Planing and profiling

Leitz Lexicon Edition 7 | Version 2 | 02/2025

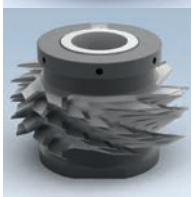
Explanation of abbreviations

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

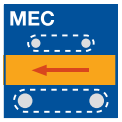
Notes to the Lexicon concerning the diagrams and tables

The statements made in the diagrams and tables relate to specific conditions and represent parameters from tests subjected to defined conditions. Variations when using tools in individual case due to special application conditions may be possible. Our support team will provide you with detailed information.

3. Planing and profiling



Application

Surface-cutting, thicknessing and width planing of workpieces of any length on surface planing machines and planing machines. The workpieces are first planed to get a reference surface. In the second operation they are planed to thickness (dimension) and possibly jointed to get a right angle as second reference surface.

Workpiece material

Softwood and hardwood, dry and wet, chip and fibreboards (e.g. chipboard, MDF), insulating materials, plastics.

Machines

Surface planing and thicknessing machines.

Mounting of long planerheads

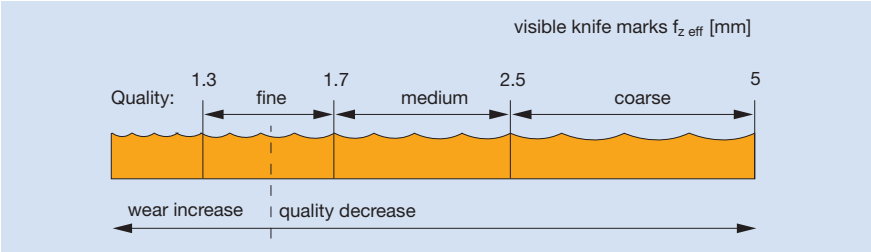
Long planerheads have integrated ball bearings and drive pulleys.

Recommended cutting materials

	HS	Marathon (MC)	HW
Softwood dry	♦	♦	♦
Softwood wet	◇	♦	
Hardwood dry	◇	♦	♦
Hardwood wet	◇	♦	
Plywood		◇	♦
Chipboard			♦
MDF			◇
WPC (Wood-Plastic-Composite)	◇	♦	♦

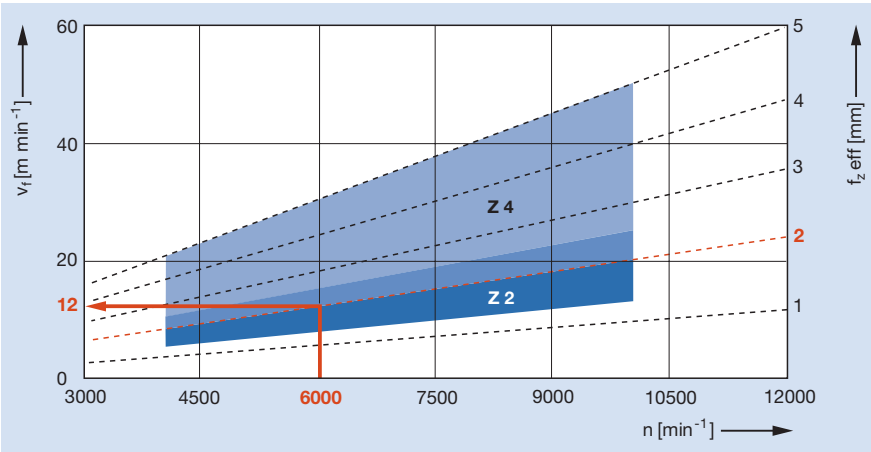
♦ suitable ◇ partly suitable

Feed speed



The feed speed is determined by the required surface quality.
Relation between the surface quality and length of knife marks $f_{z\,eff}$.

Diagram to determine the feed speed v_f depending on RPM n and knife marks $f_{z\,eff}$ for different number of teeth Z*

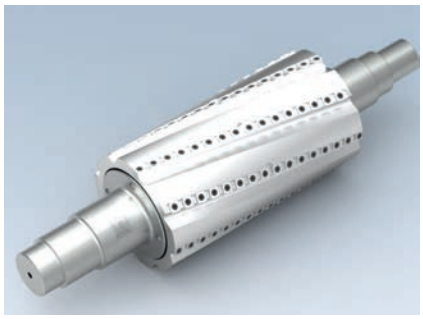


* Even on tools with several wings, only the marks of one knife show on the workpiece surface (one-knife finish).
Z 2 and Z 4 tools produce the same surface quality under identical machining conditions. (see technical information and charts in section User Manual).

Long planerheads, construction type


Technical information	Centrofix Plus - long planerhead made of steel. Turnblade system with formfitting centrifugal clamping. Turnblades with integrated chipbreaker for clean finish also in difficult wood types. Fast, precise knife changes with no adjustment.
Cutting material	HW, HS, MC.
Application	For planing softwood, hardwood, insulating materials, plastics.


Technical information	VariPlan - long planerhead made of steel. Resharpenable and constant diameter turnblade system. Self-positioning and centrifugal force supporting knife clamping for easy handling.
Cutting material	HW, HS.
Application	For planing of softwood, hardwood, insulating material, plastics.

Technical information	HeliPlan/HeliCut - long planerhead made of steel. Turnblades can be turned four times. Low noise and energy efficient through spiral and segmented knife arrangement.
Cutting material	HW.
Application	For planing of softwood and hardwood, insulating material, plastics.

Enquiry/order form special tools – surface planing – thicknessing

Customer details: Customer number: (if known) | ☐ Enquiry ☐ Order | Delivery date: (not binding) | CW

Company:

Street: | Date:

Post code/place: | Enquiry/order no.:

Country: | Tool ID: (if known)

Phone/fax: | No. of pieces:

Contact person:

Signature:

Workpiece material:

Type:

☐ Solid wood: Type:
☐ Wood derived material: Type:
☐ Others Type:

Moisture content: %
Density: g/cm³
Additional information:

Machine:

Manufacturer:
Type:
Model:

Spindle sequence (in feeding direction) e.g. 1 bottom, 2 right hand, 3 left hand, 4 top, 5 multi-purpose.

Motor:	Power:	RPM:	Spindle dimensions:	Add. information:
1	kW (HP)	min^{-1}	mm	
2	kW (HP)	min^{-1}	mm	
3	kW (HP)	min^{-1}	mm	
4	kW (HP)	min^{-1}	mm	
5	kW (HP)	min^{-1}	mm	

Tool:

Tool type (see selection):
Dimension:
Diameter: mm
Cutting width: mm
Bore: mm
No. of teeth:

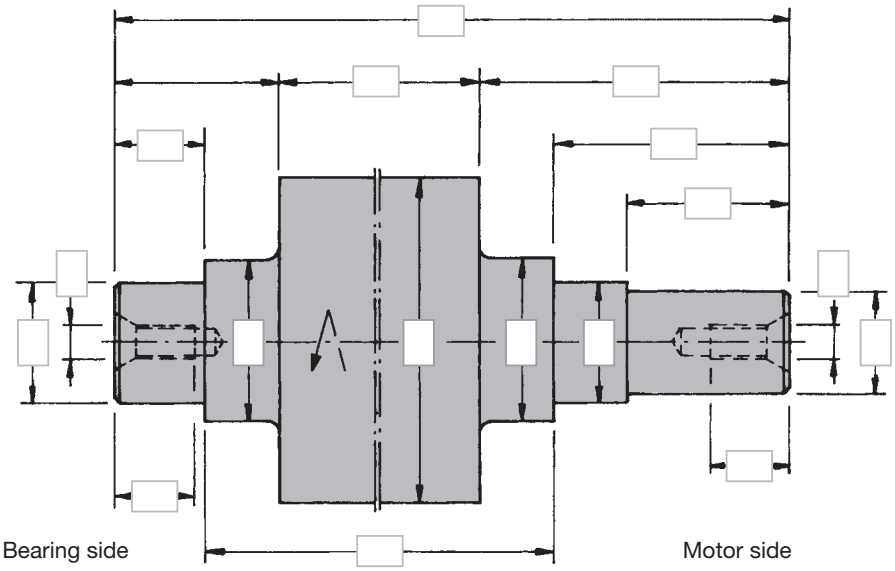
Cutting material:
☐ HL (HLS)
☐ HS (HSS)
☐ HW (HM)
☐ ST

Direction of rotation:
☐ left hand
☐ right hand

Please state existing data on tool, machine and workpiece material.

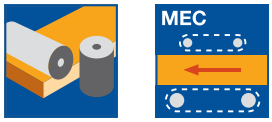
Dimensions for long planerheads

(Enter dimensions on drawing or graph)



Sketch for application, special motor spindle etc., side of table to workpiece and fence.

Working process



Planing is the first step after cutting the workpiece to size. It prepares workpiece surfaces and machines a datum surface for accurate workpiece processing.
Pre-planing is recommended prior to profiling on four-sided moulders and multi spindle moulding machines.
Pre-planing and reference heads can be combined on the same spindle to guide the timber through the machine.

Workpiece materials

Softwood and hardwood, dry or wet
Chipboard and wood fibre materials (MDF etc.).

Machines

Four-sided moulders and multi spindle moulding machines.

Tool clamping

Mounted directly on the machine spindle, retained by spindle nut.

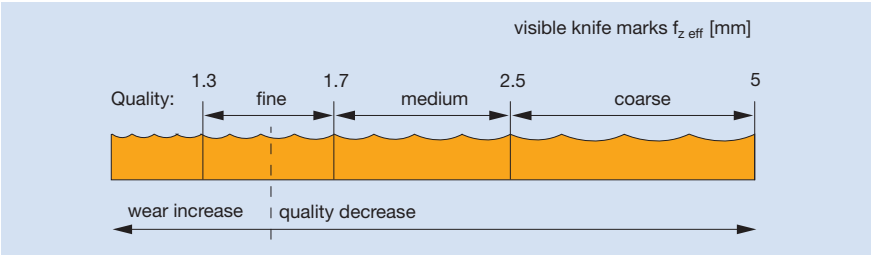
Recommended cutting material

	HS	Marathon (MC)	HW
Softwood dry	♦	♦	♦
Softwood wet	◇	♦	
Hardwood dry	◇	♦	♦
Hardwood wet	◇	♦	
Plywood		◇	♦
Chipboard			♦
MDF			◇
WPC (Wood-Plastic-Composite)	◇	♦	♦

♦ suitable ◇ partly suitable

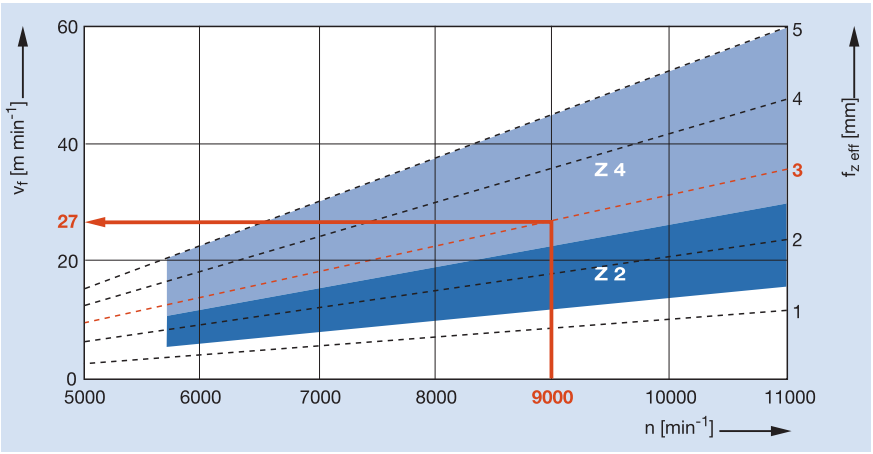
Feed speed

The feed speed is determined by the required surface quality.
Relation between the surface quality and length of knife marks $f_{z\ eff}$.



The feed speed is determined according to the quality requirements which can be measured by the produced cuttermarks.
The diagram shows the relation between surface quality and length of knife marks $f_{z\ eff}$.

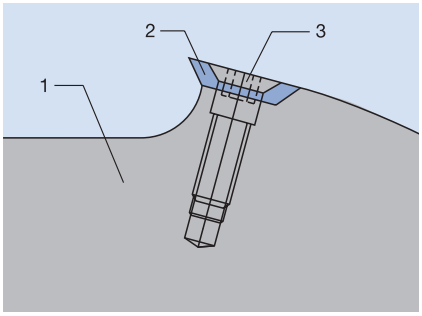
Planerhead
Z 2 and Z 4



Even on tools with several wings, only the marks of one knife show on the workpiece surface (one-knife finish).
Z 2 and Z 4 tools produce the same surface quality under identical machining conditions (see technical information and charts in section User Manual).

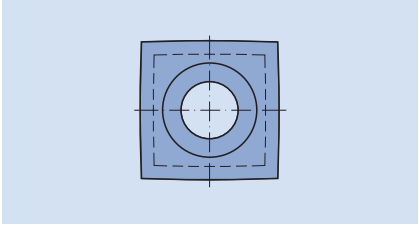
Planerhead HeliPlan

Application	Planing, pre-planing.
Machines	Four-sided moulders and profiling machines or machines with HSK 85 WS interface.
Workpiece material	Softwood and hardwood.
No. of teeth/tool life	2/2 staggered, each HW turnblade knife has 4 lives.
Cutting material	HW.
Chip removal	Softwood: up to 15.0 mm. Hardwood: up to 10.0 mm.
Tool design	Aluminium or steel tool body with spiral, staggered single cutting edges, mounted on the tool body periphery.
Technical features	HW turnblade knives with 4 curved cutting edges.

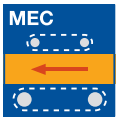


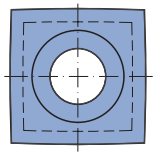
1) Tool body of steel or aluminium
2) Knives
3) Clamping screw

Special advantages	– Minimum breakout. – Noise reduction (up to 10 dB(A)). – The staggered cut reduces both the cutting force and feed pressure. – Turnblade knives have four cutting edges (four lives).
Note	– Barely visible marks in the overlap area; minimal waviness. – As HeliPlan has a staggered cut of individual cutting edges, the tool has limited suitability for producing finished surfaces. Finish planing or profiling may be necessary depending on the quality requirement. – Tool body surface hardening advisable for abrasive workpiece materials. – Use in combination with reference cutterhead WW 410 2 (see page 11) on the first bottom spindle of moulding machines.

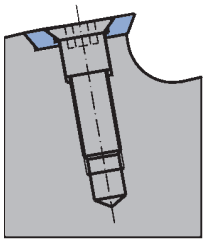


HW turnblade knife with 4 cutting edges.





HW turnblade knife



Knives mounted on periphery

Planerhead HeliPlan with 4 edge HW turnblade knives

Application:
Pre-planing, surfacing and jointing all types of wood with large chip removal. Also suitable for finish planing if quality demands are less important or in combination with subsequent sanding.

Machine:
Four-sided moulders.

Workpiece material:
Softwood and hardwood.

Technical information:
Pre-planing cutterhead with 4 edge HW turnblade knives. Low noise and energy efficient due to spiral, segmented edge arrangement. Smooth finish by radiused cutting edges. Aluminium tool body. Optional with steel reference cutterhead for machines with fence.

Aluminium tool body, with bore
WW 220 2 01

D mm	SB mm	ND mm	BO mm	Z	AM PCS	n_{max} min^{-1}	ID
125	130	136	40	2/2	22	12000	**030423** ●
125	166	172	40	2/2	28	12000	**030467** ●
125	210	216	40	2/2	36	12000	**030452**
125	236	242	40	2/2	40	12000	**030466** ●
125	256	262	40	2/2	44	12000	**030470** ●
140	166	172	50	2/2	28	12000	**030468**
140	236	242	50	2/2	40	12000	**030469**

Design with HW cutting edges.
Further dimensions and inch dimensions available on request.
Suitable reference cutterheads on page 11.

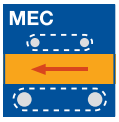
Spare knives:

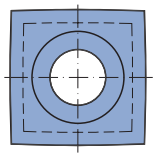
BEZ	ABM mm	QAL	VE PCS	ID
Turnblade knife	15x15x2,5	HW	10	**009535** ●
Turnblade knife	15x15x2,5	TDC		**602901** ●

Spare parts:

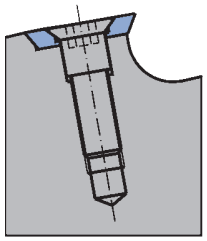
BEZ	ABM mm	ID
Countersink screw, Torx® 20	M5x14.2-8.8	**007394** ●
Torx® key	Torx® 20	**006091** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

HW turnblade knife



Knives mounted on periphery

Planerhead HeliPlan with 4 edge HW turnblade knives

Application:
Pre-planing, surfacing and jointing all types of wood with large chip removal. Also suitable for finish planing if quality demands are less important or in combination with subsequent sanding.

Machine:
Four-sided moulders with HSK 85 WS interfaces.

Workpiece material:
Softwood and hardwood.

Technical information:
Pre-planing cutterhead with 4 edge HW turnblade knives. Low noise and energy efficient due to spiral, segmented edge arrangement. Smooth finish through radiused cutting edges. Aluminium tool body. Tool and HSK are shrink-fit together. Optional steel reference cutterhead for machines with fence.

Aluminium tool body, with HSK 85 WS
WL 210 2 02

D mm	SB mm	A mm	Z	AM STK	n_{max} min^{-1}	ID bottom	ID top
125	130	26	2/2	22	12000	**132000** □	**132001** □
125	166	26	2/2	28	12000	**132022** □	**132023** □
125	210	26	2/2	36	12000	**132008**	**132009**
125	236	26	2/2	40	12000	**132024** □	**132025** □
125	270	26	2/2	46	8000	**132012**	**132013**
125	310	26	2/2	54	8000	**132014** ●	**132015** ●

Aluminium tool body, HSK 85 WS with reference cutterhead
WL 403 2 02

D mm	SB mm	A mm	Z	V	AM PCS	n_{max} min^{-1}	DRI	ID
125	236	26	2/2	2	40	12000	bottom	**132066** □
125	310	26	2/2	2	54	8000	bottom	**132065** □

Design with HW cutting edges.
Further dimensions and inch dimensions available on request.

Spare knives:

BEZ	ABM mm	QAL	VE PCS	ID
Turnblade knife	15x15x2,5	HW	10	**009535** ●
Turnblade knife	15x15x2,5	TDC		**602901** ●

Spare parts:

BEZ	ABM mm	ID
Countersink screw, Torx® 20	M5x14.2-8.8	**007394** ●
Torx® key	Torx® 20	**006091** ●

● available ex stock
□ available at short notice
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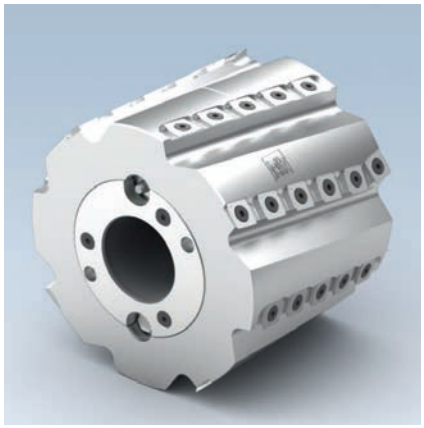
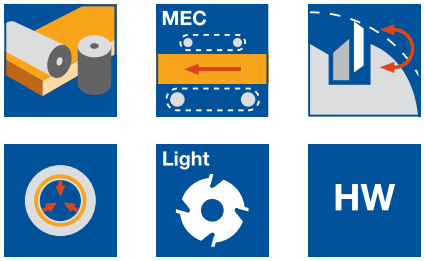
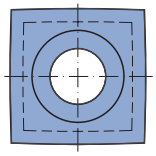
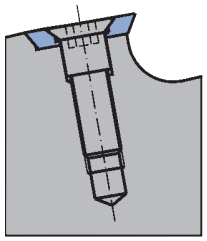


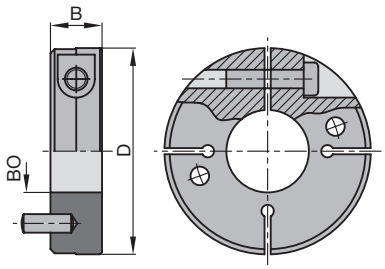




HW turnblade knife



Knives mounted on periphery



Clamping collar without thread

Hydro Planerhead HeliPlan

Application:
Pre-planing, surface cutting of all types of wood with large chip removal. Finish cutting of gluable surfaces and workpieces with secondary quality demands.

Machine:
Four-sided moulders and profile machines.

Workpiece material:
Softwood and hardwood.

Technical information:
Pre-planing cutterhead with 4-time HW turnblades. Low noise and energy efficient through spiral, segmented edge arrangement. Plane surfaces through radiused cutting edges. Tool bodies of lightweight aluminium with integrated hydro clamping system. Activated by a grease gun.

Aluminium tool body
HW 230-2

D mm	SB mm	BO mm	Z	n_{max} min^{-1}	ID
160	150	50	4/4	11000	**132200**
160	180	50	4/4	11000	**132201**
160	200	50	4/4	11000	**132202**
160	230	50	4/4	11000	**132203**
160	310	50	4/4	11000	**132204**
200	150	50	6/6	8000	**132205**
200	180	50	6/6	8000	**132206**
200	200	50	6/6	8000	**132207**
200	230	50	6/6	8000	**132208**
200	310	50	6/6	8000	**132209**
250	150	50	8/8	6900	**132210**
250	180	50	8/8	6900	**132211**
250	200	50	8/8	6900	**132212**
250	230	50	8/8	6900	**132213**
250	310	50	8/8	6900	**132214**

Design in steel/lightweight aluminium on request. This version combines the advantages of a light weight tool and a wear resistant knife seating and gullet area.

Spare knives:

BEZ	ABM mm	QAL	VE PCS	ID
Turnblade knife	15x15x2,5	HW	10	**009535** ●
Turnblade knife	15x15x2,5	TDC		**602901** ●

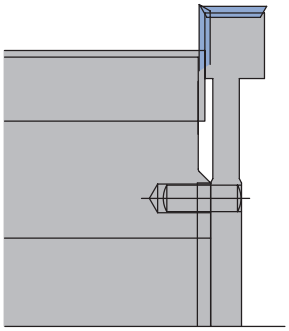
Spare parts:

BEZ	ABM mm	ID
Countersink screw, Torx® 20	M5x14.2-8.8	**007394** ●
Torx® key	Torx® 20	**006091** ●

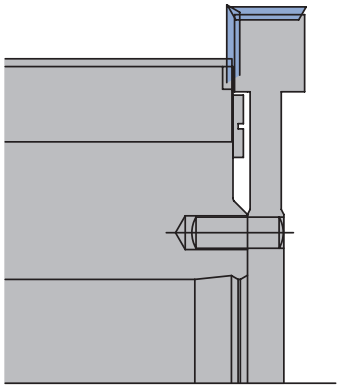
Clamping collars without thread
TD 870 0

D mm	B mm	BO mm	ID
100	25	40	**030700** ●
100	25	50	**030702** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org



Combination with wedge-type system, build up system and CentroStar.
For planerheads without boss, mounted with spacers.



Combination with HeliPlan and VariPlan Plus cutterhead. Mounting without spacer.

Reference cutterhead

Application:
For cutting a side reference rebate when surface planing on the first bottom spindle in combination with a planer cutterhead.

Machine:
Four-sided moulders with fence.

Workpiece material:
Softwood and hardwood.

Technical information:
Steel tool body with HW turnblade knives, can be combined with pre-planing and finish planing cutterheads on the first bottom spindle.
D 145 for planerheads D 125.
D 160 for planerheads D 140.

For wedge-type system, build-up system, CentroStar
WW 410 2

D mm	SB mm	BO mm	Z	V	QAL	n_{max} min^{-1}	ID
145	15	40	2	2	HW	12000	**132077** ●
160	15	50	2	2	HW	11000	**132078** ●

For HeliPlan, VariPlan Plus
WW 410 2

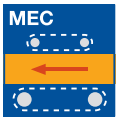
D mm	SB mm	BO mm	Z	V	QAL	n_{max} min^{-1}	ID
145	15	40	2	2	HW	12000	**132075** ●
160	15	50	2	2	HW	11000	**132076** ●

Spare knives:

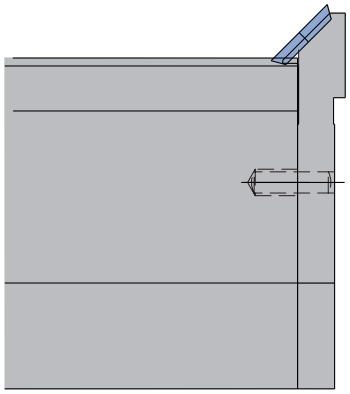
BEZ	ABM mm	QAL	VE PCS	ID
Turnblade knife	15x15x2,5	HW	10	**009535** ●

Spare parts:

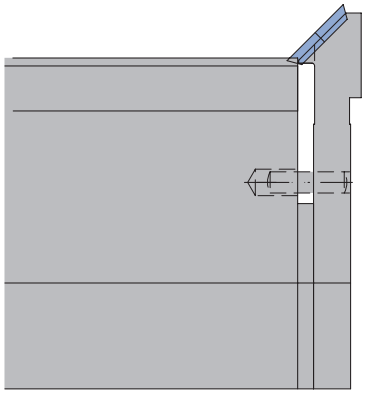
BEZ	ABM mm	ID
Spacer	70x3x40,DTK58	**028617** ●
Countersink screw, Torx® 20	M5x14.2-8.8	**007394** ●
Pin	6x20	**008617** ●



HW



Combination with VariPlan, HeliPlan, CentroStar



Combination with planerhead wedge-type system and Weinig CentroLock

Bevel cutterhead

Application:
Bevelling (45°) of wood in combination with planing cutterheads on a spindle.

Machine:
Four-sided moulders and profiling machines.

Workpiece material:
Softwood and hardwood.

Technical information:
Steel tool body with HW turnblade knives. Can be combined with pre-planing and finish planing cutterheads with Ø 125 mm. For the combination with planing cutterheads with wedge-type system and Winig CentroLock planing cutterheads the spacer ID **28617** is necessary.

Bevel cutterhead for combination with HeliPlan, VariPlan, CentroStar, wedge-type system
WW 300 2

D mm	SB mm	BO mm	Z	ID LH	ID RH
145	10,6	40	4	**132090** ●	**132091** ●

Bevel cutterhead for combination with CentroLock
WW 300 2

D mm	SB mm	BO mm	Z	ID LH	ID RH
145	10,6	40	4	**132092** □	**132093** □

Planing cutterheads with HSK 85 WS interface and bevel cutterheads are available at short notice on request.

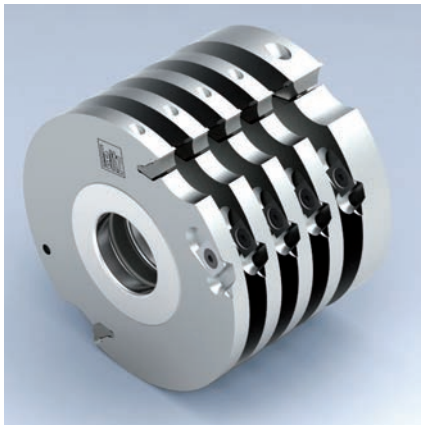
Spare knives:

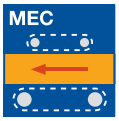
BEZ	ABM mm	QAL	VE PCS	ID
Turnblade knife	15x15x2,5	HW	10	**009535** ●

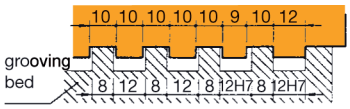
Spare parts:

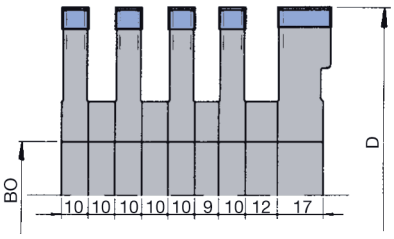
BEZ	ABM mm	ID
Spacer	70x3x40,DTK58	**028617** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org









Number of tools for different widths

SB mm	working width mm				
	80	100	120	140	170
SB 20	1	1	1	1	1
SB 10	3	4	5	6	8

Cutterhead for groove bed guide

Application:
For guide grooves on the first bottom spindle for precise feeding of short parts or curved workpieces.

Machine:
Four-sided moulders with groove beds.

Workpiece material:
Softwood and hardwood, along grain.

Technical information:
Build up turnblade knife tool system, diameter and cutting width constant. The closed, round design of the tool body reduces the noise level.

HW turnblade design
WW 101 2, WW 102 2

D mm	SB mm	BO mm	BO_{max} mm	Z	V	n_{max} min^{-1}	ID
125	20	40	50	2	2	13700	**125729** ●
125	10	40	50	2	2	13700	**020390** ●
140	20	40	50	2	2	12200	**125730** ●
140	10	40	50	2	2	12200	**020388** ●

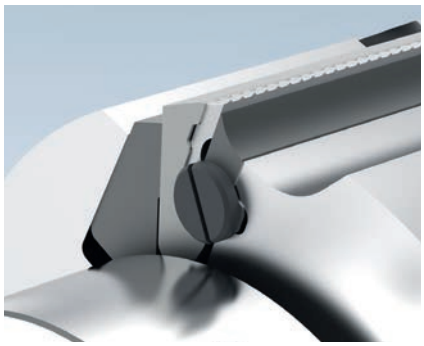
Spare knives:

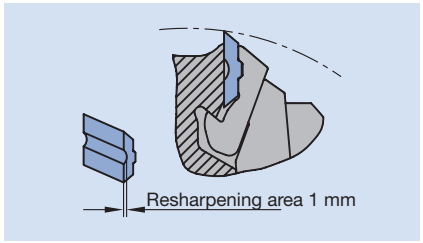
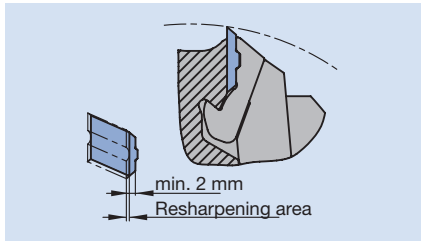
BEZ	ABM mm	QAL	VE PCS	ID
Turnblade knife Marathon	19,7x8x1,5	HW-30F MC	10	**601604** ●
Turnblade knife	9,7x8x1,5	HW-30F	10	**005197** ●
Turnblade spur VS1	14x14x2	HW-F	10	**005099** ●

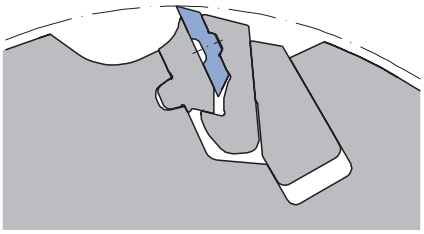
Spare parts:

BEZ	ABM mm	ID
Spacer	60x0,1x40	**027941** ●
Spacer	60x0,3x40	**027942** ●
Spacer	60x9x40	**028449** ●
Spacer	60x10x40	**027951** ●
Clamping wedge	18x18,75x8,27	**630204** ●
Clamping wedge	9x18,75x8,27	**009764** ●
Clamping screw w. disc, Torx® 20	M5x18.5	**007446** ●
Allen screw with shank, Torx® 15	M5x20	**007380** ●
Countersink screw, Torx® 20	M6x0.5x4.9	**006243** ●
Torx® key	Torx® 15	**117507** ●
Torx® key	Torx® 20	**117503** ●
Setting gauge for knives	0,3/0,8	**005374** ●

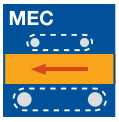
Planing cutterhead VariPlan Plus



Application	Pre and finish planing of all types of wood.
Machines	Four-sided and multi spindle moulders, also with HSK 85 WS interface.
Workpiece material	Softwood and hardwood, plastics (limited suitable).
Number of knives	Z 2 to Z 12 depending on the feed speed and the tool diameter.
Resharpening area	 
Cutting material	HS for softwood. HW for hardwood, mixed use of softwood and hardwood or laminated wood with glued joint.
Chip removal	Pre-planing: Softwood up to 10 mm, hardwood up to 8 mm. Finish planing up to 1.0 mm.
Tool design	Resharpenable and constant diameter tool system with turnblade planer knives. Aluminium body, wear resistant steel chip breaker. Centrifugal force assisted, self-centering knife clamping system.
Technical characteristics	Operational safety through full form knife clamping. Fast knife change through self-positioning knife clamping. Knife clamping in the dust-protected area. One sharpening operation, therefore 2 extra tool lives by turnblade knife. VariPlan Plus basic body for 3 knife variants: Microfinish, RipTec and Integral turnblade knives. VariPlan Plus Planerheads for machines with HSK 85 WS interface are mounted on HSK 85 WS arbor. Combination with pre surfacing/rebating cutterhead possible.



Aluminium tool body with steel chip breaker.



Planerhead CentroPlan Integral

Application:
For pre-planing on machines with two processing spindles. For pre- and finish planing on one processing spindle.

Machine:
Four-side planing and profiling moulders.

Workpiece material:
Softwood and hardwood with knots and fibre structure difficult to machine.

Technical information:
Centrifugal-supported and form-fitting knife clamping system with turnblades. Light metal tool body. Tool with two CentroPlan ripple knives and two straight CentroPlan planing knives. Unequally pitched cutting arrangement for optimum chip formation.

