

PROCESSING INSTRUCTIONS

MANUFACTURER: FUNDERMAX

MATERIAL: PREMIUM STAR LOTOS (MATT)

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PREMIUM STAR LOTOS (MATT)

FUNDERMAX®

for people
who create

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PRODUCT DESCRIPTION FUNDERMAX PREMIUM STAR LOTOS (MATT)

Decorative, UV coated wood-based panels. Homogeneous support panel design P2.

PROCESSING INSTRUCTIONS FUNDERMAX PREMIUM STAR LOTOS (MATT)

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, fast; **L-S-L** = slow, fast, slow; **vc** = cutting speed; **fz** = tooth feed; **vf** = feed speed



FUNDERMAX Premium Star LOTOS panels
Premium Star with the super matt surface LOTOS
(image source: FUNDERMAX)

1. GENERAL INFORMATION

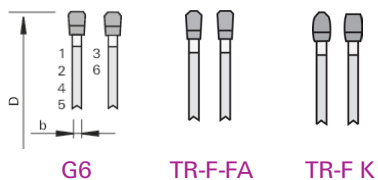
With its novel product development Premium Star, FUNDERMAX is setting new quality standards on its own terms. A super matt finish with anti-fingerprint effect (LOTOS) makes it possible to think in new dimensions. Available in 10 exclusive colors.

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 speed, tooth configuration, tooth pitch, rpm and trimming speed. Depending on the volume to be cut, carbide-tipped (HW) or diamond-tipped (DP) circular saw blades are used. **Recommended tooth configurations:**



2.2 SIZING SAW

For sizing saws, the HW circular saw blades with the tooth shape TR-F K are particularly suitable. Outstanding cutting results are possible also with the "solid surface" HW circular saw blade featuring a 0° effective cutting angle. The cutting speed should be at 80 m/sec.



2.3. PANEL SIZING SAW

Excellent cutting results can be achieved on panel sizing machines with the new circular panel sizing saw blades from the "Q-Cut" range (Q-Cut G6). Good results can also be obtained with circular panel sizing saw blades from the "Q-Cut K" range.

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. 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. This depends on the diameter.

Circular saw blade diameter

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

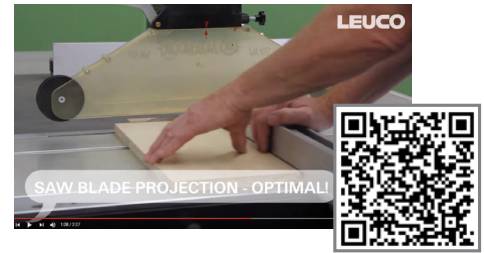
Saw blade projection

- approx. 15 - 20 mm
- approx. 15 - 25 mm
- approx. 18 - 28 mm
- approx. 25 - 30 mm
- approx. 25 - 33 mm



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.

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 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. All hogs tested were used with the following application parameters: **speed:** $n = 6,000/\text{min}$, **abrasion:** $a = 3$ mm, **feed:** $vf = 30$ m/s. The PowerTec hogs have a favorable cutting geometry for the FUNDERMAX material. For other hogger types, users generally expect a severe sacrifice in quality.



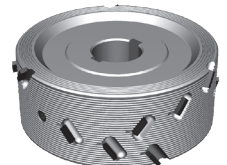
PowerTec airFace

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 an axis angle between 35° and 48°. Though outstanding results can be achieved using jointing cutters with 35° axis angle, you get better results and longer service lives using jointing cutters with a 48° axis 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 voltage is recommended for the jointing work. The recommended feed per tooth (fz) ranges from 0.5 – 0.7 mm. Reducing the tooth feed (fz) does not considerably affect the machining result.



SmartJointer airFace



DIAMAX airFace



4. PROCESSING ON CNC STATIONARY MACHINES

Tools without a shear angle do not work. Diamond-tipped shank-type cutters with a shear angle should therefore be used for milling work. In this case, the shear angle ranges from min 20° to max 48°. Make sure that the cutting edge never lies on an cutting edge overcut. This can lead to early indentations. For grooves and pocket milling with a very high quality requirement, p-System grooving cutters can also be used. The recommended feed per tooth (fz) ranges from 0.2 – 0.34 mm, depending on the diameter. Examples:

Number of cutting edges (Z)	Diameter (mm)	Speed (rpms)	Feed Vf (mm)	Feed per tooth fz (mm)
Z=2	20	18.000 /24.000	7 /10	0,2 /0,2
Z=3	12	18.000/24.000	11/14	0,2/0,2
Z=3	25	18.000/24.000	15/20	0,27/0,27
Z=4	48	18.000	25	0,34

5. DRILLING

Wall plug holes and through holes can be made with commonly available HW drill bits. Drill bits with back-guide work well here. For hinge holes, cylinder boring bits with a geometry that reduces cutting pressure are particularly recommended.

Flares on the inlet side can be reduced or avoided if the drilling parameters are optimized step-by-step. If possible, L-S-L drilling mode (slow-fast-slow). Start parameters, for example, in the particle board (for MDF values, reduce by 25-30%!)

Wall plug holes:	Ø5 / Ø8 mm:	4.500 U/min Vf ~ 1,5 - 2 m/min
		7.500 U/min Vf ~ 2,5 - 3 m/min

Through holes:	Ø5 / Ø8 mm:	4.500 U/min Vf ~ 1 - 1,5 m/min
		7.500 U/min Vf ~ 1,5 - 2 m/min

Hinge holes:	Ø35 mm, Z=2+2:	4.500 U/min Vf ~ 1,3 - 1,5 m/min
		6.000 U/min Vf ~ 1,5 - 2,5 m/min

VHW drill pins < Ø 5 mm are also well suited to generate small grid-pattern holes.

