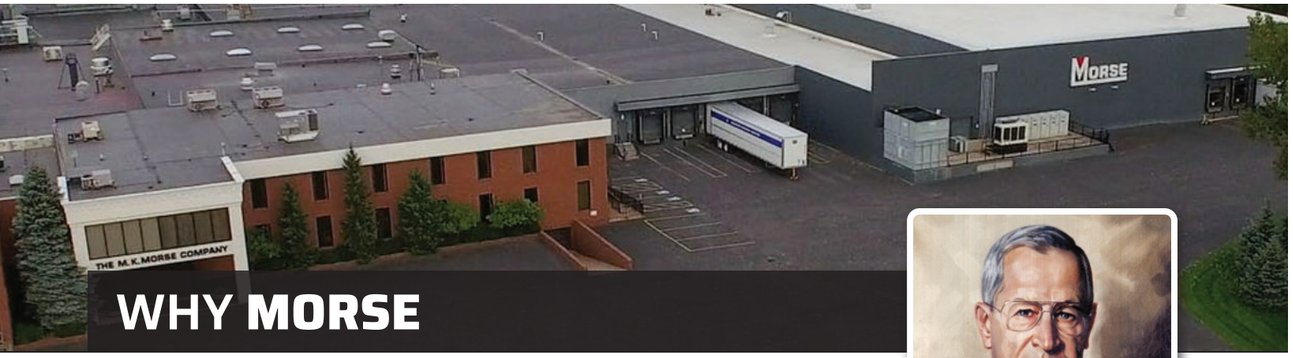
MORSE®

AMERICAN-OWNED
– Since 1963 –

INDUSTRIAL
BAND SAW BLADES



WHY **MORSE**

Optimal application solutions
We have a blade for any material you need to cut and offer a Guaranteed Trial Order program to give end users a commitment-free way to try our products.

Value Pricing
We are focused on the best cost per cut, not the overall blade cost. This delivers optimum value for our customers.

Product availability
We provide the best delivery in the business; order by 11 a.m., and the product will ship by the end of day, with very few exceptions.

In-person customer service
Whether you need assistance with ordering or technical information, our Canton, Ohio-based team is always just a phone call away.

Established leader, locally owned
Customers can feel good about purchasing from an American-owned company that has been servicing the industry since 1963.

Prioritizing the value of Family
At Morse, our humble beginning came from the sole desire to deliver on a promise to customers.

M. K. Morse

Sally Morse Dale
Nancy Morse Sonner

Meagan Sonner-Martino
Nick Martino
Alan Holbrook
Lisa Dale Holbrook

The ideals of delivering unmatched quality and service coveted by founders M. Kenneth and Marie Morse continue to drive the success of our business today, as they have been passed down and nurtured through multiple generations of family.

Today, Morse is led by their daughters, Nancy Morse Sonner and Sally Morse Dale, and the value of family is at the heart of every employee and customer relationship. The third generation of the Morse family, Meagan Sonner-Martino and Lisa Dale Holbrook, work side by side with their mothers and spouses to ensure the company's forward momentum.

It takes grit and drive to keep a multi-generational business positioned for continued growth. We've embraced these attributes to help our distributor partners succeed in delivering quality cutting solutions to end users.

