Kidde Fire Systems
ADS™ with HFC-227ea Agent Cylinder Component Datasheet

1010 lb. (368 L) Cylinder and Valve Assembly

Effective: November 2023
K-90-111 Rev BE

FEATURES

- **Well Suited for Complicated Pipe Networks and Large Area Coverage with Minimal Room for Cylinder Storage**
- **Designed for "Drop-In" Replacement for Halon Retrofit Applications**
- **Can be filled with Reclaimed/Refined HFC-227ea agent**
- **3-inch Valve Outlet**
- **520 lb. to 1010 lb. Fill Capacity**
- **Agent Cylinder Liquid Level Indicator**
- **Uses two Nitrogen Drivers**
- **UL Listed, File Number 4674**
- **FM Approved**
- **For RoHS Compliance, See the Individual Component Datasheet**

DESCRIPTION

Kidde Fire Systems Advanced Delivery Systems (ADS™ system) are Underwriters Laboratory (UL) listed and Factory Mutual (FM) approved. 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 Factory Mutual 5600, *Examination Standard for Clean Agent Extinguishing Systems*.

The ADS system uses a unique method for propelling the HFC-227ea agent (herein referred to as agent) 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 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 ADS 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.

This system can be successfully applied to many existing Halon 1301 system pipe networks, providing easy retrofit of these systems to a new agent with long-term availability.

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. 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 ADS system is 32° to 130°F (0° to 54°C)
- The agent cylinder operating temperature must be between 60° to 80°F (16° to 27°C) for unbalanced pipe network systems.

