note: Material Safety Data Sheets (MSDS) for all injection and process media shall be reviewed in accordance to local requirements.

4. Storage Requirements

1. All covers must remain in place and securely fastened.
2. Openings and vents must be closed and capped off to prevent debris from entering the unit.
3. It is recommended to use pipe plug caps to keep moisture and insects from entering the internals of the pump through the supply pressure and fluid connections.

Refer to ES1104 (Texsteam Pumps Long-Term Storage) for lay-up and long-term storage for up to two years.

5. MXG Troubleshooting Guide

1. Pump does not run
   a. Ensure the pump is being supplied with sufficient pressure
   b. Open calibrated metering control valve
   c. Discharge pressure must not exceed the maximum rating per head size used
   d. If capturing exhaust gas, check that exhaust line pressure is less than pump exhaust pressure
   e. Check that there are no restrictions on the exhaust port
2. Pump operates, but not pumping fluid
   a. Properly prime the pump
   b. Ensure there is no debris inside the head assembly
   c. Check that the plunger is connected to the power unit with the plunger clip
   d. The head suction and discharge connections need to be oriented vertically on horizontal models. On vertical models the suction port should face down, and the discharge horizontally.
3. Pump will not pressurize/fluid leaks
   a. Install packing properly
   b. Tighten packing correctly
   c. Ensure the head assembly has been properly installed onto the yoke

If leakage is observed, stop pump. Make adjustments to the gland nut in small increments of about 1/16 - 1/8 turn. Restart pump and observe. Repeat until leaking has stopped.

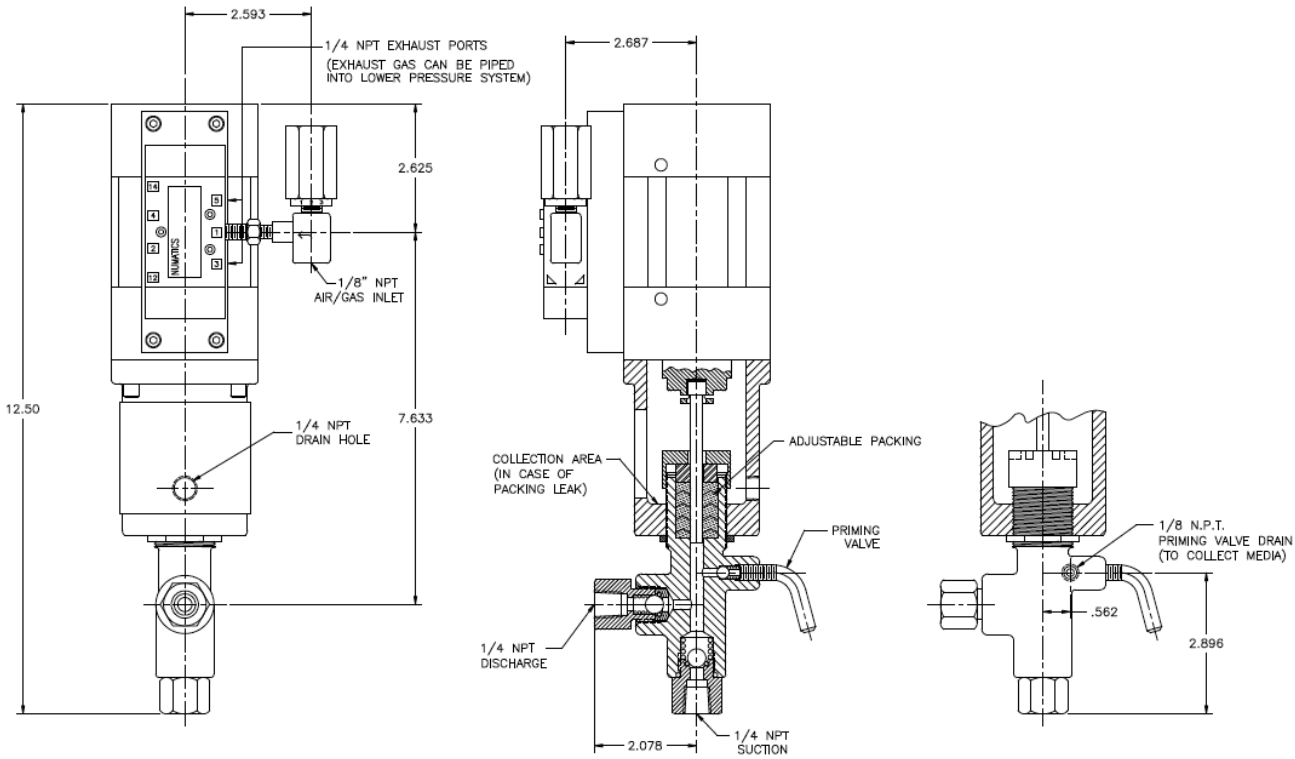
NOTICE

If leaking doesn't stop after re-tightening several times, the packaging may need to be replaced.

