Processing recommendation

EGGER PerfectSense

Machining of EGGER PerfectSense lacquered boards

The high-quality EGGER PerfectSense lacquered boards with matt, high-gloss or matt-textured surfaces, impress with visual perfection and an appealing, natural-looking feel. Using multi-layer lacquer, the surfaces are well suited for upmarket and trend led furniture as they provide an exclusive and sophisticated finish. Available in a wide range of core boards and with multiple surface finishes, PerfectSense lacquered boards are versatile and flexible in their usage.

General machining guidelines
When machining EGGER PerfectSense lacquered boards, the reference values from the table for the selection of the cutting speed (v_c) and the tooth feed rate (f_z) should be observed, depending on the machining method.

Machining method	Cutting speed v_c m/s
Sawing	60 - 90
Hogging	60 - 80
Cutting	40 - 70
Boring	0.5 - 2.0

Machining method	Tooth feed rate f_z in mm
Sawing	0.05 - 0.12
Hogging	0.10 - 0.15
Cutting	0.40 - 0.60
Boring	0.05 - 0.15

These parameters are in relation to the tool diameter (D), number of teeth (Z), RPM (n) and feed speed (v_f) used on the processing machine. The right selection of these factors is responsible for a good machining result.

The following formulas apply to the calculation of cutting speed, tooth feed rate and feed speed:

v_c – Cutting speed [m/s]
$v_c = D \cdot \pi \cdot n / 60 \cdot 1000$
D – Tool diameter [mm]
n – RPM of tool [min^{-1}]

f_z – Tooth feed rate [mm]
$f_z = v_f \cdot 1000 / n \cdot z$
v_f – Feed speed [m/min]
n – RPM of tool [min^{-1}]
z – Number of teeth

v_f – Feed speed [m/min-1]
$v_f = f_z \bullet n \bullet z / 1000$
f_z – Tooth feed rate [mm]
n – RPM of tool [min^{-1}]
z – Number of teeth

General tool
For optimum edge quality, tools with new or newly repaired cutting edges are recommended.

Cutting material
Basically, both tools with carbide cutting edges (HW) and diamond cutting edges (DP diamond polycrystalline) can be used. The use of tools with diamond cutting edges (DP) is recommended in order to extend the tool life at high cutting volume.

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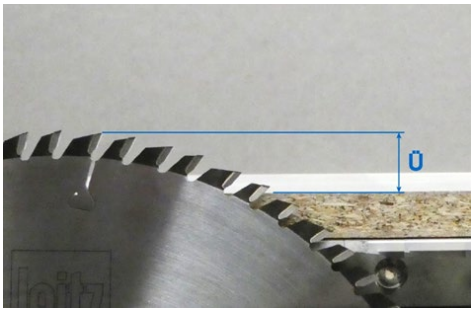
Cutting the panels with circular sawblades

General note:

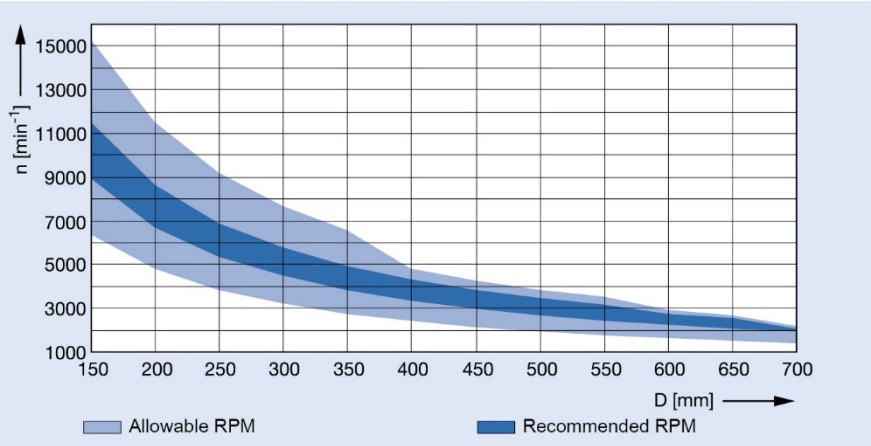
- Visible side (decorative side with foil) upwards
- Make sure that the sawblade protrudes correctly (see table)
- Adjust RPM and number of teeth to feed speed
- The use of a scoring sawblade is recommended for precise cuts on the bottom side of the panel

Depending on the sawblade protrusion, the entry and exit angle and thus the quality of the cutting edge change. If the top cutting edge becomes rough, set the sawblade higher. If the cut on the bottom side is rough, the sawblade must be set lower. In this way the most favorable height setting must be determined.
The following sawblade protrusions (Ü) must be set for sizing and panel sizing saws, depending on the diameter (D):

Circular sawblade diameter D [mm]	Protrusions Ü [mm]
250	ca. 5 - 10
300	
350	
400	
450	



Sawblades with a high number of teeth are generally recommended for good machining quality.
For circular sawing, the recommended cutting speed v_c is 60 - 90 m/s.