Planerhead with borehole
WW 240 2 37

D mm	SB mm	ND mm	BO mm	QAL	Z	n_{max} min^{-1}	ID
125	130	136	40	HW	2+2	12000	**134700** ●
125	166	172	40	HW	2+2	12000	**134701** ●
125	236	242	40	HW	2+2	12000	**134702** ●

Planerhead with HSK 85 WS
WP 240 2 37

D mm	SB mm	QAL	Z	n_{max} min^{-1}	ID LH	ID RH
125	130	HW	2+2	12000	**134750** □	**134751** □
125	166	HW	2+2	12000	**134752** □	**134753** □
125	236	HW	2+2	12000	**134754** □	**134755** □

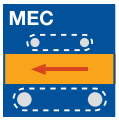
Planerhead with HSK 85 WS with reference cutterhead
WP 240 2 39

D mm	SB mm	QAL	Z	n_{max} min^{-1}	DRI	ID
125	236	HW	2+2	12000	LH	**134790** □

Spare knives:

BEZ	SB mm	H mm	DIK mm	QAL	SET PCS	ID
Turnblade knife set CentroPlan	130	13	2,6	HW	2	**617606** ●
Turnblade knife set CentroPlan	166	13	2,6	HW	2	**617671** ●
Turnblade knife set CentroPlan	236	13	2,6	HW	2	**617669** ●
Turnblade knife set CentroPlan - RipTec	130	13	2,6	HW	2	**617706** ●
Turnblade knife set CentroPlan - RipTec	166	13	2,6	HW	2	**617771** ●
Turnblade knife set CentroPlan - RipTec	236	13	2,6	HW	2	**617769** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org



Planerhead CentroPlan

Application:
For pre-planing and finish planing.

Machine:
Four-side planing and profiling moulders.

Workpiece material:
Softwood and hardwood.

Technical information:
Centrifugal-supported and form-fitting knife clamping system with turnblades. Axial or radial knife removal. Light metal tool body.

Planerhead with borehole
WW 240 2 36

D mm	SB mm	ND mm	BO mm	QAL	Z	n_{max} min^{-1}	ID
125	130	136	40	HW	2	12000	**130750** ●
125	150	126	40	HW	2	12000	**130753**
125	166	172	40	HW	2	12000	**130751** ●
125	180	186	40	HW	2	12000	**130754**
125	210	216	40	HW	2	12000	**130755** ●
125	236	242	40	HW	2	12000	**130752** ●
125	270	276	40	HW	2	12000	**130756**
125	130	136	40	HW	4	12000	**130700** ●
125	150	156	40	HW	4	12000	**130703**
125	166	172	40	HW	4	12000	**130701** ●
125	180	186	40	HW	4	12000	**130704**
125	210	216	40	HW	4	12000	**130705**
125	236	242	40	HW	4	12000	**130702** ●
125	270	276	40	HW	4	12000	**130706**

Planerhead with HSK 85 WS
WP 240 2 36

D mm	SB mm	QAL	Z	n_{max} min^{-1}	ID LH / bottom	ID RH / top
125	130	HW	2	12000	**130850** □	**130851** □
125	150	HW	2	12000	**130856**	**130857**
125	166	HW	2	12000	**130852** □	**130853** □
125	180	HW	2	12000	**130858**	**130859**
125	210	HW	2	12000	**130860** □	**130861** □
125	236	HW	2	12000	**130854** □	**130855** □
125	270	HW	2	12000	**130862**	**130863**
125	310	HW	2	12000	**130864**	**130865**
125	130	HW	4	12000	**130800** □	**130801** □
125	150	HW	4	12000	**130806**	**130807**
125	166	HW	4	12000	**130802** □	**130803** □
125	180	HW	4	12000	**130808**	**130809**
125	210	HW	4	12000	**130810**	**130811**
125	236	HW	4	12000	**130804** □	**130805** □
125	270	HW	4	12000	**130812**	**130813**
125	310	HW	4	12000	**130814**	**130815**

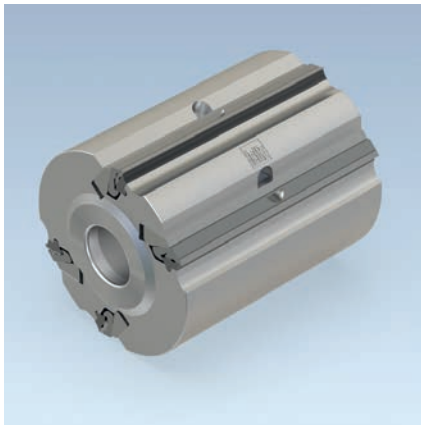
Planerhead with HSK 85 WS with reference cutterhead
WP 240 2 36

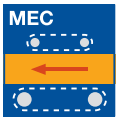
D mm	SB mm	QAL	Z	n_{max} min^{-1}	DRI	ID
125	236	HW	2	12000	LH / bottom	**130890** □
125	236	HW	4	12000	LH / bottom	**130840** □

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

Spare knives:

SB mm	H mm	DIK mm	QAL	SET PCS	ID
130	13	2,6	HW	2	**617606** ●
150	13	2,6	HW	2	**617607** ●
166	13	2,6	HW	2	**617671** ●
180	13	2,6	HW	2	**617612** ●
210	13	2,6	HW	2	**617615** ●
236	13	2,6	HW	2	**617669** ●
270	13	2,6	HW	2	**617665** ●
310	13	2,6	HW	2	**617662** ●





Planerhead VariPlan Plus Integral

Application:
Versatile application as planing tool:
For roughing and finishing on a processing spindle.

Machine:
Four-side moulders and multi-spindle planing machines.

Workpiece material:
Softwood and hardwood with knots and fibre structure difficult to machine.

Technical information:
Tool with 2 VariPlan ripple knives and 2 straight VariPlan planer knives (constant diameter and resharpenable). Unequally pitched cutting arrangement for optimum chip formation. Light metal tool body. For chip removal > 1 mm.

Planerhead with borehole
WW 240 2 09

D mm	SB mm	ND mm	BO mm	BO_{max} mm	QAL	n_{max} min^{-1}	Z	ID
125	130	136	40		HW	12000	2+2	**131712** ●
125	166	172	40		HW	12000	2+2	**131713** ●
125	236	242	40		HW	12000	2+2	**131714** ●
140	130	136	40	50	HW	10500	2+2	**131715**
140	166	172	40	50	HW	10500	2+2	**131716**
140	236	242	40	50	HW	10500	2+2	**131717**

Planerhead with HSK 85 WS
WP 240 2 09

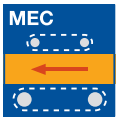
D mm	SB mm	QAL	n_{max} min^{-1}	Z	ID LH	ID RH
125	130	HW	12000	2+2	**131806** □	**131807** □
125	166	HW	12000	2+2	**131808** □	**131809** □
125	236	HW	12000	2+2	**131810** □	**131811** □

Special production tools with deviating cutting widths are not possible!

Spare knives:

BEZ	SB mm	H mm	DIK mm	SET PCS	QAL	ID
Turnblade knife set - VariPlan (ripple)	130	16	3,7	2	HW-MF	**617506** ●
Turnblade knife set - VariPlan (ripple)	166	16	3,7	2	HW-MF	**617571** ●
Turnblade knife set - VariPlan (ripple)	236	16	3,7	2	HW-MF	**617569** ●
Turnblade knife set - VariPlan	130	16	3,7	2	HW-MF	**617106** ●
Turnblade knife set - VariPlan	166	16	3,7	2	HW-MF	**617171** ●
Turnblade knife set - VariPlan	236	16	3,7	2	HW-MF	**617169** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org



Planerhead VariPlan Plus

Application:
Multi-purpose planing tool:
For pre-planing with RipTec turnblades.
For finish planing with microfinish turnblades.

Machine:
Four-sided moulders and multi spindle planing machines.

Workpiece material:
Softwood and hardwood, thermoplastics (partly suitable).

Technical information:
Resharpenable and constant diameter planerhead system.
Self-positioning and centrifugal force supported knife clamping. Lightweight aluminium tool body. Resharpening the knives on the cutting face means one sharpening operation gives two additional lives.

Lightweight aluminium tool body
WW 240 2 05

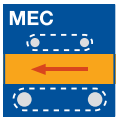
D mm	SB mm	ND mm	BO mm	n_{max} min^{-1}	Z	ID HS	ID HW-MF
125	130	136	40	12000	2	**134250** □	**134200** ●
125	150	156	40	12000	2	**134251**	**134201**
125	166	172	40	12000	2	**134252** □	**134202** ●
125	180	186	40	12000	2	**134253**	**134203**
125	210	216	40	12000	2	**134254**	**134204**
125	236	242	40	12000	2	**134255** □	**134205** ●
125	256	262	40	12000	2	**134258**	**134208**
125	270	276	40	10500	2	**134256**	**134206**
125	130	136	40	12000	4	**134450** □	**134400** ●
125	150	156	40	12000	4	**134451**	**134401**
125	166	172	40	12000	4	**134452** □	**134402** ●
125	180	186	40	12000	4	**134453**	**134403**
125	210	216	40	12000	4	**134454**	**134404**
125	236	242	40	12000	4	**134455** □	**134405** ●
125	256	262	40	12000	4	**134458**	**134408** ●
125	270	276	40	10500	4	**134456**	**134406**

Further dimensions and inch dimensions on request.
Spare knives (HS/HW-MF/HW-RipTec) see section Knives and Spare Parts.

Spare knives:

SB mm	H mm	DIK mm	SET STK	ID HS	ID HW-MF
130	16	3,7	2	**610506** ●	**617106** ●
150	16	3,7	2	**610509** ●	**617109** ●
166	16	3,7	2	**610571** □	**617171** ●
180	16	3,7	2	**610512** ●	**617112** ●
210	16	3,7	2	**610515** ●	**617115** ●
236	16	3,7	2	**610569** □	**617169** ●
256	16	3,7	2	**610572** □	**617172** ●
270	16	3,7	2		**617165** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org



Planerhead VariPlan Plus

Application:
Multi-purpose planing tool:
For pre-planing with RipTec turnblades.
For finish planing with microfinish turnblades.

Machine:
Four-sided moulders and multi spindle moulders with HSK 85 WS interfaces.

Workpiece material:
Softwood and hardwood, thermoplastics (partly suitable).

Technical information:
Resharpenable and constant diameter planerhead system. Self-positioning and centrifugal force supported knife clamping. Lightweight aluminium tool body. Resharpening the knives on the cutting face means one sharpening operation gives two additional lives. Tool body and HSK arbor are shrunk fit together.

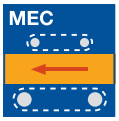
Lightweight aluminium tool body on HSK 85 WS
WP 240 2 05

D mm	SB mm	A mm	n_{max} min^{-1}	Z	QAL	ID LH / bottom	ID RH / top
125	130	26	12000	2	HW-MF	**134500** □	**134501** □
125	150	26	12000	2	HW-MF	**134502**	**134503**
125	166	26	12000	2	HW-MF	**134504** □	**134505** □
125	180	26	12000	2	HW-MF	**134506**	**134507**
125	210	26	12000	2	HW-MF	**134508**	**134509**
125	236	26	12000	2	HW-MF	**134510** □	**134511** □
125	270	26	8000	2	HW-MF	**134512**	**134513**
125	310	26	8000	2	HW-MF	**134514**	**134515**
125	130	26	12000	4	HW-MF	**134600** □	**134601** □
125	150	26	12000	4	HW-MF	**134602**	**134603**
125	166	26	12000	4	HW-MF	**134604** □	**134605** □
125	180	26	12000	4	HW-MF	**134606**	**134607**
125	210	26	12000	4	HW-MF	**134608**	**134609**
125	236	26	12000	4	HW-MF	**134610** □	**134611** □
125	270	26	8000	4	HW-MF	**134612**	**134613**
125	310	26	8000	4	HW-MF	**134614**	**134615**

Further dimensions and inch dimensions on request.
Spare knives (HS/HW-MF/HW-RipTec) see section Knives and Spare Parts.

Spare knives:

SB mm	H mm	DIK mm	SET STK	ID HS	ID HW-MF
130	16	3,7	2	**610506** ●	**617106** ●
150	16	3,7	2	**610509** ●	**617109** ●
166	16	3,7	2	**610571** □	**617171** ●
180	16	3,7	2	**610512** ●	**617112** ●
210	16	3,7	2	**610515** ●	**617115** ●
236	16	3,7	2	**610569** □	**617169** ●
270	16	3,7	2		**617165** ●
310	16	3,7	2	**610522** ●	**617122** ●



Planerhead VariPlan Plus

Application:
Multi-purpose planing tool:
For pre-planing with RipTec turnblades.
For finish planing with microfinish turnblades.

Machine:
Four-sided moulders and multi spindle moulders with HSK 85 WS interfaces.

Workpiece material:
Softwood and hardwood, thermoplastics (partly suitable).

Technical information:
Resharpenable and constant diameter planerhead system. Self-positioning and centrifugal force supported knife clamping. Lightweight aluminium tool body. Resharpening the knives on the cutting face means one sharpening operation gives two additional lives. Tool body and HSK arbor are shrunk fit together.

Lightweight aluminium tool body on HSK 85 WS with reference cutterhead Z2 / V2
WP 240 2 08

D mm	SB mm	A mm	n_{max} min^{-1}	Z	QAL	DRI	ID
125	236	26	12000	2	HW-MF	LH / bottom	**134581** □
125	236	26	12000	4	HW-MF	LH / bottom	**134681** □

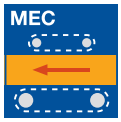
Further dimensions and inch dimensions on request.
Spare knives (HS/HW-MF/HW-RipTec) see section Knives and Spare Parts.

Spare knives:

SB mm	H mm	DIK mm	SET STK	ID HS	ID HW-MF
236	16	3,7	2	**610569** □	**617169** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

Application



Finish planing is the last production step on four-sided moulders. The recommended finish planing cutting depth is 0.5-0.8 mm. For good results, a tear-out free pre-planed surface is required.

Workpiece material

Softwood and hardwood.
Chipboard and fibre materials (MDF etc.).

Machines

Four-sided moulders with or without jointing.

Tool clamping

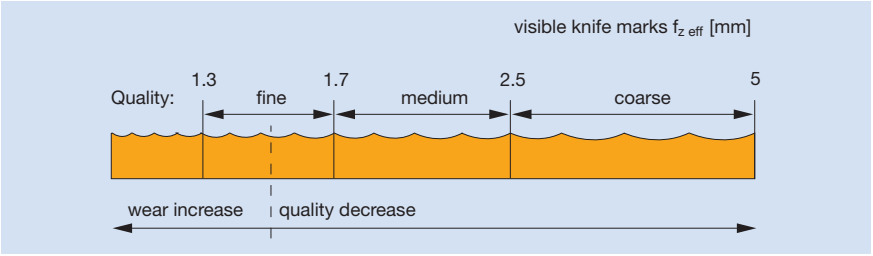
Direct on the machine spindle with spindle clamping nut, with hydro clamping element or with HSK interface.

Recommended cutting

	HS	Marathon (MC)	HW
Softwood dry	♦	♦	◇
Softwood wet		♦	♦
Plywood		◇	♦
Chipboard			♦
MDF			♦
WPC (Wood-Plastic-Composite)	◇	♦	♦

♦ suitable ◇ partly suitable

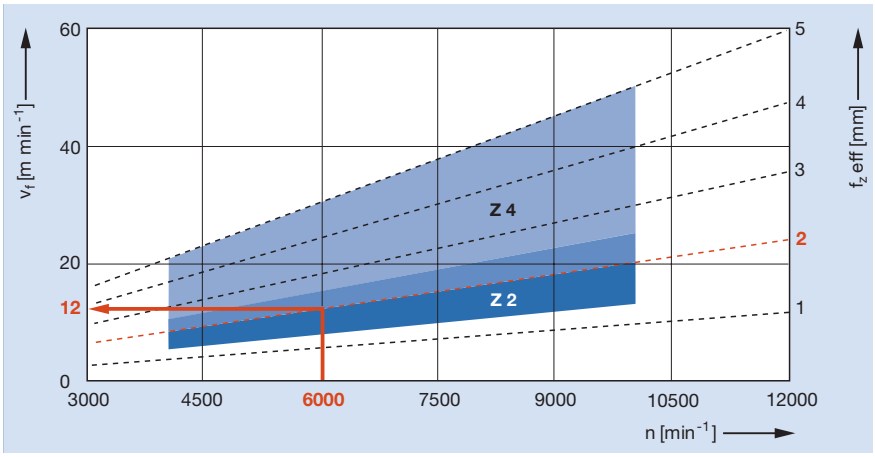
Feed speed



The selection of the feed speed is determined by the required surface quality. See diagram for the relationship between surface quality and length of knife marks $f_{z\ eff}$.

Diagram to determine feed speed v_f depending on RPM n and length of knife marks $f_{z\ eff}$ for different number of wings.

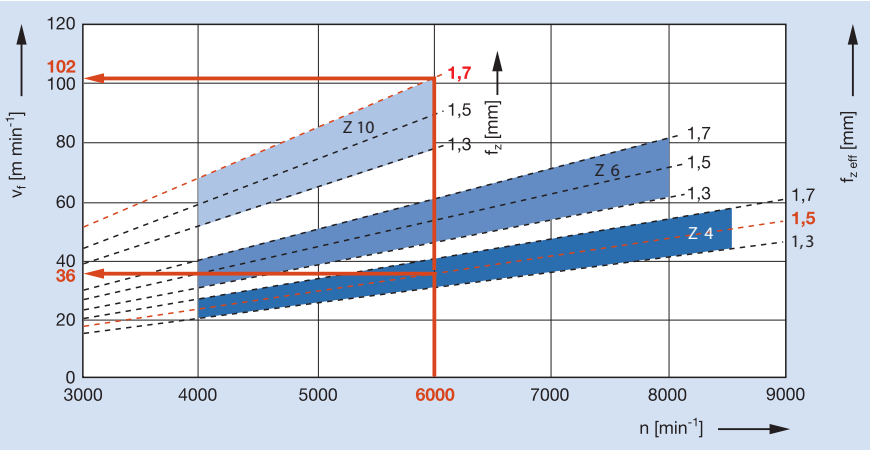
Diagram:
Planing cutterhead
Z 2 and Z 4



Even on tools with several wings, only the marks of one knife show on the workpiece surface (one-knife finish).
Z 2 and Z 4 tools produce the same surface quality under identical machining conditions (see technical information and charts in section User Manual).

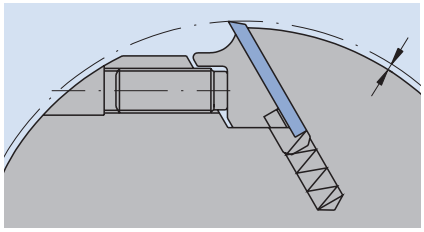
Length of cutter marks for jointed hydro planing cutterheads

Diagram:
Hydro planerhead
Z 4
Z 6
Z 10

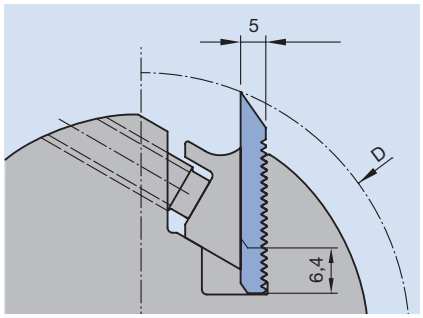


The marks of all knives show on the workpiece in regular pitches on jointed hydro tools. More wings means high feed speeds maintaining the same surface quality (see technical information and charts in section User Manual).

Wedge type system

Application	Planing, pre-planing and finish planing.
Machines	Four-sided moulders.
Workpiece material	Softwood and hardwood.
Features of knives	Knife thickness: 3 mm, knife height: 30 mm. Resharpening area: 10 mm.
Cutting material	HS, HW and Marathon (MC).
Chip removal	Softwood: up to 15.0 mm. Hardwood: up to 10.0 mm.
Tool design	Aluminium alloy cutterhead with resharpenable planer knives (SB x 30 x 3 mm). Used on four-sided moulders for pre-planing and finish planing.
Technical information	Cutterhead with compression spring for knife positioning with setting gauge.
Note	 Correct knife projection: maximum 2 mm. – Knives resharpened in the cutterhead for improved run out accuracy and better planing quality. – After resharpening, check the minimum knife clamping height marked on the tool body. – Always tighten the screws from the middle to the outside; setting torque 17 Nm – Check the knife projection (see picture above). Position the planing knife with key and setting gauge. – Mounting the reference head requires two additional holes D 7 mm on a pitch circle diameter of 58 mm and a spacer 3 mm (ID **028617**).

Serrated back planerhead with HSK 85 WS interface

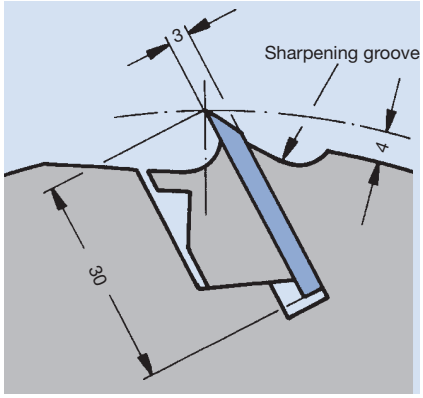
Application	Pre and finish planing.
Machines	Planing machines with HSK 85 WS interface.
Workpiece material	Softwood and hardwood, dry and wet.
Number of wings	Z 2, Z 4, Z 6
Cutting material	Marathon (MC), tungsten carbide HW.
Chip removal	Softwood: up to 12 mm. Hardwood: up to 10 mm.
Feed type	Mechanical feed.
Tool design 	Monobloc steel tool body. High concentricity and balance quality. Seating for 60° serrated back planer knives H = 40 mm x 5.0 mm thickness with standard tooth pitch 1.6 mm.
Resharpening area	9 mm.
Advantages	Pre and finish planing with Marathon planer knives resharpened to one cutting circle. For finish planing with n = 12000 min^{-1} and a feed rate > 18 m min^{-1}, the planer knives require jointing on the machine. After jointing, all knives will have the same cutting circle.
Note	Cutting angle 20° for softwood. Cutting angle 12° for hardwood and wood fibre materials. Jointing with n = 10000 min^{-1}.

Hydro planerhead

Application	Surfacing, pre-planing and finish planing for feeds from 24 to 120 m min^{-1}.
Machines	Multi spindle moulders, with jointing if required.
Workpiece material	Softwood and hardwood.
Number of wings	Z 4 to Z 12 depending on the diameter.
Cutting material	HS, HW and Marathon (MC 33).
Chip removal	Pre-planing: up to 5.0 mm. Finish planing: up to 0.8 mm.
Tool design	Steel cutterhead with hydraulic clamping, open hydro clamping system with resharpenable planer knives resharpened in the cutterhead for concentricity < 0.005 mm.
Technical features	Jointed knives for excellent surfaces at high feed speeds. Maximum joint bevel width: for softwood 0.5 mm, for hardwood 0.7 mm. High running accuracy and low vibration from hydro clamping. High feed speeds depend on the number of wings and RPM (see page 24, Diagram to determine feed speed).

Note

- Hydro clamp only on spindle.
- Clamp to spindle with clamping collar.
- For knives 30 x 3 mm (35 x 3 from diam. 203 on) HS, HW and MC.



Sharpening groove on the body behind knife for easy knife resharpening in the cutterhead on sharpening machines.

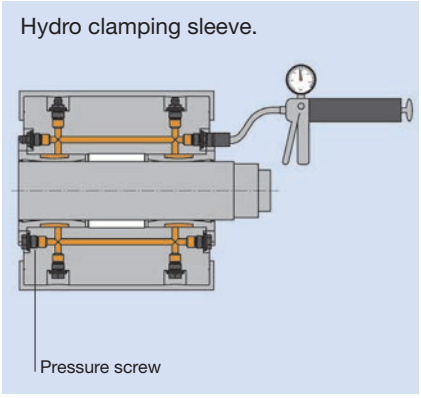


Illustration of hydro clamping system.

TurboPlan Plus hydro planerhead

Application	Pre-planing and precision finish planing feed from between 160 to 360 m min^{-1}.
Machines	High performance moulders with precision spindles and counter bearing.
Workpiece material	Softwood and hardwood.
Diameter/ Number of wings	D 200 to D 360. Z 4 to Z 32.
Cutting material	Marathon (MC 33).
Chip removal	Pre-planing: 5.0 mm. Finish planing: 0.8 mm.
Resharpening area	10.0 mm.
Tool design	Hydro planerhead with steel body. Open hydro clamping system. Integrated balancing segments, attached to body. Form fitting knife clamping: Resharpenable knives with serrated back in Leitz Marathon design. Central knife clamping by open hydro system.
Technical features	For Leitz serrated back Marathon knives HS 30 x 5.0 mm. High concentricity and low vibration from hydro clamping system. Knives resharpened in automatic resharpening machines have a concentricity < 0.005 mm.
Tool clamping	Hydro clamping system.
Knife clamping	Form fitting design, hydro clamping.
Note  scheme 4	Jointed knives give an excellent finish at high feed speeds. Do not pressurise the hydro clamping system without mounting the tool on the spindle. Working pressure 350-450 bar – check daily. Spindle safety – use locking collars to reduce the risk of the tool spinning and cold welding on the spindle. For Leitz serrated back knives Marathon (MC) 30 x 5 mm.

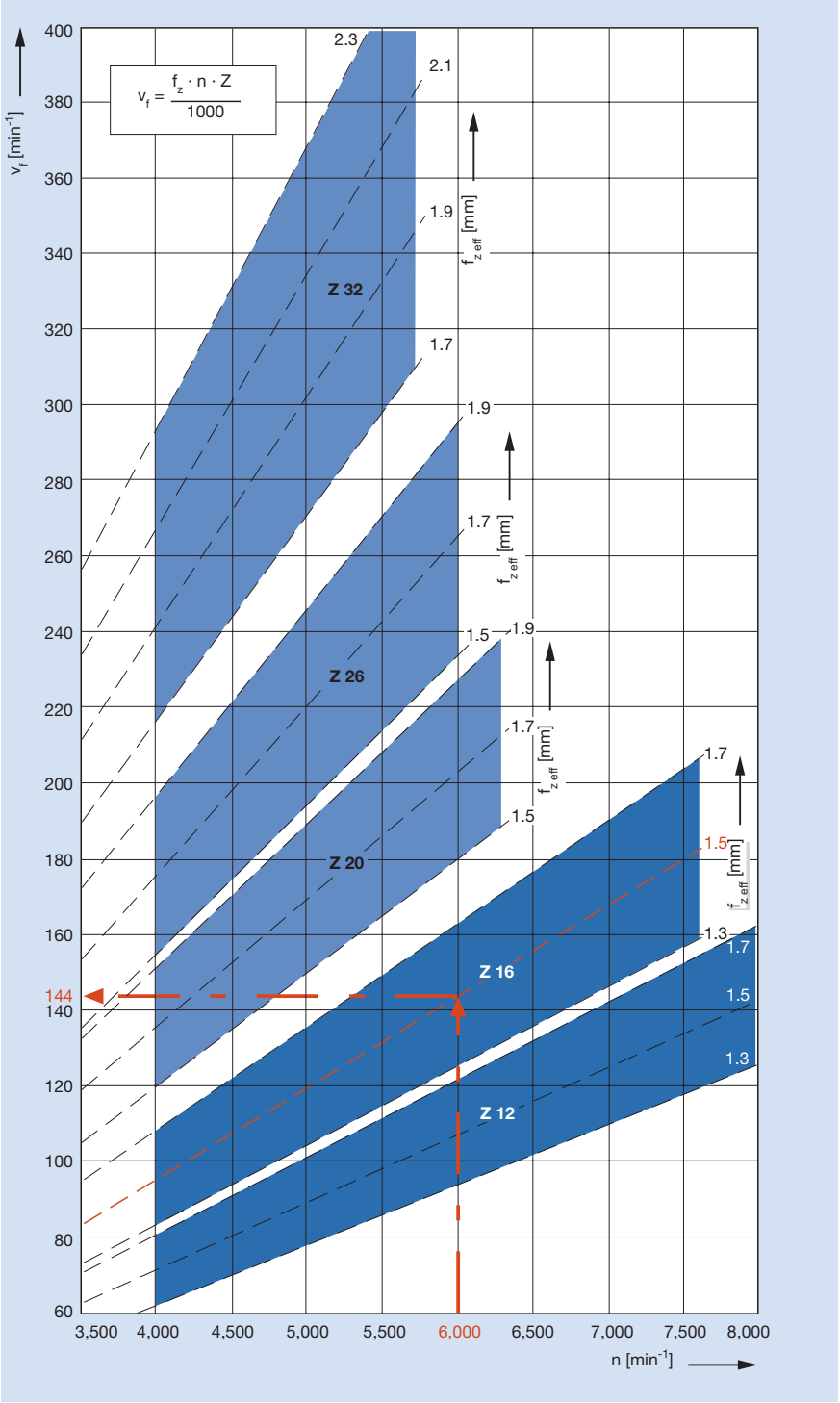
Hydro planerheads – TurboPlan Plus

Diagram to determine feed speed v_f of jointed hydro planerheads depending on RPM n and knife marks $f_{z\,eff}$ different number of wings Z*

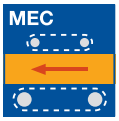
Diagram:
Hydro planerhead
RotaPlan and TurboPlan

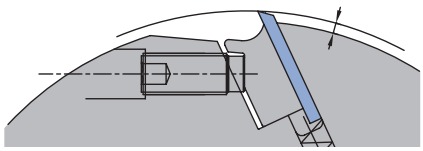
Z 12
Z 16
Z 20
Z 26
Z 32

The feed speed is determined by the required surface quality (length of knife marks $f_{z\,eff}$) and depends on the RPM and the number of wings in the cutterhead. The relation can be found in the diagram below.

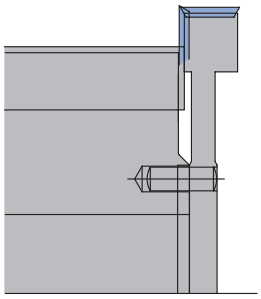


With jointed hydro tools the marks of all knives are shown on the workpiece in regular pitches. More wings mean higher feed speeds maintaining the same surface quality.

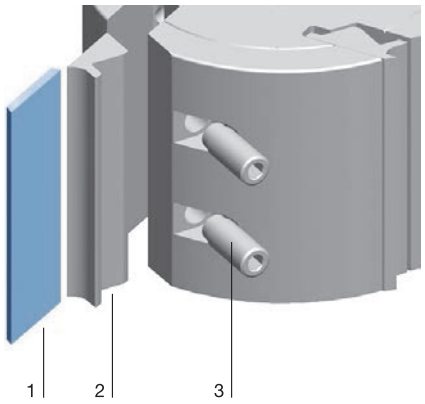




Correct protrusion: max. 2 mm



Combined with reference cutterhead



Planerhead wedge-type system

Application:
Multi-purpose suitable for pre-planing with large chip removal and for finish planing.

Machine:
Four-sided moulders and profile machines.

Workpiece material:
Softwood and hardwood.

Technical information:
Cutterhead with resharpenable planer knives SB x 30 x 3.0 mm. Pressure springs position the knives by a setting gauge on the defined cutting edge circle. Cutting material quality HS, Marathon (MC33) and HW available.

Aluminium tool body, coated
WM 200 2 07

D mm	SB mm	BO mm	n_{max} min^{-1}	Z	ID HS	ID HW
125	100	40	10500	4	**140408** ●	**140458** □
125	130	40	10500	4	**140409** ●	**140459** □
125	150	40	10500	4	**140410**	**140460**
125	170	40	10500	4	**140411** ●	**140461** □
125	180	40	10500	4	**140412**	**140462**
125	210	40	10500	4	**140413**	**140463**
125	230	40	10500	4	**140414**	**140464**
125	240	40	10500	4	**140415** ●	**140465** □

Suitable reference cutterhead on page 11.

Spare knives:

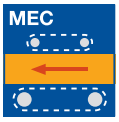
Teile-Nr.	SB mm	H mm	DIK mm	ID HS Classic	ID HS Premium	ID HW	ID MC33
1	100	30	3	**605002** ●	**027103** ●	**027279** ●	**606702** ●
1	130	30	3	**605005** ●	**027106** ●	**027282** ●	**606705** ●
1	150	30	3	**605006** ●	**027107** ●	**027283** ●	**606706** ●
1	170	30	3	**605007** ●	**027108** ●	**027284** ●	**606707** ●
1	180	30	3	**605008** ●	**027109** ●	**027285** ●	**606708** ●
1	210	30	3	**605010**	**027110** ●	**027286** ●	**606710** ●
1	230	30	3	**605011** ●	**027111** ●	**027287** ●	**606711** ●
1	240	30	3	**605012** ●	**027134** ●	**027323** ●	**606712** ●

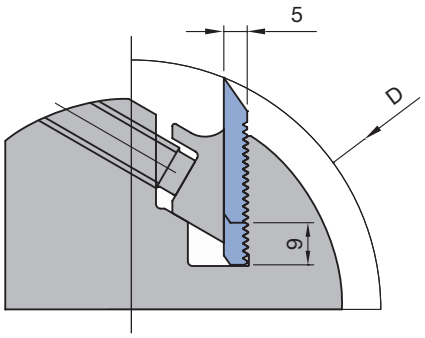
Spare knives in further dimensions and qualities see section Knives and Spare Parts.

Spare parts:

Part-no.	BEZ	ABM mm	for SB mm	ID
2	Clamping wedge		100	**620900** ●
2	Clamping wedge		130	**620901** ●
2	Clamping wedge		150	**620902** ●
2	Clamping wedge		170	**620903** ●
2	Clamping wedge		180	**620904** ●
2	Clamping wedge		210	**620905** ●
2	Clamping wedge		230	**620906** ●
2	Clamping wedge		240	**620907** ●
3	Allen screw	M10x1x25		**007395** ●
	Allen key	SW 5		**117509** ●
	Pressure spring	27x6x0,75		**008076** ●
	Setting gauge	D125/140		**005361** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org





Planerhead with HSK 85 WS and serrated back HS Marathon planer knives

Application:
Finish planing.

Machine:
Four-sided moulders with HSK 85 WS interface.

Workpiece material:
Cutting angle 20° for softwood and hardwood in general.
Cutting angle 12° for materials likely to splinter such as oak, Douglas fir, merbau and wood fibre materials, e.g. MDF.

Technical information:
Finish planing cutterhead in mono block design DTK 90 mm with serrated back planer knives SB x 40 x 5 mm ground to cutting circle. Jointable by specific jointing stone. Steel tool body. High balance quality by assembly with parts of the same weight.