TABLE OF **CONTENTS**

Blade Selection

Category	Type	Carbide Tipped: M-Factor® SPARC: JawBreaker®	Carbide Tipped: M-Factor®: GES	Carbide Tipped: M-Factor®: GP	Carbide Tipped: M-Factor®: CH	Carbide Tipped: M-Factor®: FB+	Carbide Tipped: M-Factor®: FBS	Bi-Metal: Premium SPARC: Independence® EXS	Bi-Metal: Premium SPARC: Independence® II	Bi-Metal: Premium: Maverick	Bi-Metal: Premium: The Morse Achiever®	Bi-Metal: Structural: Challenger®	Bi-Metal: M42: Positive Rake	Bi-Metal: M42: 6° Rake	Bi-Metal: M42: 0° Rake	Bi-Metal: M42: Raker	Bi-Metal: M42: Hook	Bi-Metal: Matrix II: Positive Rake	Bi-Metal: Matrix II: 0° Rake	Bi-Metal: Matrix II: Raker / Wavy / Hook	Carbide Grit: Gulleted: Medium	Carbide Grit: Gulleted: Medium Coarse	Carbide Grit: Gulleted: Coarse	Carbide Grit: Continuous: Medium	Carbide Grit: Continuous: Coarse
Non-Ferrous Alloys	Aluminum																								
	Brass																								
	Bronze																								
	Copper																								
	Nickel Aluminum Bronze																								
Carbon Steel	General - i.e. 1018, 1045																								
	A36 - Structural																								
Cast Iron																									
Case Hardened																									
Chrome Alloy Steels	i.e. 52100, 6150																								
Chrome Moly Steel	i.e 4130, 4140																								
Duplex Alloys																									
Free Machining Steel																									
Graphite																									
Manganese Steel																									
Molybdenum Steel																									
Nickel Steels, Alloys and Superalloys	Duranickel																								
	Nickel Alloys																								
	Rene																								
	Waspalloy																								
	Hastelloy																								
	Incoloy																								
	Inconel																								
	Monel																								
Nickel Chrome Moly Steel	i.e. 4340, 8620																								
Nickel Moly Steel	i.e. 4608, 4640																								
Stainless Steel	General																								
	Austenitic																								
	Ferritic																								
	Martensitic																								
Tantalum																									
Titanium Alloys																									
Tool steel	General																								
	Die Steels																								
	Mold Steels																								
	Hot Work, Low Alloy and High Speed Steels																								
	Water Hardening Steels																								
Plastics/Composites/ Drywall/Laminates	Fiberglass																								
	Plexiglass																								
	Rubber																								
	PVC/ABS																								
	Composites																								
	Plastics																								
	Acoustic Ceiling Tile																								
	Drywall																								
	Computer flooring																								
	Countertops																								
	Laminate Flooring																								
Stone/Cement/ Brick/Ceramics	Architectural Stone																								
	Asbestos Board																								
	Cinder Block																								
	Brick (masonry)																								
	Cement Board																								
	Ceramics																								
	Porcelain tile																								
	Granite/Marble/Stone																								
	Glass Block																								

▼ HIGHLY RECOMMENDED
▼ RECOMMENDED
▼ ACCEPTABLE

SPARC CURVED TECHNOLOGY is available as an option for identified products with 2/3 and coarser TPIs

For further assistance in choosing the right blade for your application or to learn the operating parameters for your cutting solution, visit the BladeWizard here

BladeWizard.com

METAL CARBIDE TIPPED

JAWBREAKER®

LARGE BILLET PRODUCTION CUTTING

For large billet production cutting of super alloys and other hard-to-cut materials.

Features:

- Plyometric® Cutting Action for lower cost per cut
- KerfLock® Technology prevents pinching, providing extended blade life
- Higher feed rates and longer blade life allow more cutting without adding equipment or people

Width x Thickness		TPI	
in	mm	.75/1	1.5/2
		Variable Pitch – Positive Rake	
2 x .063	54 x 1.60	▼	▼
2⅝ x .063	67 x 1.60	▼	▼
3 x .063	80 x 1.60	▼	▼

Users:

- Forging
- Steel mills
- Steel service centers
- Machine shops
- Test labs

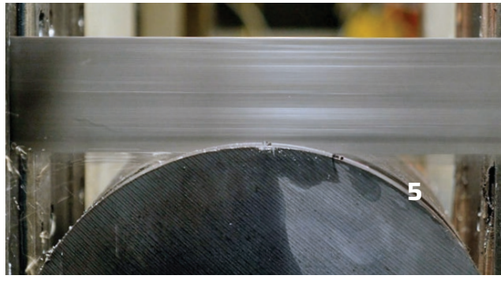
Applications:

- Duplex alloys
- Nickel chrome moly steel
- Stainless steels
- Titanium alloys
- Carbon Steel
- Nickel Steels, Alloys and Superalloys
- Tool Steel
- Tantalum

Operating parameters:

- For optimal performance, Jawbreaker blades must be run at higher feed rates
- **DO NOT BREAK IN** Jawbreaker blades
- Please refer to the Morse BladeWizard for recommended feeds and speeds for materials being cut

BladeWizard.com

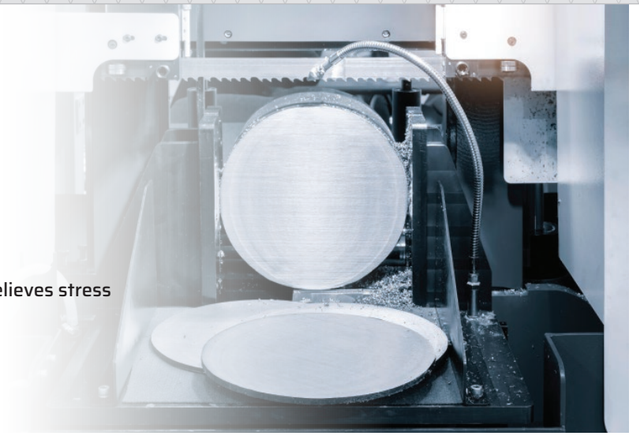


METAL CARBIDE TIPPED

M FACTOR GES

GENERAL EXOTIC SPECIALTY CUTTING

For exotic material and ferrous steel, with particular emphasis on thick wall and solid billet applications.



Features:

- Multi-chip tooth pattern reduces chip build up on tooth and relieves stress
- Kerflock® Technology prevents pinching, providing extended blade life
- Available with SPARC on 2/3 TPI and coarser

Width x Thickness		TPI			
in	mm	.75/1	1.5/2	2/3	3/4
		Variable Pitch – Positive Rake			
1¼ x .042	34 x 1.10			▼	▼
1½ x .050	41 x 1.30		▼▼	▼	▼
2 x .063	54 x 1.60	▼	▼▼	▼▼	▼
2⅝ x .063	67 x 1.60	▼▼	▼▼	▼	
3 x .063	80 x 1.60	▼▼	▼		

▼ Wide Kerf

Users:
- Steel service centers
- Forging operations
- Specialized manufacturing

Applications:
- Stainless Steel
- Tool steels
- Titanium
- Hastelloy, Inconel, Monel
- Non-Ferrous Alloys
- Carbon Steel
- Graphite

M FACTOR GP

GENERAL PURPOSE CUTTING

For alloy steel and stainless steel applications.

Features:

- Longer blade life than bi-metal
- Available with SPARC on 2/3 TPI and coarser

Width x Thickness		TPI			
in	mm	.75/1	1.5/2	2/3	3/4
		Variable Pitch – Positive Rake			
1 x .035	27 x 0.90			▼	▼
1¼ x .042	34 x 1.10	▼	▼	▼	▼
1½ x .050	41 x 1.30		▼	▼	▼
2 x .063	54 x 1.60	▼	▼	▼	
2⅝ x .063	67 x 1.60	▼	▼	▼	
3 x .063	80 x 1.60	▼	▼		

Users:
- Steel service centers
- Forging operations
- General manufacturing

Applications:
- Stainless Steel
- Carbon Steel
- Non-Ferrous Alloys
- Tool Steel
- Nickel Moly Steel

M FACTOR HSN

HIGH-SPEED NON-FERROUS CUTTING

For non-ferrous materials, primarily aluminum but also able to cut graphite, copper, and bronze alloys.

Features:

- Multi-chip tooth pattern
- Temperature-reducing design prevents chip welding on the teeth
- Made from special grade carbide

Width x Thickness		TPI		
in	mm	.75/1	1.5/2	2/3
		Variable Pitch – Positive Rake		
1¼ x .042	34 x 1.10		▼	▼
1½ x .050	41 x 1.30		▼▼	
2 x .063	54 x 1.60	▼		

▼ Wide Kerf

Users:
- Aluminum Service Centers
- Automotive manufacturing
- High speed cutting of soft materials

Applications:
- Aluminum billets/bars
- Non-ferrous alloys
- Engine blocks
- Aluminum components

M FACTOR FB+ & FBS

FOUNDRY

Exceptional long life and fast cutting of abrasive and non-ferrous materials. Foundry blades available in triple chip (FB+) and set tooth (FBS).

