CHEMETRON Fire Systems™ **ARGONITE®** Fire Protection Systems

GENERAL INFORMATION

The Chemetron **ARGONITE** Fire Protection Systems are clean agent, automatic extinguishing systems using Argonite (IG55) and consisting of four basic components and their associated accessories.

- Argonite Cylinders and Components
- Completer Kits
- Control Panels
- Detection and Alarm Devices

Features

Argonite is an inert gas mixture, in equal parts, of Nitrogen and Argon. Both substances are naturally occurring and present in the atmosphere. Argonite is safe for use in occupied spaces and poses no threat to the environment.

1. The Argonite Components consist of the agent cylinders, cylinder racking, and the agent discharge nozzles.

2. The Completer Kits provide all the basic components necessary to operate the Argonite cylinders. The kits consist of hoses, connection fittings, pressure gauges, actuation devices required to operate the cylinder valve and warning signs to be displayed in the area(s) protected by an Argonite fire extinguishing system .

3. The Control Panels vary in features and complexity but in all cases are used to monitor the detection, actuate the alarms, initiate the agent discharge and control auxiliary functions such as shut down of vital equipment and ventilation dampers.

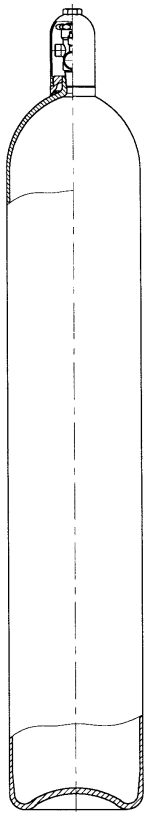
4. The Detection and Alarm devices provide fire detection by means of thermal or smoke detectors, audible and visual pre-alarm warnings and annunciation of the Argonite discharge.

ARGONITE

Agent Description

Argonite is a mixture of 50% pure Nitrogen and 50% pure Argon. Argonite contains only naturally occurring substances, and as such, has no ozone depletion potential and no direct global warming risk.

Argonite extinguishes by means of reducing the oxygen content within a room to the point at which fire can no longer burn, but without compromising the safety of individuals present. There are no toxicological factors associated with the use of Argonite. Argonite will not decompose or produce any by-products when exposed to a flame from a fire condition.



Most Argonite systems are designed to extinguish fires with a minimum agent concentration of 37.9% within one minute. This results in extinguishment of the fire and an oxygen concentration of 13%.

Argonite is stored as a gas within the cylinder assembly. It is available at a storage pressure of 2900 psi (200 bar).

Usable Cylinder Capacity

Four cylinder sizes are available:

Size	200 Bar
15.9 L	4.34 kg
30.0 L	8.19 kg
66.7 L	18.21 kg
80 L	21.83 kg

Cylinder	Area Coverage @ 38% Concentration/70°F
	2900 psi (200 bar)
15.9 L	228.8 ft^3 (6.47 M^3)
30.0 L	431.7 ft^3 (12.22 M^3)
66.7 L	959.8 ft^3 (27.17 M^3)
80 L	1150.6 ft^3 (32.58 M^3)

EQUIPMENT DESCRIPTION

The Chemetron **ARGONITE** Fire Protection Systems can be released electrically, manually, or pneumatically. The following is a description of the various components associated with the systems.

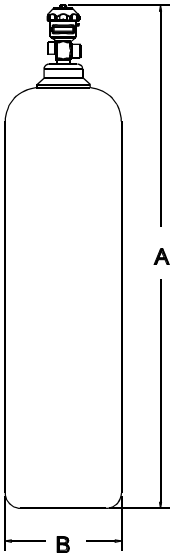
Cylinder and Valve Assembly

Argonite cylinders are available in three different sizes. The 200 bar cylinders are uniquely color coded to allow for quick and easy identification. The cylinders are red with grey at the cylinder shoulder.

Because Argonite is stored as a gas, the cylinders have no dip tube and can be mounted in either the vertical or horizontal position.

The cylinder valve, required for all system cylinders, allows for connection of the cylinders into the system. The valve provides connections for electric, pneumatic and manual release of the cylinder contents, as well as a discharge outlet, connected by a discharge hose, to the distribution piping.

The actuator operates on a 1 to 10 ratio requiring only 300 psi for the 200 bar system to operate the valve. The following are the connections provided on the valve.



Cylinder Size	Dimension A	Dimension B (Diameter)
15.9 L	39.07" (992.38 mm)	7" (177.71 mm)
30.0 L	40.75" (1035.05 mm)	9.38" (238.13 mm)
66.7 L	64.41" (1636.10 mm)	10.49" (266.42 mm)
80.0 L	68.81" (1747.71 mm)	11.25" (285.75 mm)

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.

