Classification of fire resistance in accordance with EN 13501-2:2023

1. Introduction

This classification report determines the fire resistance classification assigned to a *Single-leaf doors with E30 glazing tested from the outside and inside* in accordance with the procedures given in EN 13501-2:2023

Łukasiewicz
Institute of Ceramics
and Building Materials

Łukasiewicz Research Network – Institute of Ceramics and Building Materials
31-983 Krakow, Cementowa 8 Str., Poland

CENTER OF FIRE SAFETY AND ACOUSTICS
31-983 Krakow, Cementowa 8a Str., Poland www.icimb.lukasiewicz.gov.pl
phone: +48 12 683 79 00 info.krakow@icimb.lukasiewicz.gov.pl

BUILDING CHEMISTRY AND FIRE SAFETY RESEARCH GROUP
phone: +48 12 683 79 77 szymon.kasprzyk@icimb.lukasiewicz.gov.pl

Research Network Łukasiewicz- Institute of Ceramics and Building Materials is a Notified Body no. 1487 In the field of reaction to fire

CLASSIFICATION OF FIRE RESISTANCE in accordance with EN 13501-2:2023

Sponsor	*POLISHINTERIOR S.C. ul. Majora 12a, 31-422 Kraków*
Prepared by	*Research Network Łukasiewicz* *Institute of Ceramics and Building Materials* *Center of Fire Safety and Acoustics* *ul. Cementowa 8a, 31 – 983 Kraków* *Building Chemistry and Fire Safety Research Group*
Notified Body No	*1487*
Product name	*Single-leaf doors with E30 glazing tested from the outside and inside*
Classification report No	*KG – 01/26/OG*
Issue number	*1*
Date of issue	*10.02.2026*
This classification report consists of 4 pages and may only be used or reproduced in its entirety	

2. Details of classified product

2.1 General

The product, *A single-leaf door with E30 glazing tested from the outside and inside is defined as a trained door assembly.*

Classification report No	*KG – 01/26/OG*

2.2 Product description

Element name of the product *Doors, single-leaf with E30 glazing, tested from the outside and inside* is described in detail in the test reports used for this classification, listed in 3.1.

3. Test reports & test results in support of classification

3.1 Test reports

Name of Laboratory	***Name of sponsor***	***Test reports Nos.***	***Test method***
Building Chemistry and Fire Safety Research Group Research Network Łukasiewicz – Institute of Ceramics and Building Materials – CBPiA in Krakow	*POLISHINTERIOR S.C. ul. Majora 12a, 31-422 Kraków*	*01/26/KG/OG*	*EN 1363-1:2020 EN 1634-1+A1: 2018*

3.2 Test results

Test method and test number	**Parameter**	**Results**
EN 1363-1:2020 EN 1634-1+A1:2018 01/26/KG/OG of 10.02.2026	*Fixing structure*	*Steel profiles attached to aerated concrete blocks, protected with mineral wool and plasterboard*
	Heating curve	*Standard temperature / time curve according to EN 1363-1:2020*
	Fire integrity	*36 minutes without loss*
	Test time	*36 min*
	Deflection time > 100 mm	*Not applicable*

4. Classification and field of application

4.1 Reference of application

This classification has been carried out in accordance with EN 13501-2:2023, chapter 7

4.2 Classification

4.2.1. Classification according to EN 13501-2:2023 for doorsets, shutter assemblies and openable windows including their closing devices

Element *Doors, single-leaf with E30 glazing, tested from the outside and inside* has been classified according to the following example combinations of performance parameters and classes.

R	**E**	I	W		t	t	-		M	S	C	IncSlow	sn	ef	r	G	K

Fire resistance classification:
E 30 (o↔i)

Classification report No	*KG – 01/26/OG*

4.3 Field of application

The classification is valid for use *by POLISHINTERIOR S.C. ul. Majora 12a, 31-422 Kraków*, available in section 2.2 of the classification report.

The classification remains valid for appropriate use in accordance with EN 1634-1+A1:2018 and EN 15269-5:2014+A1:2016.

Material changes relevant to extended use:

Parameter	**Factors**	**Range of change**
Door leaves	Decrease dimensions	Allowed
	Increase dimensions	Allowed to increase dimensions by: 15% of the height (maximum up to 2765 mm) 15% width (maximum up to 1050 mm) 20% of the area (maximum up to of 2.62 m^2)
	Changing the number of wings	Not allowed
Glazing for door leaf	Decrease dimensions	Allowed
	Increase dimensions	The number of glazed openings and the dimensions of the glass in each pane included in the test sample must not be increased. In accordance with PN-EN 1364-1:2015, the result of the glass test includes the maximum dimensions obtained in the test, which may be increased by a factor of 1.2 in width and/or height, provided that the maximum area of the tested glass is not exceeded, also increased by a factor of 1.21.
	Changing the type of glass	It is possible to change the type of glass to another with the same (or better) fire resistance class, provided that both shafts belong to the same family of glass products (from the same manufacturer) and have at least the same or greater nominal thickness. - Polflam E30 monolithic glass in accordance with EN 12150-2:2004 manufacturer: Polflam - Polflam E30 Satyna monolithic glass compliant with EN 12150-2:2004 manufacturer: Polflam

Classification report No	*KG – 01/26/OG*

5. Limitations

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

signature of person undertaking classification

signature of person authorising this report

Łukasiewicz Research Network – Institute of Ceramics and Building Materials
31-983 Krakow, Cementowa 8 Str., Poland
CENTER OF FIRE SAFETY AND ACOUSTICS
31-983 Krakow, Cementowa 8a Str., Poland www.icimb.lukasiewicz.gov.pl
phone: +48 12 683 79 00 info.krakow@icimb.lukasiewicz.gov.pl
BUILDING CHEMISTRY AND FIRE SAFETY RESEARCH GROUP
phone: +48 12 683 79 77 szymon.kasprzyk@icimb.lukasiewicz.gov.pl
Łukasiewicz Institute of Ceramics and Building Materials
AB 054

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SPONSOR	POLISHINTERIOR S.C. ul. Majora 12a, 31-422 Kraków	
AGREEMENT	5L0231G5	
TEST SAMPLE (Data based on a statement Customer)	Tested sample	Single-leaf doors with E30 glazing tested from the outside and inside
	Manufacturer	POLISHINTERIOR S.C.
Sample ID		17/25/OG
Date of delivery of the samples		09.10.2025
Preparation date		09.10.2025
Date of testing		10.10.2025
The team performing the test		mgr inż. Krzysztof Nosal mgr inż. Kacper Dziedzic mgr inż. Dominika Leśniak

TEST METHOD:
EN 1363-1:2020 „Fire resistance tests – Part 1: General requirements”
EN 1634-1+A1:2018 „Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements for building hardware – Part 1: Fire resistance tests for door and shutter assemblies and openable windows”

COMMENTS:
The results apply to the tested sample, only.
Without written agreement of laboratory the test report can be copied only entirely.
[Z] Data provided by the Client
[L] Data provided by the Laboratory

Table of contents

1. Research goal

The purpose of the test was to determine the fire resistance of single-leaf glass doors tested from the outside and inside in accordance with the guidelines of standards EN 1363-1:2020 and EN 1634-1+A1:2018.

