Finsa
Design

Topglass

Recommendations for use

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GENERAL INFORMATION

Glass fronts are very elegant and give spaces a better visual appearance, but in production and in daily use real glass is a very demanding and fragile material, sensitive to shocks and requiring intensive cleaning. The solution is: acrylic glass, with high-quality glass-look surfaces that provide a substantial feeling of depth and a maximum level of brilliance. This co-extruded material combines the aesthetic advantages of real glass fronts with the advantageous processing and usage properties of TopGlass.

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1.1. PRODUCT DESCRIPTION

TopGlass co-extruded sheets of clear PMMA and ABS, with a final thickness of 2 mm. This material combines the aesthetic advantages of glass fronts with the ease of processing this type of material. Introducing two new finishes: mirror shine and extra-matt anti-fingerprint with an acid-etched glass effect.

1.2. PROCESS INSTRUCTIONS

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.

1.3. DEFINITION OF TERMS

DP = DIAHW = Carbide

HR = Hollow back

L-S = Slow, fast

L-S-L = Slow, fast, slow

Vc = Cutting speed

F_z = Feed per tooth

V_f = Feed rate

S-S = (fast-fast)

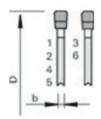
1.4. CUTTING / CUTTING TO SIZE

1.4.1. TRIMMING OF PANELS WITH CIRCULAR SAW BLADES

Several factors are responsible for good trimming results:

Decorative face up, correct projection of saw blades, feed rate, tooth configuration, tooth pitch, rpm and cutting 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

1.4.2. CUT-TO-SIZE SAW

For cut-to-size saws, HW circular saw blades with the TR-F K tooth form are particularly suitable; excellent cutting results can also be achieved with the solid surface HW circular saw blade with an effective cutting angle of 0°. The cutting speed should be 80 m/sec.

1.4.3. CUT-TO-LENGTH PANEL SAW

With the new circular blades for rip saws of the "Q-Cut" range (Q-Cut K), excellent cutting results are achieved on panel rip machines. Good results can also be achieved with the circular saw blades of the "Q-Cut G6" range. The recommended feed per tooth (Fz) is between 0.06 and 0.07 mm.

The maximum feed per tooth is Fz = 0.096 mm; this must not be exceeded. Furthermore, in this case the tooth engagement occurs on the decorative face of the panel. Good edges on both sides can only be achieved with a suitable marker. Very good cutting results can be achieved with proper 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

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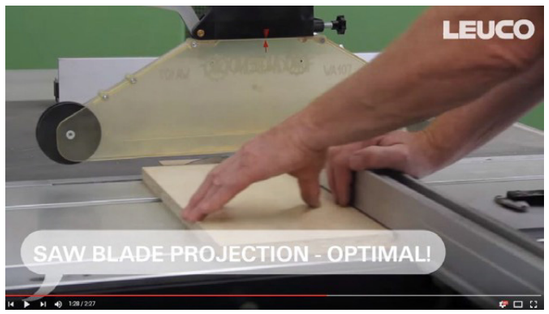
The recommended cutting speed is 60 to 90 m/sec. In the case of circular saw blades with DP tips, the higher value must be selected. Try to achieve a feed per tooth of between 0.07 and 0.08 mm See our YouTube channel for more information on optimal saw blade projection.

Scan the QR code and watch the video on YouTube. Alternatively, visit www.youtube.com/leucotooling



1.4.4. THROUGH FEED MACHINES: CRUSHERS

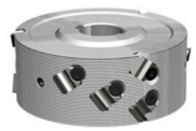
Industrial cut-to-length on through-feed machines is done with diamond-tipped tools. When cut to size with shredding tools, outstanding results are obtained in the double chopping process. For this purpose we recommend shredders with low cutting pressure, such as the LEUCO PowerTec shredder.

The number of teeth of the crusher must be adjusted to the corresponding machining feed rate. All crushers tested were used with the following application parameters: speed: n = 6000 rpm, abrasion: a = 3 mm, feed rate: V_f = 30 m/s. PowerTec shredders have a cutting geometry that suits TopGlass sheet. With other types of shredders small breakages are to be expected, however these can be rectified by additional joining work.

