TECHNICAL SUPPORT

CIRCULAR SAW BLADES

micor®
CIRCULAR SAW BLADES

SUPPORT CIRCULAR SAW BLADES

10 BA 19 L - 500 - 4,2 / 3,2 - 50 Z 120

RAKE ANGLE	TIP TYPE	PITCH	DESIGN	DIAMETER	KERF	PLATE	CENTER HOLE	NO OF TEETH

CODESYSTEM

Rake angle: In this case 10 degrees. Negative angle is indicated by N prior to the angle. Example N05.

Tip Type: Defines the Tip Shape on the blade, denied by 1-3 letters. In this case a blade with alternating bevel tips.

Pitch: Is the distance between the front face of the tips.

Design: The letter indicates various features. In this case L=laser slots in the sawbody. Read more about this further down on this page.

Diameter: In mm

Kerf: Is the width of the sawtip

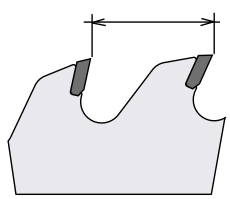
Plate: Is the thickness of the sawbody

Center Hole: In diameter of the bore/center hole

No of teeth: The number of tips indicated by Z

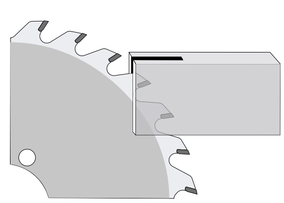
Example: 300mm saw blade for wood cutting, Z=48, kerf=3,2,centrehole=30mm

10BA19-300-3,2/2,2-30, Z=48



TOOTH PITCH

The tooth pitch is an important factor when choosing blades for different applications. The pitch ins the distance between the front faces of adjacent tips.

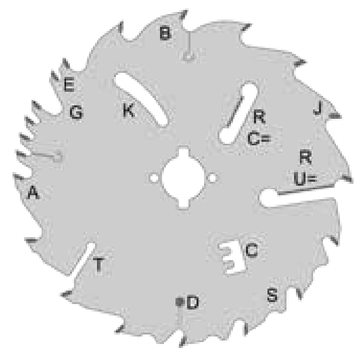


NUMBER OF SAW TIPS

The tooth pitch is determined by the thickness of the material to be cut. Generally, the thinner the material the smaller the pitch, and the thicker the material the larger tooth pitch.
At least two and no more then four teeth must be engaged at all times when cutting solid wood. For other materials two or six teeth.

SUFFIX – DESIGN

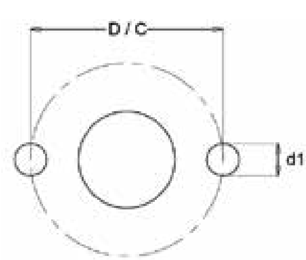
Special designs of the blade are available for different cutting applications. This is indicated by the sufffixes below, which appears after the tooth pitch in the code.



A = Tooth back with step
B = Curved back
C = E-cooling hole
D = Copper rivet
E = Smaller gullets for lower sound
F = Adjustable 2 piece scribing blades
G = Grouped teeth blade
H = Stellite tips
I = Differential pitch
J = Insert tooth
K = Cooling hole
L = Laser slots
M = Metal cutting blade
N = Blanks
O = Conical plate
P = Electrical hand saw blade
Q = Minibel, sandwhichype
R = Blade with wiper slot
S = Blade with guard teeth
T = Special slot
U = Panel saw blades
V = Teeth with chip-breaker
W = Double-side hub
X = Blade wiyh hub
Y = Simplified design

BLADES WITH PIN HOLES/KEYWAYS

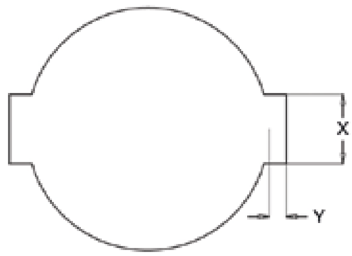
When ordering please indicate the following:



Pin holes:

1. Number of pin holes (P)
2. Diamater (d1)
3. Pitch circle (D/C)

Eg P=2/10/60

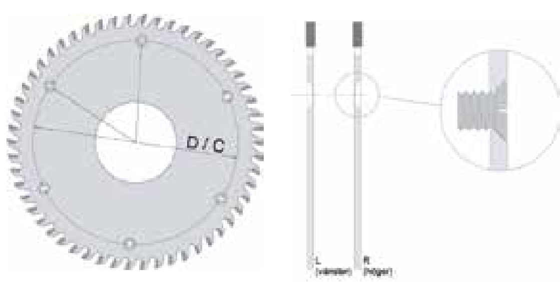


Keyways
1. Number of keyways (K)
2. Width (X)
3. Depth (Y)

Eg. K=2/20/5

BLADES WITH SCREW HOLES:

A drawing should always be enclosed when ordering these blades. If not avalible, please provide the following information:

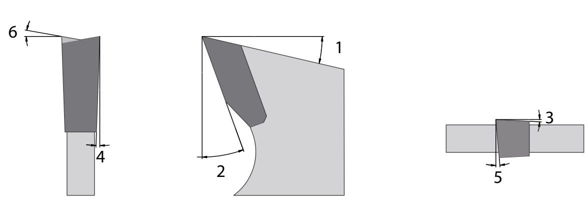


1. Type of hogging unit etc.
2. Number of screw holes (S).
3. Pitch circle of screw holes (D/C).
4. Screwhole countersunk, right (R) or left (L), with the blade held so that the teeth on the top edge point towards you.
5. Screw size (eg M6, M8)

Eg. S=4/7/140/12/45/L

ANGLE DESIGNATIONS

1 = Clearance angle
2 = Rake angle
3 = Tangential clearance angle
4 = Radial clearance angle
5 = Front bevel angle
6 = Back bevel angle



CUTTING SPEED M/S

As a rule you should choose a blade with the smallest diameter possible, to maximize stability and minimize the kerf, but at the same time the diameter must be matched to the speed of the machine so that the blade runs at the most suitable cutting speed. Carbide tipped blades require relatively high cutting speeds. The recommended speed for working in wood-based materials is 70 m/sec, and for non-ferrous materials 50-95 m/sec.

CALCULATION OF CUTTING DATA

S = feed speed in m/min
Sz = feed/tooth in mm
z = number of teeth
D = diameter of blade in mm
n = blade speed in rpm
V = cutting speed in m/s

FEED PER TOOTH Sz mm

To achieve long life and good cutting performance it is important to use a correct feed per tooth. Too slow feed speed causes rapid wear to the cutting edge, while too fast feed speed may mean that chips do not clear the gullet and this could cause teeth to break.

$$\frac{S * 1000}{n * z}$$

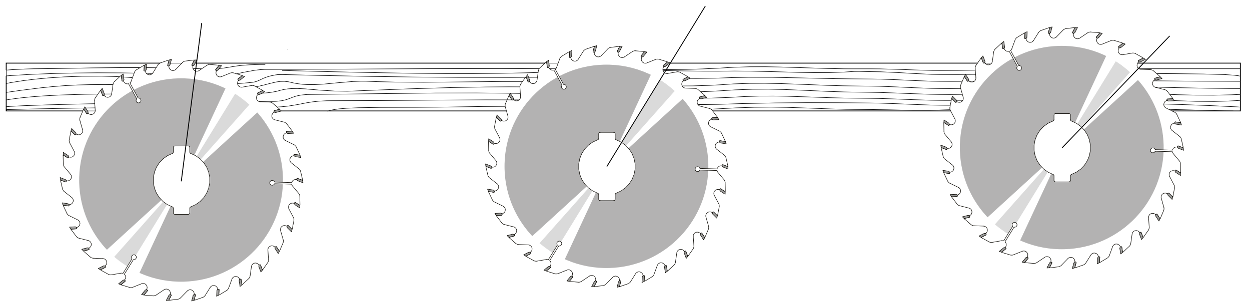
The table shows the recommended feed per tooth (Sz in mm) for different materials.

