

## PRE-ENGINEERED AUTOMATIC INDIRECT SUPPRESSION UNIT

### Designed for use with Carbon Dioxide

#### DESCRIPTION

Firetrace Pre-Engineered Automatic Indirect Suppression Units are designed, manufactured, and tested in ISO 9001:2008 certified facilities. All system cylinders are manufactured in accordance with the relevant DOT/TC requirements.

Each system is equipped with a nickel plated brass valve, a pressure gauge to monitor cylinder pressure, and a quarter turn ball valve that interfaces with the Firetrace Detection Tubing. A piston in the valve bore is equipped with a static seal that keeps the agent under pressure within the cylinder, while allowing the pressure to equalize on both sides of the piston.

When the pressure from the top assembly is released by means of automatic or manual activation, the internal piston slides to its fully open position and allows the Carbon Dioxide agent to discharge through the two outlets.



Each assembly is equipped with a straight siphon tube and can only be mounted in a vertical (upright) position.

#### GENERAL SPECIFICATIONS

SYSTEM INFORMATION			CYLINDER INFORMATION			PERFORMANCE INFORMATION	
MODEL NUMBER	AGENT AMOUNT	GROSS WEIGHT	VOLUME	SPECIFICATION		OPERATING PRESSURE 70°F	MAX VOLUME COVERAGE
950505	5 lbs (2.3 kg)	15.7 lbs (7.14 kg)	205 in <sup>3</sup> (3.36 L)	DOT 3AL1800	TC 3ALM124	838 PSIG (57.78 Bar)	70 ft <sup>3</sup> (1.98 m <sup>3</sup> )
951005	10 lbs (4.5 kg)	27.40 lbs (12.45 kg)	408 in <sup>3</sup> (6.69 L)	DOT 3AL1800	TC 3ALM124	838 PSIG (57.78 Bar)	140 ft <sup>3</sup> (3.96 m <sup>3</sup> )
952005	20 lbs (9 kg)	47.80 lbs (21.73 kg)	816 in <sup>3</sup> (13.37 L)	DOT 3AL1800	TC 3ALM124	838 PSIG (57.78 Bar)	300 ft <sup>3</sup> (8.5 m <sup>3</sup> )
953505	35 lbs (15.86 kg)	75.0 lbs (34.02 kg)	1429 in <sup>3</sup> (23.41 L)	DOT 3AL1800	TC 3ALM124	838 PSIG (57.78 Bar)	525 ft <sup>3</sup> (14.86 m <sup>3</sup> )
955105	50 lbs (22.68 kg)	103.5 lbs (46.95 kg)	2040 in <sup>3</sup> (33.43 L)	DOT 3AL1800	TC 3ALM124	838 PSIG (57.78 Bar)	750 ft <sup>3</sup> (21.23 m <sup>3</sup> )

**Note:** These systems utilize FM-approved components but are not FM-approved.

## SUPPRESSION AGENT

The extinguishing agent used in Firetrace pre-engineered automatic high-pressure extinguisher units is Carbon Dioxide, more commonly known as CO<sub>2</sub>. CO<sub>2</sub> is a colorless, odorless, electrically non-conductive inert gas that is an extremely effective fire suppression agent.

Carbon dioxide gas is an asphyxiant with effects due to lack of oxygen. It can cause rapid suffocation due to oxygen deficiency. Carbon dioxide is also physiologically active, affecting circulation and breathing. Moderate concentrations may cause headache, drowsiness, dizziness, stinging of the nose and throat, excitation, rapid breathing and heart rate, excess salivation, vomiting, and unconsciousness. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C).

## ENVIRONMENTAL LIMITATIONS

- Storage Temperature:  
0°F to +130°F (-17.8°C to +54.4°C)
- System Operating Pressure:  
838 psig (57.7 bar) at 70°F (21°C)

## ENGINEERING CONSIDERATIONS

Each installed Pre-Engineered Automatic Indirect Suppression Unit is equipped with its own detection tubing, discharge piping, and nozzles. The Pre-Engineered concept minimizes the amount of engineering involved in the unit's design. When the discharge piping and nozzles are installed within the limitations stated in the manual no hydraulic calculations are required to determine pressure drop, agent flow, or discharge time.

For the Indirect Carbon Dioxide Systems, the Firetrace tubing performs two functions: heat detection, and system activation. The tubing is installed throughout the hazard volume with one end connected to the top of the cylinder valve, then pressurized with nitrogen to 195 psig. The detector tubing is heat sensitive and in a fire situation is designed to burst at any point along the tube upon direct flame impingement or where the radiant heat

from the flame reaches approximately 375°F to 400°F (190.5°C to 204°C). The rupture of the tube results in a complete discharge of the extinguishing agent through the pipe/nozzle network.

The hazard being protected can be any size, shape, or volume provided that the hazard being protected is within the limitations described in the manual. Each suppression unit shall be equipped with its own automatic (non-electric) detection system, which when actuated, automatically releases the suppression agent into the hazard area.

Since the units are supplied as automatic units (e.g. no simultaneous manual or electric actuation means is provided), only one (1) suppression unit can be used to protect one hazard. These suppression units cannot be combined to protect a larger size hazard, since they are not designed to provide for simultaneous actuation of (2) or more units.

Local authorities having jurisdiction should be consulted as to the acceptability for particular hazards and requirements covering installation.

## USAGE

Carbon dioxide is a gaseous fire-extinguishing agent that is effective for use on:

- Class A – Surface type fires
- Class B – Flammable liquid fires
- Class C – Electrical equipment fires

## LISTINGS AND APPROVALS

Factory Mutual: 3016202



**NOTE:** Reference P/Ns 950505, 951005, 952005 (Systems minus Agent) for listings and approvals.

**SERVICE NOTE:** Cylinders Assemblies shall be designed, filled, pressurized and maintained by trained personnel in accordance with Firetrace Design, Installation, Operation and Maintenance Manuals and related prescriptive documents.

## SUPPRESSION UNIT COMPONENTS

ITEM	DESCRIPTION
1	IHP Valve
2	Cylinder
3	Siphon Tube
4	5 lb Heavy Duty Bracket
5	Discharge Port Safety Cap
6	Collar O-Ring
7	Slip-On Union
8	Pull Pin
9	Nameplate: CO <sub>2</sub>

