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2011-06-20

Reference
PX12326-2

Page
1 (7)

Hydro Building Systems AB
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Fire test of a glazed wall

(28 appendices)

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 the accredited methods:

- EN 1364-1:1999
- EN 1363-1:1999

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 relevant test method is not covered by this report.

Product

Non-loadbearing glazed wall

Product designation

Framing system: WICTEC 50FP
Glass construction: AGC Pyrobel 16 IGU

Sponsor

Hydro Building Systems AB

Reference number

PX12326-2

SP Technical Research Institute of Sweden

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1 Purpose of the test

The purpose of the test was to determine the fire resistance of the test specimen, a glazed wall, when exposed to fire against the glazing bead side. The test specimen is described in chapter 2.

2 Test specimen

The test specimen consisted of an aluminium framework designated WICTEC 50FP with the outer dimensions of (width x height) 2970 x 2970 mm.

The construction of the test specimen can be seen from the sponsor's drawings and specifications in appendices 1 – 16 and the description in chapter 2.3 below.

2.1 Number of test specimens

The test specimen was an asymmetrical separating element. If such an element is required to be fire resisting from both sides two test specimens shall be tested separately (one from each direction).

On request of the sponsor the test specimen was tested with fire against one side only. The test was performed with fire against the glazing bead side.

2.2 Delivery and assembly of the test specimens

The glass panes were delivered to SP on April 19, 2011 and the frame was delivered to SP on April 27, 2011.

The frame and the glass panes were mounted by the sponsor and the glass supplier in SPs furnace hall on April 27, 2011.

2.3 Description of the construction

The test specimen consisted of a glazed partition built of aluminium profiles and glass panes. The test specimen was designated WICTEC 50 and had the outer dimensions (width x height) 2970 x 2970 mm.

The framework consisted of three openings. The openings were glazed with AGC Pyrobel 16 IGU. Seen from the fire side the glass was built of 3 mm glass, 0,76 mm PVB interlayer, 3 mm glass, 12 mm air, 3 mm glass, interlayer AGC, 8 mm glass, interlayer AGC and 3 mm glass. The glass structure can be seen in appendix 16.

Bars of fibre gypsum designated Promactec were placed inside the aluminium profiles, see appendix 10.

Intumescent strips were mounted on the aluminium profiles all along the perimeter edges of the glass pane.

Between the glazing beads and the glass pane and between the aluminium profiles and the glass pane were EPDM gaskets mounted.

The major components in the glazed wall are listed in appendix 13.

The construction of the test specimen can be seen from the sponsor's drawings and specifications in appendices 1 – 16.

The information regarding the test specimens and their detailed components given in the sponsor's drawings and specifications e.g. dimensions, quantities and physical properties, are nominal values provided by the sponsor. In case of irrelevant information, missing dimensions or when deviation outside what can be assessed as reasonable tolerances exists in the sponsor's drawings SP has crossed details or altered the drawings.

2.4 Mounting of the test specimen

The test specimen was mounted in a concrete frame with the aperture (width x height) 3020 x 3020 mm. The mounting was performed by the sponsor on April 27, 2011.

The test specimen was fixed to the concrete frame with three M8 screws in the upper and lower edges of the test specimen. The position of the fixings are shown in appendix 3.

The both vertical edges of the test specimen was constructed as free edges and the gaps between the test specimen and the concrete frame were sealed with rock wool insulation.

After the mounting the concrete frame with the test specimen was placed on SP's vertical furnace.

2.5 Conditioning

The test specimen was stored in SP's furnace hall before the test. The temperature in the furnace hall was in average 22 °C and the relative humidity was in average 50 % during this time.

2.6 Verification

2.6.1 Verification of the test specimen

The verification of the test specimen being in accordance with the sponsors drawings was carried out by SP in conjunction with the assembly of the test specimen.

2.6.2 Verification of included materials

<i>Test specimen</i>	<i>Density (kg/m³)</i>	<i>Moisture ratio ¹⁾ (%)</i>	<i>Moisture ratio ²⁾ (%)</i>
Promatect	1207	1,2	19,1

- 1) Moisture ratio calculated from weight loss after being heated at 52,5°C.
2) Moisture ratio calculated from weight loss after being heated at 105 °C.

The control was performed on April 27, 2011 on samples taken from the same batches of material as the material used for construction of the specimen.

The purpose of the control is to verify and/or determine material data and dimensions of materials and components included in the test specimen. The extent of performed measurements and applied methodology can deviate from standardized methods. The results shall therefore not be considered as formal material data.

3 Test procedure and test results

The test was performed on May 13, 2011. The test lasted 37,3 minutes.

3.1 Witness of test

The test was witnessed by Mr Krister Petersson from Hydro Building Systems AB.

3.2 Fire exposed side of the test specimen

The test was carried out with fire from one side only, the glazing bead side of the test specimen.

3.3 Furnace control

The furnace was controlled in accordance with SS-EN 1363-1:1999.

3.3.1 Temperatures

The furnace temperature was measured with 6 plate thermocouples (PT1 – PT6). The junction of the thermocouples were positioned approximately 100 mm from the fire exposed surface of the test specimen at the commencement of the test.

Plate thermocouple PT6 was out of order after 4 minutes of the commencement of the test. PT6 was not used and not included in the average value after 4 minutes.

The average temperature in the furnace in relation to the standard time-temperature curve is shown in appendix 17.

The temperature at each plate thermocouple in relation to the standard time-temperature curve is shown in appendix 18.

The percent deviation of the area under the average furnace time-temperature curve from the area under the standard time-temperature curve and permitted deviation is shown in appendix 19.

3.3.2 Pressure

The furnace pressure was controlled at the position 410 mm above the lower edge of the test specimen so that a pressure of 20 Pa was kept on level with the top edge of the test specimen. With a pressure gradient of 8.5 Pa per meter the neutral pressure plane was calculated to 383 mm above the lower edge of the test specimen.

The measured furnace pressure was calculated to furnace pressure on level with the upper edge of the test specimen.

The calculated pressure and permitted deviations are shown in appendix 20.

3.4 Ambient temperature

The ambient air temperature was measured with one thermocouple, see appendix 21.

The ambient air temperature at the beginning of the test was 19 °C.

3.5 Measurements on the test specimen

3.5.1 Temperatures

The temperature rise on the unexposed side of the test specimen was measured with 16 thermocouples (C1 – C16), positioned as shown in appendix 22.

The measured temperatures are shown in appendix 23 – 25.

The average temperature of thermocouples C1-C16 at the start of the test was 19,3 °C.

3.5.2 Deflection

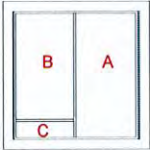
The horizontal deflection of the test specimen was measured at three positions with a laser meter during the test. The measuring points were positioned at the centre of the test specimen and at the profile approximately 50 mm from the free edges at half the height. The positions are shown in appendix 26. The measured deflections are shown in appendix 27.

Due to the safety of personnel no measurements of deflection were performed after 10 minutes. Glass pieces were shooting from the partition and the measurements were interrupted. No large visible deformations were observed.

3.6 Observations

Photographs taken in connection with the test are shown in appendix 28.

3.6.1 Observations during the test

Time min:s	<p>Observations (the observations refer to the unexposed side if nothing else is stated)</p>  <p>The designations of the openings in the observation report.</p>
00:00	The test starts.
00:40	A and B: Cracks can be heard from the glass.
02:30	A and B: Interlayer starts to expand.
03:00	A: The inner glass cracks and falls down inside the furnace.
03:50	B: The inner glass cracks and falls down inside the furnace.
04:20	A: The glass is whitening.
04:40	B: The glass is whitening.
05:00	C: Interlayer starts to expand.
07:00	C: White smoke between the glass layers.
09:20	C: The glass is whitening.
14:50	B: The glass pane cracks like a rose on the unexposed side, on $\frac{3}{4}$ height by the upper right corner.
15:20	A: The glass pane cracks like a rose on the unexposed side by the upper left corner. B: The glass pane cracks like a rose on the unexposed side by thermocouple C6.
16:30	A: The glass pane cracks like a rose on the unexposed side by the lower left corner.
17:00	A and B: Glass pieces are shooting away from the glass pane on the unexposed side.
19:00	Some noises from all the glasses. The glasses are whitening.
23:00	A: Some smoke from the upper left corner of the glass. B: Some smoke from the upper right corner of the glass.
23:30	A: There is an area of approximately Ø20 cm by the upper left corner where the outer glass is gone and only covered by the expanded interlayer.
26:20	A: Some smoke production between the glass and the profile in the upper edge of the glass.
29:20	B: Some smoke production between the glass and the profile in the upper edge of the glass.
34:20	A, B and C: Some smoke production between the glass and the profile in the upper edge of the glass.
36:00	All glasses are white with brown discoloured spots.
37:30	Test terminates on the request of the sponsor.

4 Summary

The test specimen, described in chapter 2, has been fire tested during 37,3 minutes according to EN 1364-1:1999 and EN 1363-1:1999. The following results were obtained:

Integrity:

- | | |
|---------------------|--|
| - Sustained flaming | 37 minutes, no failure (the test have been discontinued at the request of the sponsor) |
| - Gap gauge | 37 minutes, no failure (the test have been discontinued at the request of the sponsor) |
| - Cotton pad | 37 minutes, no failure (the test have been discontinued at the request of the sponsor) |

Insulation:

- | | |
|--|--|
| - Average temperature rise:
(>140 °C, C1-C8) | 37 minutes, no failure (the test have been discontinued at the request of the sponsor) |
| - Maximum temperature rise:
(>180 °C) | 37 minutes, no failure (the test have been discontinued at the request of the sponsor) |

5 Field of direct application of test results

The field of direct application of the results for the specimen evaluated and described in this report is described in clause A5 of EN 1364-1:1999 Annex A.

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.

SP Technical Research Institute of Sweden Fire Technology - Fire Resistance

Performed by



Charlotta Skarin


Examined by

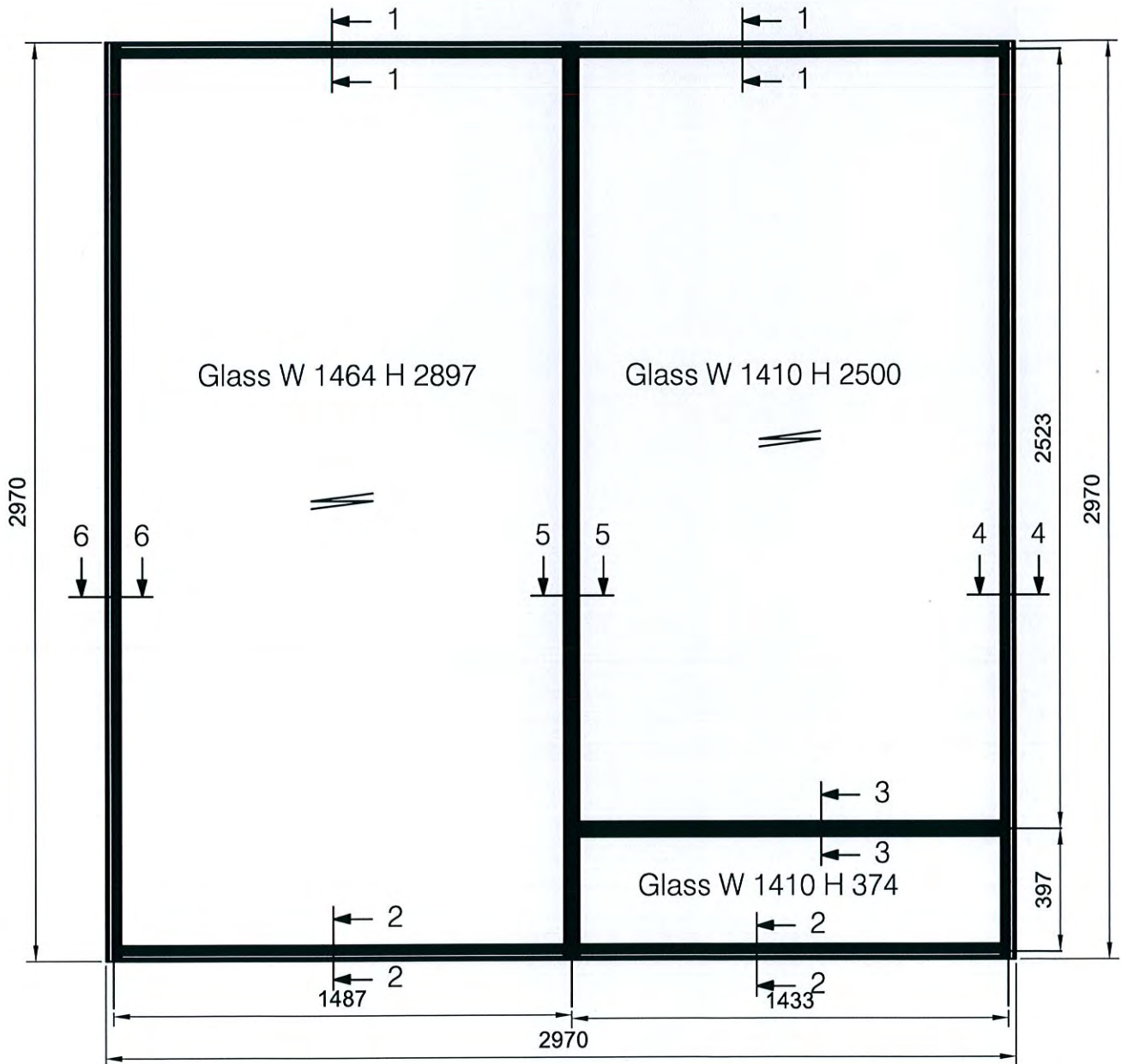


Patrik Johansson

Appendices: 1 – 28 (on page per appendix)

