1. Manual/Pneumatic Actuator Connection:

Each cylinder valve must be fitted with either a Pilot or Slave type actuator.

The Pilot actuator provides a manual (pull pin turn handle) actuator and connections from an electrical solenoid and pressure switch assembly. The pilot actuator also has connections to adjacent slave cylinder actuators to discharge entire groups of cylinders virtually simultaneously.

The Slave actuator is purely pneumatic; it receives pressure from the pilot actuator and opens its associated cylinder valve.

2. Solenoid Valve, Pressure Gauge and Supervisory Pressure Switch Connection:

This is a threaded port that serves for the connection of one of the following:

- Solenoid Valve, Pressure Gauge and Supervisory Pressure Switch for pilot actuator connections.
- Pressure Gauge and Supervisory Pressure Switch for slave actuator connections.

3. Discharge Outlet:

The cylinder valve outlet is connected to the distribution piping by a flexible hose with 1/2-in. steel fittings.

Additional features of the valve include a Burst Disc, designed to rupture upon excessive internal pressure, and an external Bleeder Valve with indicator that acts as a pressure relief valve.

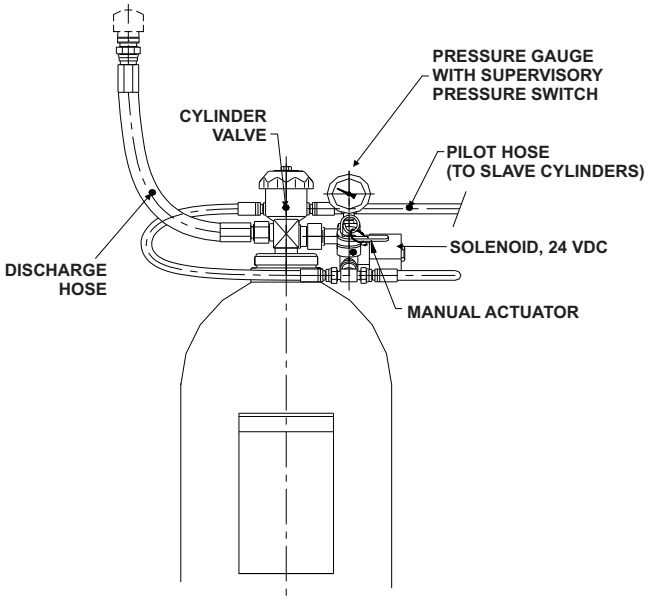

Figure 3. Argonite Cylinder and Valve Assembly

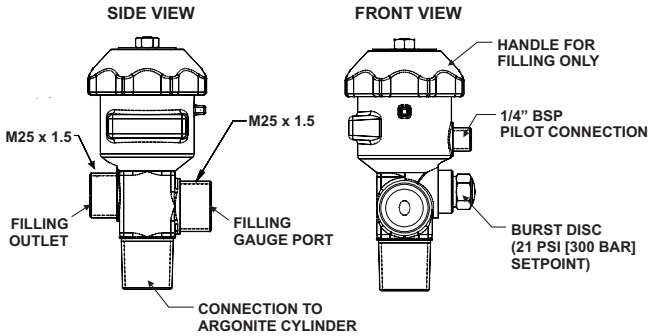

Figure 4. Argonite Cylinder Valve

Table 4. Argonite Cylinder and Valve Assembly Data

Part Number	Cylinder Assembly (Filled Cylinder/Valve)	Description
38-200159-001	15.9 L *	200 bar; DOT and TC versions
38-200667-001	66.7 L *	200 bar; DOT and TC versions
38-200800-001	80.0 L	200 bar; DOT and TC versions
Note: DOT=Department of Transportation (US) TC=Transport Canada		

* **DISCONTINUED**

COMPLETER KIT COMPONENTS

Either a pilot or a slave completer kit is required to complete the installation of each Argonite cylinder.

Table 5. Completer Kit Data

Description	Completer Kits	
	Primary (Qty.) P/N 38-109802-001	Slave (Qty.) P/N 38-109803-001
Solenoid Valve	1	0
Pressure Gauge with Supervisory Pressure Switch	1	1
Manual Release	1	0
Pilot Hose #1	1	0
Pilot Hose #2	1	0
Pilot Hose #3	0	1
Bleeder Valve	1	0
Tee piece for hose connection	2	1
Discharge Hose	1	1
Inlet Stem Assembly	1	1
Note: If cylinders are used in a Main/Reserve system, use decal P/N 31033 (Main Decal) and P/N 31034 (Reserve Decal).		

