

45 kg (100 lb.) CO₂ Cylinder & Valve Assembly

P/N 81-100067-002



A UTC Fire & Security Company

Effective: March 2007
K-81-9151

FEATURES

- *Rated per U.S.A. DOT Specification 3AA-2130*
- *68-Liter Cylinder*
- *Cylinder Capacity: 45 kg (100 lb.) of CO₂*
- *Vertical Mount Only*

DESCRIPTION

KIDDE High-Pressure CO₂ Fire Suppression Systems use seamless steel cylinders to store carbon dioxide agent. The agent is stored in steel cylinders as a liquid under its own vapor pressure. The cylinders are manufactured in compliance with the USA DOT requirements. Each cylinder is equipped with a forged brass valve assembly, which contains a safety disc device for protection against over-pressurization. Each valve also contains a side port that serves as a fill connection and as a control port for attachment of system actuators. The control port is designed to accept all of the control heads listed in manual P/N 81-CO2MAN-001 for CO₂ Systems.

The threaded connection on the top of the cylinder valve mates with a discharge head (Plain Nut (P/N 872450) or Grooved Nut (P/N 872442) to cause agent release and distribute the CO₂ from the cylinder into the discharge piping. The discharge heads attach to the distribution piping by means of a flexible hose with swivel adapter. The 3/4-inch flexible discharge hose (P/N 251821) is used to provide the connection between the discharge head and the distribution manifold or piping.

The grooved-nut head allows discharge of CO₂ when a control head actuates the I-valve. Pressure entering the outlet will not actuate the cylinder. Pressure actuation is isolated to that single cylinder only.

The Plain Nut discharge head offers two means of actuation. Using the Plain Nut head, the contents of CO₂ can be discharged by pressure entering the outlet from the pressure in the manifold being discharged from a master cylinder or when the I-valve is actuated by a control head. The plain-nut discharge head is used on each cylinder of a multiple-cylinder system.

INSTALLATION

45 KG (100 LB.) CO₂ CYLINDER AND VALVE ASSEMBLY

The CO₂ cylinders should be located as close to the hazard as possible. The cylinders must be located in an environment protected from the weather and where ambient storage temperatures shall not be more than 54°C (130°F) nor less than 18°C (−0°F). External heating or cooling may be required to maintain the referenced temperatures.

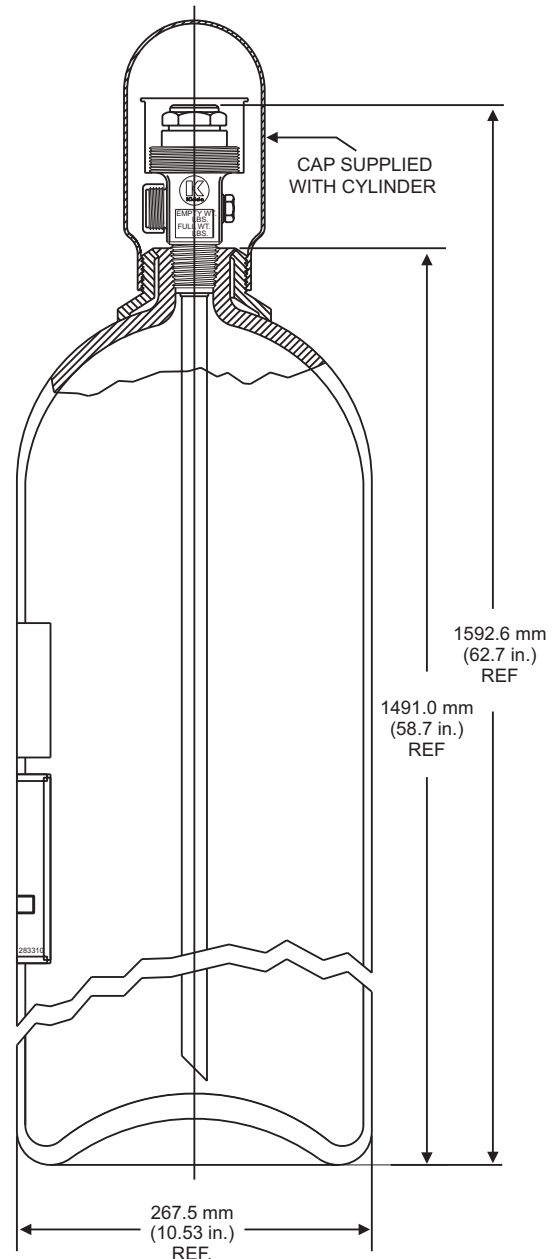


Figure 1. Cylinder

Orient the cylinders according to the system drawings. Mount the cylinders securely to the structural supports with the straps and/or brackets provided. It is recommended that cylinders be elevated at least 51 mm (2 in.) above the floor if moisture is present. For additional details on installation of a charged CO₂ system, please refer to manual P/N 81-CO2MAN-001 for CO₂ systems.



