MATERIAL:

Cold Saw Blades are manufactured from abrasion resistant M2 HSS (High Speed Steel) with a hardness of 60 Rockwell.

BLADE COATING:

All Cold Saw Blades have a coating. The most common is "Steam Oxide" or "Black Oxide" which help the blade hold its edge and prevents galling. Oxide coating has tiny dips and craters that help carry coolant into the cut.

OTHER COATINGS:

High performance coatings, such as a TIN (Titanium Nitride) can increase wear resistance and work well with fine tooth blades.

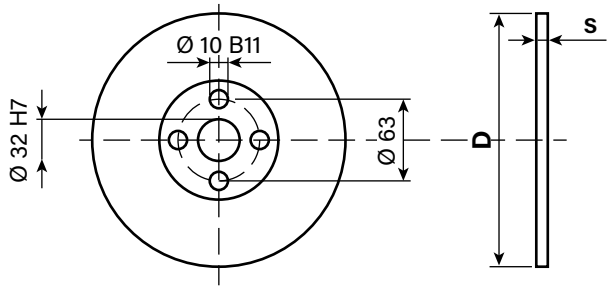
RUN-OUT:

Typical run-out tolerance for a cold saw blade is 0.01% of the blade's diameter or .001" per diameter inch. Cold Saw Blades are "Hollow Ground", designed to be thicker on the rim gradually tapering to the center "hub" of blade allowing the blade to pass through material and direct coolant into the cut area.

BLADE SHARPENING:

Cold Saw Blades can be resharpened several times. Diameter of the blade is reduced with every sharpening.

PEDRAZZOLI BLADE CONFIGURATION:



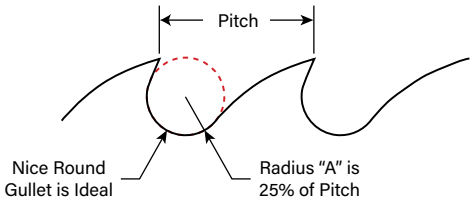
Tooth Geometry, Pitch & Bevel

The following diagrams explain tooth geometry and indicate which blade is appropriate for the size and material to be cut. Once proper pitch is decided, number of teeth for blade can be determined.

