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Test Report No. AFS-R1074

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

Report Date:	17th June 2023
Test Date(s):	09th & 10th March 2023
Sample Designer:	Neuffer Fenster + Tueren GMBH
Sample Installer:	Glazing 360 Limited
Test & Sample Details:	Performance testing of the Neuffer Idealu 68 Wood/Alu Balcony Door 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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Checked by: ..... John Moore

1. Test Summary

1.1 Summary Description

The Neuffer Idealu 68 Wood/Alu Open In Balcony Door unit comprised of a nominal 2298mm high x 1100mm wide outer box frame which incorporated a clear double glazed IGU, retained by external 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 Deflection of Structural Members

The FL A089-Ix68-80 timber lock stile of the Neuffer Idealu 68 Wood/Alu Balcony door unit, when double glazed with a 24mm IGU and tested with a differential test booth pressure of +1515 Pa, complied with Serviceability span/200 deflection requirements of NZS 4211:2008 Clause 6, for an Extra High wind zone.

1.2.2 Air Infiltration

The Neuffer Idealu 68 Wood/Alu Balcony door unit complied with the "Air Conditioned" air infiltration rating of NZS 4211:2008 Clause 8 at a differential test pressure of ±150 Pa.

1.2.3 Water Penetration

The Neuffer Idealu 68 Wood/Alu Balcony door unit complied with the Water Penetration requirement of NZS 4211:2008 Clause 9 for the Extra High Wind Zone water penetration test pressure of 455 Pa.

Following testing at 455 Pa, the Neuffer Idealu 68 Wood/Alu Balcony door unit was tested and complied with the Water Penetration requirement of NZS 4211:2008 Clause 9 at the increased differential pressures of 533 Pa and 1000 Pa.

1.2.4 Ultimate Strength

The Neuffer Idealu 68 Wood/Alu Balcony door unit met the Ultimate strength requirements of NZS 4211:2008 Clause 10 for the Extra High Wind Zone at ±2130 Pa.

1.2.5 Torsional Strength

The Neuffer Idealu 68 Wood/Alu Balcony door unit, as supplied, and when double glazed with a 24mm IGU and tested in accordance with NZS 4211:2008 Appendix A, complied with the performance requirements of NZS 4211 Clause 11.

1.3 Overall Compliance

The Neuffer Idealu 68 Wood/Alu Balcony door unit complied with the requirements of NZS 4211:2008 for the Extra 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 Idealu 68 Wood/Alu open in Balcony door unit with overall (box size) dimensions of 2298mm high x 1100mm wide, was installed by Glazing 360 Limited into the timber framed opening of the test booth with the window exterior facing the inside of the booth.

The open in Balcony Door unit comprised of an open in hinged door panel and was manufactured using the BR-A067-I602 timber frame profile with square cut corners and integrated SS86-20 aluminium cladding profile with mitred corners to the perimeter frame head and jambs, and the BR-A029-I602 timber frame profile with square cut corners and integrated SS66-19 and SB36-17 aluminium cladding profiles with mitred corners to the sill.

The open in door panel was configured as both a hinged and tilting door panel.

The Balcony door panel was manufactured using the FL-089-Ix68-080 timber sash profile with square cut corners and FL40-20 aluminium cladding profile with mitred corners.

The Balcony door panel was clear double glazed with a 24mm thick insulated glazing unit comprising of 2 x 4mm glass panes separated by a 16mm spacer, installed into the glazing platform using external FL40-20 aluminium cladding profile, an external AA3198 glazing gasket and Durasil W15 Plus sealant.

The Durasil W15 Plus sealant was applied as a wet seal of unspecified size to the interior junction of the IGU with the timber sash.

The double glazed Balcony door 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 Idealu 68 Wood/Alu Balcony Door unit are shown on the attached Neuffer Fenster drawings numbered 1 - 18.

The drawings identified the following timber profiles, aluminium extrusions and components being used in the construction of the Neuffer Idealu 68 Wood/Alu Balcony Door unit.

BR-A067-I602	Outer frame – head and jambs
BR-A029-I602	Outer frame – sill
FL-A089-Ix68-080	Timber sash profile
FL40-20	Aluminium cladding profile
SS86-20	Aluminium cladding profile (86mm)
SS66-19	Aluminium cladding profile (66mm)
SB36-17	Aluminium cladding profile
AA3198-GG/2	EPDM glazing gasket
FF2048/GG/2	EPDM sealing gasket
AFK2613-GG/2	EPDM sealing gasket
MFK2037-GG/2	EPDM sealing gasket
DC340	Plastic clip
MEH40	Plastic clip

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MG01	Handle Shell
Secustic	Window handle
Screw 2.3 x 1.7mm	
Sealant	Durasil W15 Plus

Photo 1: Interior of the Neuffer Idealu 68 Wood/Alu Balcony door installed in the test booth.

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3. Testing

The Neuffer Idealu 68 Wood/Alu Open In Balcony Door 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 SERVICEABILITY DEFLECTION (Test Procedure AS/NZS 4420.1 Clause 3)

Deflection measurements were made on the FL A068-Ix68-80 D9010 timber lock stile with compliance assessments made against the tabled Serviceability Wind Pressures at a deflection ratio of span/200

FL A089-Ix68-80 D9010 Lock Stile

Overall height	2215 mm
Test Span	2168 mm
Maximum permitted deflection span/200)	10.84 mm

Positive Pressure Test	Net Deflection	Result
Deflection at 303 Pa	0.94 mm	Complies
Deflection at 606 Pa	1.87 mm	Complies
Deflection at 909 Pa	2.98 mm	Complies
Deflection at 1212 Pa	3.82 mm	Complies
Deflection at 1515 Pa	4.95 mm	Complies

The FL A089-Ix68-80 timber lock stile of the Neuffer Idealu 68 Wood/Alu Balcony door unit, when double glazed with a 24mm IGU and tested with a differential test booth pressure of +1515 Pa, complied with Serviceability span/200 deflection requirements of NZS 4211:2008 Clause 6, for an Extra High wind zone.

Note: As the FL A089-Ix68-80 D9010 Lock Stile closed against the fixed jamb of the Neuffer Idealu 68 Wood/Alu Open In Balcony Door, structural deflection testing was required in the positive pressure orientation only.

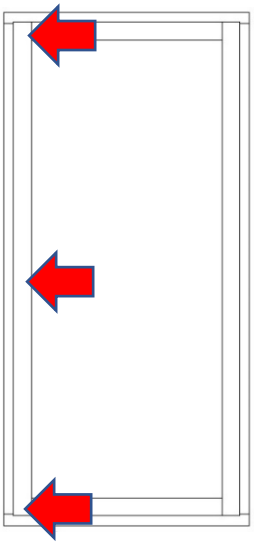

Figure 1: Location of the deflection transducers on the FL A089-Ix68-80 lock stile.

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

Overall Window Area	2.53m^2
Opening Joint Length	6.16m

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

Overall window area x 1.6 - Air Conditioned	4.04 l/s
Overall window area x 8 - Non-Air Conditioned	20.22 l/s
Opening joint length x 0.6 - Air Conditioned	3.70 l/s
Opening joint x 2 - Non-Air Conditioned	12.32 l/s

Geometric Mean

Air Conditioned	2.01 l/s
Non-Air Conditioned	4.50 l/s

Air Pressure Direction @ 150PA	Air Flow	Result
Positive Air Infiltration Test Net air flow	0.22 l/s	Complies
Negative Air Infiltration Test Net air flow	0.39 l/s	Complies

The airflow through the sample in the positive direction is (0.22 ± 0.36) l/s. The uncertainty in the airflow through the sample is ± 0.36 l/s. This expanded uncertainty is calculated with a coverage factor, k of 2.01, and defines an interval estimated to have a 95% level of confidence. The standard uncertainty is ± 0.18 l/s, (with 68% probability).

The airflow through the sample in the negative direction is (-0.39 ± 0.52) l/s. The uncertainty in the airflow through the sample is ± 0.52 l/s. This expanded uncertainty is calculated with a coverage factor, k of 2.31, and defines an interval estimated to have a 95% level of confidence. The standard uncertainty is ± 0.22 l/s, (with 68% probability).

The Neuffer Idealu 68 Wood/Alu Balcony door unit complied with the "Air Conditioned" air infiltration rating of NZS 4211:2008 Clause 8 at a differential test pressure of ±150 Pa.

