

# Kidde ECS Advanced Delivery Fire Suppression System

## Component Description

395 lb. Cylinder and Valve Assembly with Nitrogen Driver Assembly P/N: 90-10039X-001



Effective: June 2014

K-90-104

### FEATURES

- *Designed for "Drop-In" Replacement for Halon Retrofit Applications*
- *Well Suited for Complicated Pipe Networks and Large Area Coverage with Minimal Room for Cylinder Storage*
- *200 lb. to 395 lb. Fill Capacity*
- *Optional Liquid Level Indicator*
- *UL Listed*
- *FM Approved*
- *For RoHS Compliance, See Component Data Sheets*

### DESCRIPTION

Kidde ECS ADS 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 Edition 2012, *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 ECS ADS Fire Suppression System with FM-200<sup>®</sup> Agent uses a unique method for propelling the FM-200<sup>®</sup> Agent (Herein referred to as HFC-227ea) 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 ECS ADS System is extremely well-suited to applications involving remote agent storage and situations which limit the maximum pipe size to be used. The Kidde ECS ADS System is capable of using smaller pipe sizes to discharge large quantities of HFC-227ea.

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 nitrogen cylinder discharge valve, the nitrogen pressure actuates the agent cylinder discharge valve and pressurizes the cylinder. The 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 this series 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.

