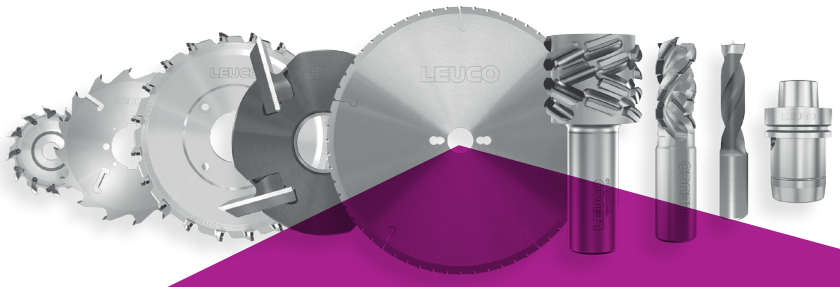
LEUCO
MAGENTIFY WOOD PROCESSING

TOOL RECOMMENDATION

Manufacturer
UNILIN

Material
EVOLA MELAMIN FACED BOARDS



LEUCO
Ledermann GmbH & Co. KG
Willi-Ledermann-Straße 1
72160 Horb am Neckar / Deutschland

T +49 (0)7451/930

info@leuco.com
www.leuco.com

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TOOL RECOMMENDATION
UNILIN EVOLA MELAMIN FACED BOARDS

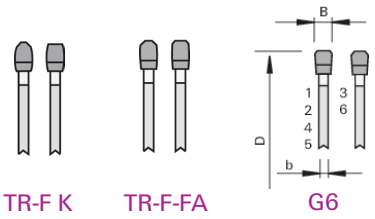
The following tool recommendations are based on a wide variety of test series by LEUCO Ledermann GmbH & Co. KG, with the best processing results in each case.

DEFINITION OF TERMS:

DP = DIA; **HW** = carbide; **HR** = hollow back; **L-S** = slow, fast; **L-S-L** = slow, fast, slow; **vc** = cutting speed; **fz** = tooth feed; **vf** = feed rate; **ü** = saw blade projection

1. TRIMMING / SIZING

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



TR-F K TR-F-FA G6

1.2 SIZING SAW

In general, the panels can be processed with most of the HW and DP panel sizing saw blades available on the market. However, there are major differences in the cutting quality. For a very good cutting result, the "TR-F K" HW sizing saw blade is best suited. Care must be taken that any deposits adhering to the tooth sides are regularly removed by cleaning. Good cutting results are also possible with the "TR-F-FA" HW solid Surface sizing saw blades.

Optimal application data: (for a Ø 300 mm circular saw blade)

Saw blade projection:	ü = 20 mm
Speed:	n = 5,000 rpm
Feed:	vf = 7 m/min
Cutting speed:	vc = 80 m/s

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

1.3 PANEL SIZING SAW

On panel sizing saws, the panels can be cut with HW and DP circular saw blades. For an almost optimum finish-cut quality, the trimming cut should be made using a Q-Cut "TR-F-K" HW panel sizing circular saw blade. A good cutting result can also be achieved with the HW panel sizing circular saw blade Q-Cut "G6". For larger volumes, we recommend using a "G6" DP panel sizing circular saw blade for the trimming cut. Here, however, it is not possible to achieve finish-cut quality.

HW saws: Q-Cut "TR-F K" HW panel sizing saw blades
DP saws: "G6" DP panel sizing saw blades

Optimal application data: (for a Ø 450 mm circular saw blade)

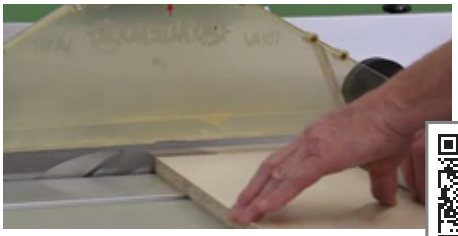
Saw blade projection:	ü = 25 mm
Speed:	n = 3,600 rpm
Feed per tooth:	fz = 0.08-0.09 mm
Cutting speed:	vc = 80 m/s

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. 25-30 mm

The recommended cutting speed is 60-80 m/sec. The upper value should be selected in the case of DP-tipped circular saw blades. A feed per tooth of 0.08-0.09 mm should be targeted.

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



1.4 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. The following application parameters have been used for testing all hoggers:

Speed: n = 6,000/min
Removal: a = 2 mm
Feed: vf = 40 m/s

PowerTec airFace

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.

2. MILLING / EDGING

In general, tools with diamond-tipped cutting edges 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 in terms of quality are achieved with jointing cutters with a 48° shear angle. Jointing in two stages is recommended if a double jointing unit is available. In order to create optimal conditions for quality and edge lives, a precise hydro or HSK clamping is recommended for the jointing work. The optimum feed/tooth (fz) is 0.7-0.94 mm.

