

MACHINING INFORMATION

MANUFACTURER:  **rheinspan**

MATERIAL: zero.matt

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RHEINSPAN zero.matt



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PRODUCT DESCRIPTION RHEINSPAN zero.matt PANELS

The zero.matt surface is a functional, lacquered surface produced in a direct MFC process which can be used for indoors.

MACHINING INFORMATION RHEINSPAN zero.matt PLATTEN

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

zero.matt Evolution. The new era of functional surfaces.

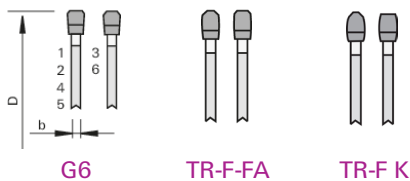
With zero.matt, Rheinspan is presenting not only a new product but also a genuine innovation with impressive visual and functional properties. It scores with anti-fingerprint, soft-touch, high resistance and, in the future, UV blocking. Various wood and stone textures will round off the range. (Source: Rheinspan)

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

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.

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

Saw blade projection:	$\ddot{u} = 20 \text{ mm}$
Speed:	$n = 5,000 \text{ rpm}$
Feed:	$vf = 7 \text{ m/min}$
Cutting speed:	$vc = 80 \text{ m/s}$

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



2.3 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. If the panels are to be joined subsequently at least 1.5 mm, trimming cut can also be performed with the Q-Cut "G6" HW panel sizing circular saw blade.

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

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

Saw blade projection: $\ddot{u} = 25 \text{ mm}$
 Speed: $n = 3,600 \text{ rpm}$
 Feed: $vf = 20\text{-}35 \text{ m/min}$
 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. The recommended cutting speed is 60 - 90 m/sec. In the case of DP and HW-tipped saw blades, the upper value must be selected. Try to aim for a feed per tooth of 0.07 - 0.11 mm.

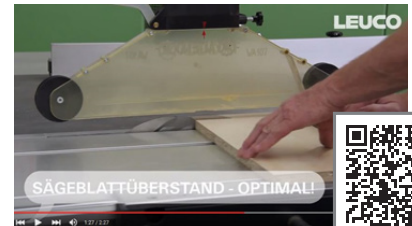
Circular saw blade diameter

D = 250 mm
 D = 300 mm
 D = 350 mm
 D = 400 mm
 D = 450 mm

Saw blade projection

approx. 15-20 mm
 approx. 15-25 mm
 approx. 18-28 mm
 approx. 25-30 mm
 approx. 25-30 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 <<<





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 only hogs with low cutting pressure, such as the LEUCO PowerTec hogger. The number of hogger teeth should be matched to the respective machining feed. The best results with regard to cutting quality are achieved with LEUCO PowerTec hogs.



PowerTec airFace

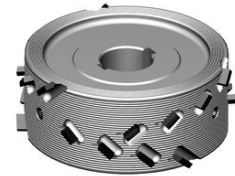
3. MILLING / EDGING

In general, tools with DP blades should be used for jointing work in the run-through process. For formatting with jointing cutters, tools with a small axis angle of around 35° should be used. The best results in terms of quality are achieved with these tools. It is important to use only tools with a low blunting effect.

The LEUCO SmartJointer airFace jointing cutter, for example, is recommended for this purpose, since its cutting edges for the top layer can be exchanged with those working in the core layer to extend the edge life. When using two double jointer units, jointing in two steps is recommended: use the first jointer unit for the main material removal (roughing) and the second jointer unit for finishing. In addition to the use of precise hydro and HSK clamping units, this procedure creates optimal conditions for highest quality and long tool life in jointing operations.



SmartJointer airFace



DIAREX airFace

4. MACHINING ON STATIONARY CNC MACHINES

Dividing cuts, pocket milling and jointing cuts etc. can be performed easily with all shank-type cutters, provided they have appropriately large axial angle cutting edges. Application data and tool selection depend on the requirements for cutting quality and machining 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 f_z is approx. 0.25 mm, or even higher for tools with larger diameters.



5. DRILLING

Dowel holes:

Very good results are achieved with standard HW-tipped dowel bits. Good results are also achieved with LEUCO topline VHW drill bits.

Recommended application parameters for this: (in drilling units)

Speed: 4,500 rpm	Feed: 1.5 m/min	Drilling mode: S-S
Speed: 6,000 rpm	Feed: 2.5 m/min	Drilling mode: S-S

If through holes are required, standard drill bits or VHW topline through-hole bits with the above parameters can be used. Drilling mode L-S-L.

Hinge holes:

Standard HW cylinder boring bits are well suited.

For high production lot sizes, the use of DP cylinder boring bits Z=2+4 is recommended.

