Kidde Advanced Delivery Fire Suppression System Component Description

Effective: July 2015
K-45-103

600 lb. Cylinder and Valve Assemblies

FEATURES

- **Well Suited for Complicated Pipe Networks and Large Area Coverage with Minimal Room for Cylinder Storage**
- **3-Inch Valve Outlet**
- **300 lb. to 600 lb. Fill Capacity**
- **Agent Cylinder Liquid Level Indicator**
- **UL Listed, File Number 4674**
- **FM Approved**
- **For RoHS Compliance, See the Individual Component Datasheets**
- **Uses one or two Nitrogen Drivers**

DESCRIPTION

Kidde Advanced Delivery Systems are Listed by the Underwriters Laboratory, Inc. (UL) and tested by Factory Mutual (FM). These systems are designed for total flooding in accordance with NFPA 2001, *Standard on Clean Agent Extinguishing Systems*. These systems have been tested to UL 2166, *Standard for Safety; Standard for Halocarbon Clean Agent Extinguishing System Units*, and other parameters established jointly by UL and FM.

The Kidde Advanced Delivery System uses a unique method for propelling the 3M™ Novec™ 1230 Fire Protection Fluid (Herein referred to as agent) from the storage cylinder, through the piping system and out of the discharge nozzles. Nitrogen gas pressure from one or two separate storage cylinders is introduced into the vapor space of the agent cylinder at a controlled rate. This nitrogen pressure acts to propel the liquid agent through the pipe at a higher flow rate. It can also propel the agent farther through the pipe network allowing for the placement of storage cylinders remotely from the protected hazard.

The Kidde Advanced Delivery System is extremely well-suited to applications involving remote agent storage and situations which limit the maximum pipe size to be used. The Kidde Advanced Delivery System is capable of using smaller pipe sizes to discharge large quantities of agent.

OPERATION

When a control head actuates the two nitrogen cylinder discharge valves, the nitrogen pressure actuates the agent cylinder discharge valve and pressurizes the cylinder.liquid agent is then propelled by its own vapor pressure and the nitrogen pressure through the discharge valve and into the system pipe network. The liquid agent travels through the system pipe network at a high flow rate.

OPERATING RANGE LIMITATIONS:

- The operating temperature range for all components used in the Kidde Advanced Delivery System is 32°F to 130°F (0°C to 54°C)
- The agent cylinder operating temperature must be between 60°F to 80°F (16°C to 27°C) when protecting two or more separate hazards.

INSTALLATION

The Kidde Advanced Delivery System installation is based on the requirements of NFPA 2001, *Standard on Clean Agent Extinguishing Systems*, Current Edition.

ASSEMBLY:

Both the nitrogen drivers and agent storage cylinders are to be installed in the vertical position only. The nitrogen driver is located to the immediate right apart from the agent cylinder. The nitrogen driver cylinder is connected to the agent cylinder by using the nitrogen transfer components. The nitrogen transfer components used depends upon whether the system uses one or two nitrogen drivers.

