CHEMETRON Fire Systems™
A UTC Fire & Security Company

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

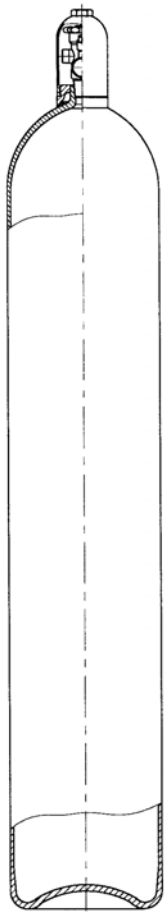
Agent Description

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

Cylinder	Area Coverage @ 38% Concentration/70/F
	2900 psi (200 bar)
80.0 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 yellow/green 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.

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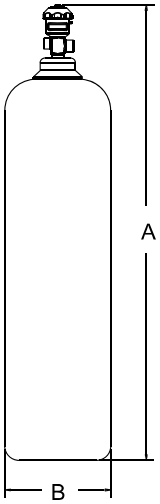
The cylinder valve, required for all system cylinders, allows for connection of the cylinders into the system. The valve provides connections for electric, pneumatic and manual release of the cylinder contents, as well as a discharge outlet, connected by a discharge hose, to the distribution piping.

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)
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.

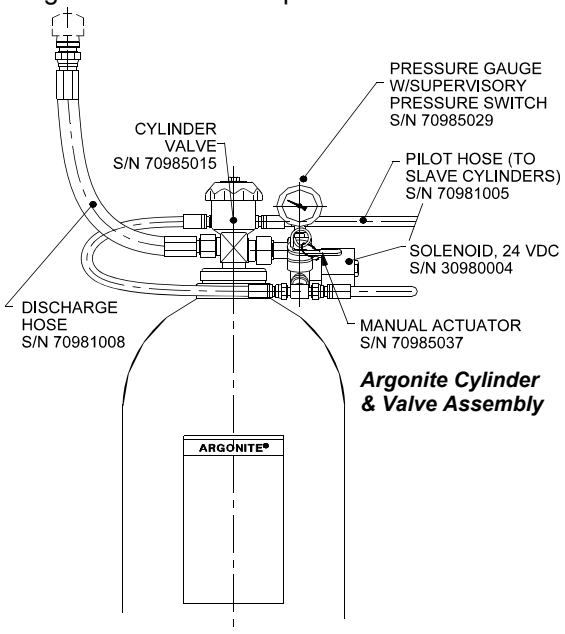
The **Slave** actuator is purely pneumatic - it receives pressure from the pilot actuator and opens its associated cylinder valve.

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:

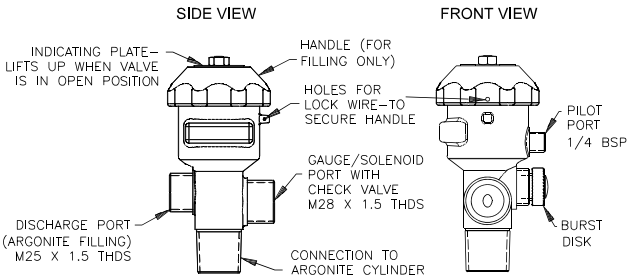
- ➢ Solenoid Valve, Pressure Gauge and Supervisory Pressure Switch for pilot actuator connections.
- ➢ Pressure Gauge and Supervisory Pressure Switch for slave actuator connections.

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 allows bleed gas to vent to atmosphere.



Argonite Cylinder & Valve Assembly



Argonite Cylinder Valve - S/N 70985015

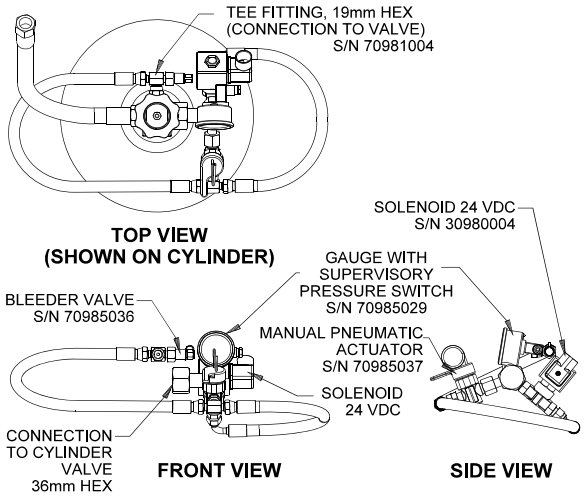
Filled Weight LBS (KGS)	Description	Stock #
■ **80.0 Liter Cylinder Assy (filled cylinder/valve)**		
324 (147.0)	DOT & TC Version	10980002
D.O.T. = Department of Transportation (US) TC = Transportation Canada		

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, 24 VDC	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
Flex. Conduit kit (pres. gauge)	1	1
Exit sign (“Warning, Leave area...)	1	0
Explosionproof Primary Completer Kit S/N 20980094 Class I, Groups C & D; Class II, Groups E, F, & G; Divisions 1 & 2		

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.