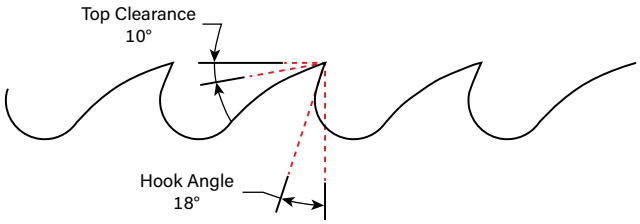
COLD SAW BLADE TOOTH GEOMETRY

Tolerance is ± 2°

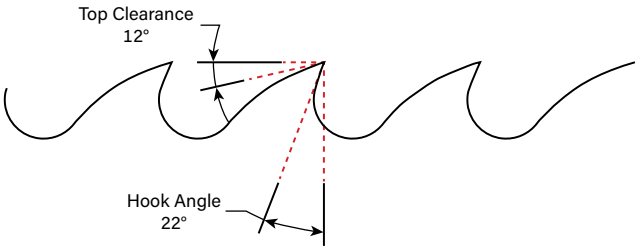
Proper Tooth Shape



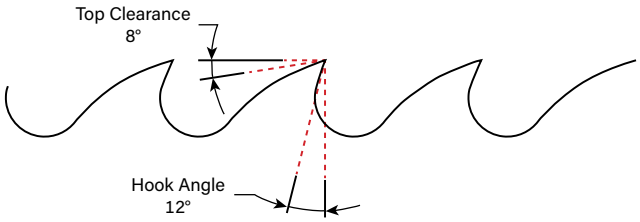
Mild Steel some Low-Alloys



Aluminum, Copper – Non-Ferrous



Stainless Steel and some Tool Steels

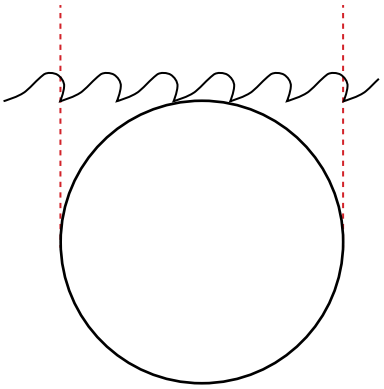


16° - 18° Hook Angle is Standard and is often referred to as "Rake" or "Rake Angle"

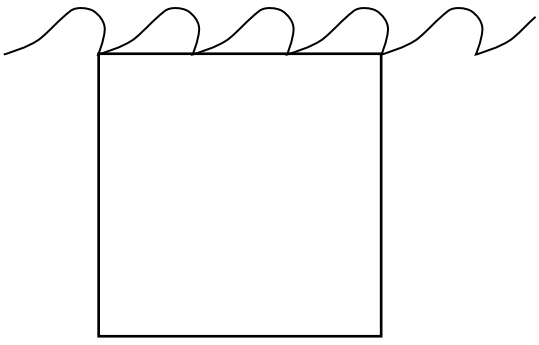
COLD SAW PITCH AND BLADE SELECTION

SOLID - Slower RPM & 3-5 Teeth in the Material

Round cuts better with
5 teeth in the material

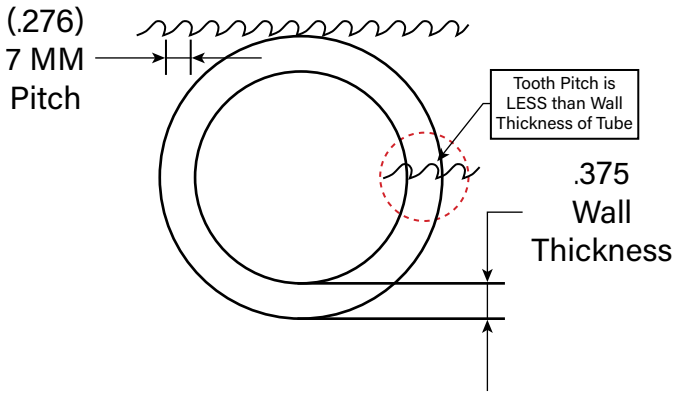


Square cuts better with
3 teeth in the material



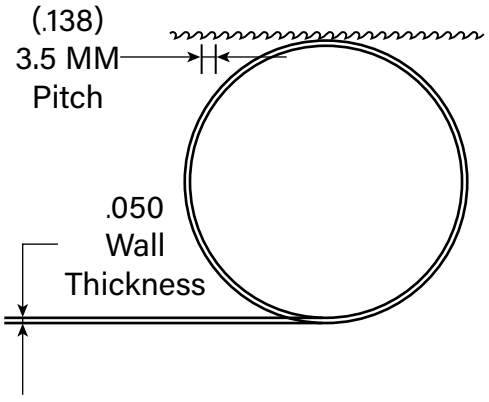
TUBE - Thick Walled

Slower RPM & Pitch should be
Less than the Wall Thickness



TUBE - Thin Walled

Higher RPM & Pitch should be as small
as Practical. 3 - 3.5 mm (.118 - .138)
is the Smallest Pitch Available

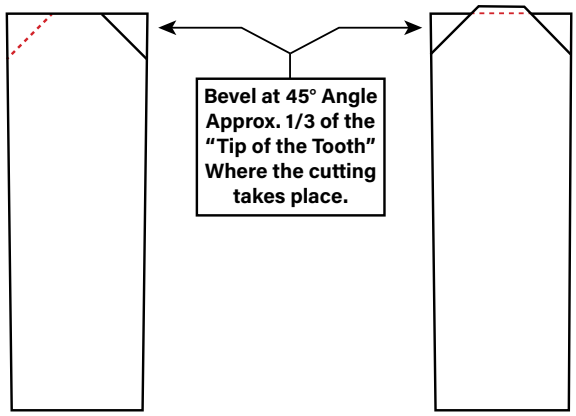


Tooth Geometry, Pitch & Bevel (cont.)