When installing charged KIDDE CO₂ cylinders, always install the discharge heads last. This will minimize the possibility of accidentally discharging the CO₂ system.

DISCHARGE HEADS

To install discharge heads, perform the following steps:

1. Wipe off cylinder valve sealing surface
2. Verify that O-rings are installed in the mating surface grooves at the bottom of the swivel nut cavity. O-rings must be free of dirt or other contaminants. The O-rings have been lightly greased at the factory and should not require further greasing.
3. Make sure the pilot orifice located between the inner and outer O-ring in unobstructed.
4. Make sure the discharge port is clean and unobstructed.
5. Install discharge head on cylinder valve. Tighten securely.



The CO₂ cylinder must be permanently connected into the system piping. Never attach the discharge head to the cylinder valves until the cylinders are secured in brackets or racking. Under no circumstances is the discharge heads to remain attached to the cylinder valve after removal from service, during shipment, handling, storage, or during filling. Failure to follow these instructions could result in serious bodily injury, death, or property damage.

3/4-INCH FLEXIBLE DISCHARGE HOSE

To install discharge hose, perform the following steps:

1. Connect the discharge hose to the piping or manifold as shown on system drawings.
2. Apply teflon tape or pipe dope to all male threads, excluding the first two threads.

Note: Once connected, make sure the hose is not kinked. Adjustment to height of manifold or distribution piping may be required.



Flexible hoses must always be connected to the system piping and to the discharge heads before attaching the discharge heads to the cylinder valves, in order to prevent injury from an unexpected, accidental discharge.

MAINTENANCE

45 KG (100 LB.) CO₂ CYLINDER AND VALVE ASSEMBLY

Monthly

Visually inspect all CO₂ system components for damage or missing parts. Replace as required.

Semi-Annually

Check CO₂ Cylinder weight.

Every 5 years or 12 years

If a CO₂ cylinder has discharged after five years of Original Hydrostatic test date, CO₂ Cylinders must be re-hydrostatically tested and stamped prior to being charged and put back into service. If CO₂ cylinders have not been discharged within 12 years of its last hydrostatic test date only a visual inspection is required.

DISCHARGE HEADS

Monthly

Inspect CO₂ discharge heads for cracks, corrosion, grime, etc. Ensure that the discharge head is tightly secured to the CO₂ cylinder valve and connected to the agent cylinder with the discharge hose. If any defects are found during the monthly inspection, immediately contact a Kidde Distributor to service the systems.

3/4-INCH FLEXIBLE DISCHARGE HOSE

Monthly

Inspect hoses attached to the discharge heads for any physical damage, deterioration, corrosion, dirt, and/or loose fittings. Tighten loose fittings. Replace flexible hoses if damage is found. If necessary, clean as directed in the Design, Installation, Operation and Maintenance Manual.

SPECIFICATIONS

CYLINDER DATA

Cyl Assembly P/N	Cylinder Capacity kg/lb.	Valve Size	Safety Disc Color	Siphon Tube	Dim. "A" Height mm/in.	Dim. "B" Diameter mm/in.	Cylinder Volume L/cu. in.	Nominal Charged Weight kg/lb.	DOT Rating
81-1000067-00X	45/100	Kidde 5/8 inch I-valve	Red	Straight	1593/62.7	268/10.5	68/4150	121/268	3AA-2130

DISCHARGE HEADS

Sold separately. See Figures 2 and 3.

