

NOTE:  
CONNECTION BETWEEN FIRE DETECTION & JUNCTION BOX  
TO BE MADE BY THE DETECTION SYSTEM SUPPLIER.  
CABLE: IEC 331/332 BRAIDED CORES  
OR ACCT. LOCAL REQUIREMENTS.  
BENDING RADIUS OF CABLES:  
ACCT. MANUFACTURERS RECOMMENDATION.  
STRAPPING OF CABLES:  
ACCT. MANUFACTURERS RECOMMENDATION  
HOWEVER APPROX. EACH 400MM.  
MAX CYLINDER PER SINGLE HIGH PRESSURE  
SOLENOID RELEASE VALVE:  
60 PCS. OPTIONAL

2	INDIC TERMINATION ADDED	
1	UPDATED	
3	1-506 TITLE CHANGED	
4	FIRST ISSUE	
		Drawn/Checked
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ARGONITE DIVERTER VALVE SYSTEM  
WIRING DIAGRAM INCL. POSITION SWITCH  
GENERAL

Ginge-Kerr Danmark A/S		Scale	1:1
P.O. Box 10, Østergårdsvej		Rev.	2
DK-2600 Lyngby			
Danmark Tel. 45 36 77 11 31			
Fax: 45 36 77 22 31			
E-mail: gk@ginge-kerr.dk			
Ginge-Kerr			
01-9005-0076			

\* 24 VDC 13W INDUSTRIAL 2 min.  
MARITIME 4 min.  
\*\* 24 VDC 10W  
\*\*\* MAX. MONITORING CURRENT 4V.0.1A  
\*\*\*\* MAX. MONITORING CURRENT 3W





**FEATURES**

- Inert Gas Clean Agent Fire Suppression
- Safe for Personnel and Equipment
- Leaves No Residue
- Environmentally Friendly

- Actuation by Solenoid or Manual Actuator
- Three Available High-pressure (2900 PSI [200 bar]) Cylinder Sizes
- FM Approved/ULC Listed

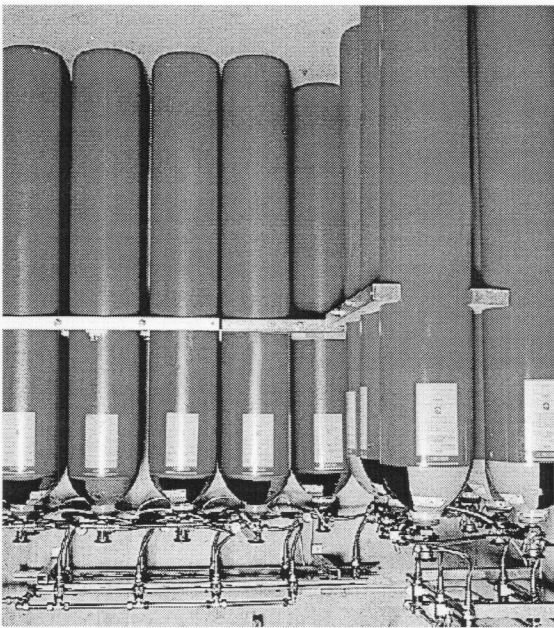
**DESCRIPTION**

Kidde Argonite® Fire Protection Systems are clean agent, automatic extinguishing systems that use Argonite (IG-55) and consist of four basic components and their associated accessories:

- Argonite Cylinders and Components,
- Complete Kits,
- Control Panels,
- Detection and Alarm Devices.

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. Argonite Components consist of the agent cylinders, cylinder racking and the agent discharge nozzles.
2. The Complete 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 announcement of the Argonite discharge.



**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 potential.

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% achieved 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**

Three cylinder sizes are available (see Table 1).

