PROCESSING INSTRUCTIONS

MANUFACTURER: REHAU
MATERIAL: RAUVISIO smart ceramic

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

T +49 (0)7451/930
F +49 (0)7451/93270

info@leuco.com
www.leuco.com

Version 02/2021

PROCESSING INSTRUCTIONS

RAUVISIO smart ceramic

REHAU
Unlimited Polymer Solutions

TABLE OF CONTENTS

PRODUCT DESCRIPTION REHAU RAUVISIO smart ceramic

The composition of "RAUVISIO smart ceramic" is based on a digitally printed and painted fiber cement board.

The layer structure is composed of the following:

1. Coat of paint (function: scratch protection, protection against chemicals, degree of gloss, UV protection, depth effect, color stability)
2. Decorative, digitally printed layer in the desired color
3. Fiber cement board 3.5 mm/4.0 mm (function: hardness, surface stability, depth effect)

The product is available as a composite with a wood-based carrier panel (e.g. MDF) or without wood-based carrier panel (slim). (souce REHAU)

PROCESSING INSTRUCTIONS REHAU RAUVISIO smart ceramic

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

DEFINITION OF TERMS

DP = DIA; **HW** = carbide; **HR** = hollow back; **L-S** = slow, quick; **L-S-L** = slow, quick, slow; **S-S** = quick-quick; **fz** = tooth feed; **vf** = feed speed; **vc** = cutting speed

1. GENERAL INFORMATION

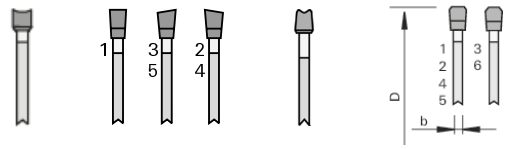
"RAUVISIO smart ceramic" is used in the furniture sector for front panels, workbench boards, and back panels. (souce REHAU)

2. TRIMMING CUT / 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:**



HR G5 HR-FA G6

2.2 SIZING SAW

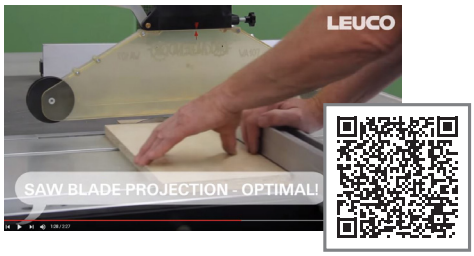
For sizing saws, the DP circular saw blades with the tooth shape HR or HR-FA are particularly suitable. Outstanding cutting results are possible also with the DP saw blade “g5-System”. The cutting speed should be approx. 80 m/sec. and the projection approx. 40 mm.

2.3. PANEL SIZING SAW

On panel sizing machines, excellent cutting results can be achieved with the saw blades from the circular panel sizing saw blade family with the G6 geometry. The recommended feed per tooth (fz) is between 0.06 - 0.07 mm. The maximum feed per tooth is fz = 0.096 mm and should not be exceeded. Application parameters: **speed: n** = 3,600 rpm; **feed: vf** = 20 m/min; **projection: Ü** = 35 mm; **feed / tooth: fz** = 0.07 mm. Here again, tooth engagement occurs on the good side of the panel. Good edges on both sides can only be achieved using a suitable scorer. Very good cutting results are achieved with a suitable saw blade projection which depends on the diameter and should be between 20 and 28 mm. **Good edges on both sides can only be achieved using a corresponding scorer.**

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.

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



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

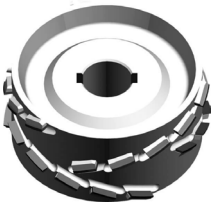
2.4. THROUGH-FEED MACHINES: HOGGERS

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. All hoggers tested were used with the following application parameters: **speed: n** = 6,000 rpm, **removal: a** = 3 mm, **feed: vf** = 30 m/min. The PowerTec hoggers have a favorable cutting geometry for the tested panel. With other types of hoggers, small break-offs must be expected, which, however, can partly be compensated by additional jointing work.

PowerTec airFace

3. MILLING / EDGE PROCESSING

In general, tools with DP blades should be used for jointing work in the run-through process. For formatting with jointing cutters, we recommend exclusively those tools with a shear angle of between 48° and 70°. Jointing in two stages is recommended if a double jointing unit is available. It is important that the feed per tooth (fz) is not less than 0.5 mm. To achieve good concentric accuracy, we recommend using the following clamping elements: hydro clamping (d30 bushing or d40 bushing) or HSK 63F clamping. Conventional HW or DP edge cutters and standard scrapers can be used to produce 45° chamfers during the edge trimming process.



p-System

DIAREX airFace

4. PROCESSING ON CNC STATIONARY MACHINES

For long edge lives, the cutting work should be done with diamond-tipped shank-type cutters with alternating shear angles. Small series can also be produced using the corresponding VHW spiral finishing cutters.

