

# TEST REPORT LOADBEARING DECK

<b>Name of sponsor:</b>	Realdania By & Byg		
<b>Product name:</b>	MiniCO2 belastet dæk		
<b>File no.:</b>	PGA12165A	<b>Revision no.:</b>	0
<b>Test date:</b>	01-09-2022	<b>Date:</b>	14-07-2023
<b>Pages:</b>	10	<b>Encl.:</b>	42
<b>Ref:</b>	JBK / RKP		

## Client information

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Client: REALDANIA  
Address: Jarmers Plads 2  
1551 København V  
Denmark

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Revision chronology				
Rev. no.	Date	Description	Author	Approved
0	29-09-2023		JBK	GWA
1	14-07-2023	Changed description of insulation from "blown wood fiber" to "blown paper wool"	JBK	RKP

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## 1 Date of test

The test was conducted on the 1<sup>st</sup> of September 2022.

## 2 Purpose of test

Examination of the fire-resistance of a loadbearing timber deck. See description for further details.

The test specimen has been subjected to a standard fire test in accordance with the following standards:

EN 1363-1:2020 Fire resistance tests – General requirements

in conjunction with

EN 1365-2:2014 Fire resistance tests for loadbearing elements - Part 2: Floors and roofs

## 3 Test specimen

The trade name and sponsors identification mark is stated below:

Trade name: -

Identification mark: -

The components for the test specimen were delivered and mounted by the sponsor.

## 4 Drawings and description

Details of the construction are shown in the enclosed documentation as stated below:

Type	Drawing No.	Dated	Subject
Drawing	105032	27-09-2022	MiniCO2 Fire test Mock-Up

The documentation is supplied by the sponsor and it is stamped by DBI - Danish Institute of Fire and Security Technology

### Description

The test specimen consisted of the components described in the following. The deck initially came prefabricated, but the gypsum boards and the insulation were changed at the DBI test hall, during this process all visible components were inspected. DBI inspected the components during the test and after the test. The inspection of components consisted of extra material.

The sponsor carried out the selection of the products for the test specimen as well as the mounting.

### Test specimen

External measures:	Length: 4854 mm	Width: 2275 mm	Thickness: 300 mm
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The test specimen consisted of two mirrored elements, joint together along the centre of the furnace. Each element had two loadbearing timber beams that were partially exposed. The insulation inside the elements were protected with gypsum boards from below, and the top of the test specimen consisted of cross laminated timber. The joint between the elements was sealed from the exposed side by a firestop designated [REDACTED] mounted in a cut out 25 mm from the bottom of the joint, and a 15 mm thick and 125 mm wide OSB3-board covering the top of the joint. See drawing 105032 for further details.

### Mirrored element

Loadbearing beams:	The long edges consisted of one 120 mm wide and 240 mm thick beam.
Gypsum boards:	Two layers of fibre gypsum board designated [REDACTED] retkant with different thicknesses. The first layer boards (against the insulation) with 15 mm thickness were cut with a maximum of 1.5 mm gap to the beams. The second layer with 18 mm thickness had a gap of 7 mm to the beams to leave room for the sealant. Each layer of boards were stapled at 100 mm c/c distance with galvanized 10.8 mm x 50 mm staples designated [REDACTED] 50 mm to the underlying battens.
Glue	Glue consisted of [REDACTED] [REDACTED]. The glue were applied in the joints of the second layer. The first layer was protected from the glue by plastic tape behind the second layers' joints. One joint in the first layer of one of the elements were accidentally glued. This is considered to have a minor impact on the test results since there are four joints in the top layer of each element and the top layer is not directly exposed to the furnace. The first layer was otherwise not glued in the joints.
Sealant	The sealant was designated [REDACTED] [REDACTED]. It was applied in the 7 mm gap between the bottom layer gypsum boards and the beams.

Insulation:	The insulation consisted of blown paper wool designated [REDACTED] [REDACTED]. The elements were filled with 17.3 kg and 17.6 kg respectively. This results in a calculated average insulation density of 29 kg/m <sup>3</sup> inside each element's cavity.
Battens	The battens that the gypsum boards were fixed to, consisted of 60x60 mm timber battens that were screwed together using 6.0 x 120 mm screws. Each element had longitudinal oriented battens along the inner sides of each beam. The inner sides of the longitudinal battens had battens mounted transverse at c/c distance of 417 mm which together formed a horizontal ladder shape.
Cross laminated timber	The top of each element consisted of a three-layered CLT-element with a total thickness of 60 mm. The CLT was glued with [REDACTED] [REDACTED] and screwed with 8 x 240 mm washer head screws c/c 150 mm in a zig/zag pattern to the timber beams.

### Measured by DBI

Product		[REDACTED] Fibergips retkant	[REDACTED] Fibergips retkant	OSB3-board	CLT	[REDACTED] insulation
Density	kg/m <sup>3</sup>				464	
Thickness	mm	18,0	15,0			
Moisture content	%	0,97	1,12	7,86	10,57	7,59
Sampling method		Extra material	Extra material	Extra material	Extra material	Extra material
Drying temperature	°C	55	55	105	105	105

## 5 Test conditions

### Conditioning

The test specimen was delivered to the DBI laboratory and stored under room temperature. On the day of the fire testing the condition of the test specimen was similar with respect to its moisture content as the test specimen would be in normal service.

### Mounting

The test specimen was mounted on a concrete test frame suitable for loaded tests with a clear opening of 4500 x 3000 mm (exposed area).

To close the gap between the test frame and the test specimen on either side along the length 2 elements was placed consisting of aerated concrete with dimension 150 x 300 x 4800 mm secured to a T-profile of 120 x 120 mm.

The free edges were established along both long edges of the test specimen against the aerated concrete (2 x 25 mm stone wool with alu-foil in each side) to allow for unrestrained deformation of the test specimen.

### Loading

The test specimen was loaded with a total applied load of 14.7 kN in each of the line loads during the test, corresponding to a total load of 29.4 kN including the weight of the loading equipment of 370 kg.

The load was chosen to simulate a moment of 4.85 kNm with a shear force of 3.68 kN per 120x240 mm beams.

The load was applied in two lines, 1 m from each side of the transverse centreline of the test specimen, i.e., there was no eccentricity in the loading conditions.

The load was applied in 10 steps prior to the fire test. The fire test was commenced approx. 30 minutes after reaching the final load on the test specimen.

Note: this corresponds to a moment of 9.7 kNm with a shear force of 7.35 kN per 240x240 mm beams.

### Fire test

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Observations were made during the test on the general behaviour of the test specimen.

Temperature observations were taken continually during the entire testing time.

The surface temperatures were measured on the unexposed surface of the test specimen as indicated on DBI drawing no. 1.0.

The furnace temperature was determined by means of plate thermocouples uniformly distributed 100 mm from the exposed side of the test specimen. The furnace temperature was continuously controlled to follow the standard time temperature curve within the accuracy specified in EN 1363-1:2020.

The thermocouples were constructed according to the description in EN 1363-1:2020.

## 6 Test results

Duration of the test was 110 minutes.

### Measurements

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The enclosed graphs and tables show:

Enclosures 2.0 and 2.1	<b>Furnace temperatures</b> The actual minimum-, average- and maximum furnace temperature in relation to the standard temperature. The table also shows the area under the actual time-temperature curve as well as the area under the standard time-temperature curve
Enclosures 3.0 and 3.1	<b>Furnace pressure</b> The differential pressure in the furnace during the test, measured 100 mm below the furnace ceiling
Enclosures 4.0 and 4.1	<b>Ambient temperature</b> The ambient temperature in the laboratory during the test
Enclosures 5.0 and 5.1	<b>Average temperature measured on the unexposed side</b>
Enclosures 6.0 and 6.1	<b>Maximum temperature measured on the unexposed side</b>
Enclosures 7.0 and 7.1	<b>Deformation</b>

Enclosures 8.0 and 8.1	Load applied by hydraulic jacks
Enclosures 9.0 and 9.1	Internal thermocouple measurements
Enclosures 10.0 and 10.1	Deformation During loading phase
Enclosures 11.0 and 11.1	Load applied by hydraulic jacks During loading phase

### Visual observations:

Time / Minutes	Visual observations:	U = Unexposed side E = Exposed side
0	Test commences	
1	Smoke development from the centre of short edges	U
2	Insulation of gaps in short edges with mineral wool starts	U
4	Insulation of gaps in short edges with wool is completed	U
9	Smoke development from the side of the short edge (right, right)	U
14	No fallen gypsum boards and timber have sharp edges	E
30	Faint smoke development from joints in the centre of the right load steel beam	U
41	Faint smoke development from the centre of the deck (from joint)	U
42	Yellow discolouration/moisture left of the left load steel beam	U
44	Faint smoke development from left of left beam	U
45	Increased smoke development from right beam	U
46	Smoke development increases around right load steel beam	U
51	Cracks width approx. 2-3 mm, along the whole top long edge	U
57	Thicker yellow tinted smoke development from the centre of deck	U
58	Hanging gypsum board on left side of the specimen	E
62	Smoke development decreases in general	U
68	Large piece of the bottom gypsum layer has fallen on the left side	E
73	Larger piece of the first layer has fallen on right side	E
74	Cracks in top layer of CLT	U
75	Increased smoke development from left side of centre	U
77	More gypsum has fallen on right side	E
86	Approximately 80 % of the top gypsum board layer is exposed	E
89	Upper gypsum layer has started fall on right side	E
93	Loud sound of timber charring	U



95	Upper layer has fallen in more places	E
97	Approximately 20 % of upper layer have fallen or are hanging	E
104	Paper wool insulation is falling in smaller chunks	E
110	Test stopped, due to health and safety reasons	

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The photographs on the attached photo sheets show the test specimen during the mounting, testing and after the test. See the description at each photo.

The cross section of the timber beams were measured to 12 x 15 cm after the fire test.

## 7 Conclusion

Fire resistance testing according to EN 1365-2:2014 of the construction described in this test report showed that failure according to the performance criteria stated in the test method occurred at the following time:

### **Load-bearing capacity (R):** **110 minutes**

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- The load on the test specimen was maintained during the entire test.
- The measured vertical deflection did not exceed the criteria of  $D_{limit} = \frac{4800^2}{400 \cdot 240} = 400 \text{ mm}$  during the test.
- The measured rate of vertical deflection did not exceed the criteria of  $\left(\frac{dD}{dT}\right)_{limit} = \frac{4800^2}{9000 \cdot 240} = 11 \text{ mm}/\text{min}$  during the test.

### **Integrity (E):** **110 minutes**

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- Sustained flaming did not occur during the test.
- The cotton pad was not ignited during the test.
- No through-going openings in the test specimen were created during the test.

### **Insulation (I):** **110 minutes**

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- The average temperature rise on the unexposed surface of the test specimen did not exceed 140°C during the test.
- The maximum temperature rise on the unexposed surface of the test specimen did not exceed 180°C during the test.

## 8 Remarks

The field of direct application of the test results appears from EN 1365-2:2014, clause13.

This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in EN 1363-1:2020, and where appropriate EN 1363-2:1999. 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 test method is not covered by this report.

Because of the nature of fire resistance testing and the 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.

This report has only been printed in a pdf-version. DBI has not issued a hard copy version.

All values mentioned in this report are nominal values, production tolerances are not considered.

### Danish Institute of Fire and Security Technology



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M.Sc. (Eng.)



