

# Band Saw Blades

June 10, 2018 [Dan Miller](#)

A band saw can be a powerful tool to cut along a straight line, curves, and irregular shapes and profiles. When equipped with the right blade, it can cut through large amounts of wood, plywood, MDF, plastics, meat, metal and numerous other materials.

With this in mind, you can see why band saws are considered great additions to any workshop. However, the key to getting your band saw to perform like this is by focusing on the blade. If you equip your band saw with the right blade, there is nothing it can't do. But how do you know which blade is the right blade?

In this guide, I will tell you everything you need to know to make informed purchases when it comes to band saw blades.

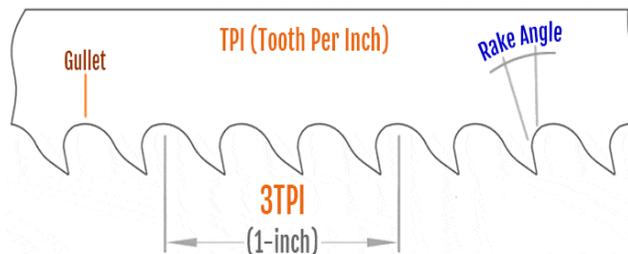
## Types of Band Saw Blades

Blades can be classified according to the form of tooth, the blade material, number of teeth and the size of the blade.

### TPI –Tooth Per Inch

The number of teeth is one of the most important things about a blade because it is one of the factors that determine what the final cut will look like. As the name suggests it is the number of teeth available for a length of one inch of the blade.

A band saw blade with 6 to 10 TPI is good general purpose blade.



### Course vs fine blades

The next thing that you need to understand when it comes to saw band blades is the idea of course blades and fine blades. What this refers to is the number of teeth located on the blade.

If a blade has a low number of teeth, then it is considered a coarse blade or rough blade. Coarse blades usually have 2 to 6 TPI (Tooth per Inch). They are good at quickly cutting through soft material. It also means that the blade will make larger cuts. However, the lower number of teeth means that the blade is unable to make the sort of accurate, precise cuts that a lot of woodworkers, carpenters, etc., need to be able to make.

A fine blade is a blade that has a high number of teeth (usually in the range of 14-24TPI). As you can guess from the name, the purpose of these kinds of blades is to make precise cuts. The higher number of teeth allows these blades to make small, accurate cuts.

Fine blades are used for cutting harder materials like metal. You also need the fine blade to cut thin sheets.

But, finer blades do have some noticeable drawbacks. For starters, the higher number of teeth means that they are unable to make larger cuts; which means that these kinds of blades are not suited for quick cutting. Likewise, the higher number of teeth means that finer blades can dull a lot easier.

Soft Wood	Course Blade	2 – 6 TPI
Hardwood, Aluminum	General purpose blade	6 – 10 TPI
Steel	Fine Blade	10 – 18 TPI
Thin Sheets	Fine Blade	14 – 24 TPI

*\* For thin sheets at least 2 to 3 teeth must be in contact during cutting. So, for a 1/8 inch sheet you need a blade with 16 TPI or more to cut accurately.*

Each blade is useful in its own ways and it is generally recommended to keep both kinds of blades on hand so

that you can use your band saw on a wider variety of projects.

## Form of blades

Another important concept to understand is the idea of blade form. This refers to the actual design of the teeth on the blade, as well as the space between each tooth. There are three distinct forms that you need to be aware of.

### Regular Tooth

The first form is referred to as "regular tooth" or standard saw blades. These blades have conventional tooth design usually with zero rake angle.

The purpose of these blades is to provide for accurate cutting of softer materials like softwood and thin sheets. They are also suited to both contour cutting and general purpose cutting.



### Skip Tooth

Another form of blade is called the "skip tooth" blade. Skip tooth blades have zero rake angle and flat gullets. These blades have shallow gullets to cut large sections. They can cut a wider variety of materials, including various kinds of metals and plastics (in addition to wood).

The wide gullets on skip tooth blades enable them to cut softer material like wood without clogging.

These types of blades make less precise cuts than regular blades. However, what they lack in precision, they make up for in speed and ability to cut through large amounts of material without clogging.



### Hook Tooth

Finally, the last form of blade that you need to be aware of is called the "hook tooth" blade. As the name indicates, these sorts of blades are designed with a similar philosophy to hooks. The blades have positive rake angle usually 10-degree, which enables them to dig deeply into the material you are cutting.

Hook tooth blades have deep gullets that allow these blades to take deep bites out of material on each cut. These types of blades are best used when you need to cut through something tough, like hardwood or non-ferrous metals. Hook tooth blades are also good for cutting materials like cast iron that produces non-continuous chips.



However, the downside to these blades is their inability to make smaller, more accurate cuts.

### Variable Tooth

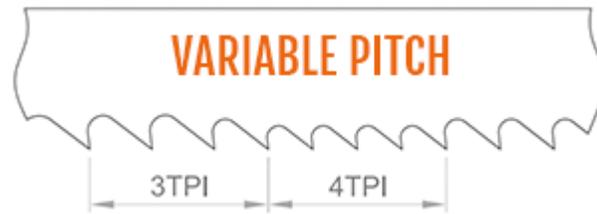
There are also variable style blades.