Jointing (removal approx. 2 mm):
The recommended feed per tooth (fz) is in the range between 0.2 - 0.34 mm.
Example Ø20 mm Z=2+2: speed: 18,000 rpm; feed: 7 m/min (fz = 0.2 mm)
speed: 24,000 rpm; feed: 10 m/min (fz = 0.2 mm)
Example Ø48 mm Z=4+2+4: speed: 18,000 rpm; feed: 25 m/min (fz = 0.34 mm)

Nesting:
The processing is possible using VHW shank-type cutters with alternating shear angles. For larger quantities, the use of DP tools is recommended.
Example Ø12 mm Z=3+3: speed: 24,000 rpm; feed: 15 m/min (fz = 0.2 mm)

Milling of grooves or pockets:
On the rear side (PET film). For this, a VHW shank-type cutter with negative spiral is optimally suited.
Example Ø12 mm Z=2: speed: 18,000 rpm; feed: 10 m/min (fz = 0.3 mm)

On the front side (fiber cement):
Very good processing quality and long edge lives can be achieved using p-System grooving shank-type cutters with very large shear angles.
Example: Ø12 mm Z=1: speed: 24,000 rpm; feed: 5-6 m/min (fz = 0.25-0.3 mm)

To achieve good concentric accuracy, we recommend using the following clamping elements: hydro expansion chucks (ps-System), power shrink chucks (TRIBOS) or heat-shrinking chucks.

5. DRILLING

The use of VHW drill bits is recommended for dowel holes and through holes.
Application data: speed: 5,000 rpm; feed: 1.5 m/min drilling mode: S-S (quick-quick)

To drill holes for shelf supports (on the PET film side), conventional HW-tipped drill bits or HW pins can be used.

Application data Ø5 mm dowel bits: speed: 4,500 rpm; feed: 3-4 m/min;
Drilling mode: S-S (quick-quick)
Application data Ø3 mm pin: speed: 4,500 rpm; feed: 3-4 m/min;
Drilling mode: S-S (quick-quick)

Bores for hinges and concealed hinges:
standard HW cylinder boring bits or hinge hole bits with low cutting pressure.
Application data: speed: 6,000 rpm; feed: 1.5 m/min drilling mode: S-S (quick-quick)

6. FORMULAS

6.1. CUTTING SPEED – VC

- Unit: m/s
- Necessary data: diameter = D [mm]; Tool speed = n [1/min]
- Calculation: vc = (D * π * n)/(60 * 1000)

6.2. TOOTH FEED – FZ

- Unit: mm
- Required data: feed speed = vf [m/min]; Tool speed = n [1/min]; no. of teeth = z
- Calculation: fz = (vf * 1000)/(n*z)

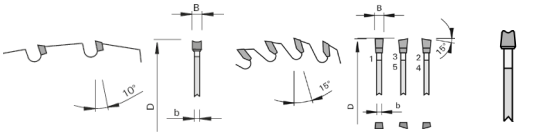
6.3. FEED SPEED – VF

- Unit: m/min
- Required data: tooth feed = fz [mm]; Tool speed = n [1/min]; no. of teeth = z
- Calculation: vf = (fz * n * z)/1000

7. LEUCO TOOLS FOR PROCESSING REHAU RAUVISIO smart ceramic

7.1. CIRCULAR SAW BLADES FOR SIZING SAWS

Dimension	Description	Z	Tooth Shape	Cutting Material	Projection	Ident-No.
Ø 303 x 2,5 x Ø 30	nn-System DP flex	60	HR	DP	approx. 25 mm	192444
Ø 303 x 3,2 x Ø 30	G5	100	G5	DP	approx. 25 mm	189633
Ø 303 x 3,2 x Ø 30	DIAREX	65	HR-FA	DP	approx. 25 mm	192958

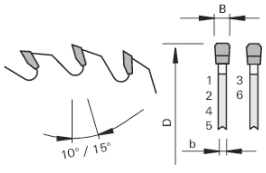


"HR" "G5" "HR-FA"

- Additional saws with different diameters, cutting widths, bores, and number 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	Description	Z	Tooth Shape	Cutting Material	Projection	Ident-No.
Ø 350 x 4,4 x Ø 30	Panel sizing saw DP	72	G6	DP	approx. 28 mm	193006
Ø 380 x 4,4 x Ø 60	Panel sizing saw DP	72	G6	DP	approx. 28 mm	193014

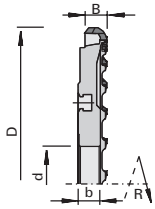


"G6"