Table 1. Cylinder Capacity

English		Metric		Fill	
972 cu. in.	15.9 L *	4.34 kg	9.57 lb.	at 2900 PSI	at 200 Bar
4079 cu. in.	66.7 L *	18.21 kg	40.15 lb.	at 2900 PSI	at 200 Bar
4893 cu. in.	80.0 L	21.83 kg	48.13 lb.	at 2900 PSI	at 200 Bar



Figure 1. Argonite Cylinder

Table 2. Argonite cylinder Area Coverage

Cylinder	Area Coverage @ 38% Concentration/70°F (21°C)
15.9 L *	228.8 ft. <sup>3</sup> (6.47 m <sup>3</sup> )
66.7 L *	959.8 ft. <sup>3</sup> (27.17 m <sup>3</sup> )
80.0 L	1150.6 ft. <sup>3</sup> (32.58 m <sup>3</sup> )

**EQUIPMENT DESCRIPTION**

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

\* DISCONTINUED

**CYLINDER AND VALVE ASSEMBLY**

Argonite cylinders are available in three different sizes. The 2900 PSI (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.

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 (21 bar) for the 2900 PSI (200 bar) system to operate the valve. The following are the connections provided on the valve.

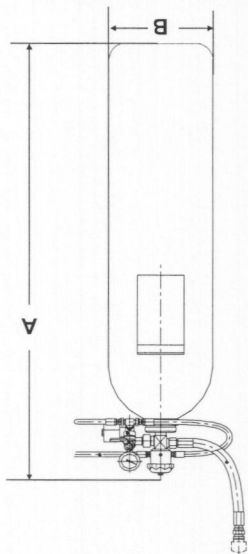


Figure 2. Cylinder Dimensions

Table 3. Cylinder Dimensions

Dimension	Cylinder Size	
	A	B (Diameter)
15.9 L *	39.07 in. (992.38 mm)	7.00 in. (177.80 mm)
66.7 L *	64.41 in. (1636.10 mm)	10.49 in. (266.45 mm)
80.0 L	68.81 in. (1747.77 mm)	11.25 in. (285.75 mm)

Completer Kits		Description	Solenoid Valve	Pressure Gauge with Supervisory Pressure Switch	Manual Release	Pilot Hose #1	Pilot Hose #2	Pilot Hose #3	Bleeder Valve	Tee piece for hose connection	Discharge Hose	Inlet Stem Assembly
Primary (Qty.)	Slave (Qty.)	38-109802-001	1	1	1	1	1	0	1	2	1	1
P/N		38-109803-001	0	1	0	0	0	0	0	1	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).

Table 5. Completer Kit Data

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

**COMPLETER KIT COMPONENTS**

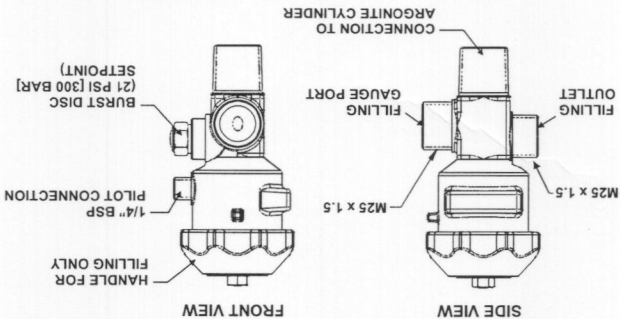
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Part Number	Cylinder Assembly (Filled)	Description
38-100159-001	15.9 L *	200 bar; DOT and TC versions
38-100667-001	66.7 L *	200 bar; DOT and TC versions
38-100800-001	80.0 L	200 bar; DOT and TC versions

**Note:**  
 DOT=Department of Transportation (US)  
 TC=Transport Canada

Table 4. Argonite Cylinder and Valve Assembly Data

Figure 4. Argonite Cylinder Valve



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-inch 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.

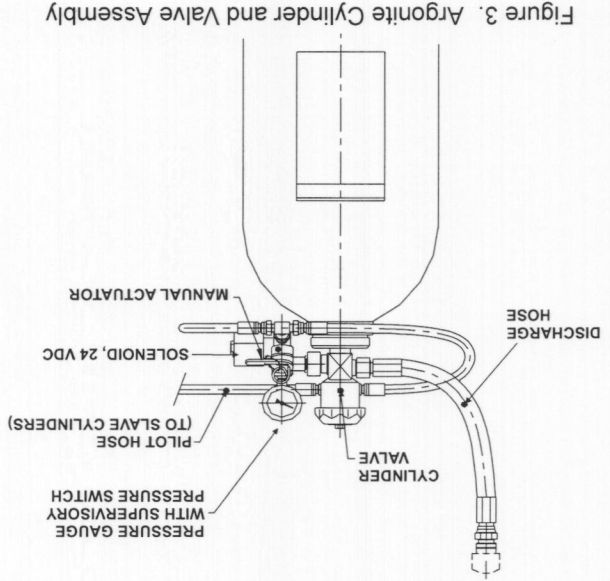


Figure 3. Argonite Cylinder and Valve Assembly

**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.

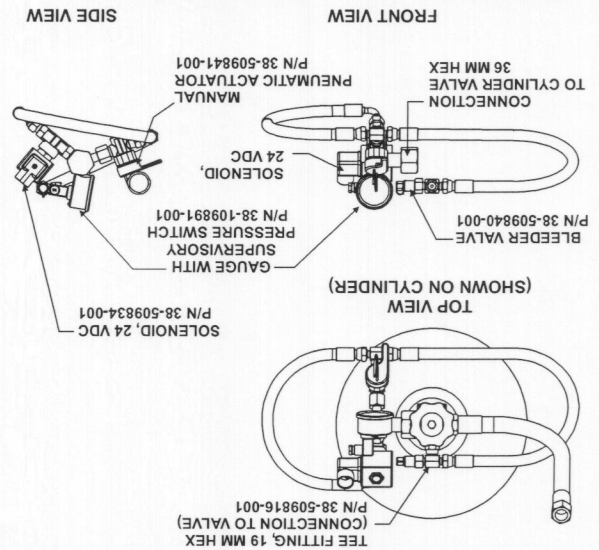


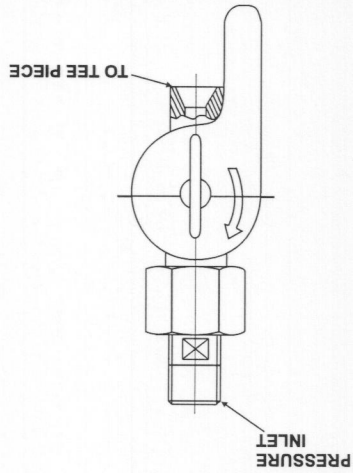
Figure 5. Solenoid and Pressure Switch Gauge Assembly with Supervisory Pressure Switch

**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.

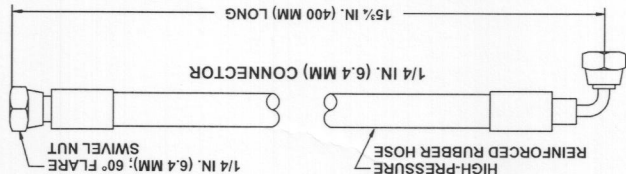
Figure 7. Manual/Pneumatic Actuator



**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 6. Pilot Flex Hose #1

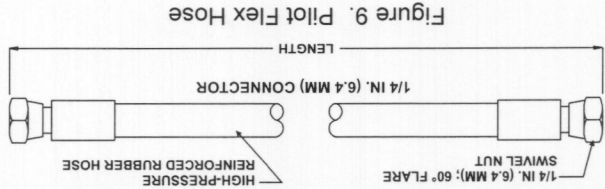


**PILOT FLEX HOSE #1, P/N 38-509818-001**

This 1/4-inch 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.

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)

Table 6. Pilot Flex Hose Data



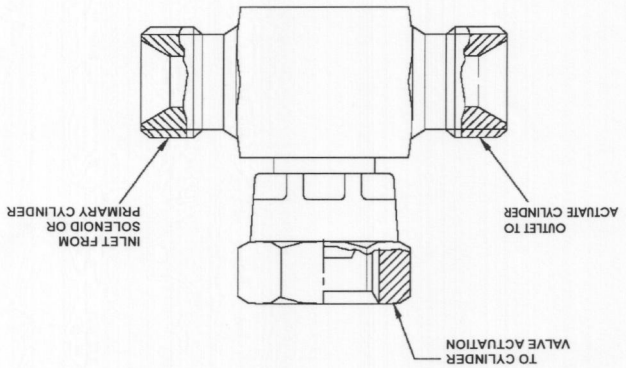
This 1/4-inch ID reinforced rubber flex hose has threaded connections to allow interface between components.

**PILOT FLEX HOSES**

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.

**BLEEDER VALVE FOR ACTUATOR, P/N 38-509840-001**

Figure 8. Tee Piece

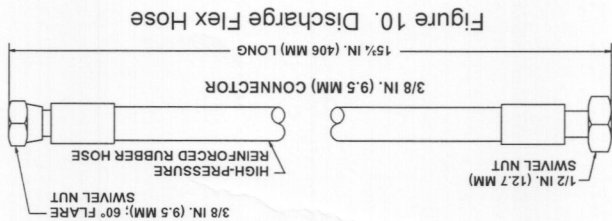


The tee piece is supplied with each of the completer kits. It provides the interface with the pilot assembly (through a high pressure flex hose) to simultaneously operate the slave cylinder pneumatically.

**TEE PIECE FOR HOSE CONNECTIONS, P/N 38-509816-001**

This flex hose has 1/2-inch 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, P/N 38-509819-001**



**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 Kidde Fire Systems manifolds are constructed of threaded pipe with welded check valve connections and include pre-installed check valves. All customer connections are via threaded pipe.

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

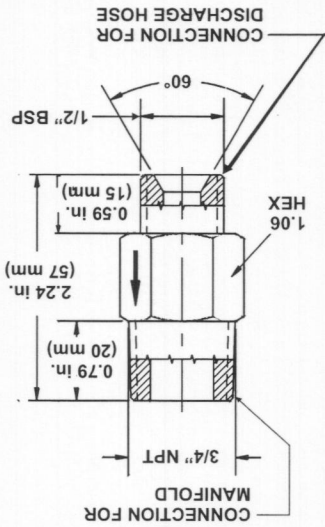


Figure 11. Check Valve Assembly



Part Number	Description
38-250001-xxx	2-1/2 in. Flow Restrictor
38-300001-xxx	3 in. Flow Restrictor
38-400001-xxx	4 in. Flow Restrictor

Table 7. Flow Restrictor Sizes

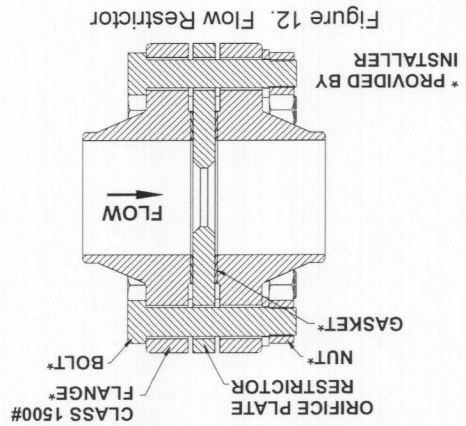


Figure 12. Flow Restrictor

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

Larger diameter restrictors, up to 4 in. (102 mm) connections, 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.

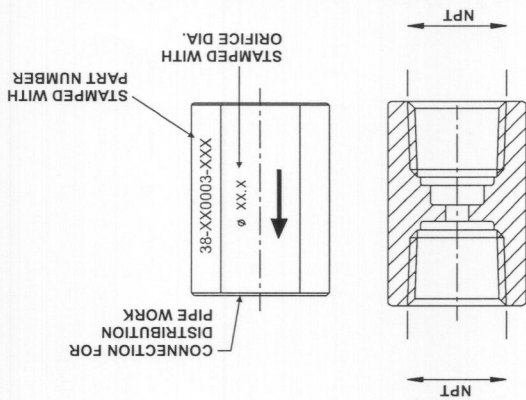
The restrictor assembly reduces the initial Argonite pressure from the discharge manifold to between 174 and 870 PSI (12 and 60 bar) before entering the discharge piping. The size of the orifice within the restrictor is determined through calculations based upon the required flow and discharge time.

