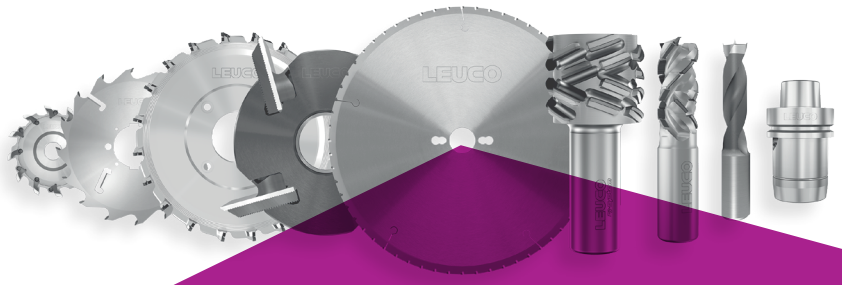
LEUCO
MAGENTIFY WOOD PROCESSING

# TOOL RECOMMENDATION

Manufacturer
## EGGER

Material
## DECORATIVE BOARDS



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**Version 07/2025**

# TOOL RECOMMENDATION

## EGGER DECORATIVE BOARDS

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### **PRODUCT DESCRIPTION** EGGER DECORATIVE BOARDS

EGGER Decorative Boards (according to EN 14322) consist of wood-based materials laminated with decor paper on both sides. They are used horizontally and vertically in the furniture and interior construction, for example in the production of fronts, racks, wardrobes or wall claddings. EGGER Decorative Multilayer Boards meet the highest demands in terms of shock resistance thanks to special multilayer structures with a thickness of up to 1 mm. Multilayer structures are very bend-resistant and stable and are therefore particularly well suited for constructions of enormous widths. Upon demand, an additional overlay can be used in case of high abrasive wear. EGGER Decorative Boards with its decor and material compound in proven EGGER quality offers a contemporary and esthetically appealing solution.

### **PROCESSING INFORMATION** EGGER DECORATIVE BOARDS

The following machining information is based on a wide range of test series with the best machining results in each case being produced by LEUCO Ledermann GmbH & Co. KG.

### **WEAR TEST** EGGER DECORATIVE BOARDS

The wear test shows a normal value in the area of the top layer. The wear of cutting edges in the area of the core layer, however, was above average which is due to the harder middle layer of the panel. Thanks to the harder middle layer, the board is stable and can be processed without any problems in the area of the edges. With regard to the wear behavior, the use of DIA cutting material for processing is recommended.

### **DEFINITION OF TERMS**

**DP** = DIA; **HW** = tungsten carbide; **L-S** = slow, fast; **L-S-L** = slow, fast, slow; **S-S** = fast, fast; **S-S-S** = fast, fast, fast; **vc** = cutting speed; **fz** = teeth feed; **vf** = feed rate; **HR** = hollow back; **G6** = tooth group cutting geometry; **TR-F-FA** = triple chip - flat chamfer; **HR-TR** = hollow back trapezoid

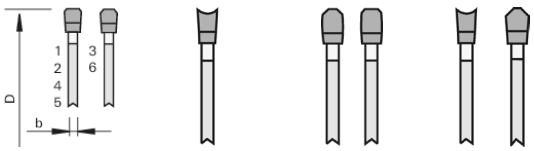
## 1. GENERAL INFORMATION

EGGER wood-based materials should be stored and processed in a closed storage or workshop space with constant climatic conditions T≥10°C at a relative humidity of approx. 50-60%. The storage and processing conditions should correspond to the climatic conditions during later use.

## 2. TRIMMING / SIZING

### 2.1 PANEL TRIMMING WITH CIRCULAR SAW BLADES

Various factors are responsible for good trimming results:
Good side facing up, correct saw blade projection, feed rate, tooth configuration, tooth pitch, rpm and trimming speed. Depending on the volume to be cut, tungsten-carbide-tipped (HW) or diamond-tipped (DP) circular saw blades are used. **Recommended tooth configurations:**




### 2.2 SIZING SAW

The panels can be cut very well with HW and DP saw blades. For an optimal cutting result on both the entry and exit edge and on the cutting surface, the following circular saw blades are particularly suitable:

| | |
|---|---|
| HW saw blades: | sizing saw blades HW - solid surface “TR-F-FA” |
| DP saw blades: | sizing saw blades DP - nn-System DP flex “HR” |

**Optimal application data:**

| | |
|---|---|
| Saw blade projection: | SÜ = 20 - 30 mm |
| Revolutions per minute: | n = 5000 /min |
| Feed rate = manual: | 5 - 8 m/min |
| Cutting speed: | vc = 75 (m/s) |

These circular saw blades should also be used for trimming cuts on CNC machines.