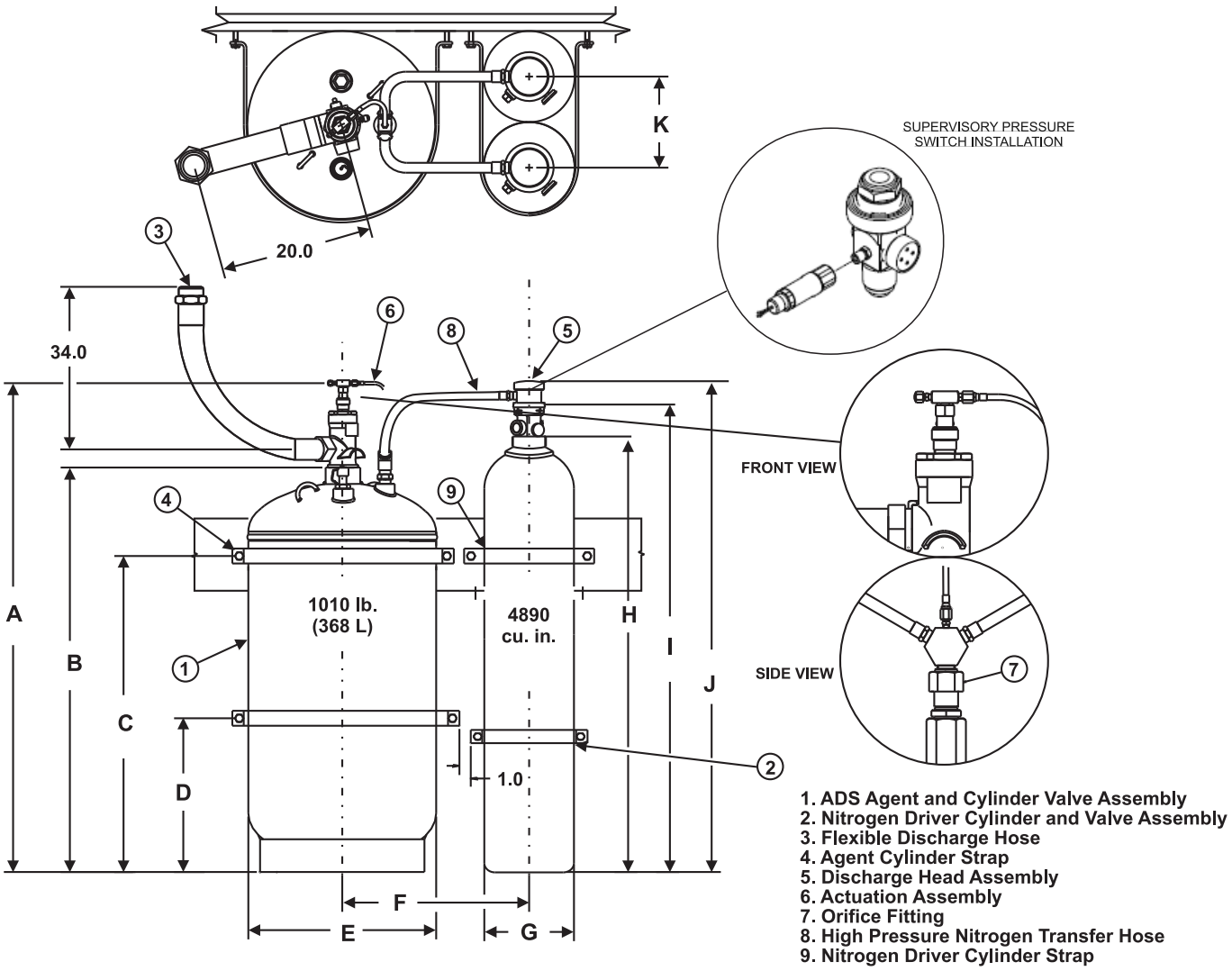

Figure 1. Nitrogen and Agent Cylinders

Table 1: Nitrogen and Agent Cylinder Dimensions, Imperial

Cylinder P/N	A	B	C	D	E	F	G	H	I	J	K
90-10101X-001	70.00	58.60	44.60	22.00	24.00	22.62	11.25	64.00	69.22	71.25	11.25
Note: The “X” within the part numbers denotes whether a liquid level indicator is ordered with the cylinder. A one (1) is used if a LLI is needed, a zero (0) is used if one is not.											

Table 2: Nitrogen and Agent Cylinder Dimensions, Metric

Cylinder P/N	A	B	C	D	E	F	G	H	I	J	K
90-10101X-001	1778	1488	1133	559	610	575	286	1626	1758	1810	286
Note: The “X” within the part numbers denotes whether a liquid level indicator is ordered with the cylinder. A one (1) is used if a LLI is needed, a zero (0) is used if one is not.											

INSTALLATION

The ADS 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 (see Figure 1). The nitrogen driver cylinder is connected to the agent cylinder by using the nitrogen transfer components (two 1-in. nitrogen transfer hoses and a 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 nitrogen injector assembly to diffuse the nitrogen in a horizontal pattern.

ACTUATION:

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 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)

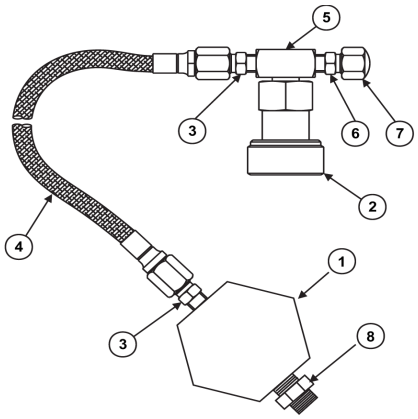

Figure 2. Nitrogen Transfer Components

Item	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

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 corresponding DIOM manuals.

Perform preventive maintenance per the following table:

Schedule	Requirement
Weekly	Check nitrogen cylinder pressure
Monthly	Inspect hazard area system components
Semi-Annually	Test pressure switches
	Test electric control heads
	Check agent cylinder weights
Every 2 Years	Blow out distribution piping
Every 5 Years	Agent and nitrogen cylinder and flexible hose hydrostatic pressure test and/or inspection
Every 15 Years	Rebuild Agent Cylinder Valves

RECONDITIONING

After a system has been discharged, it is recommended that the local authorized Kidde Fire Systems Distributor be contacted to recondition the system. Please reference the corresponding DIOM manual for the appropriate reconditioning kit.

SPECIFICATIONS

Element	Agent Storage Container (P/N: 90-101011-001)		Nitrogen Driver (P/N: 90-104890-001)	
	Imperial	Metric	Imperial	Metric
Fill Range	520 to 1010 lb.	236 to 466 kg	Factory Filled to 1800 PSIG	Factory Filled to 124 bar
Height	70.0 in.	178.0 cm	69 in.	1753 mm
Diameter	24.0 in.	61.0 cm	11.25 in.	286 mm
Internal Volume	13.0 cu. ft.	0.37 cu. m	4880 cu. in.	0.0801 cu. m
Empty Weight	505.0 lb.	229.0 kg	270.0 lb.	122.5 kg
Temperature Range	32°F to 130°F	0°C to 54°C	32°F to 130°F	0°C to 54°
Note: The Nitrogen used is A-A-59155 Grade A, Type 1.				

ORDERING INFORMATION FOR AGENT CYLINDER AND DRIVERS

Part Number	Description
90-101011-001	1010 lb. (368 L) Agent Storage Cylinder with Liquid Level Indicator
90-104890-001*	4890 cu. in. Nitrogen Driver Cylinder
85-111540-001	Supervisory Pressure Switch
85-111540-100	ATEX Supervisory Pressure Switch
*Note: Two drivers needed for each 1010 lb. (368 L) agent cylinder.	

MANUALS

Manual	P/N
Kidde Fire Systems ADS™ System with HFC-227ea Agent	06-236068-001
Kidde Fire Systems ADS™ Marine System with HFC-227ea Agent	06-236595-001

EXPORT INFORMATION (USA)
Jurisdiction: EAR
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This document contains technical data subject to the EAR.

Kidde Fire Systems

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