

ALUCORE®

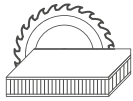
PROCESSING AND TECHNICAL DATA

Simply original, originally simple

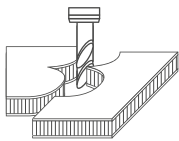


PROCESSING AT A GLANCE

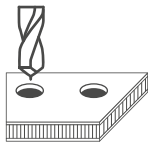
PROCESSING METHODS



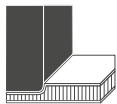
Sawing see page 5
- vertical panel saw,
circular saw or jig saw



Routing see page 6
- CNC machining centres and
circular panel saws



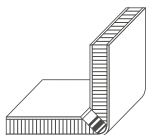
Drilling see page 6
- drill bits with locating point
for thin sheets
- large holes with countersinks
and counterbores



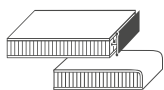
Pressing see page 6
- bending press



Bending see page 7
- roll bending machines
- step-bending with bending press

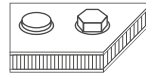


Folding see page 8
- routing and folding technique
or with bending press

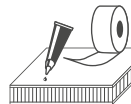


Panel edgings see page 11
- by folding cover sheets or
using panel edging sections

JOINTING / FIXING TECHNIQUE



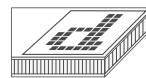
Riveting see page 14
- using commercially available
tool and blind rivets, fastening
possible in 1 mm cover sheet



Screwing see page 17
- with sheet metal screws, rivet
bolts and nuts fastening possible
in 1 mm cover sheet



Lacquering see page 20
- overlacquering of ALUCORE®
surfaces with suitable lacquer
qualities



Printing see page 20
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with commercial printing inks



Laminating see page 20
- with self-adhesive foils

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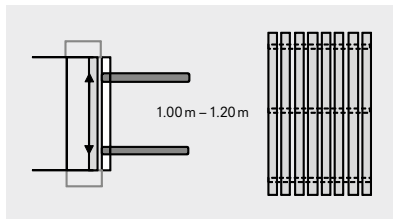
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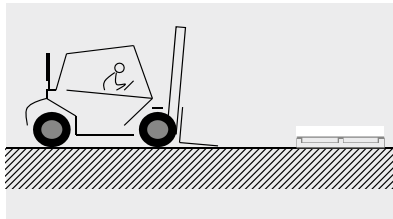
- 22 ALUCORE®
- 22 ALUCORE® base

INFORMATION

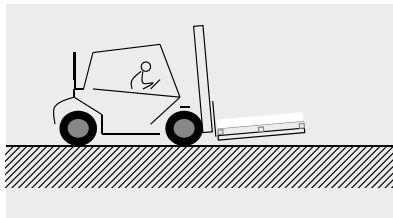
- 23 Information



Set maximum fork width



Pick up the pallet, slightly raise the fork



Pick up the complete pallet, do not draw nor push

GENERAL

To protect ALUCORE® composite panels against mechanical damages and the harmful effects of weather conditions and moisture, the following information must be observed:

- The pallets must be handled carefully during transport and unloading. (Caution: Do not handle open pallets).
- Upon delivery the pallets must be examined for any damage due to transportation and moisture
- ALUCORE® panels that have become wet must be dried to avoid any spots or corrosion forming. Any damage must be reported immediately and confirmed by the forwarding agent.
- Store the pallets so that they are protected against any wetness penetrating due to rain and spray water and avoid any condensation forming (e.g. when transporting cold panels to warmer rooms).
- Store the pallets stacked one over the other (do not store ALUCORE® panels standing vertically) with a maximum of 6 pallets of the same format stacked on top of each other (heavy pallets at the bottom).
- Individual panels must be lifted off the pallet by two people holding all four corners and not drawn over each other. Carry the panels vertically. Wear gloves to avoid staining.
- When stacking panels, nothing should be put in between to avoid markings.

To ensure perfect functioning of the ALUCORE® protective film, the following information should be observed:

- Storage exceeding 6 months should be avoided. Severe temperature fluctuations and exposure to direct sunlight reduce the long-term durability. In this case the protective film may become very difficult to remove.
- Do not mark the protective film with inks (markers), tapes or labels. Solvent or plasticizer may penetrate the film and affect the lacquered surface.
- Should the protective film partially come off during processing or after assembly, dirtied edges can occur in the course of time, which may be difficult to remove.
- Remove the protective film as soon as possible after assembly. Protective film that remains on the panels for an extended period of exterior exposure may be very difficult to remove.
- Make sure not to remove the protective film at temperatures below 10°C.

PROCESSING METHODS

SAWING

Carbide tipped (CT) saw blades

Blade geometry	Tooth thickness approx. 2 - 4 mm, tapered to the side to prevent jamming
Tooth geometry	trapeze tooth / flat tooth
Pitch t	10 – 12 mm
Clearance angle α	15°
Rake angle γ	10° positive
Maximum cutting speed v	5,000 m/min
Maximum feed s	30 m/min

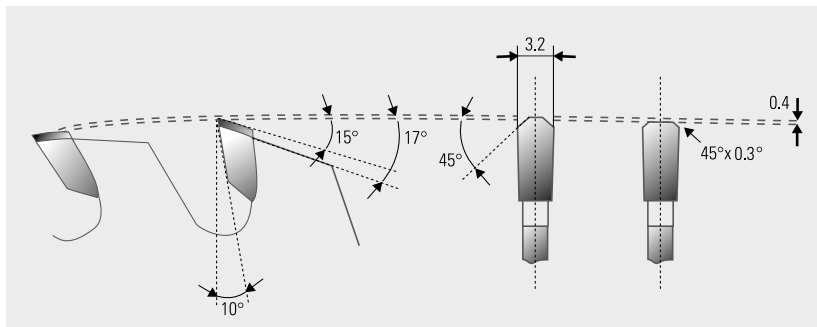
Carbide tipped (CT) saw blades for HOLZ-HER and Striebig circular panel saws

Trapezoid / flat tooth saw blades, flat teeth 45° chamfered for burrfree edges

Saw blade Ø	D = 300 mm (for Striebig panel saw Standard II)
Number of teeth	Z = 72 LEUCO-Code No. 181724
Saw blade Ø	D = 250 mm (for Holz-Her panel saw 1255 ALUCOBOND®)
Number of teeth	Z = 60 LEUCO-Code No. 181726
Bore Ø	d = 30 mm
Tooth thickness	3.2 mm
Clearance angle	15°
Rake angle	10° positive
Manufacturer / Supplier	LEUCO Ledermann GmbH & Co. KG www.leuco.com



Jig saw blades
For wood or plastics, e.g. T101 B (Bosch),
tooth thickness 2.5mm Carbide tipped (CT)
saw blades for precision cuts



Sketch showing edge geometry for professional sharpening

PROCESSING METHODS



Single flute cutter with right hand twist

ROUTING

ALUCORE® can be easily routed on conventional routing machines and CNC machining centres. To avoid pressure marks on the surface, please use plastic or wood vice jaws when chucking the workpieces. The cutters for aluminium and plastics are also suitable for ALUCORE®.