## 2.3 PANEL SIZING SAW

In general, the boards can be processed with all HW panel sizing saws available on the market. But there are variations in the cutting quality. On panel sizing saws, the panels can be cut with HW and DP circular saw blades. For an optimum cutting quality, the trimming cut should be made with a HW circular saw blade. For higher volumes, it is recommended to use a DP circular saw blade for the trimming cut.

| | |
|---|---|
| HW saws: | panel sizing saw blades HW - Q-Cut "G6" |
| DP saws: | panel sizing saw blades DP-"G6" |

**Optimal application data:**

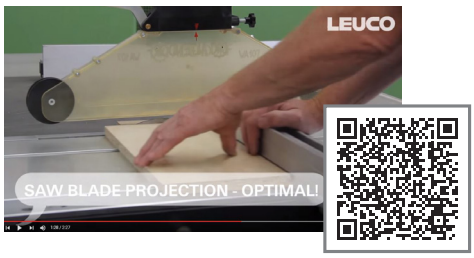
| | |
|---|---|
| Saw blade projection: | SÜ = 20 - 30 mm |
| Revolutions per minute: | n = 3600 /min |
| Feed rate: | 20 m/min |
| Cutting speed: | vc = 80 (m/s) |

It is also important to ensure the correct saw blade projection which has an impact on the cutting quality and depends on the diameter.

| Circular saw blade diameter | Saw blade projection |
|---|---|
| D = 250 mm | approx. 15 - 20 mm |
| D = 300 mm | approx. 15 - 25 mm |
| D = 350 mm | approx. 18 - 28 mm |
| D = 400 mm | approx. 25 - 30 mm |
| D = 450 mm | approx. 25 - 33 mm |

The recommended cutting speed is 60 - 90 m/sec. The upper value should be selected in the case of DP-tipped circular saw blades. Try to aim for a feed per tooth of 0.07 - 0.08 mm.

Please refer to our YouTube channel for more information about the optimum saw blade projection. >>> Scan the QR-Code and watch the video on YouTube or go to **www.youtube.com/leucotooling** <<<



### 2.4 THROUGH-FEED MACHINES: HOGGERS

Industrial sizing on through-feed machines is done using diamond-tipped tools. When sizing with hogger tools, outstanding results are achieved in the double hogging process. For this purpose, we recommend hoggers with low cutting pressure, such as the LEUCO PowerTec hogger. The number of hogger teeth should be matched to the respective machining feed.

PowerTec 5

The following parameters are recommended for the use of hoggers:

Revolutions per minute: n = 6,000 /min
Removal: a = 2 mm
Feed rate: vf = 40 m/s

The best results with regard to cutting quality are achieved with PowerTec hoggers. The material, however, can also be processed with other hogger types without chipping.

## 3. MILLING / EDGING

In general, tools with DP blades should be used for jointing work in the run-through process. When sizing with jointing cutters, very good results can be achieved with tools that have a shear angle of between 35° and 70°. The best results with regard to quality can be achieved with jointing tools with a shear angle of 48°. When using two double jointer aggregates, jointing in two steps is recommended: use the first jointer aggregate for the main material removal (roughing) and the second jointer aggregate for finishing. In addition to the use of precise hydro and HSK clamping units, this procedure creates the optimal conditions for highest quality and high edge lives during jointing work. The optimum feed/tooth (fz) is 0.7 - 0.94 mm.

SmartJointer airFace

DIAREX airFace

## 4. MACHINING ON STATIONARY CNC MACHINES

Dividing cuts, pocket milling and jointing cuts etc. can be performed easily with all LEUCO shank-type cutters. The application data and the selection of the tool depend on the requirements regarding the cutting quality and the processing in general. For high volumes to be cut, high-performance diamond-tipped shank-type cutters (e.g. Z=3+3) are recommended, Z=2+2 cutters, however, are suitable for medium-sized quantities and feed rates.

LEUCO p-System tools with very high shear angles are also work reliably but are only necessary if processing against an edge is required. The optimal feed per tooth fz (mm) is 0.30 mm. For better orientation, some reference feed values for different number of cutting edges are shown below.