Features:

- Set tooth design on FBS optimized for contour and radius cutting
- Triple chip tooth design on FB+ for long life
- Cuts non-ferrous and wood materials

Width x Thickness		TPI	
		FB+	FBS
in	mm	3	3 Set
		Straight	
½ x .025	13 x 0.64	▼	
¾ x .035	19 x 0.90	▼	▼
1 x .035	27 x 0.90	▼	▼
1¼ x .042	34 x 1.10	▼	▼

Users:
- Aluminum foundries
- Graphite manufacturers
- Furniture makers

Applications:
- Aluminum castings (gates, risers, extrusions)
- Abrasive woods, plywood
- Non-Ferrous Alloys
- Plastics
- Composites
- Laminates

METAL CARBIDE TIPPED

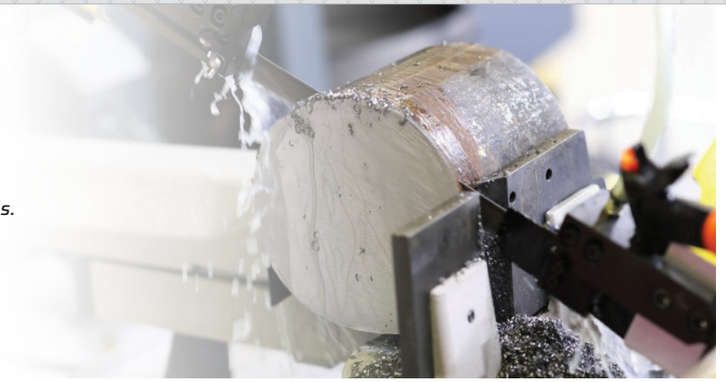
M FACTOR CH

CASE HARDENED

For long life and fast, smooth cutting of chrome plated, case hardened hydraulic shaft specifications.

Features:

- Impact-resistant carbide tipped tooth design
- High fatigue backer
- Ideal for materials <12", 30.5cm



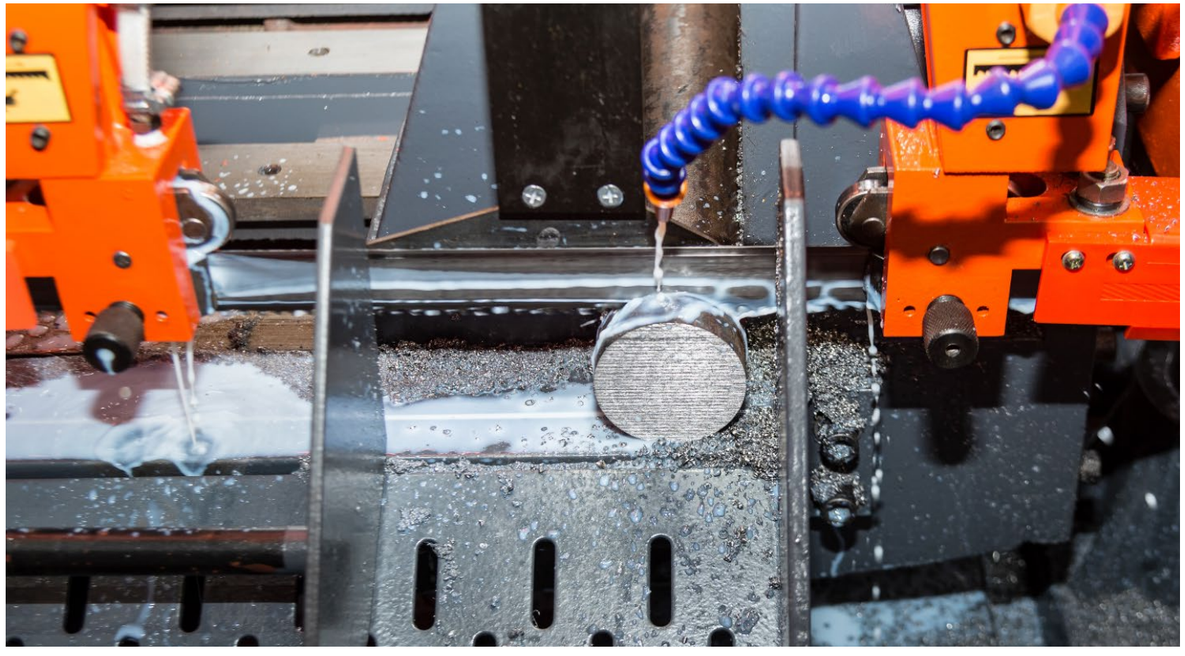
Width x Thickness		TPI		
in	mm	2/3	3/4	3
		Variable Pitch – Negative Rake		Straight
1 x .035	27 x 0.90		▼	▼
1¼ x .042	34 x 1.10		▼	▼
1½ x .050	41 x 1.30	▼	▼	
2 x .063	54 x 1.60	▼		