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**Rasmus Krogh Pedersen**  
Resistance to Fire Engineer

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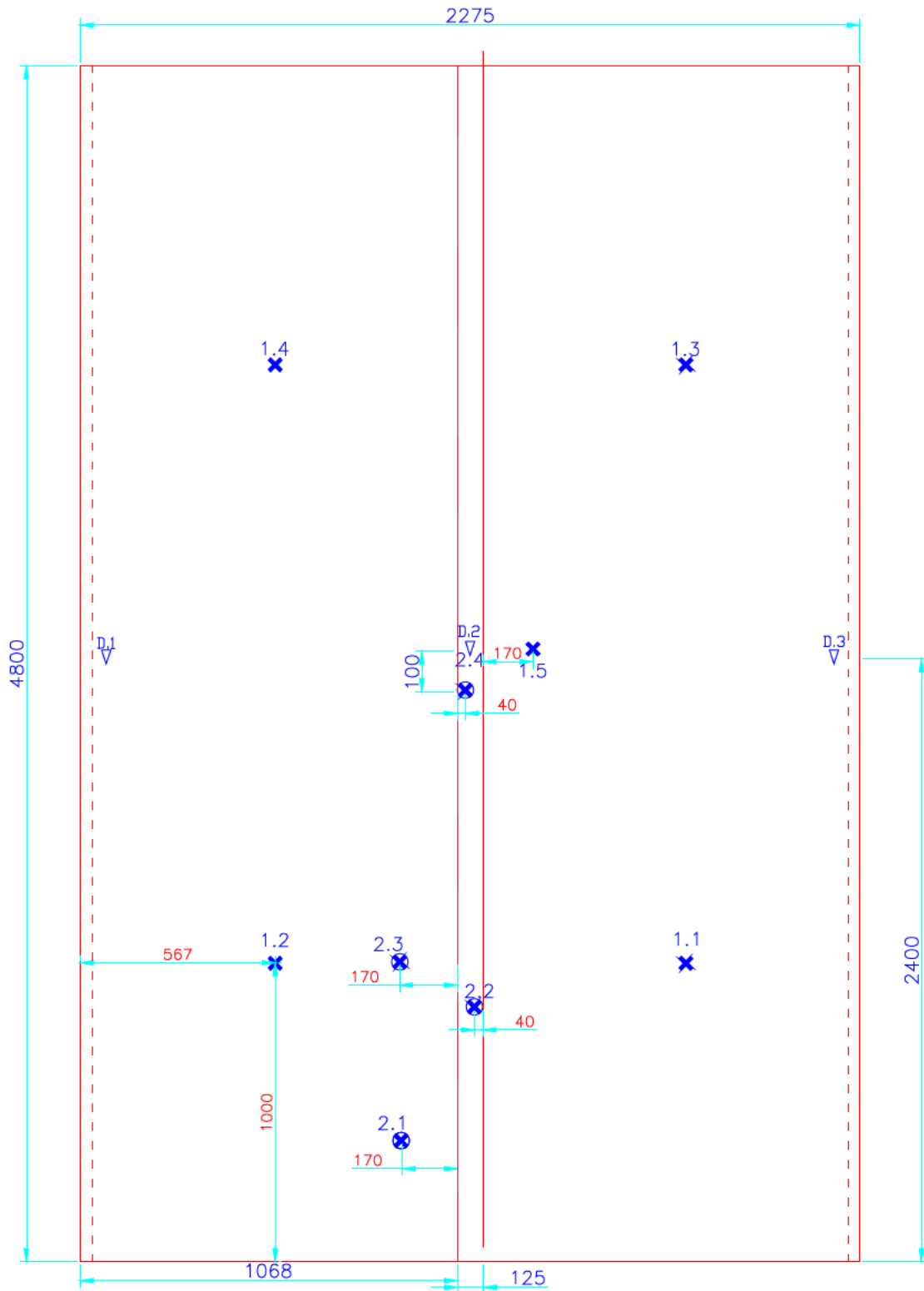
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#### Enclosures: 42

DBI drawings:	3
DBI graphs and tables:	20
Photo sheets:	18
Sponsors drawings:	1



- ✕ Thermocouple placed on the unexposed surface (Average)
- ⊗ Thermocouple placed on the unexposed surface (Maximum)
- ▽ Deflection measuring point

All measurements are in mm

**Danish Institute of Fire and security Technology**

Sponsor: Realdania By & Byg

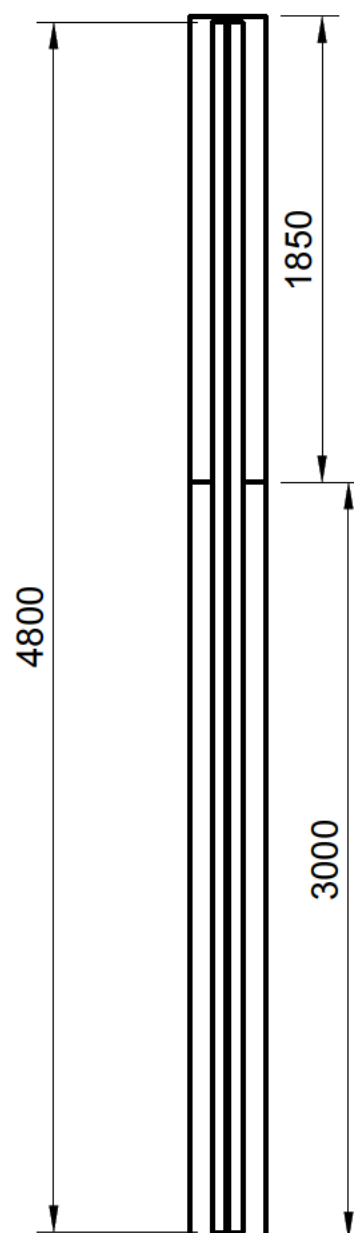
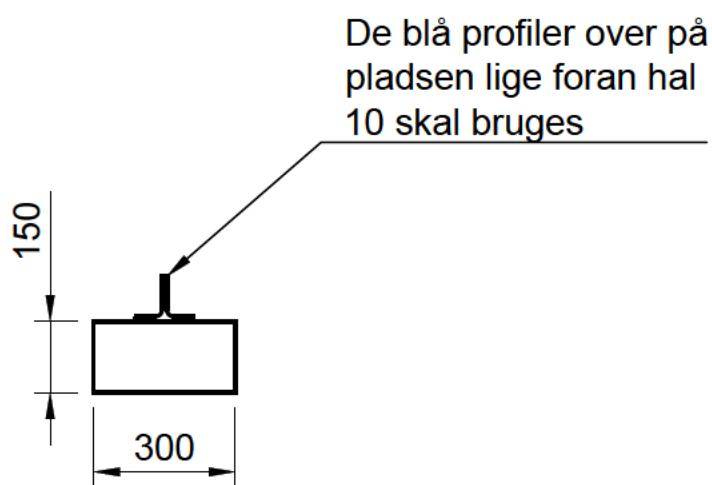
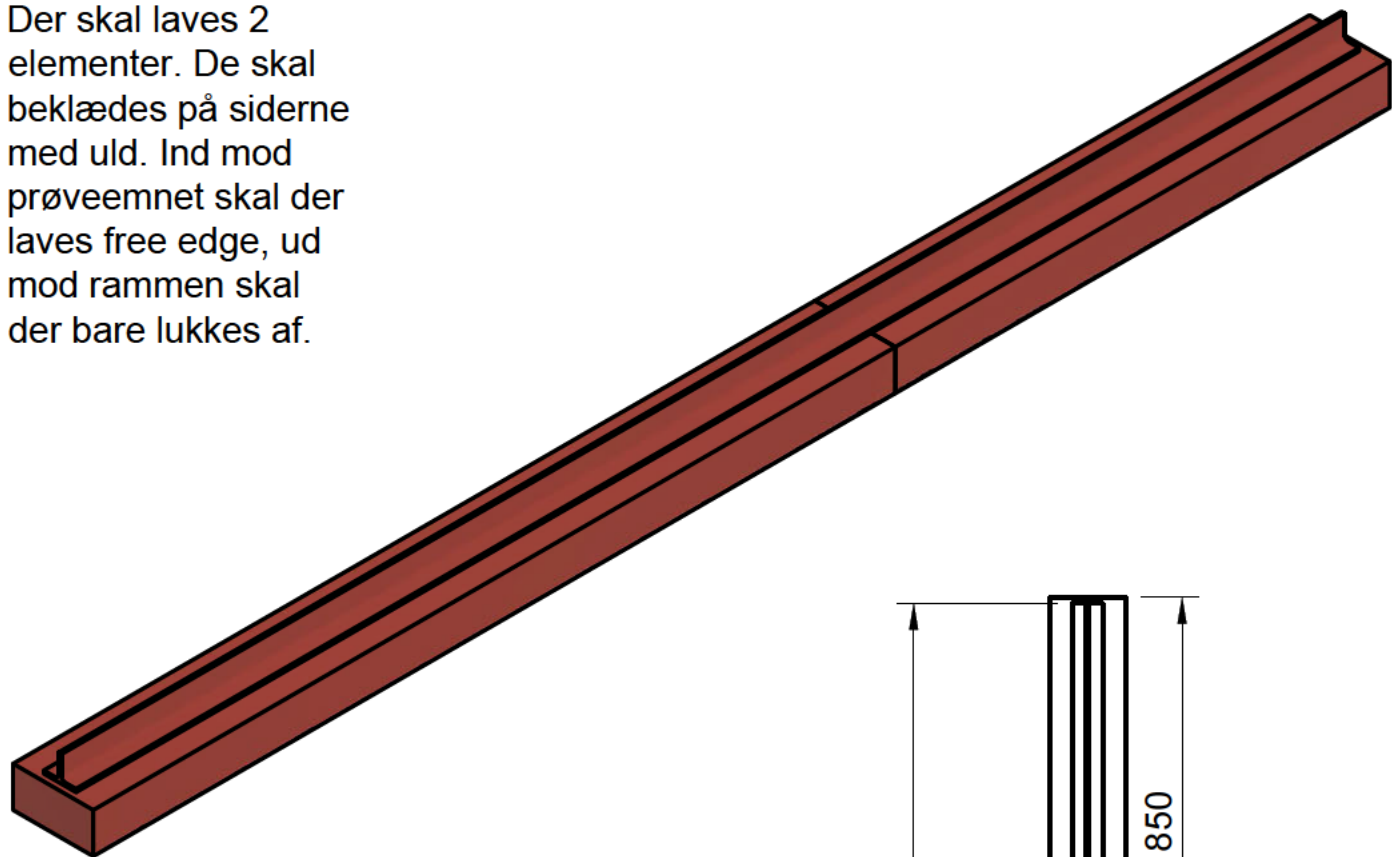
Subject: Loadbearing Deck

**File No.:** PGA12165A

**Test date:** 01-09-2022

**Enclosure:** 1.0

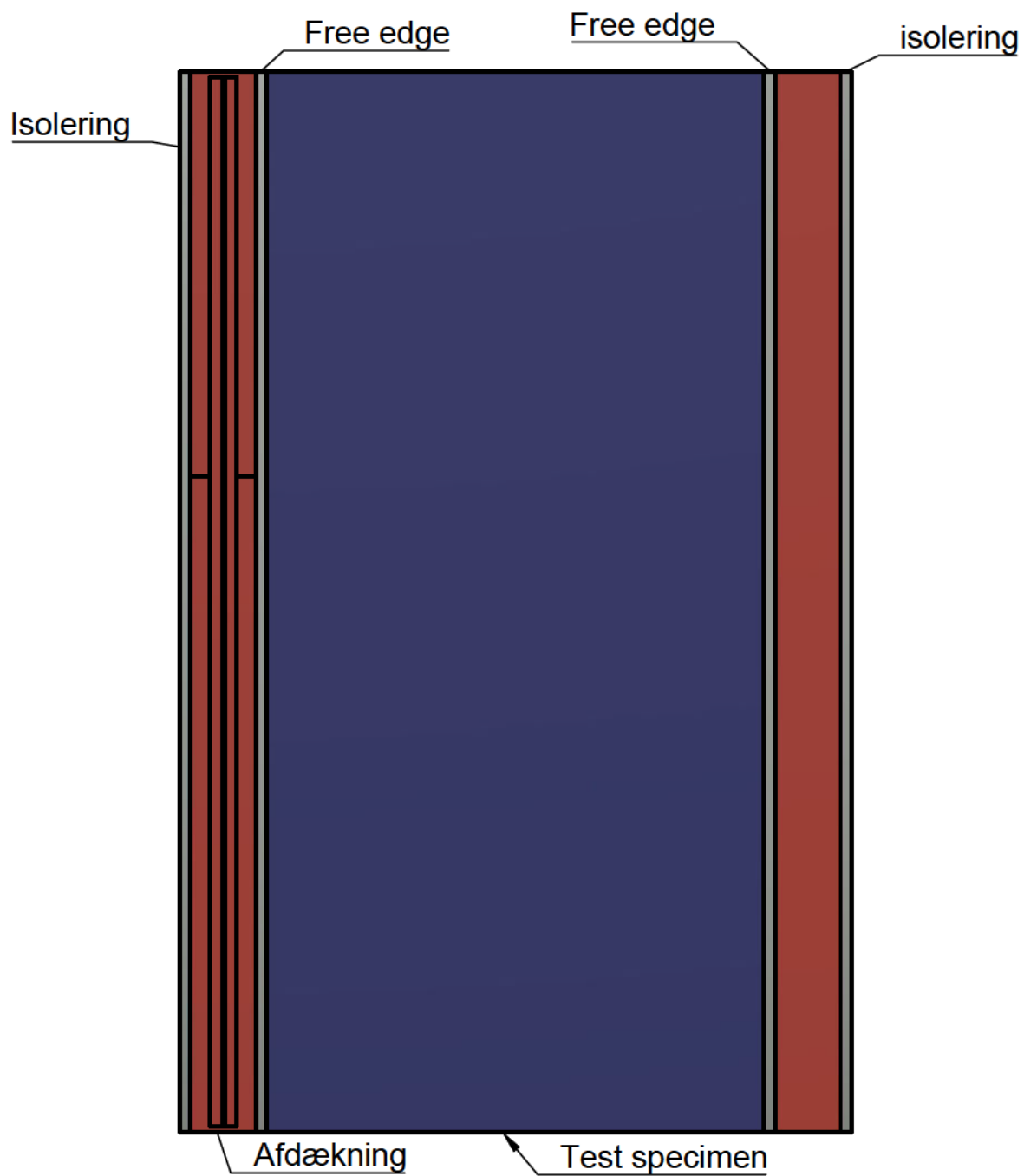
Der skal laves 2 elementer. De skal beklædes på siderne med uld. Ind mod prøveemnet skal der laves free edge, ud mod rammen skal der bare lukkes af.



