

MACHINING INFORMATION

MANUFACTURER: FUNDERMAX

MATERIAL: PREMIUM STAR APTICO (AP)
AND SUPERGLOSS (SG)

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MACHINING INFORMATION

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FUNDERMAX - PREMIUM STAR APTICO (AP) AND SUPERGLOSS (SG)

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PRODUCT DESCRIPTION FUNDERMAX - PREMIUM STAR APTICO (AP) AND SUPERGLOSS (SG)

Fundermax presents: Premium Star with the Aptico (AP) surface in matt and Supergloss (SG) surface with a mirror gloss effect.

MACHINING INFORMATION FUNDERMAX - PREMIUM STAR APTICO (AP) AND SUPERGLOSS (SG)

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

PREMIUM STAR Aptico (AP) and Supergloss (SG) are trendy surfaces that take lacquered panels to a completely new level of quality. Their unobtrusive and elegant appearance can make every interior dream come true. (Source: Fundermax)



PREMIUM STAR
Aptico (AP)



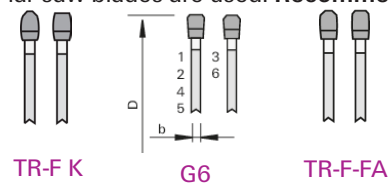
PREMIUM STAR
Supergloss (SG)

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:**



TR-F K

G6

TR-F-FA



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:	$vc = 53 \text{ m/s}$

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, 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:	$vf = 20-35 \text{ m/min}$
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. 15-20 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 hoggers 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 PowerTec hoggers. If jointing work is required after cutting, UniTex and CompactTec hoggers can also be used.



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 shear angle between 35° and 70° can be used. Very good quality can be achieved with all LEUCO standard jointing cutters!

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 the optimal conditions for highest quality and high edge lives during jointing work.



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 that provide shear angle cutting edges. The application data and the selection of the tool depend on the requirements regarding the cutting quality and the processing in general. When high volumes need to be cut, high-performance diamond-tipped 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 smaller production volumes, HW or VHW tools that provide shear angle cutting edges can be used. For pocket milling or grooves of all types, LEUCO DP p-System grooving cutters can be used. Moreover, common HW/VHW and diamond-tipped shank-type cutters provided with the corresponding negative shear angles (more than 15°) are also possible. The optimum feed per tooth fz is approx. 0.25 mm, or even higher for tools with larger diameters.

For your orientation, see the following overview with examples:

Number of cutting edges (Z)	Diameter (mm)	Speed (rpm)	Feed rate vf (m/min)
Z=2	20 / 25	18.000	10 - 12 / 14 - 18
Z=3	12 / 25	18.000	14 - 16 / 14 - 18
Z=4	48 / 60	18.000	20 - 22 / 20 - 25



5. DRILLING

Dowel hole drilling

Good to very good results are achieved with common standard HW-tipped and VHW dowel bits.

Recommended application parameters for this (in drilling units):

Speed: 4,500	Feed: 1.5-2 m/min	Drilling mode: S-S
Speed: 6,000	Feed: 2.5 m/min	Drilling mode: S-S

Through hole drilling

Good to very good results are achieved with standard TC-tipped drill bits and VHW dowel bits.

Recommended application parameters for this (in drilling units):

Speed: 6,000	Feed: 1.5-2 m/min	Drilling mode: S-S-S
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Hinge hole drilling:

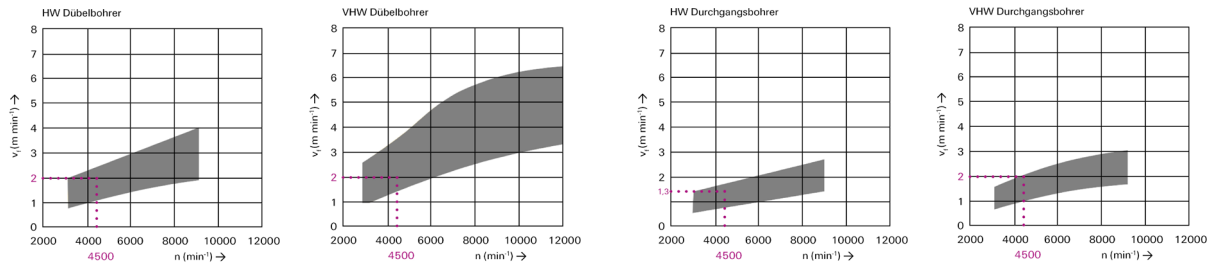
Good results are achieved with both standard and LEUCO Light cylinder boring bits.

Recommended application parameters for this: (in drilling units):

Speed: 4,500-6,000 rpm	Feed: 1.5-2 m/min	Drilling mode: S-S
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Drilling: determination of the feed rate as a function of revolutions per minute



6. FORMULAS

6.1 CUTTING SPEED - VC

| Unit: m/s

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

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

6.2 TOOTH FEED - FZ

| Unit: mm

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

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

6.3 FEED RATE - VF

| Unit: m/min

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

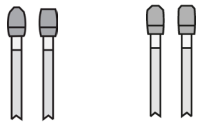
| Calculation: $vf = (fz \cdot n \cdot z) / 1000$



7. LEUCO TOOLS FOR MACHINING OF PREMIUM STAR APTICO (AP) AND SUPERGLOSS (SG) BY FUNDERMAX

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

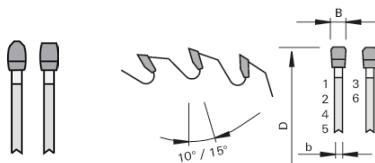


TR-F K TR-F-FA

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



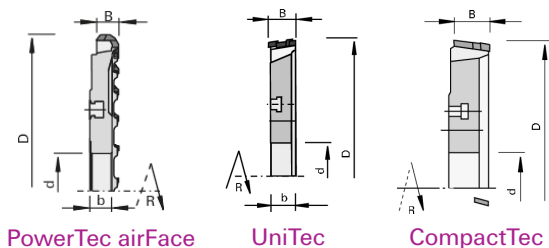
TR-F K G6

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
Ø 250 x 8,0 x Ø 60	UniTec Hoggers CM	36+18	DP	182031	182030
Ø 250 x 20 x Ø 60	CompactTec	36+6+6	DP	182539	182538



PowerTec airFace UniTec CompactTec

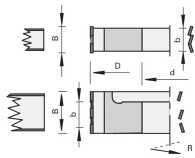
Additional hoggers with other dimensions available on request.



