



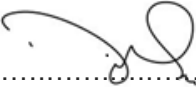
Test Report No. AFS-R1071

All tests reported herein, have been performed in accordance with the laboratory's scope of accreditation.

Report Date:	16 th June 2023
Test Date(s):	07 th March 2023
Sample Designer:	Neuffer Fenster + Tueren GMBH
Sample Installer:	Enveloped Solutions Limited
Test & Sample Details:	Performance testing of the Neuffer Eco Plano Wood/Alu fixed light window unit in accordance with the NZS 4211:2008 Specification for Performance of Windows.
Client Details:	Neuffer Fenster + Tueren GMBH Kronprinzstrasse 8, 70173 Stuttgart, Germany
Laboratory Details:	All Facade Services Limited 47 Bell Road Beachlands Auckland 2018
Test Location:	149 Park Road, Miramar, Wellington 6022
Tested By:	Darryl Scott
KTP / Signatory	Darryl Scott
IANZ Accreditation No.	1347

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Darryl Scott /AFS Signatory

Checked by: 

John Moore

1. Test Summary

1.1 Summary Description

The Neuffer Eco Plano Wood/Alu fixed light window unit comprised of a nominal 2000mm high x 1250mm wide outer box frame which incorporated a clear triple glazed IGU, retained by internal glazing beads.

1.2 Summary Results

The following summarises the outcome of the individual tests only. Full test results are recorded at clause 3.1 of this report.

1.2.1 Air Infiltration

The Neuffer Eco Plano Wood/Alu fixed light window unit complied with the "Air Conditioned" air infiltration rating of NZS 4211:2008 Clause 8 at a differential test pressure of ± 150 Pa.

1.2.2 Water Penetration

The Neuffer Eco Plano Wood/Alu fixed light window unit complied with the Water Penetration requirement of NZS 4211:2008 Clause 9 for the Very High Wind Zone water penetration test pressure of 375 Pa.

1.2.3 Ultimate Strength

The Neuffer Eco Plano Wood/Alu fixed light window unit met the Ultimate strength requirements of NZS 4211:2008 Clause 10 for the Very High Wind Zone at ± 1760 Pa.

1.3 Overall Compliance

The Neuffer Eco Plano Wood/Alu fixed light window unit complied with the requirements of NZS 4211:2008 for the Very High wind zone and an Air Conditioned rating.

These ratings apply to this specific sample and may be used to claim compliance of the range within the stated limitations of clause 5.2 of NZS 4211:2008.

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2. Test Sample Description

The Neuffer Eco Plano Wood/Alu fixed light window unit with overall (box size) dimensions of 1996mm high x 1243mm wide, was installed by Enveloped Solutions Limited and Glazing 360 Limited into the timber framed opening of the test booth with the window exterior facing the inside of the booth.

The window comprised of a single fixed light with no transoms, mullions or opening sashes, and was manufactured using the BR-A667-I852 timber frame profile with square cut corners and integrated FB88-18 aluminium cladding profile with mitred corners to the window head and jambs, and the BR-A629-I852 timber frame profile with square cut corners and integrated FB68-18 and SB36-17 aluminium cladding profiles with mitred corners to the sill.

The fixed light window was clear triple glazed with a 44mm thick insulated glazing unit comprising of 3 x 4mm glass panes separated by 2 x 16mm spacers, installed into the glazing platform using 20mm x 40.5mm glazing beads, an external A31125 glazing gasket and Durasil W15 Plus sealant.

The Durasil W15 Plus sealant was applied as a 3mm x 4mm wet seal to the timber glazing bead/IGU junction and as a bead of unspecified size over top of the A31125 glazing gasket.

The triple glazed fixed light window was secured to the surrounding timber framing with manufacturer supplied proprietary fixing brackets screw fixed to the timber window frame and adjacent timber framing at 150 mm from the corners and 450 mm (max) centres thereafter.

Drainage was by way of surface shed only with no integrated drainage pathways.

Details of the Neuffer Eco Plano Wood/Alu fixed light window unit are shown on the attached Neuffer Fenster drawings numbered 1 - 10.

The drawings identified the following timber profiles, aluminium extrusions and components being used in the construction of the Neuffer Eco Plano Wood/Alu fixed light window unit.

BR-A667-I852	Timber outer frame – head and jambs
BR-A629-I852	Timber outer frame – sill
FB88-18	Aluminium cladding profile (88mm)
FB68-18	Aluminium cladding profile (68mm)
SB36-17	Aluminium cladding profile
A31125	EPDM glazing gasket
DC340	Plastic clip
MEH40	Plastic clip
20 x 40.5 glazing bead	Timber glazing bead
Sealant	Durasil W15 Plus

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Photo 1: Interior of the Neuffer fixed light window installed in the test booth.



Photo 2: Exterior of the Neuffer fixed light window installed in the test booth.

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3. Testing

The Neuffer Eco Plano Wood/Alu fixed light window unit was tested in accordance with NZS 4211:2008, Specification for Performance of Windows, with test procedures as detailed in sections of AS/NZS 4420.1:2016.

3.1 Test Results

3.1.1 AIR INFILTRATION (Test Procedure AS/NZS 4420.1 Clause 5)

Overall Window Area	2.48m ²
Opening Joint Length	N/A

Maximum permitted infiltrations/exfiltration's were calculated as follows:

Overall window area x 1.6 - Air Conditioned	3.97 l/s
Overall window area x 8 - Non-Air Conditioned	19.85 l/s

Geometric Mean

Air Conditioned	1.99 l/s
Non-Air Conditioned	4.46 l/s

Air Pressure Direction @ 150PA	Air Flow	Result
Positive Air Infiltration Test Net air flow	0.31 l/s	Complies
Negative Air Infiltration Test Net air flow	0.16 l/s	Complies

The airflow through the sample in the positive direction is (0.31 ± 0.83) l/s. The uncertainty in the airflow through the sample is ± 0.83 l/s. This expanded uncertainty is calculated with a coverage factor, k of 2.12, and defines an interval estimated to have a 95% level of confidence. The standard uncertainty is ± 0.39 l/s, (with 68% probability).