- 1: Test frame
- 2: Substrate
- 3: Covering

All measurements are in mm

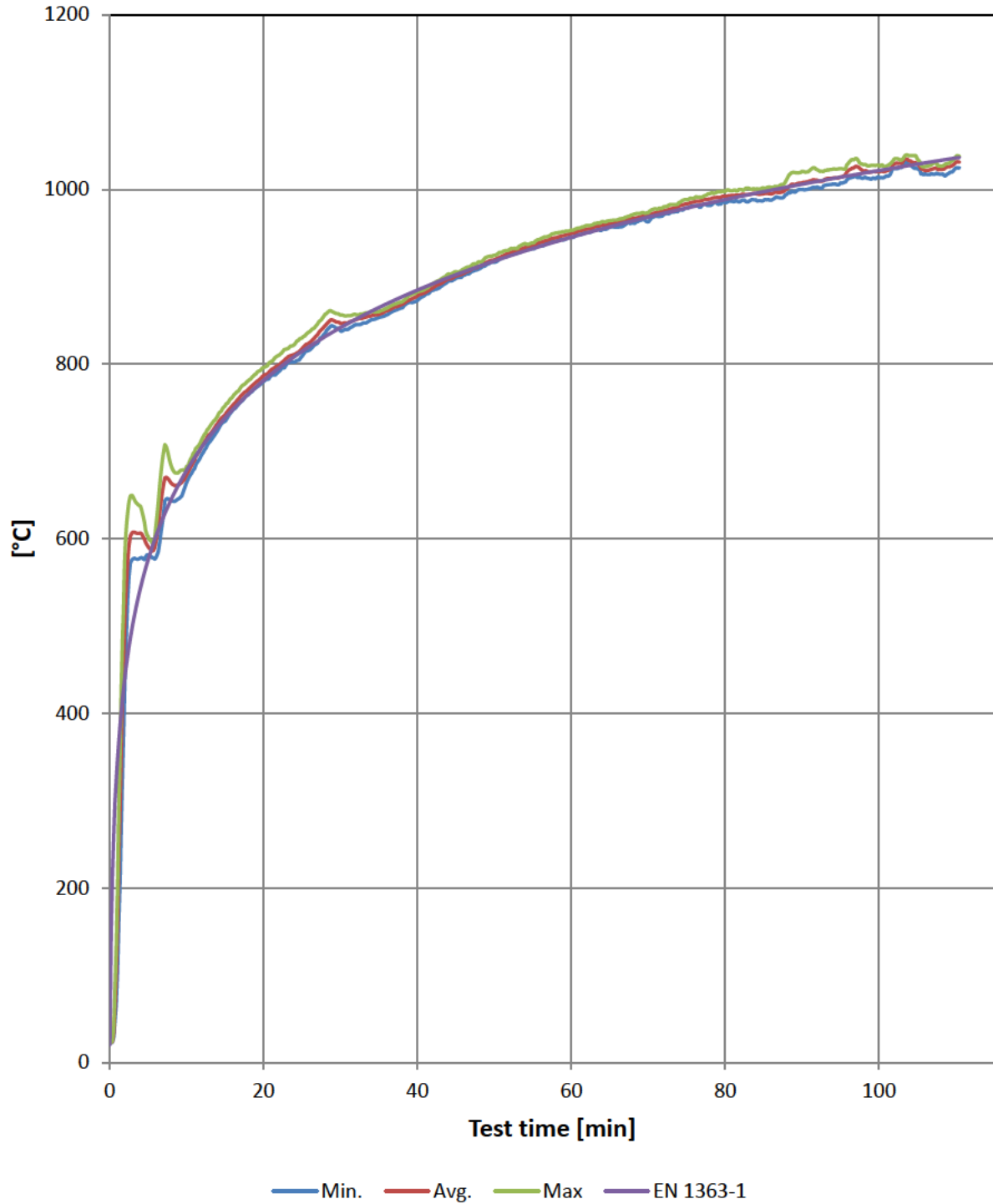




All measurements are in mm



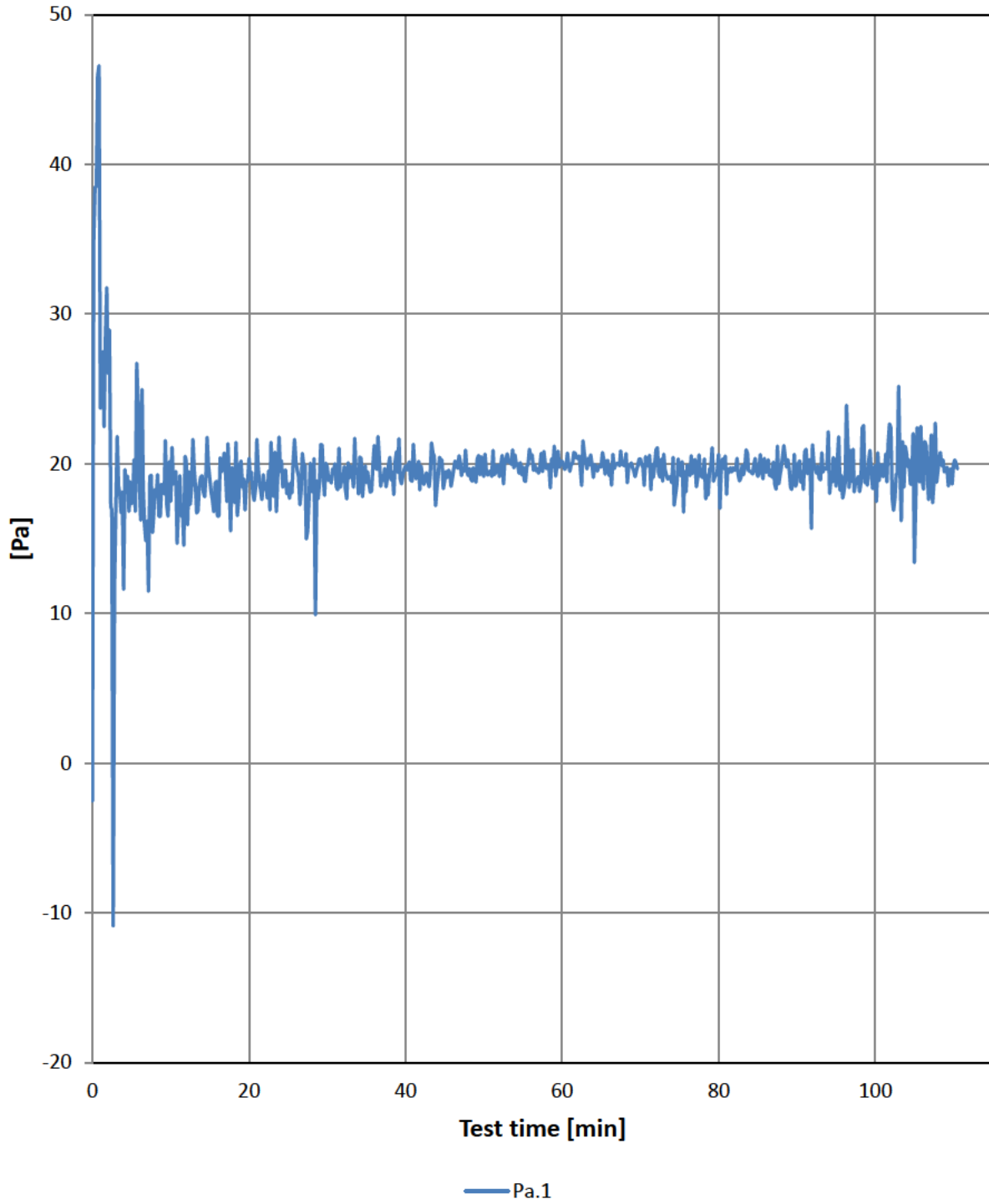
### Furnace temperature



## Furnace temperature

Time Minutes	Measured			Norm EN 1363-1	Area under curve		Dev. [%]	Limit [%]
	Minimum	Average	Maximum		Measured	EN 1363-1		
0	22	23	23	20	0	0	0,0	
5	582	591	602	576	2197	2200	-0,1	
10	665	674	683	678	5412	5366	0,9	15
15	735	742	753	739	8969	8918	0,6	13
20	780	787	796	781	12800	12723	0,6	10
25	809	817	830	815	16812	16716	0,6	8
30	838	847	856	842	20999	20859	0,7	5
35	853	857	860	865	25258	25127	0,5	5
40	873	878	883	885	29593	29502	0,3	4
45	898	901	906	902	34041	33971	0,2	4
50	917	919	925	918	38592	38522	0,2	3
55	932	936	939	932	43235	43149	0,2	3
60	946	950	954	945	47951	47844	0,2	3
65	957	961	964	957	52729	52601	0,2	3
70	963	970	973	968	57557	57415	0,2	3
75	979	984	989	979	62441	62283	0,3	3
80	985	992	998	988	67382	67201	0,3	3
85	987	995	1002	997	72352	72166	0,3	3
90	1000	1008	1021	1006	77353	77175	0,2	3
95	1008	1014	1024	1014	82408	82225	0,2	3
100	1014	1021	1028	1022	87514	87315	0,2	3
105	1024	1030	1035	1029	92654	92442	0,2	3
110	1025	1031	1038	1036	97777	97605	0,2	3

### Furnace pressure

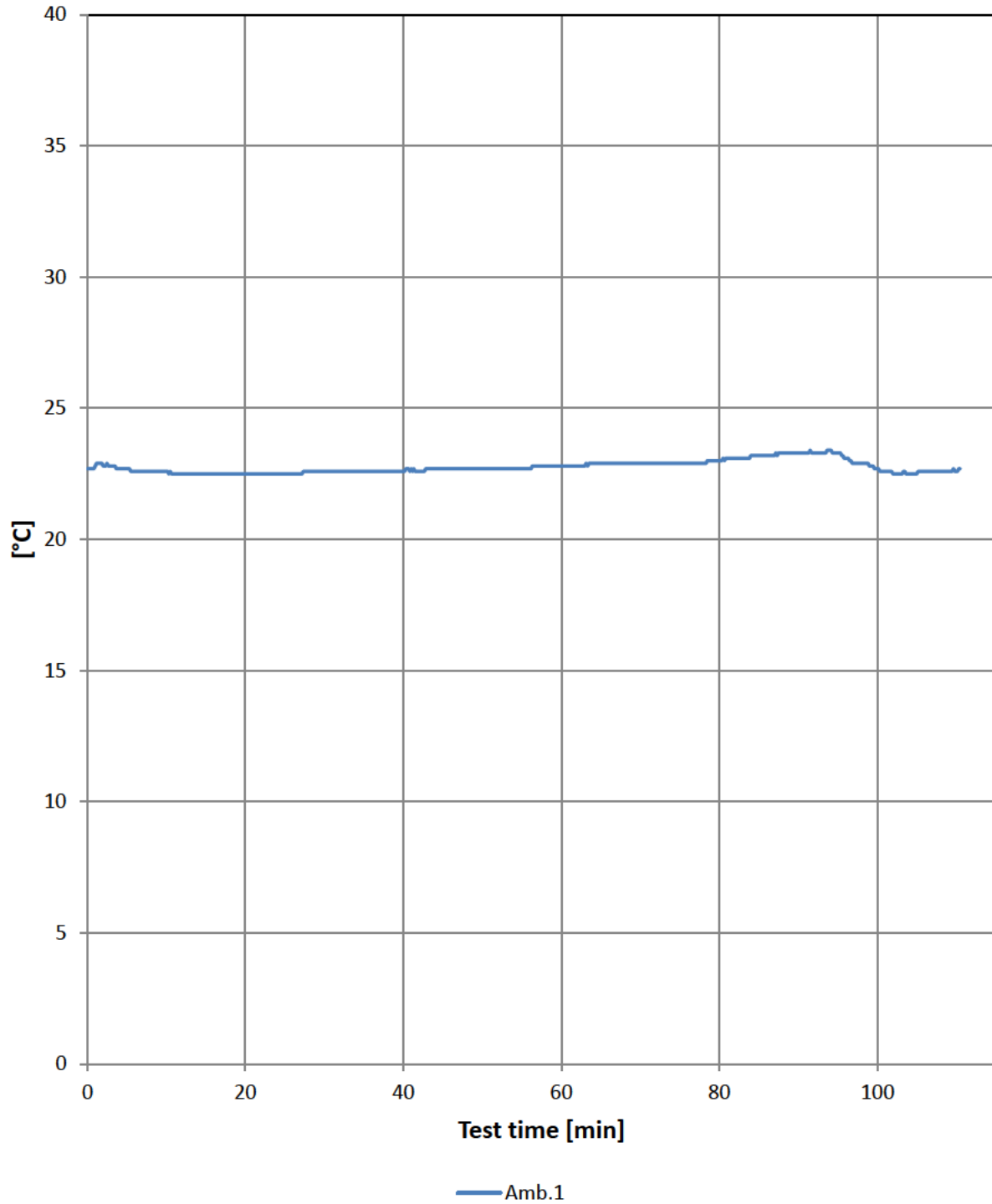




## Furnace pressure

Min. / Pa	Pa.1
0	-2,5
5	17,3
10	17,5
15	19,0
20	20,4
25	18,7
30	19,8
35	18,8
40	19,9
45	18,9
50	19,2
55	19,8
60	20,2
65	19,8
70	20,3
75	19,4
80	20,6
85	19,2
90	18,9
95	18,5
100	19,9
105	13,4
110	20,0