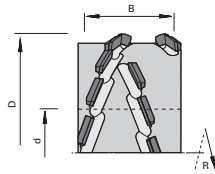
7.4 JOINTING CUTTERS

Dimension	Designation	Z	Cutting material	Machine	Axis <	Ident-No. (L)	Ident-No. (R)
Ø 125 x 42,8 x Ø 30	DIAREX airFace	3+3	DP	Homag	48°	186323	186323
Ø 100 x 42,8 x Ø 30	DIAREX airFace	3+3	DP	SCM	48°	186362	186363
Ø 125 x 47,8 x Ø 30	p-System	3+3	DP	Homag	70°	184071	184071
Ø 125 x 62,5 x Ø 30	p-System	3+3	DP	IMA 08.379	70°	184989	184990
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

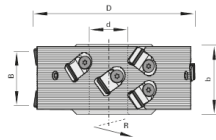
Additional jointing cutters with different diameters, cutting widths, bores and numbers of teeth **available on request**.



DIAREX/
DIAMAX airFace



p-System
jointing cutters

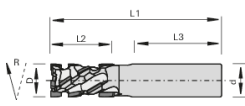


SmartJointer
airFace

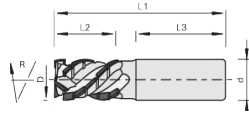
7.5 CNC SHANK-TYPE CUTTERS

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	186142
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

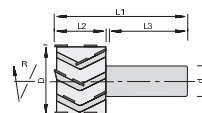
Additional shank-type cutters with other dimensions are **available on request**.



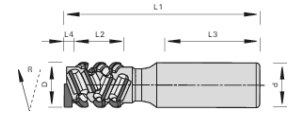
DIAREX high performance
shank-type cutter DP



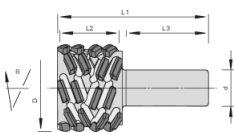
High-performance
cutter, negative



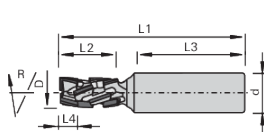
High-performance
trimming cutter DP



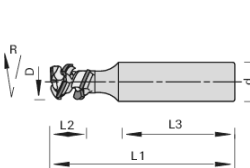
p-system shank-type
dividing cutter



p-system shank-type
jointing cutter



Nesting cutter, negative

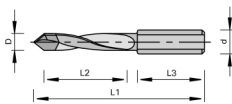


p-System shank-type
groove cutter

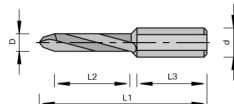


7.6 THROUGH-HOLE DRILL BITS, DOWEL BITS, PINS AND CYLINDER BORING BITS

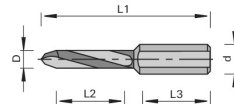
Dimension	Designation	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 L1=70 x Ø 10	Through-hole bit with back-guide	HW	176255	176254
Ø 8 L1=70 x Ø 10	Through-hole bit with back-guide	HW	176257	176256
Ø 5 L1=70 x Ø 10	Mosquito through-hole bit	VHW	183153	183152
Ø 8 L1=70 x Ø 10	Mosquito through-hole bit	VHW	183157	183156
Ø 5 L1=70 x Ø 10	topline through-hole bit	VHW	185742	185741
Ø 8 L1=70 x Ø 10	topline through-hole bit	VHW	185744	185743
Dimension	Designation	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 L1=70 x Ø 10	Dowel bit with back-guide	HW	167203	167194
Ø 8 L1=70 x Ø 10	Dowel bit with back-guide	HW	167205	167196
Ø 5 L1=70 x Ø 10	topline dowel bit	VHW	185760	185759
Ø 8 L1=70 x Ø 10	topline dowel bit	VHW	185764	185763
Dimension	Designation	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 15 L1=70 x Ø 10	"Light" cylinder boring bit	HW	184685	184684
Ø 35 L1=70 x Ø 10	"Light" cylinder boring bit	HW	184689	184688
Ø 35 L1=70 x Ø 10	Cylinder boring bit Z=2+4	DP	on request	186783



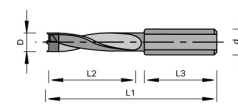
Through-hole bit with back-guide



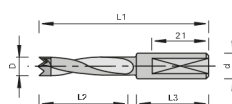
Mosquito through-hole bit



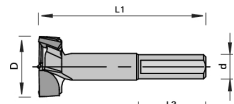
topline through-hole bit



Dowel bit with back-guide bit



topline dowel bit



"Light" cylinder boring bit

! Additional drill bits with other diameters, cutting lengths and shank dimensions are **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 machining FUNDERMAX Premium Star Aptico (AP) and Supergloss (SG) panels in the LEUCO Online Catalog.



Alternatively:
Scan the QR-Code and
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EASY

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- Select saw blades, hogs, cutters, drill bits



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