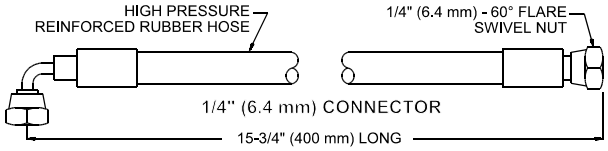
Pressure Gauge Assembly with Supervisory Pressure Switch (S/N 70985029)

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.

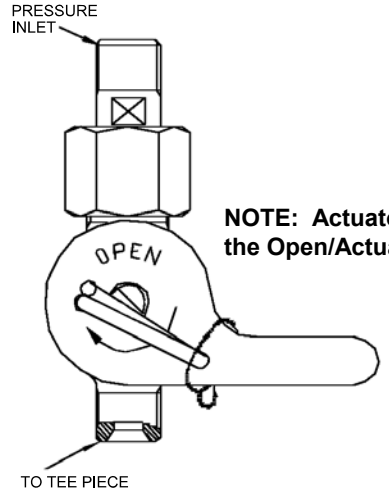
Pilot Flex Hose #1 (S/N 70981007)

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)

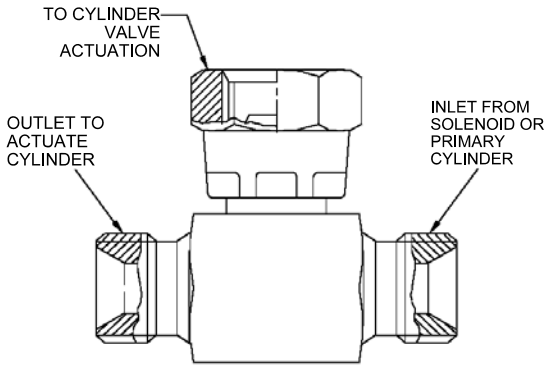
The manual/pneumatic actuator supplied with the pilot completer kit is required on the pilot cylinder to manually actuate the cylinder valve as well as to supply pressure to actuate any slave cylinders. Interconnection between cylinders is by means of high-pressure flex hoses.



NOTE: Actuator shown in the Open/Actuated position.

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.



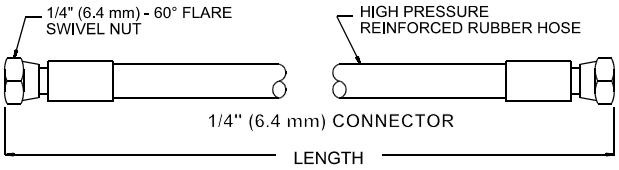
Bleeder Valve for Actuator (S/N 70985036)

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

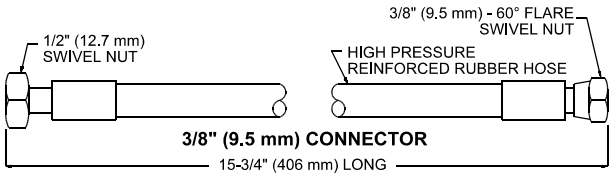
This 1/4" ID reinforced rubber flex hose has threaded connections to allow interface between components.

S/N	Description	Length
70981015	Pilot hose #2 between actuator and cylinder valve	17-3/4" (450 mm)
70981005	Pilot hose #3 between cylinder actuation pieces	10-5/8" (270 mm)
70981006	Pilot Hose #4 between cylinder rows	19.7" (500 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.

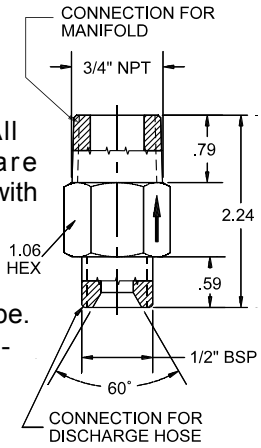


Discharge Flex Hose - S/N 70981008

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. 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.

NOTE: For single cylinder systems, a 1/2" BSP x 1/2" FNPT adapter (S/N 70982128) is required to connect the discharge hose (BSP) to the Schedule 160 pipe (NPT).

