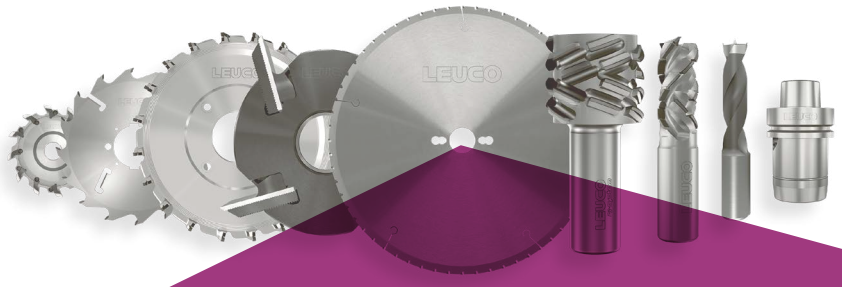
LEUCO
MAGENTIFY WOOD PROCESSING

TOOL RECOMMENDATION

Manufacturer
HOMAPAL®

Material
METAL FINISHES:
ALU PLAIN POLISHED TUET



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Version 06/2026

TOOL RECOMMENDATION
HOMAPAL® METAL FINISHES: ALU PLAIN POLISHED TUET

The following tool recommendations are based on a wide variety of test series conducted by LEUCO Ledermann GmbH & Co. KG, each yielding the best machining results.

DEFINITION OF TERMS:

DP = Diamond (formerly DIA); **HW** = carbide; **HR** = hollow back; **L-S** = slow, fast; **L-S-L** = slow, fast, slow; **vc** = cutting speed; **fz** = tooth feed; **vf** = Feed speed

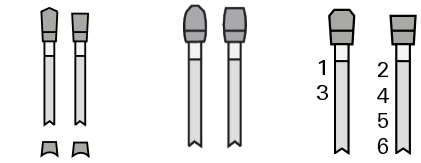
1. TRIMMING / FORMAT PROCESSING

1.1 TRIMMING OF THE PANELS WITH CIRCULAR SAW BLADES

Several factors contribute to a good cutting result:

- The decorative side must be on the entry side
- Correct saw blade overhang, feed speed, tooth configuration, tooth partition, rotations per minute, and cutting speed.
- When making miter cuts, ensure that the cutting edge is razor-sharp.

1.2 RECOMMENDED SAW TOOTH SHAPES



TR-F-F DUR TR-F-K G6

1.3 SIZING SAWS

In general, the panels can be processed with TC circular saw blades and, with slight compromises, also with DP saw blades.
The best cutting results are achieved with circular saw blades featuring a TR-F-F DU geometry.
Equally good cutting results can also be achieved with a carbide circular saw blade featuring TR-F K geometry, the “TR-F K” carbide circular saw blades—Anti-Fingerprint.” However, this requires more effort to clean the tooth sides.

Optimal application data: (for a circular saw blade with a diameter of 300 mm)
Saw blade projection: ü = 40 mm
rotations per minute: n = 4000 1/min
Feed rate = Manual vf = 3 – 8 m/min
Cutting speed: vs = 40 – 50 m/s

1.4 PANEL SIZING SAW

On panel sizing systems, panels can generally be divided using any commercially available TC panel sizing saw blades. However, there are differences in cutting quality.
For a near-perfect, burr-free finish, the trimming cut should be performed using a panel sizing saw blade from the Q-Cut G6 series. Equally good results can be achieved with saw blades from the Q-Cut TR-F K series.

Optimal application data: (for a circular saw blade with a diameter of 350 mm)
Saw blade overhang: ü = 40 mm
Rotations per minute: n = 3600 1/min
Feed: vf = 20 – 30 m/min
Cutting speed: vc = 65 m/s

2. MILLING/ ED EDGE PROCESSING

In general, tools with straight-edge cutters should be used for through feed jointing. For sizing with jointing cutters, tools with a shear angle between 35° and 70° can be used. The best quality results are achieved with joint tools featuring a 48° shear angle and the Fibonacci cutting arrangement.

Processing with turnover knives as joint cutter heads is possible in principle.
The target feed per tooth (fz) is in the range of 0.55–0.84 mm. If possible, an oscillating feed should be used, with an oscillation length of 3–5 mm. If oscillation is not possible, then when the first burr forms, the Z-axis should be adjusted by approximately 0.5 mm to engage a new cutting edge.

In general, processing can be performed in both the same-direction and conventional cuts, though the removal should not exceed 2 mm; 0.5–1 mm is optimal for minimizing wear.
This approach, combined with the use of precise hydro clamping or HSK clamping, provides the optimal conditions for the highest quality and long edge life in jointing processing.

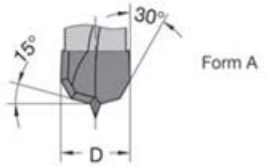
3. PROCESSING ON CNC- STATIONARY MACHINES

Dividing cuts, pocket cuts, and jointing cuts can generally be performed with all standard LEUCO end mill types.
The selection of the appropriate tool and application parameters depends largely on the requirements for cutting quality, edge life, and economic efficiency of the processing operation.
The best results are achieved with VHW finishing cutters (such as the VHW178335 finishing cutter) and CM DP Nesting high-performance shank-type cutters (e.g., 187281).

Recommended application conditions
The following application data have proven suitable in test series:

Rotations per minute:	n = 18.000 min ¹
Feed:	v_f = 8 – 20 m/min
Removal (jointing):	ap = 2 mm
Processing:	With feed and conventional cut
Possible Feed per tooth:	fz = 0,22 – 0,45 mm

Recommendation:
The optimal feed per tooth is in the range of fz ≈ 0.25 mm to achieve a good balance between cutting quality and tool wear.