Cutting angle 20°
WP 210 2 01

D mm	SB mm	A mm	QAL	Z	n_{max} min^{-1}	ID LH / bottom	ID RH / top
106	130	26	MC33	2	12000	**140322** ●	**140323** ●
106	170	26	MC33	2	12000	**140324**	**140325**
106	240	26	MC33	2	12000	**140326** ●	**140327** ●
106	80	26	MC33	4	12000	**140330** ●	**140331** ●
106	130	26	MC33	4	12000	**140332** ●	**140333** ●
106	170	26	MC33	4	12000	**140334** ●	**140335** ●
106	240	26	MC33	4	12000	**140336** ●	**140337** ●
128	80	26	MC33	6	10000	**140346** ●	**140347** ●
128	130	26	MC33	6	10000	**140348** ●	**140349** ●
128	170	26	MC33	6	10000	**140350** ●	**140351** ●
128	240	26	MC33	6	8000	**140352** ●	**140353** ●

Cutting angle 12°
WP 210 2 01

D mm	SB mm	A mm	QAL	Z	n_{max} min^{-1}	ID LH / bottom	ID RH / top
106	130	26	MC33	2	12000	**140302** ●	**140303** ●
106	170	26	MC33	2	12000	**140304**	**140305**
106	240	26	MC33	2	12000	**140306**	**140307**
106	130	26	MC33	4	12000	**140312**	**140313**
106	170	26	MC33	4	12000	**140314**	**140315**
128	80	26	MC33	6	10000	**140340**	**140341**
128	130	26	MC33	6	10000	**140342**	**140343**
128	170	26	MC33	6	10000	**140344**	**140345**

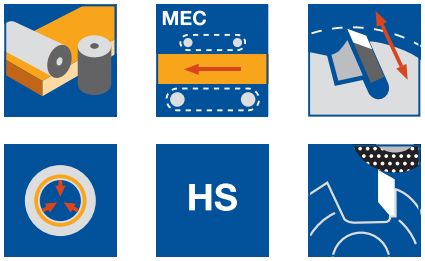
Spare knives:

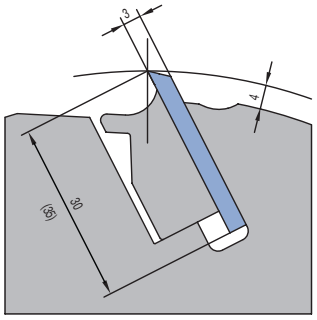
SB mm	H mm	DIK mm	QAL	VE PCS	ID
80	40	5	MC33	2	**697302** ●
130	40	5	MC33	2	**697304** ●
170	40	5	MC33	2	**697306** ●
240	40	5	MC33	2	**697311** ●

Spare parts:

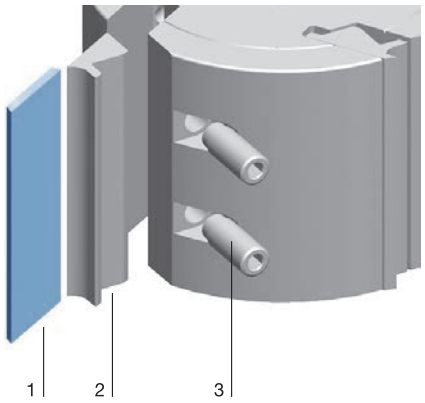
BEZ	ABM mm	for SB mm	ID
Clamping wedge	78x25,3x10,8	80	**620702** ●
Clamping wedge	128x25,3x10,8	130	**620705** ●
Clamping wedge	168x25,3x10,8	170	**620707** □
Clamping wedge	238x25,3x10,8	240	**620710** □
Allen screw	M10x1x20		**007396** ●
Allen key	SW 5		**117509** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org





Mounted knife



Hydro planerhead

Application:
Pre and finish planing with high feed speeds.

Machine:
Four-sided moulders and profile machines with jointing equipment.

Workpiece material:
Softwood and hardwood.

Technical information:
Steel tool body with corrosion resistant surface protection. Integrated hydro clamping system with exchangeable clamping sleeves. Activated by a grease gun. Inclusive resharpenable HS planer knives (SB x 30 x 3 mm). From diameter 203 mm, knives with 35 mm height also can be used. Hydro planerheads can only be used in combination with a clamping collar.

Steel tool body
HM 200 2 07

D mm	SB mm	BO mm	Z	QAL	n_{max} min^{-1}	ID
163	130	50	4	HS	8100	**142050**
163	160	50	4	HS	8100	**142051**
163	230	50	4	HS	8100	**142052**
163	60	50	6	HS	8100	**142053** ●
163	100	50	6	HS	8100	**142054** ●
163	130	50	6	HS	8100	**142055** ●
163	160	50	6	HS	8100	**142056** ●
163	230	50	6	HS	8100	**142057** ●
163	60	50	8	HS	8100	**142058**
163	100	50	8	HS	8100	**142059**
163	130	50	8	HS	8100	**142060**
163	160	50	8	HS	8100	**142061**
163	180	50	8	HS	8100	**142062**
163	230	50	8	HS	8100	**142063**
203	100	50	12	HS	6600	**142064**
203	130	50	12	HS	6600	**142065**
203	160	50	12	HS	6600	**142066**
203	180	50	12	HS	6600	**142067**
203	230	50	12	HS	6600	**142068**

Lightweight aluminium version on request.

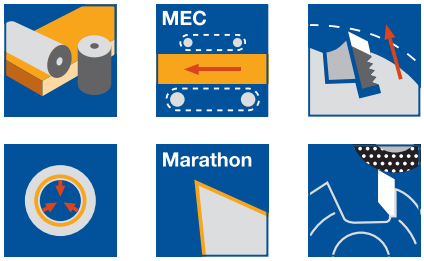
Spare knives:

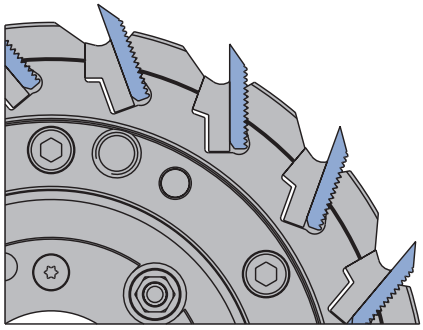
Teile-Nr.	SB mm	H mm	DIK mm	ID HS Classic	ID HS Premium	ID HW	ID MC33
1	60	30	3	**605000**	**027101** ●	**027277** ●	**606700** ●
1	100	30	3	**605002** ●	**027103** ●	**027279** ●	**606702** ●
1	130	30	3	**605005** ●	**027106** ●	**027282** ●	**606705** ●
1	160	30	3	**605045** ●	**027163** ●		**606745** ●
1	180	30	3	**605008** ●	**027109** ●	**027285** ●	**606708** ●
1	230	30	3	**605011** ●	**027111** ●	**027287** ●	**606711** ●

Spare parts:

Part-no.	BEZ	ABM mm	for SB mm	ID
2	Clamping wedge		60	**620950** ●
2	Clamping wedge		100	**620951** ●
2	Clamping wedge		130	**620952** ●
2	Clamping wedge		160	**620953** ●
2	Clamping wedge		180	**620954** ●
2	Clamping wedge		230	**620955** ●
3	Allen screw	M10x1x25		**007395** ●
3	Allen screw	M10x1x20		**007396** ●
3	Allen screw	M10x1x16		**007397** ●
	Grease nipple	M10x1		**007935** ●
	Relief plug	M10x1		**007983** ●
	Allen key	SW 5		**117509** ●
	Grease gun			**008239** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org





TurboPlan PLUS knife clamping

Hydro planerhead TurboPlan PLUS

Application:
Pre and finish planing with high feed speeds.

Machine:
High performance planing machines with precision spindles and counter bearing as well as a jointing unit.

Workpiece material:
Softwood and hardwood.

Technical information:
Tool body in weight optimized design with two independent hydro systems for the tool and knife clamping. Activated by a grease gun. Marathon coated planer knives with back serration (SB x 30 x 5 mm). Hydro planerhead can only be used in combination with a clamping collar.

Weight optimised design
HM 200 2 08

D mm	SB mm	BO mm	Z	n_{max} min^{-1}	ID
200	150	50	14	8000	**142230**
200	230	50	14	8000	**142231**
200	330	50	14	8000	**142232**
225	150	50	18	7200	**142233**
225	230	50	18	7200	**142234**
225	330	50	18	7200	**142235**
260	150	50	22	6200	**142236**
260	230	50	22	6200	**142237**
260	330	50	22	6200	**142238**

Spare knives:

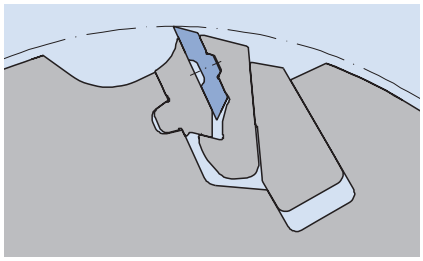
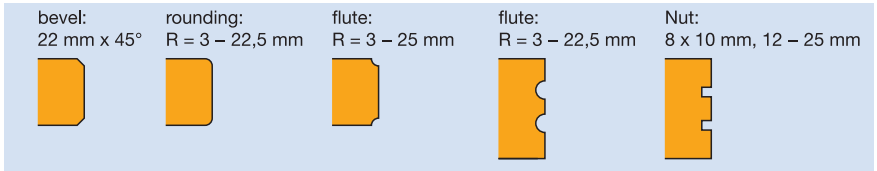
SB mm	H mm	DIK mm	QAL	ID
150	30	5	MC33	**697359** □
230	30	5	MC33	**697360** □
330	30	5	MC33	**697363** □

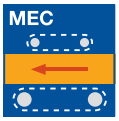
Spare parts:

BEZ	ABM mm	BEM	ID
Knife setting device	for TurboPlan		**142290**
Setting gauge for Hydro planerhead	Knife protrusion 3.8 mm		**142291**
Grease gun			**008239** ●
Grease cartridge	for Hydro sleeve		**007934** ●
Jointing stone (round)	12x32	Colour: grey	**008237** ●
Jointing stone (angular)	20x15x60	Colour: brown	**008238** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

Planerhead VariPlan Plus/ ProFix F

Application	Four-sided moulders for planing, grooving or profiling in one process step. The combination of planing knives and profiling knives allows the planerhead to be used as a multi-purpose planing and profiling tool.
Machines	Four-sided moulders.
Workpiece material	Softwood and hardwood.
Cutting material	Planing knives HS / HW. Profile knives HW.
Number of wings	Z 2+2 seatings for radius, bevel, grooving or profile knives.
Resharpening area	Planer knife 1.0 mm, profile knife 4.5 mm
Chip removal	Softwood: up to 10.0 mm. Hardwood: up to 7.0 mm.
Tool design	Lightweight aluminium cutterhead with resharpenable turnblade planing knives. Clamping system with constant profile and constant diameter (see introduction VariPlan Plus and ProFix cutterhead).
Technical features	 Axially adjustable profile knives can be adjusted to the corresponding wood width/height. Profile depths up to 25 mm and working widths up to 120 mm possible. Cutterhead with lightweight aluminium tool body and steel chip breaker.
Accessories	Bevel, grooving, fluting knives; two left and two right knives per set. 
Note	– Quick change of VariPlan Plus knives in radial direction. – Quick change and adjustment of ProFix profile knives in axial direction. – Special profile knives on request.



Planerhead CentroPlan / ProFix

Application:
For planing and profiling e.g. grooving, bevelling, rounding or profiling in common.

Machine:
Four-side planing and profiling moulders.

Workpiece material:
Softwood and hardwood.

Technical information:
Centrifugal-supported and form-fitting knife clamping system with turnblades. Axial or radial knife removal. Light metal tool body. With knife seatings for ProFix F profile knives (PT max. 25 mm, SB max. 100 mm).

Planerhead with borehole
WW 240 2 38

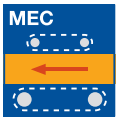
D mm	SB mm	ND mm	BO mm	QAL	Z	n_{max} min^{-1}	ID
125	130	136	40	HW	2+2	10200	**134800** ●
125	166	172	40	HW	2+2	10200	**134801** ●
125	236	242	40	HW	2+2	10200	**134802** ●

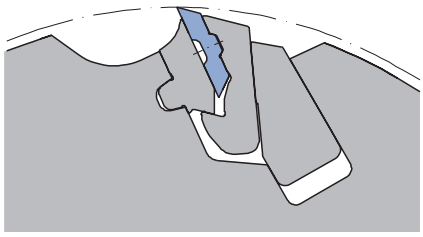
Planerhead with HSK 85 WS
WP 240 2 38

D mm	SB mm	QAL	Z	n_{max} min^{-1}	ID LH	ID RH
125	130	HW	2+2	10200	**134850** □	**134851** □
125	166	HW	2+2	10200	**134852** □	**134853** □
125	236	HW	2+2	10200	**134854** □	**134855** □

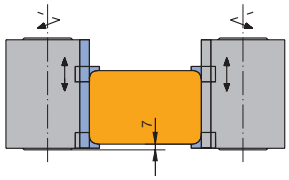
Spare knives:

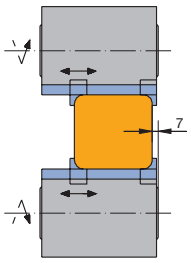
BEZ	SB mm	ABM mm	QAL	ID LH	ID RH
ProFix F knife PF 25 R=3	20	R=3	HW	**011041** ●	**011042** ●
ProFix F knife PF 25 R=5	20	R=5	HW	**011043** ●	**011044** ●
ProFix F knife PF 25 R=10	20	R=10	HW	**011047** ●	**011048** ●
ProFix F knife PF 25 Bevel 45°	20	Bevel 45°	HW	**011051** ●	**011052** ●





Lightweight aluminium tool body with steel chip breaker





Use on vertical or horizontal spindles
HD = SB - 40 mm

Planerhead VariPlan Plus / ProFix F system PF 25

Application:
For planing and profiling (chamfering) e.g. grooving, bevelling, rounding or profiling in common.

Machine:
Four-sided moulders.

Workpiece material:
Softwood and hardwood.

Technical information:
Resharpenable cutterhead system with constant diameter and constant profile. VariPlan Plus planerhead with knife seatings for ProFix F profile knives (PF 25) and HW microfinish turnblade knives. Profile knives: PT_{max} 25 mm, SB_{max} 100 mm. Lightweight aluminium tool body.

Bore 40 mm
WW 240 2 07

D mm	SB mm	ND mm	BO mm	QAL	n_{max} min^{-1}	Z	ID
125	130	136	40	HW	10200	2+2	**131060** ●
125	166	172	40	HW	10200	2+2	**131058** ●
125	236	242	40	HW	10200	2+2	**131059** ●

Further knife types, dimensions and inch dimensions on request. Servicing with spare parts only by the manufacturer. VariPlan Plus spare knives in section Knives and Spare Parts.

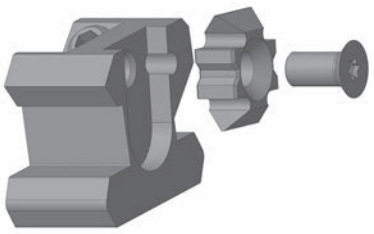
Spare knives:

BEZ	SB mm	ABM mm	QAL	ID LH	ID RH
ProFix F knife PF 25 R=3	20	R=3	HW	**011041** ●	**011042** ●
ProFix F knife PF 25 R=5	20	R=5	HW	**011043** ●	**011044** ●
ProFix F knife PF 25 R=10	20	R=10	HW	**011047** ●	**011048** ●
ProFix F knife PF 25 Bevel 45°	20	Bevel 45°	HW	**011051** ●	**011052** ●

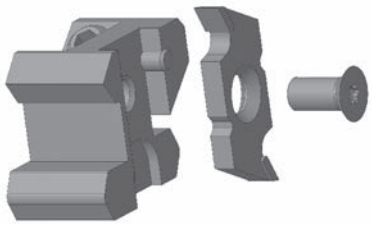
Further profile knives on request.

Spare parts:

BEZ	ABM mm	ID LH	ID RH
Knife holder for edge knives	D=125, SW=20°	**011301** ●	**011300** ●
Knife holder for grooving knives	D=125, SW=20°, NT=6	**011303** ●	**011302** ●
Allen key	SW 4		**005445** ●
Allen key	SW 5		**005452** ●

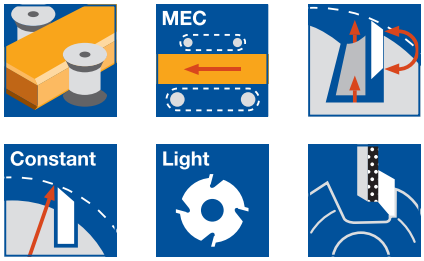


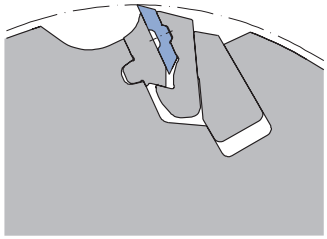
Knife holder to adapt edge knives.



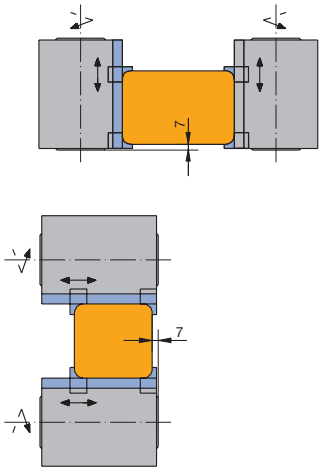
Knife holder to adapt grooving knives.

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org





Lightweight aluminium tool body with steel chip breaker



Use on vertical or horizontal spindles
HD = SB - 40 mm

Planerhead VariPlan Plus / ProFix F system PF 25

Application:
For planing and profiling (chamfering) e.g. grooving, bevelling, rounding or profiling in common.

Machine:
Four-sided moulders with HSK 85 WS interface.

Workpiece material:
Softwood and hardwood.

Technical information:
Resharpenable cutterhead system with constant diameter and constant profile. VariPlan Plus planerhead with knife seatings for ProFix F profile knives (PF 25) and HW microfinish turnblade knives. Profile knives: PT_{max} 25 mm, SB_{max} 100 mm. Lightweight aluminium tool body.

HSK 85 WS
WP 240 2 01

D mm	SB mm	A mm	Z	n_{max} min^{-1}	DRI	BEM	ID
125	130	26	2+2	10200	LH	left/ on bottom	**131120** □
125	130	26	2+2	10200	RH	right/ on top	**131121** □
125	166	26	2+2	10200	LH	left/ on bottom	**131116** □
125	166	26	2+2	10200	RH	right/ on top	**131117** □
125	236	26	2+2	10200	LH	on bottom	**131118** □
125	236	26	2+2	10200	RH	on top	**131119** □

Further knife types, dimensions and inch dimensions on request. Servicing with spare parts only by the manufacturer. VariPlan Plus spare knives in section Knives and Spare Parts.

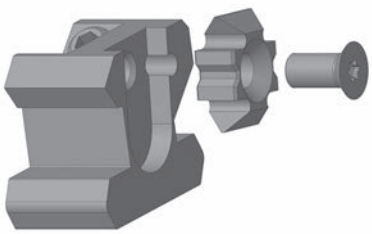
Spare knives:

BEZ	SB mm	ABM mm	QAL	ID LH	ID RH
ProFix F knife PF 25 R=3	20	R=3	HW	**011041** ●	**011042** ●
ProFix F knife PF 25 R=5	20	R=5	HW	**011043** ●	**011044** ●
ProFix F knife PF 25 R=10	20	R=10	HW	**011047** ●	**011048** ●
ProFix F knife PF 25 Bevel 45°	20	Bevel 45°	HW	**011051** ●	**011052** ●

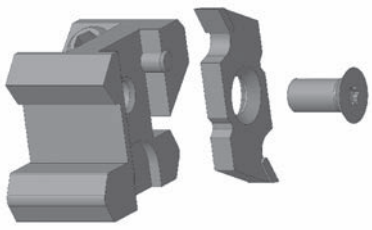
Further profile knives on request.

Spare parts:

BEZ	ABM mm	ID LH	ID RH
Knife holder for edge knives	D=125, SW=20°	**011301** ●	**011300** ●
Knife holder for grooving knives	D=125, SW=20°, NT=6	**011303** ●	**011302** ●
Allen key	SW 4		**005445** ●
Allen key	SW 5		**005452** ●



Knife holder to adapt edge knives.



Knife holder to adapt grooving knives.

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

Profile variations

Tongue and groove profiles are used on wall, ceiling and floor panels.
The profiles are standardised and different in each country.
The tools for machining solid wood panels presented on the following product pages are the most common designs in Europe.
The majority of tools for wall and ceiling panel machining are produced to customer specifications.

Workpiece materials

Softwood and medium hardwood.

Machines

Four-sided moulders with feed speeds up to 80 m min^{-1}.
Machines with high precision spindles and jointing units for feed speeds up to 300 m min^{-1}.

Application

Machining against feed, panel face down. Groove right, tongue left.
Groove machined either as a part of the groove profile or separately on a horizontal spindle.

Tool design

HL solid cutter:
HL solid cutters are form ground with a large resharpening area.
Suitable for softwood such as spruce or fir. The main application is high speed moulders for producing standardised tongue and groove boards in high quantities and with high quality requirements.

HW/HS-tipped tools:
HW/HS-tipped tools have a smaller resharpening area of approx. 5 mm depending on the tipping thickness. HW/HS-tipped tools are suitable for softwood and hardwood. They are mainly used on small volume moulding machines with frequent profile changes.

Design of grooving and tongue cutter sets

Tongue and groove cuttersets are of 2 part, adjustable.

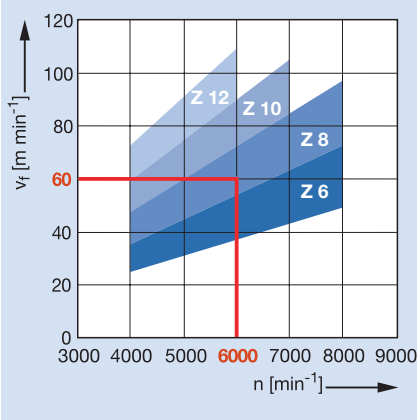
Tongue cutter:
Always wing on wing.

Grooving cutter:
two designs –
wing on wing or
wing on gullet

Wing-on-wing design:
With the wing-on-wing design, the two parts of the cutter set are positioned with the cutting edges on top of each other and the gullets in line so the two parts can be resharpened simultaneously.
Advantage: Resharpening simpler and greater resharpening area.
Disadvantage: Only every other groove wing is cutting the groove flank.
For a Z 6 groove cutter, only three groove wings are cutting each side of the groove.
Tear-outs can occur at high feed speeds.

Wing-on-gullet design:
Unless indicated otherwise, Leitz delivers wing-on-gullet design as a standard.
With this design, the two cutter parts are adjusted so that the wings of one part lie in the gullets of the other part.
Advantage: All the wings are constantly working on the groove side.
This design is preferable for high feed speeds.

Relation between feed rate, RPM and number of wings

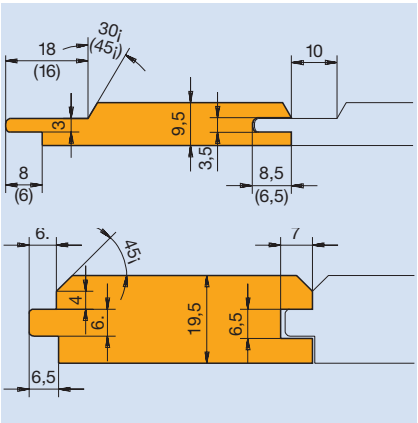


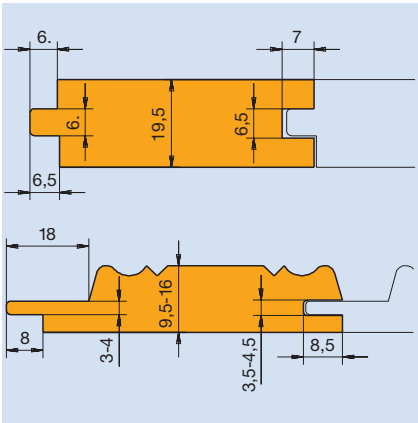
For tools without hydro clamping, only the marks of one knife show on the surface (one-knife finish).
When calculating the maximum feed speed, only one cutting edge can be taken into account.
If the tool is clamped with a hydro clamping system and the profiling is resharpened to a concentricity of at least 0.01 mm, all cutting edges are equally involved in the cutting process and can be taken into account when calculating the maximum feed speed.

f_z 0.8 - 1.5 mm

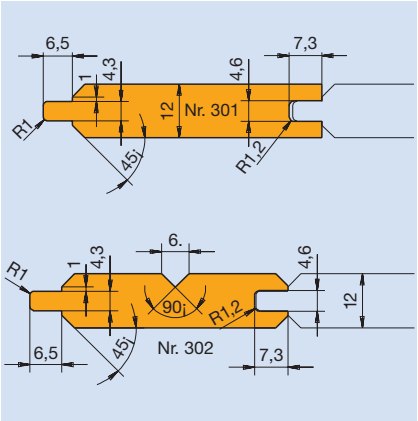
Profile samples for groove and tongue panels

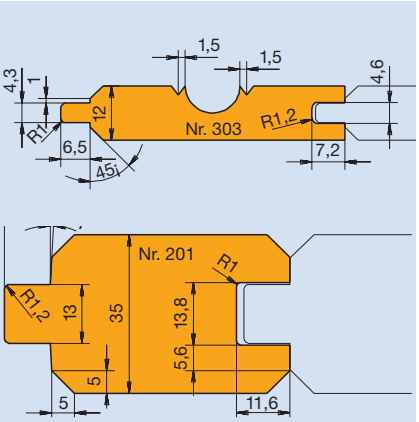
German standard profiles



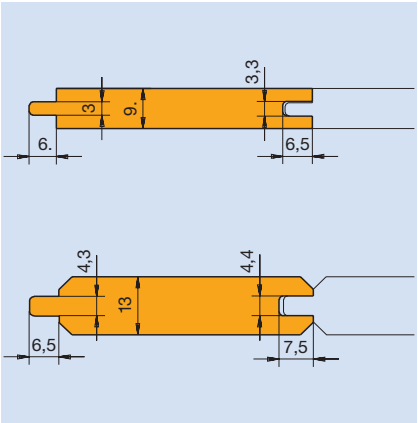


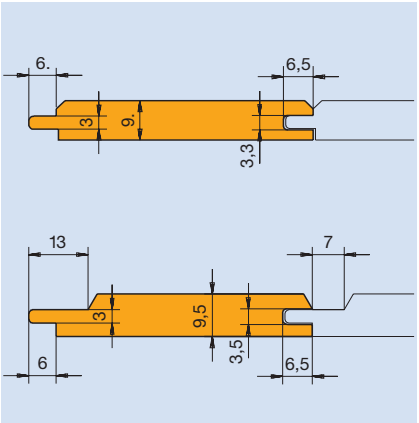
Australian standard profiles



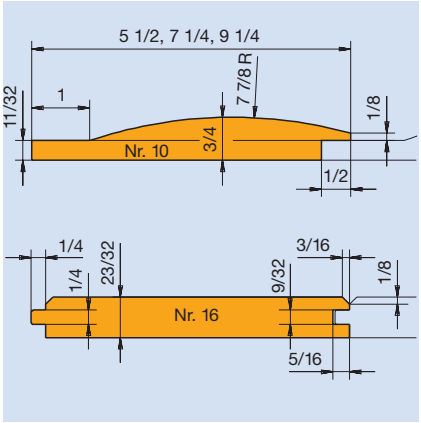


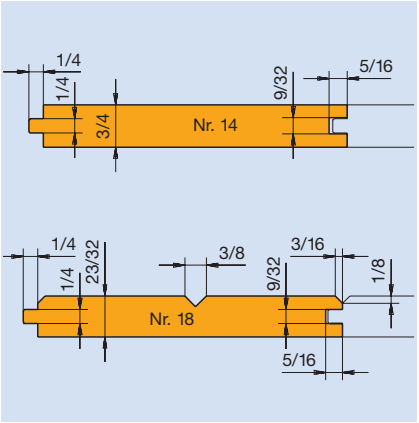
Scandinavian standard profiles



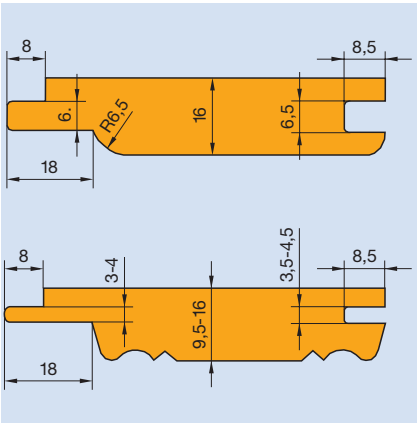


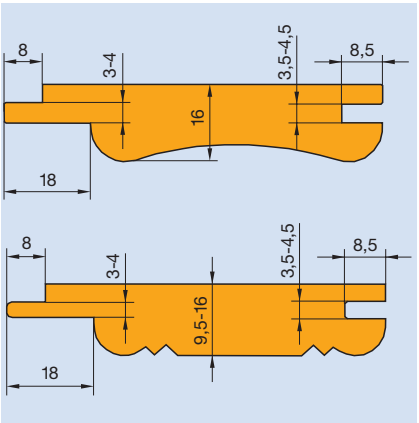
Canadian standard profiles

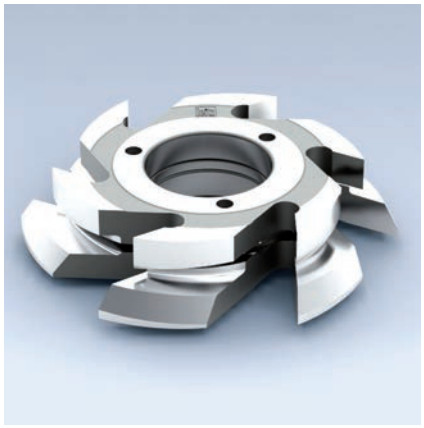


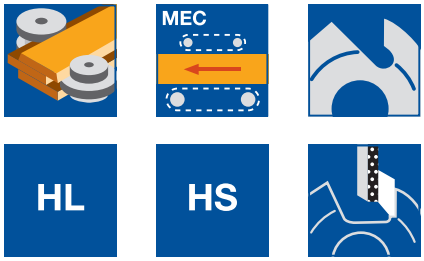


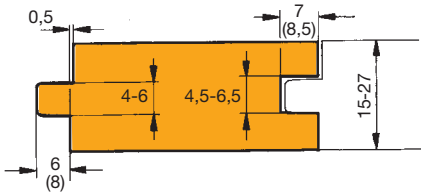
European country-house profiles



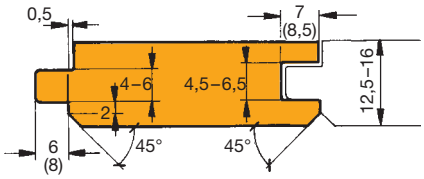




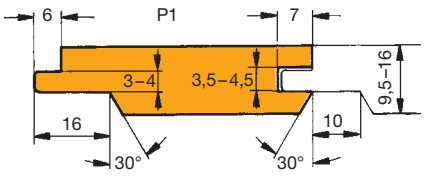




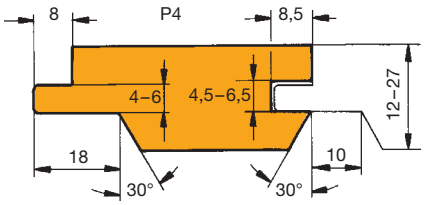
Profile 3: AF 200 2



Profile 5: AF 210 2



Profile 1: AF 240 2



Profile 4: AF 240 2

Tongue and groove cutter, HL solid / HS tipped

Application:
For tongue and groove profiles on wall and ceiling panels.

Machine:
Four-sided moulders.

Workpiece material:
Softwood, along grain.

Technical information:
Tongue and groove cutterset with spacers for adjustment to different wood thicknesses and tongue and groove widths. BO 60 for use on hydro sleeve for high feed speeds and machining qualities. HL profile cutter with form ground clearance and large resharpening area; HS tipped design with straight clearance.

Straight with closed joint (P3), as viewed from finished face
AF 200 2

P	D mm	BO mm	HD mm	Z	NT mm	FL mm	n_{max} min^{-1}	QAL	ID
3	180	60	15 - 27	6	8,5	8	9000	HL	**021876**
3	160	40	15 - 27	6	8,5	8	9000	HS	**022016**

Bevel profile with closed joint (P5), as viewed from finished face
AF 210 2

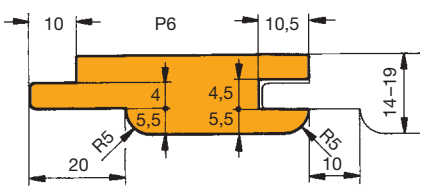
P	D mm	BO mm	HD mm	Z	NT mm	FL mm	n_{max} min^{-1}	QAL	ID
5	160	40	12,5 - 16	6	7	6	9000	HS	**021913**

Bevel profile (P1, P4)
AF 240 2

P	D mm	BO mm	HD mm	NT mm	FL mm	Z	n_{max} min^{-1}	QAL	ID
1	180	60	12 - 27	7	6	6	9000	HL	**021964**
4	180	60	12 - 27	8	8,5	6	9000	HL	**021969**

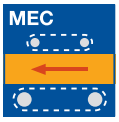
Radius profile R5 (P6)
AF 221 2

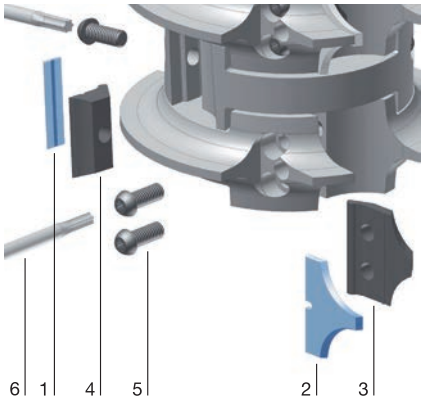
P	D mm	BO mm	HD mm	NT mm	FL mm	Z	n_{max} min^{-1}	QAL	ID
6	180	60	14 - 19	10	10,5	6	9000	HL	**021883**



Profile 6: AF 221 2

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org





Profile cutterhead set ProfilCut Q - bevelling / rounding

Application:
Multi-purpose tool set for bevelling, rounding and jointing the workpiece edges at the same time.