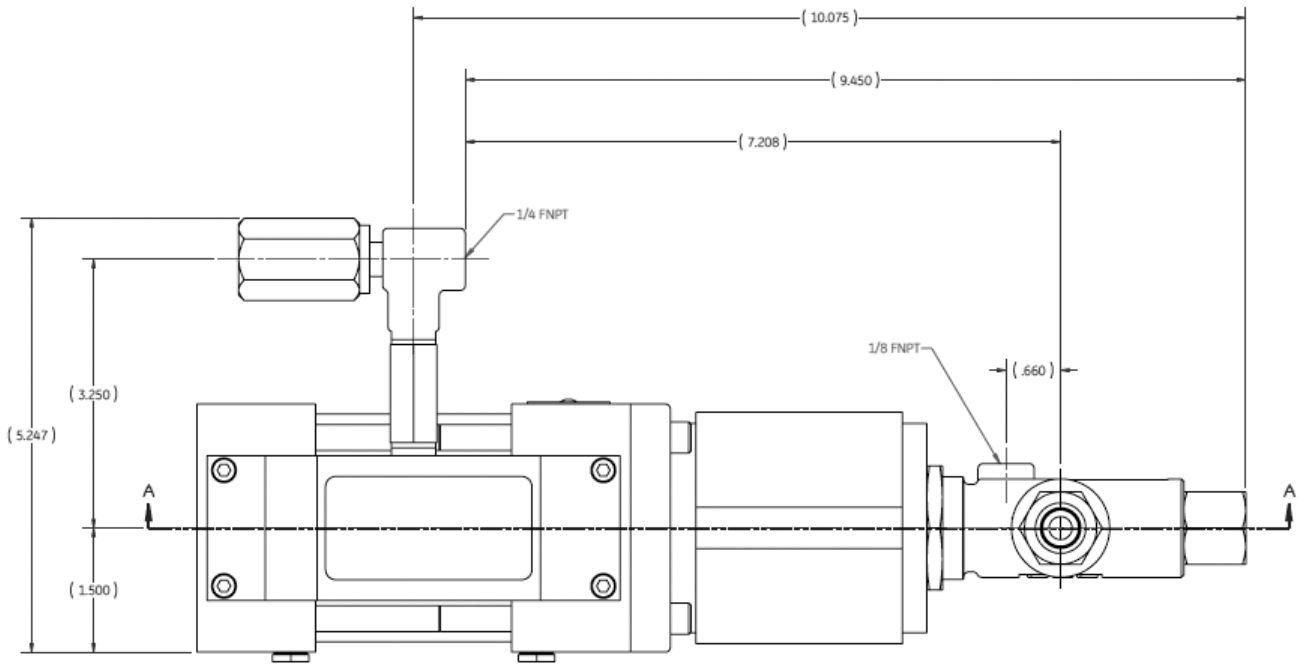
If you are still having problems with your MXG pump after making all of the above checks, contact GE for further assistance.