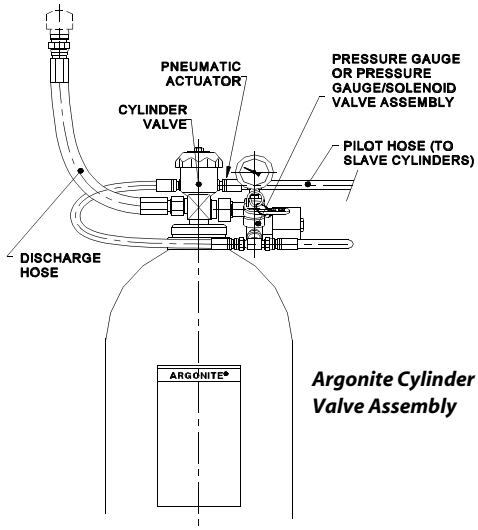
The **Slave** actuator is purely pneumatic - it receives pressure from the pilot actuator and opens its associated cylinder valve.

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:

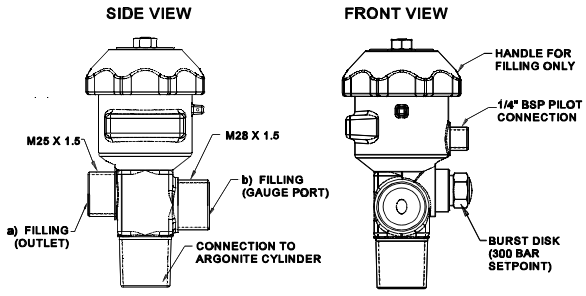
- Solenoid Valve, Pressure Gauge and Supervisory Pressure Switch for pilot actuator connections.
- Pressure Gauge and Supervisory Pressure Switch for slave actuator connections.

3 **Discharge Outlet**: The cylinder valve outlet is connected to the distribution piping by a flexible hose with 1/2" steel fittings.

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



Argonite Cylinder & Valve Assembly



Argonite Cylinder Valve

Description		Stock #
■ **80.0 Liter Cylinder Assy (filled cylinder/valve)**		
200 bar	DOT & TC Version	10980002
■ **66.7 Liter Cylinder Assy (filled cylinder/valve)**		
200 bar	DOT & TC Versions	10980001
■ **30.0 Liter Cylinder Assy (filled cylinder/valve)**		
200 bar	DOT & TC Versions	10980014
■ **15.9 Liter Cylinder Assy (filled cylinder/valve)**		
200 bar	DOT & TC Versions	10980000

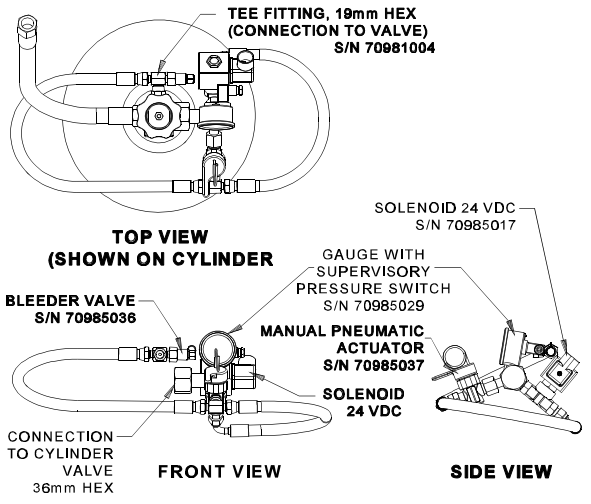
NOTE: 15.9L cylinder assy is not Factory Mutual approved.
D.O.T. = Department of Transportation (US)
TC = Transportation Canada

COMPLETER KIT COMPONENTS

Either a **PILOT** or a **SLAVE** completer kit is required to complete the installation of each Argonite cylinder.

Description	Completer Kits	
	Primary 20980002	Slave 20980003
	Quantity	Quantity
Solenoid valve	1	0
Pressure gauge w/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
Explosionproof completer kits are also available: Primary - S/N 20980094 Slave - S/N 20980095		
If cylinders are used in a Main/Reserve system, order decals: Main Decal - S/N 70987004 Reserve Decal - S/N 70987005		

Solenoid and Pressure Gauge Assembly with Supervisory Pressure Switch



The solenoid/pressure gauge assembly provides an electrical means (24VDC) 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.