Suitable end milling cutters for ALUCORE®:

- Carbide tipped cutter Series F 113

Manufacturer / Supplier

GIS Gienger Industrieservice

www.gis-tec.de

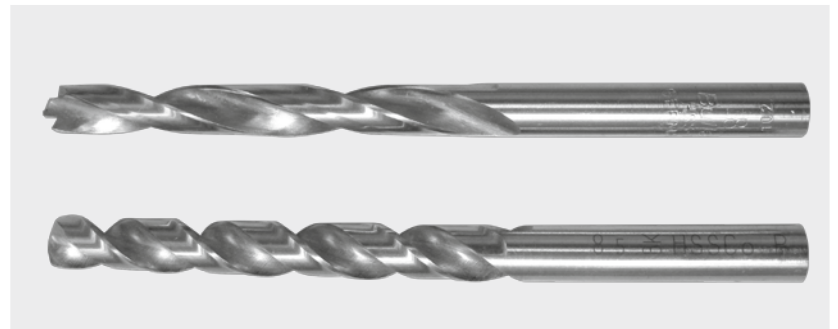
DRILLING / COUNTERSINKING

ALUCORE® can be drilled with twist drills normally used for aluminium and plastics. Drilling without burr is possible using the following drills:

- Spot facing cutter with centre-point. e.g. Extreme 2™ HSS-G metal drill DIN 338 of De WALT, Idstein, Germany
- stainless steel drills HSS cobalt DIN 338

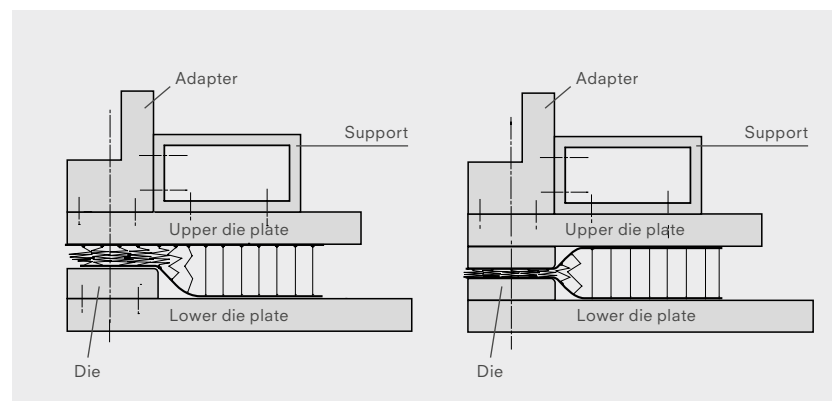
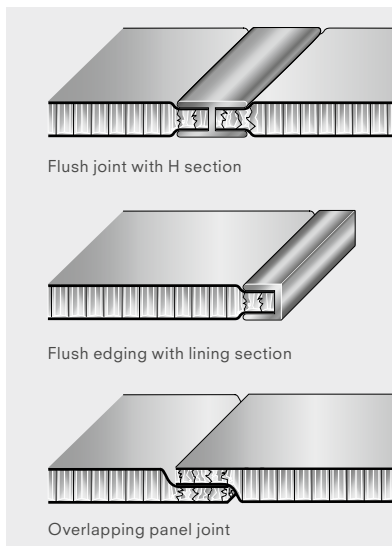


Countersinks are used for countersinking pre-drilled holes and for drilling out bigger holes through ALUCORE®.



PRESSING / STAMPING

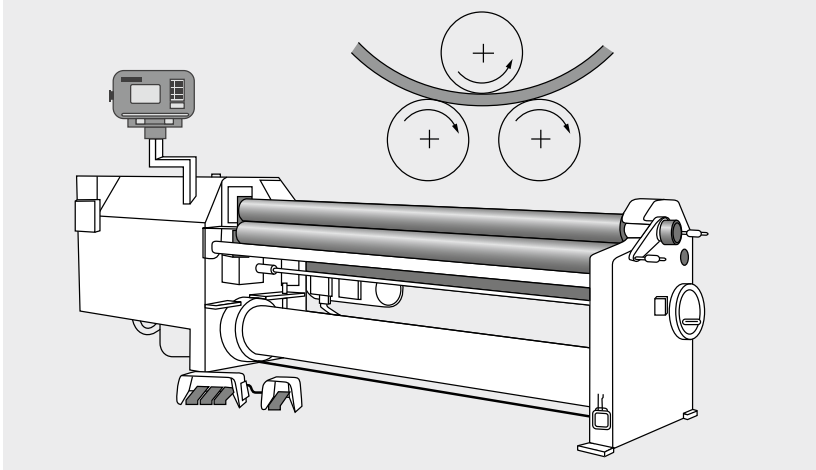
ALUCORE® composite panels can be pressed. The core is compressed without destroying the viscoplastic bonding system. This offers new processing and application possibilities. For more information, please refer to the separate leaflet "Pressing ALUCORE® composite panels".



PROCESSING METHODS

BENDING WITH A ROLL BENDING MACHINE

ALUCORE® composite panels of 6 and 10 mm thickness can be bent using three and four-roll bending machines with relatively close radii. The viscoplastic composite system enables radii to be produced from 300 mm with a panel thickness of 6 mm and from 700 mm with a panel thickness of 10 mm. The minimum diameter of the rolls should be 150 mm.



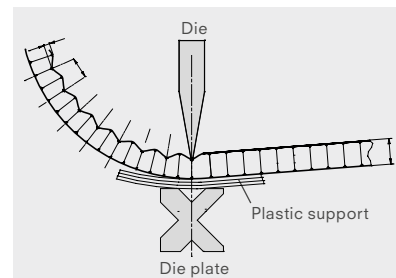
Bending with a roll bending machine

The values for adjusting the rolls have to be determined by trial. The bending rolls must be thoroughly cleaned of swarf before processing ALUCORE®.

The surface should be protected from damage by affixing plastic strips of 1-2 mm thickness during processing.

STEP-BENDING WITH BENDING PRESSES

ALUCORE® can be shaped using the step-bending process. The bending radius is determined by the stamping depth t , the stamping distance s and the panel thickness d . Please ask for details.

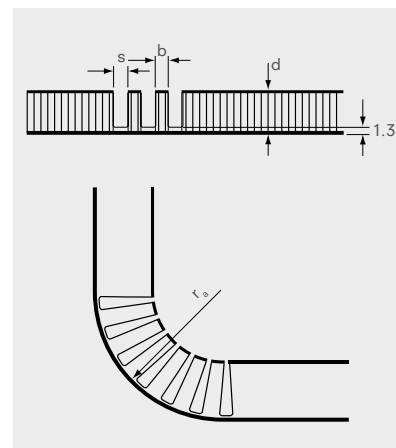


Step-bending process

BENDING WITH SAW CUTS

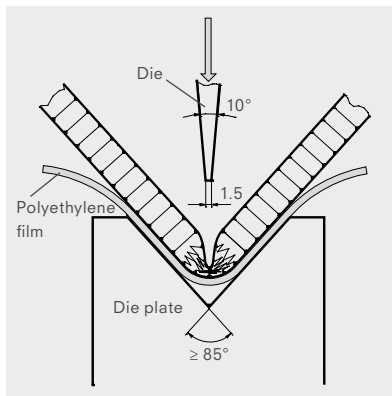
ALUCORE® can be bent by applying saw cuts on the rear side of the panel. The required radius r_a is determined by the tooth thickness s , the wall thickness b , the panel thickness d and the number of saw cuts.

The saw cuts are carried out using the recommended saw blades. To obtain a final thickness of 1.3 mm, corresponding tracing rollers are attached to the saw blades of the vertical panel saws. Principally, bending should take place in the 1 mm thick cover sheet.



FOLDING TECHNIQUES

Panel thickness (mm)	Bending radius outside (mm)	Material gain (mm)	Folding height min. (mm)
6	~4	2.7	20
10	~9	5.0	25
15	~13	7.5	35
20	~16	8.5	50
25	~18	10.0	60



Folding with the bending press

GENERAL

Folding with the bending press

ALUCORE® can be folded on bending presses using the tool geometry shown in the sketch. When measuring cuts, the material gain for the corresponding thickness must be taken into consideration when making 90° folds.

