

What Tooth Pitch Do We Use?

Number Of Teeth In The Cut

Minimum - 3 teeth in the cut

- If there are too few teeth in the cut, the teeth can straddle the workpiece, which can cause tooth strippage



Maximum - 24 teeth in the cut

- too many teeth in the cut may cause the gullets to “overload”, because there is not enough gullet capacity to hold all the chips - this can cause blade bouncing and tooth strippage



The “Optimum” is 6 to 12 teeth in cut at any time

What Tooth Pitch Do We Use?

Number Of Teeth In The Cut

Conditions that influence pitch selection:

- soft materials require fewer teeth and more gullet capacity
- hard materials require more teeth to share in the work and less gullet area
- machine capabilities - constant feed machines can use a coarser pitch, whereas gravity feed machines will require a finer pitch
- production vs. finish or blade life
 - for production cutting, run on the coarse end of the spectrum
 - for good cut finish, run on the fine end of the spectrum
 - for blade life, run in the middle to the fine end of the spectrum

What Tooth Pitch Do We Use?

Optimizing Tooth Pitch

A General Rule of Thumb . . .

Soft Materials – use fewer teeth in the cut – in the 3 to 6 tooth range

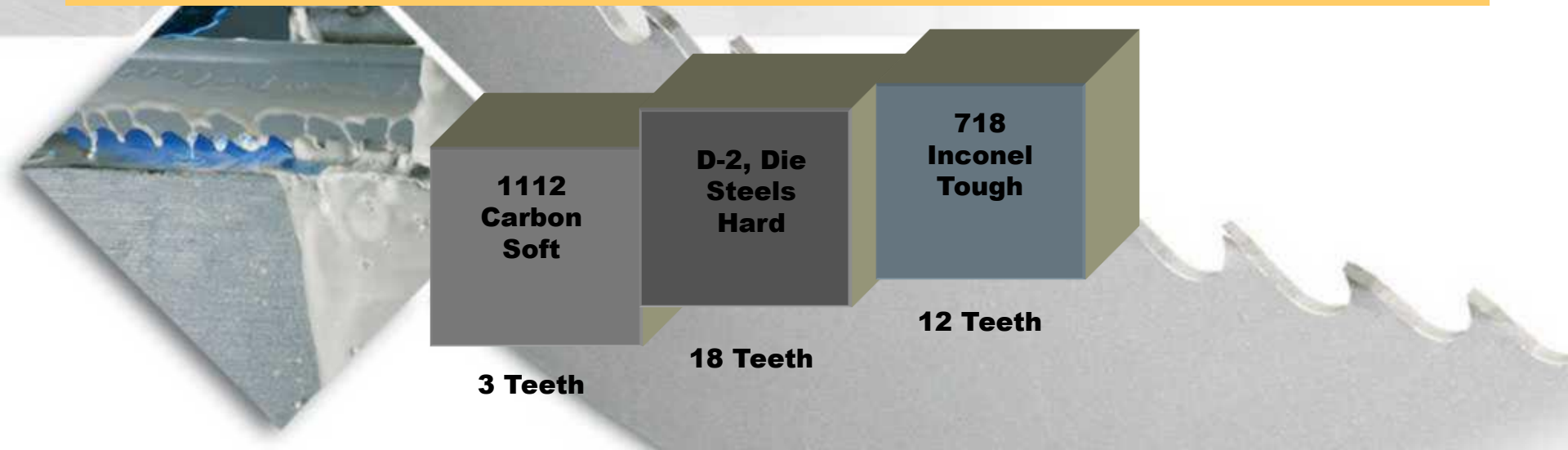
- Aluminum, Copper, Bronze, Carbon Steels

Hard Materials – use more teeth in the cut – in the 18 to 24 tooth range

- D-2, Die Steels, Stainless Steels

Tough Materials – use a moderate amount of teeth in the cut – in the 12 to 18 tooth range

- Inconel, Hastalloy, Waspalloy, Monel



What Tooth Pitch Do We Use?

Optimizing Tooth Pitch

To Determine the Number of Teeth in a Cut with Variable Pitch Band Saw Blades, we need to take the Average of the Pitch:

| Pitch | Average |
|--------------|-----------|
| 3 - 4 Pitch | 3 1/2 TPI |
| 4 - 6 Pitch | 5 TPI |
| 5 - 8 Pitch | 6 1/2 TPI |
| 6 -10 Pitch | 8 TPI |
| 10 -14 Pitch | 12 TPI |

Example: Calculate the Number of Teeth in the Cut in 4" Bar Stock, using a 3-4 Variable Pitch Blade

- Bar Stock Size x Avg TPI = # of Teeth in the Cut (4 x 3.5 = 14)
 - a 2-3 Variable Pitch blade would have 10 teeth in the cut
 - a 4-6 Variable Pitch blade would have 20 teeth in the cut
 - a 6-10 Variable Pitch blade would have 32 teeth in the cut

What Blade Speed Should We Use?

Items That Influence Selection

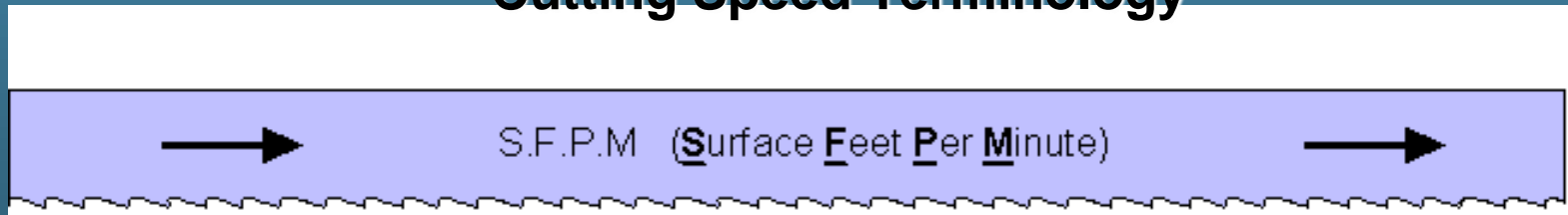
Material Machinability Rating - The lower the rating %, the slower the band speed will need to be

Blade Selection - The cutting edge of the blade will govern the speed the blade can run at (Carbon = Slowest Cutting, Carbide = Fastest Cutting)

Cutting Noise / Vibration - Cutting noise or vibration is a killer to a cutting edge - if either is present, the speed must be **decreased**

Coolant / Cutting Fluid - If the coolant is adequate, use the standard cutting chart speeds. When cutting dry, reduce the speed by 40-50%

Cutting Speed Terminology



What Blade Speed Should We Use?

Items That Influence Selection

Remember, when considering blade speed, consider the saw . . . if the saw has limited or no ability to adjust speed, you must work with what you have!

A General Rule of Thumb . . .

100 – 200 – 300

Hard Materials – set the blade speed for 100 S.F.P.M. to start . . .

Medium Materials – set the blade speed for 200 S.F.P.M. to start . . .

Soft Materials – set the blade speed for 300 S.F.P.M. to start . . .

. . . Then adjust the speed as needed to get the required result!

Cutting Speed Terminology



S.F.P.M (Surface Feet Per Minute)