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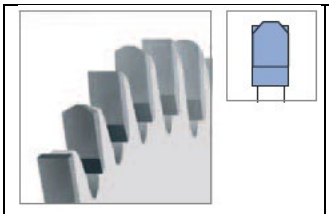
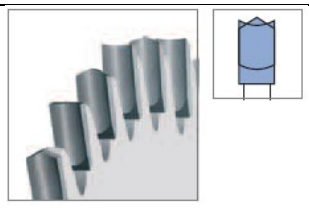
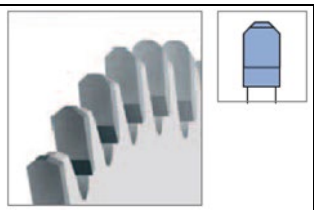
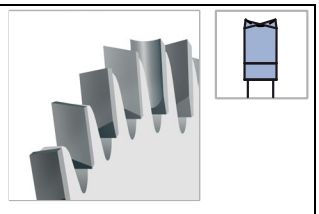
Recommended saw tooth shapes

			
FZ/TR (flat tooth/trapezoidal tooth)	HZ/DZ (hollow tooth/ inverted-V tooth)	TR/TR (trapezoidal tooth/ trapezoidal tooth)	HZFA/WZFA (bevelled hollow tooth/ alternate top bevel tooth)

Sizing sawblades

with the saw tooth shape hollow face/inverted V teeth (HZ/DZ) provide the best cutting results on machines without scoring unit. On machines with a scoring unit, the square/trapezoidal teeth (FZ/TR) sawblade shape also offers good cutting results with a higher tool life compared to HZ/DZ.

Sizing cut without pre-scoring *Excellent*

D [mm]	SB [mm]	TDI [mm]	BO [mm]	NLA [mm]	Z	ZF	SW °	ID
250	3.2	2.2	30	KNL	54	HZ/DZ	10	**161300**
303	3.2	2.2	30	KNL	68	HZ/DZ	10	**161301**
350	3.5	2.5	30	KNL	80	HZ/DZ	10	**161302**

Other dimensions available on request

Sizing cut with pre-scoring *Premium*

D [mm]	SB [mm]	TDI [mm]	BO [mm]	NLA [mm]	Z	ZF	Type	SW °	ID
250	3.2	2.2	30	KNL	60	FZ/TR	UT	10	**163002**
250	3.2	2.2	30	KNL	80	FZ/TR		10	**163003**
300	3.2	2.2	30	KNL	72	FZ/TR	UT	10	**163005**
300	3.2	2.2	30	KNL	96	FZ/TR		10	**163006**
350	3.5	2.5	30	KNL	84	FZ/TR	UT	10	**163007**
350	3.5	2.5	30	KNL	108	FZ/TR		10	**163008**

Other dimensions available on request

Processing recommendation

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In order to create a work-friendly machining, WhisperCut circular sawblades with DP cutting material are recommended. WhisperCut circular sawblades produce up to 10 dB(A) less noise and can be used with standard splitting wedges on machines with scoring unit.

Sizing cut *Excellent* – WhisperCut

D [mm]	SB [mm]	TDI [mm]	BO [mm]	NLA [mm]	Z	ZF	SW °	ID
250	3.2	2.4	30	KNL	50	HZFA/WZFA	10	**190697**
303	3.2	2.4	30	KNL	60	HZFA/WZFA	10	**190698**
350	3.2	2.4	30	KNL	70	HZFA/WZFA	10	**190699**

Other dimensions available on request

Panel sizing sawblades
with saw tooth shape combinations such as square/trapezoidal teeth (FZ/TR) or trapezoidal/trapezoidal teeth (TR/TR) are recommended for this purpose. The Leitz RazorCut PLUS (TR/TR) saw type achieves the best cutting quality here.

Splitting individual panels and panel stacks – *Premium*

D [mm]	SB [mm]	TDI [mm]	BO [mm]	NLA [mm]	Z	ZF	SW °	ID
300	4.4	3.2	30	KNL	60	FZ/TR	15	**163400**
350	4.4	3.2	60	KNL	72	FZ/TR	15	**163408**
350	4.4	3.2	60	2/14/100	72	FZ/TR	15	**163409**
380	4.8	3.5	60	2/14/100 2/14/125	72	FZ/TR	15	**163418**
380	4.4	3.2	30	2/14/100 2/14/125	72	FZ/TR	15	**163419**

Other dimensions available on request

Splitting individual panels in finish cut quality *Excellent* – RazorCut PLUS

D [mm]	SB [mm]	TDI [mm]	BO [mm]	NLA [mm]	Z	ZF	SW °	ID
300	4.4	3.2	30	KNL	60	TR/TR	15	**161137**
350	4.4	3.2	60	KNL	72	TR/TR	15	**161149**
350	4.4	3.2	60	2/14/100	72	TR/TR	15	**161150**
380	4.8	3.5	60	2/14/100 2/14/125	72	TR/TR	15	**161159**
380	4.4	3.2	30	2/14/100 2/14/125	72	TR/TR	15	**161156**