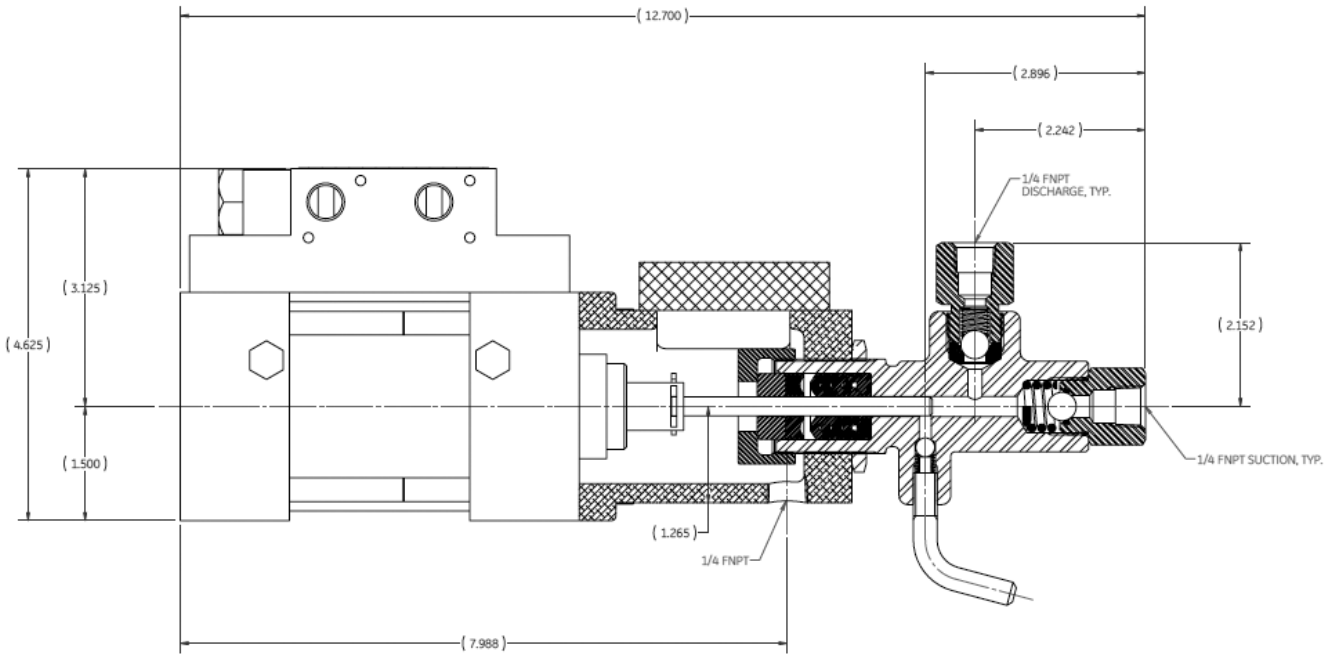
6. Dimensional Drawings

Environmental Features - Vertical



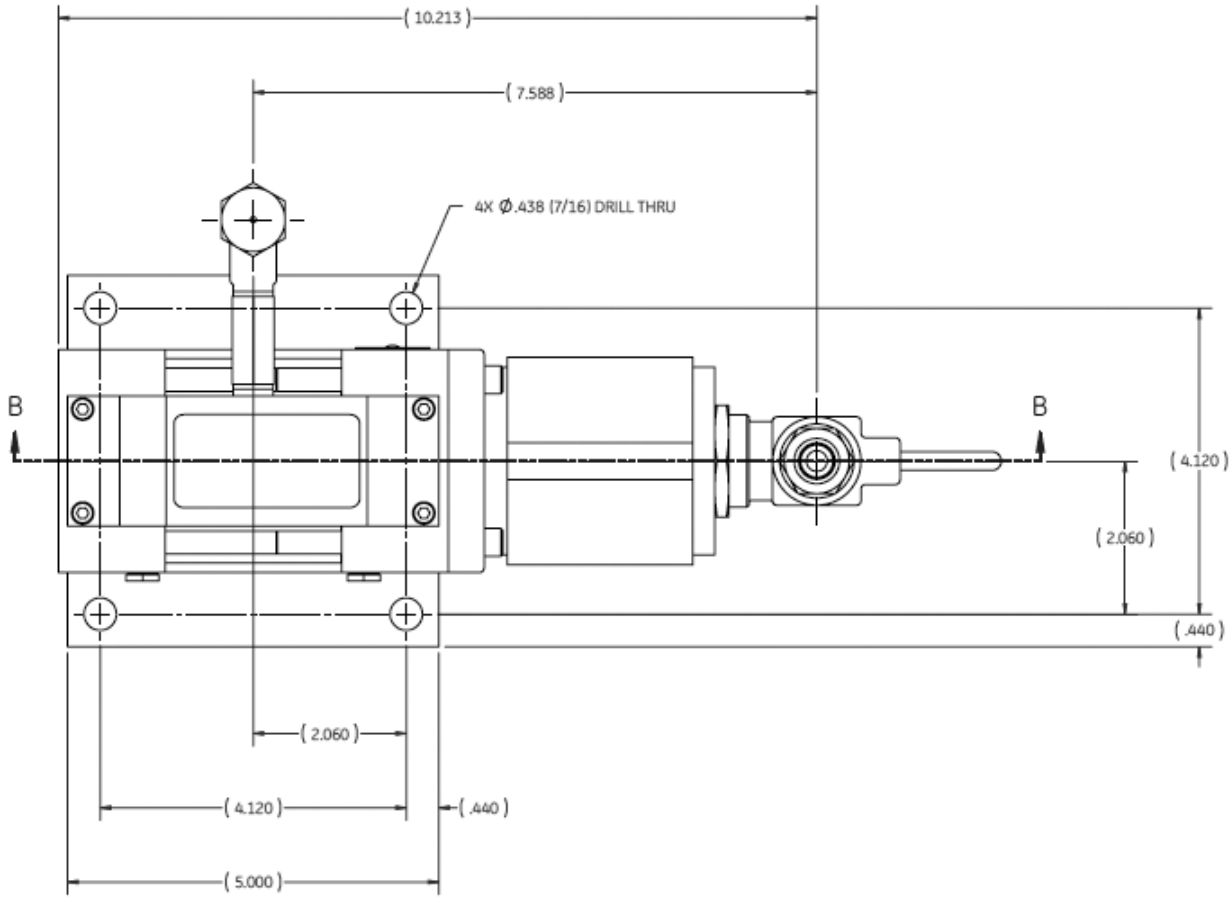
Standard SPLX pump (vertical orientation)

