

PRE-ENGINEERED AUTOMATIC DIRECT SUPPRESSION UNIT

Designed for use with
3M™ Novec™ 1230
Fire Protection Fluid

DESCRIPTION

Firetrace Pre-Engineered Automatic Direct Suppression Units are designed, manufactured, and tested in ISO 9001:2008 certified facilities. All system cylinders are stamped 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.

The system utilizes Firetrace Detection and Activation Tubing (FDT) that is attached to the top of the cylinder valve. The FDT is pressurized with dry nitrogen, is temperature sensitive, and acts as a continuous linear thermal detector that ruptures upon flame impingement. Once the FDT is ruptured, it forms a nozzle at the burst point, allowing the Novec 1230 agent to flow through, distributing the extinguishing agent through the protected area.



Upon system actuation the pressure switch can be used to indicate system discharge, shutdown ventilation, shut-off electrical power, etc. as may be required.

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

All size cylinder valves are equipped with a pressure relief (rupture disc) device in compliance with DOT requirements.

GENERAL SPECIFICATIONS

SYSTEM INFORMATION			CYLINDER INFORMATION			PERFORMANCE INFORMATION		
MODEL NUMBER	AGENT AMOUNT	GROSS WEIGHT	VOLUME	SPECIFICATION		OPERATING PRESSURE 70°F	MAX AREA COVERAGE*	MAX VOLUME COVERAGE*
921302	2.5 lbs (1.13 kg)	5.9 lbs	75 in ³ (1.2 L)	DOT 4BA240	TC 4BAM16	195 PSI (13.45 Bar)	25 ft ² (2.32 m ²)	40.0 ft ³ (1.13 m ³)
921505	5 lbs (2.27 kg)	11.8 lbs	145 in ³ (2.4 L)	DOT 4BA240	TC 4BAM16	195 PSI (13.45 Bar)	25 ft ² (2.32 m ²)	83.0 ft ³ (2.35 m ³)
922005	10 lbs (4.54 kg)	22.1 lbs	300 in ³ (4.9 L)	DOT 4BA360	TC 4BAM25	195 PSI (13.45 Bar)	25 ft ² (2.32 m ²)	165.0 ft ³ (4.67 m ³)

*Figures based on ideal conditions in fully enclosed space. Actual figures will vary according to application.

GENERAL SPECIFICATIONS

Maximum volume coverage is determined by agent concentration discharged within the enclosure where the fire hazard is located. The DLP system does not discharge all its content within 10 seconds.

SUPPRESSION AGENT

The suppression agent used in Firetrace self-contained automatic indirect fire suppression units is $\text{CF}_3\text{CF}_2\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$, more commonly known as 3M™ Novec™ 1230 Fire Protection Fluid. Novec 1230 is a colorless low odor fluid, low in toxicity, electrically nonconductive, leaves no residue, and is an extremely effective fire suppression agent.

Novec 1230 is included in NFPA-2001, under the generic name FK-5-1-12, and has been evaluated and approved for use in occupied areas as a Total Flooding agent; when used as specified under the U.S. Environmental Protection Agency (EPA) SNAP Program rules. Refer to the SNAP Program rules for more information.

ENVIRONMENTAL LIMITATIONS

- Storage Temperature:
0°F [-17.8°C] to 130°F [54.4°C]
- System Operating Pressure:
195 psig [13.4 bar] at 70°F [21°C]

ENGINEERING CONSIDERATIONS

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

For the Direct Novec 1230 Systems, the Firetrace tubing performs three functions: heat detection, system activation, and agent discharge. 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 formation of a discharge nozzle that will perform a complete discharge of the Novec 1230 agent. 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 Novec 1230 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

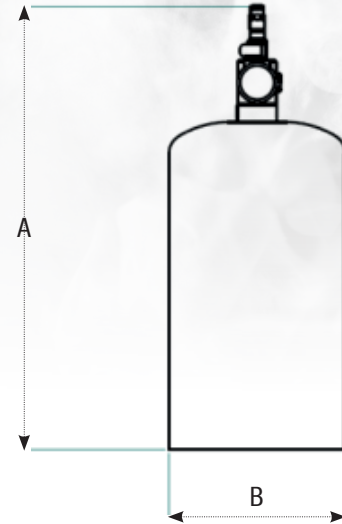
Novec 1230 is a gaseous fire-extinguishing agent that is effective for use on:

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

SERVICE NOTE: Cylinder 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.

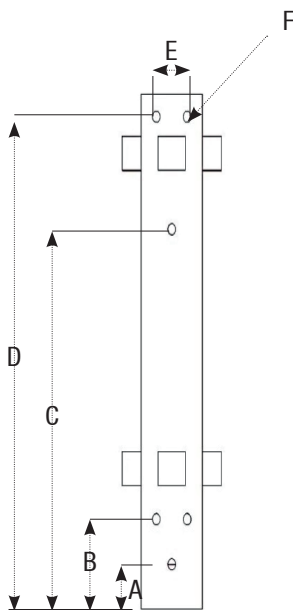
ASSEMBLY DIMENSIONS

MODEL NUMBER	TOTAL HEIGHT "A"	OUTSIDE DIAMETER "B"
921205	17.38 in (44.15 cm)	3.0 in (7.6 cm)
921505	17.49 in (44.42 cm)	4.25 in (10.80 cm)
922005	17.68 in (44.91 cm)	6.32 in (16.05 cm)

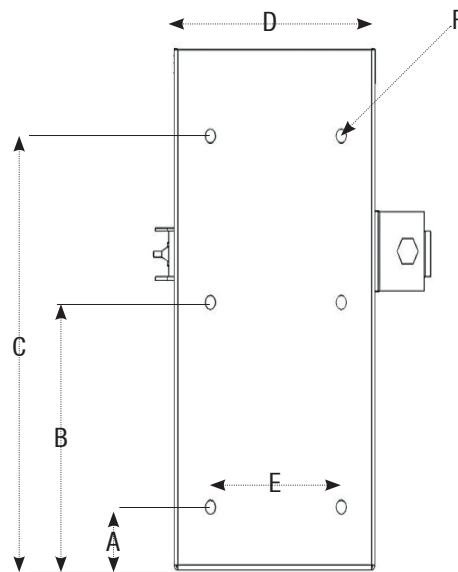


BRACKET BOLT PATTERN

MODEL NUMBER	A	B	C	D	E	F
921205	1 in (2.7 cm)	2 in (5.2 cm)	9 in (23.0 cm)	11 in (28.0 cm)	1 in (2.5 cm)	0.25 in (0.64 cm)
921505	1 in (2.7 cm)	2 in (5.2 cm)	9 in (23.0 cm)	11 in (28.0 cm)	1 in (2.5 cm)	0.25 in (0.64 cm)
922005	1 7/8 in (4.7 cm)	5 7/8 in (14.9 cm)	9 3/8 in (23.8 cm)	6 in (15.2 cm)	3 in (7.6 cm)	0.44 in (1.1 cm)



Models: 921205/921505



Model: 922005

SUPPRESSION UNIT COMPONENTS

ITEM	DESCRIPTION
1	DLP Valve
2	O-Ring
3	Gauge
4	Neck O-Ring
5	Siphon Tube
6	Cylinder
7	Bonded Seal
8	Plug, Pressure Switch Port on Valve
9	Bracket
10	HP Slip-on Union Connector