6. FORMULAS

6.1. CUTTING SPEED – VC

| Unit: m/s

| Necessary data: diameter = D [mm];

Tool speed = n [1/min]

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

6.3. FEED SPEED – VF

| Unit: m/min

| Required data: tooth feed = fz [mm];

Tool speed = n [1/min]; no. of teeth = z

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

6.2. TOOTH FEED – FZ

| Unit: mm

| Required data: feed speed = vf [m/min];

tool speed = n [1/min]; no. of teeth = z

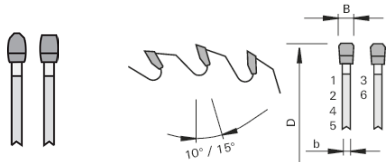
| Calculation: $fz = (vf \cdot 1000) / (n \cdot z)$



7. LEUCO TOOLS FOR PROCESSING PREMIUM STAR LOTOS PANELS

7.1. CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

Dimension	Description	Z	Tooth Shape	Cutting Material	Projection	Ident-No.
Ø 450 x 4,0 x Ø 60	Q-Cut K	72	TR-F K	HL Board O4+	approx. 25 mm	192978
Ø 450 x 4,8 x Ø 60	Q-Cut G6	72	G6	HL Board O4+	approx. 25 mm	192883

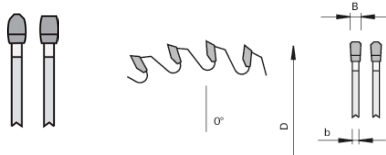


Additional saws with different diameters, cutting widths, bores, and number of teeth **available upon request**.

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

7.2. CIRCULAR SAW BLADES FOR SIZING SAWS

Dimension	Description	Z	Tooth Shape	Cutting Material	Projection	Ident-No.
Ø 350 x 4,0 x Ø 30	Q-Cut K	72	TR-F K	HL Board O4+	approx. 25 mm	192974
Ø 303 x 3,2 x Ø 30	HW solid Surface	84	TR-F-FA	HL Board O6	approx. 25 mm	193133

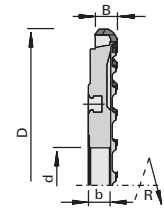


Additional saws with different diameters, cutting widths, bores, and number of teeth **available upon request**.

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+10	DP	186552	186551

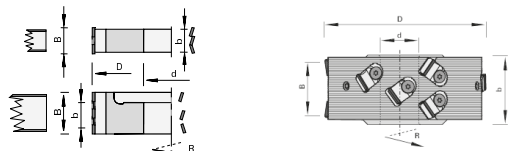


PowerTec airFace

Additional PowerTec hogsers 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 85 x 43,2 x Ø 30	DIAMAX airFace	OTT	3+3	35°	DP	186408	186409
Ø 125 x 43,2 x Ø 30	DIAMAX airFace	Homag	3+3	35°	DP	186399	186399
Ø 100 x 43 x Ø 30	SmartJointer airFace	Brandt	3+3	35°	DP	186065	186066
Ø 125 x 63 x Ø 30	SmartJointer airFace	IMA	3+3	43°	DP	186055	186056



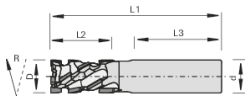
DIAREX/DIAMAX airFace SmartJointer airFace

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

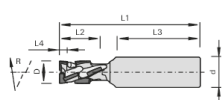


7.5. CNC SHANK-TYPE CUTTERS

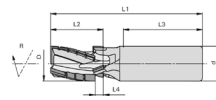
Dimension	Description	Z	Cutting Material	L/R	Ident-No.
Ø 20 x 28 x Ø 25	DIAREX DP high-performance cutter	2+2	DP	R	186151
Ø 12 x 22 x Ø 25	DP CM high-performance milling cutter Nesting	3+3	DP	R	186571
Ø 25 x 28 x Ø 25	DP high-performance cutter, negative	3+3	DP	R	186120
Ø 48 x 28 x Ø 25	DP high-performance trimming cutter	4+2+4	DP	R	186142
Ø 10 x 10,4 x Ø 12	p-System CM DP shank-type groove cutter	1+1	DP	R	186097



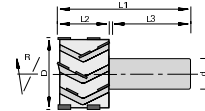
DIAREX DP
high-performance cutter



DP CM high-performance
milling cutter Nesting



DP high-performance
milling cutter, negative



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 HINGE DRILL BITS

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Through hole drill bit with back-guide	HW	176255	176254
Ø 8 x L1=70 x Ø 10	Through hole drill bit with back-guide	HW	176257	176256
Ø 5 x L1=70 x Ø 10	Mosquito through-hole drill bit	VHW	183153	183152
Ø 8 x L1=70 x Ø 10	Mosquito through-hole drill bit	VHW	183157	183156

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Dowel drill bits with back-guide	HW	167203	167194
Ø 8 x L1=70 x Ø 10	Dowel drill bits with back-guide	HW	167205	167196
Ø 5 x L1=70 x Ø 10	Mosquito dowel drill bits	VHW	183390	182391
Ø 8 x L1=70 x Ø 10	Mosquito dowel drill bits	VHW	183151	183150

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
Ø 2,5 x L1=45 x Ø 2,5	Standard drill pins	VHW	180942	180942
Ø 3 x L1=45 x Ø 3,0	Standard drill pins	VHW	180943	180943
Ø 4 x L1=70 x Ø 10	Standard drill pins	VHW	183064	183064

Dimension	Description	Cutting Material	Ident-No. (L)	Ident-No. (R)
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

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.

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TIP – LEUCO ONLINE CATALOG

You can find LEUCO tool recommendations for processing FUNDERMAX Premium Star LOTOS 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
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- Select saw blades, hogsers, cutters, drill bits



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