2. Place of the testing

The fire resistance test was conducted at the Łukasiewicz Research Network – Institute of Ceramics and Building Materials, Center for Fire Safety and Acoustics, Building Chemistry and Fire Safety Research Group at ul. Cementowa 8a, 31-983 Kraków.

3. Test item verification

The sample was selected in accordance with point 6.6 of standard EN 1634-1+A1:2018, as representative of the product family, taking into account the most unfavorable configuration in terms of the fire resistance. The selection included dimensions, construction, hardware, mounting method, and direction of door opening, which enables proper evaluation and possible extension of the test results.

4. Details od the design of the test element

4.1. Support structure [Z]

Testing components were performed in a steel test frame. The support structure that formed the basis for the permanent placement of the door frames was built from 600 kg/m^3 density and 120 mm thick cellular concrete blocks. The blocks were connected using adhesive mortar.

Systemic lintel made of ceramic brick. Ceramic bricks connected with each other using a mortar for silicate and Baumit white M10 blocks.

The imitation of the floor was made of 120 mm thick and 600 kg/m^3 density cellular concrete blocks.

Covering and filling layers:
VULCOR SOLI BLANKET ZR GRADE mineral wool
Thickness: 13 – 25 mm
Location: filling the gaps at the threshold, hinge and lock edges of the door frame with the supporting structure

GKF board – fire-resistant gypsum-cardboard board attached to the support structure with screws
Manufacturer: GKF type DF Norgips
Thickness: 12.5 mm
Location: filling the gaps at the threshold, hinge and lock edges of the frame with the support structure

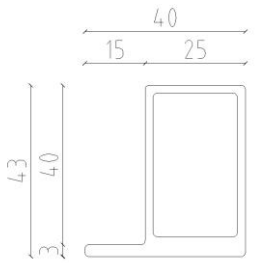
Screws
Manufacturer: RAWLPLUG
Dimensions: R-WHO 7.5 x 152 mm
Spacing: as shown in Figures 1-3

4.2. General description of the test item – Properties of materials and components used in the construction of the test element [Z]

The test element consisted of single-sided glass doors tested from the outside (door No. I) and from the inside (door No. II).The door system consisted of a door frame and a door leaf. Fig. 1 – Fig. 3 show the design of the test element.

1. **Door frames** made of steel profiles, which were mounted using door frame screws to the support structure. As a filler between the door frame in the supporting construction, mineral wool and gypsum plasterboard were used, which were screwed together. Door hinges were permanently attached to the door frames on both sides of the edge to mount two pairs of door leaves.

Steel profiles:



PI E30_L_43.40_S

Steel profile PI E30_L_43.40_S
Manufacturer: POLISHINTERIOR
Steel grade: S235JR / S235JRH

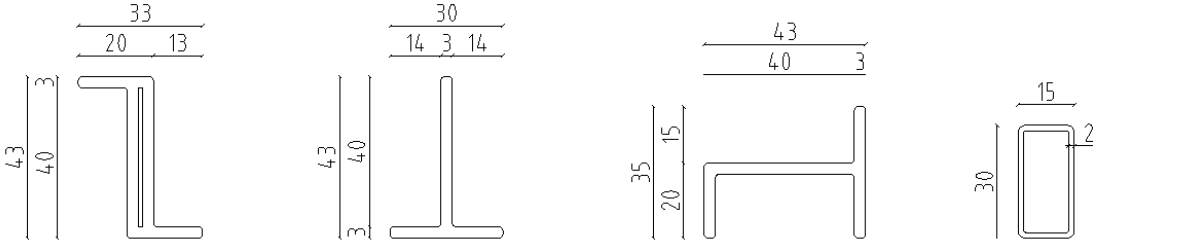
R-WHO 7.5 x 152 mm door frame screws
Manufacturer: RAWLPLUG
Steel grade: Carbon hardened steel
Dimensions: 7.5 x 152 mm

Installation distances
Manufacturer: POLISHINTERIOR
Steel grade: S235J2
Dimensions: 50x28x1mm, 50x28x2mm, 50x28x3mm, 50x28x8mm

Steel hinge
Manufacturer: IBFM
Steel grade: S235
Dimensions: 12 x 80 mm (Φ)
Location: permanently attached to steel profiles by welding

2. **The door wings** are divided into three parts with dimensions as shown in Fig. 1. They are made of steel profiles permanently connected to each other by a welded joint. An "SPIENIONY EPDM 10X2mm" gasket is mounted on the outside of the profiles. Inside the profiles, a KERAFLEX 2000 gasket and a 6 mm thick Polflam E30 glass are mounted.
   The door wings were mounted on steel hinges.
   The door wings contained a steel sheet element with a handle and lock installed in it.

Steel profiles:



PI E30_Z_43.33_S PI E30_T_43.30_S PI E30_K_43.35_S PI E30_R_30.15_S

Profile: PI E30_Z_43.33_S
Manufacturer: POLISHINTERIOR
Steel grade: S235JR

Profile: PI E30_T_43.30_S
Manufacturer: POLISHINTERIOR
Steel grade: S235JR

Profile: PI E30_K_43.35_S
Manufacturer: POLISHINTERIOR
Steel grade: S235JR

Profile: PI E30_R_30.15_S
Manufacturer: HUTA POKÓJ PROFILE
Steel grade: S235JRH

Seals on profiles
Manufacturer: BOSIG, foamed EPDM
Dimensions: 10x2mm

Glazing: monolithic glass Polflam E30 by EN 12150-2:2004
Manufacturer: Polflam
Thickness: 6 mm
Location: 3 panes on one door leaf separated from each other by steel profiles and a seal.