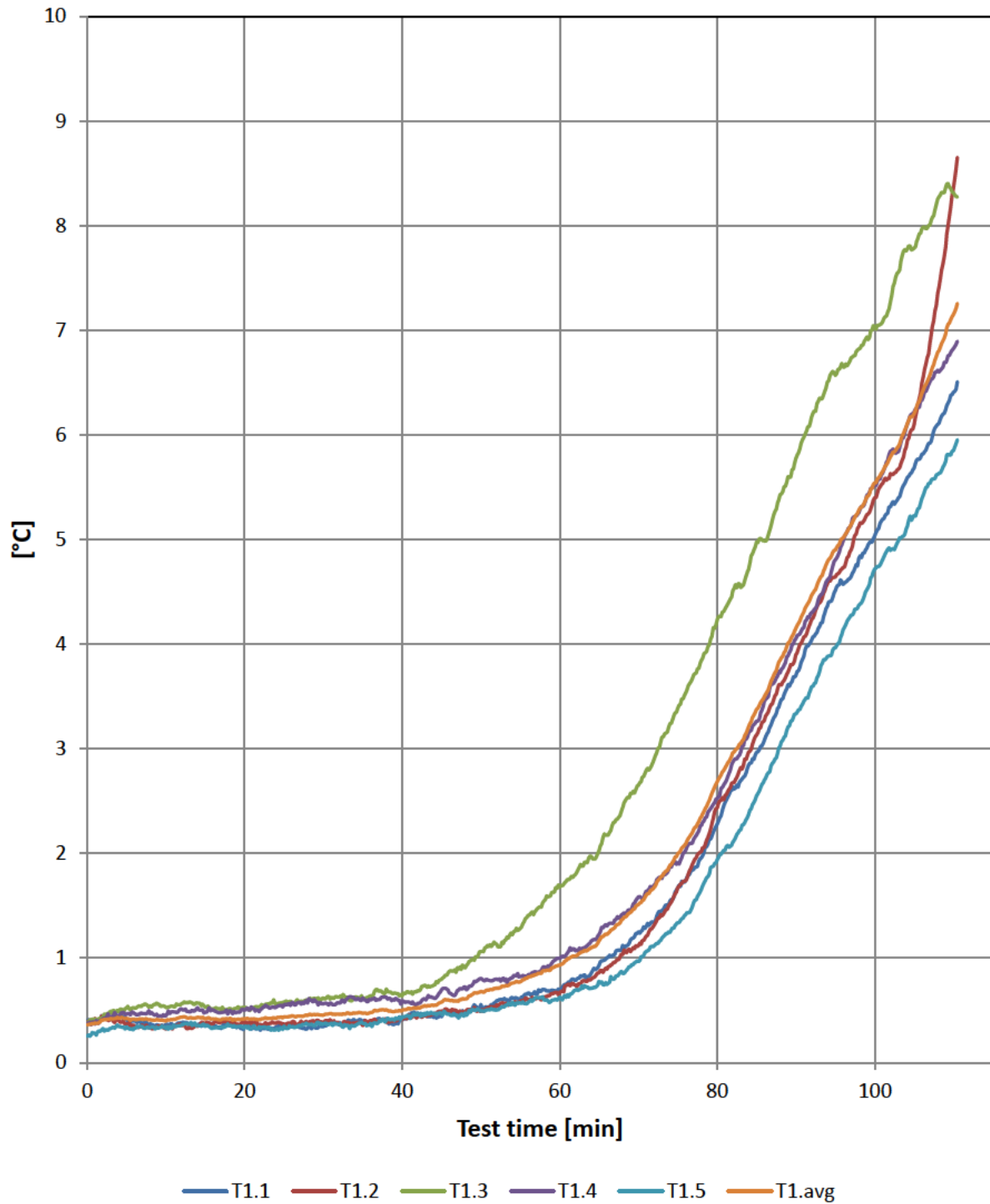
### Ambient temperature



## Ambient temperature

Min. / °C	Amb.1
0	22,7
5	22,7
10	22,6
15	22,5
20	22,5
25	22,5
30	22,6
35	22,6
40	22,6
45	22,7
50	22,7
55	22,7
60	22,8
65	22,9
70	22,9
75	22,9
80	23,0
85	23,2
90	23,3
95	23,3
100	22,7
105	22,5
110	22,6

### Average temperature rise measured on the unexposed side

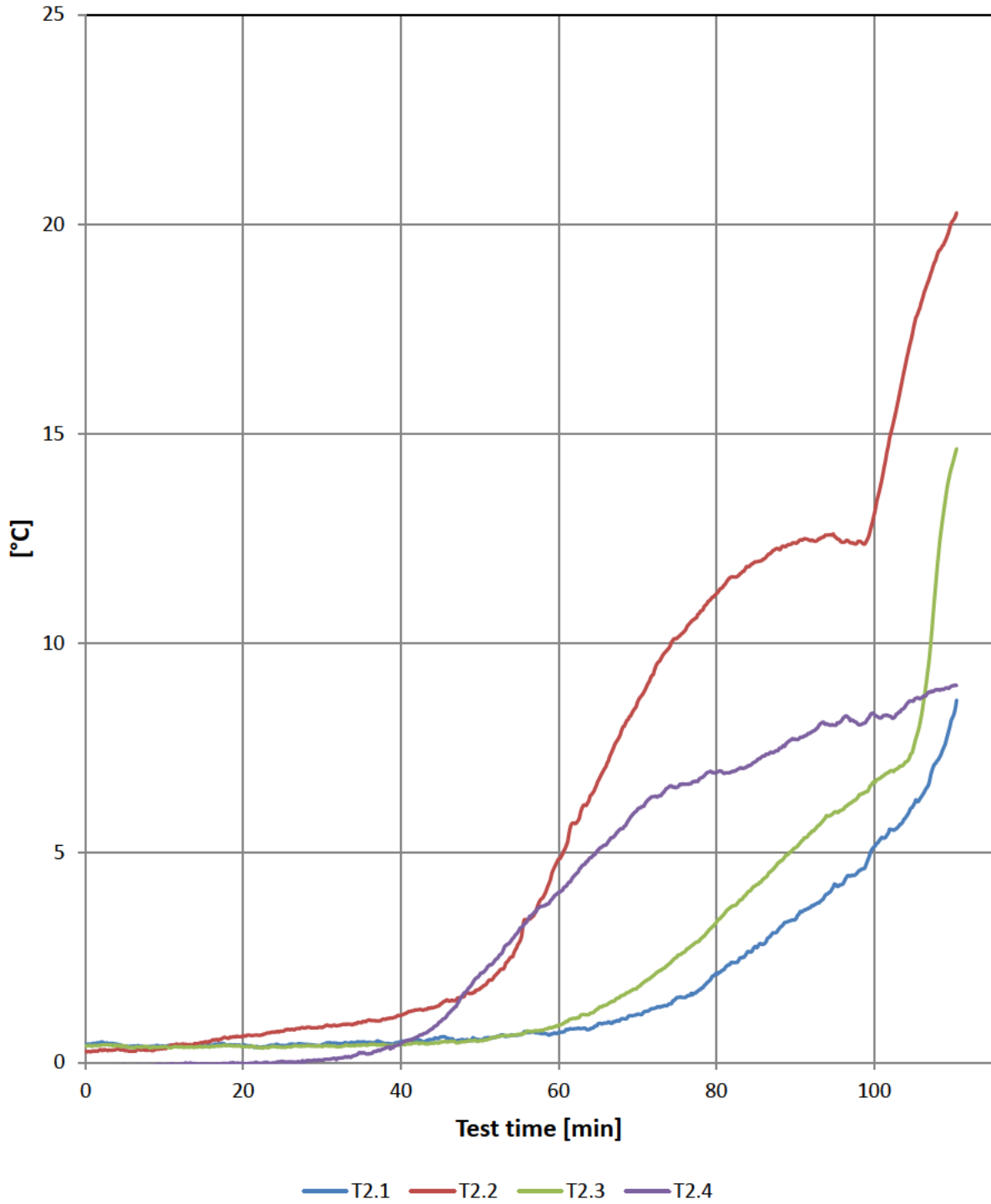


## Average temperature rise measured on the unexposed side

Min. / °C	T1.1	T1.2	T1.3	T1.4	T1.5	T1.Avg	T1.Max
0	0	0	0	0	0	0	0
5	0	0	1	0	0	0	1
10	0	0	1	0	0	0	1
15	0	0	1	0	0	0	1
20	0	0	1	1	0	0	1
25	0	0	1	1	0	0	1
30	0	0	1	1	0	0	1
35	0	0	1	1	0	0	1
40	0	0	1	1	0	0	1
45	0	0	1	1	0	1	1
50	1	0	1	1	0	1	1
55	1	1	1	1	1	1	1
60	1	1	2	1	1	1	2
65	1	1	2	1	1	1	2
70	1	1	3	2	1	2	3
75	2	2	3	2	1	2	3
80	2	2	4	3	2	3	4
85	3	3	5	3	3	3	5
90	4	4	6	4	3	4	6
95	5	5	7	5	4	5	7
100	5	5	7	6	5	6	7
105	6	6	8	6	5	6	8
110	6	8	8	7	6	7	8