Other dimensions available on request

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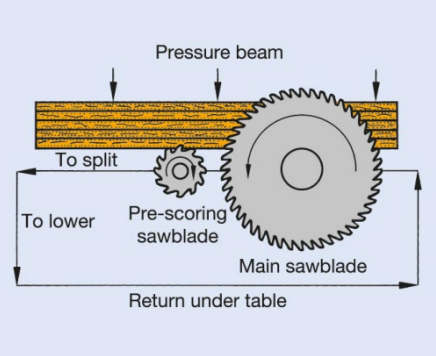
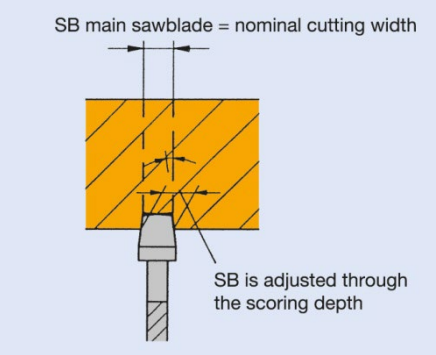
Processing recommendation

EGGER PerfectSense

Scoring sawblades
For EGGER PerfectSense lacquered boards, the use of a scoring unit is recommended to achieve a good cutting edge quality on the tooth exit side. The cutting width of the scoring sawblade must be set slightly larger than that of the main circular sawblade so that the exiting tooth of the main saw can no longer touch the cutting edge. Divided scoring circular sawblades are used on table and sizing saws.



Panel sizing system with scoring unit and pressure device



Application diagram of conical scoring sawblade. When repairing the tools, it is recommended to sharpen the scoring saws with the main saws in a set.

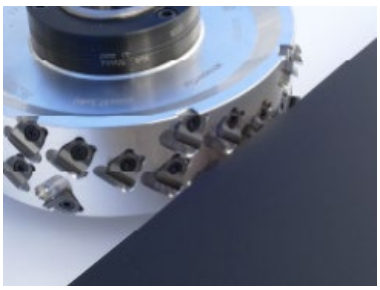
All dimensions available on request

Jointing on table milling machine or throughfeed systems

In order to produce edges free of break-outs on the cover layers of the panel, jointing tools with alternate shear angles should be used. Diamond cutterheads such as Leitz WhisperCut with a shear angle of 30° or WhisperCut EdgeExpert with shear angle of 50° are recommended. The cutting thickness should be as low as possible and not exceed 2 mm.
For good cutting results, it is advantageous to use tools with high concentricity and balance quality which are achieved by using centering adaptors such as hydraulic clamping systems, HSK holders or shrink-fit clamping systems.
Only tools marked “MAN” or “BG-Test” may be used when working with manual feed on table milling machines. Further-more, for safety reasons, the speed range specified on the tool must not be exceeded or fallen short of. The tools for manual feed may only be used when running against the feed.

Tool examples:

DP-jointing cutter WhisperCut



DP-WhisperCut EdgeExpert

DP-jointing cutter with fixed tipping

DP-jointing cutter EdgeExpert

The application parameters of the jointing cutters should be selected so that the tooth feed (f_z) is between 0.4 and 0.6 mm.
The DP-WhisperCut version is recommended for perfect cutting results.

Processing recommendation

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WhisperCut

Dimensions DxSBxBO [mm]	RPM n [min^{-1}]	No. of teeth Z	Feed speed v_f [m/min]	ID, DP WhisperCut		Machine
				LH	RH	
85x43x30	12,000	3	14 - 21	**192209**	**192210**	Ott
100x43x30	12,000	2	9 - 15	**192082**	**192083**	Stefani, Holz Her
100x43x30	12,000	2	9 - 15	**192233**	**192234**	Hebrock, EBM
100x43x30	12,000	3	14 - 21	**192088**	**192088**	Biesse
100x43x30	12,000	3	14 - 21	**090885**	**090886**	Brandt
125x32x30	9,000	3	11 - 17	**192092**	**192093**	IMA
125x43x30	9,000	3	11 - 17	**075627**	**075627**	Homag, Biesse
125x43x30	9,000	3	11 - 17	**192094**	**192095**	IMA

Other dimensions available on request

WhisperCut EdgeExpert

Dimensions DxSBxBO [mm]	RPM n [min^{-1}]	No. of teeth Z	Feed speed v_f [m/min]	ID, DP WhisperCut		Machine
				LH	RH	
125x43x30	12,000	3	11 - 17	**192249**	**192249**	Biesse, Homag
125x63x30	12,000	3	11 - 17	**192250**	**192250**	Biesse
125x43x30	12,000	3	11 - 17	**192251**	**192252**	IMA
125x63x30	12,000	3	11 - 17	**192301**	**192302**	IMA

Other dimensions available on request

Processing recommendation

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Hoggers for throughfeed machines

Diamond compact hoggers, which generate little friction and cutting pressure, are recommended. The Leitz Diamaster DT Premium type mounted on a hydraulic clamping element is particularly suitable for maximum radial and axial runout and excellent machining quality and long tool life. The cutting speed (v_c) is 80 m/s at the usual speed (n) 6000 min^{-1} and diameter (D) 250 mm. The application parameters and the number of teeth of the hoggers should be selected so that the tooth feed (f_z) is between 0.10 - 0.15 mm.