MATERIAL	FEED PER TOOTH (MM)
CROSSCUTTING	0,10-0,35
RIPPING, DRY	0,30-0,50
RIPPING, GREEN	0,40-1,50
PLASTICS	0,05-0,15
PURE ALUMINIUM	0,03-0,10
AI ALLOY	0,03-0,10
MG ALLOY	0,03-0,10
CHIPBOARD	0,08-0,25
PLYWOOD	0,08-0,25
MDF/HDF	0,08-0,25
VENEERED BOARD	0,08-0,25
LAMINATED BOARD	0,08-0,25

FEED SPEED m/min

The feed speed (S) is determined by the speed of the blade (n), the number of teeth (z) and the feed per tooth (Sz). To calculate these figures we can use the formula below.

$$\frac{Sz * z * n}{1000}$$



HEIGHT OF BLADE ABOVE WORK PIECE

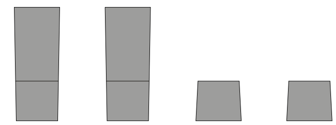
Tool and machine manufacturers recommend a certain rake angle for the material to be cut. Blades are usually designed for a stadard working height of 10-25 mm above the material to be cut. The sketches show that the rake angle varies with the cutting set-up. If the working height is increased significantly the rake angle must be modified.

TIP TYPES

FRONT VIEW TOP VIEW

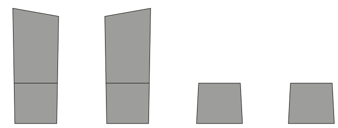
AA - STRAIGHT TEETH

For ripping wood, including multirip sawing. Can be used with high feed speeds where an average surface finish is required. Especially suited multi-rip sawing and edging.



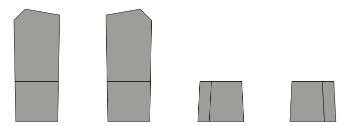
BA - TEETH WITH ALTERNATING BEVELS

For ripping and crosscutting wood, board and plastics.



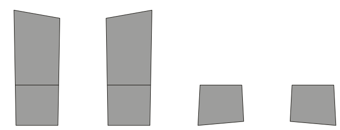
BAE - TEETH WITH ALTERNATING BEVELS AND CHAMFER

For thin, hard plastics.



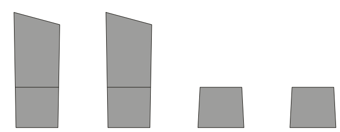
BB - TEETH WITH ALTERNATING BEVELS AND ALTERNATING FACE

Specially suitable for plywood and bobbins.



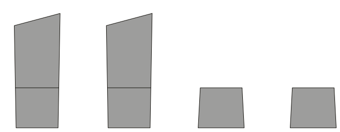
CA - TEETH WITH RIGHT-HAND BEVELS

All teeth are bevelled in right direction. Used for scribing, tenoning, edge band cutting and panel sizeing of board in combination with hogging unit.



DA - TEETH WITH LEFT-HAND BEVELS

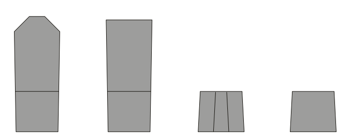
All teeth are bevelled in left direction. Used for scribing, tenoning, edge band cutting and panel sizeing of board in combination with hogging unit.



EA/EAM - TRAPEZOIDAL TEETH

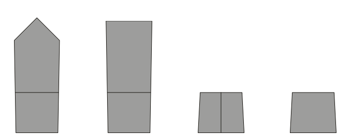
Roughing and finishing teeth. Teeth are cut alternately trapezoidal and straight to break chips into three pieces.

EA – For cutting laminated and non-laminated chipboard, fibreboard and MDF. Also suitable for plastic and laminates.
EAM – For cutting non-ferrous metals.



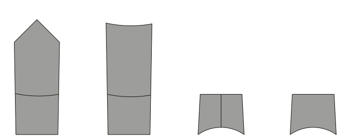
EAX - ALTERNATE FLAT AND INVERTED V TOOTH

For cutting laminated board.



