



Instytut Techniki Budowlanej  
(Institute of Building  
Technique)

RESEARCH LABORATORIES COMPLEX  
accredited by the Polish Center for Accreditation  
accreditation certificate no. AB 023



AB 023

Page 1 of 9

FIRE TEST DEPARTMENT

FIRE TEST LABORATORY

## TEST REPORT NO. LZP01 - 06097/18/R03NZP/B

This test report contains test results covered by the scope of accreditation.

This report was issued in three copies, two of which were received by the Client and one remained with ITB.

Client:

**VITRINTEC Sp z o.o.**

(system provider)

Client address:

ul. Karola Olszewskiego 19 C

25-663 Kielce

### INFORMATION REGARDING THE PRODUCT

Manufacturer (company name and address):

VITRINTEC Sp. z o.o.

ul. Karola Olszewskiego 19 C

25-663 Kielce

Name and address of the Production Plant:

VITRINTEC Sp. z o.o.

ul. Karola Olszewskiego 19 C

25-663 Kielce

Product name:

Aluminum profile wall, without mullions, in the **PURE EI30** system by VITRINTEC, filled with **Contraflam Structure 30** glass made by Vetrotech Saint-Gobain

Reference document for the product:

-

Information regarding the product and the declared scope of use and the resulting system for assessing and verifying constancy of performance properties:

*non-load-bearing walls, System 3*

Designation of the construction product type:

*The manufacturer did not provide a unique identification code for the product*

### INFORMATION REGARDING THE RESEARCH SUBJECT

Research object:

description, condition and identification

*A detailed description and identification of the research object can be found in section 1.4 of this report.*

*Technical and drawing documentation can be found in Appendix No.*

FIRE TEST LABORATORY

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National Court Register: 0000158785 | REGON: 000063650 | Tax Identification Number: 525 000 93 58 | [www.itb.pl](http://www.itb.pl) | [instytut@itb.pl](mailto:instytut@itb.pl)

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1 to this report.

Photographic documentation illustrating the test object and the test procedure can be found in Appendix No. 3 to this report.

Information regarding the test object obtained from the Client is included in the test object acceptance report no. LZP01- 06097/18/R03NZP (Appendix No. 4 to this report).

Date of acceptance of the test object: 2018-07-27

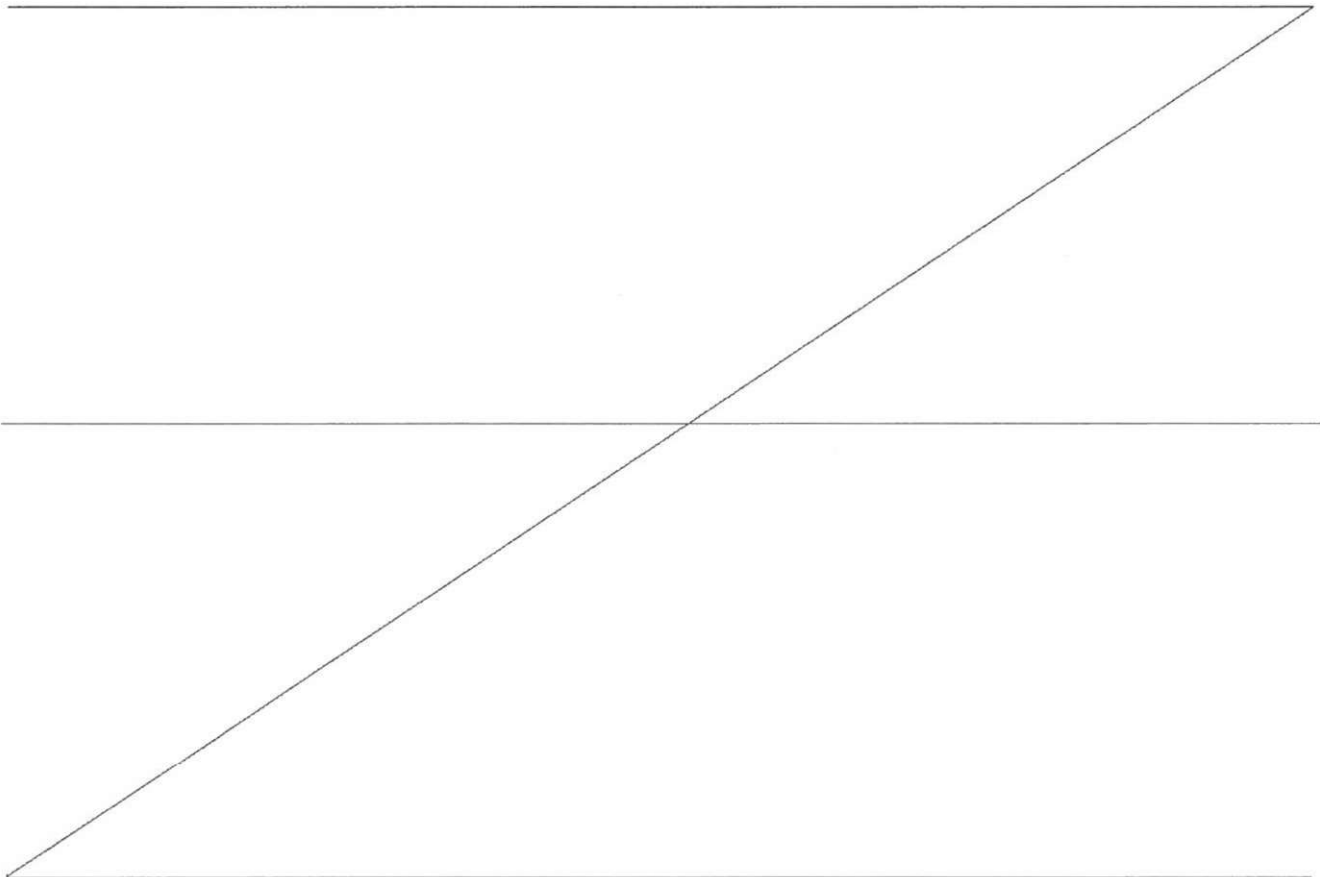
Test object acceptance procedure,  
Test object acceptance protocol number: The object was admitted to the laboratory in accordance with Procedure PZ ZLB 18, admission protocol number: No. LZP01-06097/18/R03NZP (Appendix No. 4 to this report).

<b>RESEARCH INFORMATION</b>
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Research start date: 2018-07-27

Test completion date: 2018-07-27

Test method/procedure: **PN-EN 1364-1:2015-08**  
**Fire resistance tests of non-load-bearing elements - Part 1:**  
**Walls.**



## **1. DESCRIPTION OF THE TEST ELEMENT**

### **1.1. Size of the test element**

The test element and all of its components were of actual dimensions. The dimensions of the front opening of the furnace did not limit the dimensions of the wall.

### **1.2. Number of test elements**

The fire resistance test was carried out on one, asymmetrical test element. Heating from the side of MI001 glazing beads.

### **1.3. Verification of test elements**

Before and after the fire resistance test, the compliance of the data (to the extent possible) contained in the documentation provided by the Ordering Party with the delivered test element was checked. The technical description of the test element below contains the nominal values declared by the Ordering Party. If the nominal values declared by the Ordering Party differ significantly from the values measured by the Laboratory, the technical description includes the nominal values declared by the Client marked as (D) and/or the values measured by the Laboratory marked as (M).

### **1.4. Description of the test element**

A test element, a non-load-bearing partition wall without mullions of the PURE EI30 system, was made and installed from the PURE EI30 system elements by VITRINTEC Sp z o. o. ul. Karola Olszewskiego 19 C, 25-663 Kielce. The structure of the tested wall is shown in Fig. 1 \* 4 in Appendix No. 1.

The test element had the following dimensions: 3024 x 3000 mm (width x height).

The structure of the test element was made of aluminum profiles with the following catalog numbers:

- PI001 - frame profile (vertical and bottom edge),
- PI002 - frame profile (upper edge),
- MI001 - glazing bead attached to PI001 profiles,

Aluminum profiles with a construction depth of 40 mm and a height of 30 mm were used, made of aluminum alloy EN AW 6063, in accordance with PN-EN 573-3 and PN-EN 515, with thermal inlays made of polyamide reinforced with glass fiber (PA 66 GF 25) with cat. no. AEI01 clamped in the profile axis.

Perimeter frame sections with cat. no. PI001 and PI002 were filled, in accordance with Figures 2 and 3 in Appendix No. 1, with insulating inserts made of plasterboard with cat. no. KG0614 with cross-section dimensions 6 x 14 mm.

The wall was filled with Contraflam Structure 30 glass panes from Vetrotech Saint - Gobain, 23 mm thick, with dimensions (numbering according to Fig. 3 in Appendix No. 1; width x height):

- Glass no. 1: 750 x 2970 mm,
- Glass no. 2: 1500 x 2970 mm,
- Glass no. 3: 750 x 2970 mm.

Contraflam Structure 30 glass was mounted on hardwood under-glass blocks (cat. no. KXI2204), with dimensions of (width x length x thickness) 22 x 80 x 4 mm, two blocks for each glass. The under-glass blocks were placed at a distance of approx. 100 mm from the corners of the glass.

The glass was attached by inserting the glass into closed profiles (upper, cat. no. PI002) and then into the bottom and side ones (PI001), and clamping the glazing beads with cat. no. MI001. Depth of insertion of the glass into the profiles: 16 mm for the lower profiles, 14 mm for the upper side profiles. Seals made of TPE thermoplastic elastomer with the addition of non-flammable material, type KB-101, manufactured by AIB Sp. z o.o., are used between the glass and aluminum profiles, cat. no. KUI010.

Vertical joints of glass panes with a width of 4 mm were made using silicone type (DC) 895 from Dow Corning and the intumescent material Kerafix FXL 200 with a cross-section 2 x 13 mm by Rolf Kuhn, cat. no. KF013.

On the side and top profiles, along their entire length on the glazing side, strips of FXL 200 intumescent tape from Rolf Kuhn were glued, with cross-section dimensions of 20 x 1 mm, cat. no. KF0120.

### **1.5. Selection of test elements**

The laboratory participated in the selection of the test element.

## **2. INSTALLATION OF THE TEST ELEMENT**

The test element was installed in a mounting structure made of aerated concrete blocks with a density of 650 kg/m<sup>3</sup> and 120 mm thick with a reinforced concrete lintel made of ordinary concrete (density 2200 kg/m<sup>3</sup>) with a cross-section of 120 x 180 mm (width x height).

The aluminum frame was attached to the reinforced concrete lintel and to the brick wall along the upper, lower and right vertical edges (looking from the unheated side) using

galvanized steel screws type AMO III, 72 mm long, with spacing according to Fig. 1 in Appendix No. 1. The left edge of the wall was left unattached (free edge).

The 20 mm wide gap between the frame and the mounting structure was tightly filled with mineral wool with a density of 80 kg/m<sup>3</sup>.

The left edge of the wall was left unattached (free edge). The space between the mounting structure and the glass pane, approximately 60 mm wide, was filled with mineral wool with a density of approximately 80 kg/m<sup>3</sup>.

The method of mounting the test element in the mounting structure is shown in Fig. 2, 3 in Appendix No. 1.

### **3. PREPARATION OF SAMPLE ELEMENT, SEASONING, VERIFICATION**

The mounting structure was made 14 days before the test (with the reinforced concrete lintel being made three months before the test), and the test element was prepared by the Ordering Party at the Fire Test Laboratory in the Masovian Branch of ITB in Pionki 8 days before the test.

Seasoning took place at an ambient air temperature of 17 to 26°C and a relative humidity of the ambient air of 35 to 75%.

### **4. TEST CONDITIONS**

#### **4.1. Ambient temperature and relative humidity**

Ambient air temperature before the test, measured using a thermohygrometer installed in the test room: 24.0°C. Relative humidity of the ambient air before the test, measured using a thermohygrometer installed in the test room: 73%.

#### **4.2. Temperature in the furnace**

The temperature in the furnace was measured using 16 plate thermometers, arranged in accordance with PN-EN 1363-1:2012. The heating temperature chart is shown in Fig. 1 in Appendix No. 2. The heating accuracy chart is shown in Fig. 2 in Appendix No. 2.

#### **4.3. Pressure in the furnace**

The pressure in the furnace was measured at a height of 0.43 m above the top edge of the test element and was maintained at 23.7 Pa, which corresponded to a pressure of 20 Pa at the reference point. The pressure chart in the furnace is shown in Fig. 11 in Appendix No. 2.

#### 4.4. Temperature of the unheated surface of the element

The temperature of the unheated surface of the test element was measured using 23 surface thermocouples, the arrangement and numbering of which is shown in Fig. 3 in Appendix No. 2.

#### 4.5. Ambient temperature

The ambient temperature during the test, measured with the device according to PN-EN 1363-1:2012, is shown in Fig. 10 in Appendix No. 2.

### 5. RESEARCH RESULTS

The test lasted 32 minutes and 29 seconds.

#### 5.1. Temperature on the unheated surface of the test element

Results of temperature measurements on the unheated surface of the test element in Fig. 4 ÷ 9 in Appendix No. 2. For the first 3.5 minutes of the test, due to a failure, the readings of increasing temperature were not recorded.

#### 5.2. Fire insulation, fire tightness

The result, expressed as the time, in whole minutes, that elapsed between the start of heating and the moment when the appropriate criteria were exceeded, is presented in the table below:

Fire tightness criterion		Time [min]	Location
1.	Occurrence of sustained flame	31	At the right vertical edge of the glass no. 3 (halfway up)
2.	Cotton tampon catches fire	32 without loss	
3.	Feeler gauges: 6 mm feeler gauge, 25 mm feeler gauge		
		30	At the right vertical edge of the glass no. 3 (halfway up)
		32 without loss	
Fire insulation criterion		Time	Location
4.	Average temperature increase by 140 °C above the initial average temperature	32 without loss	

5.	Maximum temperature increase by 180 °C above the initial average temperature	32 without loss	
6.	Maximum temperature increase by 180 °C above the initial temperature (other fixed thermocouples, if used, or movable thermocouple)	32 without loss	

### 5.3. Displacements

The places of measurement of wall displacements in the direction perpendicular to their surface are shown in Fig. 3 in Appendix No. 2, and the values of the measured displacements are presented in the Table below:

Time [min]	Displacement measurement [mm]				
	A	B	C	D	E
0'	0	0	0	0	0
10'	+23	+23	+23	+15	+4
20'	+29	+33	+36	+25	+5
25'	+36	+38	+45	+41	+6
30'	+43	+45	+47	+58	+4

the "+" sign means a displacement towards the inside of the furnace,  
the "-" sign means a displacement towards the outside of the furnace.

### 6. OBSERVATIONS

0' - start of the test,

2'15" - the inner layer of the glass pane in the glass no. 1 and 2 is detached (numbering of glass according to Fig. 3 in Appendix No. 2);

2'52" - the inner layer of the glass pane in the glass no. 3 is detached;

4'07" - the inner layer of the glass pane in the glass no. 3 breaks and falls into the furnace;

7'04" - the inner layer of the glass pane in the glass no. 2 breaks and falls into the furnace;

8'10" - smoke in the upper right corner of the glass no. 3 and along the right vertical edge of the glass no. 3;

12'35" - smoke in the upper left corner of the glass no. 3;

20'58" - flame for about 7 seconds at the right vertical edge of the glass no. 3 (halfway up the test elements at the mounting structure);

2T19" - placing a cotton pad to the observation site from 20'58" - after 30 seconds the pad is white, no ignition, no glow;

22'25" - placing a cotton pad to the observation site

20'58" - after 30 seconds the pad is white, no ignition, no glow;

23'46" - placing a cotton pad in the upper right corner of the glass no. 3 at the vertical edge - after 30 seconds the pad is white, no ignition, no glow;

27'23" - placing a cotton pad in the upper right corner of the glass no. 3 at the vertical edge - after 30 seconds the pad is blackened, no ignition, no glow;

29'04" - placing a cotton pad in the upper right corner of the glass no. 3 at the vertical edge - after 30 seconds the pad is blackened, black, no ignition, no glow;

30'54" - application of a 6 mm feeler gauge in the gap created at the right edge of the vertical glass no. 3 (center of height) - the feeler gauge moved over a distance of 50 cm;

31'47" - continuous fire halfway up the test element at the right edge of the vertical glass No. 3

32'29" - **end of test** in consultation with the Client.

## **7. PHOTOGRAPHIC DOCUMENTATION**

The view of the wall during the test is illustrated in Photo 1 ÷ 3, and after the test in Photo 4 in Appendix No. 3.

## **8. SCOPE OF APPLICATION OF THE RESULTS**

The scope of application of the fire resistance test results of the tested element described in this Report according to point 13 of the PN-EN 1364-1:2015-08 standard.

## **9. FINAL REMARKS**

This report provides the method of construction, test conditions and results obtained when a specific element of the described design has been tested in accordance with the procedure set out in EN 1363-1 and, where appropriate, with EN 1363-2. Any material change in size, construction details, loads, stresses, boundary conditions or conditions at the ends, other than that permitted by the immediate scope of application in the particular test method, is not covered by this report.

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

## **10. ATTACHMENTS**

- No. 1 Technical documentation,



- No. 2 Charts of temperature increases with the distribution of thermocouples, pressure chart, locations of displacement measurement,
- No. 3 Photographic documentation,
- No. 4 Protocol of accepting the object for testing.

**Responsible for the study:**

**M.Sc. Eng. Jacek Kinowski**

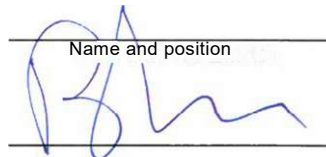
\_\_\_\_\_  
Name and position



\_\_\_\_\_  
Signature

**The person authorizing the  
report, M.Sc. Eng. Bartłomiej  
Sędlak**

\_\_\_\_\_  
Name and position



\_\_\_\_\_  
Signature

*The Test Laboratory declares that the test results refer only to the tested object. Without the written consent of the Research Laboratory, the Report may not be reproduced except in full.*

*The test report does not replace the documents required for placing construction products on the market and making them available.*

**MANAGER of the Fire Research Laboratory,**

**Ph.D., Eng. Bartłomiej Papis**

\_\_\_\_\_  
Name and position



**Warsaw, May 21, 2019**

This test report replaces the test report no. LZP01 -06097/18/R03NZIP.



**Appendix No. 1**  
**to Report No. LZP01-06097/18/R03NZP/B**  
**Technical Documentation**

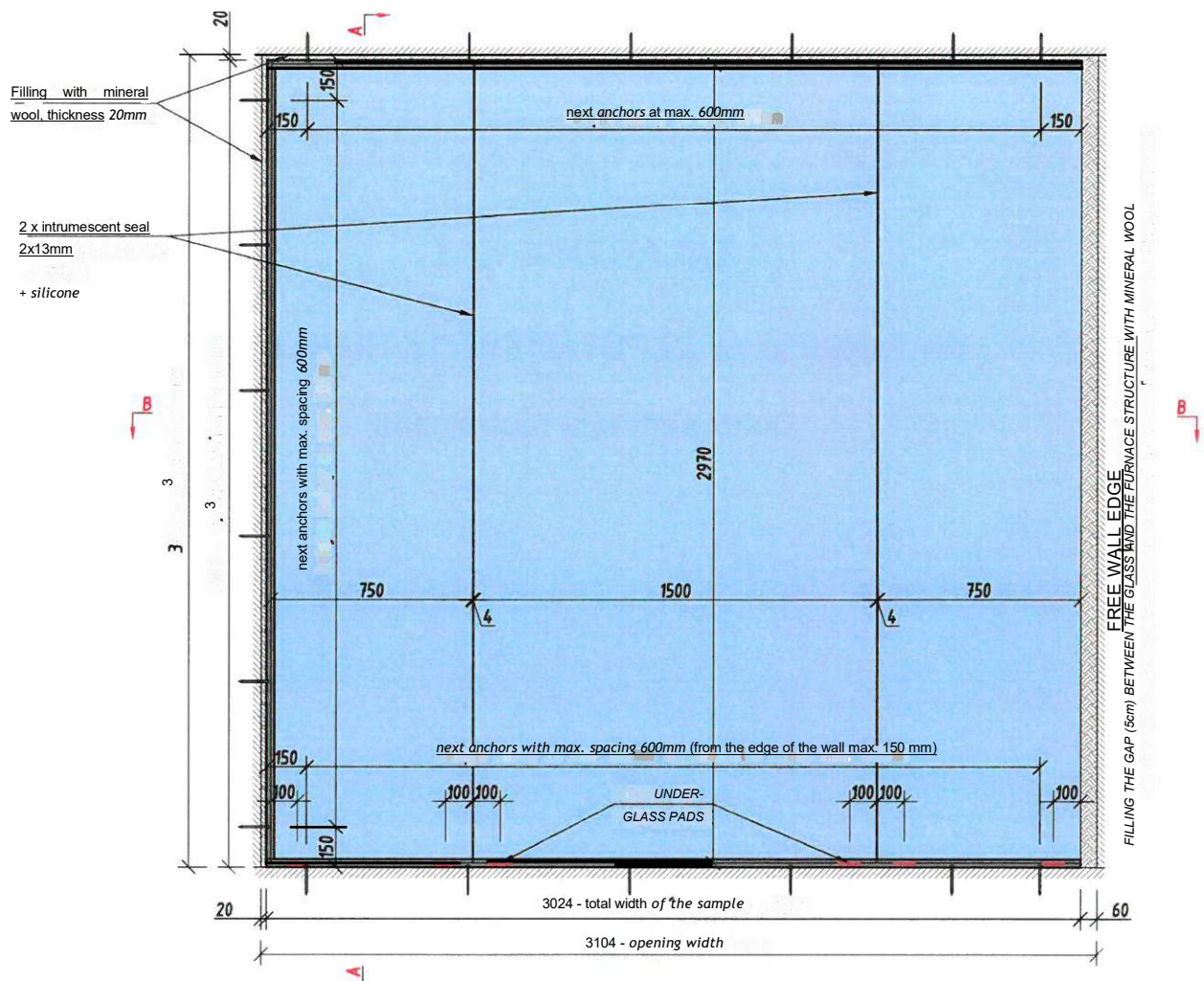


Fig. 1. General view of the test element from the heated side. Designation of cross-sections and attachment points

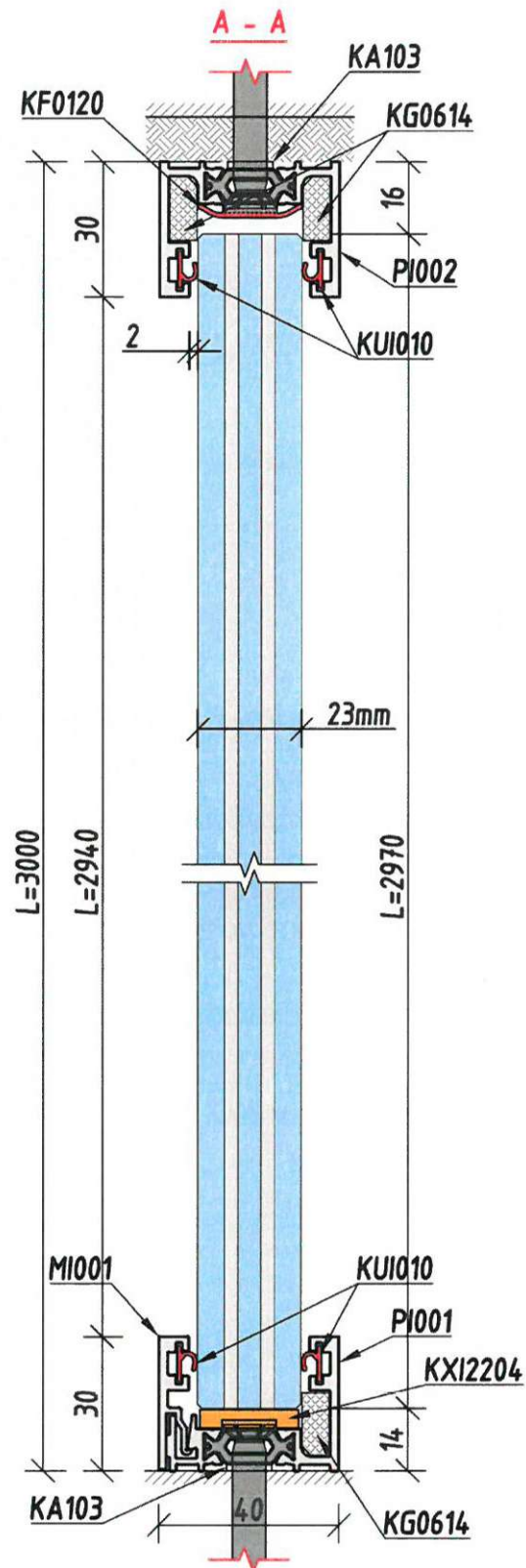


Fig. 2. Section A - A

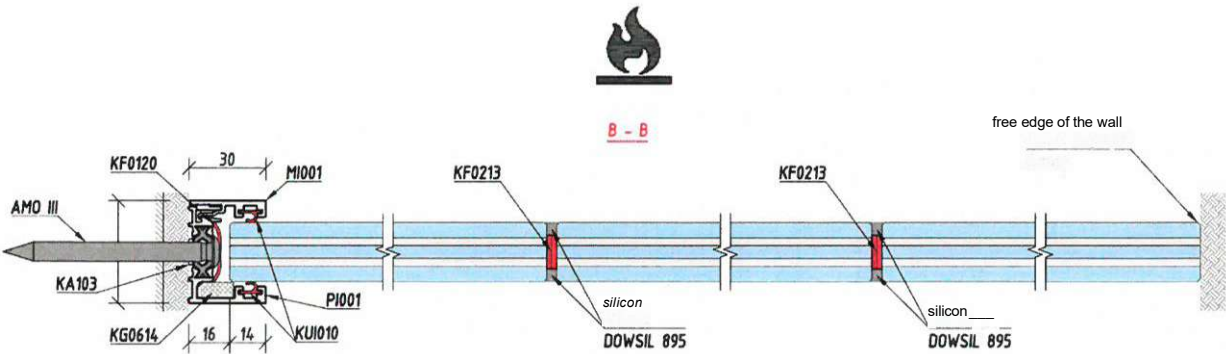


Fig. 3. Section B - B

LEGEND:

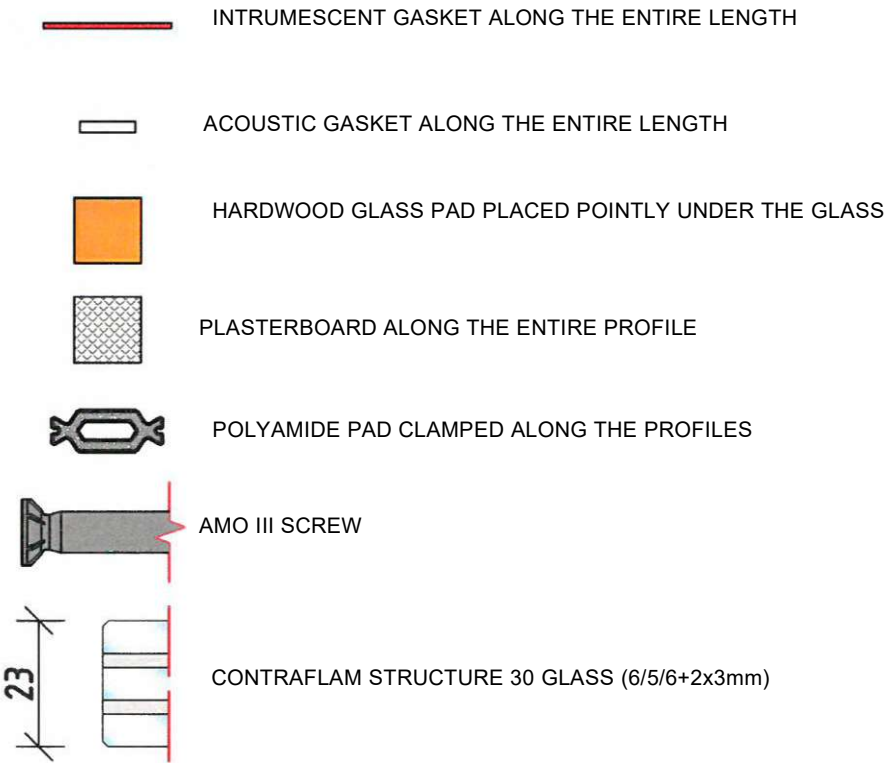
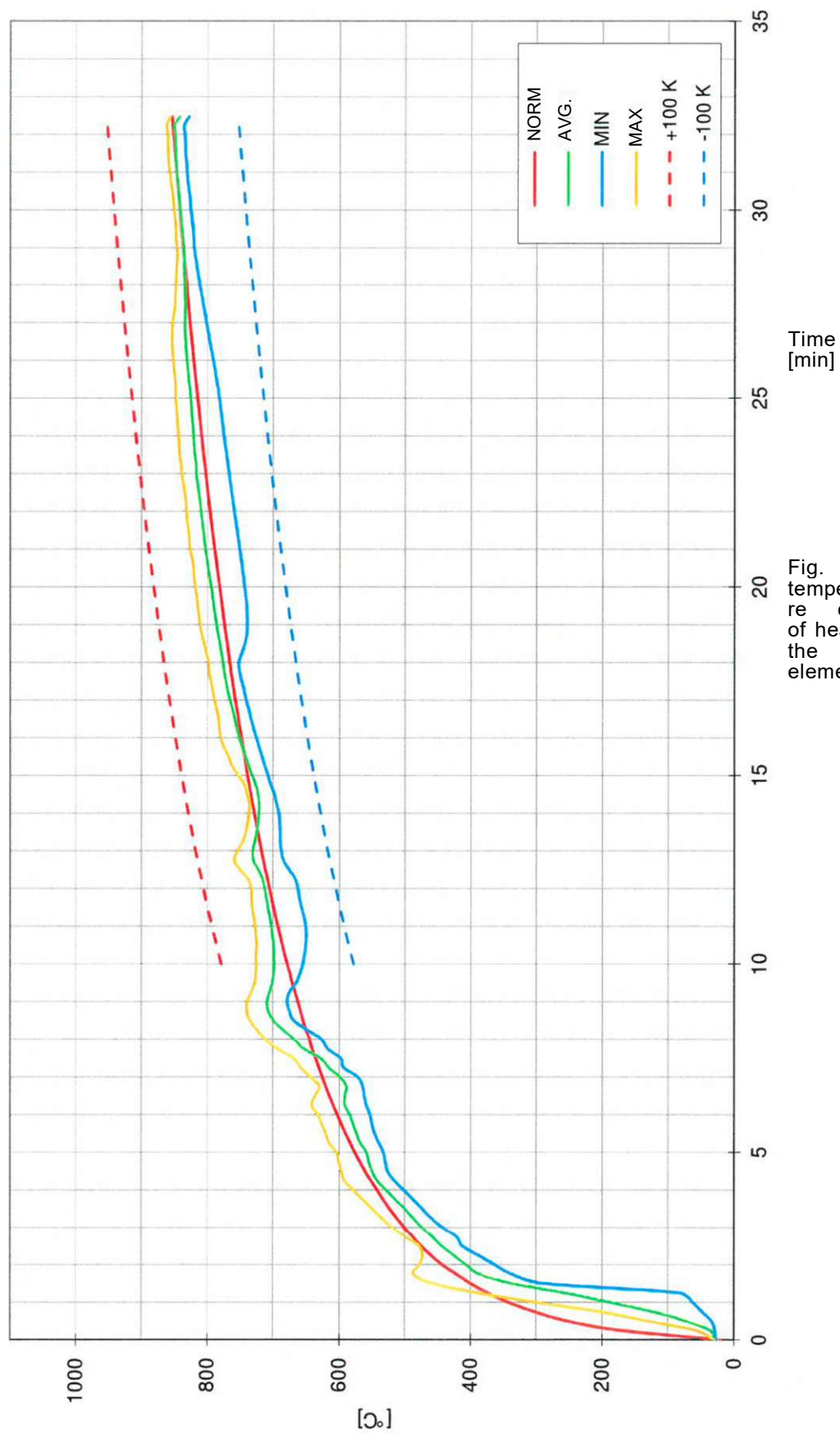


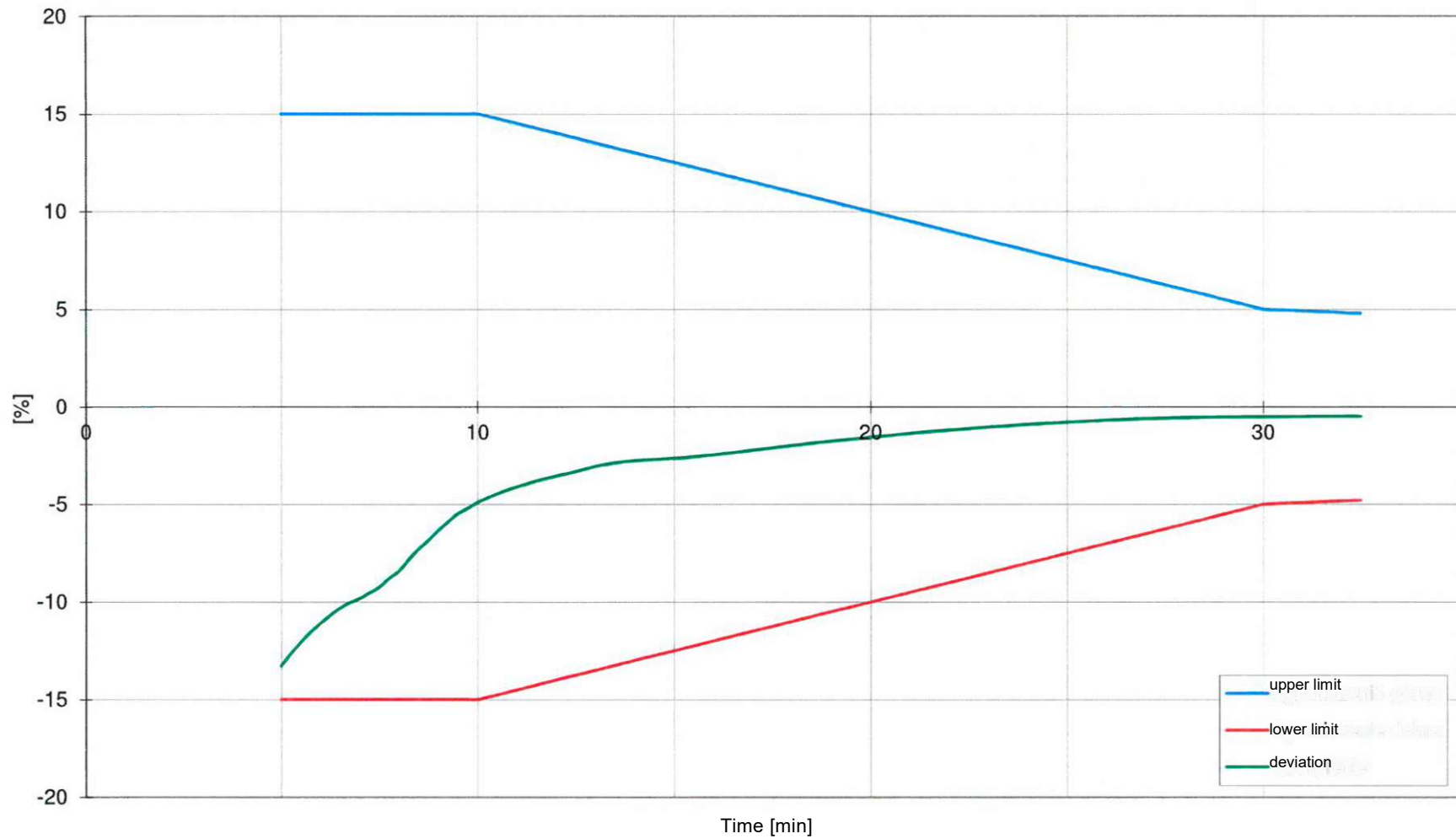
Fig. 4. Legend of markings

**APPENDIX No. 2 to Report LZP01 -  
06097/18/R03NZP/B**

**Temperature increase charts with the  
distribution of thermocouples and places of  
deformation measurement, pressure chart**







Time [min]

Fig. 2 Heating accuracy chart

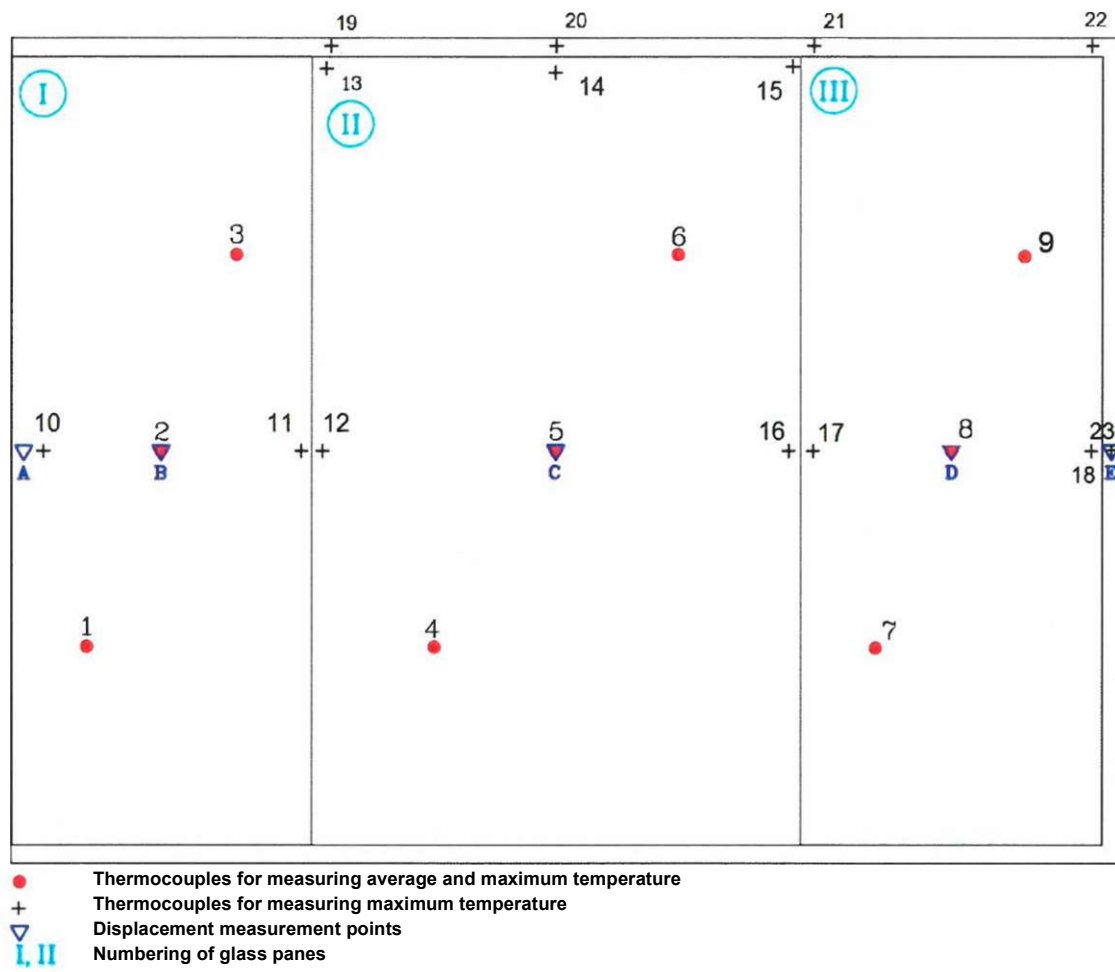


Fig. 3. Distribution of thermocouples on the unheated surface of the test element, numbering of glass panes and places of deformation measurement

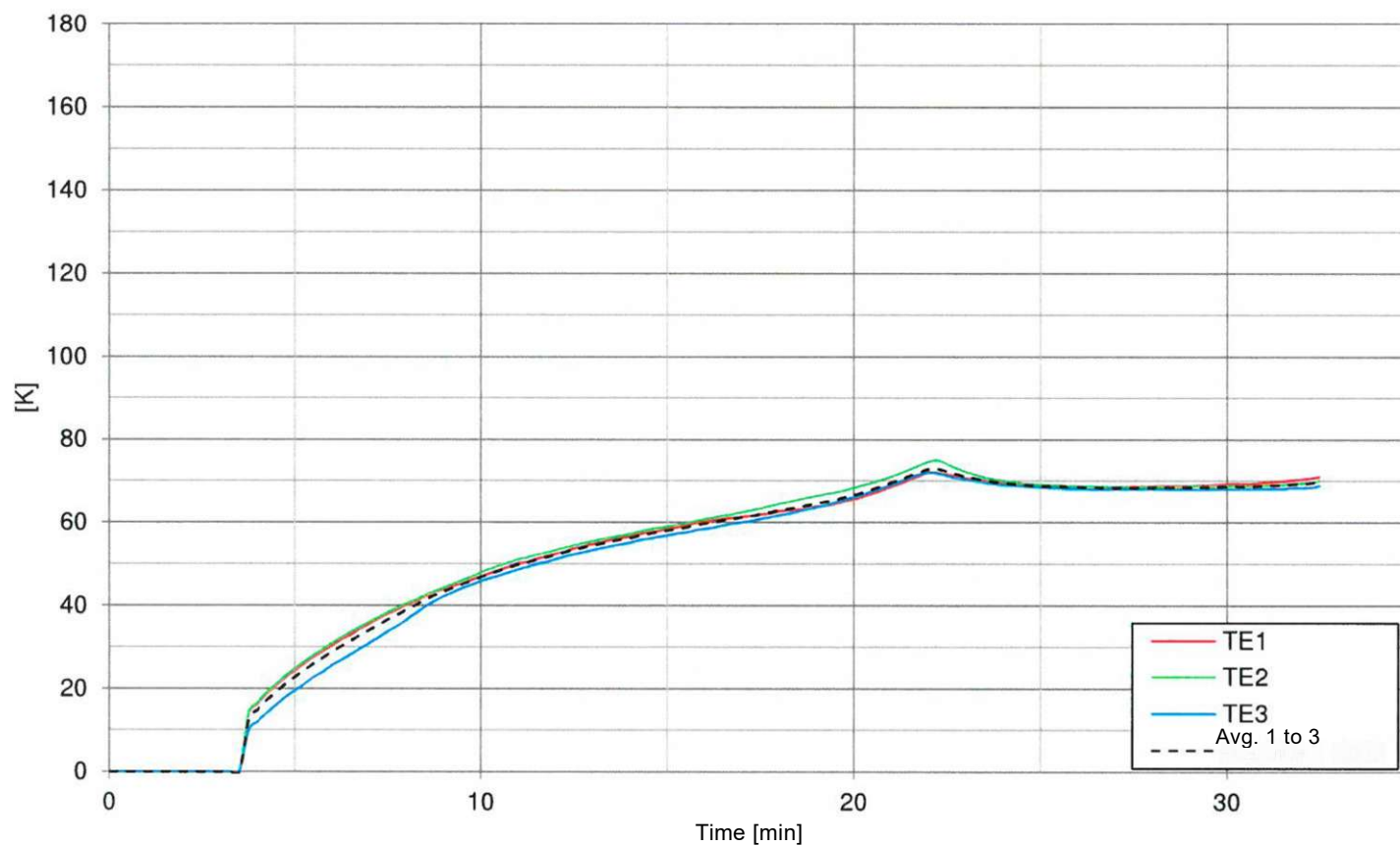


Fig. 4. Graph of temperature increases on the unheated surface of the test element - indications of thermocouples for measuring the average (maximum) temperature

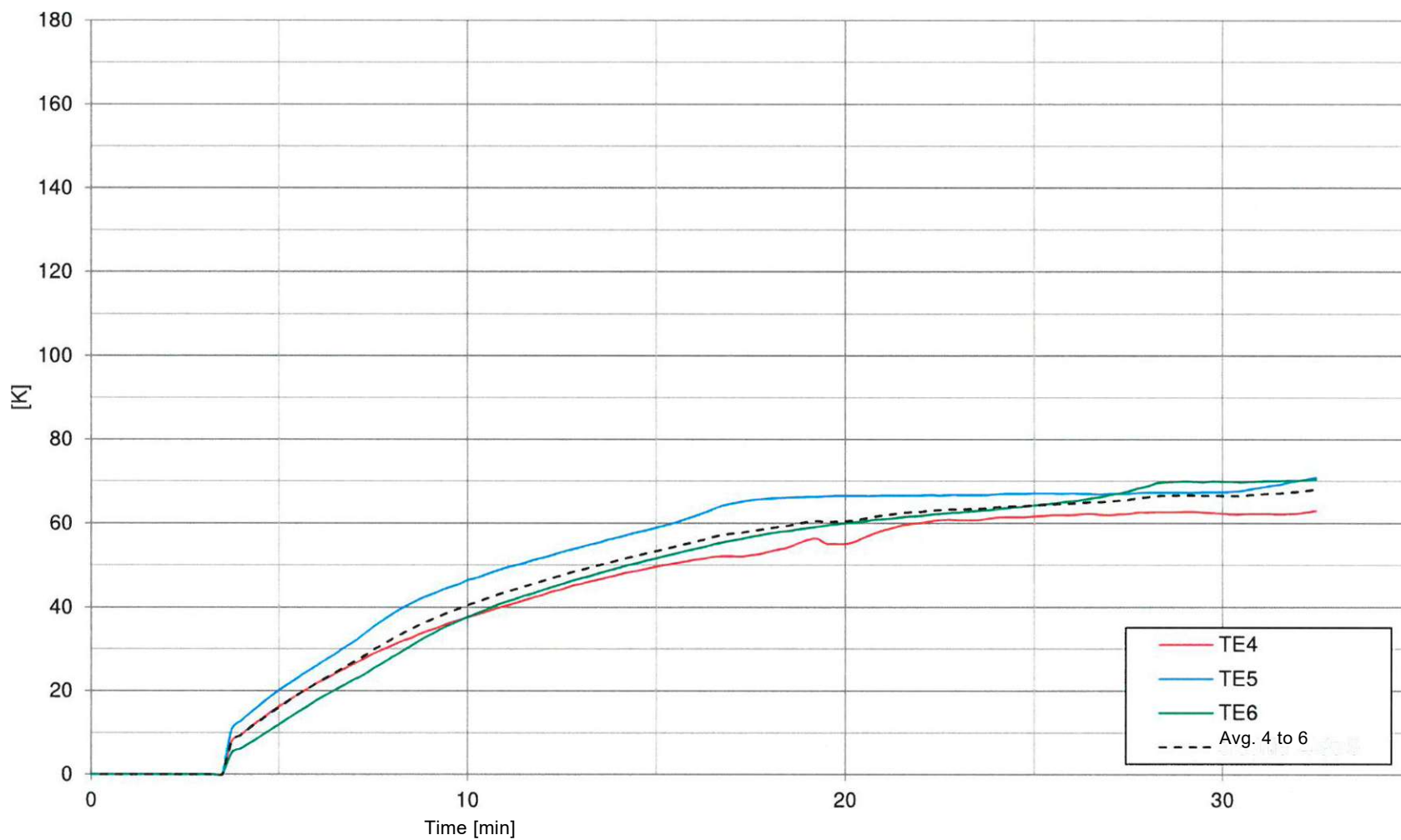


Fig. 5 Chart of temperature increase on the non-heated surface of the test element – indications from thermocouples for the average (maximum) temperature measurement

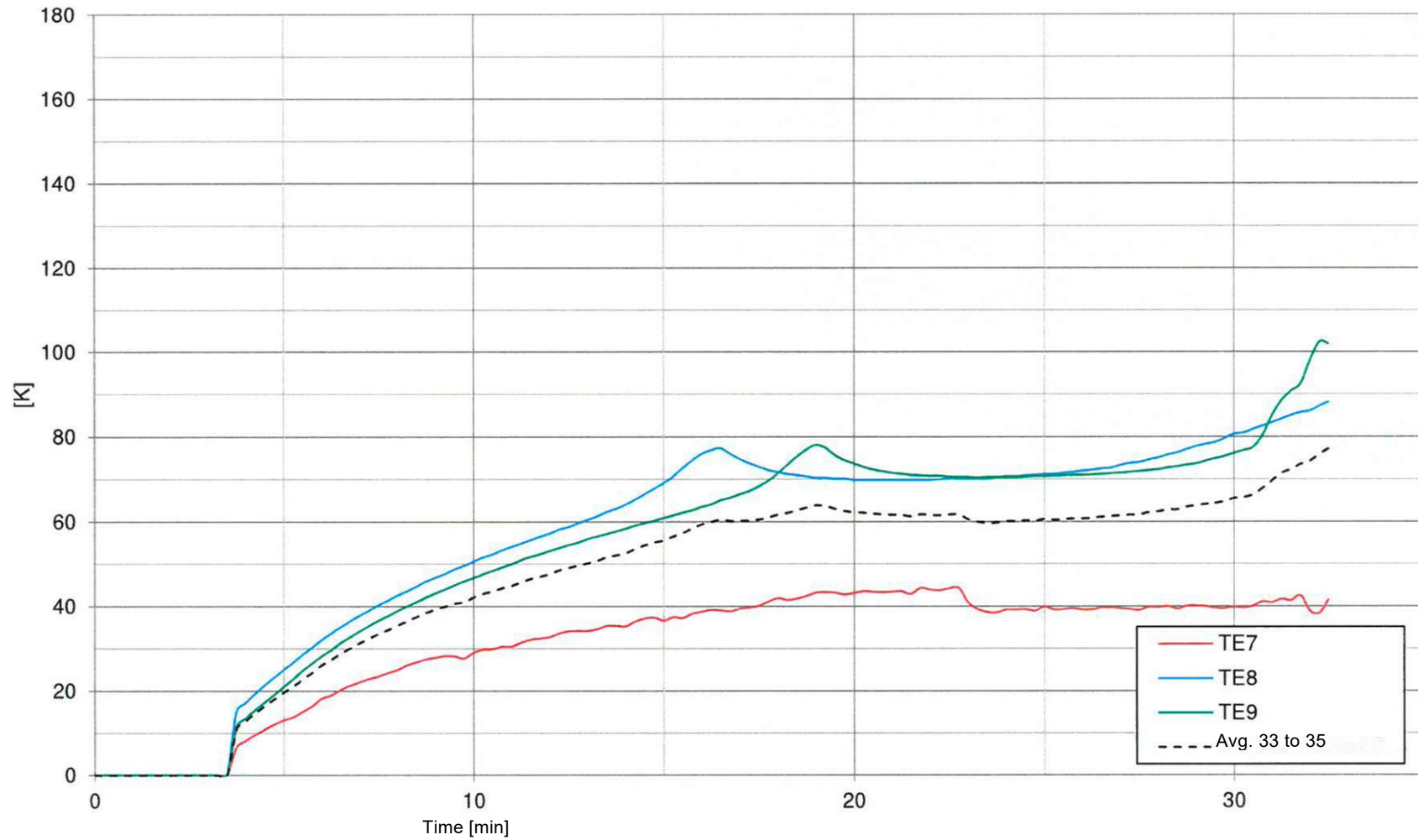


Fig. 6 Chart of temperature increase on the non-heated surface of the test element – indications from thermocouples for the average (maximum) temperature measurement

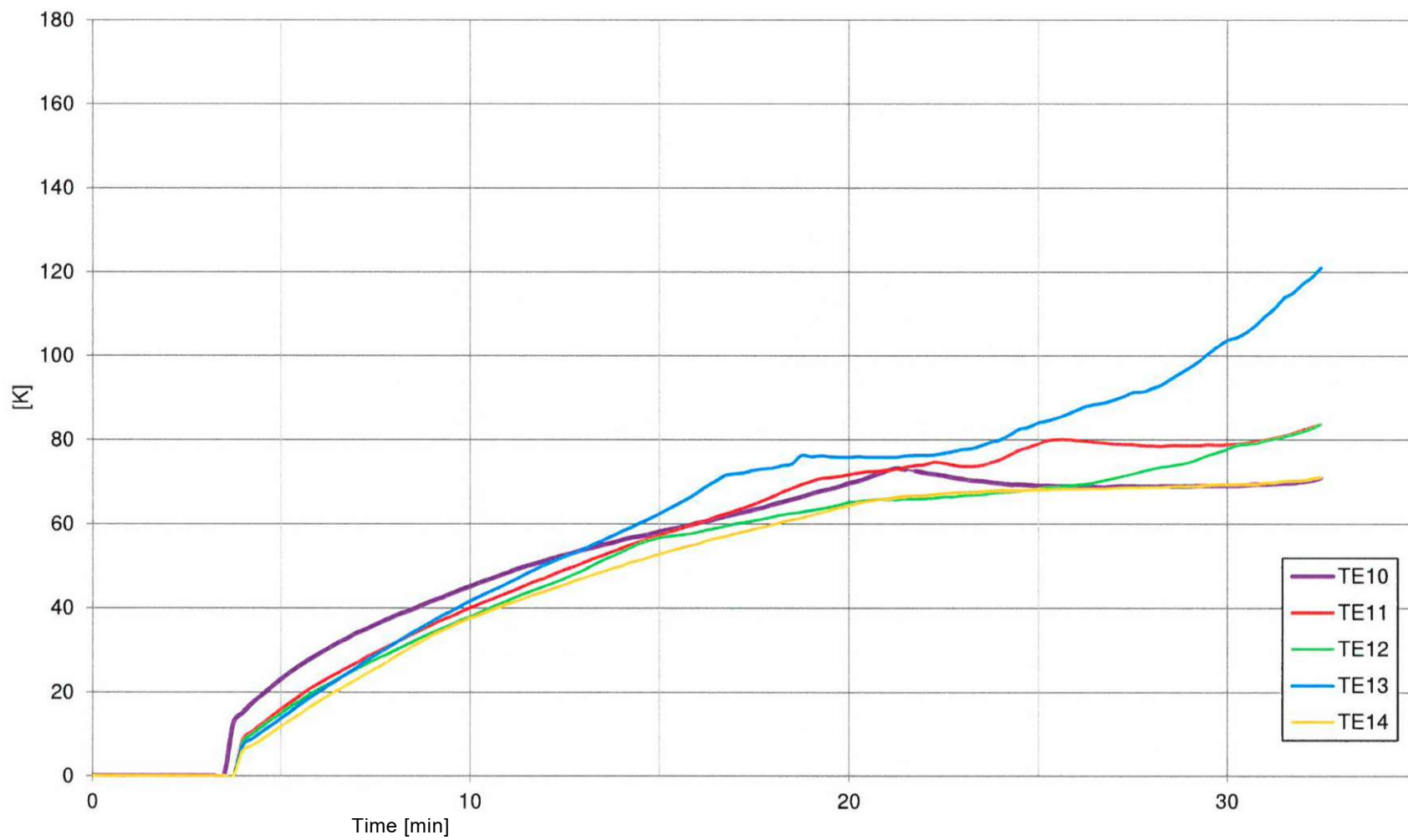


Fig. 7 Chart of temperature increase on the non-heated surface of the test element – indications from thermocouples for the maximum temperature measurement

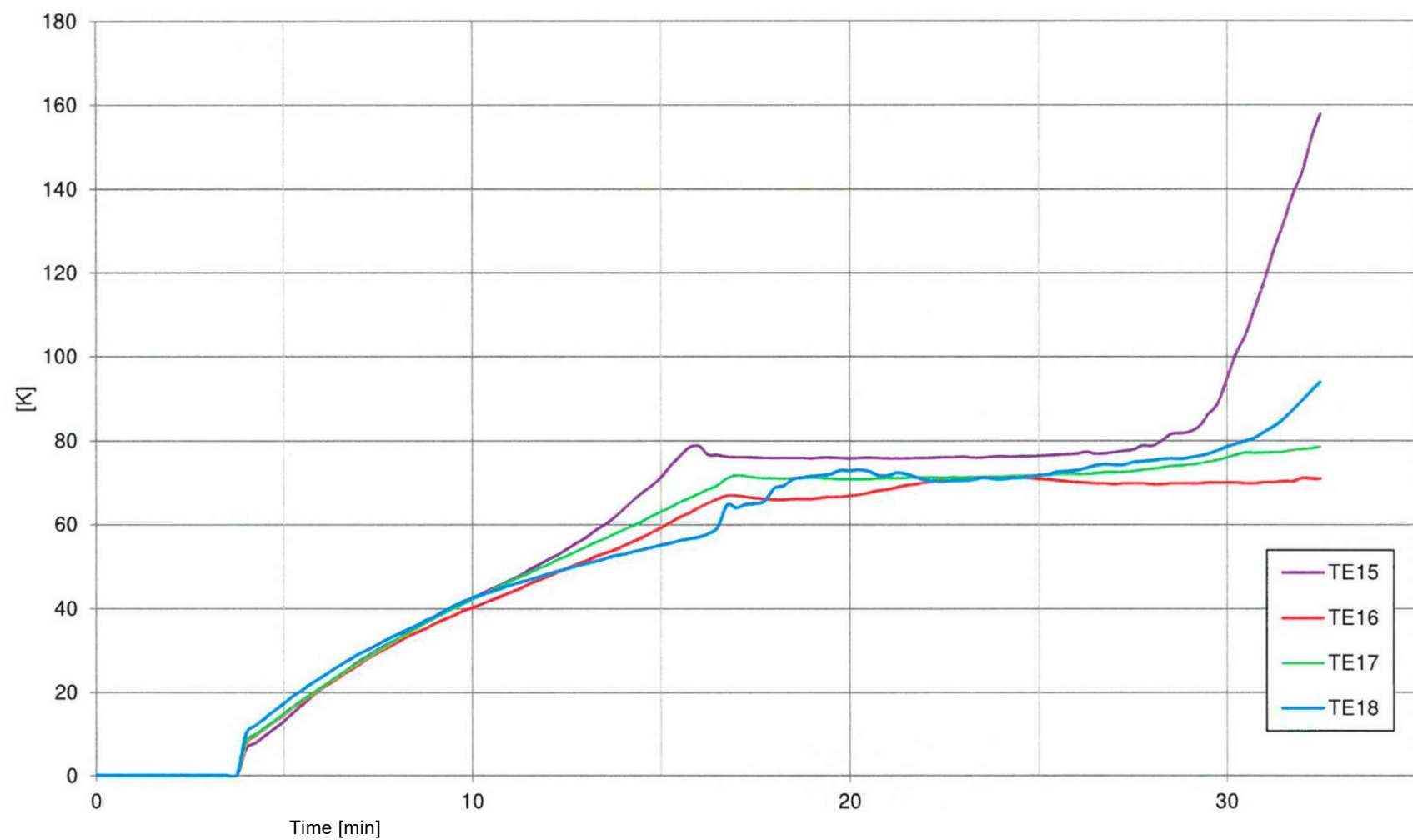


Fig. 8 Chart of temperature increase on the non-heated surface of the test element – indications from thermocouples for the maximum temperature measurement

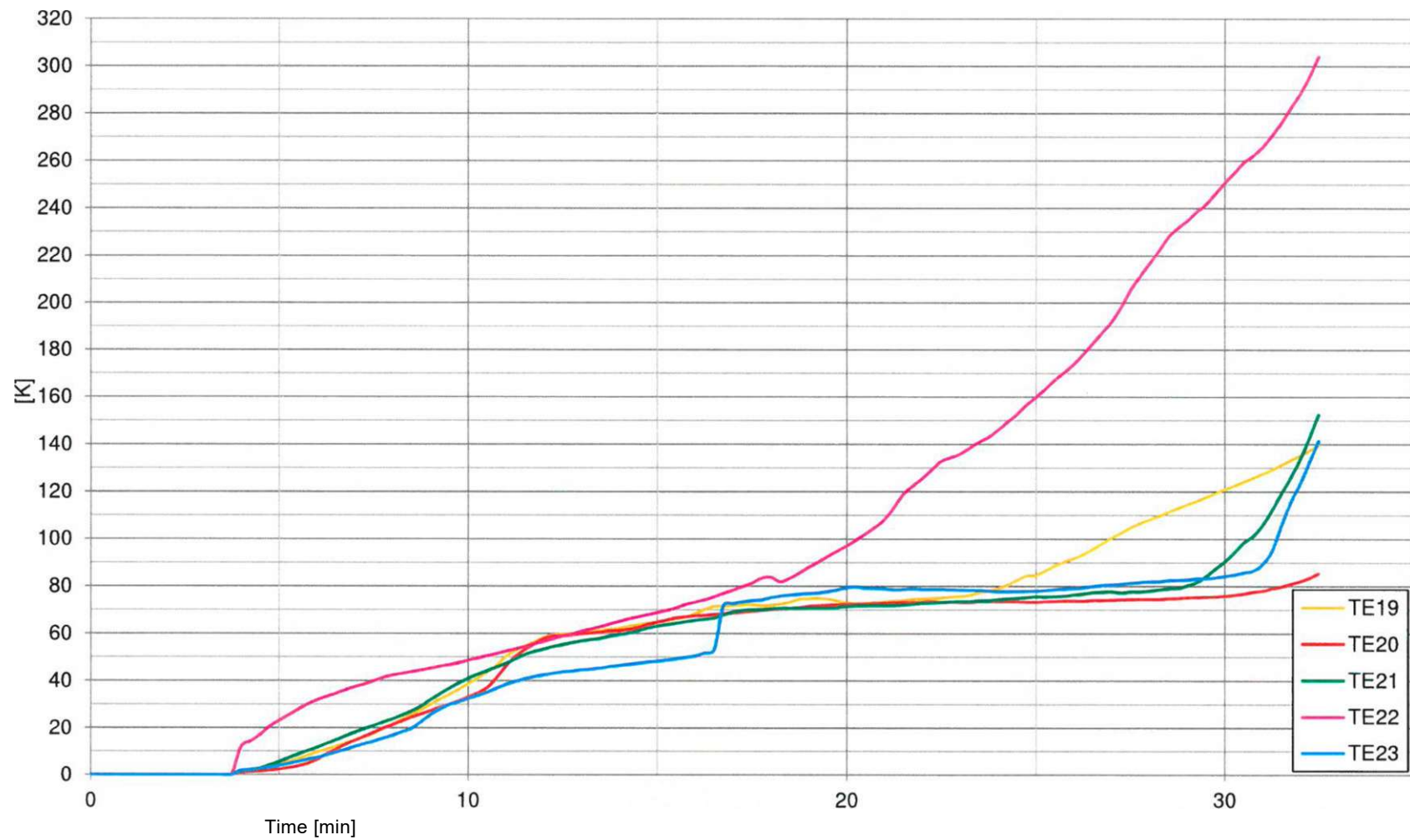


Fig. 9 Chart of temperature increase on the non-heated surface of the test element – indications from thermocouples for the maximum temperature measurement on the window frame (for information only)



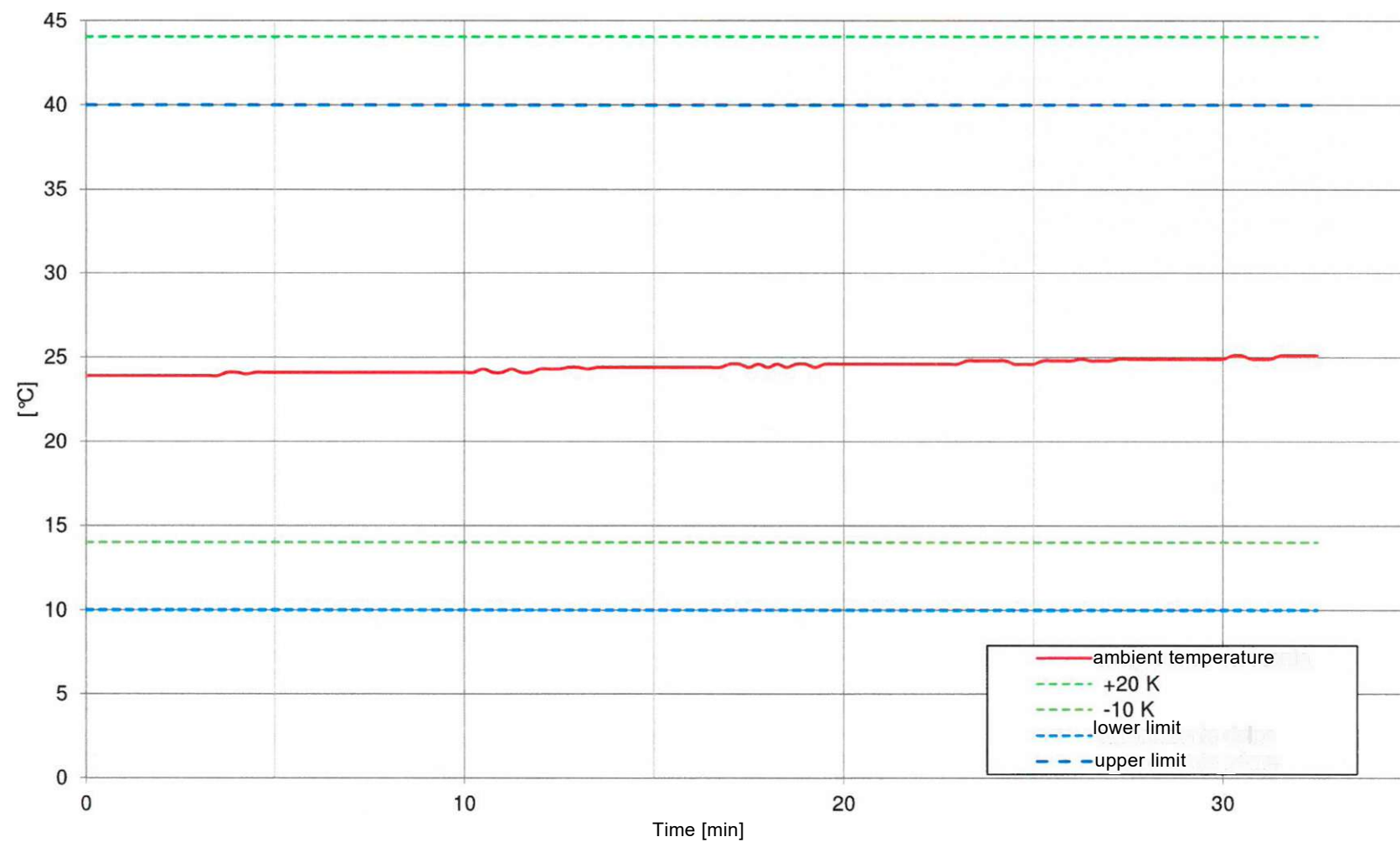


Fig. 10 Ambient temperature

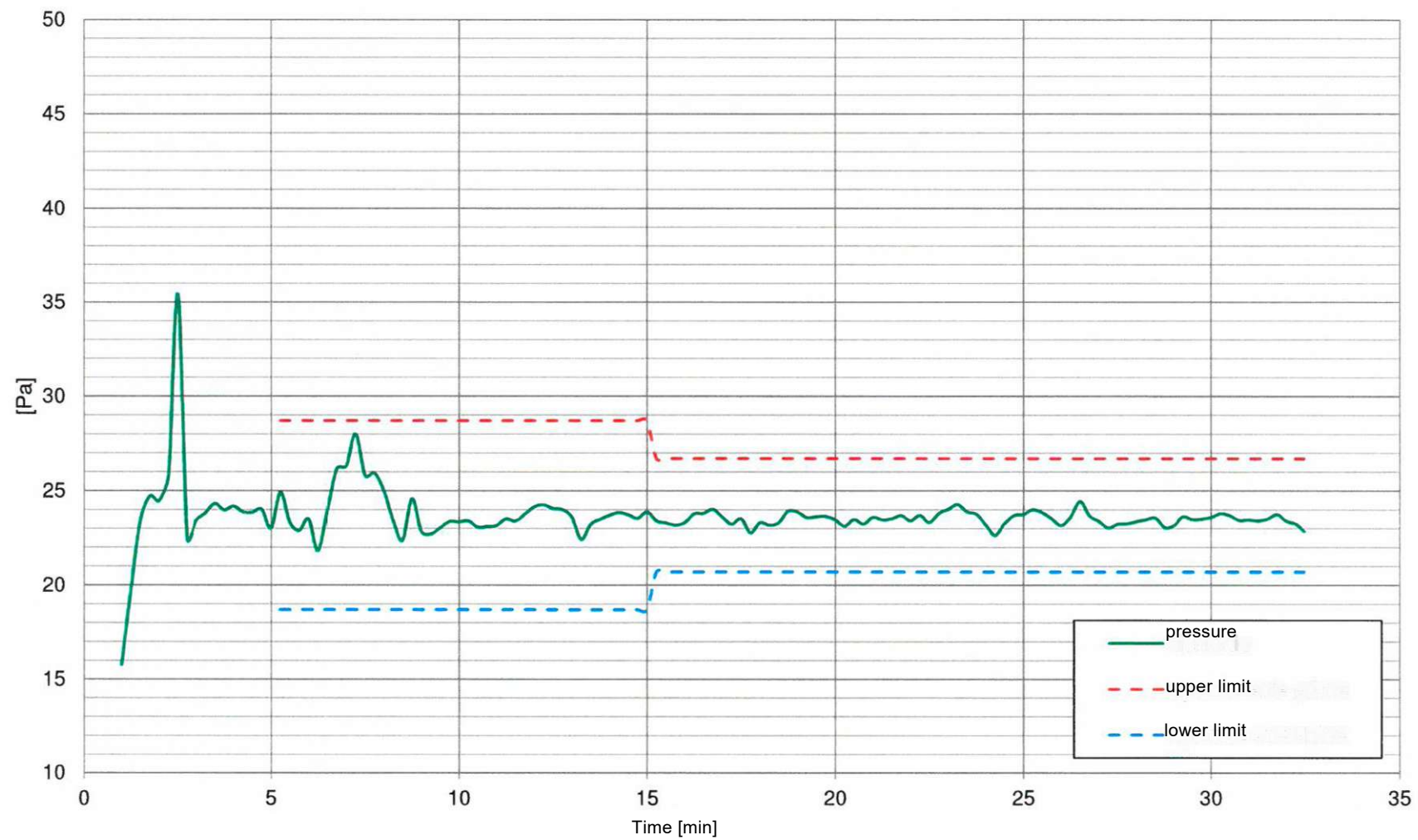


Fig. 11. Graph of pressure in the furnace during the test

**APPENDIX No. 3 to Report**

**LZP01 -06097/18/R03NZP/B**

**Photographic documentation**



Photo 1. View of the non-heated surface of the test element before testing



Photo 2. View of the heated surface of the test element in the 8th minute of the test





Photo 3. View of the non-heated surface of the test element at 31 minutes of the test

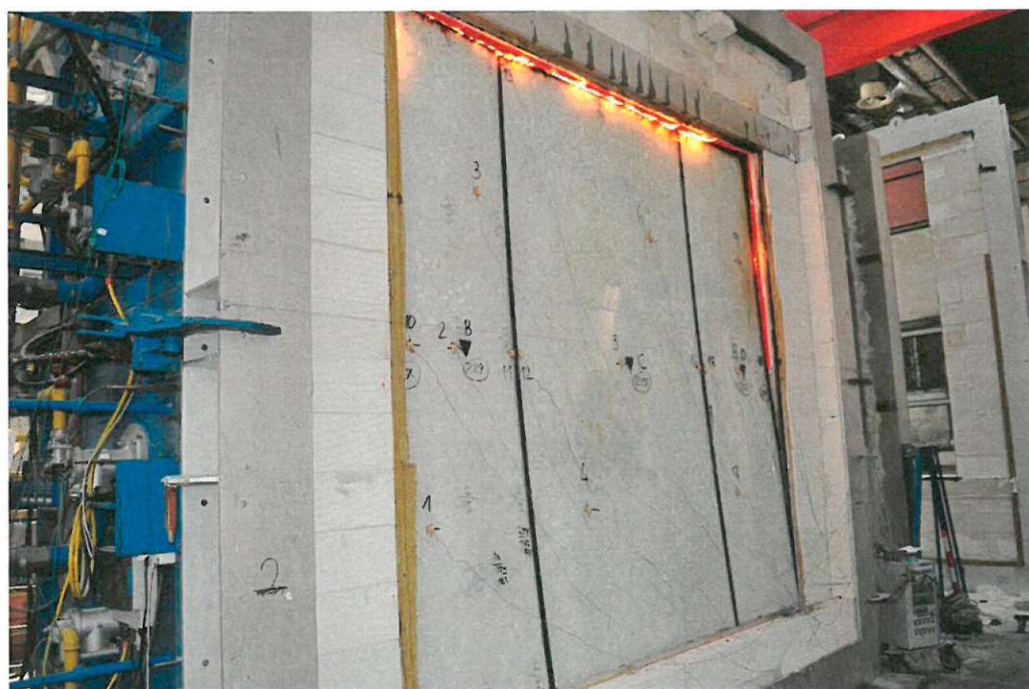


Photo 4. View of the non-heated surface of the test element after the test



**APPENDIX No. 4**  
**to Report No. LZP01 - 06097/18/R03NZP/B**  
**Acceptance protocol**

<b>Institute of Building Technique (Instytut Techniki Budowlanej)</b> <b>Research Laboratories COMPLEX</b>	
<b>PROTOCOL OF ACCEPTANCE OF THE SPECIMEN FOR TEST NO. Lzp01- 06097/18/R03NzP</b>	
Number of the contract of the incoming document (or other number identifying the test object and the order): 06097/18/R03N2	
1 Object (name, type) accepted for testing by the Laboratory, <i>PURE EI30</i> 1a. Appropriate number of the standard for the product: -	
2. Method of packaging samples of the test object (based on visual inspection): /text illegible/	
3. External condition/characteristics of samples of the test object <i>Very good</i> <b>The condition and size of the sample/number of elements delivered (etc.) enable tests to be performed in accordance with the specifications</b>	
<div style="text-align: center;"> <b>YES X                      NO</b> </div>	
**) If NO, the laboratory should not proceed with the tests. Please contact the ordering party	
4. Labeling of samples of the test object by manufacturer: -	
4a. Information about the test object - the manufacturer's name: <i>VITRINTEC SP. Z O.O. SP.K.</i> place of production (name and address of production plant) <i>Olszewskiego 19C, Kielce</i> place of sampling - - production line - batch: no.: - size 3024 x 3000 mm production date: 2018 - type, kind and variety of product: non-load-bearing wall number/weight of samples 1 Other information: /text illegible/ Or***) As in. <b>Appendix from test report</b> which constitutes an annex to this Protocol	
5. CLIENT (Name, address): 5a X Manufacturer <input type="checkbox"/> Authorized representative <input type="checkbox"/> Importer	
6. Other information regarding the acceptance of samples of the test object: Assembly by the Client	
<div style="display: flex; justify-content: space-between;"> <div>Supplier /</div> <div>Recipient</div> </div>	
<div style="display: flex; justify-content: space-between;"> <div><i>/Text illegible/</i></div> <div><i>/Text illegible/</i></div> </div>	
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<div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Signature</div> </div>	
<div style="text-align: center;">Pionki, 27/07/2018</div>	

\* - if applicable

\*\*) If information from point 4a are included in the collection protocol or another document signed by the ordering party, you can include this document without having to copy the information)