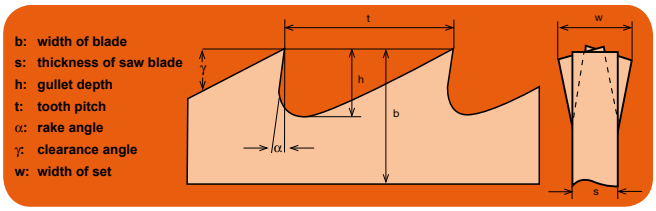
TERMINOLOGY



Types of Set

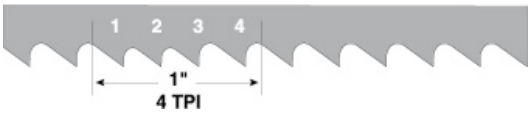
The set is the tilt, or angle, given to the teeth of the saw blade to provide clearance for the blade body and the tooth edges. Below are different types of set:

Raker Set

In the raker set, one tooth is set to the left, one tooth is set to the right, and one tooth (raker) is unset. This set type is used on most evenly pitched blades such as regular and hook. It is also used for contour and friction cutting blades on vertical bandsaw machines.

Combo Set

In the combo set, used on combo toothed blades, a raker (unset) tooth is followed by teeth in a left, right, left, right sequence. This pattern is repeated with each series of teeth starting and ending with the largest tooth in the pattern.



Teeth Per Inch (TPI)

The number of teeth per inch (TPI) defines the pitch of the blade and can vary from less than 1 to 24.

Thin-walled workpieces like tubes, pipes, sheet etc., require fine teeth, otherwise there is a risk of tooth damage or breakage.

Large cross sections should be cut with a coarse-pitched saw, i.e. fewer teeth per inch. The fewer teeth engaged in the workpiece the higher the cutting capacity. This is because the penetration capacity of each individual tooth is greater if the saw's feed pressure is distributed over a fewer number of teeth. A coarse pitch (few TPI) therefore increases productivity and provides a desirable, large chip space.

Soft materials, such as aluminium and bronze, require a large chip space. A coarse pitch prevents the chips from building up and packing together in the gullets, which can impair sawing and damage the blade.

Bandsawing facts

Machine

Check frequently:

- The operation of the chip brush
- The wear and alignment of the guides
- The band tension with a tensionmeter (see page 18)
- The band speed with a tachometer (see page 18)
- The coolant concentration with a refractometer (see page 18)

Coolant / Cutting fluid

The coolant lubricates, cools and carries the chips from the cut. It is important to:

- Use appropiate cutting fluid
- Use recommended concentration of cutting fluid
- Make sure that the cutting fluid reaches the cut with low pressure and large flow

Workpiece

- Make sure that the workpiece is firmly clamped so that it cannot vibrate or rotate
- Do not use bent or damaged workpieces

Running in

To obtain the maximum blade life always use the recommended band speed but lower the feed rate to 1/3-1/2 during the first 10 minutes of cutting.

During the next 10 minutes increase the feed rate in stages, until you have reached the recommended feed rate.

Tooth protector

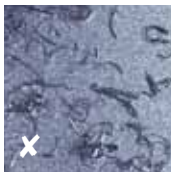
Keep the tooth protector on the blade until it is mounted on the machine to avoid premature chipping of the tooth tips.

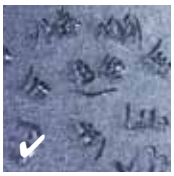
Feed Rate/Chips

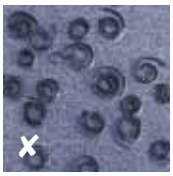
It is important that each tooth of the bandsaw blade cuts a chip with the right thickness. This is determined by the selection of tooth pitch, band speed and feed rate. Start by selecting the right tooth pitch from the diagrams on page 6 then set your band speed according to the diagram on page 7. You can now set the correct feed rate by studying the chips which the bandsaw blade produces when cutting. Use the pictures (below) and adjust your feed rate or band speed accordingly.

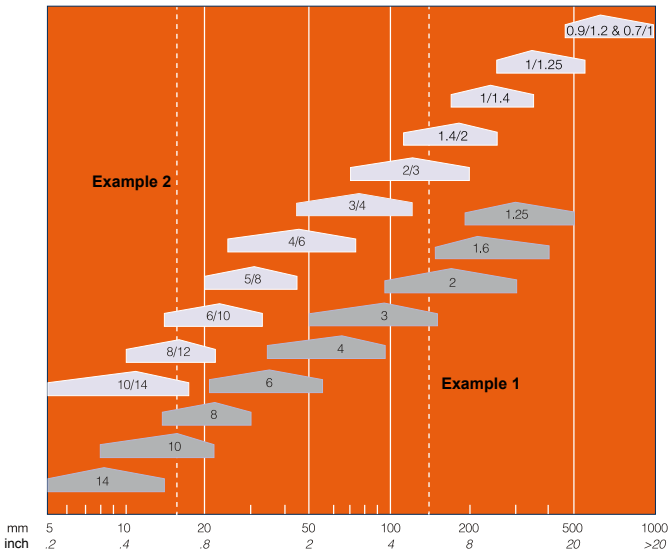
For more information on cutting data contact your local Bahco representative who can help you find the correct cutting data for your specific application.