Sealants for panes
Manufacturer: KERAFIX 2000
Dimensions: 10x4mm

Window seals
Manufacturer: Aluprof [K80957048, K80957031, K80957061]
Dimensions: 1x8x20mm, 2x8x20mm, 3x8x20mm

Steel hinge
Manufacturer: IBFM
Steel grade: S235
Dimensions: 12 x 80 mm (Φ)
Location: permanently attached to steel profiles by welding

Stainless steel A2 locking bolt
Manufacturer: POLISHINTERIOR
Dimensions: fi10x300mm

M4x12 screw, conical head, stainless steel A2
Manufacturer: FABORY
Dimensions: M4X12mm

M4x25 screw, conical head, stainless steel A2
Manufacturer: FABORY
Dimensions: M4X25mm

Steel sheet
Manufacturer: Arcelor Mittal
Dimensions: 94.5mm x 775mm x 2mm

2mm steel processing
Manufacturer: POLISHINTERIOR
Dimensions: 94.5mm x 775mm x 38mm x 2mm

3. Hardare and functional elements

Knob
Manufacturer: MEILA
Dimensions: 60X135MM, PLUG 33X63MM
Grade 201 stainless steel

Lock
Manufacturer: DORMA, lock 180, PZW, 55/72/9, 20mm

4.3. Statement of articipation

The verification of the test element's construction was conducted by employees of the Building Chemistry and Fire Safety Research Group of the Łukasiewicz Research Network (mgr inż. Krzysztof Nosal, mgr inż. Kacper Dziedzic, mgr inż. Dominika Leśniak). The test element was prepared in accordance with the description in this report. No visual material or construction defects were found in the test element.

5. Conditioning

The test element was installed on the test frame by the Client on 09.10.2025. The test element was seasoned in accordance with the requirements of EN 1363-1:2020-07.
The test item was conditioned at the Fire Safety and Acoustics Center, where the average temperature was approximately 21.3°C (min. = 20.9°C, max. = 21.5°C), and the average relative humidity was 49.6% (min. = 46.4%, max. = 53.1%).

6. Gap measurement

The gap between the wing and the frame of the tested doors was measured. The minimum, maximum, and average of the measured values are presented in Table 1 and Table 2.

Table 1. Measured values of door no. I slots from the outside.

Edge gap	**Minimum measured value [mm]**	**Maximum measured value [mm]**	**Average [mm]**
Overthereshold edge	0,65	2,40	1,60
Thereshold edge	11,10	11,70	11,40
Lock edge	1,75	2,80	2,34
Hinge edge	0,00	0,00	0,00

Table 2. Measured values of door no. II slots from the inside.

Edge gap	**Minimum measured value [mm]**	**Maximum measured value [mm]**	**Average [mm]**
Overthereshold edge	0,50	0,95	0,72
Thereshold edge	11,40	11,90	11,70
Lock edge	0,50	2,80	1,27
Hinge edge	0,45	0,65	0,56

7. Closing force measurement

Due to the lack of a device in the test element that would assist in its closing, the measurement of the closing force was not performed. A self-closing device is necessary for a proper and reliable measurement of the door closing force, as it allows for repeatable and standard-compliant results.

8. Information on functional loads

Prior to the fire resistance test, the door leafs were manually opened 25 times, from fully closed to 90° and then returned to fully closed in accordance with clause A.2.2 of standard EN 1634-1+A1:2018.

9. Testing conditions

9.1. General

The test was performed in accordance with the test methodology described in EN 1363-1:2020, titled "Fire resistance tests. Part 1: General requirements" and EN 1634-1+A1:2018 "Fire and smoke tightness tests for assemblies of doors, shutters and windows and building hardware components - Part 1: Fire resistance tests for door, shutter and window assemblies"

The examination was performed on 10.10.2025

9.2. Ambient temperature and relative humidity

The ambient temperature in the laboratory at the start of the test was 23.9°C. During the test, the lowest recorded ambient temperature was 23.6°C, and the highest recorded ambient temperature was 28.5°C.Temperature measurement is performed using a device that design is in accordance with Figure 8 in standard EN 1363-1:2020. The ambient temperature registration result is shown in Figure 4.
The relative humidity in the laboratory at the start of the test was 47%. During the test, the lowest recorded relative humidity was 47%. The relative humidity is measured with the Apar AR437 thermohygrometer.

9.3. Testing furnace

The design of the test furnace meets the guidelines of standard EN 1363-1:2020. The dimensions of the furnace's test chamber are: 3000 mm (width) x 3000 mm (height) x 2000 mm (depth). The stove is equipped with 8 gas burners (propane-butane).

9.4. Temperature in the test furnace

The temperature in the furnace was measured by 8 K-type thermocouples, which were arranged in accordance with the guidelines of point 9.1.1 of standard EN 1363-1:2020 and point 9.1.1 of standard EN 1634-1+A1:2018.The heating curve of the furnace was in accordance with the guidelines of point 5.1 of the EN 1363-1:2020 standard. The result of the heating temperature registration is shown in Figure 1, and the result of the heating accuracy registration is shown in Figure 2.

9.5. Pressure in the test furnace

The pressure measurement in the furnace was conducted in accordance with the guidelines of the EN 1363-1:2020 standard. The pressure gauge was placed in the furnace at a height of 2.5 m. The neutral pressure plane was set at approximately 905 mm above the agreed floor level. The pressure recording in the furnace is shown in Graph 3.

10. Research results

The test lasted 36 minutes. It was terminated due to the achievement of fire resistance criteria.

10.1. Observations

Observations from the study are summarized in Table 3.

Table 3. Observations from the course of the fire resistance test

Time [min]	**Observations**
1:59	Smoke is coming out of door II along the threshold edge on the right side
3:03	Smoke is coming out of door I near the lock and the handle
4:17	Smoke is coming out of door II near the handle
4:54	Smoke is coming out of door I from the sill
5:29	Smoking increased
6:13	Increased smoke buildup on door No. II along the threshold edge
9:23	Intensive smoke from door II from the threshold edge on the right side
10:39	Increased smoking in door I near the handle
11:24	Smoke on the left side of the threshold edge of door II
24:56	Visible deformation on the rails (door no. I towards the furnace, door no. II away from the furnace)

10.2. Fire resistance

Fire resistance criteria and the times they are exceeded with the locations of occurrence are listed below.in table 4.

