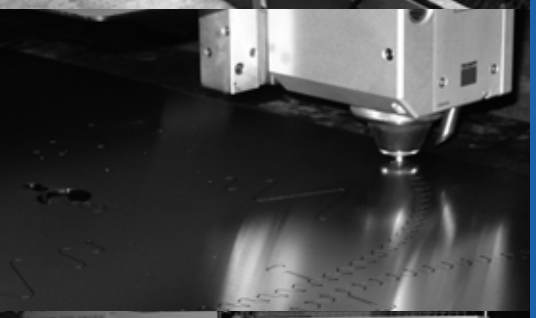
PILANA TOOLS

Woodworking tools


HEIMSOTH


TRUMATIC L3000




VOLLMER

HISTORY AND PRESENT TIME

HISTORY

The tool production in Hulin began in 1934. The firm was founded by Mr. Studeník who named the new company “First Moravian factory for saws and tools“. At first the company started producing hand saws, circular saw blades and was gradually enriching the production programme with cutters for wood cutting and other tools for wood working. In the 1960th the production assortment enriched with TCT circular saw blades, gang saw blades, planer knives, machine knives, metal cutting tools and saw bodies.

PRESENT TIME

PILANA TOOLS with about 600 workers is in the process of dynamic development and is one of the biggest producers of tools in Europe. The tools are made of the best-quality steel in accordance with DIN and ISO standards. The quality is closely watched at each production stage. For the highest precision the most up-to-date equipment is used: Laser, CNC grinding machines, CNC milling machines, CNC sharpening machines, automatic furnaces and other automatic and semiautomatic machinery.

The constant attention is paid to the production improvement and automation. These measures, together with long-lasting experience and low costs, enable to offer high quality products at competitive prices. PILANA TOOLS regularly exports 80% of its products to over 70 countries world-wide.

PILANA TOOLS consists of property-joined companies:

PILANA TOOLS a.s.
PILANA TOOLS Wood Saws spol. s.r.o.
PILANA TOOLS Saw Bodies spol. s.r.o.
PILANA TOOLS Metal spol. s.r.o.
PILANA TOOLS Knives spol. s.r.o.

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PILANA TOOLS

Tungsten carbide tipped saw blades

Tungsten carbide tipped saw blades

Tungsten carbide tipped (TCT) saw blades from Pilana Tools are manufactured from high quality materials with hardness of 43 HRc and their complete saw bodies are laser cut. Expansion slots situated all around the saw body are specially shaped for each cutting application. By these means the expansion slots prevent blade deformation and improve cutting quality in difficult conditions (while centrifugal forcing and heating up of blade). Expansion and low-noise slots should enable high cutting performance.

Tungsten carbide tips are purchased only from highly prestigious suppliers and their grade is always suitable for particular cutting application.

List of carbide tip grades:

Tenacity

Grades of tips			
K 01	**K 10**	**K 20**	**K 30**
Hardness [HV 30]	Hardness[HV 30]	Hardness [HV 30]	Hardness [HV 30]
1900 - 2200	1700 - 1800	1600 - 1700	1300 - 1400
Tips of K01 grade are very resistible against abrasion. Powdered grain (micro grain) is very fine. Its grade is applicable for cutting hard materials. For example MDF, chip-board, HDF, double side-laminated chipboard etc.	Tips with optimum combination of fine-grained structure and material hardness applicable for universal usage. Best for cutting wood, plastics, non- ferrous metals, plywood, plaster boards etc.	Tips containing higher percentage of cobalt binding material enables better tooth tenacity and therefore higher resistance while hitting other material types (i.e. branch knots, dirt, steel chips etc.). Tips are applicable for cutting along the grain of natural woods.	High percentage of cobalt binding material with lower hardness enables K30 tips high tenacity and resistance against breaking. This grade is best applicable for cutting in extreme conditions (i.e. cutting frozen wood).

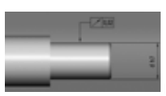
Hardness

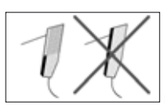
Another very important characteristic of saw blade is its stability and tensioning. Therefore we put maximum effort to reach the best results possible while testing our blades on special and modern machines. All the information acquired is applied in practise.

The last but not least important parameter is sharpening of carbide tips. Ideal cutting edge simply guarantees quality cutting. New automatic sharpening machines together with best quality grinding discs enable us to improve high sharpness quality of our saw blades.

INSTRUCTIONS HOW TO USE SAW BLADES CORRECTLY

We recommend to follow the below rules in order to reach the best cutting results.


pict. no. 1


pict. no. 2

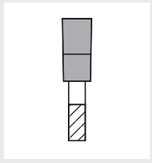
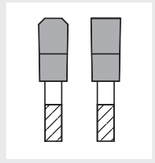
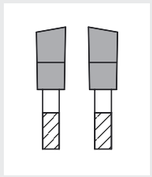
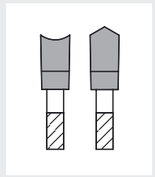
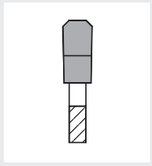
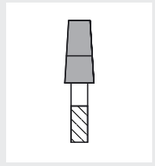

pict. no. 3


pict. no. 4

- Machine must be in good condition without vibrations.
- Flanges used to tighten the saw blades must be of the same diameter (about1/3 of the blade size).
- Flanges must be clean and it is important to check their side run- out.
- Check the spindle of machine. It must be absolutely straight (picture 1).
- Tips must always be sharpened with the original angles.
- See the most appropriate way on picture 2.
- If rebored by over 20mm, the blade loses its original attributes and its stability (picture 3).
- It is needed to grind the top of chip limiters together with tip grinding andkeep the oversize as picture 4.

Tungsten carbide tipped saw blades

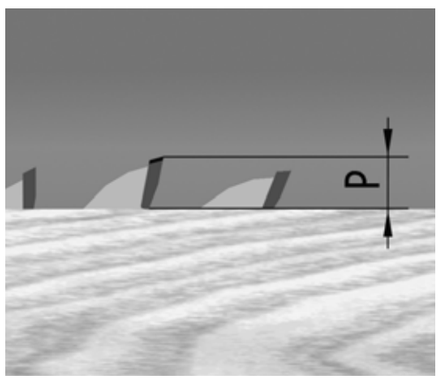
Tooth geometry of TCT saw blades

	FZ	flat tooth		TFZ	triple chip tooth alternating with flat tooth
	FZ N	flat tooth with negative hook angle		TFZ N	triple chip tooth alternating with flat tooth with negative hook angle
	LFZ	flat tooth with chip limiter			
	WZ	alternate top bevel		DHZ	hollow face tooth (flat tooth alternates with inverted “V” tooth)
	WZ N	alternate top bevel with negative hook angle		DHZ N	hollow face tooth (flat tooth alternates with inverted “V” tooth), negative hook angle
	LWZ	alternate top bevel with chip limiter			
	TZ	triple chip tooth		KON	conical tooth

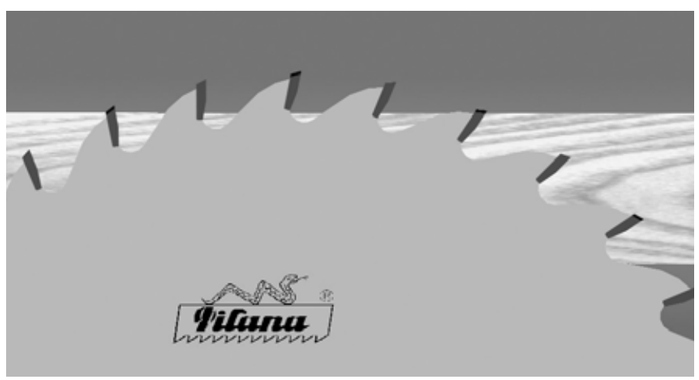
Saw blade alignment on a table saw

We advise you to use precise measuring instruments when mounting your saw blade. Mount your saw blade onto the arbor. Adjust the arbor to its maximum height. Verify that the saw blade is parallel to the miter gauge slots. Adjust as needed. This step is necessary to obtain crosscuts with the maximum in quality finish and for setting up the fence for ripping.

The overlap of saw blade teeth over the cutting material must be equal to the height of tungsten tip (see picture No. 5).
The number of teeth cutting simultaneously must be between 2–3 (see picture No. 6)



Pict no. 5

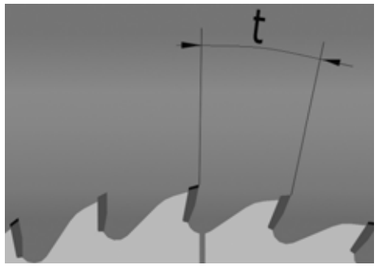


Pict. no. 6

Tungsten carbide tipped saw blades

Here are some useful formulas how to calculate the choice of correct saw blades:

$$t = \frac{h \times 1{,}45}{k} \qquad z = \frac{D \times \pi}{t}$$



Key:

t [mm] - tooth pitch
h [mm] - thickness of the work piece
k [-] - number of teeth in cutting place (2÷3)
z [-] - number of teeth of the saw blade
D [mm] - sawblade diameter

These formulas are valid for cross cutting and cutting of laminated materials.

Tab No. 1 shows the maximum RPM of circular saw blade on basis to the diameter of the blade itself. RPM referring to cutting speed 100m/sec. These are the maximum recommended RPM by the machine builder. When exceeding this limit, the blade will loose its characteristics and danger implied to user may occur.