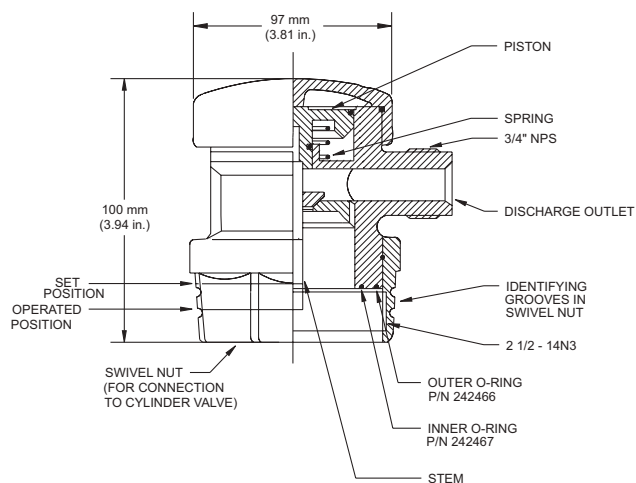


Figure 2. Discharge Head, Grooved Nut, P/N 872442

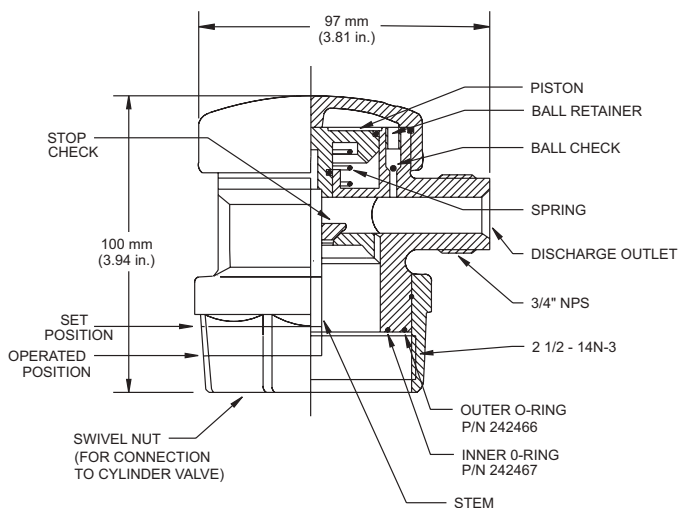


Figure 3. Discharge Head, Plain Nut, P/N 872450

Material

Body:	Forged Brass
O-Rings:	Rubber, Buna N
Spring:	Stainless Steel
Stop Check:	Machined Brass
Weight:	1.8 kg. (4.0 lb.)

3/4-INCH FLEXIBLE DISCHARGE HOSE

Sold separately. See Figure 4.

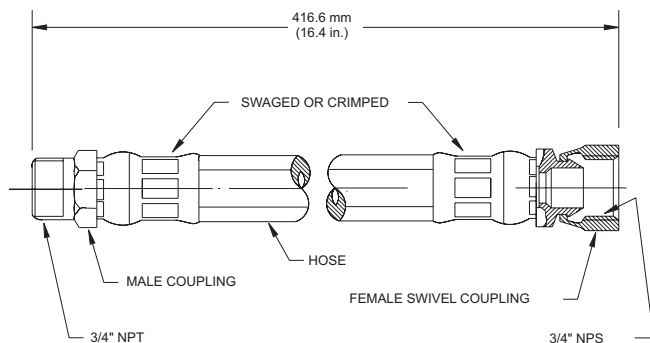


Figure 4. 3/4-inch Flexible CO2 Discharge Hose, P/N 251821

Material

Body:	Reinforced rubber with wire braid
Fittings:	• Steel • Cadmium-plated stainless steel
Weight:	45 kg (1 lb.)
Temperature Rating:	-40°C to 93.8°C (-40°F to 200°F)
Min. Burst Pressure:	3/4-inch hose = 413.8 bar/6000 psi
Hydro Test Pressure:	• 1/2-inch hose = 103.4 bar/1500 psi • 3/4-inch hose = 275.8 bar/4000 psi

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.

HPCO₂ Component Description

Flex Hose - 3/4 in.



P/N: WK-251821-000

Effective: January 2019

K-81-1090 Rev AE

FEATURES

- 3/4" NPT (DN20) Outlet Fitting
- Swivel Connection onto Discharge Head
- Perforated Outer Jacket
- 0°F (-18°C) to 130°F (55°C) agency temperature range
- Underwriters' Laboratories Listed - File Number EX923
- Factory Mutual Approved - Standard 5420
- United States Coast Guard Approved

DESCRIPTION

The discharge hose attaches to the discharge head on a Kidde High Pressure Carbon Dioxide (CO₂) cylinder assembly secured at the project site.

