

# PROCESSING INSTRUCTIONS

MANUFACTURER: senosan®  
MATERIAL: AM 1800TopX

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# PROCESSING INSTRUCTIONS

**senosan**

a member of *klepsch group*

senosan® AM 1800TopX

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## PRODUCT DESCRIPTION senosan® AM 1800TopX

Protective surface film for laminating MDF boards and particle boards having the following product properties: High degree of gloss, enormous scratch resistance and scouring resistance, increased UV resistance, enormous chemical resistance, no polishing required after peeling off the protective film.

## PROCESSING INSTRUCTIONS senosan® AM 1800TopX

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** = tungsten carbide; **HR** = hollow back; **L-S** = slow, fast; **L-S-L** = slow, fast, slow; **S-S** = fast, fast; **S-S-S** = fast, fast, fast; **vc** = cutting speed; **fz** = teeth speed; **vf** = feed rate

# 1. GENERAL INFORMATION

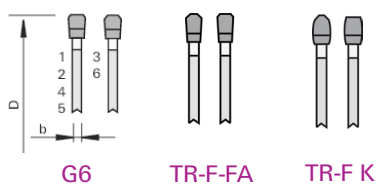
The film is used in the production of fronts with a high gloss effect in the furniture industry. Mainly MDF boards and particle boards are used for them as carrier material.

# 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

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 50 m/sec.



### 2.3. PANEL SIZING SAW

Very good trimming results can be achieved on panel sizing machines with the new panel sizing circular saw blades in the "Q-Cut" range (Q-Cut-K). Very 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  $fz = 0.1$  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. It depends on the diameter and should be between 20 and 28 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 - 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](http://www.youtube.com/leucotooling) <<<



### 2.4. THROUGH-FEED MACHINES: HOGGERS

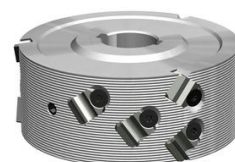
Industrial sizing on through-feed machines is done using diamond-tipped tools. When sizing with hogger tools, outstanding results are achieved in the double hogging process. For this purpose, we recommend hoggers with low cutting pressure, such as the LEUCO PowerTec hogger. The number of hogger teeth should be matched to the respective machining feed. All hoggers tested were used with the following application parameters: **speed:**  $n = 6,000$  rpm; **removal:**  $a = 3$  mm, **feed rate:**  $vf = 30$  m/min. The PowerTec hoggers have a favorable cutting geometry for the AM 1800TopX film. Other hogger types produce visible chipping, which is why they are not suitable for machining.



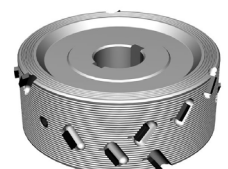
PowerTec airFace

## 3. MILLING / EDGING

In general, tools with DP blades should be used for jointing work in the run-through process. When sizing with jointing cutters, very good results can be achieved with tools that have a shear angle of  $48^\circ$ . However, good results can also be achieved with other jointing tools (shear angle of  $35^\circ$  or  $70^\circ$ ). 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 clamping device is recommended for the jointing work. It is important that the **feed per tooth (fz) be not less than 0.6 mm**, in order to avoid initial melting of the acrylic compound with this surface.



SmartJointer airFace



DIAMAX airFace



## 4. PROCESSING ON STATIONARY CNC MACHINES

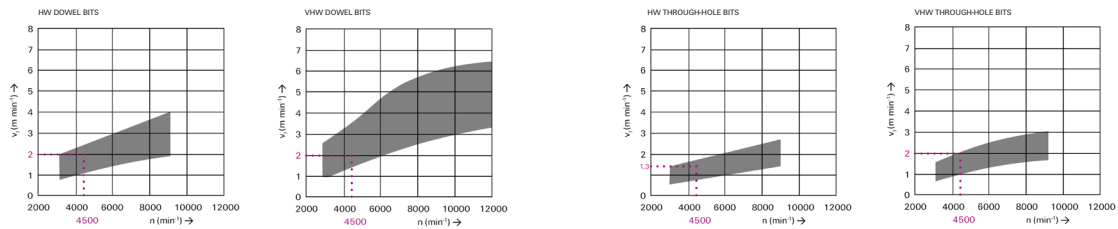
Tools without a shear angle do not work. For long edge lives, the cutting work should be done with diamond-tipped shank-type cutters with alternating shear angles. Small series can also be produced using VHW spiral finishing cutters. The recommended feed per tooth (fz) is in the range from 0.2 - 0.35 mm. Example:

Number of cutting edges (Z)	Speed (rpm)	Feed rate vf (m/min)
Z=2	18.000 / 24.000	8 - 12 / 12 - 18
Z=3	18.000 / 24.000	14 - 20 / 18 - 25
Z=4	18.000	18 - 25

## 5. DRILLING

Dowel holes and through-holes can basically be made with commonly available tungsten-carbide-tipped (HW) drill bits. Better results are usually achieved by using VHW dowel and through-hole bits on account of their higher rigidity. Using drill bits with special geometries to reduce cutting pressure is even more advantageous in terms of quality and longer edge life. VHW pins are also very well suited to produce small grid-pattern holes of <math>\varnothing 5\text{ mm}</math>. Hinge holes should be produced with standard HW cylinder boring bits. With hinge hole bits of extremely short centering point, the centering in the plastic film may be damaged, causing chipping. **Application parameter guideline:** drilling mode = S - S - S (fast - fast - fast)

**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

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

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

### 6.3. FEED RATE – VF

| Unit: m/min

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

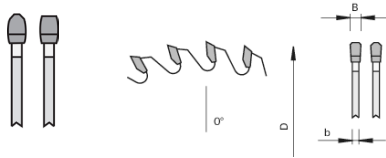
| Calculation:  $vf = (fz \cdot n \cdot z) / 1000$