WICTEC 50FP



 APP: 1
 REF: PX12326-2
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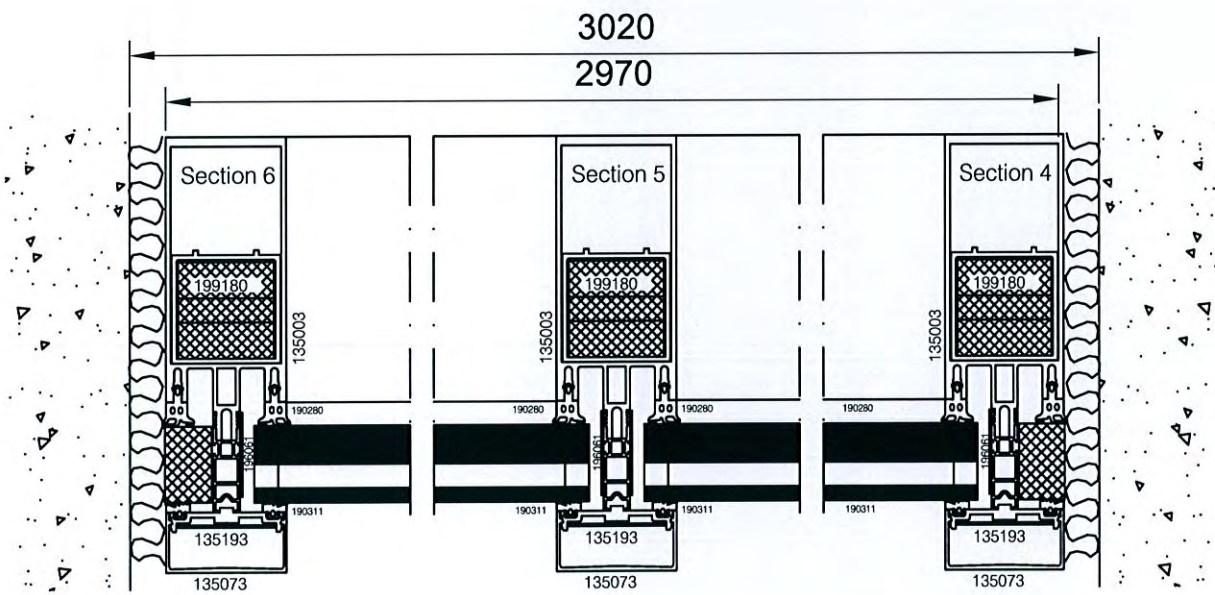


all dimensions in mm

WICTEC 50FP EI30		
Test object	2011.03.08	01-0003
	Scale 1:20	.
Hydro Building Systems AB	WICONA®	

WICTEC 50FP


 APP: 2
 REF: *PX12326-2*
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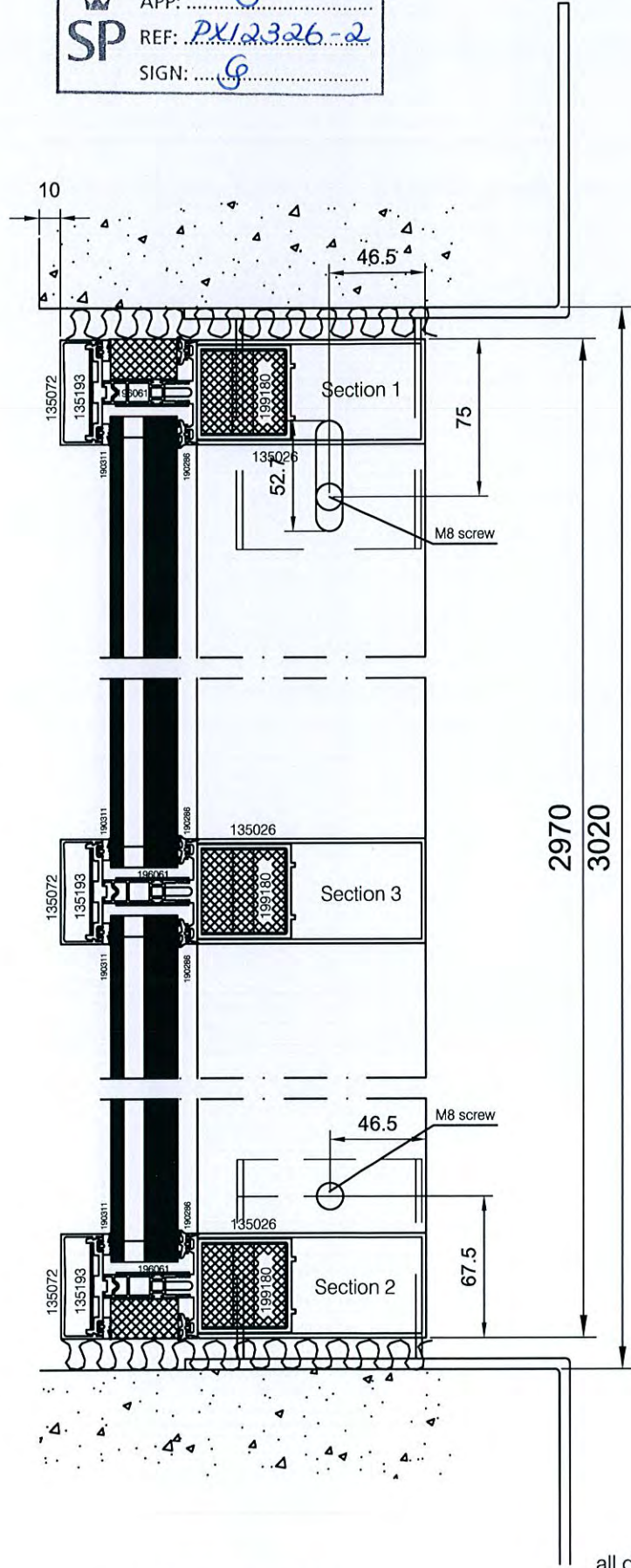
all dimensions in mm

WICTEC 50FP EI30		
Horizontal section	2011.03.02	01-0002
	Scale 1:3	
Hydro Building Systems AB		WICONA®

WICTEC 50FP


 APP: 3
 REF: PX12326-2
 SIGN: G

FIRE SIDE



all dimensions in mm

WICTEC 50FP EI30		
Vertical section	2011.03.02	01-0001
	Scale 1:3	
Hydro Building Systems AB	WICONA®	

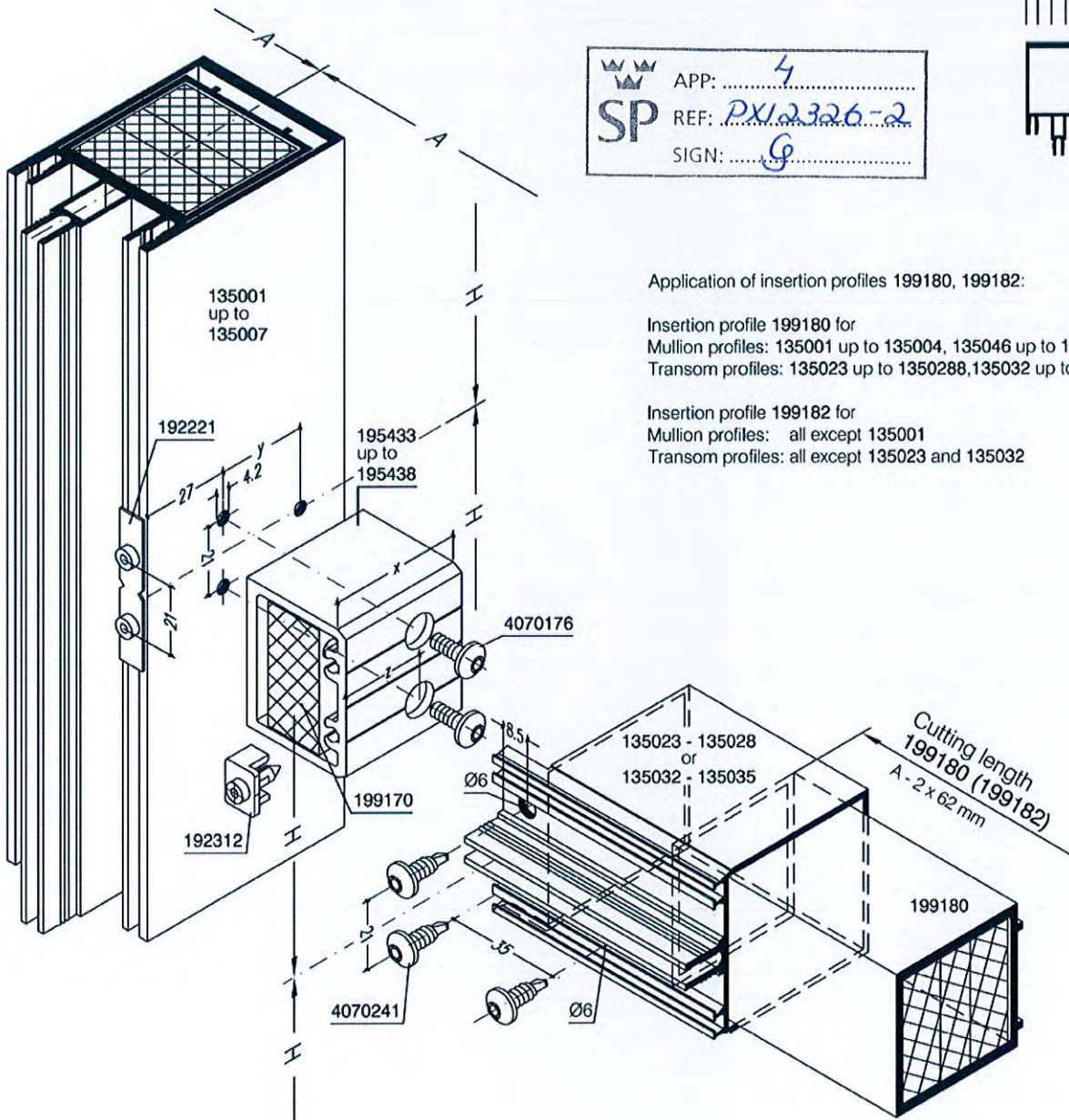
WICTEC 50FP

Fire protection facade

Transom joint with connectors 195433 - 195438



APP: 4
 REF: PXI.2326-2
 SIGN: G



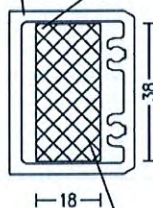
Application of insertion profiles 199180, 199182:

Insertion profile 199180 for
 Mullion profiles: 135001 up to 135004, 135046 up to 135048
 Transom profiles: 135023 up to 135028, 135032 up to 135035

Insertion profile 199182 for
 Mullion profiles: all except 135001
 Transom profiles: all except 135023 and 135032

Secured with non-setting sealing compound

195433 up to 195438



Level	Profile no.	Connector	Dimension x	Drill. dimension y	Dimension z
L2	135023	195433	41 ±0.2	-	26 ±0.2
L3	135032	195434	61 ±0.2	25 ±0.2	26 ±0.2
L2	135024	195435	81 ±0.25	45 ±0.25	26 ±0.25
L3	135033	195436	101 ±0.3	65 ±0.3	26 ±0.3
L2	135025	195437	121 ±0.3	85 ±0.3	26 ±0.3
L3	135034	195438	141 ±0.4	105 ±0.4	26 ±0.4
L2	135026	195433	41 ±0.2	-	26 ±0.2
L3	135035	195434	61 ±0.2	25 ±0.2	26 ±0.2
L2	135027	195435	81 ±0.25	45 ±0.25	26 ±0.25
L2	135028	195436	101 ±0.3	65 ±0.3	26 ±0.3

All dimensions in mm

199170
 Length = X mm $\pm \frac{0}{5}$


- Drill template:
 5010367 (esco no.91-411540) ①
 5010373 (esco no.91-429740) ②

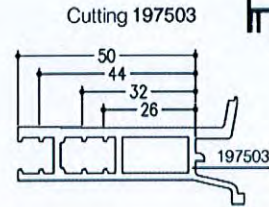
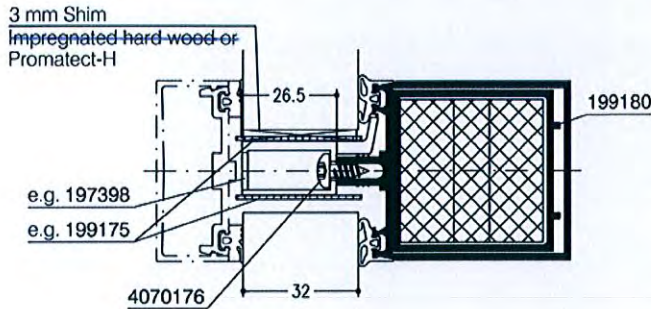
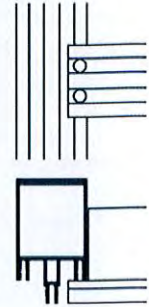
- Punching tool:
 5040046
 5040074 (esco no.94-428019) ③

- Notching transom profile:
 see chapter Transom Cutting

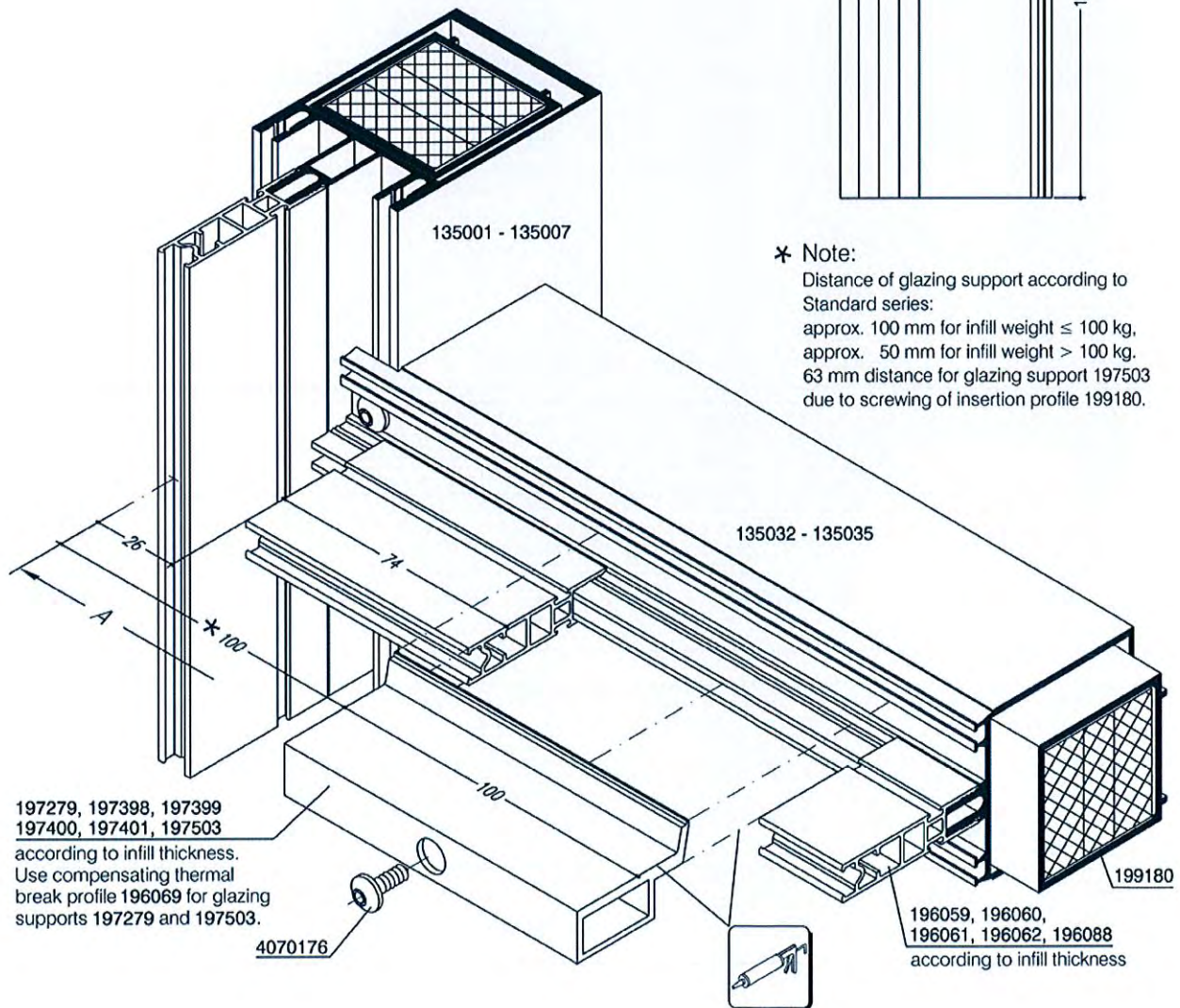
WICTEC 50FP

Fire protection facade
Installation of glazing support (shim)


 APP: 5
 REF: PX12326-2
 SIGN: 6



Note:
 The cuttings for fire protection strips 199174 up to 199178 is the same:
 Length for transom = A - 23 mm
 Length for mullion = Length of thermal break profile
 For reasons of better water channeling use glazing support no. 197503
 for outer application or insulation glass above 28 mm infill thickness.