The airflow through the sample in the negative direction is (-0.16 ± 0.66) l/s. The uncertainty in the airflow through the sample is ± 0.66 l/s. This expanded uncertainty is calculated with a coverage factor, k of 1.99, and defines an interval estimated to have a 95% level of confidence. The standard uncertainty is ± 0.33 l/s, (with 68% probability).

The Neuffer Eco Plano Wood/Alu fixed light window unit complied with the "Air Conditioned" air infiltration rating of NZS 4211:2008 Clause 8 at a differential test pressure of ±150 Pa.

3.1.4 WATER PENETRATION (Test Procedure AS/NZS 4420.1 Clause 6)

Wind Zone	Very High
Maximum rated pressure	375 Pa

The Neuffer Eco Plano Wood/Alu fixed light window unit complied with the Water Penetration requirement of NZS 4211:2008 Clause 9 for the Very High Wind Zone water penetration test pressure of 375 Pa.

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3.1.5 ULTIMATE LIMIT STATE STRENGTH (Test Procedure AS/NZS 4420.1 Clause 7)

Wind Zone	Very High
Maximum rated ULS pressure	1760 Pa

The Neuffer Eco Plano Wood/Alu fixed light window unit met the Ultimate strength requirements of NZS 4211:2008 Clause 10 for the Very High Wind Zone at a differential pressure of ± 1760 Pa.

4.0 Qualifications

4.1 This test report "Test Report No. AFS-R1071" relates solely to NZS 4211:2008 testing carried out on 07th March 2023 on the Neuffer Eco Plano Wood/Alu fixed light window test sample at the test facility located at 149 Park Road, Miramar, Wellington.

4.2 Drawings of the test specimen as attached to this report have been provided by the client and All Facade Services Ltd accepts no liability with regards the accuracy or entirety of the drawings and/or, in respect of any element missing or concealed from view.

4.3 This report has been prepared solely for the party to whom it is addressed within the terms of the brief provided to this company. This report may not be used in any other context or for any other purpose without our prior written agreement.

4.4 This report may not be read or reproduced other than as a complete document.

4.5 This test report does not constitute endorsement of the window design or the manufacturer in any form.

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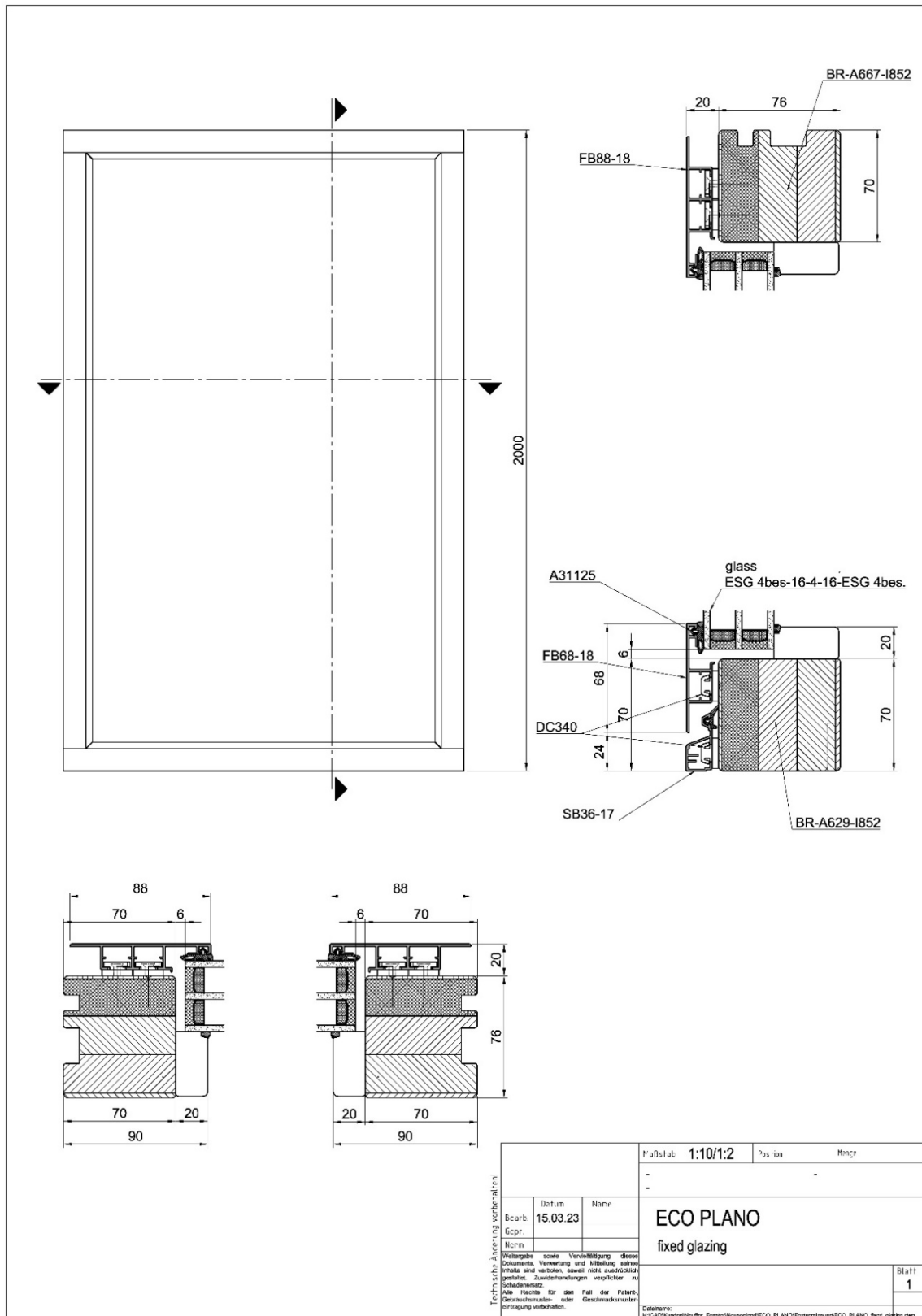
5.0 References

- | | |
|--------------------|---|
| NZS 4211:2008 | Specification for performance of windows (Including Amendment 1, May 2014)
Standards New Zealand, Wellington, 2008 |
| NZS 3604:1999 | Timber framed buildings.
Standards New Zealand, Wellington, 1999 |
| AS/NZS 4420.1:2016 | Windows – Methods of Test |
| Part A: | Deflection test |
| Part B: | Operating force test |
| Part C: | Air infiltration test |
| Part D: | Water penetration resistance test |
| Part E: | Ultimate strength test |
| | Standards Australia, Sydney |

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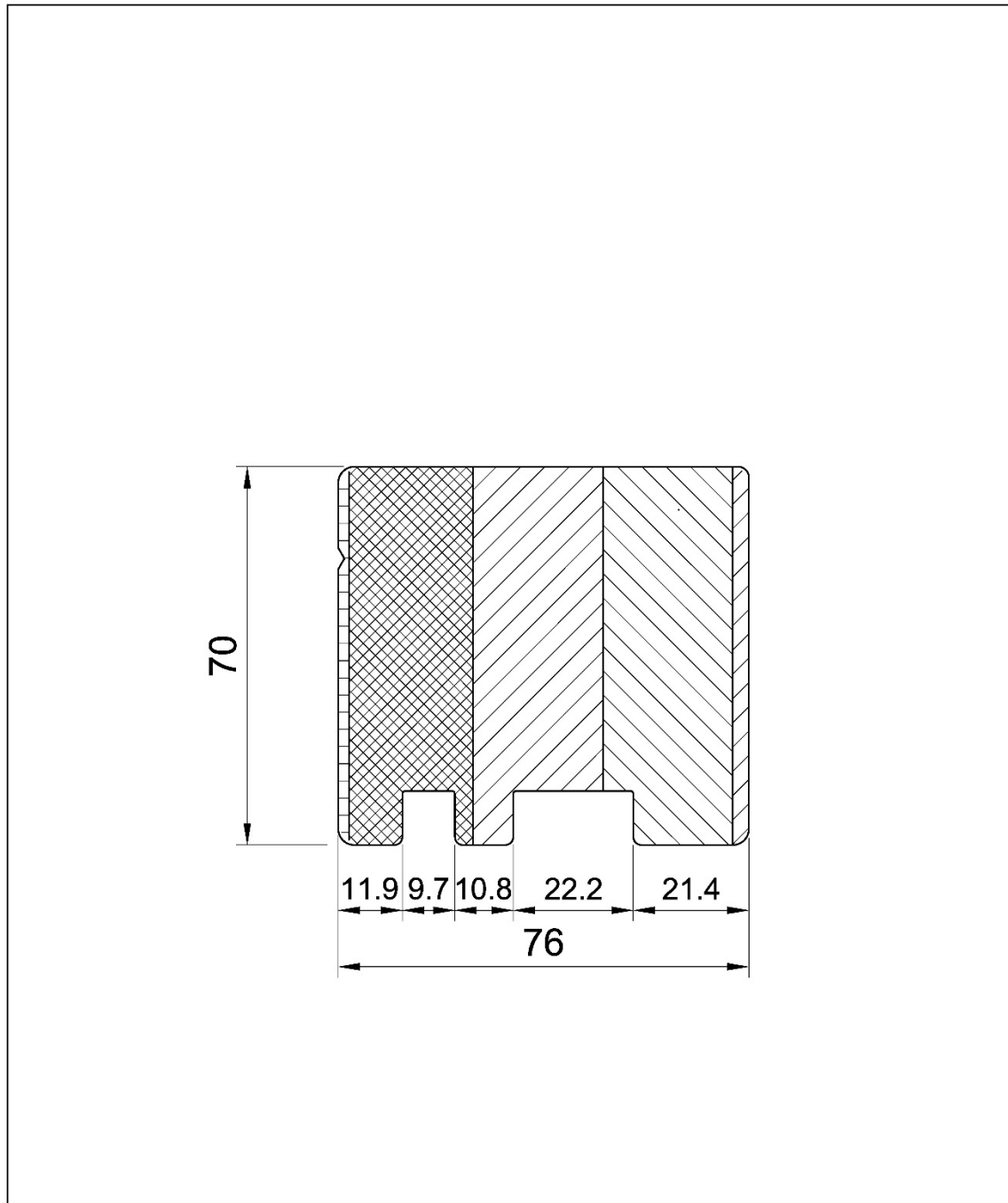
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6.0 Manufacturers Documentation



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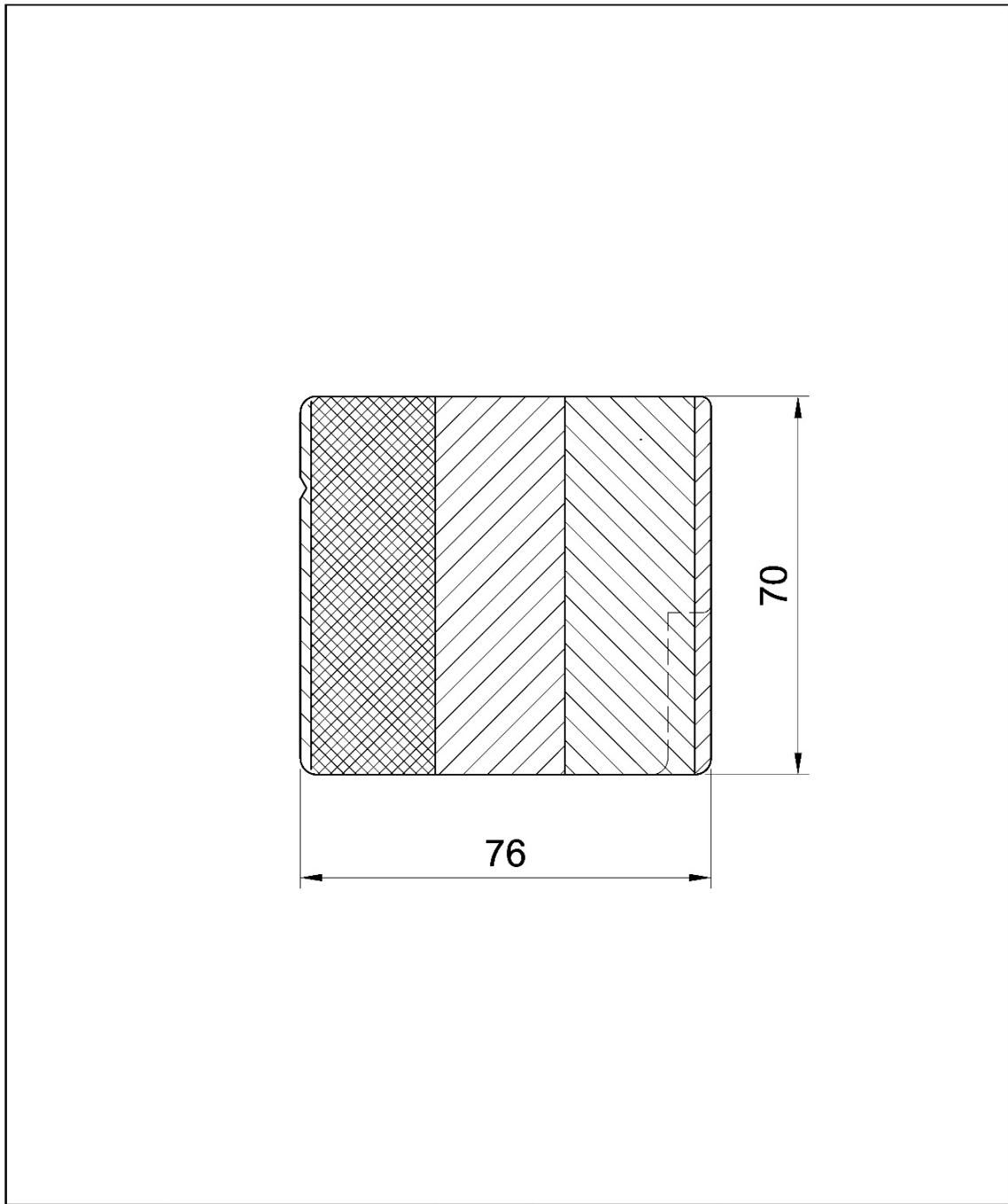


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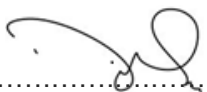
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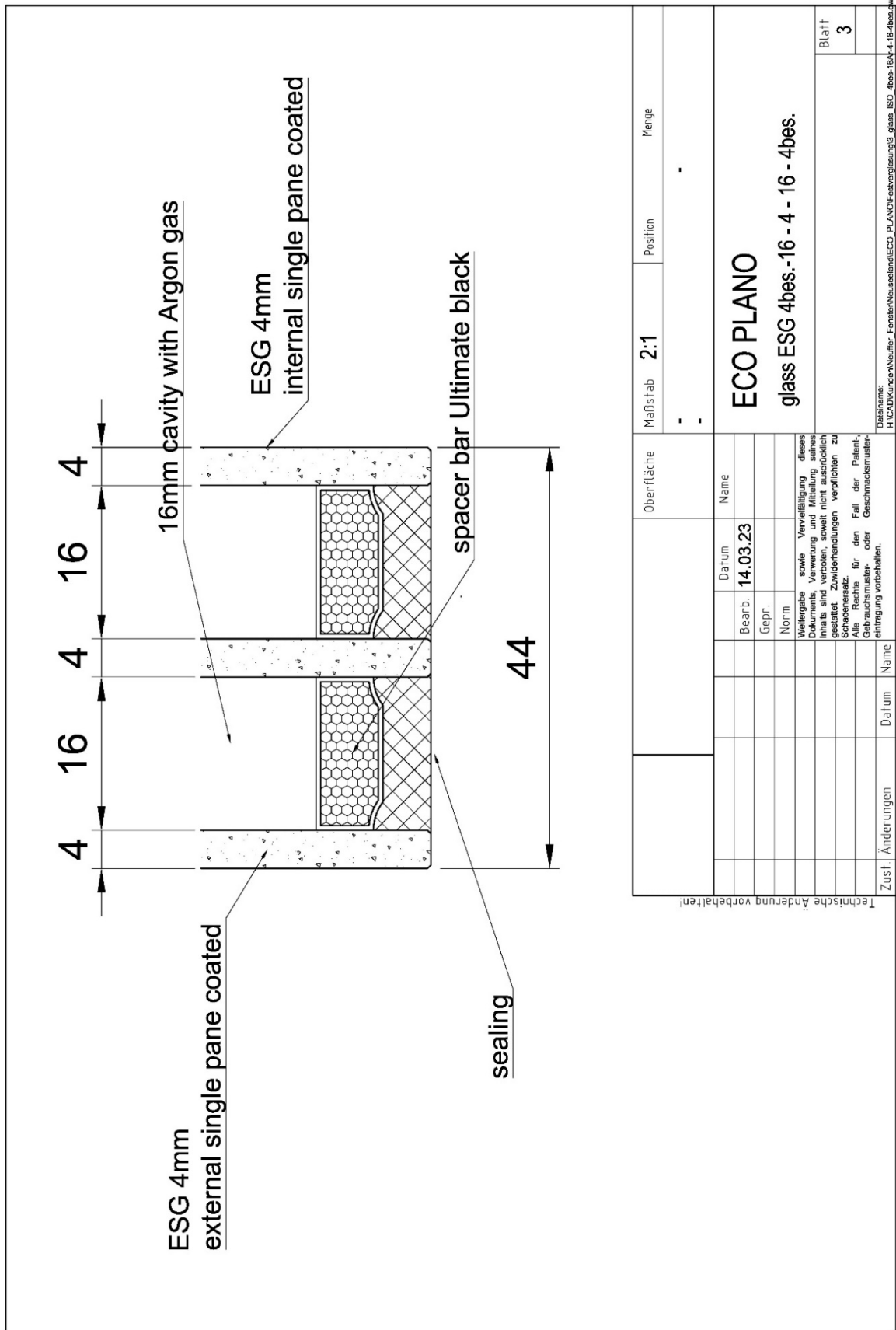


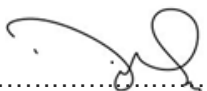
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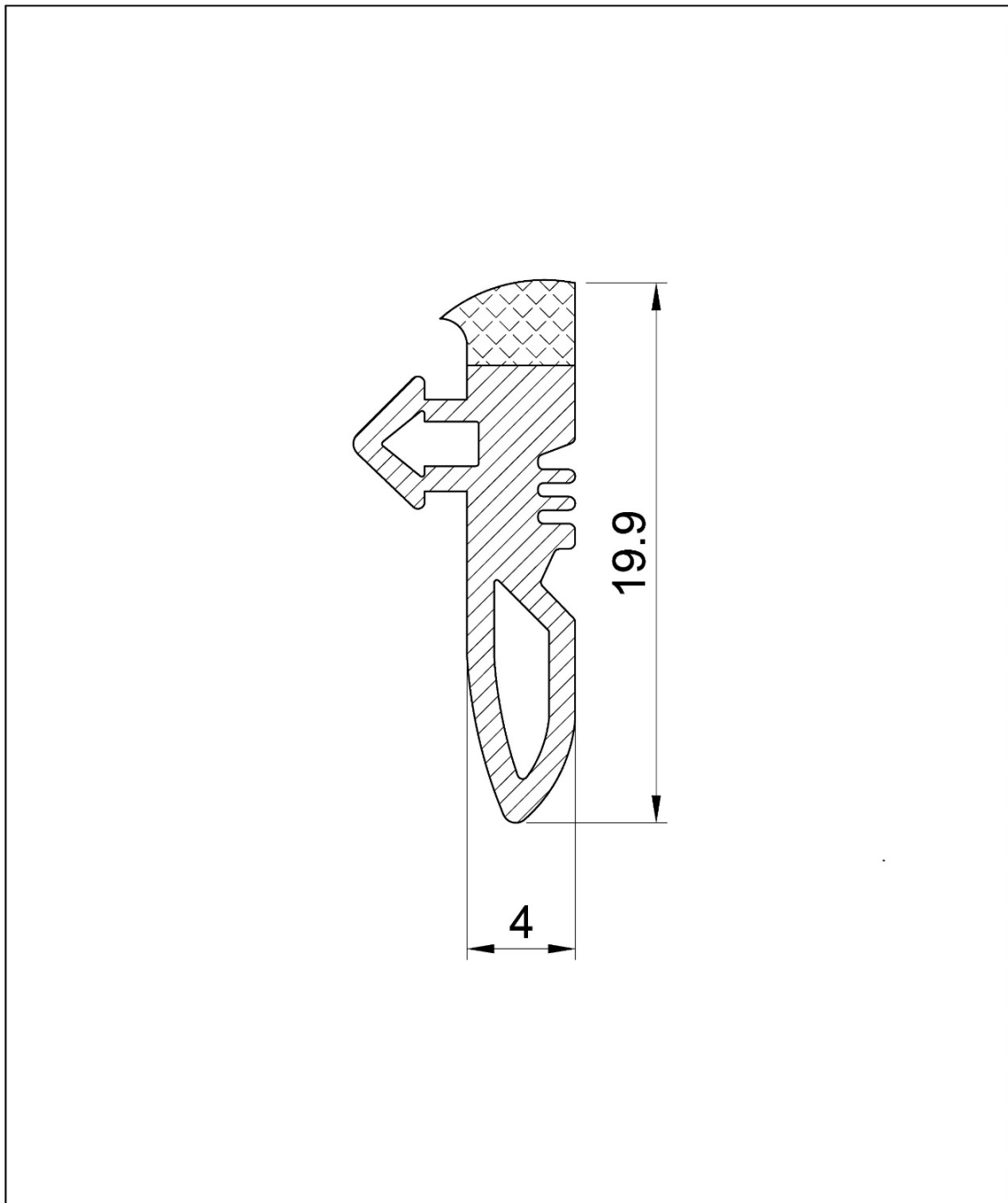
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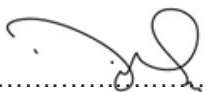
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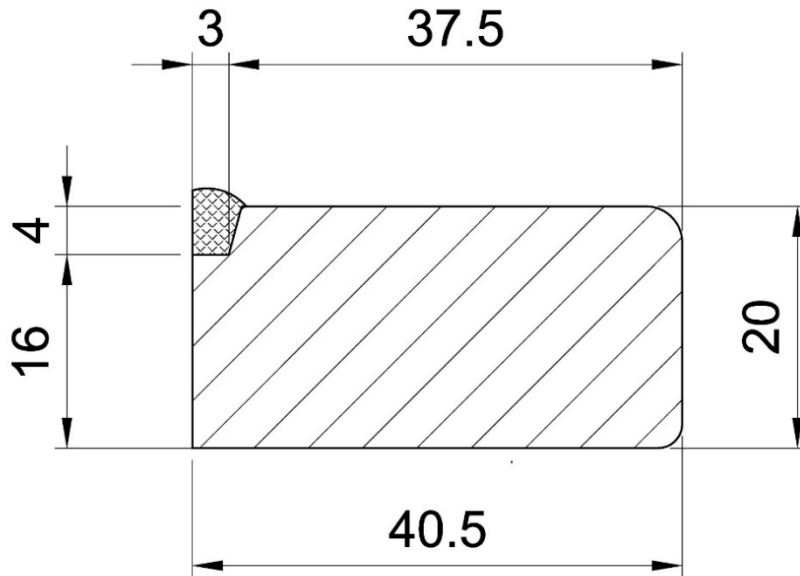


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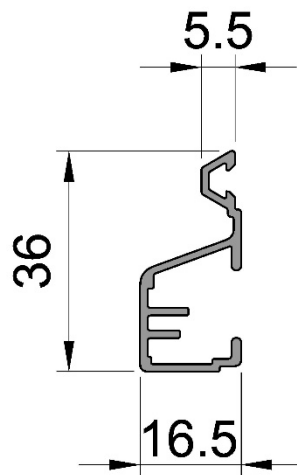


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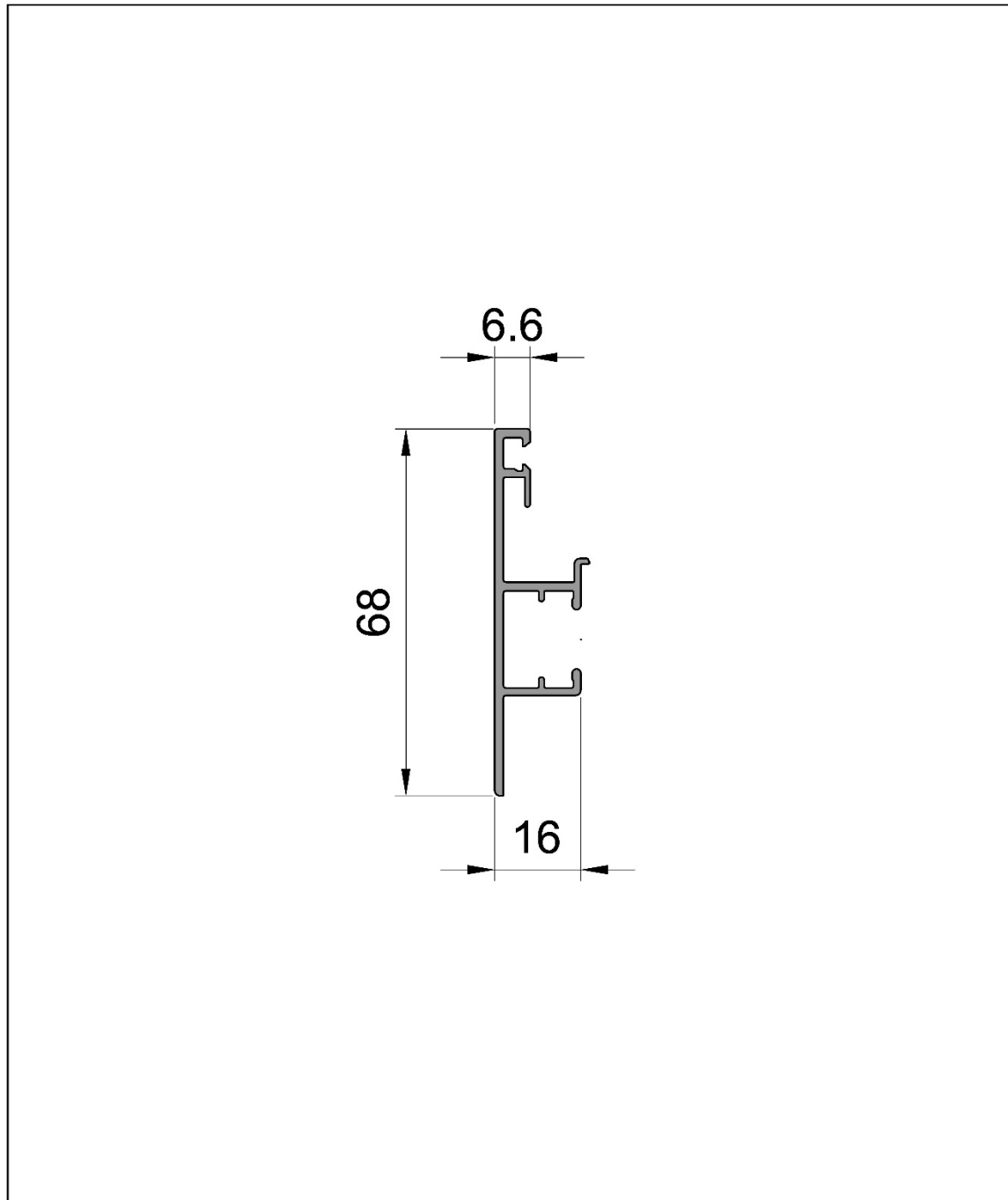