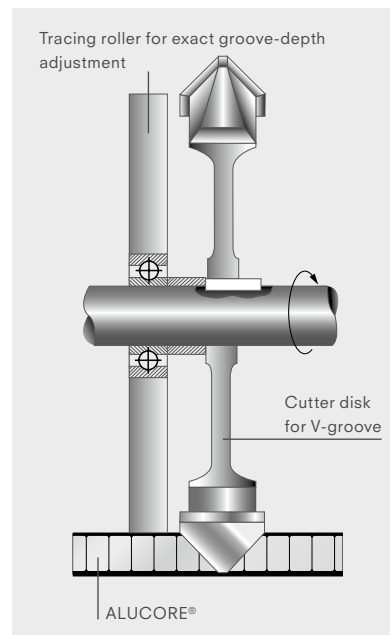
Routing and folding technique / producing corners and edges

Corners and edges can be produced simply on ALUCORE® panels using the routing and folding technique. With all versions, a groove is routed on the rear of the panel into the 1 mm thick cover sheet at the front.

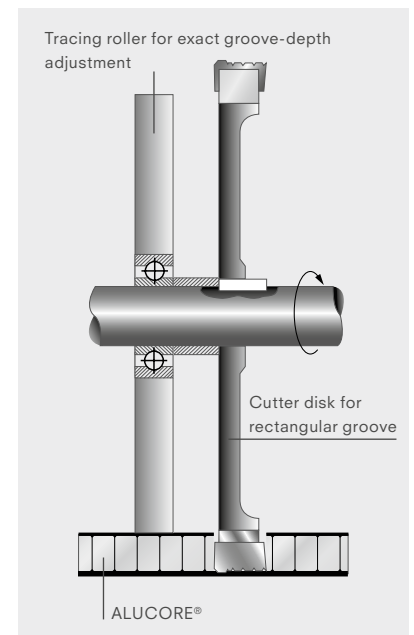
In **version 1**, as with ALUCORE®, a cutter disk or forming cutter for V-grooves 90° is used in the appropriate width.

In **version 2**, the core of the panel is pre-cut using special tools. The grooves can be produced with CNC machining centres. Normally, folding by hand is possible. If this is not possible, we recommend the use of a folding machine.

version 1

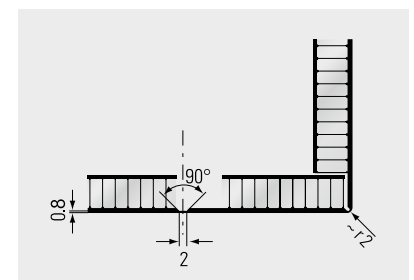
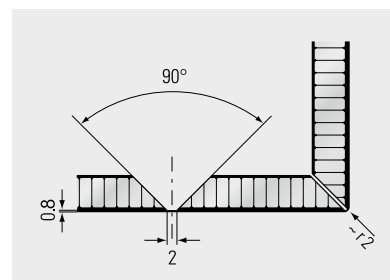


version 2



Important:

These are customized design tools to match the respective machine and can be ordered by the processor from the recommended manufacturers. Please state the tooth geometry, tool diameter, etc.



FOLDING TECHNIQUES

MACHINERY FOR ROUTING AND FOLDING TECHNIQUE

Vertical panel saws ALUCOBOND®/ALUCORE® routing device (customized accessory)

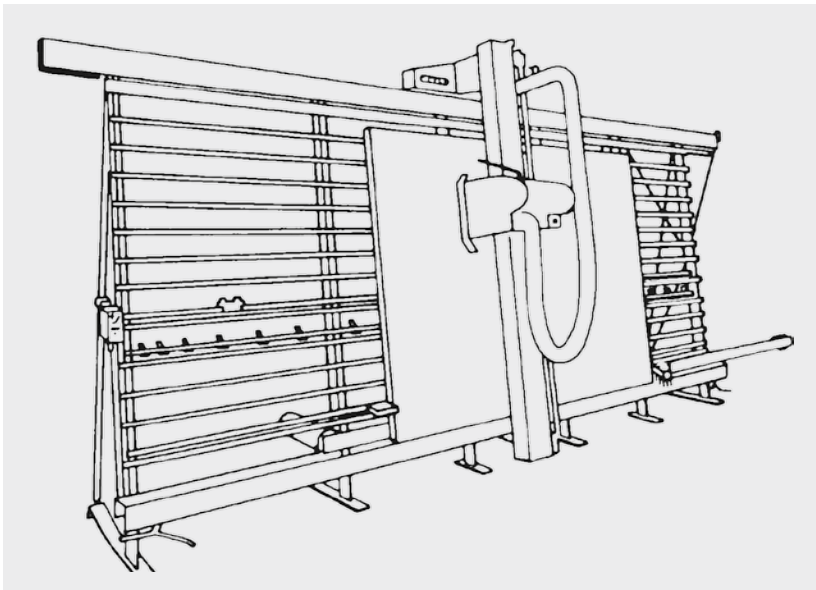
For V-shaped grooves of up to 10 mm panel thickness and for rectangular grooves Holz-Her Vertical panel saw PK 1255 ALUCOBOND®; Striebig vertical panel saw Standard II for composite panels.

Manufacturers / Suppliers

Reich Spezialmaschinen GmbH
www.holzher.de

Striebig AG Maschinenbau
www.striebig.com

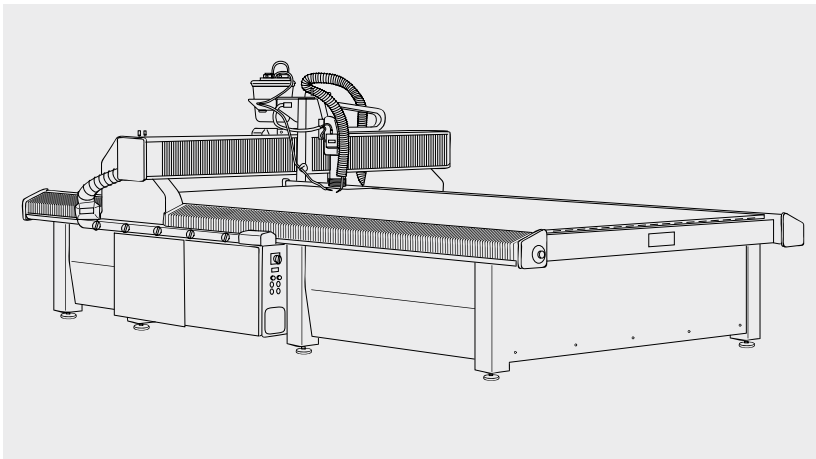
Other panel saws can subsequently be provided by the above manufacturers with an additional routing device. Please ask for details.



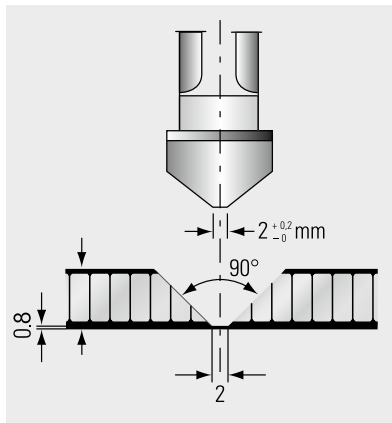
Vertical panel saws

CNC machining centres

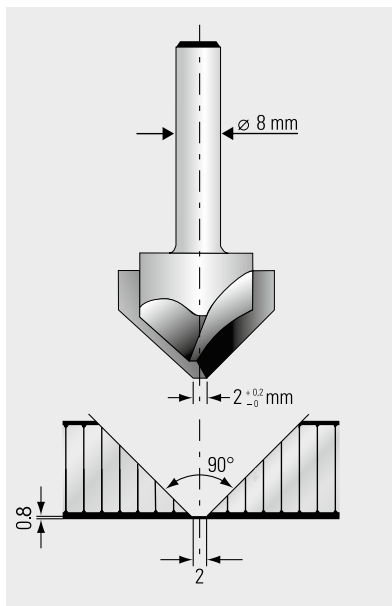
With large panel thicknesses such as 10 mm, V-grooves cannot be produced with vertical panel saws (cutter edge width max. 20 mm). CNC machining centres are used for this purpose. Rectangular grooves can also be produced on CNC machining centres. Please ask for manufacturers of CNC machining centres.