The discharge hose connects each discharge head to the system manifold. The hose's flexibility mitigates any misalignment when connecting multiple cylinders onto a common manifold.

A discharge hose needs to be ordered for each cylinder assembly.

NFPA 12 requires either replacement or hydrostatic testing of each hose every five years from the original date of manufacture, which is marked onto a hose fitting.

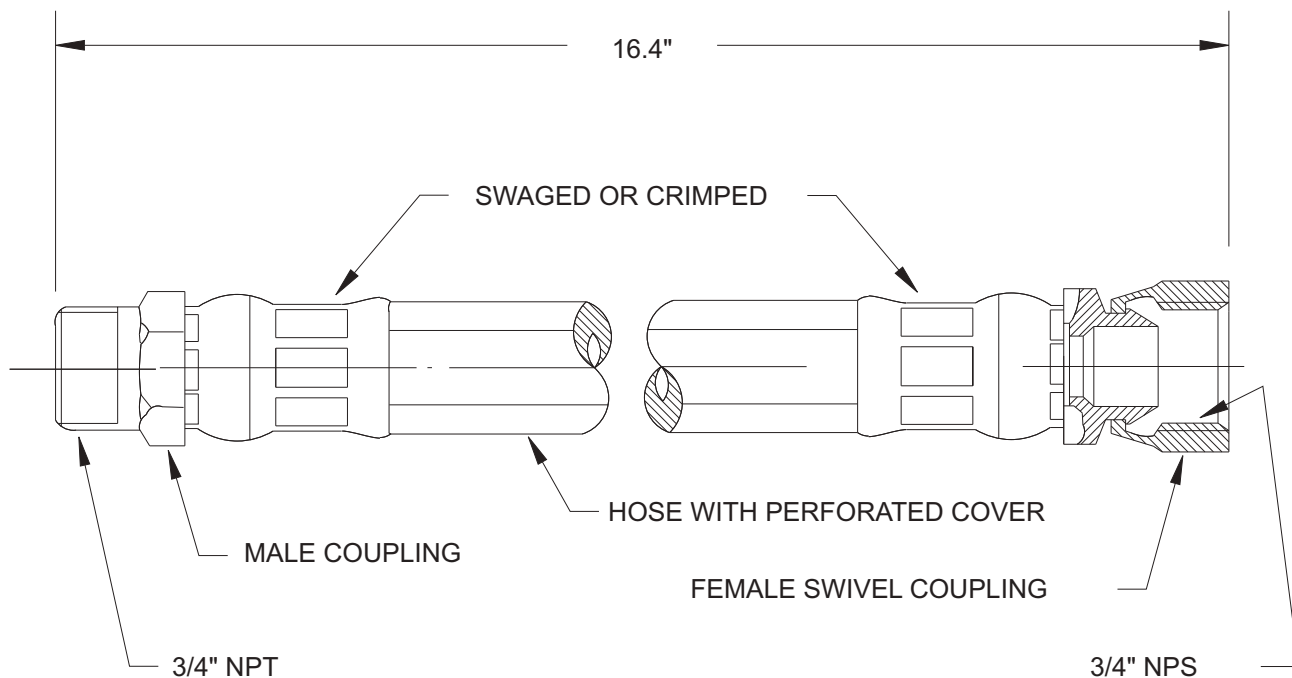
ORDERING INFORMATION

Description	Part Number
Flex Hose - 3/4 in.	WK-251821-000

REFERENCED COMPONENTS

Description	Reference Data Sheet
Cylinder & Valve Assembly, 75/100-lbm	K-81-1010
Discharge Head, Plain Nut	K-81-1060
Discharge Head, Groove Nut	K-81-1070





MATERIALS:

Body: Reinforced rubber with wire braid.
 Fittings: Steel, Trivalent Chromate

SPECIFICATIONS

Description	Weight	Temperature Rating	Minimum Burst Pressure	Max. Hydro Test Pressure	Industrial DIOM Manual P/N	Marine DIOM Manual P/N
Flexible Hose, 3/4" Outlet	1 lb	-40°F to 250°F (-40°C to 121°C)	6000 PSI (414 bar)	2500 PSI (173 bar)	81-CO2MAN-001	220610

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