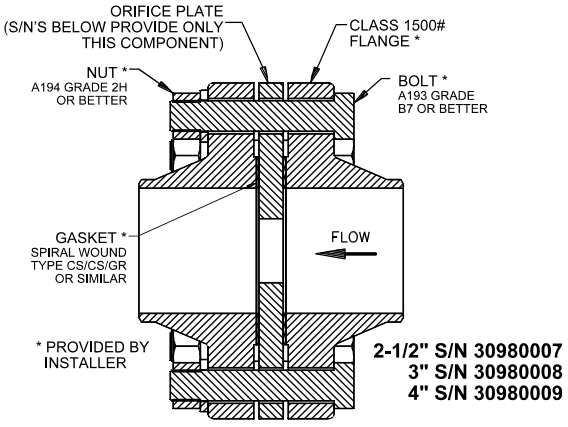


S/N 70985014

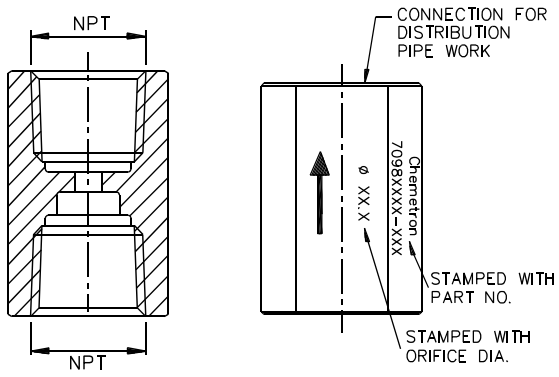
Flow Restrictor

The restrictor assembly reduces the initial Argonite pressure from the discharge manifold to approximately half (1500psi) 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"

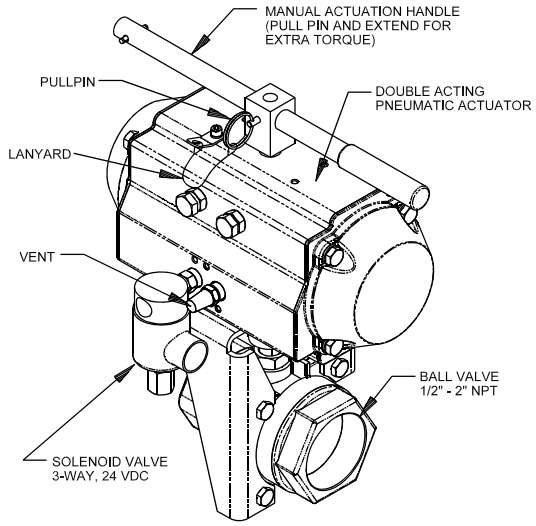
Flow Restrictor FNPT x FNPT	
Pipe Diameter (NPT)	**S/N**
1/2" (15 mm) Brass, Code 3.5 to 7.5	70984053
1" (25 mm) Brass, Code 5.0 to 13.0	70984054
1-1/2" (40 mm) Brass, Code 8.5 to 22.0	70984055
2" (50 mm) Stainless Steel, Code 11.5 to 27.0	70984056
When ordering, specify an 11 digit number, S/N plus the appropriate 3 digit orifice code, i.e., 70984054-050	

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 assembly is also required to reduce the actuation pressure to each set of selector valves.

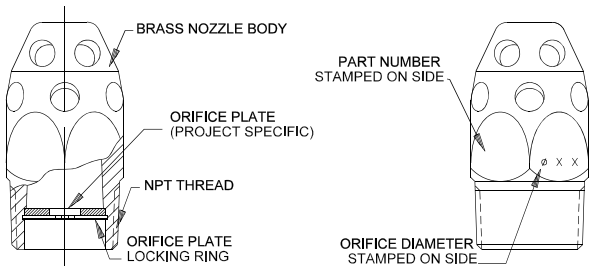
Selector Valve Assemblies Assembly includes: selector valve w/actuator & reset handle, 24 VDC 3-way solenoid valve, operation nameplate, and pipe nipple connector (between solenoid and selector valve)		
Description	**Stock Number**	
	NEMA 4	**Exp-proof**
1/2" (15 mm) pipe dia.	20980096	20980102
3/4" (20 mm) pipe dia.	20980097	20980103
1" (25 mm) pipe dia.	20980098	20980104
1-1/4" (32mm) pipe dia.	20980099	20980105
1-1/2" (40 mm) pipe dia.	20980100	20980106
2" (50 mm) pipe dia.	20980101	20980107
Pressure Regulator Kit (see note)	20980095	20980095
Note: Kit includes regulator (120 psi preset) w/gauge & relief, 3/4" pressure relief (4350 psi), 1/4" NPT vented elbow, gauge adapter, gasket for adapter.		
Explosionproof rating: Class I, Groups C & D; Class I, Groups E, F, & G; Divisions 1 & 2.		



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 35' 5" (10.8 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)	04-13.5 mm	1-7/8" (48 mm)	1-1/8" (28 mm)	70984042
1" (25 mm)	05-17 mm	2-3/8" (60 mm)	1-7/16" (36 mm)	70984043
1-1/2" (40mm)	08-26 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.				