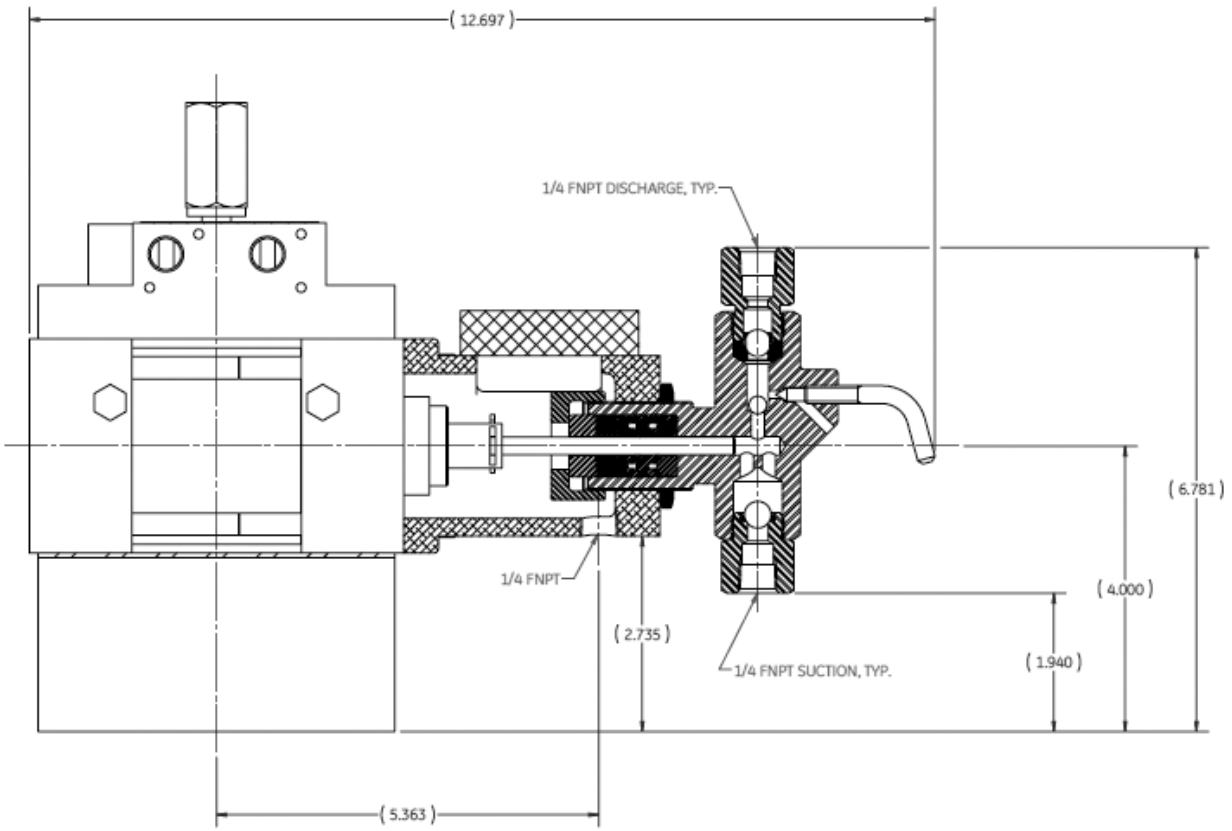



(12.700)
(2.896)
(2.242)
1/4 FNPT
DISCHARGE, TYP.
(3.125)
(4.625)
(2.152)
(1.500)
1/4 FNPT SUCTION, TYP.
(1.265)
1/4 FNPT
(7.988)

