

PROCESSING INSTRUCTIONS

MANUFACTURER: HOMAPAL
MATERIAL: MAGNETIC BOARDS

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



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HOMAPAL MAGNETIC BOARDS



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PRODUCT DESCRIPTION HOMAPAL magnetic boards

Magnetic boards – the perfect symbiosis of functionality and design. A very high level of adhesion combined with the possibility to write on the surface and a huge variety of colors opens up versatile options for use.

NOTE HOMAPAL magnetic boards

The magnetic holding force is achieved by an embedded iron foil. Sparks can occur when working on the plates. Great attention should be paid to the chips and dust produced during machining. Flying sparks can lead to fires. Mixing of different chips can also be problematic and cause a smouldering fire. Machine operators must wear appropriate protective clothing and goggles.

PROCESSING INSTRUCTIONS HOMAPAL magnetic boards

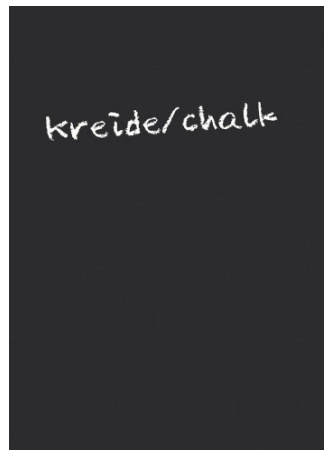
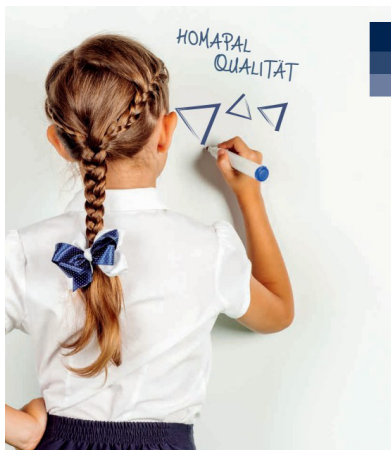
The following machining information is based on a wide range of test series with the best machining results in each case being produced by LEUCO Ledermann GmbH & Co. KG.

DEFINITION OF TERMS

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

1. GENERAL INFORMATION

An iron foil embedded in the laminate provides the high level of adhesive force. This makes it possible to easily attach even large papers, such as plans or posters and other objects and to remove them without leaving traces. HOMAPAL® magnetic boards are available in numerous basic and contemporary colors and, depending on the surface finish, can be written on using chalks or board markers. Some of the decors are additionally offered as projection surfaces with reduced light reflection. The possible applications are virtually unlimited and range from shop fitting to shop window designs, displays and information boards to children's and kitchen furniture, in fact anywhere where things have to be flexibly fixed and removed again.



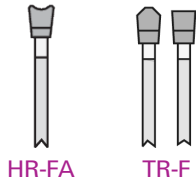
Graphic: HOMAPAL



2. TRIMMING / SIZING

2.1 PANEL TRIMMING WITH CIRCULAR SAW BLADES

Various factors are responsible for good trimming results: Decorative side on the inlet side, correct saw blade projection, feed rate, tooth configuration, tooth pitch, rpm and trimming speed. For miter cuts, the cutting edge should be razor-sharp. **Recommended tooth configurations:**



2.2 SIZING SAW

HW circular saw blades with the tooth geometry TR-F with the special cutting material HL Steel 17 are well suited for sizing saws. Very good cutting results with considerably higher tool life are possible with the DP circular saw blades "DIAREX" with the tooth geometry HR-FA.

Optimal application data: (for a Ø 303 mm circular saw blade)

Saw blade projection:	$\ddot{u} = 25 \text{ mm}$
Speed:	$n = 4.500 \text{ rpm}$
Feed:	$vf = 4-8 \text{ m/min}$
Cutting speed:	$vc = 40-70 \text{ m/s}$

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

2.3 PANEL SIZING SAW

On the panel sizing saws, the same tooth geometries as on the sizing saws lead to very good cutting results. For almost optimum finish-cut quality, the trimming cut should be made with an DIAREX panel sizing circular saw blade DP "HR-FA".