Dimensions DxSBxBO [mm]	RPM n [min^{-1}]	No. of teeth Z	Feed speed v_f [m/min]	ID, DT Premium	
				LH	RH
250x10x60	6,000	24	17 - 23	**190410**	**190411**
250x10x60	6,000	36	24 - 33	**190418**	**190419**
250x10x60	6,000	48	30 - 43	**190426**	**190427**
250x10x60	6,000	60	38 - 55	**190434**	**190435**

Other dimensions available on request

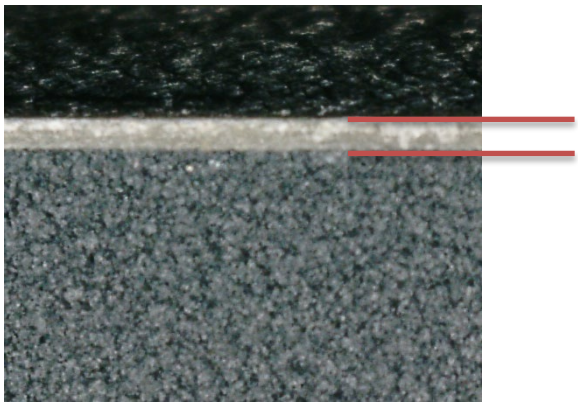
Leitz DT Premium hogger

Edge finishing on edge banding machines

Radii cutters and scrapers on edge banding machines must be set so that the tools do not cause damage to the surface.

Adjustment

Correct adjustment

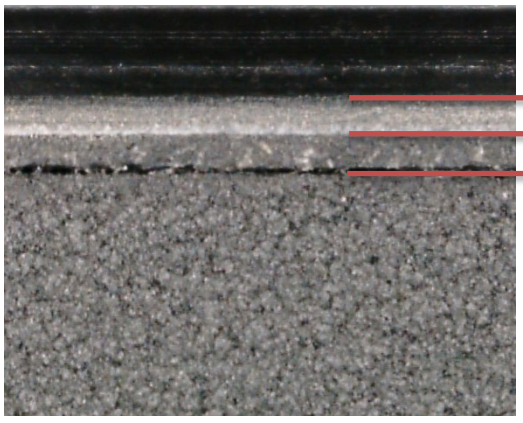


Edge band

Glue

Board

False adjustment – scraper 0.1 mm to deep adjusted



Edge band

Glue

Surface damage –
visual and functional defects

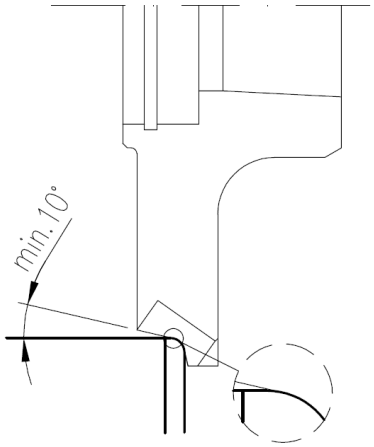
Board

Processing recommendation

EGGER PerfectSense

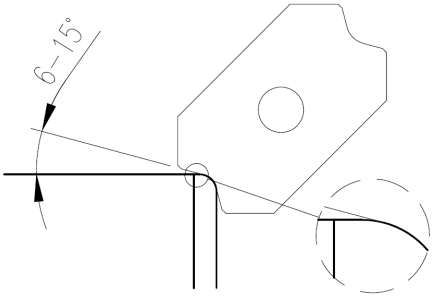
Radii cutter/ bevel cutter

Radii cutters should have a profile relief of at least 10°. The setting of the radii and bevel cutters must be selected so that there is no contact with the surface.



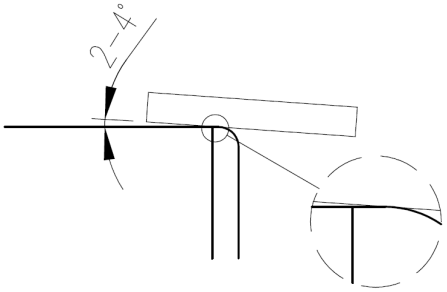
Profile scrapers

Profile scrapers are equipped with a profile relief and can easily be used for finishing the EGGER PerfectSense lacquered boards with exact adjustment. In order to avoid possible damage to the surface, scrapers with a larger profile relief of up to 15 degree are recommended.