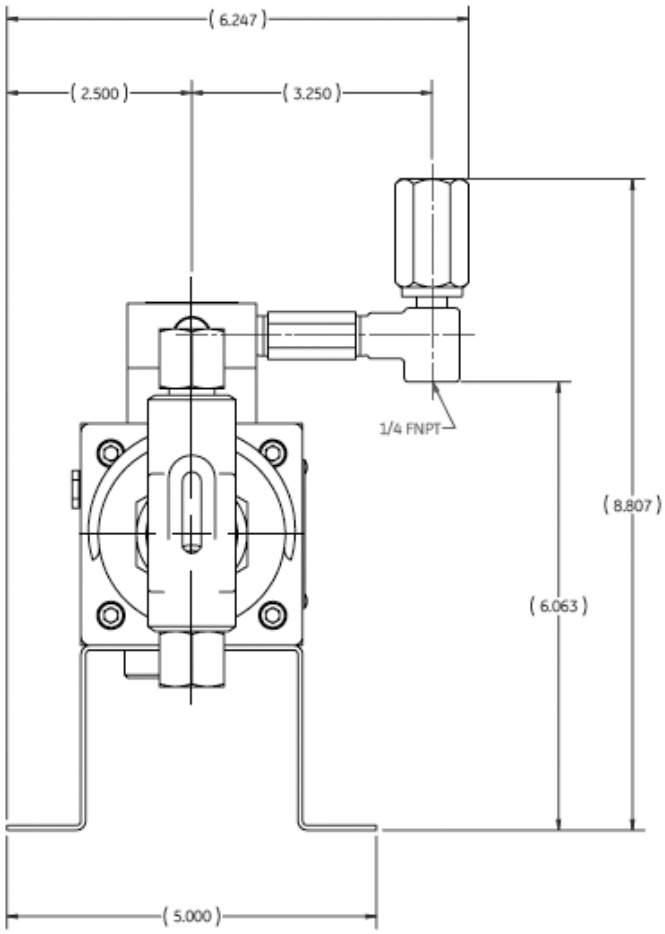
Section A-A

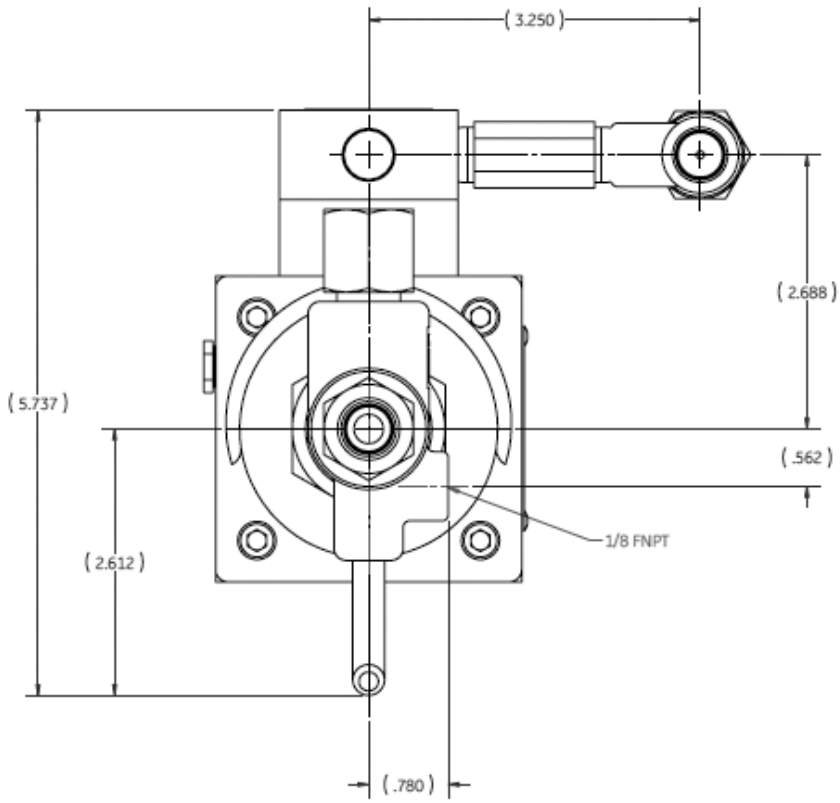
Horizontal SPLX Pump



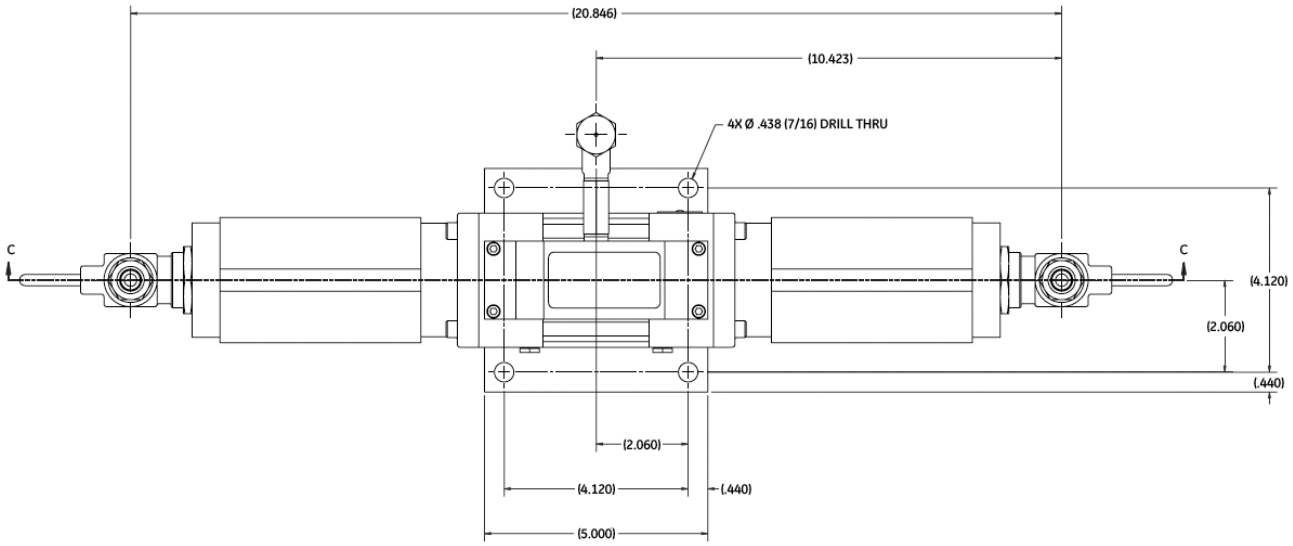


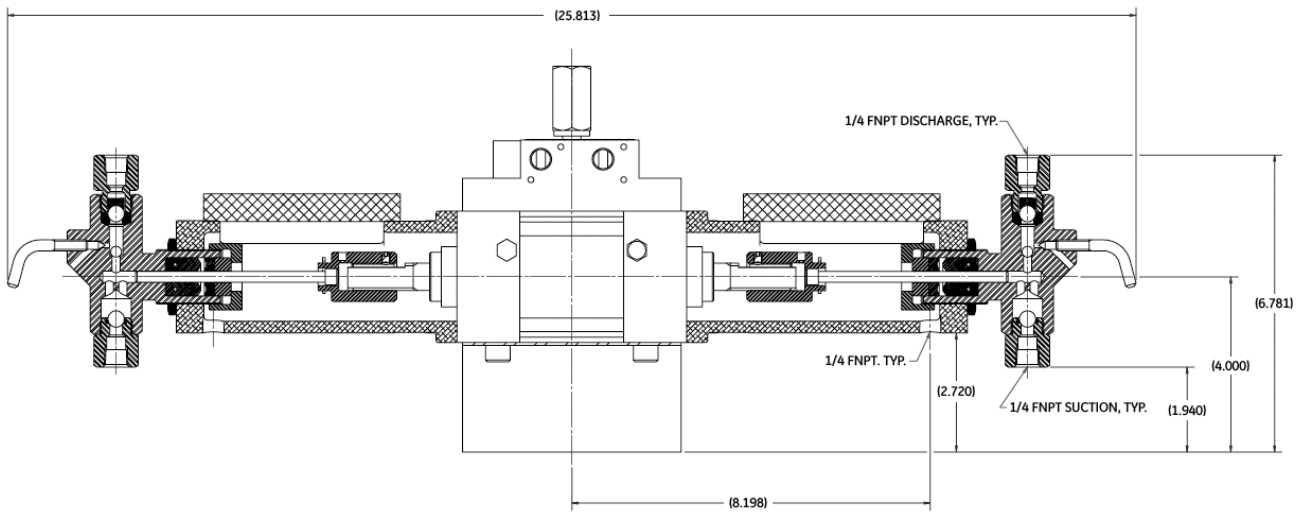
Section B-B


(6.247)
(2.500)
(3.250)
1/4 FNPT
(8.807)
(6.063)
(5.000)


(3.250)
(2.688)
(5.737)
(.562)
1/8 FNPT
(2.612)
(.780)