## 7. LEUCO TOOLS FOR PROCESSING SENOSAN® AM 1800TopX

### 7.1. CIRCULAR SAW BLADES FOR SIZING SAWS

Dimension	Description	Z	Tooth shape	Cutting material	Projection	Ident-No.
Ø 300 x 3,2 x Ø 30	HW circular saw blade	72	TR-F K	HL Board 04+	approx. 25 mm	193195
Ø 303 x 3,2 x Ø 30	HW solid Surface	84	TR-F-FA	HL Board 06	approx. 25 mm	193133

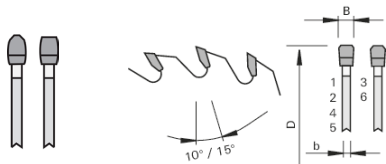


Additional saws with different diameters, cutting widths, bores, and number of teeth **available upon request**.

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

### 7.2. CIRCULAR SAW BLADES FOR PANEL SIZING SAWS

Dimension	Description	Z	Tooth shape	Cutting material	Projection	Ident-No.
Ø 350 x 4,0 x Ø 60	Q-Cut K	72	TR-F K	HL Board 04+	approx. 25 mm	192975
Ø 350 x 4,4 x Ø 60	Q-Cut G6	72	G6	HL Board 04+	approx. 25 mm	193148

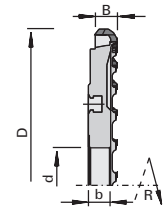


Additional saws with different diameters, cutting widths, bores, and number of teeth **available upon request**.

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

### 7.3. 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+20	DP	186552	186551

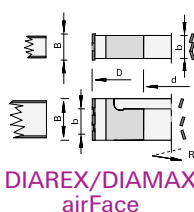


PowerTec airFace

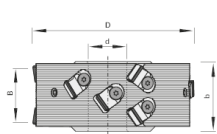
Additional PowerTec hoggers with other dimensions **available on request**.

### 7.4. JOINTING CUTTERS

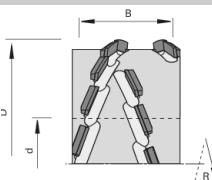
Dimension	Description	Machine	Z	Shear<	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 125 x 42,8 x Ø 30	DIAREX airFace	Homag	3+3	48°	DP	186323	186323
Ø 100 x 42,8 x Ø 30	DIAREX airFace	SCM	3+3	48°	DP	186362	186363
Ø 125 x 47,8 x Ø 30	p-System	Homag	3+3	70°	DP	184071	184071
Ø 85 x 43,2 x Ø 30	DIAMAX airFace	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



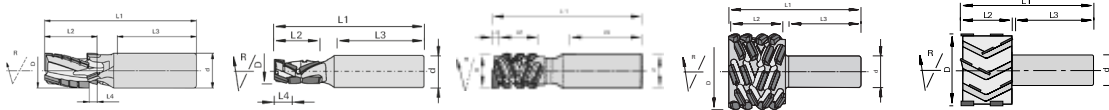
p-System

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



## 7.5. CNC SHANK-TYPE CUTTERS

Dimension	Description	Z	Cutting material	L/R	Ident-No.
Ø 12 x 23 x Ø 16	Nesting cutter, negative	3+3	DP	R	185518
Ø 25 x 26,5 x Ø 25	p-System shank-type cutters	2+2	DP	R	184382
Ø 60 x 38 x Ø 25	p-System shank-type cutters	4+4	DP	R	184084
Ø 25 x 28 x Ø 25	High-performance cutter, negative	3+3	DP	R	186120
Ø 48 x 28 x Ø 25	High-performance trimming cutter	4+2+4	DP	R	186142



DP High-performance cutter, negative

DP Nesting cutter, negative

p-System shank-type cutters

p-system shank-type cutters

High-performance trimming cutter

Additional shank-type cutters with different diameters (Ø) and cutting lengths (L2) **available on request.**

## 7.6. THROUGH-HOLE, DOWEL AND BLIND HOLE BITS

Dimension	Description	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 5 x L1=70 x Ø 10	Mosquito through-hole bit	VHW	183153	183152
Ø 8 x L1=70 x Ø 10	Mosquito through-hole bit	VHW	183157	183156
Ø 5 x L1=70 x Ø 10	topline through-hole bit	VHW	185742	185741
Ø 8 x L1=70 x Ø 10	topline through-hole bit	VHW	185744	185743

Dimension	Description	Cutting material	Ident-No. (L)	Ident-No. (R)
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
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
Ø 5 x L1=70 x Ø 10	High-performance dowel bit	VHW	185772	185771
Ø 8 x L1=70 x Ø 10	High-performance dowel bit	VHW	185776	185775

Dimension	Description	Cutting material	Ident-No. (L)	Ident-No. (R)
Ø 2,5 x L1=57,5 x Ø 10	Standard drill bits	VHW	183061	183061
Ø 3 x L1=57,5 x Ø 10	Standard drill bits	VHW	183062	183062

Dimension	Description	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

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

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

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## TIP – LEUCO ONLINE CATALOG

LEUCO tool recommendations for processing senosan® AM 1800TopX are listed in the LEUCO online catalog.

QUICK &  
EASY

- 1 [www.leuco.com/products](http://www.leuco.com/products)
  - 2 Click "tool" filter
  - 3 "special manufacturer materials"
  - 4 senosan® AM 1800TopX
- Select saw blades, hogsers, cutters, drill bits



Alternatively:  
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