

Fire suppression system for engine compartment

Issued to

CEODEUX-Extinguisher Valves Tech. S.A

Rotarex Firetec

24, rue de Diekirch, LU-7440 LINTGEN, Luxemburg

Product and product name

Fire suppression system, Compact Line

Type

Water based fire suppression system.

Extinguishing agent: Temper-S or 90% H₂O + 10% Berki cold concentrate

Technical data/Performance/Classification

See appendix to this certificate.

Certificate

The product described above fulfils the requirements in RISE Certification rules regarding Fire suppression systems in engine compartments of buses and coaches, SPCR 183. 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 appendix for details.

Validity

This certificate is valid until not longer than 9th July 2023

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. This certificate replaces earlier issues with the same number.

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Product information

Technical data of the tested suppression system

Table 1 shows technical data of the suppression system tested for 4 m³ engine compartment volume. The system may be scaled to fit the size of a specific engine compartment according to the scaling rules in SPCR 183.

Table 1, Technical data of the tested fire suppression systems

Manufacturer	Rotarex Firetec	
Fire suppression system name	Compact Line	
Extinguishing agent	Temper-S	90% H ₂ O + 10% Berki cold concentrate
Extinguishing agent volume and mass	12 l/15.1 kg	12 l/11.7 kg
Propellant gas	Nitrogen	
Mass of propellant gas	588 g	
Extinguishing agent container volume	14 l (2 Compact Line units 7 l each)	
Compact Line unit article number	B09025000	
Pressurized vessel pressure and volume	200 bar/1,4 l	
Working pressure	30-35 bar (at +20°C)	
Number of nozzles	17	19
Type of nozzles	90° full cone nozzle	17 x 90° full cone nozzles 2 x 45° full cone nozzles
Nozzle denotation (article number)	026205098	026205098 (90° full cone nozzle) 026200133 (45° full cone nozzle)
Distance to the most remote nozzle	6.75 m	4.28 m
Total pipe length	13.65 m	10.4 m
Number of fittings:	20 straight fittings, 9 tee fittings, 4 cross fittings	14 elbow fittings, 14 tee fittings, 2 cross fittings

Performance - Tested fire scenarios according to SP Method 4912

A summary of the results can be found in Table 2. The test numbers refer to SP Method 4912. More information about the tests is shown in the test report. The sign (-) indicates that the test has not been used as a basis for this approval.

Table 2, Results

Test	Air flow	Test scenario category	Results	
			Rotarex Compact Line:	
			Temper S	90% H2O + 10% Berki cold concentrate
1	0 m ³ /s	High fire load test Minimum operating temp. test T _{min} = -40 °C	Pass	Pass
2	0 m ³ /s	Low fire load test	Pass*	Pass*
3	0 m ³ /s	Hidden fire test	-	-
4	0.5 m ³ /s	Class A-fire test	Pass	Pass
5	1.5 m ³ /s	High fire load test	Pass	Pass
6	1.5 m ³ /s	Low fire load test	Pass*	Pass
7	1.5 m ³ /s	Hidden fire test	-	-
8	3 m ³ /s	High fire load test	Pass	-
9	3 m ³ /s	Low fire load test	Pass*	Pass*
10	3 m ³ /s	Hidden fire test	-	-
11	0 m ³ /s	Hot surface re-ignition	Pass	Pass

* Passed with an amount of agent reduced by 20% compared to the ordinary amount of agent.

Table 3, Rating according to SP Method 4912

Category	Category Rating	
	Temper S	90% H2O + 10% Berki cold concentrate
1 High fire load	3	2
2 Low fire load	3	3
3 Class A-fire	1	1
4 Hidden fire	0	0
5 Hot surface re-ignition protection	No re-ignition	No re-ignition
Total Rating	7	6

Component tests

In addition to fire tests components in the fire suppression system need to be verified and tested through international standards as specified below.

Table 4, results

Property	Standard	Result
Thermal cycling resistance	ISO 16750-3:2007	Pass
Mechanical stress resistance (vibration and shock)	ISO 16750-3:2007 (Test VII)	Pass
Corrosion resistance	ISO 21207, test method B (3 cycles)	Pass

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 placed adjacent to the engine compartment and be designed as below. The size of the sign shall be 40 x 60 mm.

Marking plate template:

