

TEST REPORT FIRES-FR-154-17-AUNE

Single leaf timber wall hatch door 86 mm in timber frame, type EI30 - 86mm/30mm
Single leaf timber wall hatch door 46 mm in timber frame, type EI30 - 46mm/30mm

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TEST REPORT

FIRES-FR-154-17-AUNE

Tested property: Fire resistance
Test method: EN 1634-1:2014
Type of test: Accredited / Notified (NB 1396)
Date of issue: 19. 09. 2017

Name of the product: Single leaf timber wall hatch door 86 mm in timber frame, type EI30 - 86mm/30mm
Single leaf timber wall hatch door 46 mm in timber frame, type EI30 - 46mm/30mm

Manufacturer: OMAN Sp. z o.o., ul. Zamkowa 11, 47-400 Racibórz, Poland
Sponsor: OMAN Sp. z o.o., ul. Zamkowa 11, 47-400 Racibórz, Poland

Test carried out by: FIRES, s.r.o., Testing laboratory
Task No.: PR-17-0309
Specimens received: 04. 08. 2017
Date of the test: 09. 08. 2017

Technician responsible for the technical side of this report: Ing. Miroslav Hudák

Number of pages: 39
Test reports: 3

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1. INTRODUCTION

This test report contains the results of test carried out by FIRES, s.r.o., Testing laboratory in Batizovce, accredited by SNAS for testing. Certificate of accreditation No.: S-159. The purpose of the test was to gain information for product classification.

Sponsor's representatives witnessing the test:

Michal Prochniak OMAN Sp. z o.o.

test carried out by Ing. Miroslav Hudák
operator Ing. Marek Gorlický

2. MEASURING EQUIPMENT

Identification number	Measuring equipment	Note
F 90 001	Vertical test furnace for fire resistance testing	-
F 69 010	PLC system for data acquisition and control TECOMAT TC 700	-
F 40 019	Visual and calculating software to PLC TECOMAT TC 700	-
F 40 017	Control and communication software to PLC TECOMAT TC 700	-
F 40 018	SW Reliance	-
F 40 020	Driver Tecomat - Reliance (SW)	-
F 71 008, F 71 009	Transducer of differential pressure (- 50 to + 150) Pa	pressure inside the test furnace
F 54 054	Digital calliper (0 to 150) mm	-
F 54 051	Racking meter	-
F 73 002	Suspension load scale	finding out of humidity equilibrium state
F 69 009	PLC system for data acquisition and climate control TECOMAT TC 604	-
F 60 001 - F 60 009	Sensors of temperature and relative air humidity	climatic conditions measuring
F 13 501 - F 13 508	Plate thermometers	temperature inside the test furnace, according to EN 1363-1
F 13 002 - F 13 200	Unsheathed thermocouples type K 2 x Ø 0,5 mm	temperatures on the unexposed surface of the specimen
F 13 701	Sheathed thermocouple type K Ø 3 mm	ambient temperature
F 13 001	Roving thermocouple	-
F 74 007 - F 74 019	Cable position transducers (0 to 1250) mm	measuring of deflection
F 54 024	Ruler for measuring of deflection (by laser)	measuring of deflection
F 90 005	Gap gauge for fire resistance testing Ø 25 mm	-
F 90 006	Gap gauge for fire resistance testing Ø 6 mm	-
F 90 007	Frame for supporting the cotton pad (100 x 100) mm for fire resistance tests	-
F 57 002	Digital stop-watch	-



3. PREPARATION OF THE SPECIMENS

Testing laboratory noted down production data of specimens from production. Test specimen data are listed in following table:

Single leaf timber wall hatch door 86 mm in timber frame, type EI30 - 86mm/30mm	
Place of production	OMAN Factory No. 1, ul. Gamowska 3a, Pawłów, 47-480 Pietrowice Wielkie, Poland
Production number (specimen No. 1)	102017
Production number (specimen No. 2)	112017
Date of production	29. 06. 2017
Date of check out	30. 06. 2017

Single leaf timber wall hatch door 46 mm in timber frame, type EI30 - 46mm/30mm	
Place of production	OMAN Factory No. 1, ul. Gamowska 3a, Pawłów, 47-480 Pietrowice Wielkie, Poland
Production number (specimen No. 3)	122017
Production number (specimen No. 4)	132017
Date of production	29. 06. 2017
Date of check out	30. 06. 2017

Four specimens were delivered to the testing laboratory (two identical specimens from each type). Technician of Testing laboratory FIRES, s.r.o. Batizovce randomly selected specimens to be used for the fire resistance test (specimen No. 1 and specimen No. 3). Detailed verification of used materials was carried out on the remaining specimens (specimen No. 2 and specimen No. 4).

Specimens were delivered to the testing laboratory in complete state by test sponsor. Installation of the specimens to the supporting construction was carried out by workers of the sponsor.

Specimens to have been used for the fire resistance test are specified as Specimen No. 1 and Specimen No. 3 in this test report.

4. PREPARATION OF THE TEST

4.1 DESCRIPTION OF THE SPECIMENS STRUCTURE



Specimen No. 1

One specimen of Single leaf timber wall hatch door 86 mm in timber frame, type EI30 - 86mm/30mm was used for fire resistance test.

Dimensions

Overall dimensions of specimen	(1100 x 700) mm (height x width)
Dimensions of door leaf	(1054 x 654 x 86) mm (height x width x thickness)
Dimensions of clear opening of door:	(1040 x 640) mm (height x width)
Weight of door leaf:	14,9 kg

(measured in testing laboratory)



Door frame

Frame of specimen is made of timber slabs, with dimensions (110 x 30) mm (width x thickness) with bulk density 520 kg.m⁻³ (manufacturer: OMAN Sp. z o. o.).

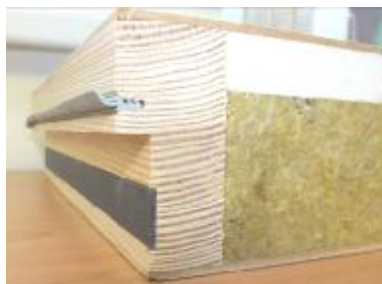
Dimensions of rebate (10 x 31) mm and milled groove (3,2 x 7) mm for sealing gasket, type S7442 (manufacturer: Inter-Deventer Sp. z o.o.), around perimeter of the shutter frame.



Construction of door leaf

Frame of door leaf

Frame of door leaf is made of timber slabs, with dimensions (40 x 80) mm (width x thickness) with bulk density 520 kg.m⁻³ (manufacturer: OMAN Sp. Z o. o., Poland). Dimensions of rebate (12 x 47) mm. Two milled grooves, one for intumescent tape with dimensions (20 x 2) mm and one for sealing gasket with dimensions (3 x 9) mm, type S6782 (manufacturer: Inter-Deventer Sp. z o.o.) are made all around perimeter of the door leaf frame.



Core of shutter leaf

From rebate side is placed mineral wool board, type Rocklit 150, 60 mm thick with bulk density >150 kg.m³ (manufacturer: Rockwool Polska Sp. zo.o.) and polystyrene board, type EPS 70-038 Fasada, 20 mm thick (manufacturer: Genderka Sp z o. o.).

Casing of door leaf

Construction of the door leaf including the core is covered from both faces by layer of HDF board, type LHDF 3, 3 mm thick, with bulk density 800 kg.m⁻³ (manufacturer: Kronospan Szczecinek Sp.z o.o., Poland).





Intumescent tape

Intumescent tape (20 x 2) mm (width x thickness), type Promaseal LFC SK (manufacturer: Promat GmbH) is placed in milled groove all around perimeter of door leaf frame.



Hinges

2 pieces of hinges, type 300-130 (manufacturer: OTLAV S.p.a., Italy).

Position of hinges (center of hinge):
 113 mm from the upper edge of door leaf;
 113 mm from the bottom edge of door leaf.



Lock

Lock type OMAN (manufacturer: OMAN Sp z o. o.). Lock is placed 525 mm from the bottom door leaf edge (to center of lock). Door leaf is operated by wooden knob with muff (manufacturer: MET-GAL Sp. z o.o.). Knob is fixed by means of steel screw (Ø4 x 70) mm.





Specimen No. 3

One specimen of Single leaf timber wall hatch door 46 mm in timber frame, type EI30 - 46mm/30mm was used for fire resistance test.

Dimensions

Overall dimensions of specimen:	(1100 x 700) mm (height x width)
Dimensions of door leaf:	(1054 x 654 x 46) mm (height x width x thickness)
Dimensions of clear opening of door:	(1040 x 640) mm (height x width)
Weight of door leaf:	10,6 kg

(measured in testing laboratory)

Door frame

Frame of specimen is made of timber slabs, with dimensions (110 x 30) mm (width x thickness) with bulk density 520 kg.m⁻³ (manufacturer: OMAN Sp. z o. o.).

Dimensions of rebate (10 x 31) mm and milled groove (3,2 x 7) mm for sealing gasket, type S7442 (manufacturer: Inter-Deventer Sp. z o.o.), around perimeter of the shutter frame.



Construction of door leaf

Frame of door leaf

Frame of door leaf is made of timber slabs, with dimensions (40 x 40) mm (width x thickness) with bulk density 520 kg.m⁻³ (manufacturer: OMAN Sp. Z o. o., Poland). Dimensions of rebate (12 x 7) mm. One milled groove for intumescent tape with dimensions (20 x 2) mm is made all around perimeter of the door leaf frame.



Core of shutter leaf

Mineral wool board, type Isover TT 700, 40 mm thick with bulk density >90-132 kg.m³ (manufacturer: Saint-Gobain Construction Products Polska Sp. Z o. o. , Poland).

Casing of door leaf

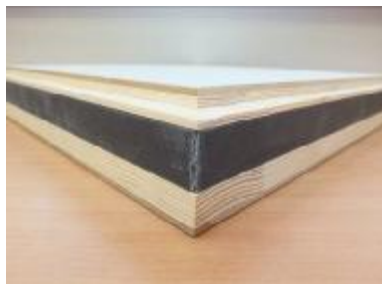
Construction of the door leaf including the core is covered from both faces by layer of HDF board, type LHDF 3, 3 mm thick, with bulk density 800 kg.m⁻³ (manufacturer: Kronospan Szczecinek Sp.z o.o., Poland).





Intumescent tape

Intumescent tape (20 x 2) mm (width x thickness), type Promaseal LFC SK (manufacturer: Promat GmbH) is placed in milled groove all around perimeter of door leaf frame.



Hinges

2 pieces of hinges, type 300-130 (manufacturer: OTLAV S.p.a., Italy).

Position of hinges (center of hinge):
113 mm from the upper edge of door leaf;
113 mm from the bottom edge of door leaf.



Lock

Lock type OMAN (manufacturer: OMAN Sp z o. o.). Lock is placed 525 mm from the bottom door leaf edge (to center of lock). Door leaf is operated by wooden knob with muff (manufacturer: MET-GAL Sp. z o.o.). Knob is fixed by means of steel screw (Ø4 x 70) mm.



More detailed information about construction of specimens is shown in the drawings which form an integral part of this test report. Drawings were delivered by sponsor.

All the information about technical specifications of used materials and semi-products, information about their type sign were delivered by sponsor. This information was not subject of the specimens verification. Parameters which were verified are quoted in paragraph 4.3.

4.2 DESCRIPTION OF THE SPECIMENS FIXATION

The test specimens are fixed to the prepared opening in the rigid standard supporting construction made of 150 mm thick aerated concrete blocks with bulk density 613 kg/m³.

Specimens were fixed to supporting construction by means of steel screws (Ø8 x 180) mm, two screws placed 220 mm from top edge of door opening and two screws placed 190 mm from bottom edge of door opening.



Gap between door frame and supporting construction is filled by mineral wool ISOVER Uni-Mata with bulk density 60 kg.m^{-3} (manufacturer: Saint-Gobain Construction Products Polska Sp. z o.o.) and sealed from both sides by PROMASEAL[®]-A (supplier: Promat TOP Sp. z o.o.).



Orientation of the specimens during the test

specimen No. 1	hinges on exposed side of door leaf (<i>opening of door toward test furnace</i>)
specimen No. 3	hinges on exposed side of door leaf (<i>opening of door toward test furnace</i>)

4.3 VERIFICATION OF THE SPECIMENS

The conformity of the drawings and the test specimens was verified before and after the fire resistance test. This verification has been carried out on extra delivered product for this purpose. The specimen / specimens corresponded to the drawings which are part of this test report. The visual review of the test specimens, the used materials as well as the size verification (basic dimensions) and also the way of specimens fixation to supporting construction were subject of this verification.

4.4 CLIMATIC CONDITIONING OF THE SPECIMENS

Test specimens were stored in the hall of testing laboratory and were conditioned according to EN 1363-1 under the following climatic conditions:

Ambient air temperature [°C]

mean	25,5
standard deviation	2,9

Relative air humidity [%]

mean	50,6
standard deviation	3,2

The humidity equilibrium state of test specimens was determined by repetitive balancing of door leaves. The humidity equilibrium state of test specimens was achieved.

4.5 PRE-TEST CONDITIONING OF THE SPECIMENS

The test specimens were submitted to mechanical testing according EN 16034 Annex A before fire resistance test.

Operability test according EN 16034 A.2.2: 25 cycles (opening from fully closed position to maximum possible opening position and closing back to fully closed position).

Gap measurement: Measured values of gaps around the perimeter of door leaves:

Specimen No. 1:

Place of measurement "a"	Measured values [mm]			Mean [mm]	Maximum [mm]
	1 : 4,0	2 : 5,7	3 : 4,9		
Hinged edge of door leaf	4 : 6,2	5 : 6,0	6 : 6,5	6,2	6,5
Top edge of door leaf	7 : 6,0	8 : 6,3	9 : 6,4	6,2	6,4
Lock edge of door leaf	10 : 3,1	11 : 3,0	12 : 3,6	3,2	3,6
Bottom edge of door leaf					

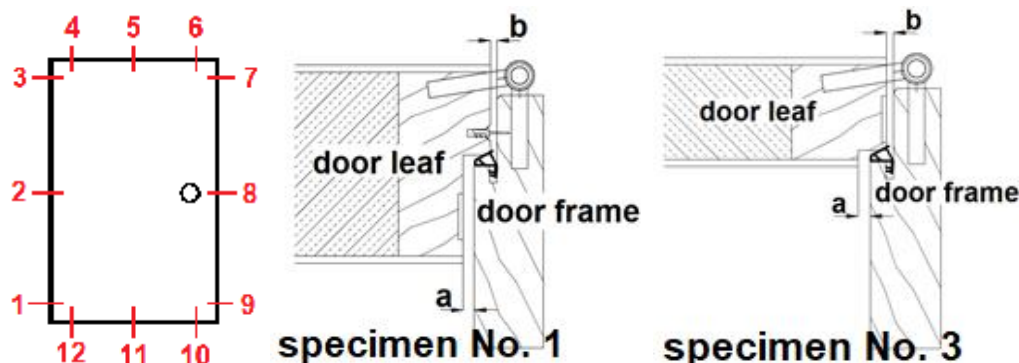


Place of measurement "b"	Measured values [mm]			Mean [mm]	Maximum [mm]
Hinged edge of door leaf	1 : 2,3	2 : 3,5	3 : 3,0	2,9	3,5
Top edge of door leaf	4 : 3,8	5 : 4,0	6 : 4,3	4,0	4,3
Lock edge of door leaf	7 : 4,0	8 : 4,6	9 : 4,3	4,3	4,6
Bottom edge of door leaf	10 : 1,7	11 : 1,9	12 : 1,2	0,9	1,2

Specimen No. 3:

Place of measurement "a"	Measured values [mm]			Mean [mm]	Maximum [mm]
Hinged edge of door leaf	1 : 4,5	2 : 4,5	3 : 4,6	4,5	4,6
Top edge of door leaf	4 : 5,9	5 : 6,4	6 : 6,5	6,3	6,5
Lock edge of door leaf	7 : 5,7	8 : 6,3	9 : 6,0	6,0	6,3
Bottom edge of door leaf	10 : 3,1	11 : 3,4	12 : 3,8	3,4	3,8

Place of measurement "b"	Measured values [mm]			Mean [mm]	Maximum [mm]
Hinged edge of door leaf	1 : 2,3	2 : 2,4	3 : 2,3	2,3	2,4
Top edge of door leaf	4 : 3,6	5 : 4,0	6 : 4,2	3,9	4,2
Lock edge of door leaf	7 : 3,5	8 : 3,7	9 : 3,4	3,5	3,7
Bottom edge of door leaf	10 : 1,7	11 : 1,3	12 : 1,9	1,6	1,9



The retention force according to EN 1634-1 cl. 10.1.3 was not measured on door leaves before the fire test - doors without automatic closing mechanism.

Final setting according EN 1634-1 cl. 10.1.4: opening to 300 mm and closing by hand. Door leaves were not locked in closed position during the test. Key was not left in the lock during the test.

5. CARRYING OUT OF THE TEST

5.1 CONDITIONS OF THE TEST

Conditions in the test furnace (temperature – standard temperature/time curve, pressure, content of O₂) as well as in the testing room (ambient temperature) corresponded to EN 1363-1 during the test. Detailed information is part of this test report, or in record from the test.

Values characterizing environment in the testing room directly before the test:

Relative air humidity [%]	Ambient air temperature [°C]
58,7	21,9



5.2 RESULTS OF THE TEST

Measured values are stated in this test report. Description of the specimens behaviour during the test:

Specimen No. 1

Time [min:s]	Face of specimen	Observation
07:00	ES	Flaming of specimen surface;
15:00	NS	No further significant changes are visible;
19:00	NS	Soft smoke release from top right corner of door leaf;
23:00	NS	Soft smoke release from top left corner of door leaf;
27:30	NS	Reaction of intumescent tape around perimeter of door leaf;
31:30	NS	Persistent smoke release from top edges of door leaf;
32:00	NS	Occasional flaming from top right corner of door leaf - time of flaming circa 1s.;
33:10	NS	Sustained flaming from top right corner and top edge of door leaf – integrity failed;
49:20	Termination of the test.	
ES	exposed face of specimen	
NS	unexposed face of specimen	

Specimen No. 3

Time [min:s]	Face of specimen	Observation
07:00	ES	Flaming of specimen surface;
15:00	NS	No further significant changes are visible;
30:00	NS	No further significant changes are visible;
38:00	NS	Darkening of vertical and horizontal edges of door leaf;
42:00	NS	Darkening of surface of door leaf;
49:10	NS	Sustained flaming around perimeter of door leaf – integrity failed;
49:20	Termination of the test.	
ES	exposed face of specimen	
NS	unexposed face of specimen	

6. CLOSING

Evaluation of the test:

Specimen No. 1

Performance criterion	Time till the performance criterion is achieved
integrity – sustained flaming	33 minutes
integrity – gap gauges \varnothing 6 mm and \varnothing 25 mm	33 minutes no failure
integrity – cotton pad	33 minutes
insulation – average temperature (140 K)	33 minutes
insulation – maximal temperature (180 K)	33 minutes
insulation – maximal temperature (supplementary procedure) (180 K)	33 minutes
insulation – maximal temperature (door frame) (180 K / 360 K)	33 minutes / 33 minutes
radiation 15 kW.m^{-2}	33 minutes no failure

Specimen No. 3

Performance criterion	Time till the performance criterion is achieved
integrity – sustained flaming	49 minutes
integrity – gap gauges \varnothing 6 mm and \varnothing 25 mm	49 minutes no failure
integrity – cotton pad	49 minutes
insulation – average temperature (140 K)	35 minutes
insulation – maximal temperature (180 K)	39 minutes
insulation – maximal temperature (supplementary procedure) (180 K)	39 minutes
insulation – maximal temperature (door frame) (180 K / 360 K)	49 minutes / 49 minutes
radiation 15 kW.m^{-2}	49 minutes no failure



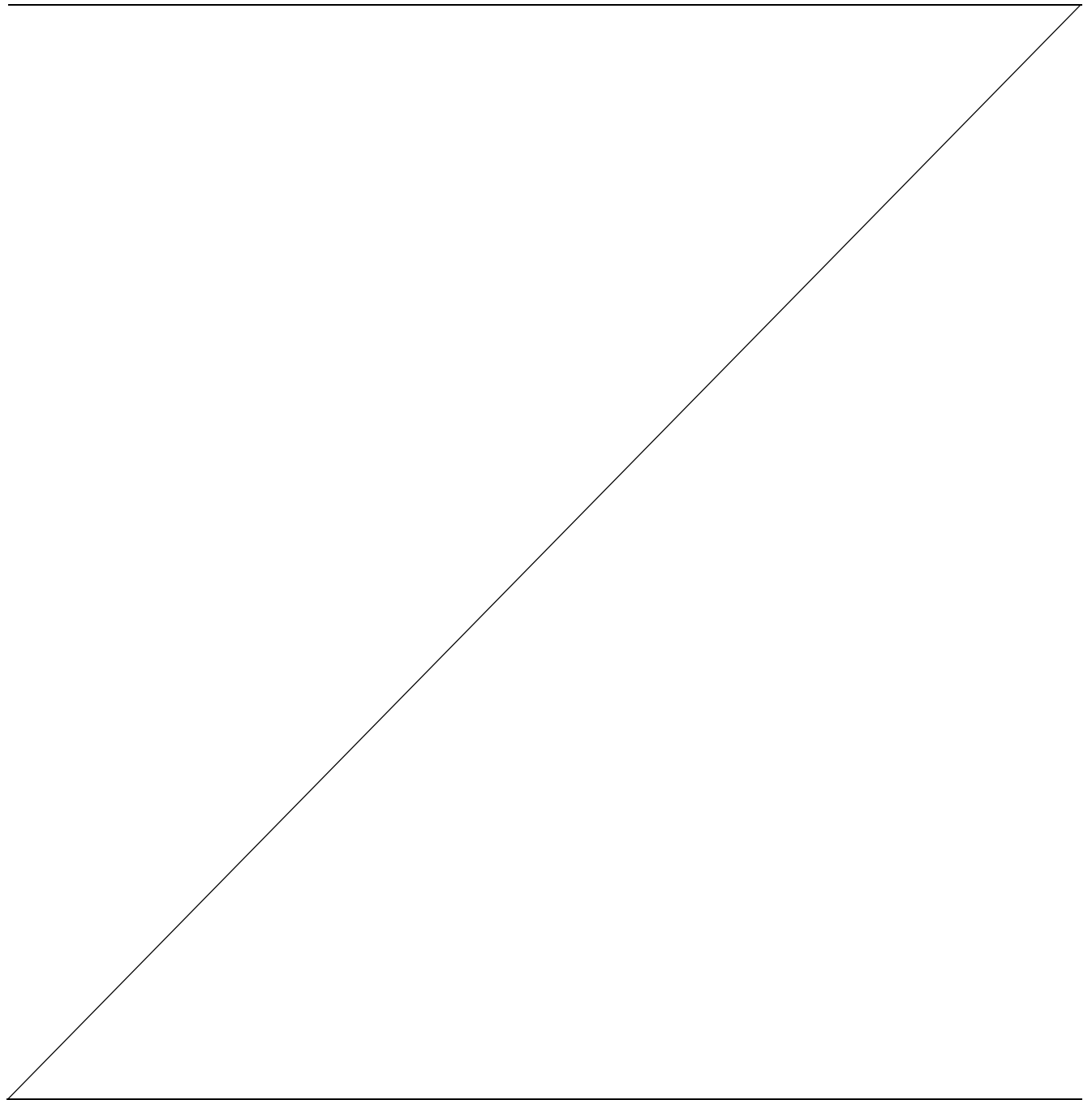
The fire test was terminated in the 50th minute. The test continued after the specimen No. 1 integrity failure in the 34th minute at the request of test sponsor.

The performance criteria of insulation are automatically assumed not to be satisfied when the criterion of integrity ceases to be satisfied (acc. to clause 11.4.2 of EN 1363-1).

Regarding to low temperatures on unexposed specimen surface below 300°C the performance criteria of radiation is to be complied as satisfied.

7. DIRECT APPLICATION OF TEST RESULTS

Direct field of application is valid in accordance with clause 13 of EN 1634-1:2014. Validity of individual items of field of direct application shall be determined in classification process.



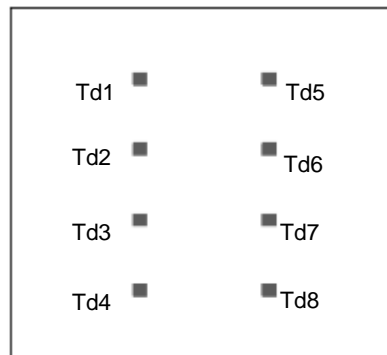


Measured values inside the test furnace

Time t [min]	Temperature [°C]											Deviation	Pressure	
	Td1	Td2	Td3	Td4	Td5	Td6	Td7	Td8	Tave	Tn	To	d _e [%]	p1 [Pa]	p2 [Pa]
0	21,8	21,3	21,0	22,8	21,0	21,8	22,2	23,8	22,0	20,0	21,0			
5	621,2	641,1	681,5	651,8	574,9	569,9	574,0	556,3	608,8	576,0	21,3	-7,0	19,7	0,5
10	648,3	654,3	682,6	686,5	619,4	639,6	696,7	656,3	660,5	678,0	21,6	-6,0	18,9	0,1
15	732,2	746,2	736,2	735,7	737,3	751,4	785,5	723,0	743,4	739,0	21,8	-4,6	19,2	0,6
20	758,7	768,4	761,8	768,4	751,8	766,2	775,7	757,5	763,6	781,0	22,0	-4,0	18,2	-1,2
25	804,9	826,8	821,8	838,3	805,0	821,1	833,7	806,3	819,7	815,0	22,2	-3,1	19,7	0,4
26	813,6	833,3	832,0	848,3	810,0	826,1	829,9	812,8	825,8	820,0	22,2	-2,9	19,7	0,2
27	825,1	836,6	839,8	861,1	813,3	830,2	847,3	818,6	834,0	826,0	22,2	-2,8	18,0	-1,9
28	820,5	842,0	841,5	862,9	820,7	836,0	842,3	823,6	836,2	832,0	22,2	-2,6	17,7	-2,3
29	827,1	847,6	847,8	867,0	825,3	841,1	860,7	828,3	843,1	837,0	22,3	-2,5	17,5	-2,5
30	833,1	852,4	851,1	871,9	830,0	845,6	859,3	833,0	847,0	842,0	22,3	-2,4	17,0	-2,2
31	836,7	857,0	855,0	873,6	836,4	851,7	864,8	837,6	851,6	847,0	22,3	-2,3	18,7	-0,2
32	839,1	861,3	857,1	877,8	839,5	853,2	866,1	840,8	854,4	851,0	22,3	-2,2	17,1	-1,5
33	842,0	863,1	857,8	873,0	843,1	857,3	867,6	841,9	855,7	856,0	22,3	-2,1	17,2	-1,9
34	853,1	868,0	870,8	890,4	845,7	860,9	879,4	848,9	864,7	860,0	22,3	-2,0	18,5	-0,8
35	872,7	879,9	881,0	904,0	853,8	872,2	891,3	859,9	876,9	865,0	22,4	-1,9	20,0	1,5
36	874,9	882,1	886,3	910,6	860,5	873,5	886,0	864,0	879,7	869,0	22,4	-1,8	18,7	-0,3
37	880,2	885,8	890,4	914,7	867,9	876,6	887,2	868,5	883,9	873,0	22,4	-1,7	19,2	0,7
38	885,5	889,4	892,5	916,3	874,3	879,6	898,2	872,1	888,5	877,0	22,5	-1,6	19,8	0,9
39	883,1	889,2	897,5	919,7	875,9	878,4	899,9	873,0	889,6	881,0	22,5	-1,5	18,8	-0,1
40	890,9	892,6	901,3	924,3	879,0	881,8	908,6	876,5	894,4	885,0	22,6	-1,4	17,8	-1,8
41	893,0	897,5	905,6	927,6	879,0	885,7	902,3	879,5	896,3	888,0	22,6	-1,4	18,4	-0,9
42	894,2	900,4	906,8	929,3	890,7	889,1	915,8	884,3	901,3	892,0	22,6	-1,3	18,2	-0,8
43	896,1	903,2	912,7	936,5	889,8	892,6	914,5	887,4	904,1	896,0	22,6	-1,2	17,7	-1,7
44	901,1	906,2	914,8	938,9	894,5	894,7	912,7	890,4	906,7	899,0	22,7	-1,2	18,4	-0,2
45	903,7	910,3	916,4	938,7	898,7	900,0	921,5	893,7	910,4	902,0	22,8	-1,1	17,4	-2,2
46	905,1	912,4	919,8	942,2	894,6	901,1	922,0	894,3	911,4	906,0	22,8	-1,1	17,3	-2,3
47	907,9	915,8	924,7	948,1	901,2	904,0	930,6	898,9	916,4	909,0	22,9	-1,0	17,8	-1,1
48	913,7	918,4	924,4	948,7	910,4	907,3	929,6	902,8	919,4	912,0	22,9	-1,0	17,8	-1,2
49	917,1	920,2	927,5	950,7	911,6	910,5	930,6	904,8	921,6	915,0	22,9	-0,9	17,6	-1,5

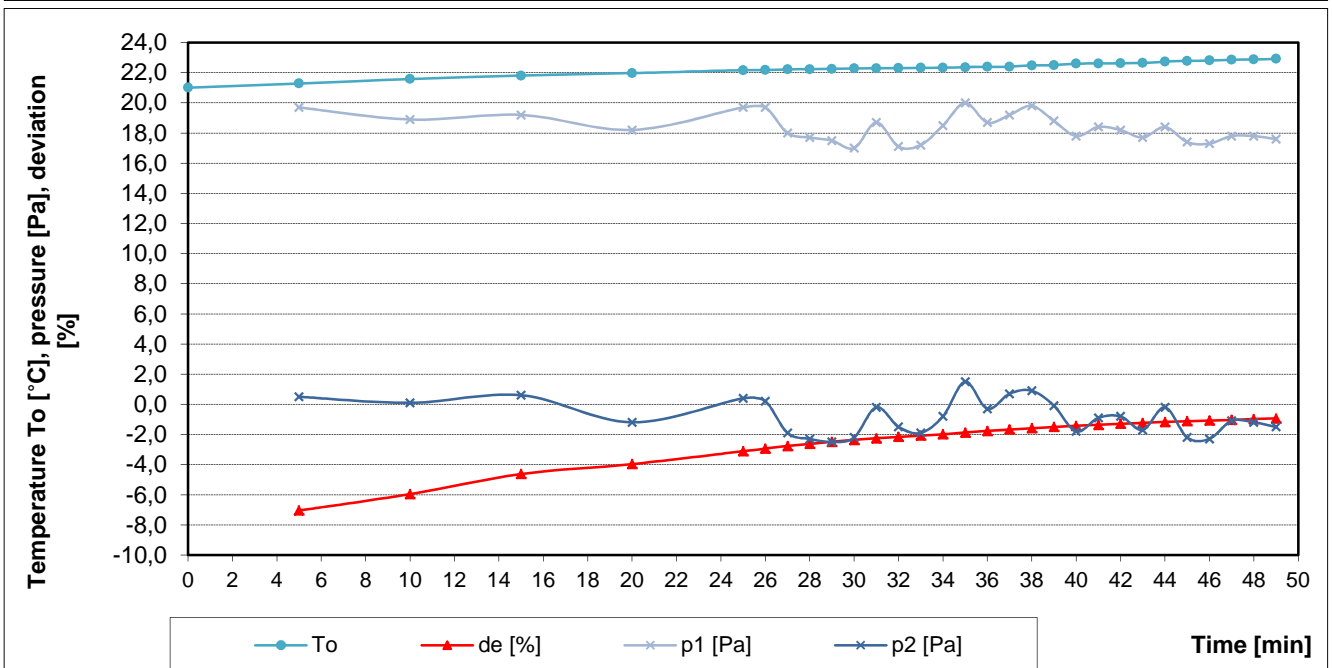
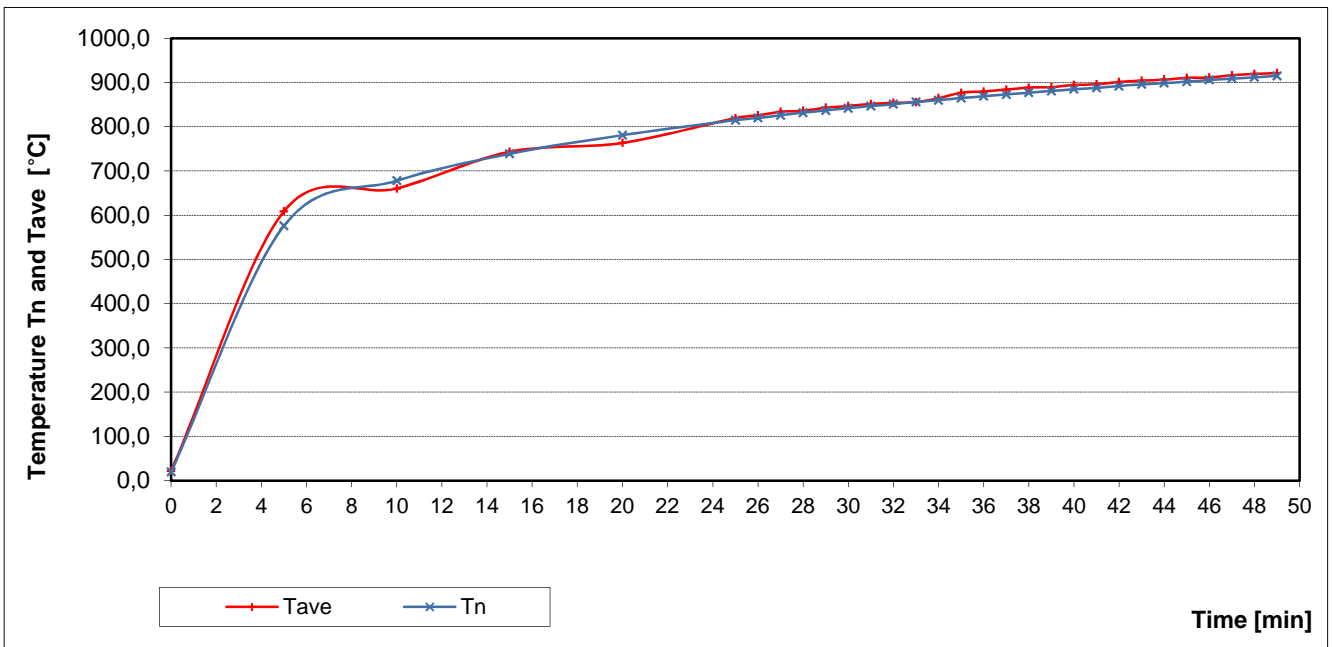
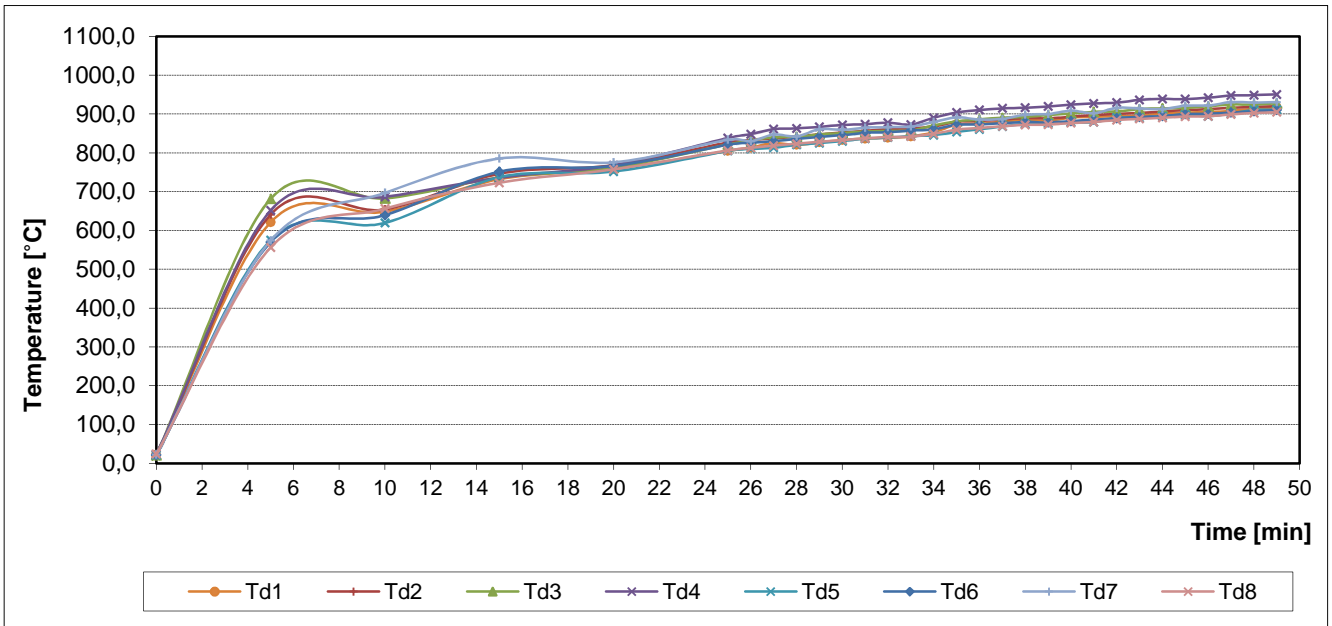
- Tave** Average temperature in the test furnace calculated from individual thermometers
- Tn** Standard temperature in the test furnace laid down according to test guideline
- d_e** Deviation of the average temperature from the standard temperature calc. acc. to test guideline
- To** Ambient temperature
- p1** Pressure inside the test furnace measured under the ceiling of test furnace
- p2** Pressure inside the test furnace at the height of neutral pressure level 500 mm above test furnace floor

Layout of measuring points in the test furnace:





Measured values inside the test furnace / graph





Measured values on the unexposed surface of the test specimen No. 1

The initial average temperature of the unexposed specimen surface: 22,3 °C

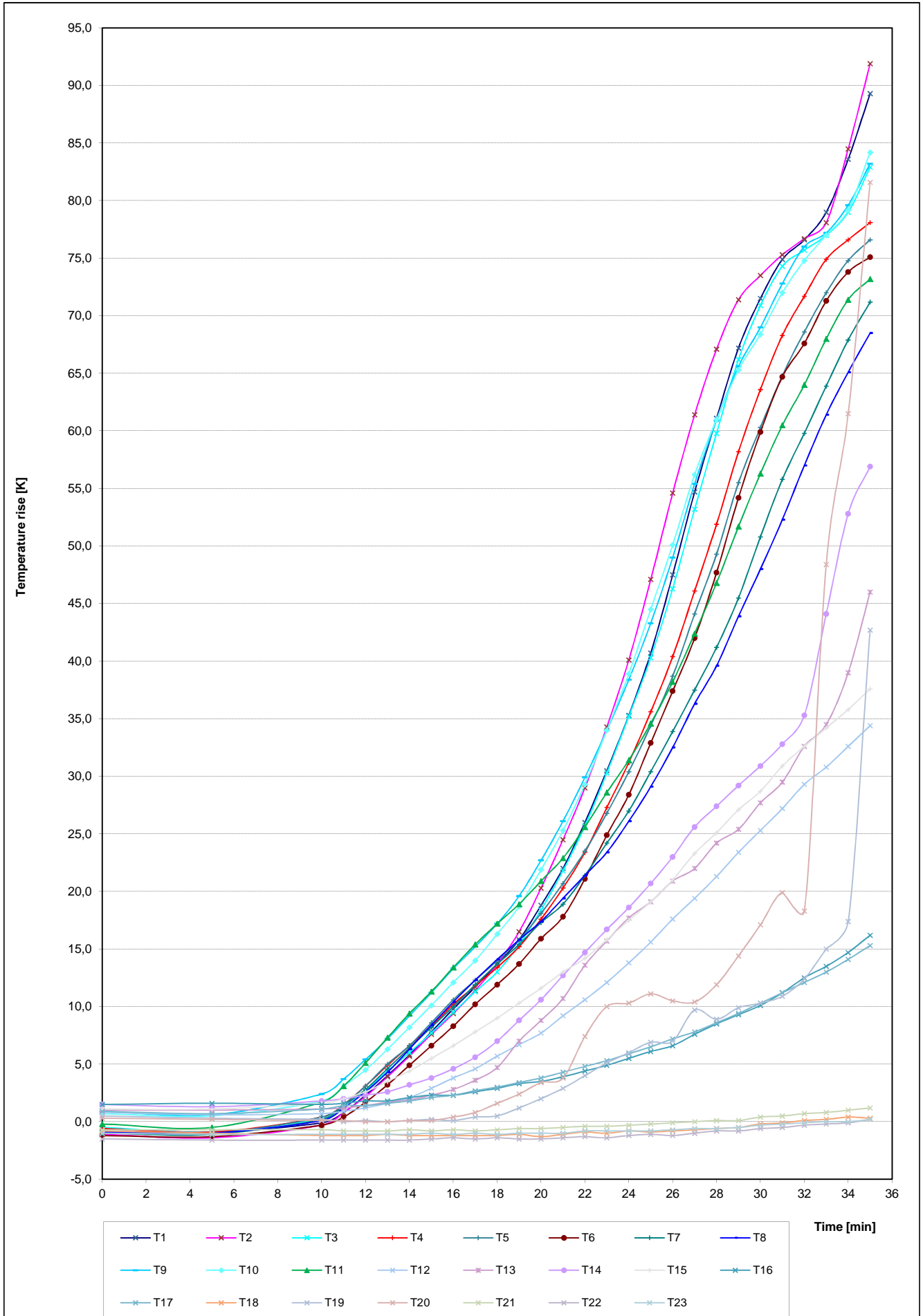
Time t [min]	Temperature rise [K]																						
	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23
0	-0,6	-1,1	-0,5	-0,6	-0,8	-1,2	-1,0	-0,9	0,9	0,7	-0,2	0,8	1,0	1,5	1,1	1,5	0,9	-0,8	0,5	0,3	-0,7	-1,5	-1,0
5	-0,9	-1,4	-0,9	-0,9	-1,0	-1,3	-1,1	-1,0	0,6	0,5	-0,5	0,6	1,0	1,3	1,1	1,6	0,7	-1,0	0,3	0,2	-0,7	-1,6	-1,1
10	-0,1	-0,3	0,3	0,4	0,4	-0,3	0,2	0,1	2,4	1,8	1,7	0,7	1,1	1,8	1,6	1,5	1,1	-1,2	0,2	0,1	-0,7	-1,6	-1,1
11	0,8	0,8	1,4	1,5	1,5	0,4	1,4	1,2	3,7	3,1	3,1	0,9	1,2	2,0	2,0	1,6	1,4	-1,2	0,0	0,1	-0,8	-1,6	-1,1
12	2,3	2,2	2,7	3,1	3,1	1,7	2,8	2,6	5,4	4,5	5,1	1,2	1,4	2,3	2,6	1,8	1,4	-1,2	0,1	0,0	-0,8	-1,6	-1,1
13	4,0	3,9	4,4	4,9	5,0	3,2	4,6	4,3	7,2	6,3	7,3	1,6	1,7	2,6	3,5	1,8	1,6	-1,1	0,0	0,0	-0,8	-1,6	-1,1
14	5,8	5,7	6,0	6,6	6,6	4,9	6,4	6,3	9,2	8,2	9,4	2,1	1,9	3,2	4,4	2,1	1,8	-1,2	0,1	0,1	-0,7	-1,6	-1,1
15	7,8	7,6	7,7	8,3	8,6	6,6	8,2	8,4	11,2	10,1	11,3	2,9	2,3	3,8	5,5	2,3	2,1	-1,2	0,2	0,1	-0,8	-1,5	-1,0
16	9,8	9,4	9,5	10,2	10,6	8,3	10,0	10,4	13,3	12,1	13,4	3,8	2,8	4,6	6,6	2,3	2,3	-1,2	0,1	0,4	-0,7	-1,4	-1,1
17	11,7	11,4	11,3	11,8	12,3	10,2	11,9	12,3	15,2	14,0	15,4	4,6	3,6	5,6	7,8	2,6	2,7	-1,2	0,4	0,8	-0,8	-1,5	-1,0
18	13,7	13,7	13,0	13,4	14,0	11,9	13,7	14,1	17,2	16,3	17,2	5,7	4,7	7,0	9,0	2,9	3,0	-1,2	0,5	1,6	-0,7	-1,4	-1,1
19	15,8	16,5	15,4	15,2	15,8	13,7	15,4	15,8	19,6	18,7	18,9	6,7	7,0	8,8	10,3	3,3	3,4	-1,1	1,2	2,4	-0,6	-1,5	-1,0
20	18,8	20,3	18,4	17,6	18,1	15,9	17,3	17,4	22,7	21,9	20,9	7,7	8,8	10,6	11,6	3,5	3,8	-1,3	2,0	3,4	-0,6	-1,5	-1,0
21	22,0	24,5	21,8	20,3	20,7	17,8	18,9	19,4	26,1	25,3	22,9	9,2	10,7	12,7	13,0	3,9	4,3	-1,1	2,9	3,8	-0,5	-1,4	-1,0
22	26,0	29,0	25,7	23,4	23,5	21,1	21,4	21,4	29,9	29,3	25,6	10,6	13,6	14,7	14,2	4,4	4,8	-0,9	4,0	7,4	-0,4	-1,3	-0,8
23	30,5	34,3	30,3	27,3	26,8	24,9	24,2	23,4	34,0	34,0	28,6	12,1	15,7	16,7	15,8	4,9	5,3	-1,0	5,1	10,0	-0,4	-1,4	-0,8
24	35,3	40,1	35,2	31,2	30,4	28,4	27,0	26,1	38,4	38,9	31,4	13,8	17,7	18,6	17,5	5,5	5,9	-0,8	6,0	10,3	-0,3	-1,2	-0,8
25	40,7	47,1	40,3	35,6	34,4	32,9	30,4	29,1	43,3	44,5	34,6	15,6	19,1	20,7	19,1	6,1	6,5	-0,9	6,9	11,1	-0,2	-1,1	-0,8
26	47,5	54,6	46,3	40,4	38,7	37,4	33,9	32,5	49,0	50,1	38,2	17,6	20,9	23,0	21,0	6,6	7,2	-0,8	7,0	10,5	-0,1	-1,2	-0,7
27	54,7	61,4	53,2	46,1	44,1	42,0	37,5	36,3	55,4	56,2	42,4	19,4	22,0	25,6	23,3	7,6	7,8	-0,7	9,7	10,4	0,0	-1,0	-0,6
28	61,1	67,1	59,8	51,9	49,3	47,7	41,2	39,6	60,9	61,0	46,8	21,3	24,2	27,4	25,1	8,5	8,6	-0,6	8,9	11,9	0,1	-0,8	-0,6
29	67,2	71,4	66,2	58,2	55,5	54,2	45,5	43,9	65,6	65,3	51,7	23,4	25,4	29,2	27,1	9,3	9,4	-0,5	9,9	14,4	0,1	-0,8	-0,5
30	71,5	73,5	70,9	63,6	60,3	59,9	50,8	48,0	69,0	68,4	56,3	25,3	27,7	30,9	28,7	10,1	10,3	-0,2	10,3	17,1	0,4	-0,6	-0,3
31	74,9	75,3	74,3	68,3	64,8	64,7	55,8	52,3	72,8	72,0	60,5	27,2	29,5	32,8	30,9	11,2	11,2	-0,1	10,9	19,9	0,5	-0,5	-0,2
32	76,6	76,7	75,7	71,7	68,6	67,6	59,8	57,0	76,0	74,8	64,0	29,3	32,6	35,3	32,6	12,5	12,1	0,1	12,4	18,3	0,7	-0,3	-0,1
33	79,0	78,1	77,0	74,9	72,0	71,3	63,9	61,4	77,2	77,0	68,0	30,8	34,5	44,1	34,2	13,5	13,0	0,2	15,0	48,4	0,8	-0,2	0,0
34	83,6	84,5	79,0	76,6	74,8	73,8	67,9	65,1	79,6	79,2	71,4	32,6	39,0	52,8	35,8	14,7	14,1	0,4	17,4	61,5	1,0	-0,1	0,0
35	89,3	91,9	82,9	78,1	76,6	75,1	71,2	68,5	83,2	84,2	73,2	34,4	46,0	56,9	37,6	16,2	15,3	0,3	42,7	81,6	1,2	0,2	0,2

Negative values are quoted because temperature rises are calculated from the initial average temperature of the specimen surface.

Please see figure showing the layout of measuring points on the specimen surface which is a part of this test report



Measured values on the unexposed surface of the test specimen No. 1 / graph





Calculated values from measured values on specimen No. 1 surface

The initial average temperature of the specimen surface: 22,3 °C

Time t [min]	Temperature rise [K]			
	TRave1	TRmax1	TRmaxS1	TRmaxF1
0	-0,7	0,9	1,5	0,5
5	-1,0	0,6	1,6	0,3
10	0,1	2,4	2,4	0,2
11	1,2	3,7	3,7	0,1
12	2,7	5,4	5,4	0,1
13	4,4	7,3	7,3	0,0
14	6,1	9,4	9,4	0,1
15	8,0	11,3	11,3	0,2
16	9,9	13,4	13,4	0,4
17	11,7	15,4	15,4	0,8
18	13,6	17,2	17,2	1,6
19	15,7	19,6	19,6	2,4
20	18,6	22,7	22,7	3,4
21	21,9	26,1	26,1	3,8
22	25,5	29,9	29,9	7,4
23	29,8	34,3	34,3	10,0
24	34,4	40,1	40,1	10,3
25	39,6	47,1	47,1	11,1
26	45,5	54,6	54,6	10,5
27	51,9	61,4	61,4	10,4
28	57,8	67,1	67,1	11,9
29	63,7	71,4	71,4	14,4
30	68,0	73,5	73,5	17,1
31	71,5	75,3	75,3	19,9
32	73,9	76,7	76,7	18,3
33	76,2	79,0	79,0	48,4
34	79,7	84,5	84,5	61,5
35	83,8	91,9	91,9	81,6

Negative values are quoted because temperature rises are calculated from the initial average temperature of the specimen surface.

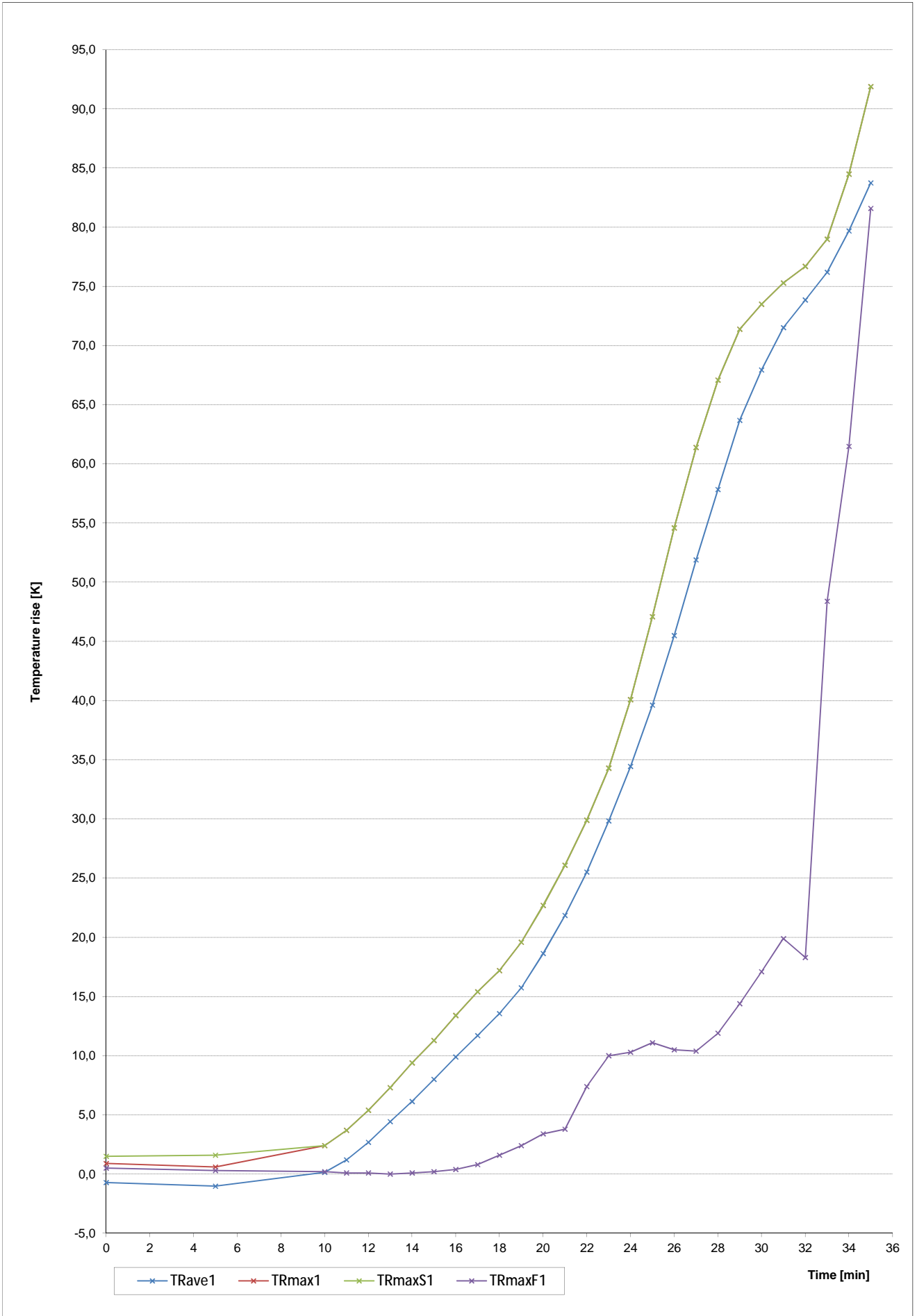
Please see figure showing the layout of measuring points on the specimen surface which is a part of this test report

key:

- TRave1** average temperature rise above initial average temperature calculated from T1-T5
TRmax1 maximal temperature rise above initial average temperature calculated from T1-T11
TRmaxS1 maximal temperature rise above initial average temperature calculated from T11-T17 - supplementary procedure
TRmaxF1 maximal temperature rise above initial average temperature calculated from T18-T23 - door frame



Calculated values from measured values on specimen No. 1 surface / graph





Measured values on the unexposed surface of the test specimen No. 3

The initial average temperature of the unexposed specimen surface: 22,5 °C

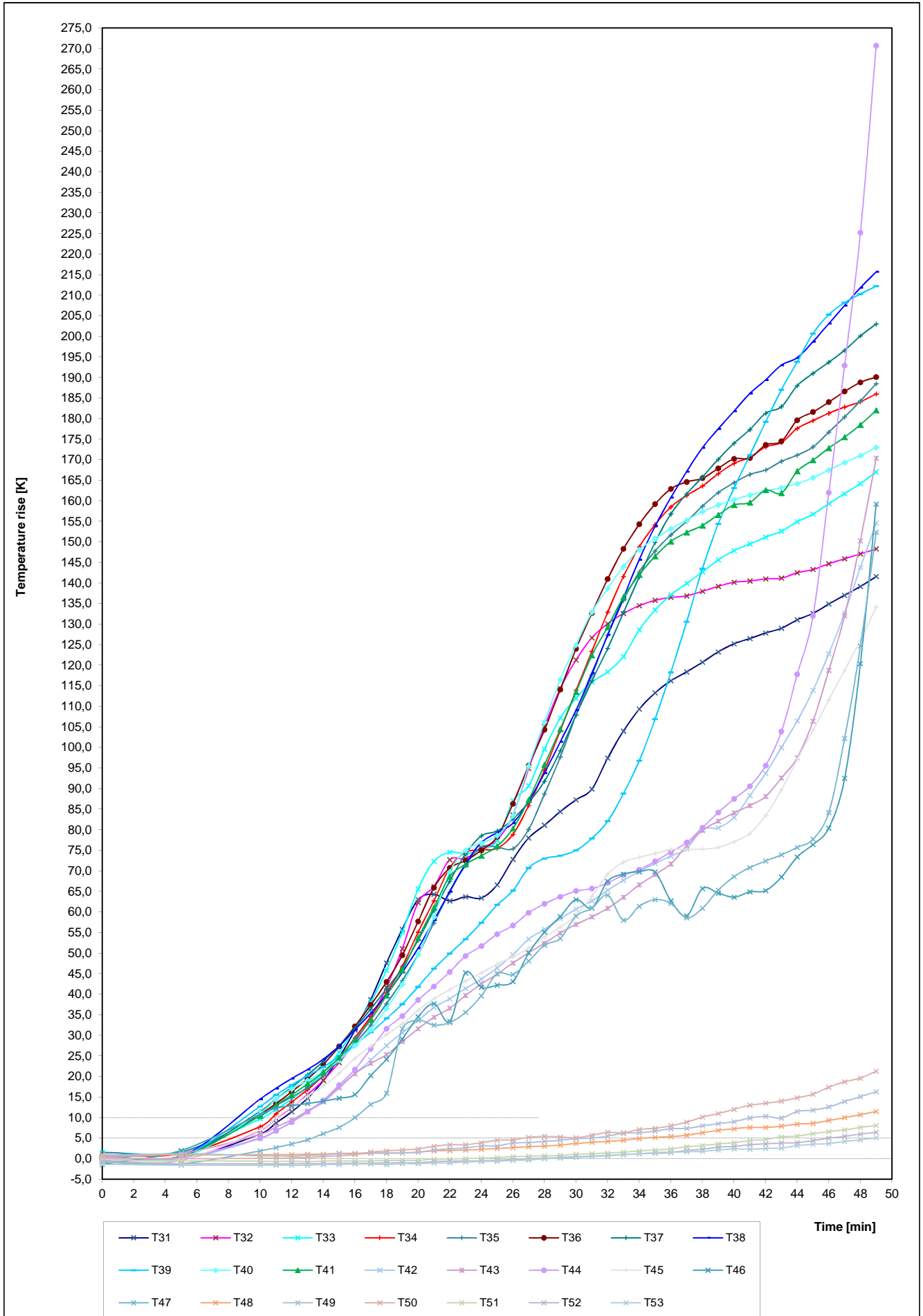
Time t [min]	Temperature rise [K]																						
	T31	T32	T33	T34	T35	T36	T37	T38	T39	T40	T41	T42	T43	T44	T45	T46	T47	T48	T49	T50	T51	T52	T53
0	-0,3	-0,5	1,5	0,9	1,5	0,5	0,3	0,3	0,3	-0,2	0,5	0,1	0,5	0,3	-0,3	-1,4	-0,9	1,0	0,8	0,2	-0,3	-0,7	-1,4
5	-0,1	-0,3	1,7	1,2	1,6	0,6	0,5	0,6	0,6	0,0	0,6	-0,1	1,3	0,3	-0,2	2,0	-1,2	0,9	1,2	0,0	-0,5	-1,2	-1,6
10	6,0	6,9	9,7	7,8	10,4	10,9	11,5	14,5	12,7	11,2	10,4	4,9	5,9	5,0	7,0	10,8	1,9	1,0	0,7	0,1	-0,6	-1,2	-1,6
11	8,7	9,8	12,0	10,9	12,9	13,4	14,5	17,1	15,5	14,4	13,0	6,8	7,7	6,8	9,9	12,3	2,7	1,0	0,7	0,1	-0,7	-1,3	-1,6
12	11,4	12,5	14,5	13,8	15,0	16,3	17,4	19,5	17,9	17,0	15,5	8,9	9,4	8,9	12,6	12,9	3,6	1,0	0,6	0,2	-0,6	-1,2	-1,6
13	14,7	15,6	17,5	16,8	17,3	19,4	20,4	21,7	20,2	19,0	18,2	11,4	11,6	11,4	15,2	13,4	4,6	1,1	0,8	0,3	-0,7	-1,2	-1,6
14	19,0	19,1	21,0	20,2	20,2	22,9	23,7	24,2	22,3	21,2	21,1	13,8	13,9	14,2	17,7	14,0	6,1	1,1	0,9	0,5	-0,6	-1,2	-1,4
15	24,6	23,4	25,9	24,4	23,9	27,3	27,4	27,4	24,9	24,0	24,6	17,2	17,4	17,9	20,8	14,7	7,6	1,3	1,2	0,7	-0,5	-1,1	-1,4
16	31,3	28,4	31,8	29,4	28,0	32,2	31,7	31,4	27,8	27,5	29,1	20,7	20,7	21,7	24,4	15,6	10,0	1,3	1,1	1,0	-0,6	-1,1	-1,3
17	38,7	34,3	38,1	34,6	32,5	37,4	36,4	35,4	30,7	31,4	33,8	24,0	23,2	26,7	27,4	20,2	13,2	1,4	1,3	1,6	-0,5	-1,1	-1,3
18	47,6	41,7	45,8	40,3	37,7	43,0	41,3	40,0	34,1	36,5	39,7	27,5	25,3	31,6	30,2	24,2	15,9	1,4	1,3	1,9	-0,4	-1,0	-1,4
19	55,8	51,1	55,1	46,8	43,3	49,5	46,4	45,3	37,6	42,4	45,8	30,7	28,5	34,7	32,8	29,1	31,6	1,4	1,4	2,1	-0,4	-1,0	-1,2
20	63,0	62,3	65,6	55,1	49,7	57,7	53,2	51,2	41,8	49,6	53,7	33,6	31,6	38,6	36,1	34,5	33,7	1,6	1,6	2,4	-0,4	-1,0	-1,2
21	64,3	66,2	72,3	62,7	57,3	65,9	60,4	58,0	46,2	58,8	61,1	36,8	34,4	41,9	38,9	37,7	32,5	1,9	2,1	3,0	-0,1	-0,7	-1,0
22	62,7	72,7	74,5	70,7	64,8	70,7	67,5	65,0	49,9	69,7	68,6	38,9	36,6	45,4	41,1	33,4	33,1	2,0	2,4	3,4	-0,1	-0,6	-1,0
23	63,7	73,0	74,2	74,5	71,3	72,5	74,1	71,7	53,4	75,0	71,6	41,4	39,7	49,3	43,2	45,2	35,6	2,1	2,6	3,4	0,0	-0,6	-0,8
24	63,4	75,6	75,1	75,1	75,8	75,0	78,5	76,9	57,4	76,8	73,7	43,7	42,5	51,7	45,2	41,7	39,6	2,3	3,1	3,9	0,1	-0,5	-0,7
25	66,6	77,5	77,4	75,5	75,8	78,3	79,7	79,3	61,7	78,6	76,0	46,4	44,9	54,6	47,3	42,2	45,0	2,5	3,1	4,5	0,3	-0,4	-0,6
26	72,8	83,6	87,0	78,9	75,4	86,3	82,6	81,6	65,2	83,5	80,3	49,6	47,6	56,7	49,1	43,1	44,8	2,7	3,8	4,6	0,5	-0,2	-0,4
27	78,0	94,9	90,7	85,9	80,1	95,6	86,7	87,0	70,7	95,5	87,3	53,4	50,1	59,8	51,2	50,0	48,1	2,9	3,9	5,2	0,6	0,0	-0,3
28	81,1	105,1	99,6	94,5	88,7	104,3	91,8	93,8	73,0	106,2	95,8	55,8	52,4	62,0	53,9	55,1	51,9	3,1	4,2	5,4	0,7	0,1	0,0
29	84,4	114,4	107,2	104,1	97,7	114,1	99,2	101,4	73,7	116,5	104,5	58,4	54,9	63,7	56,3	58,9	53,6	3,3	4,5	5,3	0,8	0,3	0,1
30	87,3	121,3	112,0	113,9	107,9	124,0	107,9	109,1	75,0	125,0	113,5	60,7	57,0	65,1	59,3	63,0	59,0	3,7	4,9	5,1	1,1	0,5	0,3
31	89,9	126,7	115,9	123,4	117,6	132,7	116,2	118,1	77,9	132,9	122,4	62,7	58,8	65,7	63,8	61,0	60,9	4,0	5,0	5,7	1,2	0,6	0,5
32	97,4	130,1	118,4	132,9	127,3	141,0	124,1	127,4	82,1	138,7	129,3	65,3	60,9	67,1	69,2	67,5	64,1	4,2	5,5	6,4	1,4	0,8	0,7
33	104,0	132,6	122,1	141,6	135,8	148,3	132,8	136,5	88,8	144,0	136,6	67,7	63,6	69,0	72,1	69,2	58,0	4,5	6,2	6,3	1,6	1,0	1,0
34	109,3	134,5	128,6	148,8	142,7	154,3	141,5	145,7	96,8	148,1	142,0	69,8	66,6	70,3	73,3	69,8	61,4	4,9	6,3	7,1	1,9	1,2	1,2
35	113,3	135,8	133,4	154,2	147,8	159,2	149,9	153,8	106,9	150,8	146,5	71,8	69,1	72,3	74,2	69,7	63,0	5,2	6,7	7,4	2,1	1,3	1,5
36	116,2	136,5	137,1	158,5	151,7	162,9	156,8	160,8	118,3	153,2	150,1	73,6	71,7	74,6	75,2	62,7	62,1	5,4	7,3	8,0	2,4	1,5	1,6
37	118,4	136,9	139,9	161,3	155,0	164,6	161,7	167,1	130,6	155,3	152,3	75,4	76,1	76,9	75,2	59,1	58,6	5,7	7,4	8,9	2,9	2,0	1,7
38	120,8	138,0	142,7	163,6	158,7	165,5	165,8	172,9	143,5	157,4	154,0	80,1	79,8	80,5	75,3	65,7	60,9	6,3	8,0	10,1	3,2	2,3	1,8
39	123,3	139,2	145,6	166,6	162,0	167,9	170,1	177,5	154,4	159,0	156,6	80,5	82,1	84,2	75,7	64,6	65,3	6,9	8,5	11,0	3,6	2,8	2,1
40	125,2	140,2	147,9	169,1	164,4	170,2	174,0	181,8	163,1	160,3	159,0	83,0	84,1	87,5	77,1	63,6	68,6	7,3	9,0	12,0	3,9	3,0	2,4
41	126,5	140,5	149,5	170,6	166,4	170,4	177,3	186,1	171,1	161,4	159,6	88,3	85,9	90,6	79,1	64,9	70,8	7,6	9,9	13,0	4,4	3,4	2,3
42	127,9	141,0	151,2	173,1	167,5	173,6	181,3	189,4	179,2	162,4	162,6	93,7	88,1	95,6	83,5	65,2	72,4	7,6	10,3	13,5	4,7	3,6	2,5
43	129,0	141,2	152,6	174,2	169,6	174,5	182,9	193,0	187,0	163,2	161,9	100,0	92,6	103,9	89,7	68,5	73,9	7,9	9,9	14,0	5,3	3,8	2,6
44	131,1	142,5	154,9	177,6	171,1	179,6	188,0	194,8	193,8	164,2	167,2	106,5	97,5	117,8	97,1	73,4	75,7	8,4	11,5	14,8	5,5	3,9	3,2
45	132,6	143,3	156,7	179,5	173,1	181,6	191,0	198,7	200,7	165,6	169,9	113,9	106,4	132,0	104,2	76,4	77,7	8,6	11,8	15,7	6,1	4,4	3,5
46	134,9	144,7	159,3	181,3	176,7	184,0	193,7	203,1	205,3	167,5	172,8	122,8	118,8	162,0	111,6	80,4	84,2	9,3	12,6	17,4	6,6	5,0	3,7
47	137,0	145,9	161,7	182,8	180,4	186,6	196,6	207,5	208,2	169,3	175,5	132,7	132,1	192,9	118,8	92,5	102,2	10,0	13,9	18,7	7,0	5,4	4,2
48	139,2	147,1	164,2	184,1	184,3	188,8	200,1	211,8	210,3	171,0	178,5	143,8	150,3	225,2	126,1	120,4	124,7	10,7	15,1	19,6	7,6	6,0	4,6
49	141,6	148,3	167,0	186,0	188,5	190,1	203,0	215,7	212,2	173,0	182,0	154,6	170,4	270,7	134,2	159,2	152,4	11,5	16,3	21,3	8,1	6,4	5,1