Table 4. Fire tightness criteria with times of exceeding them

Criterion		**Time [min]**	**Place of occurrence**
1	Sustaining the flame	36 without loss	–
2	Cotton tampon ignites	36 without loss	–
3	6 mm slot gauge passage	36 without loss	–
4	25 mm slot gauge passage	36 without loss	–

10.3. Deflection

The deflection was measured at points A and B shown in Figure 4.
The results of the deflection measurement are presented in Table 5 and in Figure 5.The deflection measurement was conducted for 36 minutes. (No deflection exceeding 100 mm was recorded. The maximum deflection recorded was for door No. I at 9 minutes and was 12.81 mm; for door No. II at 11 minutes and was 11.84 mm.)

Table 5. Deflection measurements on a test part using a calibrated scale.

Time [min]	**A [mm]**	**B [mm]**
0	0	0
10	12,64	11,76
20	12,63	11,83
25	12,62	11,76
30	11,93	10,97
35	10,85	9,87

10.4. Measurement uncertainty

Due to the nature of the fire resistance test and the resulting difficulty in quantitatively determining the uncertainty of the fire resistance measurement, it is not possible to determine a fixed level of accuracy for the results.

11. Direct scope of application of the test results of the test item

The scope of application of the fire resistance test results of the test element presented in this report should meet the criteria listed in point 13 of standard EN 1634-1+A1:2018.

12. Summary

This report describes the construction method, test conditions, and results obtained when a specific element with the described construction was tested in accordance with the procedure presented in EN 1363-1 and EN 1634-1+A1:2018. Any significant change in size, construction details, loads, stresses, boundary conditions, or end conditions, other than those permitted by the direct scope of application in a specific test method, is not covered by this report.

13. Drawings

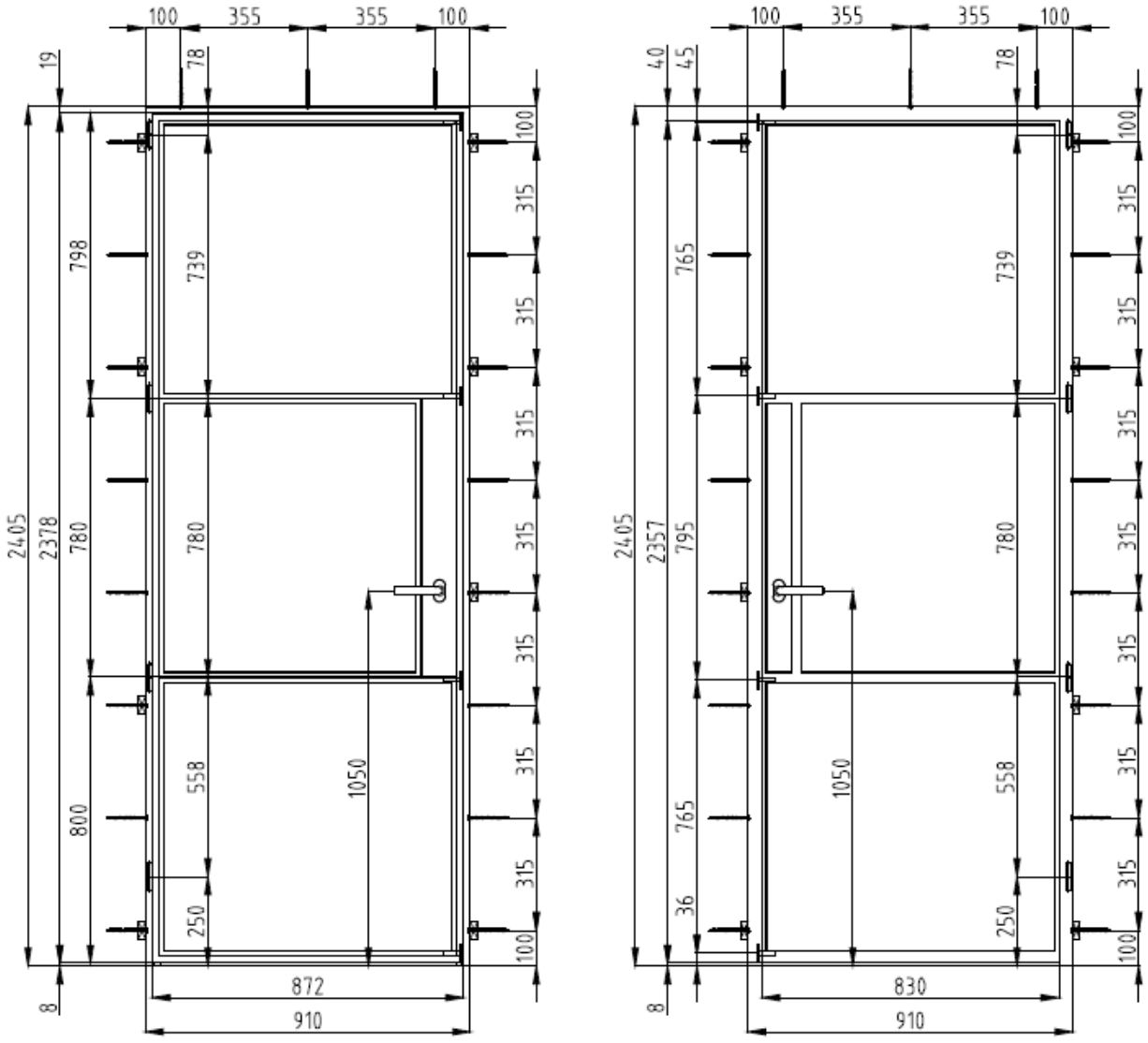


Fig. 1. Diagram of the test element with dimensions (on the left, door No. I examined from the outside, on the right, door No. II examined from the inside). [Z]

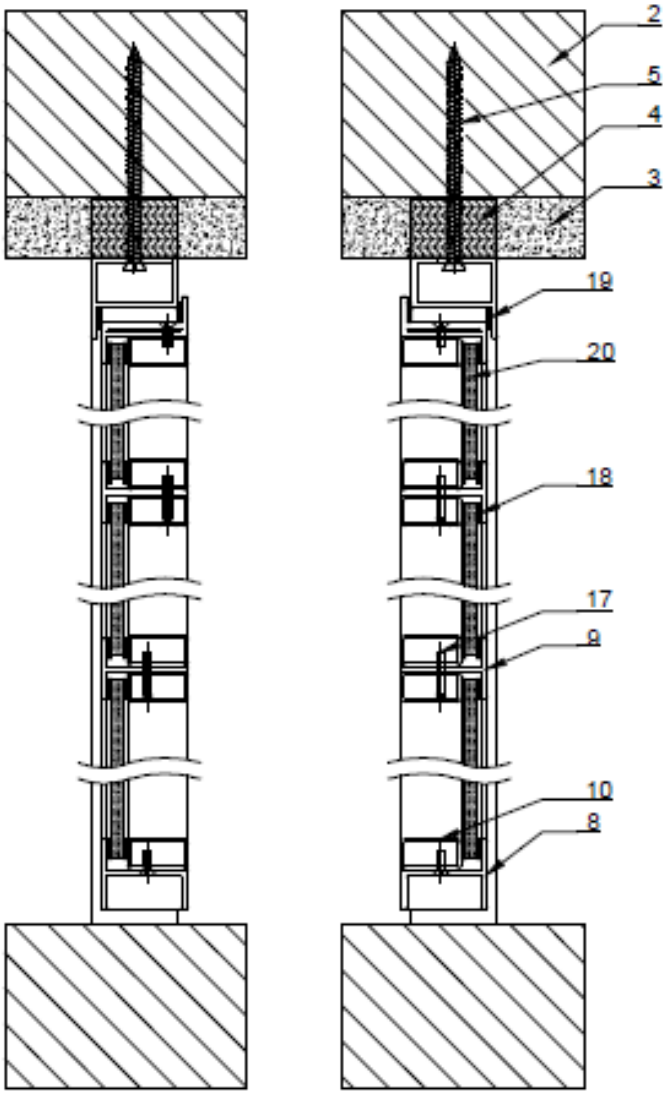


Fig.2. Side projections of test elements. [Z]

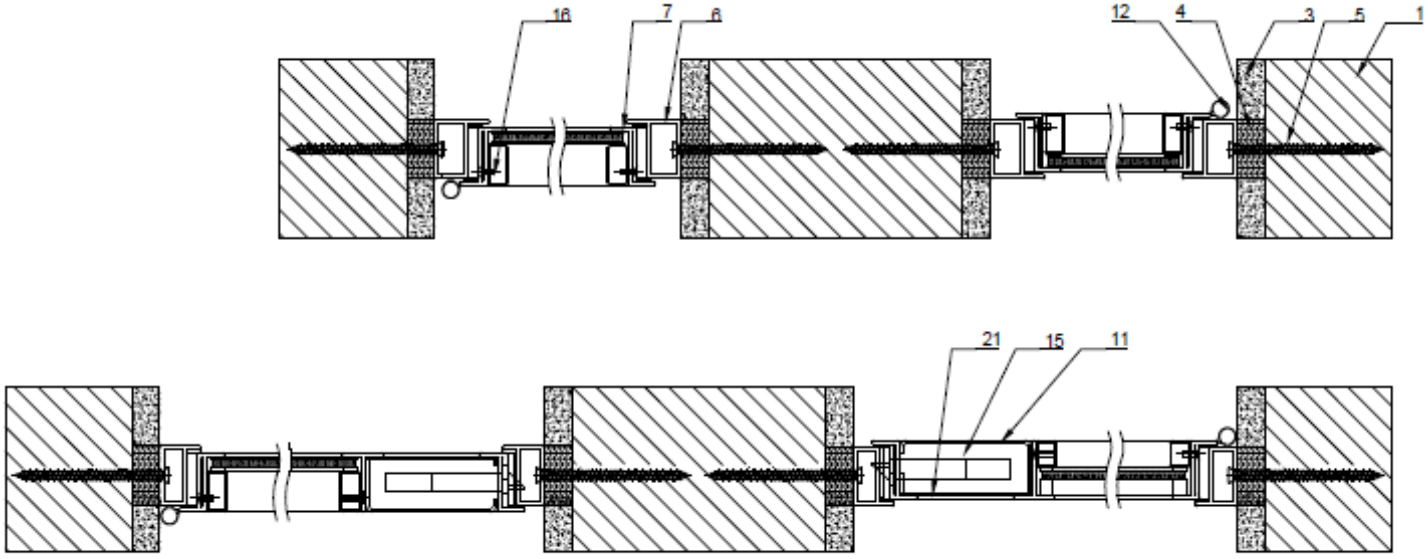


Fig. 3. Top projections of test elements. [Z]

Legend:
1. Aerated concrete [min 600 kg/m3] 12 cm thick
2. System lintels
3. GKF board
4. Mineral wool VULCOR SOLI BLANKET ZR GRADE [RBLZRW005]
5. R-WHO door frame screw 7.5 x 152 mm
6. Steel profile_PI E30_L_43.40_S
7. Steel profile_PI E30_Z_43.33_S
8. Steel profile_PI E30_K_43.35_S
9. Steel profile_PI E30_T_43.30_S
10. Steel profile_PI E30_R_30.15_S
11. Steel flashing 2 mm thick
12. Steel hinge 12x80 mm dia.
13. Mounting washers steel
14. Stainless steel locking pin
15. PI_55/72/9 lock 20 mm
16. M4x12 countersunk head screw stainless steel
17. M4x25 countersunk head screw stainless steel
18. KERAFIX 2000 seal 10 mm x 3 mm
19. EPDM foam seal 10 mm x 2 mm
20. Polflam E30 glass [6 mm]
21. Steel sheet 2 mm thick
22. SSO_BL stainless steel handle