**FLOW RESTRICTOR**

Part Number	Flow Restrictor FNPT x FNPT Pipe Diameter (NPT)
38-050003-xxx	1/2 in. (13 mm) Brass, Code 035 to 075
38-100003-xxx	1 in. (25 mm) Brass, Code 050 to 130
38-150003-xxx	1-1/2 in. (38 mm) Brass, Code 085 to 220
38-200003-xxx	2 in. (51 mm) Stainless Steel, Code 115 to 270

Table 8. Flow Restrictor Data

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



Argonite Discharge Nozzle				
Part Number	Size (R) NPT	Office Dia. <sup>1</sup> (H)	Height (H)	Width (W)
38-300502-xxx	1/2 in. (13 mm)	3 to 10 mm (40 mm)	1-9/16 in. (22 mm)	7/8 in. (22 mm)
38-300752-xxx	3/4 in. (19 mm)	7 to 14 mm (48 mm)	1-7/8 in. (29 mm)	1-1/8 in. (29 mm)
38-301002-xxx	1 in. (25 mm)	10 to 18 mm (60 mm)	2-3/8 in. (37 mm)	1-7/16 in. (37 mm)
38-301502-xxx	1-1/2 in. (38 mm)	15 to 26 mm (81 mm)	3-3/16 in. (51 mm)	2 in. (51 mm)

<sup>1</sup> An office plate within the nozzle is custom drilled to the specific requirements of the project as determined by computerized flow calculations.

Table 10. Argonite Discharge Nozzle Data

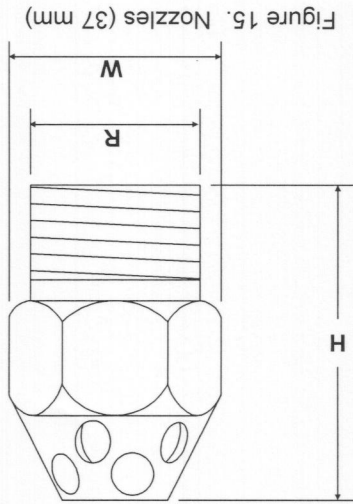


Figure 15. Nozzles (37 mm)

The brass discharge nozzles are available in four basic sizes 1/2-inch, 3/4-inch, 1-inch and 1-1/2-inch. 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 18.8 feet (5.7 m) square. Nozzle height should not exceed 16 feet (4.9 m) from a single layer of nozzles.

**NOZZLES**

Part Number	Description
38-609800-001	1/2 in. (13 mm) Pipe Diameter
38-609800-002	3/4 in. (19 mm) Pipe Diameter
38-609800-003	1 in. (25 mm) Pipe Diameter
38-609800-004	1-1/4 in. (32 mm) Pipe Diameter
38-609800-005	1-1/2 in. (38 mm) Pipe Diameter
38-609800-006	2 in. (52 mm) Pipe Diameter
38-509803-001	Pressure regulator kit with relief valves 120 PSI (8.3 bar) preset for selector