Recommended application parameters for this: (in drilling units)

Speed: 4,500-5,000 rpm	Feed: 1.5-2 m/min	Drilling mode: L-S
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6. FORMULAS

6.1 CUTTING SPEED - VC

| Unit: m/s

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

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

6.2 TOOTH FEED - FZ

| Unit: mm

| Data required: feed rate = vf [m/min];
tool speed = n [rpm]; number of teeth = z

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

6.3 FEED RATE - VF

| Unit: m/min

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

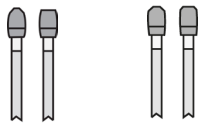
| Calculation: $vf = (fz * n * z) / 1000$



7. LEUCO TOOLS FOR MACHINING RHEINSPAN zero.matt PANELS

7.1 CIRCULAR SAW BLADES FOR SIZING SAWS

Dimension	Designation	Z	Tooth configuration	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

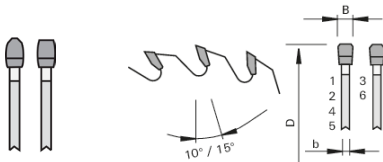


TR-F K TR-F-FA

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

7.2 CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

Dimension	Designation	Z	Tooth configuration	Cutting material	Projection	Ident-No.
Ø 350 x 4,0 x Ø 30	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"	60	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



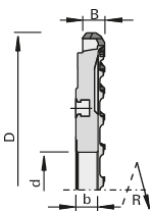
TR-F K G6

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

Number of teeth and feed rate 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 airFace	20+10	DP	186528	186527
Ø 250 x 9,5 x Ø 60	PowerTec airFace S	20+20	DP	186552	186551



PowerTec airFace

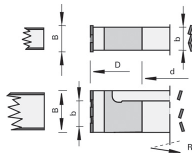
Additional hoggers with other dimensions available on request.



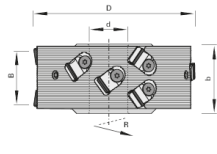
7.4 JOINTING CUTTERS

Dimension	Designation	Z	Cutting material	Machine	Axis <	Ident-No. (L)	Ident-No. (R)
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

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



DIAMAX airFace

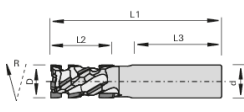


SmartJointer airFace

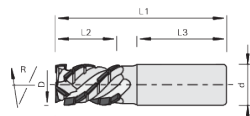
7.5 CNC SHANK-TYPE CUTTERS

Dimension	Designation	Z	Cutting material	Ident-No. (R)
Ø 20 x 28 x Ø 25	DIAREX high-performance shank-type cutter	2+2	DP	186151
Ø 25 x 28 x Ø 25	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 48 x 22 x Ø 25	High-performance trimming cutter	4+2+4	DP	186140
Ø 12 x 23 x Ø 16	Nesting cutter, negative	3+3	DP	187281
Ø 12 x 10,2 x Ø 16	p-System shank-type groove cutter	1+1	DP	185505

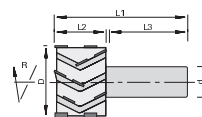
Further shank-type cutters with other dimensions are **available upon request**.



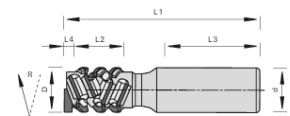
DIAREX high-performance shank-type cutter DP



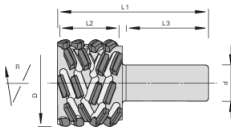
High-performance cutter, negative



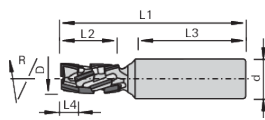
High-performance trimming cutter DP



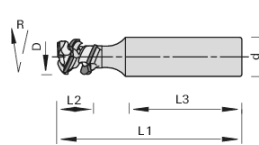
p-system shank-type dividing cutter



p-system shank-type jointing cutter



Nesting cutter, negative



p-System shank-type groove cutter

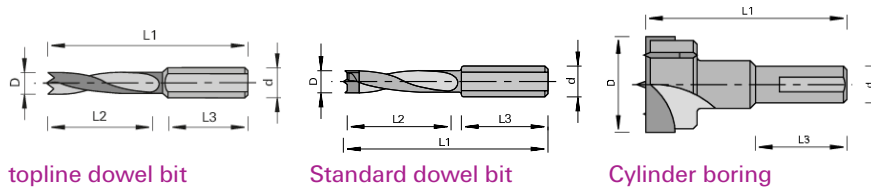


7.6 DOWEL BITS, CYLINDER BORING BITS

Dimension	Dimension	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	topline dowel bit	VHW	185760	185759
Ø 8 x L1=70 x Ø 10	topline dowel bit	VHW	185764	185763

Dimension	Dimension	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 15 x L1=70 x Ø 10	Standard cylinder boring bit	HW	178978	172250
Ø 35 x L1=70 x Ø 10	Standard cylinder boring bit	HW	178982	172254
Ø 35 x L1=70 x Ø 10	Cylinder boring bit Z=2+4	DP	On request	186782

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



topline dowel bit

Standard dowel bit

Cylinder boring

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

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TIP – LEUCO ONLINE CATALOG

You can find LEUCO tool recommendations for machining Rheinspan zero.matt panels 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 on "Material" filter
 - 3 "Special manufacturer materials"
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 - 5 zero.matt panels
- Select saw blades, hogsers, cutters, drill bits



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