Failure [min]	-	-	-	-	-	-	-
Failure °C	180	180	180	180	180	140	180

### Maximum temperature rise measured on the unexposed side

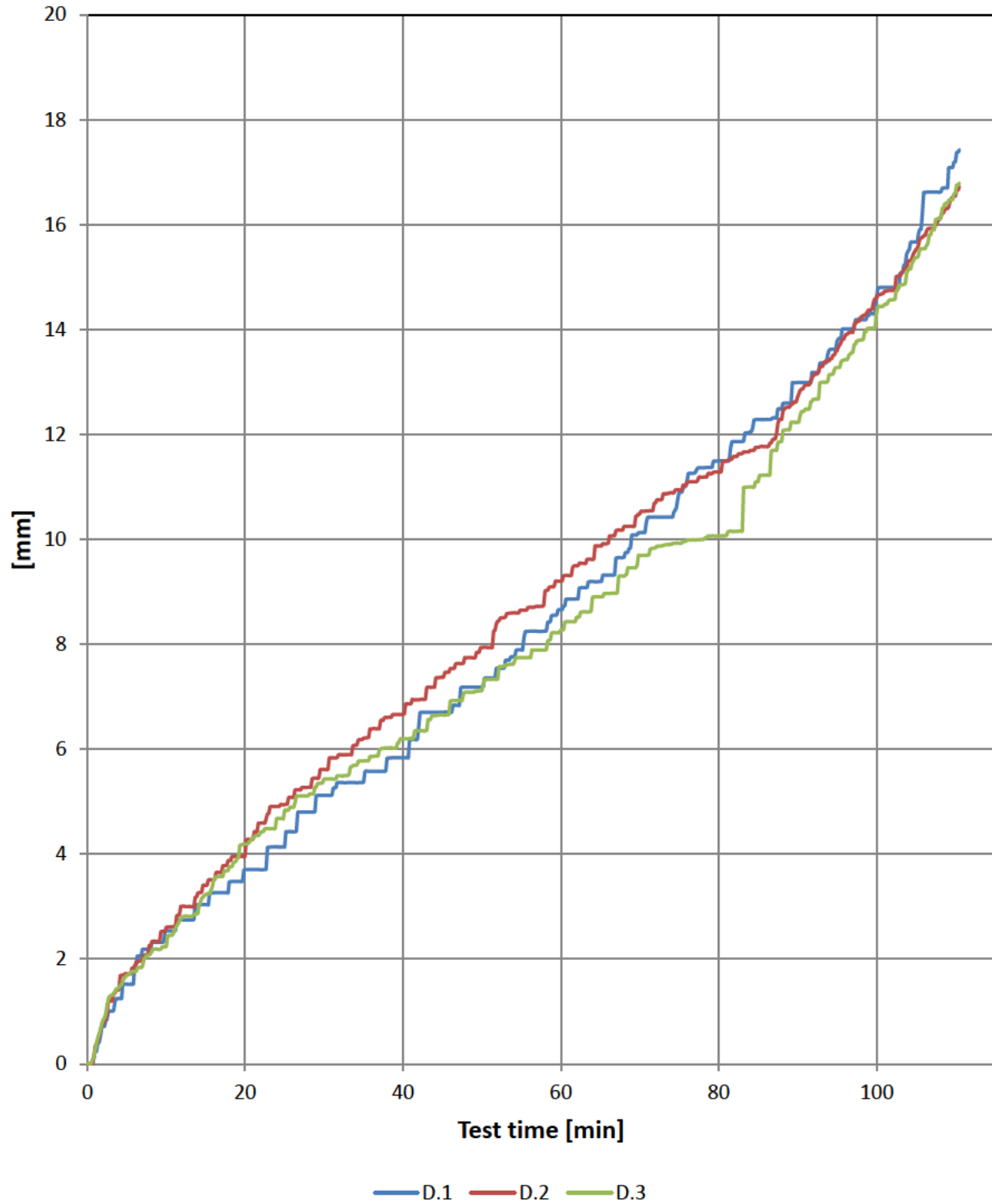


### Maximum temperature rise measured on the unexposed side

Min. / °C	T2.1	T2.2	T2.3	T2.4	T2.Max
0	0	0	0	0	0
5	0	0	0	0	0
10	0	0	0	0	0
15	0	0	0	0	0
20	0	1	0	0	1
25	0	1	0	0	1
30	0	1	0	0	1
35	0	1	0	0	1
40	1	1	0	0	1
45	1	1	0	1	1
50	1	2	1	2	2
55	1	3	1	3	3
60	1	5	1	4	5
65	1	7	1	5	7
70	1	9	2	6	9
75	2	10	3	7	10
80	2	11	3	7	11
85	3	12	4	7	12
90	3	12	5	8	12
95	4	13	6	8	13
100	5	13	7	8	13
105	6	18	8	9	18
110	8	20	14	9	20

Failure [min]	-	-	-	-	-
Failure °C	180	180	180	180	180

## Deformation



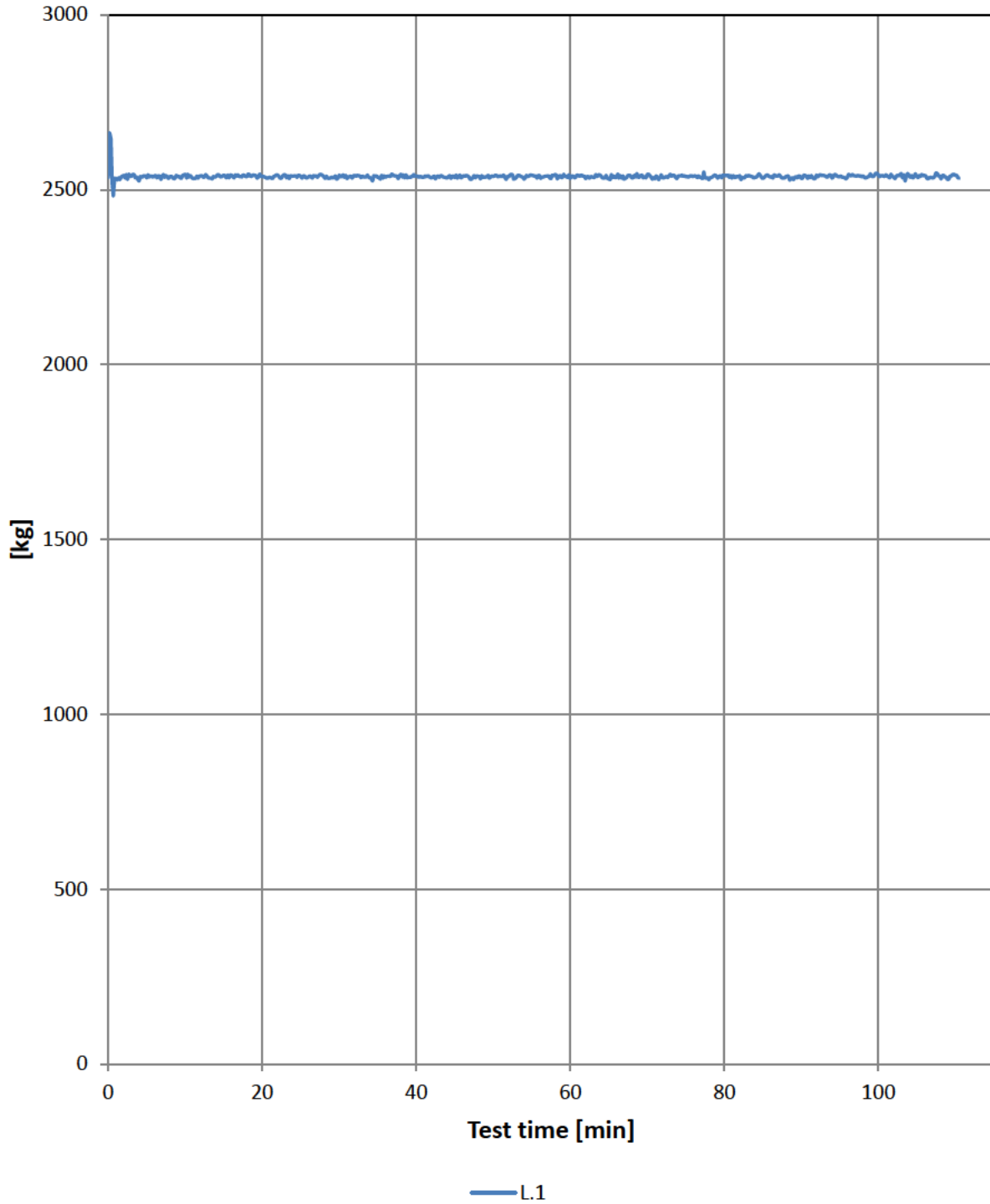


## Deformation

Min. / mm	D.1	D.2	D.3	D.Max
0	0	0	0	0
5	2	2	2	0
10	3	3	2	0
15	3	3	3	0
20	4	4	4	0
25	4	5	5	0
30	5	6	5	0
35	5	6	6	0
40	6	7	6	0
45	7	7	7	0
50	7	8	7	0
55	8	9	8	0
60	9	9	8	0
65	9	10	9	0
70	10	10	10	0
75	11	11	10	0
80	11	11	10	0
85	12	12	11	0
90	13	13	12	0
95	14	14	13	0
100	15	15	14	0
105	16	16	15	0
110	17	17	17	0

Failure [min]	-	-	-	-
Failuremm	400	400	400	400

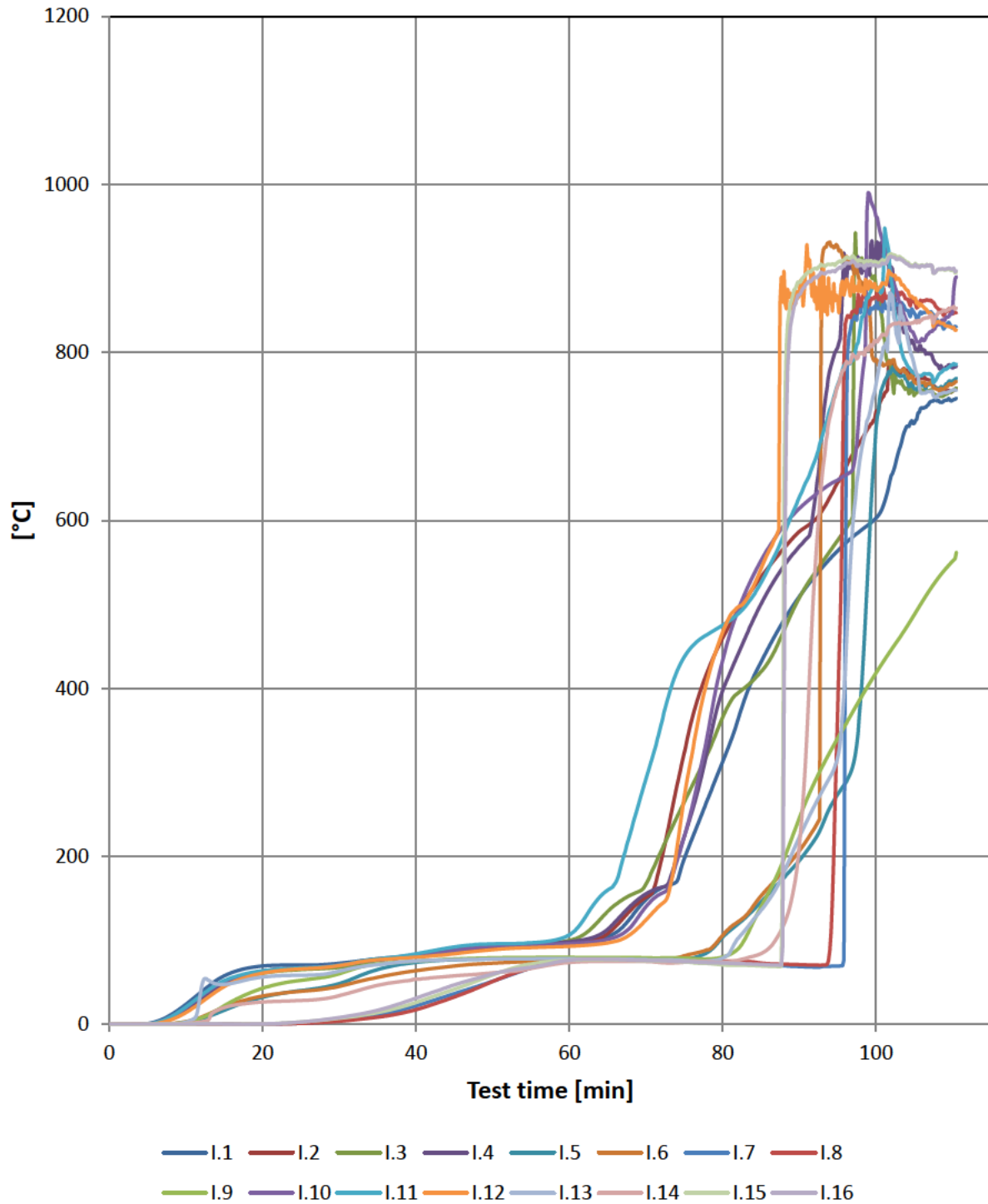
### Load applied by hydraulic jacks



## Load applied by hydraulic jacks

Min. / kg	L.1
0	2534
5	2534
10	2544
15	2542
20	2538
25	2538
30	2542
35	2535
40	2539
45	2535
50	2538
55	2541
60	2533
65	2531
70	2543
75	2537
80	2540
85	2532
90	2532
95	2537
100	2544
105	2539
110	2541