Solenoid and Pressure Gauge Assembly with Supervisory Pressure Switch

The solenoid/pressure gauge assembly provides an electrical means (24 Vdc) of actuating the system as well as a visual means to determine the pressure within the pilot cylinder.

This unit includes an integral supervisory pressure switch and is supplied with a pilot flex hose #1. The supervisory pressure switch consists of one normally open (N.O.) contact that changes state upon loss of cylinder pressure.

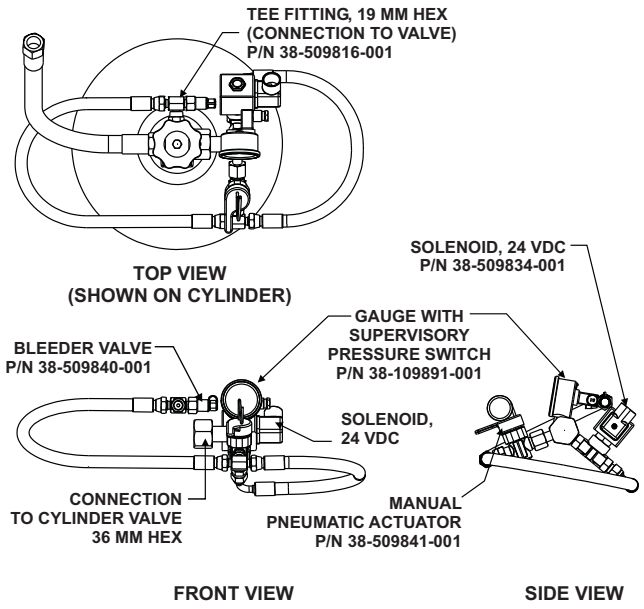

Figure 5. Solenoid and Pressure Switch Gauge Assembly with Supervisory Pressure Switch

Pressure Gauge Assembly with Supervisory Pressure Switch, P/N 38-109891-001

This unit is required for the slave cylinders to provide a local visual means to determine the pressure within the slave cylinder.

The pressure gauge assembly includes an integral supervisory pressure switch, consisting of one N.O. contact that changes state upon loss of cylinder pressure.

Pilot Flex Hose #1, P/N 38-509818-001

This 1/4-in. ID reinforced rubber flex hose has threaded connections to allow interface between the pilot cylinder solenoid/pressure gauge assembly and pilot manual/pneumatic actuator. It is supplied with the pilot solenoid assembly.

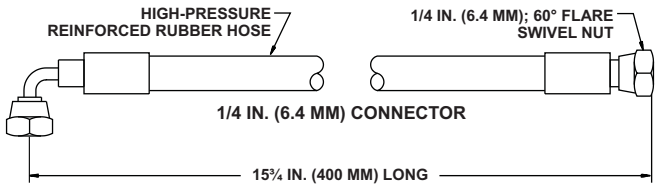

Figure 6. Pilot Flex Hose #1

Manual/Pneumatic Actuator, P/N 38-509841-001

The manual/pneumatic actuator supplied with the pilot completer kit is required on the pilot cylinder to manually actuate the cylinder valve as well as to supply pressure to actuate any slave cylinders. Interconnection between cylinders is by means of high-pressure flex hoses.