Flat scrapers

Flat scrapers should preferably have an inclination of 2-4° from the edge to the plate so as not to touch the surface.



All dimensions available on request

Processing recommendation

EGGER PerfectSense

Groove processing

For groove processing, tools with a high number of teeth should preferably be selected for optimum edge quality. The tooth feed rate (f_z) should be in the range of 0.03 - 0.06 mm when machining with feed (GLL).

Diameter D [mm]	RPM n [min^{-1}]	No. of teeth Z	Feed speed v_f [m/min]
180	6,000	36	7 - 14
200	6,000	48	8 - 16

Other dimensions available on request

CNC Machining Centres

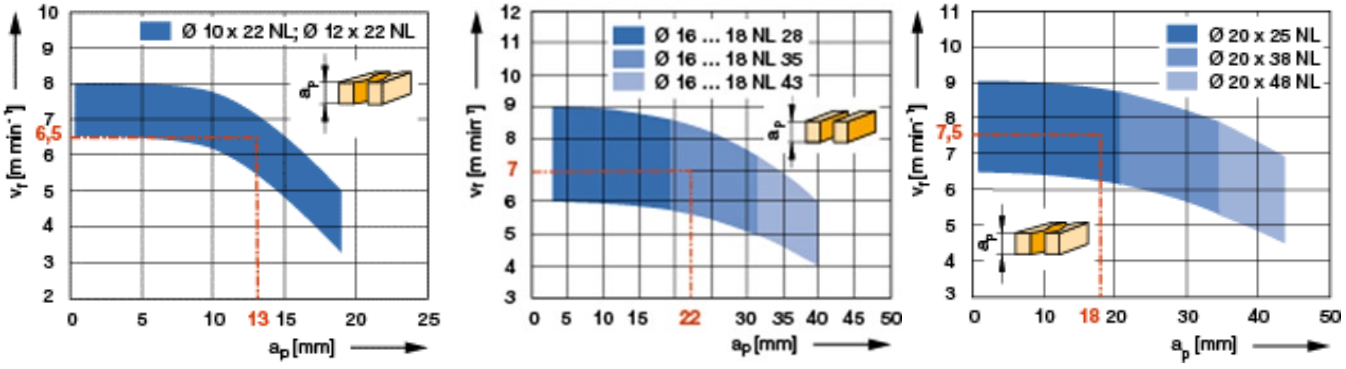
Spiral solid carbide cutters (VHW) or preferably diamond tipped (DP) routers are best suited for machining on router and machining centres.
Good workpiece clamping on the machine must be ensured. We recommend stable and rigid Leitz Thermo-Grip® shrink chucks for maximum concentricity, balance quality and perfect cutting quality. A good machining result can only be achieved with sufficient rigidity of the machine.

Recommended application data:
RPM n = 18.000 - 24.000 min^{-1}

Grooving and sizing

Router cutter Diamaster PRO

Feed rate (v_f) depending on cutting depth a_p:

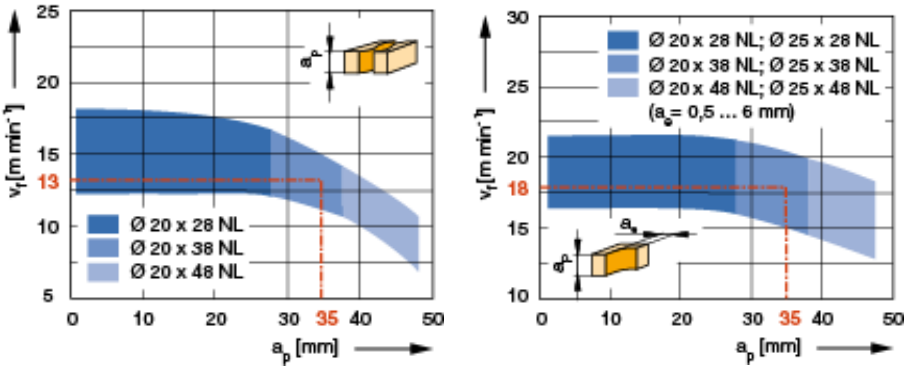


D [mm]	GL [mm]	NL [mm]	S [mm]	ID	
				LH	RH
10	70	22	12x40		**091264**
12	70	22	12x40		**091265**
12	90	28	20x50		**191095**
14	90	28	16x50		**091267**
16	90	28	16x50	**091271**	**091270**
16	100	28	25x60		**091272**
16	115	43	25x60	**091276**	**091275**
18	95	35	20x50		**091278**
18	105	43	20x60	**091281**	**091280**
20	100	28	25x60	**091285**	**091284**
20	95	35	20x60		**091286**
20	115	43	25x60		**091290**
20	120	48	25x60	**091294**	**091293**
20	130	58	25x60		**191041**

