

TOOLTALK

Bandsaw Blade Selection Steps

1. **Analyzing Sawing Applications**

Determine materials hardness, machinability and shape. Some blades and workpiece combinations may increase the chances of sticking.

2. **Determine Product to Use**

Bi-Metal - Most cost effective. Used for a large variety of metals.

Carbide - Fast cutting with a long blade life due to carbide teeth. Mainly used for extreme cutting.

Carbon - More general purpose. Good for light production and smaller maintenance shops.



3. **Determine Proper TPI**

1. Determine the size and shape of the material
2. Identify the chart to be used (square solids, round solids, or tubing/structurals)
3. Read teeth per inch next to material size

WIDTH OF CUT																						
IN	.1	.2	.3	.4	.5	.6	.7	.8	.9	1	2	5	10	15	20	25	30	35	40	45	50	
MM	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25	50	125	250	375	500	625	750	875	1000	1125	1250	
TPI	14/18	10/14	8/12	6/10			6/8	5/8			4/6	3/4	2/3	1.5/2 1.4/2		1.0/1.3				0.7/1.0		

4. **Break In**

Select the proper band speed for the material to be cut. Reduce the feed force/rate to achieve a cutting rate 20% to 50% of normal (soft materials require a larger feed rate reduction than harder materials). Begin the first cut at the reduced rate. Make sure the teeth are forming a chip. During the first cut, increase feed rate/force slightly once the blade fully enters the workpiece. With each following cut, gradually increase feed rate/force until normal cutting rate is reached.

4. **Feed Rates**

High speeds require low feeds and high feeds require low feeds. Find the middle ground for speed and feed so we can remove as much material as fast as possible.

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Common Sawing Problems

Chipping or Broken Teeth

A scattered type of tooth breakage on tips and corners of teeth



Causes:

- Improper break-in procedure
- Improper blade selection for application
- Improper positioning or clamping of material
- Excessive feeding rate or feed pressure
- Hitting hard spots or hard scale in material

Tooth Strippage

Section or sections of teeth which broke from the band backing

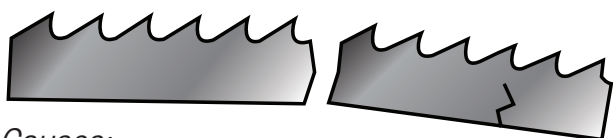


Causes:

- Improper or lack of break-in procedure
- Worn, missing or improperly positioned chip brush
- Excessive feeding rate or feed pressure
- Movement or vibration of material being cut
- Improper tooth pitch for cross sectional size of material being cut

Body Breakage or Cracks from Back Edge

The fracture originates from the back edge of the band. The origin of the fracture is indicated by a flat area on the fracture surface.



Causes:

- Excessive feed rate
- Worn or defective back-up guides
- Improper band tension
- Excessive back-up guide "preload" will cause back edge to work harder which results in cracking
- Improper band tracking – back edge rubbing heavily on wheel flange

Heavy Wear on Tips & Corners or Teeth

The wear on teeth is smooth across the tips & corners & set teeth have become rounded.



Causes:

- Improper break-in procedure
- Excessive band speed for the type of material being cut
- Low feed rate causes teeth to rub instead of penetrate
- Hard materials being cut such as "Flame Cut Edge" or abrasive materials such as "Fiber Reinforced Composites"
- Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application

Gullets Loading Up with Material

Gullet area has become filled with material being cut.



Causes:

- Too fine of a tooth pitch – insufficient gullet capacity
- Excessive feeding rate producing too large of a chip
- Worn, missing or improperly positioned chip brush
- Insufficient sawing fluid due to inadequate supply, improper ratio and/or improper application