Users:

- Steel service centers
- Automotive parts manufacturers
- Cylinder and bearing manufacturers

Applications:

- Hydraulic shafts
- Case-hardened shafts and shapes
- Heat-treated thick wall tubing



METAL BI-METAL

Independence® EXS

HIGH PRODUCTION SOLIDS

For cutting high production solid applications.
Best bi-metal option for stainless steels and exotics.

Features:

- Can tackle a large variety of material size and width
- High positive rake reduces cutting forces, resulting in longer blade life
- Premium materials used for tooth edge and backer
- Available with SPARC on 2/3 TPI and coarser

Width x Thickness		TPI				
in	mm	1/1.5	1.5/2	2/3	3/4	4/6
		Variable Pitch – Positive Rake				
1 x .035	27 x 0.90			▼	▼	▼
1¼ x .042	34 x 1.10			▼	▼	▼
1½ x .050	41 x 1.30		▼	▼	▼	
2 x .063	54 x 1.60	▼	▼	▼	▼	

Users:

- Steel service centers
- Production cutting fabrication shops
- General Manufacturing

Applications:

- High production cutting
- Large solids
- Stainless steels
- Exotics
- Plastics
- Composites
- Laminates

Independence® II

HIGH PRODUCTION CROSS SECTIONS

Precision cutting of small to medium cross sections.
Best option for a variety of material grades, dimensions, and shapes.

Features:

- Fatigue resistant, eliminating pre-mature breakage
- Maximum blade versatility
- Premium materials used for tooth edge and backer
- Available with SPARC on 2/3 TPI and coarser

Width x Thickness		TPI			
in	mm	2/3	3/4	4/6	5/7
		Variable Pitch – Positive Rake			
1 x .035	27 x 0.90	▼	▼	▼	▼
1¼ x .042	34 x 1.10	▼	▼	▼	▼
1½ x .050	41 x 1.30	▼	▼	▼	▼
2 x .063	54 x 1.60	▼	▼	▼	▼

Users:

- Steel service centers
- Production cutting fabrication shops
- General Manufacturing

Applications:

- High production cutting
- Tool Steel solids
- Nickel-based Alloys
- All machinable metals in single pieces or bundles
- Stainless Steel
- Non-Ferrous Alloys
- Carbon Steel
- Nickel-Chrome Moly Steel

MAVERICK®

GENERAL PURPOSE PRODUCTION CUTTING

General purpose for production environments.
Good option for tool steels and stainless steels.

Features:

- For both production and job shops
- Designed to optimize blade longevity at targeted speeds
- Available with SP ARC on 2/3 TPI and coarser

Width x Thickness		TPI							
in	mm	.75/1.1	1.1/1.5	1.4/2.5	1.5/2	2/3	3/4	4/6	5/7
		Variable Pitch – Positive Rake							
1 x .035	27 x 0.90					▼	▼	▼	▼
1¼ x .042	34 x 1.10					▼	▼	▼	▼
1½ x .050	41 x 1.30			▼		▼	▼	▼	
2 x .063	54 x 1.60			▼		▼	▼		
2⅝ x .063	67 x 1.60	▼	▼		▼	▼	▼		
3 x .063	80 x 1.60	▼	▼						