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

Wind Zone	Extra High
Maximum rated pressure	455 Pa

The Neuffer Idealu 68 Wood/Alu Balcony door unit complied with the Water Penetration requirement of NZS 4211:2008 Clause 9 for the Extra High Wind Zone water penetration test pressure of 455 Pa.

Following testing at 455 Pa, the Neuffer Idealu 68 Wood/Alu Balcony door unit was tested and complied with the Water Penetration requirement of NZS 4211:2008 Clause 9 at the increased differential pressures of 533 Pa and 1000 Pa.

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

Wind Zone	Extra High
Maximum rated ULS pressure	2130 Pa

The Neuffer Idealu 68 Wood/Alu Balcony door unit met the Ultimate strength requirements of NZS 4211:2008 Clause 10 for the Extra High Wind Zone at a differential pressure of ±2130 Pa.

3.1.5 TORSIONAL STRENGTH OF SASHES (NZS 4211:2008 Clause 11)

Tilting Hinged Sash

Length of shortest sash member (mm)	956 mm
Calculated maximum allowed deflection = 0.04 * shortest sash member (mm)	38.2 mm

Table 19. NZS 4211 Appendix A Torsional strength of sashes measurements

Force (N)	Direction	Displacement (mm)	Result
10	Opening	2.37 mm	Complies
20	Opening	5.34 mm	Complies
30	Opening	8.40 mm	Complies
40	Opening	10.50 mm	Complies
10	Closing	2.43 mm	Complies
20	Closing	5.82 mm	Complies
30	Closing	8.91 mm	Complies
40	Closing	10.67 mm	Complies

The Neuffer Idealu 68 Wood/Alu Balcony door unit, as supplied, and when double glazed with a 24mm IGU and tested in accordance with NZS 4211:2008 Appendix A, complied with the performance requirements of NZS 4211 Clause 11.

4.0 Qualifications

4.1 This test report "Test Report No. AFS-R1074" relates solely to NZS 4211:2008 testing carried out on the 09th & 10th March 2023 on the Neuffer Idealu 68 Wood/Alu Balcony Door 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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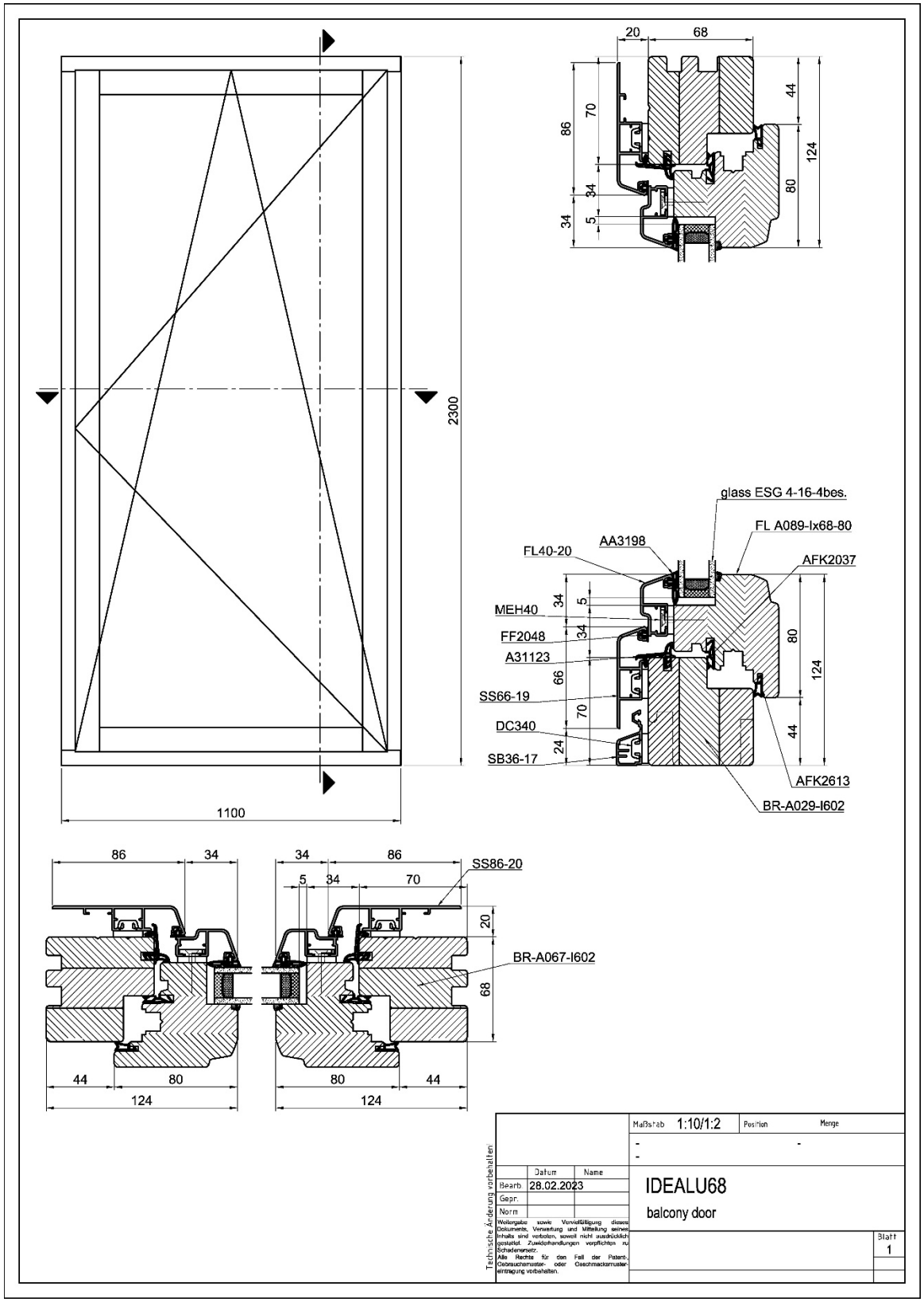
6.0 Manufacturers Documentation



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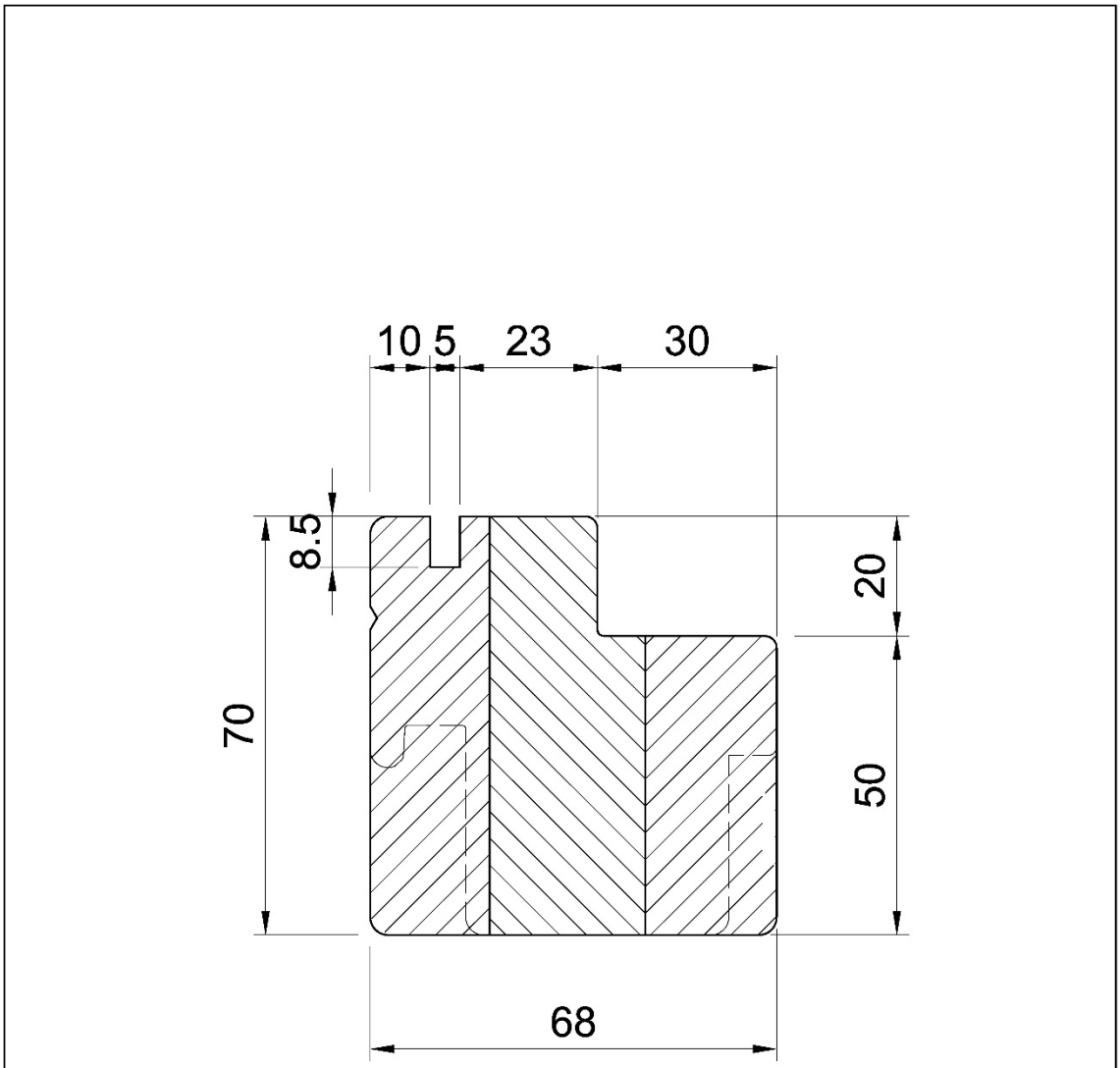

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Maßstab 1:1 | Position | Menge

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frame BR-A029-I602 D9010

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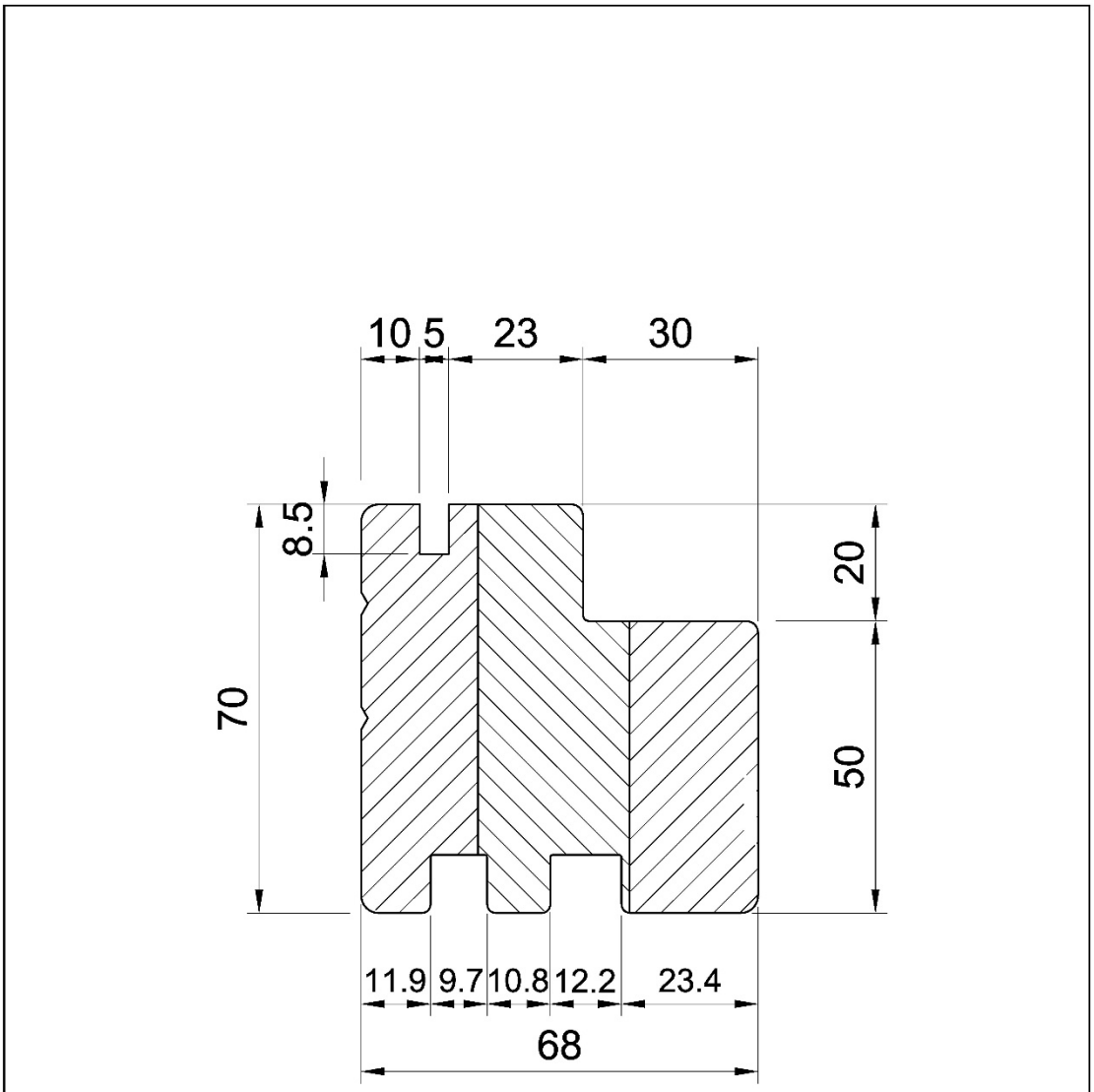

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IDEALU68

frame BR-A067-I602 D9010

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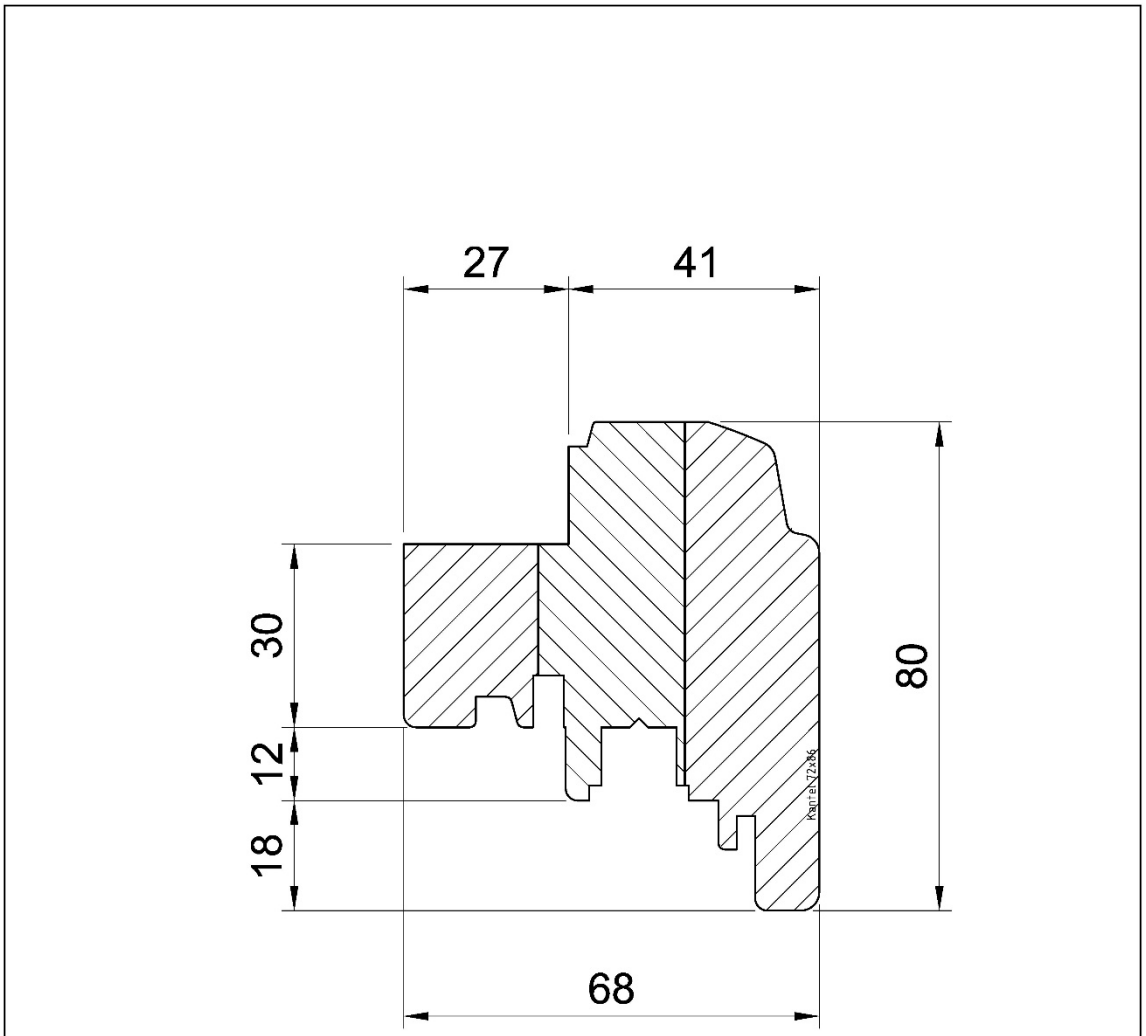

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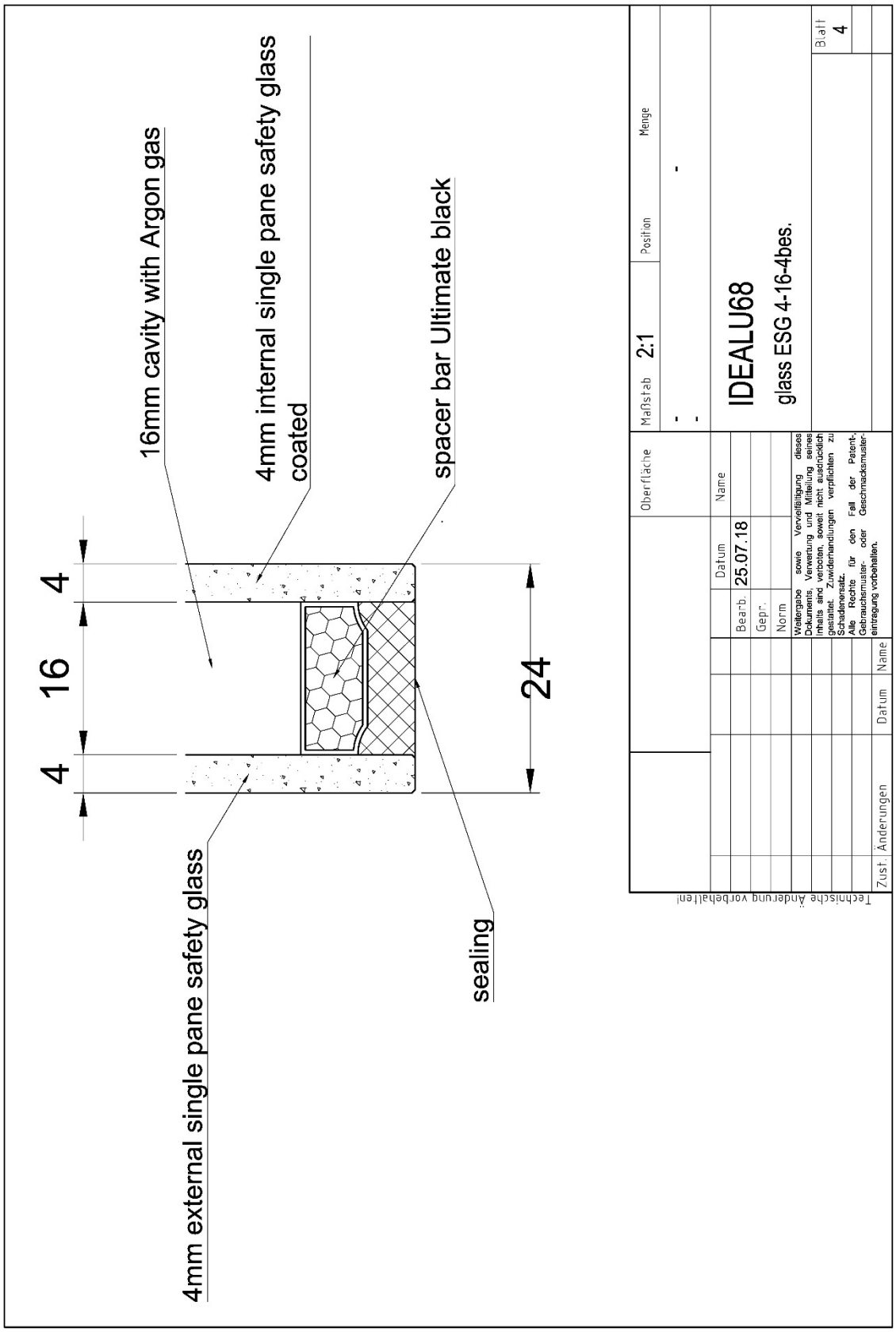

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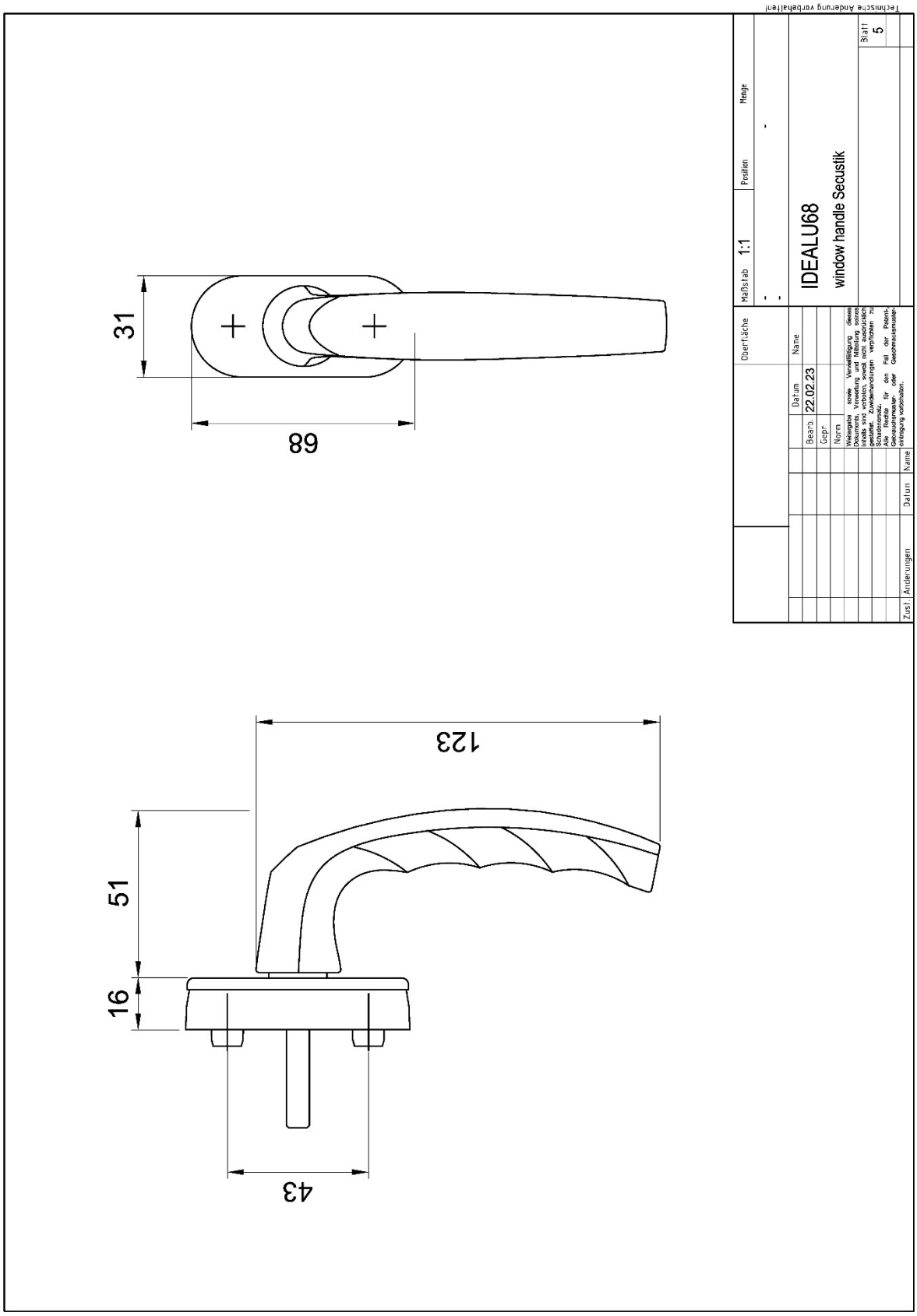

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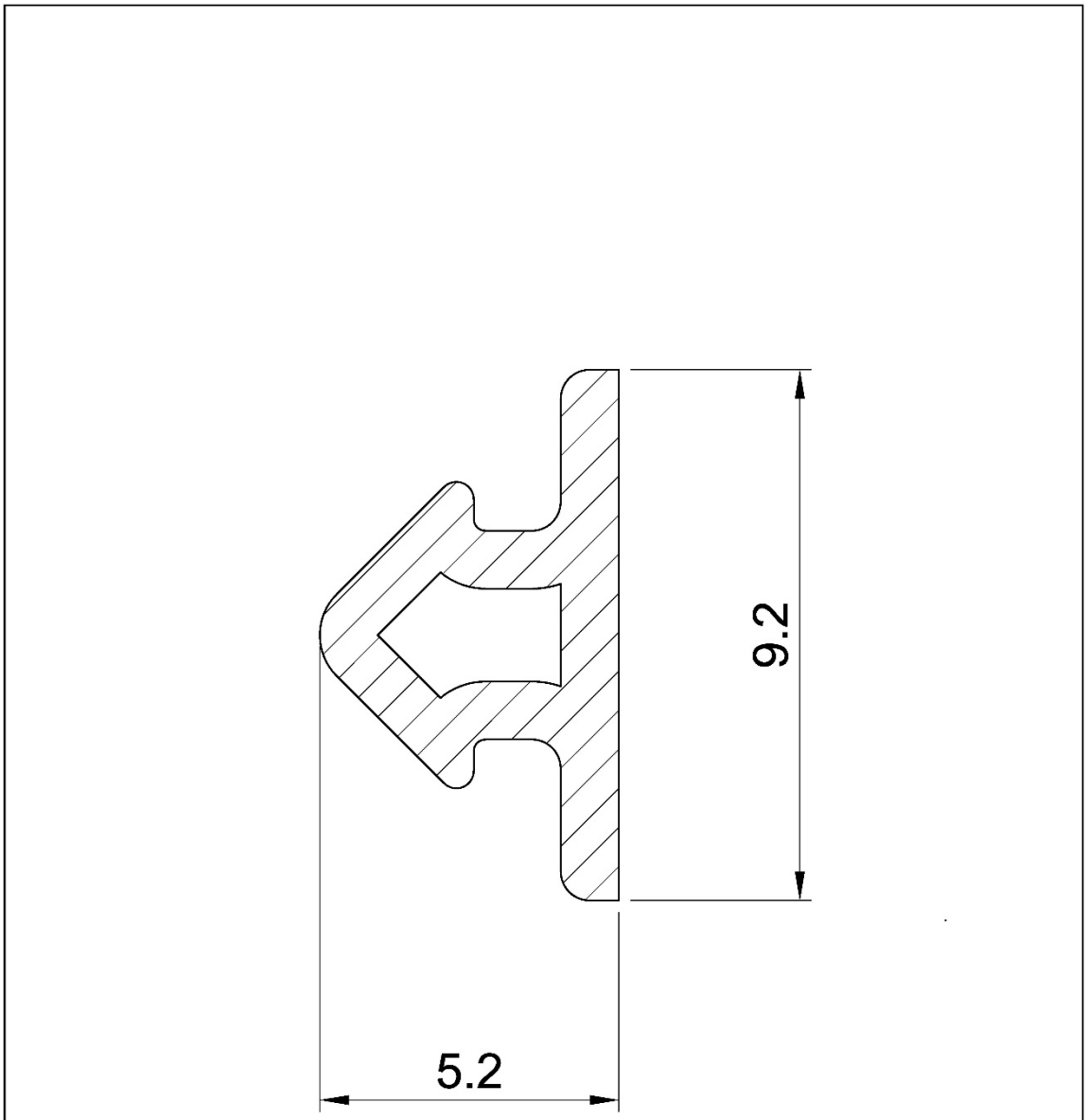

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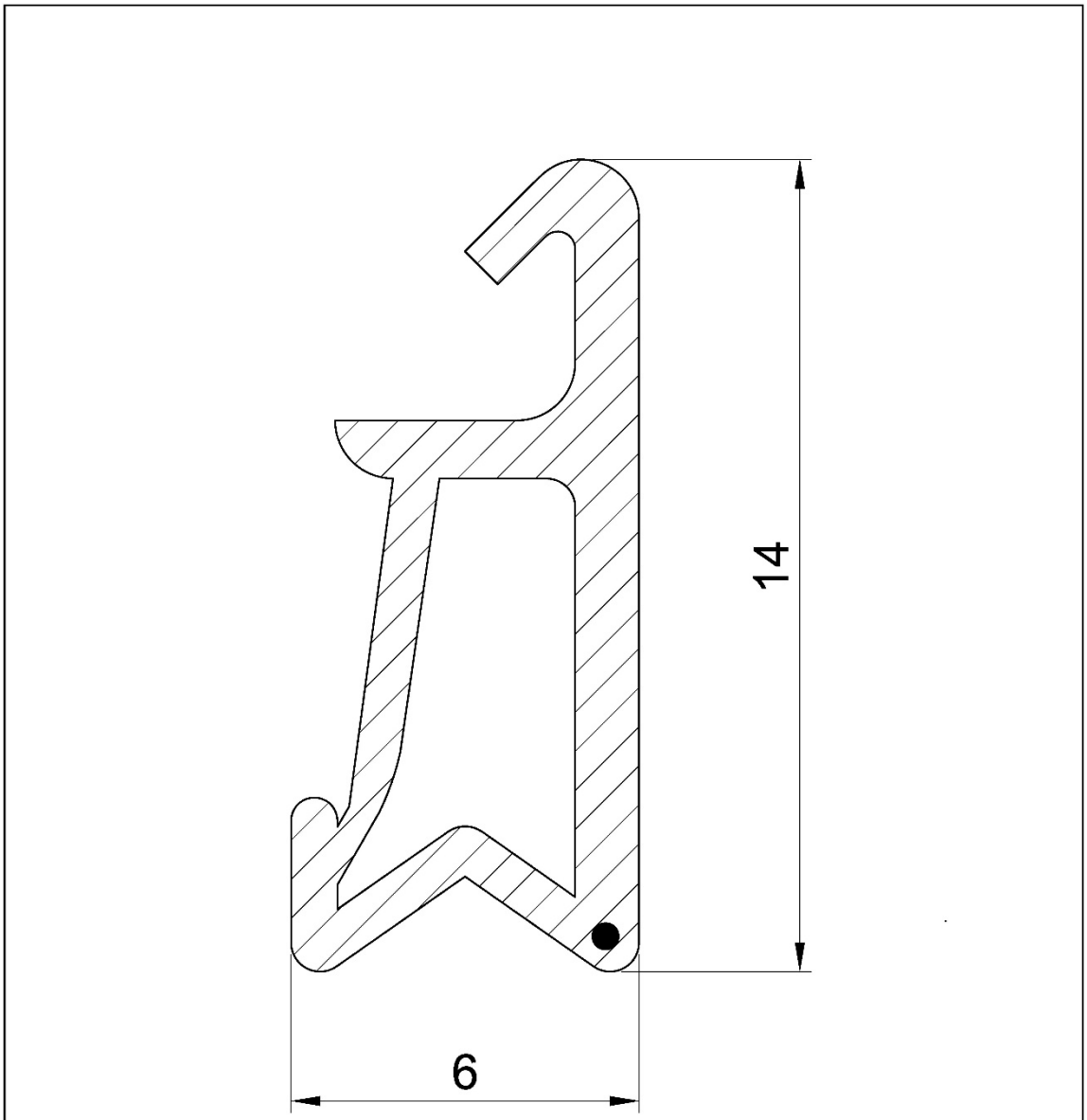

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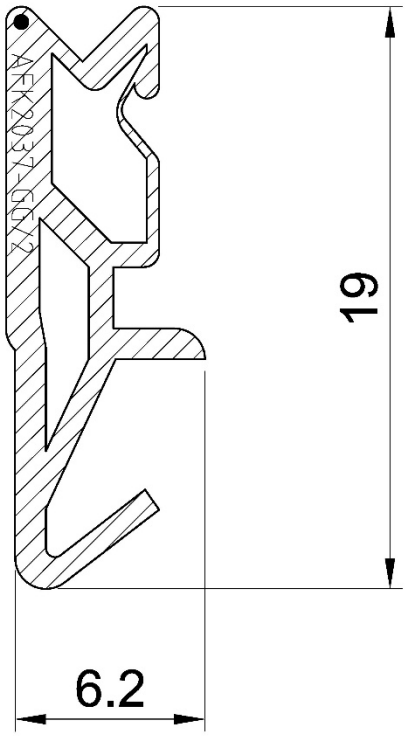

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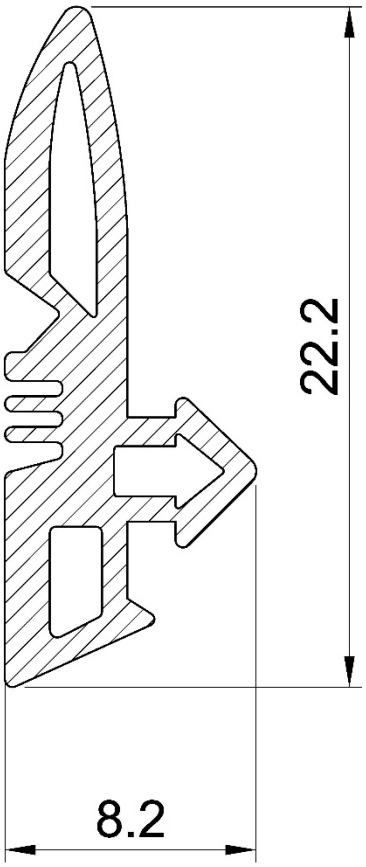

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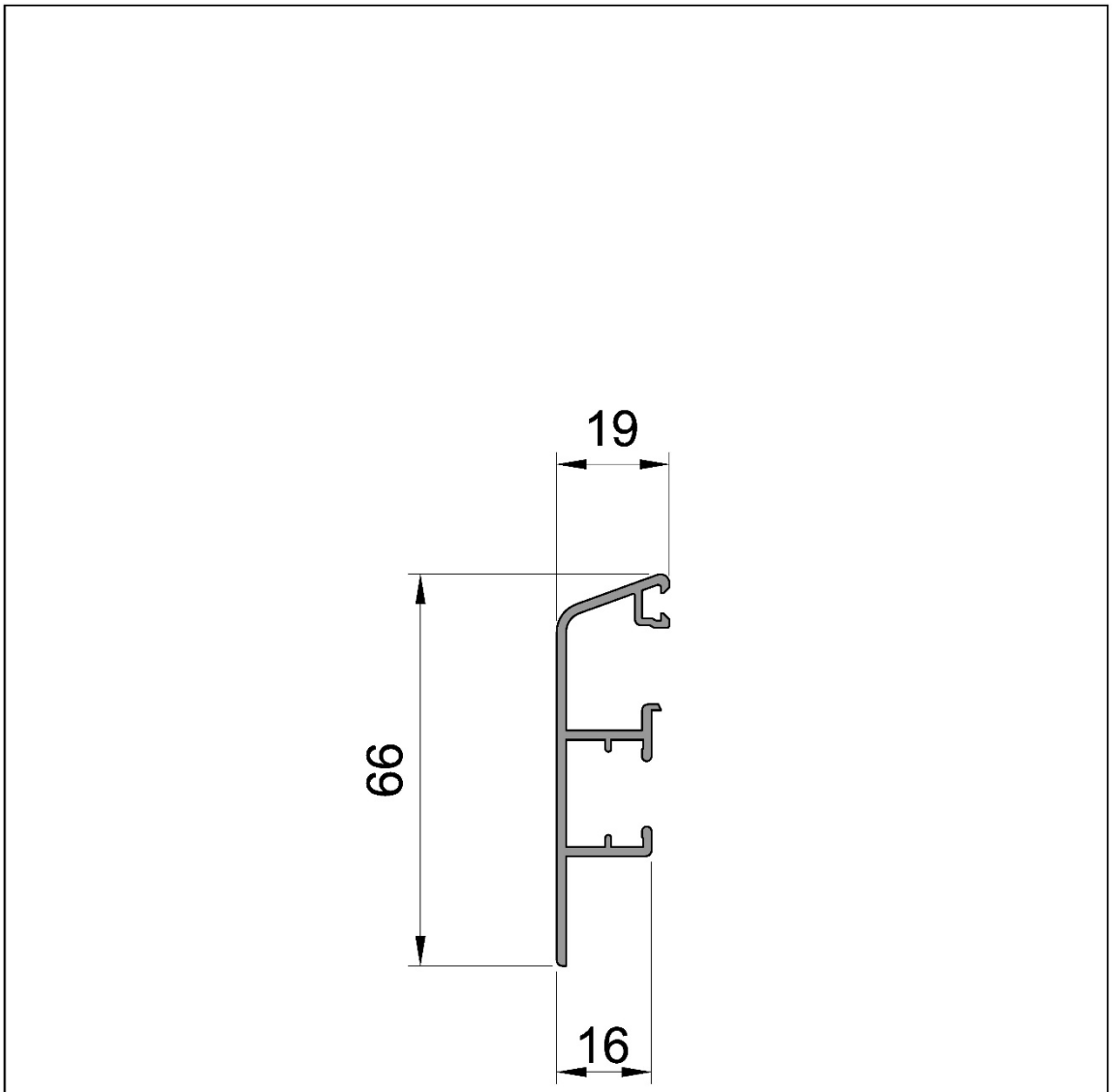

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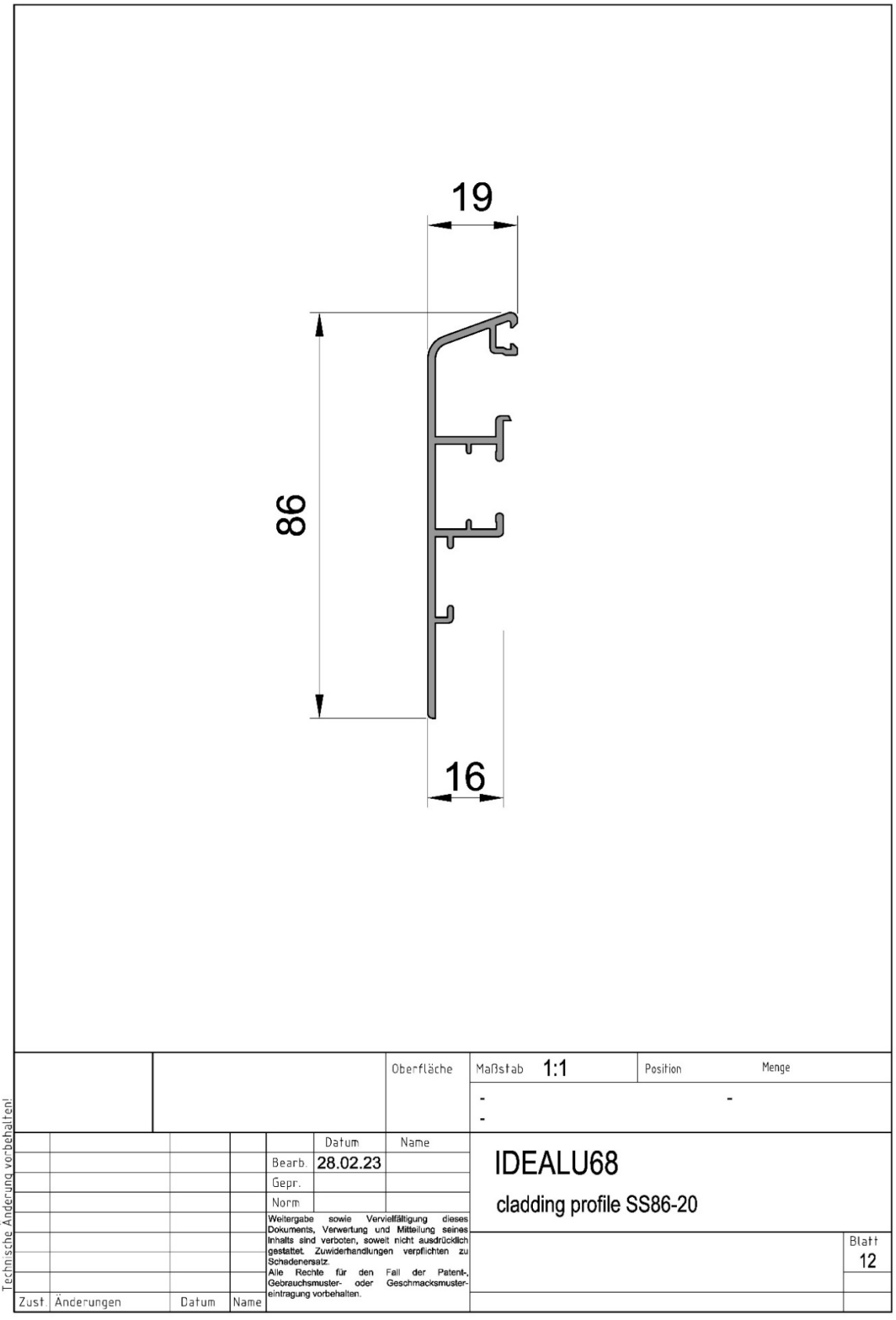

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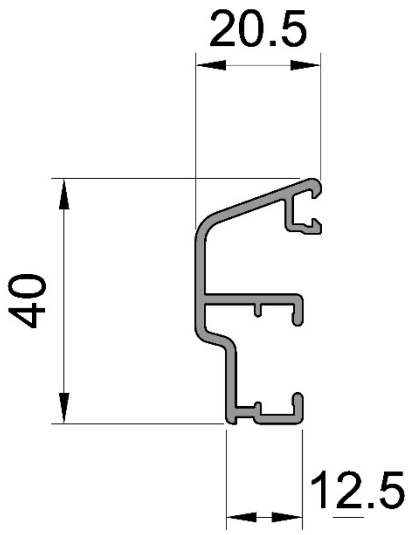

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cladding profile FL40-20

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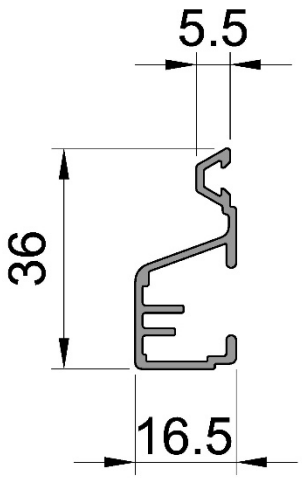

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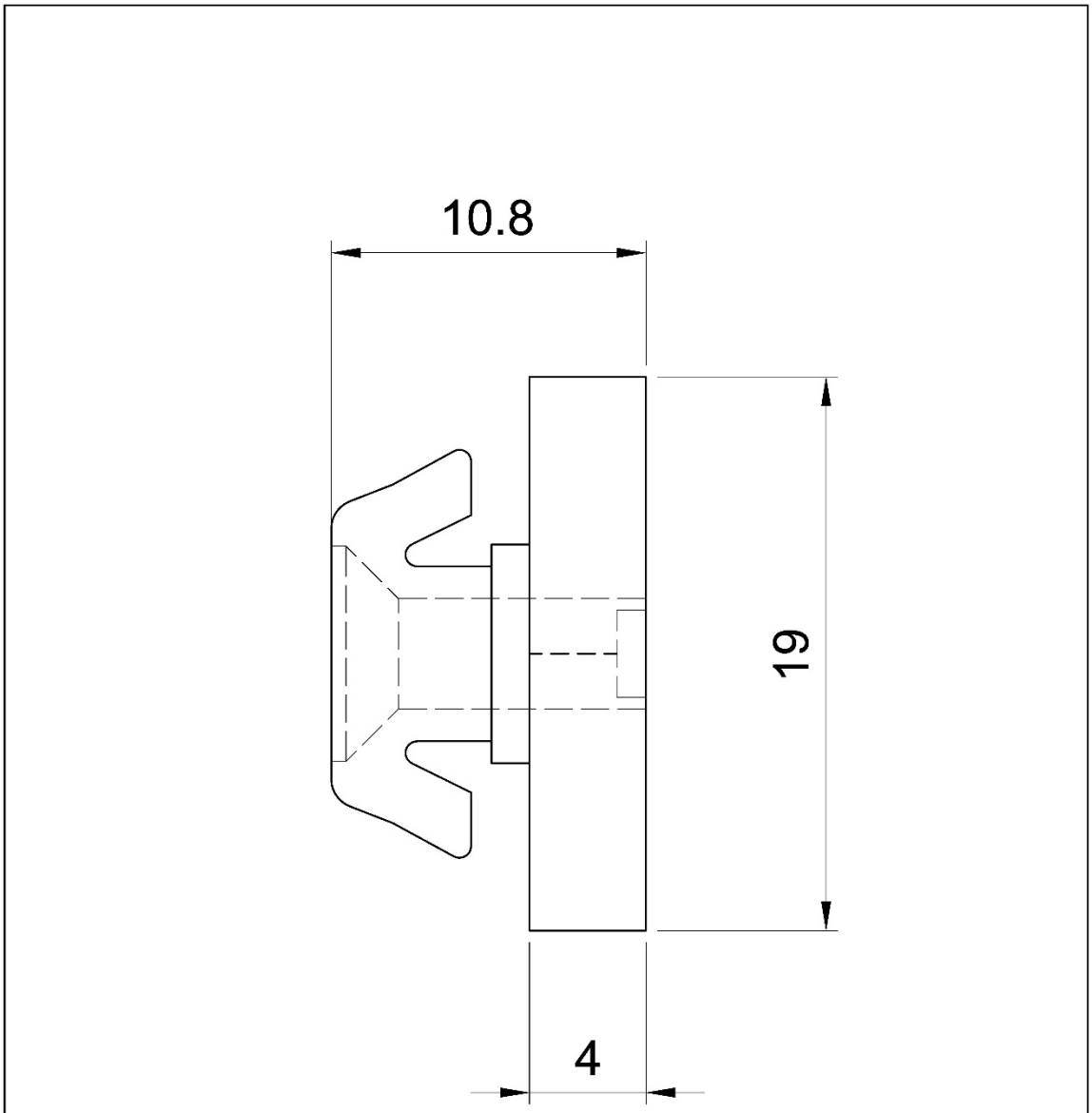

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					-		
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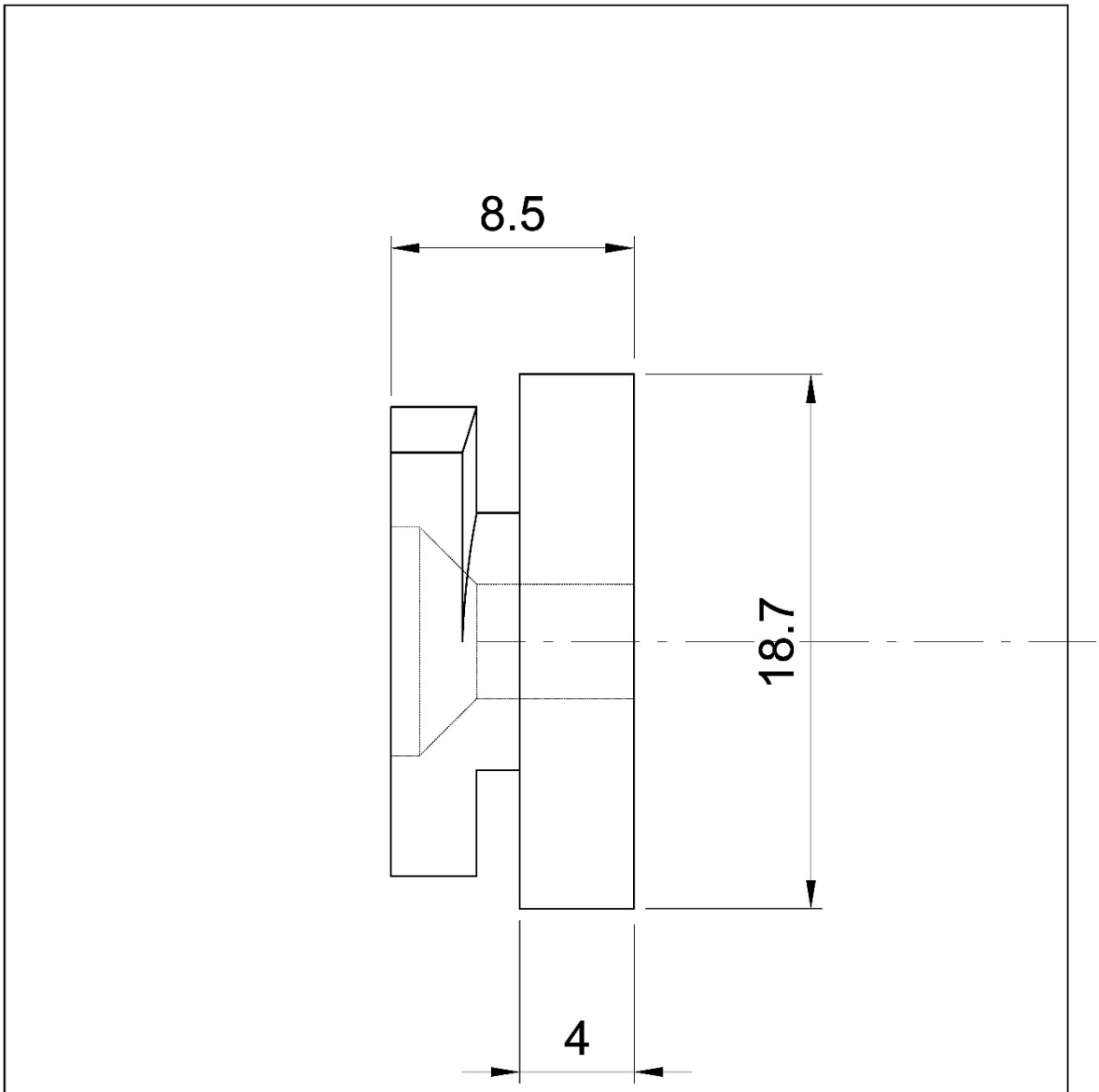
				Gepr.			
				Norm			Blatt 15
Zust.	Änderungen	Datum	Name	Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit nicht ausdrücklich gestattet. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte für den Fall der Patent-, Gebrauchsmuster- oder Geschmacksmuster-eintragung vorbehalten.			

Technische Änderung vorbehalten!

Tested by: ……
Darryl Scott /AFS Signatory

Checked by: ……
John Moore



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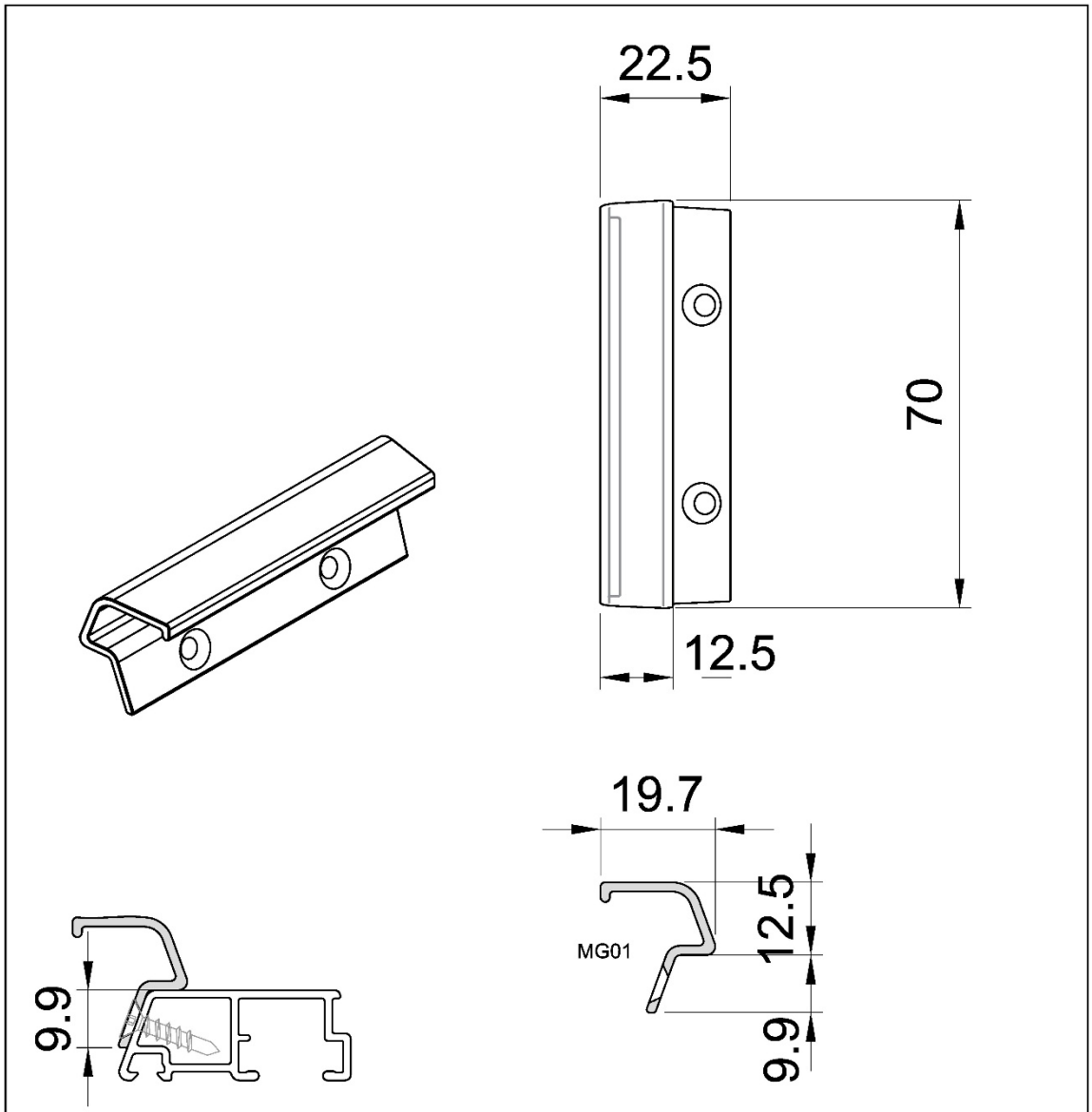
				Norm				Blatt 16
Zust.	Änderungen	Datum	Name	Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit nicht ausdrücklich gestattet. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte für den Fall der Patent-, Gebrauchsmuster- oder Geschmacksmustereintragung vorbehalten.				

Technische Änderung vorbehalten!

Tested by: ……
Darryl Scott /AFS Signatory

Checked by: ……
John Moore



Technische Änderung vorbehalten!

Zust.	Änderungen	Datum	Name

	Datum	Name
Bearb.	28.02.23	
Gepr.		
Norm		

Oberfläche

Maßstab 5:1

Position | Menge

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IDEALU68

handle shell MG01

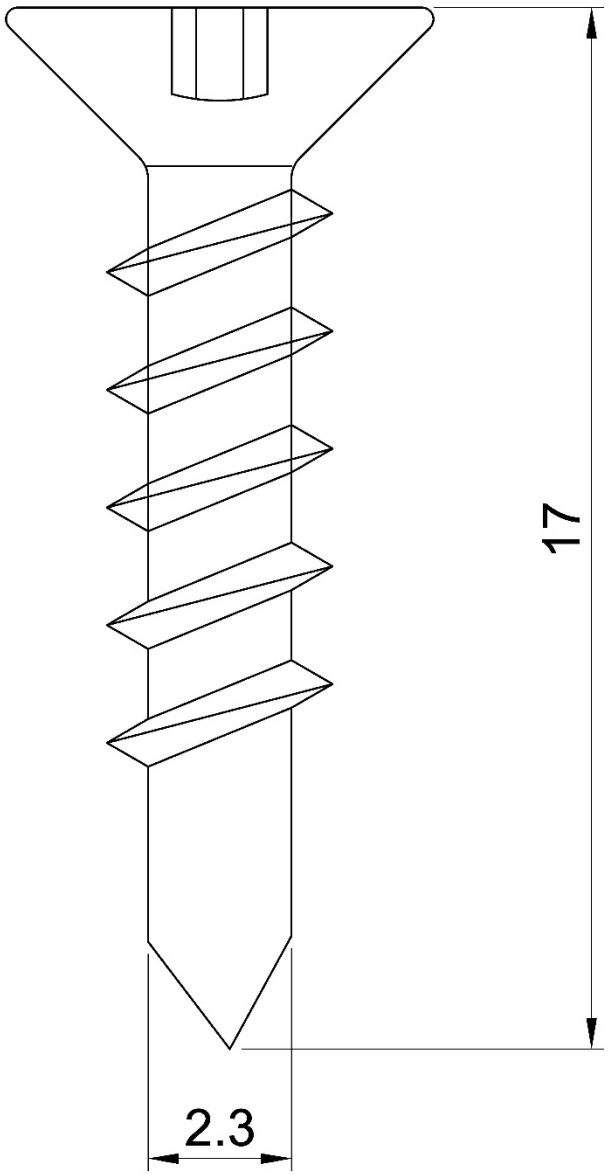
Blatt 17

Tested by: ……

Darryl Scott /AFS Signatory

Checked by: ……

John Moore



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				Norm			
				Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit nicht ausdrücklich gestattet. Zuwiderhandlungen verpflichten zu Schadenersatz. Alle Rechte für den Fall der Patent-, Gebrauchsmuster- oder Geschmacksmuster-eintragung vorbehalten.			Blatt 18
Zust.	Änderungen	Datum	Name				

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