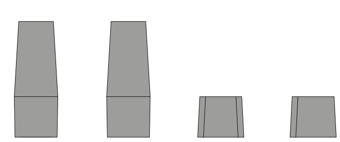
EAXH - ALTERNATE FLAT AND INVERTED V TOOTH, WITH HOLLOW GROUND FACE.

For cutting painted and laminated board.



RA - FLAT TEETH WITH TAPERED SIDES

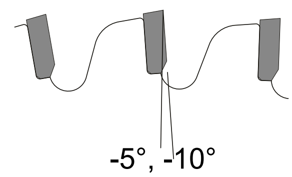
For scribing prior to panel sizing.



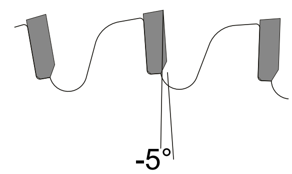
RAKE ANGLE

The rake angle depends on the material, type of cut, and in some cases the type of machine being used. The following are recommended rake angles for various materials and applications.

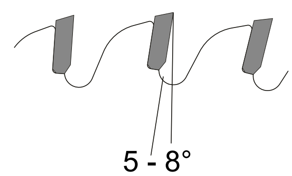
Crosscutting of wood in pendulum, chop saws, parallel cutting and edge band cutting.



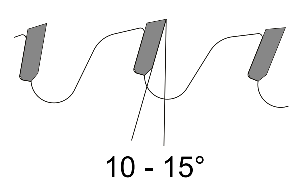
Cutting of non-ferrous metals, plastic and laminates with manual feed.



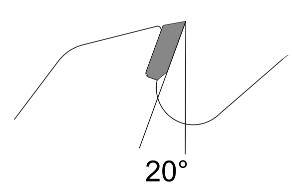
Cutting of hard plastics, veneered and laminated boards, mitrecutting of wood and non-ferrous metals.



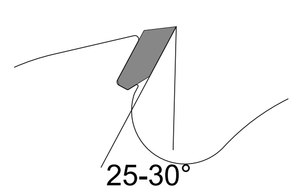
Crosscutting of wood and panel sizing of fibre-board, plasterboard, chipboard,veneered board and plywood.



Ripping of dry or green wood.



Ripping and edging of green wood.



TROUBLE SHOOTING

TYPE OF PROBLEM	CAUSE
Blade vibrating - poor cut.	Blade incorrectly tensioned. Faulty spindle bearings. Warped flanges or spacers. Centre hole out of centre. Unbalanced blade.
Burn marks on blade: – Single spot	Flanges warped. Spindle off centre. Blade not flat.
– Circle of spots	Blade incorrectly tensioned. Feed not parallel. Faulty riving knife.
Blade cuts well initially but veers in one direction after a few seconds.	Blade incorrectly tensioned. Feed not parallel.
Cracks in gullet or slots.	Blade is blunt. Gullets too small. Too many teeth. Incorrect feed per tooth.
Blade gives a straight cut but cut surface is rough.	Too few teeth. Feed rate too high. Blade is blunt.
Blade leaves stripes on work piece.	One or more teeth have larger kerf than others. Blade incorrectly tensioned.
Blade cuts slowly.	Too many teeth. Cutting speed to slow. Blade is blunt. Incorrect rake angle.
Blade pulls itself into work piece.	Incorrect rake angle.
Coating of resign, etc. on blade.	Too many teeth. Feed not parallel.

WHEN PERFORMANCE COUNTS

Micor Tooling offers a complete portfolio of saw blades, band saw blades and planing tools. At our three manufacturing sites in Sweden, and Finland we produce our world leading brands; Micor, Langshyttan, BBM and LTT which are sold to over 40 countries worldwide. Building on our more than 150 years of combined know-how, we know what is required.

www.micortooling.com

MICOR TOOLING

INDUSTRIGATAN 10, SE-312 34 LAHOLM, SWEDEN. PHONE +46 430 492 00. E-MAIL: SUPPORT@MICORTOOLING.COM