SmartJointer airFace

DIAREX airFace

3. PROCESSING ON STATIONARY CNC MACHINES

Good cutting results can be achieved with practically all shank-type cutters that provide the appropriate shear angle cutting edges. The application data and the selection of the tool depend on the requirements regarding the cutting quality and the processing in general. When large volumes need to be cut, high-performance DP shank-type cutters Z=3+3 or Z=4+2+4 with large shear angles in the range between 35° and 48° are particularly suited.

Good results can also be achieved with DP tools Z=2+2 that are suitable for moderate volumes and feed rates. For pocket milling or grooves of all types, LEUCO DP p-System grooving cutters can be used. The optimum feed per tooth fz is approx. 0.25 mm, or even higher for tools with larger diameters. Make sure that the cutting edge never lies on a cutting edge overcut. This can lead to premature indentations.

4. DRILLING

Note: This surface is mainly used for furniture fronts and rarely for the furniture body. Nevertheless, here are some hints for a possible processing: The panel can be processed with standard HW-tipped dowel and through-hole bits. Good results can also be achieved with LEUCO topline drill bits. The following application data can be used for drilling:

Speed: n = 4,500 rpm
Feed: vf = 1.5 m/min

For hinge holes, standard HW cylinder boring bits can be used.

5. FORMULAS

5.1 CUTTING SPEED - VC

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

5.2 TOOTH FEED - FZ

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

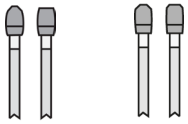
5.3 FEED SPEED- VF

- Unit: m/min
- Data required: Tooth speed = fz [mm];
  tool speed = n [1/min]; No. of teeth = z
- Calculation: vf = (fz * n * z)/1000

6. LEUCO TOOL FOR PROCESSING OF UNILIN EVOLA MELAMIN FACED BOARDS

6.1 CIRCULAR SAW BLADES FOR SIZING SAWS

Dimension	Designation	Z	Tooth config.	Cutting material	Projection	Ident-No.
Ø 300 x 3,2 x Ø 30	„TR-F K“ anti-fingerprint HW sizing saw blade	84	TR-F K	HL Board 04 plus	approx. 20 mm	193195
Ø 303 x 3,2 x Ø 30	HW solid Surface sizing saw blade	84	TR-F-FA	HL Board 06	approx. 20 mm	193133

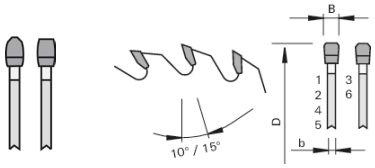


TR-F K TR-F-FA

- Additional saws with different diameters, cutting widths, bores and numbers of teeth **available on request**.

6.2 CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

Dimension	Designation	Z	Tooth config.	Cutting material	Projection	Ident-No.
Ø 350 x 4,0 x Ø 60	Q-Cut „TR-F K“	72	TR-F K	HL Board 04 plus	18-28 mm	192974
Ø 350 x 4,0 x Ø 60	Q-Cut „TR-F K“	72	TR-F K	HL Board 04 plus	18-28 mm	192975
Ø 380 x 4,0 x Ø 60	Q-Cut „TR-F K“	72	TR-F K	HL Board 04 plus	25-30 mm	192976
Ø 300 x 4,4 x Ø 60	Q-Cut "G6"	72	G6	HL Board 04 plus	15-25 mm	193137
Ø 320 x 4,4 x Ø 30	Q-Cut "G6"	72	G6	HL Board 04 plus	15-25 mm	193142
Ø 350 x 4,4 x Ø 60	Q-Cut "G6"	72	G6	HL Board 04 plus	18-28 mm	193148

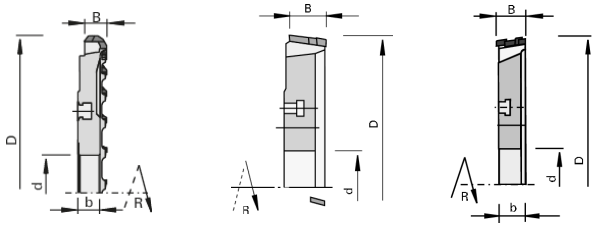


TR-F K G6

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

6.3 HOGGERS

Dimension	Designation	Z	Cutting material	Ident-No.(L)	Ident-No.(R)
Ø 250 x 9,5 x Ø 60	PowerTec airFace	20+10	DP	186528	186527
Ø 250 x 9,5 x Ø 60	PowerTec airFace S	20+20	DP	186552	186551
Ø 250 x 20 x Ø 60	CompactTec N	30+5+5	DP	182537	182536
Ø 250 x 8,0 x Ø 60	UniTec CM	24+12	DP	182115	182114



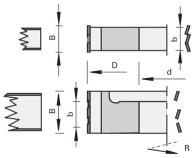
PowerTec airFace CompactTec N UniTec CM

- Additional hoggers with other dimensions **available on request**.