DPLX Pump

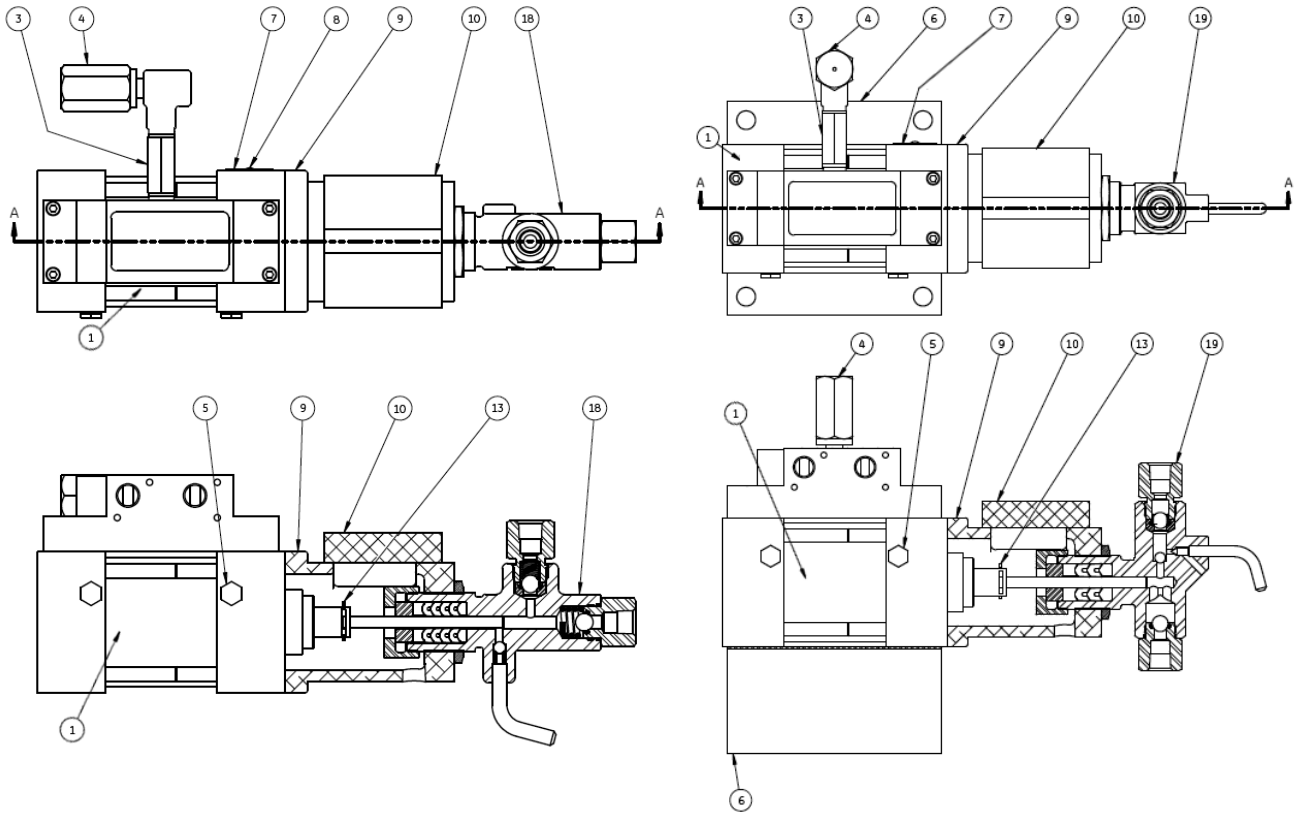




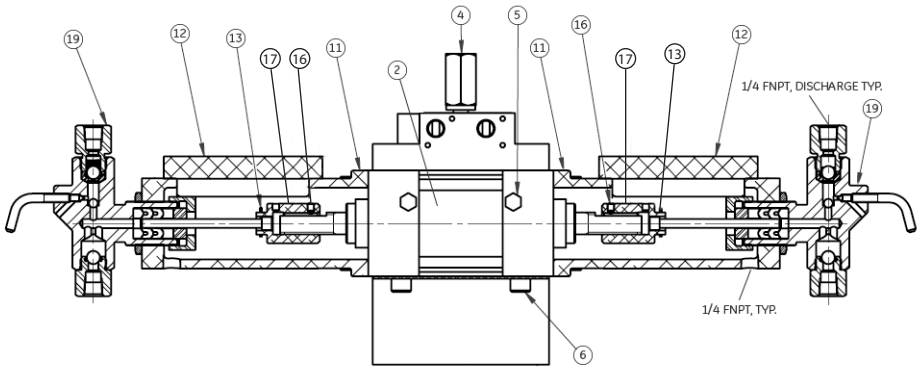
SECTION C-C

7. Recommended Spare Parts for Start-up and 2 years

Part	1 year Qty.	2 year Qty.
Power Unit Parts		
Power Cyl Assy SPLX	0	1
Power Cyl Assy DPLX	0	1
Hex Nipple 1/4 MNPT X 1/4 MNPT	0	1
Calibrated Metering Valve	1	1
Breather Vent	0	2
Yoke Cover	1	1
Drive Clip	1	1
Repair Kit	0	1
Seal Kit	0	1
Head Assy. (Ea.) - Horizontal		
Ball Check Spring	1	1
Bottom Seat Assy.	0	1
Large Top Ball	1	1
O-ring, Buna -012	2	2
O-ring, Buna -016	0	1
Packing	1	1
Plunger	0	1
Small Top Ball	1	1
Suction Ball	0	1
Top Seat Assy., Buna	0	1
Head Assy. (Ea.) - Vertical		
Ball Check Spring	1	1
Ball Cage Spring	1	1
Spring Priming Valve MX Pump	1	1
Top Seat Assy.	0	1
Bottom Seat Assy.	0	1
Large Top Ball	1	1
O-ring - 012	2	2
O-ring - 016	0	1
Packing	1	1
Plunger	0	1
Small Ball - 1/4"	1	1
Suction Ball - 3/8"	0	1