Table 9. Selector Valves and Components

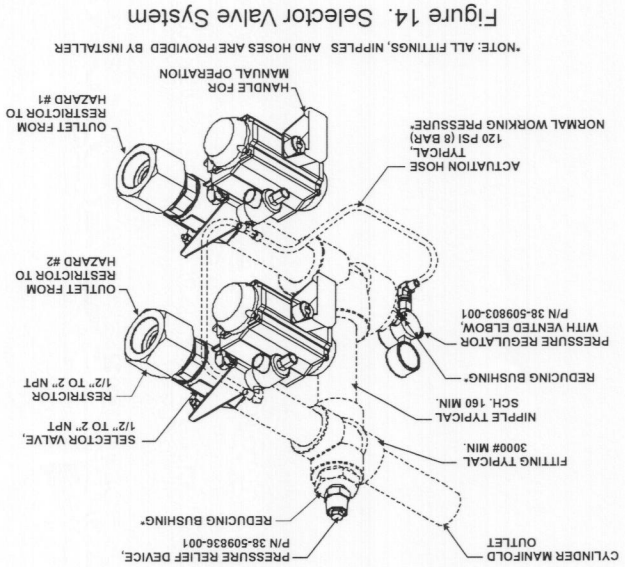


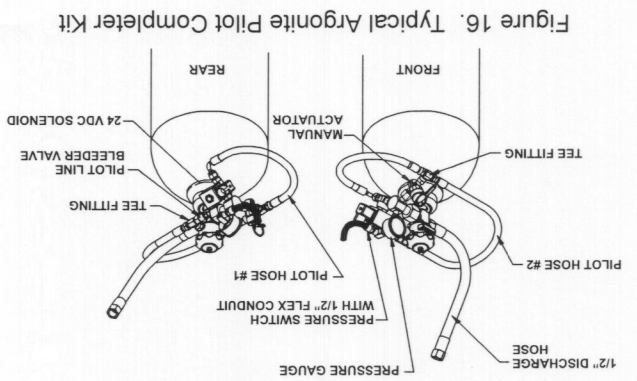
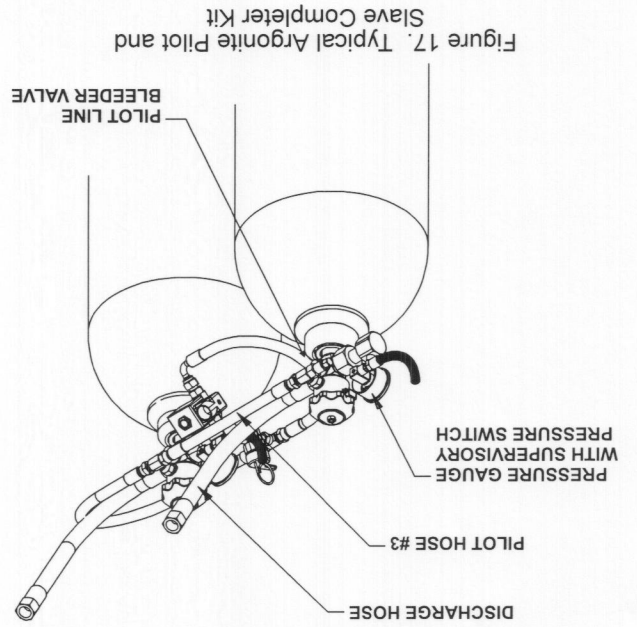
Figure 14. Selector Valve System

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**

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EST3 is uniquely designed to meet the life safety needs of any size facility. The function of each panel is can be customized by using an extensive selection of plug and play local rail modules.

With support for 64 nodes of up to 250 devices each, this network's multi-priority peer-to-peer token ring protocol delivers a fast alarm response time across any size network. Add to that the ability to network panels for an overall length in excess of 300,000 ft - *that's nearly 60 miles* - and you've got virtually unlimited networking options.

All EST3 operating features are software controlled using object

oriented rules, which when needed, gives the designer great flexibility in integrating fire, security, and access control functions into a single seamless design.

## EST3 Audio. The Voice of Authority

EST3 multiplexed audio will deliver up to eight (8) audio messages simultaneously over a single pair of wires! These messages can be automatically directed to appropriate areas in a facility under program control. Security messages can be easily integrated into the audio system.



## Fire, Security, Access Control and much more...

No matter what your life safety needs are, GE Security's EST3 platform is the total life safety solution for you. The EST3's capabilities and the interplay of its expanded functionality, enables this system to provide a dynamic "synergy" that is unrivaled. EST3 is the perfect life safety platform to integrate fire alarm, security and access control functions.

Security and access control functions take full advantage of the survivability and reliability inherent to the EST3. The end result is a truly integrated life safety solution that, by sharing system resources, results in reduced costs. Installing a single system is much more efficient than installing multiple interconnected systems.