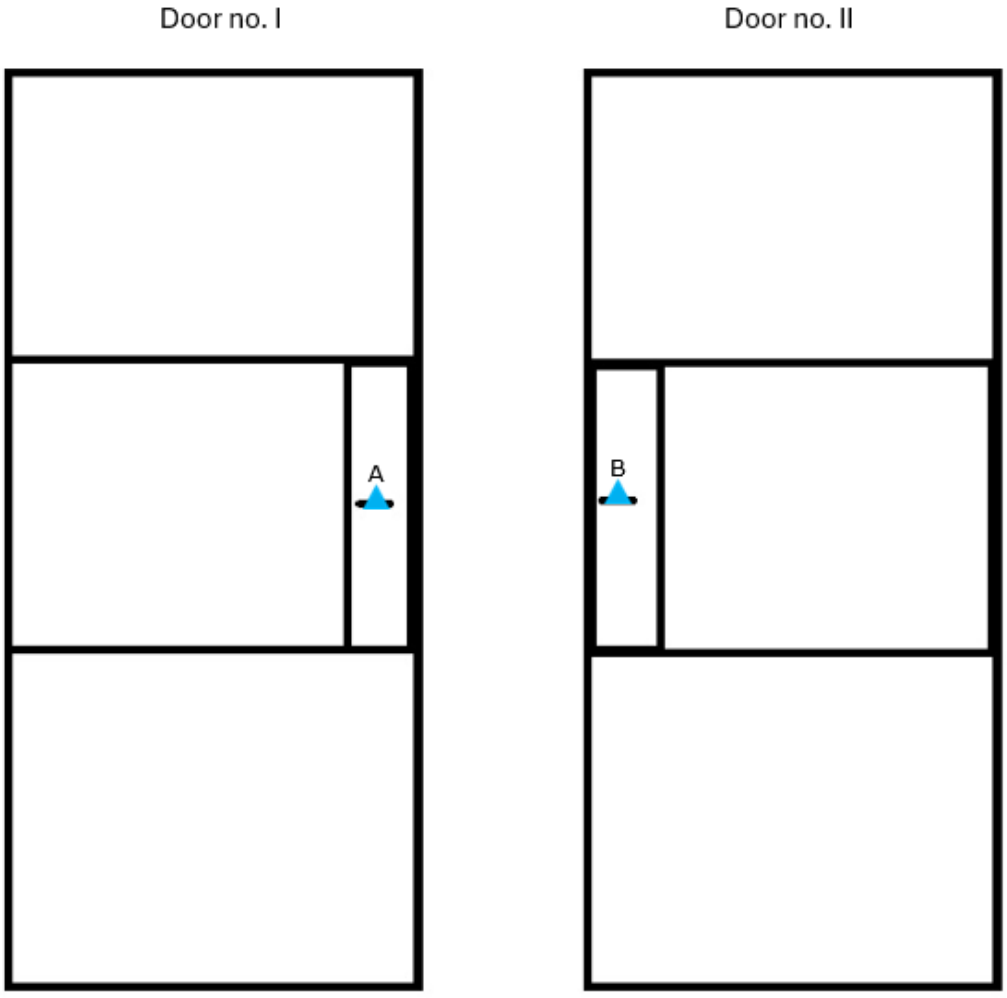


Fig. 4. Designation of the deflection measurement location (legend: blue triangle – deflection measurement location). [L]

14. Charts

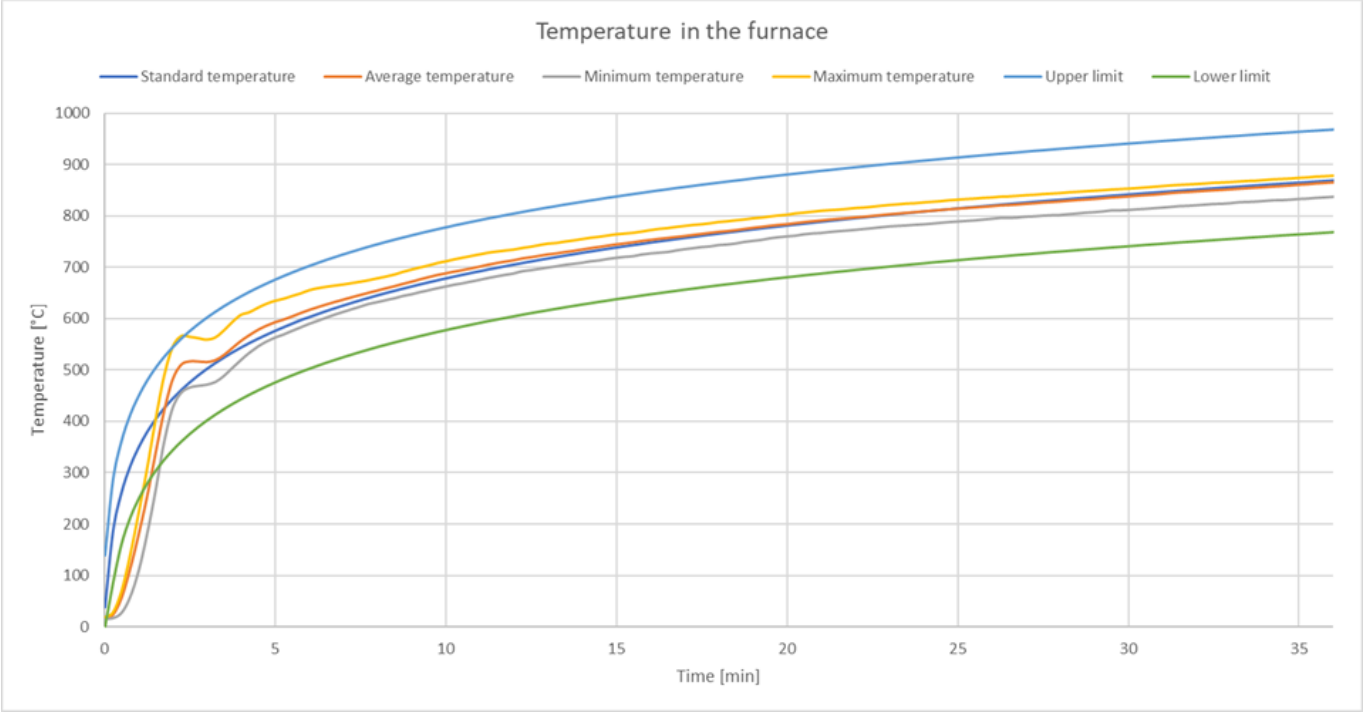


Chart 1. Diagram of the heating temperature of the test element.