Negative values are quoted because temperature rises are calculated from the initial average temperature of the specimen surface.

Please see figure showing the layout of measuring points on the specimen surface which is a part of this test report



Measured values on the unexposed surface of the test specimen No. 3 / graph





Calculated values from measured values on specimen No. 3 surface

The initial average temperature of the specimen surface: 22,5 °C

Time t [min]	Temperature rise [K]			
	TRave3	TRmax3	TRmaxS3	TRmaxF3
0	0,6	1,5	1,5	1,0
5	0,8	1,7	2,0	1,2
10	8,2	14,5	14,5	1,0
11	10,9	17,1	17,1	1,0
12	13,4	19,5	19,5	1,0
13	16,4	21,7	21,7	1,1
14	19,9	24,2	24,2	1,1
15	24,4	27,4	27,4	1,3
16	29,8	32,2	32,2	1,3
17	35,6	38,7	38,7	1,6
18	42,6	47,6	47,6	1,9
19	50,4	55,8	55,8	2,1
20	59,1	65,6	65,6	2,4
21	64,6	72,3	72,3	3,0
22	69,1	74,5	74,5	3,4
23	71,3	75,0	75,0	3,4
24	73,0	78,5	78,5	3,9
25	74,6	79,7	79,7	4,5
26	79,5	87,0	87,0	4,6
27	85,9	95,6	95,6	5,2
28	93,8	106,2	106,2	5,4
29	101,6	116,5	116,5	5,3
30	108,5	125,0	125,0	5,1
31	114,7	132,9	132,9	5,7
32	121,2	141,0	141,0	6,4
33	127,2	148,3	148,3	6,3
34	132,8	154,3	154,3	7,1
35	136,9	159,2	159,2	7,4
36	140,0	162,9	162,9	8,0
37	142,3	167,1	167,1	8,9
38	144,8	172,9	172,9	10,1
39	147,3	177,5	177,5	11,0
40	149,4	181,8	181,8	12,0
41	150,7	186,1	186,1	13,0
42	152,1	189,4	189,4	13,5
43	153,3	193,0	193,0	14,0
44	155,4	194,8	194,8	14,8
45	157,1	200,7	200,7	15,7
46	159,4	205,3	205,3	17,4
47	161,6	208,2	208,2	18,7
48	163,8	211,8	225,2	19,6
49	166,3	215,7	270,7	21,3

Negative values are quoted because temperature rises are calculated from the initial average temperature of the specimen surface.

Please see figure showing the layout of measuring points on the specimen surface which is a part of this test report

key:

TRave3 average temperature rise above initial average temperature calculated from T31-T35

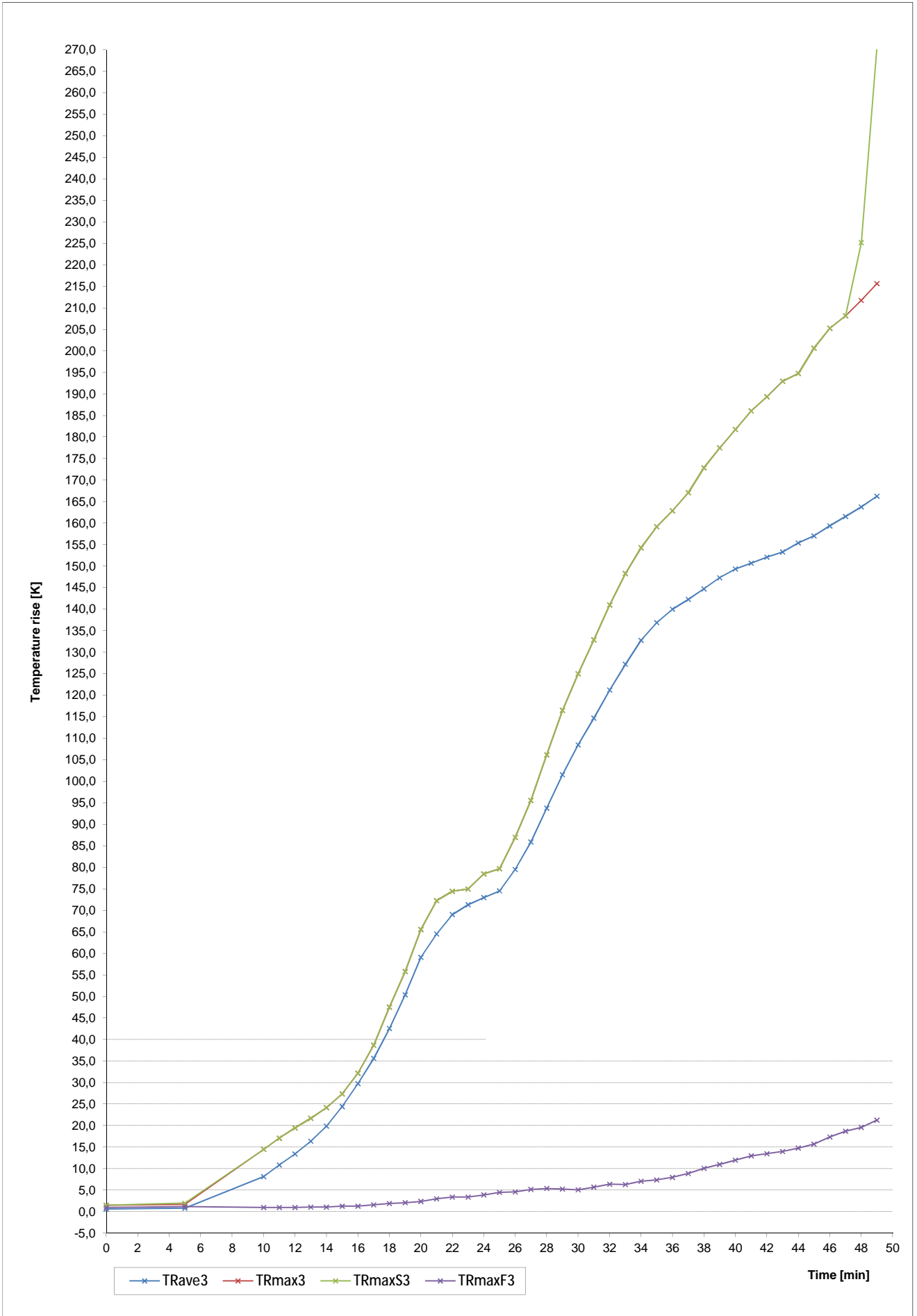
TRmax3 maximal temperature rise above initial average temperature calculated from T31-T41

TRmaxS3 maximal temperature rise above initial average temperature calculated from T31-T47 - supplementary procedure

TRmaxF3 maximal temperature rise above initial average temperature calculated from T48-T53 - door frame