1. Thin or pulverised chips - increase feed rate or lower band speed
2. Loosely rolled chips - correct cutting data
3. Thick, heavy or blue chips - too high feed, lower feed rate or increase band speed

1. 

2. 

3. 



Tooth pitch for solid workpieces

The diagram will help you select the right pitch for cutting solids.

The ideal choice is at the widest point of each field.

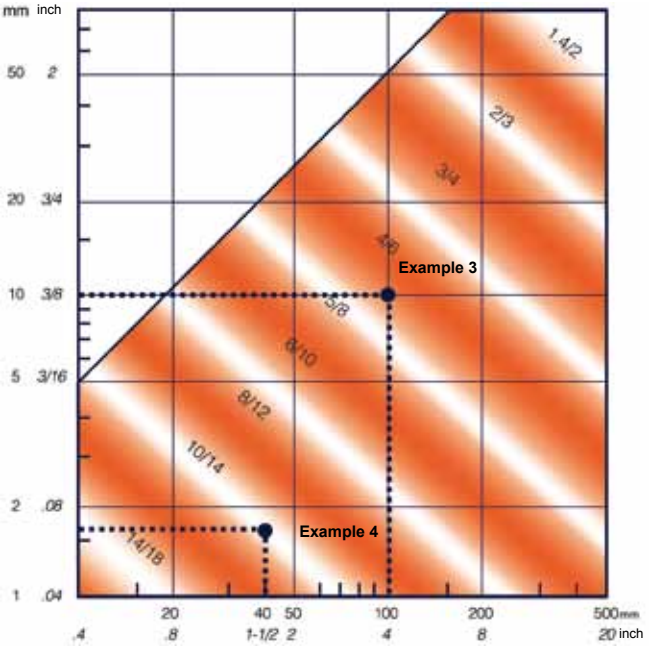
Example 1:

When cutting a Ø 150 mm (6 inch) bar, use a 2/3 TPI or a 1.4/2 TPI if you choose a variably pitched blade. Use 2 TPI, if an evenly pitched blade is your choice.

Example 2:

If you are sawing in soft materials like plastics, aluminium or wood, choose a pitch two steps coarser than recommended.

When cutting 13-20 mm (1/2-3/4 inch) thick pieces of aluminium, use a 5/8 TPI or a 6 TPI blade.



Cutting pipes and profiles

The diagram on the left will help you find the right tooth pitch for cutting pipes and profiles.

The recommended tooth pitch for cutting profiles is found in the field where the width meets the wall thickness of the profile.

Example 3:

When cutting a 100 x 10 mm (4 inch x 0.4 inch) U-beam, select a 5/8 TPI or a 4/6 TPI blade. The recommended tooth pitch is found in the field where the outer diameter meets the wall thickness of the pipe to be cut.

Example 4:

When cutting a 40 x 1.6 mm (1.5 inch x 0.06 inch) pipe, select a 10/14 TPI blade.

EASY-CUT - Cutting DATA

Order Code	Blade Size Width x Thickness	Material Size (mm) 1 2 3 5 10 20 30 40 50 75 100 150 200
3857-13-0.6-EZ-S	13 x 0.6	
3857-13-0.6-EZ-M	13 x 0.6	
3857-13-0.6-EZ-L	13 x 0.6	
3857-20-0.9-EZ-S	20 x 0.9	
3857-20-0.9-EZ-M	20 x 0.9	
3857-20-0.9-EZ-L	20 x 0.9	
3857-27-0.9-EZ-S	27 x 0.9	
3857-27-0.9-EZ-M	27 x 0.9	
3857-27-0.9-EZ-L	27 x 0.9	
3857-34-1.1-EZ-S	34 x 1.1	
3857-34-1.1-EZ-M	34 x 1.1	
3857-34-1.1-EZ-L	34 x 1.1	

Within any size range | Small = Good surface finish | Medium = Good band life | Large = Speed of cut

EASY-CUT

Choose S (Small), M (Medium) or L (Large), depending on the cutting range you need.