Other dimensions available on request

Router cutter Diamaster QUATTRO

Feed rate (v_f) depending on cutting depth a_p:



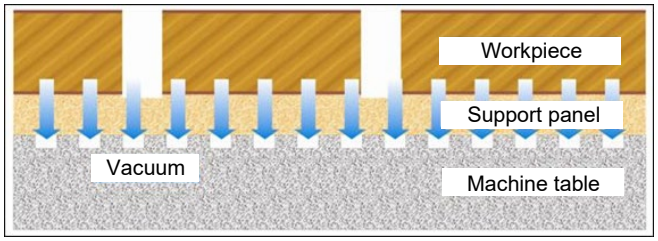
D [mm]	GL [mm]	NL [mm]	S [mm]	ID	
				LH	RH
20	90	28	20x50		**091235**
20	120	48	25x60	**091246**	**091247**
25	110	38	25x60		**091251**
25	120	48	25x60	**091252**	**091253**

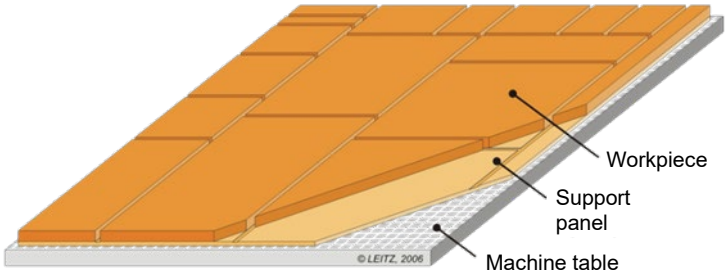
Other dimensions or versions available on request

Splitting using the nesting method

Production process with support panel

The workpiece is clamped as securely as possible on the machine table by means of a vacuum. The workpieces to be processed are usually supported by a thin MDF board, which is used as a “maxi-suction” and support panel for the machine grid table. The depth of the cutting tool is adjusted in order not to protrude the workpiece and cut into the support panel too much (max. 0.3 - 0.5 mm deeper).





Production process with rubber mat

A rubber mat is used as a support through which the workpiece is clamped by means of a vacuum. The cutting tools are set or adjusted to a depth of 0.1 mm protrusion in order not to cut into the rubber too much (max. 0.05 - 0.1 mm deeper). This mat is replaced every 1 - 2 years.

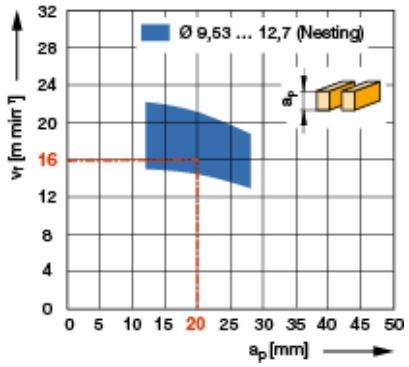
Processing recommendation

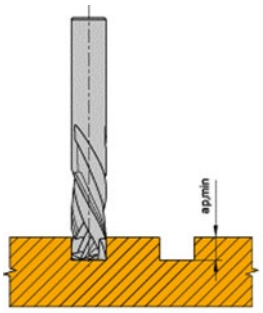
EGGER PerfectSense

Router cutter in Nesting design

Router cutter HW-solid Z 2+2

Feed rate (v_f) depending on the cutting depth a_p:





Minimum groove depth $a_{p\ min}$ for tear-free cut

D [mm]	D [in]	GL [mm]	GL [in]	NL [mm]	NL [in]	S [mm]	S [in]	$a_{p\ min}$ [mm]	DRI	ID
9.53	3/8“	76.2	3“	23	7/8“	9.53x40	3/8“x1 1/2“	5.5	RH	**240518**
9.53	3/8“	76.2	3“	28.6	1 1/8“	9.53x40	3/8“x1 1/2“	7	RH	**240503**
10		75		28		10x40		8	RH	**240530**
12.7	1/2“	76.2	3“	32	1 1/4“	12.7x40	1/2“x1 1/2“	5	RH	**240504**
12.7	1/2“	76.2	3“	32	1 1/4“	12.7x40	1/2“x1 1/2“	6	RH	**240505**
12.7	1/2“	88.9	3 1/2“	34.9	1 3/8“	12.7x40	1/2“x1 1/2“	6	RH	**240506**
12.7	1/2“	101.6	4“	43	1 5/8“	12.7x40	3/8“x1 5/8“	20	RH	**240507**

Other dimensions or versions available on request

Processing recommendation

EGGER PerfectSense

Router cutter Diamaster PRO DP Z 2+2

Feed rate (v_f) depending on the cutting depth a_p:

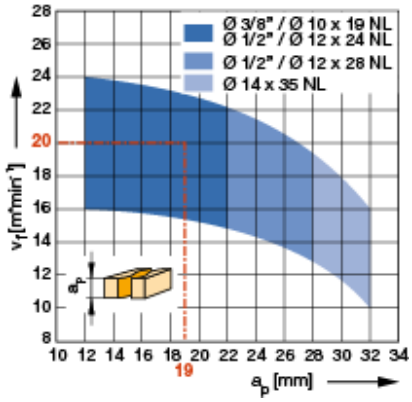


Table of optimal workpiece thicknesses

NL [mm]	Workpiece thickness [mm]	ID
19	9 - 16	**191059**
24	13 - 20 (22)	**191060**
28	19 - 25	**191061**
35	22 - 32	**191101**

Other dimensions or versions available on request

D [mm]	GL [mm]	NL [mm]	S [mm]	DRI	ID
10	65	19	10x40	RH	**191059**
12	70	24	12x42	RH	**191060**
12	75	28	12x42	RH	**191061**
14	90	35	16x50	RH	**191101**

Other dimensions or versions available on request

Router cutter Diamaster PRO³ DP Z 3+3

Feed rate (v_f) depending on the cutting depth a_p:

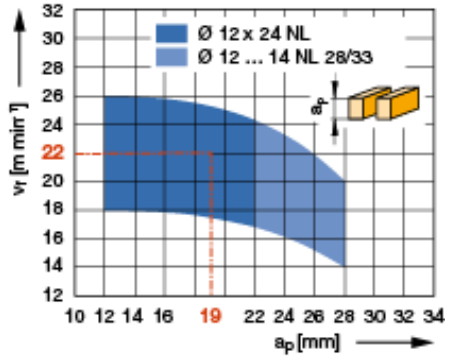


Table of optimal workpiece thicknesses

NL [mm]	Workpiece thickness [mm]	ID
19	9 - 16	**191030**
24	13 - 20 (22)	**191031**
28	19 - 25	**191032**
33	20 - 30	**191033**

D [mm]	GL [mm]	NL [mm]	S [mm]	DRI	ID
12	65	19	12x42	RH	**191030**
12	70	24	12x42	RH	**191031**
12	75	28	12x42	RH	**191032**
14	90	33	16x50	RH	**191033**

Other dimensions or versions available on request

In order to find an optimal tool selection in connection with the machine, material and machining parameters, a consultation or recommendation from a Leitz application engineer is recommended.

Boring

For boring, carbide-tipped or solid carbide (VHW) twist drills, dowel drills and hinge boring bits are recommended. On CNC machining centres, it is recommended to use the hinge boring bits in the main spindle instead of in the drilling beam due to higher stability.

For all applications, the following tools can be used according to the tables below:

Dowel drill

RPM n [min^{-1}]	3,000 - 6,000
Feed speed v_f [m/min]	0.5 - 2.0

Dowel drills HW-solid – *Excellent*

D [mm]	GL [mm]	L [mm]	NL [mm]	S [mm]	ID	
					LH	RH
3	70	68.5	16	10x45	**033550**	**033551**
5	70	68.5	35	10x27	**033496**	**033497**
8	70	68.5	35	10x27	**033500**	**033501**
10	70	68	35	10x27	**033540**	**033541**

Other dimensions available on request

Dowel drills HW-tipped – *Premium*

D [mm]	GL [mm]	L [mm]	NL [mm]	S [mm]	ID	
					LH	RH
5	70	68.5	35	10x30	**033484**	**033485**
5.1	70	68.5	35	10x30	**033492**	**033493**
8	70	68.5	35	10x30	**033488**	**033489**
10	70	68.5	35	10x30	**033490**	**033491**

Other dimensions available on request

Through-hole boring bit

RPM n [min^{-1}]	3,000 - 6,000
Feed speed v_f [m/min]	0.5 - 1,5

Through-hole drills HW-solid – Excellent

D [mm]	GL [mm]	NL [mm]	S [mm]	ID	
				LH	RH
5	70	35	10x27	**034100**	**034101**
8	70	35	10x25	**034104**	**034105**
10	70	35	10x22	**034114**	**034115**

Through-hole drills HW-tipped – *Premium*

D [mm]	GL [mm]	NL [mm]	S [mm]	ID	
				LH	RH
5	70	35	10x25	**033964**	**033965**
8	70	35	10x25	**033966**	**033967**

Other dimensions available on request

Hinge boring bit

RPM n [min^{-1}]	3,000 - 6,000
Feed speed v_f [m/min]	0.5 - 1.5

Hinge boring bits HW-solid

D [mm]	GL [mm]	L [mm]	S [mm]	ID	
				LH	RH
15	70	68	10x26	**034812**	**034813**
20	70	68	10x26	**034814**	**034815**
25	70	68	10x26	**034816**	**034817**
30	70	68	10x26	**034820**	**034821**
35	70	68	10x26	**034822**	**034823**