Calculated values from measured values on specimen No. 3 surface / graph





Deflection of the specimens

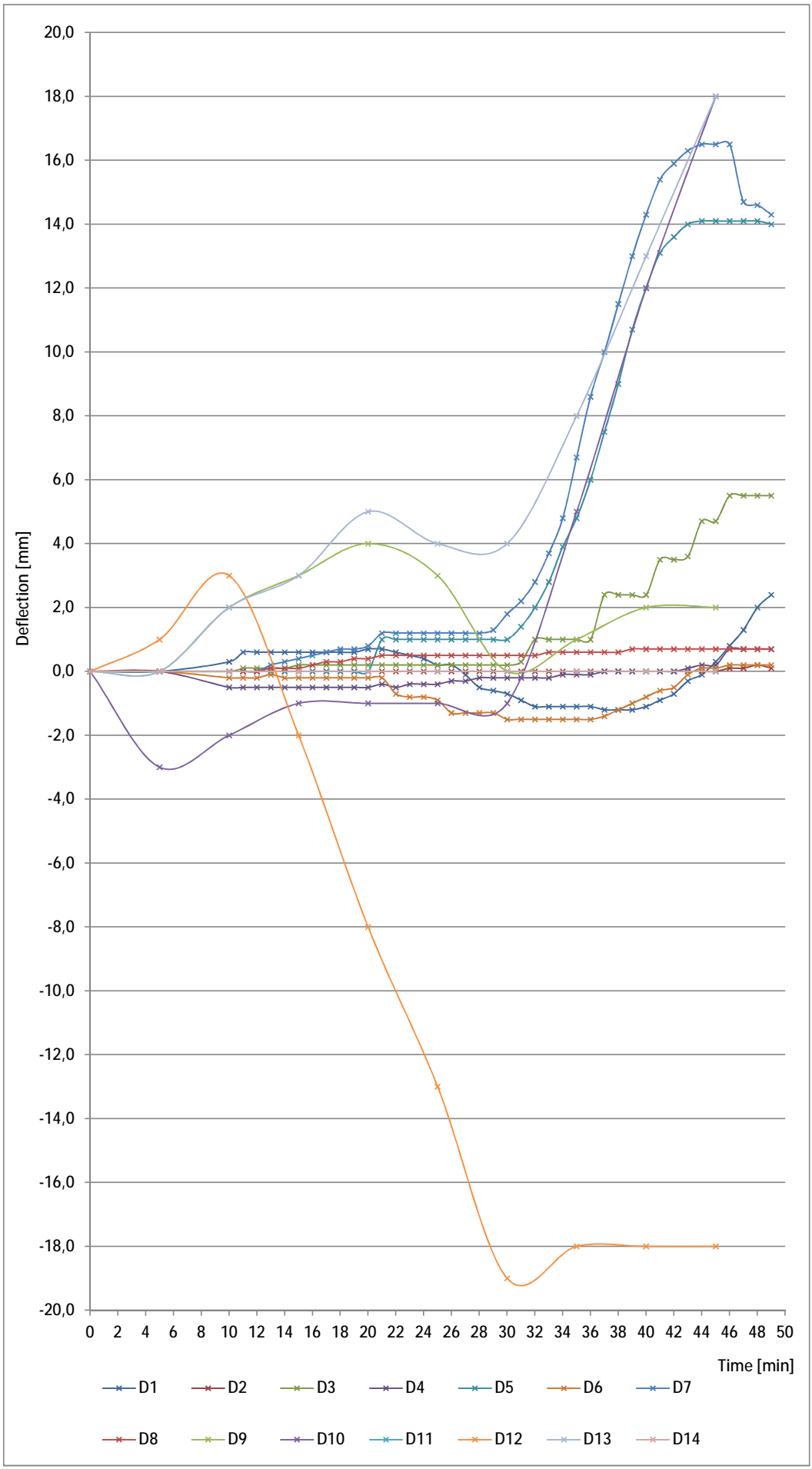
Time t [min]	Deflection [mm]													
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14
0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	-3,0	0,0	1,0	0,0	0,0
10	0,3	0,0	0,0	-0,5	0,0	-0,2	0,0	0,0	2,0	-2,0	0,0	3,0	2,0	0,0
11	0,6	0,0	0,1	-0,5	0,0	-0,2	0,0	0,0						
12	0,6	0,0	0,1	-0,5	0,0	-0,2	0,0	0,0						
13	0,6	0,0	0,1	-0,5	0,0	-0,1	0,2	0,1						
14	0,6	0,0	0,1	-0,5	0,0	-0,2	0,3	0,1						
15	0,6	0,0	0,2	-0,5	0,0	-0,2	0,4	0,1	3,0	-1,0	0,0	-2,0	3,0	0,0
16	0,6	0,0	0,2	-0,5	0,0	-0,2	0,5	0,2						
17	0,6	0,0	0,2	-0,5	0,0	-0,2	0,6	0,3						
18	0,6	0,0	0,2	-0,5	0,0	-0,2	0,7	0,3						
19	0,6	0,0	0,2	-0,5	0,0	-0,2	0,7	0,4						
20	0,7	0,0	0,2	-0,5	0,0	-0,2	0,8	0,4	4,0	-1,0	0,0	-8,0	5,0	0,0
21	0,7	0,0	0,2	-0,4	1,0	-0,2	1,2	0,5						
22	0,6	0,0	0,2	-0,5	1,0	-0,7	1,2	0,5						
23	0,5	0,0	0,2	-0,4	1,0	-0,8	1,2	0,5						
24	0,4	0,0	0,2	-0,4	1,0	-0,8	1,2	0,5						
25	0,2	0,0	0,2	-0,4	1,0	-0,9	1,2	0,5	3,0	-1,0	0,0	-13,0	4,0	0,0
26	0,2	0,0	0,2	-0,3	1,0	-1,3	1,2	0,5						
27	-0,1	0,0	0,2	-0,3	1,0	-1,3	1,2	0,5						
28	-0,5	0,0	0,2	-0,2	1,0	-1,3	1,2	0,5						
29	-0,6	0,0	0,2	-0,2	1,0	-1,3	1,3	0,5						
30	-0,7	0,0	0,2	-0,2	1,0	-1,5	1,8	0,5	0,0	-1,0	0,0	-19,0	4,0	0,0
31	-0,9	0,0	0,3	-0,2	1,4	-1,5	2,2	0,5						
32	-1,1	0,0	1,0	-0,2	2,0	-1,5	2,8	0,5						
33	-1,1	0,0	1,0	-0,2	2,8	-1,5	3,7	0,6						
34	-1,1	0,0	1,0	-0,1	3,9	-1,5	4,8	0,6						
35	-1,1	0,0	1,0	-0,1	4,8	-1,5	6,7	0,6	1,0	5,0	0,0	-18,0	8,0	0,0
36	-1,1	0,0	1,0	-0,1	6,0	-1,5	8,6	0,6						
37	-1,2	0,0	2,4	0,0	7,5	-1,4	10,0	0,6						
38	-1,2	0,0	2,4	0,0	9,0	-1,2	11,5	0,6						
39	-1,2	0,0	2,4	0,0	10,7	-1,0	13,0	0,7						
40	-1,1	0,0	2,4	0,0	12,0	-0,8	14,3	0,7	2,0	12,0	0,0	-18,0	13,0	0,0
41	-0,9	0,0	3,5	0,0	13,1	-0,6	15,4	0,7						
42	-0,7	0,0	3,5	0,0	13,6	-0,5	15,9	0,7						
43	-0,3	0,0	3,6	0,1	14,0	-0,1	16,3	0,7						
44	-0,1	0,0	4,7	0,2	14,1	0,1	16,5	0,7						
45	0,3	0,0	4,7	0,2	14,1	0,1	16,5	0,7	2,0	18,0	0,0	-18,0	18,0	0,0
46	0,8	0,1	5,5	0,7	14,1	0,2	16,5	0,7						
47	1,3	0,1	5,5	0,7	14,1	0,2	14,7	0,7						
48	2,0	0,2	5,5	0,7	14,1	0,2	14,6	0,7						
49	2,4	0,1	5,5	0,7	14,0	0,2	14,3	0,7						

Please see figure showing the layout of measuring points of deflection on the specimen surface which is a part of this test report

- Deflection [mm]** Deflection of test specimen
- D1-D8 deflection of the door measured with cable extension positioning transducer
- D9-D14 deflection of door measured manually by ruler
- Positive values of deflection represent deflection to the heat stress.
- Negative values of deflection represent deflection from the heat stress.

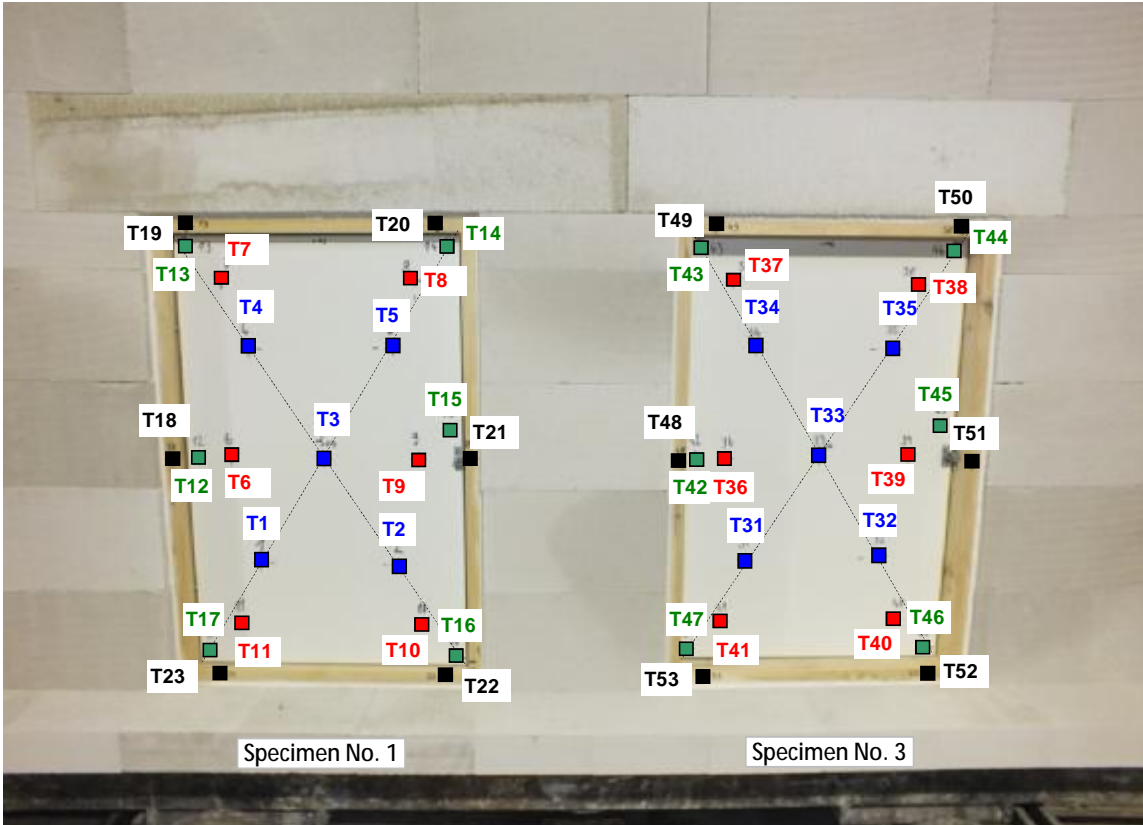


Deflection of the specimens / graph





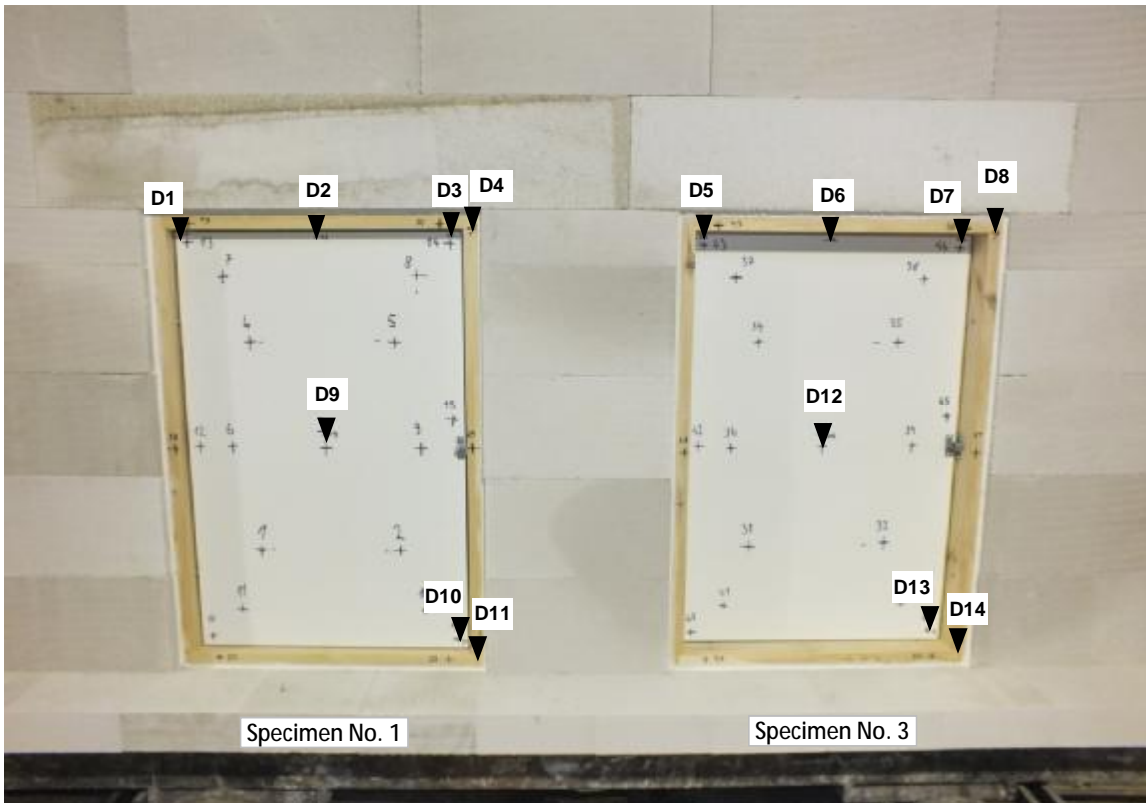
Layout of measuring points on the unexposed specimens surface



- Thermocouples attached for the average and maximum temperature rise evaluation according to EN 1634-1
- Thermocouples attached for the maximum temperature rise evaluation according to EN 1634-1
- Thermocouples attached for the maximum temperature rise evaluation (supplementary procedure) according to EN 1634-1
- Thermocouples attached for the maximum temperature rise evaluation (on the door frames) according to EN 1634-1



Layout of measuring points of deflection on the unexposed specimens surface



Deflection [mm] - specimen deflection

- D1 to D8** Deflection measured with cable position transducer
- D9 to D14** Deflection measured by laser beam



PHOTOS TAKEN DURING THE TEST



View of test specimens before test commencement.



1st minute of the test..



16th minute of the test.



PHOTOS TAKEN DURING THE TEST



31st minute of the test.



34th minute of the test.

Specimen No. 1

Sustained flaming from top right corner and top edge of door leaf – **integrity failed**;



37th minute of the test.



PHOTOS TAKEN DURING THE TEST



46th minute of the test.

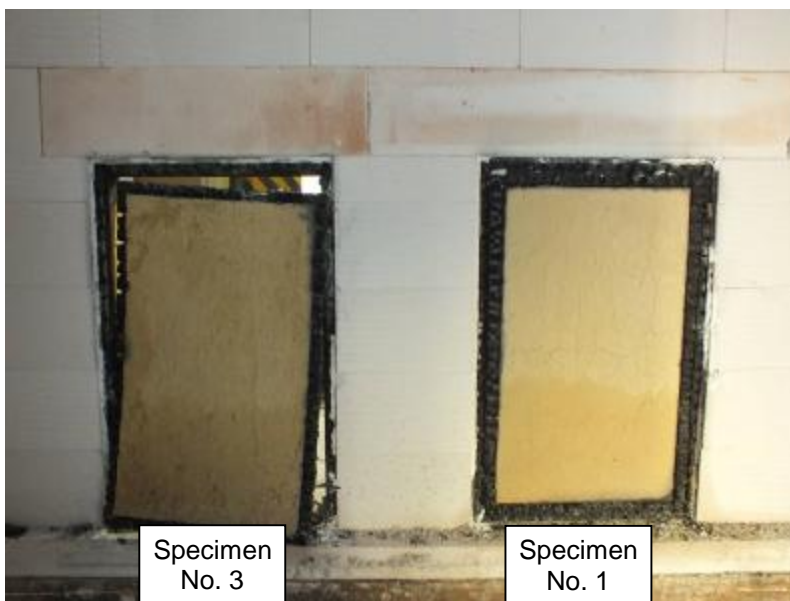


50th minute of the test

Specimen No. 3

Sustained flaming around perimeter of door leaf – **integrity failed**;

Termination of the test.

