

Kidde® In-Cabinet™

Small Enclosure Cylinder and Valve Assemblies

FEATURES

- **UL Listed System;**
Tested to UL 2166 Standards
- **Tested Per NFPA 2001**
- **Designed Specifically to Protect**
Electrical Cabinets and Industrial Equipment
- **No Software Required for Design**
- **Discharges in Less than 10 Seconds,**
Attacking the Fire Quickly
- **Quick and Easy to Install—Uses Standard Brass or Stainless Steel Compression Fittings and Copper or Stainless Steel Tubing**
- **Multiple Fill Options; Conveniently Offered with Eight Different Fills**
- **Optional Kit Packages with Panel Detection and Alarm Equipment**
- **Working Pressure of 360 PSIG @ 70°F (24.8 bar @ 21°C)**

DESCRIPTION

Kidde Fire Systems, In-Cabinet/Small Enclosure fire suppression system is Listed by the Underwriters Laboratory, Inc. (UL) and designed for total flooding in accordance with NFPA 2001, Standard on Clean Agent Extinguishing Systems. These systems have been tested to: UL 2166 and other standards established jointly by Underwriters Laboratory and Kidde Fire Systems.

The Kidde In-Cabinet/Small Enclosure Clean Agent System has been designed and engineered specifically for protecting small, high value equipment. Electrical cabinets, Industrial Equipment, CNC machines and small volume enclosures are just a few of the applications that can be protected with this product offering. The cylinder and valve assemblies are available in eight (8) different fills to easily accommodate the equipment envelope. The suppression system uses a unique nozzle style called an ADA (Agent Distribution Assembly) to distribute the agent within the hazard being protected. The ADA does not require any calculations or custom drilling—only one ADA (P/N 90-220036-001) is needed to distribute the agent effectively within the protected hazard. Once the designer determines the appropriate amount of FM-200, a chart is used to determine the length and size of tubing. Tubing is easily fitted using general purpose compression fittings to quickly install the distribution network.

OPERATION

For system actuation, the cylinder and valve assemblies have been designed to use a wall mounted control head (CXV™ Controller, P/N 90-487100-001), which has been designed specifically for these In-Cabinet/Small Enclosure applications. The CXV Controller pneumatically ties to the cylinder valve assembly and allows the system to be actuated electrically, manually or locally. For more detail on how to use and install the CXV Controller, please consult the Design, Installation, Operation and Maintenance Manual, P/N 90-FM200M-040.

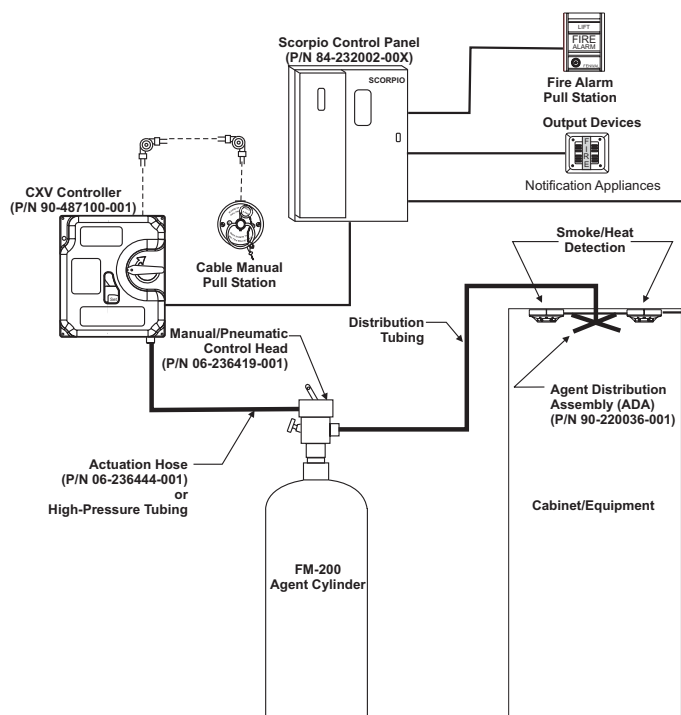
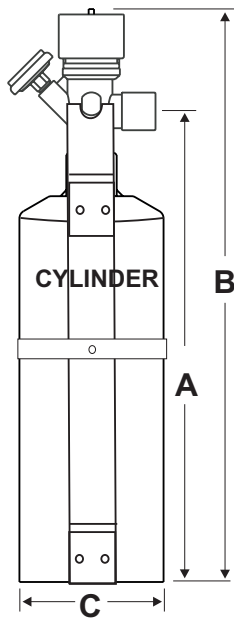