PowerTec airFace

1.5. MILLING / EDGE PROCESSING

In general, tools with DP blades should be used for joining work during the cutting process. For formatting with joint cutters, only tools with a cutting angle of between 35° and 48° are recommended. Although outstanding results can be achieved using joint cutters with a 35° cutting angle, better results and longer service life are obtained with joint cutters with a 48° cutting angle. Two-stage joining is recommended if a double joining unit is available. Here the feed per tooth (F_z) must be at least 0.6 mm to avoid initial melting of the acrylic sheet.



SmartJointer airFace

DIAMAX airFace

1.6. PROCESSING ON STATIONARY CNC MACHINES

Tools without a cutting angle do not work. For long edge life, cutting work should be carried out with diamond-tipped shank cutters with alternating cutting angles. Small series can also be produced with the VHW spiral finishing cutters. The recommended feed per tooth (F_z) is in the range of 0.2 - 0.35 mm.

Example:

Number of cutting edges (Z)	Speed (rpms)	Feed rate V_f (mm/ min)
Z = 2	18 000/24 000	7 - 10 / 10 - 13
Z = 3	18 000/24 000	10–15 / 14–20
Z = 4	18 000	20 - 25

Grooving or milling of cavities can be carried out very efficiently with the VHM shank cutter with a negative spiral. The feed rate (Fz) should be approximately 0.3 mm (e.g. 18 000 rpm and 8-10 m/ min).

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1.6. DRILLING

Through and non-through holes can be drilled with the HW drill bits normally available. Results are better when using through-hole and VHW python drill bits due to their higher rigidity.

Application data:

Speed	Drilling	Forward
5 000 rpm	S-S (fast-fast)	1 m/min

In the event of problems with the edges of the drill holes on the acrylic glass side, the use of rear-guided drill bits can be helpful.

Hinge holes: when using cylinder drill bits, designs with special geometries to reduce cutting pressure are more advantageous in terms of quality and tool life.

Application data:

Speed	Drilling	Forward
6 000 rpm	S-S (fast-fast)	1.5 m/min

VHW drilling studs < Ø5 mm are also very suitable for producing small holes with a grid pattern.

Application data:

Speed	Drilling	Forward
7 000 rpm	S-S (fast-fast)	1 m/min

1.7. FORMULAS

1.7.1. CUTTING SPEED — VC

Unit: m/s

Required data: diameter = D [mm]; tool speed = n [1/min]

Calculation: $Vc = (D \times \pi \times n)/(60 \times 1000)$

1.7.2. FEED PER TOOTH – F_Z

Unit: mm

Required data: Feed rate = V_f [m/min]; tool speed = n [1/min]; No. of teeth = z

Calculation: $fz = (V_f \times 1000)/(n \times z)$

1.7.3. FEED RATE – V_F

Unit: m/min

Required data: feed per tooth = fz [mm]; tool speed = n [1/min]; No. of teeth = z

Calculations: $V_f = (fz \times n \times z)/1000$

1.8. LEUCO TOOLS FOR THE TREATMENT OF TOPGLASS PANELS

1.8.1. CIRCULAR BLADES FOR CUT-TO-SIZE PANEL SAWS

Dimensions	Ø 450 x 4.0 x Ø 60	Ø 450 x 4.8 x Ø 60
Description	Q-Cut K	Q-Cut G6
Z	72	72
Tooth shape	TR-F K	G6+
Cutting material	Board HL 04+	Board HL 04+
Projection	approx. 25 mm	approx. 25 mm
Identification number	192978	192883

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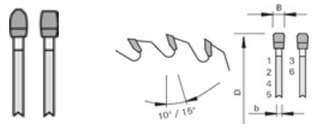
Other saws with different diameters, cutting widths, bores and numbers of teeth are available on request.

The number of teeth and feed speed depend on the cutting height and the application for single or stacked panel cuts.