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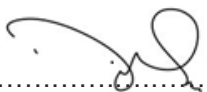
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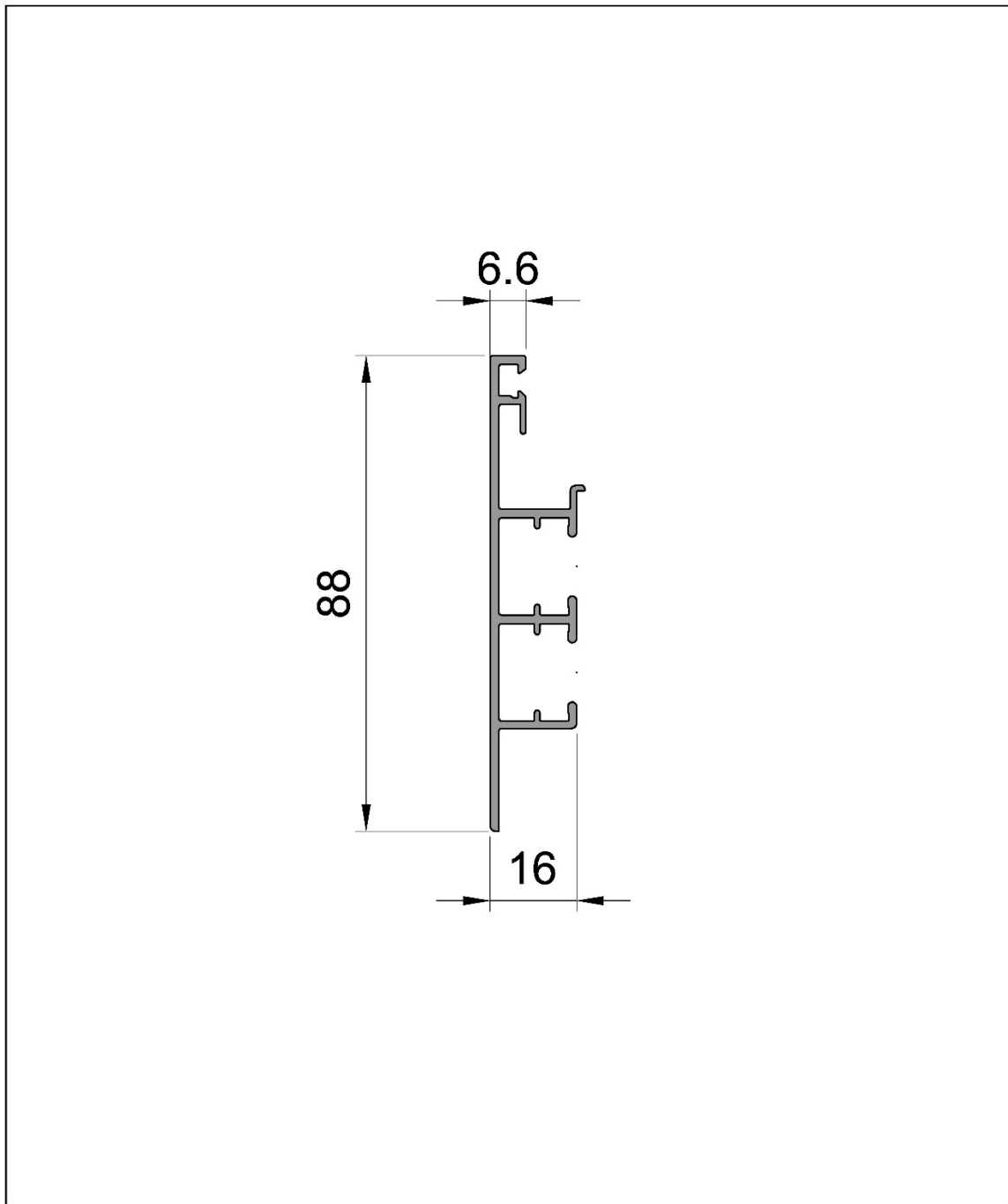


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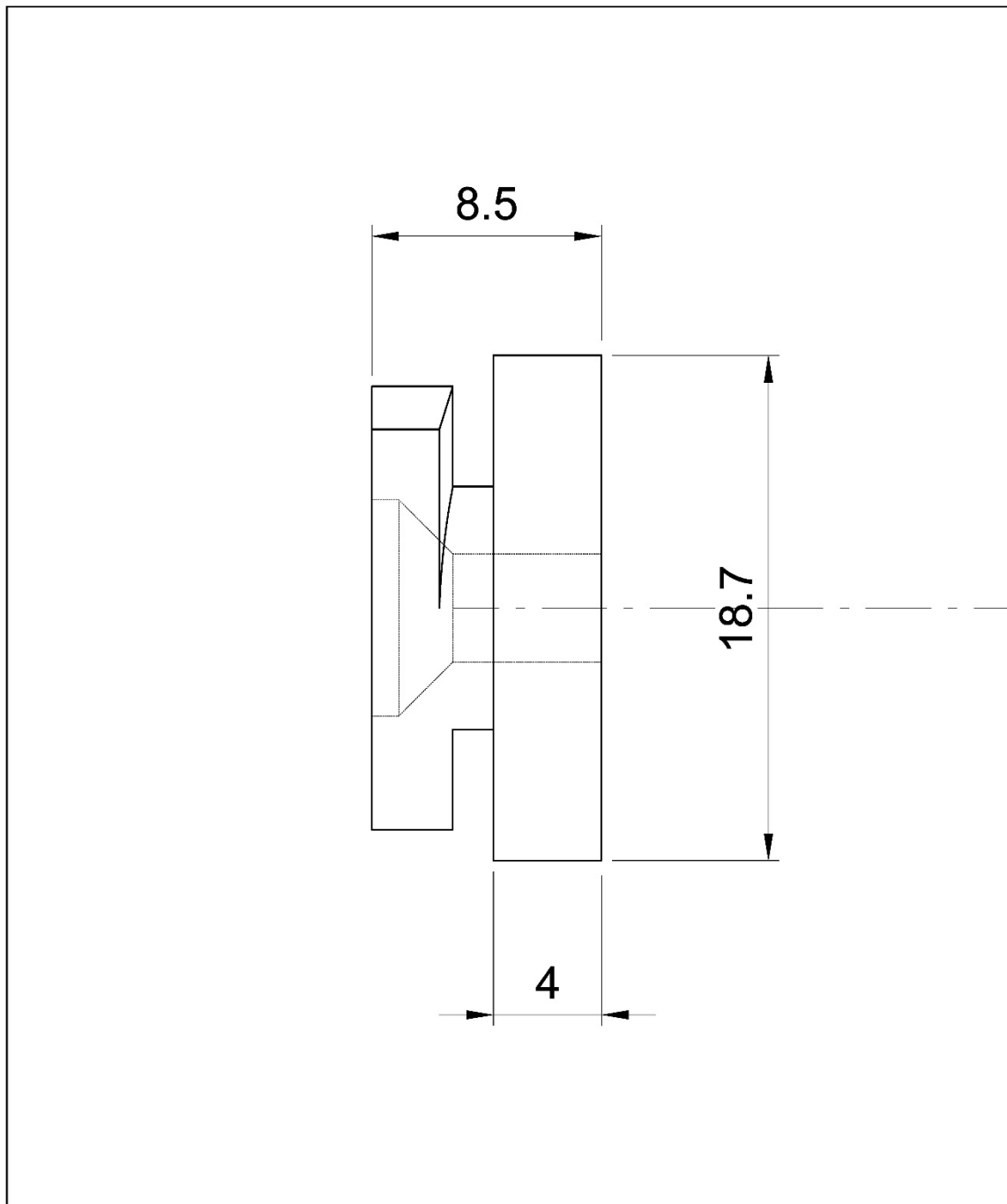


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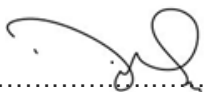
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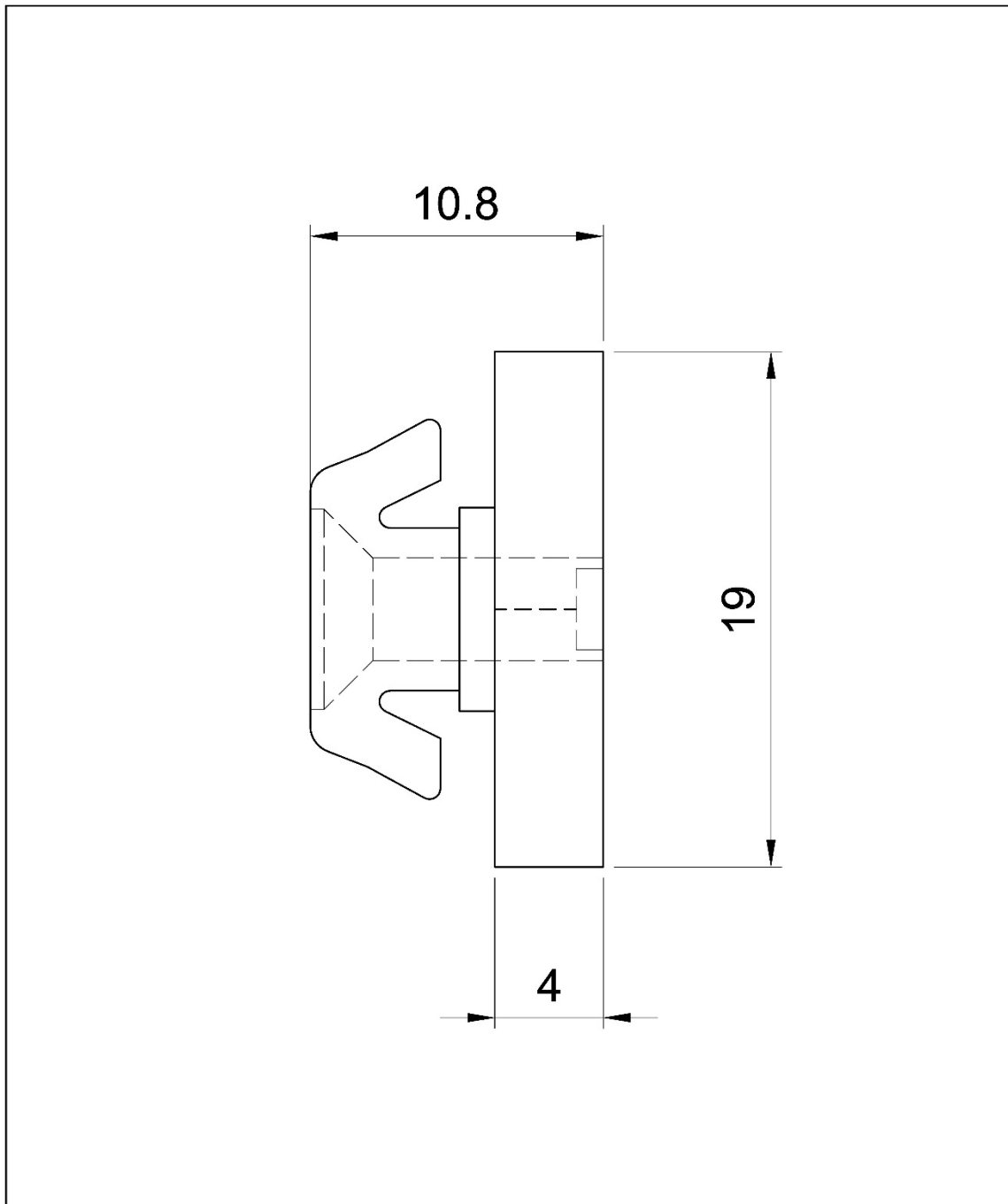


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