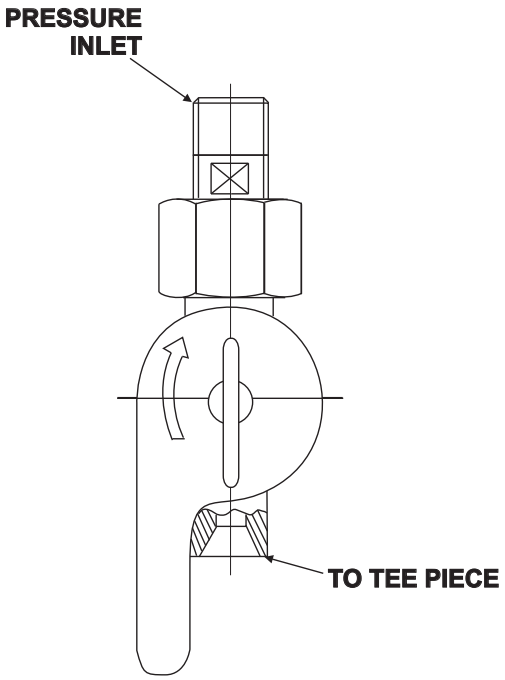

Figure 7. Manual/Pneumatic Actuator

Tee Piece for Hose Connections, P/N 38-509816-001

The tee piece is supplied with each of the completer kits. It provides the interface with the pilot assembly (through a high pressure flex hose) to simultaneously operate the slave cylinder pneumatically.

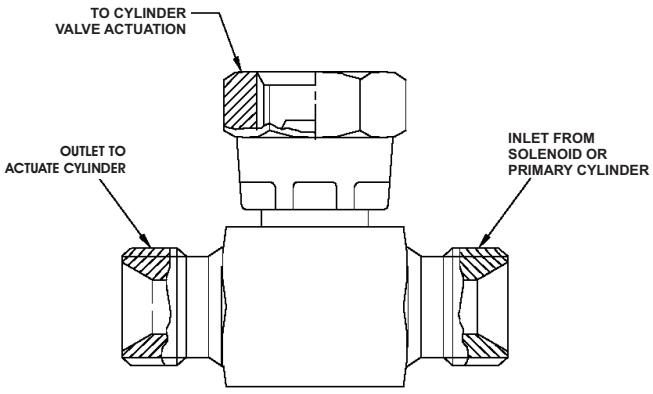

Figure 8. Tee Piece

Bleeder Valve for Actuator, P/N 38-509840-001

A bleeder valve is included with the Pilot Completer Kit to prevent an accidental accumulation of pressure within the pilot lines, which, if not bled to atmosphere, could cause a false discharge. Connection requires a copper gasket between the bleeder valve and pneumatic actuator.

Pilot Flex Hoses

This 1/4-in. ID reinforced rubber flex hose has threaded connections to allow interface between components.

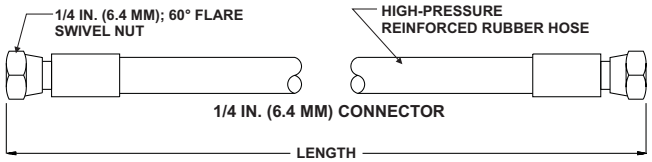

Figure 9. Pilot Flex Hose

Table 6. Pilot Flex Hose Data

Part Number	Description	Length
38-509817-001	Pilot Hose #3 between cylinder actuation pieces	10-5/8 in. (270 mm)
38-509820-001	Pilot Hose #2 between actuator and cylinder valve	17-3/4 in. (450 mm)

Discharge Flex Hose, P/N 38-509819-001

This flex hose has 1/2-in. threaded connections to allow interface between the cylinder valves and the discharge manifold (if applicable). Where more than one cylinder is connected to a common manifold, check valves are required at the end of each discharge flex hose.

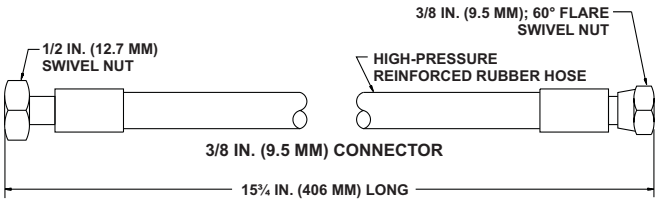

Figure 10. Discharge Flex Hose

Check Valve Assembly, P/N 38-509833-001

To prevent accidental discharge of the Argonite into unintended areas, a check valve is required for each discharge hose in all multi-cylinder systems. All Fenwal Fire Systems manifolds are constructed of threaded pipe with welded check valve connections and include preinstalled check valves. All customer connections are via threaded pipe.

Note: For single cylinder systems, a 1/2-in. BSP x 1/2-in. FNPT adapter is required to connect the discharge hose (BSP) to the Schedule 160 pipe (NPT).