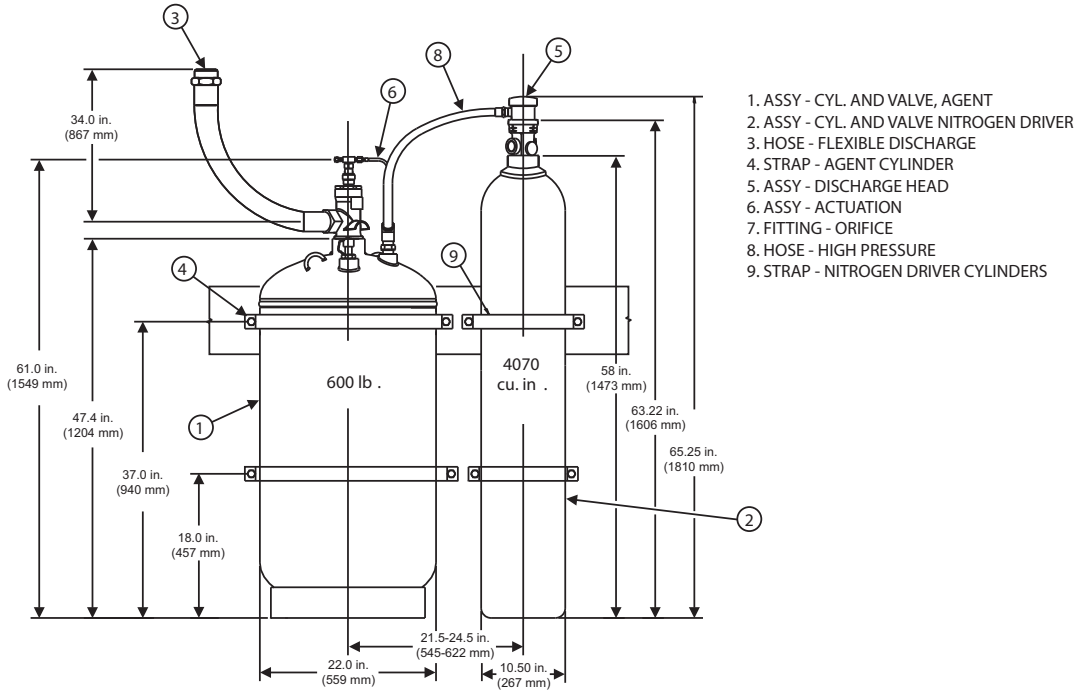


Figure 1. Single Cylinder Installation Dimensions, 600 lb. Cylinder

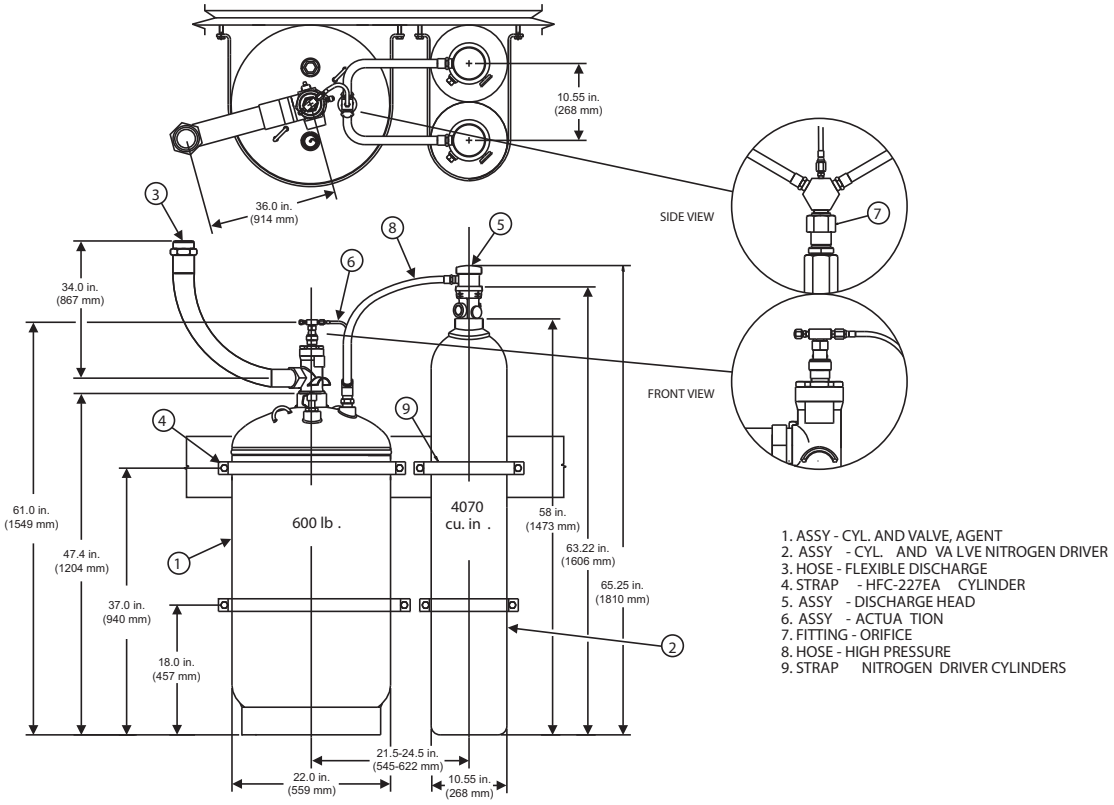


Figure 2. Dual Driver Installation, Vertical Mounting for 600 lb. Systems

ACTUATION:

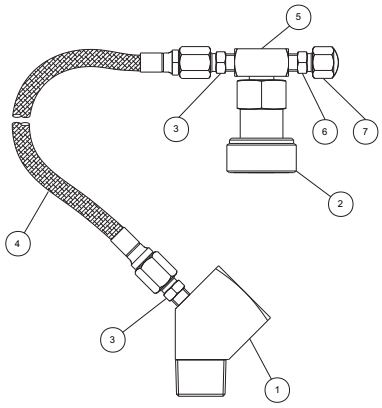
When using 3M Novec 1230 Fire Protection fluid, the Kidde Advanced Delivery system can use one or two drivers with the 600 lb. agent cylinder. Use the flow calculation software to determine which setup is applicable for the design.

Single Driver Systems

The control head is attached to the nitrogen driver by means of electric, cable, lever, or pneumatic devices. The actuating of the agent cylinder is done upon transfer of nitrogen from the driver cylinder using the actuation assembly kit (P/N 06-129882-001).

