

PROCESSING INSTRUCTIONS

MANUFACTURER: Resopal GmbH

MATERIAL: **RESOPAL® MAGNETIC**

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RESOPAL® MAGNETIC

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PRODUCT DESCRIPTION RESOPAL® MAGNETIC

RESOPAL® Magnetic is a magnetic decorative high-pressure laminate (HPL) for interior applications and meets the requirements of the normative "Specifications for laminates with alternative core structure" laid down in DIN EN 438 - Part 9.

PROCESSING INSTRUCTIONS RESOPAL® MAGNETIC

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.

DEFINITION OF TERMS

DP = DIA; **HW** = tungsten carbide; **HR** = hollow back; **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 speed; **vf** = feed rate

1. GENERAL INFORMATION

For RESOPAL® MAGNETIC, a metal film is pressed into RESOPAL®, giving the panel magnet-adhering properties, allowing paper, photos and other flat objects to be attached to the surface of the laminate using magnets. Ideal for offices and meeting rooms, but also for the private sector, for example in a child's room or in the study.

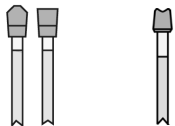
Due to the metal foil in RESOPAL® MAGNETIC, care must be taken during processing (sawing, milling, drilling, etc.) that flying sparks (dust explosion) may occur.

2. TRIMMING CUT

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:**



TR-F

HR-FA

2.2 SIZING SAW

Very good cutting results with high tool life are possible with DP circular saw blades "DIAREX" with tooth geometry HR-FA. HW circular saw blades with the tooth geometry TR-F and the special cutting material HL Steel 17 are also suitable for sizing saws. However, carbide-tipped circular saw blades are only recommended for small machining quantities.

Recommended speed (n):	4.000-4.500 U/min	Optimized saw projection:	25 mm
Feed rate (vf):	5-7 m/min	Cutting speed:	70 m/sec
		Feed/tooth:	0,02-0,03 mm



2.3 PANEL SIZING SAW

Both on panel sizing saws and sizing saws, very good cutting results can be achieved with the same tooth geometries. 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. It depends on the diameter.

Circular saw blade diameter

D = 250 mm
D = 300 mm
D = 350 mm

Saw blade projection

approx. 15 - 20 mm
approx. 20 - 25 mm
approx. 20 - 28 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. Try to aim for a feed per tooth of 0,03-0,04 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 <<<



3. PROCESSING ON STATIONARY CNC MACHINES

Tool selection:

For the milling of RESOPAL® MAGNETIC magnet bond boards, tungsten carbide tools must be used. DP tools are not suitable! As the case may be, HW-tipped straight shank-type cutters or cutters with HW turnover knives are suitable for small production quantities. The use of VHW spiral shank-type cutters, ideally with alternate spirals for optimum cutting quality at the top and bottom side of the panel, are recommended.

Edge lives can be increased by an optimum tool design:

- | Use of VHW tools with additional coating (available upon request)
- | Use of VHW tools made of a tungsten carbide material adapted to the iron mesh
- | Oscillating milling (slightly undulating movement of the cutter 2-6 mm)
- | Z3 tools with coating

Application parameters:

- | | |
|-------------------------|--|
| Processing type: | Jointing |
| Processing information: | Milling with feed, ideally oscillating |
| Speed (n): | 14.000-16.000 (max.) rpm |
| Feed per tooth (fz): | 0,25-0,3 mm |
| Feed rate (vf): | 5-8 m/min (cutter Z=2) |



4. DRILLING

Through-holes:

Use of VHW through-hole bits with VHW spiral section.

Dowel holes:

Standard VHW drill bits with VHW spiral section are more suitable than standard HW drill bits due to their higher stiffness. The best results can be achieved with VHW drill bits with an adapted (modified Form A) tip geometry.

Application data:

Speed (n): 1.200-1.600 rpm

Feed rate (vf): 0,5 -1,0 m/min

Drilling mode: L-S

Hinge holes:

Basically, the use of standard HW cylinder boring bits are possible, but this often results in unfavorable constellation of large metal chips.

Processing recommendations:

a) Cutting the hinge holes (circular program Helix) with VHW spiral shaft cutter (speed n=14.000-16.000 rpm, feed rate vf=1,0-2,0 m/min).

b) Drilling with specially modified HW cylinder boring bits (AS-395002-1) Z=3.