**Reference values for the feed per tooth fz = 0.3 at 18,000 rpm**

| Number of cutting edges (Z) | Diameter (mm) | Speed (rpm) | Feed rate vf (m/min) |
|---|---|---|---|
| Z=2 | 20 /25 | 18.000 | 10 - 12 / 14 - 18 |
| Z=3 | 12 / 25 | 18.000 | 14 - 16 / 14 - 18 |
| Z=4 | 48 / 60 | 18.000 | 20 - 22 / 20 - 25 |

**Dividing cut:** Low value ranges, depending on the machining situation, the values must be further reduced if necessary.
**Jointing cut:** Higher value ranges.
In case of higher revolutions per minute, e.g. 24,000, the values above increase accordingly by approx. 25%. It is generally recommended to use clamping systems with high concentric accuracy for all milling work (hydro-expansion chucks, TRIBOS or heat-shrinking chuck).

**Edge life can generally be increased by:**

- Best possible workpiece clamping. Use of as many suction devices as possible in best possible condition on the console tables. Regular cleaning of the surfaces of the suction devices has a positive effect on the adhesion.
- Avoidance of high tool temperatures.
- Particularly for the nesting technology, use the appropriate milling tool, (number of cutting edges and revolutions per minute) for the feed rate that can actually be reached, especially for nest structures with a lot of workpieces of small size.
- Optimized chip removal using cutters with mainly positive spiral if the size of the workpiece and the workpiece clamping is suitable for this.
- The use of respective chip extraction systems with hydro-extension clamping can be an efficient option depending on the respective application case.

## 5. DRILLING

**Wall plug holes:**
Using the standard HW-tipped dowel bits, the results are very good. Best results can also be achieved with LEUCO VHW topline drill bits

Recommended application parameters (in drilling aggregates) are:
Speed: 4,500 rpm
Feed rate: 1.5 - 2 m/min
Drilling mode: S-S

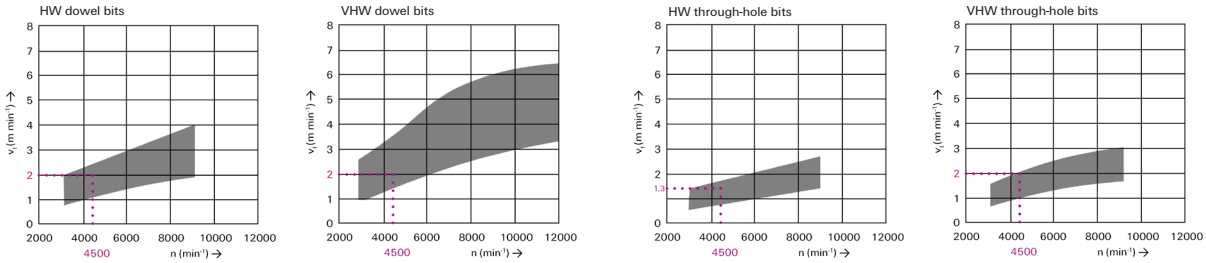
**Through holes:**
Very good drilling quality at the entry and exit side are also achieved with standard HW through-hole bits. VHW through-hole bits, e.g. LEUCO types Mosquito and topline, can also be used and offer longer edge lives.

Recommended application parameters:
Speed: 6,000 rpm
Feed rate: 1.5 - 2 m/min
Drilling mode: L-S-L

**Hinge holes:**
Very good results can be achieved using the LEUCO "Light" cylinder boring bits. In case of high production volumes, the use of DP cylinder boring bits with long edge lives is recommended.

| | |
|---|---|
| Speed: | 4,500 - 6,000 rpm |
| Feed rate: | 1.5 - 2 m/min |
| Drilling mode: | S-S |

**Drilling: determination of the feed rate as a function of revolutions per minute**




# 6. FORMULAS

## 6.1 CUTTING SPEED – VC

- Unit: m/s
- Data required: diameter = D [mm]; tool speed = n [rpm]
- Calculation: vc = (D * π * n)/(60 * 1000)

## 6.2 TOOTH FEED – FZ

- Unit: mm
- Required data: feed rate = vf [m/min]; tool speed = n [rpm]; no. of teeth = z
- Calculation: fz = (vf * 1000)/(n*z)

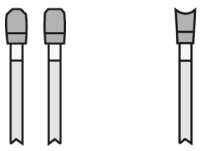
## 6.3 FEED RATE – VF

- Unit: m/min
- Required data: tooth feed = fz [mm]; tool speed = n [rpm]; number of teeth = z
- Calculation: vf = (fz * n * z)/1000

# 7. LEUCO TOOLS FOR PROCESSING OF EGGER DECORATIVE BOARDS

## 7.1 CIRCULAR SAW BLADES FOR SIZING SAWS

| Dimension | Designation | Z | Tooth Shape | Cutting material | Projection | Ident-No. |
|---|---|---|---|---|---|---|
| Ø 303 x 3,2 x Ø 30 | HW solid Surface | 84 | TR-F-FA | HL Board 06 | approx. 25 mm | 193133 |
| Ø 303 x 2,5 x Ø 30 | nn-System DP flex | 60 | HR | DP | approx. 25 mm | 192444 |