## Internal thermocouple measurements

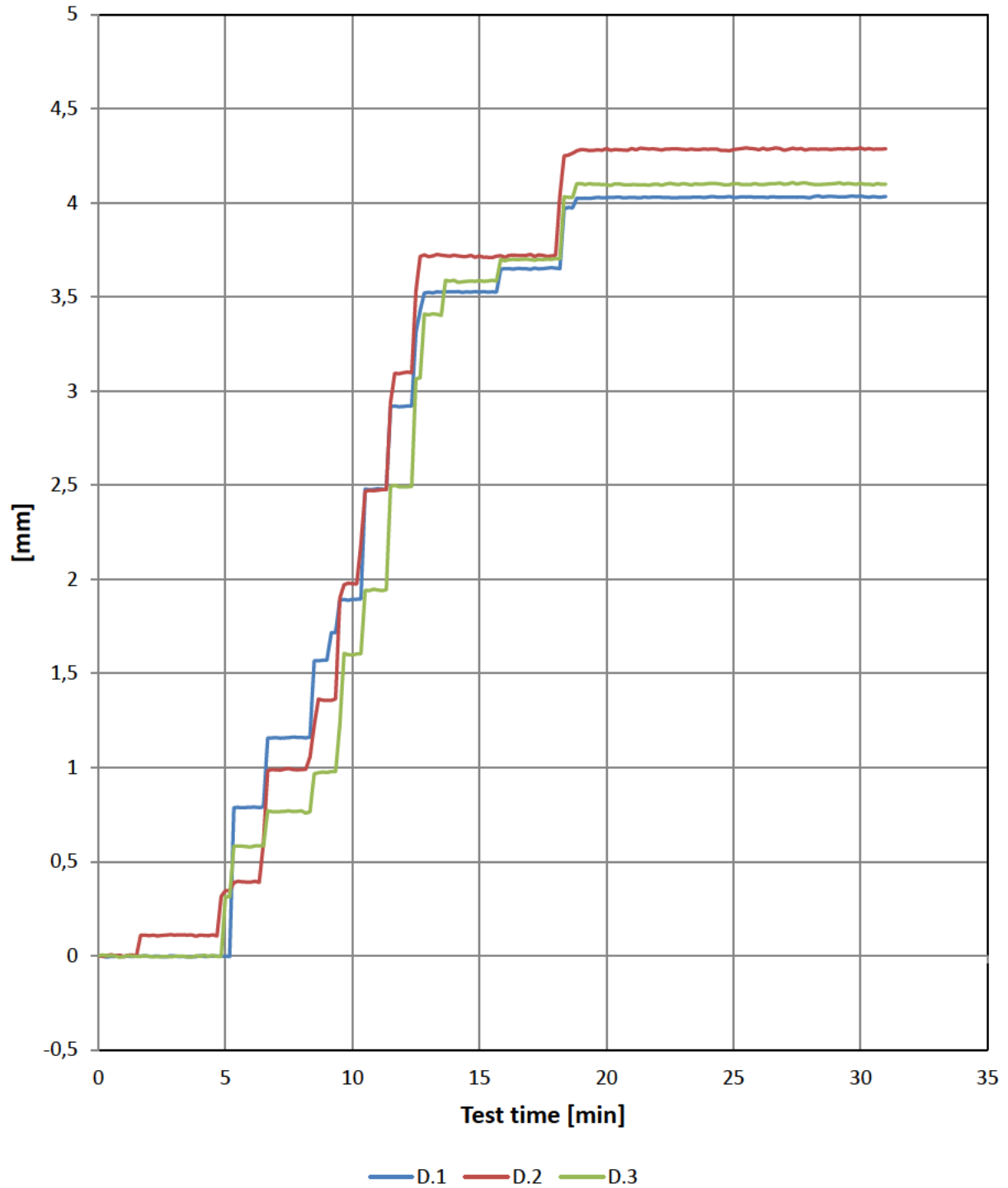


## Internal thermocouple measurements

Min. / °C	I.1	I.2	I.3	I.4	I.5	I.6	I.7	I.8	I.9	I.10	I.11	I.12	I.13	I.14	I.15	I.16
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	24	18	18	17	2	3	0	1	3	20	21	14	3	1	0	0
15	58	49	48	49	17	21	0	1	22	51	52	45	48	20	0	0
20	70	64	61	63	32	34	1	1	43	63	64	61	56	27	1	1
25	71	67	65	68	40	39	1	1	53	67	67	66	59	29	3	3
30	73	70	68	71	49	45	5	4	60	71	71	70	63	34	7	8
35	78	77	76	78	65	56	11	9	72	77	78	77	71	47	14	17
40	82	81	82	83	74	64	22	18	75	81	84	80	76	54	26	31
45	89	86	90	90	77	70	37	33	78	88	92	84	77	58	42	47
50	95	92	94	95	78	73	51	51	79	93	96	89	78	61	59	60
55	96	93	95	96	78	75	67	67	80	95	97	91	78	67	72	68
60	98	96	100	98	78	76	78	76	80	96	107	93	78	74	76	76
65	105	108	134	113	77	75	78	78	80	101	160	97	78	75	77	77
70	149	151	167	156	78	77	77	78	79	140	292	124	77	75	76	76
75	197	323	265	224	77	82	76	77	79	223	438	271	76	74	74	75
80	313	460	365	397	104	106	74	76	80	433	475	467	79	74	71	73
85	431	532	420	500	146	153	72	73	140	552	526	542	136	84	70	71
90	509	587	508	569	195	206	69	71	245	614	627	869	223	209	883	869
95	564	645	576	805	274	927	70	368	340	648	761	865	317	760	907	899
100	602	729	879	921	709	792	854	866	418	962	876	875	761	814	908	904
105	715	765	748	810	757	765	847	860	488	821	775	864	785	836	903	902
110	743	754	754	781	766	762	829	846	551	847	785	830	755	853	898	900

## Deformation

*During loading phase*



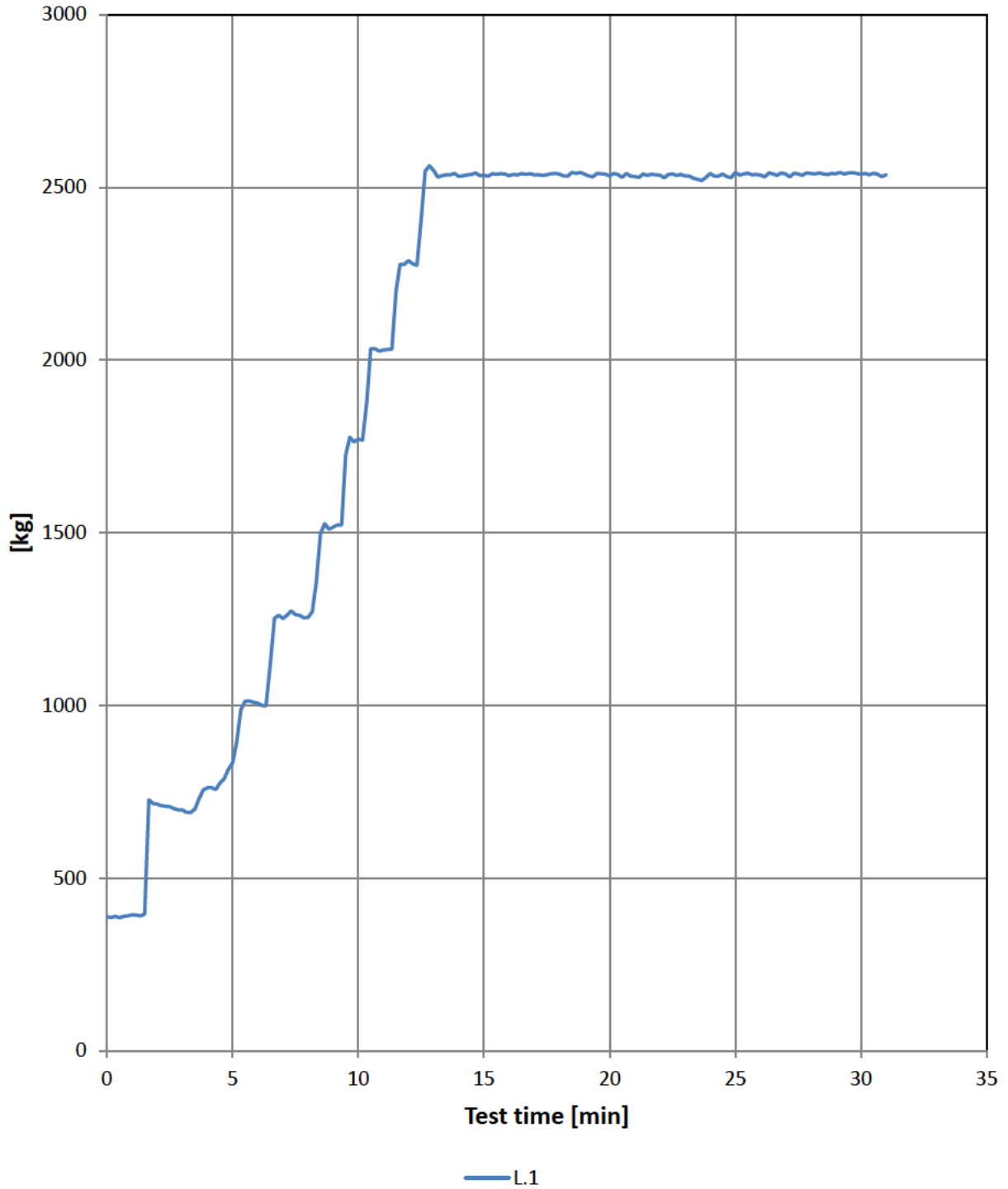
## Deformation

*During loading phase*

Min. / mm	D.1	D.2	D.3
0	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	1	0	1
7	1	1	1
8	1	1	1
9	2	1	1
10	2	2	2
11	2	2	2
12	3	3	2
13	4	4	3
14	4	4	4
15	4	4	4
16	4	4	4
17	4	4	4
18	4	4	4
19	4	4	4
20	4	4	4
21	4	4	4
22	4	4	4
23	4	4	4
24	4	4	4
25	4	4	4
26	4	4	4
27	4	4	4
28	4	4	4
29	4	4	4
30	4	4	4
31	4	4	4

## Load applied by hydraulic jacks

*During loading phase*





## Load applied by hydraulic jacks

*During loading phase*

Min. / kg	L.1
0	389
1	394
2	714
3	698
4	762
5	834
6	1007
7	1252
8	1255
9	1516
10	1772
11	2029
12	2288
13	2549
14	2532
15	2535
16	2534
17	2537
18	2539
19	2538
20	2534
21	2531
22	2536
23	2534
24	2540
25	2544
26	2536
27	2539
28	2541
29	2540
30	2538
31	2537



Photo No. 1 Timber battens before mounted between timber beams



Photo No. 2 Timber battens being fixed to the timber beams



Photo No. 3 Timber battens and beams mounted.



Photo No. 4 Glue applied on timber beam before mounting the CLT-element



Photo No. 5 CLT-element being prepared with screws before glued to the timber beams



Photo No. 6 The first element glued and screwed



Photo No. 7 Both elements glued and fitted together



Photo No. 8 The test specimen's short edges is closed



Photo No. 9 Gypsum boards and insulation is removed in order to be changed. Holes have been cut in short edge for filling of insulation



Photo No. 10 One thermocouple is mounted into the CLT-element and the other will be fixed to the gypsum board

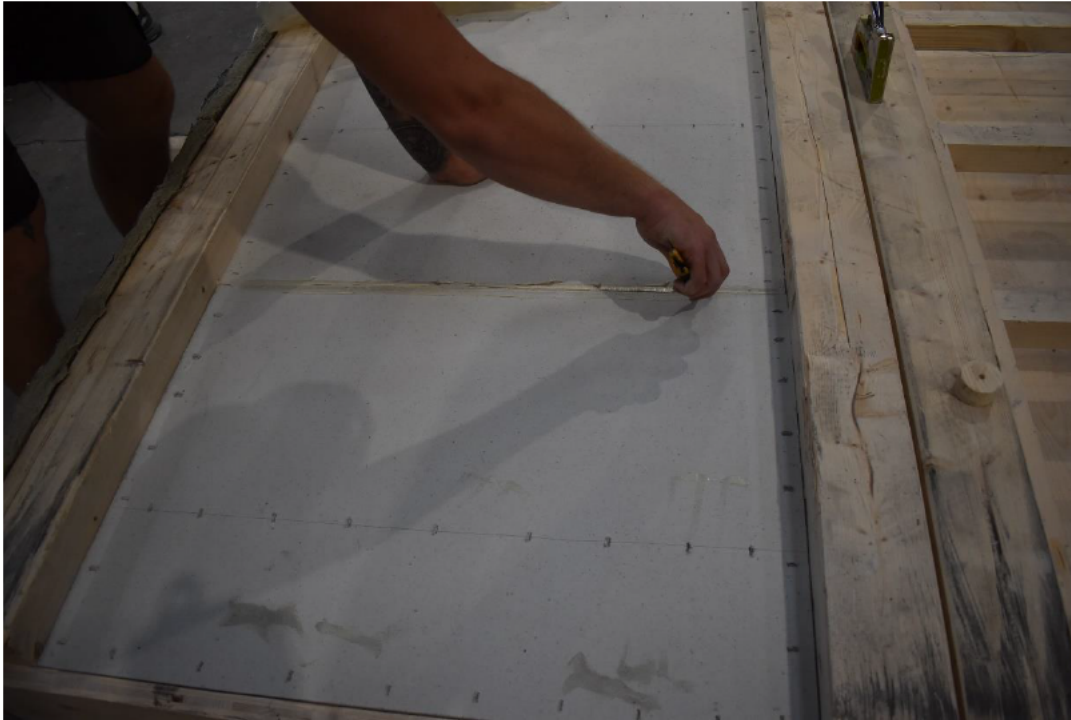


Photo No. 11 First two boards of the upper layer is being mounted. Glue residue from the accidentally glued gypsum joint is being removed.



