

ROUTING AND FOLDING TECHNIQUE

GENERAL

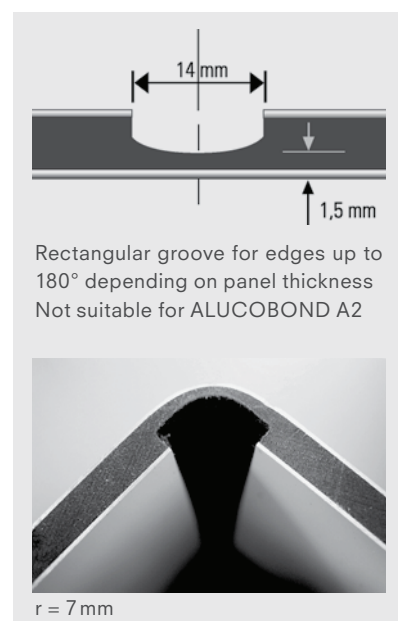
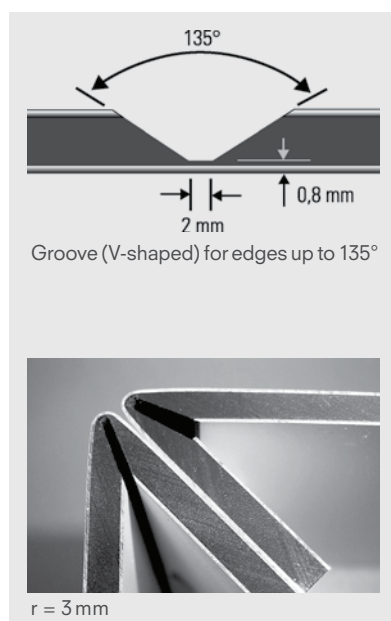
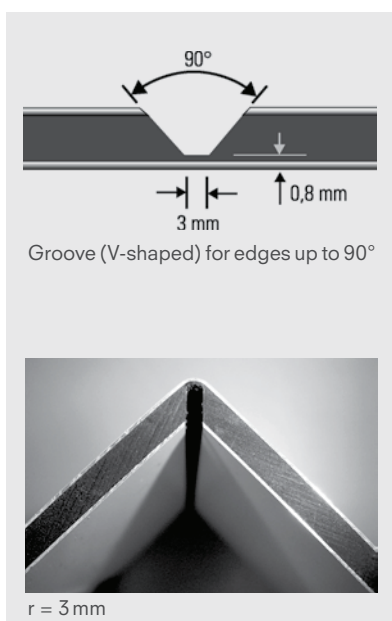
- ALUCOBOND® composite panels can be shaped by means of a simple processing technique. This procedure, the routing and folding technique, enables a variety of shapes and sizes to be manufactured.
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- V-shaped or rectangular grooves are routed on the rear of the ALUCOBOND® panels using disk or end milling cutters, whereby the aluminium cover sheet at the front and part of the polyethylene core are retained. The small thickness of the remaining material then allows folding by hand. A brake press is not required. The groove shape determines the bend radius. The grooves can be produced with a panel saw with routing device for ALUCOBOND®, on a CNC machining centre, with a panel routing machine or a hand routing machine. The routing and folding technique can be used for composite panels of all standard surfaces.



Routed / folded elements

Advantages

- The convincing advantages of the routing and folding technique are:
- Minimum investment
- Simple operating technique
- Folding need not be done in the workshop, it can be done on site; this means low transport costs
- Low-cost manufacture of shaped parts like façade elements, frames, fascia claddings and roof edgings, corner pieces and many more are possible
- Versatile formability
- Good economy
- Shapes are not restricted by machine dimensions.
- Tension-free folding, therefore no buckling in the corner area and thus even elements.



Important: With ALUCOBOND® with anodised surface and ALUCOBOND® with naturAL Reflect surface, the formation of micro-cracks leads to brightening in the edges.

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MACHINES FOR ROUTING AND FOLDING TECHNIQUE

Vertical panel saws with routing device for routing ALUCOBOND® (special accessory)

- Holz-Her vertical panel saw, PK 1255 ALUCOBOND®
- Striebig, vertical panel saw, Standard II for composite panels

Other panel saws with a special routing device can also be supplied or retrofitted by the manufacturer. If necessary, the frame has to be raised.

