Blade Selection Chart

Cutting Operation	*Blade Width* Narrow (1/8"–1/4")	Medium (3/16"–1/2")	Wide (1/2"–3/4")
Resawing			H C
Ripping Thin Stock			H M
Ripping Thick Stock			H C
Ripping Round Stock		R M	R M
Crosscutting Thin Stock			R F
Crosscutting Thick Stock			R M
Crosscutting Round Stock		R F M	R F M
Mitre Cut			R F M
Tenons		R M	R M
Sharp Curves	R F		
Gradual Curves		S F M	

KEY

Tooth Type

- H — Hook
- R — Raker
- S — Skip

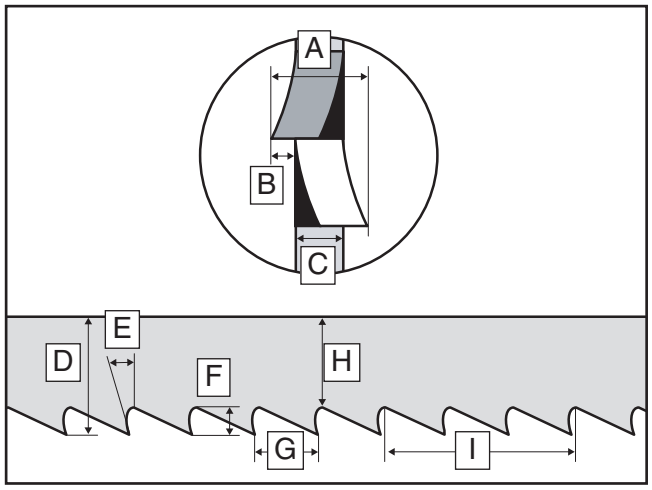
Tooth Pitch (Teeth Per Inch or TPI)

- F — Fine, 14–32 TPI
- M — Medium, 4–12TPI
- C — Coarse, 2–4TPI

Blade Selection

Selecting the right blade for the cutting task requires knowledge about blade characteristics and cutting priorities (i.e. speed, finish, etc.).

Blade Terminology



A. Kerf: The amount of material removed by the blade during cutting.

B. Tooth Set: The amount each tooth is bent left or right along the blade.

C. Gauge: The thickness of the blade.

D. Blade Width: The widest point of the blade measured from the tip of the tooth to the back edge of the blade.

E. Tooth Rake: The angle of the tooth face from a line perpendicular to the length of the blade.

F. Gullet Depth: The distance from the tooth tip to the bottom of the curved area (gullet).

G. Tooth Pitch: The distance between tooth tips.

H. Blade Back: The distance between the bottom of the gullet and the back edge of the blade.

I. TPI: The number of teeth per inch measured from gullet to gullet.

Blade Length

Measured by the blade circumference, blade lengths are specific to each bandsaw. They are determined by the wheel diameter and distance between the wheels.

Blade Width

Measured from the back of the blade to the tip of the blade tooth (the widest point), blade width is often the first consideration given to blade selection. Blade width determines the largest and smallest curve that can be cut, and contributes to the accuracy of cutting straight—generally the wider the blade, the straighter it will cut.

Every bandsaw will have a range of blade widths determined by its manufacturing specifications (i.e. wheel size, horsepower, etc.)

Curve Cutting: Use the chart below as a guide when choosing a blade for curve cutting. Determine the smallest radius curve that will be cut on your workpiece and use the corresponding blade width.

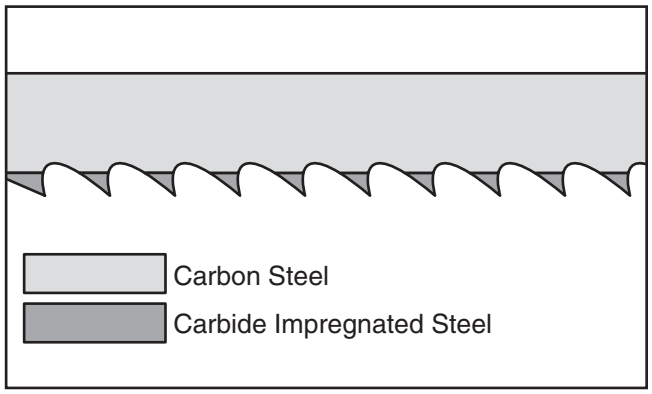
Blade (Width x TPI)	Minimum Circle Diam.
1/8" x 14 Raker	3/16"
3/16" x 4 Skip	3/8"
3/16" x 10 Raker	7/16"
3/16" x 8 Hook	9/16"
1/4" x 6 Hook Carbon & Bimetal	3/4"
1/4" x 6 Hook	13/16"
1/4" x 6 Hook	1 1/2"
3/8" x 4 Hook Carbon & Bimetal	1 3/4"
3/8" x 4 Hook	2 1/4"
3/8" x 6 Hook	2 5/8"
1/2" x 3 Hook	3 5/8"
1/2" x 3 Hook Carbon & Bimetal	6 1/2"
3/4" x 3 Hook Carbon	9 1/4"

Blade Material

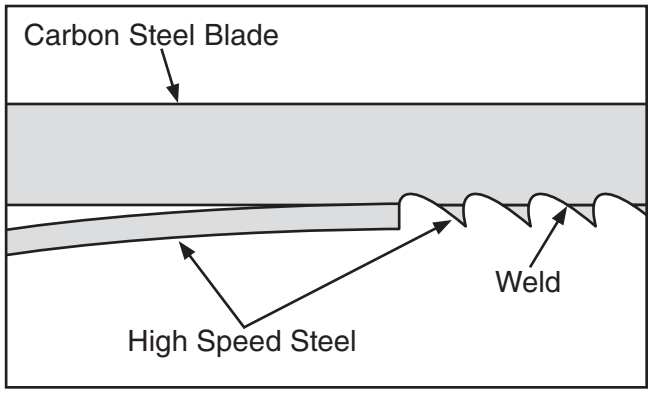
Bandsaw blades must meet two requirements: flexibility and hardness. The flexibility of a blade allows it to travel on the wheel as a band, while hardness allows the teeth to cut and hold an edge. Modern materials technology has allowed bandsaw blades to meet these requirements in various ways.