Optimal application data: (for a Ø 400 mm circular saw blade)

Saw blade projection:	$\ddot{u} = 25 \text{ mm}$
Speed:	$n = 3.600 \text{ rpm}$
Feed:	$vf = 20-35 \text{ m/min}$
Cutting speed:	$vc = 80 \text{ m/s}$



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

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

Saw blade projection

approx. 15-20 mm
approx. 15-25 mm
approx. 18-28 mm

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 <<<



3. MILLING / EDGING

Processing is also possible with jointing cutterheads with turnover knives but the running meter performance is not very high. The feed/tooth (fz) to be achieved is 0,3 mm. If possible, the process should be performed in an oscillating manner. The oscillation length should be between 3,0 and 5,0 mm. If no oscillation is possible, an offset by approx. 0,5 mm should be made in the Z axis when the first burrs occur in order to ensure that another part of the cutting edge comes into contact with the material.

On the table shaper, the milling process must be performed against feed. On through-feed machines, milling with feed is possible to further optimize the edge life. The removal should not exceed 3,0 mm; optimal are 0,5-1,0 mm to keep the wear at a low level. It is not recommended to process magnet bond boards with embedded steel foil in a through-feed operation with conventional DP jointing cutters because the edge lives that can be achieved are hardly longer than those achieved with TOK tools and the DP cutting edges are badly damaged. Attention: **A huge number of flying sparks may be generated when DP cutters are used.**

4. MACHINING ON STATIONARY CNC MACHINES

For the milling process, VHW spiral shank-type cutters should be used. Ideally, they are also provided with a wear-optimized coating. If possible, an oscillating milling process should be chosen. Oscillation between 2,0 and 6,0 mm according to the cutter type. If no oscillation is possible, it is recommended to offset the tool step by step after each milling process in Z direction by 0,5 to 1,0 mm.

Recommended application data:

Speed n = 14.000-16.000 rpm
Feed vf = 6-8 m/min

Application: Cutting with feed, if possible, because this results in a lower wear than when cutting against feed. Diagonal plunge-cutting is the method to be preferred for pocket milling. The milling should be done in different depths in order to distribute the wear to different parts of the edge. The helical direction should always be oriented against the top layer (neg.). The optimum feed per tooth fz is 0,25 mm or, if tools with larger diameters are used, even higher.



5. DRILLING

Dowel holes:

The best results can be achieved with modified dowel bits with a so-called "Form A" tip. The alteration of HW or VHW dowel bits required for this is possible and can be carried out within several days at LEUCO. The use of conventional HSS metal drill bits also achieves good results.

Recommended application parameters:

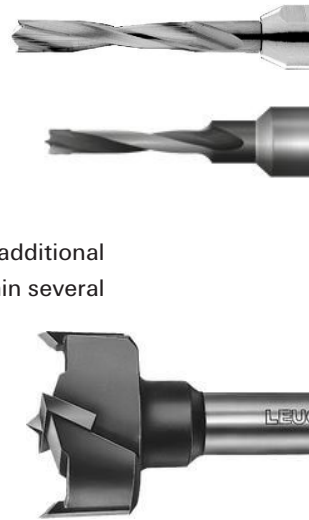
Speed: 1.200-1.600 rpm
Feed: 0,5-1,0 m/min
Drilling mode: L-S

Hinge holes:

Good results can be achieved with cylinder boring bits Z=3+3. The drill bits should be provided with additional chip breakers (LEUCO drawing AD-395356). The alteration required for this can be carried out within several days in the LEUCO service department.

Recommended application parameters: (in drilling units)

Speed: 4.500 rpm
Feed: 0,5-1,0 m/min
Drilling mode: L-S



Note: Due to the embedded metal foil, there is a risk of flying sparks and therefore the risk of dust explosion during processing (sawing, milling, drilling, etc.). A flying spark detection in the dust extraction is highly recommended.