1.8.2. CIRCULAR BLADES FOR CUT-TO-SIZE PANEL SAWS

Dimensions	**Ø 350 x 4.0 x Ø 30**	**Ø 303 x 3.2 x Ø 30**
Description	Q-Cut K	Solid surface HW
Z	72	84
Tooth shape	TR-F K	TR-F-FA
Cutting material	Board HL 04+	Board HL 06
Projection	approx. 25 mm	approx. 25 mm
Identification number	192974	193133

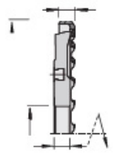
Other saws with different diameters, cutting widths, bores and numbers of teeth are available on request. Other saws with different diameters, cutting widths, bores and numbers of teeth are available on request.

The number of teeth and feed speed depend on the cutting height and the application for single or stacked panel cuts.

1.8.3. CRUSHERS

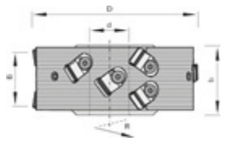
Dimensions	**Ø 250 x 9.5 x Ø 60**	**Ø 250 x 9.5 x Ø 60**
Description	PowerTec airFace	PowerTec airFace S
Z	20+10	20+10
Cutting material	PD	PD
Identification number (L)	186528	186527
Identification number (R)	186552	186551

Other PowerTec shredders with other dimensions are available on request.

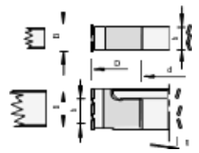


1.8.4. JOINT CUTTERS

Dimensions	**Description**	**Machine**	**z**	**Cutting<)**	**Cutting material**	**Identification number (L)**	**Identification number (R)**
Ø 125 x 42.8 x Ø 30	DIAREX airFace	HOMAG	3+3	48°	PD	186323	186323
Ø 100 x 42.8 x Ø 30	DIAREX airFace	SCM	3+3	48°	PD	186362	186363
Ø 85 x 43.2 x Ø 30	DIAREX airFace	OTT	3+3	35°	PD	186408	186409
Ø 125 x 43.2 x Ø 30	DIAREX airFace	HOMAG	3+3	35°	PD	186399	186399
Ø 100 x 43 x Ø 30	SmartJointer airFace	Brandt	3+3	35°	PD	186065	186066
Ø 125 x 63 x Ø 30	SmartJointer airFace	IMA	3+3	43°	PD	186055	186056



DIAREX/DIAMAX airFace



SmartJointer airFace

Other gasket cutters for other machine brands with different diameters, cutting widths, holes and numbers of cutting edges are available on request.

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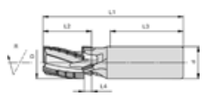
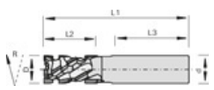
1.8.5. CNC SHANK CUTTERS

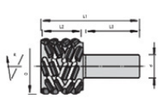
Dimensions	Description	z	Cutting material	L/R	Identification number (R)
Ø 12 x 22 x Ø 16	Cutter with negative type nesting shank	2+2	PD	R	186113
Ø 12 x 22 x Ø 16	Positive nesting shank cutter	3+3	PD	R	185571
Ø 20 x 28 x Ø 25	Cutter with negative type nesting shank	3+3	DP	R	185518
Ø 20 x 28 x Ø 25	DIAREX High-Performance Cutter	2+2	DP	R	186151
Ø 25 x 28 x Ø 25	Negative type high-performance cutter	3+3	DP	R	186120
Ø 60 x 38 x Ø 25	Cutter with p-System handle	4+4	DP	R	184084
Ø 48 x 28 x Ø 25	High-performance cutter	4+2+4	DP	R	186142



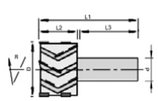
Negative type DP high-performance cutter



High-performance cutting machine DP DIAREX



Cutter with p-System handle



High-performance DP cutter

Other shank cutters with different diameters (Ø) and cutting lengths (CL) are available on request.