SPEED SELECTION

Bi-metal — **Meters per minute at Ø mm**

	Material	10-65	100-300	400-800	>1000	COOLANT
1	Structural steels, machining steel	100	85-95	60-75	40-60	6%
2	Structural steels, quenched and tempered steels	80	70-80	60-68	40-50	6%
3	Case hardened-, spring steels, quenched and tempered steels	75-100	60-80	45-65	30-40	8%
4	Unalloyed tool steel, ball and roller bearing steel	60-65	55-60	35-45	25-35	8%
5	High speed steel	45-50	40-45	30-35	20-25	8%
6	Cold work tool steel	30-35	25-30	20-25	15-20	DRY
7	Tool steels, alloyed	45-65	45-60	40-60	20-40	8%
8	Nitriding steels, high alloyed hot working steels	40-45	35-40	25-30	20-25	8%
9	Cast iron	50-60	45-50	30-40	25-30	DRY
10	Rust and acid-resistant steels (light)	40-45	40-45	35-40	30-40	10%
11	Rust and acid-resistant steels (heavy)	35-40	30-35	20-30	19-22	10%
12	Duplex and heat resistant steels	25-30	20-25	15-20	14-16	10%
13	Nickel and nickel-cobalt alloys	15-20	13-15	10-12	10	10%
14	Titanium, titanium alloys; aluminium bronze	30-35	25-30	20-25	16-18	10%
15	Horizontal machines, aluminium, aluminium alloys	120	120	120	120	25%
16	Vertical machines, aluminium, aluminium alloys	3000	2100-2500	1250-2000	500-1200	25%
17	Brass	120	120	90-120	80-100	4%
18	Copper	120	110	80-100	60-80	15%

The bigger the size, the lower the speed

BLADE SELECTION

3857	3853	3851	3851 PSG	3854 PHG	3854 PQ
+	+	++	+++		
+	+	++	+++		
+	+	++	+++		
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		+	+	++	+++
		+++	+	+	+
		+++	+	+	+
		+++	+	++	
		+++	+	++	
Good +		Better ++		Best +++	

Carbide — **Meters per minute at Ø mm**

	Material	10-65	100-300	400-800	>1000	COOLANT
1	Structural steels, machining steel	200	160-190	110-150	60-90	12%
2	Structural steels, quenched and tempered steels	140	120-140	85-115	50-70	12%
3	Case hardened-, spring steels, quenched and tempered steels	120-130	110-120	75-110	40-60	10%
4	Unalloyed tool steel, ball and roller bearing steel	100-120	90-100	60-90	40-50	10%
5	High speed steel	100-110	80-90	60-75	50-60	10%
6	Cold work tool steel	80-100	60-90	60-75	45-65	DRY
7	Tool steels, alloyed	85-95	80-90	60-70	50-60	8%
8	Nitriding steels, high alloyed hot working steels	75-85	70-80	60-70	45-60	8%
9	Cast iron	90-105	90-95	60-75	40-55	12%
10	Rust and acid-resistant steels (light)	80-110	80-100	70-95	65-80	12%
11	Rust and acid-resistant steels (heavy)	80-90	70-80	60-70	40-50	13%
12	Duplex and heat resistant steels	100-115	80-100	65-80	50-60	12%
13	Nickel and nickel-cobalt alloys	30-40	25-30	20-28	15-20	12%
14	Titanium, titanium alloys; aluminium bronze	50-60	40-50	35-45	16-18	12%
15	Horizontal machines, aluminium, aluminium alloys	250	250	250	250	25%
16	Vertical machines, aluminium, aluminium alloys	5000	4000-5000	3000-4000	2000-3000	25%
17	Brass	250	250	180-240	140-160	4%
18	Copper	240	220	130-190	100-120	15%

The bigger the size, the lower the speed

BLADE SELECTION

3868 TSX	3868 TSS	3881 THQ	3881 THS	3860 TMC	3869 TS
+					
+					
+					
+					
+	+	+	+	+	
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++	++	+	+	+	
++	+				
++	+				
++	+++	+++	+++	+++	++
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+	+	+	+	+++	++
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	++		+++		
Good +		Better ++		Best +++	

The new Bandsaw Speed & Feed Selector is a good guide to select the correct speed and feed. There is one for Bi-metal- and one for cutting with carbide blades.

BandCalc™ is an interactive computer software program available on CD that quickly determines the best blade for a specific application, based on the users requirements - material to be cut, machine, workpiece etc. Having selected the blade, information on blade speed and feed rate will be supplied. It is an excellent tool for users who wish to improve efficiency. Also it calculates for you the cost per cut, taking into consideration all factors, including the machine cost. BandCalc™ is available in 10 languages.