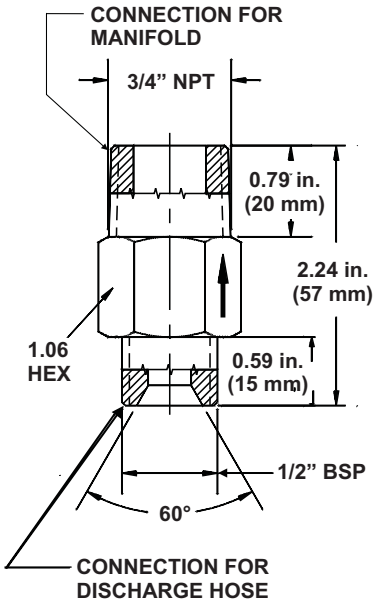

Figure 11. Check Valve Assembly

Flow Restrictor

The restrictor assembly reduces the initial Argonite pressure from the discharge manifold to between 174 and 870 PSI (12 and 60 bar) before entering the discharge piping. The size of the orifice within the restrictor is determined through calculations based upon the required flow and discharge time.

Larger diameter restrictors, up to 4 in. (102 mm) connection, are available for very large system requirements. An orifice plate is custom drilled to the specific requirements of the project as determined by computerized flow calculations.

Note: Flanged restrictor for large system requirements. Only the orifice plate is provided.

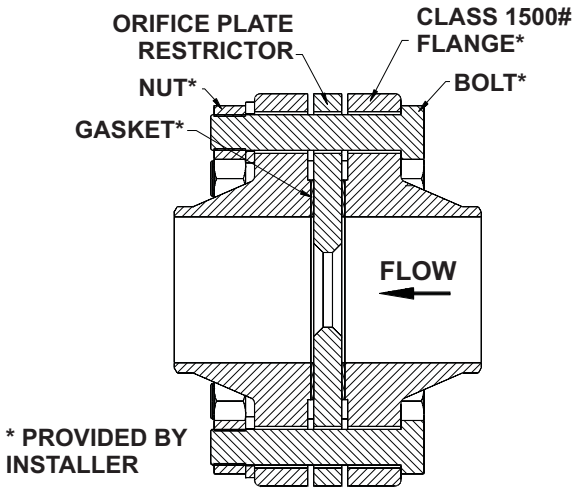

Figure 12. Flow Restrictor

Table 7. Flow Restrictor Sizes

Part Number	Description
38-250001-XXX	2½" Flow Restrictor
38-300001-XXX	3" Flow Restrictor
38-400001-XXX	4" Flow Restrictor

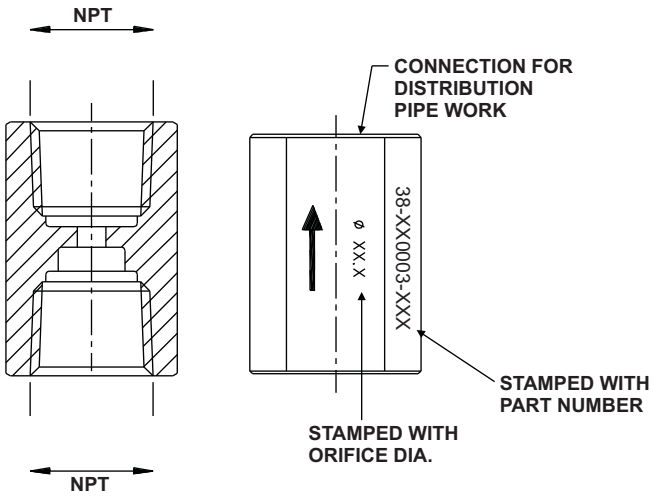

Figure 13. Restrictor Female NPT/Female NPT, Sizes 1/2 inch to 2 inches

Table 8. Flow Restrictor Data

Part Number	Flow Restrictor FNPT x FNPT Pipe Diameter (NPT)
38-050003-XXX	1/2 in. (15 mm) Brass, Code 035 to 075
38-100003-XXX	1 in. (25 mm) Brass, Code 050 to 130
38-150003-XXX	1½ in. (40 mm) Brass, Code 085 to 220
38-200003-XXX	2 in. (50 mm) Stainless Steel, Code 115 to 270