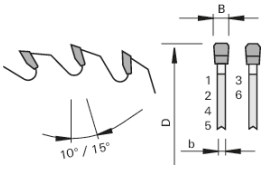


TR-F-FA HR

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

## 7.2 CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

| Dimension | Designation | Z | Tooth Shape | Cutting material | Projection | Ident-No. |
|---|---|---|---|---|---|---|
| Ø 350 x 4,4 x Ø 60 | Q-Cut G6 | 72 | G6 | HL Board 04+ | approx. 25 mm | 193148 |
| Ø 360 x 4,4 x Ø 30 | Q-Cut G6 | 72 | G6 | HL Board 04+ | approx. 25 mm | 193153 |
| Ø 350 x 4,4 x Ø 60 | DP G6 | 72 | G6 | DP | approx. 25 mm | 193004 |
| Ø 350 x 4,4 x Ø 30 | DP G6 | 72 | G6 | DP | approx. 25 mm | 80487417 |

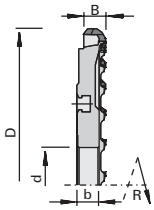


G6

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

## 7.3 HOGGERS

| Dimension | Designation | Z | Cutting material | Ident-No. (L) | Ident-No. (R) |
|---|---|---|---|---|---|
| Ø 250 x 9,5 x Ø 60 | PowerTec 5 | 20+10 | DP | 80477094 | 80477093 |
| Ø 250 x 9,5 x Ø 60 | PowerTec 5 | 20 | DP | 80477122 | 80477121 |

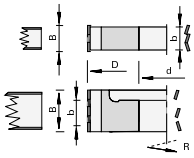


PowerTec 5

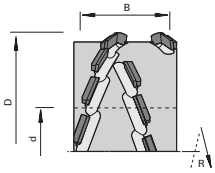
- Additional PowerTec hoggers with other dimensions **available upon request.**

## 7.4 JOINTING CUTTERS

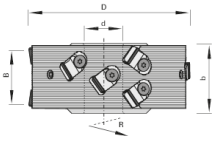
| Dimension | Designation | Z | Cutting material | Machine | Shear<) | Ident-No. (L) | Ident-No. (R) |
|---|---|---|---|---|---|---|---|
| Ø 125 x 42,8 x Ø 30 | DIAREX airFace | 3+3 | DP | Homag | 48° | 186323 | 186323 |
| Ø 100 x 42,8 x Ø 30 | DIAREX airFace | 3+3 | DP | SCM | 48° | 186362 | 186363 |
| Ø 125 x 47,8 x Ø 30 | p-System | 3+3 | DP | Homag | 70° | 184071 | 184071 |
| Ø 125 x 62,5 x Ø 30 | p-System | 3+3 | DP | IMA 08.379 | 70° | 184989 | 184990 |
| Ø 85 x 43,2 x Ø 30 | DIAMAX airFace | 3+3 | DP | OTT | 35° | 186408 | 186409 |
| Ø 125 x 43,2 x Ø 30 | DIAMAX airFace | 3+3 | DP | Homag | 35° | 186399 | 186399 |
| Ø 100 x 43 x Ø 30 | SmartJointer airFace | 3+3 | DP | Brandt | 35° | 186065 | 186066 |
| Ø 125 x 63 x Ø 30 | SmartJointer airFace | 3+3 | DP | IMA 08.379 | 43° | 186055 | 186056 |



DIAREX/
DIAMAX airFace



p-System

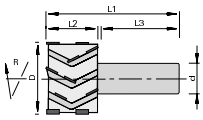


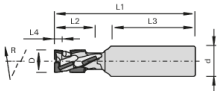
SmartJointer
airFace

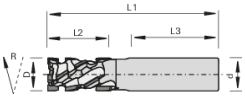
- Additional jointing cutters with different diameters, cutting widths, bores, and numbers of teeth **available upon request.**