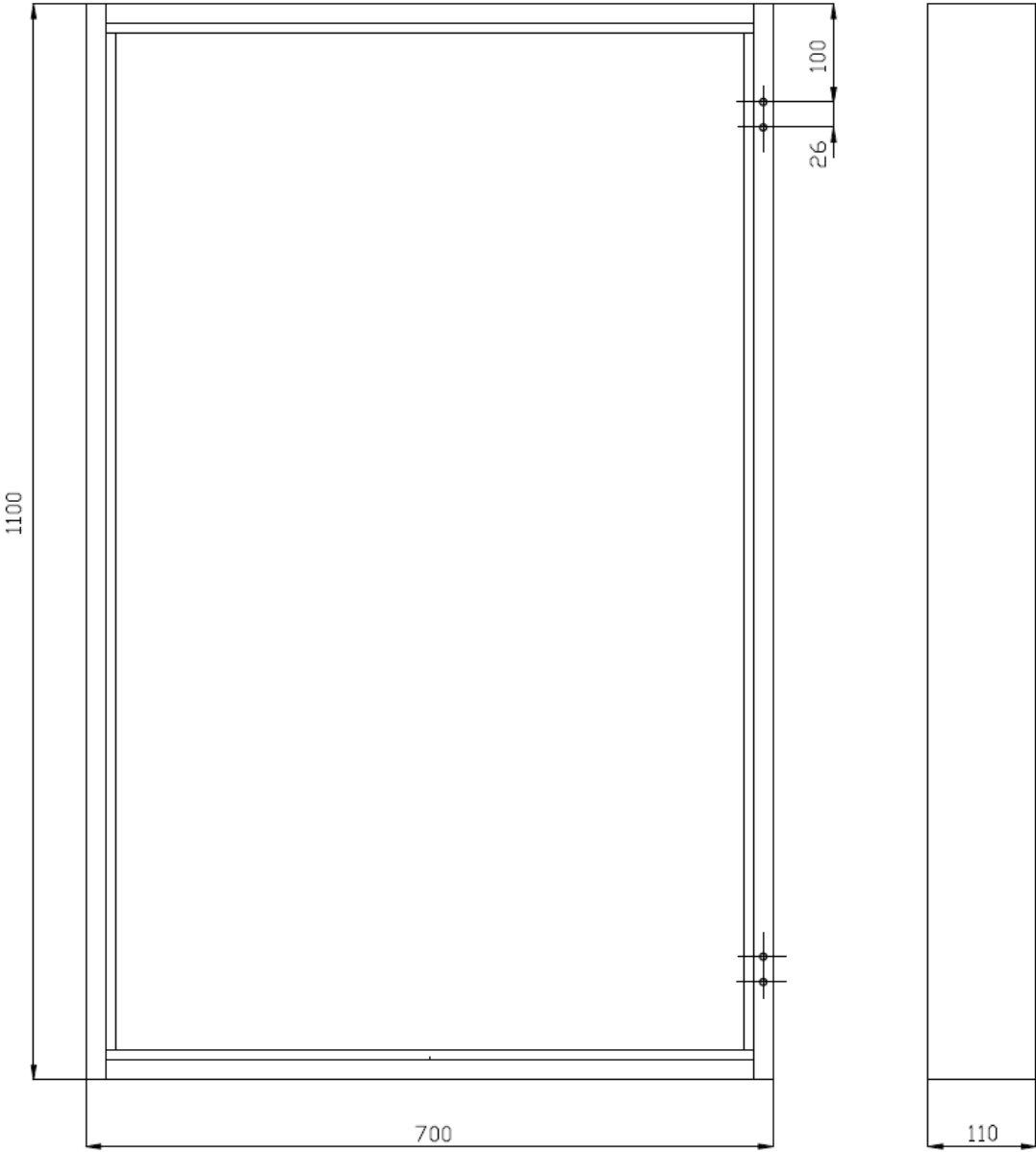


Exposed specimens face after the termination of the test.



DRAWINGS

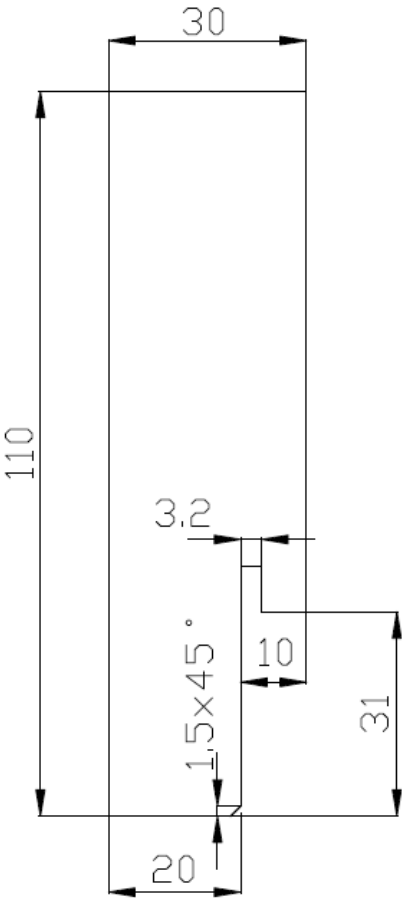
Specimen No. 1





DRAWINGS

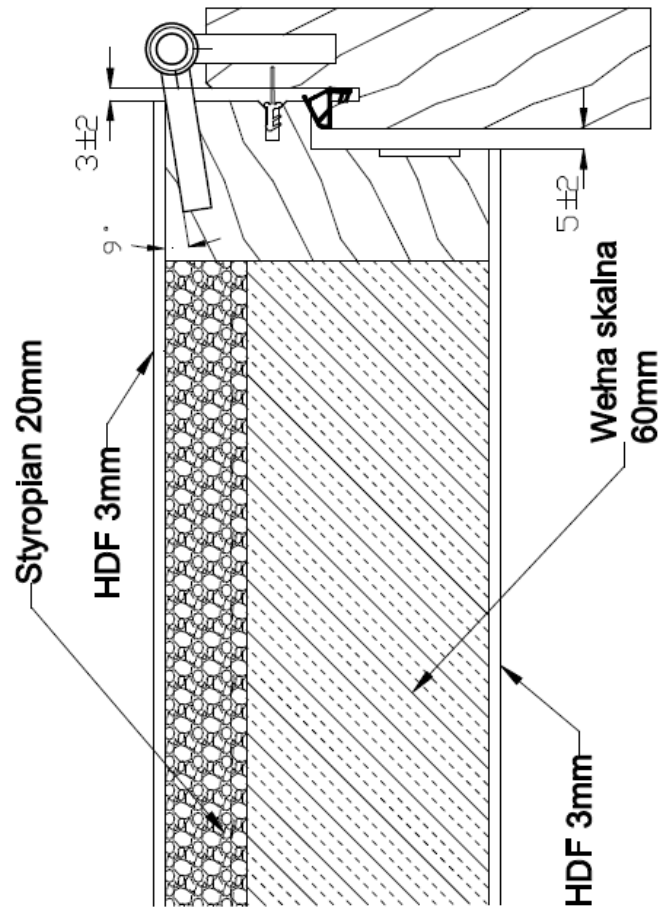
Specimen No. 1





DRAWINGS

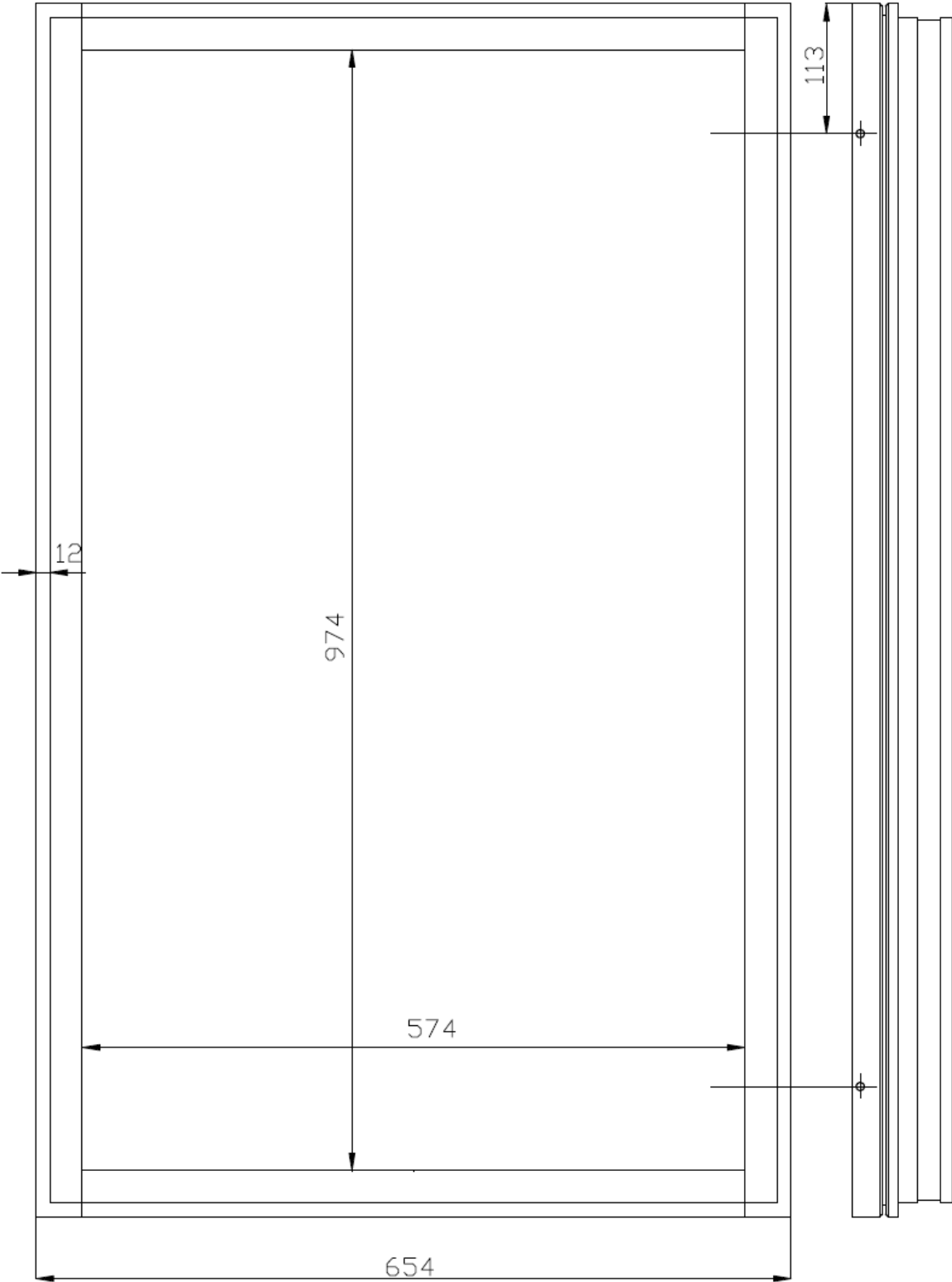
Specimen No. 1





DRAWINGS

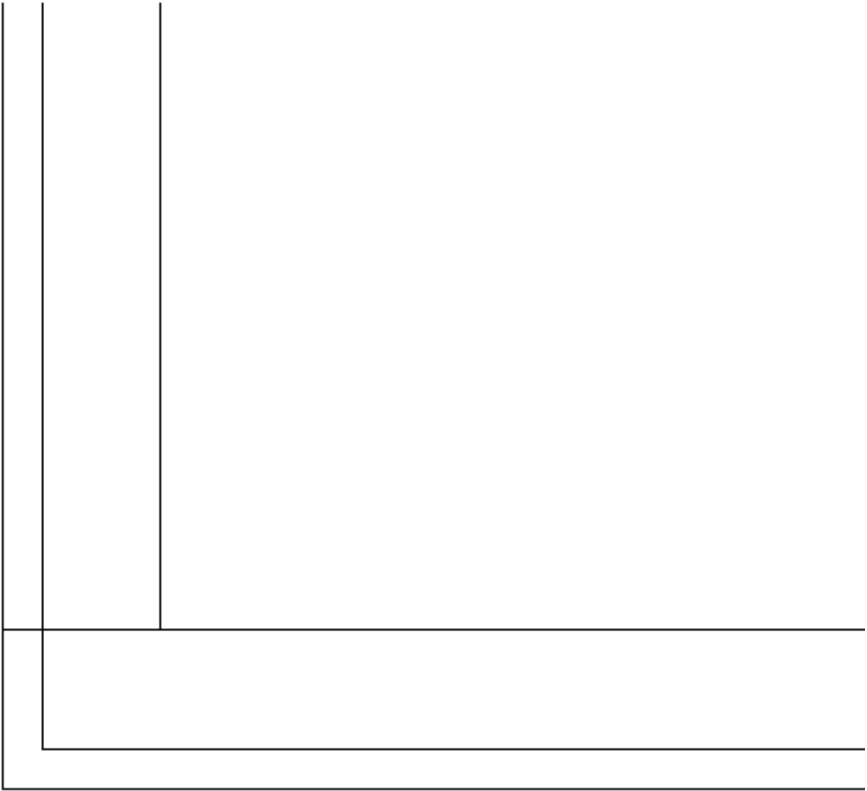
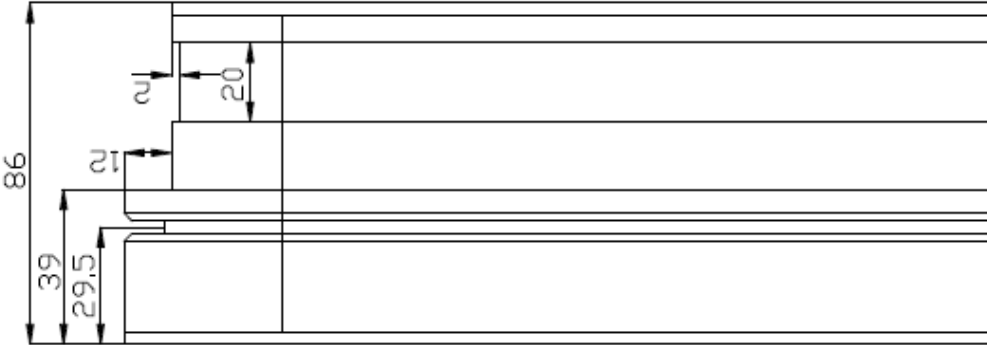
Specimen No. 1