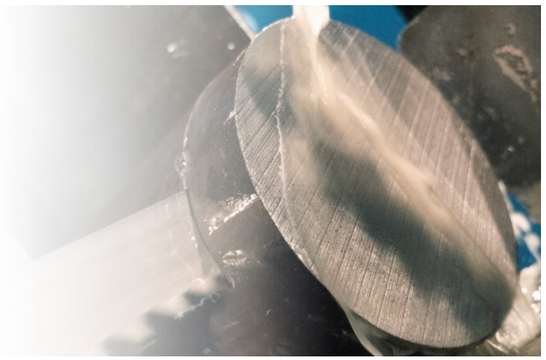
Users:
- Production facilities
- Job shops
- Fabrication
- Steel service centers

Applications:
- Mild steels
- Stainless steels
- Tool steels
- Occasional structural workpiece
- Carbon Steel
- Medium-to-heavy production machines

THE MORSE ACHIEVER®

PRODUCTION CUTTING

Reliable and durable when cutting mild to moderate materials, including layer and bundle cuts and large profiles and solids.



Features:

- For production cutting of mild to difficult materials
- 0° rake offering for structural applications and thin pieces
- Finer tooth pitches cut smaller diameter and thin-walled materials
- Great for maintenance shops and low volume production

Width x Thickness		TPI				
in	mm	4/6	5/8	6/10	8/12	10/14
		Variable Pitch – 0° Rake				
1 x .035	27 x 0.90	▼	▼	▼	▼	▼
1¼ x .042	34 x 1.10	▼		▼		

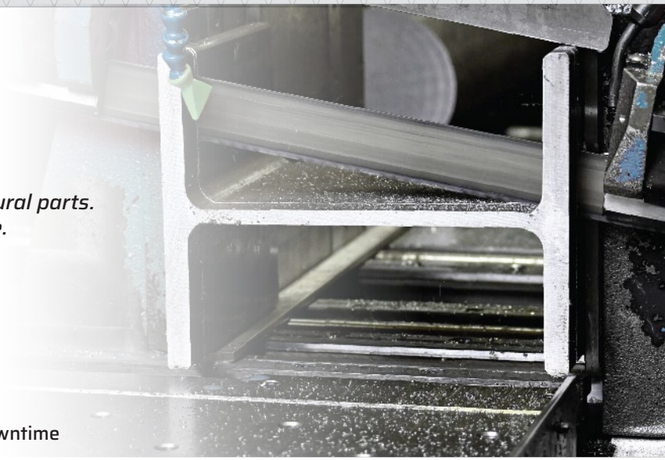
Users:
- Production facilities
- Tool shops
- Fabrication

Applications:
- Production cutting
- Materials ranging from carbon to stainless steel

CHALLENGER™ EDGE LOCK

STRUCTURAL CUTTING

A coated bi-metal blade designed for cutting structural parts.
Get higher productivity without sacrificing blade life.



Features:

- Coated teeth deliver longer blade life for more than double the productivity of uncoated blades
- Heavy set tooth shape designed to prevent stripping in structural parts
- No break-in and fewer blade changes needed for less downtime

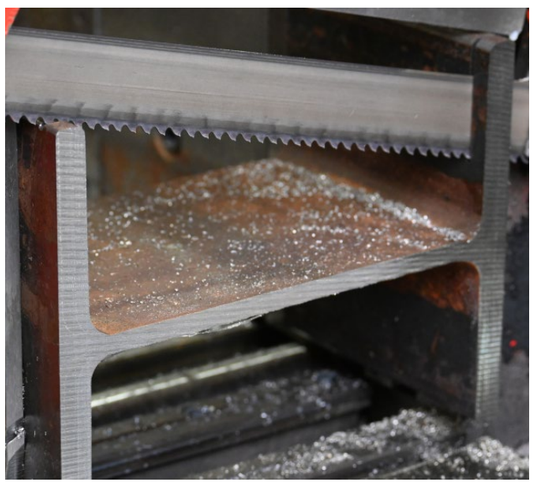
Width x Thickness		TPI		
in	mm	2/3	3/4	4/6
		Variable Pitch – Positive Rake		
1½ x .050	41 x 1.30	▼	▼	▼
2 x .063	54 x 1.60		▼	▼
2⅝ x .063	67 x 1.60	▼	▼	