Photo No. 12 The joint between the two elements, exposed side on the on the top of the photo



Photo No. 13 Bottom gypsum layer being mounted with glue in the gypsum joint. Plastic tape is attached behind the joints to prevent glue from reaching the top gypsum layer

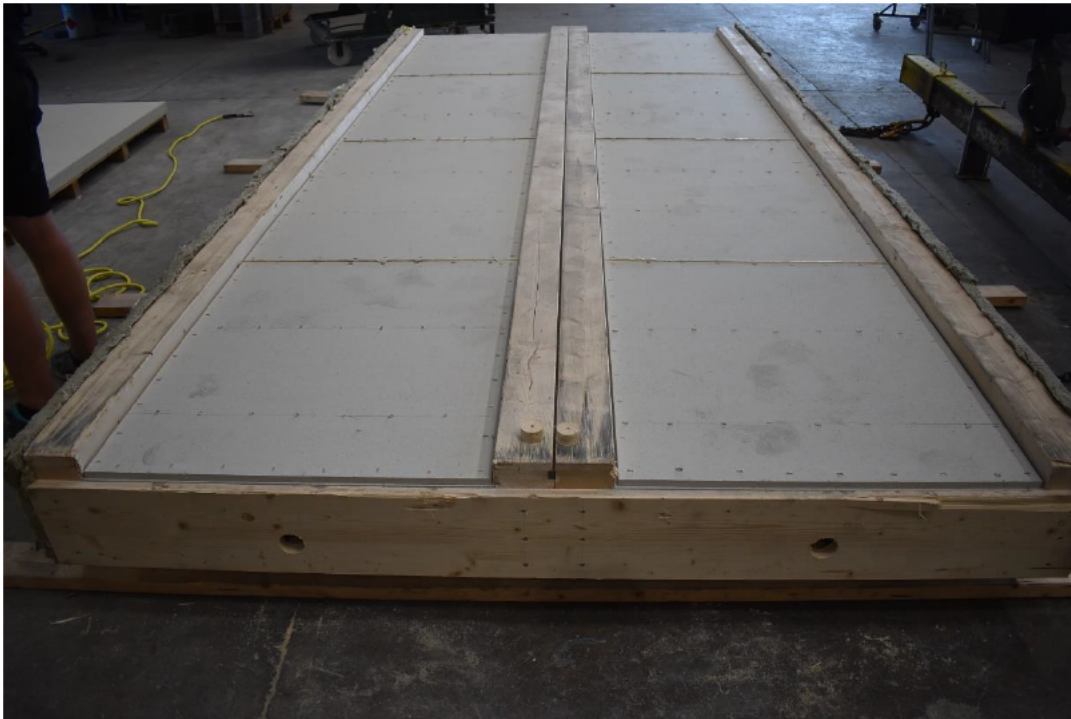


Photo No. 14 All gypsum boards stapled and glued



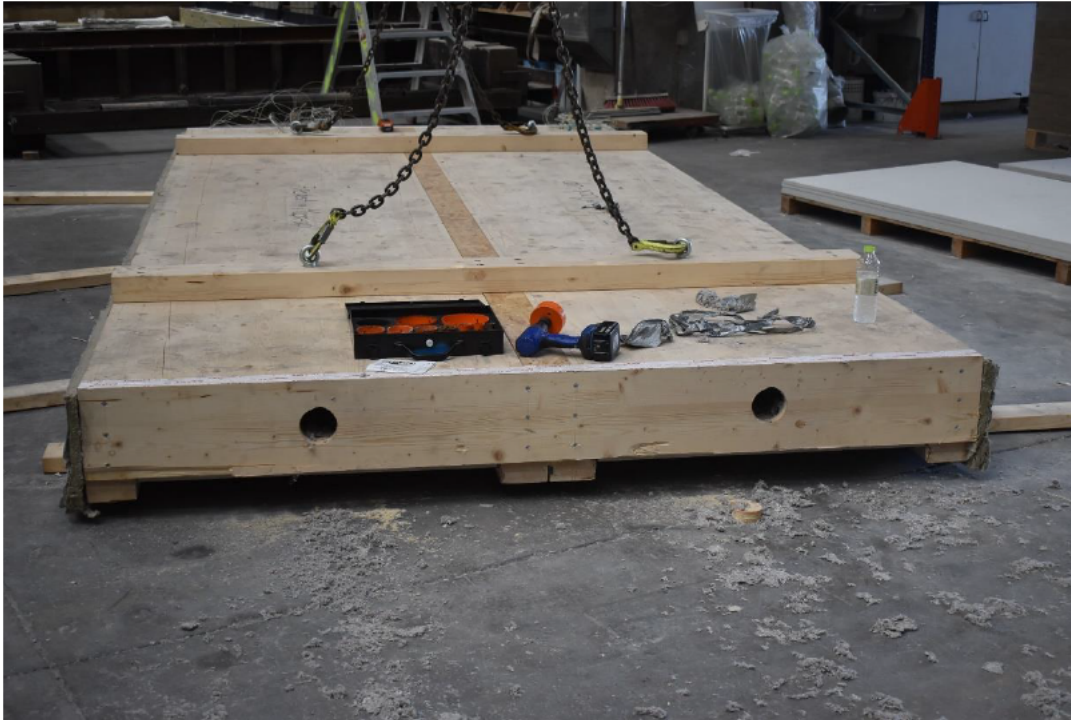


Photo No. 15 Test specimen has been filled with insulation



Photo No. 16 Close-up on the insulation inside the element

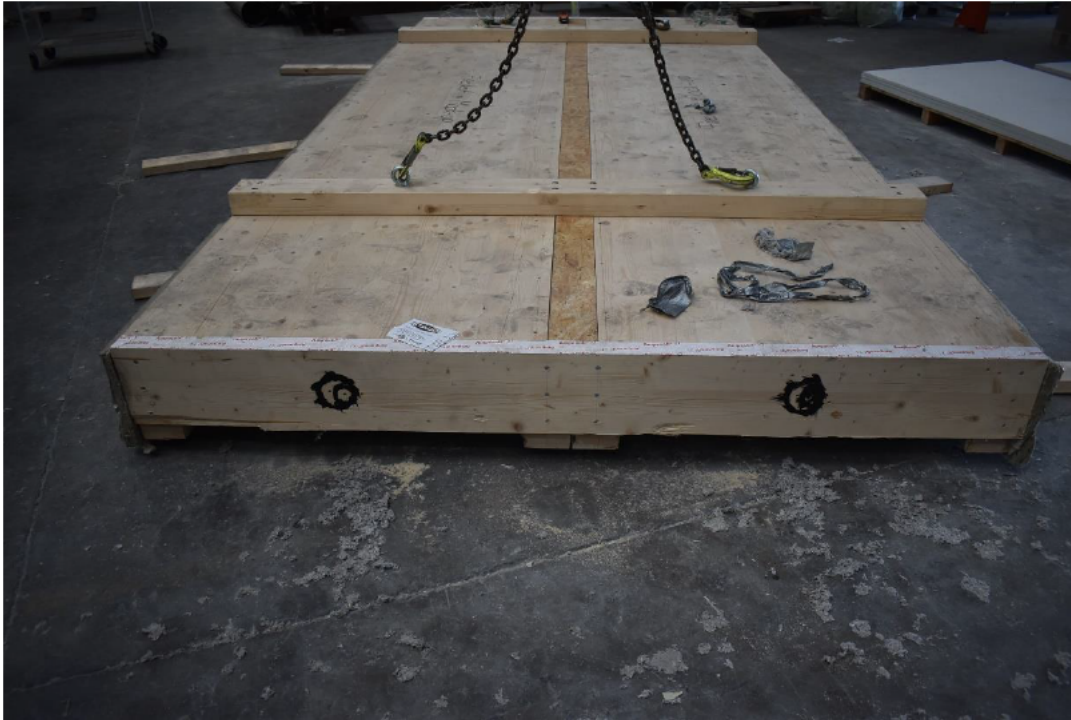


Photo No. 17 Holes for insulation has been plugged and sealed



Photo No. 18 Application of sealant between the bottom layer and timber beams



Photo No. 19 Seal after removal of excessive sealant



Photo No. 20 Test specimen mounted in frame seen from exposed side



Photo No. 21 Test specimen mounted in frame seen from exposed side



Photo No. 22 Unexposed side before test starts



Photo No. 23 Unexposed side when the test starts



Photo No. 24 Gaps on short edges of test specimen is insulated during the test



Photo No. 25 Test specimen after 45 minutes of testing



Photo No. 26 Test specimen after 60 minutes of testing



Photo No. 27 Test specimen after 74 minutes of testing

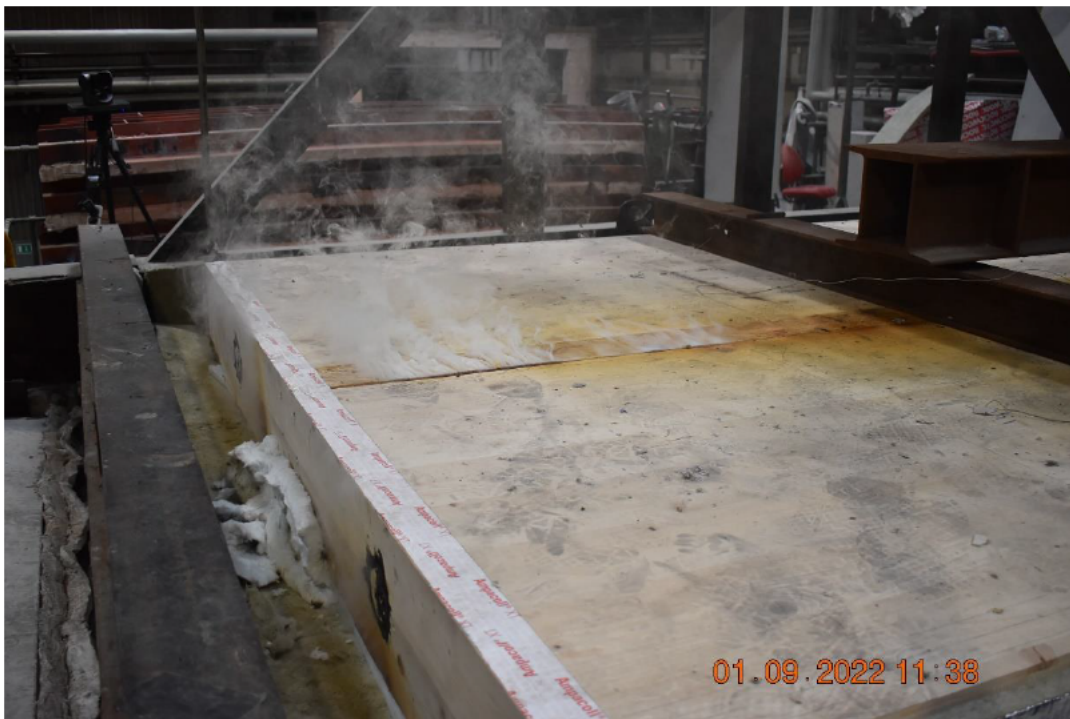


Photo No. 28 Test specimen after 91 minutes of testing