Carbon Steel: These blades are differentially heat treated to provide hard teeth that will hold an edge, and yet be flexible in the back.

Carbide Tooth: Extremely hard carbide is either welded onto or impregnated into the carbon steel blades, providing superior edge-holding characteristics.

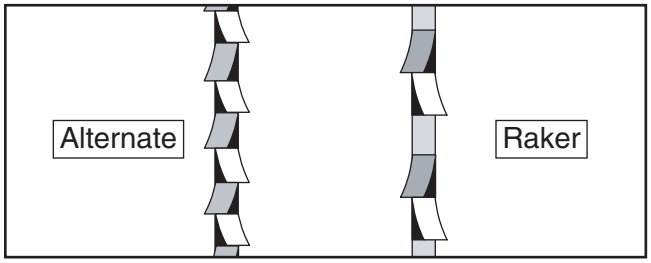


Bimetal Blade: A strip of high-speed tool steel is precision welded to a flexible carbon blade, then teeth are ground into the blade to provide good edge-holding qualities for blades taking a lot of abuse.



Tooth Set

Two common tooth sets for wood bandsaw blades are alternate and raker. Each different type of tooth set removes material in a different manner, leaving cuts with different characteristics.

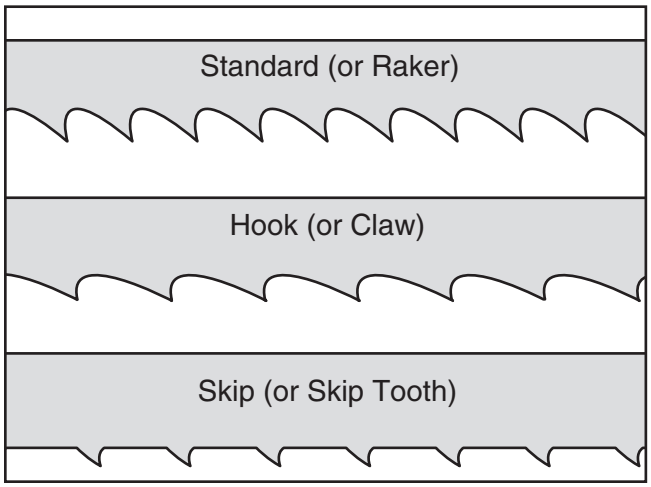


Alternate: An all-purpose arrangement where the teeth are bent evenly left and right of the blade.

Raker: Three teeth in a recurring group—one bent left, one bent right, and then one that is not bent. The raker set is ideal for most contour cuts.

Tooth Type

The most common tooth types for wood blades are shown and described below.



Standard or Raker: Equally spaced teeth set a “0” rake angle. Recommended for thinner workpieces and general use.

Hook or Claw: Wide gullets (round or flat), equally spaced teeth, positive rake angle, and fast cut with good surface finish.

Skip or Skip Tooth: Wide, flat gullets, a "0" rake angle, equally spaced teeth, and recommended for thick wood cutting.

Blade Breakage

Many conditions may cause a bandsaw blade to break. Blade breakage is unavoidable, in some cases, since it is the natural result of the peculiar stresses that bandsaw blades must endure.

Blade breakage is also due to avoidable circumstances. Avoidable blade breakage is most often the result of poor care or judgement on the part of the operator when mounting or adjusting the blade or support guides.

The most common causes of blade breakage are:

- Faulty alignment or adjustment of the blade guides.
- Forcing or twisting a wide blade around a short radius.
- Feeding the workpiece too fast.
- Dull or damaged teeth.
- Over-tensioned blade.
- Top blade guide assembly set too high above the workpiece. Adjust the top blade guide assembly so that there is approximately ⅛"–¼" between the bottom of the assembly and the workpiece.
- Using a blade with a lumpy or improperly finished braze or weld.
- Continuously running the bandsaw when not in use.
- Leaving the blade tensioned when not in use.
- Using the wrong pitch (TPI) for the workpiece thickness. The general rule of thumb is to have not less than two teeth in contact with the workpiece at all times during cutting.

Blade Care & Break-In

Blade Care

A bandsaw blade is a thin piece of steel that is subjected to tremendous strain. You can obtain longer use from a bandsaw blade if you give it fair treatment and always use the appropriate feed rate for your operation.

Be sure to select blades with the proper width, set, type, and pitch for each application. Using the wrong blade will produce unnecessary heat and shorten the life of the blade.

A clean blade will perform much better than a dirty blade. Dirty or gummed up blades pass through the cutting material with much more resistance than clean blades. This extra resistance also causes unnecessary heat.

Blade Break-In

The sharp teeth tips and edges of a new blade are extremely sharp, and cutting at too fast of a feed rate fractures the beveled edges of the teeth and causes premature blade wear.

To properly break-in a new blade:

1. Choose the correct speed for the blade and material of the operation.
2. Reduce the feed pressure by half for the first 50–100 in^2 of material cut.
3. To avoid twisting the blade when cutting, adjust the feed pressure when the total width of the blade is in the cut.