4. DRILLING

Anchor holes:
The best machining results in terms of c**utting quality, hole finish, and edge life** were achieved with the following tool:

- **LEUCO high-performance dowel drills, e.g., 185776**
  → Very clean drill pattern combined with good edge life

Through holes:
For through holes, the following tool produced the best results:

- **LEUCO Mosquito through-hole bits, e.g., 183157**
  → Good chip evacuation and clean cutting edges

Cylinder boring bits (Ø 35 mm):
The following findings emerged regarding cylinder head drilling:

- **Low cutting pressure is generally advantageous**
- LEUCO "light" tools, such as 184680, are particularly well-suited for the mode of application

Note: It is virtually impossible to achieve a cutting edge that is completely free of burrs or **flares** when **drilling cylinder heads**. A **slight** amount **of flares at the cutting edge** may occur despite optimized machining parameters.

5. FORMULAS

5.1 CUTTING SPEED – VC

- vc = D • π • n / 60 • 1000
- D – Tool diameter [mm] n – Tool speed [min ^{1}]

5.2 OTH FEED – FZ

- fz = vf • 1000 / n • z
- vf – Feed speed [m/min]
- n – tool speed [min ^{1}] z – number of teeth

5.3 FEED SPEED - VF

- vf – feed speed [m/min ^{1}]
- vf = fz • n • z / 1000
- fz – Tooth feed [mm]

6. LEUCO TOOLS FOR PROCESSING ALU PLAIN POLISHED TUET

6.1 CIRCULAR SAW BLADES FOR SIZING SAWS

Dimensions	Designation	Z	tooth config.	cutting material	projection	Ident-No.
Ø 303 x ,2 x 30	Sizing saw blades TC - LowNoise	60	TR-F-F DU	HW	40 mm	193334
Ø 300x3,2 x 30	TC ‚TR-F K' Format Circular Saw Blades	84	TR-F K	HW	40 mm	193195

- Additional saw blades with different diameters, cutting widths, bores, and numbers of teeth are available upon request.
- The number of teeth and feed speed depend on the cutting height and the application for single panel cutting or stack cutting.

6.2 CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

Dimensions	Designation	Z	tooth config.	cutting material	projection	Ident-No.
Ø 300x4,4x60	Panel Sizing Saw Blades HW - Q-Cut „G6“	72	G6	HW	approx. 40 mm	193137
Ø 320x4,4x30	Panel Sizing Saw Blades HW - Q-Cut „G6“	72	G6	HW	approx. 40 mm	193142
Ø 350x4,0x60	Panel Sizing Saw Blades HW - Q-Cut „G6“	72	G6	HW	approx. 40 mm	193373
Ø 360x4,4x30	Panel Sizing Saw Blades HW - Q-Cut „G6“	72	G6	HW	approx. 40 mm	193153
Ø 350x4,0x30	Panel Sizing Saw Blades HW - Q-Cut „G6“	72	TR-F K	HW	approx. 40 mm	192974
Ø 380x4,0x60	Panel Sizing Saw Blades HW - Q-Cut „G6“	72	TR-F K	HW	approx. 40 mm	192976

- Additional saws with different diameters, cutting widths, bores, and numbers of teeth are available upon request.
- Number of teeth and feed speed depend on the cutting height and the application for single-panel or stack cut.

6.3 JOINTING CUTTERS

Dimensions	Designation	Z	cutting material	Axis <)	Ident-No.
125x62,4	DIAREX Fibonacci	3	DP	15°	187863
125x37,5	DIAREX Fibonacci	3	DP	15°	187874

- Additional jointing cutters with different diameters, cutting widths, bores, and numbers of teeth are available upon request.

6.4 CNC SHANK-TYPE CUTTERS

Dimensions	Designation	Z	cutting material	Ident-No. (R)
Ø 12x23x Ø16	High-performance DP Nesting shank-type cutter - Z=3	2+2	VHW	186242
Ø 16x22x Ø16	High-performance shank-type cutters for Nesting - Z=3	2+2	VHW	186243
Ø 10x32x Ø10	VHW finishing cutters - positive/negative spiral with **shear angle**			Upon request
Ø 18x55x Ø18	VHW finishing cutters - positive/negative spiral with **shear angle**			

I Other shank-type cutters with different dimensions are **available upon request.**

6.5DOWEL AND HINGE HOLE DRILL BITS

Dimensions	Designation	cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5	Through-hole drill Mosquito	VHW	183153	183152
Ø 8	Mosquito Through-Hole Drill Bit	VHW	183157	183156
Ø 5	High-Performance Dowel Drills 70 mm	VHW	185772	185771
Ø 8	High-Performance Dowel Drills 70 mm	VHW	185776	188775
Ø 15	"Light" Cylinder Boring Bit	HW	184685	184684
Ø 35	„Light" Cylinder Boring Bit	HW	184689	184688

I Additional drill bits with different diameters, cutting lengths, and shank dimensions are **available upon request.**

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→ **Couldn't find the tool type or tool dimensions you want?**
Please contact LEUCO Sales.

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TIP – LEUCO ONLINE CATALOG

The LEUCO tool recommendations for processing HOMAPAL® metal finishes: Alu Plain Polished Tuet are listed in the LEUCO online catalog.

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→ Select saw blades, cutters, drill bits

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