Machine:
Spindle moulders, copy shaping and moulders, double-end tenoner.

Workpiece material:
Softwood and hardwood.

Technical information:
With a combination of jointing and bevelling/rounding cutterheads, different profiles and wood thicknesses can be machined. Profile knives with different radii/bevels can be mounted in one cutterhead.

Mechanical feed
SE 541 2 53

Tool Type	D_0 mm	AW PCS	n_{max} min^{-1}	Z	ID
Jointing-rounding	125	2	8000	2	**126200** □
Rounding-jointing-rounding	125	3	8000	2	**126201** □
Rounding-rounding	125	2	8000	2	**126202** □

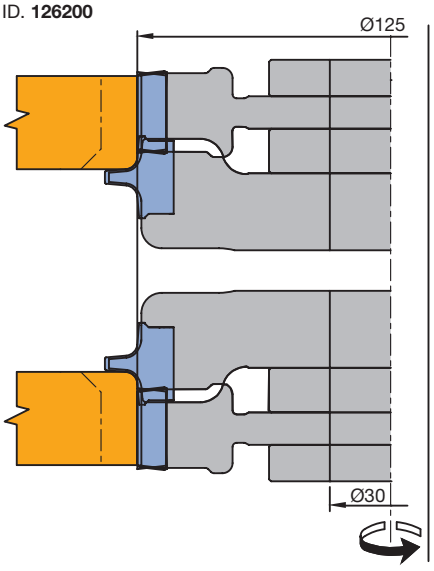
Further radii are available at short notice.

Spare parts:

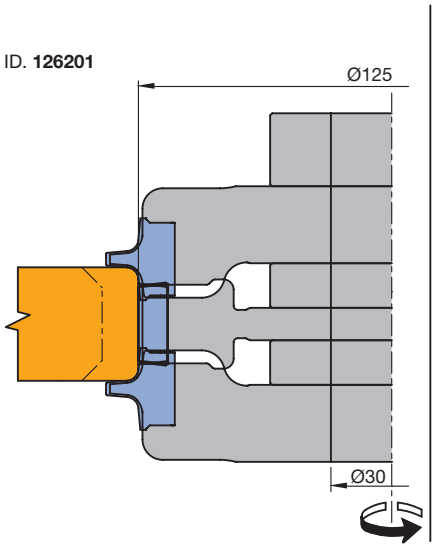
Part-no.	BEZ	ABM mm	Tool no.	ID
3	Clamping wedge	17x23x8,27	1/2	**630140**
3	Clamping wedge	32x28x8.27	3/4	**630141**
3	Clamping wedge	37x29,7x8,27	5	**630142**
3	Clamping wedge	37x29,7x8,27	6	**630143**
3	Clamping wedge	47x31,8x8,27	7	**630144**
3	Clamping wedge	47x31,8x8,27	8	**630145**
4	Clamping wedge	18x18,75x8,27	20	**630204** ●
4	Clamping wedge	33x18,75x8,27	35	**630208** ●
4	Clamping wedge	48x18,75x8,27	50	**630211** ●
5	Clamping screw w. disc, Torx® 20	M5x18.5		**007446** ●
6	Torx® key	Torx® 20		**117503** ●

Part no. 1 and 2 - spare knives, see detailed overview on the following pages.

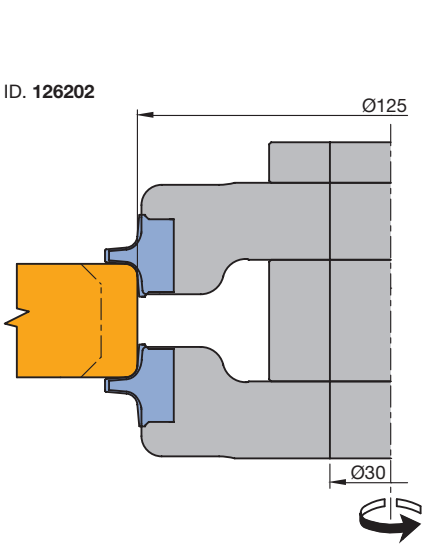
ID. **126200**



ID. **126201**

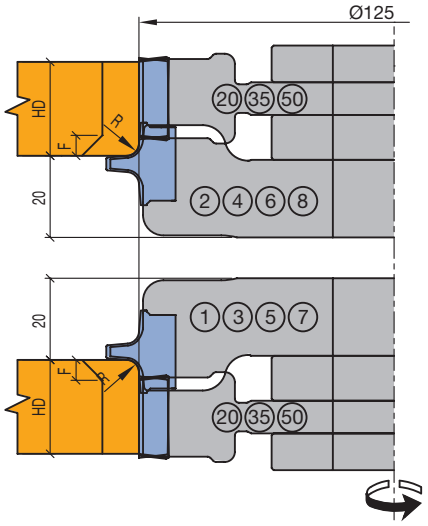


ID. **126202**



● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

ID. 126200



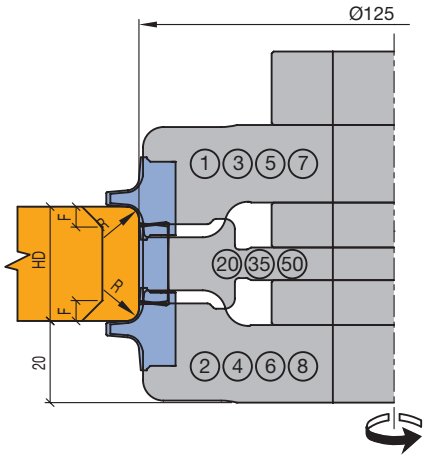
Order example:
-Combination ID 126200
-Profile description top down RL
jointingSB35/R5 or R5/jointingSB35
-Bore diameter 30

Wood thickness (HD):

Jointing tool	20	35	50
max. HD	18+R (F)	33+R (F)	48+R (F)

F (bevel) max. = 5 or 9x45“

ID. 126201

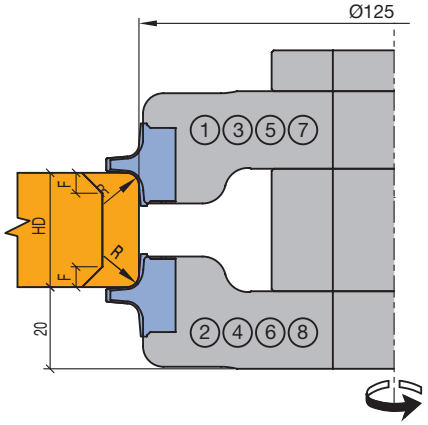


Order example:
-Combination ID 126201
-Profile description top down RL
R5/jointingSB35/R5
-Bore diameter 30

Radii tools	Jointing tool 20	35	50	Minimum wood thickness
No.1+2	6	12	24	
No.1+4	13	19	31	
No.1+6	18	24	36	
No.1+8	28	34	46	
No.3+2	13	19	31	
No.3+4	20	26	38	
No.3+6	25	31	43	
No.3+8	35	41	53	
No.5+2	18	24	36	
No.5+4	25	31	43	
No.5+6	30	36	48	
No.5+8	40	46	58	
No.7+2	28	34	46	
No.7+4	35	41	53	
No.7+6	40	46	58	
No.7+8	50	56	68	
max. HD	18+R+R (F+F)	33+R+R (F+F)	48+R+R (F+F)	

F (bevel) max. = 3, 5, 7x45“ or 8x40“
Wood thicknesses are calculated with max. bevel

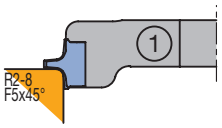
ID. 126202



Order example:
-Combination ID 126202
-Profile description top down RL
R5/R5
-Bore diameter 30

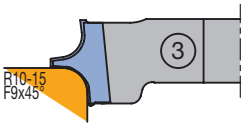
Radii tools		Minimum wood thickness
No.1+2	-2	
No.1+4	5	
No.1+6	10	
No.1+8	20	
No.3+2	5	
No.3+4	12	
No.3+6	17	
No.3+8	27	
No.5+2	10	
No.5+4	17	
No.5+6	22	
No.5+8	32	
No.7+2	20	
No.7+4	27	
No.7+6	32	
No.7+8	42	

Spare part:
clamping wedge 630140



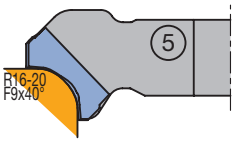
WZ 125502 ME 619247	R4	
WZ 125503 ME 619248	R5	
WZ 125504 ME 619249	R6	
WZ 125505 ME 619250	R7	
WZ 125500 ME 619245	R2	
WZ 125506 ME 619251	R8	
WZ 125501 ME 619246	R3	
WZ 125507 ME 619253	F5x45°	

Spare part:
clamping wedge 630141



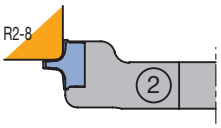
WZ 125517 ME 619255	R11	
WZ 125518 ME 619256	R12	
WZ 125519 ME 619257	R13	
WZ 125520 ME 619258	R14	
WZ 125521 ME 619259	R15	
WZ 125516 ME 619254	R10	
WZ 125522 ME 619260	F9x45°	

Spare part:
clamping wedge 630142



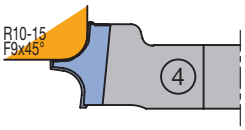
WZ 125530 ME 619263	R16	
WZ 125531 ME 619264	R17	
WZ 125532 ME 619265	R18	
WZ 125533 ME 619266	R19	
WZ 125534 ME 619267	R20	
WZ 125535 ME 619269	F9x40°	

Spare part:
clamping wedge 630140



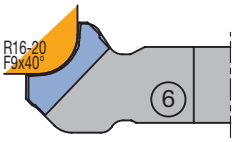
WZ 125510 ME 619247	R4	
WZ 125511 ME 619248	R5	
WZ 125512 ME 619249	R6	
WZ 125513 ME 619250	R7	
WZ 125508 ME 619245	R2	
WZ 125514 ME 619251	R8	
WZ 125509 ME 619246	R3	
WZ 125515 ME 619253	F5x45°	

Spare part:
clamping wedge 630141



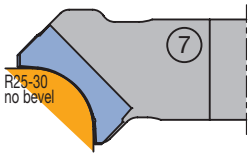
WZ 125524 ME 619255	R11	
WZ 125525 ME 619256	R12	
WZ 125526 ME 619257	R13	
WZ 125527 ME 619258	R14	
WZ 125528 ME 619259	R15	
WZ 125523 ME 619254	R10	
WZ 125529 ME 619260	F9x45°	

Spare part:
clamping wedge 630143



WZ 125536 ME 619271	R16	
WZ 125537 ME 619272	R17	
WZ 125538 ME 619273	R18	
WZ 125539 ME 619274	R19	
WZ 125540 ME 619275	R20	
WZ 125541 ME 619277	F9x40°	

Spare part:
clamping wedge 630144

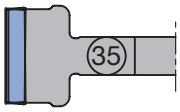


WZ 125542 ME 619279	R25	
WZ 125543 ME 619280	R26	
WZ 125544 ME 619281	R27	
WZ 125545 ME 619282	R28	
WZ 125546 ME 619283	R29	
WZ 125547 ME 619284	R30	

SB 20

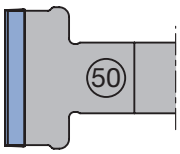
WZ 125680
ME 601604
VE 10 pcs.)
Wedge 630204

SB 35



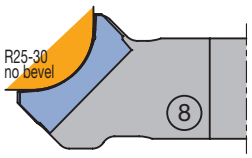
WZ 125681
ME 601607
VE 10 pcs.)
Wedge 630208

SB 50



WZ 125682
ME 601610
VE 10 pcs.)
630211

Spare part:
clamping wedge 630145



WZ 125548 ME 619285	R25	
WZ 125549 ME 619286	R26	
WZ 125550 ME 619287	R27	
WZ 125551 ME 619288	R28	
WZ 125552 ME 619289	R29	
WZ 125553 ME 619290	R30	

Spacer set
(one set per cutterhead necessary)

60x20x30

● available ex stock
□ available at short notice
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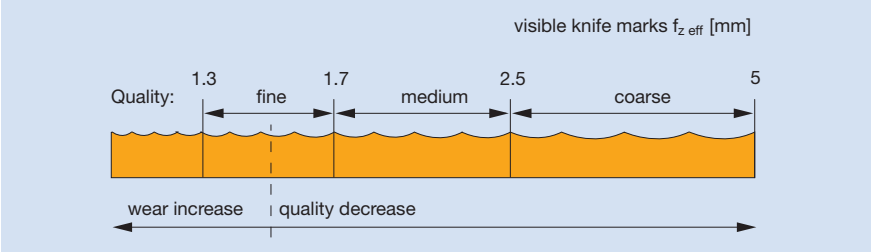
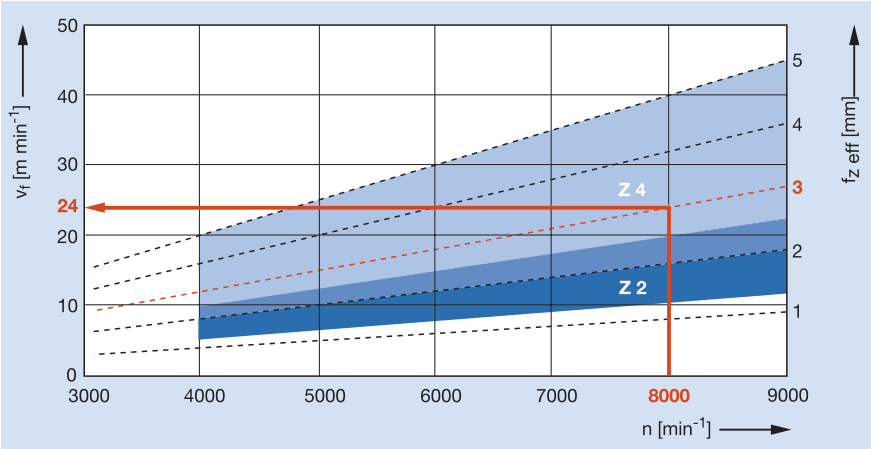
Process steps

The cutterheads presented in the following section are suitable for a variety of profiles in the craft and industrial sectors.
Due to the different application possibilities, the use of the tool and wood types to be machined are detailed on the respective product pages.

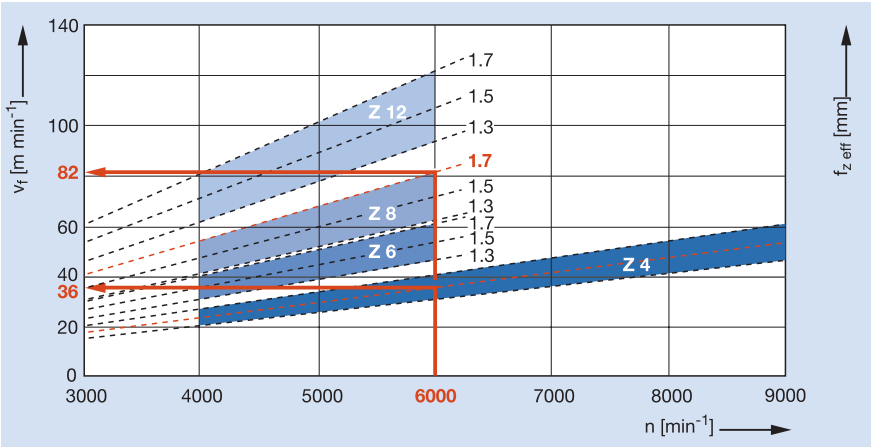
Relation between surface quality and length of knife marks $f_{z\ eff}$



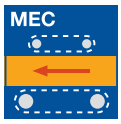
Cutterhead without hydro clamping: Feed speeds depending on RPM, length of knife marks and number of wings

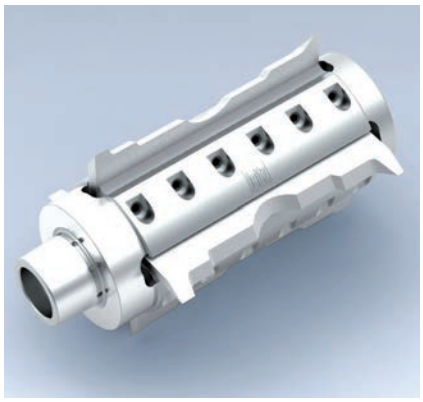


Cutterhead with hydro clamping: Feed speeds depending on RPM, length of knife marks and number of wings

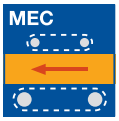


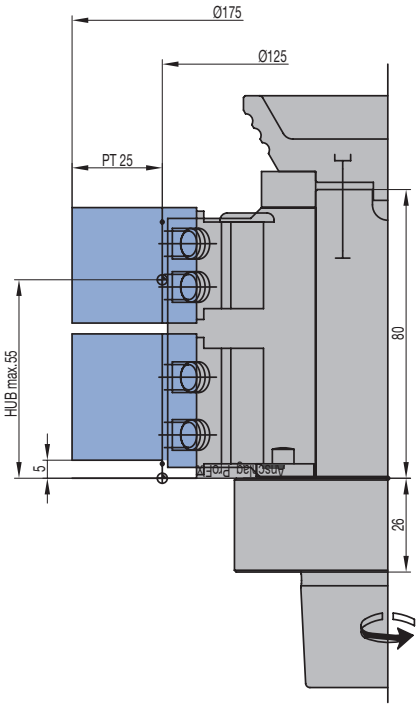
Profile cutterheads for serrated back blank knives





Application	Multi-purpose profiling, machining along grain.
Machines	Four-sided moulders and profiling machines.
Workpiece materials	Softwood and hardwood.
Number of teeth	Z 2, Z 4.
Cutting material	Marathon (MC), HW.
Resharpening area	10.8 mm (9 + 1.8 mm) Marathon (MC) and HW blank knife with backing plate.
Feed	Four-sided profiling.
Tool design	Steel tool body. High concentricity and balance. Knife seat for serrated back knives in HS and MC 33, thickness 8 mm, and HW and HW PowerKnifeSystem (MicroSystem blank knives), total thickness 10 mm (HW blank knife and backing plate). Standard pitch 1.6 mm.
Advantages	Optimal cutting speed with n = 12,000 min-1 and thus improved finish quality. For optimal finish quantity we recommend to grind in the profile blanks in the cutterhead and joint them additionally on the machine.
Note	Cutting angle 20° for softwood. Cutting angle 12° for hardwood and wood fibre materials. PowerKnifeSystem (HW MicroSystem) blank knives with a knife height of 70 mm can only be used for cutting widths up to 150 mm. For jointing: resharpened concentricity of < 0.005 mm.





Profile cutterhead ProFix F

Application:
Flexible profiling of different profiles, suitable for panel production.

Machine:
Four-sided moulders and profile machines.

Workpiece material:
Softwood and hardwood, with grain.

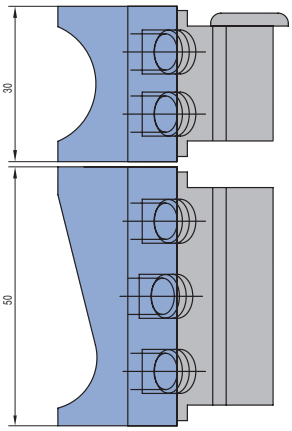
Technical information:
Resharpenable, diameter and profile constant tooling system. Easy profile adjustment through knife change. No tool measurement required. To adapt ProFix F knives with 4.5 mm resharpening area and a profile depth of 25 mm maximum Lightweight aluminium tool body. Division of maximum cutting width to several knives possible.

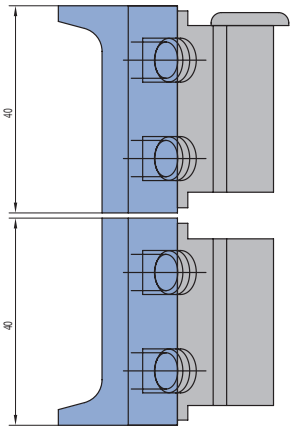
Bore 40 mm
HY 500 2 25

D_0 mm	PT mm	SB mm	n_{max} min^{-1}	Z	ID
125	25	20 - 70	10000	2	**014044** ●
125	25	20 - 90	10000	2	**014043** ●

HSK 85 WS
HY 500 2 25

D_0 mm	PT mm	SB mm	n_{max} min^{-1}	BEM	Z	ID
125	25	20 - 70	10000	right/top	2	**014046** □
125	25	20 - 70	10000	left/bottom	2	**014048** □
125	25	20 - 90	10000	right/top	2	**014045** □
125	25	20 - 90	10000	left/bottom	2	**014047** □





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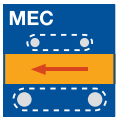
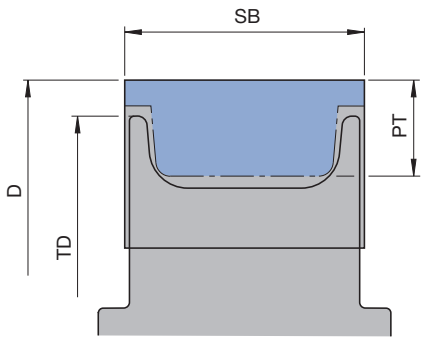


Tool body, U profile

Table of the 0-diameter (D_0)
for adjusting the machine spindles

D mm	TD mm	D_0 mm
150	135	110
165	140	125
180	165	140

Profile cutterhead VariForm

Application:
For cutting profiles. Different profiles with maximum 20 mm profile depth can be mounted.

Machine:
Moulders, double-end tenoners, edgebanding machines etc.

Workpiece material:
Softwood and hardwood (HW-30F), panel materials or glued wood (HW-10F).

Technical information:
Multi-purpose cutterhead for MEC feed with tungsten carbide special profile knives and backing plates.
Resharpenable 3 to 4 times.

Partly profiled tool body, MEC feed, Z 2 - Z 4 U profile
TT 531 2

D mm	TD mm	SB mm	BO mm	BO_{max} mm	PT_{max} mm	Z	n_{max} min^{-1}	ID
165	140	40	30	40	20	2	10000	**135212** ●
165	140	60	30	40	20	2	10000	**134214**
180	165	40	30	50	20	4	9000	**135206** ●
180	165	60	30	50	20	4	9000	**135208** ●

Supplied with clamping wedges, but without backing plates and knives.

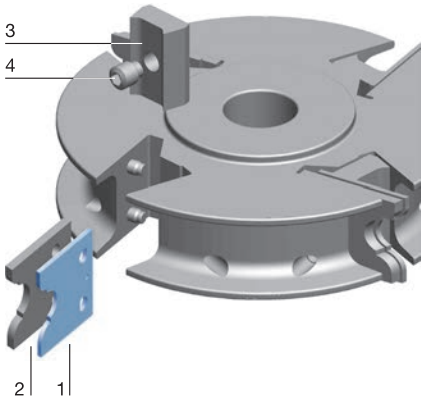
Spare knives:

Teile-Nr.	H mm	SB mm	ID HW-10F	ID HW-30F
1	45	40	**636226** ●	**636239** ●
1	45	60	**636287** ●	**636275** ●

Spare parts:

Part-no.	BEZ	ABM mm	for SB mm	ID
2	Backing plate VariForm	for knives 40x45x2.1		**645004** ●
2	Backing plate VariForm	for knives 60x45x2.1		**645006** ●
3	Clamping wedge	36x13,21x26	40/45	**009756** ●
3	Clamping wedge	56x13,21x26	60	**009757** ●
4	Allen screw with ISK 5	M10x12		**006044** ●
	Allen key	SW 5, L100		**117506** ●

Tool system description VariForm see section Profile Tool Systems.



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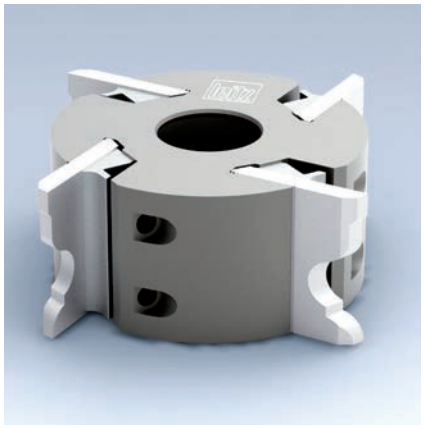
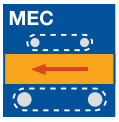
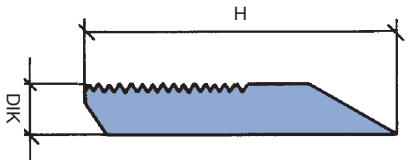
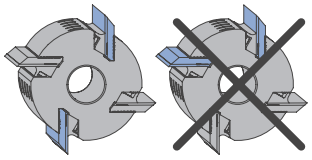






Serrated back blank knives with high precision serration, serration angle 60°, pitch 1.6 mm.



Attention:
For safety reasons, always mount knives and backing plates (VE) of the same weight opposite to each other.

H mm	QAL	PT mm
50	MC	15
60	MC	20
70	MC	30
50	HW	10
60	HW	18

Table to determine maximum profile depth.
The profile depth figures are to be regarded as standard values. The maximum profile depth depends on the tool diameter and cutting angle.

Profile cutterheads for serrated back blank knives

Application:
For multi-purpose profiles in hard and/or materials likely to splinter.

Machine:
Four-sided moulders.

Workpiece material:
Cutting angle 20° for softwood and hardwood in general.

Technical information:
Profile cutterhead with 60° serration, 1.6 mm pitch. Steel tool body. Blank knives with knife thickness 8 - 10 mm and knife heights of 40 - 70 mm can be used depending on required profile depth. Cutting materials: Marathon (MC) and HW.

Cutting angle 20°
WM 501 2 05

TD mm	SB mm	BO mm	BO_{max} mm	n_{max} min^{-1}	Z	ID
122	80	40	40	10300	2	**135805** ●
122	40	40	40	10300	4	**135802** ●
122	60	35	40	10300	4	**135806** ●
122	60	40	40	10300	4	**135808** ●
122	80	40	40	10300	4	**135809** ●
122	100	35	40	10300	4	**135810**
122	100	40	40	10300	4	**135812** ●
122	130	40	40	10300	4	**135814** ●
122	150	40	40	10300	4	**135817** ●
122	170	40	40	10300	4	**135816** ●
122	180	40	40	10300	4	**135819** ●
122	230	40	40	10300	4	**135821** ●
122	240	40	40	10300	4	**135822**
137	60	40	50	9400	4	**135823**
137	60	50	50	9400	4	**135825** ●
137	80	50	50	9400	4	**135826** ●
137	100	40	50	9400	4	**135827**
137	100	50	50	9400	4	**135829** ●
137	130	40	50	9400	4	**135830**
137	130	50	50	9400	4	**135831** ●
137	150	50	50	9400	4	**135833** ●
137	180	50	50	9400	4	**135836**
137	230	50	50	9400	4	**135838** ●

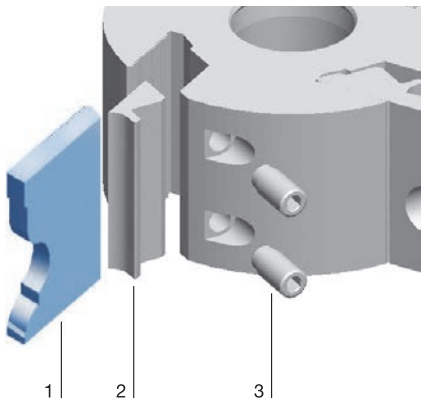
Cutting angle 12°
WM 501 2 05

TD mm	SB mm	ND mm	BO mm	Z	ID
122	40	40	40	4	**135840**
122	60	60	40	4	**135841**
122	80	80	40	4	**135842**
122	130	130	40	4	**135843**

Cutterhead without knives. For blank knives in different dimensions and qualities, see section Knives and Spare Parts.
Lightweight aluminium design on request.

Spare parts:

Part-no.	BEZ	ABM mm	for SB mm	ID
2	Clamping wedge	38x25,3x10,8	40	**620700** ●
2	Clamping wedge	58x25,3x10,8	60	**620701** ●
2	Clamping wedge	78x25,3x10,8	80	**620702** ●
2	Clamping wedge	98x25,3x10,8	100	**620703** ●
2	Clamping wedge	128x25,3x10,8	130	**620705** ●
2	Clamping wedge	148x25,3x10,8	150	**620706** ●
2	Clamping wedge	168x25,3x10,8	170	**620707** □
2	Clamping wedge	178x25,3x10,8	180	**620708** □
2	Clamping wedge	228x25,43x11	230	**620709** □
2	Clamping wedge	238x25,3x10,8	240	**620710** □
3	Allen screw	M10x1x20		**007396** ●
	Filler piece	40x30x8	40	**005305** ●
	Filler piece	60x30x8	60	**005306** ●
	Filler piece	80x30x8	80	**005307** ●
	Filler piece	100x30x8	100	**005308** ●
	Filler piece	130x30x8	130	**005310** ●
	Filler piece	150x30x8	150	**005311** ●
	Filler piece	170x30x8	170	**620770** ●
	Filler piece	180x30x8	180	**005312** ●
	Filler piece	230x30x8	230	**005313** ●
	Filler piece	240x30x8	240	**620771** ●
	Allen key	SW 5		**117509** ●



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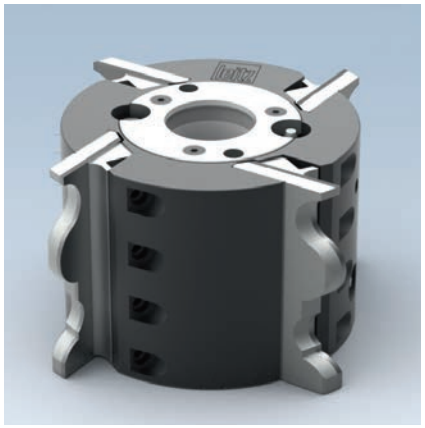
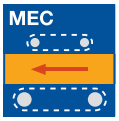
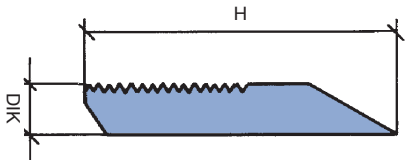
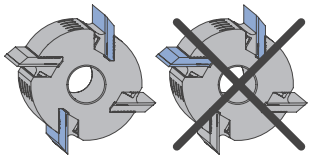






Serrated back blank knives with high precision serration, serration angle 60°, pitch 1.6 mm.



Attention:
For safety reasons, always mount knives and backing plates (VE) of the same weight opposite to each other.

H mm	QAL	PT mm
50	MC	15
60	MC	20
70	MC	30
50	HW	10
60	HW	18

Table to determine maximum profile depth.
The profile depth figures are to be regarded as standard values. The maximum profile depth depends on the tool diameter and cutting angle.

Hydro profile cutterhead for serrated back blank knives

Application:
Cutting of multi-purpose profiles with high feed speeds.

Machine:
Four-sided moulders and profile machines.

Workpiece material:
Softwood and hardwood.

Technical information:
Profile cutterhead with 60°-serration, 1.6 mm pitch. Steel tool body with corrosion resistant surface protection. For blank knives with 8 - 10 mm knife thickness and 5 mm (see table) and 40 - 70 mm knife height, depending on the required profile depth. Integrated hydro clamping system with exchangeable clamping sleeves. Activated by a grease gun. Hydro profile cutterheads can only be used in combination with a clamping collar.

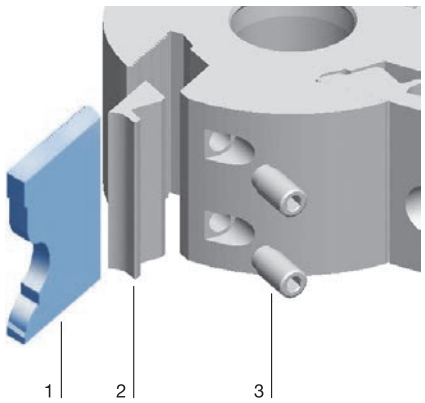
Steel tool body
HM 501 2 05

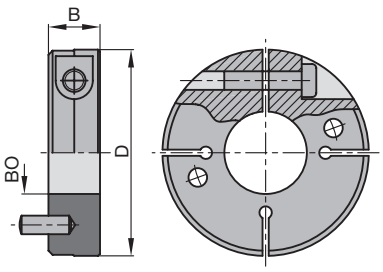
TD mm	SB mm	BO mm	for knife thickness mm	Z	n_{max} min^{-1}	ID
135	100	40	8 - 10	4	9400	**137035**
135	150	40	8 - 10	4	9400	**137036**
145	60	50	8 - 10	6	9100	**137037**
145	100	50	8 - 10	6	9100	**137038**
150	60	50	8 - 10	4	8800	**137039** ●
150	100	50	8 - 10	4	8800	**137040** ●
150	150	50	8 - 10	4	8800	**137041** ●
150	230	50	8 - 10	4	8800	**137042** ●
150	60	50	8 - 10	6	8800	**137043** ●
150	100	50	8 - 10	6	8800	**137044** ●
150	150	50	8 - 10	6	8800	**137045** ●
150	230	50	8 - 10	6	8800	**137046**
165	60	50	8 - 10	8	8200	**137047**
165	100	50	8 - 10	8	8200	**137048**
170	60	50	8 - 10	8	8100	**137049** ●
170	100	50	8 - 10	8	8100	**137050**
170	150	50	8 - 10	8	8100	**137051** ●
190	60	50	5	12	7400	**137052**
190	60	50	5	14	7400	**137053**

Cutterhead without knives. Blanks in various dimensions and qualities see section Knives and Spare Parts.