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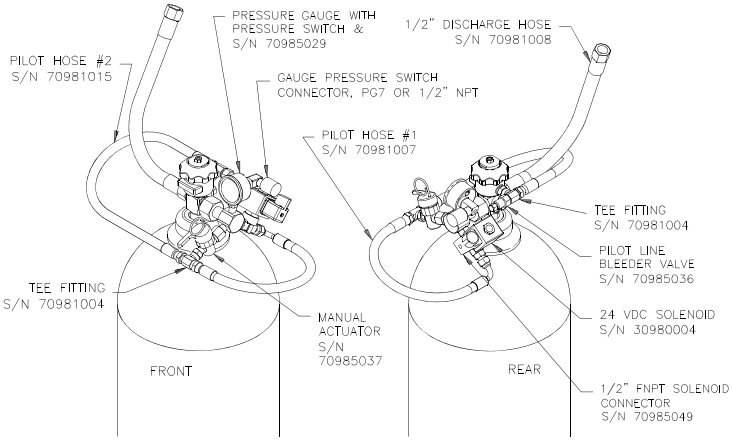
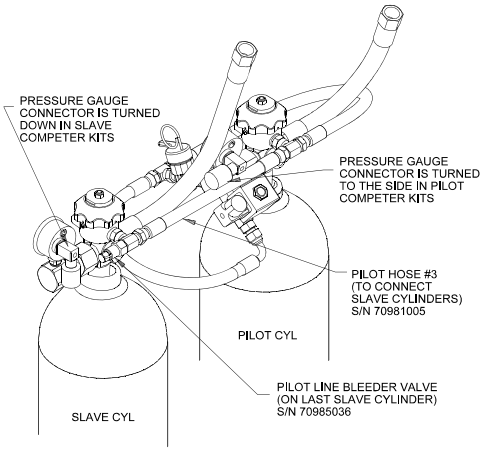
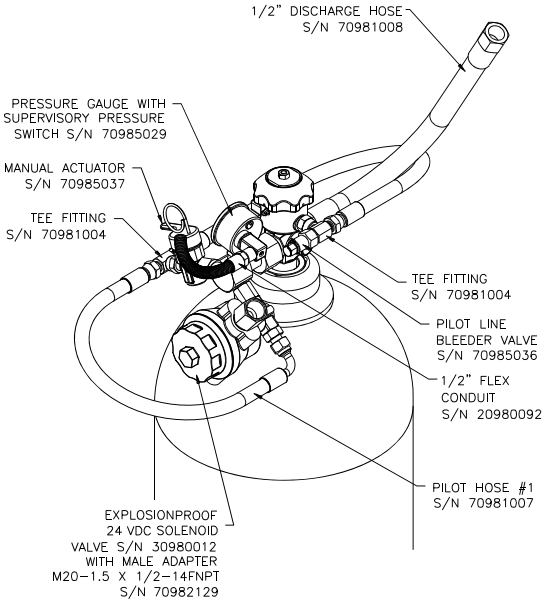


Argonite Primary Completer Kit - NEMA 4 - S/N 20980002

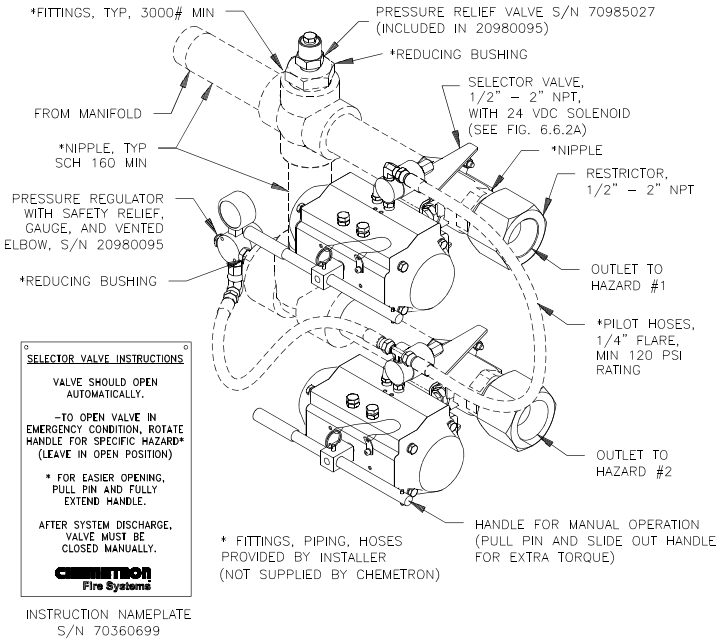


Argonite Slave Completer Kit - NEMA 4 - S/N 20980003



Argonite Explosionproof Primary Completer Kit S/N 20980094

NOTE: The supervisory pressure switch (part of the pressure gauge assy) provided with the explosionproof kit is **NOT** rated for explosionproof service. If total explosionproof protection is required, do **NOT** wire the supervisory pressure switch.



Typical Selector Valve System Arrangement

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.

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