For inquiries relating to

- new machines with accessory parts for routing ALUCOBOND®
- possible retrofitting of existing machines (stating machine type/No. and year of construction)
- accessories such as cutter disks, tracing rollers, etc.

Please contact the manufacturer of the panel saws.

Important: For inquiries and orders, please add “for processing ALUCOBOND® composite panels”.

Important:

General information regarding the routing and folding technique

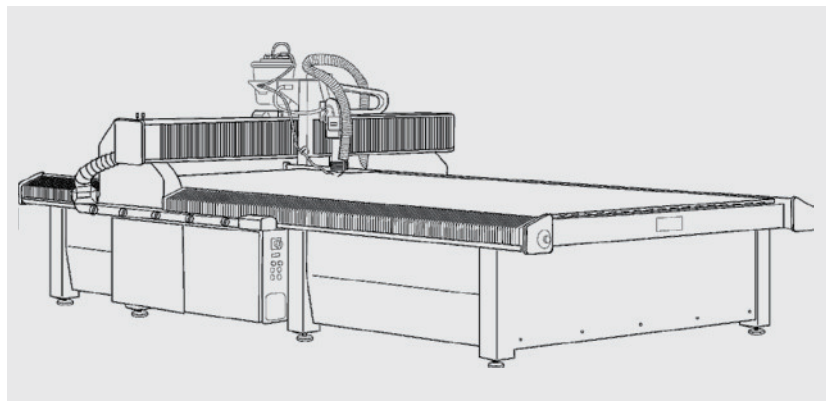
- Processing temperature: During folding, the ambient and material temperature should not be below 16°C (see also DIN EN 1396).

For ALUCOBOND®plus and ALUCOBOND®A2

- Tracing rollers: Make sure to use tracing rollers with dustproof bearings.
- Speed 2,400 rpm (= ½ speed with panel saws of Striebig and Holz-Her)
- Feed max. 20 m/min. Pay attention to a constant feed.
- Routing of rectangular groove not possible.

CNC machining centres

ALUCOBOND® can be processed easily on CNC machining centres. Depending on the equipment of the machines, various processing steps can be performed: sawing, milling (routing and folding), contour cutting, drilling.



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MACHINES FOR ROUTING AND FOLDING TECHNIQUE

Festool panel routing machine PF 1200 E-Plus ALUCOBOND®

Supplied with:

- Tracing roller for 4 mm
- Cutter disk for V-grooves 90°
- Adjustment template
- Transport box

Hand routing machines

Commercially available hand routing machines with a minimum rating of 800 W are suitable. Collet chucks 8 mm dia.

Mobile dust extractors

E.g. Festool mobile dust extractors, types CTM approved for dust class M for dust with MAK values $> 0.1 \text{ mg} / \text{m}^3$ for sheet milling machines, hand routers and hand-held circular saws.

TOOLS FOR ROUTING AND FOLDING TECHNIQUE

Carbide tipped disk milling cutters for vertical panel saws

With a nominal panel thickness, the diameters of tracing rollers and cutter discs are adjusted so as to leave a residual core thickness of 0.3 mm (V-groove) or 1 mm (rectangular groove). The dimensions given in the drawings show the cover panel thickness of 0.5 mm plus the corresponding residual core thickness.

For inquiries relating to disc milling cutters with indexable inserts suitable for processing ALUCOBOND®plus and AALUCOBOND®A2 for **Holz-Her panel saws** (type PK 1255 ALUCOBOND®, number of teeth = 8, cutter disk outer dia. = 244 mm), please contact Reich, Holz-Her or LEUCO.

For ordering disk milling cutters with indexable inserts V-groove 90° and V-groove 135° as well as the corresponding tracing rollers for all types of **Striebig panel saws**, please contact Striebig AG.

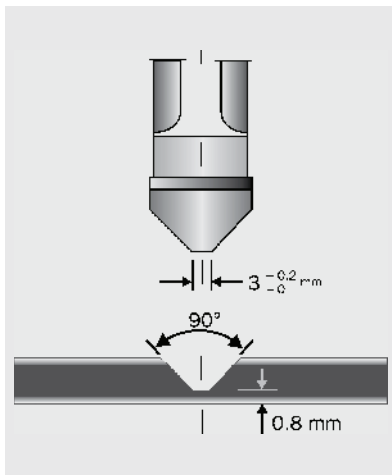
When ordering please state type of panel saw and year of construction.