Figure 1. In-Cabinet/Small Enclosure Suppression System



VERTICAL MOUNT



HORIZONTAL MOUNT

Figure 1. Cylinder and Valve Assembly

Table 2. Operating Range Limitations

Cylinder and Valve Assembly	Cylinder Volume	Fill Range	Empty Weight* (Nominal)	Dimensions		
				A (Valve Height)	B (Total Height)	C (Cylinder Dia.)
90-410103-00X thru 90-410105-00X	145 cu. in.	3 to 5 lb.	6.88 lb.	14.27 in. (363 mm)	17.00 in. (432 mm)	4.29 in. (109 mm)
90-410107-00X thru 90-410110-00X	500 cu. in.	7 to 10 lb.	16.97 lb.	17.54 in. (446 mm)	20.29 in. (515 mm)	6.98 in. (177 mm)
90-410112-00X thru 90-410123-00X	1050 cu. in.	12, 15, 17 and 20 lb.	28.54 lb.	32.63 in. (829 mm)	39.38 in. (1000 mm)	7.16 in. (182 mm)

***Note:** Empty weight does not include the agent weight; it includes the cylinder valve, siphon tube, shipping cap and safety cap.

OPERATING RANGE LIMITATIONS

The operating temperature range for all components used in the Kidde In-Cabinet /Small Enclosure system is 32°F to 130°F (0°C to 54°C).

Table 1. Cylinder Bracket Assemblies

Part Number	Cylinder Volume
06-220037-001	145 cu. in.
06-220037-002	500 cu. in.
06-220037-003	1050 cu. in.

INSTALLATION

The In-Cabinet/Small Enclosure System is based on the requirements of NFPA 2001, Standard on Clean Agent Extinguishing Systems. Refer to the Design, Installation, Operation and Maintenance Manual, P/N 90-FM200M-040, for more detailed instructions.

CYLINDER AND VALVE ASSEMBLY

The Cylinder and Valve Assembly comes pre-assembled with a specified fill of FM-200. It be easily mounted in a horizontal or vertical position with the quick release cylinder bracket (See Table 1 for Part Number). The bracket has been designed such that the cylinder will seat only one way into the bracket. This ensures that the cylinder will be in the correct orientation for the agent to be released effectively through the siphon tube.

Note: Horizontal mounted cylinders cannot be mounted to a vertical wall; they must be horizontally mounted on a horizontal plane.

ACTUATION

The CXV Controller is to be mounted vertically next to the Cylinder and Valve Assembly. The CXV Controller ships ready to install, and includes three EMT connectors, a system solenoid actuator, two microswitches and two cartridges. The actuation hose is then connected from the CXV Controller to the Manual/Pneumatic Control Head (P/N 06-236419-001) located on the Cylinder and Valve Assembly. The Manual/Pneumatic Control Head also allows for simultaneous discharge of up to 20 cylinders. However, each cylinder must have its own independent distribution network. For more information, refer to the Design, Installation, Operation and Maintenance Manual, P/N 90-FM200M-040.

MAINTENANCE

According to NFPA standards, the following inspection and/or maintenance procedure must be scheduled as listed below, and performed upon the occurrence of any event that might affect the reliability of the system.

QUARTERLY

1. Check the pressure gauge and the weight of the agent storage cylinder

Note: Pressure changes with temperature. The working pressure of the system is 360 PSIG at 70°F (24.8 bar at 21°C). If the cylinder(s) needs to be recharged, only a factory trained and certified Kidde Fire Systems distributor should remove the cylinders.

2. Check all components supporting hardware and tighten, repair or replace if necessary.
3. Visually check all components for evidence of physical wear and tear and take whatever action is required. Replace any component that looks like it may be damaged or worn.

SEMI-ANNUAL

Qualified Kidde personnel should conduct the following check/tests:

1. Required functional tests of system devices and equipment. Refer to the Design, Installation, Operation and Maintenance Manual, P/N 90-FM200M-040.
2. All tubing must be cleaned and free of dirt, chips and other foreign material that may cause the system to become inoperative or ineffective at the time of discharge.

RECONDITIONING

After a system has been discharged, it is recommended that the local authorized Kidde Distributor be contacted to recondition the system. Refer to the Design, Installation, Operation and Maintenance Manual, P/N 90-FM200M-040, for appropriate reconditioning information and hardware.