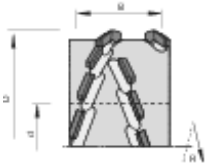
6.4 JOINTING CUTTERS

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	182363
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

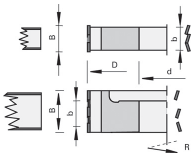
I Additional jointing cutters with different diameters, cutting widths, bores and numbers of teeth **available on request**.



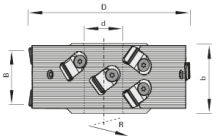
DIAREX airFace



p-System



DIAMAX airFace

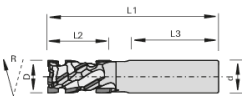


SmartJointer airFace

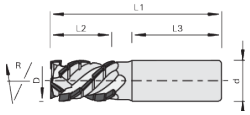
6.5 CNC SHANK-TYPE CUTTERS

Dimension	Designation	Z	Cutting material	Ident-No. (R)
Ø 20 x 28 x Ø 20	DIAREX high-performance shank-type cutter	2+2	DP	186151
Ø 25 x 28 x Ø 25	DP high-performance cutter, negative	3+3	DP	186120
Ø 25 x 26,5 x Ø 25	p-System shank-type dividing cutter	2+2+1	DP	184382
Ø 60 x 38 x Ø 25	p-System shank-type jointing cutter	4+4	DP	184084
Ø 12 x 10,2 x Ø 16	p-System shank-type groove cutter	1+1	DP	185505
Ø 48 x 28 x Ø 25	DP high-performance trimming cutter	4+2+4	DP	186142
Ø 12 x 22 x Ø 16	Nesting shank-type cutter	3+3	DP	186571

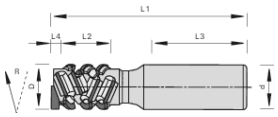
I Additional shank-type cutters with other dimensions are **available upon request**.



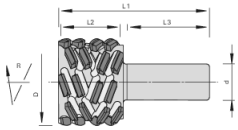
DIAREX high-performance shank-type cutter



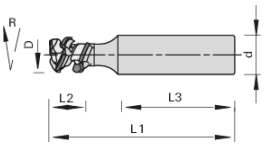
DP high-performance cutter, negative



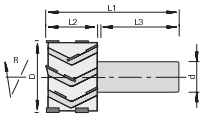
p-System shank-type dividing cutter



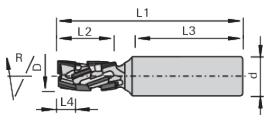
p-System shank-type jointing cutter



p-System shank-type groove cutter



DP high-performance trimming cutter



Nesting shank-type cutter

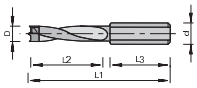
6.6 DOWEL DRILL BITS, THROUGH-HOLE DRILL BITS AND CYLINDER BORING BITS

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

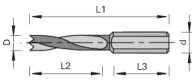
Dimension	Designation	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Standard through-hole bit	HW	176255	176254
Ø 8 x L1=70 x Ø 10	Standard through-hole bit	HW	176257	176256
Ø 5 x L1=70 x Ø 10	topline through-hole bit	VHW	185742	185741
Ø 8 x L1=70 x Ø 10	topline through-hole bit	VHW	185744	185743

Dimension	Designation	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 35 x L1=70 x Ø 10	Standard cylinder boring bit	HW	178982	172254

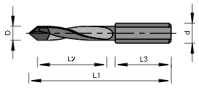
I Additional drill bits with other diameters, cutting lengths and shank dimensions are **available on request**.



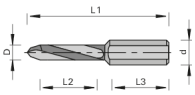
Standard dowel bit



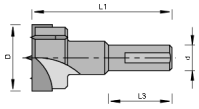
topline dowel bit



Standard through-hole bit



topline through-hole bit



Standard cylinder boring bit

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You can find LEUCO tool recommendations for processing UNLIN Evola melamin faced boards in the LEUCO Online Catalog.

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QUICK & EASY

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→ Select saw blades, hoggers, cutters, drill bits

LEUCO
Ledermann GmbH & Co. KG
Willi-Ledermann-Straße 1
72160 Horb am Neckar / Deutschland

T +49 (0) 74 51/93 0

info@leuco.com
www.leuco.com