Spare parts:

Part-no.	BEZ	ABM	for SB	ID
		mm	mm	
2	Clamping wedge	38x25,3x10,8	40	**620700** ●
2	Clamping wedge	58x25,3x10,8	60	**620701** ●
2	Clamping wedge	78x25,3x10,8	80	**620702** ●
2	Clamping wedge	98x25,3x10,8	100	**620703** ●
2	Clamping wedge	128x25,3x10,8	130	**620705** ●
2	Clamping wedge	148x25,3x10,8	150	**620706** ●
2	Clamping wedge	168x25,3x10,8	170	**620707** □
2	Clamping wedge	178x25,3x10,8	180	**620708** □
2	Clamping wedge	228x25,43x11	230	**620709** □
2	Clamping wedge	238x25,3x10,8	240	**620710** □
3	Allen screw	M10x1x20		**007396** ●
	Filler piece	40x30x8	40	**005305** ●
	Filler piece	60x30x8	60	**005306** ●
	Filler piece	80x30x8	80	**005307** ●
	Filler piece	100x30x8	100	**005308** ●
	Filler piece	130x30x8	130	**005310** ●
	Filler piece	150x30x8	150	**005311** ●
	Filler piece	170x30x8	170	**620770** ●
	Filler piece	180x30x8	180	**005312** ●
	Filler piece	230x30x8	230	**005313** ●
	Filler piece	240x30x8	240	**620771** ●
	Allen key	SW 5		**117509** ●





Clamping collar without thread

Clamping collars without thread

TD 870 0

D	B	BO	ID
mm	mm	mm	
100	25	40	**030700** ●
100	25	50	**030702** ●

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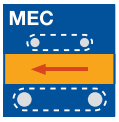
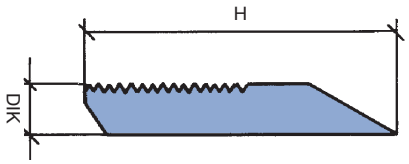
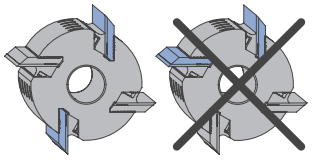




Serrated back blank knives with high precision serration, serration angle 60°, pitch 1.6 mm.



Attention:
For safety reasons, always mount knives and backing plates (VE) of the same weight opposite to each other.

H mm	QAL	PT mm
50	MC	15
60	MC	20
70	MC	30
50	HW	10
60	HW	18

Table to determine maximum profile depth.
The profile depth figures are to be regarded as standard values. The maximum profile depth depends on the tool diameter and cutting angle.

Profile cutterhead with HSK 85 WS for serrated back blank knives

Application:
For multi-purpose profiles in hard and/or materials likely to splinter.

Machine:
Four-sided moulders with HSK 85 WS interface.

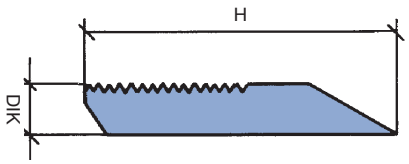
Workpiece material:
Cutting angle 20° for softwood and hardwood in general.
Cutting angle 12° for materials likely to splinter e.g. oak, Douglas fir, merbau and wood fibre materials, e.g. MDF.

Technical information:
Profile cutterhead with back serration, 1.6 mm pitch, with integrated HSK.
Blanks with knife thickness 8 - 10 mm and knife heights of 40 - 70 mm can be used depending on the required profile depth. Cutting materials: Marathon (MC) and HW. Steel tool body. High balance quality by assembly with parts of the same weight.

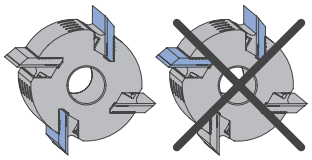
Cutting angle 20°
WP 510 2 02

	TD mm	SB mm	A mm	Z	n_{max} min^{-1}	ID LH / bottom	ID RH / top
	90	40	26	2	12000	**136200**	**136201**
	90	60	26	2	12000	**136202** ●	**136203** ●
	90	80	26	2	12000	**136204** ●	**136205** ●
	90	100	26	2	12000	**136206** ●	**136207** ●
	90	130	26	2	12000	**136208** ●	**136209** ●
	90	150	26	2	12000	**136210**	**136211**
*	90	170	26	2	12000	**136212** ●	**136213** ●
*	90	210	26	2	12000	**136216**	**136217**
*	90	240	26	2	12000	**136218** ●	**136219** ●
	90	270	26	2	8000	**136220**	**136221**
	90	40	26	4	12000	**136224** ●	**136225** ●
	90	60	26	4	12000	**136226** ●	**136227** ●
	90	80	26	4	12000	**136228** ●	**136229** ●
	90	100	26	4	12000	**136230** ●	**136231** ●
	90	130	26	4	12000	**136232** ●	**136233** ●
	90	150	26	4	12000	**136234**	**136235**
*	90	170	26	4	12000	**136236** ●	**136237** ●
*	90	210	26	4	12000	**136240**	**136241**
*	90	240	26	4	12000	**136242** ●	**136243** ●
*	90	270	26	4	8000	**136244**	**136245**
	115	80	26	6	10000	**136198** ●	**136199** ●
	115	130	26	6	10000	**136400** ●	**136401** ●
	115	170	26	6	10000	**136402** ●	**136403** ●
	115	240	26	6	10000	**136404** ●	**136405** ●

* = Not for PKS blank knives H = 70 mm with n = 12000 min^{-1}
Cutterhead without knives. For blank knives in different dimensions and qualities, see section Knives and Spare Parts.



Serrated back blank knives with high precision serration, serration angle 60°, pitch 1.6 mm.



Attention:
For safety reasons, always mount knives and backing plates (VE) of the same weight opposite to each other.

H mm	QAL	PT mm
50	MC	15
60	MC	20
70	MC	30
50	HW	10
60	HW	18

Table to determine maximum profile depth.
The profile depth figures are to be regarded as standard values. The maximum profile depth depends on the tool diameter and cutting angle.

Cutting angle 12°
WP 510 2 02

	TD mm	SB mm	A mm	Z	n_{max} min^{-1}	ID LH / bottom	ID RH / top
	90	40	26	2	12000	**136248** ●	**136249** ●
	90	60	26	2	12000	**136250** ●	**136251** ●
	90	80	26	2	12000	**136252**	**136253**
	90	100	26	2	12000	**136254** ●	**136255** ●
	90	130	26	2	12000	**136256** ●	**136257** ●
	90	150	26	2	12000	**136258**	**136259**
*	90	170	26	2	12000	**136260**	**136261**
*	90	210	26	2	12000	**136264**	**136265**
*	90	240	26	2	12000	**136266**	**136267**
	90	40	26	4	12000	**136270** ●	**136271** ●
	90	60	26	4	12000	**136272** ●	**136273** ●
	90	80	26	4	12000	**136274** ●	**136275** ●
	90	100	26	4	12000	**136276** ●	**136277** ●
	90	130	26	4	12000	**136278**	**136279**
	90	150	26	4	12000	**136280**	**136281**
*	90	170	26	4	12000	**136282**	**136283**
	115	80	26	6	10000	**136192**	**136193**
	115	130	26	6	10000	**136194**	**136195**
	115	170	26	6	10000	**136196**	**136197**

* = Not for PKS blank knives H = 70 mm with n = 12000 min^{-1}
Cutterhead without knives. For blank knives in different dimensions and qualities, see section Knives and Spare Parts.

Spare parts:

BEZ	for knife thickness mm	for SB mm	ID
Clamping wedge	8/10	40	**620816** ●
Clamping wedge	8/10	60	**620817** ●
Clamping wedge	8/10	80	**620818** ●
Clamping wedge	8/10	100	**620819** ●
Clamping wedge	8/10	130	**620820** ●
Clamping wedge	8/10	150	**620821** ●
Clamping wedge	8/10	170	**620822** ●
Clamping wedge	8/10	190	**620823** ●
Clamping wedge	8/10	210	**620824** ●
Clamping wedge	8/10	240	**620825** ●
Clamping wedge	8/10	270	**620826** ●
Clamping wedge	8/10	310	**620827** ●
Allen screw			**007396** ●
Filler piece		40	**005305** ●
Filler piece		60	**005306** ●
Filler piece		80	**005307** ●
Filler piece		100	**005308** ●
Filler piece		130	**005310** ●
Filler piece		150	**005311** ●
Filler piece		170	**620770** ●
Filler piece		190	**620772** ●
Filler piece		210	**620773** ●
Filler piece		240	**620771** ●
Filler piece		270	**620774** ●
Filler piece		310	**620775** ●
Allen key			**117509** ●

● available ex stock
□ available at short notice
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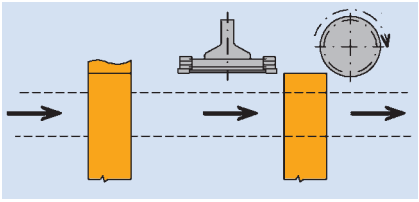
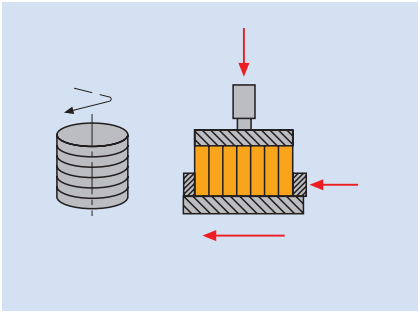
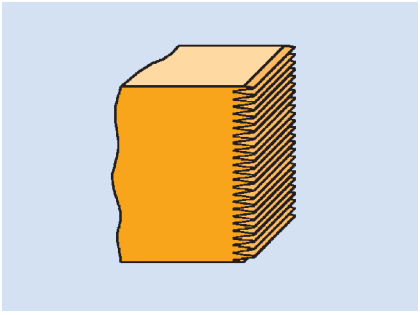
Process step	Cutting high-strength finger joint profiles for longitudinal jointing of workpieces. The finger profiles meet the requirements of the testing institutes.
Machines	Single and double side finger jointing machines with and without cut-off saw or scoring saws, double-end tenoners, compact finger joint lines, cross profile and standard machines.
Tools	For finger joint machines without cut-off saw: Use minifinger tools with the following finger lengths: 10/10, 15/15 or 20/20 mm. For finger joint machines with cut-off saw: Use minifinger tools with the following finger lengths: 10/11, 15/16.5 or 20/22 mm.



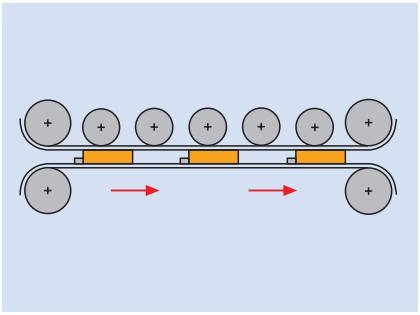
Minifinger jointing machine with cut-off.



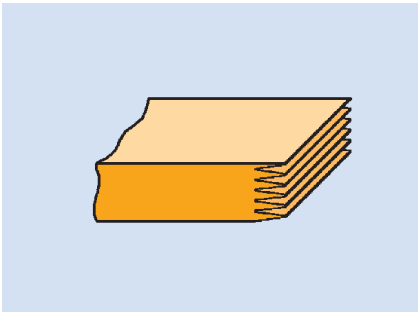
Vertical finger jointing machine/stack machine.



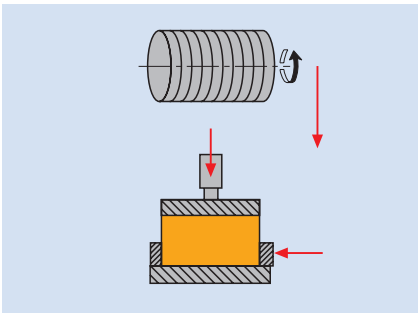
Vertical finger jointing.



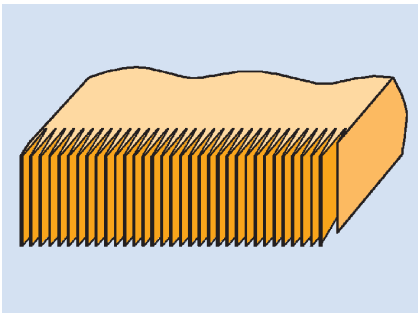
Horizontal finger jointing line.



Horizontal finger jointing.



Compact finger jointing line.



Compact finger jointing.
Vertical finger jointing with horizontal spindle.

Feed rate	Depending on the spindle RPM, no. of wings, workpiece material and condition of the minifinger tooling cutting edges.
Workpiece materials	Coniferous wood and hardwood, softwood and hardwood, Exotic wood, glulam (limited).

Recommended cutting material

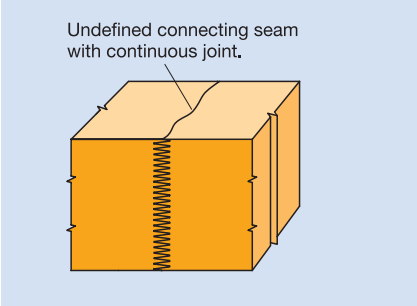
	HS	Marathon (MC)	HW
Coniferous wood soft	♦	♦	◇
Coniferous wood hard		♦	♦
Deciduous wood soft		♦	♦
Deciduous wood hard		◇	♦
Exotic wood		◇	♦
Glulam			◇

♦ suitable ◇ partly suitable

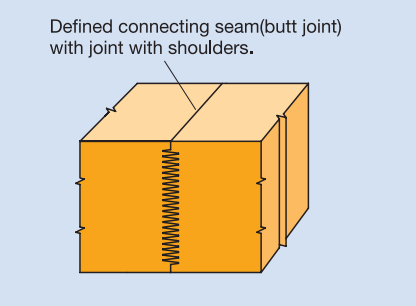
Joint types

Shoulder variations

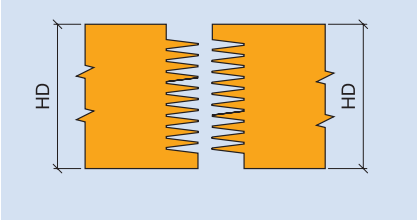
Strips with continuous joint present an irregular glue line on the side of the profile. To give a straight line (seam), the fingers are profiled with shoulder cutters. The number of fingers is determined by the wood thickness and the shoulder width.



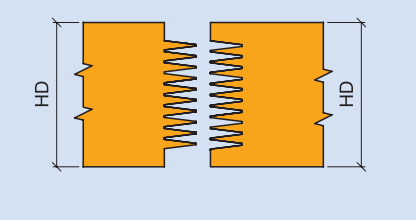
Continuous joint.



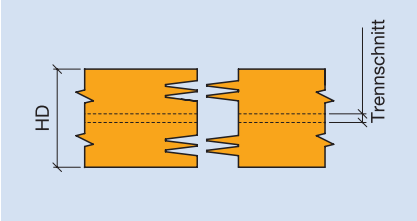
Joint with shoulders.



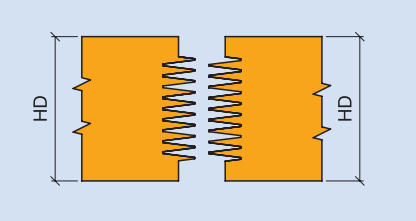
Profile 2: Staggered shoulders.



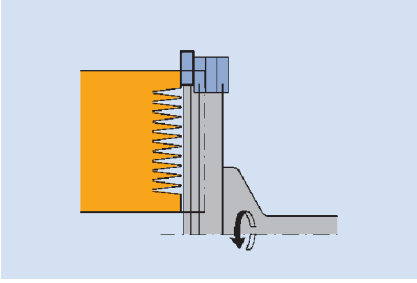
Profile 3: Level shoulders.



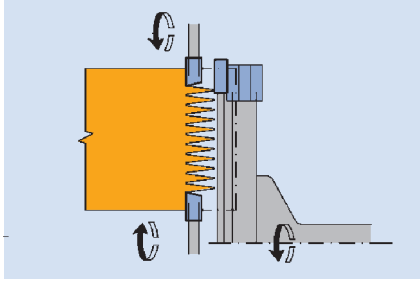
Profile 4: Shoulders for splitting.



Profile 5: Shoulder centralised.



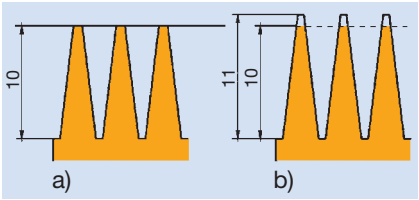
Hogger for trimming minifingers.



Hogger and scoring saw for trimming minifingers and scoring the butt joint.

The requirements for finger joints are defined in the standards DIN 68140 and EN 385 and EN 387.
Load group I (load-bearing components):
Multi-purpose finger joints for laminated panels BSH.
The components should be calculated according to DIN 1052. v ≤ 0.18.
Load group II:
Multi-purpose finger joints for construction timber (KVH).
Finger joints with shoulders also fall into this group. v ≤ 0.25.

Finger profiles



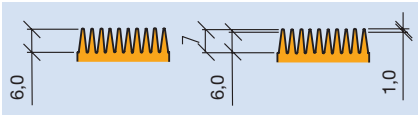
Minifinger profile
a – without cut-off, b – with cut-off

Finger length l mm	Finger pitch t mm	Width of finger tip b mm	Weakening degree v	Relativetip play s mm
10	3,8	0,60	0,16	0,30 – 0,50
15	3,8	0,42	0,11	0,45 – 0,75
20	5,0	0,50	0,10	0,60 – 1,00
20	6,2	1,00	0,16	0,60 – 1,00
30	6,2	0,60	0,10	0,90 – 1,50
50	12,0	2,00	0,17	1,50 – 2,50

Finger length 4 mm
Finger pitch 1.6 mm

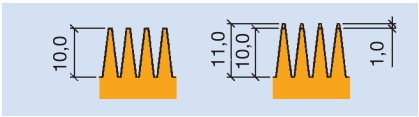
Production of mouldings, glued panels in furniture, mitre joints for windows/doors, picture frames.

Finger length 6/7 mm
Finger pitch 2.8 mm



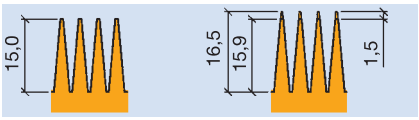
Wood finishing and residual wood for precise construction parts e.g. special window blanks, frieze strips, glued wood panels in furniture.
Reduced finger length to save wood. Tightly sealed finger profile feasible through the length determination of the fingers.

Finger length 10 mm
Finger pitch 3.8 mm



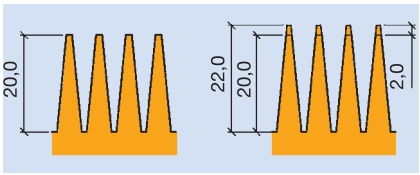
Wood finishing and wood residue recycling, lamellas for window blanks and glued panels in furniture. Finger length 10 mm to DIN 68140 (EN 385 and EN 387) for finger joints in coniferous wood for load bearing components. Finger joints present a visible tip play (S) after pressing.

Finger length 15 mm
Finger pitch 3.8 mm



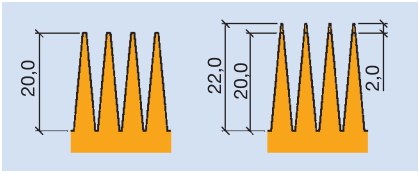
Wood finishing for BSH (laminated wood) and KVH (construction timber).
Finger joints in coniferous wood for high strength, load bearing components to DIN 68140 (EN 385 and EN 387), e.g. lamellas for laminated wood. These finger joints present a visible tip play (S) after pressing.

Finger length 20 mm
Finger pitch 6.2 mm



Wood finishing for laminated wood, mainly for construction timber, duo, trio and cross beams to DIN 68140, (EN 385 and EN 387) for finger joints in coniferous wood for high strength, load bearing components, e.g. lamellas for laminated wood.
These finger joint present a visible tip play (S) after pressing. Because of the greater pitch the finger seam is more visible and stability lower.

Finger length 20 mm
Finger pitch 5.0 mm



Wood finishing for laminated wood and KVH construction timber to DIN 68140 (EN 385 and 387) for finger joints in coniferous wood for high strength, load bearing components, e.g. lamellas for laminated wood, KVH, formwork beams. These finger joints show a visible gap after pressing.
Finger profile with higher stability than the fingers with 6.2 mm pitch. Advantage compared to ZL 15 mm: Because of greater pitch, the wood finger is more stable and easier to join together.

Enquiry - Checklist for minifinger tools

Customer details: Customer number (if known) ☐☐☐☐☐☐☐☐

☐ Enquiry
☐ Order

Delivery date: (not binding) ☐☐ KW

Company:

Street:

Post code/place:

Country:

Phone/fax:

Contact person:

Signature:

Date:

Enquiry/order no.:

Tool Id: (if known)

No.of pieces:

Application:

☐ Vertical finger jointing
☐ Horizontal finger jointing

☐ Load bearing components
☐ Not load bearing components

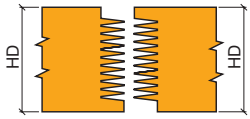
Workpiece material:

Profile:
Wood thickness (mm):
Finger length (mm):
Finger pitch:

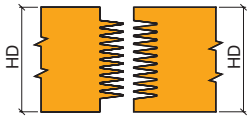
☐ With basic clearance
☐ Tightly fitting profile (only for not load bearing components)
☐ Continuous joint

With shoulder cutters

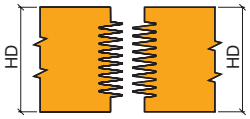
☐ Profile 2



☐ Profile 3



☐ Profile 5



Machine:

Producer:
Type:

☐ One sided machine
☐ Horizontal spindle
☐ Continuous machine
☐ Machine cutting in stacks
Table width (mm):
☐ Feed speed

☐ Double sided machine
☐ Vertical spindle
_____ parts/min
_____ tables/min
_____ mm
_____ m/min

Tool:

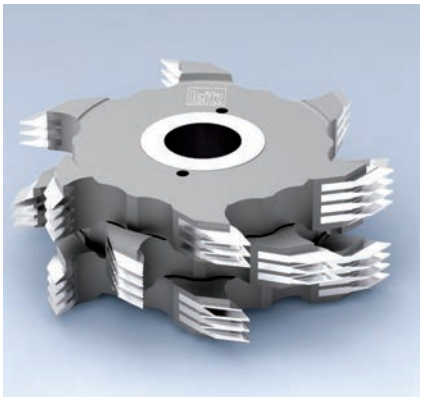
	Cutter spindle	Cut-off device ☐	Scorer on top ☐	Scorer on bottom ☐
RPM (min^{-1}):				
Power (KW):				
Tool diam.(mm):				
Spindle diam.:				
Spindle length (mm):				
Hydro clamping:	☐			
Mounted on sleeve:	☐			
Flange diameter:				
Number of teeth:				

Adhesive:

Producer:
Type:

☐ Water-bases adhesive
☐ PU with fibre ☐ PU pure

WF 620 2/WF 620 2 06
Minifinger joint cutter



Minifinger joint cutters with straight cut, straight back relief, staggered profile teeth, secured against twisting by design of tool body. Solid and robust cutter design with individually embedded tips.

Table for allowed RPM n = min^{-1} in relation to finger length ZL an diameter D.
Zero-diameter D_0 in relation to finger length for adjustment of the machine spindles.

ZL mm	D mm	D_0 mm	$n_{max.}$ min^{-1}
10	160	140	9,000
6	160	148	9,000
15	170	140	8,500
20	180	140	8,000
10	250	230	6,200
15	260	230	6,000
20	260	220	6,000

Application

For self-locking longitudinal joints for all kinds "in load bearing" components and window blanks with continuous finger joint.

Cutting material

HS, Marathon (MC) and HW.

Resharpening area

12 mm.

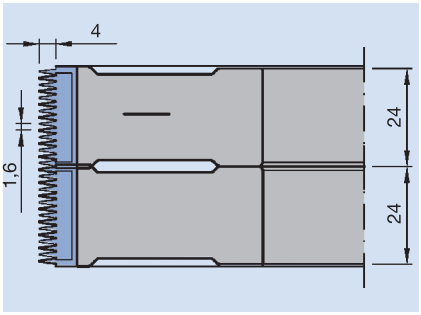
Feed rate

Depending on RPM up to 24 m min^{-1}.

Minifinger joint cutter pitch 1.6 mm
Standard cutting width
Minifinger joint cutter WF 620 2
Finger length = 4 mm
D = 160 mm
Finger pitch 1.6 mm

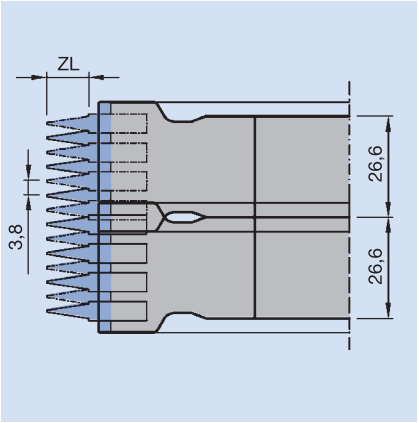
Table to determine the number of cutters for a given wood thickness and cutting width.

SB	25.0 mm
Hub	24.0 mm
No. of fingers	Wing row ZA 15
Wood thickness	No. of cutters
23	1
47	2
71	3
95	4
119	5

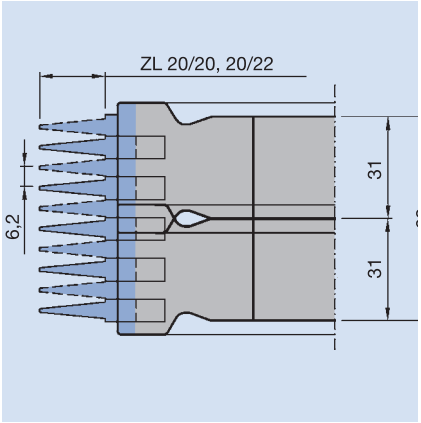


Minifinger joint cutter
WF 620 2/WF 620 06
Standard minifinger joint cutter
Finger length 10 mm and 15 mm
D = 160/250 mm 170/260 mm
Finger pitch = 3.8 mm

Minifinger joint cutter
WF 620 2/WF 620 06
Standard minifinger joint cutter
Finger length 20 mm
D = 180/260 mm
Finger pitch = 6.2 mm



Minifinger joint cutter pitch 3.8 mm, finger length 10 or 15 mm.



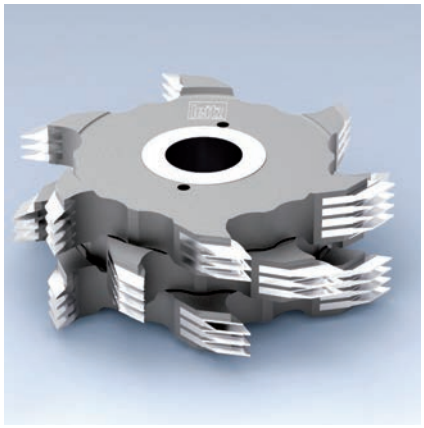
Minifinger joint cutter pitch 6.2 mm.

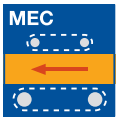
Minifinger joint cutter with pitch of 3.8 mm

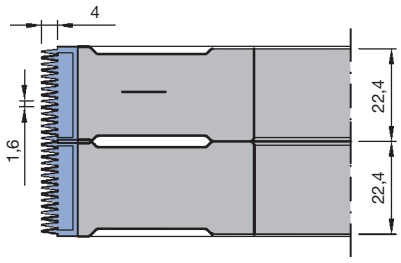
SB	28.6 mm
Hub	26.6 mm
ZA	Tooth row ZA 7
Wood thickness	Number of cutters
24	1
51	2
77	3
104	4
131	5
157	6
184	7
210	8
237	9
264	10
290	11
317	12

Minifinger joint cutter with pitch of 6.2 mm

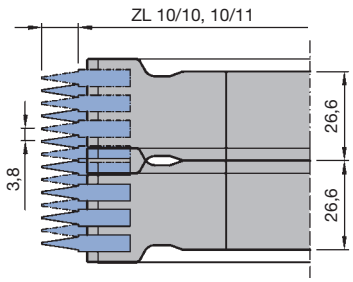
SB	33.0 mm
Hub	31.0 mm
ZA	Tooth row ZA 5
Wood thickness	Number of cutters
28	1
59	2
90	3
121	4
152	5
183	6
214	7
245	8
278	9
397	10
338	11



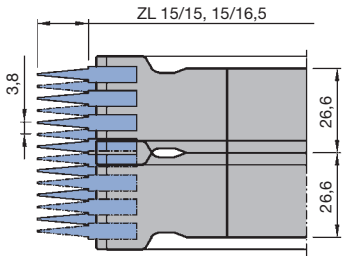




Minifinger joint cutter ZL 4 mm, TG 1.6 mm



Minifinger joint cutter ZL 10 mm, TG 3.8 mm



Minifinger joint cutter ZL 15 mm, TG 3.8 mm

Minifinger joint cutter, HS

Application:
For self-locking longitudinal joints. See section introduction for additional information.

Machine:
Finger joint machines with/without cut-off saw, continuous machines.

Workpiece material:
Softwood, across grain; limited suitability for hardwood.

Technical information:
Reduced risk of breakage from individually brazed finger cutting edges. Cutting material HS. Resharpening area 12 mm.

ZL 4 mm, TG 1.6 mm
WF 620 2

D mm	SB mm	ND mm	BO mm	Z	ZA PCS	QAL	ZL mm	ID
160	25	22,4	50	2/2	15	HS	4	**021543** ●

ZL 10 mm, TG 3.8 mm
WF 620 2

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 10/10	ID ZL 10/11
160	28,6	26,6	50	2/2	7	HS	**021685** ●	**021689** ●
160	28,6	26,6	50	3/3	7	HS	**120313** □	**021692** ●
250	28,6	26,6	50	3/3	7	HS	**021688** □	**021693** ●
250	28,6	26,6	50	4/4	7	HS	**120316** □	**120318** □

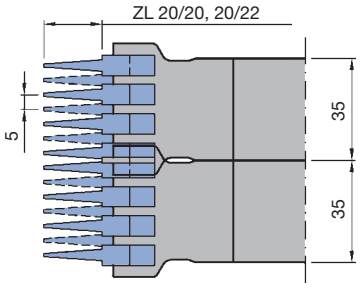
ZL 15 mm, TG 3.8 mm
WF 620 2

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 15/15	ID ZL 15/16,5
170	28,6	26,6	50	2/2	7	HS	**021694** ●	**021696** ●
260	28,6	26,6	50	3/3	7	HS	**021695** □	**021697** ●
260	28,6	26,6	80	4/4	7	HS	**120420**	**120422**

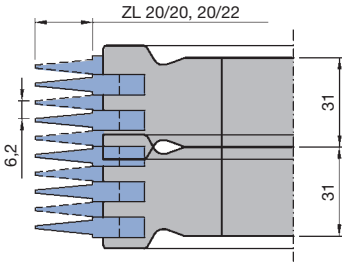
ZL 15 mm, TG 3.8 mm, for application with PU glue
WF 620 2

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 15/15	ID ZL 15/16,5
170	28,6	26,6	50	2/2	7	HS	**120412** ●	**120414** □
260	28,6	26,6	50	3/3	7	HS	**120413** □	**120415** □
260	28,6	26,6	80	4/4	7	HS	**120421**	**120423**

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org



Minifinger joint cutter ZL 20 mm, TG 5.0 mm



Minifinger joint cutter ZL 20 mm, TG 6.2 mm

ZL 20 mm, TG 5.0 mm
WF 620 2

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
180	37	35	50	2/2	7	HS	**021729** ●	**021730** □

ZL 20 mm, TG 6.2 mm
WF 620 2

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
180	33	31	50	2/2	5	HS	**021668** ●	**021669** ●
260	33	31	50	3/3	5	HS	**021674** □	**021670** □
260	33	31	80	4/4	5	HS	**120525**	**120527**

ZL 20 mm, TG 6.2 mm, for application with PU glue
WF 620 2

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
180	33	31	50	2/2	5	HS	**120515** ●	**120516** ●
260	33	31	50	3/3	5	HS	**120510** □	**120511** □
260	33	31	80	4/4	5	HS	**120524**	**120526**

● available ex stock
□ available at short notice
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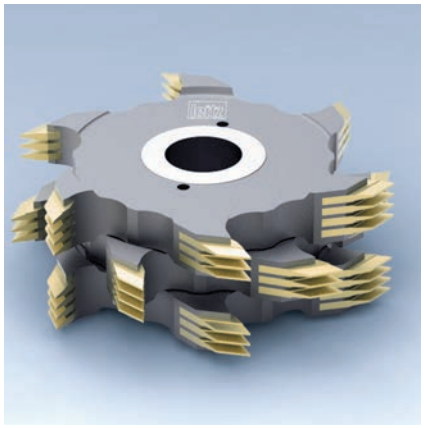
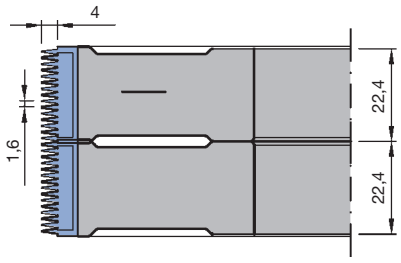
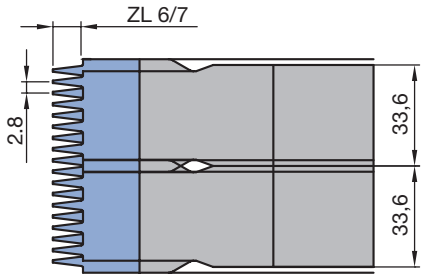
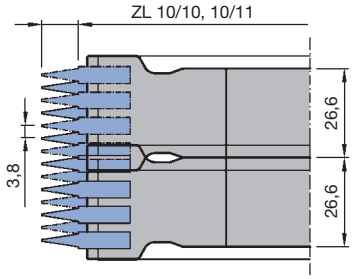




Minifinger joint cutter ZL 4 mm, TG 1.6 mm



Minifinger joint cutter ZL 6/7 mm, TG 2.8 mm



Minifinger joint cutter ZL 10 mm, TG 3.8 mm

Minifinger joint cutter, Marathon

Application:
For self-locking longitudinal joints. See section introduction for additional information.

Machine:
Finger joint machines with/without cut-off saw, continuous machines.