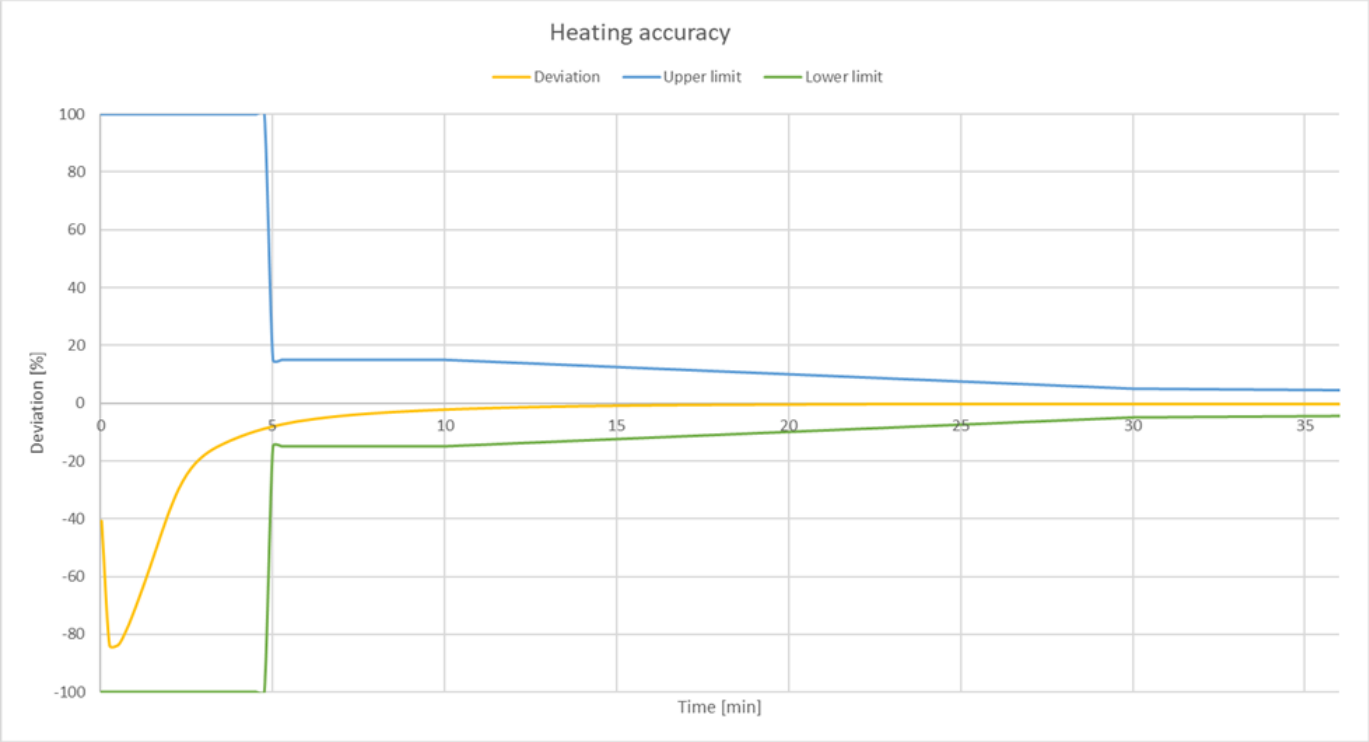


Chart 2. Heating accuracy chart.

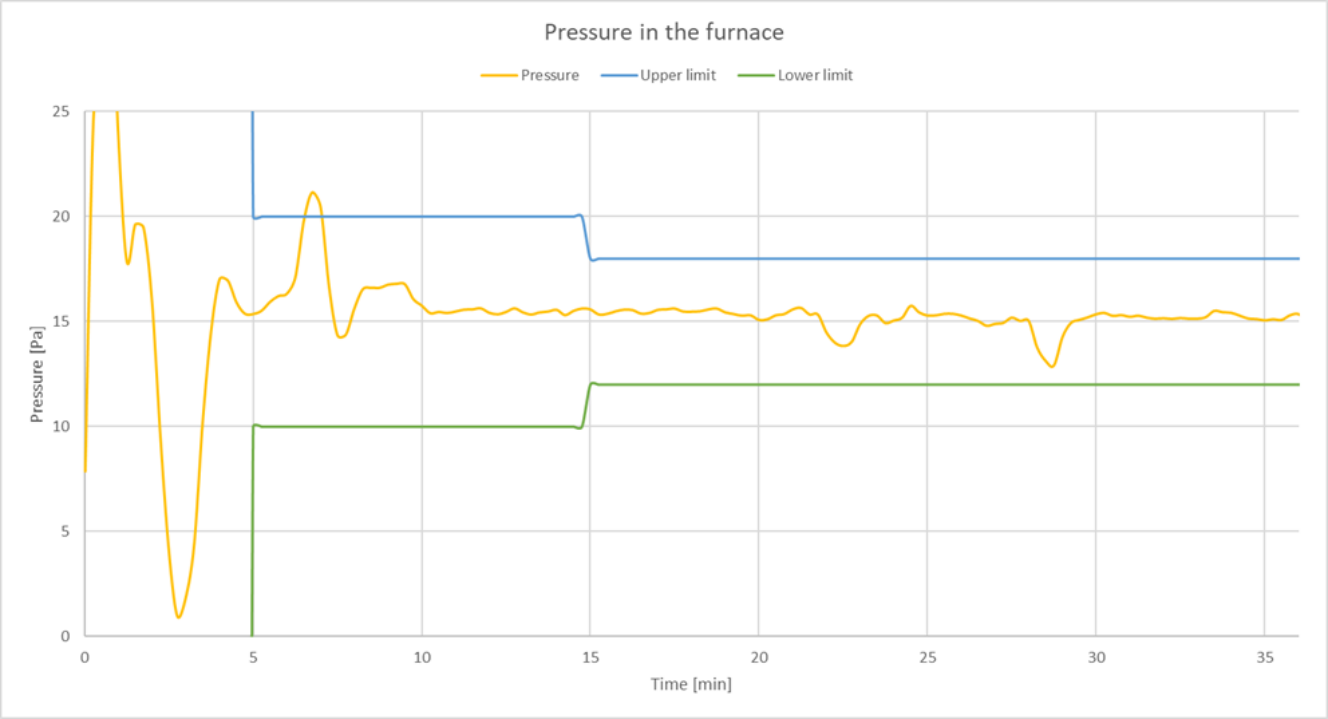


Chart 3. Furnace pressure chart.