✖ **Note:**
 Distance of glazing support according to Standard series:
 approx. 100 mm for infill weight ≤ 100 kg,
 approx. 50 mm for infill weight > 100 kg.
 63 mm distance for glazing support 197503
 due to screwing of insertion profile 199180.



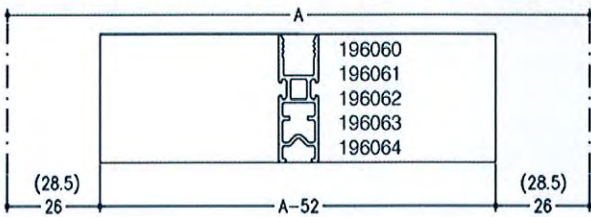
Seal joint of thermal break profile
 to glazing support with sealant
 esco no. 92-364959 or
 92-537683

WICTEC 50

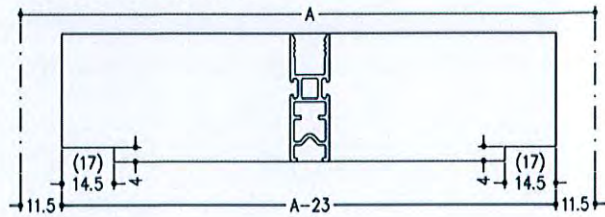
Stick construction

Cutting thermal break profiles

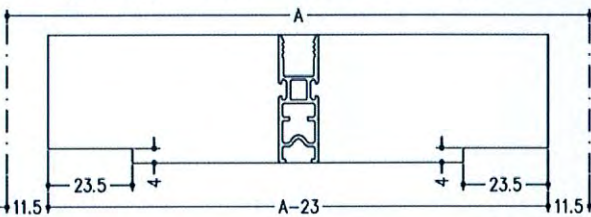
Cutting for application without central drainage part



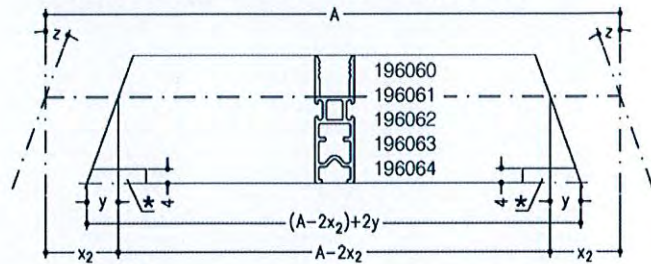
Cutting for application with central drainage part
Cutting and notching also for optional use without drainage part



Cutting for application of 192303 and 192289



Cutting for application in L1A, L1 Polygon 0°-5°



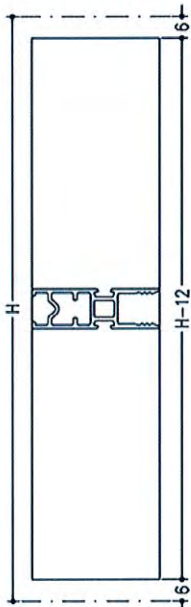
() Dimensions in bracket for 135069 and 927604 or 927614

$$x_2 = \frac{11,5}{\cos z}$$

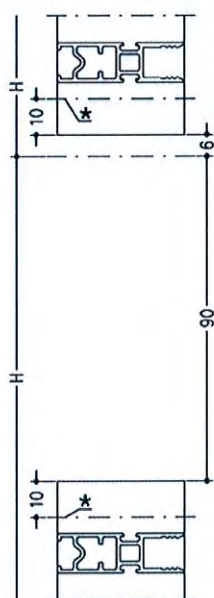
- $y_{196060} = 24 \tan z$
- $y_{196061} = 30 \tan z$
- $y_{196062} = 36 \tan z$
- $y_{196063} = 42 \tan z$
- $y_{196064} = 48 \tan z$

* Recess according to used pressure profiles.

Cutting for application in L1, L1A, L3S

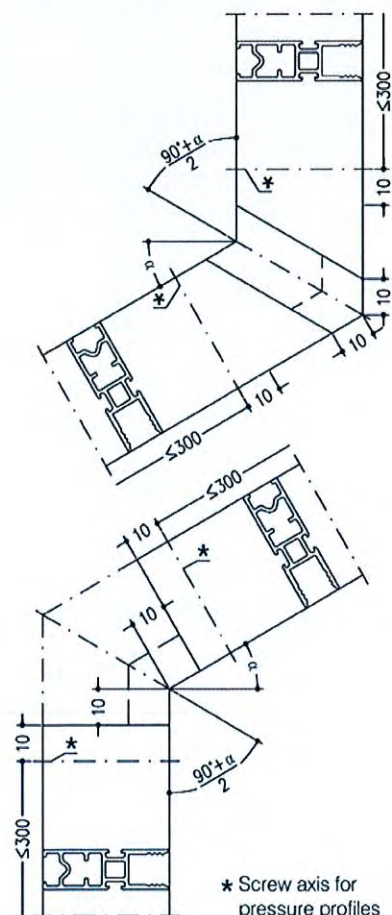


Cutting for application in area of mullion joint L1, L1A, L3S





* Screw axis for pressure profiles

Cutting for application in vertical mullion outer or inner corner L1, L1A, L3S



* Screw axis for pressure profiles


 APP: 6
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 SIGN: 

WICTEC 50

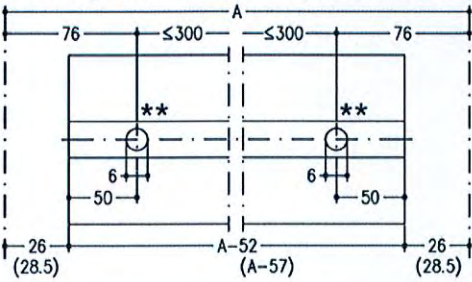
Stick construction


 APP:7.....
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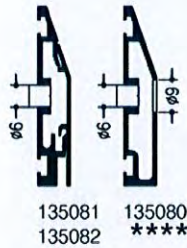
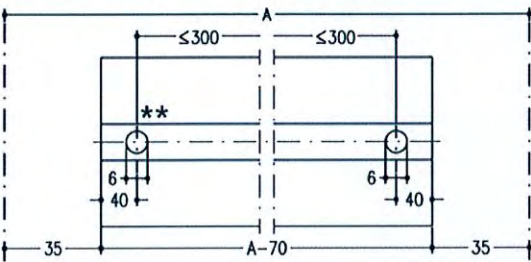
Cutting pressure profiles

Note:

The cutting of vertical 3D pressure profiles follows accordingly.

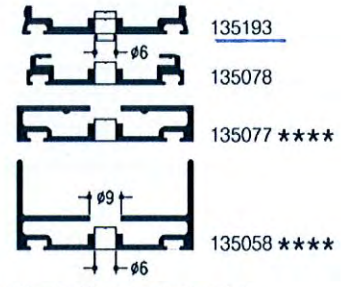
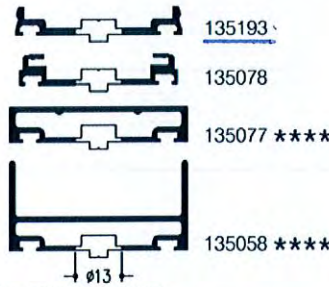
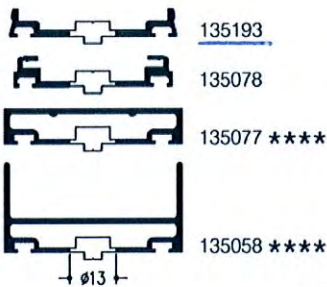
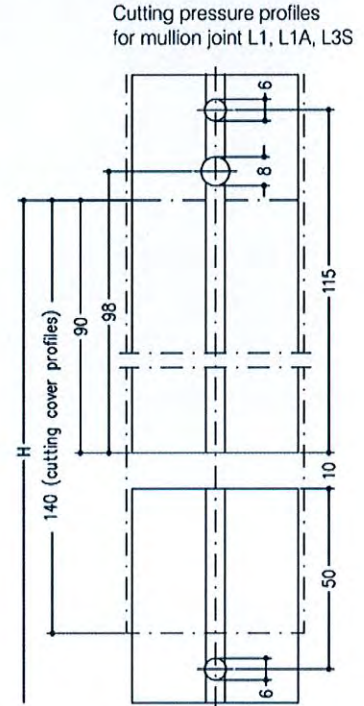
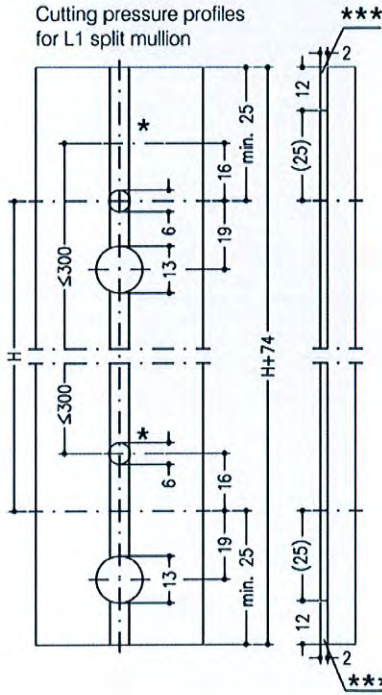
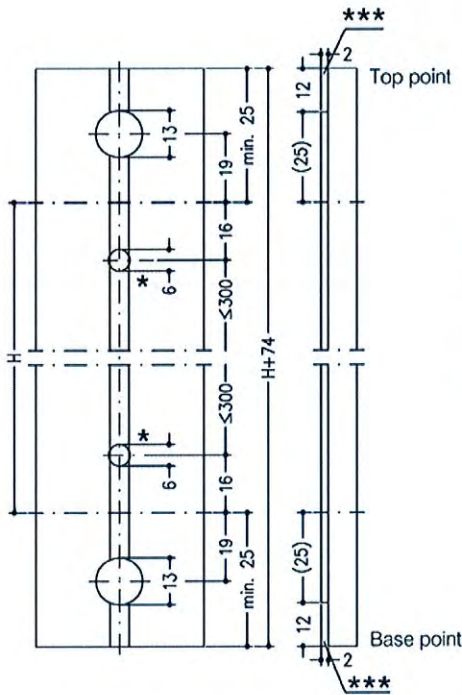


Cutting pressure profiles while using 192303.



Drill pressure profiles 135058, 135076, 135080 with step drill $\phi 6 / \phi 9$ 5060006 (esco no. 92-414212).

Dimensions in bracket for 135069 and 927604 or 927614




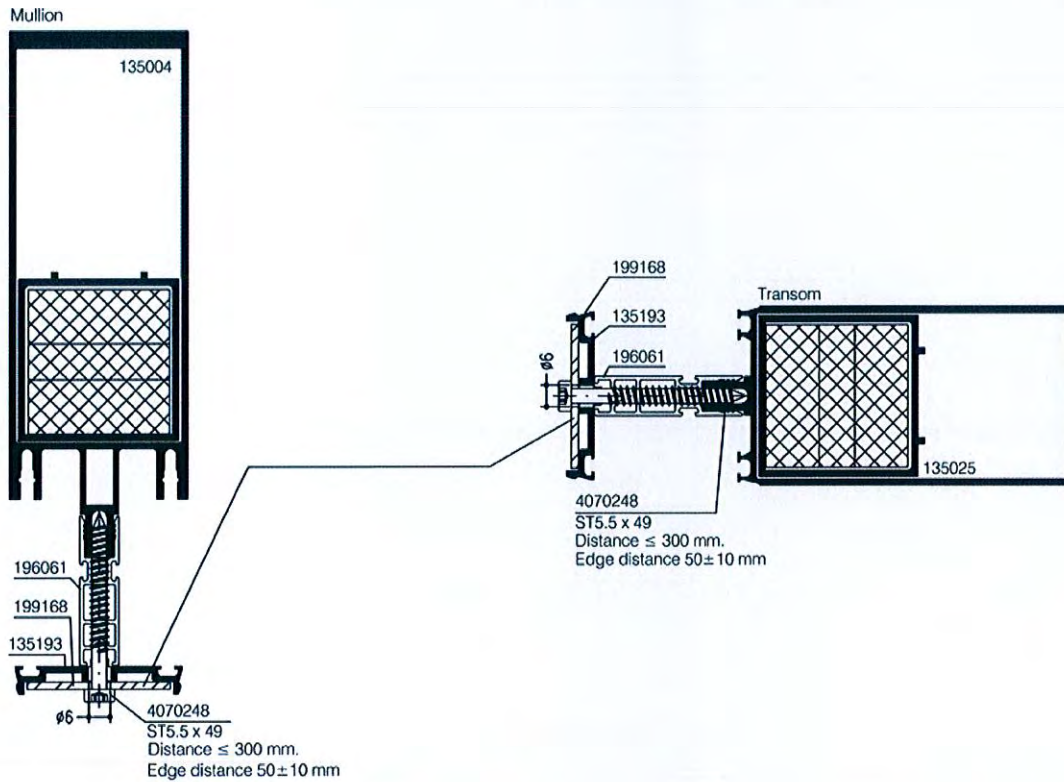
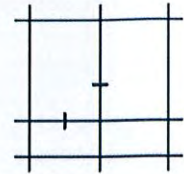
* Drill pressure profiles 135058, 135077 with step drill $\phi 6 / \phi 9$ 5060006 (esco-no. 92-414212).
 ** Punch with punching tool 5040073 (esco no. 94-421480).