Assembly includes:

- Nitrogen transfer fitting
- 1/8-in. flex loop
- 1/8-in. flare fitting
- 1/8-in. branch tee
- 1/8-in. Schrader fitting and cap
- Pressure operated control head



Single Driver Actuation Assembly Ordering Information

06-129882-001 Contains:

Item No.	Qty.	P/N	Description
1	1	06-236124-001	Nitrogen Transfer Fitting
2	1	82-878737-000	Pressure Operated Control Head (Pneumatic Actuator)
3	1	06-118191-001	Fitting Flared 1/8-in. x 1/4-in.
4	1	06-118193-001	3/16-in. Flexible Actuation Hose
5	1	06-118192-001	1/8-in. Branch Tee
6	1	WK-263303-000	1/8-in. Schrader Valve
7	1	WK-263304-000	1/8-in. Schrader Valve Cap

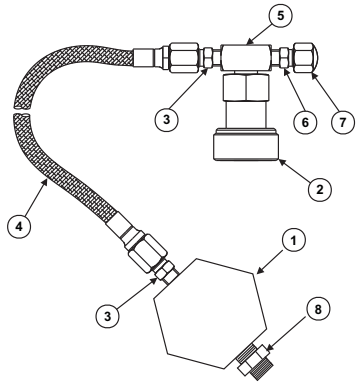
For more information, refer to datasheet K-85-103

Dual Driver Systems

The control head is attached to the master nitrogen driver by means of electric, cable, lever or pneumatic devices. The actuating of the second nitrogen driver and agent cylinder is done upon transfer of nitrogen from the master driver cylinder using the actuation assembly kit (P/N 06-129985-001).

Assembly includes:

- Nitrogen “Y” Transfer Fitting
- 1/8-in. Flex Loop
- 1/8-in. Flare Fitting
- 1/8-in. Branch Tee
- 1/8-in. Schrader Fitting and Cap
- Pressure Operated Control Head
- 3/4-in. Nipple (Hex)



Dual Driver Actuation Assembly Ordering Information

06-129985-001 Contains:

Item No.	Qty.	Part Number	Description
1	1	06-236260-001	Nitrogen Transfer "Y" Fitting
2	1	82-878737-000	Pressure Operated Control Head (Pneumatic Actuator)
3	2	06-118191-001	Fitting Flared 1/8" x 1/4"
4	1	06-118193-001	3/16" Flexible Actuation Hose
5	1	06-118192-001	1/8" Branch Tee
6	1	WK-263303-000	1/8" Schrader Valve
7	1	WK-263304-000	1/8" Schrader Valve Cap
8	1	06-118330-001	3/4" Nipple

For more information, refer to datasheet K-85-110

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, which might affect the reliability of the system. For more information, see the DIOM P/N 06-237256-001.

Perform preventive maintenance per the following table:

Schedule	Requirement	DIOM P/N: 06-237256-000 Paragraph
Weekly	Check nitrogen cylinder pressure	5-4.1
Monthly	Inspect hazard area system components	5-4.2
Semi-Annually	Test pressure switches	5-4.3
	Test electric control heads	
	Check agent cylinder weights	
Every 2 Years	Blow out distribution piping	5-4.4
Every 5 Years	Agent and nitrogen cylinder and flexible hose hydrostatic pressure test and/or inspection	5-4.5.1, 6-3.3 and 6-4.1

RECONDITIONING

After a system has been discharged, it is recommended that the local authorized Kidde Distributor be contacted to recondition the system. Please reference the DIOM manual (P/N 06-237256-001) for the appropriate reconditioning kit.

ORDERING INFORMATION

Part Number	Description
45-500601-001	600 lb. Agent Storage Container
45-504070-001*	Nitrogen Driver with standard pressure gauge
45-504070-101*	Nitrogen Driver with en.Gauge® supervisory pressure gauge
*Note: Use the flow calculation software to determine the number of drivers needed for each 600 lb. agent cylinder.	

SPECIFICATIONS

Element	Agent Storage Container (P/N: 45-500601-001)		Nitrogen Driver (P/N: 45-504070-X01)	
	Imperial	Metric	Imperial	Metric
Fill Range	300 to 600 lb.	136 to 272 kg	Factory Filled to 1800 PSIG	Factory Filled to124 bar
Height	58.5 in.	149.0 cm	62.00 in.	157.0 cm
Diameter	22.0 in.	56.0 cm	10.50 in.	26.70 cm
Internal Volume	8.08 cu ft	0.25 cu m	4070 cu in	0.0667 cu m
Empty Weight	362.0 lb	164.0 kg	184.0 lb	83.5 kg
Temperature Range	32F to 130F	0C to 54C	32F to 130F	0C to 54C

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Kidde Fire Systems

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