Workpiece material:
Softwood, across grain; also suitable for hardwood.

Technical information:
Reduced risk of breakage from individually brazed finger cutting edges. Marathon coating allows up to 4 times longer tool life compared to HS version. Resharpening area 12 mm (or 6 mm for ID **123005** and 8 mm for ID **123102**).

ZL 4/5 mm, TG 1.6 mm
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA PCS	QAL	ZL mm	ID
160	25	22.4	50	2/2	15	MC	4/5	**123003**
250	25	22.4	50	3/3	15	MC	4/5	**123004**
250	25	22.4	50	6/6	15	MC	4/5	**123005** ●

ZL 6/7 mm, TG 2.8 mm
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA PCS	QAL	ZL mm	ID
160	34	33,6	50	3/3	12	MC	6/7	**123100** ●
250	34	33,6	50	4/4	12	MC	6/7	**123101** ●
250	34	33,6	50	6/6	12	MC	6/7	**123102** ●

ZL 10 mm, TG 3.8 mm
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 10/10	ID ZL 10/11
160	28,6	26,6	50	2/2	7	MC	**120608** ●	**120612** ●
160	28,6	26,6	50	3/3	7	MC	**120616** □	**120617** □
250	28,6	26,6	50	3/3	7	MC	**120609** □	**120613** ●
250	28,6	26,6	50	4/4	7	MC	**120620** □	**120622** ●

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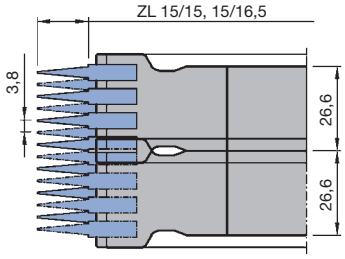
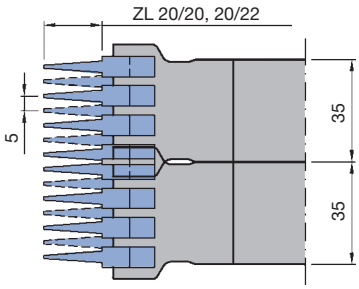
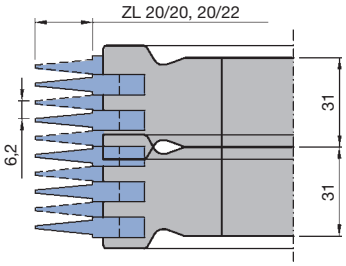


Minifinger joint cutter ZL 15 mm, TG 3.8 mm



Minifinger joint cutter ZL 20 mm, TG 5.0 mm



Minifinger joint cutter ZL 20 mm, TG 6.2 mm

ZL 15 mm, TG 3.8 mm
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 15/15	ID ZL 15/16,5
170	28,6	26,6	50	2/2	7	MC	**120709** ●	**120713** ●
260	28,6	26,6	50	3/3	7	MC	**120710** □	**120714** ●
260	28,6	26.6	80	4/4	7	MC	**120721**	**120723**

ZL 15 mm, TG 3.8 mm, for application with PU glue
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 15/15	ID ZL 15/16,5
170	28,6	26,6	50	2/2	7	MC	**120711** ●	**120715** □
260	28,6	26,6	50	3/3	7	MC	**120712** □	**120716** □
260	28,6	26.6	80	4/4	7	MC	**120722**	**120724**

ZL 20 mm, TG 5.0 mm
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
180	37	35	50	2/2	7	MC	**120818** □	**120820** □
260	37	35	50	3/3	7	MC	**120819** □	**120821** □

ZL 20 mm, TG 6.2 mm
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
180	33	31	50	2/2	5	MC	**120810** ●	**120814** □
260	33	31	50	3/3	5	MC	**120811** □	**120815** □
260	33	31	80	4/4	5	MC	**120834**	**120836**

ZL 20 mm, TG 6.2 mm, for application with PU glue
WF 620 2 06

D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
180	33	31	50	2/2	5	MC	**120812** ●	**120816** □
260	33	31	50	3/3	5	MC	**120813** □	**120817** □
260	33	31	80	4/4	5	MC	**120835**	**120837**

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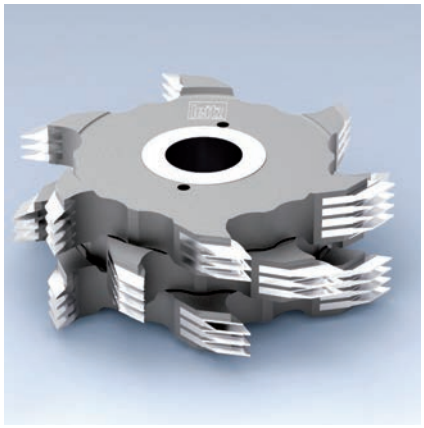
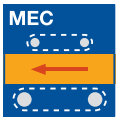
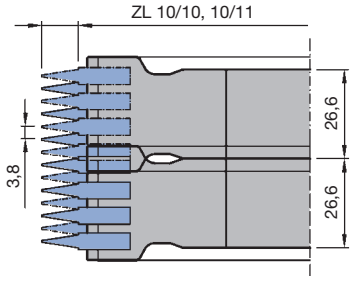
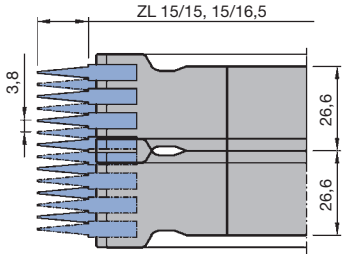






Minifinger joint cutter ZL 10 mm, TG 3.8 mm



Minifinger joint cutter ZL 15 mm, TG 3.8 mm

Minifinger joint cutter, HW

Application:
For self-locking longitudinal joints. See section introduction for additional information.

Machine:
Finger joint machines with/without cut-off saws, continuous machines.

Workpiece material:
Hardwood, across grain.

Technical information:
Reduced risk of breakage from individually brazed finger cutting edges. Cutting material HW. Resharpening area 12 mm.

ZL 10 mm, TG 3.8 mm
WF 620 2

D mm	SB mm	BO mm	Z	ZA STK	QAL	n_{max} min^{-1}	ID ZL 10/10	ID ZL 10/11
160	28,6	50	2/2	7	HW	8000	**021600** ●	**021601** ●
160	28,6	50	3/3	7	HW	8000	**021604** □	**021603** ●
250	28,6	50	3/3	7	HW	6000	**021605** □	**021602** ●

ZL 15 mm, TG 3.8 mm
WF 620 2

D mm	SB mm	BO mm	Z	ZA STK	QAL	n_{max} min^{-1}	ID ZL 15/15	ID ZL 15/16,5
170	28,6	50	2/2	7	HW	8000	**021644**	**021645** ●
260	28,6	50	3/3	7	HW	6000	**021652**	**021648**

Table to determine the number of cutters for a given wood thickness.
Finger length 10 and 15 mm;
D = 160/250 mm and 170/260 mm
Finger pitch = 3.8 mm

SB	28.6 mm
Hub	26.6 mm
ZA	Tooth row ZA 7
Wood thickness	Quantity cutter
24	1
51	2
77	3
104	4
131	5
157	6
184	7
210	8
237	9
264	10
290	11
317	12

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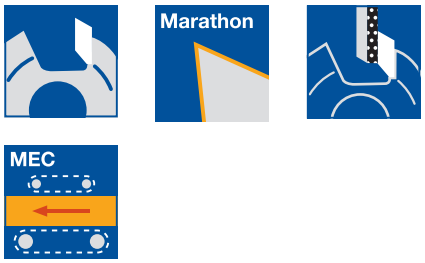
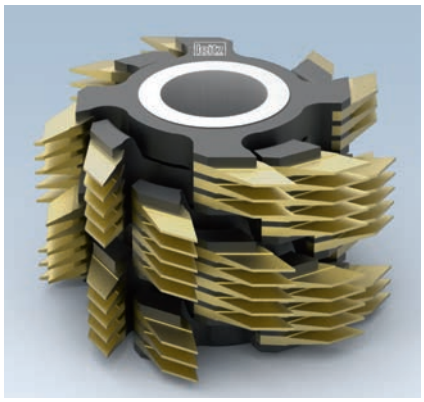
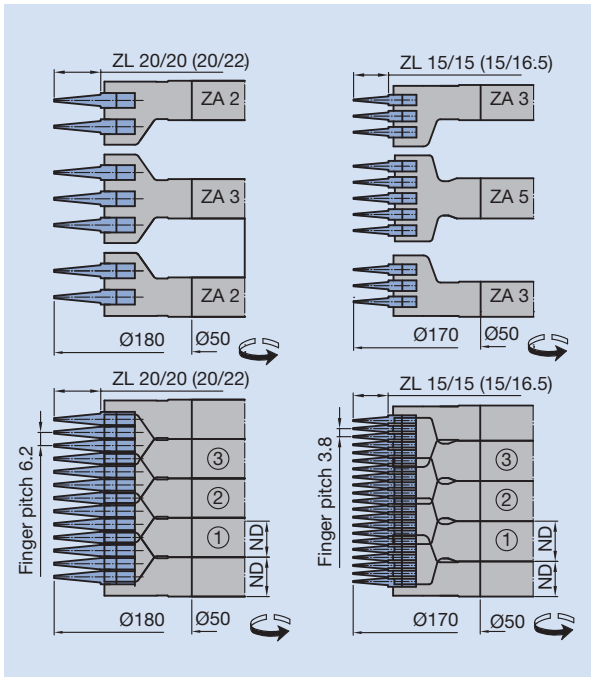
High performance minifinger joint cutters, real Z 4



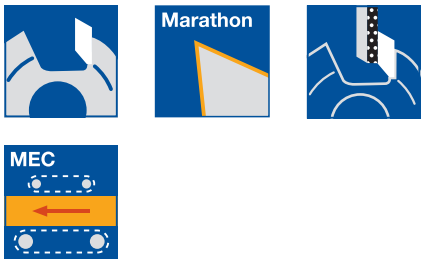


Application	For self-locking finger joints for supporting and load bearing components on high performance finger joint machines.
Machines	High performance finger joint machines with/without cut-off saw.
Workpiece material	Solid woods across grain.
Number of wings	Real Z 4.
Cutting material	HS and Marathon (MC).
Tool design	Solid steel tool body design with individually brazed finger knives. Higher number of wings for higher feed speeds and improved joint cut quality.
Feed	MEC.
Resharpening area	12 mm.
Particular benefit	A tool set, comprising of basic, top and bottom cutters for the required working width/height. The spiral knife arrangement reduces the power consumption and noise.

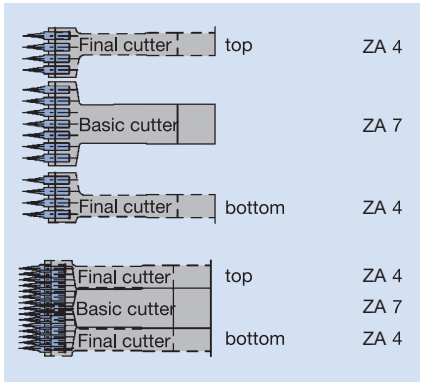


Minifinger joint cutter combinations with the finger lengths 10, 15 and 20 mm.

High performance minifinger joint cutters, real Z 6



Application	For self-locking finger joints for supporting and load bearing components for high performance finger joint machines.
Machines	High performance finger joint machines with/without cut-off saw.
Workpiece material	Solid woods across grain.
Number of wings	Real Z 6, for ZL 10 mm D = 250.
Cutting material	HS and Marathon (MC).
Tool design	Solid steel tool body with individually brazed finger knives. High number of wings for higher feed speeds and improved joint cut quality.
RPM	n_{max} = 6,000 min^{-1}.
Feed	MEC.
Resharpening area	12 mm.
Particular benefit	A tool set, comprising basic, top and bottom cutters for the required working width/height. The spiral knife arrangement reduces the power consumption and noise.

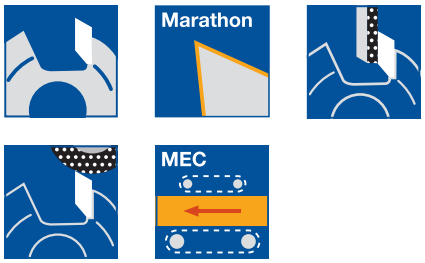


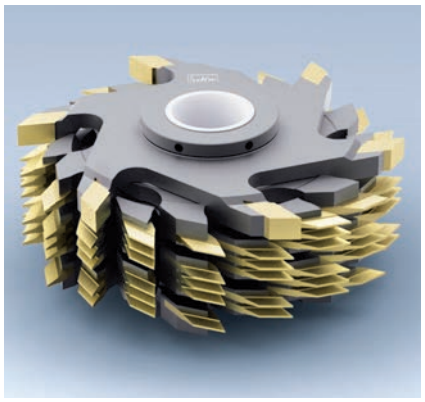
Combination for high performance minifinger joint cutter set Z 6.

Table to determining the number of minifinger joint cutters with finger pitch of 3.8 mm.

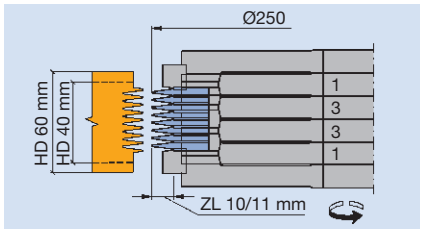
Finger length 10 and 15 mm Real Z6			**TG 3.8 mm**	
		Basic cutter	Final cutter top	Final cutter bottom
Tooth row	ZA	7	4	4
Hub thickness	ND	26.6 mm	19 mm	19 mm
Wood thickness HD	Clamping height KLH	Number of cutters	Number of cutters	Number of cutters
27	38	0	1	1
53	64.6	1	1	1
80	91.2	2	1	1
106	117.8	3	1	1
133	144.4	4	1	1
160	171	5	1	1
186	197.6	6	1	1
213	224.2	7	1	1
239	250.8	8	1	1
266	277.4	9	1	1
293	304	10	1	1

High performance minifinger joint cutters, real Z 6

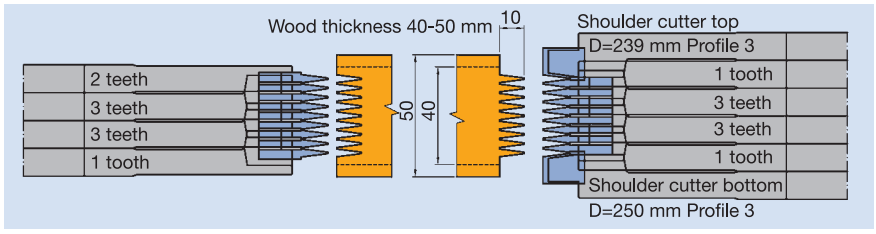




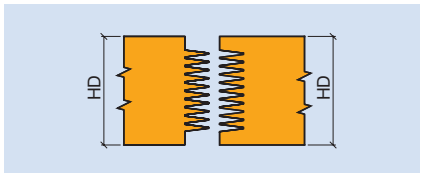
Application	For self-locking finger joints for load bearing components with shoulder cuts for high performance finger joint machines.
Machines	High performance finger joint machines with cut-off saw.
Workpiece material	Solid woods across grain.
Number of wings	Real Z 6 for D = 260 mm.
Cutting material	HS and Marathon (MC).
Tool design	Solid steel tool body with individually brazed finger cutters. High number of wings for higher feed speeds and improved joint cut quality.
RPM	n_{max} = 6,000 min^{-1}.
Feed	MEC.
Resharpening area	12 mm.
Particular benefit	A tool set, comprising of basic, top and bottom shoulder cutters and shoulder cut for the required working width/height. The spiral arranged wings reduces the power consumption and noise.



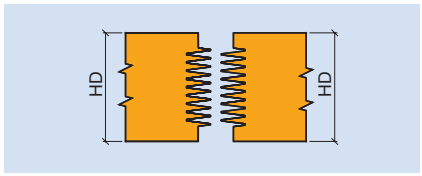
Minifinger joint cutter set real Z 6.
Shoulder cutters central, profile 5.



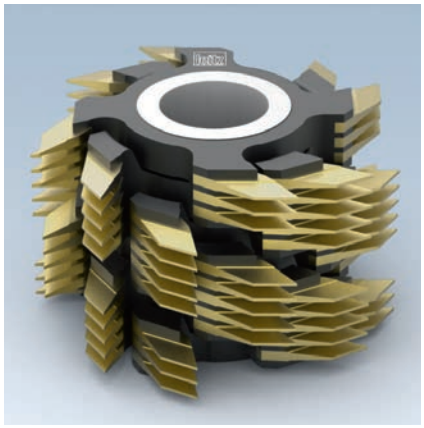
Minifinger joint cutter set real Z 6, shoulder cutters in gap.

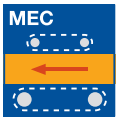


Profile 3

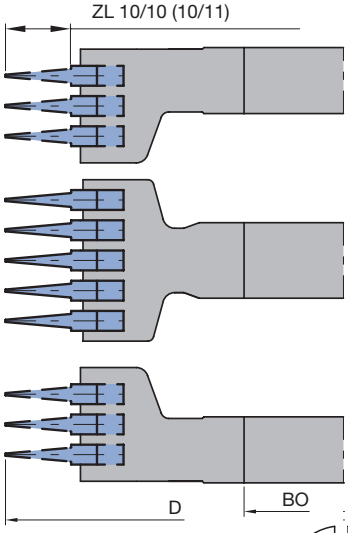


Profile 5

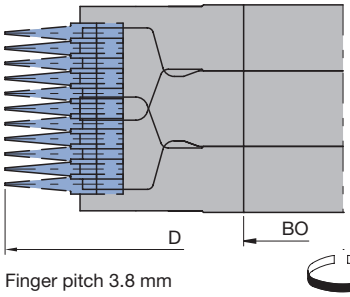




ZL 15/15 (15/16,5)
ZL 10/10 (10/11)



Finger pitch 3.8 mm



Finger pitch 3.8 mm

Minifinger joint cutter, Marathon, real Z 4

Application:
For self-locking longitudinal joints. See section introduction for additional information.

Machine:
High performance finger joint machines with/without cut-off saws.

Workpiece material:
Softwood, across grain; also suitable for hardwood.

Technical information:
High number of teeth tool design, top and bottom final cutters required. Assembly of tool set: see section introduction. Marathon coating allows up to 4 times longer tool life compared to HS version. Resharpening area 12 mm.

ZL 15 mm, TG 3.8 mm
WF 620 2 06, WF 623 2 06

Art	D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 15/15	ID ZL 15/16,5
Top final cutter	170	20,2	16,6	50	4	3	MC	**121700** □	**121704** □
Basic cutter	170	35,4	19,0	50	4	5	MC	**120705** □	**120707** □
Bottom final cutter	170	20,2	16,6	50	4	3	MC	**121701** □	**121705** □

ZL 15 mm, TG 3.8 mm, for application with PU glue
WF 620 2 06, WF 623 2 06

Art	D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 15/15	ID ZL 15/16,5
Top final cutter	170	20,2	16,6	50	4	3	MC	**121702** ●	**121706** □
Basic cutter	170	35,4	19,0	50	4	5	MC	**120706** ●	**120708** □
Bottom final cutter	170	20,2	16,6	50	4	3	MC	**121703** ●	**121707** □
Top final cutter	200	20,2	16,6	70	4	3	MC	**121708**	**121710**
Basic cutter	200	35,4	19	70	4	5	MC	**120725**	**120726**
Bottom final cutter	200	20,2	16,6	70	4	3	MC	**121709**	**121711**

Finger length 10 and 15 mm
TG: 3,8 mm
Real Z4

		Basic cutter	Final cutter top	Final cutter bottom
ZA		5	3	3
ND		19	16,6	16,6
HD	KLH	Cutter quantity	Cutter quantity	Cutter quantity
19	33,2	0	1	1
38	52,2	1	1	1
57	71,2	2	1	1
76	90,2	3	1	1
95	109,2	4	1	1
114	128,2	5	1	1
133	147,2	6	1	1
152	166,2	7	1	1
171	185,2	8	1	1
190	204,2	9	1	1
209	223,2	10	1	1
228	242,2	11	1	1
247	261,2	12	1	1
266	280,2	13	1	1
285	299,2	14	1	1
304	318,2	15	1	1
323	337,2	16	1	1

HD = wood thickness
KLH = clamping height

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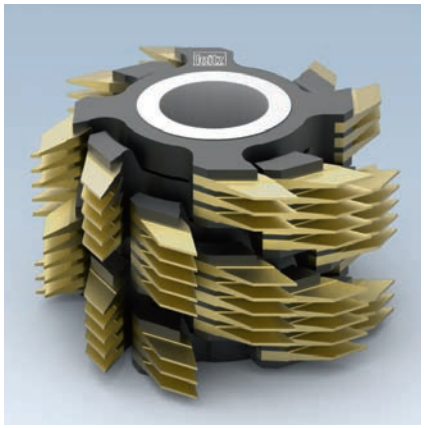
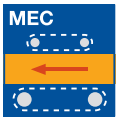
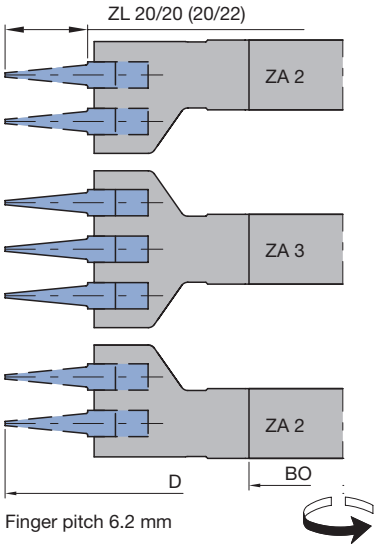
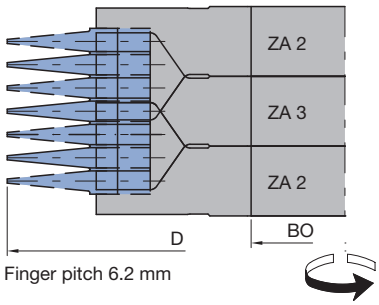






Finger pitch 6.2 mm



Finger pitch 6.2 mm

Minifinger joint cutter, Marathon, real Z 4

Application:
For self-locking longitudinal joints. See section introduction for additional information.

Machine:
High performance finger joint machines with/without cut-off saws.

Workpiece material:
Softwood, across grain; also suitable for hardwood.

Technical information:
High number of teeth tool design, top and bottom final cutters required. Assembly of tool set: see section introduction. Marathon coating allows up to 4 times longer tool life compared to HS version. Resharpening area 12 mm.

ZL 20 mm, TG 6.2 mm
WF 623 2 06

Art	D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
Top final cutter	180	18,6	18,6	50	4	2	MC	**121808**	**121810**
Basic cutter	180	31	18,6	50	4	3	MC	**120838**	**120840**
Bottom final cutter	180	18,6	18,6	50	4	2	MC	**121812**	**121814**

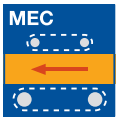
ZL 20 mm, TG 6.2 mm, for application with PU glue
WF 623 2 06

Art	D mm	SB mm	ND mm	BO mm	Z	ZA STK	QAL	ID ZL 20/20	ID ZL 20/22
Top final cutter	180	18,6	18,6	50	4	2	MC	**121809**	**121811**
Basic cutter	180	31	18,6	50	4	3	MC	**120839**	**120841**
Bottom final cutter	180	18,6	18,6	50	4	2	MC	**121813**	**121815**

Finger length 20 mm
TG: 6,2 mm
Real Z3

		Basic cutter	Final cutter top	Final cutter bottom
ZA		3	2	2
ND		18,6	18,6	18,6
HD	KLH	Cutter quantity	Cutter quantity	Cutter quantity
19	37,2	0	1	1
37	55,8	1	1	1
56	74,4	2	1	1
74	93	3	1	1
93	111,6	4	1	1
112	130,2	5	1	1
130	148,8	6	1	1
149	167,4	7	1	1
167	186	8	1	1
186	204,6	9	1	1
205	223,2	10	1	1
223	241,8	11	1	1
242	260,4	12	1	1
260	279	13	1	1
279	297,6	14	1	1
298	316,2	15	1	1
316	334,8	16	1	1

HD = wood thickness
KLH = clamping height



Minifinger joint cutter, Marathon, real Z 6

Application:
For self-locking longitudinal joints. See section introduction for additional information.

Machine:
High performance finger joint machines with/without cut-off saws.

Workpiece material:
Softwood, across grain; also suitable for hardwood.

Technical information:
High number of teeth tool design, top and bottom final cutters required. Assembly of tool set: see section introduction. Marathon coating allows up to 4 times longer tool life compared to HS version. Resharpening area 12 mm.

ZL 10 mm, TG 3.8 mm
WF 620 2 06, WF 623 2 06

Tool Type	D mm	SB mm	ND mm	BO mm	Z	ZA PCS	QAL	ZL mm	ID
Top final cutter	250	26,6	19	50	6	4	MC	10/11	**121012** ●
Basic cutter	250	49,4	26,6	50	6	7	MC	10/11	**120601** ●
Bottom final cutter	250	26,6	19	50	6	4	MC	10/11	**121013** ●

Finger length 10 mm and 15 mm
TG: 3,8 mm
Real Z6

		Basic cutter	Final cutter top	Final cutter bottom
ZA		7	4	4
ND		26,6	19	19
HD	KLH	Cutter quantity	Cutter quantity	Cutter quantity
27	38	0	1	1
53	64,6	1	1	1
80	91,2	2	1	1
106	117,8	3	1	1
133	144,4	4	1	1
160	171	5	1	1
186	197,6	6	1	1
213	224,2	7	1	1
239	250,8	8	1	1
266	277,4	9	1	1
293	304	10	1	1

HD = wood thickness
KLH = clamping height

● available ex stock
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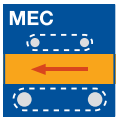
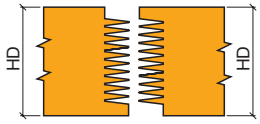
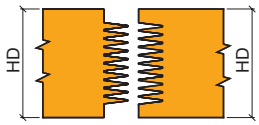




Profile 2



Profile 3

Minifinger joint cutter and shoulder cutter, Marathon, real Z 6

Application:
For self-locking longitudinal joints with straight visible joint for horizontal joints, e.g. solid wood panels or finger jointed profile strips. See section introduction for additional information.

Machine:
High performance finger joint machines with cut-off saw.

Workpiece material:
Softwood, across grain; also suitable for hardwood.

Technical information:
High number of teeth tool design. Tool set consists of basic cutter, extension cutter and shoulder cutters for different positions of the visible joint. Cutting width adjusted to wood thickness. Mounted on clamping sleeve. Marathon coating allows up to 4 times longer tool life compared to HS version. Resharpening area 12 mm.

Basic / extension cutter ZL 10/11 mm, TG 3.8 mm
WF 620 2 06, WF 623 2 06

Tool Type	D mm	SB mm	ND mm	BO mm	Z	ZA PCS	QAL	DRI	ID
Basic cutter	250	20,2	11,2	60	6	3	MC	RH	**120624** □
Extension cutter	250	5,0	11,2	60	6	1	MC	LH	**121608** □
Extension cutter	250	5,0	11,2	60	6	1	MC	RH	**121609** □
Extension cutter	250	12,6	11,2	60	6	2	MC	LH	**121610** □
Extension cutter	250	12,6	11,2	60	6	2	MC	RH	**121611** □

Shoulder cutter profile 2 and 3 for ZL 10/11 mm, TG 3.8 mm
WF 621 2 06

D mm	SB mm	BO mm	Z	QAL	ID LH	ID RH
249,7	12	60	6	MC	**122400** □	**122401** □

Clamping sleeve with threaded nut for LH/RH rotation
TB 270 0

d mm	BO mm	NL mm	GL mm	ID
60	50	85	105	**029474** ●
60	50	120	140	**029475**
60	50	150	170	**029476**
60	50	180	200	**029477**
60	50	210	230	**029478**
60	50	240	260	**029479**

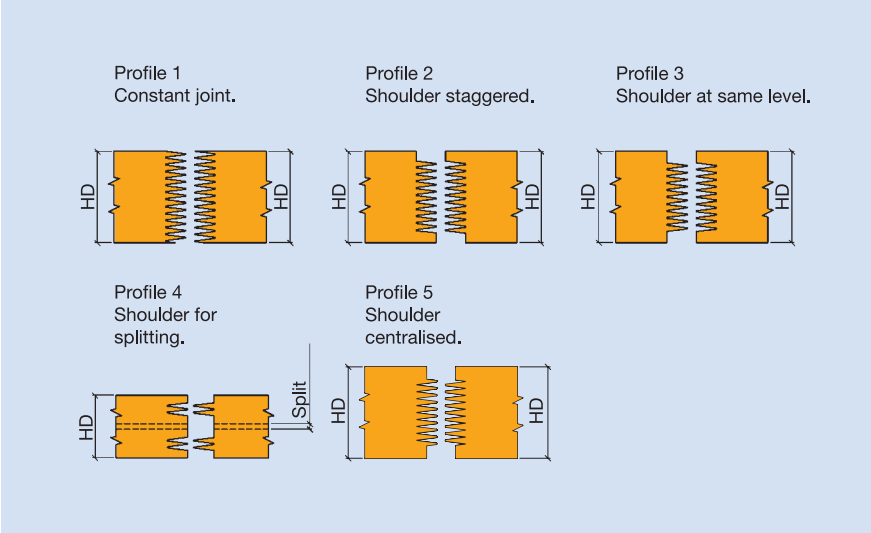
Spacer
TR 100 0

D mm	B mm	BO mm	ID
90	3,8	60	**028447** ●
90	11,4	60	**028448** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

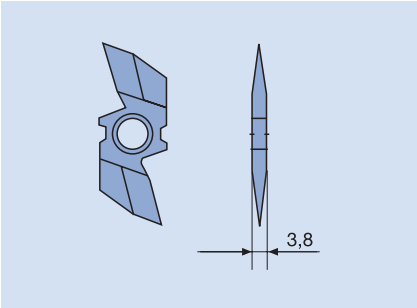
WM 620 2 01 Minifinger cutterhead

Minifinger cutterhead with resharpenable minifinger turnblade knives.
Wood thickness max. 60 mm adjustable with or without shoulders.
The resharpenable turnblade knives and the replaceable finger knives guarantee high flexibility and economic efficiency.
Knives are resharpened on standard multi-purpose sharpening machines with cooling.

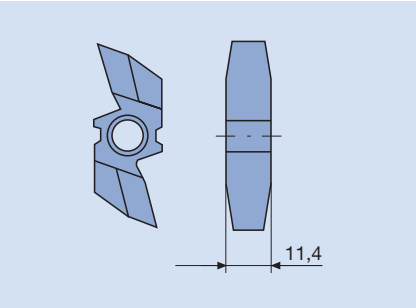


Application	For self-locking longitudinal joints for panel and moulding production with or without shoulders.
Machines	Double-end tenoners, double sided finger jointing lines with cut-off saw, single sided finger jointing lines with cut-off saw.
Cutting material	HW.
Resharpening area	2 x 6 mm.
Number of teeth/finger length	Z 6 or 3 + 3 at D = 250 mm , 10/11 mm finger length. Z 4 or 2 + 2 at D = 160 mm, 10/11 mm finger length.
Feed rate	Up to 36 m min^{-1}, depending on spindle RPM and cutting edge arrangement.

Note
For wood up to 60 mm thick: joints with/ without shoulders. Positioning the shoulder knives in 3.8 mm steps enables adjustment to different wood thicknesses.



Minifinger knife, 2 edges.



Shoulder knife, 2 edges.

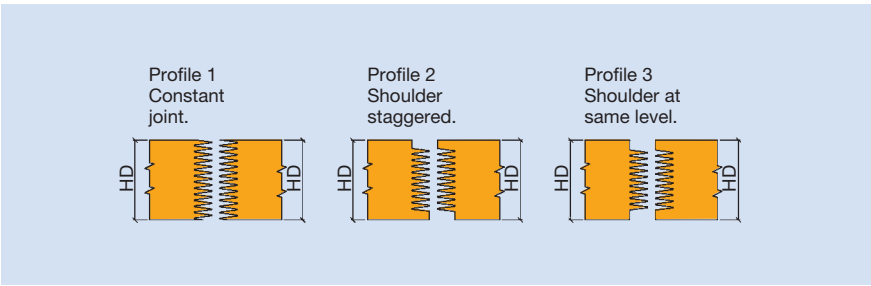
Table to determination of required number of spare knives:

HD from-to mm	ZB mm	ZA	Half shoulder (HS) mm
16 – 22	9.4	3	3.3 – 6.3
19 – 25	13.2	4	2.9 – 5.9
23 – 29	17	5	3.0 – 6.0
27 – 33	20.8	6	3.1 – 6.1
31 – 37	24.6	7	3.2 – 6.2
35 – 41	28.4	8	3.3 – 6.3
38 – 44	32.2	9	2.9 – 5.9
42 – 48	36	10	3.0 – 6.0
46 – 52	39.8	11	3.1 – 6.1
50 – 56	43.6	12	3.2 – 6.2

HD from-to mm	ZB mm	ZA	Half shoulder (S) mm
17 – 23	10.7	3	
21 – 27	14.5	4	3.2 – 6.2
25 – 31	18.3	5	3.3 – 6.3
29 – 35	22.1	6	3.4 – 6.4
33 – 39	25.9	7	3.5 – 6.5
36 – 42	29.7	8	3.1 – 6.1
40 – 46	33.5	9	3.2 – 6.2
44 – 50	37.3	10	3.3 – 6.3
48 – 54	41.1	11	3.4 – 6.4
52 – 58	44.9	12	3.5 – 6.5

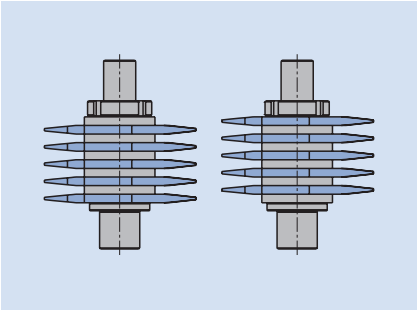
Minifinger cutterhead Turbo Hawk

Resharpenable cutterhead system with individually replaceable HS circular knives. Production of different profiles with the same tool body. Flexible cutting edge arrangement with or without shoulders. Wood thickness to maximum 50 mm.