1.8.6. BITS FOR THROUGH, PITON AND BLIND DRILLS

Dimensions	Description	Cutting material	Identification number (L)	Identification number (R)
Ø 5 x L1=70 x Ø 10	Drill bit for through holes with back guide	HW	176255	176254
Ø 8 x L1=70 x Ø 10	Drill bit for through holes with back guide	HW	176257	176256
Ø 5 x L1=70 x Ø 10	Drill bit for Mosquito through-hole drills	VHW	183153	183152
Ø 8 x L1=70 x Ø 10	Drill bit for Mosquito through-hole drills	VHW	183157	183156
Ø 5 x L1=70 x Ø 10	Drill bit for Topline through-hole drills	VHW	185742	185741
Ø 8 x L1=70 x Ø 10	Drill bit for Topline through-hole drills	VHW	185744	185743

Dimensions	Description	Cutting material	Identification number (L)	Identification number (R)
Ø 5 x L1=70 x Ø 10	Mosquito Shank Drill Bits	VHW	182390	182391
Ø 8 x L1=70 x Ø 10	Mosquito Shank Drill Bits	VHW	183151	183150
Ø 5 x L1=70 x Ø 10	Topline Shank Drill Bits	VHW	185760	185759
Ø 8 x L1=70 x Ø 10	Topline Shank Drill Bits	VHW	185764	185763
Ø 5 x L1=70 x Ø 10	High-performance shank bits	VHW	185772	185771
Ø 8 x L1=70 x Ø 10	High-performance shank bits	VHW	185776	185775

Dimensions	Description	Cutting material	Identification number (L)	Identification number (R)
Ø 2.5 x L1=57.5 x Ø 10	Standard drill bolts	VHW	183061	183061
Ø 3 x L1=57.5 x Ø 10	Standard drill bolts	VHW	183062	183062

Dimensions	Description	Cutting material	Identification number (L)	Identification number (R)
Ø 15 x L1=70 x Ø 10	Drill bits for standard cylinders	HW	178978	172250
Ø 35 x L1=70 x Ø 10	Drill bits for standard cylinders	HW	178982	172254
Ø 15 x L1=70 x Ø 10	Drill bits for lightweight cylinders	HW	184685	184684
Ø 35 x L1=70 x Ø 10	Drill bits for lightweight cylinders	HW	184689	184688

Other drill bits with other dimensions, cutting lengths and shank dimensions are available on request.

02/
Recommendations for bevelling

THE CHALLENGE

Edge trimming AND additional treatment of the top coat as well as 45° bevelling of the acrylic edge band AND the acrylic top coat.

THE OBJECTIVE

High gloss appearance without double manual polishing.

THE MOST EFFICIENT

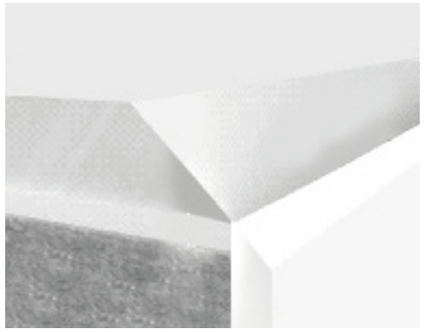
Profiling cutter with high teeth Z6. Special scraper with axial and sharpening angle.

Profile cutting machine with Z6

Scraper with shear and flange angle

THE RESULT

High-gloss look (imitation of a glass front). 45° bevel processing



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Recommendations for bevelling

BENEFITS / INFORMATION

45° bevelled

- **Economic efficiency:**

No more manual re-polishing, you save time and therefore costs. Increases the safety of the process. Standard aggregates can be used. Long service life of the profile cutter blade and scraper.

- **Machine/handling:**

For HOMAG machines with aggregate mf21 and mn21. Machine programme adapted to the application. Defined chip removal of the scraper = 0.08 mm for optimum cutting results. The described tools are only necessary for the treatment of the top layer (45° chamfering of the edge and top layer).

- **Design:**

Proven LEUCO tool technology, DP profile cutter and HW scraper. Various customised profile combinations available; shear scraper with shear and hook angle for reduced shearing pressure and spot cutting for high-gloss optics.

03/
Surface cleaning recommendations

We recommend that you do not use abrasive cleaning agents or sharp tools to avoid compromising the shine and durability of the surface.

Avoid using cleaning materials containing alcohol (often found in window cleaners). Therefore, the surface should only be cleaned with a cloth soaked in a soap solution or cleaned with a polish.

Dust and dry dirt should be removed with a soft cleaning cloth.

Care should be taken with the removal of the adhesive film or sealing material.

To reduce static charge, an anti-static plastic cleaner is recommended. In this case, pre-cleaning with soap is recommended.