FOLDING TECHNIQUES



Cutter disk for V-grooves 90°



End milling cutter for V-grooves 90°

TOOLS FOR ROUTING AND FOLDING

The following points must be taken into consideration:

- The edges should not be bent back and folded a second time.
- The width of the base cutter edge must be 2 mm.
- The grooves should basically be routed in the 1 mm thick cover sheet.
- After routing the remaining metal sheet must be 0.8 mm thick.

Cutter disk for V-grooves 90°

For panel thicknesses of 6 and 10 mm a milling cutter for 90° V-grooves with a cutter edge width of 20 mm must be used on circular panel saws. Customized design by Speiser.

Supplier for cutter disks for V-grooves and special saw blades

Speiser Werkzeugvertriebs-GmbH
www.speiser-werkzeugtechnik.de

End milling cutter for V-grooves 90°

With cylindrical shank of the corresponding diameter for all panel thicknesses. Customized design by KWO.

Supplier for end milling cutters

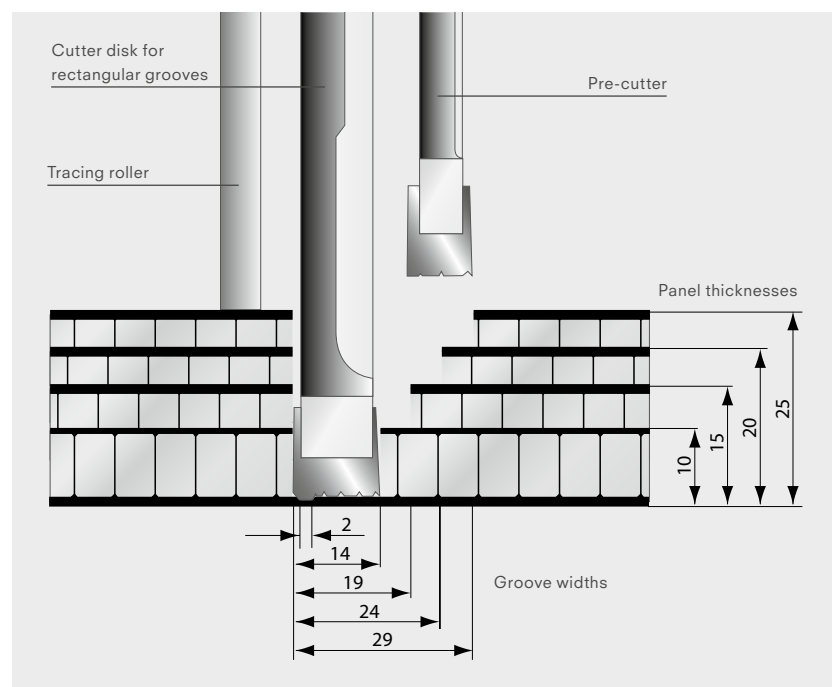
KWO-Werkzeuge GmbH
www.kwo.de

Milling cutter for rectangular grooves for ALUCORE® 10 mm with additional pre-cutter for ALUCORE® 15, 20 and 25 mm

Instead of the milling cutter for rectangular grooves a special saw blade, as shown on page 11, may also be used. Customized design by OERTLI. Please ask for details.

Supplier for cutter disks for rectangular grooves and for pre-cutters

OERTLI Werkzeuge AG
www.oertli.ch



Milling cutter for rectangular grooves

PRODUCING EDGINGS BY FOLDING THE COVER SHEET

Routing the panel by means of a special saw blade

Carbide tipped saw blade, tooth geometry, trapeze tooth (customized design by Speiser)

Bore $\varnothing$	$d = 30 \text{ mm}$
Saw blade $\varnothing$	$D = 244 \pm 0.05 \text{ mm}$
Number of teeth	$z = 40$
Tooth thickness	$= 3.2 \text{ mm}$
Clearance angle	$= 15^\circ$
Rake angle	$= 10^\circ \text{ positive}$
Width of base cutter at trapeze tooth	$= 2 \text{ mm}$

Supplier

Speiser Werkzeugvertriebs-GmbH, www.speiser-werkzeugtechnik.de

Depending on the saw blade diameter and the panel thickness, a corresponding tracing roller, as with the routing and folding technique for ALUCOBOND®, is required to keep the precise routing depth (remaining sheet thickness 0.8mm). After routing the panel, the honeycomb core and the rear cover sheet are cut off using a joint cutter.

Routing the panel with a cutter disk for rectangular grooves

A further possibility for preparing the panel edging for cover sheet folding is routing using a cutter disk for rectangular grooves. For panel thicknesses of 15, 20 and 25 mm a pre-cutter or a joint cutter is used to remove the remaining core.

Folding the edges of the cover sheets

We recommend folding the edges of the cover sheets with a folding machine as better results are obtained using this method.

Types

Joint cutter

Oscillating joint cutter, Super Cut, Type FSC 2.0 Q

Cutter

Straight form

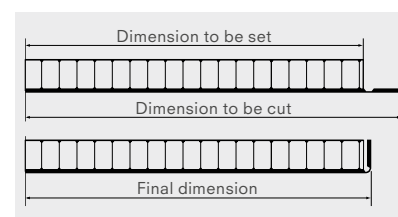
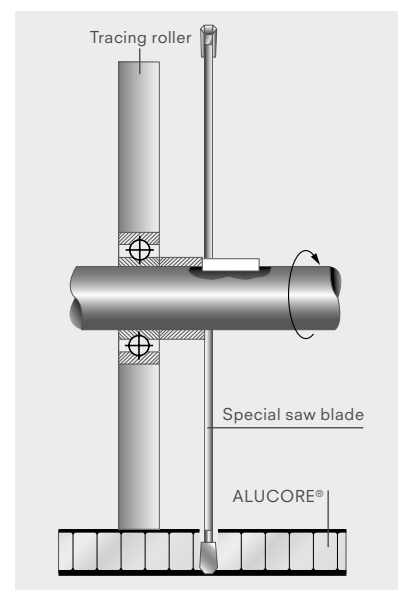
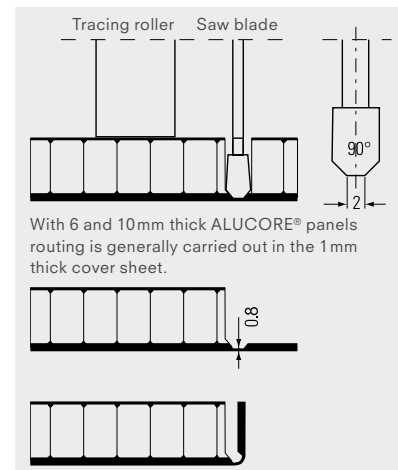
Supplier

C. & E. Fein GmbH
www.fein.de

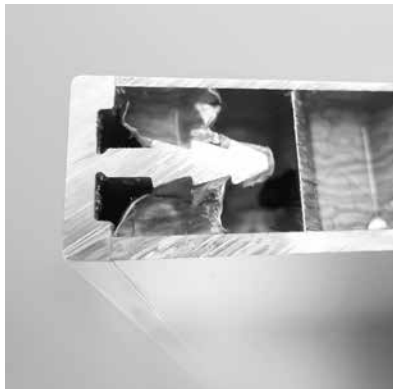
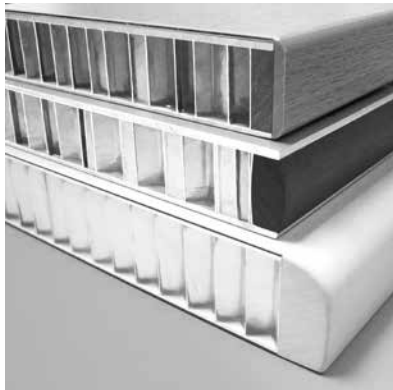
Calculating the dimension to be cut

Depending on the type of edging, the panel thickness is added to the final width or length, and the thickness of the cover sheet of 1 mm is then deducted.