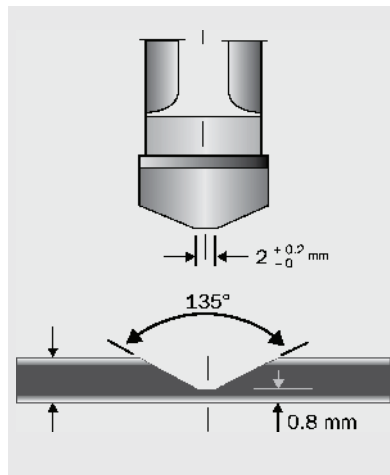
Panel routing machine PF 1200 E-Plus

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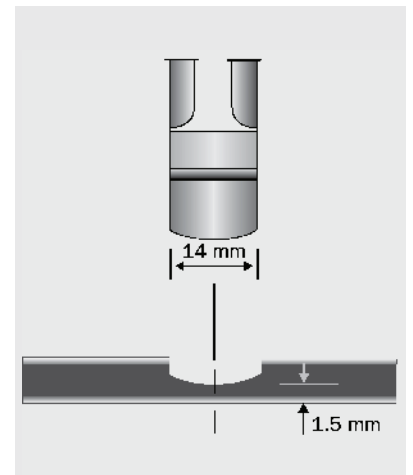
Carbide tipped disk milling cutters for vertical panel saws



Disk milling cutter for V-grooves 90°

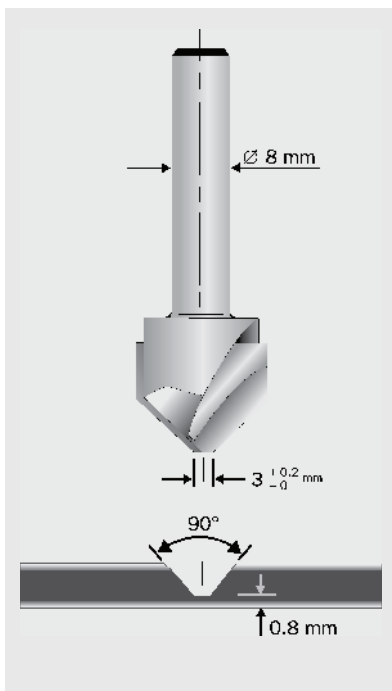


Disk milling cutter for V-grooves 135°

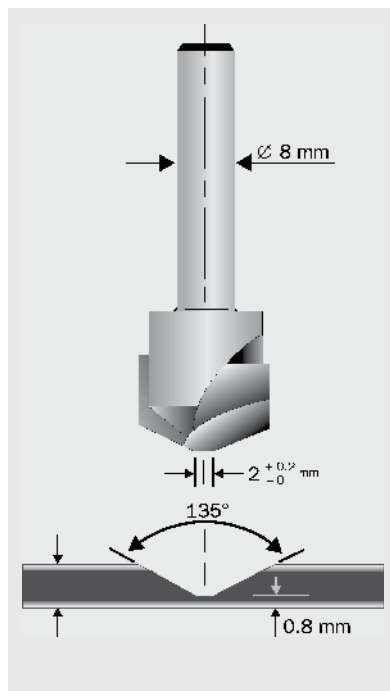


Disk milling cutter for rectangular grooves

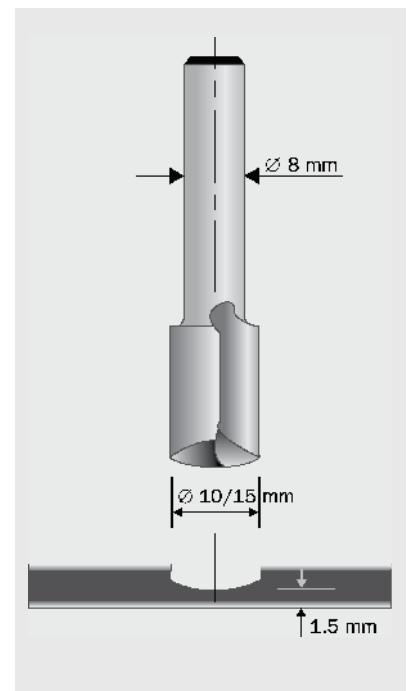
Milling cutters with cylindrical shank for hand routing machines