*** Notching for continuous sheet metal
 **** Use cheese-head screws

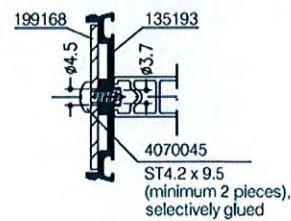
WICTEC 50FP

Fire protection facade
Fixing 199168

	APP: 8
	REF: <i>PX12326-2</i>
	SIGN: <i>[Signature]</i>



Transport safeguard 199168
of pressure profile for mullion and transom



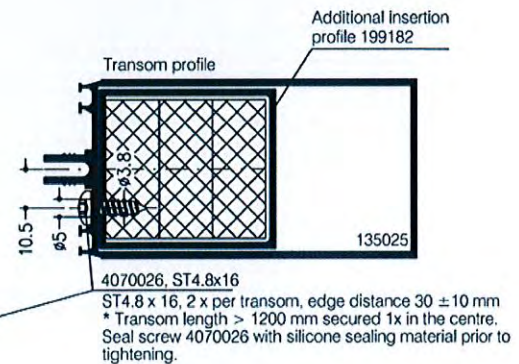
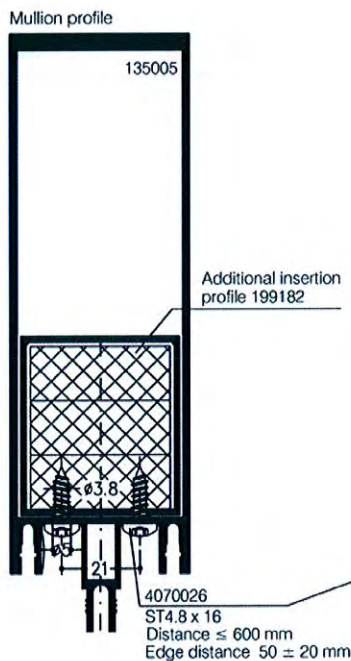
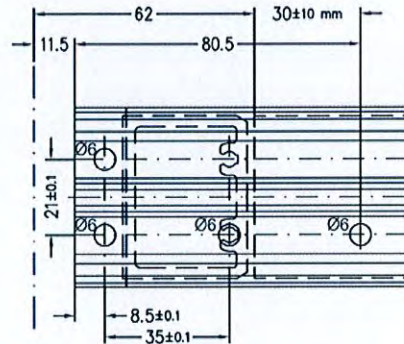
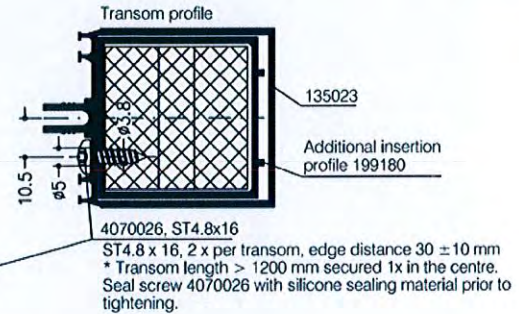
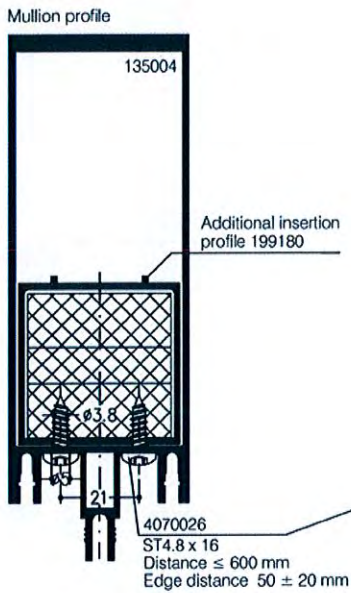
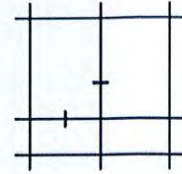
Screwing pressure profile:

- Screw distance \leq 300 mm,
- from the beginning of profile bar \leq 50 mm.
- Tightening torque of screw \leq 500 Ncm.

WICTEC 50FP

Fire protection facade
Fixing 199180 and 199182


 APP: 9
 REF: *PX/2326-2*
 SIGN: *Ge*



Sealing selectively:



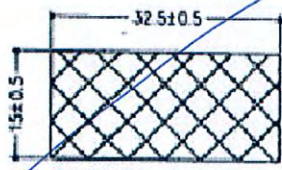
- prior to tightening with
esco no. 537683

or

- use plastic washer
188429.

WICTEC 50FP

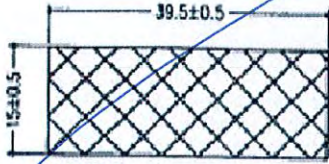
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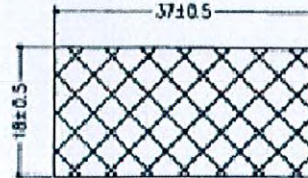
199021 Fermacell



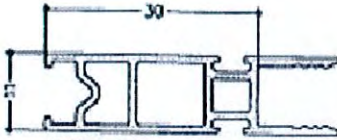
199169 Fermacell



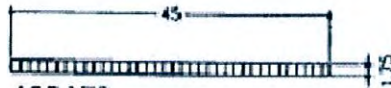
199022 Fermacell



199170 Fermacell- *Promatect*

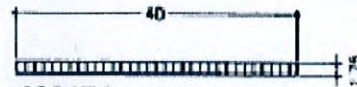


196061 ABS



199173

Brandschutzdichtstreifen



199174

Brandschutzdichtstreifen

199175?



190280

Verglasungsdichtung Pfosten
EPDM



190311

Verglasungsdichtung außen
EPDM



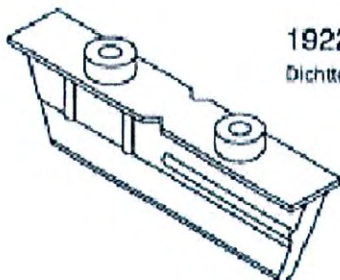
190286

Verglasungsdichtung Riegel
EPDM



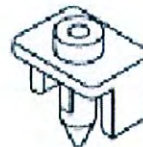
192310

Abdeckung für 135073
ALMgSO.5 (M1.2)



192221

Dichtteil EPDM



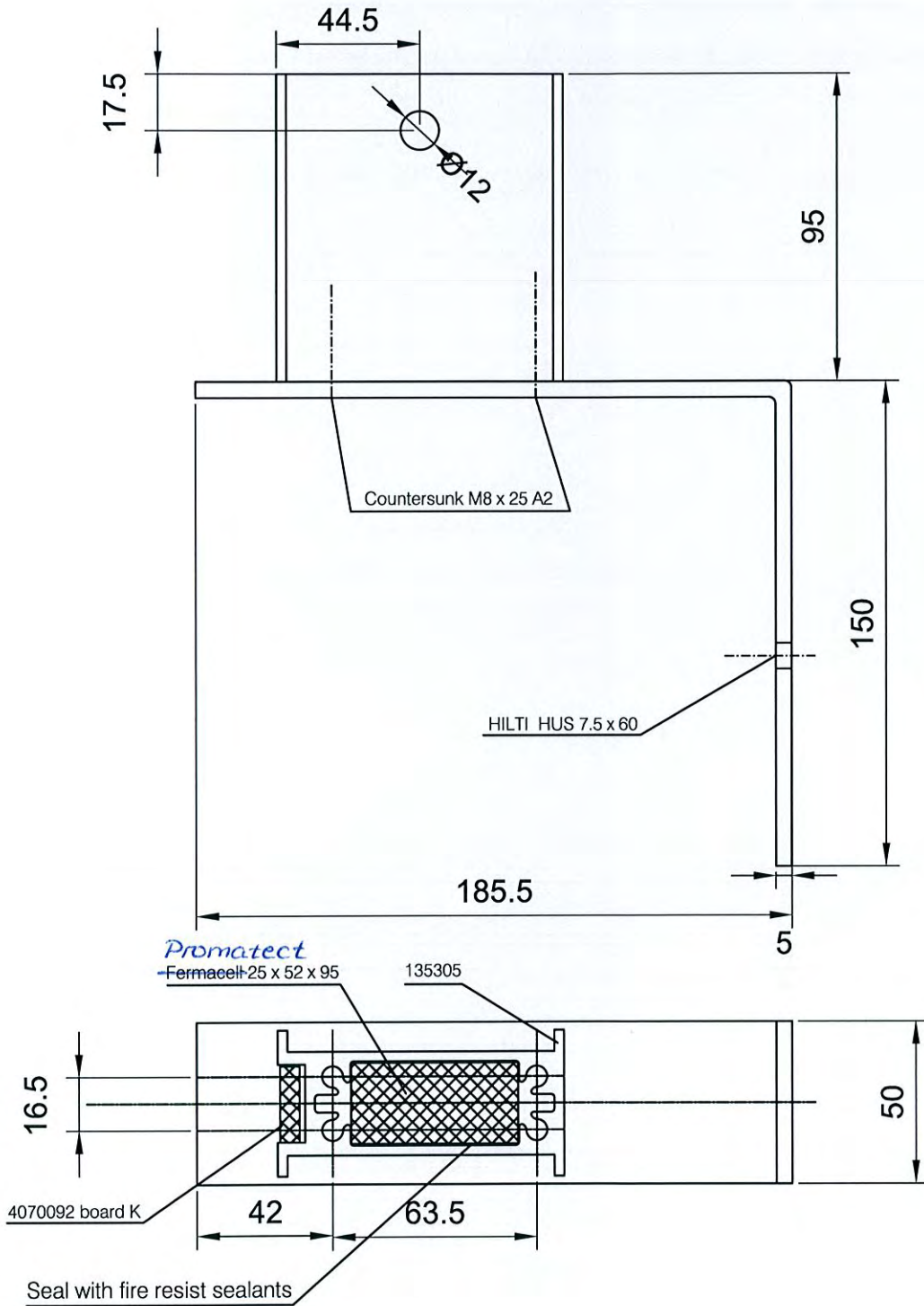
192221

Dichtteil EPDM

WICTEC 50FP

Fire protection

	APP: 11
	REF: PX12326-2
	SIGN: 



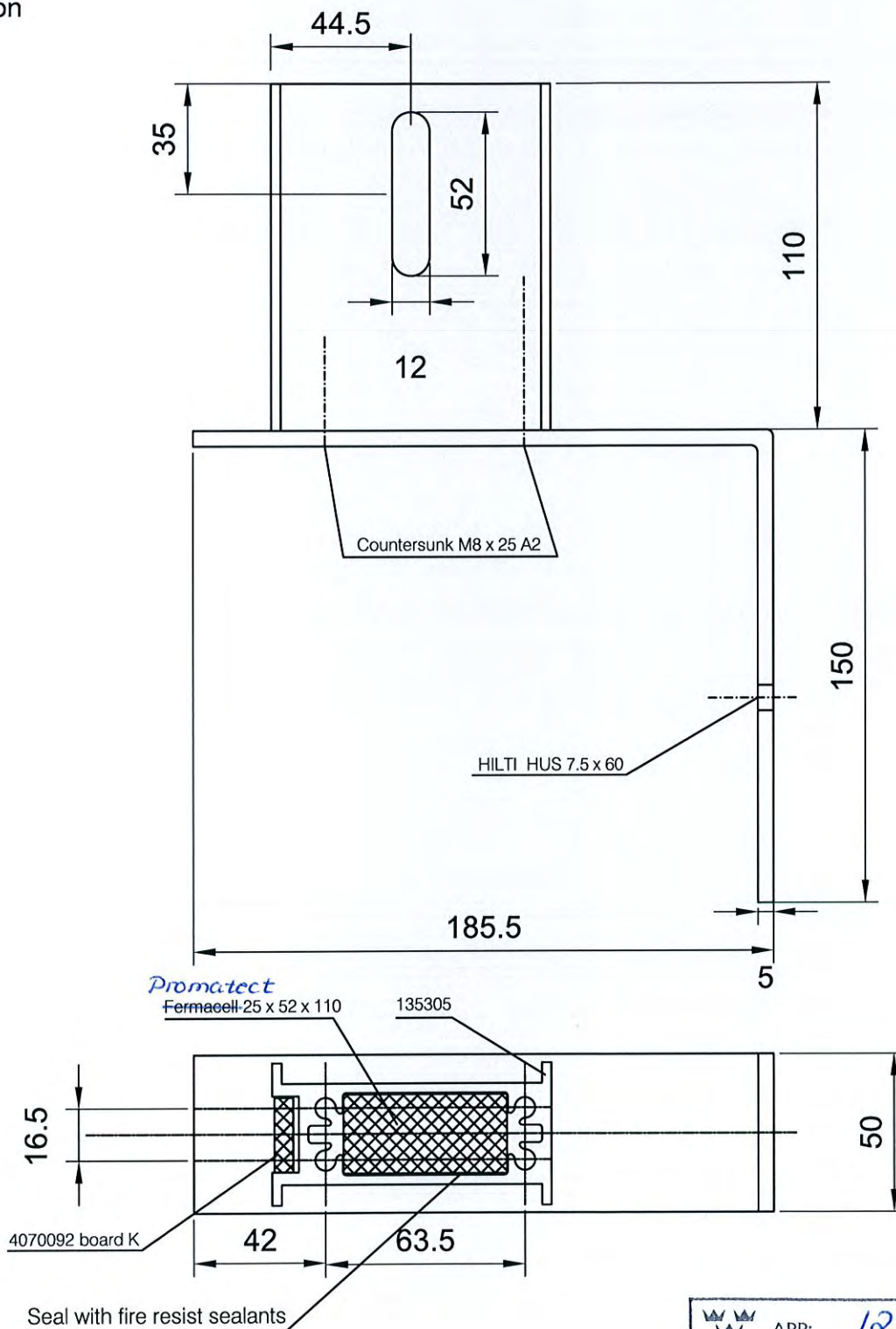
all dimensions in mm

WICTEC 50FP		
EI30	Drawing	01-0004
	Date	2011.03.11
Hydro Building Systems AB		WICONA®