6. FORMULAS

6.1 CUTTING SPEED - VC

| Unit: m/s

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

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

6.3 FEED SPEED - VF

| Unit: m/min

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

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

6.2 TOOTH FEED - FZ

| Unit: mm

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

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



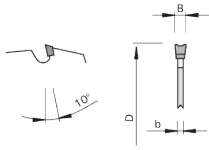
7. LEUCO TOOLS FOR THE PROCESSING OF HOMAPAL magnetic boards

7.1 CIRCULAR SAW BLADES FOR SIZING SAWS

Dimension	Designation	Z	Tooth config.	Cutting material	Projection	Ident-No.
Ø 250 x 3,2 x Ø 30	DIAREX sizing saw blade	50	HR-FA	DP	approx. 25 mm	192956
Ø 303 x 3,2 x Ø 30	DIAREX sizing saw blade	65	HR-FA	DP	approx. 25 mm	192958
Ø 350 x 3,2 x Ø 30	DIAREX sizing saw blade	65	HR-FA	DP	approx. 25 mm	192962
Ø 350 x 3,2 x Ø 30	Sizing saw blade HW "TR-F"	110	TR-F	HL Steel 17	approx. 25 mm	192609



HR-FA



DIAREX Sizing saw blade DP "HR-FA"



TR-F

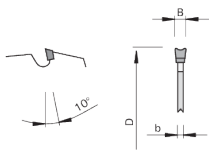
Additional saws with different diameters, cutting widths, bores and numbers of teeth **available upon request**.

7.2 CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

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



HR-FA



DIAREX panel sizing saw blade DP "HR-FA"

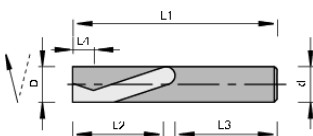
Additional saws with different diameters, cutting widths, bores and numbers of teeth **available upon request**.

Number of teeth and feed rate depend on cutting height and application for single panels or stack cuts.

7.3 CNC SHANK-TYPE CUTTERS

Dimension	Designation	Z	Cutting material	Ident-No. (R)
Ø 12 x 7/36 x Ø 12	Finishing cutter - magnet bond boards	2+2	VHW	186242
Ø 18 x 7/36 x Ø 18	Finishing cutter - magnet bond boards	2+2	VHW	186243
Alteration: coating				on request

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



Finishing cutter VHW - Magnet bond boards

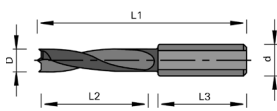


7.4 DOWEL AND HINGE HOLE BITS

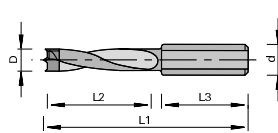
Dimension	Designation	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Standard dowel bit	HW	003231	003230
Ø 8 x L1=70 x Ø 10	Standard dowel bit	HW	003243	003242
Ø 5 x L1=70 x Ø 10	Mosquito dowel bit	VHW	182390	182391
Ø 8 x L1=70 x Ø 10	Mosquito dowel bit	VHW	183151	183150
Alteration of the above mentioned dowel bits to a bit with "Form A" tip		HW/VHW	on request	on request

Dimension	Designation	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 35 x L1=57,5 x Ø 10	Cylinder boring bit	HW		003284
Alteration: chip breaker grooves according to AD-395356		HW/VHW	on request	on request

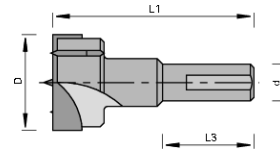
Additional drill bits with other diameters, cutting lengths and shank dimensions are available upon request.



Mosquito dowel bit



Standard dowel bit



Cylinder boring bit HW

→ 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

LEUCO tool recommendations for processing HOMAPAL magnetic 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 "HOMAPAL"
 - 5 Magnetic boards
- 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