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Test report

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DMT-DO-52-469

Document no.	DMT-DO-52-469
case worker	Otte
Order no.	8119021943
Customer	Alprokon Aluminium on behalf of: Van Vuuren Grou B.V. 2993 LJ Barendrecht 9001 ZE Grou The Netherlands The Netherlands
Content of order	Test of a double-leave glazed wooden composite door in wooden block frame with a thickness of 40 mm, with designation „**Picospec**“ with an open clearance (W x H) of 2443 mm x 2491 mm, embedded to a standard supporting construction as a lightweight construction with a thickness of 100 mm, for smoke control test according to EN 1634-3
Test method	EN 1634-3:2004 Further standards according to section 3.1

Test results	Maximum leakage rate S_a	Maximum leakage rate S_{200}
	0,48 m³/h/m	8,28 m³/h

Date of order	Test specimen receipt	Date of test	Date of report	Period of validity
05.03.2021	12.05.2021	18.05.2021	07.09.2021	unlimited

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Notified Body
NB 2509

DMT-Prüfstelle für Brandschutz DMT

This test report consists of 21 pages and 22 annexes.

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1 Size of order and cooperation of the test lab in choosing the test specimen

DMT GmbH & Co. KG was assigned by Alprokon Aluminium as also on behalf of Van Vuuren Grou B.V to carry out a smoke control test according to EN 1634-3.

The design and construction of the test specimen was defined by Alprokon Aluminium as also Van Vuuren Grou B.V. and DMT GmbH & Co. KG.

2 Description of the test specimen

2.1 Test specimen receipt and mounting

The test specimen was stored in a test laboratory building of DMT GmbH & Co. KG which is temperature-controlled but not climatised. The temperature during this time was in a range of 15 °C to 25 °C, the relative humidity between 40% and 60%.

Test specimen receipt :	12.05.2021

Qualified employees mounted the test specimen to the test frame. The test specimen was delivered in separate parts as the door leaves, the frame and the building hardware, and assembled in the test laboratory of DMT GmbH & Co. KG. An assembly instruction was not presented.

Mounting of the test specimen :	17.-18.05.2021

2.2 Test specimen description

(all dimensions stated in mm)

Test specimen		
Module:	Hinged an pivoted door, double-leaved, wooden composite door	
Manufacturers designation:	PICOSPEC	
Manufacturer:	Frame:	Van Vuuren Grou B.V.
	Door leaf:	Van Vuuren Grou B.V.
	Meeting edge profile:	Alprokon Aluminium
	Frame gasket profile:	Alprokon Aluminium
Mounting:		
Fastening (entire construction):		

- Type and dimensions:	Screwed with self-tapping screw 6,3 x 120 through the frame profile in the supporting construction. In the area of the fixing partly backfilled with plastic spacer (see annex and 1.11)
- Number:	15 pieces in total, each 6 pieces vertical and 3 piece at the top
- Distance between fixings	See annex 1.1
- Filling of joints:	The frame was sealed permanently elastic with silicone on the closing and opening side running around three sides to the supporting construction
Frame:	See annexes 1.9 to 1.11
- Design, type:	Wooden block frame, running around three sided see annex 1.11
- Manufacturer:	Van Vuuren Grou B.V.
- Material:	Scotch Pine, laminated and fingerjointed, (Bulk) density ≥ ^500 kg/m³
- Surface treatment:	Without
- Threshold / bottom cross part:	Without
- Corner connections:	The lateral frame profiles were butt-jointed to the top horizontal profile. The connection was done by 2 pc wooden dowels Ø 80 and glued with PVC-Glue,
- External frame dimensions (W x H):	2577 x 2558
- Frame rebate dimensions (W x H):	2477 x 2508
- Clearance of opening (W x H):	2443 x 2491
- Frame shape dimensions (width front / back x depth):	50 / 67 x 114
- Dimension of frame rebate (W x D):	17 x 45
Backfilling of frame:	Without
Door leaf:	See annexes 1.1 to 1.3
Type:	“PICOSPEC”
- Thickness:	40
- Material:	Wood, wooden composite, glazings

- Inlay / core material:	Particleboard UN Air 400, thickness 32, density approx. 420 kg/m³, manufacturer Unilin Panels Belgium, max. gap between frame and inlay 1, divided in three parts
- Frame / stiffening elements:	One piece lateral made of hardwood “Meranti”, density > 550 kg/m³, manufacturer WWP Woodproducts BV, dimensions 32 x 35. One piece top and below made of softwood “spruce”, density > 420 kg/m³, manufacturer Holz Pichler, dimensions 32 x 65. Frame loosely arranged
- Facing:	HDF (thickness 3,0), density approx. 860 kg/m³, manufacturer Homanit GmbH, top layer. Glued at both sides with the inlay and frame with 90-100 g/m² “Purmelt QR 4463”, manufacturer Henkel Nederland B.V.
- Decorative / protective finish:	HPL, thickness 0,8, density approx. 1350 kg/m², manufacturer Formica, glued with the face plate with Purmelt QR 4463, manufacturer Henkel Nederland B.V.
- Rebate geometry:	unrebated
- Outside dimensions (W x H):	Active leaf: 1230 x 2500 Inactive leaf: 1230 x 2500
- Rebate dimensions (W x D):	Unrebated, at the lock side of each leaf an aluminium meeting edge profile was placed, see annexes 1.5 to 1.7
- Meeting edge profile:	See annexes 1.5 to 1.7
- Design, type:	meeting edge profile / Ferno 19-1/40
- Manufacturer:	Alprokon Aluminium
- Material:	Aluminium
- Dimensions (W x H):	Active Leaf: 40 x 46,3 Inactive leaf: 40 x 46,3 See annex 1.6
- Mounting position:	Each leaf lateral at the middle gap over the whole height of the leaf. Fixed with each 9 pieces of chipboard screw 4,0 x 45, distance see annex 1.8. The areas of the face plate, strike plate, locks and the drop seal were milled out, dimensions and positions see annex 1.8. For the top and bottom locking a cut out in the door leaf frame of the inactive leaf of 18 x 24 was made over the whole length. Between the profiles and the door leaves a self-adhesive intumescent layer “tecnofire 62852”, manufacturer Technical Fibre Products Ltd (TFP), with the dimension 1 x 40 at the active leaf and 1 x 55 + 2 x 12 at the inactive leaf were placed over the whole length. In the rebate of the profile at each leaf one strip 0.65 x 11 over the whole height of the profile (see annex 1.6)
- Rubber seal:	Profile no. S6069, material TPE 60/93, manufacturer Deventer Profil GmbH, slid in the groove of the meeting edge profile over the whole

	height of the door at the active leaf on the opening side, at the inactive leaf at the closing side
- Weight of door leaf:	Active leaf 72 kg, Inactive leaf 65 kg
Door leaf glazing:	See annex 1.1 and 1.4
Description of door leaf glazing:	Laminated safety glass, thickness 6 Active leaf: 4 pieces, dimensions each (W x H) 425 x 1025, weight 6,5 kg Inactive leaf: 1 piece, dimension (W x H) 960 x 2160, weight 31,1 kg
Opening in door leaf (W x H)::	Active leaf: each 435 x 1035, distance between the edge of glazing and the edge of the door leaf: Top and lateral 130, bottom 200, between 100 Inactive leaf: 970 x 2170, distance between the edge of glazing and the edge of the door leaf: Top and lateral 130, bottom 200
- Glass clamping:	Both sided via glazing beads, made of Meranti, depth 36, height 23,5. The glazing beads are pushed-to-mitre at the corners. The glazing beads are fastened by nail 1.7 x 38, which are positioned with a distance of maximum 300 between and an edge distance of 25. With glazing support blocks, with silicone in the glazing ground at four sides running around. See annex 1.4
- Glazing gaskets sealing:	Between glazing beads and glazing running around at four sides, glazing tape 4 x 9, manufacturer Bloem, additional sealing on the top of the glazing tape with silicone, see annex 1.06.1
- Glass mounting depth:	13, on all four sides
Foaming seal or media:	See description “Meeting edge profile” and “Frame seal”
Hinges:	See annexes 1.1, 1.8 and 1.10
- Manufacturer’s designation:	„BSW 818 GV Hinge”
- Manufacturer:	Breuer und Schmitz GmbH & Co.KG
- Fixing:	Door leaf and frame each with 4 pieces of chipboard screws 3,5 x 40
- Dimensions of hinge:	89 x 44,5, t = 3 / Ø 15
- Number per door leaf:	3
Hinge pocket:	Without
Safety bolts:	Without

Sealing system:	
Floor seal:	See annexes 1.3 and 1.6
- Number:	One in each leaf
- Name / Material:	Automatic drop seal / EllenMatic Soundproof
- Manufacturer's designation:	Elton B.V.
- Dimensions (W x H):	15 x 30
- Mounting position:	Slid into the bottom groove of 15 x 30, fixed by two enclosed angles and two pieces of chipboard screws ø 3,5 x 25, and sealed with silicone over the whole door leaf length
Frame seal:	See annexes 1.9 and 1.10
- Name / Material:	Profile no. S5990 (BS), material TPE,
- Manufacturer's designation:	Deventer Profil GmbH
- Mounting position:	Jammed into rebate groove on three sides to the Rebate Profile Alprokon 350 (3:1), in the upper corners butt joined.. The Rebate Profile "Alprokon 350 (3:1)" made from aluminium, autside dimension 3,5 x 17 was fixed with chipboard screws ø 3,5 x 25, with a distance of maximum 300 between and an edge distance of 25. Behind the sealing profile in the grove of the Rebate Profile a self-adhesive intumescent layer "Tecnoflame 2x10", manufacturer Technical Fibre Products Ltd (TFP), were placed
Leaf seal:	See description "Meeting edge profile"
Locking / lock / lock plate:	
Lock of active leaf:	See annexes 1.6, 1.7 and 1.13
- Manufacturer's designation:	Mortise lock „SAG 17465"
- Manufacturer:	Schulte-Schlagbaum AG
- Type:	Mortise lock
- Fixing:	2 pieces of chipboard screws Ø 3,5 x 30
- Number of catch bolts / latches:	1/1
- Backset:	60
- Dimensions of face plate (W x H):	235 x 20, t=3
- Mounting position:	Recess in door leaf 16 x 165 x 85, flush face plate with the meeting profile

Main strike plate:	Latched in the opposite sided “meeting edge profile” of Alprokon, see annex 1.7
Latch bolt opening (W x H):	Latch opening (w x h) 17 /14 x 48 and bolt opening (w x h) 11 x 54, distance from opening sided profile to latch 16
Door lock cylinder:	double cylinder See annex 1.14
Lock of inactive leaf:	See annexes 1.1 and 1.5
- Manufacturers designation:	Alprokon Ferno 19-1/40
- Manufacturer:	Alprokon Aluminium
- Type:	Top and bottom flush bolt lock integrated in meeting edge profile, ø 13 / 6,5, lower flush bolt transit through drop seal ø 6,5, actuation was not self-closing
Strike plate / closing sleeves of inactive leaf:	See annexes 1.16
- Manufacturers designation:	Alprokon “A3 Sluitpot 16mm recht” and “Sluitpot recht 16 met gat 7.8 mm”
- Manufacturer:	Alprokon Aluminium
- Type:	Aluminium strike plate / closing sleeves top locking: “A3 Sluitpot 16mm recht” bottom locking: “Sluitpot recht 16 met gat 7.8 mm”
- Fixing:	Jammed into cut-out of frame and sill
Handles:	See annexes 1.1 and 1.14
- Manufacturer’s designation:	Hoppe Amsterdam
- Manufacturer:	Hoppe AG
- Type:	Door handle with short cover plate
- Fixing:	each 2 pieces of screws M4 x 55
- Handle height (distance bottom edge door leaf to centre of handle):	1050
Door closer:	See annexes 1.1 and 1.12
- Manufacturers designation:	Overhead door closer “TS 93B” without door coordinator
- Manufacturer:	dormakaba GmbH
- Mounting position:	Standard mounting opening side, door closer with mounting plate at the door leaf, slide rails at the frame
- Fixing:	Door closer: with screws provided by the manufacturer to the mounting plate

	Mounting plate:	with 4 pieces of oval countersunk screws Ø5 x 35
	Slide rail:	with 2 pieces of countersunk screws Ø 4 x 40
Other fittings:	none	

Further details on the design and construction of the test specimen can be found in annexes 1.1 to 1.16 of this test report.

2.3 Material parameters

Specific values, for example weight, bulk density and thickness as also the classification of the building materials used for manufacturing the test specimen, are given in annex 1.17.

2.4 Supporting construction and conditioning

The door construction was embedded to a standard lightweight supporting construction according to EN 1363-1:2020 paragraph 7.2.2.4. The supporting construction was made for a requested fire resistance of EI 60.

Design of the supporting construction:

- Thickness 100 mm
- Stud depth 50 mm
- Stud thickness 0,6 mm
- To both sides covered with each two gypsum plaster boards, thickness 12,5 mm
- With 50 mm insulation, density 30 - 60 kg/m³
- Reveal covered with one layer
- For the connection of the test specimen to the partition wall construction three-sided a door vertical door frame profile 50 mm x 40 mm x 2 mm was used, which was placed at the bottom and the top into a UW-Profile and connected by angles and screws with t upright profiles.
- The supporting construction was connected at the top and the bottom with the test frame, lateral without fixing with free edge.

The supporting construction with a thickness of 100 mm was mounted to a test frame.

The clear opening of the test frame was (W x H): 3600 mm x 3400 mm.

The supporting construction was made on 12.05.2021. The test specimen was installed on 17.-18.05.2021. The supporting construction was sealed circumferential on both sides towards the test frame permanently elastical. A full conditioning of the supporting construction and the verification according to paragraph 8.2 EN 1363-1 is made.

2.5 Verification and Sampling

The selection of the test specimen was done by the sponsor.

The test specimen was manufactured as prototype in single part production, so there was no sampling out of production.

Information of official sampling of the test specimen are not presented resp. are unknown. DMT GmbH & Co. KG was not involved in the selection of samplings out of production.

The construction to be tested was a construction which admits a detailed inspection during the installation of the test specimen and after the test. The sponsor provided DMT GmbH & Co. KG prior to the test a detailed description and construction drawings on which base an accurate examination of the test specimen before and after the test was made and the correctness of the given information is confirmed. An examination of the used materials has not been made.

3 Test requirements and preparation

3.1 Test standards

EN 1634-3:2004/AC:2006 "Fire resistance tests for door and shutter assemblies – Part 3: Smoke control doors and shutters"

EN 13501-2:2016 "Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services"

EN 16034:2014 "Pedestrian doorsets, industrial, commercial, garage doors and openable windows – Product standard, performance characteristics – Fire resistance and/or smoke control characteristics"

EN 15269-20:2020 „Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware — Part 20: Smoke control for doors, shutters and openable windows„

Please note: The above stated standards conform to the german standards DIN EN.

3.2 Used test equipment

The test equipment was used according to the list of testing instruments used at DMT Test Body for Fire Protection Lathen.

3.3 Condition of the test specimen prior to the test

Measurement no. 1 - 3: new and unsued

Measurement no. 4: out of measurement no. 1 - 3 with new gaskets

3.4 Conditioning moisture content

At the time of the tests, the specimen was approximately in the condition expected for normal use. The test specimen was manufactured in a closed and heatable production hall and was stored prior to the test in the hall of DMT GmbH & Co. KG for a sufficiently long time.

3.5 Operability test

(according to EN 16034:2014, Annex A, paragraph A.2.2)

Prior to being mounted on the test furnace, the sample to be fire tested was checked for operability in the fire restraint frame by operating the leaves from the fully closed position to an opening of minimum 90° and back to fully closed for 25 cycles. The opening process was done manually, the closing process by the closing device. The functionality was ensured.

3.6 Self-closing for doorsets or openable windows fitted without door coordinating devices

(according to EN 16034:2014, Annex A, paragraph A.4.1)

Following the test according to 3.5 the door leaves were opened to (10 ± 2)°; this state was maintained for (20 ± 2) s and released without push. It was ensured that the active leaf returned to the closed position.

The self-closing test of the inactive leave was not performed as the inactive leaf was not self-closing because no door coordinator was mounted.

3.7 Ability to release

(according to EN 16034:2014, paragraph 5.3)

To verify the ability to release the door leaves were opened three consecutive times up to 90° and hold in the opened position by the mobile hold open device of DMT GmbH & Co. KG. The

release happened by simulating a fire signal (cut off main powers). The closing via the closing device into the closed and latched position of the active leaf was ensured.

The ability to release was ensured for the active leaf.
The ability to release was not ensured for the inactive leaf.

3.8 Requirements and deviations

The requirements correspond to the standard requirements. There were no deviations to the test methods resp. test conditions.

4 Test execution and results

4.1 Annotations to the test

For the smoke control test one double leaved test specimen was tested. With the test specimen the measurements no. 1 to no. 3 "closing face to the test chamber" with over and under pressur at ambient temperature (S_a) and with over pressure at medium temperature (S_{200}) were performed. Also the measurement no. 4 "opening face to the test chamber" with over pressure at medium temperature (S_{200}) was performed with the test specimen.

Test date:	Measurement no. 1 to no. 3: 18.05.2021 Measurement no. 4: 18.05.2021
Test rig temperature in °C:	Measurement no. 1 to no. 3: 18,2 Measurement no. 4: 19,9
Test rig moisture content in %:	Measurement no. 1 to no. 3: 51,9 Measurement no. 4: 45,1
Ambient air pressure in hPa:	Measurement no. 1 to no. 3: 1007,9 Measurement no. 4: 1008,0
Hold points of the door leaves:	Active leaf: 3 hinges, 1 latch locking Inactive leaf: 3 hinges, 1 top locking and 1 bottom locking
Prepared, not effective locks for testing:	None
Sealing of the floor gap:	S_a: automatic door seal S_{200}: automatic door seal

4.2 Preparation for smoke control test

The numbers indicate the corresponding paragraphs of EN 1634-3:2004.

10.1.1 **Pre-test procedure / test of function (10 times opened to an angle of 30° and closed):**	Fulfilled
10.1.2 **Retention force measurements:**	Measurement no. 1 to no. 4: Active leaf: 75 N Inactive leaf: 68 N Measured at the handle 75 mm from handle's axis, accordingly 1100 mm from the hinges axis, each maximum value in the opening range up to 100 mm
10.1.3 **Door not locked, key (if existing) removed:**	Fulfilled
10.2.2.1 **Length of the gap between the fixed and moving components of the doorset:**	length gap between door leaf / frame / middle seal: 10125 mm Length bottom gap: 2475 mm
10.2.2.2 **The stabilisation temperature of (200 ± 20) °C has to be reacheed within the permitted limits and within a time of (30 ± 5 minutes. The temperature distribution shall be controlled to (200 ± 40) °C as measured by each thermocouple:**	The requirements were fulfilled
Side facing the test rig:	Measurement no. 1: closing face over pressure / ambient temperature Measurement no. 2: closing face under pressure / ambient temperature Measurement no. 3: closing face over pressure / medium temperature Measurement no. 4: opening face over pressure / medium temperature
Maximum total leakage rate of the fix joints at ambient temperature and a pressure of 50 Pa:	< 0,5 m³/h

4.3 Gap measurements

The primary gap width of the functional joints measured prior to the test are given in Annexes 3.1 - 3.2

The sponsor provided the following primary gap widths:

hinge side / frame:	3,0 mm
lock side / middleg gap:	4,5 mm
top side / frame:	3,0 mm
bottom side / frame:	5,0 mm

4.4 Test results

4.4.1 Leakage rate of the test specimen $Q_{spec} = Q_t - (Q_{app} + Q_{sup/assoc})$

No. of teh test	Pressure exposed side	Temperature	Total leakage rate Q_{spec} (m³/h) at pressure difference of		
			10 Pa	25 Pa	50 Pa
1	Side A	Ambient temperature	4,46	4,85	**9,51**
2	Side B	Ambient temperature	4,41	4,46	6,85
3	Side A	Medium temperature	2,22	4,37	8,28
4	Side B	Medium temperature	1,51	3,33	5,28

Side A = closing face, side B = opening face

4.4.2 Linear leakage rate $Q_l = Q_{spec}$ / "length of the gap"

No. of teh test	Pressure exposed side	Temperature	Linear leakage rate Q_l (m³/h/m) at pressure difference of	
			10 Pa	25 Pa
1	Side A	Ambient temperature	0,44	**0,48**
2	Side B	Ambient temperature	0,44	0,44

Side A = closing face, side B = opening face

4.5 Observations during and after the test

Has an obvious failure of the sealing gaskets occurred during the test?	No failure of the sealing gaskets occurred	
Further observations of the reaction of the test specimen:	Meas. no. 3:	25 Pa S_{200}: Low smoke emission visible at the top and bottom meeting edge 50 Pa S_{200}: The smoke emission at the top meeting edge increases. Now also smoke emission left and right transversal in the area of the top meeting edge visible. Low increasing of the smoke emission at the bottom meeting edge.
	Meas. no. 4:	50 Pa S_{200}: Low smoke emission visible at the top and bottom meeting edge
Damages because of the test:	Meas. no. 3:	Thermal deformation in the area of the top meeting edge of the frame gasket.
	Meas. no. 4:	In the top area of the door leaf glazing some cracks are visible on the furnace sided pane.

Failure of the fastening or locking parts or of the mounting?	None
Condition of the test specimen after the test:	Up to the above mentioned damages the test specimen was functioning properly
Could the test specimen be opened immediately after the test manually/by hand?	The test specimen could be opened immediately after the tests by hand without tools

4.6 Indication of deflection

Pos. no.	Position	Max. deflection in mm during the test			
		No. 1 (Pressure applied at side A / ambient temperature)	No. 2 (Pressure applied at side B / ambient temperature)	No. 3 (Pressure applied at side A / medium temperature)	No. 4 (Pressure applied at side B / medium temperature)
		at 50 Pa	at 50 Pa	at 50 Pa	at 50 Pa
1	Frame active leaf hinge side middle	+ 0,4	- 0,3	- 2,8	- 2,9
2	Active leaf hinge side middle	+ 0,5	- 0,4	- 3,0	- 2,9
3	Inctive leaf lock side top	+ 1,9	- 1,0	- 5,4	- 6,5
4	Active leaf lock side top	+ 3,1	- 1,2	- 0,4	- 6,5
5	Inactive leaf lock side middle	+ 3,6	- 2,7	- 1,2	- 3,6
6	Active leaf lock side middle	+ 3,6	- 2,6	- 0,5	- 3,6
7	Inactive leaf lock side bottom	+ 2,1	- 1,5	+ 1,2	+ 2,1
8	Active leaf lock side bottom	+ 4,0	- 3,2	+ 1,7	+ 1,9
9	Frame Inactive leaf hinge side middle	+ 0,7	- 0,7	- 4,8	- 6,0
10	Inactive leaf hinge side middle	+ 0,7	- 0,7	- 5,0	- 6,0
11	Frame lock side top	+ 0,7	- 0,6	- 6,3	- 7,1

Note: - means deflection towards the test rig, + means deflection to teh outside

(Side A = closing face, side B = opening face)

Location of deflection measuring points

5 Conclusions and recommendations

According to EN 13501-2:2016 paragraph 7.5.6.3.1 the limit value, tested at ambient temperature and a pressure up to 50 Pa, is 20 m³/h for single leaved doors and 30 m³/h for double leaved doors. Required is a complete test of both sides of the door.

Due to the test results (max. leakage rate Q_{spec} of 8,28 m³/h) it is recommended to classify the door construction to the class "S_{200}" [1)] according to EN 13501-2:2016.

The evaluation of the potential classes does not subsitute the classification report according to EN 13501-2:2016.

[1)]Note: The product standard EN 16034 uses for the classification of smoke leakage at medium temperature against the current edition of EN 13051-2 the indication S_{200} instead of S_m.

6 Field of direct application of test results according to EN 1634-3:2004 paragraph 13

6.1 General

The field of direct application of test results is restricted to the allowable changes which a sponsor may make to the tested specimen following a successful smoke leakage test. These variations may be introduced automatically without the need for the sponsor to seek additional evaluation, calculation or approval.

The results of the leakage test continue to apply to assemblies of a different construction subject to the following:

- The assembly is of a similar generic construction, e.g. a solid timber leaf in a timber frame or a folded sheet metal leaf in a steel frame.
- The mode of operation is identical, e.g. single swing, double swing, roller shutter or folding leaf.
- In the case of assemblies that only require a restriction in the leakage rate from one direction only then the direction does not vary from that tested.
- The stiffness of the supporting construction and the method of fixing and sealing the frame to the supporting or associated construction shall not be less than that of the tested construction (this may be the specimen frame in some furnaces).

Doors tested in a flexible construction may be installed into rigid constructions but not vice-versa. Doors tested in a flexible construction to achieve ambient temperature classification S_a may be installed in alternative flexible constructions. The use of alternative flexible constructions for doors with S_{200} classification will be the subject of extended application considerations.

6.2 Construction of assembly

6.2.1 General

- Decorative finishes such as paints may be varied.
- The clearance gaps between components may be varied but shall not be greater than those in the tested assembly and where gaps are smaller they shall not impair the ability of the leaf/leaves/curtain to close especially in cases where both leaves of hinged or pivoted door assemblies are opened or closed simultaneously.

- Threshold gaps protected by active drop seals may be varied within the movement range specified by the seal manufacturer.

6.2.2 Hinged or pivoted leaf assemblies

6.2.2.1 Timber leaves

The door leaf shall be constructed from similar materials (e.g. flaxboard, softwood) nd stiffness equal or greater than that tested. Equal or increased stiffness may be assumed for ambient temperature use if:

- the leaf is thicker than that tested;
- the facings to the leaf are thicker than those tested;
- the size and density of any framing member enclosing the leaf core is not reduced;
- the glues and jointing procedures are not changed;
- for ambient temperature only, openings for glazing are not greater in dimensions or aspect ratio than any incorporated in the construction tested.

Variations for medium temperature uses are the subject of extended application considerations.

6.3 Size and aspect ratio

6.3.1 Hinged and pivoted leaf assemblies

The leaf size shall not be increased but may be reduced providing that the number of any movement restrictors such as locks, latches and hinges is not decreased (but may be increased).

The aspect ratio of the leaf may be changed, subject to the restrictions in 6.2.2 and subject to the length of the leakage path not being extended.

6.4 Glazing

- The type of glass, providing that it has polished or floated surface finish, may be changed, e.g. toughened, laminated, wired or borosilicate, for ambient temperature smoke

control situations, subject to the edge sealing system being the same. The exchange of alternative textured surface finish glass is subject to extended application evaluation.

- The type of glass may only be changed for medium temperature smoke control applications by extended application evaluation.
- The distance between the perimeter of the door and the perimeter of the glazing shall not be reduced.
- The size of glazed openings may be reduced from that tested and the aspect ration may be changed providing that no perimeter dimension is increased, and providing that for medium temperature applications the glass type is not changed.

6.5 Hardware and fittings

Elements of hardware or ironmongery and/or their fixing technique may not be changed without extended application evaluation. But shall not be changed for medium temperature applications.

6.6 Seals

As the sealing system is a critical part of the test, no modification may be made to the system tested.

7 General statement

This test 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 1634-3. Any significant deviation with respect to size, construction 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.

Lathen, 07.09.2021

DMT-Prüfstelle für Brandschutz DMT

Herbers
(deputy unit manager)

Otte
(case worker)

Annotations
Documents without stamp and sign have no validity. The cover page and the sign page of this document are signed with the stamp.

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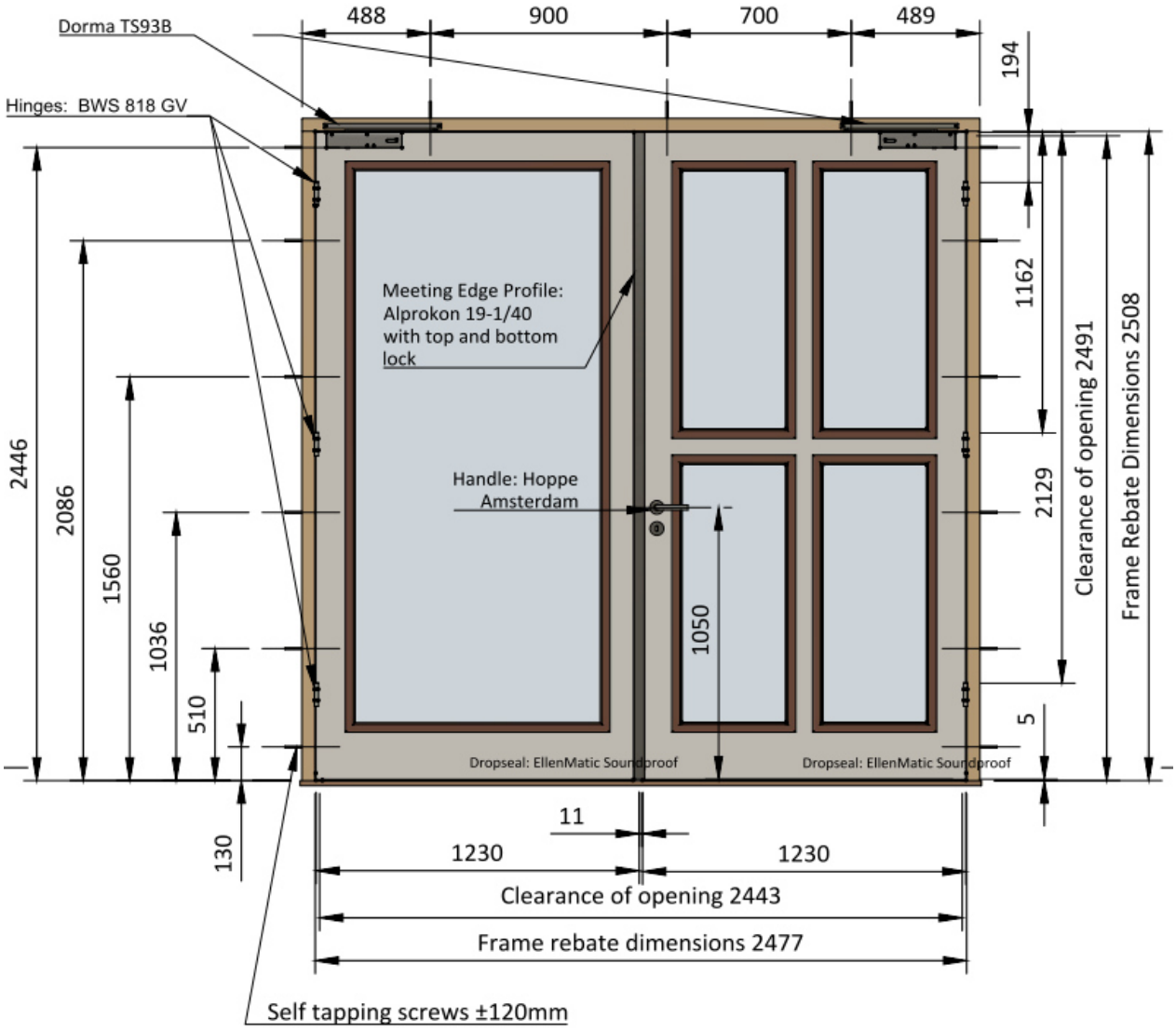
The test material has been used up.

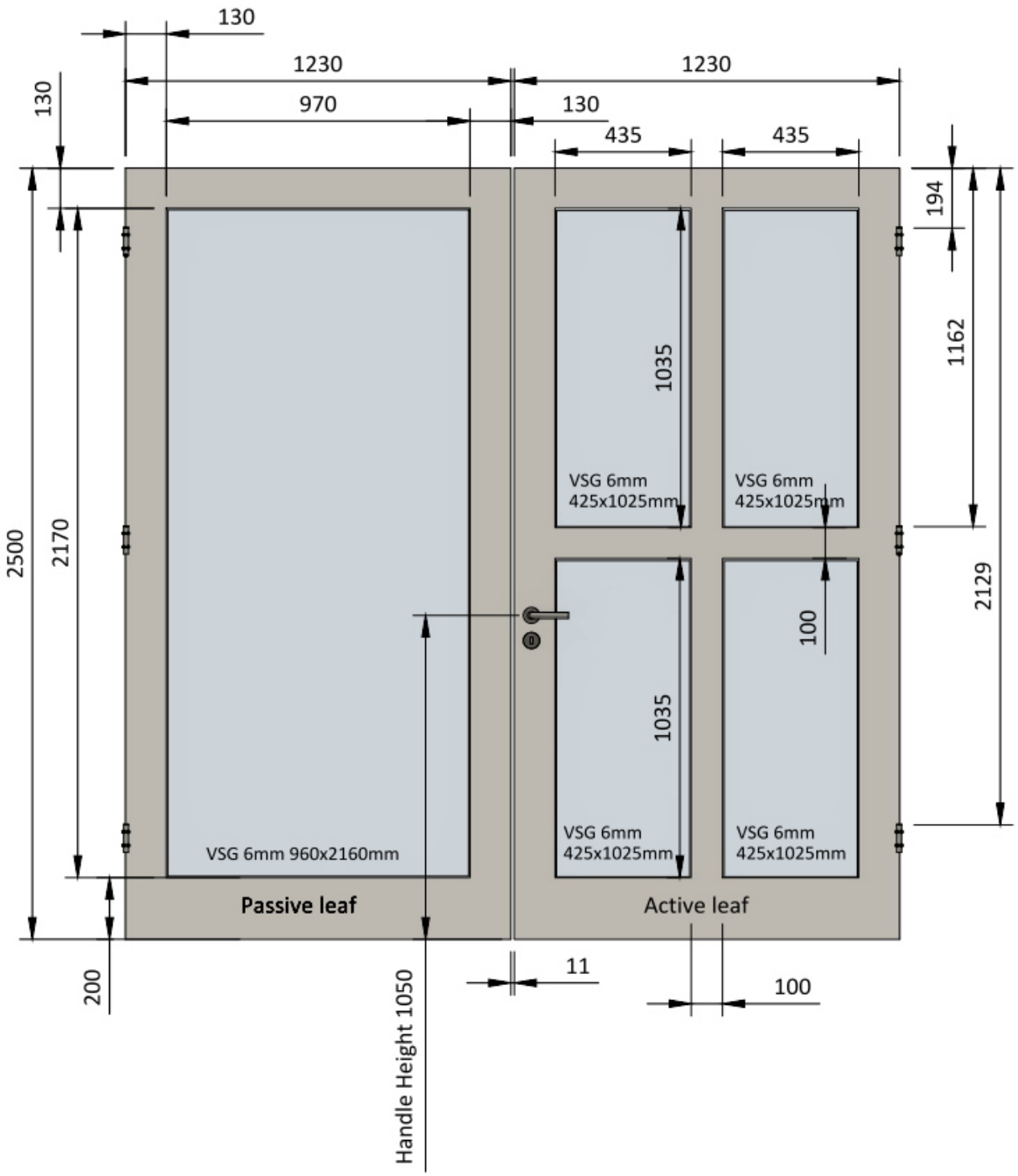
This test report cannot be used for rendering a general appraisal certificate (Allgemeines bauaufsichtliches Prüfzeugnis (AbP)).

Doorset Details

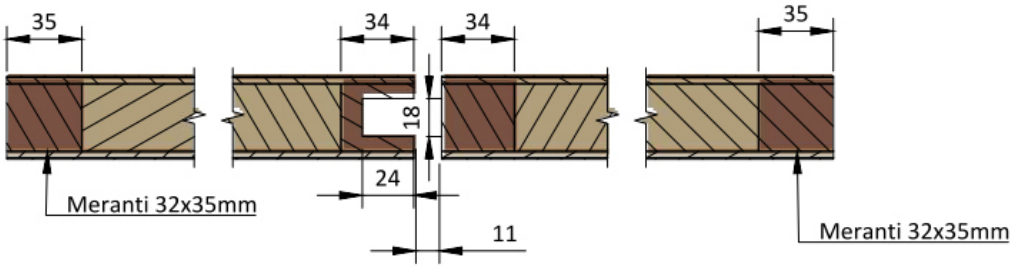


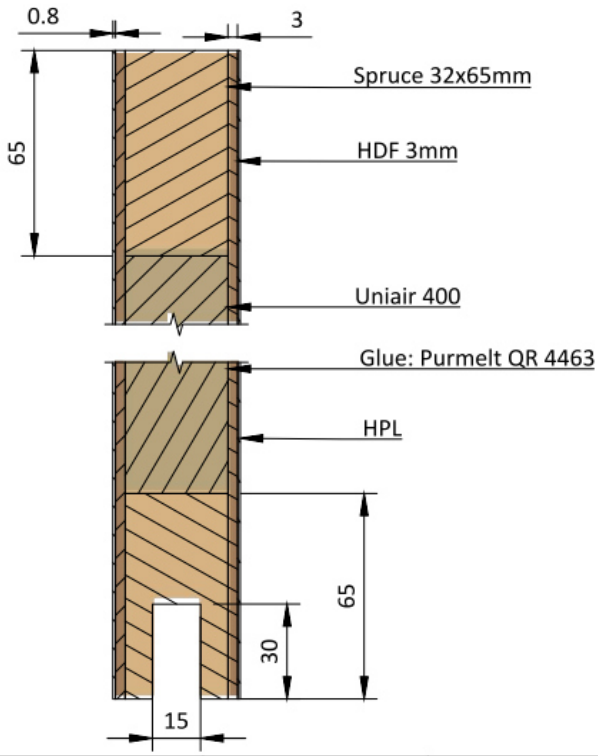
Type of door leaf: Picospec
Weight of active leaf: 72 kg
Weight of inactive leaf: 65 kg
Type of meeting edge profile: Ferno 19-1/40
Nominal gap between leaf and frame: Top and side: 3mm Bottom: 5mm

Doorset Dimensions



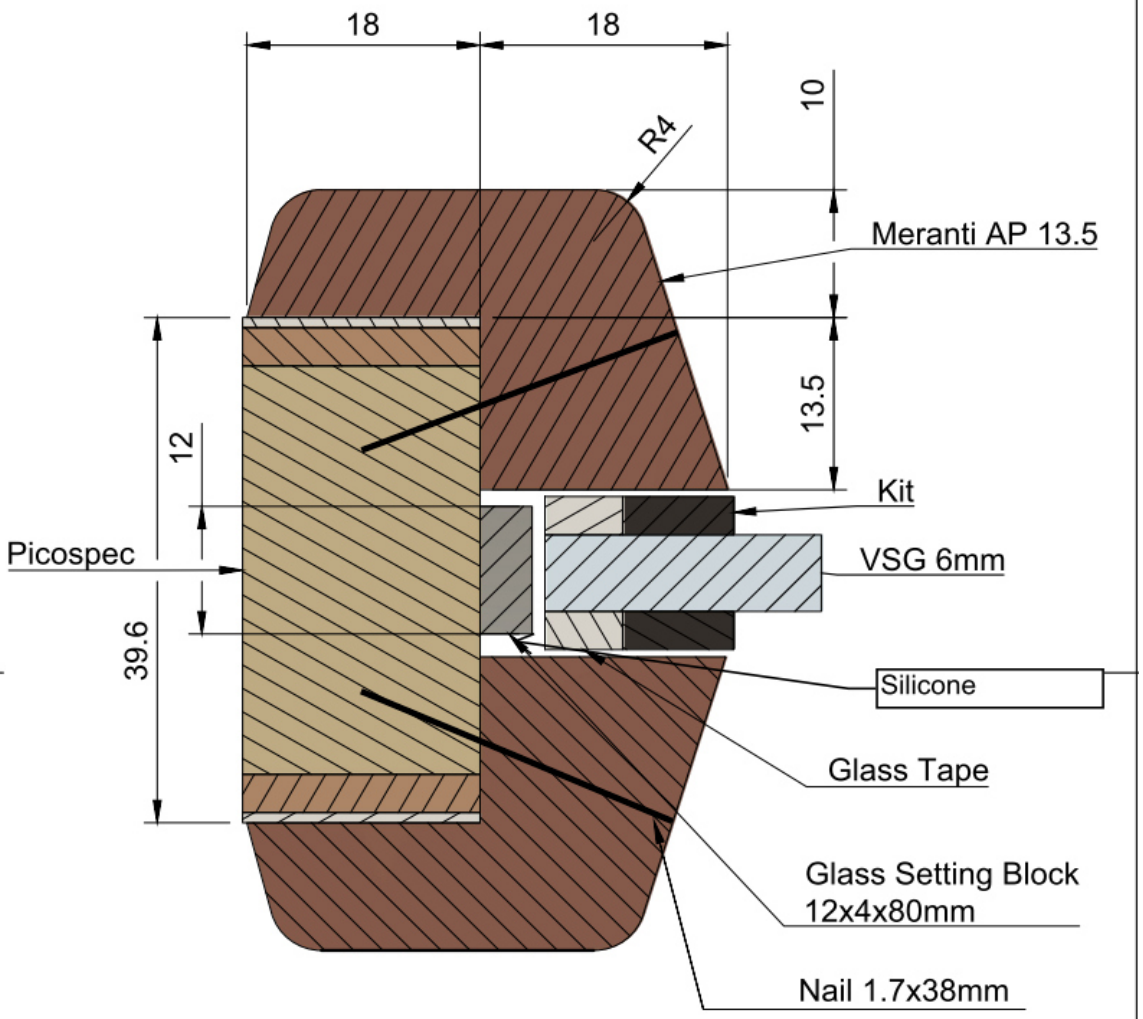
Picospec Doorset Details





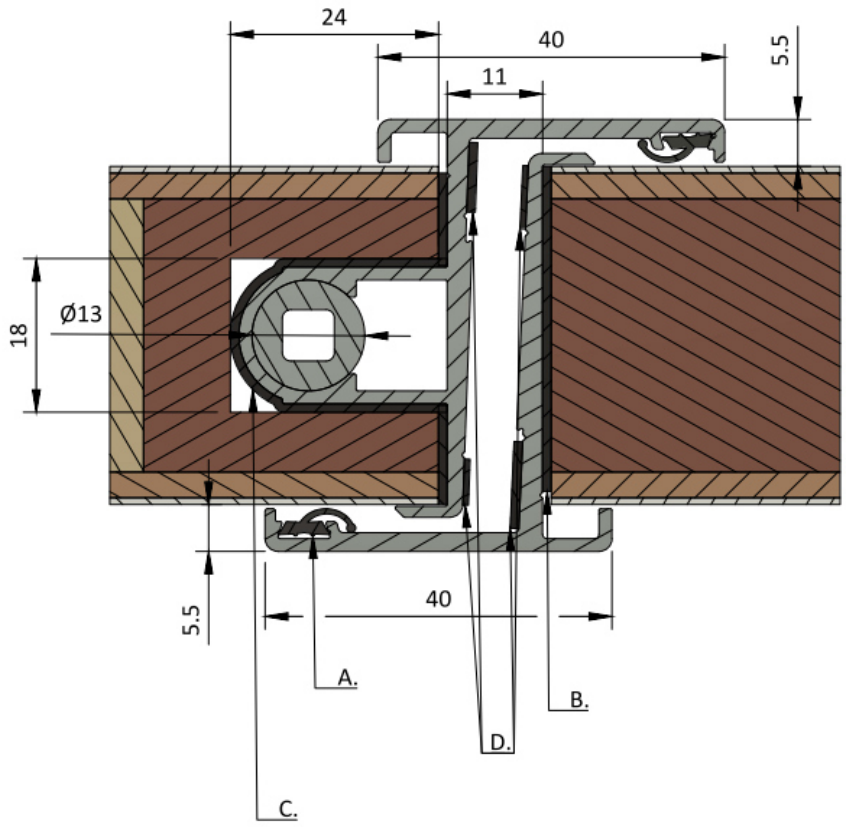
Spruce	32x65mm	420 kg/m³	Holz Pichler
HDF	3mm	860 kg/m³	Homanit GmgH & Co
HPL	0.8mm	1350 kg/m³	Formica
Particle board Uniair 400	32mm	420 kg/m³	Unilin Panels Belgium
Meranti	32x35mm	550 kg/³	WWP Woodproducts B.V.
Glue	Purmelt QR 4463	90-100 gr/m²	Henckel Nederland B.V.

Glass Details Doorset A



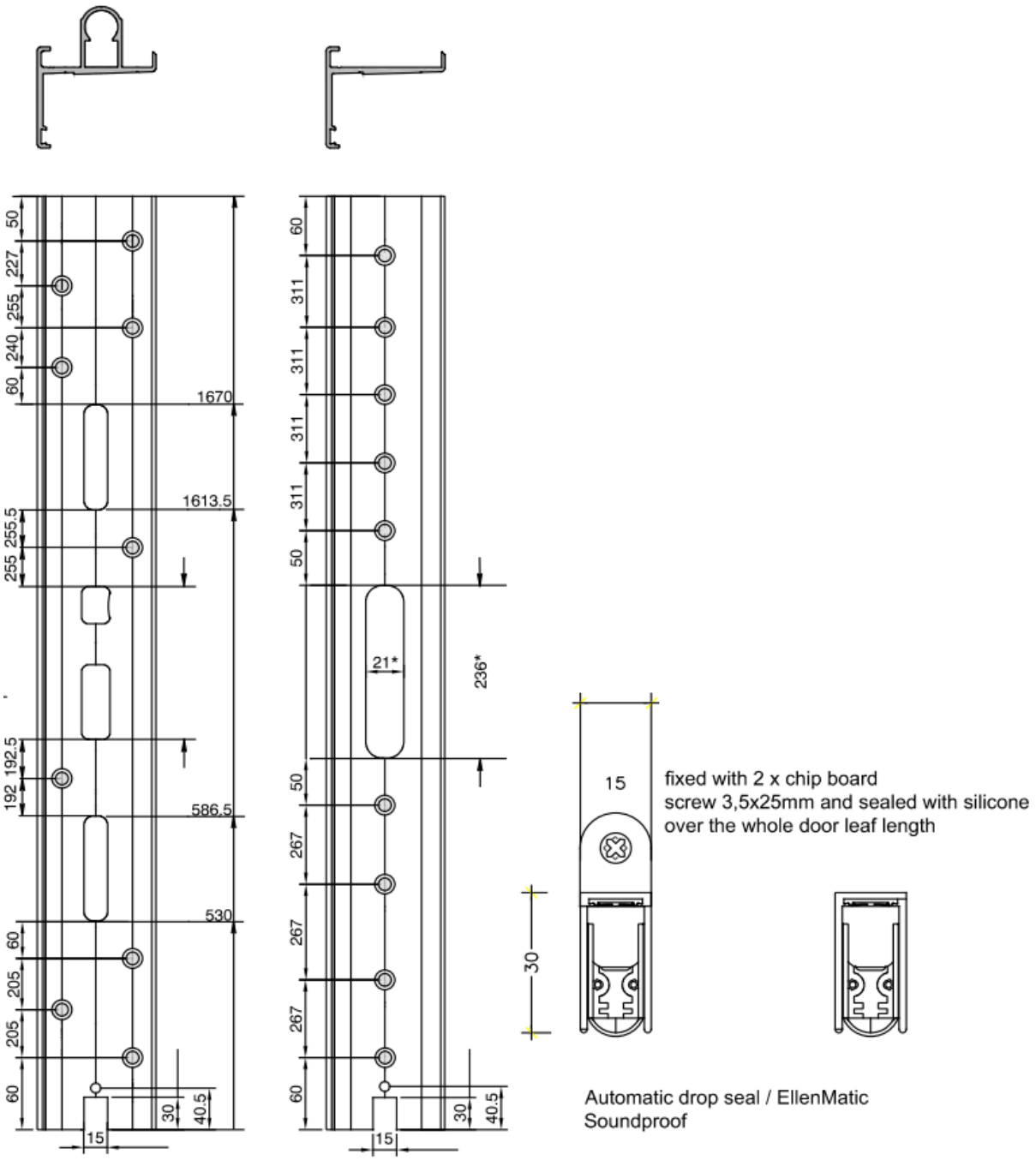
Glass	VSG 6mm	Stratobel® 33.1	AGC Glass Europe
Glass beads	Meranti	550 kg/m³	WWP Woodpanels B.V.
Glazing Rubber	Deventer V019 077		Deventer Profielen B.V.
Nail	1.7x38mm	Edge distance 25mm	Distance between: <300mm
Setting block	12x4xmm	Fitherm SB	Fimotion Ltd.

Alprokon Ferno 19-1/40 (4:3)



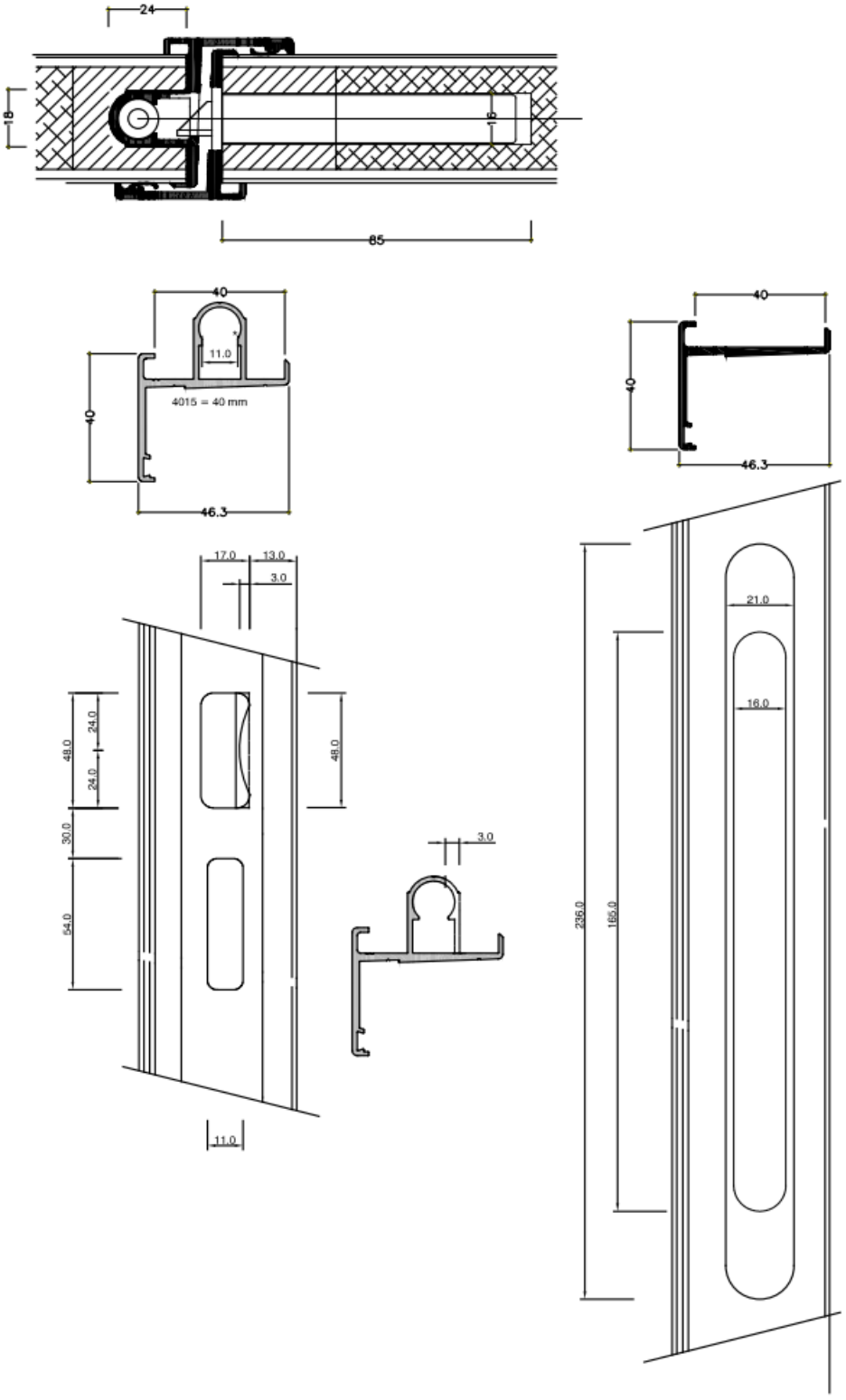
A	Rubber seal	Deventer S6069	TPE 60/93 - black	DEVENTER Profielen
B	Intumecent material between part and active leaf	Tecnofire 62852	1x40mm	Technical Fibre Products Limited
C	Intumecent material between part and passive leaf	Tecnofire 62852	1x55m + 2x12mm	Technical Fibre Products Limited
D	Intumecent material in front of both parts	Tecnofire 2000	0.65x11mm	Technical Fibre Products Limited

Alprokon door meeting profile

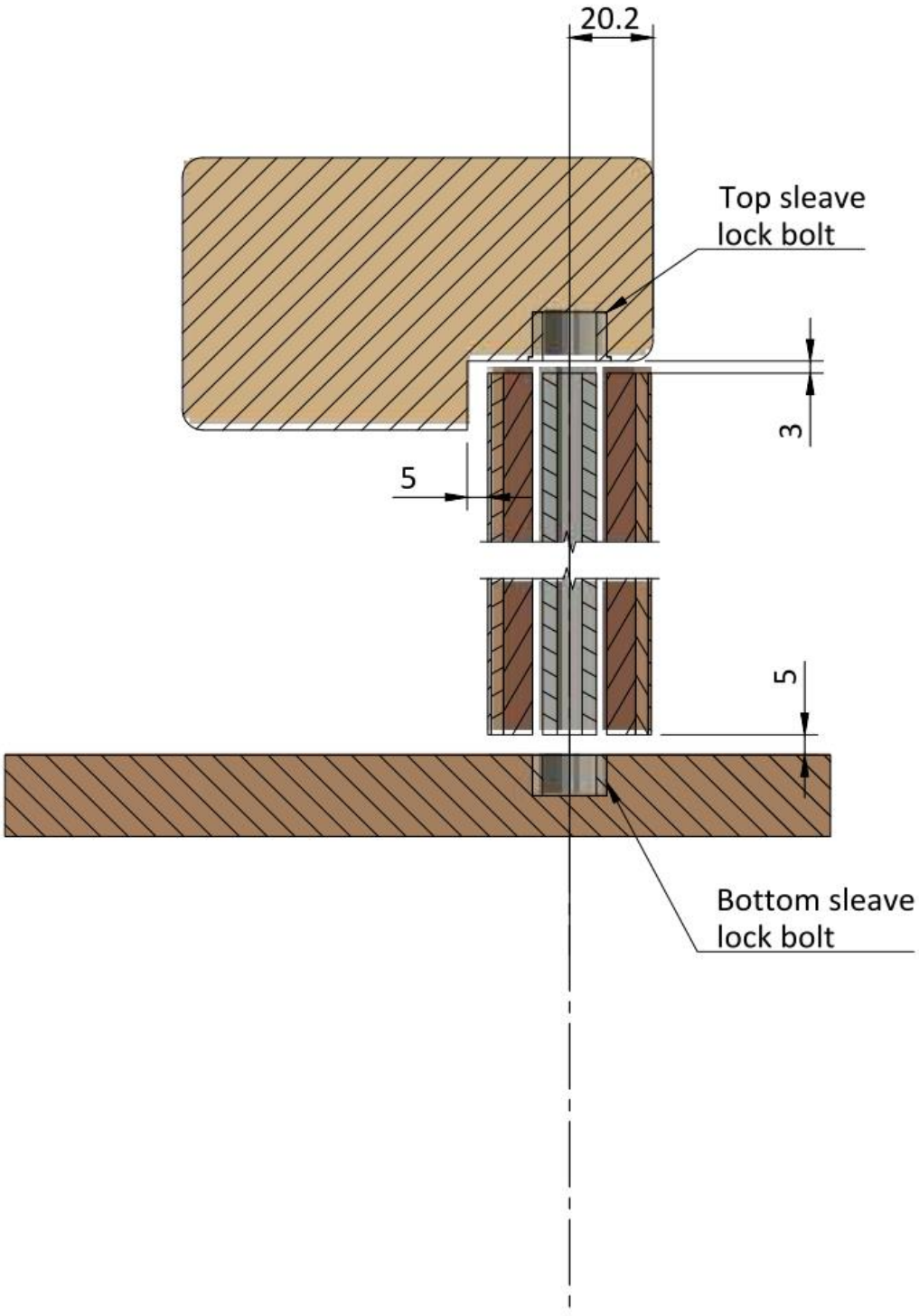


9 fixings (4.2 / 6.0 mm) each profile, spacing depending on length of profile
Chipboard screw PZ2 CSK head 4.0 x 25/45 Stainles steel waxed (SPAA-204025VPE16)

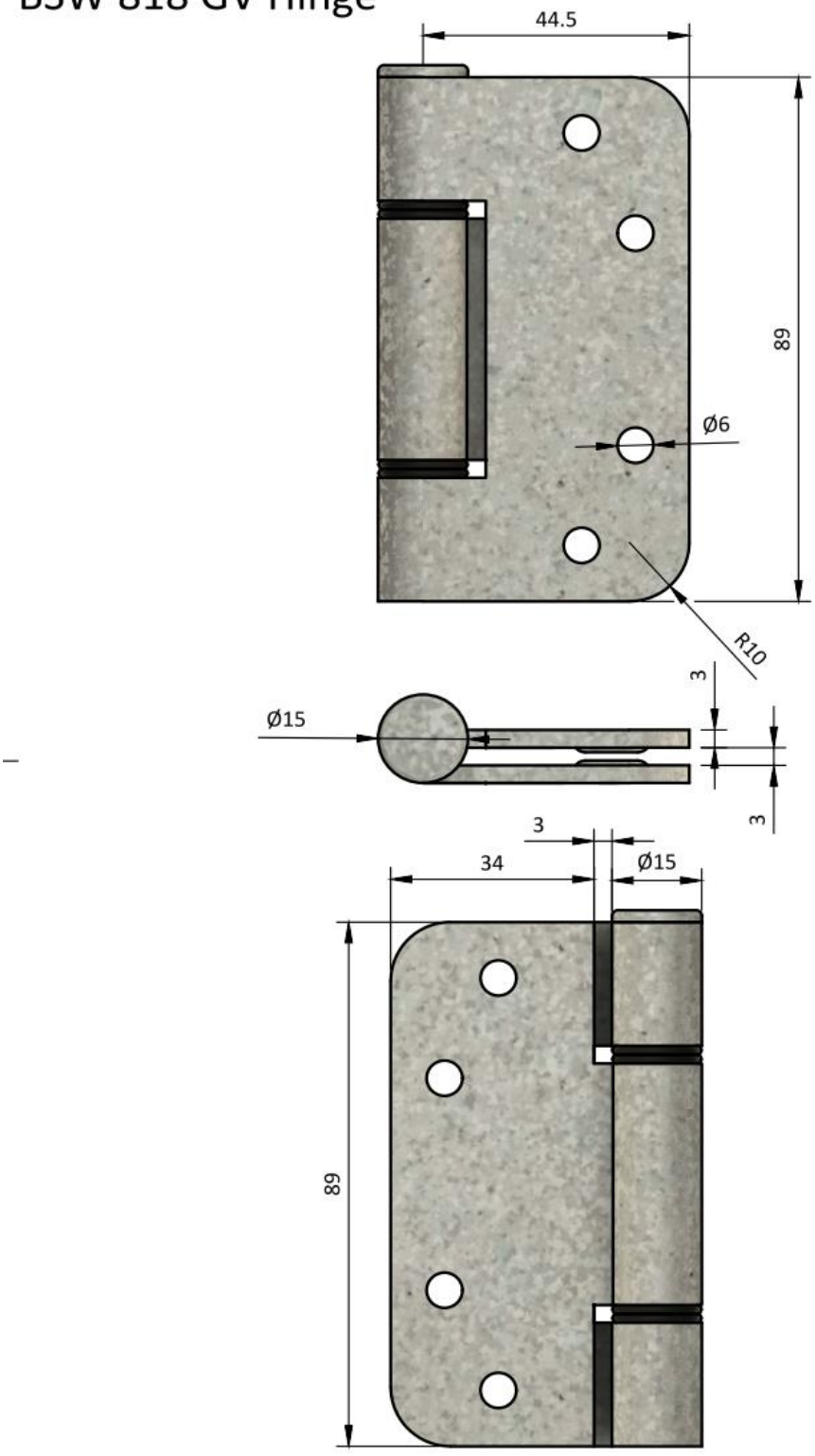
Alprokon door meeting profile



Top and bottom sleave for locking bolt

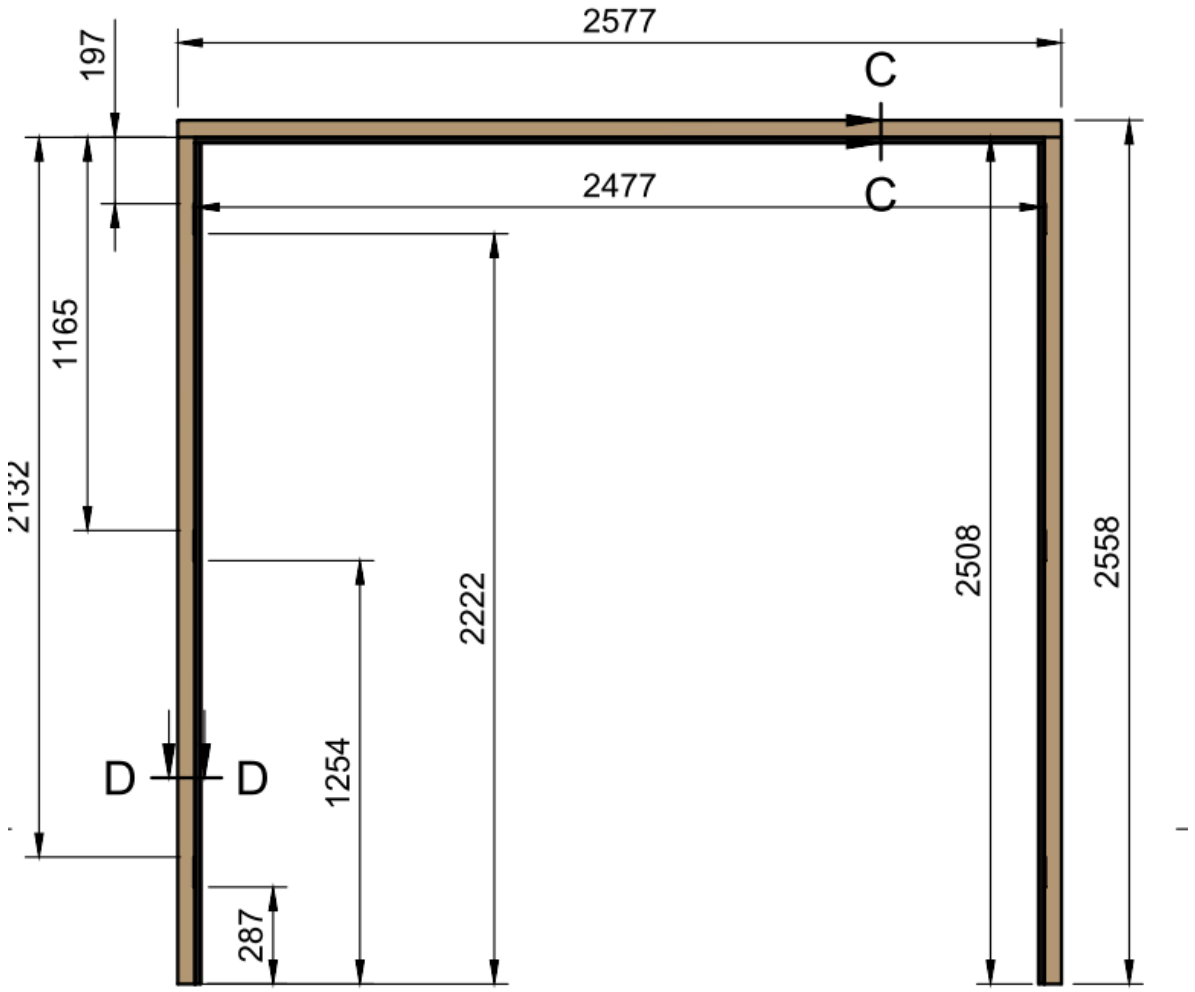


BSW 818 GV Hinge

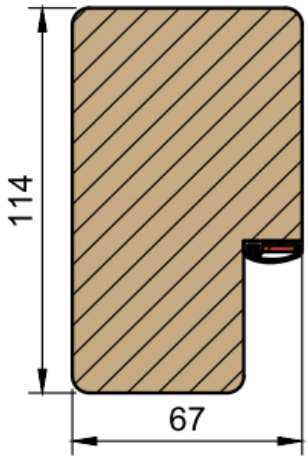


Fixed with 4x chipboard screws 30x3.5mm

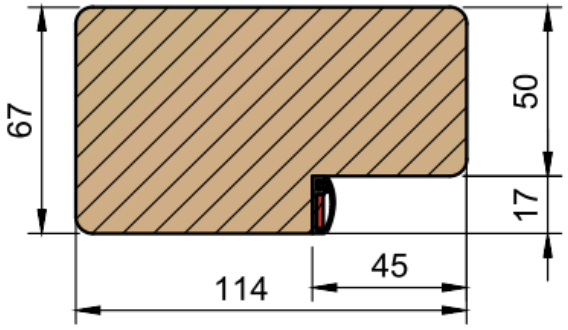
Pine Frame



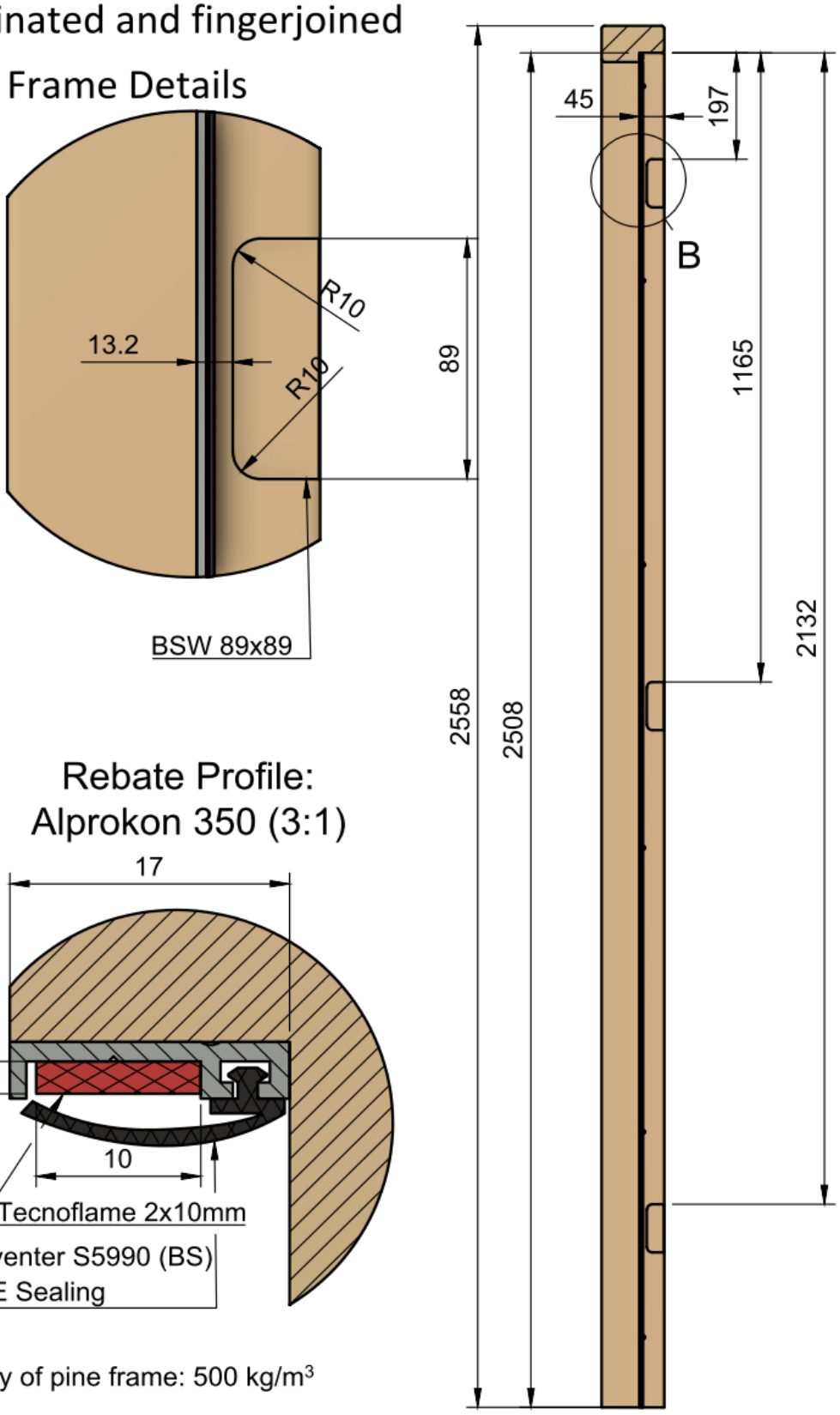
D-D (1:2)



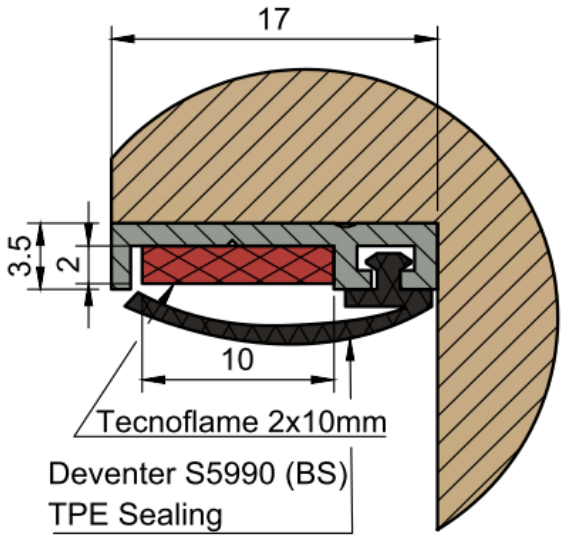
C-C (1:2)



Laminated and fingerjoined Pine Frame Details

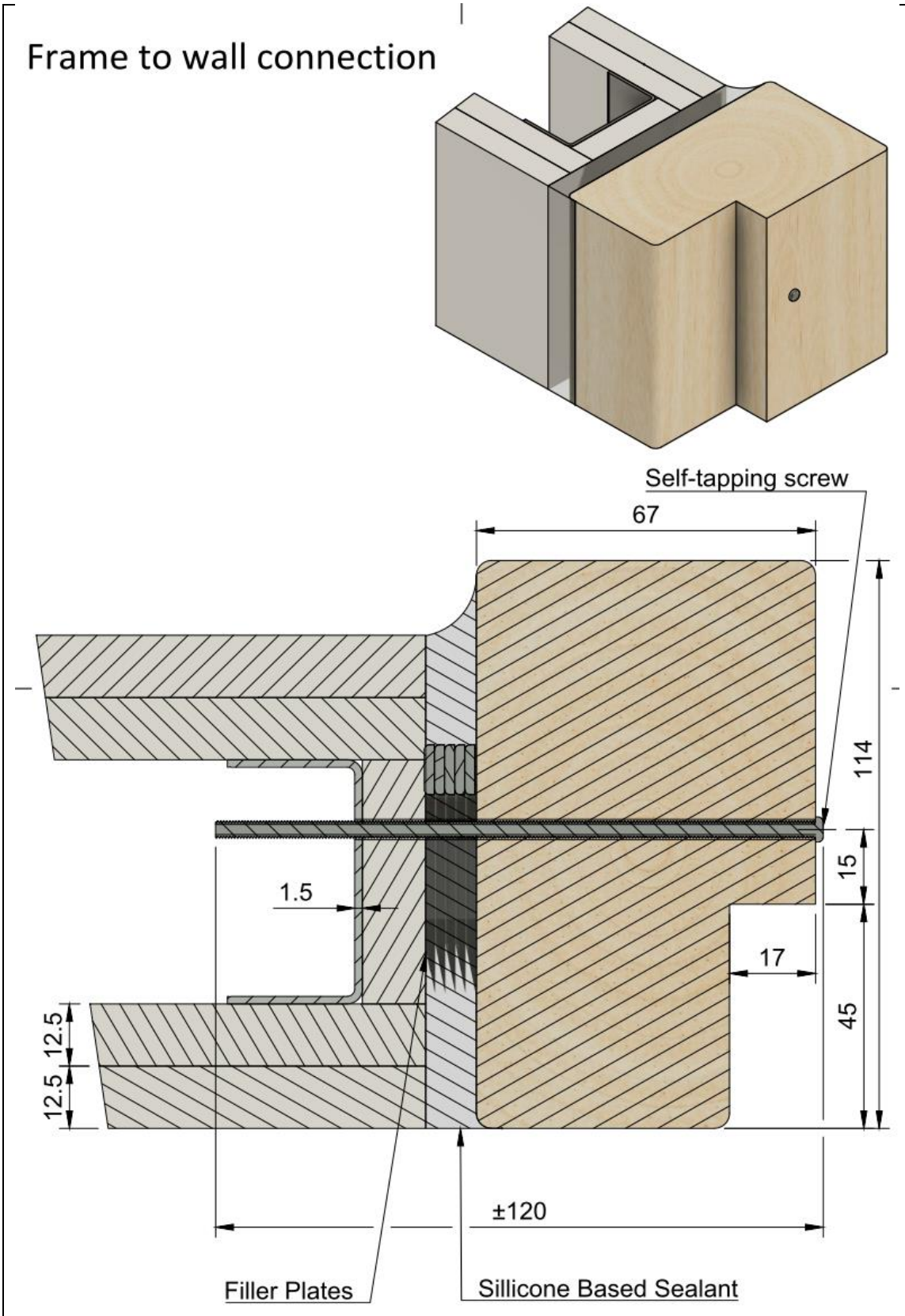


Rebate Profile: Alprokon 350 (3:1)

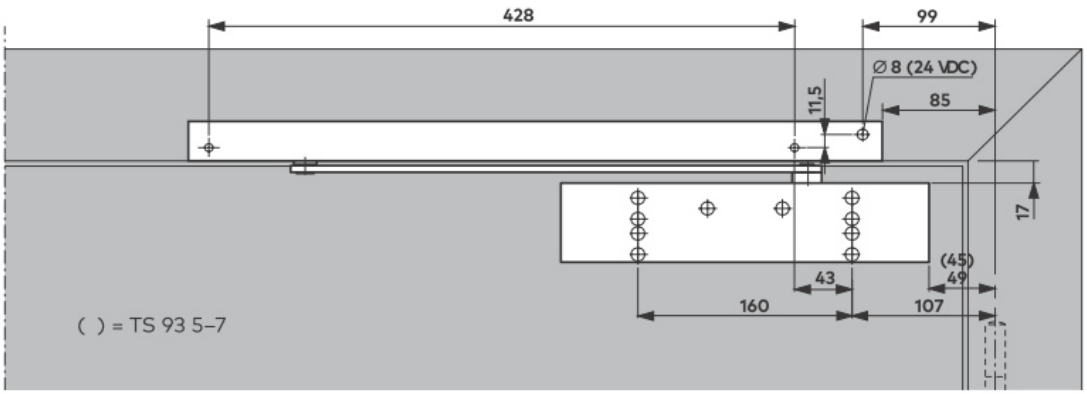


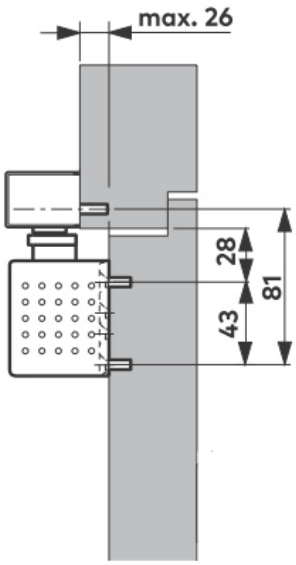
Density of pine frame: 500 kg/m³

Frame to wall connection



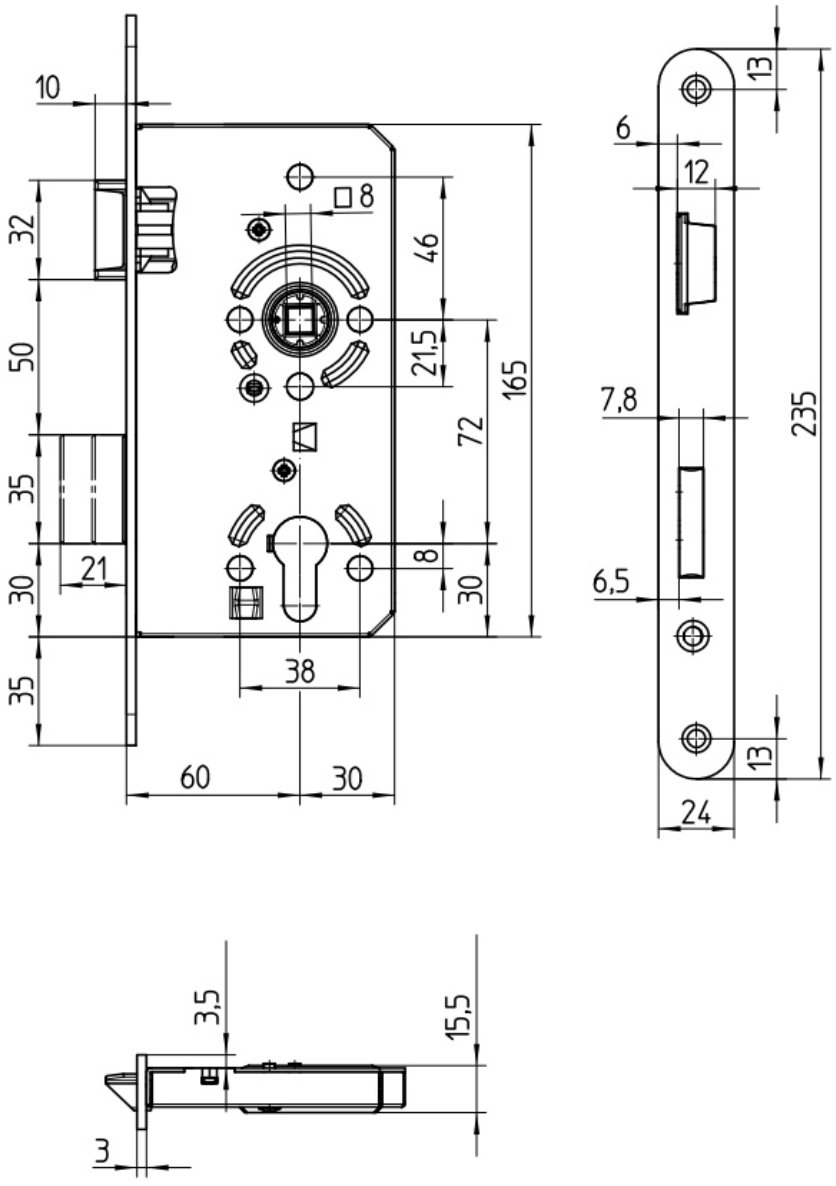
Door closer: Dorma TS93B





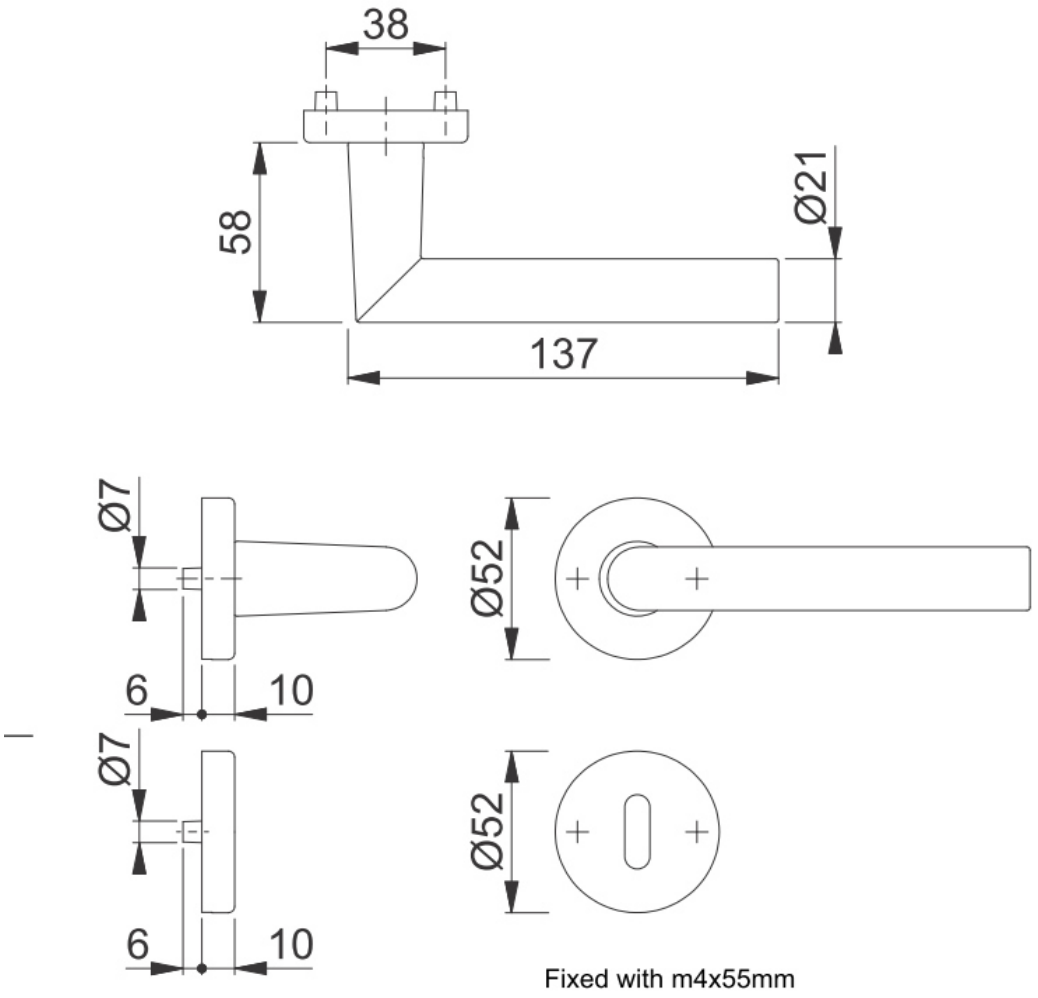
Door closer:	With screws provided by the manufacturer to the mounting plate
Mounting plate:	With 4 pieces oval countersunk screws 5x35mm
Slide rail:	With 2 pieces of countersunk screws 4x40mm

Lock: SAG 17465

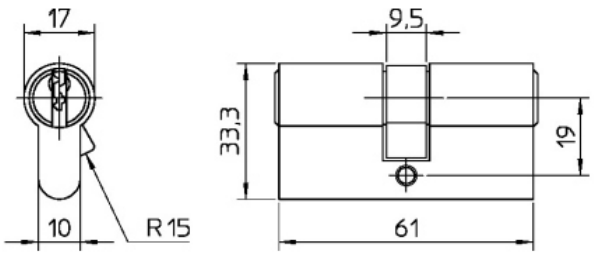


Fixed with 2x chipboard screws 3.5x25mm

Door handle: Hoppe Amsterdam

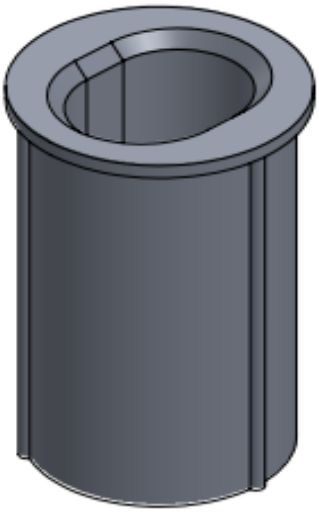


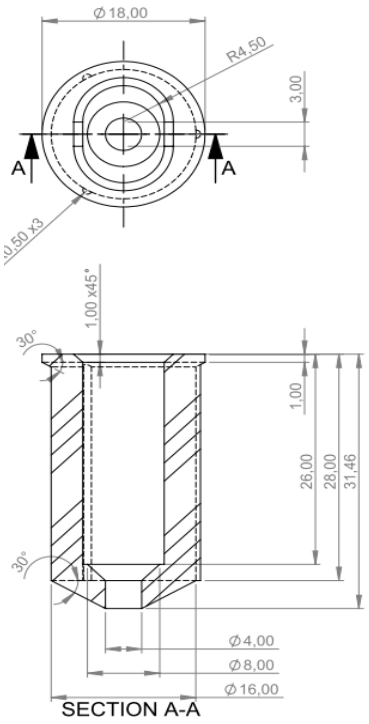
Fixed with m4x55mm



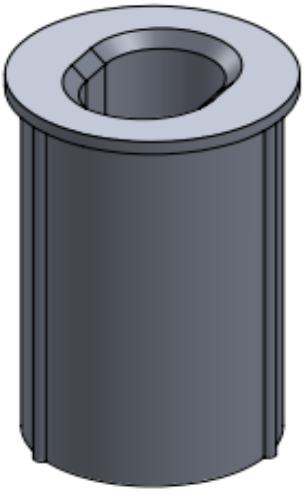
Cilinder

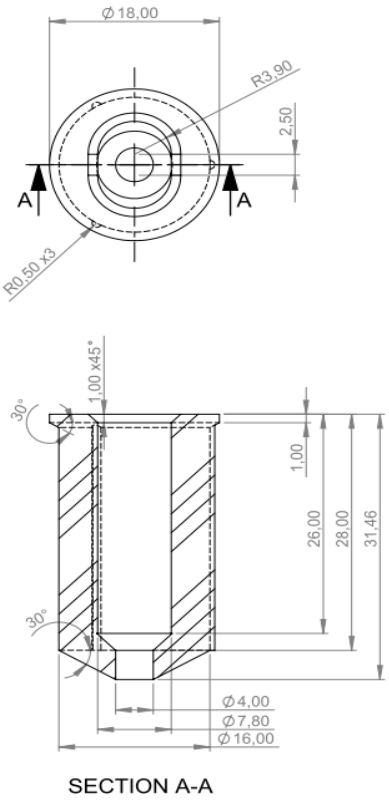
A3 sluitpot16mm recht





Sluitpot recht 16mm met gat 7.8mm





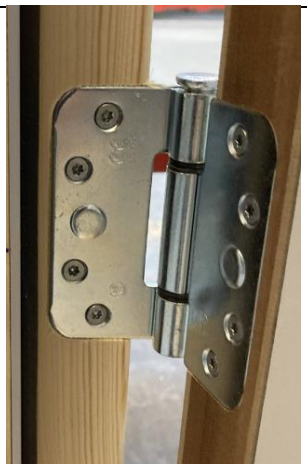
Name of material	Manufacturer	Thick-ness	Surface weight	Density	Moisture content	Classification
		mm	kg/m²	kg/m³	%	
European Spruce	Holz pichler AG	32	-	> 420[1)]	[3)]	[2)]
Scotch Pine	Willie's Hout B.V.	-	-	> 500[1)]	[3)]	[2)]
Meranti	WWP Woodproducts BV	32	-	> 550[1)]	[3)]	[2)]
Particleboard UN Air 400	Unilin Panels Belgium	32	-	> 420[1]	[3)]	[2)]
Glue: Purmelt QR 4463	Henkel Nederland B.V.	-	-	-	-	[2)]
HDF	Homanit GmbH & Co. KG	3,0	-	> 860[1)]	[3)]	[2)]
HPL	Form0,8	0,8	-	> 1350[1)]	[3)]	[2)]
Tecnofire 2000	Technical Fibre Products Ltd (TFP),	-1 / 0,65 / 2	-	-	-	[2)]
Frame gasket S5990 (BS), material TPE	Deventer Profil GmbH	[3)]	-	-	-	[2)]
Middle edge gasket “S6069 “ TPE 60/93	Deventer Profil GmbH	[3)]	-	-	-	[2)]
Laminated safety glass 6 mm	-	6,0	15	-	-	-

[1)] according to clients information
[2)] evidence not provided
[3)] not investigated

Total view opening side

Total view closing side

Detailed view of door handle



Detailed views of hinge in opened (left) and closed position (right)

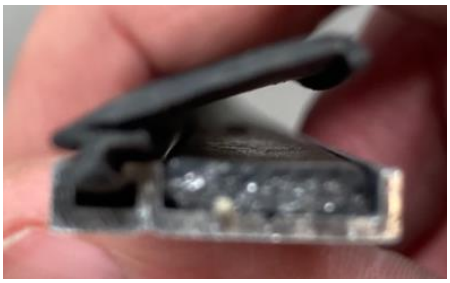
Detailed view of door closer with sliding rail

Detailed views of lock in active leaf (left) and strike plate in inactive leaf (right)

Detailed views of bottom lock (left), top lock (middle) and espagnolette (right) of inactive leaf

Detailed views of strike plates for top (left) and bottom locking (right) of inactive leaf

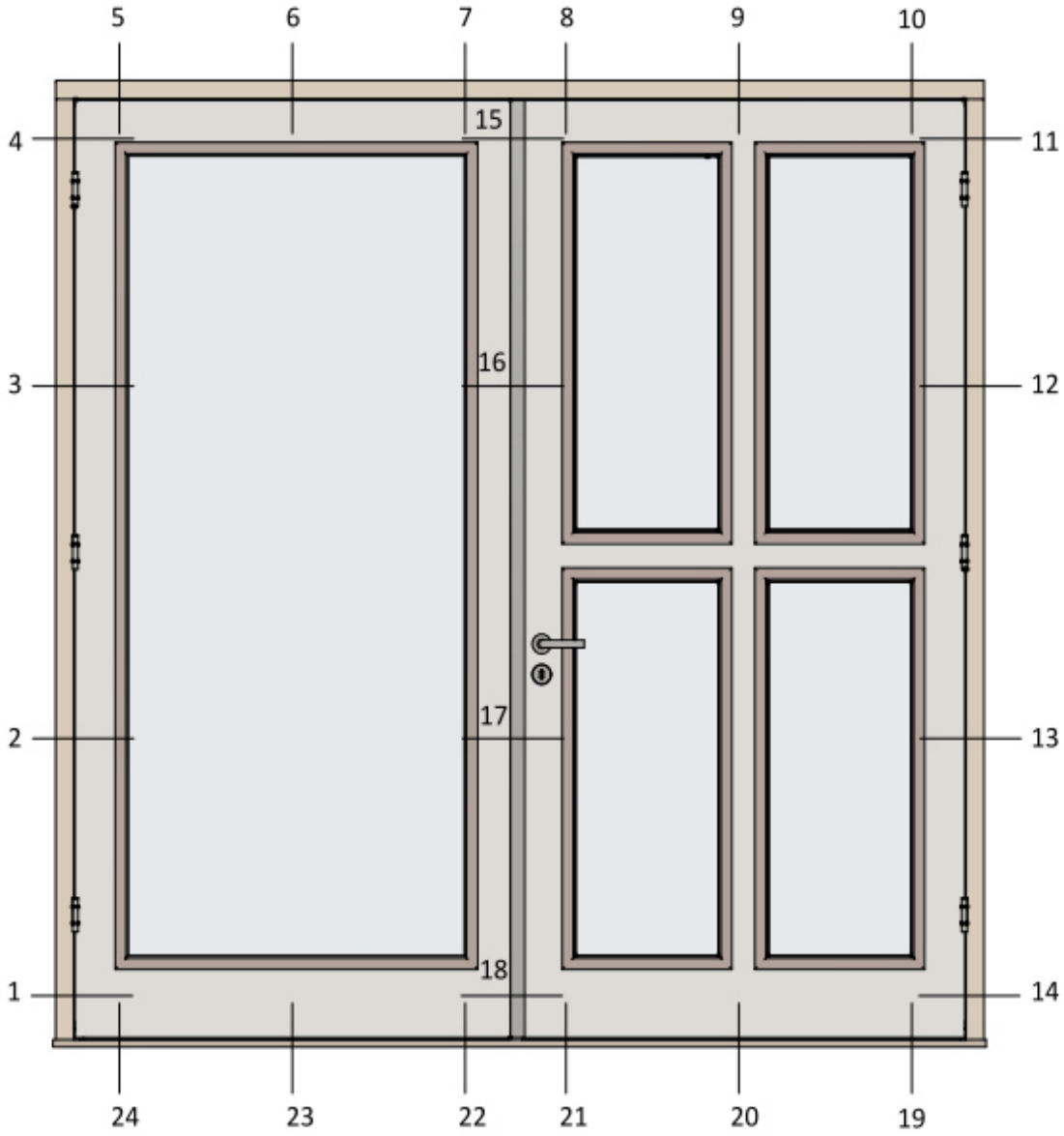

Detailed views of drop down seal (left) and actuation (right)



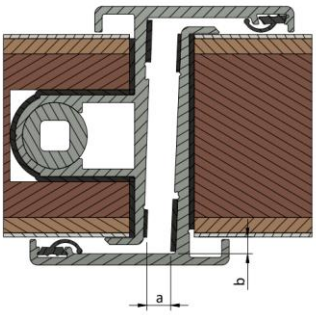

Detailed views of frame seal cross section (left) and mounting position (right)

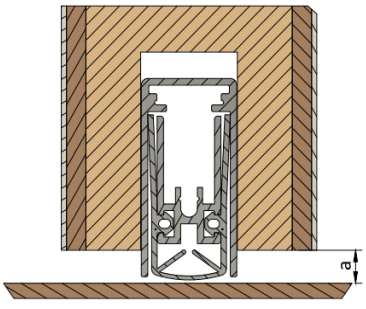

Detailed views of meating edge seal cross section (left) and mounting position (right)

Detailed view of glazing



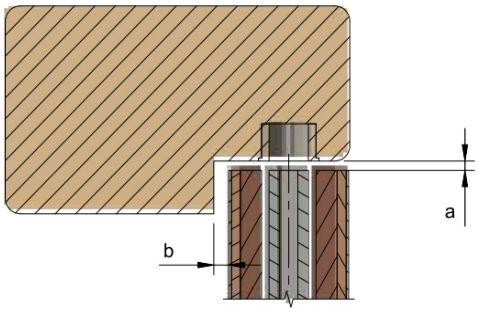
Middle Gap(2:1)





Bottom gap (2:1)

Side and top gap



Gap measurements	annex 3.1 of
DMT GmbH & Co. KG Plant and Product Safety Test Body for Fire Protection	test report no. DMT-DO-52-469

Measurement No. 1 - 3

Nr.		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Gap in mm	a	1,2	1,9	2,0	1,9	2,6	2,5	3,0	3,6	3,4	2,4	2,4	2,1	2,8	3,2
	b	2,0	1,6	1,6	2,1	2,1	2,3	2,1	2,2	3,0	2,2	1,1	2,0	3,0	2,4
Nominal gap in mm (customer)	a	3 mm				3 mm			3 mm			3 mm			

Nr.		15	16	17	18	19	20	21	22	23	24
Gap in mm	a	4,7	4,8	4,3	5,4	5,0	5,4	5,5	5,6	5,2	4,9
	b	1,1	1,9	1,8	2,7	-	-	-	-	-	-
Nominal gap in mm (customer)	a	4,5 mm				5 mm			5 mm		

Measurement No. 4

Nr.		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Gap in mm	a	1,3	2,2	2,1	2,3	2,5	2,3	2,9	3,4	3,3	2,3	2,3	2,2	2,6	3,1
	b	2,2	2,0	1,8	2,1	2,2	2,0	2,3	2,4	2,7	2,3	1,4	1,9	2,6	2,5
Nominal gap in mm (customer)	a	3 mm				3 mm			3 mm			3 mm			

Nr.		15	16	17	18	19	20	21	22	23	24
Gap in mm	a	4,6	4,7	4,4	5,2	4,9	5,2	5,3	5,5	5,1	4,7
	b	1,2	2,0	2,1	2,6	-	-	-	-	-	-
Nominal gap in mm (customer)	a	4,5 mm				5 mm			5 mm		