Tab 1

Recommended RPM [1/min]										
Ø D [mm]	Cutting speed v_c [m/sec]									
	10	20	30	40	50	60	70	80	90	100
100	1910	3820	5730	7640	9550	11460	13370	15280	17190	19100
150	1270	2550	3820	5100	6370	7640	8920	10190	11500	12730
200	960	1910	2870	3820	4780	5730	6690	7640	8600	9550
250	760	1530	2290	3060	3820	4590	5350	6110	6880	7640
300	640	1270	1910	2550	3180	3820	4460	5100	5740	6370
350	550	1090	1640	2180	2730	3280	3820	4370	4900	5460
400	480	960	1430	1910	2390	2870	3340	3820	4300	4780
450	430	850	1270	1700	2120	2550	2970	3400	3820	4250
500	380	760	1150	1530	1910	2290	2680	3060	3440	3820
550	350	690	1040	1390	1740	2080	2430	2780	3120	3470
600	320	640	960	1270	1590	1910	2230	2550	2880	3180
650	290	590	880	1180	1470	1760	2060	2350	2640	2940
700	270	550	820	1090	1360	1640	1910	2180	2450	2730
750	250	510	760	1020	1270	1530	1780	2040	2290	2550
800	240	480	720	950	1190	1430	1670	1910	2150	2390

Tab 1 can by efficiently used with Tab 2

$$v_c = \frac{D \times \pi \times n}{1000 \times 60} \qquad n = \frac{1000 \times 60 \times v_c}{D \times \pi} \qquad s = \frac{s_z \times n \times z}{1000}$$

Recommended values of feed/tooth		
Material type		**Feed speed sz (mm/tooth)**
Soft woods	Cutting along the grain	0,2 - 0,3
	Cutting across the grain	0,1 - 0,2
Hard woods		0,06 - 0,15
Chipboard		0,1 - 0,25
Plywood		0,05 - 0,12
Laminated boards		0,05 - 0,1
Non-ferrous metals and plastics		0,02 - 0,05

Key:

v_c [m/s] - cutting speed
D [mm] - diameter of saw blade
n [1/min] - recommended RPM
s [m/min] - feed speed
z [-] - number of teeth
s_z [mm/tooth] - feed speed/tooth

List of TCT saw blade applications

Tab. no. 2

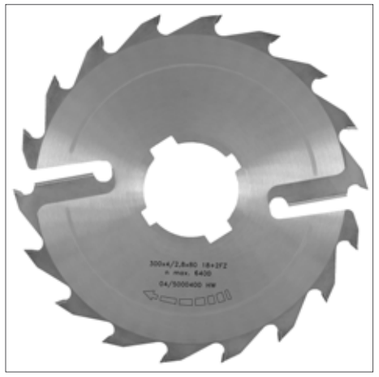
Machined material	Tooth geometry	Our type ● Recommended ○ Applicable: Cutting speed [m/sec]	Page in catalogue	TYPE OF SAW BLADE
Soft woods	Cutting along the grain	60 - 100		
	Cutting across the grain	60 - 100		
Hard woods	Cutting along the grain	50 - 85		
	Cutting across the grain	50 - 85		
Veneer	Cutting along the grain	60 -100		
	Cutting across the grain	60 -100		
Batten board, plywood	Cutting along the grain	50 - 85		
	Cutting across the grain	50 - 85		
Compressed woods		40 - 65		
Soft wood- based panels		60 -100		
MDF boards		50 - 80		
THard wood- based panels		50 - 80		
Chipboard		50 - 80		
Veneered chipboards		50 - 80		
Chipboards surface covered with PVC foils		60 - 80		
Chipboards surface covered with melamine foils		60 - 80		
Agglomerated cement- bonded boards		30 -70		
Plaster boards		40 - 65		
Foam silicate building materials		40 - 60		
Sandwich materials, acrylic glass		20 - 70		
Laminated boards from paper and textile		45 - 70		
Plastics		20 - 60		
Hard rubber		5 - 15		
Aluminium profiles and non- ferrous metals		30 - 70		
		● 22 5394	10	Multi-rip
	FZ	● 22 5394.1	11	
		● 22 5394.2	12	
		○ 22 5333.1	13	Cutting along and across the grain
	FZ	● 22 5380-50	14	
		● 22 5380-40	14	
		● ○ ● ● ● ● ● 22 5381-26	15	
		● ● ● ● ● ● ● 22 5381-20	15	
	WZ	● ● ● ● ● ● ● 22 5381-16	16	
		● ● ● ● 22 5381-13	16	
		● ● ● ● 22 5381-11	17	
	LFZ	● ● 22 5383-55	18	
	LWZ	○ ● ● ● ● ● ● 22 5383-35	17	
	WZ N	● ● ● 22 5381	18	
	TFZ L	● ● ● ● ● ● 22 5397-11	19	Panel sizing
		● ● ● ● ● ● 22 5397-13	19	
	WZ L	● ● ● ● ● ● 22 5398 -11	20	
		● ● ● ● ● ● 22 5398 -13	20	
	DHZ	● ● ● 22 5390	21	
	DHZ N	● ● ● 22 5390	21	
	FZ	● ● ● ● ● ● ● 22 5393.1	22	Scoring
	KON	● ● ● ● ● ● ● 22 5393	22	
	FZ	○ ● ● ● ● ● ○ ● ○ ● 22 5392	23	Grooving
	WZ	● ● ● ● ● ● ● 22 5391	24	Electrical hand machines
	TFZ L	● ● ● ● ● ● 22 5391	25	
	TFZ N	● ● ● 22 5387-13	26	Special
		● ● ● 22 5387-11	26	
	TFZ P	● ● ● 22 5387-13	27	
		● ● ● 22 5387-11	27	
	WZ	● 22 5388	28	
	TZ	● ○ 22 5388	28	

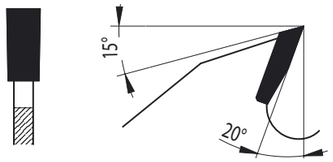
TCT saw blades for multi-rip machines

Material: natural solid wood

Application: multi-rip sawing of massive natural woods

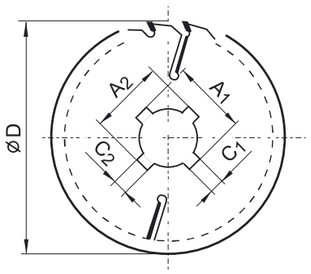
Machine: Multi-rip saw, for single shaft, double shaft and splitting machine





22 5394 FZ

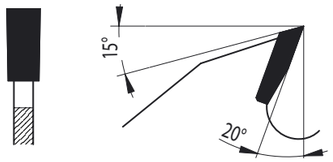
Characteristics:
- longitudinal cuts of soft and hard woods
- machine feed



D	B	b	d	z	C_1xA_1	C_2xA_2	h_{max}	$d_{p\ max}$
250	3,6	2,5	70	16+2	13x80	20x83	50	130
250	3,6	2,5	80	16+2	14x90	22x93	50	130
300	4,0	2,8	70	18+2	13x80	20x83	70	130
300	4,0	2,8	80	18+2	14x90	22x93	70	130
315	4,0	2,8	80	18+2	14x90	22x93	80	130
350	4,0	2,8	70	20+2	13x80	20x83	100	135
350	4,0	2,8	75	20+2	13x80	20x83	100	135
350	4,0	2,8	80	20+2	14x90	22x93	100	135
400	4,0	2,8	70	24+2	13x80	20x83	110	185
400	4,0	2,8	80	24+2	14x90	22x93	110	185

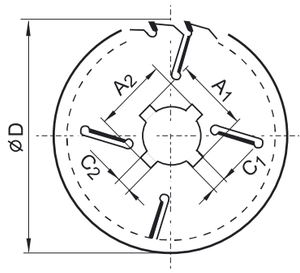
D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth, h_{max} - maximum cutting height(mm), d_{pmax}- maximum flange diameter(mm)

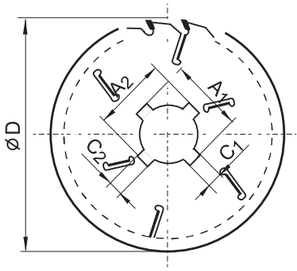
TCT saw blades for multi-rip machines



22 5394.1 FZ

Characteristics:
- longitudinal cuts of soft and hard woods
- machine feed

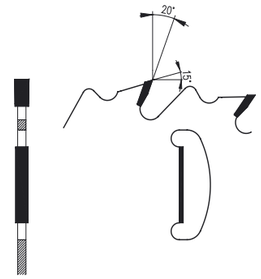




D	B	b	d	z	C_1xA_1	C_2xA_2	h_{max}	d_{pmax}
250	3,2	2,2	70	16+4	13x80	20x83	60	110
250	3,2	2,2	80	16+4	14x90	22x93	60	110
300	3,2	2,2	70	18+4	13x80	20x83	75	125
300	3,2	2,2	80	18+4	14x90	22x93	75	125
315	3,2	2,2	70	18+4	13x80	20x83	80	130
315	3,2	2,2	80	18+4	14x90	22x93	80	130
350	3,6	2,5	70	20+4	13x80	20x83	100	125
350	3,6	2,5	75	20+4	13x80	20x83	100	125
350	3,6	2,5	80	20+4	14x90	22x93	100	125
315	4,0	2,8	80	18+4	14x90	22x93	80	130
350	4,0	2,8	70	20+4	13x80	20x83	100	125
350	4,0	2,8	75	20+4	13x80	20x83	100	125
350	4,0	2,8	80	20+4	14x90	22x93	100	125
400	4,0	2,8	30	18+4			120	155
400	4,0	2,8	70	24+4	13x80	20x83	120	155
400	4,0	2,8	80	24+4	14x90	22x93	120	155
450	4,4	3,2	30	20+4			140	170
450	4,4	3,2	70	28+4	13x80	20x83	140	170
450	4,4	3,2	80	28+4	14x90	22x93	140	170
500	4,4	3,2	30	22+4			150	195
500	4,4	3,2	70	28+4	13x80	20x83	150	195
300	3,2	2,2	30	24+4			75	120
350	3,6	2,5	30	24+4			80	140
400	4,2	2,8	80	24+6	14x90	22x93	120	125
450	4,4	3,2	30	20+6			140	130
450	4,4	3,2	80	28+6	14x90	22x93	140	130
500	4,4	3,2	30	22+6			150	125
500	4,4	3,2	80	28+6	14x90	22x93	150	125
550	5,0	3,5	30	24+6			160	175
550	5,0	3,5	30	32+6			160	175
600	5,0	3,5	30	26+6			180	195
600	5,0	3,5	30	34+6			180	195

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth, h_{max} - maximum cutting height(mm), d_{pmax}- maximum flange diameter(mm)

TCT saw blades for multi-rip machines



22 5394.2 LFZ

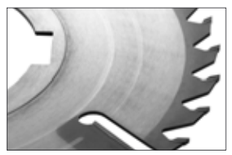
Characteristics:
- longitudinal cuts of soft and hard woods
- trimming saw, multi- rip, joining saw
- saw blade geometry includes a chip thickness limiter

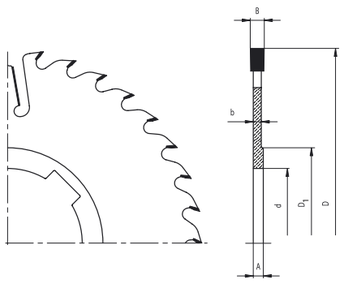
D	B	b	d	z	h_{max}	$d_{p\ max}$
250	3,2	2,2	30	18+3	60	115
300	3,2	2,2	30	18+3	75	130
350	3,6	2,5	30	20+4	100	105
400	4,0	2,8	30	24+4	120	120

22 5394.3 FZ

Single- side bossed TCT saw blades

We manufacture single side-bossed TCT saw blades on special request of our customers.





