

Fire suppression system for engine compartment

Issued to

Firetrace International LLC

8435 N. 90th St., Suite 2, Scottsdale, AZ 85258, USA

Product and product name

942007 - 20 lb ABC Dry Chemical DOT Unit; 942057 - 20 lb ABC Dry Chemical CE Unit; 942227 - 22 lb ABC Dry Chemical DOT Horizontal Unit; 941007 - 10 lb Black Widow DOT Unit

Classification

	Test scenario rating	Level of openness	Class A fire
942007 - 20 lb ABC Dry Chemical DOT Unit 942057 - 20 lb ABC Dry Chemical CE Unit 942227 - 22 lb ABC Dry Chemical DOT Horizontal Unit	A+	4	A
941007 - 10 lb Black Widow DOT Unit	A+	4	-

Technical data/Performance

See appendix to this certificate.

Certificate

The product described in this certificate fulfils the requirements in RISE Certification rules regarding Fire suppression systems in engine compartments of buses, coaches and other heavy vehicles, SPCR 183 issue 2020-04-06. The certification is based on the manufacturer's technical file and type tests performed in accordance with standards specified in the appendix to this certificate.

Marking

Marking shall show SPCR 183, RISE logo, manufacturer's logo, the number of this certificate, the name of the product, its serial number, the name of the manufacturer and RISE p-symbol. See last page in this certificate for details.

Validity

This certificate is valid until not longer than 2025-04-08.

Miscellaneous

The manufacturer's in-house inspection is under surveillance by RISE in accordance with section 4 and 5 of SPCR 183. Other terms and conditions are set out in section 6 of SPCR 183.

Martin Tillander

Certificate SC1263-13 | issue 5 | 2020-09-13

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Product information

Technical data of the tested suppression system

- 942007 - 20 lb ABC Dry Chemical DOT Unit
- 942057 - 20 lb ABC Dry Chemical CE Unit
- 942227 - 22 lb ABC Dry Chemical DOT Horizontal Unit

Table 1 shows technical data of the suppression system tested for 4 m³ engine compartment volumes. The system may be scaled to fit the size of a specific engine compartment according to the scaling rules in SP Method 4912.

Table 1, technical data of the tested fire suppression system

Suppression agent type	Dry powder
Suppression agent name	ABC Dry Chemical
Suppression agent mass/volume	20 lb (9.07 kg) *22 lb (9.98 kg)
Suppression agent container volume	676 in ³ (11.1 l) (DOT) 687 in ³ (11.3 l) (CE) *1011 in ³ (16.6 l)(DOT)
Suppression agent container/ art number	100680 (DOT) 100701 (CE) *101011 (DOT)
Suppression agent container pressure	360 PSI (24.8 bar)
Propellant gas	Nitrogen
Suppression agent delivery hose	½ inch inner diameter hose
Suppression agent delivery pipes	½ inch inner diameter hose
Type of nozzles	500002
Number of nozzles	6
Distance to the most remote nozzle	16 ft (4.88 m)
Total length of agent delivery system	58 ft (17.63 m)
Number of connections	
Minimum operation temperature	-40 °C
Thermal cycling resistance	ISO 16750-3:2007
Mechanical stress resistance (vibration and shock)	ISO 16750-3:2007 (Test VII)
Corrosion resistance	ISO 21207, test method B (3 cycles)

* 22 lbs system is regarded as equivalent to the 20 lbs system

Product performance

Performance rating according to SP Method 4912

942007 - 20 lb ABC Dry Chemical DOT Unit

942057 - 20 lb ABC Dry Chemical CE Unit

942227 - 22 lb ABC Dry Chemical DOT Horizontal Unit

Table 2, Fire scenario

Rating	Description	Ventilation (m ³ /s)	Result
A +	Low fire load	3	Pass
	High fire load	3	Pass
	Hidden fire	3	Pass
A	Hidden fire	1.5	
B	Hidden fire	0	Pass
C	Low fire load	3	
	High fire load	3	
D	Low fire load	0	Pass
E	High fire load	0	Pass
	High fire load	1,5	Pass
	Low fire load	1.5	Pass
	Re-ignition >45s	0	Pass (58 s)

Table 3, level of openness:

Level	Criteria
1	Fire tests passed with open mockup
2	Fire tests passed without mockup floor and ceiling
3	Fire tests passed without mockup floor
4	Fire tests passed with all sides closed on mockup

Table 4, class A fire:

Description	Ventilation (m ³ /s)	Remarks
Class A fire	0.5	Extinguished within 60 s after activation of the suppression system. No re-ignition.
Pass		

Product information

Technical data of the tested suppression system

941007 - with 10 lb Black Widow DOT Unit DOT

Table 1 shows technical data of the suppression system tested for 4 m³ engine compartment volumes. The system may be scaled to fit the size of a specific engine compartment according to the scaling rules in SP Method 4912.

Table 5, technical data of the tested fire suppression system

Suppression agent type	Dry powder
Suppression agent name	Black Widow BC Dry Chemical
Suppression agent mass/volume	10 lb (4.54 kg)
Suppression agent container volume	300 in ³ (4.9 l) (DOT)
Suppression agent container/ art number	101200 (DOT)
Suppression agent container pressure	360 PSI (24.8 bar)
Propellant gas	Nitrogen
Suppression agent delivery hose	½ inch inner diameter hose
Suppression agent delivery pipes	½ inch inner diameter hose
Type of nozzles	500002
Number of nozzles	6
Distance to the most remote nozzle	16 ft (4.88 m)
Total length of agent delivery system	58 ft (17.63 m)
Number of connections	
Minimum operation temperature	-40 °C
Thermal cycling resistance	ISO 16750-3:2007
Mechanical stress resistance (vibration and shock)	ISO 16750-3:2007 (Test VII)
Corrosion resistance	ISO 21207, test method B (3 cycles)

Product performance

Performance rating according to SP Method 4912

941007 - with 10 lb Black Widow DOT Unit DOT

Table 6, Fire scenario

Rating	Description	Ventilation (m ³ /s)	Result
A +	Low fire load	3	Pass
	High fire load	3	Pass
	Hidden fire	3	Pass
A	Hidden fire	1.5	Pass
B	Hidden fire	0	Pass
C	Low fire load	3	
	High fire load	3	
D	Low fire load	0	Pass
E	High fire load	0	Pass
	High fire load	1,5	Pass
	Low fire load	1.5	Pass
	Re-ignition >45s	0	Pass (54 s)

Table 7, level of openness:

Level	Criteria
1	Fire tests passed with open mockup
2	Fire tests passed without mockup floor and ceiling
3	Fire tests passed without mockup floor
4	Fire tests passed with all sides closed on mockup

Table 8, class A fire:

Description	Ventilation (m ³ /s)	Remarks
Class A fire	0.5	Extinguished within 60 s after activation of the suppression system. No re-ignition.
Not performed		

Conditions

Electrical equipment included in the system shall have a classification of at least IP65, and tested in accordance with IEC 60529:1989/A1:2009/COR3:2009.

A risk assessment in accordance with SPCR 183 section 3.2 shall be made prior to equipment being placed into service. The risk assessment shall be made by personnel having documented experience for the task.

It is the responsibility of the suppression system manufacturer to assure compliance of its suppression system components with legal requirements and vehicle manufacturer requirements.

The marking of the product shall be legible and durable and be designed as below, size 40x60 mm. It shall be applied in conjunction to the engine compartment.

Marking plate:

