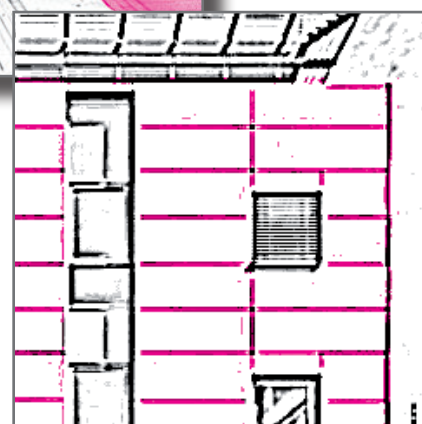
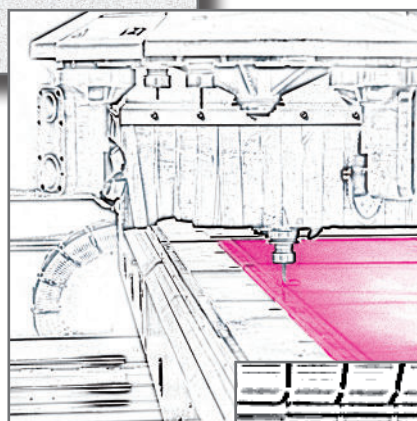
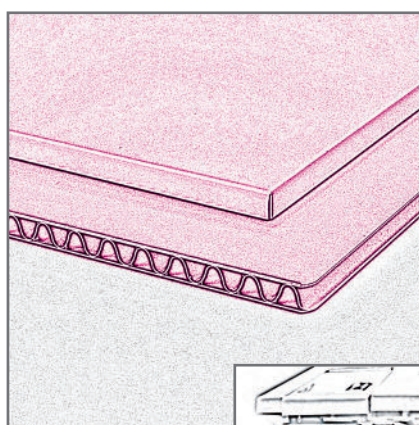


Metawall® Facades

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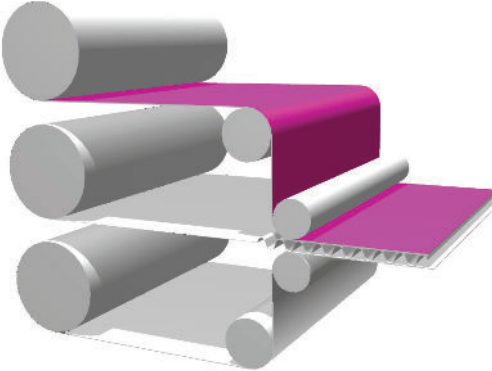
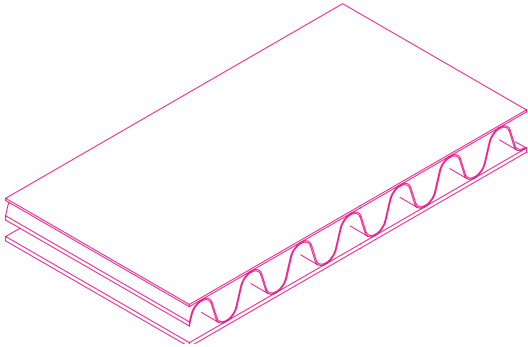
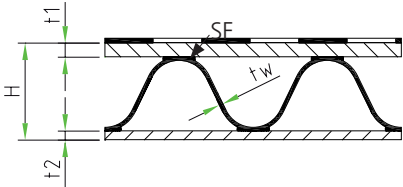
Product information



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	PRODUCT INFORMATION IN GENERAL
Innovative materials of Metawell GmbH	Thanks to the brilliantly simple design a very lightweight and extremely bending-resistant aluminium sandwich panel is created. Thanks to its properties it is perfectly suitable for the use as a curtain wall facade. The continuous manufacturing process allows a production of big panels with an plane surface, which stay flat even when used in large formats. With few exceptions, various colours can be selected for the visible surfaces e.g. RAL, NCS, BS and Pantone. Customised colours are available on request. The principle diagrams below show design examples for a suitable use of Metawall®. Project planning support with detailed technical literature can be offered and individual consultations be arranged in order to develop constructive solutions tailored to customer requirements. Important: Differences in the legal stipulations in individual countries may mean that in individual cases, the applicability needs to be tested and verified. In the Federal Republic of Germany, these requirements are defined in DIN 18516 "<i>Außenwandbekleidungen, hinterlüftet.</i>" The applicable regional building laws and technical specifications must also be observed! Thanks to the company's many years of experience, all products of Metawell GmbH meet the highest quality requirements and are subject to continuous quality control and further technical development.
Sustainability and recycling	Reasons for choosing our products: • long life and low maintenance • weather and corrosion resistance • low weight • already high proportion of recycled aluminium (no quality loss) • full recycability without previous material separation These product features are confirmed by the Environmental Product Declaration according to DIN EN ISO 14025 Type III and EN 15804.
Modifications and errors reserved	BF20e-2023/04 03
	Product information 

	PRODUCT INFORMATION IN GENERAL
Production scheme	
Panel structure	 The panel designation shows the panel structure:  Alu SF cc 10-03-05 h / H10 Panel height H Surface (primer) Thickness of the lower cover sheet t2 Thickness of the corrugation material tw Thickness of the upper cover sheet t1 Surface (coil-coating) Protective film Material
Panel formats	Width: Length: 1600 mm, 1500 mm, 1250 mm and 1000 mm up to max. 6000 mm (other lengths on request)
Modifications and errors reserved	BF20e-2023/04 04

METAWALL®

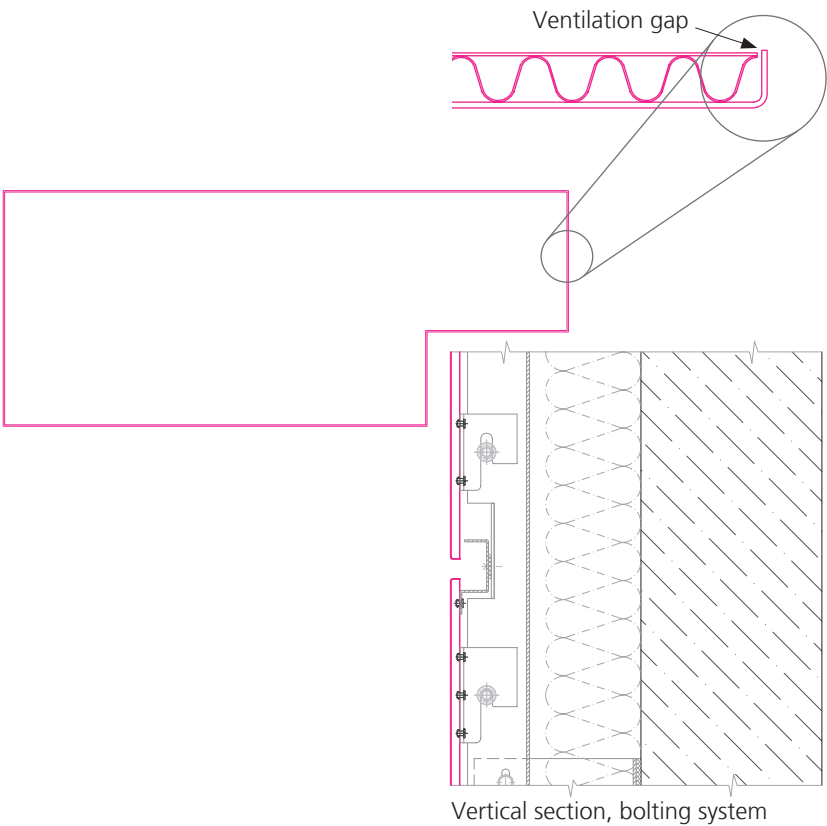
Design

Metawall® is made from a Metawell® panel.

It is manufactured on the premises of Metawell GmbH according to customer specifications.

As a fundamental rule, because of the edge design, the size of the finished Metawall® should not be subsequently changed.

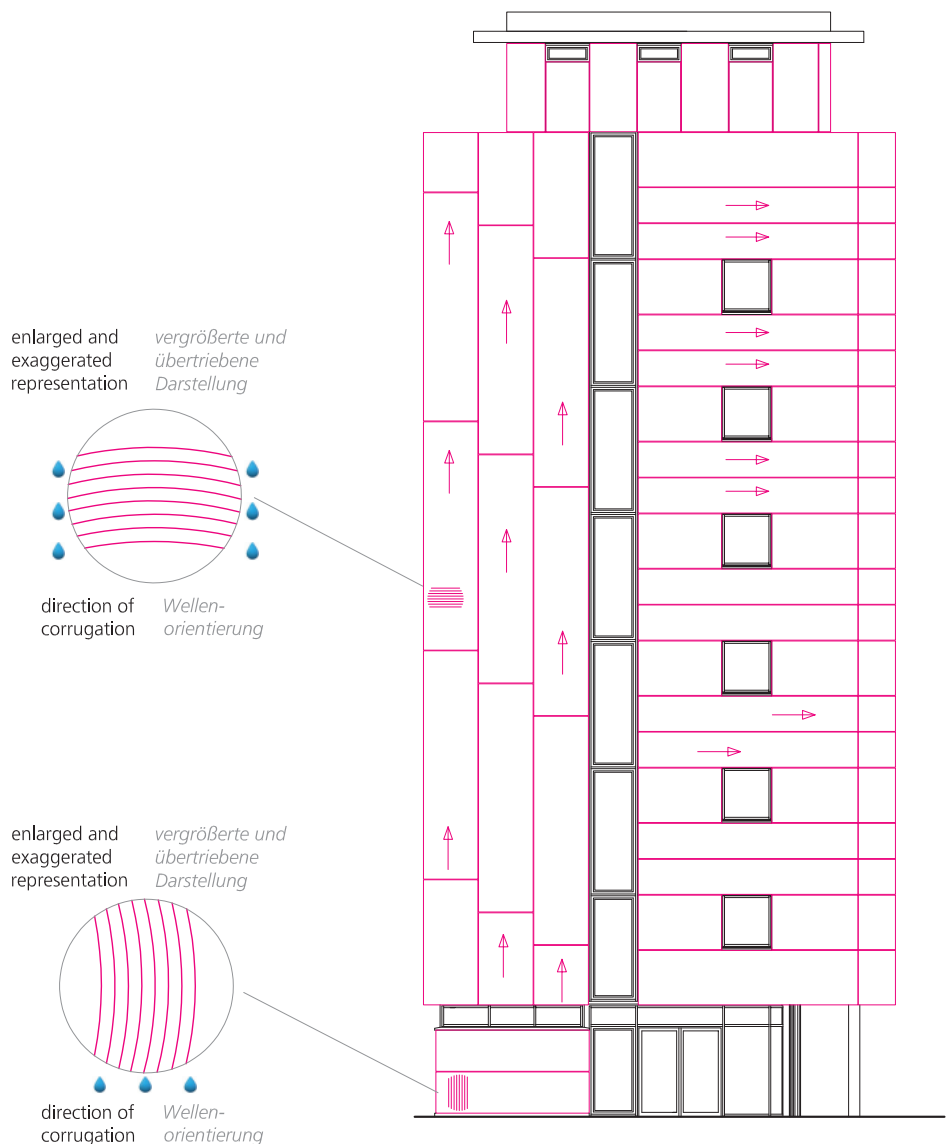
Important: Metawall® is manufactured with a ventilation gap on the reverse side. It must be ensured that any water which might penetrate (including any condensation) can drain off at all times, and for this reason, the substructure must not close off this gap.



METAWALL®

Positive drainage ensured by design

Positive drainage is guaranteed in any panel orientation. Moist air carrying water vapor can penetrate the facade and condense inside the cavity. In order to avoid humidity damage and corrosion risks. With Metawell panels the condensate can be drained using the unique corrugations as drainage channels. Of course, during installation it is important to make sure that the vertically installed panels are mounted correctly. This is ensured by the arrow on our protective film, which must always point upwards!



METAWALL® A2

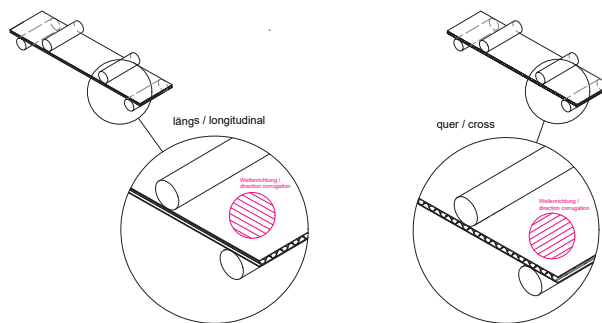
Metawall® A2

Designation:	Metawall® A2
Panel type:	Alu SF cc 10-03xl-10 hl hl / H15
Thickness:	15 mm ± 0.2 mm
Weight:	6.8 kg/m ²
Coefficient of linear expansion α :	24*10 ⁻⁶ K ⁻¹ (see example)
Temperature resistance:	-40 °C to +100 °C

Example of the linear expansion: panel formats
from -20 °C to +80 °C = 100 Kelvin temperature difference
Linear expansion due to heat: 0.024 x 100 x 1 m: 2.4 mm per 1 metre length

Static characteristics

Orientation of the corrugation	Bending resistance Nmm ² /mm
longitudinal	2.26 E +6
transverse	1.96 E +6



Technical data on the cover sheets

	Thickness	Alloy	Tensile strength	Yield strength
Visible side	1.0 mm	EN AW-5754 H42	≥ 220 N/mm ²	≥ 140 N/mm ²
Underside	1.0 mm	EN AW-5754 H48	≥ 280 N/mm ²	≥ 220 N/mm ²

Max. element formats

1560 x 6000 mm (other formats on request)

Fire classification

DIN EN 13501-1: A2 - s1, d0 (non combustible)
NFPA 285 and ASTM E84 (passed)
Intertek certified

METAWALL® B1

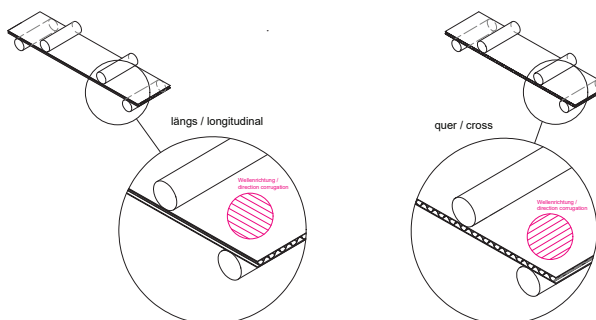
Metawall® B1 variant I

Designation:	Metawall® B1
Variant I:	Alu SF cc 10-03-05 hl / H10
Thickness:	10 mm ± 0.2 mm
Weight:	5.7 kg/m ²
Coefficient of linear expansion α :	24*10 ⁻⁶ K ⁻¹ (see example)
Temperature resistance:	-40 °C to +100 °C

Example of the linear expansion (for panel formats) from -20 °C to +80 °C = 100 Kelvin temperature difference Linear expansion due to heat: 0.024 x 100 x 1 m: 2.4 mm per 1 metre length

Static characteristics

Orientation of the corrugation	Bending resistance Nmm ² /mm
longitudinal	2.26 E +6
transverse	1.96 E +6



Technical data on the cover sheets variant I

	Thickness	Alloy	Tensile strength	Yield strength
Visible side	1.0 mm	EN AW-5754 H42	≥ 220 N/mm ²	≥ 140 N/mm ²
Underside	0.5 mm	EN AW-5182 H48	≥ 330 N/mm ²	≥ 300 N/mm ²

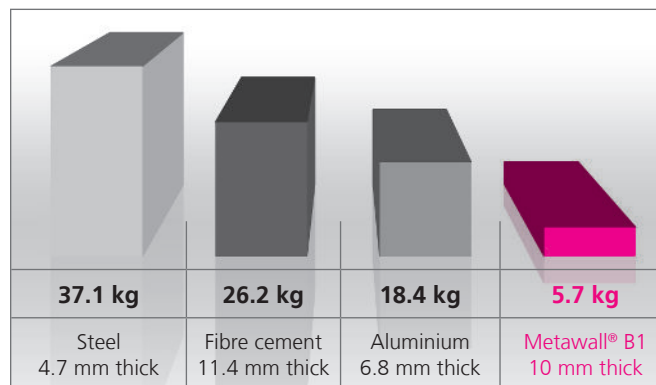
Max. element formats

Attachment with brackets: 1570 x 6000 mm (other lengths on request)

Fire classification

Attachment with brackets: DIN EN 13501-1: B - s2, d0 (fire retardent)

Comparison of the weight of various materials with equal bending resistance



METAWALL® B1

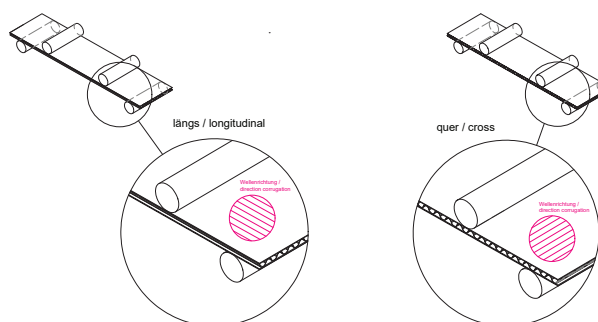
Metawall® B1 variant II

Designation:	Metawall® B1
Variant II:	Alu SF cc 08-03-05 hl / H10
Thickness:	10 mm ± 0.2 mm
Weight:	5.2 kg/m ²
Coefficient of linear expansion α:	24*10 ⁻⁶ K ⁻¹ (see example)
Temperature resistance:	-40 °C to +100 °C

Example of the linear expansion (for panel formats)
from -20 °C to +80 °C = 100 Kelvin temperature difference
Linear expansion due to heat: 0.024 x 100 x 1 m: 2.4 mm per 1 metre length

Static characteristics

Orientation of the corrugation	Bending resistance Nmm ² /mm
longitudinal	2.13 E +6
transverse	1.85 E +6



Technical data on the cover sheets variant II

	Thickness	Alloy	Tensile strength	Yield strength
Visible side	0.8 mm	EN AW-5754 H42	≥ 220 N/mm ²	≥ 140 N/mm ²
Underside	0.5 mm	EN AW-5182 H48	≥ 330 N/mm ²	≥ 300 N/mm ²

Max. element formats

Attachment with brackets: 1570 x 6000 mm (other lengths on request)

Fire classification

Attachment with brackets: DIN EN 13501-1: B - s2, d0 (fire retardent)

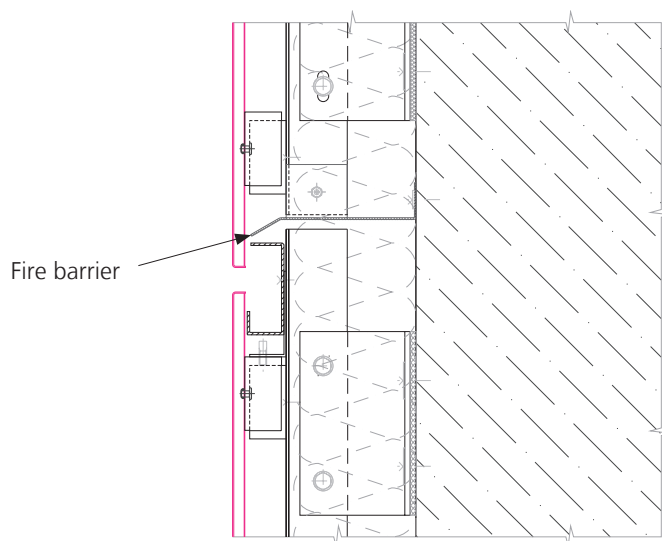
	GENERAL NOTES
Delivery and storage	Deliveries are made in closed chipboard or non-wood cases. Depending on the order the single coli may have a gross weight of more than 3000 kg. Any visible damage of the packing has to be recorded immediately and stated in the receipt of the delivery for the carrier. The panels must be protected from rain and snow during storage. Furthermore, the panels are to be stacked with the visible side facing up. Condensation as a result of strong fluctuations in temperature must be avoided, as it causes stains or corrosion – where necessary, the facade panels must be dried. To avoid denting the panels when they are stacked, only suitable materials may be inserted as intermediate layers (no polystyrene). The individual panels must be removed from the stack without sliding them out. The maximum permissible stacking height for the panels is 1500 mm. We recommend the use of suitable gloves for handling in order to avoid soiling the panels and injuries.
Protective film	The panels are delivered with a protective film. This film is applied to provide protection during transport and should be removed at the latest 6 months after delivery. Protective film which has been exposed to weathering for a long time is extremely hard to remove. For this reason, the film should be removed from the panels as soon as possible after assembly. If the protective film peels off some areas of the panel, for example during further processing or fitting, dirt may accumulate at the edges of the film over time, and such dirt rims are difficult or even impossible to remove. Caution: Markings or labelling applied to the film using, for example, Edding markers or other labelling devices, may in certain circumstances penetrate the film and affect the coating.
Errors and omissions excepted	All illustrations and information given in this technical description represent the technical state-of-the-art, our own experience and the results of testing. The information provided is without contractual obligation and does not represent any warranty of properties. Reproduction of this description or parts of it is only permissible if authorised by Metawell GmbH. Warranty and liability exclusively as defined in the relevant version of our general delivery conditions; this also applies to information provided orally in personal consultations. We accept no liability for errors, omissions or subsequent modifications.
Modifications and errors reserved	BF20e-2023/04 10

GENERAL NOTES

Fire protection

To prevent fire spreading over several floors of a building, German building law specifies and the technical building specifications prescribe the installation of fire barriers (e.g. made from sheet steel) in buildings of certain classes.

Scuncheons of openings in the outside walls (doors, windows) may form an integral part of fire barriers.



Metawall® A2 fulfils the requirements in accordance with the classification of building products and building types according to their fire behaviour to:

- DIN EN 13501-1-1: A2 - s1, d0 (non combustible)
- NFPA 285 and ASTM E84

Metawall® B1 fulfils the requirements in accordance with the classification of building products and building types according to their fire behaviour to:

- DIN EN 13501-1: Attachment with brackets: B - s2, d0 (fire retardent)

Lightning protection

To prevent personal injury and damage to property the relevant national building regulations, the building operator or the property insurer may require a risk assessment, which in Germany is carried out in accordance with VDE 0185-305-2: 2006-10.

Since October 2006 the standards DIN EN 62305 (VDE0185-305) Part 1 to Part 4 have been applied as the basis for general lightning protection in Germany.

Internet addresses for information on lightning protection:

www.blitzschutz.de

www.vdb.blitzschutz.com

The world of colors

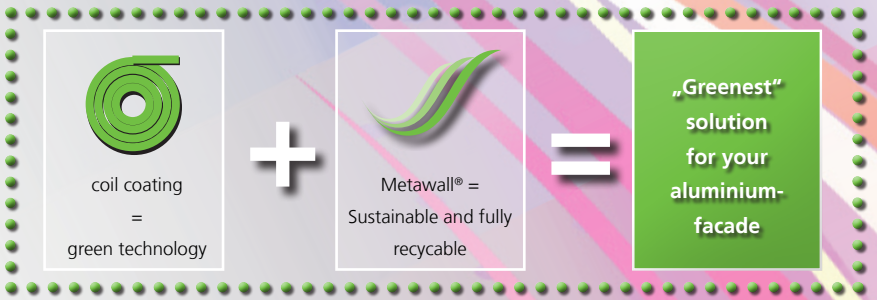
WORLD OF COLORS

Coil-coating

Whether plain or metallic colors to RAL, Pantone, NCS or BS: You have the Choice!
On request also own concepts with special colors can be realized together. For all colors only high quality paint systems are used. Further information is available in the color-chart "Architectural Colors"

Important: When planning and fitting coil-coated facade elements, in particular in the case of metallic paints, it must be ensured that the direction of the elements and the direction in which the paint is applied are the same. The so-called "flop effect" could spoil the uniform appearance of the elements if they are positioned in different directions. To prevent this, the panels are labelled with an arrow on the reverse side.
This effect can also be seen if the direction in which the panels are fitted changes from horizontal to vertical, e.g. if individual panels in the facade are turned through 90° before fitting.

Paint system	Euraprestige (fluoropolymer dispersion)	HDP-Polymer (High-Durable-Polymer)
Painting method	Coil-coating Coil-coating	Coil-coating Coil-coating
Gloss level	30 ± 5 units	30 ± 5 units
Color	Metallic colors RAL and NCS with a few exceptions	Metallic colors RAL, NCS and series of natural aluminium shades with a few exceptions
Corrosion-resistance	very good	very good
Color fastness	very good	good
Gloss retention	very good	good
Weather resistance	very good	good



WORLD OF COLORS

Spray-painting

Spray-painted metallic finishes in particular have very attractive bright colors, visual depth and color shades that vary depending on the light and the angle from which they are viewed.

This effect is created by a varying alignment of the metallic pigments. This often creates lighter and darker shading on each facade panel or from one component to another. Light and dark contrasts on a painted surface also occur when the surfaces do not lie in the same angle to the level of observation.

Possible paint systems

Paint system	PVDF (2K fluoropolymer resin)	2K-PUR (2K polyurethane system)
Painting method	Spray-painting (wet)	Spray-painting (wet)
Gloss level	30 ± 5 units	60 ± 5 units
Color	Metallic colors RAL, Sikkens and NCS with a few exceptions	Metallic colors RAL, Sikkens and NCS with a few exceptions
Corrosion-resistance	very good	good
Color fastness	very good	good
Gloss retention	very good	good
Weather resistance	very good	good

**Painting process
for spray-painting**

WORLD OF COLORS

For small-area facades, Metawall® can be tailored to the color concept of the construction project by means of spray-painting.

Thanks to its' primered surface (hl), Metawall® can be sprayed directly with a suitable top coat with no pre-treatment required.

However, with some shades, an additional pre-treatment with a primer may be necessary. Therefore it is strongly recommend to try out the selected paint system and color shade on sample panels.

The following specifications and notes must be observed.

- The temperature limit for forced drying in an oven is +100° C and must not be exceeded.
- Metawall® is delivered with a protective film. Before commencing painting, check that the surfaces to be painted are free of soiling.
- The paint must be applied as stipulated in the paint manufacturer's instructions.
- The degree of gloss of the paint system selected should not be above 60 gloss units
- If the panels are post-painted, suspension tabs must be attached on the reverse side of the panels (number depending on the panel size).
- Post-painted Metawell® panels should not be used to make Metawall®, due to the lower elasticity of the top coat.

WORLD OF COLORS

Powder-coating

Powder-coated Metawall® combines a high degree of functionality with attractive design. The wide range of colors and surface textures offers you unlimited possibilities to individually design the facade and thus the overall appearance of your building. **On request** Metawall® can be supplied **for powder-coating**. After cleaning, the powder-coatable panels, which are already primed, can be coated without further pre-treatment. Here, the temperature limit is +200 °C.

However, some shades may require an additional pre-treatment with a primer may be necessary. We therefore strongly recommend that you try out the selected paint system and color shade on sample panels.

Possible powder systems

Powder system	HWF - PES (Highly weather-resistant polyester resin in accordance with GSB)	PES (Polyester resin in accordance with GSB)
Painting method	electrostatic powder-coating	electrostatic powder-coating
Gloss level	matt to glossy	matt to glossy
Color	Metallic colors RAL, Sikkens and NCS with a few exceptions	Metallic colors RAL, Sikkens and NCS with a few exceptions
Corrosion-resistance	very good acc. to AAMA 605.2-92	good acc. to AAMA 605.2-92
Color fastness	very good acc. to GSB Cl.2	good acc. to GSB Cl. 1
Gloss retention	very good acc. to GSB Cl. 2	good acc. to GSB Cl. 1
Weather resistance	very good acc. to ISO 2810	good acc. to ISO 2810

Powder-coating companies Recommendation

LOV Limbacher Oberflächenveredlung GmbH

Sachsenstraße 31
D - 09212 Limbach-Oberfrohna
Tel: +49 3722 / 7764 - 02
Internet: www.lov.de
E-mail: info@lov.de

Vogt Lackiertechnik GmbH

Industriestraße 11
D - 92339 Beilngries
Tel: +49 8461 / 6 06 04 - 0
Internet: www.vogt-lackiertechnik.de
E-mail: info@vogt-lackiertechnik.de

KSI - Klaus Stahl Industrielackierungen GmbH

Im Lettenhorst 2
D - 67105 Schifferstadt
Tel: +49 6235 / 4908 - 0
Internet: www.stahlgmbh.com
E-mail: info@stahlgmbh.com

WORLD OF COLORS

Color samples

As a rule, color samples placed at the disposal of customers are laboratory samples and may differ in their appearance (degree of gloss, shade, etc.) and surface texture from the actual product.

Cleaning and maintenance

When cleaning the coated surface, the respective paint system and the type of soiling must be taken into consideration. Under no circumstances may abrasive, organic, solvent-based, highly acidic, alkaline or chlorous cleaning agents be used. After cleaning, the surfaces must be rinsed well with water and dried. See also Leaflet A5 "Reinigung von Aluminium im Bauwesen" (cleaning of aluminium in construction) from the GDA Gesamtverband der Aluminiumindustrie e.V. and the supplementary list of neutral cleaning agents, published by the Gütegemeinschaft für die Reinigung von Metallfassaden e. V. Nuremberg.

Repairs

As a fundamental rule: Repair work may only be carried out by a specialist company. The touch-up paint should first be tried out on an inconspicuous part of the facade.

Please contact the paint manufacturer or paintshop for details of suitable touch-up paints.

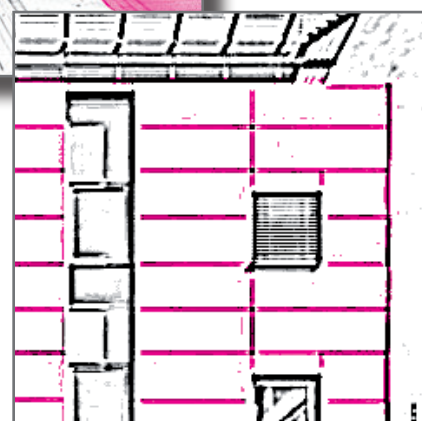
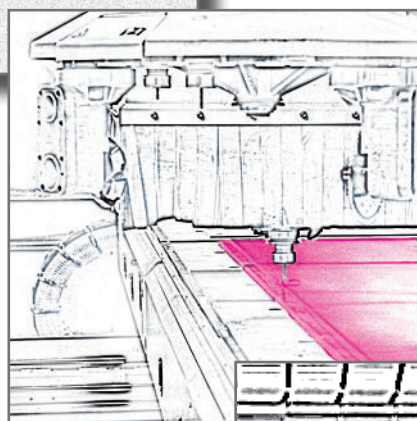
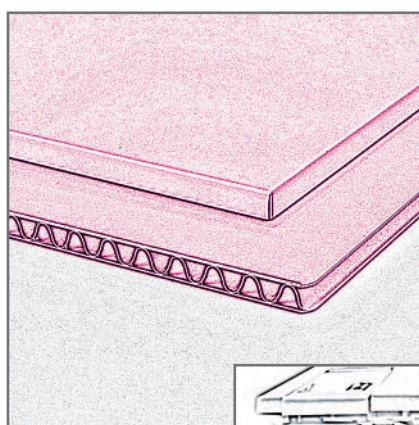
Important note on the protective film

The products are delivered with a protective film. This film is applied to provide protection during transport and should be removed at the latest 6 months after delivery. Strong temperature fluctuations and exposure to direct sunlight can reduce the durability of this film. If the protective film peels off some areas of the panel, for example during further processing or fitting, dirt may accumulate at the edges of the film over time, and such dirt rims are difficult or even impossible to remove.

Caution:

Markings or labelling applied to the film using, for example, Edding markers or other labelling devices, may in certain circumstances penetrate the film and damage the coating.

Fixing methods



FIXING METHODS METAWALL® A2

Rail system

The attachment of Metawall® is realised with the substructure of the company GIP - rail system „VECO 2000“.

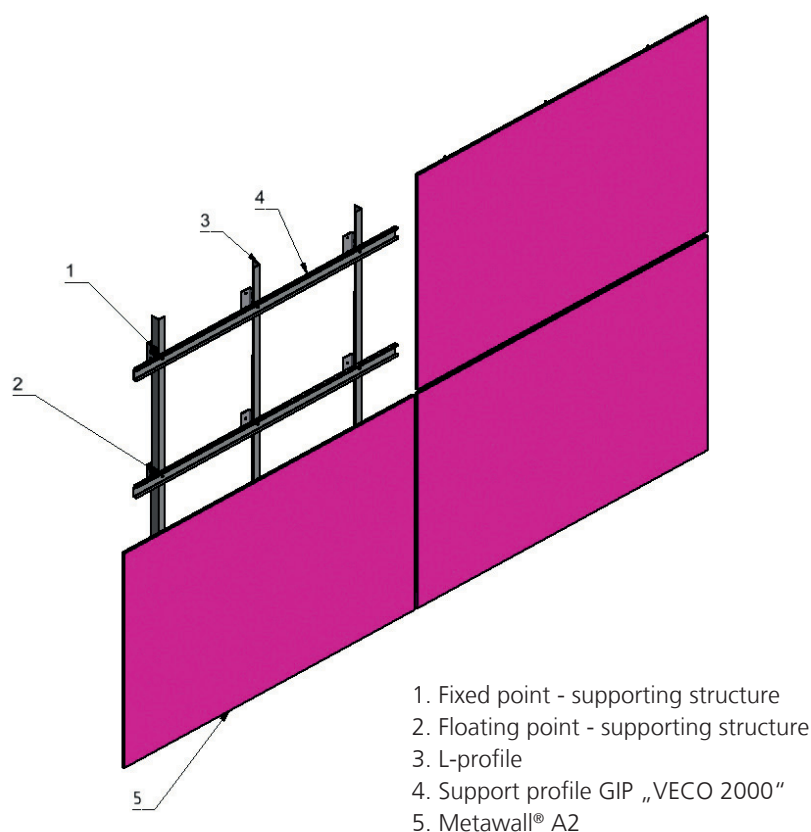
To avoid dilatation noise caused by the normal relative movement of the elements as a result of wind and temperature changes, it may be necessary to use suitable acoustic insulation in the specific substructure systems selected.

If facade cladding with open joints is prescribed, particular attention should be paid to the fact that rain and moisture can penetrate the joints.

The method by which the Metawall® is attached to the selected substructure must be defined according to the static requirements.

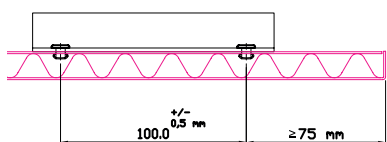
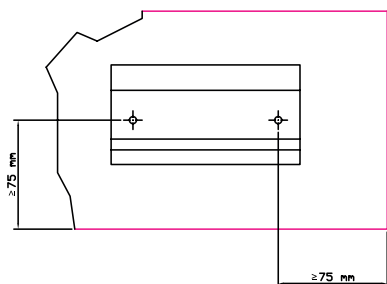
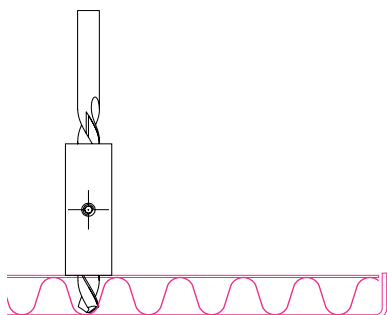
The number of brackets depends on the bracket type, format and the wind load.

The brackets are attached to the reverse side of our facade elements with rivets and thin sheet screw.



FIXING METHODS METAWALL® A2

Drilling



Drilling:

We recommend that you use a sleeve which prevents the drill penetrating too far, to ensure that the drill does not dent or break through to the visible side of the panel.

Rivet setting process:

- The rivet is to be applied straight, at 90°
- Ensure that the rivet head lies flat against the panel
- On insertion, the rivet protrudes slightly. During the setting process, light pressure must be applied to press it in

A sample panel is available on request to allow you to familiarise yourself with the correct drilling and setting procedure in advance.

See the processing instructions for recommended rivet setting tools.

Technical data on the rivets

Rivet	PolyGrip rivet
Size / Material	4.8 x 10 Alu/Nirosta
Clamping range	0.5 – 6.5 mm
Thickness of brackets	2.2 mm
Drill hole diameter	4.9 mm (tolerance +0.1 / -0.0 mm)
Manufacturer	Gesipa
Art. No.	1433892
Corrosivity categories according to DIN EN ISO 9223:	C1 to C3

Stability proof of the brackets riveted on the backside:

$F_{Ed} \leq F_{Rd}$ must be fulfilled; where F_{Ed} is the design value of the action and F_{Rd} is the design value of the component resistance.

Rated value of the component resistance per bracket

against tensile stress	$F_{Rd,Z} = 1.4 \text{ kN / bracket}$
opposite to transverse force stress	$F_{Rd,Q} = 1.6 \text{ kN / bracket}$
For combined loads of tensile and shear force must be fulfilled	$F_{Ed,Z} / F_{Rd,Z} + F_{Ed,Q} / F_{Rd,Q} \leq 1.0$

FIXING METHODS METAWALL® A2

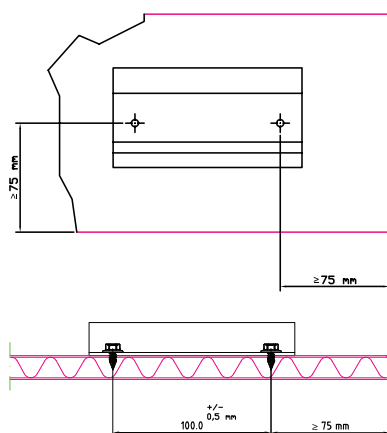
Screwing:

The holes for the screws are pre-drilled in the bracket. No holes are required in the plate, as the hole in the back of the cassette is created by the drill tip of the screw.

Screw setting process:

- The screw is to be applied straight, at an angle of 90° to the panel surface
- The tightening torque of the screw must be limited to 6 Nm
- Finally, check that the head of the screw lies flat on the bracket to ensure a force-fit connection

A sample panel is available on request to allow you to familiarise yourself with the correct drilling and setting procedure in advance.



Technical data on the screws

Screw	thin sheet screw RN KB79 Ø 4,5
Size / Material	RV4-T2-4,5x10
Clamping range	0.5 - 4.0 mm
Thickness of brackets	2.2 mm
Drill hole diameter for brackets	4.5 - 5.0 mm
Manufacturer	REISSER-Schraubentechnik GmbH
Art. No.	00KB79 V 045 x 10

Stability proof of the brackets screwed on the backside:

$F_{Ed} \leq F_{Rd}$ must be fulfilled; where F_{Ed} is the design value of the action and F_{Rd} is the design value of the component resistance.

Rated value of the component resistance per bracket

against tensile stress	$F_{Rd,Z} = 1.2 \text{ kN / bracket}$
opposite to transverse force stress	$F_{Rd,Q} = 2.96 \text{ kN / bracket}$
For combined loads of tensile and shear force must be fulfilled	$F_{Ed,Z} / F_{Rd,Z} + F_{Ed,Q} / F_{Rd,Q} \leq 1.0$

FIXING METHODS METAWALL® B1 VARIANT I + II

Bolt sytem

The attachment of Metawall® can be realised with all appropriate substructure systems.

To avoid dilatation noise caused by the normal relative movement of the elements as a result of wind and temperature changes, it may be necessary to use suitable acoustic insulation in the specific substructure systems selected.

If facade cladding with open joints is prescribed, particular attention should be paid to the fact that rain and moisture can penetrate the joints.

The method by which the Metawall® is attached to the selected substructure must be defined according to the statical requirements.

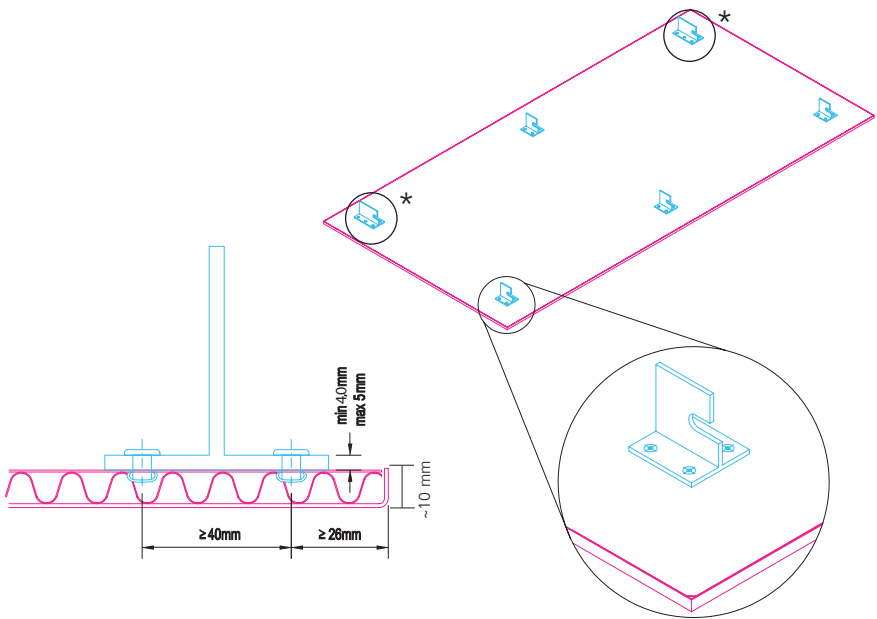
The number of brackets depends on the bracket type, format and the wind load.

The brackets are attached to the reverse side of our facade elements with rivets. PolyGrip rivets 4.8 x 10 Alu/Nirosta, Art. No.: 1433892 manufactured by Gesipa must be used.

If the material thickness of the bracket is < 4.0 mm, a suitable washer must be inserted between the bracket and the rivet.

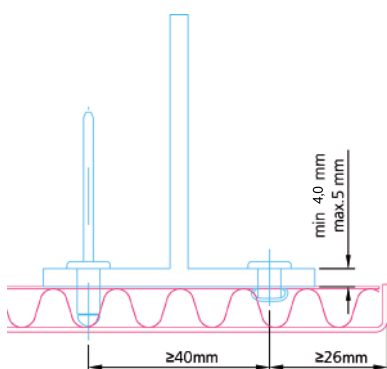
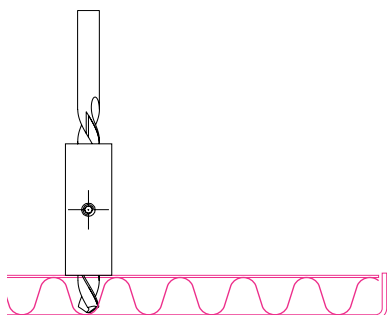
Attachment according to statical requirements

* The outer brackets must be provided with 2 additional rivets for keeping the dead weight (Rivet shearing force).



FIXING METHODS METAWALL® B1 VARIANT I + II

Drilling



Drilling:

We recommend that you use a sleeve which prevents the drill penetrating too far, to ensure that the drill does not dent or break through to the visible side of the panel.

Rivet setting process:

- The rivet is to be applied straight, at 90°
- Ensure that the rivet head lies flat against the panel
- On insertion, the rivet protrudes slightly. During the setting process, light pressure must be applied to press it in

A sample panel is available on request to allow you to familiarise yourself with the correct drilling and setting procedure in advance.

See the processing instructions for recommended rivet setting tools.

Technical data on the rivets

Rivet	PolyGrip rivet
Size / Material	4.8 x 10 Alu/Nirosta
Clamping range	0.5 – 6.5 mm
Thickness of brackets	min. 4.0 mm max. 5 mm
Drill hole diameter	4.9 mm (tolerance +0.1 / -0.0 mm)
Manufacturer	Gesipa
Art. No.	1433892
Corrosivity categories according to DIN EN ISO 9223:	C1 to C3

Permissible values of the riveted connection Bolt system

Permissible rated value rivet traction	147 N / rivet
Permissible rated value rivet shearing force	240 N / rivet
Distance rivet axis - panel edge	≥ 26 mm
Distance rivet axis - rivet axis	≥ 40 mm

If the material thickness of the bracket is < 4.0 mm, a suitable washer must be inserted between the bracket and the rivet.

FIXING METHODS METAWALL® B1 VARIANT I + II

Rail system

The attachment of Metawall® can be realised with all appropriate substructure systems.

To avoid dilatation noise caused by the normal relative movement of the elements as a result of wind and temperature changes, it may be necessary to use suitable acoustic insulation in the specific substructure systems selected.

If facade cladding with open joints is prescribed, particular attention should be paid to the fact that rain and moisture can penetrate the joints.

The method by which the Metawall® is attached to the selected substructure must be defined according to the statical requirements.

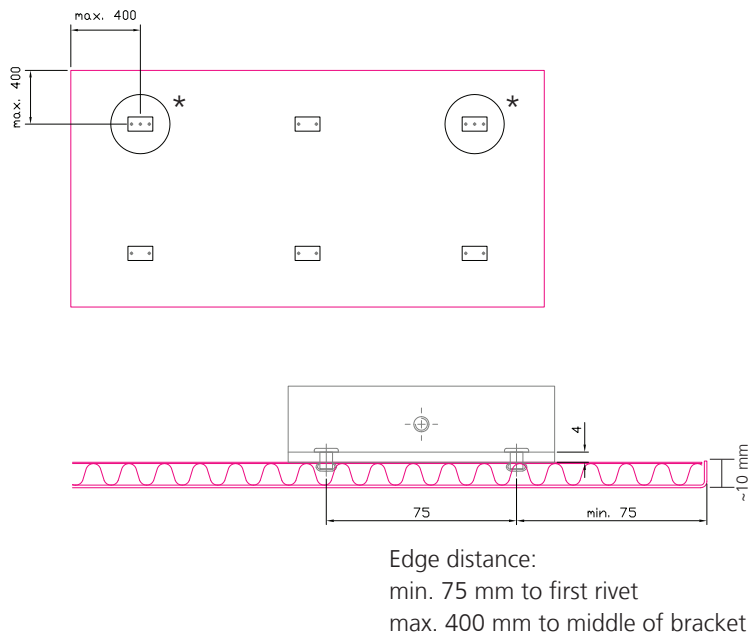
The number of brackets depends on the bracket type, format and the wind load.

