

## Selecting and Using Band Saw Blades

Choosing the right blade for the material to be cut plays an important role in band sawing. By doing so, you alleviate problems such as:

- Cuts taking too long
- Blades wearing prematurely
- Teeth breaking off the blade
- Thin material tearing instead of being cut
- Blade coming off the wheels

### *Safety First!*

- Always wear safety glasses or a face shield when handling or installing and saw blades, and when adjusting the blade tension or position.
- Always unplug the power cord from the wall outlet before changing blades.

### *Selecting the Right Band Saw Blade*

Get the best, most efficient performance from your band saw with the proper blade. The information below will give you the best blade recommendation in most cases.

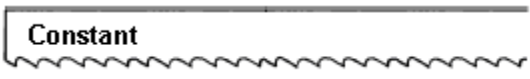
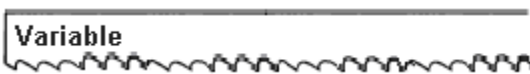
*Chris' Tip: The 14 TPI constant pitch blade that comes on the band saw is nothing to write home about. Don't expect it to last as long as the Starrett blades we sell.*

#### 1 - Blade Type

Materials	Starrett Blade Type
Tool steel and stainless steel	Best: Intenss PRO-DIE
Alloy and high carbon steel	Best: Intenss PRO-DIE
General purpose	Best: Intenss PRO-DIE Good: Duratec FB
Carbon steel	Best: Intenss PRO-DIE Good: Duratec FB
Aluminum	Best: Intenss PRO-DIE Good: Duratec FB

Non-ferrous	Best: Intenss PRO-DIE Good: Duratec FB
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## 2 - Type of Pitch

Constant - All teeth on the blade have uniform spacing, gullet depth, rake angle throughout the full length. Usually general purpose cutting and identified by one pitch number.	 Constant
Variable - Size of tooth and depth of gullet varies to substantially reduce noise levels and vibration so as to cut all structurals, tubing and solids, smoothly and quickly. Identified by two pitch numbers.	 Variable

## 3 - Pitch

Pitch is the number of teeth per inch (25 mm). Cutting thinner sections requires a finer pitch (more teeth per inch). Thick sections require coarser pitches (fewer teeth per inch). The chart is a good guideline.

Because the cross-section limits in the chart are broad and overlap, choose a coarser pitch if the speed of cut is most important. Choose a finer pitch if finish is most important.

**Chris' Tip:** I found a great rule of thumb for selecting the correct band saw blade in *Cutting Tool Engineering*. It's the rule of 3, 6, 12, 24. You want at least 3 teeth on the work all the time, you don't want more than 24 teeth on the work at any one time, and what you would like is between 6 and 12 teeth on the work all the time.

### Constant Pitch Selection

Cross Section Thickness to Be Cut		Use Constant Pitch
Inch	mm	
Up to 5/16"	Up to 8 mm	32*
5/32"-1/2"	4-13 mm	24
7/32"-5/8"	6-16 mm	18
1/4"-7/8"	6.4-22 mm	14
3/8"-1 1/4"	9.5-35 mm	10
1/2"-1 1/2"	13-40 mm	8

Cross Section Thickness to Be Cut		Use Constant Pitch
Inch	mm	
1"-2"	25-50 mm	6
1 1/2"-3"	38-75 mm	4
2"-4"	50-100 mm	3
3"-6"	75-150 mm	2
4 1/2"-9"	114-225 mm	1 1/4
8" and over	200 mm and over	3/4

\*Anything thinner than 1/8" (3.2 mm) in cross section should be angled to the blade.

### Variable Pitch Selection

Cross Section Thickness to Be Cut		Use Variable Pitch
Inch	mm	
7/32"-7/8"	6-22 mm	14-18
1/4"-1 1/4"	6.4-35 mm	10-14
11/32"-1 1/2"	9-40 mm	8-12
3/8"-2"	9.5-50 mm	6-10
1/2"-2 3/8"	13-60 mm	5-8
1"-3"	25-75 mm	4-6
1 1/2"-4"	38-100 mm	3-4
2"-6"	50-150 mm	2-3
3"-12"	75-300 mm	1-2
8" and over	200 mm and over	3/4-1 1/4

### ***Band Saw Blade Break-In Procedure***

The proper break-in of a bi-metal blade assures longer blade life, faster cuts for a longer period and consistent performance.

Run the normal feet per minute (FPM). Adjust the feed pressure to about one-half the normal cutting rate for the first few cuts or for 50-100 square inches (300-600 cm<sup>2</sup>). Increase to the normal cutting rate.

## Selecting the Correct Blade Speed

The 4x6 band saw has three speeds. Use low speed (88 FPM) for high strength steel, stainless steel, and other harder materials. Use the medium speed (130 FPM) for mild steel including structural shapes. Use high speed (210 FPM) for aluminum and other non-ferrous metals. High speed works well for wood and plastic, too.

Material Type	Example Material	Blade Speed
Carbon steels	1018, 12L14, 1030	Medium
Chrome moly steels	4130, 4140	Low
Tool steels	A2, O1	Low
Stainless steel	302, 314, 416	Low
Cast iron	Class 20, Class 49	Medium
Copper	99%	Low
Brass	Yellow, Red	High
Aluminum	6061, 7075	High

## Blade Adjustments

**Chris' Tip:** Always wear gloves when handling or working with band saw blades.

Keep the blade tight. Put the saw in the upright position so you have maximum access to the tension adjustment knob. Use two hands when turning the tension adjustment knob. Crank it as hard as you can.

If you do a really good job you will get to half the recommended tension for the blade. A well tensioned blade goes a long way toward preventing the blade from coming off the wheels.

If you do have problems with the blade coming off the wheels, adjust the tracking as described in the manual. I do this standing on the front side of the band saw with the blade cover open so I can see what's going on. That way, when the blade does pop off, it goes away from you.

## Blade Lubrication

Lubrication can extend the life of the band saw blade. While large production band saws use flood lubrication, that is not necessary or practical on a hobby band saw. A wax-based cutting compound, such as Nikx Stikx (P/N 3089) works well on the 4x6 band saw. Hold it on each side of the blade for a complete revolution of the blade. What doesn't stick to the blade will end up in the cut—right where you want it.

## Summary

I keep two band saw blades on hand. One blade is for smaller cross sections (down to ¼" wide) and is 10-14 TPI variable pitch. The other is for large cross sections and is 6 TPI. I find that it is worth my time to change blades when I have a large cross section (over 1" wide) to cut.

- 1876 - Band Saw Blade, 64-1/2", IntenSS PRO-DIE 10-14S, Starrett
- 4460 - Band Saw Blade, 64-1/2", Duratec SFB 6/S, Starrett

If I were cutting smaller cross sections I would add a finer pitch blade like this:

- 4463 - Band Saw Blade, 64-1/2", Duratec SFB 24/W, Starrett