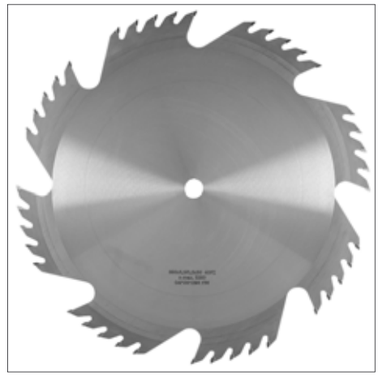
D - blade diameter(mm), B - kerf(mm), A - boss thickness(mm), b - body thickness(mm), d - bore diameter(mm), D_1 - boss diameter(mm), z - number of teeth, h_{max} - maximum cutting height(mm), d_{pmax} - maximum flange diameter(mm)

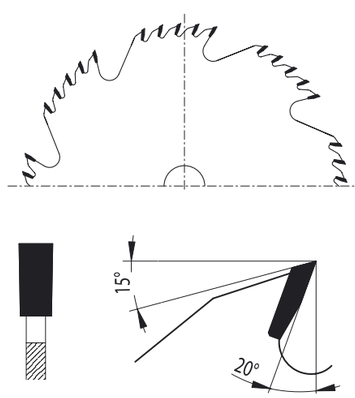
TCT saw blades HANIBAL

Material: massive natural wood

Application: cutting woods of massive dimension

Machine: machine feed





22 5333.1 FZ

Characteristics:
- longitudinal cuts of massive wood dimensions
- machine feed

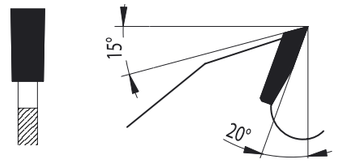
D	B	b	d	z
600	5,5	3,5	30	40
700	5,5	3,5	35	40
800	6,5	4,5	35	40

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

TCT saw blades for cutting natural wood

Material: natural woods–soft, hard, wet

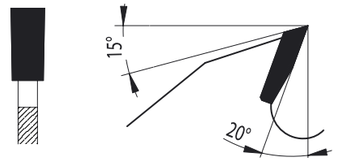
Application: cutting along and across the grain of natural massive wood



22 5380 - 50 FZ

Application:
- cutting along the grain of natural massive wood

D	B	b	d	z
300	4,0	2,8	30	18
350	4,0	2,8	30	20
400	4,4	3,2	30	24
450	4,4	3,2	30	28
500	5,2	3,5	30	30
550	5,5	3,5	30	32
600	5,5	3,5	30	36



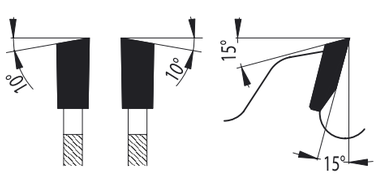
22 5380 - 40 FZ

Application:
- cutting along the grain of natural massive wood

D	B	b	d	z
200	2,5	1,6	20	16
250	3,2	2,2	30	20
300	3,2	2,2	30	24
350	3,6	2,5	30	28
400	3,6	2,5	30	32
450	4,0	2,8	30	36
500	4,0	2,8	30	40
600	5,5	3,5	30	48
700	5,5	3,5	35	56

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

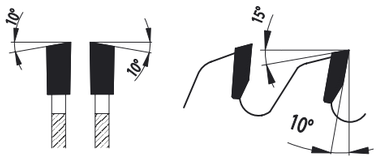
TCT saw blades for cutting natural wood



22 5381 - 26 WZ

Application:
- cutting along and across the grain of natural massive wood
- cutting plywood, chip-board, wood- base panels

D	B	b	d	z
160	2,5	1,6	20	16
180	2,5	1,6	20	20
200	2,5	1,6	20	24
250	3,2	2,2	30	32
300	3,2	2,2	30	36
350	3,6	2,2	30	40
400	3,6	2,2	30	48
450	4,0	2,8	30	56
500	4,0	2,8	30	64



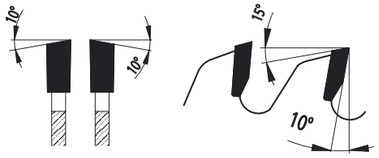
22 5381 - 20 WZ

Application:
- cutting across the grain of natural massive wood
- cutting of laminated paper and laminated textiles, thermoplastics

D	B	b	d	z
160	2,5	1,6	20	24
180	2,5	1,6	20	28
200	2,5	1,6	20	32
250	3,2	2,2	30	40
300	3,2	2,2	30	48
350	3,6	2,5	30	54
400	3,6	2,5	30	64
450	4,0	2,8	30	72
500	4,0	2,8	30	84
600	5,2	3,5	30	90

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

TCT saw blades
for cutting natural wood



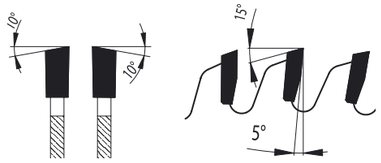
22 5381 - 16 WZ

LOW-NOISE

Application:
- cutting across the grain of natural wood

D	B	b	d	z
180	2,5	1,6	20	36
200	2,5	1,6	20	40
250	3,2	2,2	30	48
300	3,2	2,2	30	64
350	3,6	2,5	30	72
400	3,6	2,5	30	84

TCT saw blades
for cutting natural wood

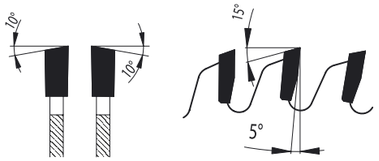


22 5381 - 11 WZ

LOW-NOISE

Application:
- cutting across the grain of single-side veneered materials, surface machined boards from natural wood and wood-base panels.

D	B	b	d	z
160	2,5	1,6	20	48
180	2,5	1,6	20	56
200	2,5	1,6	20	64
250	3,2	2,2	30	72
250	3,2	2,2	30	80
300	3,2	2,2	30	96
350	3,6	2,5	30	108
400	3,6	2,5	30	120

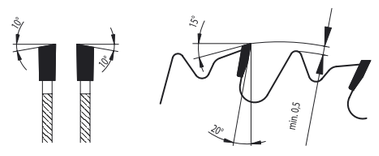


22 5381 - 13 WZ

LOW-NOISE

Application:
- cutting across the grain of natural wood

D	B	b	d	z
160	2,5	1,6	20	36
200	2,5	1,6	20	48
250	3,2	2,2	30	60
250	3,2	2,2	30	64
300	3,2	2,2	30	72
350	3,6	2,5	30	84
400	3,6	2,5	30	96



22 5383 - 35 LWZ

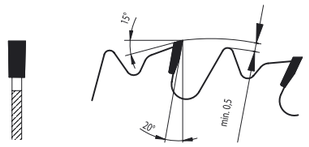
Application:
- cutting along and across the grain of natural woods
- saw blade geometry includes a chip thickness limiter

D	B	b	d	z
250	3,2	2,2	30	24
300	3,2	2,2	30	28
350	3,6	2,5	30	32
400	3,6	2,5	30	36
450	4,0	2,8	30	40
500	4,0	2,8	30	44
600	5,2	3,5	30	54

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

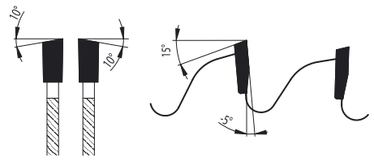
TCT saw blades for cutting natural wood



22 5383 - 55 LFZ

Application:
- longitudinal cutting of natural massive wood
- single blade machines without machine feed
- saw blade geometry includes a chip thickness limite

D	B	b	d	z
300	3,6	2,5	30	18
350	4,0	2,8	30	20
400	4,0	2,8	30	24
600	4,2	2,8	30	36
700	4,4	3,2	30	44



22 5381 WZ N

LOW-NOISE

Application:
- trimming
- swinging cross-cut saw, radial saw with manual feed
- negative hook angle enables fluent cutting start

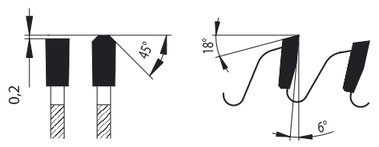
D	B	b	d	z
210	2,8	1,8	30	48
210	2,8	1,8	30	60
216	2,8	1,8	30	48
216	2,8	1,8	30	60
216	2,8	1,8	30	80
250	2,8	1,8	30	48
250	2,8	1,8	30	60
250	2,8	1,8	30	80

Panel sizing TCT saw blades

Material: exotic woods, hard woods, laminated chip-board

Application: cutting of laminated boards

Machine: panel sizing machines

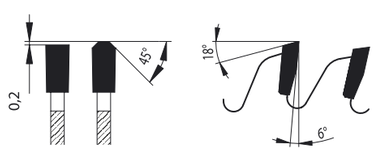


22 5397-11 TFZ L

LOW-NOISE

Application:
- cutting of laminated chip-boards
- quality cut is reached when used in combination with split scorer

D	B	b	d	z
200	3,2	2,2	30	64
250	3,2	2,2	30	80
300	3,2	2,2	30	96
350	3,6	2,5	30	108



22 5397-13 TFZ L

LOW-NOISE

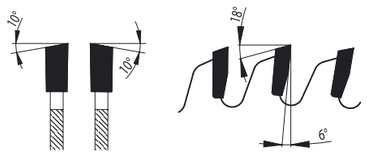
Application:
- cutting of laminated chip-boards

D	B	b	d	z
250	3,2	2,2	30	60
300	3,2	2,2	30	72

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

Panel sizing TCT saw blades

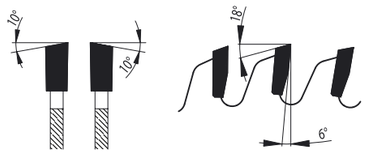


22 5398-11 WZ L

LOW-NOISE

Application:
- cutting across the grain of hard woods and exotic woods
- quality cut is reached when used in combination with split scorer

D	B	b	d	z
250	3,2	2,2	30	72
300	3,2	2,2	30	96
350	3,6	2,5	30	108



22 5398-13 WZ L

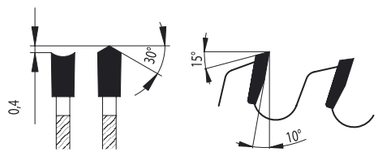
LOW-NOISE

Application:
- cutting across the grain of hard woods and exotic woods
- quality cut is reached when used in combination with split scorer

D	B	b	d	z
250	3,2	2,2	30	64
300	3,2	2,2	30	72
350	3,6	2,5	30	84

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

Panel sizing TCT saw blades

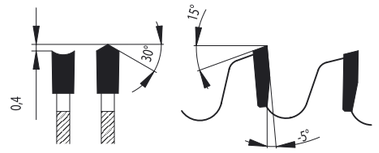


22 5390 DHZ

LOW-NOISE

Application:
- cutting of laminated boards without using of split scoring blade

D	B	b	d	z
220	3,2	2,2	30	42
250	3,2	2,2	30	48
303	3,2	2,2	30	60
350	3,6	2,5	30	72

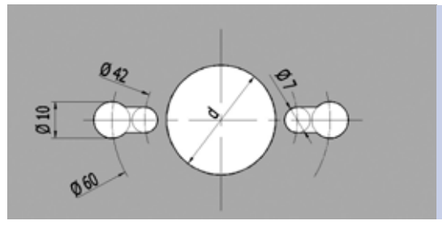


22 5390 DHZ N

LOW-NOISE

Application:
- cutting of laminated boards without using of split scoring blade
- negative hook angle

D	B	b	d	z
303	3,2	2,2	30	60



All panel sizing saw blades include pinholes.
Parameters of pinholes are listed on picture aside.
If requested by customer, we can also produce version without pinholes.

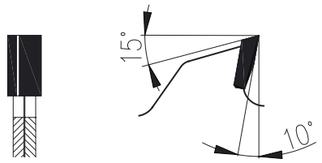
D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

TCT scoring saw blades

Material: laminated boards, chip-boards

Application: reaching a high quality of cut on bottom side of laminated material

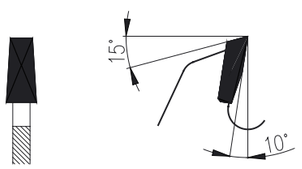
Machine: panel sizing saw blade with scoring saw blade



22 5393.1 FZ

Application:
- panel sizing
- maximum height of cut 2 mm
- possibility to set up the kerf with shims

D	B	d	z
80	2,8 – 3,6	20 (22)	10 + 10
100	2,8 – 3,6	20 (22)	12 + 12
120	2,8 – 3,6	20 (22)	12 + 12
125	2,8 – 3,6	20 (22)	12 + 12
140	2,8 – 3,6	20 (22)	14 + 14
160	2,8 – 3,6	20 (22)	16 + 16



22 5393 KON

Application:
- panel sizing saw blades with possibility of adjusting the scoring device
- maximum height of cut 2 mm

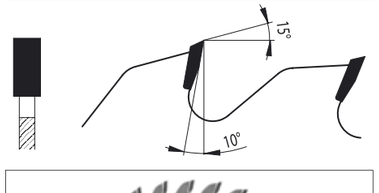
D	B	b	d	z
100	3,0 – 4,0	2,0	22	20
100	3,5 – 4,5	2,5	22	20
125	3,0 – 4,0	2,0	20	24
140	3,0 – 4,0	2,0	20	32
200	3,0 – 4,0	2,0	30	32
200	4,0 – 5,0	3,0	30	32

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

Grooving TCT saw blades

Material: natural wood, chip-boards, plastics

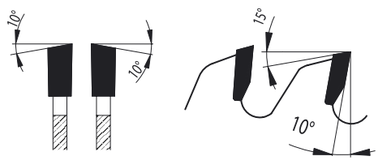
Application: grooving



22 5392 FZ

Application:
- grooving all types of natural wood, furniture materials, plastics

D	B	b	d	z
150	3,5	2,5	30	12
150	4,0	2,5	30	12
150	5,0	3,5	30	12
150	6,0	3,5	30	12
180	4,0	2,5	30	16
180	5,0	3,5	30	16
180	6,0	3,5	30	16
200	4,0	2,5	30	32
200	5,0	3,5	30	32



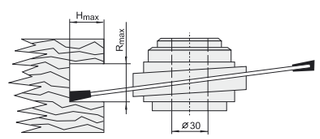
22 5396 WZ

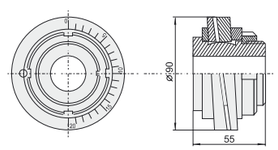
Application:
- grooving of various widths in wood
- saw blades for wobble saws

D	B	b	R_{max}	H_{max}	d	z
200	3,2	2,2	15	50	50	32
250	3,6	2,5	20	70	50	40
300	3,6	2,5	22	100	50	48

22 5748 Clamping bushes

Characteristics:
- clamping bush is made of steel, size of required cutting width is possible to adjust fluently with skew symmetric plates and matrix



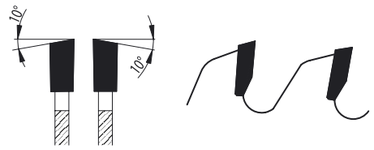


D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,
R_{max} - max. width of groove(mm), H_{max} – max. depth of groove(mm)

TCT saw blades for electrical hand machines

Material: wood and plastics, laminated materials

Application: sawing with electrical hand machines



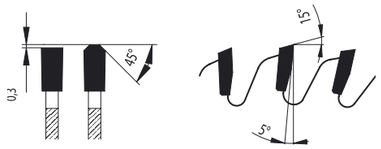
22 5391 WZ

Characteristics:
- cutting wood and plastics with electrical hand machines

D	B	b	d	z
127	2,6	1,6	20	10
127	2,6	1,6	20	20
127	2,6	1,6	20	36
130	2,6	1,6	20	10
130	2,6	1,6	20	20
130	2,6	1,6	20	36
140	2,6	1,6	20	10
140	2,6	1,6	20	20
140	2,6	1,6	20	42
150	2,6	1,6	20	12
150	2,6	1,6	20	24
150	2,6	1,6	20	40
150	2,6	1,6	20	48
160	2,6	1,6	20	12
160	2,6	1,6	20	24
160	2,6	1,6	20	40
160	2,6	1,6	20	48
170	2,6	1,6	30	12
170	2,6	1,6	30	24
170	2,6	1,6	30	40
170	2,6	1,6	30	54
180	2,6	1,6	30	12
180	2,6	1,6	30	24
180	2,6	1,6	30	40
180	2,6	1,6	30	56
184	2,6	1,6	30	12
184	2,6	1,6	30	24
184	2,6	1,6	30	40
184	2,6	1,6	30	56
190	2,6	1,6	30	14
190	2,6	1,6	30	24
190	2,6	1,6	30	30
190	2,6	1,6	30	40
190	2,6	1,6	30	56
200	2,8	1,8	30	16
200	2,8	1,8	30	30
200	2,8	1,8	30	40
200	2,8	1,8	30	64
210	2,8	1,8	30	18
210	2,8	1,8	30	32
210	2,8	1,8	30	40
210	2,8	1,8	30	64
216	2,8	1,8	30	24
216	2,8	1,8	30	48
216	2,8	1,8	30	64
230	2,8	1,8	30	20
230	2,8	1,8	30	34
230	2,8	1,8	30	48
230	2,8	1,8	30	64

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

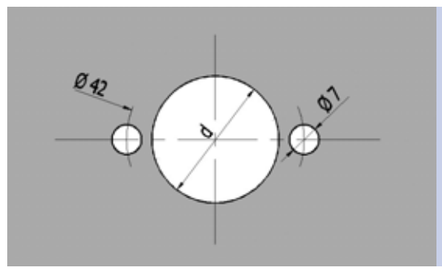
TCT saw blades for electrical hand machines



22 5391 TFZ L

Characteristics:
- specially designed for cutting laminated materials

D	B	b	d	z
160	2,8	1,8	20	48
190	2,8	1,8	30	54



All TCT saw blades for electrical hand machine use include pinholes shown on picture aside.

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

TCT saw blades for cutting non-ferrous metals and plastics

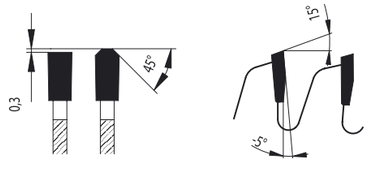
Material: non-ferrous metals and plastics

Application: profiles, mouldings

Machine: manual feed machines

22 5387-13 TFZ N

LOW-NOISE

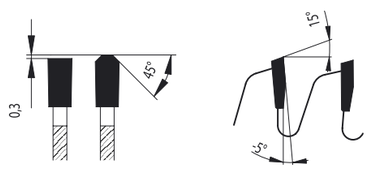


Characteristics:
- cutting non-ferrous metals, profiles and plastics
- cross-cut saw with manual feed
- rigid design with various numbers of teeth
- suitable for cutting massive materials

D	B	b	d	z
250	3,2	2,5	30	60
300	3,2	2,5	30	72
350	3,6	2,8	30	84
400	3,6	2,8	30	96
450	4,0	3,2	30	108
500	4,0	3,2	30	120

22 5387-11 TFZ N

LOW-NOISE



Characteristics:
- cutting non-ferrous metals, profiles and plastics
- cross-cut saw with manual feed
- rigid design with various numbers of teeth
- suitable for cutting thin-walled materials

D	B	b	d	z
160	2,8	2,2	20	48
190	2,8	2,2	30	56
200	3,2	2,5	30	60
250	3,2	2,5	30	80
300	3,2	2,5	30	96
350	3,6	2,8	30	108
400	3,6	2,8	30	120

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

TCT saw blades for cutting non-ferrous metals and plastics

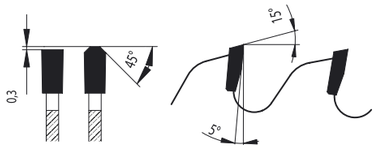
Material: aluminum, plastics, brass, copper alloy

Application: profiles, solid blocks, mouldings

Machine: mechanical feed machines, CNC machines

22 5387-13 TFZ P

LOW-NOISE

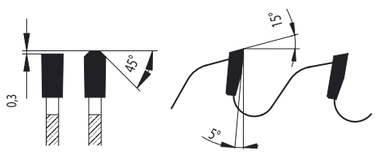


Characteristics:
- cutting aluminum profiles and mouldings, plastic boards, brass, Pertinax
- suitable for cutting massive materials

D	B	b	d	z
200	3,2	2,5	30	48
250	3,2	2,5	30	60
300	3,2	2,5	30	72
350	3,6	2,8	30	84
400	3,6	2,8	30	96
450	4,0	3,2	30	108
500	4,0	3,2	30	120

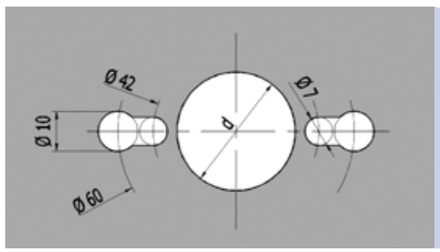
22 5387-11 TFZ P

LOW-NOISE



Characteristics:
- cutting aluminum profiles and mouldings, plastic boards, brass, Pertinax
- suitable for cutting thin-walled materials

D	B	b	d	z
250	3,2	2,5	30	80
300	3,2	2,5	30	96
350	3,6	2,8	30	108



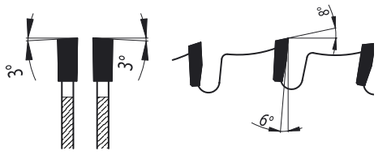
All saw blades suitable for cutting non-ferrous metals and plastics include pinholes.
Please see parameters of pinholes on the picture aside.
If requested by customer, we can also produce version without pinholes.

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

TCT saw blades for building materials

Material: building materials

Application: universal usage in building industry



22 5388 WZ – DRY CUT

Characteristics:
- cutting building materials, thin-walled metal materials, non-ferrous metals, PVC, acrylic glass, sandwich panels
- special tooth geometry improves resistance against abrasive and mechanical destruction
- Dry-Cutter, for dry cuts without lubrication

D	B	d	z
150	2,2	16 (20)	30
160	2,2	16 (20)	30
170	2,2	16 (20)	32
180	2,2	16 (20)	36
190	2,4	16 (20)	38
200	2,4	16 (20)	40
210	2,4	30	40
230	2,4	30	44
235	2,4	30	44
250	2,4	30	48
300	2,4	30	60
300	2,4	30	80
305	2,4	25,4	60
305	2,4	25,4	80
350	2,6	30	80
355	2,6	25,4	80

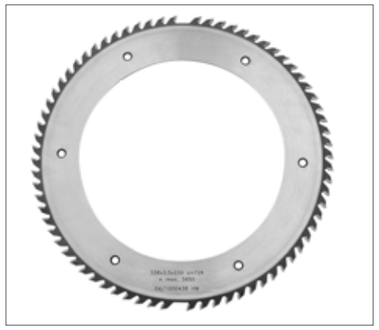
22 5388 TZ

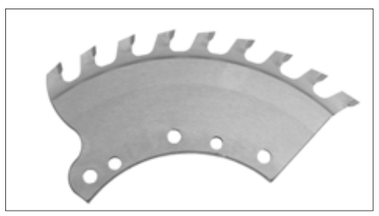
Characteristics:
- cutting construction wood, chipboard, Heraklit boards, porous concrete without metal
- special tooth geometry improves resistance against abrasive and mechanical destruction

D	B	b	d	z
250	3,2	2,2	30	18
300	3,2	2,2	30	20
350	3,6	2,5	30	24
400	3,6	2,5	30	28
450	4,0	2,8	30	32
500	4,0	2,8	30	36
600	5,2	3,8	30	42

D - blade diameter(mm), B - kerf(mm), b - body thickness(mm), d - bore diameter(mm), z - number of teeth,

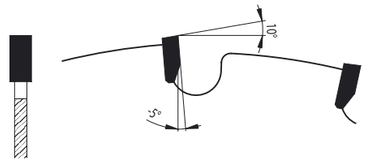
Special saw blades on request





22 5395

Characteristics:
- cutting along and across the grain of mineral fibres
- specially designed saw body improves resistance against abrasive wear



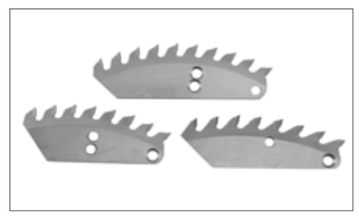
TCT saw blades for cutting mineral fibres are produced in all dimensions on request of our customers.

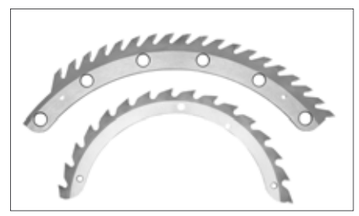
22 5386 TCT saw blades for hogging machines

TCT saw blades for hogging machines are produced in all dimensions on request of our customers.

22 5350 TCT segments

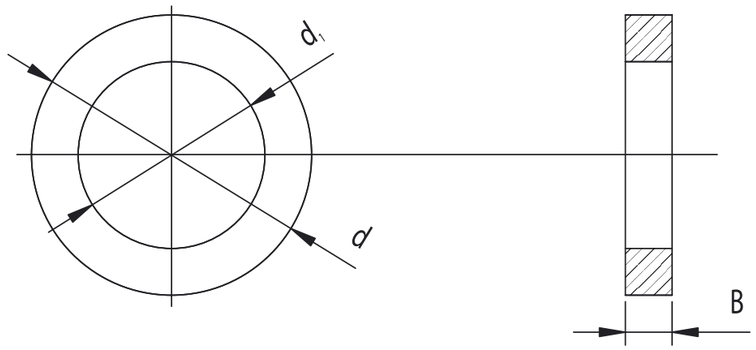
Tungsten carbide tipped segments are produced in all dimensions on request of our customers.





Reduction rings

Characteristics:
- see the list of all standard reduction rings hold on stock. Any special size can be made on request.



d	20	20	20	22	25	25	25,4	25,4	30	30	30	30	30	30	30	30	30	30
d_1	12,75	15	16	20	20	20	16	20	12,75	15	16	18	20	20	22	24	25	25,4
B	1,4	1,4	1,4	1,4	1,4	1,5	1,4	1,8	1,4	1,8	1,8	1,8	1,8	2,2	1,8	1,8	1,8	1,8

d	32	32	32	32	32	35	35	40	40	40	40	50	50
d_1	20	25	25,4	25,4	30	30	32	30	32	32	35	30	30
B	2,2	2,2	1,8	2,2	2,2	2,2	2,2	2,2	2,2	3,5	2,2	2,2	2,2

d- outer diameter, d1- inner diameter, B- thickness (mm)

Before renovation

After renovation

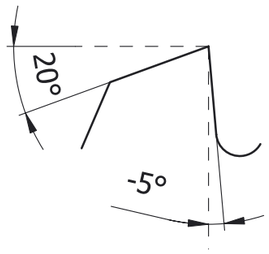
We can provide our customers with complete renovation of saw blades with modern technology and components to achieve the quality of new blades.

PILANA TOOLS

Alloy saw blades for wood cutting

Alloy saw blades for wood cutting

Alloy saw blades for wood cutting are manufactured from carbon steel 75Cr1 (DIN 1.2003). All saw bodies up to 3mm thickness are hardened to 44-48 HRc and bodies over 3mm thickness to 42-46 HRc. **Saw blades are delivered straightened, tensioned, set and sharpened.** Maximum cutting speed marked on each saw blade refer to circumferential speed 60m/sec for smaller blade thickness and 80m/sec for bigger blade thickness. It is possible to manufacture any other parameters on request i.e. with different tooth number, tooth geometry etc. It is also possible to rebore all the saw blades according to the customer's request and supply a reduction ring together.



225309 – 56KV5°

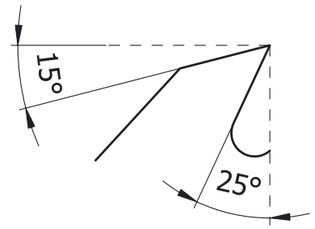
Characteristics:
- alloy saw blade with wolf type of tooth geometry
- negative hook angle 5°
- alternating bevelled grinding 75°
- cutting across the grain of soft and hard wood
- maximum tooth setting- 1/3 blade thickness of the blade on each side

D	b	d	z	m
200	1,2	25	56	0,25
200	1,6	25	56	0,35
250	1,8	25	56	0,63
300	1,6	30	56	0,84
300	2,0	30	56	1,00
350	2,2	30	56	1,55
400	2,0	30	56	1,85
400	2,5	30	56	2,25
450	2,2	30	56	2,55
450	2,8	30	56	3,20
500	2,5	30	56	3,54
500	3,0	30	56	4,25
600	2,8	30	56	5,70
600	3,5	30	56	7,10

It is possible to make saw blades of other parameters if requested by our customer.

D - blade diameter (mm), b - body thickness (mm), d - bore diameter (mm), z - number of teeth, m – weight (kg)

Alloy saw blades for wood cutting



225310 – 56KV25°

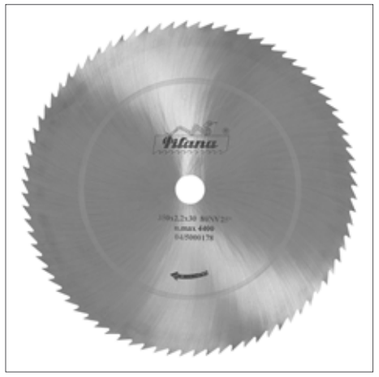
Characteristics:
- alloy saw blade with wolf type of tooth geometry
- positive hook angle
- cutting along and across the grain of soft and hard wood
- maximum tooth setting - 1/3 blade thickness of the blade on each side

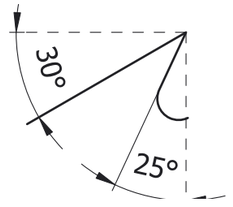
D	b	d	z	m
200	1,2	25	56	0,25
200	1,6	25	56	0,35
250	1,6	25	56	0,55
250	1,8	25	56	0,63
250	2,2	25	56	0,78
300	1,6	30	56	0,84
300	1,8	30	56	0,90
300	2,0	30	56	1,00
300	2,4	30	56	1,22
350	1,8	30	56	1,25
350	2,2	30	56	1,55
350	2,8	30	56	1,94
400	2,0	30	56	1,85
400	2,5	30	56	2,25
400	3,0	30	56	2,71
450	2,0	30	56	2,29
450	2,2	30	56	2,55
450	2,8	30	56	3,20
450	3,5	30	56	4,00
500	2,2	30	56	3,11
500	2,5	30	56	3,54
500	3,0	30	56	4,25
500	3,5	30	56	4,95
550	2,2	30	56	3,76
550	2,5	30	56	4,30
550	3,0	30	56	5,20
550	3,5	30	56	6,00
600	2,8	30	56	5,70
600	3,5	30	56	7,10
600	4,0	30	56	8,15
700	3,2	35	56	8,90
700	3,5	35	56	9,7
700	4,0	35	56	11,1
800	3,5	40	56	12,70
800	4,0	40	56	14,50
900	4,5	50	56	20,60
1000	5,0	50	56	28,30

It is possible to make saw blades of other parameters if requested by our customer.

D - blade diameter (mm), b - body thickness (mm), d - bore diameter (mm), z - number of teeth, m – weight (kg)

Alloy saw blades for wood cutting

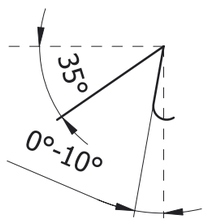




225312 – 80NV25°

Characteristics:
- alloy saw blade with triangle fine tooth geometry
- positive hook angle 25°
- cutting soft and hard wood of smaller thickness
- maximum tooth pitch - 1/3 blade thickness of the blade on each side

D	b	d	z	m
200	1,2	25	80	0,22
200	1,6	25	80	0,39
250	1,6	25	80	0,42
250	1,8	25	80	0,48
250	2,0	30	80	0,54
300	1,6	30	80	0,84
300	1,8	30	80	0,95
300	2,0	30	80	1,04
350	1,8	30	80	1,28
350	2,2	30	80	1,57
350	2,8	30	80	2,02
400	2,0	30	80	1,89
400	2,5	30	80	2,20
450	2,2	30	80	2,57
450	2,8	30	80	3,16
500	2,5	30	80	3,54
500	3,0	30	80	4,25
550	2,5	30	80	4,46
550	3,0	30	80	5,35
600	2,8	30	80	5,94
600	3,5	30	80	7,10



225314 – NV

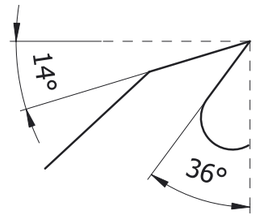
Characteristics:
- alloy saw blade with triangle fine tooth geometry
- hook angle 0°- 10°
- cutting along and across the grain of thin wood and plastics
- maximum tooth setting - 1/3 blade thickness of the blade on each side

D	b	d	γ	z	m
80	0,9	10	0°	90	0,04
100	0,9	10	0°	90	0,06
120	0,9	16	0°	90	0,08
140	1,0	16	15°	60	0,08
140	1,0	16	0°	120	0,08
160	1,0	16, 20	0°	90	0,16
200	1,8	25	8°	100	0,42
250	1,8	25	8°	120	0,60
300	1,8	30	10°	140	0,97
350	1,8	30	10°	140	1,30
400	2,0	30	10°	140	1,90

It is possible to make saw blades of other parameters if requested by our customer.

D - blade diameter (mm), b - body thickness (mm), d - bore diameter (mm), z - number of teeth, m – weight (kg), γ – hook angle (°)

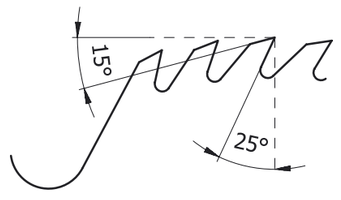
Alloy saw blades for wood cutting



225311 – 36KV36°

Characteristics:
- alloy saw blade with wolf tooth geometry
- positive hook angle 36°
- rip saw blades are designed for cutting along the grain of soft and hard wood
- saw blades are also suitable for multi-rip machines
- maximum tooth setting - 1/3 blade thickness of the blade on each side

D	b	d	z	m
200	1,6	30	36	0,38
250	1,8	30	36	0,66
250	2,2	30	36	0,81
300	2,0	30	36	1,04
300	2,4	30	36	1,27
300	3,0	30	36	1,60
350	2,2	30	36	1,60
350	2,8	30	36	2,00
350	3,2	30	36	2,30
350	3,5	30	36	2,53
400	2,0	30	36	1,90
400	2,5	30	36	2,30
400	3,0	30	36	2,60
400	3,5	30	36	3,30
450	2,8	30	36	3,20
450	3,5	30	36	4,18
500	3,0	30	36	4,41
500	3,5	30	36	5,15
550	3,0	30	36	5,35
600	3,5	30	36	7,42
600	4,0	30	36	8,50



225333 – 40KV25H

Characteristics:
- saw blade type “HANIBAL” with group setting for ripping
- positive hook angle 25°
- cutting along the grain of soft and hard wood, round timber logs
- maximum tooth setting - 1/3 blade thickness of the blade on each side
- recommended only for mechanical feed

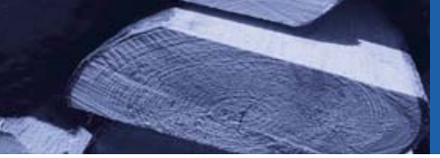
D	b	d	z	m
400	3,0	30	8 x 5	2,50
450	2,8	30	8 x 5	3,80
500	3,0	30	8 x 5	4,50
500	3,5	30	8 x 5	5,00
550	3,0	30	8 x 5	5,00
600	3,5	30	8 x 5	7,40
600	4,0	30	8 x 5	8,00
700	3,5	35	8 x 5	9,30
700	4,0	35	8 x 5	10,70
800	3,5	40	8 x 5	14,00
800	4,0	40	8 x 5	15,40
800	4,5	40	8 x 5	16,80
900	4,5	50	8 x 5	19,00
1000	5,0	50	8 x 5	30,00

It is possible to make saw blades of other parameters if requested by our customer.

D - blade diameter (mm), b - body thickness (mm), d - bore diameter (mm), z - number of teeth, m – weight (kg)

PILANA TOOLS

Band saw blades for wood cutting
Gang saw blades



Recommendations how to use band saw blades

Dimensions:

Dimensions of band saw blade depend on the machine type and material type.
Width of the band saw blade type 22 5340 – C75 or 22 5340 – UDD is determined by the smallest radius that is cut in the material. Otherwise the width may be by max.10 mm wider than width of common discs of the particular machine.

Minimum radius (mm)	25	50	100	150	200	300	400	500	600	700
Width of blade (mm)	6	10	15	20	25	30	35	40	45	50

Band saw blades type 22 5340 – WM1, 22 5340- WM2 or 22 5340- WM3 the width of blade is determined by machine builder and it is calculated from common coils.
Thickness of band saw blade must not exceed value S1 because material of band saw blade would be too strained while bending and mechanical damage could happen.

$$S_1 = \frac{\text{diameter of welded coil [mm]}}{1000}$$

When choosing the right tooth pitch, the height of cutting material must be considered. We recommend 3- 5 teeth to be in cut.

Working conditions:

Maximum cutting speed of band saw blade is recommended by the machine builder. Usually the speed is between 20 – 35m/sec. General rule is that the harder cutting material, the lower cutting speed we use.

General rules for usage:

1. Before you start cutting check if the band saw blade is properly sharpened, set and whether it is not damaged or heated up. Band saw heating can be recognized if blade is purple color even after cooling.
2. Band saw blade must be properly straightened. Please be aware not to straighten the blade too much. This could cause disruption of the blade.

Maximum recommended values of straightening the band saw blade.

Type: 22 5340 C75, 22 5340 UDD

Dimensions HxSxT[mm]	Tensile stress σ[Mpa]	Tensioning strength [N]
6x0,5x4	25	105
8x0,5x5	25	142,5
10x0,6x6	25	211,5
12x0,6x7	30	320
15x0,6x7	30	428
16x0,6x7	30	464
20x0,6x8	30	585
25x0,6x8	30	893
25x0,7x8	30	1006
30x0,7x10	30	1245
35x0,8x10	40	1702
40x0,7x10	45	2190
40x0,8x10	45	2550
45x0,9x12	50	3564
50x0,9x12	50	4014

Type: 22 5340 WM1, 22 5340 WM2, 22 5340 WM3

Dimensions HxSxT[mm]	Tensile stress σ[Mpa]	Tensioning strength [N]
32x0,9x22	40	1840
32x1,0x22	40	2040
32x1,1x22	40	2240
35x0,9x22	40	2050
35x1,0x22	40	2280
35x1,1x22	40	2510
40x0,9x22	45	2700
40x1,1x22	40	2930
50x1,1x22	50	4760

3. Guidance of blade and guiding wheels must be clean from chips and resin. Allowance between guiding and band saw blade may be maximum 0,2mm. The distance between the top guidance from the cutting material should be as little as possible so that blade rigidity is as big as possible.
4. Hold the cutting material with both hands so that your body is not in the same level as the cutting blade. Do not cut material using extra strength.
5. Start cutting after the proper cutting speed is achieved. Do not shorten or slow down the cutting period by friction of the blade against the side of material or slowing against cutting material.
6. While cutting big dimensions it is important to use fixed guidance. While finish sizing the material it is important to use holding device.
7. It is necessary to replace the band saw blade and set it away (even if not dull). Mechanical attributes of band saw blade will remain the same.
8. Do not let the band saw to heat up by any means. If this happens, set away the blade immediately and after cooling set and sharpen it again. You can also check the straightness. To prevent heating it is better to sharpen the blades in time and follow the right cutting conditions.
9. Replace the band saw blade if any break off occurs.
10. After finishing cutting process do not leave the band saw blade straightened in the machine, always loosen it.

Service:

Tooth setting is done to 1/2 to 2/3 tooth height and is set by 1/2 to 1/3 over the size of band saw thickness. Tooth setting can be even bigger for soft woods but there must never happen that a piece of wood remains in between the teeth. Please keep the same distance while tooth setting the whole band saw blade. Pay special attention to regularity of setting (max. 0,1 mm). If not, run in of blade might occur on the side where the bigger tooth set is.
Tooth sharpening is done ceramic disc with medium grain roughness. Tooth face is sharpened. If the blade is extra dull, it is possible to sharpen the tooth back as well. Prevent the tooth to become black from annealing (unwanted stage). While grinding it is needed to keep the radius on tooth bottom. Sharp edge on tooth bottom could cause blade breakage.

Troubleshooting for band saw usage

The most common causes of trouble while cutting with band saw blades is wrong choice of band saw blade type, dimensions of blade or wrong tooth pitch for particular material. The second most common problem is wrong performance of cutting conditions and usage of insufficiently set or dull band saw blade.

In the below tab you can find most common problems and their possible solution.

Most common problem	Probable reason	Solution
Broken/ fissured blade	• Wrong tooth pitch	Choose a blade with tooth pitch so that 3-5 teeth are in cut
	• Overstressing of blade	Lower the blade straightness between circling wheels
	• Feed is too high	Lower down-force of material on the blade
	• Teeth are in contact with material before cutting	Adjust allowance between blade/material to minimum 10mm before cutting
	• Diameter of guiding wheels is too small	Use a thinner blade
	• Side press on band saw	Adjust manually
	• Blade friction against carrier wheels	Adjust parallelity of wheels
Undercutting	• High feed	Lower the feed speed
	• Insufficient blade straightness	Straighten the blade
	• Damaged top tooth line	Use a blade with harder teeth (hardened)
	• Big allowance between guiding wheels and blade	Lower the guiding wheels
	• Big distance between guidance and material	Adjust distance from guidance
Rough cut	• High feed	Adjust cutting conditions
	• Wrong tooth pitch	Use correct tooth pitch
Blunting of blade	• Cutting with tooth backs	Turn over the band saw blade
	• High cutting speed	Lower the cutting speed
Tooth breaking off	• High pressure on blade	Lower the feed speed
	• Wrong choice of tooth pitch	Use correct tooth pitch
	• Cutting with tooth backs	Turn over the band saw blade
	• Dirt in cutting material	Do not cut in places where dirt occurs (stones, metals etc.)
Twisting of blade	• Blade stuck in cut	Lower the feed speed
	• Free guiding of blade	Adjust the blade guiding

Safety rules for band saw blade usage

Application:

Band saw blades are used for splitting, cutting off wood logs, wood-base materials and light metal alloys. Band saw blades can be used for mechanical or manual feed speed while following the recommended safety rules.

Unwrapping/packing:

When unwrapping/packing and during manipulation (i.e. when setting up into the machine) please proceed with maximum caution! Danger of getting hurt by very sharp objects!

Transport:

Move the tools in an appropriate packing! Danger of getting hurt!

Usage:

Do not exceed the maximum straightening strength! Clean properly the area of straightening wheels and guidance.

Tool:

Check the cutting edge. Check the machine set up.

Machine:

It is necessary to stop the machine while tool replacement.

Tool set up:

Set up the tool into the machine and secure it following the manufacturer's specification. Follow the manufacturer's safety rules.

Service:

Follow the valid safety rules.
Right function and safety will be preserved only if service is provided according to valid specification of PILANA TOOLS.

How to service the tool:

- Follow the valid regulations
- Unskilled usage and usage out of purpose is forbidden.
- If not required by national law, use specific objects to protect your eyes, ears and mouth.
- Never leave the machine unattended without monitoring!
- Please clean the band saw blades in time and remove resin. Clean blades have longer life-time and are therefore more economical.

Sharpening/servicing:

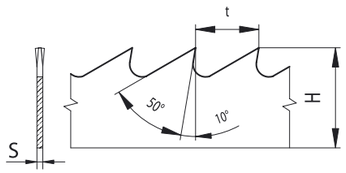
Well-timed sharpening and cleaning the blade are basic conditions how to keep the quality and follow the safety rules. It is important to have these activities done by an expert.
Tools are often covered by resin and dust etc. Any dirt negatively influences the cutting performance. To clean the machine use only convenient objects, which do not cause rust or chemical damage to band saw blades.

Band saw blades for wood cutting

Material: natural wood

Application: joinery, carpentry

Machine: joining band saw machines

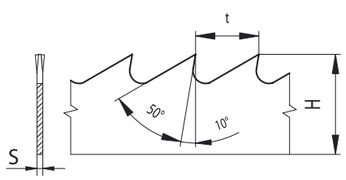


22 5340 - C 75

Characteristics:

- it is possible to deliver band saw blades toothed, set, sharpened, hardened
- band saws are delivered in coils of 25m or welded to a particular machine length
- material type is carbon steel C 75- material hardness 38-44 HRC

H x S x t [mm]	C 75 set	C 75 set and sharpened	C 75 set, sharpened and hardened
6x0,5x4	•	•	
8x0,5x5	•	•	
10x0,6x6	•	•	•
12x0,6x7	•	•	•
15x0,6x7	•	•	•
20x0,6x8	•	•	•
25x0,6x8	•	•	•
25x0,7x8	•	•	•
30x0,7x10	•	•	•
35x0,7x10	•	•	•
40x0,7x10	•	•	•
45x0,9x12	•	•	
50x0,9x12	•	•	



22 5340 - UDD

Characteristics:

- it is possible to deliver band saw blades toothed, set, sharpened, hardened
- band saws are delivered in coils of 25m or welded to a particular machine length
- material Swedish steel Uddeholm UHB 15 – material hardness 38- 44 HRC

H x S x t [mm]	UDD set	UDD set and sharpened
10x0,6x6	•	•
16x0,6x7	•	•
20x0,6x8	•	•
25x0,7x8	•	•
30x0,7x10	•	•
35x0,8x10	•	•
40x0,8x10	•	•

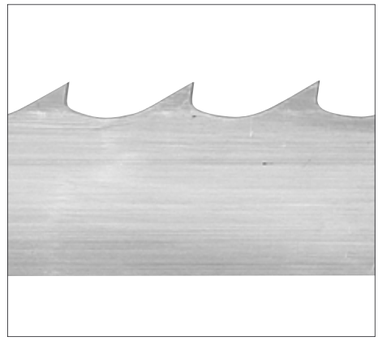
H – height of blade (mm), S – thickness of band saw (mm), t – tooth pitch (mm)

Band saw blades for wood cutting WM

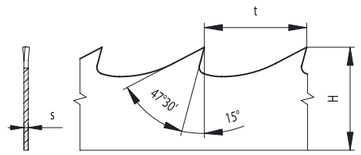
Material: natural wood

Application: cutting massive natural wood

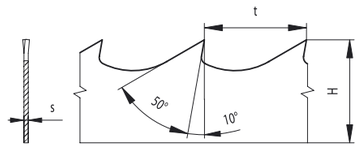
Machine: mobile band saw machines



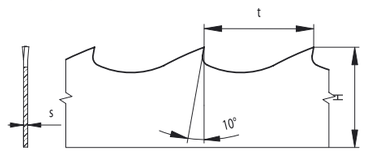
WM 1



WM 2



WM 3



22 5340 WM

Characteristics:

- band saw blades are manufactured/welded to the requested length (also sharpened if needed) or packed by 25m/coil
- band saw blades type WM1 are for cutting soft woods
- band saw blades type WM2 are for cutting hard woods
- band saw blades type WM3 are for cutting soft and hard woods

H x S [mm]	t [mm]	type	toothed	toothed, set	toothed, set, hardened
32x0,9	22	WM 1	•	•	•
32x1,0			•	•	•
32x1,1			•	•	•
35x0,9			•	•	•
35x1,0			•	•	•
35x1,1			•	•	•
40x0,9			•	•	•
40x1,0		WM 2	•	•	•
40x1,1			•	•	•
50x1,1			•	•	
35x0,9	25	WM 3	•	•	•
35x1,0			•	•	•
35x1,1			•	•	•
40x0,9			•	•	•
40x1,0			•	•	•
40x1,1			•	•	•
50x1,1			•	•	

H – height of blade (mm), S – thickness of band saw (mm), t – tooth pitch (mm)

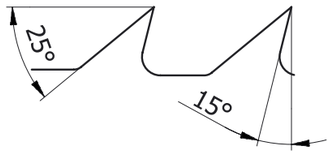
Wide band saw blades

Material: natural wood

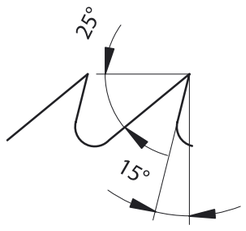
Application: cutting massive natural wood

Machine: Permanently installed wide band saw machines

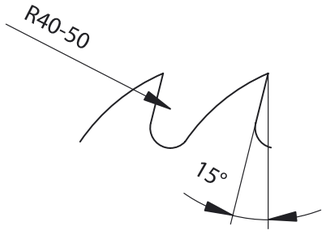
KV



NV



PV



225343 (KV) – wolf type of teeth
225344 (NV) – triangular type of teeth
225345 (PV) – round type of teeth

Application: Soft and hard woods. For hard wood it is necessary to choose smaller tooth pitch and for soft wood bigger tooth pitch.

Standard delivery: Wide band saw blades are manufactured from material 80NiCr11 with hardness 43+/- 1 Hrc and delivered as semi-products (not beetled, not sharpened, not milled) in coils.

We can weld the band saws to certain length, mill, stelitte-tip and make other operations on customer's request.

Standard dimensions of wide band saw blades

Width (mm)	Thickness (mm)	Weight (kg / 1m)	Packing (max m / coil)
80	1,0	0,65	110
90	1,0	0,70	100
100	1,1	0,80	100
120	1,1	1,04	70
140	1,2	1,23	50
160	1,4	1,66	50
180	1,4	2,00	35
200	1,4	2,20	30

Standard tooth heights for certain tooth pitches and types.

Tooth pitch	Tooth depth		
	225343 - NV	225344 - KV (mm)	225345 - PV
20	9	–	7,5
25	11,5	–	9,0
30	13,5	10	10,5
35	16	11	12,0
40	18	12	11
45	21	13	12,0
50	23,5	14	13

If stelitte-tipping it is needed to request the right tooth sharpening (soft or hard woods).
When welding wide band saws the total length must be dividable by chosen tooth pitch.
When milling the wide band saws it is needed to specify the type of milling or type of the machine for future usage.

Troubleshooting for wide band saw blades

Material of wide band saws manufactured by PILANA has a guaranteed tensile strength 1450+100 N/mm^2, phosphorus and sulfur content if less than 0,02%. While cutting soft wood we recommend to use wider tooth pitch.
While cutting hard wood we recommend to use smaller tooth pitch.
Requirements for band saw - band saw blade and wheel must be constantly oiled during cutting performance. Chips must never get between blade and wheel. Cutting period must not exceed 2 hours.
After this working period blade should be re- sharpened and left aside in static condition for 24 hours.
It is undesirable effect when left any allowance among bearings and maximum run-out should not exceed 0, 03 mm of radial value and 0, 1 mm for axial value.
Straightening device should also be kept in perfect condition to enable thermal expansion of blade.
Blade usually expands during the cutting application by 1 mm and temperature increases by 15° C.
Wheel setting should always have the same recommended values and if wheels are worn out, it is necessary to service them (radial turning).
Tooth setting should be done "left-right-straight" for cutting soft wood and "left-right" for cutting hard wood. Only tooth tops should be toothed up to max. 1/3 height. If tooth height is 10 mm, toothed part must not be over 4mm.

Tab of recommended equalization of wide band saw blades

Wood type	Tooth pitch (mm)		Overlap of teeth (mm)	
	Set saws	Stelitte-tipped/ tampered saws	Set saws	Stelitte-tipped/ tampered saws
hard	25 - 30	35	0,3 - 0,4	0,3 - 0,4
frozen	25 - 30	35	0,5 - 0,6	0,5 - 0,6
soft	30 - 35	40	0,6 - 0,7	0,6 - 0,7

For optimum grinding of our band saw blade we recommend grinding wheels type A99B(a98) 80 K- for roughing it is also possible to use 60 K. For grinding of stelitte band saw blades we recommend to grind only stelitte part, do not grind the body.

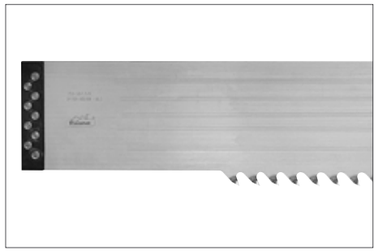
Recommended hook angles

Wood type	Set saws	Stelitte-tipped/ tampered saws
hard	15 - 22°	18 - 22°
soft	25 - 27°	26 - 28°

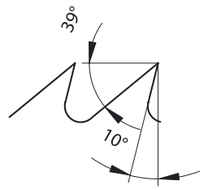
All angles should be measured with sextant. Do not rely on setting of grinder. Grinding disc can slipped hook angle which could cause grinding a wrong angle than required. Cracks between the teeth can occur in grooves made by grinding disc. That is why it is necessary to grind very fine, do not over heat the material, wet- grind with surface roughness Ra<3,2.
Accuracy in band saw guiding – if inaccurate band saw guidance a wider tooth setting is needed. When cutting across the grin smaller tooth setting is better. If we do use a wider blade, we choose wider tooth setting. Tolerance for tooth setting for the same blade is +/- 0,05mm.

Most common problems	Probable reason	Solution
Tooth cracking	Allowance in bearings of wheels	Adjust the allowance, change bearings
	Dirt between wheel and blade	Clean the wheels, service regularly
	Long cutting process without break	Use blades max. 2hours/ leave resting for 24hours then
	Too long grinding	Grind very smoothly, wet grind, surface roughness max. Ra<3,2
	Blade is dull	Sharpen, measure
Tooth breaking off	Hook angle is too big	Lower the hook angle
	Tooth setting is too big	Lower the tooth setting
Uneven cutting	Small hook angle	Make bigger hook angle
	Wrong choice of tooth pitch	Choose the right tooth pitch
	Bad condition of straightening device	Check the machine by expert/ fix
	Asymmetrical setting/ press	Adjust the grinding machine

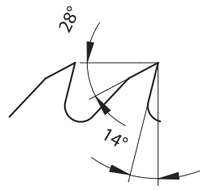
Machine gang saw blades for rip cutting



NV



KV



225360.1 (KV) – wolf type of teeth

225360.01 (NV) – triangular type of teeth

Application: For cutting soft and hard woods. While cutting with wolf teeth geometry you can reach more precise geometrical accuracy of cutting material. While cutting with triangular tooth geometry you can reach better surface quality – suitable for small diameter of logs.

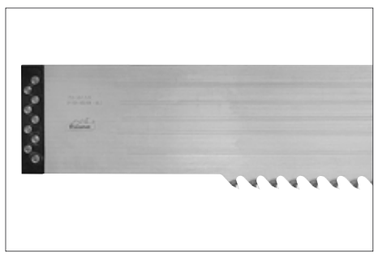
Standard delivery: Machine gang saw blades are delivered in straightened and tensioned stage.

Side finish: Standard gang saw blades are delivered with hardened guide gibs of 35, 30, 25 mm width, with straight punching (Esterer hanges) and also blades without guide gibs.

Dimensions of gang saws	Tooth pitch
140 x 1,8	22, 25, 26, 30
140 x 2,0	
140 x 2,2	
160 x 2,0	
160 x 2,2	
180 x 2,2	
180 x 2,4	

Gang saw blades are manufactured from material 75Cr1 (DIN 1.2003) with hardness 48 +/- 2Hrc.
We can also produce gang saws coated with hard-chrome (surface of 10, 15 and 20microns). Hard-chrome surface improves the resistance against tool wear and does not tend to slow down when in contact with steel. It is also resistant against high temperatures and protects against rust.
We are able to manufacture also other types of toothing (tooth pitch, shape) together with other types of guide gibs and pinholes on the request of our customers.

Machine gang saw blades – tampered



225362.1 (KV) – wolf type of teeth

Application: For cutting hard and soft woods. Tampered gang saw is more efficient then the one with set teeth. Its advantage is a better stability of the tool, possibility to increase the feed speed and removing half size of chip when comparing with tooth set gang saw.

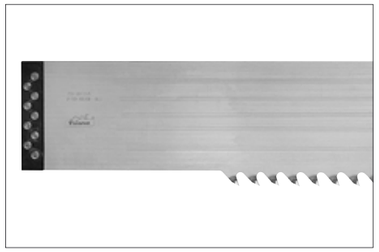
Standard delivery: Machine gang saw blades are delivered straightened and tensioned.

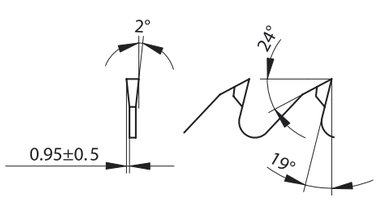
Side finish: Standard gang saw blades are delivered with hardened guide gibs of 35, 30, 25 mm width, with straight punching (Esterer hanges) and also blades without guide gibs.

Dimensions of gang saws	Tooth pitch
140 x 2,2	22, 25, 26, 30
160 x 2,2	
180 x 2,2	

Gang saw blades are manufactured from material 75Cr1 (DIN 1.2003) with hardness 42 +/- 2Hrc. We are able to manufacture also other types of toothing (tooth pitch, shape) together with other types of guide gibs and pinholes on the request of our customers.

Machine gang saw blades stelitte-tipped





225366.1 (KV) – wolf type of teeth

Application: Hard and soft woods. It is needed to know while ordering.

Standard delivery: Gang saw blades are delivered straightened and tensioned.

Side finish: Standard gang saw blades are delivered with hardened guide gibs of 35, 30, 25 mm width, with straight punching (Esterer hanges) and also blades without guide gibs.

Dimensions of gang saws	Tooth pitch
140 x 1,8	22, 25, 26, 30
140 x 2,0	
140 x 2,2	
160 x 2,0	
160 x 2,2	
180 x 2,2	
180 x 2,4	

Gang saw blades are manufactured from material 75Cr1 (DIN 1.2003) with hardness 48 +/- 2Hrc. Welding and stelitte grinding is performed on Vollmer machines.

Main advantages of stelitte-tipped gang saws:

1. Long life- time of tips (5 – 10 x more than normal version).
2. Lower energy intensiveness while cutting.
3. Lower tendency to tip damage due to dirt (compared TCT tools).
4. Higher surface quality of cutting material.
5. Higher dimensional and formal accuracy of cutting material.
6. Possibility to adjust tip geometry to particular cutting conditions (machine type, type of cutting material, cutting conditions etc.).
7. Due to higher cutting power enable lower thermal cutting stress of tip.
8. Possibility to re-tip the tool after grinding off the whole layer of previous welding (after 15- 20 sharpening).
9. Minimizing the stand-time when changing the dull tools in machines.
10. Increasing the cutting performance by faster feed speed when tampered gang saws are replaced with stelitte- tipped.

Gang saw blades are manufactured with tooth number and side finish according to our general types or to customer's requirements. We are able to manufacture also other types of toothing (tooth pitch, shape) together with other types of guide gibs and pinholes on the request of our customers.

We can provide service of all gang saw blades with tooth pitch 26 and 30mm.

PILANA TOOLS

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