Photo No. 29 Test specimen after 109 minutes of testing

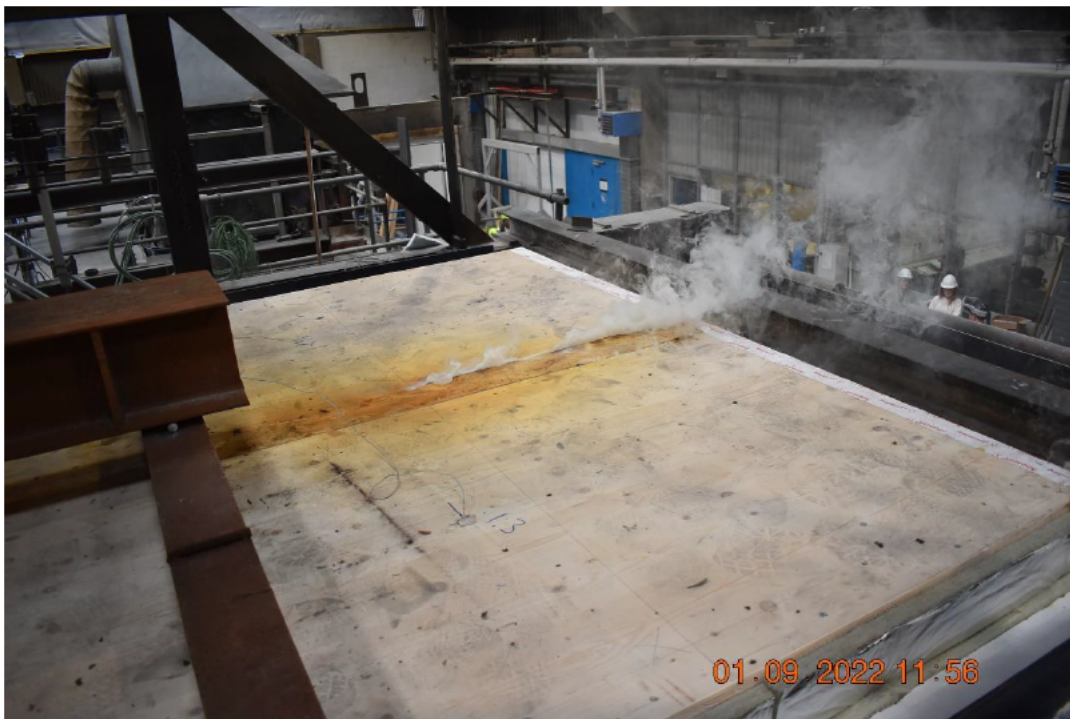


Photo No. 30 Test specimen after 109 minutes of testing





Photo No. 31 Test specimen when the test is stopped after 110 minutes of testing



Photo No. 32 Exposed side when the test specimen is removed from the furnace, five minutes after test is stopped



Photo No. 33 Test specimen is being extinguished



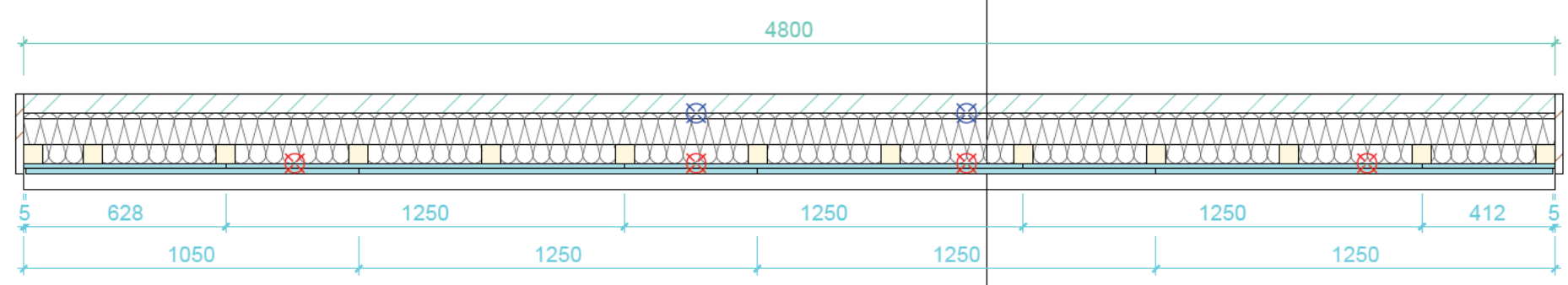
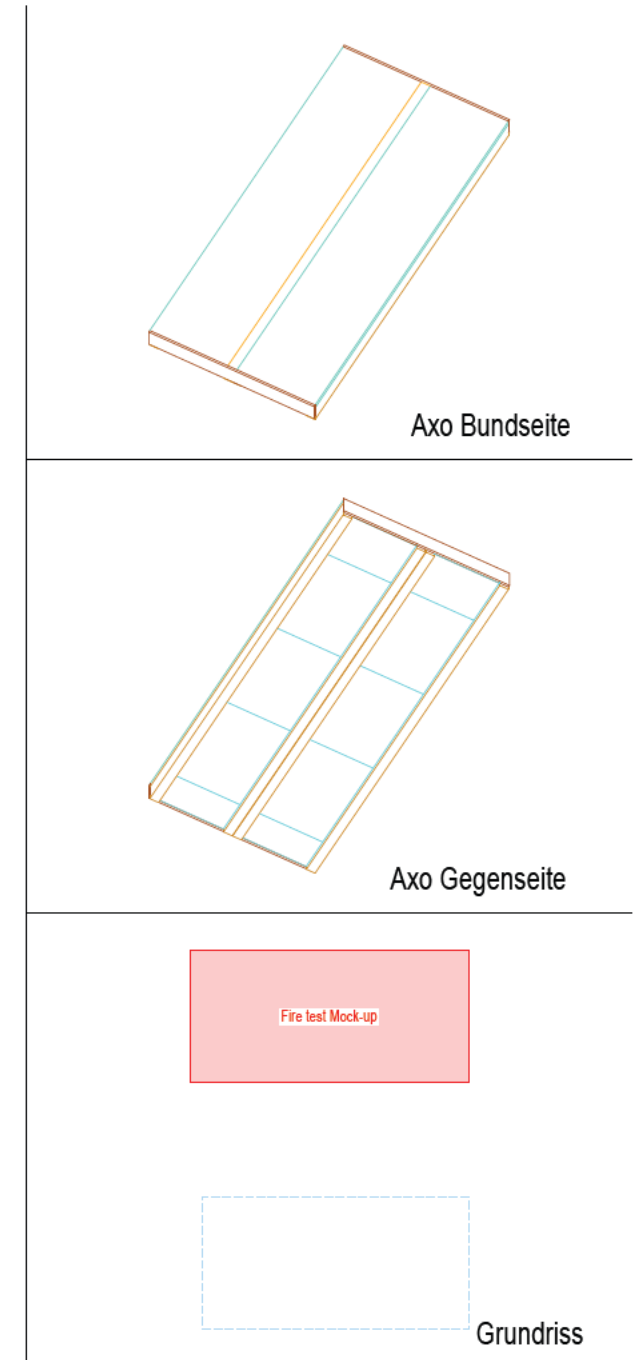
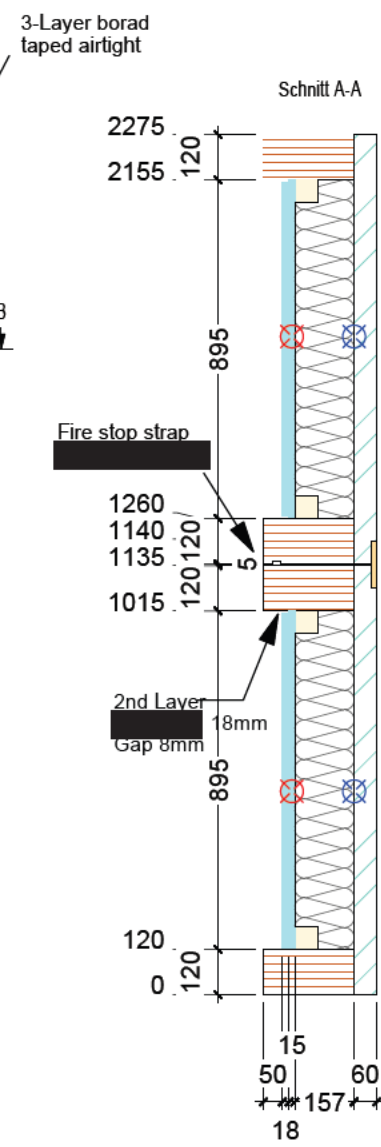
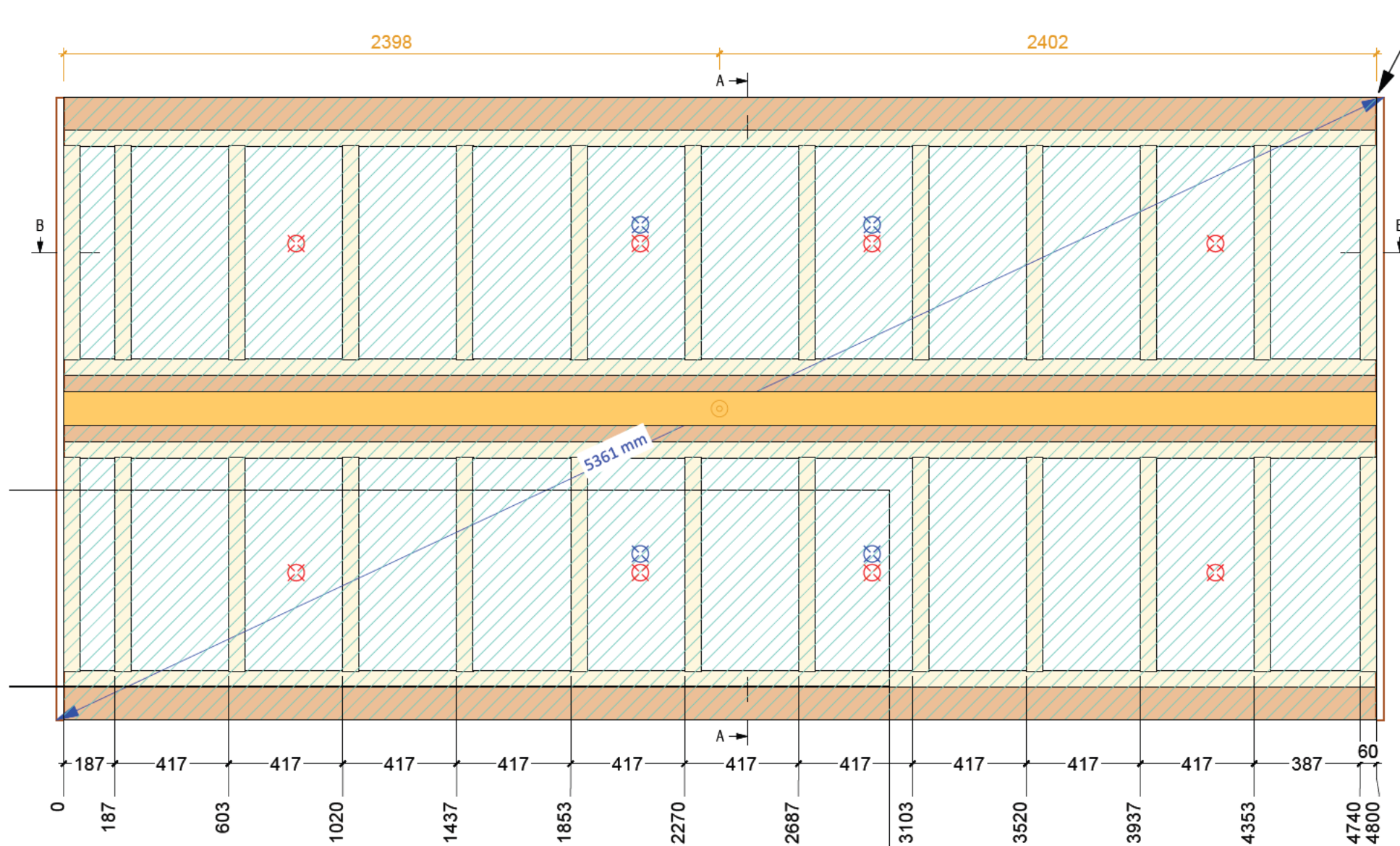
Photo No. 34 Test specimen after being hosed



Photo No. 35 Charring of centre timber beams after test



Photo No. 36 Charring of centre timber beams after test



3-Layer board 60.0  
glued to the beam  
blown wool, d=29kg/m3  
Battens 60/60  
15.0  
18.0



Planfreigabe Planung	Datum		Planner	
	Datum		Werk	
Elementkontrolle Werk	Datum		Werk	
	Datum		Werk	

<b>Blumer Lehmann</b>		Blumer Lehmann AG Erlenhof   9200 Gossau   Schweiz T +41 71 388 58 58 www.blumer-lehmann.ch	
Auftraggeber:	Realdania By & Byg A/S	Entwicklung	
Objekt:	MiniCO2		
EDV-Bez.:	105032_MiniCO2_Details		

E	Zeichnung erstellt	27.09.2022	Joel Minder
Rev.	Bez.	Plangröße A3	Datum
Kom. Nr.	105032	Plan-Nr.	105032 -10 -A
		Fläche roh	10.98 m <sup>2</sup>
1044.683 kg		Fire test Mock-up	
		Mst.	1:20