MXG Pump Assy, DPLX Horizontal

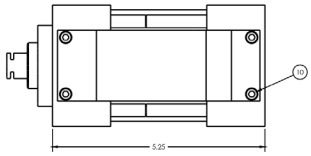


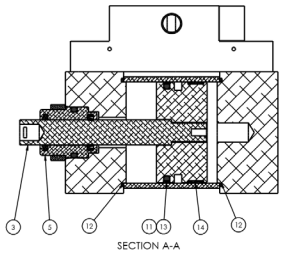
Parts List

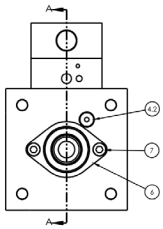
1. Power Cylinder assembly, SPLX
2. Power Cylinder assembly DPLX
3. HEX nipple 1/4" MNPT x 1/4" MNPT
4. Calibated metering valve
5. Breather vent
6. Mounting bracket
7. Name plate
8. Nameplate fastener
9. SPLX Yoke housing
10. SPLX Yoke cover
11. DPLX Yoke housing
12. DPLX Yoke cover
13. Plunger clip
14. HSCS* 3/8-16x5
15. HSCS* 5/16-24x1
16. HSSS Cup* 10-32x2.5
17. Adjustable drive coupling
18. Verticle head assembly
19. Horizontal head assembly

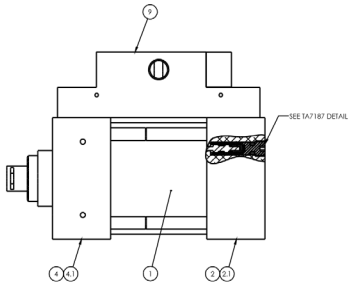
Parts List

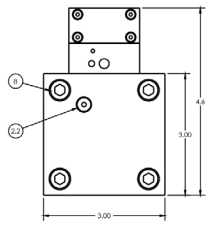
1. Tube
2. MXG SPLX Cap Assembly
2.1 MXG SPLX Cap
2.2 Spool Plug Assembly
3. MXG Piston Rod Assembly
4. Head Assembly
4.1 MXG Head
4.2 Spool Plug Assembly
5. Bushing Assembly
6. Retainer
7. Retainer SHCS
8. MXG Body SHCS
9. Manifold with Spool Valve
10. Manifold SHCS
11. O-Ring
12. Tube End Seal
13. Piston Seal
14. Wearband
15. MXG Short Stroke Adapter Kit (Not Shown)
16. MXG Common Exhaust Block Kit (Not Shown)
17. MXG Short Stroke Adapter (Not Shown)

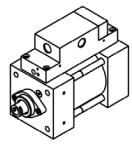


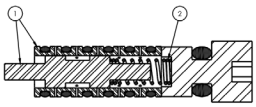


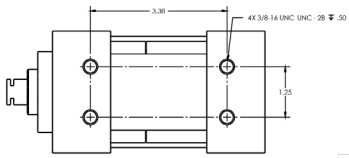










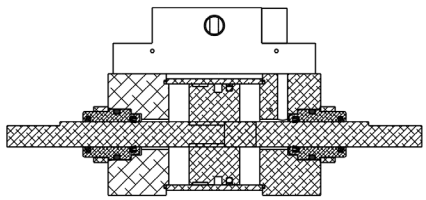


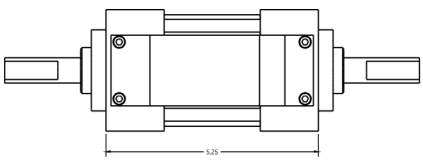
Parts List

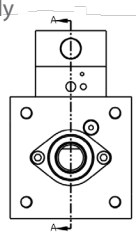
1. MXG Spool & Sleeve
2. MXG Head/Cap Spring

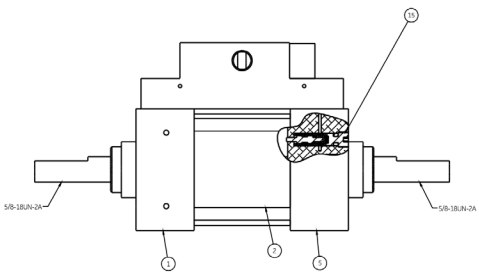
Parts List

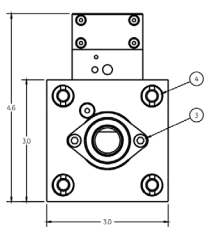
1. Head Assembly
2. Tie Rod
3. Retainer SHCS
4. Sleeve Nut
5. Cap Assembly
6. Piston Rod Assembly
7. Bushing Assembly
8. Tube
9. Retainer
10. Tube End Seal
11. Piston Seal
12. O-Ring
13. Wearband
14. Valve/Manifold Assembly
15. Manifold SHCS
16. Spool Plug Assembly