The brackets are attached to the reverse side of our facade elements with rivets. PolyGrip rivets 4.8 x 10 Alu/Nirosta, Art. No.: 1433892 manufactured by Gesipa must be used.

If the material thickness of the bracket is < 4.0 mm, a suitable washer must be inserted between the bracket and the rivet.

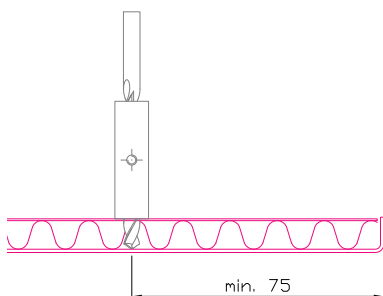
Attachment according to statical requirements

* The outer brackets must be provided with 3 rivets - 1 rivet is only necessary for capturing the dead weight (Rivet shearing force).

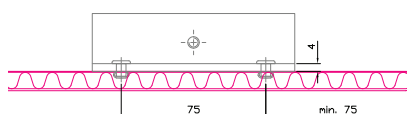


FIXING METHODS METAWALL® B1 VARIANT I + II

Drilling



Edge distance:
min. 75 mm to first rivet



Edge distance:
min. 75 mm to first rivet
max. 400 mm to middle of bracket

Drilling:

We recommend that you use a sleeve which prevents the drill penetrating too far, to ensure that the drill does not dent or break through to the visible side of the panel.

Rivet setting process:

- The rivet is to be applied straight, at 90°
- Ensure that the rivet head lies flat against the panel
- On insertion, the rivet protrudes slightly. During the setting process, light pressure must be applied to press it in

A sample panel is available on request to allow you to familiarise yourself with the correct drilling and setting procedure in advance.

Technical data on the rivets

Rivet	PolyGrip rivet
Size / Material	4.8 x 10 Alu/Nirosta
Clamping range	0.5 – 6.5 mm
Thickness of brackets	min. 4.0 mm max. 5 mm
Drill hole diameter	4.9 mm (tolerance +0.1 / -0.0 mm)
Manufacturer	Gesipa
Art. No.	1433892
Corrosivity categories according to DIN EN ISO 9223:	C1 to C3

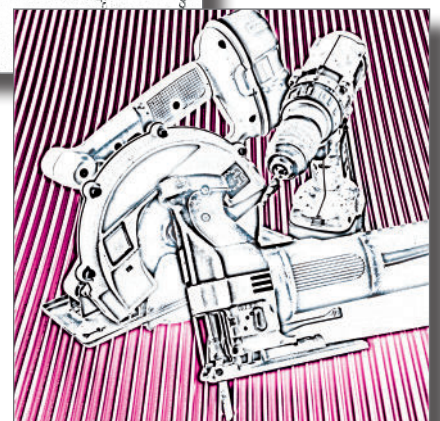
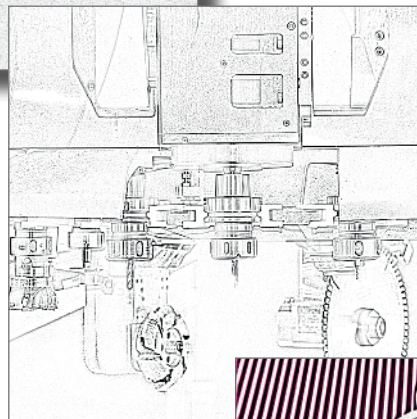
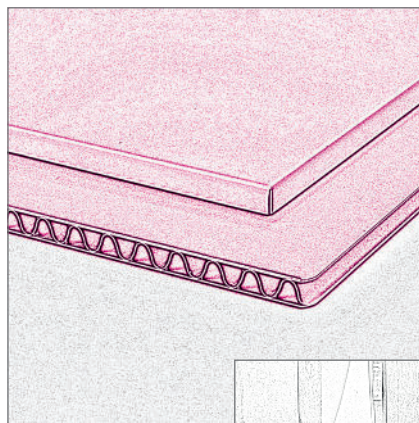
Characteristic values of the riveted connection according ETA 13/0255 Appendix 16 (July 2022)

Rivet traction	220 N / rivet
Rivet shearing force	710 N / rivet
Distance rivet axis - panel edge	min. 75 mm
Distance rivet axis - rivet axis	75 mm

If the material thickness of the bracket is < 4.0 mm, a suitable washer must be inserted between the bracket and the rivet.

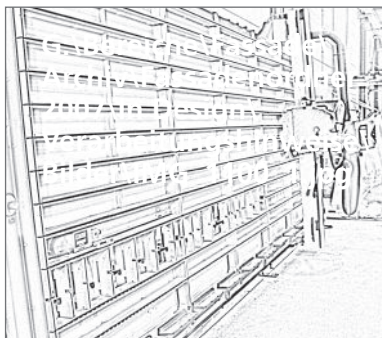
	LIST OF MANUFACTURERS	
Note	The processing guidelines of the manufacturer must be observed for the accessories used.	
Metawall® A2 Substructure system	GIP GmbH Friedrich-Seele-Str. 1b D - 38122 Braunschweig	Phone: +49 - 531 / 7021 - 1244 Internet: www.gip-fassade.com email: info@gip-fassade.com
Details screws Metawall® A2 Attachment with brackets	Reisser Schraubentechnik GmbH Fritz-Müller-Straße 10 D-74653 Ingelfingen-Criesbach Dünnblechschraube RN KB79 Ø 4,5 RV4-T2-4,5x10 00KB79 V 045 x 10	Phone: +49 - 7940/127 - 0 Internet: www.reisser-screws.com email: info@reisser-screws.com
Details rivets Metawall® A2 / Metawall® B1 Attachment with brackets	GESIPA Blindniettechnik GmbH Nordenstraße 13 - 39 D - 64546 Möhrfelden-Walldorf PolyGrip rivet 4.8 x 10 Alu/Nirosta Art. No.: 1433892	Phone: +49 - 6105 / 962 - 0 Internet: www.gesipa.com email: info@gesipa.com
Metawall® B1 Substructure systems	BWM Dübel+Montagetechnik GmbH Ernst-Mey-Str. 1 D - 70771 Leinfelden-Echterdingen DWS Pohl GmbH (Systea) Margarete-Steiff-Str. 6 D - 24558 Henstedt-Ulzburg GIP GmbH Friedrich-Seele-Str. 1b D - 38122 Braunschweig NFT-SL Fassadentechnik GmbH Weinbergstr. 2 D - 76889 Kapellen - Drusweiler	Phone: +49 - 711 / 90313 - 0 Internet: www.bwm.de email: info@bwm.de Phone: +49 - 4193 / 99 - 11 Internet: www.pohl.net email: systea@pohl.net Phone: +49 - 531 / 7021 - 1244 Internet: www.gip-fassade.com email: info@gip-fassade.com Phone: +49 - 6343 / 7003 - 0 Internet: www.nft-sl.de email: info@nft-sl.de
Modifications and errors reserved	BF20e-2023/04	

Processing instructions

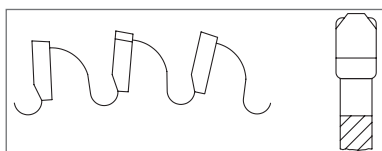


SAWING

Saws



Vertical saw (panel saw)



Negative flat-trapezoid tooth
Leitz circular saw blade WK 462-2-37

Metawell® panels can be processed using circular saws, jigsaws and bandsaws with conventional saw blades. However, straight-set saw blades should not be used, as the teeth catch between cover sheet and corrugation and lead to an untidy cut. For use of circular saws, flat/trapezoid toothing with a negative tooth position and hard metal blades have proved effective.