WICTEC 50FP

Top

Fire protection




 APP: 12
 REF: PX12326-2
 SIGN: G

all dimensions in mm

WICTEC 50FP		
EI30	Drawing	01-0005
	Date	2011.03.11
Hydro Building Systems AB		WICONA®

Construction WICTEC 50FP

Profile

Art.No.	description		
135003	Mullion	50/126mm E1	ALMgSi0.5 F22
135026	Transom	50/125,5 mm E2	ALMgSi0.5 F22
135072	Cover profile	50/20 mm	ALMgSi0.5 F22
135073	Cover profile	50/25mm	ALMgSi0.5 F22
135193	Pressure profile	WT50	ALMgSi0.5 F22
135305	Supplementary profile	45x89mm	ALMgSi0.5 F22

Fittings

Art.No.	description		
190280	Gasket	int. 10mm	EPDM
190286	Gasket	int. 4mm	EPDM
190311	Glasket	out. 4mm	EPDM
196061	Thermal break profile	30mm	ABS
199170	Promatect	18x38mm, WTFP	PROMATECT
199175	Promaseal	1,7x35mm, WTFP	PROMASEAL
199180	Supplementary profile	45x46,9mm, WT FP	ALMgSi0.5 F22


Piece accessories


Art.No.	description		
192221	Sealing part	E1, 90°, EPDM	EPDM
192312	Sealing part for connector	EPDM	EPDM
195436	Connector	101mm	ALMgSi0.5 F22
197398	Glazing support	38,2mm	ALMgSi0.5 F22
199296	Steel profile	l=100mm WT50 FP	Steel
4070026	Screw RTS	4,8x16mm	A2
4070161	Screw RTS	4,8x25mm	A2
4070176	Screw RTS	4,8x11mm	A2
4070241	Self drill. screw	. DG50x16	A2
4070248	Screw cyl h.	ST 5,5x49 T25 A4	A4

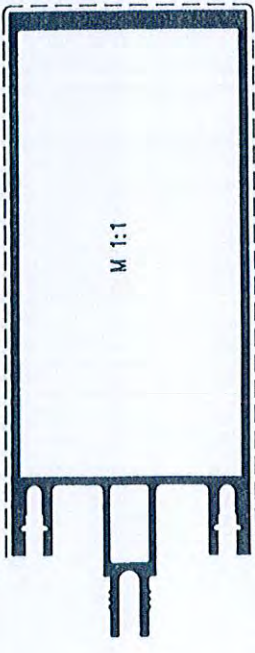
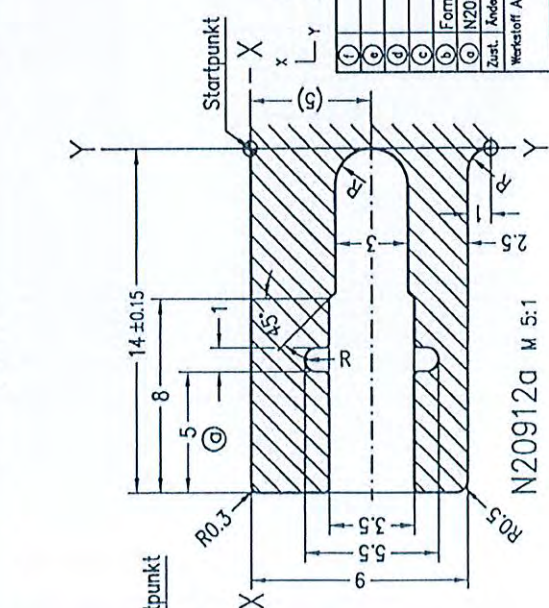
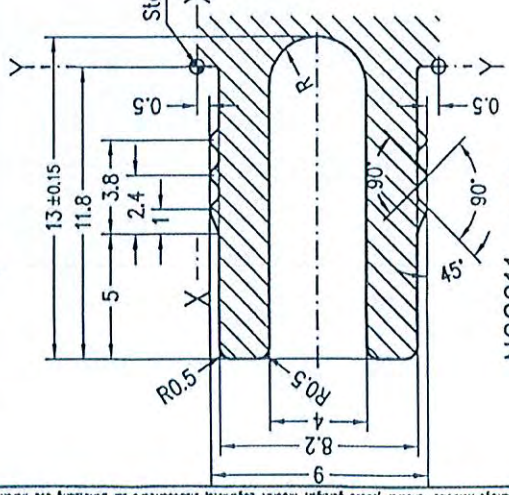
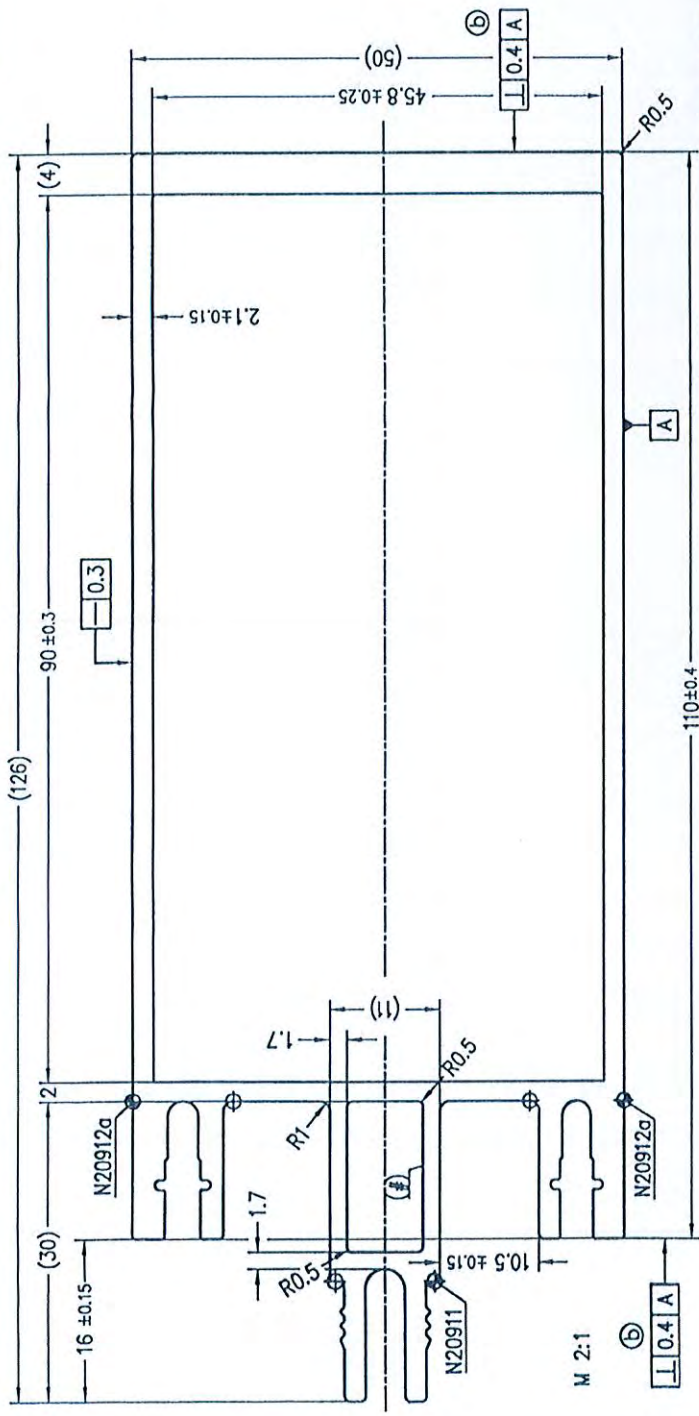
Glass

description
Pyrobel 16 DGU 36mm

Baustoffbezeichnung	Herstellerfirma	Dicke mm	Baustoffklassifizierung Prüfzeichen
PROMATECT-H	Promat Ratingen	8 10	A2 lt. PA-III 4.277
Fermacell-Streifen	Fels Goslar	10 15 18 25	A2 lt. PA-III 4.6
PROMASEAL-HT	Promat Ratingen	1,75	B1 lt. Z-19.11-1153

	APP: 13
	REF: PX12326-2
	SIGN: G


 APP: 14
 REF: PX12326-2
 SIGN: G

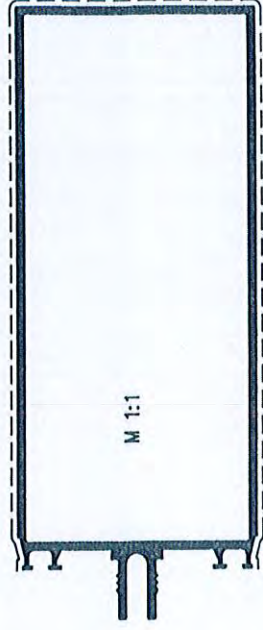
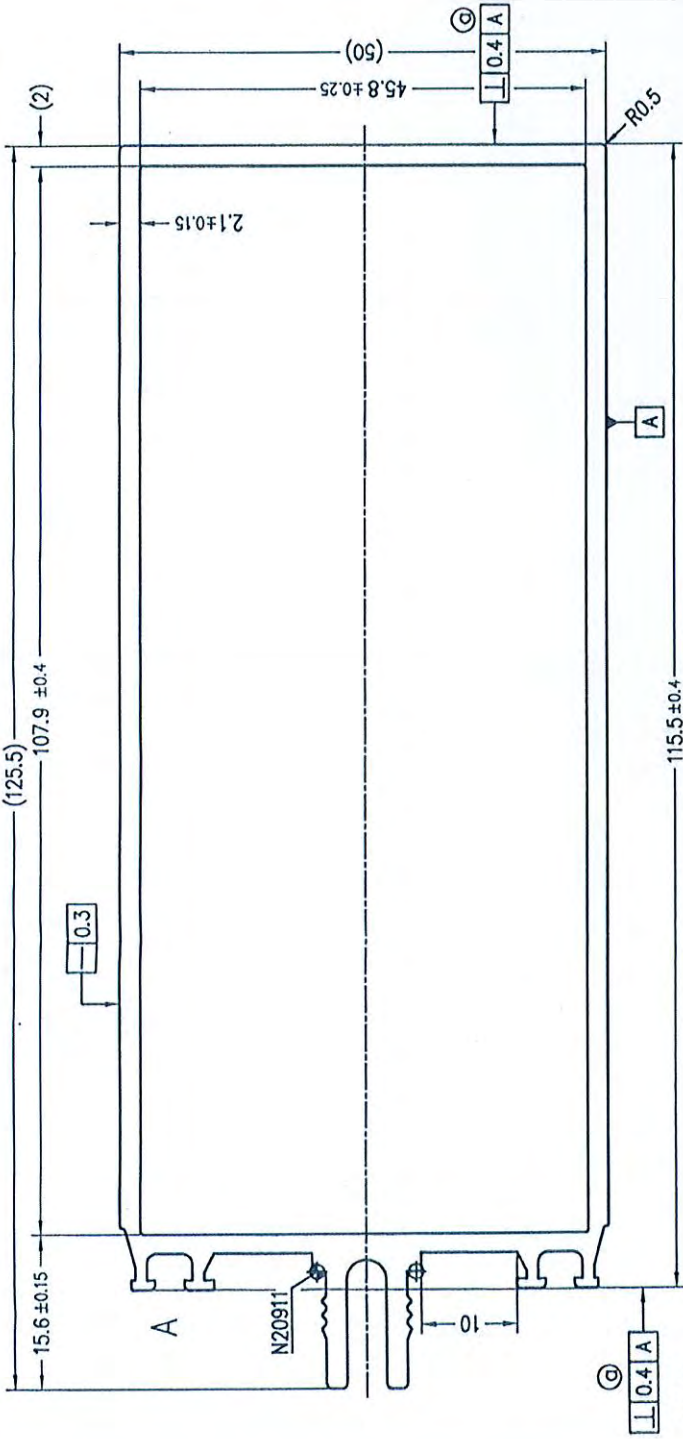
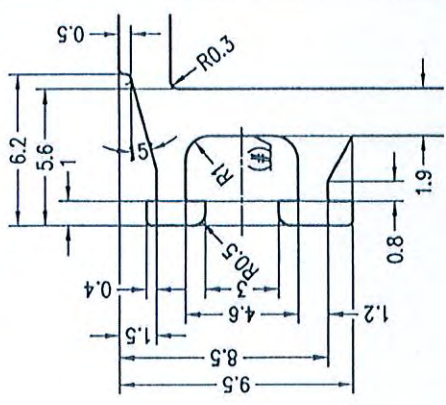


$e_{1x} = 64.58 \text{ mm}$ $e_{2x} = 61.42 \text{ mm}$
 $e_{1y} = 25.00 \text{ mm}$ $e_{2y} = 25.00 \text{ mm}$

Für Al-Profil: Schiffsfläche		Querschnitt	
Alle nicht vermessenen Konturen $R = 0,2 \text{ mm}$		9,69 cm^2	
Ausführung nach DIN 17815		Gew. errechnet 2,62 kg/m	
		T-Wert N/100m	
Ja	Jk	Wk	Wk
175,09 cm^2	175,09 cm^2	27,11 cm^3	27,11 cm^3
By	By	ey	ey
35,14 cm^2	35,14 cm^2	14,06 cm^3	14,06 cm^3
Abw.	Abw.	Abw.	Abw.
488 mm	488 mm	316 mm	316 mm
Formtol. hinzu 02.12.99/KG		Benennung	
05.03.97/BÜ		Pfofenprofil	
05.03.97/BÜ		WC/TEC 50 neu	
Zust. Änderung		gefertigt	
Werkstoff AlMgSi0,5 F22		geprüft	
Vorbehandlungsgr.		gesehen	
Bestelltag		WICONA®	
Kundennr.		WICONA Bausysteme GmbH	
		Prof. Nr., Zubehör Nr. 135003	

