PAVUS, a.s.
Notified Body No. 1391
Prosecká 412/74, 190 00 Praha 9 - Prosek
Decision No. 27/2013-CPR of 13. 12. 2013

CERTIFICATE OF CONSTANCY OF PERFORMANCE

No. 1391-CPR-2016/0197

In compliance with Regulation 305/2011/EU of European Parliament and of the Council of 9 March 2011 (the Construction Product regulation or CPR), this certificates applies to the construction product:

CONTAINER VALVE ASSEMBLIES AND THEIR ACTUATORS, Type FRS-H50 models 16 and 60

Technical parameters of the product:
are stated in the Annex No. 1 of this Certificate of constancy of performance.

Intended use of the product in buildings:
Components for use in gas extinguishing systems installed in buildings and field areas as a part of a complete operating system.

produced by:
FIRESI, s.r.o., Lidická kolonie 1108/47, 58601 Jihlava, Czech Republic

and produced in the manufacturing plant:
FIRESI, s.r.o., Lidická kolonie 1108/47, 58601 Jihlava, Czech Republic

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard:

EN 12094 – 4:2004

under system 1 for the performances set out in this certificate are applied and that
the construction product fulfils all the prescribed requirements for these performances

This certificate was first issued on 30th December 2016 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performances of the declared essential characteristics, do not change, and the construction product, and the manufacturing conditions in the plant are not modified significantly, unless suspended or withdrawn by the product certification body.

In Prague 30th December 2016

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Ing. Jaroslav Dufek
Managing Director PAVUS, a.s.
Notified Body No.1391

Product parametres and assessing performances are stated on the 2nd page in Annex No.1 of the Certificate of constancy of performance.

Technical parameters of the products*)

Type of container valve assemblies	FRS-H50 model 16	FRS-H50 model 60
Extinguishing Agent	HFC 236fa, HFC227ea and NOVEC 1230	
Maximum working pressure of the valve (MPa)	2,4	7,3
Working pressure of the container (MPa)	1,6 (at 20 °C)	6,0 (at 20 °C)
Nominal diameter	DN 60	DN 60
Free cross-sectional area - Diameter (mm)	706,5	706,5
Ambient temperature	-20 °C ÷ + 50 °C	-20 °C ÷ + 50 °C
Volume of the smallest container (l)	22	22
Minimum / maximum fill ratio (HFC 236fa, HFC-227ea and NOVEC 1230)	0,5/ 1,0	0,5/ 1,0

Assessing of product performances

Essential characteristics	Requirement clauses EN 12094-4	Findings	Conformity Assessment
Operational reliability	4.2 General design requirements	Fulfill requirements of standard.	Conforms
	4.3 Connection threads	Fulfill requirements of standard.	Conforms
	4.4 Function and ambient temperature	Correct function of container valves and the operating times were always less than 2 s.	Conforms
	4.5 Resistance to internal pressure	During and after tests there were no permanent deformation, there were no bubbles during tests.	Conforms
	4.6 Strength	On the actuators nor valves were found no deformation nor bursting.	Conforms
	4.7 Leakage	The loss of content from the valve assembly and the containers not exceed 0,5 % of the actual net charge mass of the specified smallest appropriate containers and the loss of pressure from smallest container filled with minimum and maximum fill ration not exceed 0,5 % for agents HFC 236fa, HFC-227ea and NOVEC	Conforms
	4.8 Operational reliability	There were no deterioration of performance.	Conforms
	4.12 Vibration resistance	Valve assemblies were not operate nor damaged during tests. Diptubes were not fracture, become loose nor detach during the test.	Conforms
	4.14 Operating force	Effective forces of the actuators were more than two times bigger than forces necessary to open the valves within the required operating times under the most severe conditions	Conforms
	4.15 Functional reliability	There were no deterioration of performance when a component incorporating electric and pneumatic powered actuators were tested.	Conforms
	4.16 Manual powered actuators	There are no manually powered actuators.	NPD
Distribution of extinguishing media	4.2.3 Free cross-sectional area	FRS-H50 model 16: 706,5 mm2, FRS-H50 model 60: 706,5 mm2	Conforms
	4.2.4 Smallest container, the related minimum and maximum fill ratio	FRS-H50 model 16: Vmin=22 l; FRS-H50 model 60: Vmin=22 l; l;l; fill ration for HFC 236fa: min:0,5; max. 1,0; fill ration for HFC-227ea: min:0,5 max. 1,0, fill ration for NOVEC: min:0,5 max. 1,0.	Conforms
	4.9 Flow characteristics 4.9.1	Free cross-sectional area of the minimum flow ways were within ± 10 % of the value specified by the manufacturer.	Conforms
	4.13 Diptube 4.13.2	The highest point of the inlet of the diptube is not more than two times the internal diameter of the diptube above the base of the container.	Conforms
Distribution of extinguishing media	4.10 Corrosion	Valve assemblies operated satisfactorily after being subjected to the corrosion test.	Conforms
	4.11 Stress corrosion	No cracks were found afters stress corrosion tests.	Conforms

*) Detailed technical parametres and conditions of final classification according to EN 12094 – 4:2004 are stated in the Assessment report of performance of the construction product No. P-1391-CPR-2016/0179 of 30th December 2016.

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