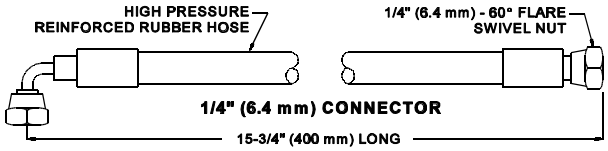
Pressure Gauge Assembly with Supervisory Pressure Switch (S/N 709895029)

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

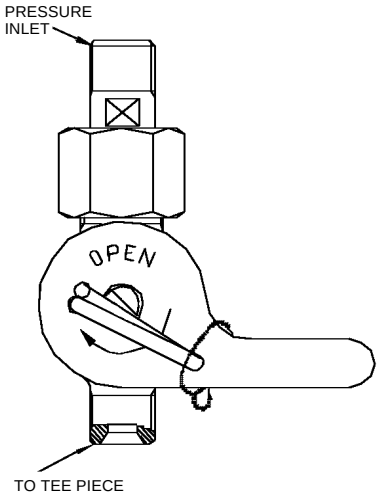
The pressure gauge assembly includes an integral supervisory pressure switch, consisting of one N.O. contact that changes state upon loss of cylinder pressure.

Pilot Flex Hose #1 (S/N 70981007)

This 1/4" 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.



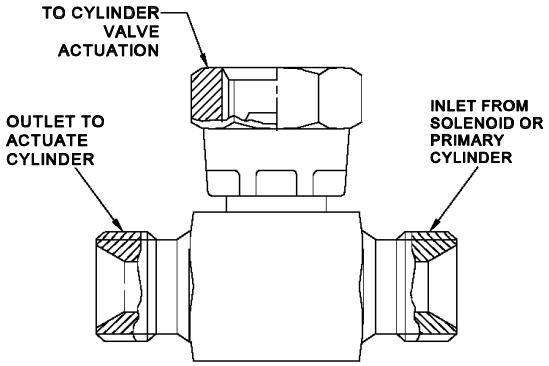
Manual/Pneumatic Actuator (S/N 70985037)



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.

Tee Piece for Hose Connections (S/N 70981004)

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.



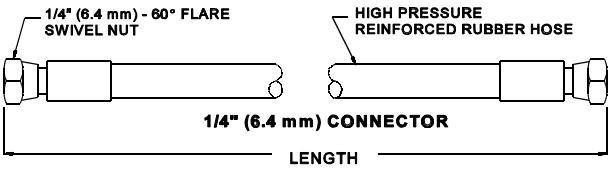
Bleeder Valve for Actuator (S/N 70985036)

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 (S/N 70981013) between the bleeder valve and pneumatic actuator.

Pilot Flex Hoses

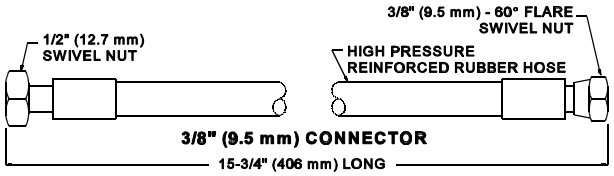
This 1/4" ID reinforced rubber flex hose has threaded connections to allow interface between components.

S/N	Description	Length
70981005	Pilot hose #3 between cylinder actuation pieces	10-5/8" (270 mm)
70981015	Pilot hose #2 between actuator and cylinder valve	17-3/4" (450 mm)



Discharge Flex Hose (S/N 70981008)

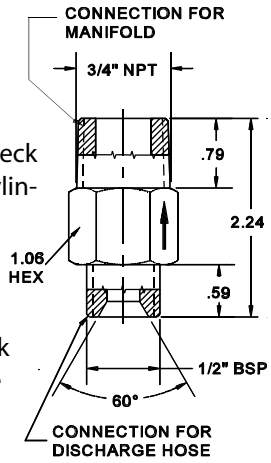
This flex hose has 1/2" threaded connections to allow interface between the cylinder valves and the discharge manifold (if applicable). Where more than one cylinder is connected to a common manifold, check valves are required at the end of each discharge flex hose.



Discharge Flex Hose

Check Valve Assembly

To prevent accidental discharge of the Argonite into unintended areas, a check valve is required for each discharge hose in all multi-cylinder systems. A check valve is not required on single cylinder systems, but may be used for ease of connection to the piping system. All Chemetron manifolds are constructed of threaded pipe with welded check valve connections and include preinstalled check valves. All customer connections are via threaded pipe.

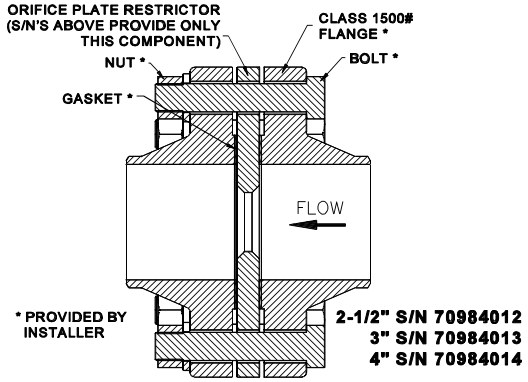


S/N 70985014

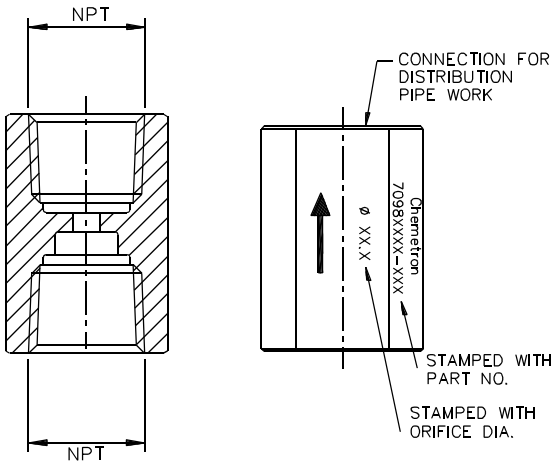
Flow Restrictor

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" (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.



Flanged Restrictor Assembly for large system requirements
Only Orifice Plate Provided



Restrictor Female NPT/Female NPT - Sizes 1/2" to 2"

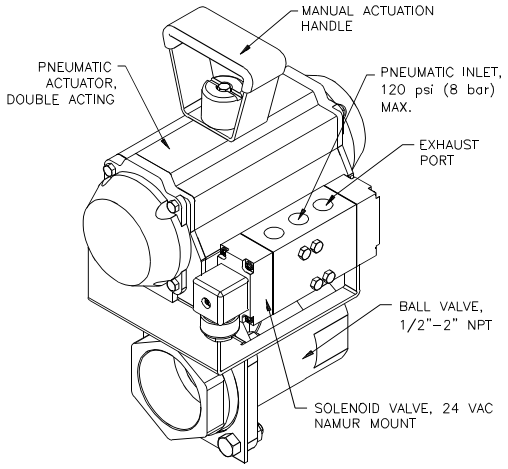
Flow Restrictor FNPT x FNPT	
Pipe Diameter (NPT)	**S/N**
1/2" (15 mm) Brass, Code 035 to 075	70984004
1" (25 mm) Brass, Code 050 to 130	70984005
1-1/2" (40 mm) Brass, Code 085 to 220	70984006
2" (50 mm) Stainless Steel, Code 115 to 270	70984007

Selector Valves/Directional Valves

Argonite systems are particularly suited to the use of selector valves, where one central storage of agent is used to provide protection to two or more hazard areas.

Selector valves are available in six sizes and are pneumatically operated. One common pressure regulator and vented elbow are also required to reduce the actuation pressure to each set of selector valves.

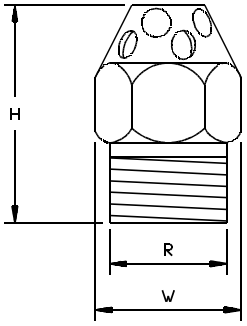
Selector Valves and Components		
Description	**Stock Number**	
	Exp-proof	**NEMA 4**
1/2" (15 mm) pipe dia.	70985059	70985050
3/4" (20 mm) pipe dia.	70985060	70985051
1" (25 mm) pipe dia.	70985061	70985052
1-1/4" (32mm) pipe dia.	70985062	70985053
1-1/2" (40 mm) pipe dia.	70985063	70985054
2" (50 mm) pipe dia.	70985064	70985055
Pressure Regulator and 3-way solenoid with relief 120 psi preset for selector valves		20980093
Pressure relief valve, 4300 psi preset for selector valve piping		70985027



Selector Valve

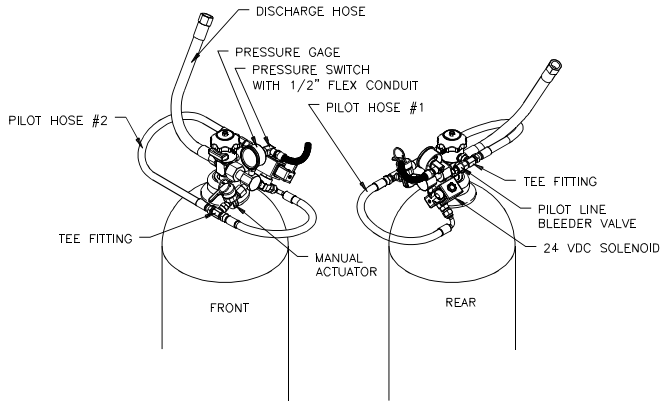
Nozzles

The brass discharge nozzles are available in four basic sizes - 1/2", 3/4", 1" and 1-1/2". Each is fitted with a drilled orifice to assure proper flow rates, agent quality and proper discharge timing as determined by flow calculations. Maximum nozzle spacing for room mounted nozzles should not exceed 19.6 feet (6 M) square. Nozzle height should not exceed 16 feet (4.9 M) from a single layer of nozzles.

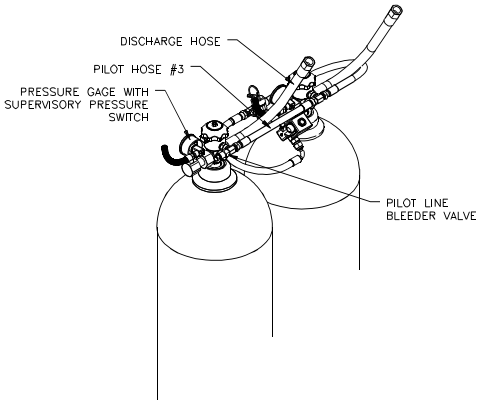


Argonite Discharge Nozzle				
Size (R) NPT	**Orifice Dia. (1)**	**Height (H)**	**Width (W)**	**Stock Number**
1/2" (15 mm)	03-10 mm	1-9/16" (39 mm)	7/8" (22 mm)	70984041
3/4" (20 mm)	07-14 mm	1-7/8" (48 mm)	1-1/8" (28 mm)	70984042
1" (25 mm)	10-18 mm	2-3/8" (60 mm)	1-7/16" (36 mm)	70984043
1-1/2" (40mm)	15-26 mm	3-3/16" (81 mm)	2" (50 mm)	70984044

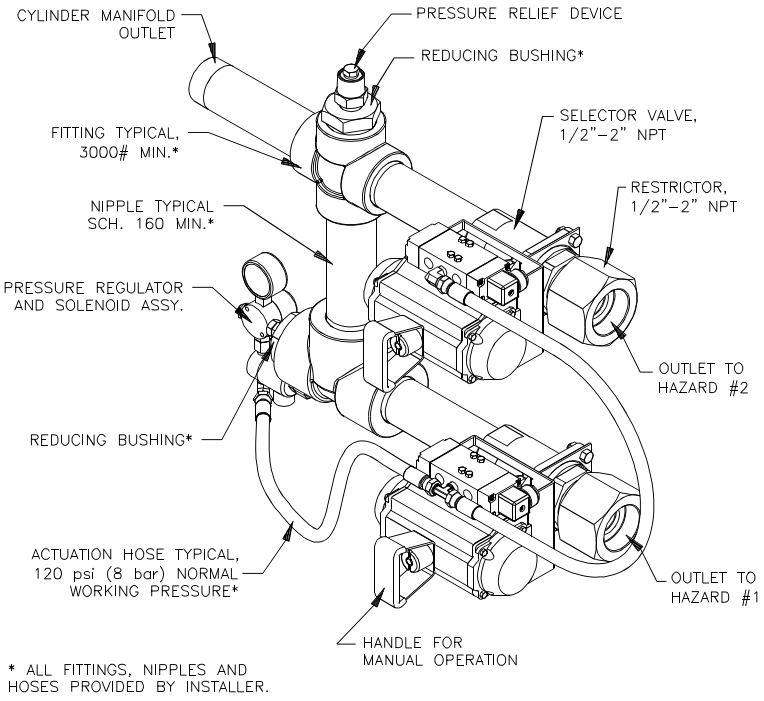
(1) An orifice plate within the nozzle is custom drilled to the specific requirements of the project as determined by computerized flow calculations.



Typical Argonite Pilot Completer Kit



Typical Argonite Pilot and Slave Completer Kit



EXAMPLE: Selector Valve System

The seller makes no warranties, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, except as expressly stated in seller's sales contract or sales acknowledgment form. Every attempt is made to keep our product information up-to-date and accurate. All specific applications cannot be covered, nor can all requirements be anticipated. All specifications are subject to change without notice.

CHEMETRON Fire Systems™
A World of Protection

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