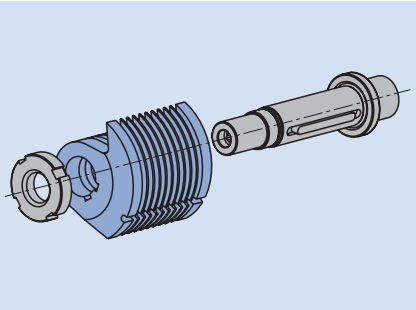


3.4 Finger jointing
3.4.3 Minifinger joint cutterheads

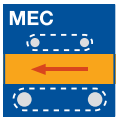
Application	For cutting self-locking longitudinal joints for exactly measured components, e.g. all kinds of finger joint profile moudlings, solid wood panels.
Machines	High performance finger jointing lines with cut-off saw.
Cutting material	HS, Marathon (MC).
Resharpening area	100 mm.
Number of teeth	Z 4 - Z 14
RPM	max. 6,000 min^{-1}
Advantages	Constant diameter tool system. Simple adjustment of knife sets with magnetic gauge. Flexible profile design for different timber thicknesses with or without shoulder knives. Consistent balancing quality by fixing the knives with keyway on the arbor. No contamination from grease due to closed hydraulic clamping system.
Note	Arbors can be fully equipped with knives or with gaps with spacers.



Arbor as change unit.
Knives mounted with spacer.



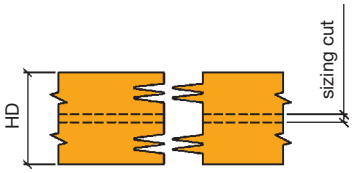
Knife mounting on the arbor.
Anti-twist keyway for the knives.



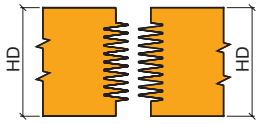
Profile 1 with continuous finger jointing

Profile 2 with staggered shoulder cutters

Profile 3 with shoulder cutters on the same level



Profile 4 with shoulder cutters for splitting



Profile 5 with half shoulder

Minifinger cutterhead with HW turnblade knives

Application:
For self-locking longitudinal joints for non-supporting components, e.g. panels and strips.

Machine:
Finger joint machines and continuous machines with cut-off saw.

Workpiece material:
Softwood and hardwood, across grain.

Technical information:
Steel tool body with HW turnblade knives. Particularly suitable for hardwood, e.g. for horizontal joints with and without shoulders. Variable design for defined wood thicknesses from 15 to 60 mm. The rest of the knife seating must be filled with spacers and a safety washer (spare part no. 4). Individual cutting edges can be replaced if a cutting edge breaks. Resharpening area 2 x 6 mm.

Profile 1, ZL 10/11 mm, TG 3.8 mm
WM 620 2 01

D mm	SB mm	BO mm	Z	HD mm	n_{max} min^{-1}	ID LH	ID RH
160	60	50	2/2	60	8000	**135001** □	**135000** □
250	60	50	3/3	60	5000	**135005** □	**135004** □

Attention: When assembling, always finish by fitting spacers with the securing device (spare part no. 4).

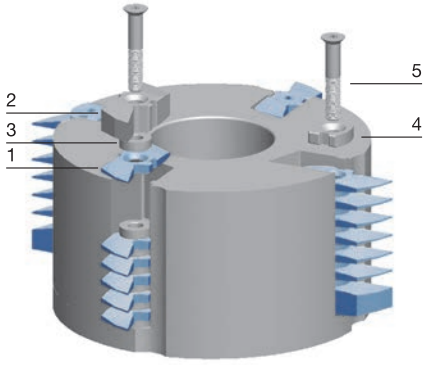
Tools for profile 2 - 5 on request.

Spare knives:

Part-no.	BEZ	P	ZL mm	SB mm	TG mm	QAL	ID
1	Minifinger knife		10/11	3,8	3,8	HW	**618002** ●
2	Shoulder knife	2, 3, 4	10/11	11,4	3,8	HW	**618005** ●
2	Shoulder knife	5	10/11	11,4	3,8	HW	**618006** ●

Spare parts:

Part-no.	BEZ	ABM mm	ID
3	Spacer for ZL 10/11	13x3,8x6,1	**008199** ●
3	Spacer	15x17x5	**008230** ●
4	Spacer with safety device	24,9x21x3,8	**008200**
4	Spacer with safety device	24,9x20x6,2	**008201** ●
5	Countersink screw, Torx® 20	M6x40	**006090** ●
5	Countersink screw, Torx® 20	M6x50	**007856** ●
5	Countersink screw, Torx® 20	M6x65	**007882** ●
5	Countersink screw, Torx® 20	M6x70	**007880** ●
	Torx® key	Torx® 20	**006091** ●



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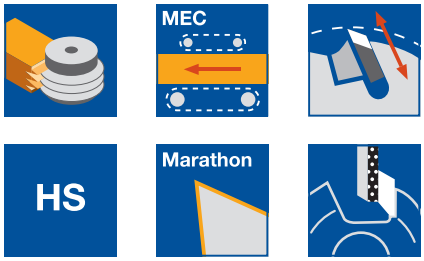
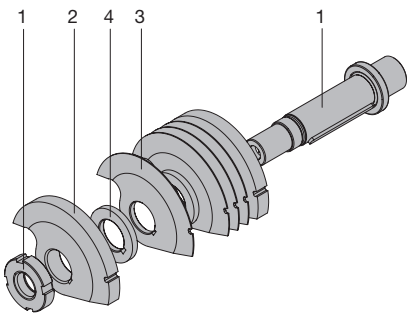


Profile 1 with continuous finger jointing

Profile 2 with staggered shoulder cutters

Profile 3 with shoulder cutters on the same level



Hydro minifinger cutterhead TurboHawk with curved knives

Application:
For self-locking longitudinal joints for non-supporting components.

Machine:
High performance finger joint machines and continuous machines with cut-off saw.

Workpiece material:
Softwood; limited suitability for hardwood.

Technical information:
Resharpenable, constant diameter and constant profile tool system with hydro clamping. No machine adjustment required. Particularly suitable for horizontal joints with and without shoulders. Variable for defined wood thicknesses from 15 to 50 mm. The remaining knife seatings must be filled with spacers and a locking nut. Minifinger curved knives with extremely large resharpening area.

Hydro minifinger cutterhead with curved knives
HM 620 2 05

P	HD_{max} mm	Z	ZL mm	QAL	n_{max} min^{-1}	ID
1-3	50	4-14	6-10	MC	6000	**135600**

The tool is designed and optimized according to customer requirements in coordination with Leitz application technology.

Modular system for flexible tool design

P	BO mm/in	HD mm	Z	ZL mm	TG	QAL
1	1,5“	max. 25	4	6	2,8	HS
2	1,813“	max. 32	6	6,35	3,53	MC
3	50 mm	max. 38	8	9,52	4,3	
	2,125“	max. 50	10	10	3,8	
			12			
			14			

Spare knives:

Part-no.	BEZ	ABM mm	ZL mm	QAL	ID
3	Minifinger knife	31,75x2,8x19,05	6/7	MC	**618324** ●
2	Shoulder knife	31,6x7x19,05	6/7	MC	**618373** ●
3	Minifinger knife	31,75x3,53x19,05	6,35	MC	**618325** ●
2	Shoulder knife	31,6x8,74x19,05	6,35	MC	**618374** ●
3	Minifinger knife	31,75x3,8x19,05	10/11	MC	**618327** ●
2	Shoulder knife	31,6x11,4x19,05	10/11	MC	**618376** ●

Spare parts:

Part-no.	BEZ	ABM mm	TG mm	ID
1	Clamping arbor	HD 50 mm KL 55 mm		**008226** ●
1	Clamping arbor	HD 38 mm KL 43 mm		**008227** ●
1	Clamping arbor	HD 32 mm KL 34.5 mm		**008228** ●
1	Clamping arbor	HD 25 mm KL 29 mm		**008229** ●
4	Filler piece for rounding knives	33x3.53x19.05,KN1.8x4.2	3,53	**008224** ●
4	Filler piece for rounding knives	33x4.3x19.05,KN1.8x4.2	4,3	**008225** ●
4	Filler piece for rounding knives	33x3,8x19,05,KN1,8x4,2	3,8	**008223** ●
	Assembly package (setting gauges and clamping key)			**116901** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

WF 624 2
Disc cutter, minifinger profile with and without shoulders

Minifinger disc cutter tipped with HW or DP cutting edges. Variable arrangement for defined wood thicknesses, with or without shoulder cutter, mounted on screwed sleeve as tool set.

Application

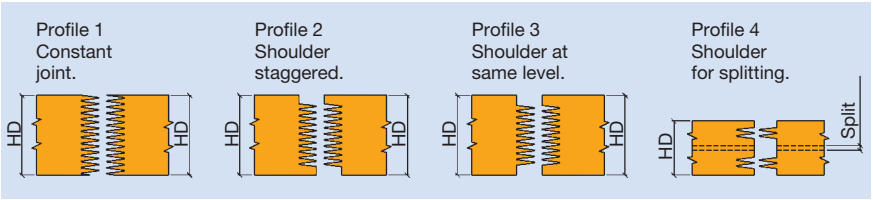
For self-locking longitudinal joints for precise measured components, e.g. finger joint solid wood panels, all kinds of mouldings, floors, parquet, stair and furniture parts, especially narrow mouldings.
Finger jointing lines with cut-off saw for high feed speeds.

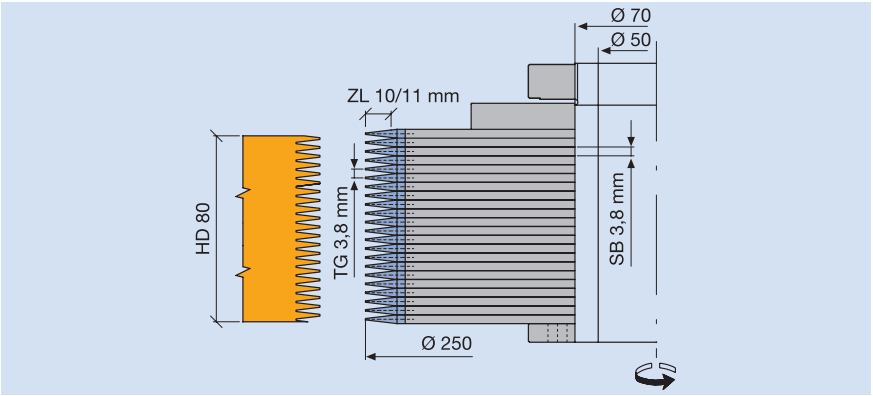
Cutting material

HW, DP.

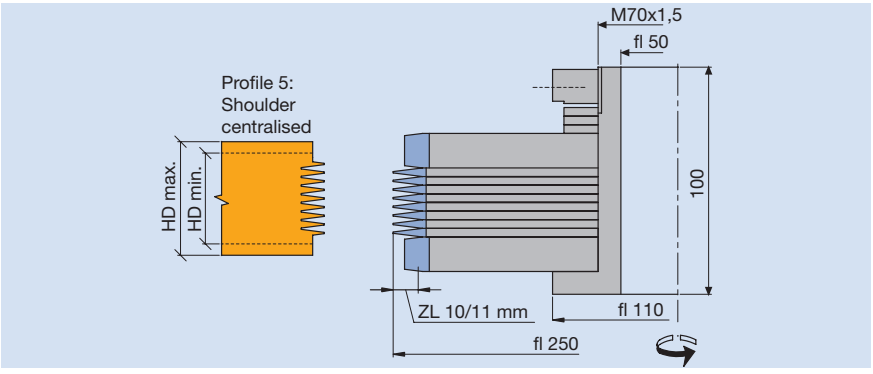
Resharpening area

HW = 3.5 mm, DP = 3-5 times resharpenable.



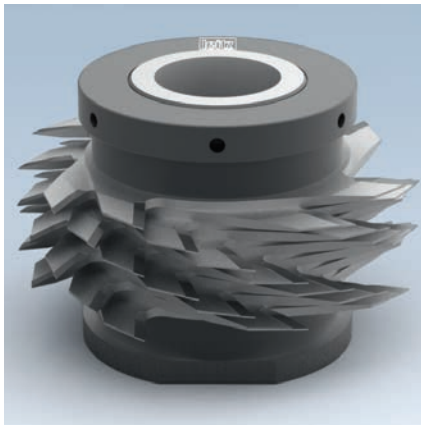


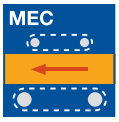
22 HW disc cutter for 80 mm wood thickness.



Minifinger shoulder cutter set with 8 finger.

Note:
DP minifinger disc cutters only suitable for knotless wood and wood derived materials that are planed at right angles. Exact clamping for vibration-free cutting is required.





HW

Minifinger disc cutter, HW, with and without shoulder cutter

Application:
For self-locking longitudinal joints for non-supporting components, e.g. panels and strips.

Machine:
Finger joint machines with cut-off saws.

Workpiece material:
Hardwood and abrasive tropical wood.

Technical information:
HW tipped cutters. Tool body thickness corresponds to finger pitch. Particularly suitable for horizontal joints with and without shoulders. Variable design for defined wood thicknesses from 15 to 80 mm. Suitable for small wood thicknesses. Resharpening area 3.5 mm. Design in DP on request.

HW, ZL 10/11 mm, TG 3.8 mm
WF 620 2, WF 621 2

Tool Type	D mm	SB mm	BO mm	Z	n_{max} min^{-1}	ID
Minifinger joint cutter	160	3,8	70	4	9000	**021511** ●
Minifinger joint cutter	250	3,8	70	6	6000	**021513** ●
Shoulder cutter	159,8	15,2	70	4	9000	**021762** ●
Shoulder cutter P3	249,7	15,2	70	6	6000	**021764** ●
Shoulder cutter P5	239,7	15,2	70	6	6000	**022153** ●

Clamping element with threaded nut
TB 270 0

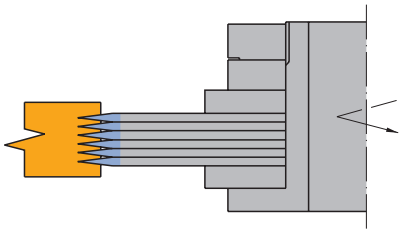
d mm	BO mm	NL mm	GL mm	ID
70	50	116	146	**029695** ●
70	50	80	110	**029473** ●

Spare parts:

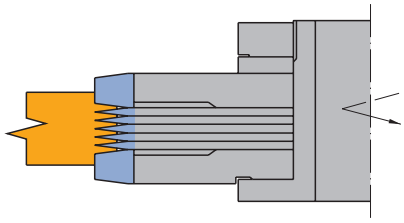
BEZ	ABM mm	ID
Sickle spanner adjustable	D90/155; L290; DIN1816; tenon 6	**005462** ●

Spacers
TR 100 0

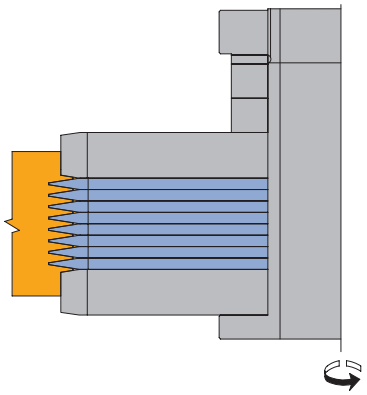
D mm	B mm	BO mm	TG mm	ID
100	3,8	70	3,8	**028437** ●
100	11,4	70	3,8	**028450** ●
100	15,2	70	3,8	**028439** ●
175	11,4	70	3,8	**028678** ●



Minifinger joint cutterset without shoulder cutters

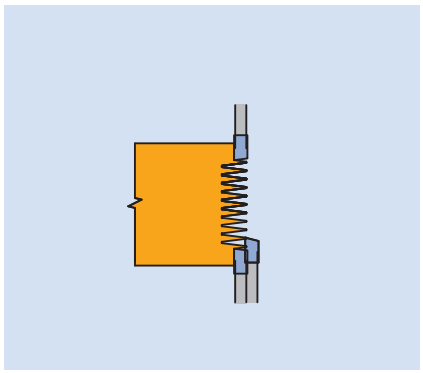


Minifinger joint cutterset with shoulder cutters P3

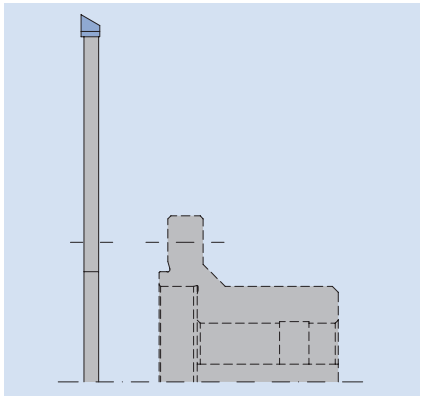


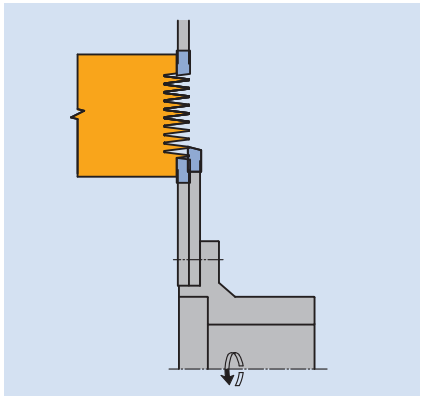
Minifinger joint cutterset with shoulder cutters P5

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org



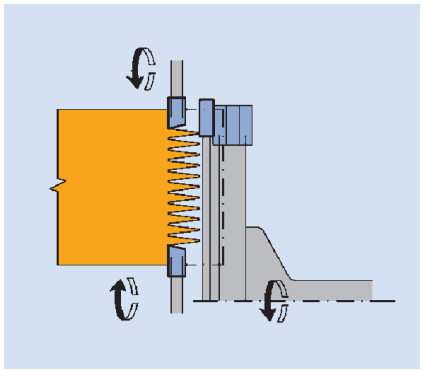
Process step	Scoring across grain with feed.
Workpiece materials	Softwood and hardwood, wood derived material.
Cutting material	HW.
Machines	Finger jointing lines with scoring and cut-off saw.
Application	Scoring minifingers with shoulders.
Tool design **Scoring saw**	HW scoring sawblade, possibly double scoring sawblade mounted on flanged sleeve with bevel one side tooth shape.



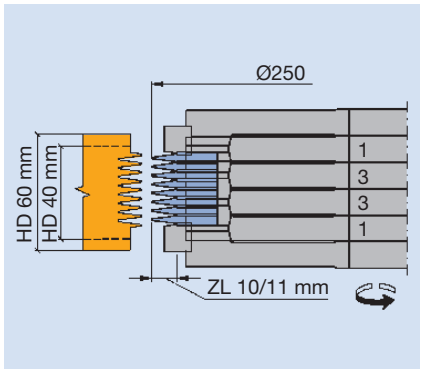


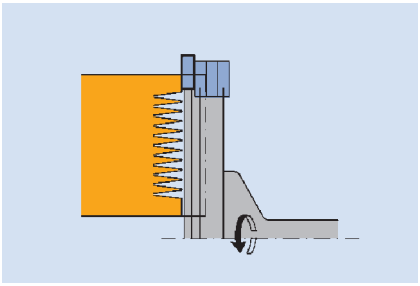
Double scorer scoring shoulders with minifinger joint cutters.

Advantage	Bevel one side teeth used with feed, for cleaner, tear-out free shoulders.



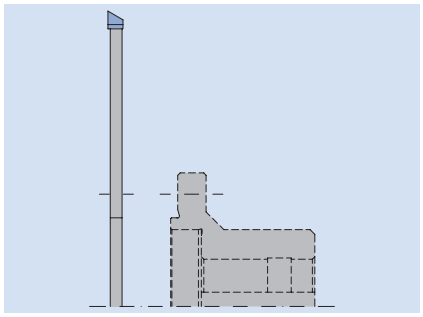
Hogger and scorer for trimming the minifinger joints and scoring the shoulder joint.



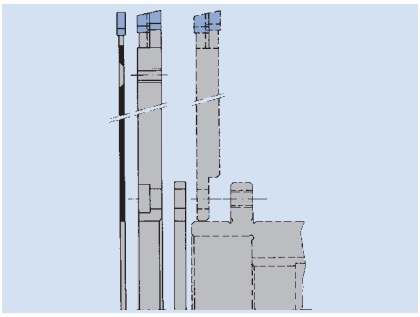


Hogger for trimming minifingers.

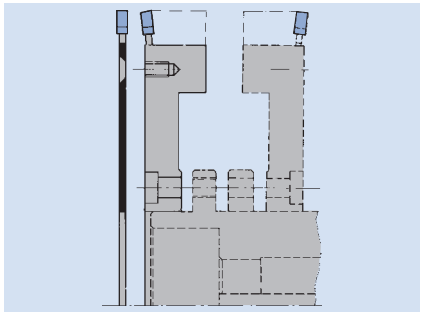
Process step	Hogging across grain.
Workpiece materials	Softwood and hardwood, wood derived material.
Cutting material	HW.
Machines	Finger jointing lines with cut-off saw.
Application	Trimming mini fingers.
Cutting width	Saw hogger: 6.35 mm and 8 mm. Hogger: 12 mm. Segment hogger: 10 – 25 mm.
Tool design	
Advantage	One side bevel HW teeth for clean, tear-out free end grain.



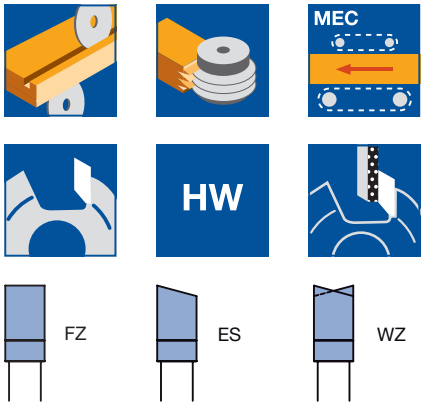
Saw hogger
HW circular sawblade mounted directly on flanged sleeve, bevel one side teeth.



Saw hogger
HW circular sawblade with hogger discs mounted on flanged sleeve
(see section Panel Processing).



Segment hogger
HW circular sawblade with segmental tool body mounted on flanged sleeve
(see section Panel Processing).



Scorer for shoulder minifinger joints

Application:
For scoring in front of the trimming hogger or for machining the face edge of shoulder joints.

Machine:
Finger joint machines with trimming and scoring aggregates.

Workpiece material:
Softwood, hardwood and wood derived materials.

Technical information:
Particularly suitable for scoring the shoulders on finger joint machines. Tear-free shoulders guaranteed.

Scoring sawblade for Grecon PowerJoint
WK 100 2

D mm	SB mm	BO mm	Z	ZF	QAL	n_{max} min^{-1}	ID LH	ID RH
100	4,4	20	18	FZ	HW	8000	**061995** ●	**061995** ●

Single scoring saw mounted on flanged sleeve
SK 999 2, SK 999 2

D mm	SB mm	BO mm	Z	ZF	QAL	n_{max} min^{-1}	ID LH	ID RH
200	6,5	40 DKN	48	WZ	HW	7200	**061986** □	**061987** □
200	4,75	40 DKN	64	ES	HW	7200	**062632** □	**062633** □

Double scoring saw mounted on flanged sleeve
SK 999 2

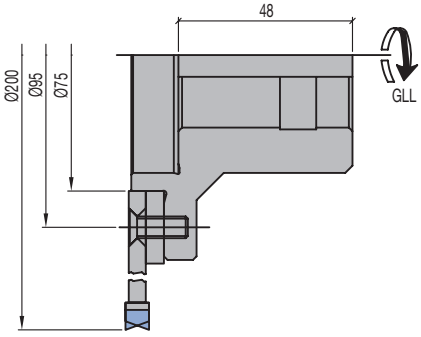
D mm	SB mm	BO mm	Z	ZF	QAL	n_{max} min^{-1}	ID LH	ID RH
200	12,2	40 DKN	48	WZ/WZ	HW	7200	**061988** □	**061989** □
200	12,3	40 DKN	48	ES/WZ	HW	7200	**061990** □	**061991** □
190								

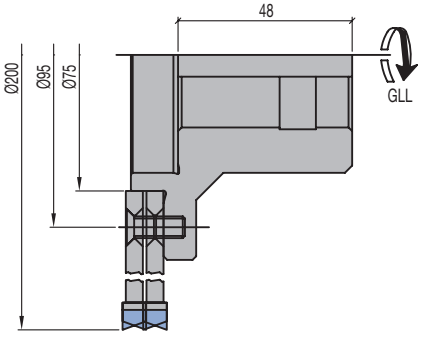
Spare sawblades:

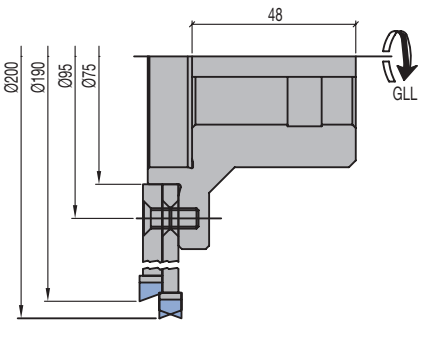
D mm	SB mm	BO mm	Z	ZF	NLA mm	QAL	n_{max} min^{-1}	ID LH	ID RH
200	6,5	75	48	WZ	6NL TK95	HW	7200	**061992** ●	**061992** ●
190	6,7	75	48	ES	6NL TK95	HW	7200	**061993** ●	**061994** ●
200	4,75	75	64	ES	6NL TK95	HW	7200	**062630** ●	**062631** ●

Spare parts:

BEZ	ABM mm	L mm	BO mm	ID
Flanged sleeve	113/75x61x40 DKN	61	40 DKN	**061680** ●
Flanged disc	D115/BO75/TK95		75	**028676** ●
Spacer	180x1x75		75	**028677** ●
Countersink screw, Torx® 20	M6x16			**006086** ●







● available ex stock
□ available at short notice
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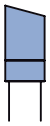
HW



Sawblade hogger for trimming minifingers

Application:
Defined trimming of the workpiece before cutting the fingers for adjusting the finger fitting.

Machine:
Finger joint machine with trimming aggregate, double-end profiler, tenoner.

Workpiece material:
Softwood, hardwood and wood derived materials.

Technical information:
HW circular sawblade with high number of teeth. Bevelled on one side for perfect cutting quality and reduced tear-outs.

Sawblade hogger mounted on flanged sleeve
SK 999 2

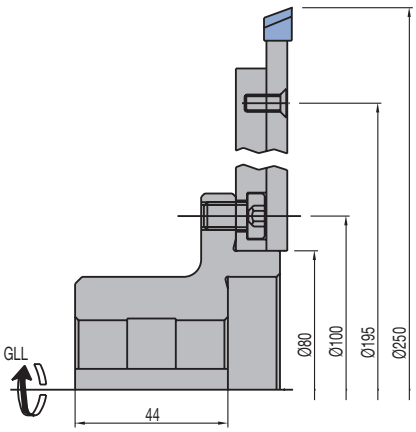
D mm	SB mm	BO mm	Z	ZF	QAL	ID LH	ID RH
250	6,35	40 DKN	80	ES	HW	**062618** □	**062619** □
250	8	40 DKN	60	ES	HW	**062620** □	**062621** □
350	8	40 DKN	72	ES	HW	**062622** □	**062623** □

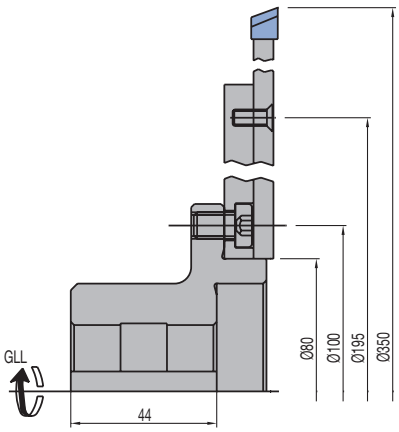
Spare sawblades:

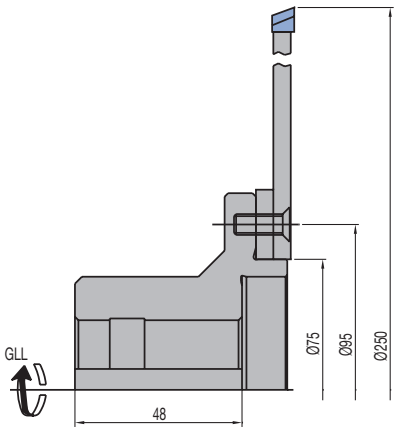
D mm	SB mm	BO mm	Z	ZF	QAL	ID LH	ID RH
250	6,35	75	80	ES	HW	**062624** ●	**062625** ●
250	8	80	60	ES	HW	**062626** ●	**062627** ●
350	8	80	72	ES	HW	**062628** ●	**062629** ●

Spare parts:

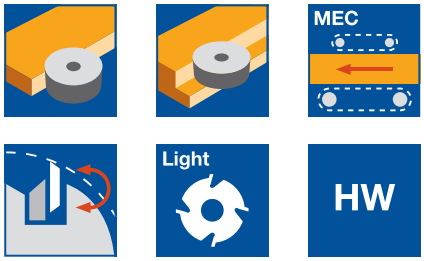
BEZ	ABM mm	L mm	BO mm	ID
Flanged sleeve	113/80x59x40 DKN	12,7	40 DKN	**061679** ●
Flanged sleeve	113/75x61x40 DKN	61	40 DKN	**061680** ●
Flanged disc	D215/BO80/TK195		80	**028675** ●
Flanged disc	D115/BO75/TK95		75	**028676** ●
Countersink screw, Torx® 20	M6x16			**006086** ●
Countersink screw, Torx® 20	M5x12			**006247** ●
Cylindrical screw with ISK	M8x12			**005943** ●







● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org



Rebating cutterhead for joinery machines - HeliCut 15

Application:
For cutting grooves, rebate grooves, V-grooves as well as for jointing longitudinal and crosscut wood with large hogging depths in the wood construction.

Machine:
CNC-controlled joinery machines, as well as special machines for general wood construction with machine-specific adaptors.

Workpiece material:
Solid wood, preferably softwood for wood construction, hardwood (oak, ash etc.).

Technical information:
Carrier body constructed from high strength lightweight aluminium alloy. With 4-times turnable, spiral-shaped assembled HW turnblades. Application of the same knives as peripheral knives and spurs. The cutting bevels of the HW knives are numbered. No clamping wedges, direct tangential knife clamping. Easy handling of knife change without further mounting aid.

Aluminium tool body
WW 430 2 05, WW 430-2-05

Machine	D mm	SB mm	BO mm	Z	V	ID
	250	60	30	4x6	2 x 4+4	**132538**
	250	80	30	4x8	2 x 4+4	**132539**
	250	100	30	4x10	2 x 4+4	**132540**
	300	20	30	4x2	2 x 4+4	**132541**
	300	40	30	4x4	2 x 4+4	**132542**
	300	60	30	4x6	2 x 4+4	**132543**
	300	80	30	4x8	2 x 4+4	**132544**
	300	100	30	4x10	2 x 4+4	**132545**
	350	20	30	4x2	2 x 4+4	**132546**
	350	40	30	4x4	2 x 4+4	**132547**
	350	60	30	4x6	2 x 4+4	**132548**
	350	80	30	4x8	2 x 4+4	**132549**
	350	100	30	4x10	2 x 4+4	**132550**
	400	20	30	4x2	2 x 4+4	**132551**
	400	40	30	4x4	2 x 4+4	**132552**
	400	60	30	4x6	2 x 4+4	**132553**
	400	80	30	4x8	2 x 4+4	**132554**
	400	100	30	4x10	2 x 4+4	**132555**
SCM	350	60	HSK-E 63	4x6	2 x 4+4	**132571** □
SCM	350	60	HSK-E 63	4x6	2 x 4+4	**132572** □
Uniteam	250	50	35 DKN	4x5	2 x 4	**132562** □
Uniteam	250	80	35 DKN	4x8	2 x 4	**132561** □
Uniteam	290	80	HSK-E 63	4x8	2 x 4+4	**132563** □
Uniteam	290	80	HSK-E 63	4x8	2 x 4+4	**132564** □
Uniteam	290	80	HSK-A 100	4x8	2 x 4+4	**132565** □
Uniteam	290	80	HSK-A 100	4x8	2 x 4+4	**132566** □
Uniteam	420	80	HSK-E 63	4x8	2 x 4+4	**132567** □
Uniteam	420	80	HSK-E 63	4x8	2 x 4+4	**132568** □
Uniteam	420	80	HSK-A 100	4x8	2 x 4+4	**132569** □
Uniteam	420	80	HSK-A 100	4x8	2 x 4+4	**132570** □
Weinmann	300	20	55	4x2	2 x 4+4	**132557** □
Weinmann	300	50	55	4x5	2 x 4+4	**132558** □
Weinmann	300	60	55	4x6	2 x 4+4	**132560** □
Weinmann	300	61	55	4x6	2 x 4+4	**132559** □

More dimensions on request.

Spare knives:

BEZ	ABM mm	QAL	BEM	VE PCS	ID
Turnblade knife	15x15x2,5	HW	HeliCut 15	10	**009549** ●
Turnblade knife	15x15x2,5	HW-MF	HeliCut 15	10	**009543** ●
Turnblade knife	15x15x2,5	TDC	HeliCut 15		**602900** ●

Spare parts:

BEZ	ABM mm	ID
Countersink screw, Torx® 20	M5x18	**114030** ●
Torx® key	Torx® 20	**006091** ●

● available ex stock
□ available at short notice
Instruction manual visit www.leitz.org

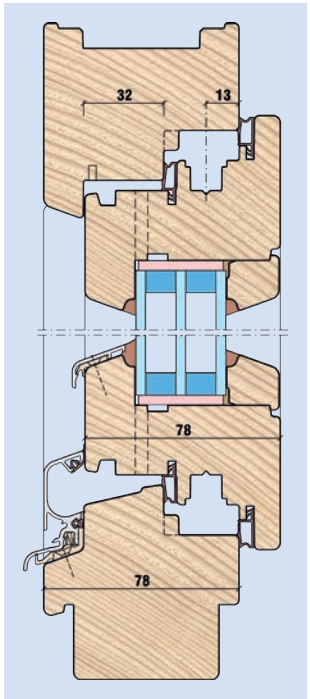
International window systems

The window section is not just a matter of construction specification. More important are the national specifications to which a window must correspond for particular applications. EN 14351-1 defines these mandatory specifications. CE-marking clearly shows that a window meets all the required criteria of the intended application, defining the window construction. Leitz knows the business, and advises and supports customers on the correct design and the best tool.

