GTC

PRD

FIRE RESEARCH CENTRE
PRODUCTS RESEARCH DIVISION

1. Introduction

This classification report defines the classification assigned to the counterflow heat exchangers "ZERN HU-EX6 B/C-x", "ZERN HC-EX6 B/C-x", "ZERN Combi HU-EX6 B/C-x" and "ZERN Combi HC-EX6 B/C-x"in accordance with procedures given in LST EN 13501-1:2019.

CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH LST EN 13501-1:2019

Customer:	LLC VENTILATION SYSTEMS Kotsiubynskoho Mykhaila str. 1, UA-01054 Kyiv, Ukraine Ph. +380 667002085
Prepared by:	Fire Research Centre Miško str. 7, Valčiūnai vil., LT-13229 Vilnius distr., Lithuania
Product name:	Counterflow heat exchangers "ZERN HU-EX6 B/C-x", "ZERN HC-EX6 B/C-x", "ZERN Combi HU-EX6 B/C-x" and "ZERN Combi HC-EX6 B/C-x"
Classification report No.:	20-10.2025.24
Issue number:	Exemplar No. 1 *(Classification Report was prepared only in English)*
Date of issue:	4th of June 2025
Base:	Contract of work performance No. 57-20(1KL) of 6th of May 2025. Request, reg. No. 55-47/25

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egolf
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2. Details of classified product

2.1 General

The product, "ZERN HU-EX6 B/C-x", "ZERN HC-EX6 B/C-x", "ZERN Combi HU-EX6 B/C-x" and "ZERN Combi HC-EX6 B/C-x", is defined as the fully or partially plastic counterflow heat exchanger.

2.2 Product description

In accordance with customer declaration the head plates, the side plates and the heat accumulation mass profiles of the counterflow heat exchangers "ZERN HU-EX6 B/C-x" and "ZERN HC-EX6 B/C-x" compose of the same plastic components listed in the Table 1, which all are made from the same raw materials and difference between types HU-EX6, HC-EX6 are only in geometry of monoblocs/heat accumulation mass profiles; "ZERN Combi HU-EX6 B/C-x" and "ZERN Combi HC-EX6 B/C-x" are combined blocks consisting of two plastic monoblocs respectively HU-EX6 or HU-EX6, installed in an aluminum or aluzinc case, where:

ZERN – trademark.
HU-EX6, HC-EX6 – commercial group of monoblocs (heat accumulation mass profiles).
Combi HU-EX6 and Combi HC-EX6 – commercial group of combined blocks.
B – height, mm.
C – depth, mm.
x – casing modification:
1 – aluzinc with standard profile,
1.1 – aluzinc with T-profile,
2 – plastic with standard profile,
2.1 – plastic with T-profile,
3 – aluminum with standard profile,
3.1 – aluminum with T-profile.

Table 1 shows the heat exchanger components and their characteristics declared by the customer:

Table 1

Name of the heat exchanger	Name of the heat exchanger component (colour)	Raw material	Nominal thickness, mm	Density, g/cm^3
"ZERN HU-EX6 B/C-x" "ZERN HC-EX6 B/C-x"	Head plate/Covers (green)	Polystyrene "HI 425", manufacturer Kumho Petrochemical Co., Ltd. (KKPC), Korea	2,0	1,03
	Side plate/Sides (white)	Polystyrene "Edistir R 850E", manufacturer Versalis S.p.A., Italy	1,3	1,04
	Corner (white)		1,3	
"ZERN Combi HU-EX6 B/C-x" "ZERN Combi HC-EX6 B/C-x"	Head plate/Covers (metal)	Aluminum or aluzinc	-(1)	-(1)
	Separating channel plates (metal)			
	Side plate/Sides (metal)			
	Corner (metal)			
"ZERN HU-EX6 B/C-x" "ZERN HC-EX6 B/C-x"	Heat accumulation mass profiles (ivory)	70 % Polystyrene "Styrolution PS ESCRimo", manufacturer INEOS Styrolution Group GmbH, Germany	0,39	1,04
"ZERN Combi HU-EX6 B/C-x"		30 % Flame Retardant Concentrate "FR2941PS EU", manufacturer Alon Tavor I.Z, Israel		1,89
"ZERN Combi HC-EX6 B/C-x"	Hot melt glue (light yellow)	"Technomelt 134-135B", manufacturer Henkel AG & Co. KGaA, Germany	-(2)	0,95 ÷ 1,05

(1) – any (metal parts of the heat exchanger were not tested according to standard LST EN ISO 11925-2:2020);
(2) – declared consumption of glue depending on dimensions of the heat exchanger:
130 g for (366×366×100) mm;
130 g ÷ 340 g for (366×366×100÷250) mm;
340 g ÷ 650 g for (366×366×250÷600) mm.

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3. Reports and results in support of classification

3.1 Conditions

Components of the counterflow heat exchanger were sampled/specimens prepared by the customer.

3.2 Reports

Name of Laboratory	Name of sponsor	Report ref. no.	Test method and date Field of application rules and date
Fire Research Centre Products Research Division	LLC VENTILATION SYSTEMS	20-1.2025.5	LST EN ISO 11925-2:2020

3.2 Results

Test method	Parameter	No. tests	Results	
			Continuous parameter – mean (m)	Compliance with parameters
LST EN ISO 11925-2 Surface flame attack, flame exposition period 15 s	Fs≤150 mm within 20 s	12	Yes	Compliant
	Ignition of filter paper		No	Compliant
LST EN ISO 11925-2 Edge flame attack, flame exposition period 15 s	Fs≤150 mm within 20 s	12	Yes	Compliant
	Ignition of filter paper		No	Compliant
LST EN ISO 11925-2 Flame attack at the bottom edge of the specimen turned at 90° from its vertical axis Flame exposition period 15 s	Fs≤150 mm within 20 s	6	Yes	Compliant
	Ignition of filter paper		No	Compliant

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with LST EN 13501-1:2019 chapter 11.

4.2 Classification

The product, the counterflow heat exchangers "ZERN HU-EX6 B/C-x", "ZERN HC-EX6 B/C-x", "ZERN Combi HU-EX6 B/C-x" and "ZERN Combi HC-EX6 B/C-x", in relation to its reaction to fire behaviour is classified:

E

The format of reaction to fire classification construction products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production			Flaming droplets	
E	-	-	-	,	-	-

i.e. E

Reaction to fire classification: E

4.3 Field of application

This classification is valid only for in chapter 2.2 listed product parameters for any end use application.

5. Limitations

5.1 Restriction

The product classification is valid till 4th of June 2028.

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5.2 Warning

This classification document does not represent type of approval or certification of the product.

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