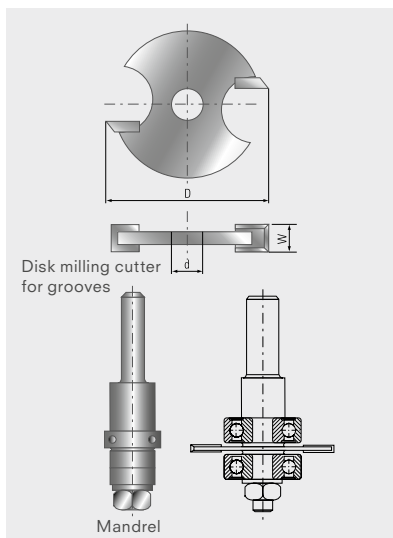
Example:		Dimension to be set on the panel saw	
Desired final dimension	800 mm	Dimension to be cut	814 mm
	+15 mm	Less panel thickness	-15 mm
	-1 mm	Less 1 mm thickness of cover sheet	-1 mm
Dimension to be cut	= 814 mm	= Dimension to be set	= 798 mm



EDGING



Edging sections



Hand routing machine

PRODUCING EDGINGS BY MEANS OF EDGE BANDS

ALUCORE® edges can be closed decoratively by filling them with melamine resin and applying edge bands.

PRODUCING EDGINGS BY FILLING AND CONTOUR-CUTTING THE EDGES

Edgings can also be produced by filling the ALUCORE® edges with plastic material and subsequently cutting the contour of the edges by means of end milling cutters. With this method, the cover sheets can be routed visibly or the ALUCORE® edges are filled with plastic material protruding over the edges and then cut or ground.

PRODUCING EDGINGS USING EDGING SECTIONS

An optically attractive edging can be produced by routing the edges of ALUCORE® panels with a disk milling cutter and subsequently inserting edging sections.

Aluminium edging sections are available for all panel thicknesses.

Prior to inserting the sections, a bonding agent is filled into the grooves to secure them. The bonding agent firmly fixes to the honeycomb core and section teeth, thus preventing the sections from slipping out.

Metall Josten GmbH & Co. KG

www.mejo.de

Bonding agent

Fix All Crystal – Permanently elastic, transparent structural adhesive

Supplier

SOUDAL

www.soudal.com

Cutting the groove

A disk milling cutter and a hand routing machine or CNC machining centre are used to cut a groove into the core at the ALUCORE® edges:

Carbide tipped disk milling cutter for grooves

Diameter $D = 40 \text{ mm}$

Width of edge $B = 2.5 \text{ mm}$

Bore $\varnothing$ $d = 6 \text{ mm}$, Reference No. 37329

Cutter mounted on a mandrel

with ball bearing

Shank $\varnothing$ 6 mm , Reference No. 37910

Shank $\varnothing$ 8 mm , Reference No. 37912

For better guidance a second ball bearing is required

Ball bearing $\varnothing$ 19 mm , Reference No. 00504

Supplier

KWO-Werkzeuge GmbH

www.kwo.de

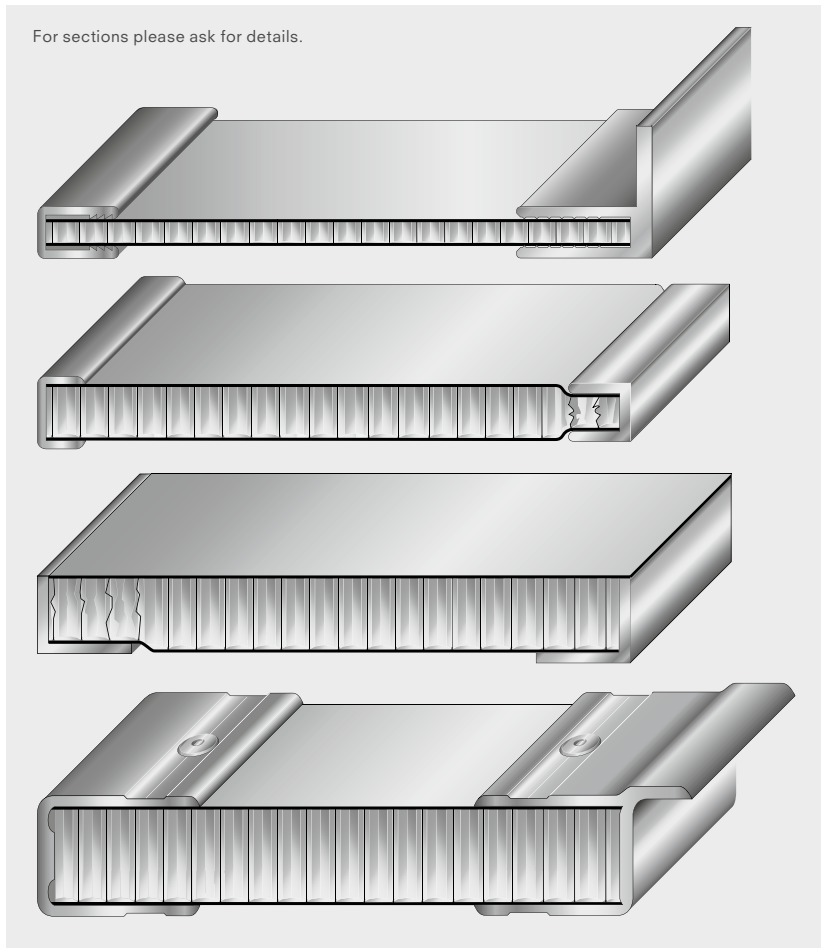
EDGING

PRODUCING EDGINGS USING PANEL EDGING SECTIONS

Depending on the type of application, edging sections of various shapes can be attached to the ends of the ALUCORE® panels. They are fixed to the panel by bonding, clamping or riveting to the cover sheet.

Examples

For sections please ask for details.



GENERAL

ALUCORE® can be joined by means of standard processes used in metal and plastics technology. If ALUCORE® is to be joined to structural parts of metals other than aluminium, or if fasteners (e.g. bolts, screws) are to be used, the following material guidelines should be observed:

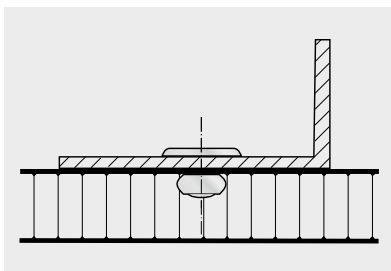
- Fasteners and structural parts made of aluminium, plastic or stainless steel should be suitable for assembly with ALUCORE®.
- When using other materials please insert insulating washers or apply protective a coating to prevent corrosion.
- Please take the thermal expansion of the panel into account for outdoor use of ALUCORE® to avoid jamming or deformation.
- The minimum gap depends on the expected expansion of the panel.
- Please refer to processing recommendations for rivets and bolts for additional measures to prevent jamming.
- The linear thermal expansion of ALUCORE® is determined by the aluminium cover sheets.

At a temperature difference of 100°C the longitudinal deformation is 2.4 mm/m length/width.

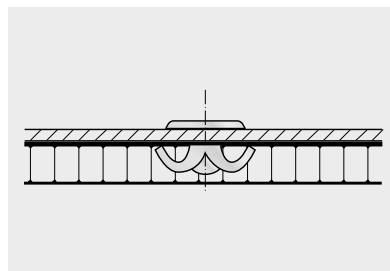
RIVETS

Rivets - not penetrating the panel

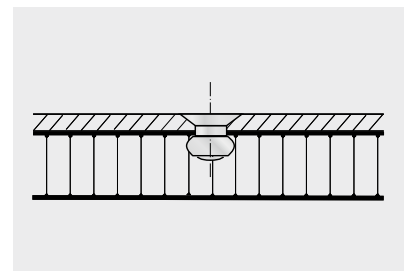
Rivets generally must be anchored in the 1 mm thick ALUCORE® cover sheets. Sections can be attached to ALUCORE® with commercially available rivets for aluminium constructions. After drilling a blind hole of the same diameter as the rivet shank, the rivets can be anchored in the cover sheet. As a rule, rivets with stainless steel mandrel are used.