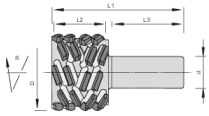
## 7.5 CNC SHANK CUTTERS

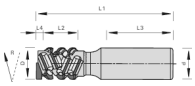
| Dimension | Designation | Z | Cutting material | L/R | Ident-No. |
|---|---|---|---|---|---|
| Ø 20 x 28 x Ø 25 | DIAREX high-performance cutter | 2+2 | DP | R | 186151 |
| Ø 25 x 28 x Ø 25 | High-performance cutter, negative | 3+3 | DP | R | 186120 |
| Ø 25 x 26,5 x Ø 25 | p-System shank-type cutter | 2+2 | DP | R | 184382 |
| Ø 60 x 38 x Ø 25 | p-System shank-type jointing cutter | 4+4 | DP | R | 184084 |
| Ø 48 x 28 x Ø 25 | High-performance trimming cutter | 4+2+4 | DP | R | 186142 |
| Ø 12 x 23 x Ø 16 | Nesting cutter, negative | 3+3 | DP | R | 187281 |
| Ø 12 x 22 x Ø 16 | Nesting cutter, positive | 3+3 | DP | R | 186571 |
| Ø 12 x 22 x Ø 16 | Nesting cutter, negative | 2+2 | DP | R | 186113 |
| Ø 12 x 22 x Ø 16 | Nesting cutter, positive | 2+2 | DP | R | 186112 |


DP High-performance trimming cutter


DP Nesting cutter, negative, positive


DIAREX high performance cutter


p-system shank-type jointing cutter


p-System shank-type cutter

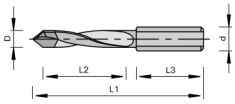
I Further shank-type cutters with other dimensions are **available upon request.**

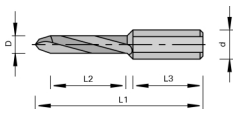
## 7.6 THROUGH HOLE, DOWEL AND DRILLING PINS AND CYLINDER DRILL BITS

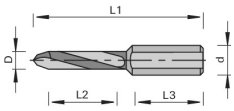
| Dimension | Designation | Cutting material | Ident-No. (L) | Ident-No. (R) |
|---|---|---|---|---|
| Ø 5 L1=70 x Ø 10 | Through-hole bit with back-guide | HW | 176255 | 176254 |
| Ø 8 L1=70 x Ø 10 | Through-hole bit with back-guide | HW | 176257 | 176256 |
| Ø 5 L1=70 x Ø 10 | Mosquito through-hole bit | VHW | 183153 | 183152 |
| Ø 8 L1=70 x Ø 10 | Mosquito through-hole bit | VHW | 183157 | 183156 |
| Ø 5 L1=70 x Ø 10 | topline through-hole bit | VHW | 185742 | 185741 |
| Ø 8 L1=70 x Ø 10 | topline through-hole bit | VHW | 185744 | 185743 |

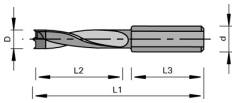
| Dimension | Designation | Cutting material | Ident-No. (L) | Ident-No. (R) |
|---|---|---|---|---|
| Ø 5 L1=70 x Ø 10 | Dowel bit with back-guide | HW | 167203 | 167194 |
| Ø 8 L1=70 x Ø 10 | Dowel bit with back-guide | HW | 167205 | 167196 |
| Ø 5 L1=70 x Ø 10 | topline dowel bit | VHW | 185760 | 185759 |
| Ø 8 L1=70 x Ø 10 | topline dowel bit | VHW | 185764 | 185763 |

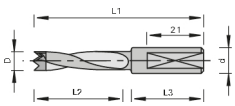
| Dimension | Designation | Cutting material | Ident-No. (L) | Ident-No. (R) |
|---|---|---|---|---|
| Ø 15 L1=70 x Ø 10 | "Light" cylinder boring bits | HW | 184685 | 184684 |
| Ø 35 L1=70 x Ø 10 | "Light" cylinder boring bits | HW | 184689 | 184688 |
| Ø 35 L1=70 x Ø 10 | Cylinder boring bit Z=2+4 | DP | On request | 186783 |

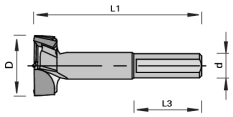

Through-hole bit with back-guide


Mosquito through-hole bit


topline through-hole bit


Dowel bit with back-guide


topline dowel bit


"Light" cylinder boring bits

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

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

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**info@leuco.com**

## TIP – LEUCO ONLINE CATALOG

LEUCO tool recommendations for processing EGGER Decorative Boards are listed in the LEUCO online catalog.

Alternatively:
Scan the QR-Code and learn about the LEUCO warehouse program.

**QUICK & EASY**

1. **www.leuco.com/products**
2. **Click "tool" filter**
3. **"special manufacturer materials"**
4. **„EGGER"**
5. **Dekorative Boards**

→ **Select saw blades, hoggers, cutters, drill bits**

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