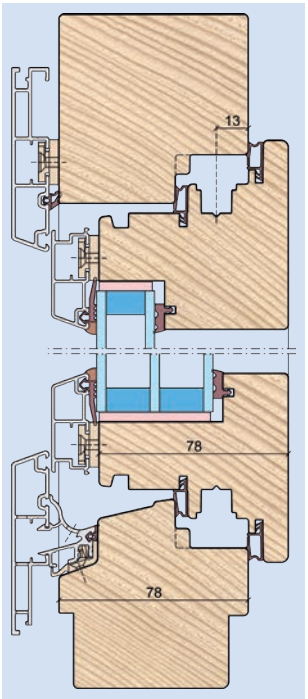
To support customers with CE certification, Leitz continental standard systems are listed on www.CE-fix.de (“Making CE marking easy for windows and external doors”) from VBH - the world's largest trading company supplying hardware for windows and doors.

In addition to window systems from Leitz, the patented RipTec technology for corner joints by Leitz, and the PlugTec corner joint, designed by Leitz and certified by the ift-Rosenheim Institute as per FE08-1, are also part of this platform.
All construction details in Leitz continental window systems have been designed as required by CE certification. Leitz’s national standard domestic window programs have successfully passed the system test at an authorized testing institute, such as ift-Rosenheim.

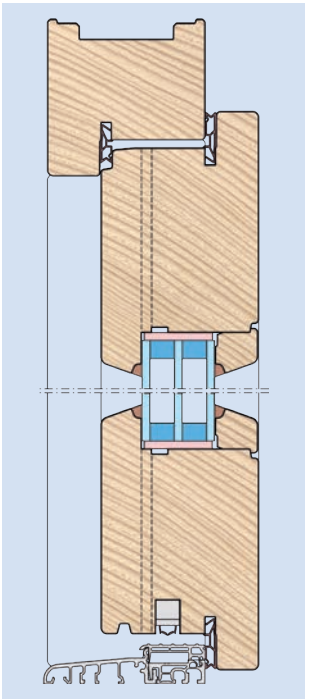
Leitz has specifically designed standard systems based on the requirements of certified window systems in order to meet country-specific requirements. These modular system solutions are characterized by high flexibility in production and design, and future-proof technical features including heat technology, noise protection and safety.



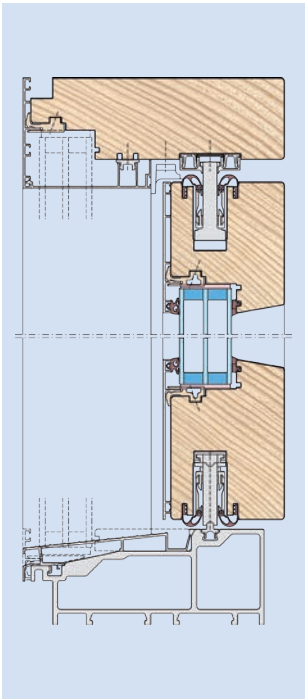
IV78 ClimaTrend
13 mm gear axle
32 mm distance of wind-rain block



IV78 ClimaTrend
13 mm gear axle



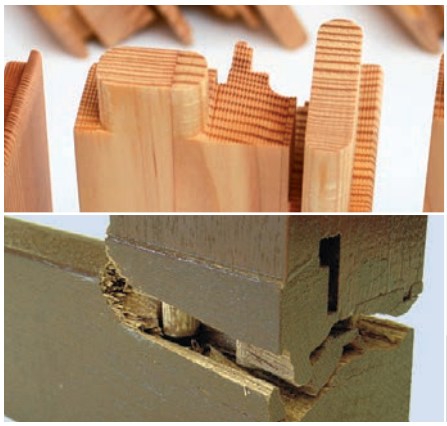
Front door, single rebate
Sash and frame sealing.
Rotary sash sealing stop and front door threshold for barrier-free installation.



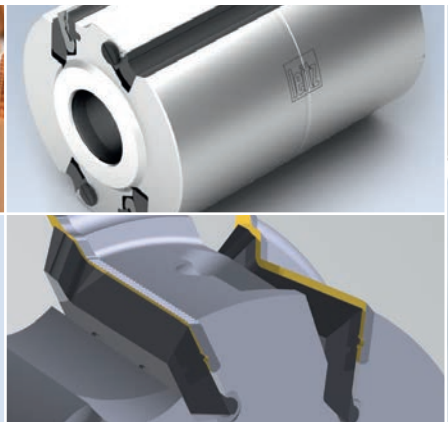
Wood/Alu sliding door
with fixed glazing in the frame
Ground-deep glazing with stepless exit.

Tool systems and processing technology

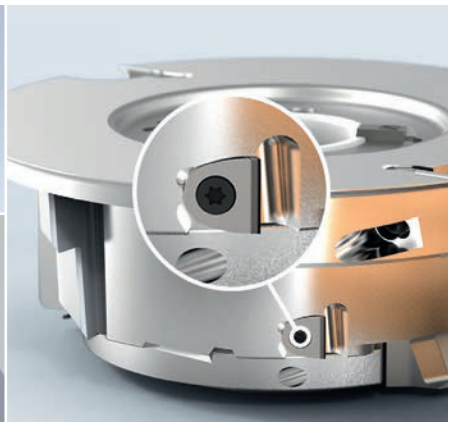
Especially for cutting technologies designed for the production of wooden windows, such as RipTec or Integral and Hybrid technology as well as toolsets of machine-specific features, allow optimal utilization of machine capacity with excellent machine quality at the same time.
The Leitz tool systems are described extensively in section Profile Tool Systems.



Leitz RipTec: Nearly tear-free finish and maximum stability of the joint with increased feed speed
Leitz PlugTec: The innovative corner joint for the most demanding applications



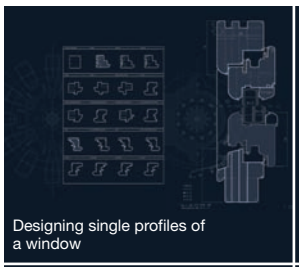
Leitz Integral: Precutting and finish processing with one single tool for increased performance time of the finish edge



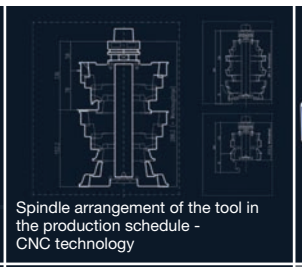
Leitz Hybrid: Combination of HW-tool systems with diamond edges for reduced edge wear

Engineering services

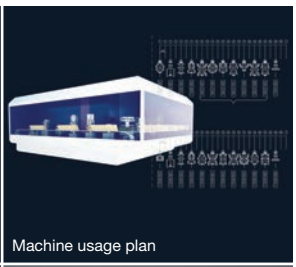
For a head start in an increasingly competitive international marketplace, right from the planning stage, you can count on Leitz. As your expert partner, we offer customized and efficient solutions for the production of modern window and door systems. After determining the requirements, Leitz work in cooperation with machine and software producers to ensure customers receive the most efficient service package. If maximum flexibility is required during production, then the toolsets are split. However, if productivity is the first priority then complete toolsets are the correct solution.
Leitz identify trends in the market, is in constant contact with notable international testing institutes, producers of hinges and seals, and understands what is important in window construction. Our window experts provide support in every way to carry out your objectives.



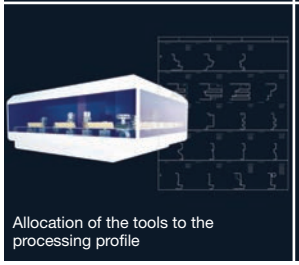
Designing single profiles of a window



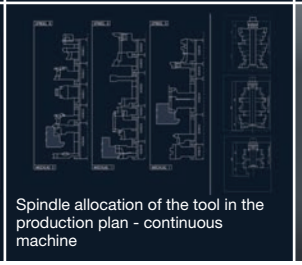
Spindle arrangement of the tool in the production schedule - CNC technology



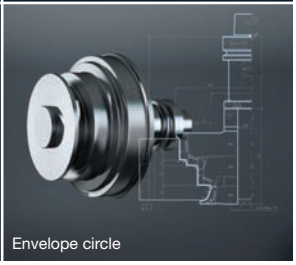
Machine usage plan



Allocation of the tools to the processing profile



Spindle allocation of the tool in the production plan - continuous machine

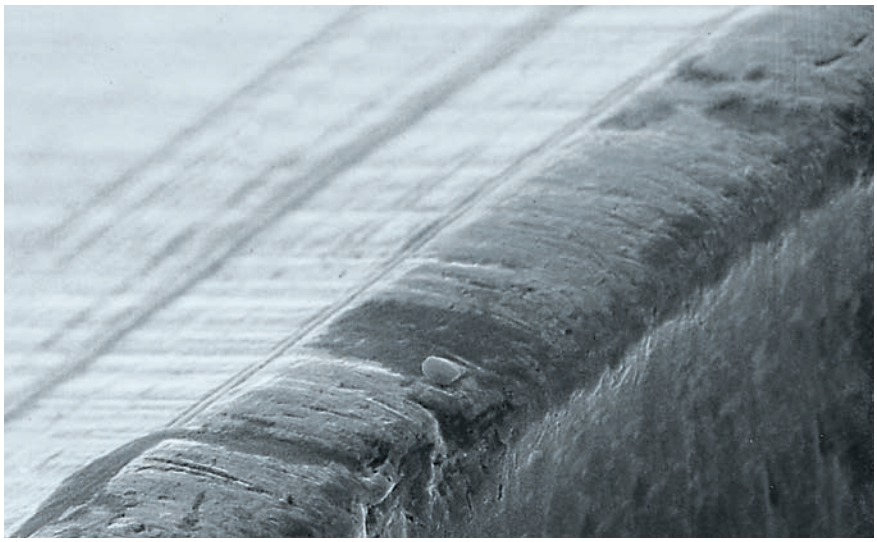


Envelope circle

Problem	Possible cause	Action
Surface defect Cutting quality	– RPM too low	Increase RPM and thus cutting speed increase tool diameter
	– Incorrect geometry	Measure, change tool
	– Spindle and tool tolerances too high	Check motor bearing and tolerances
	– Tool balance	Check and re-balance
	– Cutting speed too high (no chip formation), relation feed to number of teeth not adequate	Increase feed speed, Reduce number of teeth and RPM
	– Number of teeth too low, feed to high	Match number of teeth and feed speed
Wavy, rough surface	– Workpiece feed not consistent	Check feed speed and/or transport equipment
	– Infeed rollers with insufficient pressure or worn	Increase pressure of in feed rollers and recut serrations
	– Workpiece too thin or too short	Observe the machine manufacturer guidelines
	– Chip removal too high	Use for several working steps or pre relieve
	– Resin built up on tool, tool is blunt	Remove resin or resharpen
Surface defect Burn marks	– Cutting speed too high	Reduce cutting speed
	– Relation feed speed to number of teeth not adequate	Match number of teeth and feed speed
	– Tool continues to rotate in standing workpiece	Provide for continuous feed
Surface defect Tear-outs	– Wood moisture too low	Check drying control
	– Wood with many branches (loose branches)	Optimisation with crosscut saws and longitudinal joints
Surface defect Chip marks	– Angle geometry not matched to workpiece material	Check and adjust and/or new tool
	– Gap between knife and clamping element	Clean and carefully mount clamping element and knives
	– Gullet too small	Check and increase
	– Extraction hood and extraction not suitable	Contact machine manufacturer to clarify
	– Extraction performance insufficient in tool area	Guideline: 30 m s^{-1} air supply speed
Profile defect Workpiece – Angle error – uneven	– Tool set profiles not the same, e. g. sets with feed/against feed	Check and match tool sets
	– Stacked spindle positioned in feed direction or not at right angle to table	Check angle with clock gauge on vertically running spindle in two planes
	– Support table and fence worn out	Reprocess and/or replace support table and fence
	– Angle tolerance between support table and fence too big or fence and process edge not correctly adjusted	Check and adjust angles, align plane from fence to process edge including tool
Motor power Feed speed	– High resin build up on tool, tool blunt	Remove resin from tool and resharpen more frequently
	– Tool gullet too small	Check and increase
	– Cutting angle too small	Adjust or new tool
	– Cutting across grain too deep	Use several working steps or pre cut

Wear of HS cutting edges
When planing solid wood (softwood or hardwood) the HS cutting edges are subject to mechanical and chemical wear.
This leads to blunting of the cutting edges and will consequently affect the quality of the wood surface.

Significant blunting requires considerably more work when resharpening the knives and reduces the number of possible resharpens.



Wear of HS cutting edges.

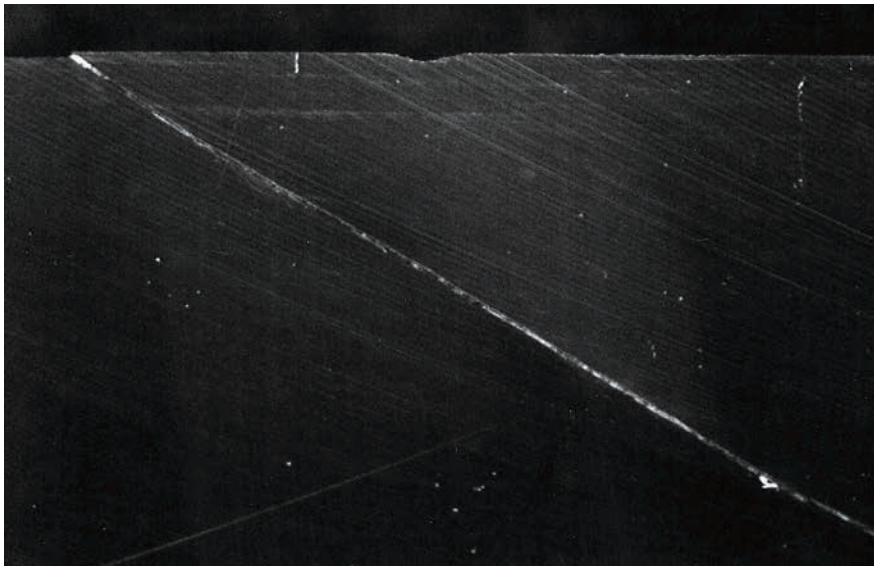
Pitting wear at the face HS
Chemical wear can be very high because of the consistency of the wood, e.g. machining wet wood can lead to pitting of the face.

The pitting weakens the cutting edge and results in chipping/breakage.

Pitting wear.

Destruction of HW cutting edges
Too large knife projection or tipping material overhang will result in breakages when machining very hard wood.
Too large projection of carbide tipped planer knives, plus a low cutting angle can overstress the knife when machining very hard timber.
This can result in hairline cracks or knife breakages.

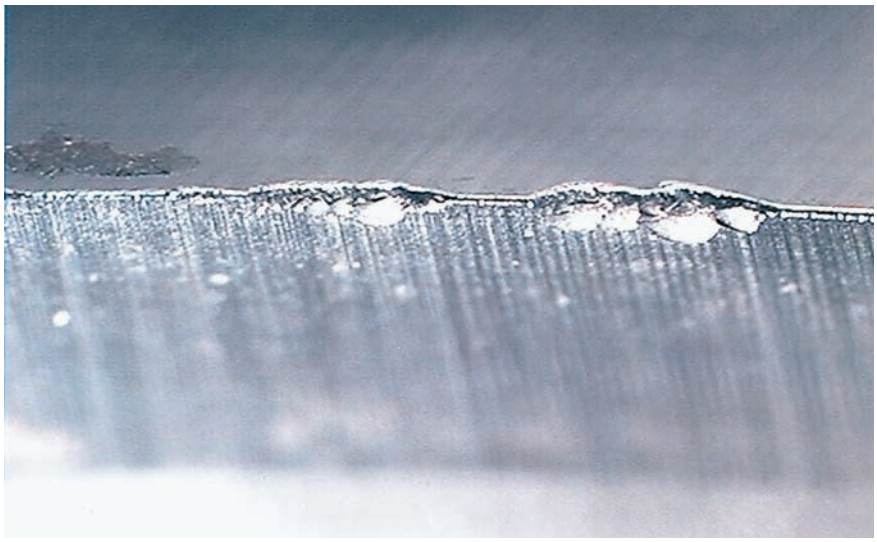
The maximum knife projection, angle geometry and minimum clamping length given in the handling instructions must be adhered to.



Destruction of HW cutting edges.

Cutting edge fractures
Dull cutting edges, unbalancing or weak feed pressure can create vibrations in the machine, especially when machining very hard materials.

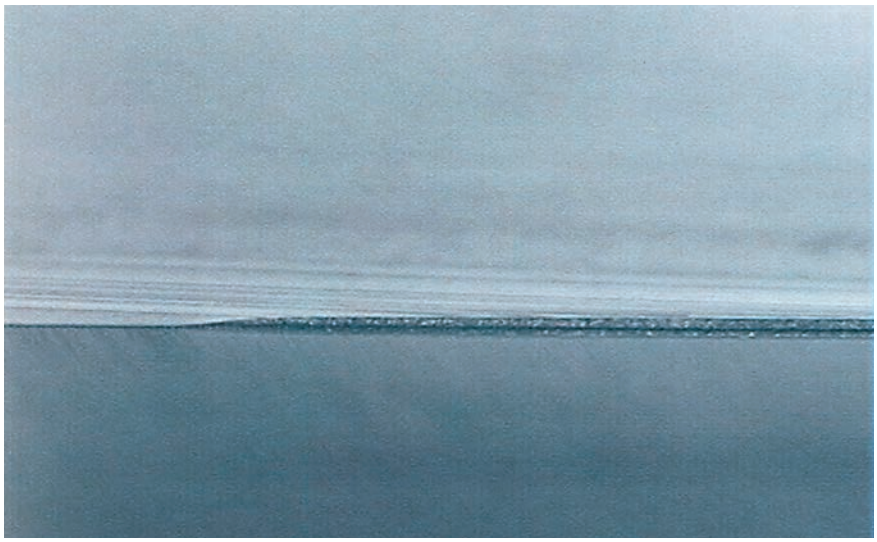
An uneven cutting force can result in chipping to the cutting edge. When tools are in constant use, it is important the tools are sharpened frequently and not allowed to become too blunt.
A higher cutting angle may help.



Cutting edge fractures.

Wear to HW cutting edges
The photograph shows the wear of a uniformly blunt cutting edge.

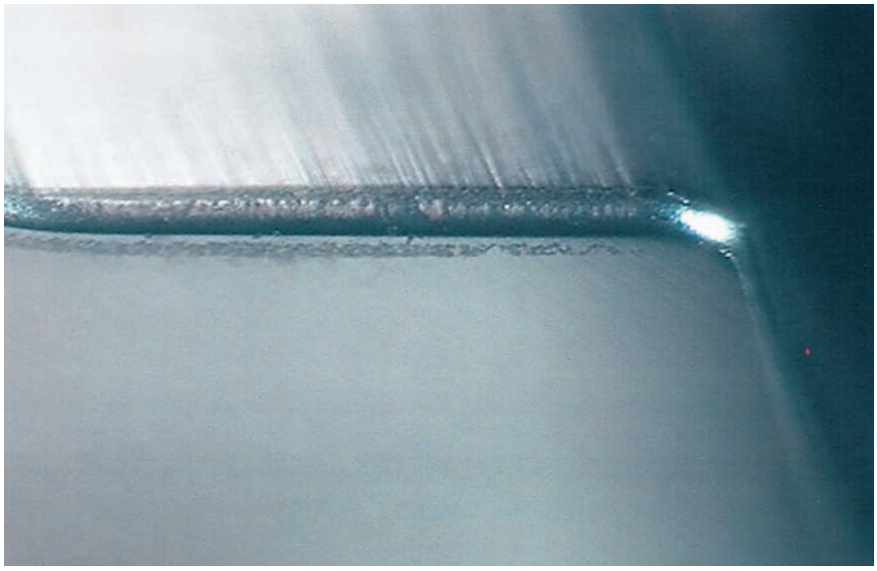
The cutting edge can be resharpened without a significant material loss.
This increases the overall performance time of the tool.



Wear of HW cutting edges.

Too much wear to cutting edges
When the cutting edges are very blunt, the cutting force becomes too high, the surface quality deteriorates, resulting in additional resharpening and loss of tool life.

If the cutting edge is not resharpened correctly, the performance time is reduced, resulting in cutting edge fractures.

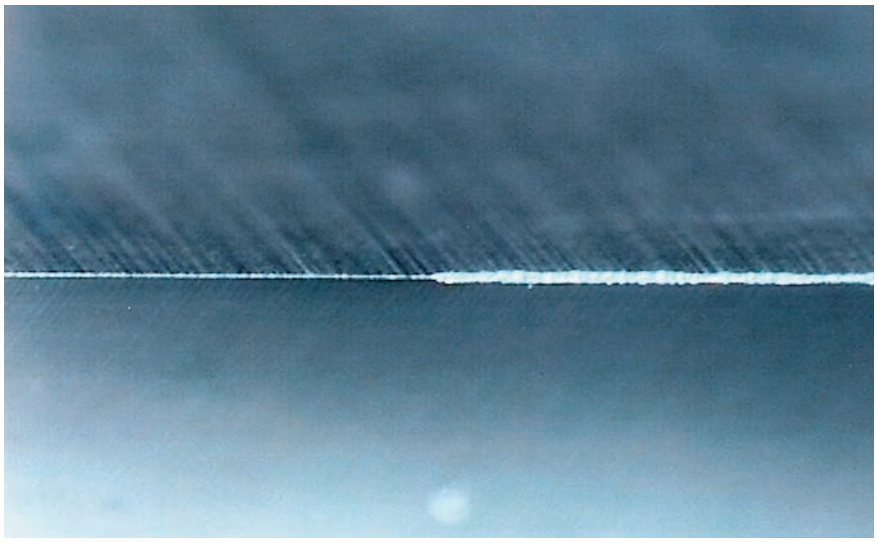


Too much wear on cutting edges.

Cutting edge abrasion
For largely homogenised materials, mechanical wear will lead to continuous rounding of the cutting edges.

The quality of the surface determined the level of abrasion and should normally be, as a guideline, between 0.2 to 0.3 mm maximum.

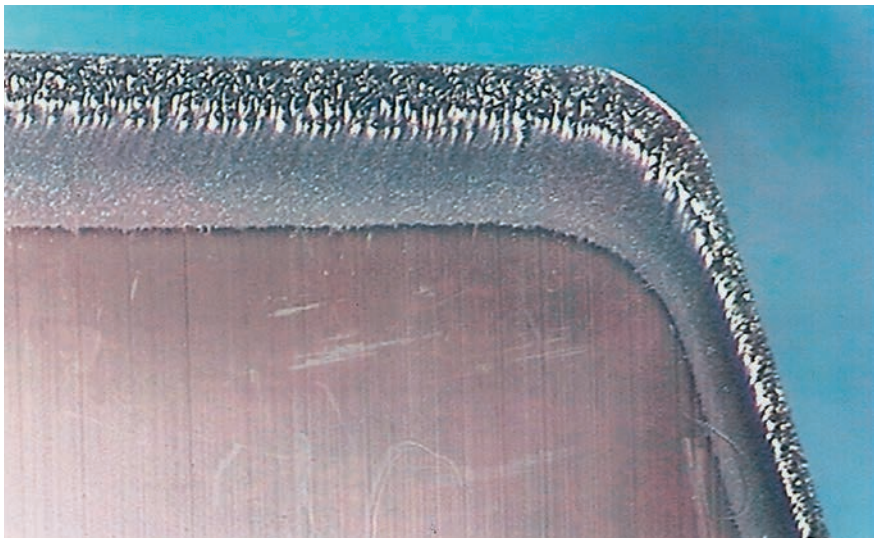
Tipped tools require resharpening to ensure the efficiency of the tools.



Common rounding of cutting edges after use for spruce

Cutting edge abrasion by chemical impact
When processing workpiece materials with a high content of tannic acids (e.g. oak), the cutting edge abrasion is mainly caused by mechanical plus chemical wear.

Cobalt, a binding agent in tungsten carbide, is washed out by chemical reaction leading to early depletion of the cutting edge.

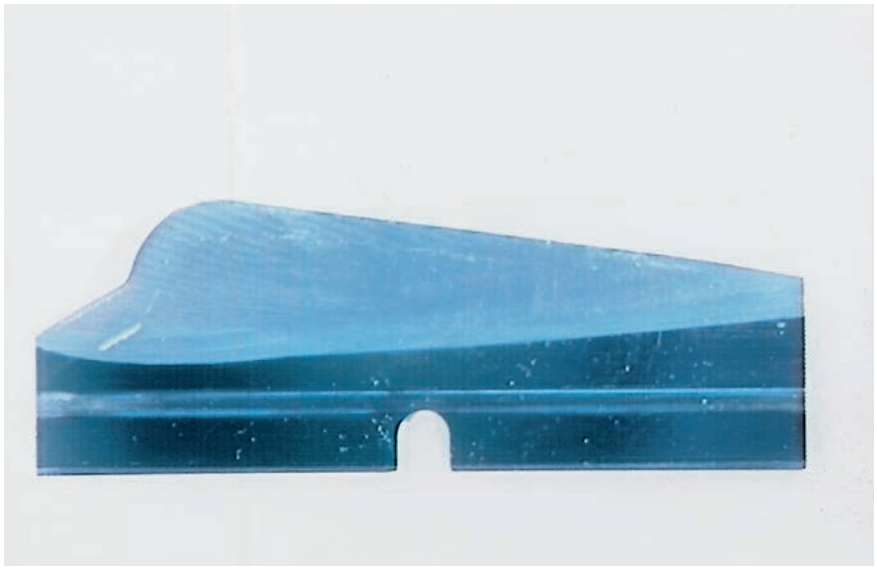


Chemical impact – Cutting edge abrasion – Application oak

Cutting edge damage caused by improper repair
For cutterheads/sets with HW cutting elements, the knives must be turned or replaced after reaching the end of their performance time.

Resharpening parallel to face will reduce the essential clamping forces, creating gaps between knives and clamping wedges, impair the surface quality, and is not permitted for safety reasons.

Ensure careful cleaning and mounting when changing the knives of tools with turnblade/throw away knives.



Cutting edge abrasion caused by improper repair

Enquiry/order form special tools – planing and profiling

Customer details: Customer number: (if known)

☐ Enquiry
☐ Order

Delivery date: (not binding) CW

Company:

Street:

Post code/place:

Country:

Phone/fax:

Contact person:

Signature:

Date:

Enquiry/order no.:

Tool ID: (if known)

No. of pieces:

Workpiece material:

☐ Solid wood Type:
☐ Wood material Type:
☐ Coating Type:
☐ Other Type:
☐ Finish hogging

Moisture: %
Density: g/cm³
Further information:

Machine:

(e.g. spindle moulders, four-sided moulders edging machines, window making machines etc.)

Manufacturer:
Type/construction year:
Model:

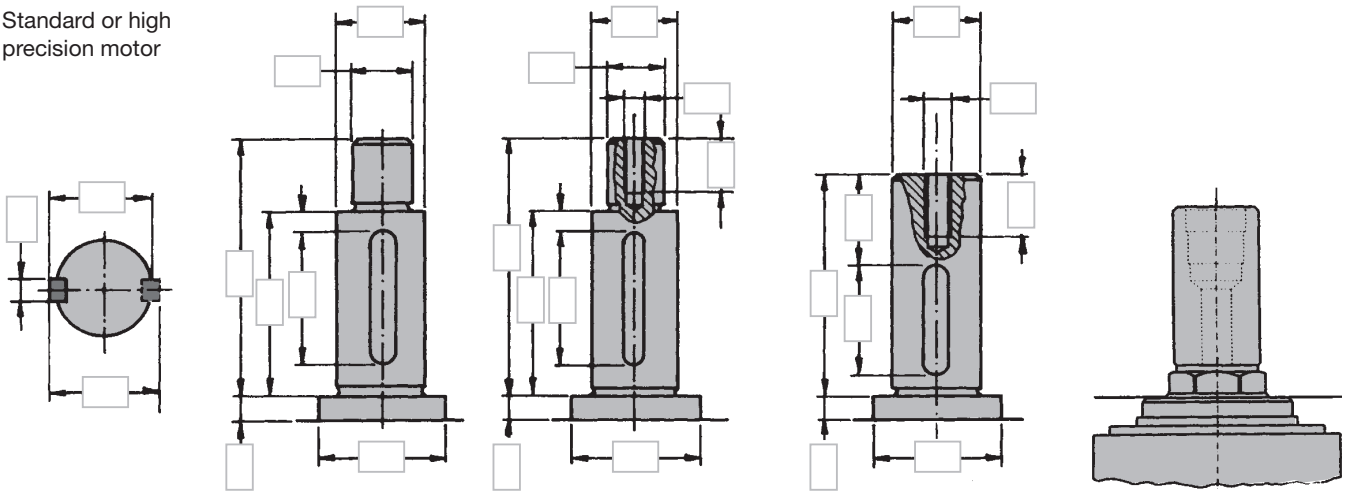
Specification of spindle sequence in feed direction

e. g.: 1 bottom, 2 right, 3 left, 4 top, 5 multi-purpose
or: 1 scraping, 2 hogging, 3 cutting, 4 finish cutting, 5 post cutting
or: 1 sawing, 2 slot/tenon, 3 cutting with feed, 4 cutting against feed

Motor no.:	Power:	RPM:	Spindle dimension:	Additional information:
1	kW	min^{-1}	mm	
2	kW	min^{-1}	mm	
3	kW	min^{-1}	mm	
4	kW	min^{-1}	mm	
5	kW	min^{-1}	mm	

Direction of rotation (LH/RH) or cutting direction (with feed/against feed) must be specified for each spindle.

Standard or high precision motor



Tool:

Tool type (e.g. one part/tipped tools/assembled tool, see product information)

Dimension:

Diameter: mm

Cutting width: mm

Bore: mm

Number of teeth:

Cutting material:
- ☐ HL
- ☐ HS
- ☐ ST
- ☐ HW
- ☐ DP

Cutting point:
- ☐ no cutting point
- ☐ sleeve with interlock
- ☐ sleeve without interlock
- ☐ quick clamping sleeve
- ☐ hydro sleeve

Direction of rotation:
- ☐ right hand rotation
- ☐ left hand rotation

Cutting direction:
- ☐ with feed
- ☐ against feed

Kind of feed:
- ☐ manual (MAN)
- ☐ mechanical (MEC)

Feed speed: min^{-1}

Cutting width (SB): mm

Cutting depth: mm

Remark:

zero diameter: mm

max. diam.: mm

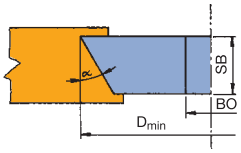
zero height: mm

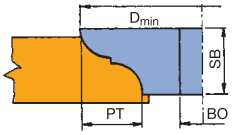
clamping length: mm

Application:

Solid wood

Wood materials ☐ top layer ☐ longitudinal ☐ Medium layer ☐ crosscut ☐ front ☐ Top and medium layer

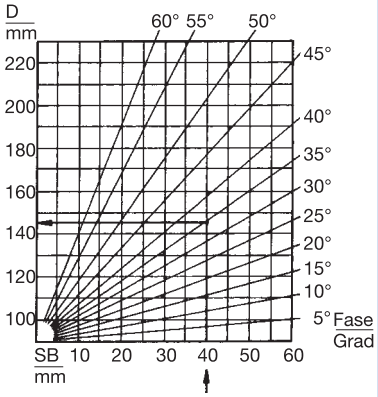




Technical information:

Tipped tools (bevel trimming cutters/profile routers):
Design: bending test, Z2, mech. feed, Z3, Z4, round shape
Tooth shape: with/without spur

Table for min. tool diameter.
Applicable for bevel trimming cutter
BO – 30 mm:
For bore 40 mm:
D + 10 mm
For bore 50 mm:
D + 20 mm



Formula for min. tool diameter:
Applicable for profile routers BO – 30 mm:
For bore 40 mm: D + 10 mm
For bore 50 mm: D + 20 mm
Formula: D_{min} = 100 + 2 x PT (mm)

Note:
Bevels of more than 45° and large profile depths require large diameters. The maximum permitted RPM must be considered when calculated the cutting diameter and must not be exceeded. Profile sketches must clearly indicate whether the material (wood) or cutter is shown. Please specify motor side, direction of rotation, dimensions and any other conditions on the material sample or the drawings.

Assembled tools with turnblade/throw away knives:
Formula: D_{min} = 90 + 2 x PT (mm) – Applicable for BO – 30 mm

Sketch for application plan, profile drawing, special motor spindle etc.
Please specify workpiece support and fence side and/or workpiece face side top/bottom.

Key to pictograms


Scoring, top and bottom


Hogging


Grooving, horizontal and vertical


Jointing


Rebating

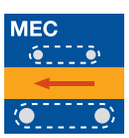

Profiling


Profiling joints


Profiling tongue and groove


Planing


Planing, profiling



Mechanical feed

Manual feed


Solid metal tool


Tipped tool

Light alloy body


Interchangeable knives


Mechanical knife clamping, reversible


Centrifugal knife clamping, reversible


Mechanical knife clamping, adjustable - serrated


Mechanical knife clamping adjustable - plane echan.

Mechanical knife clamping, re-sharpenable and constant diameter


Hydro clamping


Resharpenable cutting face


Resharpenable clearance face

Low noise

High-alloyed tool steel

High-speed steel

Tungsten carbide

Carbide metal coating

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