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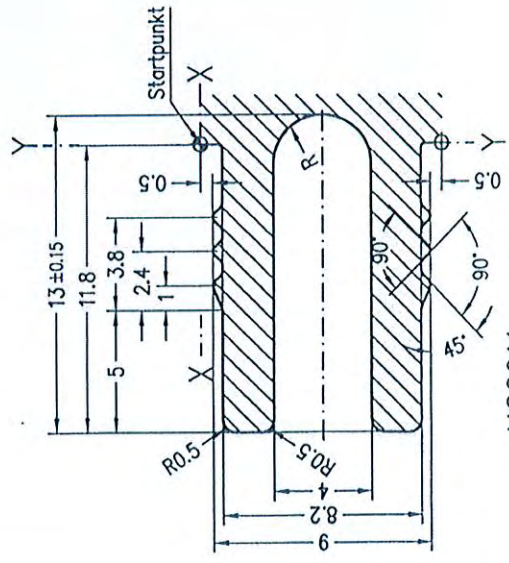
Detail A M 5:1



x e_x = 62.38 mm e_x' = 63.12 mm
 y e_y = 25.00 mm e_y' = 25.00 mm

f	Für Al-Profile: Schrittlänge		7.40	cm ²
g	Alle nicht vermessenen Kanten R = 0,2mm Ausführung nach DIN 17615		2.00	kg/m
d	Jx	Wx min	21.09	cm ³
e	Jy	Wy min	12.38	cm ³
c	Abweidg. auß.	Abweidg. inn.	307	mm
b	Formtol. hinzu	Datum	06.12.99	KG
a	Zust. Änderung	Datum	17.02.97	BU
Hersteller AIMGSI0.5 F22		geprüft	1:1,2:1	
Vorbehandlungsspr.		gezeichnet	5:1	
Bestellg.		Riegelprofil WCTEC 50 neu		
Kundenr.		WICONA® WICONA Bausysteme GmbH Söflinger Straße 70 89077 Ulm		
Kunde		Prof. Nr., Zubehör Nr. 135026		


SP APP: 15
 REF: PX12326-2
 SIGN: [Signature]

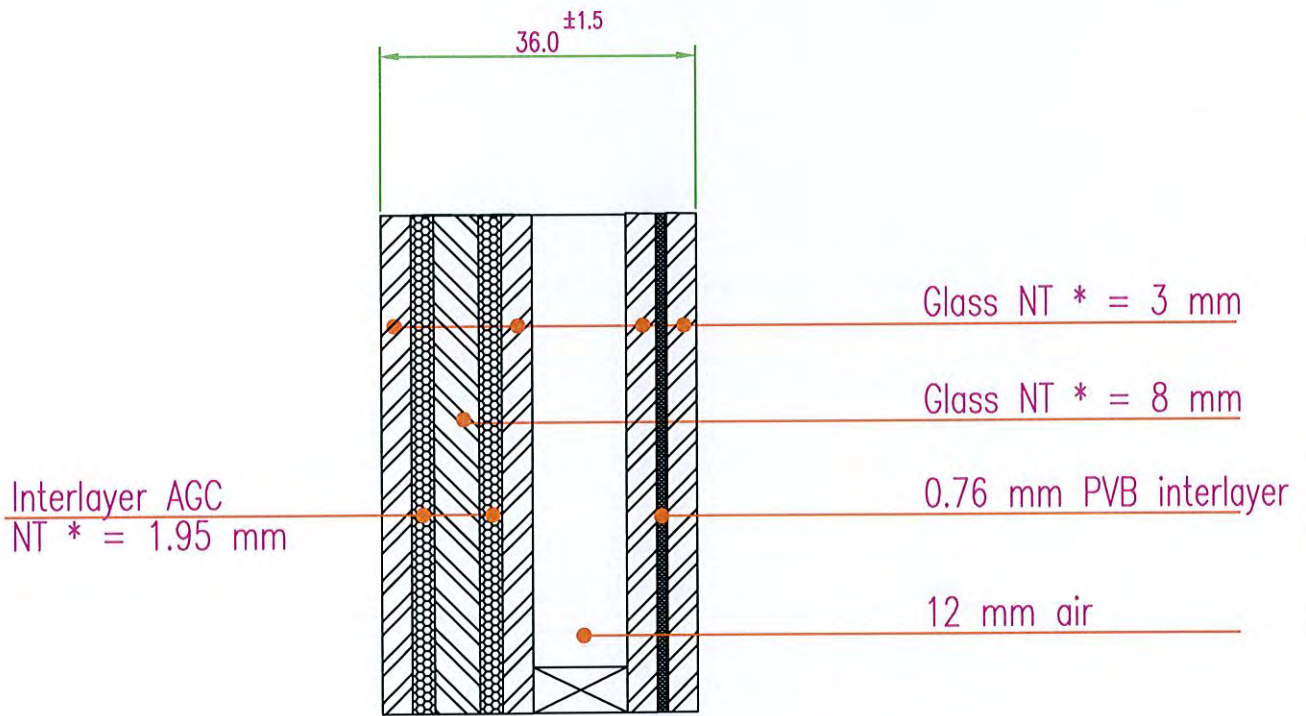


N20911 M 5:1

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PYROBEL 16 IGU (insulated glass unit)
 3/8/3 - air 12 - 33.2

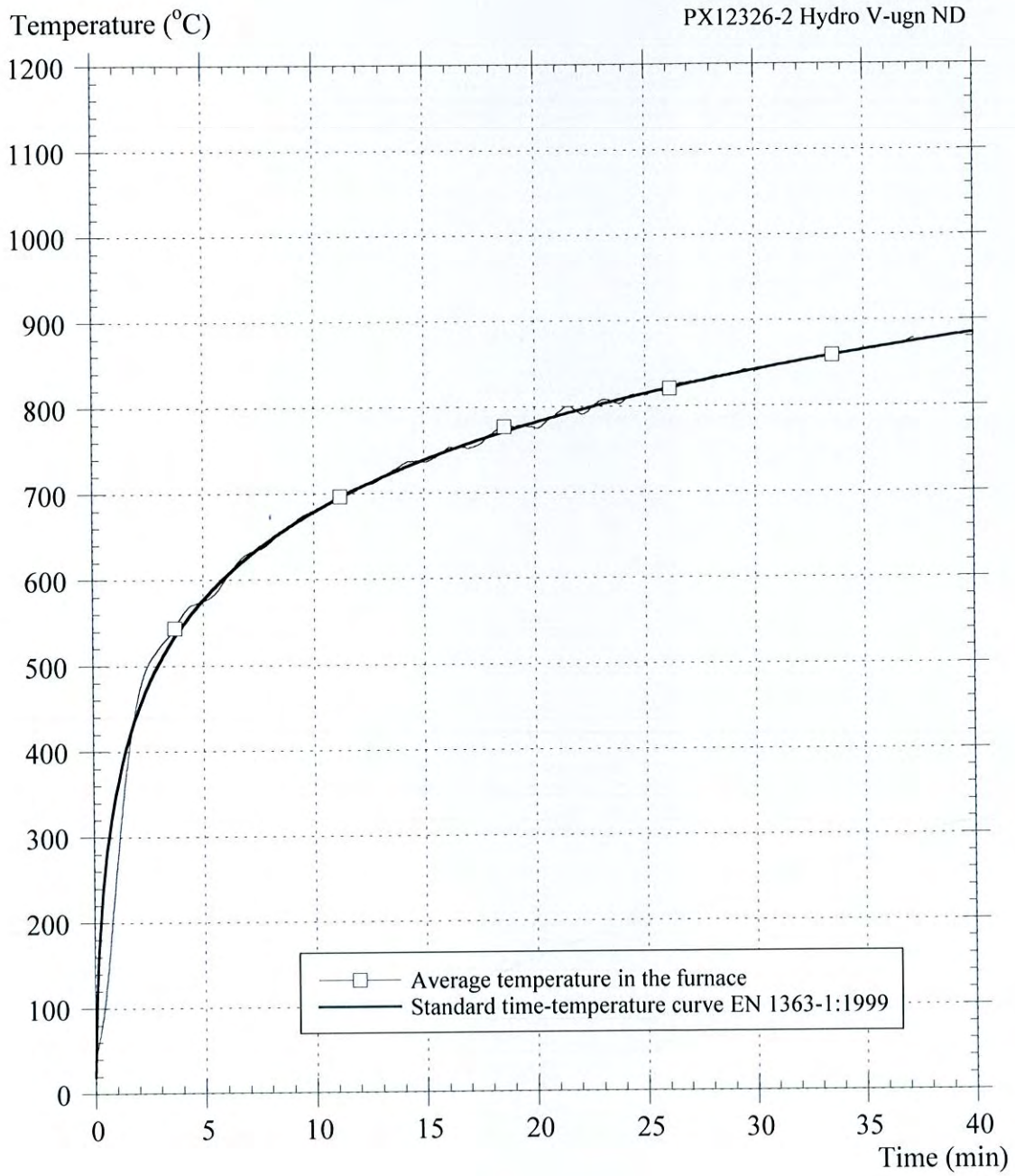

 APP: 16
 REF: PX12326-2
 SIGN: G



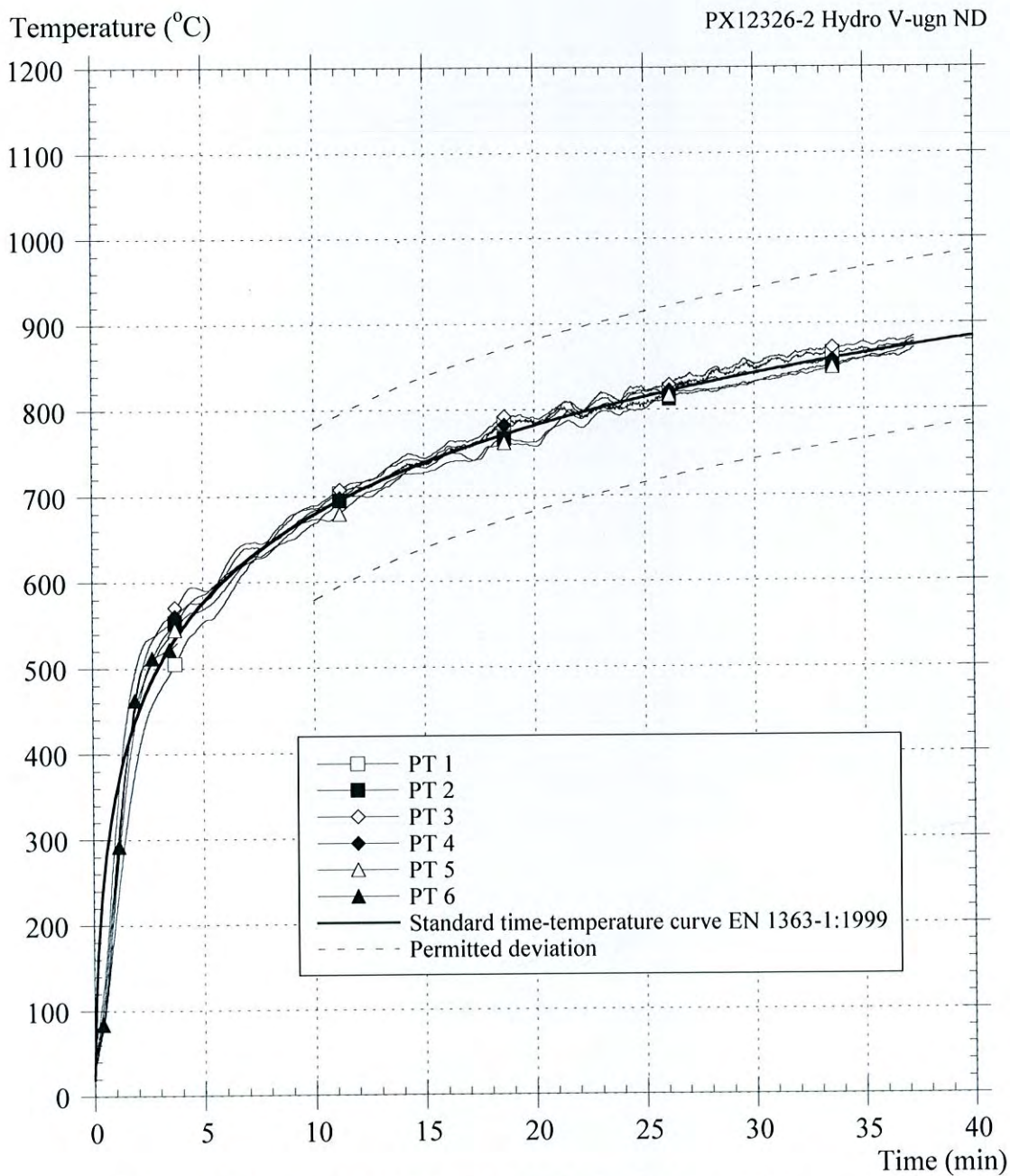
* With NT = Nominal Thickness

AGC	ELEMENT : STRUCTURE PYROBEL 16 IGU (insulated glass unit)	DATE : 06/05/11
	DETAIL : SECTION	PLAN N° : DL 005_structure