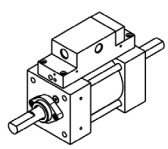


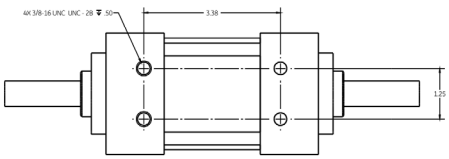






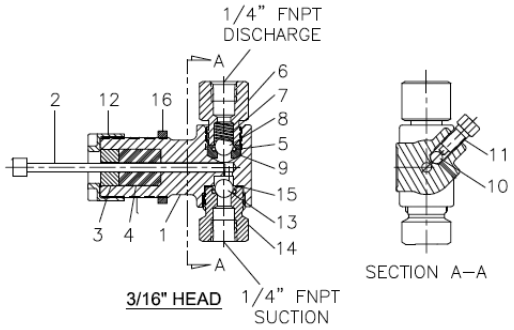


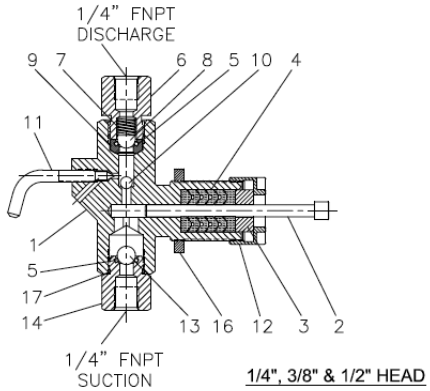




Notes:
1. All aluminum parts are anodized.
2. Cylinder built with amsoil gsf-35 grease.

Table 1. Horizontal Head Assembly Parts

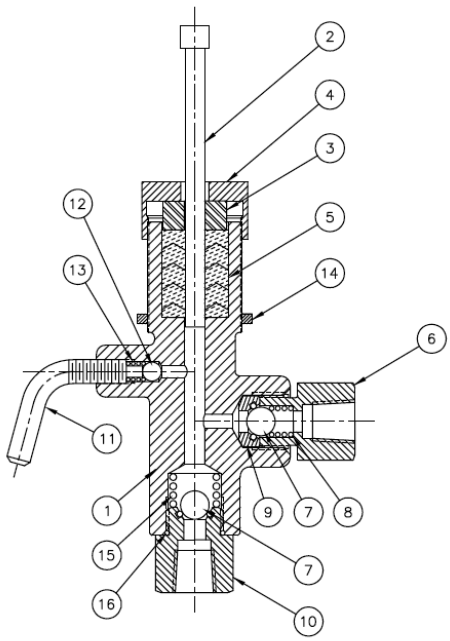




Parts List

1. Body
2. Plunger
3. Plunger Packing Gland
4. Plunger Packing
5. O-Ring, Suction & Discharge (included in item 8 & 14)
6. Top Bushing
7. Ball Check Spring
8. Large Top Ball 3/8"
9. Top Seat Assembly Buna-N O-ring
   Top Seat Assembly (Metal to Metal)
10. Small Top Ball 1/4"
11. Priming Valve
12. Nut, Gland
13. Suction Ball 3/8"
    Suction Ball 1/2" (Use with TA0771 Metal to Metal Bottom Seat only)
14. Bottom Bushing (w/Buna-N O-ring)
    Bottom Bushing Metal to Metal (Use w/TAOO53 1/2" Ball only)
15. Gasket
16. Locknut
17. O-Ring

Table 2. Vertical Head Assembly Parts



Parts List

1. Body
2. Plunger
3. Plunger Packing Gland
4. Packing Nut
5. Packing
6. Top Bushing
7. Large Ball 3/8"
8. Back CK Spring
9. Seat
10. Bottom Bushing
11. Priming Valve
12. Small Ball 1/4"
13. P/V Spring
14. Lock Nut
15. Spring Ball Cage
16. O-Ring

MXG Technical Specifications

Temperature Rating	-40 to 140°F					
	-40 to 60°C					
Gas consumpiton (SCFM)	Head Size	Fluid Discharge Pressure (PSIG)				
		0	1,000	2,500	5,000	10,000
	3/16	0.476	0.616	0.799	1.012	1.44
	1/4	0.52	0.717	0.944	1.323	2.08
	3/8	0.55	0.833	1.319	2.129	
	1/2	0.57	1.116	4.044		
Supply Pressure	30 to 250 PSIG					
Stroke Rate Range	1 to 60					
Volume	Head Size	Min. GPD (LPD)	Max. GPD (LPD)			
	3/16	2 (7.6)	9 (34.1)			
	1/4	3 (11.4)	15 (56.8)			
	3/8	6 (22.7)	35 (132.5)			
	1/2	10 (37.9)	62 (234.7)			
Discharge Pressure	Head Size	Max. PSIG (BAR)				
	3/16	10,000 (690)				
	1/4	10,000 (690)				
	3/8	6,500 (450)				
	1/2	5,000 (345)				
Plunger Coatings	Standard 17-4 PH Stainless Steel					
	Ceramic coated 17-4 PH Stainless Steel					
Mounting Types	Vertical*					
	Horizontal					
Lubricator & Filter Certifications	Non-Natural gas (air)					
	Natural gas					
Weight	9-17 lbs depending on model and options					
Options	Short Stroke					
	Common Exhaust					

*Simplex models only

Industrial Products Group
Texsteam Pumps
16240 Port Northwest Drive
Houston, TX 77041
T: 832-590-2306
Toll Free: 1-800-945-9898
F: 713-849-2879

DRESSER®
NATURAL GAS SOLUTIONS

www.dresserngs.com

Texsteam Series MXG IOM NGS.IPG.0063
10.20