# PROCESSING INSTRUCTIONS

## MANUFACTURER: FUNDERMAX
## MATERIAL: PREMIUM STAR LUXOS (HIGH GLASS)

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# PROCESSING INSTRUCTIONS

## PREMIUM STAR LUXOS (HIGH GLASS)

FUNDERMAX®
for people
who create

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## PRODUCT DESCRIPTION FUNDERMAX PREMIUM STAR LUXOS (HIGH GLASS)

Decorative, UV coated wood-based panels. MDF SL support panel design.

## PROCESSING INSTRUCTIONS FUNDERMAX PREMIUM STAR LUXOS (HIGH GLASS)

The following processing information is based on a wide range of test series with the best machining results in each case conducted 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 LUXOS Panels**
Premium Star with the super high-gloss surface LUXOS
(**image source**: FUNDERMAX)

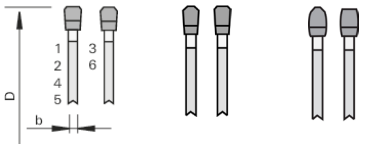
# 1. GENERAL INFORMATION

With its novel product development Premium Star, FUNDERMAX is setting new quality standards on its own terms. Absolute shine with mirror effect (LUXOS) 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:**




G6 TR-F-FA TR-F K

## 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.

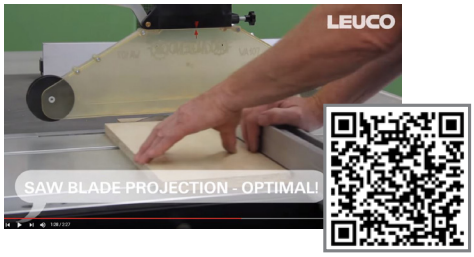
## 2.3. PANEL SIZING SAW

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

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

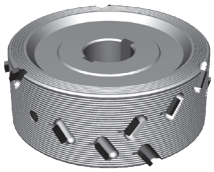
Industrial sizing on through-feed machines is done using diamond-tipped tools. When sizing with hogger tools, outstanding results are achieved in the double hogging process. For this purpose, we recommend only hoggers with low cutting pressure, such as the LEUCO PowerTec hogger. The number of hogger teeth should be matched to the respective machining feed. All hoggers tested were used with the following application parameters: **speed**: n = 6,000/min, **abrasion**: a = 3 mm, **feed**: vf =30 m/s. The PowerTec hoggers 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. Shear angle range in this case from min 20° to max 48°. Make sure that the cutting edge never lies on an cutting edge overcut. This can lead to premature 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 | 10/11 | 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<br>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<br>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<br>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
- Data required: diameter = D [mm]; tool speed = n [rpm]
- Calculation: vc = (D * π * n)/(60 * 1000)

### 6.2. TOOTH FEED – FZ

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

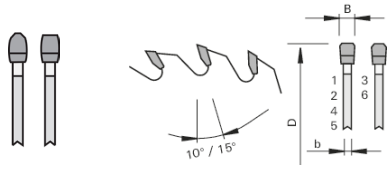
### 6.3. FEED SPEED – VF

- Unit: m/min
- Data required: Tooth speed = fz [mm]; Tool speed = n [1/min]; No. of teeth = z
- Calculation: vf = (fz * n * z)/1000

# 7. LEUCO TOOLS FOR PROCESSING PREMIUM STAR LUXOS PANELS

## 7.1. CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

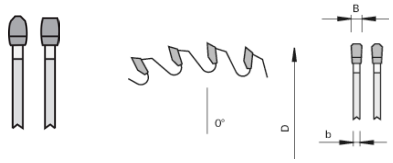
| Dimension | Description | Z | Tooth Shape | Cutting Material | Projection | Ident-No. |
|---|---|---|---|---|---|---|
| Ø 450 x 4,0 x Ø 60 | Q-Cut K | 72 | TR-F K | HL Board 04+ | approx. 25 mm | 192978 |
| Ø 450 x 4,8 x Ø 60 | Q-Cut G6 | 72 | G6 | HL Board 04+ | approx. 25 mm | 192883 |




- 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

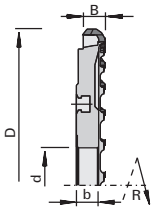
| Dimension | Description | Z | Tooth Shape | Cutting Material | Projection | Ident-No. |
|---|---|---|---|---|---|---|
| Ø 350 x 4,0 x Ø 30 | Q-Cut K | 72 | TR-F K | HL Board 04+ | approx. 25 mm | 192974 |
| Ø 303 x 3,2 x Ø 30 | HW solid Surface | 84 | TR-F-FA | HL Board 06 | approx. 25 mm | 193133 |




- 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 | 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+10 | DP | 186552 | 186551 |

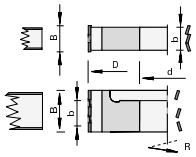



PowerTec airFace

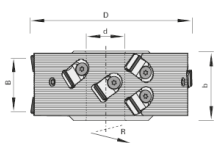
- Additional PowerTec hoggers with other dimensions **available on request.**

## 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 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

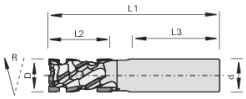



SmartJointer airFace

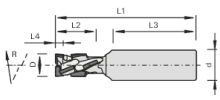
- Additional jointing cutters for other machine brands with different diameters, cutting widths, bores and number of cutting edges **available on request.**

## 7.5. CNC SHANK-TYPE CUTTERS

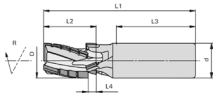
| Dimension | Description | Z | Cutting Material | L/R | Ident-No. |
|---|---|---|---|---|---|
| Ø 20 x 28 x Ø 25 | DIAREX DP high-performance cutter | 2+2 | DP | R | 186151 |
| Ø 12 x 22 x Ø 25 | DP CM high-performance milling cutter Nesting | 3+3 | DP | R | 186571 |
| Ø 25 x 28 x Ø 25 | DP high-performance 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 |



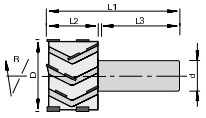

DIAREX DP high-performance cutter




DP CM high-performance milling cutter Nesting




DP high-performance milling cutter, negative




DP high-performance trimming cutter

I 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 |

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.**

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## TIP – LEUCO ONLINE CATALOG

You can find LEUCO tool recommendations for processing FUNDERMAX Premium Star LUXOS panels in the LEUCO Online Catalog.

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

**EASY & QUICK**

1 www.leuco.com/products
2 Click "tool" filter
3 “Special manufacturer materials”
4 FUNDERMAX Premium Star LUXOS

→ Select saw blades, hoggers, cutters,drill bits

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