Temperature in the furnace

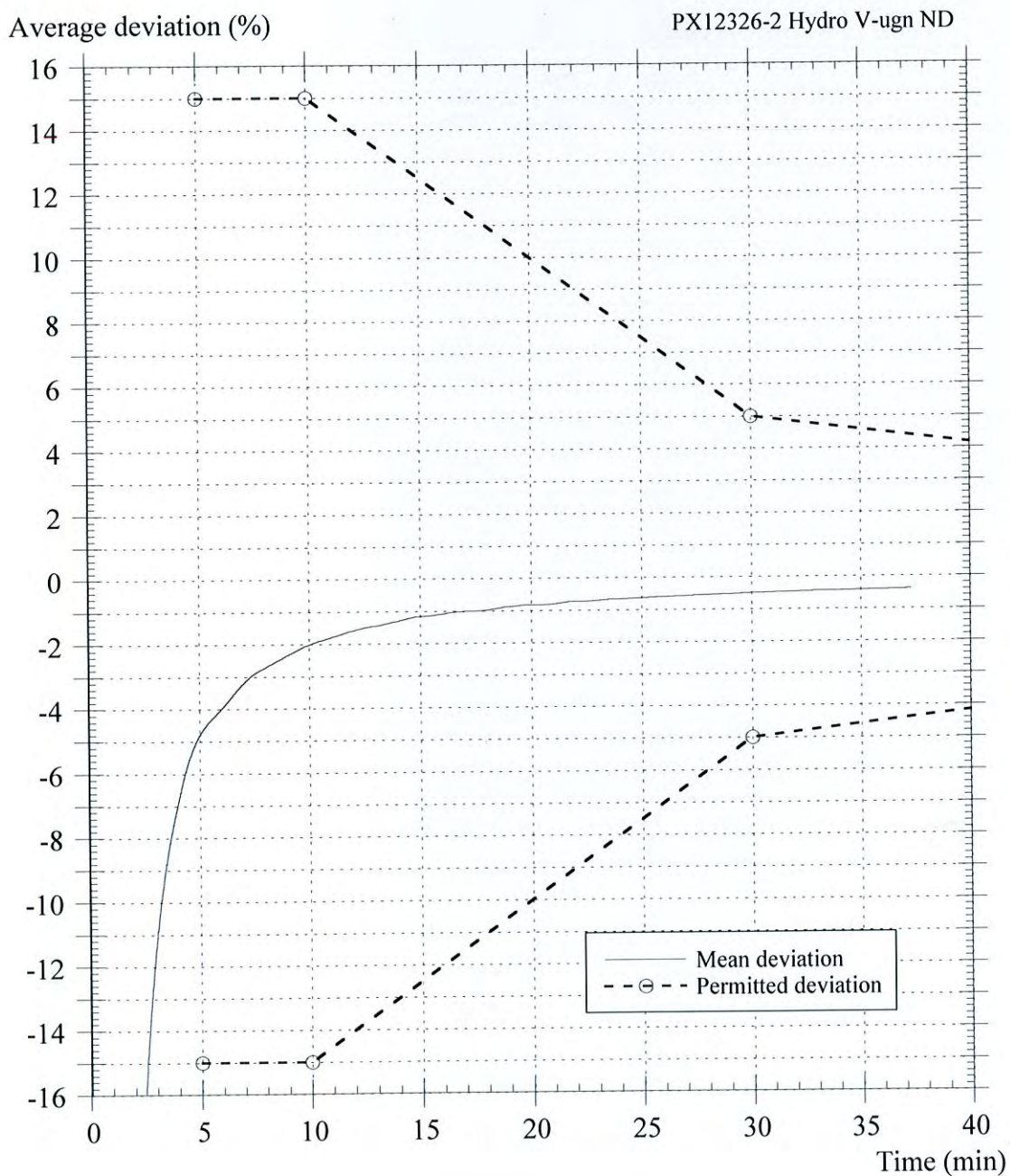


Temperature in the furnace

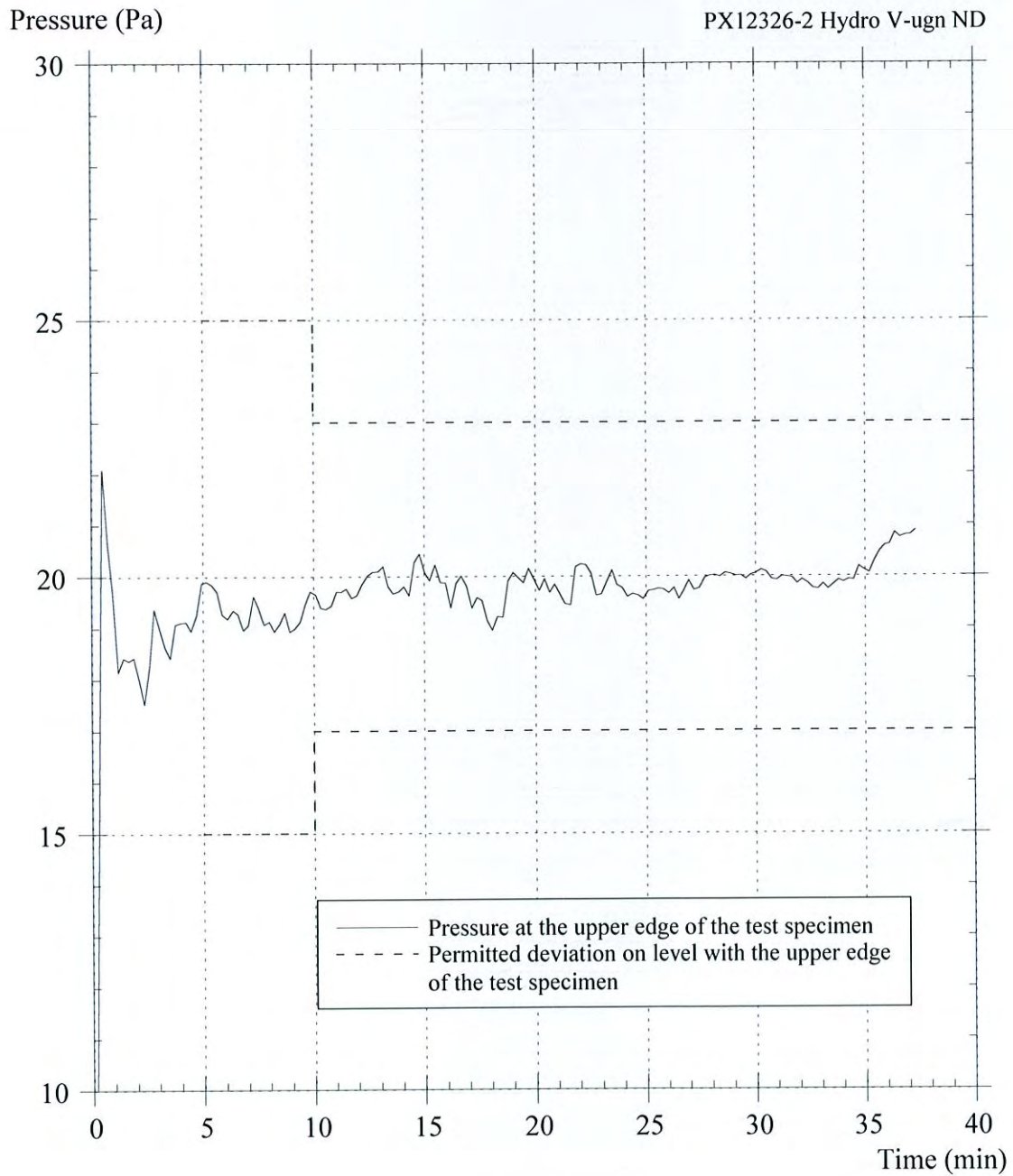


Note: Plate thermocouple PT6 was out of order after 4 minutes.

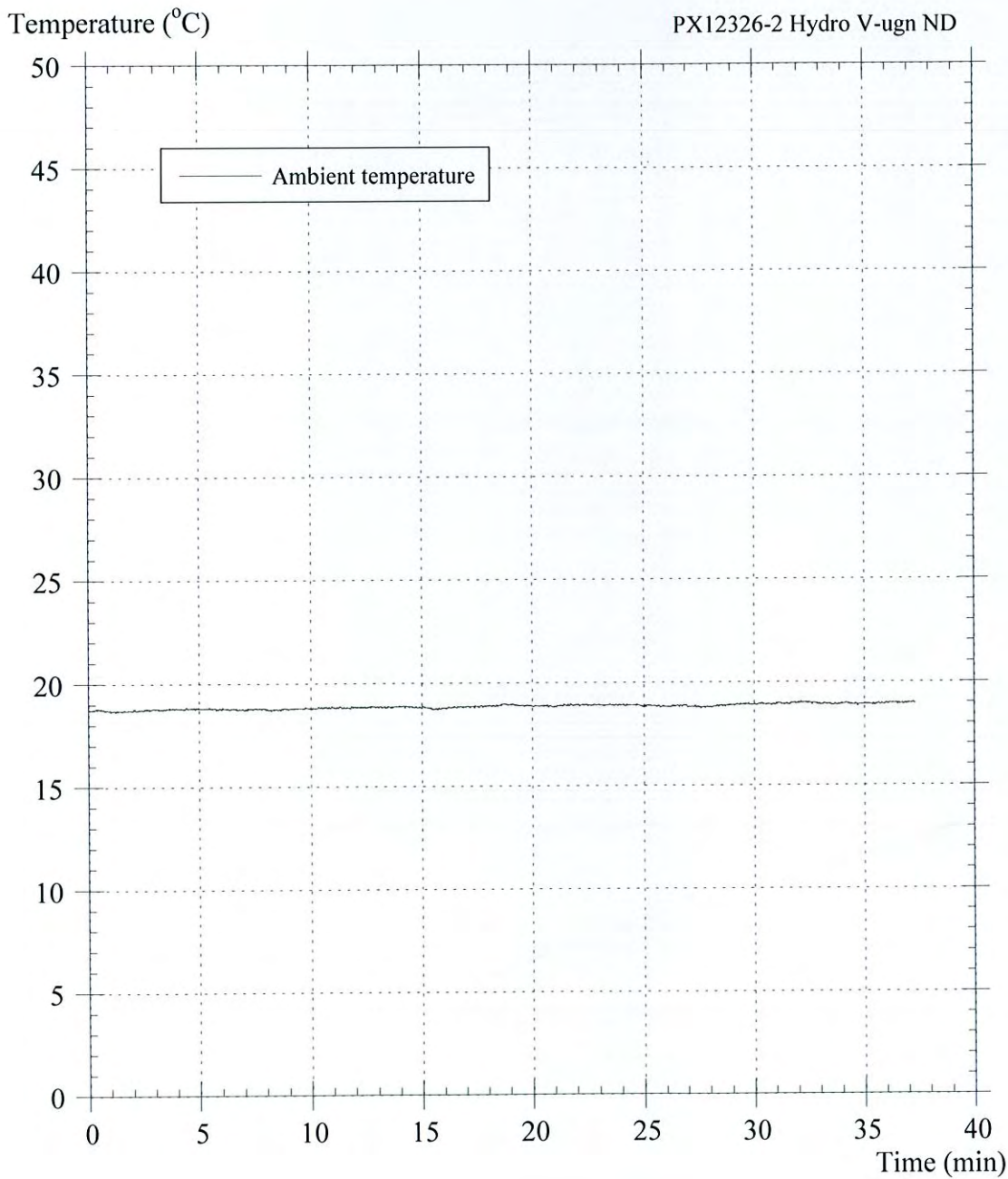
Percent deviation of the average furnace temperature from the standard time-temperature curve