**Variable Tooth Blade:** These are blades with varying set angles and/or varying gullet depth. These types of blades reduce the vibration during cutting.

**Variable Pitch Blade:** These blades have a group of different pitch throughout the length of the blade. For example, a 6-10 variable pitch blade will have 6TPI group followed by a 10TPI group of teeth.

When you use a constant pitch and set blade, it may produce harmonic vibration. These harmonic vibrations during sawing will reduce the life of the saw, increase noise pollution and even poor finish. When you use a

variable tooth blade, the difference in pitch, gullet depth, and set will break the rhythm and thus eliminate harmonic vibrations. Variable tooth blades are very useful for resawing where vibration can spoil the work.



### Blade Selection Chart

Regular Tooth	Standard tooth form.	Good general purpose blade
Hook Tooth	Positive rake, Deep gullet	Faster Cutting.
Skip Tooth	Zero rake. Shallow flat gullet	Slower, but smooth cutting
Variable Tooth	Varying pitch and gullet depth	Vibration reduction.

### Set of Tooth

The teeth of a blade are slightly bent (offset) towards left and right to provide clearance to the back of the blade. This is known as tooth set. Because of this the resulting cut width will be wider than the blade thickness. This is known as the kerf width.

There are several types of tooth set for various applications. Some of them are,

**Alternate Set:** If one tooth is offset towards the left and the next towards right and so on, it is an alternate set of tooth.

**Raker Set:** Blades with raker set have 3 tooth sequences with one offset towards left, next to the right and the third tooth straight (or unset).

### Blade Material

The material out of which the blade is made is another important consideration.

#### Carbon Steel Blade

Carbon steel blades are commonly used in woodworking. They are inexpensive and offer adequate hardness to cut softer materials like wood, plastic, plywood etc.

#### Bimetal Bandsaw Blade

These are blades made out of two different layers of metals, usually spring steel and HSS. The spring steel body of the blade provides enough flexibility while the high-speed steel (HSS) cutting tip provides hardness that required for cutting through tough materials.

Bimetal blades are commonly used in metalworking industry to cut tool steel, cast iron, structural steels, channels, and pipes. They can also be used to cut non-ferrous materials like aluminum, brass, bronze, copper etc.

Bi-metal band saw blades tend to retain cutting edges for a longer period and can improve the tool life up to 5-10 times when compared to carbon steel blades. The downside is that bimetal blades are expensive. However, in the long run bimetal blade can be more cost-effective than carbon steel blades.

### Blade Width

The general guideline for choosing the width of the blade is as follows.

**Cut-Off Sawing:** Use the widest blade that is possible on the machine. Wider the blade, the straighter the cut will be and the faster the feed can be.

**Contour Sawing:** When sawing irregular shapes and arcs you must consider the minimum radii to be cut. Narrow blades can cut smaller radius; however, they tend to break easily. Go for the widest blade that can cut the required profile.

## **Best Band Saw Blades**

The choice of the band saw blade largely depends upon the material to be cut, type of cut and the cross-section of the workpiece.

### **Bandsaw blade for metal cutting**

If you want to cut-off the metal to size, then you are going to want to equip your horizontal band saw with a hook tooth style blade. These are not the best blades for making accurate cuts, but they are strong enough to cut through most metals without dulling. I am fairly confident that most band saws, both vertical and horizontal variants, should be able to cut through metal with a hook tooth blade.

If you are cutting metal on a vertical band saw and require a good finish, then you might want to try using a skip tooth blade instead. Skip tooth blades are not as powerful as hook tooth blades, but depending on the thickness of the metal, a skip tooth blade may still enable your band saw to cut through it. Skip tooth blades are good for both steel and non-ferrous materials.

### **Band saw blade for woodworking**

When it comes to choosing a blade for woodworking, the correct answer will depend largely on your own needs. Do you need very accurate cuts? If so, then I would recommend going for a regular blade with a high number of teeth. Do you value speed and power over accuracy? Well then, I would recommend either hook tooth blade with a lower number of teeth. Those kinds of blades will enable you to quickly cut through large amounts of softwood and hardwood.

A skip tooth blade is the best choice when you want to avoid clogging.

## **Conclusion**

Armed with this knowledge you should have no issues walking into your local hardware store and picking out the best blade or blades for your band saw.

## **Band Saw Blade Problems and Solutions**

You want to be very careful with your blade selection when cutting metal. I have seen many band saws (and other kinds of saws) ruined because the person attempted to cut through a certain kind of material with the wrong kind of blade.

### **Blade getting dull too soon**

Check the blade speed. Running at higher than optimum speed will cause blade cutting teeth to lose the sharpness quicker. Reduce the speed.

Increase the feed. If the feed pressure is too light, the blade can get dull faster since there is not force for the tooth to bite into the material to be cut.

### **Clogging**

The gullets will get loaded fast when it there is not enough space for the sawdust or metal chips. Use a coarse blade with deeper gullet. Also, reduce the blade speed.

### **Blade breakage**

Premature blade breakage can occur due to numerous reasons but mainly caused by improper tuning. You should make sure that the blade is properly loaded on the wheels and aligned straight. Check the blade for proper blade tension. Poor welding can result in breakage.