End milling cutter for V-grooves 90°
Carbide tipped cutter No. 491 444 (Festool)
Carbide tipped cutter No. FV09.01.090 (GIS)
Carbide tipped cutter No. 79 803 (KWO)



End milling cutter for V-grooves 135°
Carbide tipped cutter No. 491 443 (Festool)
Carbide tipped cutter No. FV09.01.135 (GIS)
Carbide tipped cutter No. 79 804 (KWO)



End milling cutter for rectangular grooves
HSS cutter Ø 10 mm No. 79800(KWO)
HSS cutter Ø 15 mm No. 79801(KWO)

ROUTING AND FOLDING TECHNIQUE

FABRICATION OF TRAY PANELS

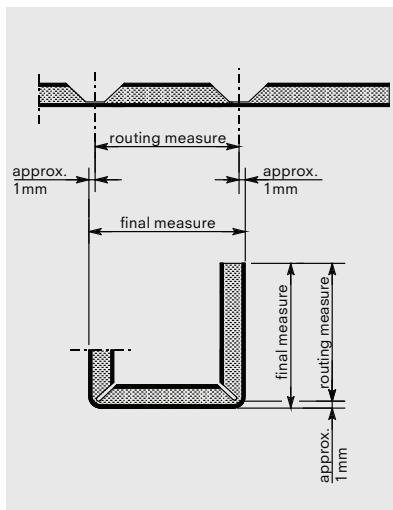
Determination of the measures of periphery and routing measures

The measures of periphery and the routing measures are determined on the basis of the drawing measures (final measures). In this case, approx. 1 mm per edge is deducted from the final measure. The total of the routing measures results in the cutting measure. In any case, the final measures should be checked using a test strip prior to series production. Then the limit stops of the panel saw can be adjusted to obtain elements of identical sizes.

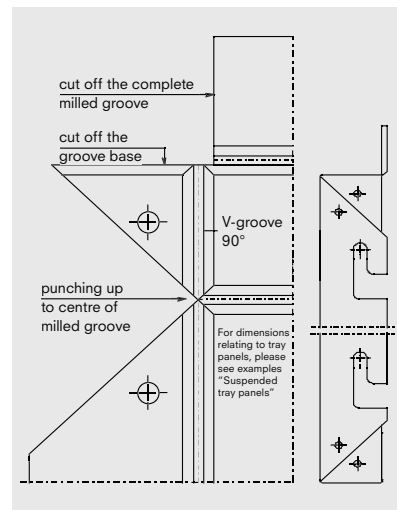
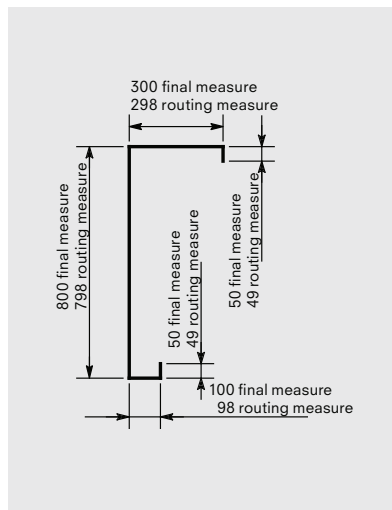
Determination of the cutting measure

Example ALUCOBOND® roof edge:

Total of routing measures = cutting measure = 1292 mm



Determination of the routing measure

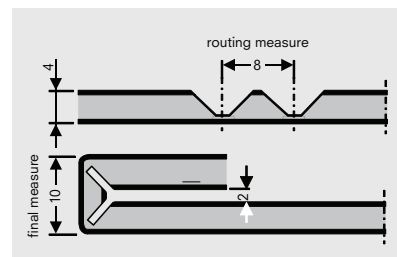


Adjustment of punch depth

Adjustment of the punching depth when punching corners

In order to obtain perfectly closed tray corners, the machine settings indicated in the sketch must be observed.

For clean cuts use sharp tools and dies with minimal cutting clearance (~ 0.1 mm).



Minimum double folds

Bending aids

For easy folding of ALUCOBOND®, particularly in the case of narrow folds processed according to the routing and folding technique, we recommend bending aids that can be produced of ALUCOBOND® butt joint sections and panel strips.

- Butt joint section **Section No. 31343** 4 mm
- Butt joint section **Section No. 31344** 6 mm