BEVELS, NOTCHES AND APPLICATIONS

ALTERNATE

Teeth are the same Height. All Teeth have a Bevel. Every Other Tooth is Beveled on Every Other Side. Used on Blades with a 4.5 Pitch or Less. Generally 220 Teeth or more. More Teeth = Smaller Pitch. Used on thinner walled Tube, Angle and Small Solids.

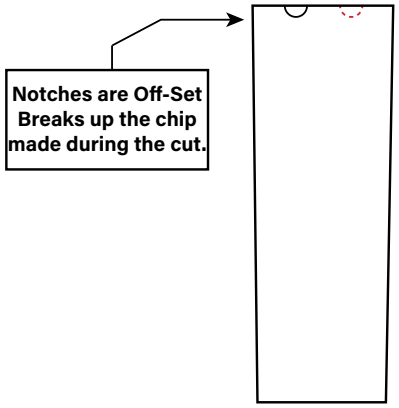


TRIPLE CHIP

Every other Tooth is Taller. Often said to have a "High-Low". The High-Tooth has a Bevel on Both Sides. The Low-Tooth has NO Bevel at all. High-Tooth cuts the middle out and Low-Tooth is the Tooth that leaves Finish on the Cut Part. Generally used on Blades with a 4.5 Pitch or more. Less Teeth = Larger Pitch. Best for Solids and Thick Wall Tube.

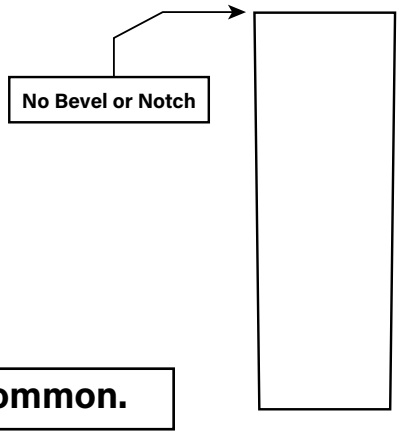
NOTCH GRIND

Teeth are the same Height. All Teeth have a Notch. Notches are Offset from Each Other and breaks up the Chip made during the Cut. Typically used on Blades with a 4.5 Pitch or Less. Generally 220 Teeth or more. More Teeth = Smaller Pitch. Best for thinner walled Tube, Blade RPM should be increased.



ROUND GRIND

Teeth are the same Height. There is No Bevel. Typically used on Blades with a 3.5 Pitch or Less, as Teeth this small are extremely difficult to bevel. This works best for thinner walled Tube. Also used for soft materials such as Nylon, Plastic, PVC, etc. in most any shape or size and with whatever tooth size works best.



Triple Chip and Alternate Grinds are by far the most common.

SAW BLADE SIZE, NUMBER OF TEETH & PITCH

There is no general purpose or "Universal" Cold Saw Blade. The proper blade must be used for the material being cut.

Pitch is the size of one saw blade tooth, OR distance from one tip to the next in millimeters.

More teeth = a smaller pitch (14" 220 has a 5.0 mm Pitch)
Less teeth = a larger pitch (14" 150 has a 7.5 mm Pitch)

Charts show selection of proper saw blade for material being cut.

Cutting Square Tube across the flat you should increase pitch by 1 mm to 2 mm. For example, Mild Steel 2" round .187" (3/16) wall tube or a 2" square .187" (3/16) tube on the diagonal (point-to-point) with a 14" diameter blade, a 180-tooth blade is used with 6.5 mm pitch.