Application data drilling (b):

Speed (n): 4.500 rpm

Feed rate (vf): 0,5 m/min

5. FORMULAS

5.1 CUTTING SPEED – VC

| Unit: m/s

| Data required: diameter = D [mm];
tool speed = n [rpm]

| Calculation: $vc = (D * \pi * n) / (60 * 1000)$

5.2 TOOTH FEED – FZ

| Unit: mm

| Required data: feed rate = vf [m/min];
tool speed = n [rpm]; no. of teeth = z

| Calculation: $fz = (vf * 1000) / (n * z)$

5.3 FEED RATE – VF

| Unit: m/min

| Required data: tooth feed = fz [mm];
tool speed = n [rpm]; number of teeth = z

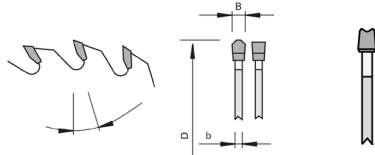
| Calculation: $vf = (fz * n * z) / 1000$



6. LEUCO TOOLS FOR PROCESSING RESOPAL® MAGNETIC PANELS

6.1 CIRCULAR SAW BLADES FOR SIZING SAWS

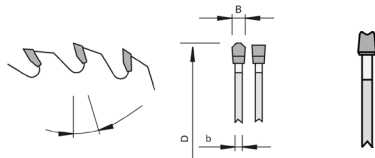
Dimension	Description	Z	Tooth shape	Cutting material	Projection	Ident-No.
Ø 350 x 3,2 x Ø 30	Sizing saw blade HW TR-F	110	TR-F	HL Steel 17	approx. 25 mm	192609
Ø 303 x 3,2 x Ø 30	DIAREX Sizing saw blade DP	65	HR-FA	DP	approx. 25 mm	192958



- Additional saws with different diameters, cutting widths, bores, and number of teeth **available upon request**.
- Number of teeth and feed rate depend on cutting height.

6.2 CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

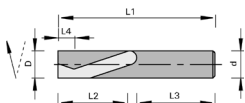
Dimension	Description	Z	Tooth shape	Cutting material	Projection	Ident-No.
Ø 350 x 4,4 x Ø 30	Sizing saw blade HW TR-F	72	TR-F	HL Steel 17	approx. 25 mm	192610
Ø 350 x 4,4 x Ø 30	DIAREX panel sizing saw blade	65	HR-FA	DP	approx. 25 mm	NEW: 193222



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

6.3 CNC SHANK-TYPE CUTTERS

Dimension	Description	Z	Cutting material	Ident-No.
Ø 12 x 36 x Ø 12	VHW spiral shank-type cutter pos/neg	2+2	VHW Special	186242
Ø 18 x 36 x Ø 18	VHW spiral shank-type cutter pos/neg	2+2	VHW Special	186243

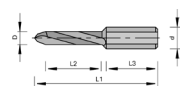


VHW spiral shank-type cutter pos/neg

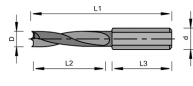
- Further shank-type cutters with other dimensions are **available upon request**.

6.4 THROUGH-HOLE, DOWEL AND HINGE HOLE BITS

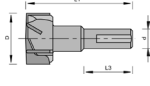
Dimension	Description	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 L1=70 x Ø 10	Mosquito through-hole bit	VHW	183153	183152
Ø 8 L1=70 x Ø 10	Mosquito through-hole bit	VHW	183157	183156
Ø 5 L1=70 x Ø 10	Mosquito dowel bit (mod. AS-11867_2/Form A)	VHW	182390	182391
Ø 8 L1=70 x Ø 10	Mosquito dowel bit (mod. AS-11867_2/Form A)	VHW	183151	183150
Ø 35 L1=57 x Ø 10	Cylinder boring bit (mod. AD-395356)	HW	003284	003284



Mosquito through-hole bit



Mosquito dowel bit



Cylinder boring bit

- Further drill bits with other diameters, cutting lengths and shank dimensions **available upon request**.

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

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TIP – LEUCO ONLINE CATALOG

LEUCO tool recommendations for processing RESOPAL® MAGNETIC panels are listed 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 „RESOPAL®“
 - 5 „MAGNETIC“
- Select saw blades, cutters, drill bits



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