* ***DO NOT BREAK IN***

▼ Heavy Set

Users:
- Metal Service Centers
- Production Facilities
- Tools Shops
- Steel Structure Fabricators
- Fabrication

Applications:
- I-beams
- Interrupted Cuts
- Bundle Cutting
- Free-Machining Steel

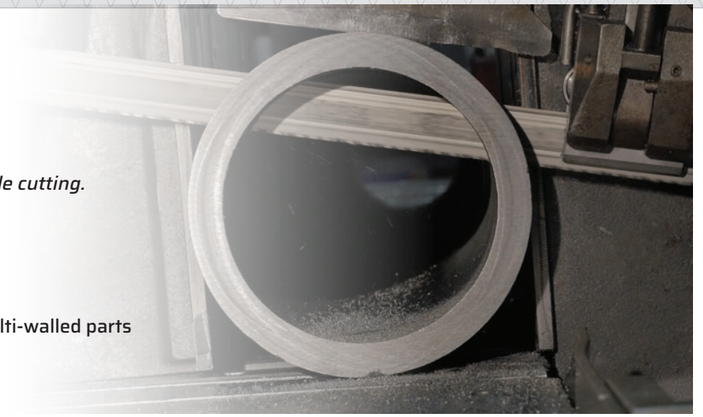


METAL BI-METAL

CHALLENGER®

STRUCTURAL CUTTING

For general purpose structural, interrupted, and bundle cutting.



Features:

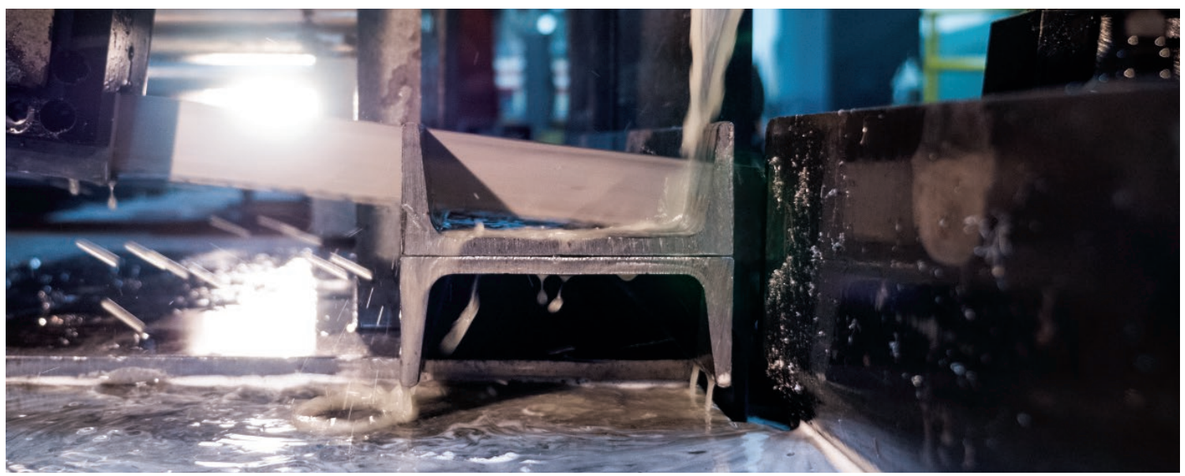
- Long life and straight cuts in structural material
- Designed to absorb repeated impact when cutting multi-walled parts
- Reduced noise and vibration
- Reduced chance of stripping teeth

Width x Thickness		TPI				
in	mm	2/3	3/4	4/6	5/7	8/11
		Variable Pitch – Positive Rake				
½ x .025	13 x 0.64					▼
¾ x .035	19 x 0.90				▼	▼
1 x .035	27 x 0.90		▼	▼	▼	▼
1¼ x .042	34 x 1.10		▼▼	▼▼	▼	▼
1½ x .050	41 x 1.30	▼	▼▼	▼▼	▼	▼
2 x .063	54 x 1.60	▼▼	▼▼	▼▼		
2⅝ x .063	67 x 1.60	▼▼	▼▼	▼		