2" square .187" (3/16") walled tube cut across the flat needs a blade with 7.5 mm to 8.5 mm pitch (less teeth). Chart shows a 14" 150-tooth blade has 7.5 pitch.

Round Tubing - Angle & Square Cut on the Diagonal

Square Tube Cut Across the Flat - Increase Pitch 1 mm - 2 mm (less teeth)

MATERIAL	BLADE SIZE, NO. OF TEETH & PITCH*			
Wall Thickness	275 mm 10¾"	315 mm 12½"	350 mm 14"	Pitch
.030 - .060	260 Teeth	280 Teeth	320 Teeth	3.5 mm
.060 - .090	200 Teeth	220 Teeth	250 Teeth	4.0 mm
.090 - .150	160 Teeth	180 Teeth	200 Teeth	5.5 mm
.150 - .250	**For Thick-Walled Tube, Please Call Factory for a Recommendation**			
.250 - .375				
.375 - .500				

Solid Round & Square Bar

Tough Alloys or Stainless - Decrease Pitch (more teeth) 1 mm - 2 mm
Aluminum & Copper - Increase Pitch (less teeth) 1 mm - 2 mm

MATERIAL	BLADE SIZE, NO. OF TEETH & PITCH*			
Solid Bar	275 mm 10¾"	315 mm 12½"	350 mm 14"	Pitch
½ in.	200 Teeth	220 Teeth	250 Teeth	3.5 mm
⅝ in.	160 Teeth	180 Teeth	200 Teeth	4.0 mm
¾ in	140 Teeth	150 Teeth	180 Teeth	5.0 mm
1 in.	120 Teeth	140 Teeth	150 Teeth	6.5 mm
1¼ in.	110 Teeth	120 Teeth	140 Teeth	8.0 mm
1½ in.	100 Teeth	110 Teeth	130 Teeth	8.5 mm
1¾ in.	90 Teeth	100 Teeth	120 Teeth	9.5 mm
2 in.	80 Teeth	90 Teeth	100 Teeth	11 mm

***Ordering information:**
Part numbers: "Blade size-Number of teeth": 275BL-260; 315BL-280; 350BL-320 etc.

PRACTICES TO FOLLOW

CLEAN SPINDLE AND FLANGE

When metal chips are allowed between Flange and/or spindle during mounting, saw blade may "wobble", have excessive run-out or contribute to other saw blade problems like pick-up.

REMOVE BACKLASH

The saw blade is driven by pins in the flange. When changing blades, backlash must be removed or "taken-up". When blade is placed on machine, and before bolt on flange is tightened, lift up on front of blade and hold it until bolt is tight. This keeps blade against pins in the flange. If blade breaks through pin-hole, backlash was not removed.

TROUBLESHOOTING

BLADE PICK-UP

Dull blade, improper coolant, wrong blade, incorrect rpm or too much down-pressure contributes to pick-up.

Pick-up occurs when material being cut bonds itself to both sides of blade teeth making them wider. This may cause the saw head to jump or vibrate during the cut. Saw blade may seem "out-of-round" during the cut. Pick-up will jam blade into material and lead to damaged blades or material moving during the cut. This may force blade to one side, and shatter it. If there is pick-up on the blade **STOP** using and replace. Resharpen blade to avoid pick-up.

MATERIAL SLIPPING IN VISE

Material must be properly seated and solidly clamped in vise. If material moves during cut it can bend or break saw blade. Unusual rub marks on one side of blade indicate slippage.

PROLONG SAW BLADE LIFE

BREAKING IN BLADE

New or resharpened blades have sharp edges. Feed blade slowly through material for the first 3-4 cuts.

COOLANT

Use water soluble base coolant mixed to proper strength. Rust indicates weak coolant. Weak coolant will shorten blade life and contribute to pick-up.

SAW BLADE DIAMETER

Small blades are the more rigid. SFM (Surface Feet per Minute) or "Rim Speed" is less with a smaller blade. Smaller blades are less expensive to purchase and sharpen.