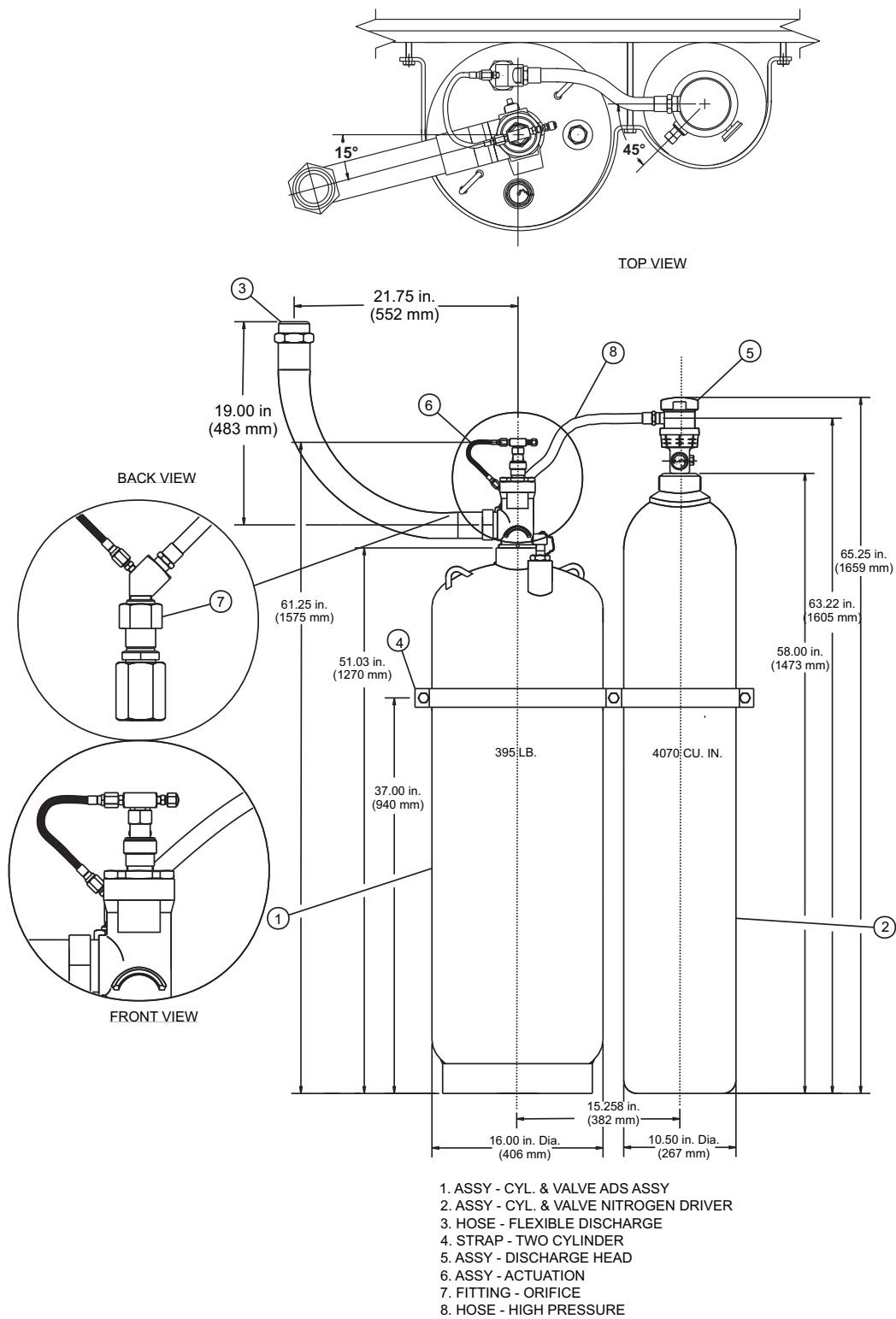


Figure 1. Nitrogen and Agent Cylinders

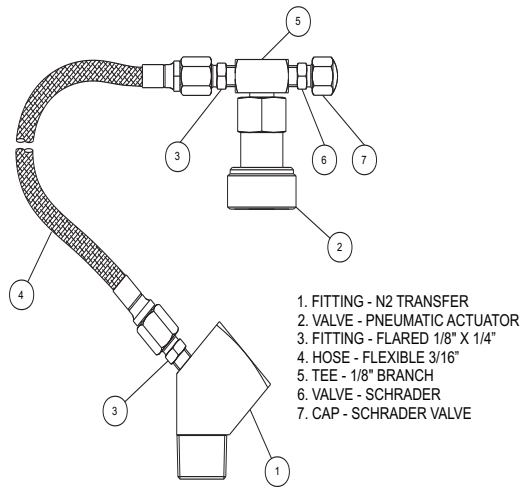


Figure 2. Nitrogen Transfer Components

Item No.	Qty.	P/N	Description
1	1	06-236124-001	nitrogen transfer fitting
2	1	82-878737-000	pressure operated control head
3	2	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

### INSTALLATION

The Kidde ECS ADS System installation is based on the requirements of NFPA 2001, *Standard on Clean Agent Extinguishing Systems*, Edition 2012.

### 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.

### QUARTERLY

1. Check the pressure gauge of the nitrogen driver and the weight of the agent storage container.
  - Nitrogen driver if the pressure is less than 1800 PSI (124 bar) at 70°F (21°C)

**Note:** Pressure changes with temperature.

- The containers should be removed and carefully inspected by certified personnel.
  - The containers should then be reconditioned, recharged or replaced.
2. Check all components supporting hardware and tighten, repair or replace as required.
  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:

The following checks/tests should be conducted by qualified personnel:

1. Determine the weight of agent in each agent cylinder by the procedure indicated in the Design, Installation, Operation and Maintenance (DIOM) Manual (P/N 06-236068-001).
2. Functional tests of required system devices (reference the DIOM manual).
3. All outlet piping must be cleaned and free of dirt, chips and other foreign material that may become hazardous projectiles or 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. Please reference the DIOM manual (P/N 06-236068-001) for the appropriate reconditioning kit.

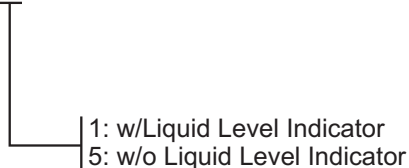
## SPECIFICATIONS

Element	Agent Storage Container 90-10039X-001		Nitrogen Driver 90-104070-001	
	Imperial	Metric	Imperial	Metric
Fill Range (lb. w/o LLI)	200 to 395 lb	91 to 180 kg	Factory Filled 1800 PSI	Factory Filled 124 bar
Fill Range (lb. w/LLI)	200 to 395 lb	91 to 180 kg	N/A	N/A
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 <sup>2</sup>	0.142 m <sup>3</sup>	4070 cu in	0.0667 m
Empty Weight	201 lb	91.4 kg	184 lb	83.5 kg
Temperature Range	32F to 130 F	0C to 54C	32F to 130F	0C to 54C

## ORDERING INFORMATION

### Agent Storage Cylinder:

90-10039X-001



### Nitrogen Driver:

**90-104070-001:** N2 Driver Assembly 4070 cu. in. capacity with Standard Pressure Gauge.

**90-104070-101:** N2 Driver Assembly 4070 cu. in. capacity with Switch-In Gauge.

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