Blind rivet with panhead
For ALUCORE® with a thickness
of 10 mm or more



Expansion blind rivet
For ALUCORE® with a thickness
of 6 mm or more



Blind rivet with countersunk head

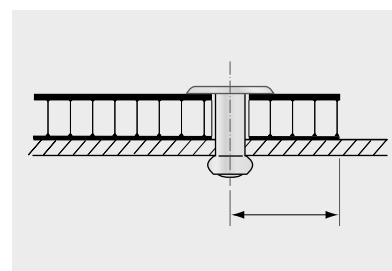
Rivets - penetrating the panel

ALUCORE® panels can be joined together or fastened to other materials using rivet types commercially available for aluminium constructions. For outdoor use and for use in areas of high humidity, aluminium blind rivets with stainless steel mandrels are normally used to prevent ugly corrosive edges. When using aluminium blind rivets with steel mandrels, the mandrel should drop out after riveting (detachable version).

JOINTING / FIXING TECHNIQUE

For outdoor use please note:

- Use aluminium blind rivets that have been approved for construction with a 5 mm shank diameter and an attachment head diameter of 11 or 14 mm.
- Please take the thermal expansion of the panel into account ($2.415 \text{ mm/m/} 100^\circ\text{C}$). To avoid jamming, the hole in the panel must be large enough to allow for expansion.
- With the shank of the rivet fitting closely to the edge of the hole, the attachment head must cover over 1 mm of the area surrounding the hole.
- Hole gauges are used for centrally drilling holes into the panel and the substructure and for centrally fitting the rivet.
- Rivet attachment jigs are used for fitting blind rivets without jamming allowing for a tolerance of 0.3 mm. Make sure to use rivet attachment jigs and rivets from the same manufacturer, as the height of the attachment head according to DIN 7337 may vary.
- The clamping thickness results from the thickness of the material to be riveted plus an additional value of 2 mm to ensure that the closing head is perfectly formed. In accordance with this clamping thickness the corresponding shaft length is determined in the tables provided by the rivet manufacturers.



Distance min. 15 mm,
countersunk rivets are not suitable

Important:

During riveting, many factors may have an influence on the exact tolerance of the rivets of 0.3 mm (e.g. rivet head tolerance). We therefore recommend that you make a test on a façade panel. Please always remove the protective foil around the riveting area prior to riveting.

Blind rivet nuts and bolts

Blind rivet nuts and bolts are threaded elements performing the function of a blind rivet and a nut or bolt (screw).

There are various types of rivet head and materials which can be selected depending on the intended application. The blind rivet nuts or bolts are inserted in blind holes drilled in one side of the ALUCORE® panel. Subsequent fitting with a tool is fast and cost-effective.

Due to the minimum shaft length of 11 mm these fixtures can only be used for a panel thickness of 15 mm or more. As a rule, the rivet must be anchored in the 1 mm thick cover sheet.

JOINTING / FIXING TECHNIQUE



Tool for rivet nuts / bolts

Manufacturer / Supplier Rivet nuts/bolts and appropriate tools

HONSEL

Umformtechnik GmbH

www.honsel.de

Böllhoff GmbH & Co. KG

Verbindungs- und Montagetechnik

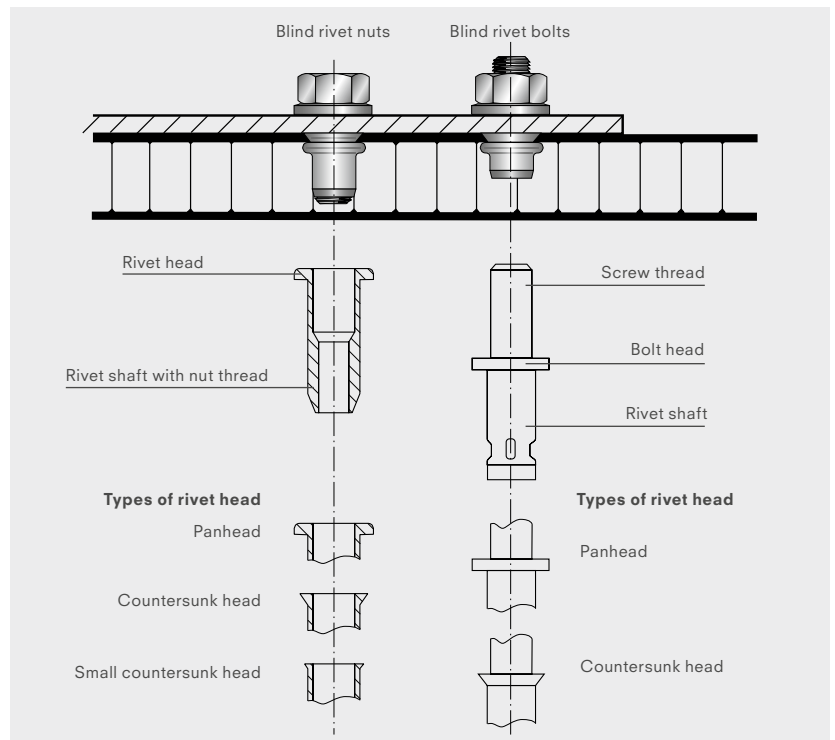
www.boellhoff.de

Gebr. Titgemeyer GmbH & Co. KG

www.titgemeyer.de

Gesipa-Blindniettechnik GmbH

www.gesipa.de



Suppliers / Manufacturers

Blind rivets

Commercially available or from
GESIPA-Blindniettechnik GmbH

www.gesipa.com

Gebr. Titgemeyer GmbH & Co. KG

www.titgemeyer.de

VVG-Befestigungstechnik GmbH & Co

www.vvg-befestigungstechnik.de

Blind rivets lacquered

MBE GmbH

www.mbe-gmbh.com

SFS intec GmbH & Co. KG

www.sfsintec.biz

Plastic covers for rivets

HA-WI

Kunststoffe GmbH & Co. KG

www.ha-wi.com

Hole gauges

Please refer to blind rivets lacquered: MBE GmbH

Rivet attachment jigs

Appropriate rivet attachment jigs are available from manufacturers or suppliers of rivets.

JOINTING / FIXING TECHNIQUE

THREADED FASTENERS

Threaded fasteners for outdoor use

Please take the thermal expansion of the panel into account when using threaded fasteners outdoors. To avoid jamming, the hole diameter in the panel must allow for the expansion. Fastening without jamming is possible with fascia screws made of stainless steel with sealing washer that have been approved for construction. The screws must be suitable for the corresponding substructure (please note the information given by the manufacturer). The screws should be tightened with a torque wrench or screw driver so that the sealing washer is placed on the panel for sealing the bore hole without exerting pressure onto the panel. Hole gauges are used for centrically drilling holes into the panel and the substructure and for centrically fitting the rivet.

Important:

Please always remove the protective foil prior to screwing.