Other dimensions available on request

Hinge boring bit HW-solid with the bevel

D [mm]	GL [mm]	L [mm]	S [mm]	ID	
				LH	RH
15	70	68	10x26	**130073401**	**130073400**
20	70	68	10x26	**130073403**	**130073402**
25	70	68	10x26	**130073405**	**130073404**
30	70	68	10x26	**130073409**	**130073408**
35	70	68	10x26	**130073411**	**130073410**

Other dimensions available on request

Performance times

Tool performance times are influenced by a variety of factors, so that no performance time statements or rights can be derived within the scope of this machining guideline. The information on the tools and machining parameters are recommended guide values. Machine or process constellations can lead to deviating parameters. An optimal adaptation of machine, tool and material as well as customer-specific requirements can only be carried out on site together with a Leitz application engineer. Due to the high quality requirements and special finish quality of the EGGER PerfectSense lacquered boards, a shortening of the tool life compared to conventionally coated panels from EGGER is expected with reference to the influencing factors mentioned above.

Processing recommendation

EGGER PerfectSense

Explanation of abbreviations

A	=	dimension A
a_e	=	cutting thickness (radial)
a_p	=	cutting depth (axial)
ABM	=	dimension
APL	=	panel raising length
APT	=	panel raising depth
AL	=	working length
AM	=	number of knives
AS	=	anti sound (low noise design)
b	=	overhang
B	=	width
BDD	=	thickness of shoulder
BEM	=	note
BEZ	=	description
BH	=	tipping height
BO	=	bore diameter
CNC	=	Computerized Numerical Control
d	=	diameter
D	=	cutting circle diameter
D0	=	zero diameter
DA	=	outside Diameter
DB	=	diameter of shoulder
DFC	=	Dust Flow Control (optimised chip clearance)
DGL	=	number of links
DIK	=	thickness
DKN	=	double keyway
DP	=	polycrystalline diamond
DRI	=	rotation
FAB	=	width of rebate
FAT	=	depth of rebate
FAW	=	bevel angle
FLD	=	flange diameter
f_z	=	tooth feed
$f_{z\,eff}$	=	effective tooth feed
GEW	=	thread
GL	=	total length
GS	=	Plunging edge
H	=	height
HC	=	tungsten carbide, coated
HD	=	wood thickness (thickness of workpiece)
HL	=	high-alloyed tool steel
HS	=	high-speed steel (HSS)
HW	=	tungsten carbide (TCT)
ID	=	ident number
IV	=	insulation glazing
KBZ	=	abbreviation
KLH	=	clamping height
KM	=	edge breaker
KN	=	single keyway
KNL	=	combination pinhole consists of 2/7/42 2/9/46,35 2/10/60
L	=	length
l	=	clamping length
LD	=	left hand twist
LEN	=	Leitz standard profiles
LH	=	left hand rotation
M	=	metric thread
MBM	=	minimum order quantity
MC	=	multi-purpose steel, coated
MD	=	thickness of knife
min^{-1}	=	revolutions per minute (RPM)
MK	=	morse taper
m min^{-1}	=	metres per minute
m s^{-1}	=	metres per second
n	=	RPM
$n_{max.}$	=	maximum permissible RPM
NAL	=	position of hub
ND	=	thickness of hub
NH	=	zero height
NL	=	cutting length
NLA	=	pinhole dimensions
NT	=	grooving depth
P	=	profile
POS	=	cutter position
PT	=	profile depth
PG	=	profile group
QAL	=	cutting material quality
R	=	radius
RD	=	right hand twist
RH	=	right hand rotation
RP	=	radius of cutter
S	=	shank dimension
SB	=	cutting width
SET	=	set
SLB	=	slotting width
SLL	=	slotting length
SLT	=	slotting depth
SP	=	tool steel
ST	=	Cobalt-basis cast alloys, e.g. Stellit®
STO	=	shank tolerance
SW	=	cutting angle
TD	=	diameter of tool body
TDI	=	thickness of tool
TG	=	pitch
TK	=	reference diameter
UT	=	cutting edges with irregular pitch
V	=	number of spurs
v_c	=	cutting speed
v_f	=	feed speed
VE	=	packing unit
VSB	=	adjustment range
WSS	=	workpiece material
Z	=	number of teeth
ZA	=	number of fingers
ZF	=	tooth shape (cutting edge shape)
ZL	=	finger length

In the present machining recommendation, corresponding parameters for the optimum machining of the designated materials are presented. The information on tools and machining parameters are standard values without any claim to completeness and general validity. Machine-related or process-related boundary conditions can lead to deviating application parameters. In individual cases, individual adjustments may be necessary. In particular, the respective manufacturer's specifications regarding the intended use of the machine, tools and material must be observed. No rights can be derived from this machining recommendation. For the solution of complex tasks, please contact our technical consultant.

The information is based on the current state of the art and was compiled with special care and in accordance to the best of our knowledge. Through continuous technical development and new standards and laws, technical changes can be made.