- Additional saws with different diameters, cutting widths, bores, and number 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	Description	Z	Tooth Shape	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

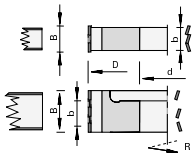


PowerTec airFace

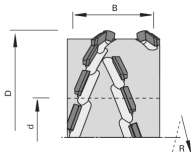
- Additional PowerTec hoggers with other dimensions **available on request.**

7.4. JOINTING CUTTERS

Dimension	Description	Machine	Z	Shear<	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 125 x 42,8 x Ø 30	DIAREX airFace	Homag	3+3	48°	DP	186323	186323
Ø 100 x 42,8 x Ø 30	DIAREX airFace	SCM	3+3	48°	DP	186362	186363
Ø 125 x 33,1 x Ø 30	p-System	Homag	3+3	70°	DP	185818	185818
Ø 125 x 42,9 x Ø 30	p-System	IMA	3+3	70°	DP	184987	184988



DIAREX airFace

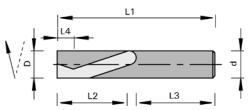


p-System

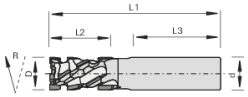
Additional jointing cutters for other machine brands with different diameters, cutting widths, bores and number of cutting edges **available on request.**

7.5. CNC SHANK-TYPE CUTTERS

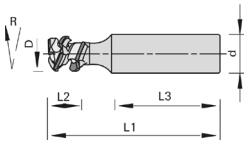
Dimension	Description	Z	Cutting Material	L/R	Ident-No.
Ø 20 x 28 x Ø 25	DIAREX high-performance cutter	2+2	DP	R	186151
Ø 48 x 28 x Ø 25	High-performance trimming cutter	4+2+4	DP	R	186142
Ø 12 x 23 x Ø 16	Nesting shank-type cutter, negative	3+3	DP	R	185518
Ø 12 x 10,2 x Ø 16	p-System grooving shank-type cutter	1+1	DP	R	185505
Ø 16 x 32,2 x Ø 16	p-System grooving shank-type cutter	1+1	DP	R	186098
Ø 12 x 42 x Ø 12	Finishing cutter pos/neg	2+2	VHW	R	180872
Ø 16 x 55 x Ø 16	Finishing cutter pos/neg	2+2	VHW	R	180873



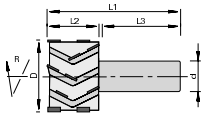
Finishing cutter pos/neg



DP DIAREX high-performance cutter



p-System grooving shank-type cutter



DP High-performance trimming cutter

Additional shank-type cutters with different diameters (Ø) and cutting lengths (CL) **available on request.**

7.6. THROUGH HOLE, DOWEL- AND BLIND HOLE BITS

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Mosquito through-hole drill bits	VHW	182462	182463
Ø 8 x L1=70 x Ø 10	Mosquito through-hole drill bits	VHW	182464	182465

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Mosquito dowel drill bits	VHW	182390	182391
Ø 8 x L1=70 x Ø 10	Mosquito dowel drill bits	VHW	183151	183150
Ø 5 x L1=70 x Ø 10	Standard dowel drill bits	HW	167203	167194
Ø 8 x L1=70 x Ø 10	Standard dowel drill bits	HW	167205	167196

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 2,5 x L1=57,5 x Ø 10	Boring spikes	VHW	183061	183061
Ø 3 x L1=57,5 x Ø 10	Boring spikes	VHW	183062	183062

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 15 x L1=70 x Ø 10	Standard cylinder boring bits	HW	178978	172250
Ø 35 x L1=70 x Ø 10	Standard cylinder boring bits	HW	178982	172254
Ø 15 x L1=70 x Ø 10	"Light" cylinder boring bits	HW	184685	184684
Ø 35 x L1=70 x Ø 10	"Light" cylinder boring bits	HW	184689	184688
Ø 35 x L1=57,5 x Ø 10	Cylinder boring bits Z=2+4	DP	on request	186782
Ø 35 x L1=70 x Ø 10	Cylinder boring bits Z=2+4	DP	on request	186783

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

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

T +49 (0)7451/93-0
F +49 (0)7451/93-270

info@leuco.com

TIP – LEUCO ONLINE CATALOG

You can find LEUCO tool recommendations for processing REHAU RAUVISIO smart ceramic panels in the LEUCO Online Catalog.

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

QUICK & EASY

1. www.leuco.com/products
2. Click "tool" filter
3. "special manufacturer materials"
4. REHAU RAUVISIO smart ceramic

→ Select saw blades, hoggers, cutters, drill bits

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

T +49 (0) 74 51/93 0
F +49 (0) 74 51/93 270

info@leuco.com
www.leuco.com