Kidde Advanced Delivery Fire Suppression System Component Description

Effective: July 2015
K-45-102

350 lb.Cylinder and Valve Assembly

FEATURES

- **Well Suited for Complicated Pipe Networks and Large Area Coverage with Minimal Room for Cylinder Storage**
- **175 lb. to 350 lb. Fill Capacity**
- **Agent Cylinder Liquid Level Indicator**
- **UL Listed, File Number 4674**
- **FM Approved**
- **For RoHS Compliance, See the Individual Component Datasheets**

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 from the storage cylinder, through the piping system and out of the discharge nozzles. Nitrogen gas pressure from a separate storage cylinder 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 system is capable of using smaller pipe sizes to discharge large quantities of Agent.

ORDERING INFORMATION

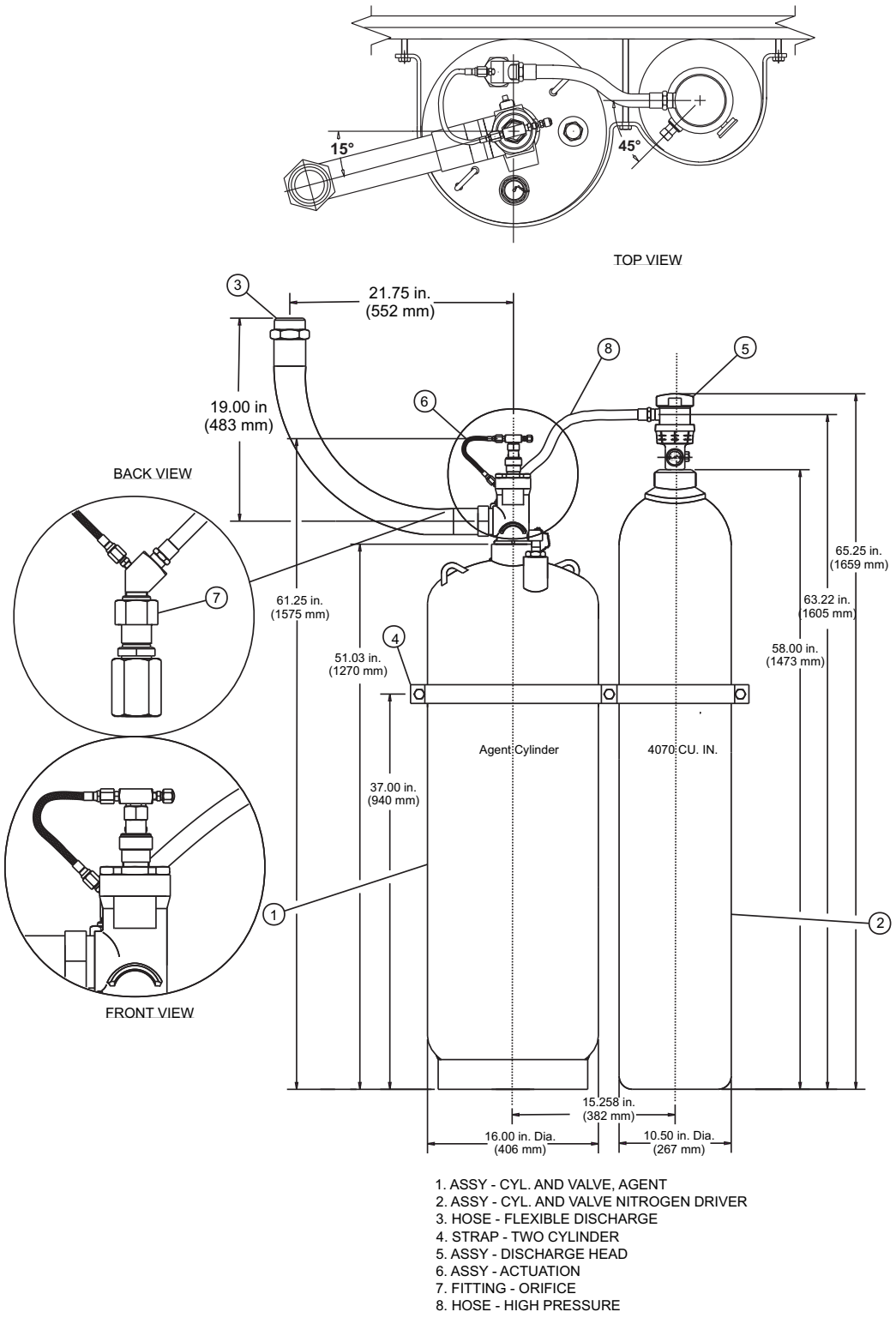
Part Number	Description
45-500351-001	350 lb. Agent Storage Cylinder
45-504070-001	Nitrogen Driver with standard pressure gauge
45-504070-101	Nitrogen Driver with en.Gauge® supervisory pressure gauge

OPERATION

When a control head actuates the nitrogen cylinder discharge valve, the nitrogen pressure actuates the agent cylinder discharge valve and pressurizes the cylinder. Agent is then propelled by its own vapor pressure and the nitrogen pressure through the discharge valve and into the system pipe network. The 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.



1. ASSY - CYL. AND VALVE, AGENT
2. ASSY - CYL. AND VALVE NITROGEN DRIVER
3. HOSE - FLEXIBLE DISCHARGE
4. STRAP - TWO CYLINDER
5. ASSY - DISCHARGE HEAD
6. ASSY - ACTUATION
7. FITTING - ORIFICE
8. HOSE - HIGH PRESSURE

Figure 1. Nitrogen and Agent Cylinders

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 driver 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 (see Figure 1). The nitrogen driver cylinder is connected to the agent cylinder by using the nitrogen transfer components (1-in. nitrogen transfer hose, 3/4-in. NPT transfer fitting, see Figure 2). The 3/4-in. transfer fitting connects into the orifice fitting. The orifice fitting is a custom fitting that is designed to regulate the nitrogen pressure flow required for the specific system. The orifice fitting then connects into the 3/4-in. check diffuser assembly to diffuse the nitrogen in a horizontal pattern.

ACTUATION:

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

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.

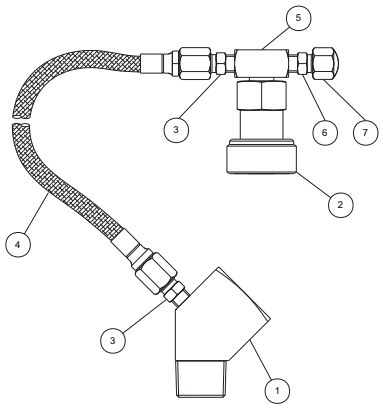


Figure 2. Nitrogen Transfer Components.

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

SPECIFICATIONS

Element	Agent Storage Container 45-500351-001		Nitrogen Driver 45-504070-X01	
	Imperial	Metric	Imperial	Metric
Fill Range	175 to 350 lb.	79.4 to 158.8 kg	Factory Filled 1800 PSI	Factory Filled 124 bar
Height	61.25 in.	155.60 cm	65.25 in.	165.70 cm
Diameter	16.0 in.	41.0 cm	10.5 in.	26.7 cm
Internal Volume	5.000 ft.3	0.142 m3	4070 cu. in.	0.0667 m3
Empty Weight	201 lb.	91.4 kg	184 lb.	83.5 kg
Temperature Range	32°F to 130°F	0°C to 54°C	32°F to 130°F	0°C to 54°