DRAWINGS

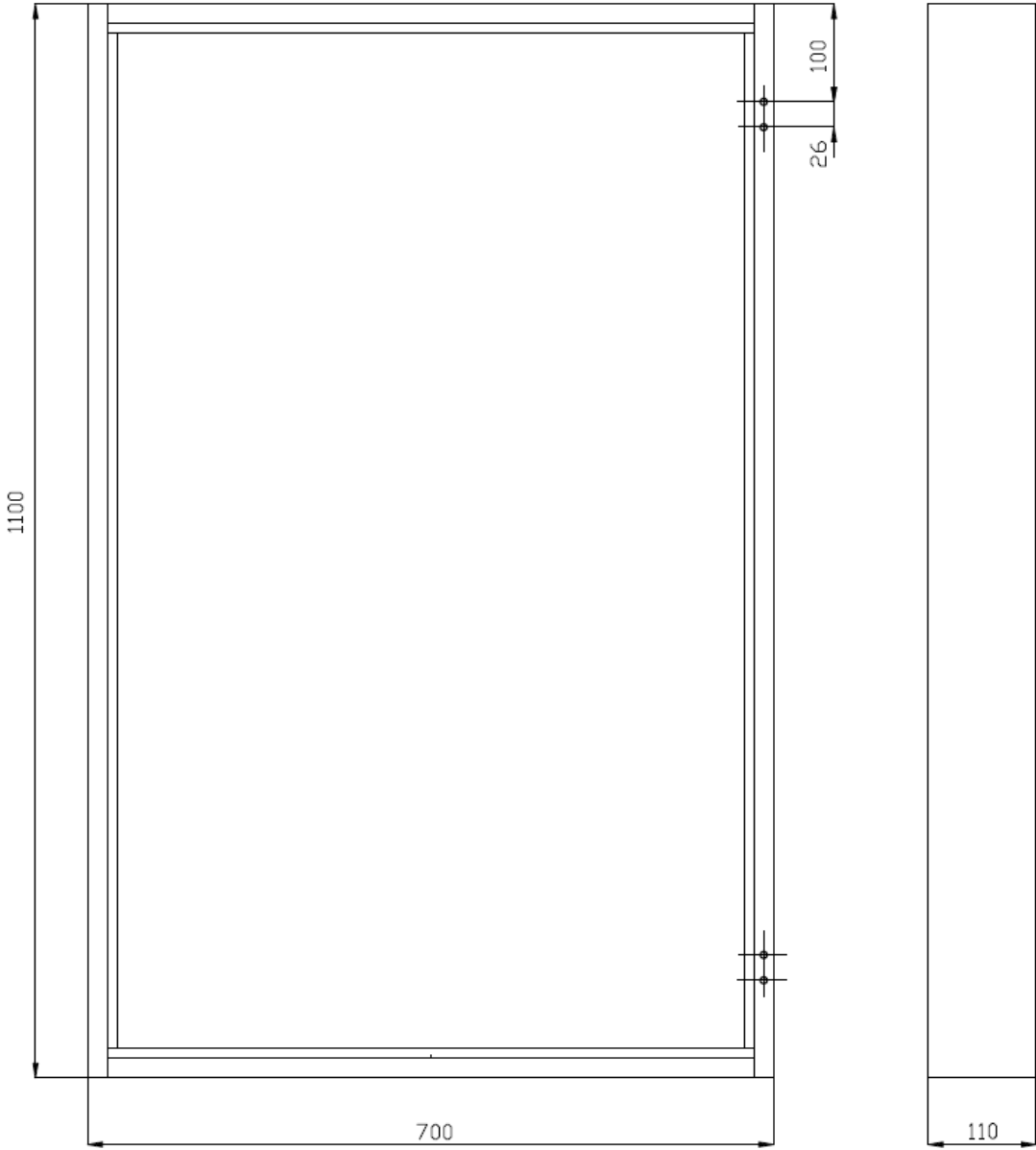
Specimen No. 1





DRAWINGS

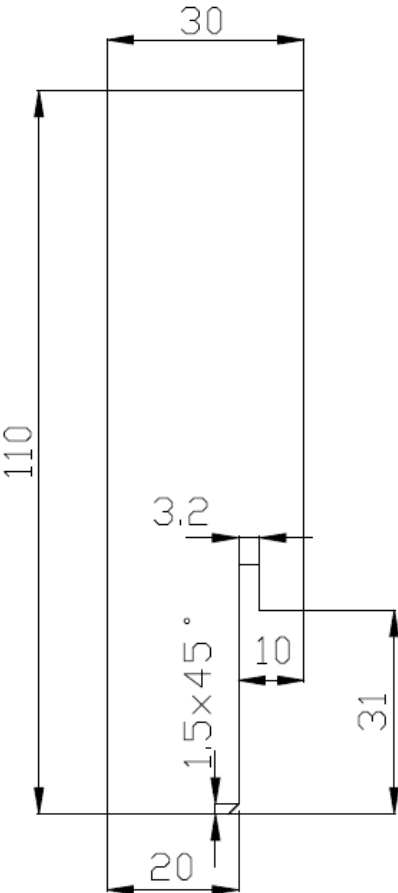
Specimen No. 3





DRAWINGS

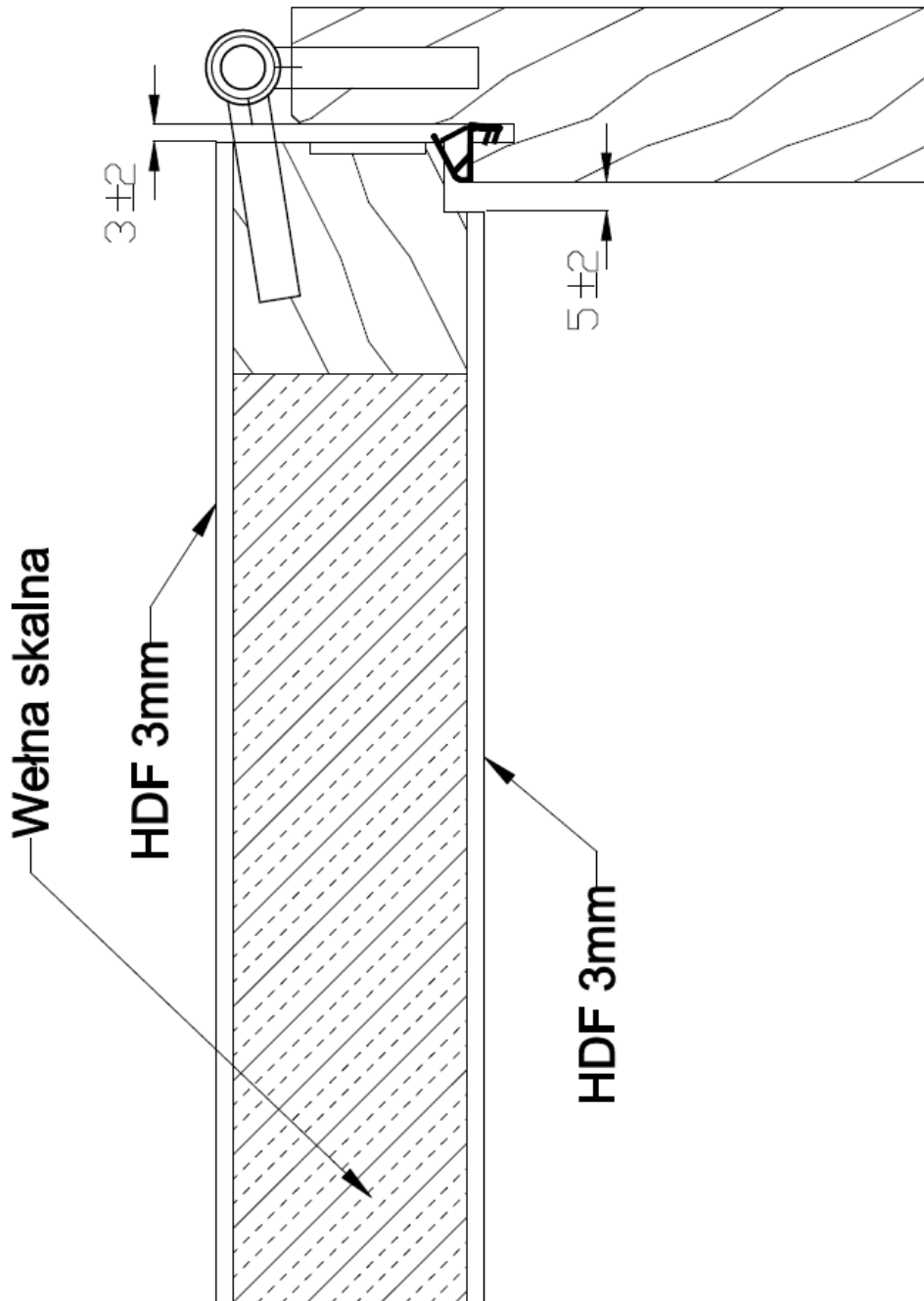
Specimen No. 3





DRAWINGS

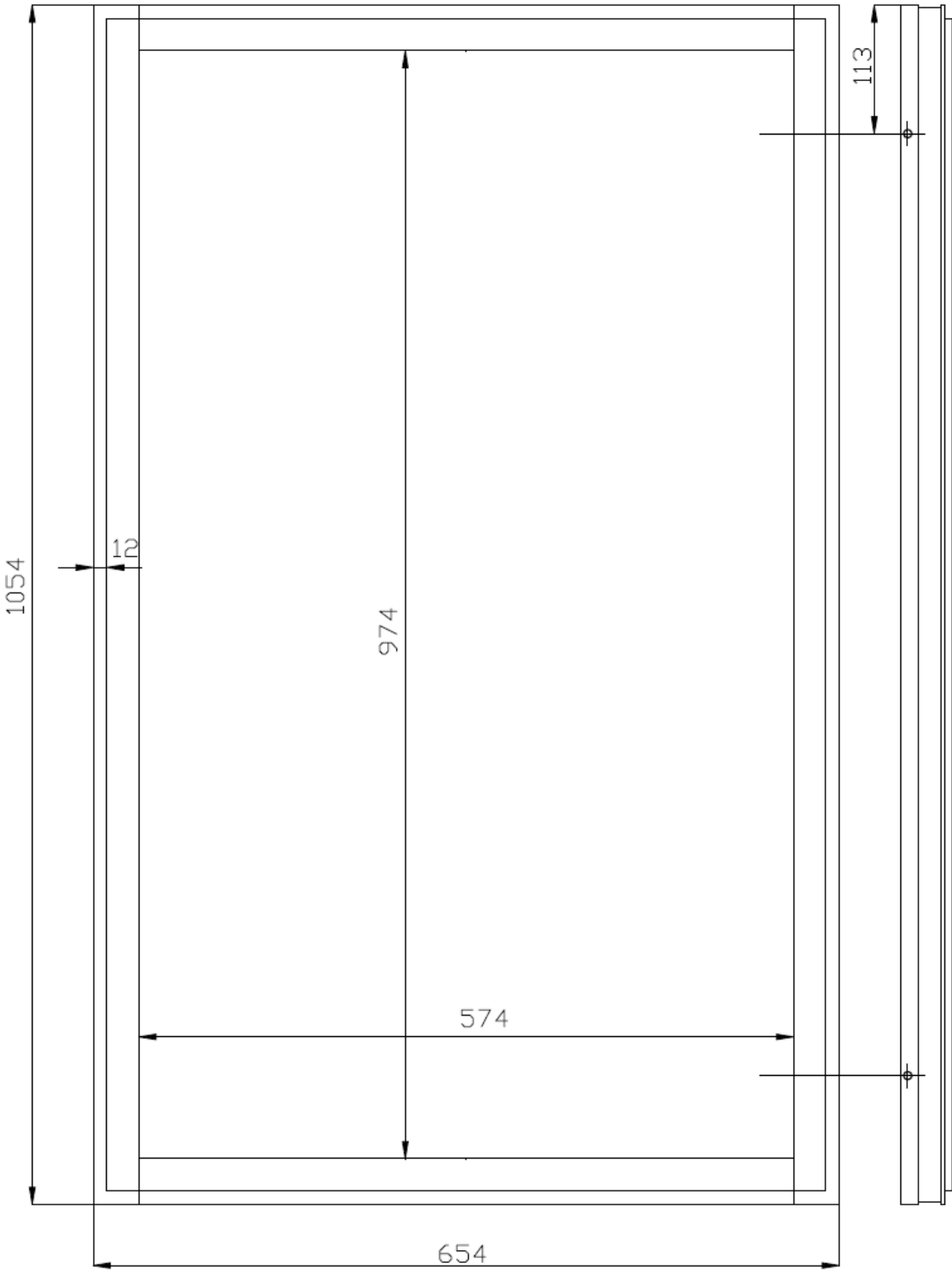
Specimen No. 3





DRAWINGS

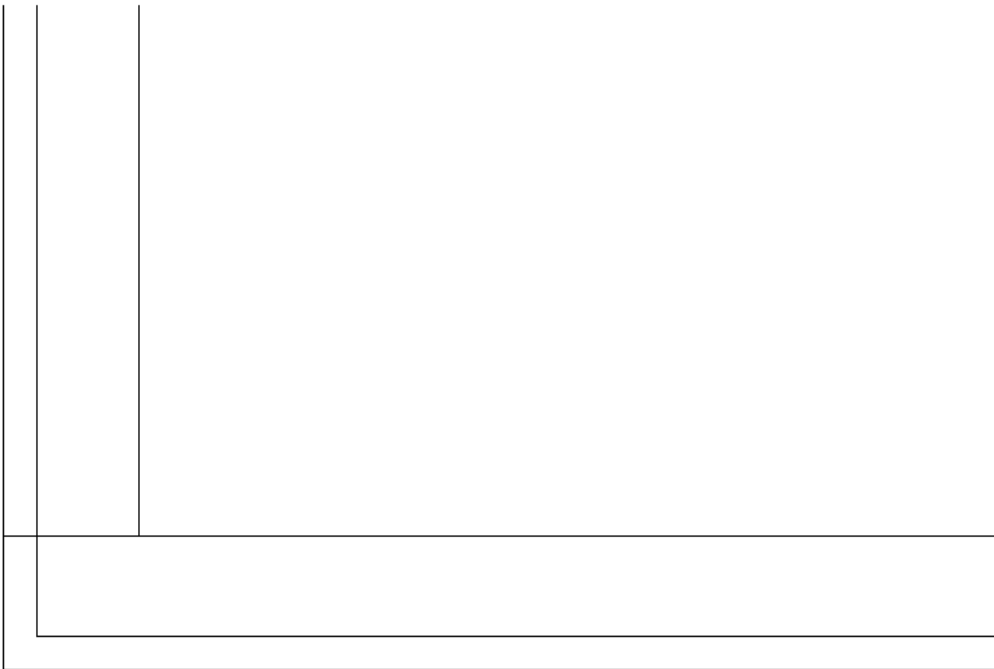
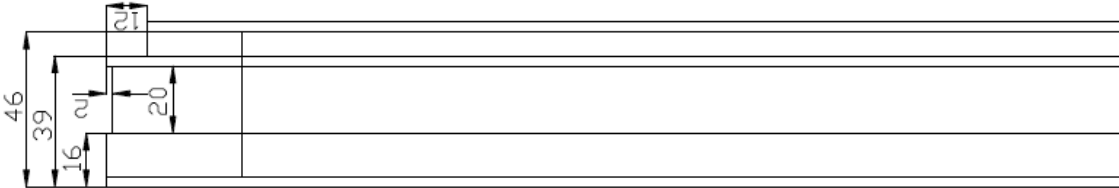
Specimen No. 3





DRAWINGS

Specimen No. 3





8. FINAL PROVISION

- § This report details the method of construction, the test conditions and results obtained when the specific element of construction described herein was following the procedure outlined in EN 1363-1, and where appropriate EN 1363-2. Any significant deviation with respect to size, constructional details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in the relevant test method is not covered by this report.
- § Because of the nature of the fire resistance testing and consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.
- § The test results refer only to the tested subjects. This test report is not an approval of the tested product by the test laboratory or the accreditation body overseeing the laboratory's activities. The test was carried out on testing equipment that is the property of FIRES, s.r.o., Batizovce. Without the written permission of the test laboratory this test report may be copied and/or distributed only as the whole. Any modifications of the test report can be made only by the fire resistance test laboratory FIRES, s.r.o., Batizovce.

Approved by:

Prepared by:

Ing. Štefan Rástocký
leader of the testing laboratory



Ing. Miroslav Hudák
technician of the testing laboratory

9. NORMATIVE REFERENCES

EN 1634-1: 2014	Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Part 1: Fire resistance test for door and shutter assemblies and openable windows
EN 1363-1: 2012	Fire resistance tests. Part 1: General requirements
EN 1363-2: 1999	Fire resistance tests. Part 2: Alternative and additional procedures
EN 16034: 2014	Pedestrian doorsets, industrial, commercial, garage doors and openable windows. Product standard, performance characteristics. Fire resisting and/or smoke control characteristics

THE END OF THE TEST REPORT