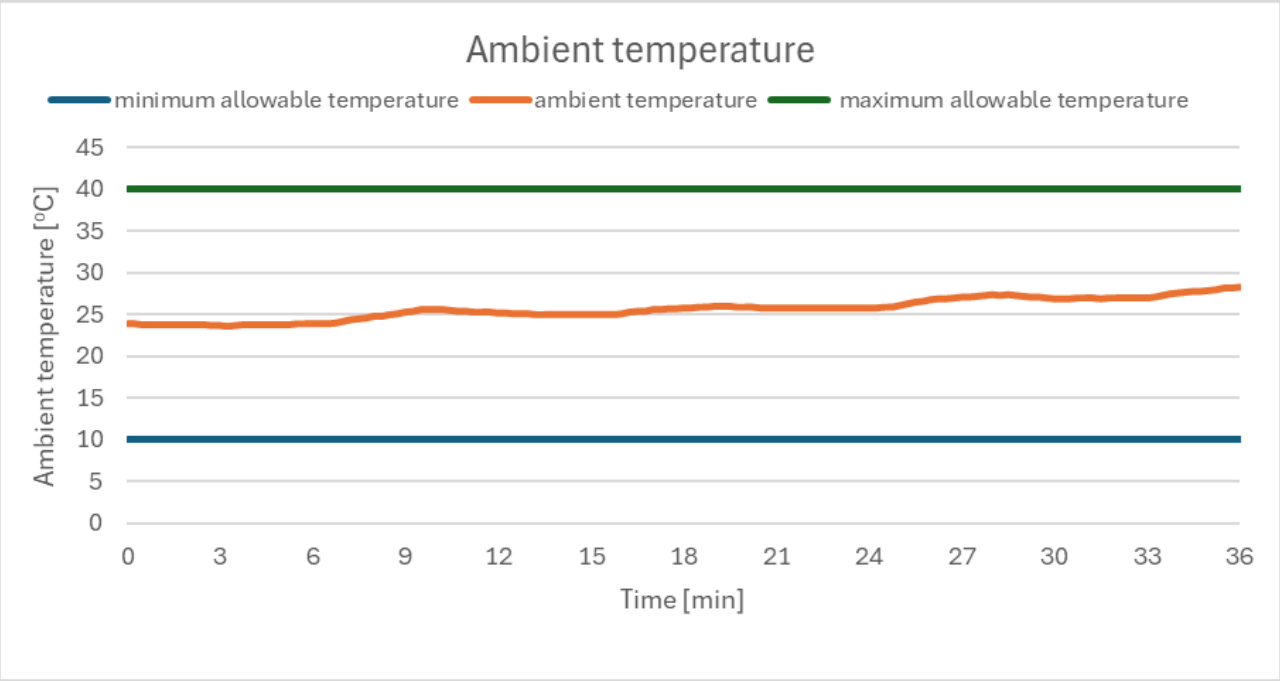


Chart 4. Diagram of ambient temperature.

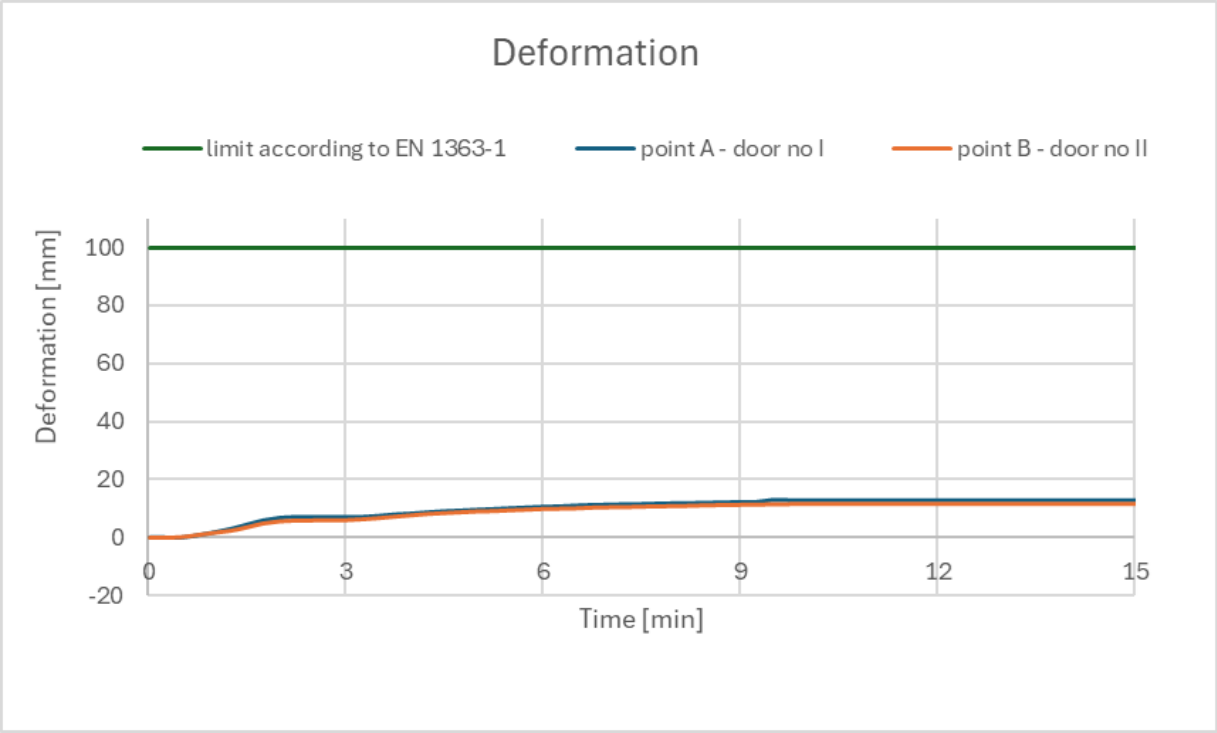


Chart 5. Deformation curve of the test piece

(A - deflection measurement on door no. I from the outside

B - deflection measurement on door no. II from the inside)

15. Photos

Photo. 1. Test item before testing.

Photo. 2. Door No. I examined from the outside.

Photo. 3. Door No. II examined from the inside.

Photo. 4. Removal of the test element after the end of the test (36 min).

signature of the person preparing the report

signature of the person authorizing the report

Krakow, 10.02.2026

THE END