Suppliers / Manufacturers

Fascia screws

EJOT Baubefestigungen GmbH

www.ejot.de

Fascia screws, lacquered

MBE GmbH

www.mbe-gmbh.com

SFS intec GmbH & Co. KG

www.sfsintec.biz

Hole gauges

please refer to fascia screws lacquered: MBE GmbH

Flowdrill Process

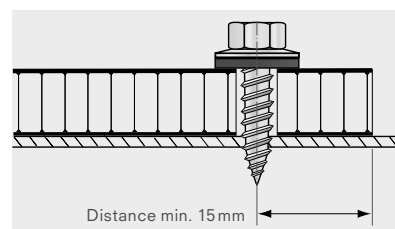
Flowdrills are polygonally ground carbide-tipped tools. The Flowdrill presses against the thin metallic material with a relatively high rotational speed and axial pressure. The generated heat makes the material soft enough to push the Flowdrill through the workpiece thus forming a hole. The material which is mainly displaced in process direction forms a bushing at the same time. The length of the bush can be 3 to 5 times the original material thickness. In the case of threaded fasteners higher pullout strength can be obtained due to the larger contact area of the screws. The "flat/short" Flowdrill type is used for ALUCORE®. These drills are suitable for thin materials and remove protruding material from the panel surface at the same time.

Supplier for Flowdrill tools

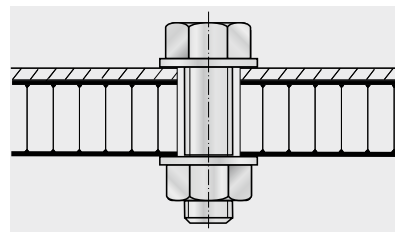
Flowdrill

Fließformwerkzeuge GmbH

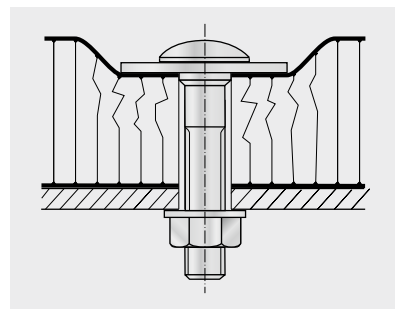
www.flowdrill.com



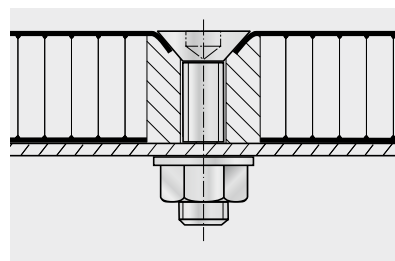
Fascia screw, thread-cutting



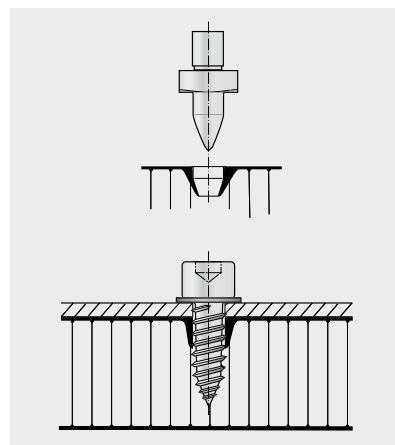
Hexagon screw



Carriage bolt

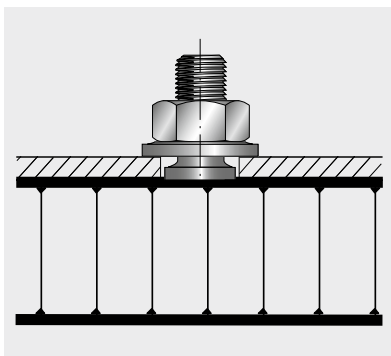


Countersunk screw with distance sleeve



Flowdrill

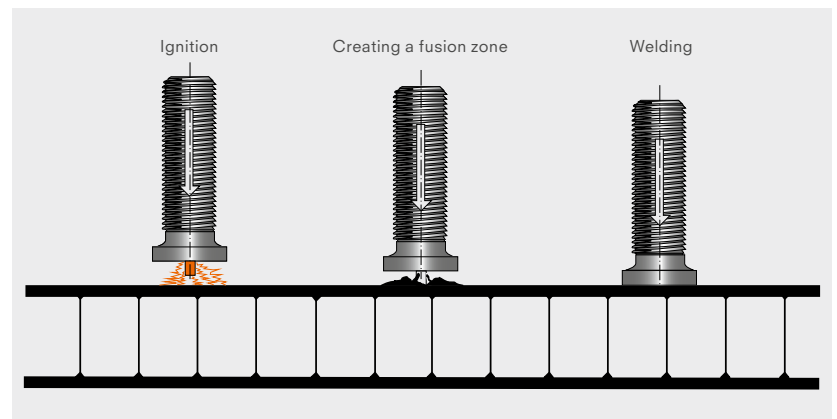
JOINTING / FIXING TECHNIQUE



Stud welding with tip ignition on mill-finished ALUCORE® surfaces

By applying a force without the use of auxiliary material, studs and pin-type parts are welded to the carrier material by means of an electric arc. Capacitor-discharge stud welding with tip ignition is suitable for ALUCORE® for sheets of a minimum thickness of 1 mm. Studs and pins are used for various types of join.

Stud diameter: 3-8 mm
Material: AlMg Alloy



Process:

1. The capacitor battery is charged.
2. A spring in the welding gun moves the stud (with tip) towards the workpiece.
3. The tip comes into contact with the workpiece and thereby closes the circuit. The rapidly increasing current causes the ignition tip to melt instantaneously, thus initiating the electric arc.
4. Stud and workpiece are welded together.
5. When the stud touches the workpiece the electric arc is extinguished, the fusion zones on stud and workpiece are joined and solidify.

Owing to the highly dynamic process, the selection of the setting parameters is particularly important. The appropriate combination of the mechanical properties of the spring force and the air gap and the setting parameters of the capacity and the charging voltage is decisive for obtaining repeatable results.

Stud welding offers the following advantages:

- low thermal effect on stud and ALUCORE® panel
- fastening method without forming a hole, the panel is not weakened, sealed connection
- welding from one side without counter support
- suitable for cover sheets with a minimum thickness of 1 mm
- fast working cycle

Suppliers for stud welders and studs

HBS Bolzenschweiß-Systeme
GmbH & Co. KG
www.hbs-info.com

Heinz Soyer
Bolzenschweißtechnik GmbH
www.soyer.de

Further suppliers

www.schweissbolzen.de
www.i-vt.de
www.schmeck-schrauben.de
www.thomas-welding.com

JOINTING / FIXING TECHNIQUE

GLUEING

Tapes / velcro tapes

Double-sided tapes (such as the 3M-VHB high capacity jointing systems) can be used for the above applications with low tensile or transversal strength requirements. Velcro tapes are available for detachable joints, for example SCOTCHMATE or tapes marketed under the Dual Lock trademark (3M, www.3m.com).

Adhesive sealing compounds

For high-strength and elastic connections we recommend the following one-component adhesive sealing compound: Sika Bond-T2 (polyurethane base), Sika GmbH (www.sika.de).

For outdoor use, this adhesive can be used for fastening parts of minor static importance.

Metal adhesives / universal adhesives

For indoor use, trade fair/exhibition stand structures and machines, most metal or universal adhesives are suitable.

Important:

Please observe the manufacturer's instructions regarding the application and use of adhesives / tapes. Laminating one side of ALUCORE® panels to other materials may result in deformation of the laminates (differing expansion / bimetal effect).

CLAMP CONNECTIONS

Clamp connections incorporating aluminium or plastics are particularly suitable for ALUCORE®. They generally consist of two parts with the clamping effect achieved by bolting. Various designs of clamping element are used for display and store fitting purposes (no outdoor use).