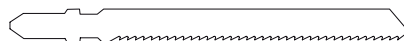
A slide table for format circular saws or the use of vertical saws are advantageous when processing large-format panels. For optimum results, the use of limit stops is recommended. Stack cutting is possible for more economical processing. However, special care must be taken to ensure that the panels are fixed firmly in position and that shavings are extracted.

Circular and vertical saws can be used to cut grooves in the panels, allowing later edging of the panel without the use of an additional bending machine. Here, however, in addition to the use of an appropriate prismatic mill cutter, the panel needs to be pressed down via a pressure roll to ensure a defined milling depth.

Preliminary trials with suitable samples are recommended.

Tool parameters for Metawell®

Saw type	Circular saw	Band saw	CNC saw blade
Saw blade	80 teeth / D = 250 mm	14 teeth / 1"	D = 160 mm
Manufacturer / Article	Leitz / WK 462-2-37	-	Leitz / WK 462-2-37
Feed	10 m/min	20 m/min	10 m/min
Speed	3,500 - 6,500 rpm	-	12,000 rpm



Jigsaw blades

fine, for wood or aluminium, e.g.:

- Bosch T123x Progressor, tooth pitch 1.2 - 2.6 mm
- Bosch T118A Metal, tooth pitch 1.1 - 1.5 mm

Suppliers for tools

Gebr. Leitz GmbH & Co. KG
Leitzstraße 2
D - 73447 Oberkochen
www.leitz.org

MILLING AND DRILLING

Milling and drilling

Metawell® panels can be processed using hand-held processing tools and machine tools. Wood processing tools preferably with protections against metal shavings are ideal, as processing Metawell® has more in common with woodworking than with metal processing. This applies in particular to large-area processing, the clamping methods used, feed speed and the fact that coolants and lubricants are not used.

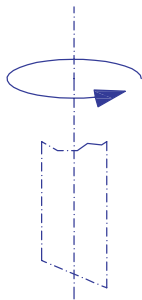
Perform appropriate tests or consult the manufacturer before using hand-held processing tools.

Examples of appropriate tools for the processing of Metawell® aluminium panels and the most important tool parameters can be found on the next page.

Tool parameters

The tool parameters listed below are based on long-term experience. However, due to the large number of tools and processing machines on the market, preliminary tests should be performed with the machines and tools you have in mind. Observe any limitations imposed by the machine and tool manufacturer's specifications.

Router



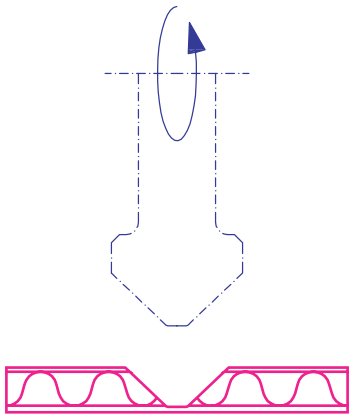
Contour milling (router)

Tool parameters for Metawell®

Tool	Router 8 mm (contour milling)	Router 4 mm (internal corners, blind holes and bores)
Type	VHM contour milling cutter 8 x 30 x 80 mm solid carbide contour milling cutter, single-edged, right-hand helix, right-hand cutting, TiAlN- coating	VHM contour milling cutter 4 x 15 x 40 mm solid carbide contour milling cutter, single-edged, right-hand helix, right-hand cutting, TiAlN- coating
Speed	18,000 min ⁻¹ to 30,000 min ⁻¹	8,000 min ⁻¹ to 30,000 min ⁻¹
Feed	5 m/min to 10 m/min	0.5 m/min to 10 m/min
Supplier	REXIM GmbH Glaitstraße 29 D - 75433 Maulbronn-Schmie	

MILLING AND DRILLING

Double angle cutter



Milled groove for edging
(prismatic mill cutter)

Tool parameters for Metawell®

Tool	CNC V-groove cutter (0.5 mm edge radius)	CNC V-groove cutter (2.5 mm edge radius)	CNC V-groove cutter (approx. 4 mm edge radius)
Type	V-groove cutter with changing blades Article No.: 168018121	V-groove cutter with changing blades Article No.: 166026662	V-groove cutter with changing blades Article No.: 166022293
Speed	max. 10,000 min ⁻¹	max. 10,000 min ⁻¹	max. 6,200 min ⁻¹
Feed	6 m/min	6 m/min	5 m/min
Supplier	Gebr. Leitz GmbH & Co. Leitzstraße 2 D - 73447 Oberkochen		

Note: The cutter must be selected in accordance with the radii to be created and the existing (paint) surface of the panel. Consult the manufacturer for further information.

EDGE DESIGN

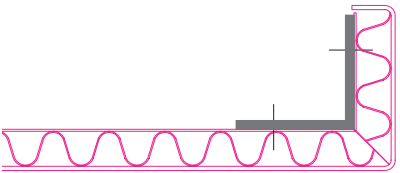
Edge design



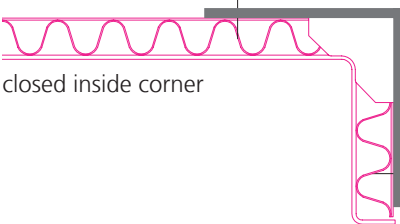
Metawell®



Milling for edging



closed outside corner



closed inside corner

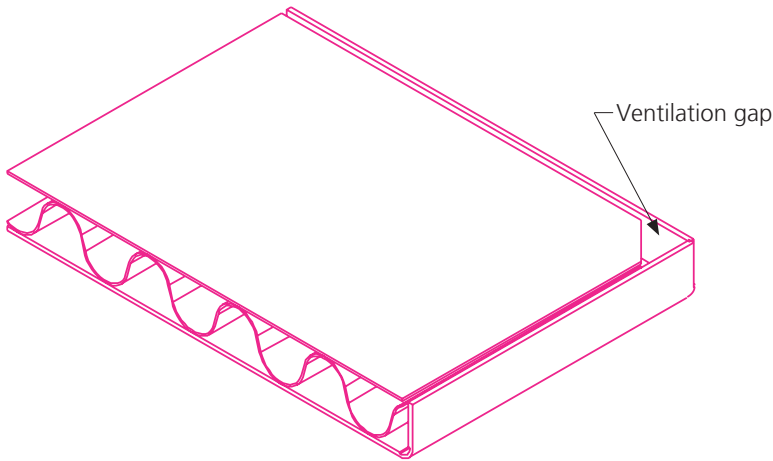
The Metawell® panels can be realised with other edge designs.

However, when selecting an edge finish, certain aspects need to be considered:

- visual requirements, design, desired coating
- ancillary structural conditions, flush alignment, connection to further components
- ambient parameters, temperature, pressure, effect of media
- load in installed state, mechanical and thermal load, type of component
- requirements for impermeability that no water penetrates into the core
- production costs and quantities, one-off production, series production

The combination of Metawell® panels with other materials and components in out-door use must be examined very carefully. There is a risk of contact corrosion as a result of varying material properties and the influence of weathering. To avoid deformation or constraint, the varying thermal expansion of the materials must also be allowed for.

Corner of Metawell® - view of the reverse side



Note

It must be ensured that media, e.g. water (including condensation), which penetrate into the panel can always drain off unobstructed!