SPECIFICATIONS

- Cylinder Working Pressure: 360 PSIG (24.8 bar)
- Clean Agent: FM-200
- DOT Cylinder SPEC: DOT 4B-360
- Valve Material: Brass
- Cylinder Material: Welded Steel

Table 3. High Pressure Type K Copper Tubing Specs

Tube Size	O.D.	I.D.	Wall Size
3/8 in.	1/2 in.	0.402 in.	0.049 in.
1/2 in.	5/8 in.	0.527 in.	0.049 in.
5/8 in.	3/4 in.	0.652 in.	0.049 in.

ORDERING INFORMATION

Kidde Fire Systems offers both Cylinder and Valve Assemblies Kits, and Suppression Kits with or without detection and alarm. To order a Cylinder and Valve Assembly Kit with a 240 Vac Scorpio Panel Detection and Alarm package, use the part numbers from Table 6. Table 7 lists the contents of the Detection and Alarm Package.

Table 4. Suppression Kits

Cylinder and Valve Assembly	Vertical or Horizontal Mount*		Fill Weight/ Agent Weight (lb.)
	Vertical	Horizontal	
90-400103-	-001	-002	3
90-400105-	-001	-002	5
90-400107-	-001	-002	7
90-400110-	-001	-002	10
90-400112-	-001	-002	12
90-400115-	-001	-002	15
90-400117-	-001	-002	17
90-400120-	-001	-002	20

***Note:** -001 indicates a vertical mount cylinder, -002 indicates a horizontal mount. For example, to order a 12 lb. Horizontal Mount Cylinder with suppression equipment only, P/N 90-400112-002 would be used.

Table 5. Suppression Package Contents

Part Number*	Quantity	Description
90-4101XX-00X	1	Cylinder and Valve Assembly
06-220037-00X	1	Bracket (1=150, 2=500, 3=1050)
06-236419-001	1	Manual/Pneumatic Control Head
90-487100-001	1	CXV Controller
90-220036-001	1	Agent Distribution Assembly (ADA)
90-190000-001	A/R	Agent, FM-200
06-236444-001	1	Actuation Hose
06-118410-001	-	Fitting Adapters for Actuation Hose

Kidde is a registered trademark of Kidde-Fenwal, Inc. In-Cabinet, Scorpio and CXV are trademarks of Kidde-Fenwal, Inc. FM-200 is a registered trademark of Great Lakes Chemical Corporation.

Table 6. Suppression Kits with Detection and Alarm

Cylinder and Valve Assembly	Vertical or Horizontal Mount*		Fill Weight/ Agent Weight (lb.)
	Vertical	Horizontal	
90-400203-	-001	-002	3
90-400205-	-001	-002	5
90-400207-	-001	-002	7
90-400210-	-001	-002	10
90-400212-	-001	-002	12
90-400215-	-001	-002	15
90-400217-	-001	-002	17
90-400220-	-001	-002	20

***Note:** -001 indicates a vertical mount cylinder, -002 indicates a horizontal mount. For example, to order a 12 lb. Horizontal Mount Cylinder with suppression, a panel and detection and alarm, P/N 90-400212-002 would be used.

Table 7. Detection and Alarm Package Contents

Part Number*	Quantity	Description
84-232000-104	1	Kidde Scorpio Panel,*** 240 Vac**
70-510000-001	2	Two Ion Detectors
71-550000-001	2	Two Photoelectric Detectors
75-000016-002	1	Multi-Tone Horn/Strobe
70-501000-102	4	Four, 4 in. Bases
06-129520-000	10	End-of-Line Resistors

Notes:
 * All part numbers fall under Product Code 90, regardless of their prefix.
 ** If a 110 Vac Scorpio panel is required, the equipment listed above will be sold separately.
 *** Batteries are sold separately. The Scorpio Panel requires two, 1.2AH, 12 Vdc lead acid batteries (P/N 06-115915-020)

Table 8. Optional Equipment

Part Number	Description
06-118408-001	G 1/8 Plug
06-118409-001	G 1/8 X 1/4 M Fitting
06-236444-001	24" Actuation Hose

This literature is provided for informational purposes only. KIDDE-FENWAL, INC. assumes no responsibility for the product's suitability for a particular application. The product must be properly applied to work correctly. If you need more information on this product, or if you have a particular problem or question, contact KIDDE-FENWAL INC., Ashland, MA 01721. Telephone: (508) 881-2000



400 Main Street
 Ashland, MA 01721
 Ph: (508) 881-2000
 Fax: (508) 881-8920
<http://www.kiddefiresystems.com>