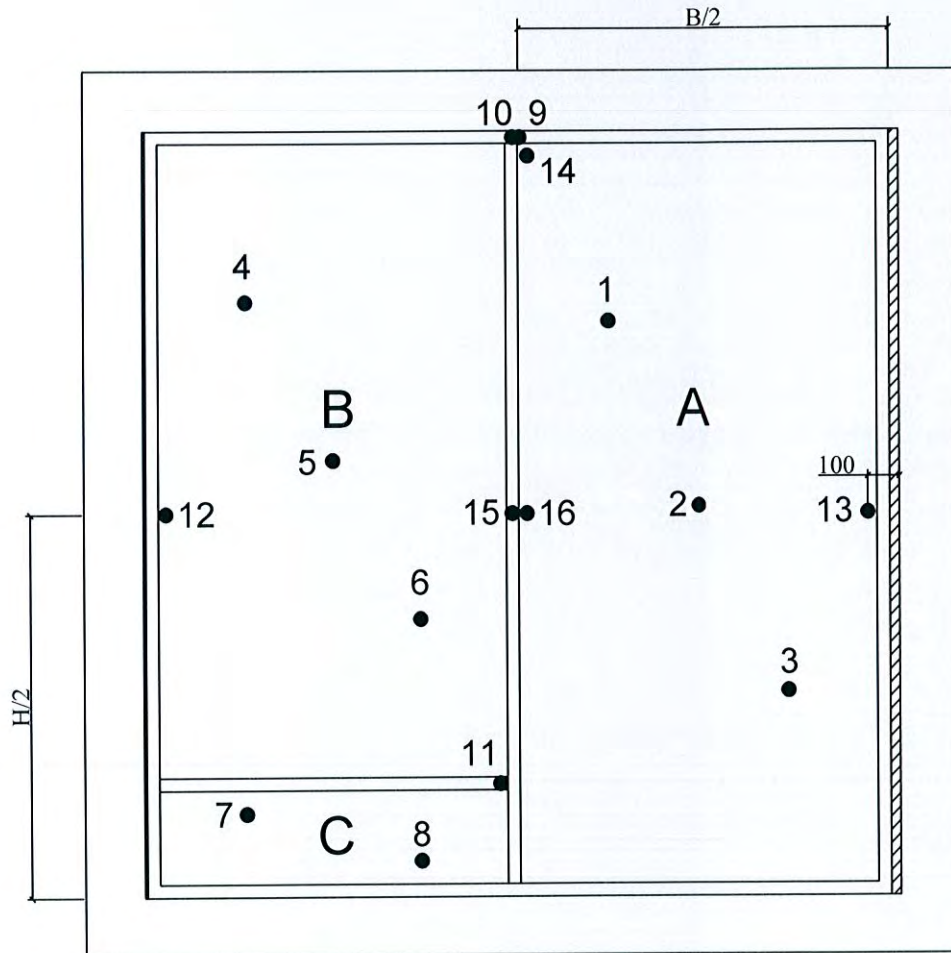


Pressure in the furnace in relation to the ambient pressure in the laboratory



Ambient temperature

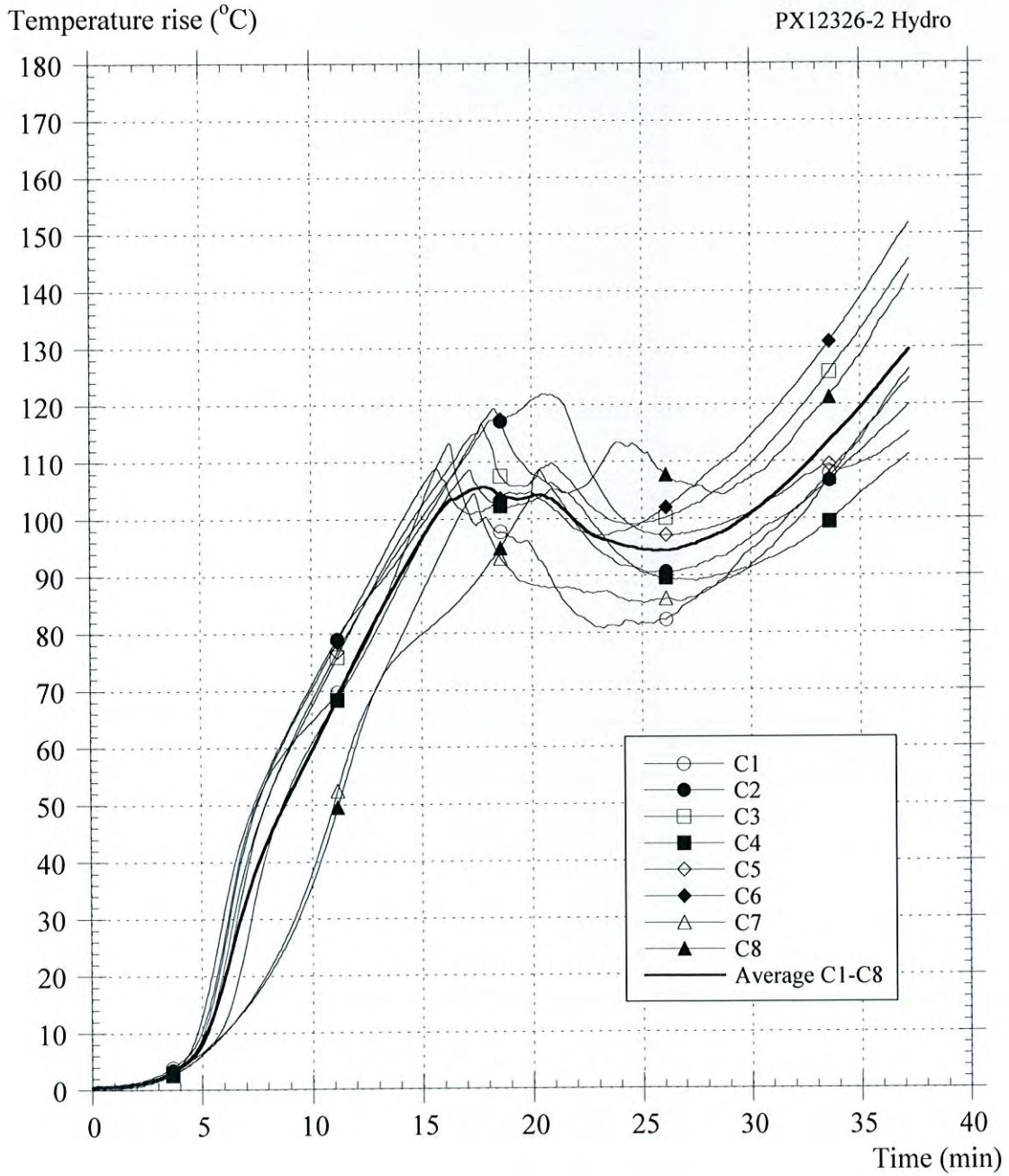




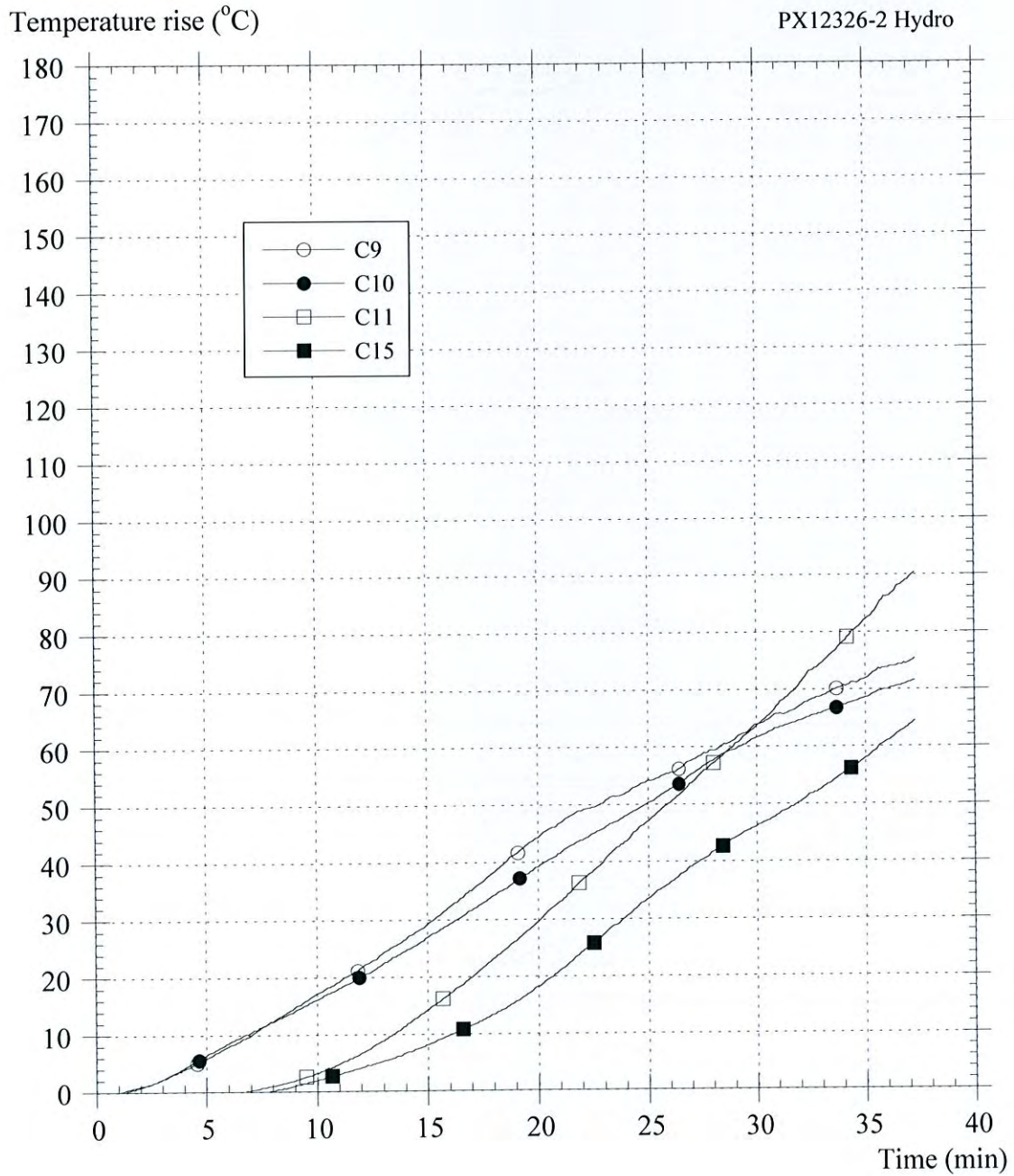
Thermocouples:

- 1-8 average temperature rise (EN 1364-1 A3.2.1)
- 9 at the head of specimen at mid width (EN 1364-1 A3.3 a)
- 10 at the head of the specimen in line with a mullion (EN 1634-1 A3.3 b)
- 11 at the junction of a mullion and a transom (EN 1634-1 A3.3 c)
- 12-13 at mid height of the free edge, 100 mm in from the edge (EN 1634-1 A3.3 e)
- 14 at mid width, where possible, adjacent to a horizontal joint (positive pressure zone) (EN 1634-1 A3.3 f)
- 15-16 at mid height, where possible, adjacent to a vertical joint (positive pressure zone) (EN 1634-1 A3.3 g)

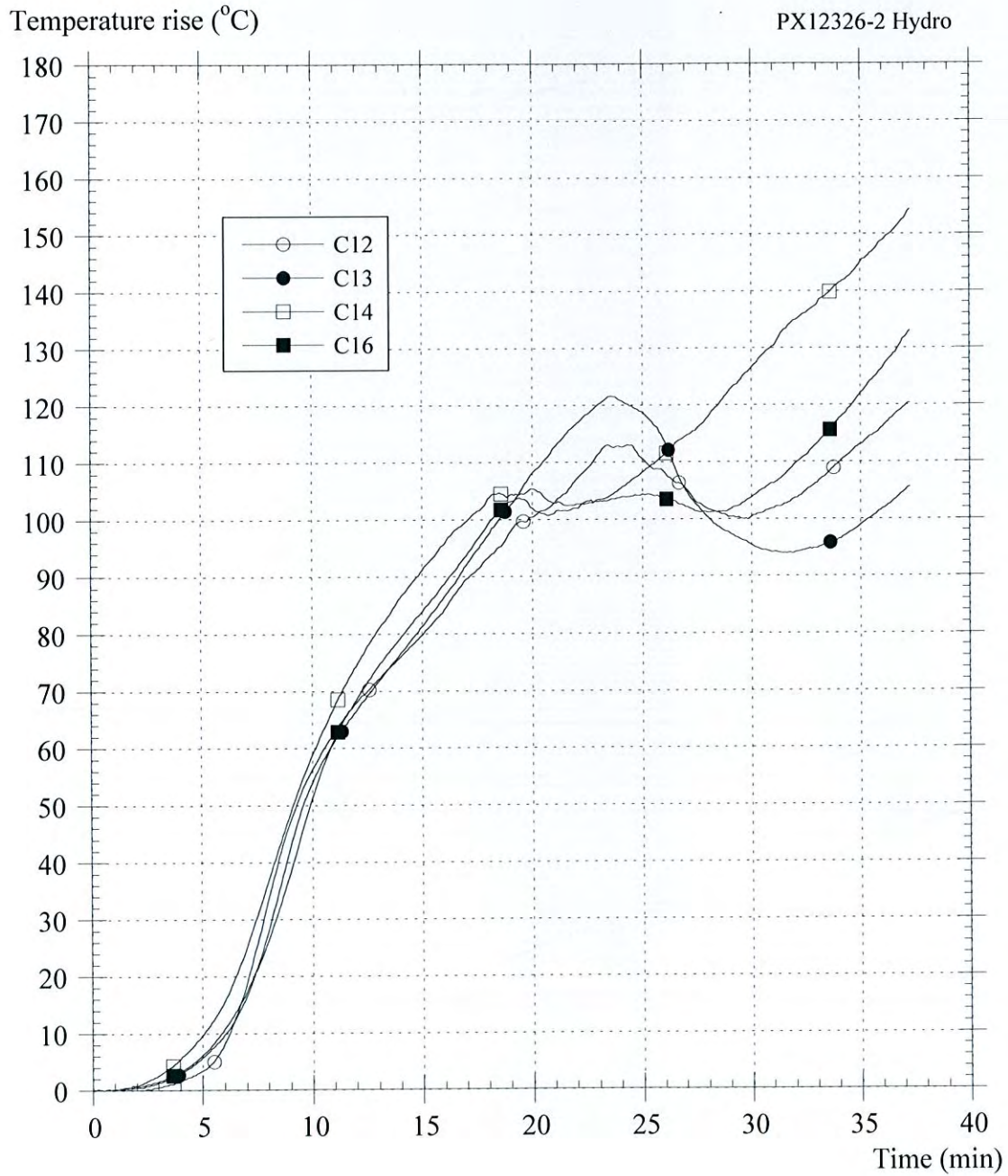
Unexposed face temperature rise

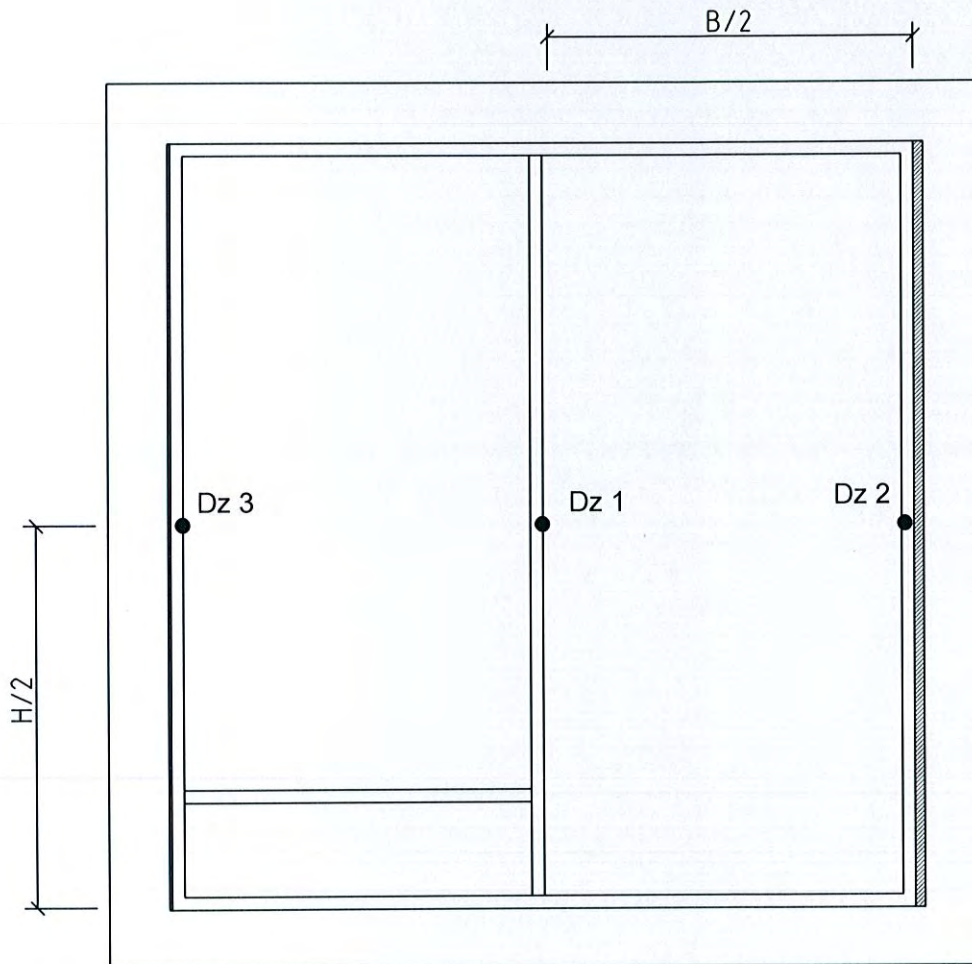


Unexposed face temperature rise



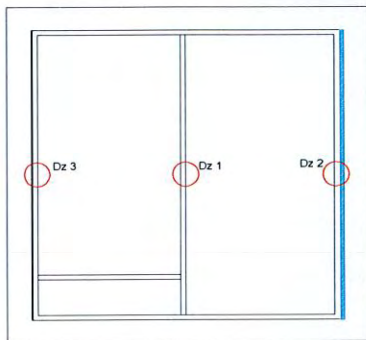
Unexposed face temperature rise





- Dz 1 Deflection measurement at the centre of the test specimen
- Dz 2 Deflection measurement at mid-height 50 mm in from the free edge
- Dz 3 Deflection measurement at mid-height 50 mm in from the edge (free)

Measured deflections (mm)



Pos.	1	2	3
Time (min)			
0	0	0	0
10	1	2	2

Positive value indicates deflection towards the furnace.
 Negative value indicates deflection away from the furnace

Due to the safety of personnel no measurements of deflection were performed after 10 minutes.
 Glass pieces were shooting from the partition and the measurements were interrupted.
 No large visible deformations were observed.

Appendix: 28

Report: PX12326-2

Photo No: 1
Time: 02:48 min:s

The test specimen at the beginning of the test.



Photo No: 2
Time: 36:01 min:s

The test specimen close to the end of the test



Photo No: 3
After the test.

The fire exposed side after the test.