Supplier

Klemetric system

KlemProducts® Gesellschaft für Werbemittel mbH
www.klemproducts.com

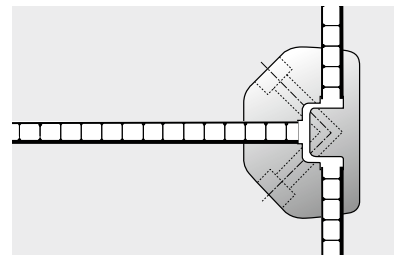
Voluma system

MERO Raumstruktur GmbH & Co. KG Ausstellungssysteme
www.mero.de

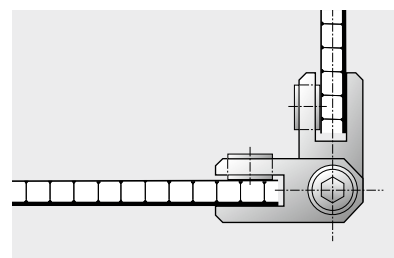
Irus system

Irus-System
www.irus-system.com

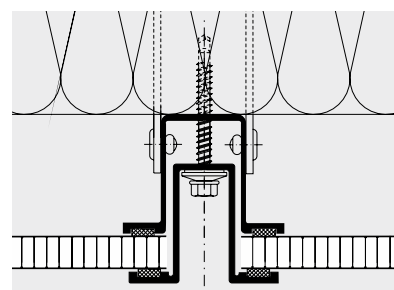
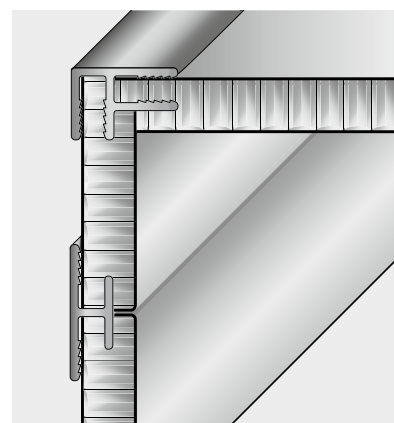
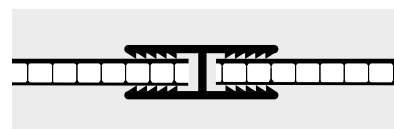
Any suitable connection or shock-resistant frame can easily be made with aluminium sections. For fascia cladding applications special aluminium sections are provided for clamp connections. For further information on ALUCORE® special sections and types for fascia claddings please ask for the respective documentation.



Voluma system



Irus system



LACQUERING

Overlacquering of stove-lacquered ALUCORE® surfaces of polyester lacquer quality (panels not exposed to weather conditions)

Aluminium treatment and priming carried out at the factory in a continuous process with continuous quality control is advantageous to the overlacquering of the stove-lacquered ALUCORE® surface.

ALUCORE® overlacquering procedure

- Pre-cleaning of the panels using methylated spirit
- Grinding the surfaces with wet abrasive paper (grain size 360)
- Removing grinding dust with a lintfree cloth moistened with spirit
- For the top coat, please follow the instructions of the top coat supplier

Lacquering of mill-finish ALUCORE® surfaces

The composition of lacquer coating for millfinish ALUCORE® is basically the same as for mill-finish aluminium surfaces. However, it is advisable to be familiar with coating systems and materials as well as working methods for aluminium.

Additional information

For general information on painting, lacquering and coating of aluminium we recommend leaflets on „02, 03, 012, 015 surfaces“ issued by Gesamtverband der Aluminiumindustrie e.V. (GDA) www.aluinfo.de.

PRINTING

Printing on ALUCORE® surfaces in polyester lacquer quality

Stove-lacquered ALUCORE® panels are well suited for printing. Prior to printing, please make sure to remove the protective foil and clean the surface with a lintfree cloth moistened with ethyl or isopropyl alcohol. The alcohol must not be poured directly onto the panel. The lacquer coat can be damaged by the use of methylated spirit. About 10 to 15 minutes should be left between cleaning and printing.

Practice has shown that even within a given specification of stove-lacquer paint and printing ink there may be variances, and in view of this it is recommended that in the case of each particular application the adhesion properties of the selected printing ink should be tested.

LAMINATING

ALUCORE® can be laminated (manually or by machine) with cast or calendered selfadhesive foils. The varnish does not come off when changing the foils.

CLEANING AND MAINTENANCE

GENERAL

Expert and regular cleaning not only maintains the aesthetic and representative finish of stove-lacquered surfaces but also maintains their quality through the removal of dirt and aggressive deposits.

Cleaning intervals depend on local environmental conditions and the resulting amount of soiling. Surfaces should be cleaned either manually or with a suitable cleaning device from top to bottom. Please do not use any abrasive pads on lacquered surfaces. We recommend that the cleaning agent be tried on an unobtrusive part of the object to be cleaned to check whether the surface is affected.

Do not clean hot surfaces (> 40° C) as the quick drying process may cause blemishes.

CLEANING AGENTS

Please observe the manufacturer's cleaning and safety instructions! For further information such as addresses of approved and recommended cleaning companies and a list of neutral cleaning agents for organically coated or anodized aluminium components, please contact Gütegemeinschaft Reinigung von Fassaden e.V. (GRM) www.grm-online.de.

NON-SUITABLE CLEANING AGENTS

Please do not use any powerful alkaline cleaning agents such as potassium hydroxide, soda, caustic soda or any powerful acidic products or heavily abrasive scouring agents or lacquer-dissolving cleaning agents.

TECHNICAL DATA

			ALUCORE®					ALUCORE® base	
Standard thickness [mm]		Unit	6	10	15	20	25	9.5	14
Cover sheet thickness, front side		[mm]			1.0			0.5	
Cover sheet thickness, rear side		[mm]	0.5	0.5	1.0	1.0	1.0	0.5	
Weight		[kg/m²]	4.7	5.0	6.7	7.0	7.3	3.5	3.7
Technical properties									
Section modulus	W	[cm³/m]	2.5	4.5	13.1	18.1	23.1	4.3	6.5
Rigidity	E·J	[kNcm²/m]	7 100	21 900	75 500	138 900	221 600	15 600	35 000
Alloy of cover sheet (accord. to EN 485-2 / EN 1396:2007)			EN AW-5005A (AlMg1) H22 / H42		EN AW-5005A (AlMg1) H28 / H48 (H22 / H42)			EN AW 5005A (AlMg1) H22 / H42	
Modulus of elasticity	E	[N/mm²]	70 000					70 000	
Tensile strength of cover sheets	R _m	[N/mm²]	≥ 125		≥ 185 (125)			≥ 125	
0.2% Proof stress	R _{p0.2}	[N/mm²]	≥ 80		≥ 160 (80)			≥ 80	
Elongation	A ₅₀	[%]	≥ 5		≥ 2 (5)			≥ 5	
Linear thermal expansion	α		2.4 mm/m at 100° C temperature difference					2.4 mm/m at 100° C temperature difference	
Core									
Bare compressive strength		[N/mm²]	approx. 2.5					approx. 1.5	
Cell size		[inch] [mm]	3/8 (9.5)					1/2 (12.7)	
Surface									
Lacquering			both sides polyester platinum white or fluoropolymer lacquer (e.g. PVDF), one or both sides					both sides mill finish	
Brilliance (standard)		[%]	25–40						
Hardness (pencil hardness)			HB-F						
Acoustical properties									
Sound absorption factor	α _s		0.05					0.05	
Air-borne sound insulation index (accord. to ISO 717-1, ISO 140-3)	R _w	[dB]	21	21	22	23	25	approx. 20	
Thermal properties									
Thermal conductivity (depends on total panel thickness incl. cover sheets)	λ	[W/mK]	0.95	1.35	1.78	2.25	2.70	1.01	1.30
Thermal resistance	R	[m²K/W]	0.0063	0.0074	0.0084	0.0089	0.0093	0.0094	0.0107
Heat transition coefficient	U	[W/m²K]	5.67	5.64	5.61	5.59	5.58		
Temperature resistance		[°C]	-40 to +80					-40 to +80	

INFORMATION (please request)

- ALUCORE® product information
- ALUCORE® original samples of standard surfaces

Our brochures are also available at
www.transport-industry.com DOWNLOADS

Boundless possibilities.
ALUCORE®



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