▼ Wide Kerf

Users:
- Production facilities
- Tool shops
- Metal service centers
- Steel structure fabricators
- Fabrication

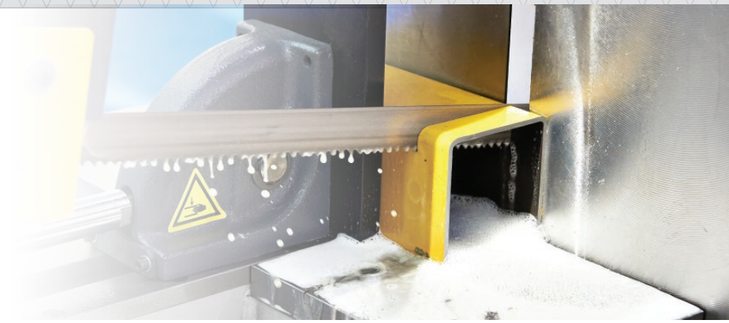
Applications:
- Bundle cuts
- Interrupted cuts
- I-Beams
- Low alloy steels
- Carbon Steel (A36)
- Free Machining Steel
- Non-Ferrous Alloys



M42

PRODUCTION & MRO

For general production in a variety of materials.



Features:
- Versatile to cut a variety of materials
- Reduced vibration and harmonics

• **Variable Pitch – Positive Rake:** General purpose blade for cutting solids.

Width x Thickness		TPI			
in	mm	2/3	3/4	4/6	5/7
		Variable Pitch – Positive Rake			
¾ x .035	19 x 0.90			▼	
1 x .035	27 x 0.90	▼	▼▼	▼▼	▼
1¼ x .042	34 x 1.10	▼	▼▼	▼▼	▼
1½ x .050	41 x 1.30	▼	▼▼	▼▼	
2 x .050	54 x 1.30		▼		
2 x .063	54 x 1.60	▼	▼		

▼ Available with 6° rake angle

• **Variable Pitch – 0° Rake:** For structural and occasional thin-walled material solids.

Width x Thickness		TPI					
in	mm	3/4	4/6	5/8	6/10	8/12	10/14
		Variable Pitch – 0° Rake					
½ x .025	13 x 0.64					▼	
½ x .035	13 x 0.90						▼
¾ x .035	19 x 0.90		▼	▼	▼	▼	▼
1 x .035	27 x 0.90	▼	▼	▼	▼	▼	▼
1¼ x .042	34 x 1.10	▼	▼	▼		▼	
1½ x .050	41 x 1.30	▼	▼	▼			

Straight Pitch

• **Raker:** For hand-fed applications in wood. • **Hook:** For aluminum applications.

Width x Thickness				
in	mm	14	2	4
		Hook		
⅜ x .035	9 x 0.90			▼
½ x .035	13 x 0.90	▼		▼
1 x .035	27 x 0.90		▼	

Users:
- Production facilities
- Tool shops
- Fabrication
- Maintenance shops
- Specialty shops

Applications:
- Solids
- Heavy walled structures
- Carbon steels
- Alloy steels
- Some stainless steels
- Light-to-medium production machines

MATRIX II

PRODUCTION & MRO

Economic blades for cutting materials with easy to moderate machinability.

Features:

• **Variable Pitch – Positive Rake:** General purpose blade for cutting solids.

Width x Thickness		TPI	
in	mm	3/4	4/6
		Variable Pitch – Positive Rake	
¾ x .035	19 x 0.90	▼	▼
1 x .035	27 x 0.90	▼	▼
1¼ x .042	34 x 1.10		▼

Users:
- Maintenance and fabricating shops

Applications:
- Carbon steels
- Structural steels – A36, single piece, bundles, stacked pieces, interrupted cuts (pipe, tubing, angle and channel, small and medium saw machines)

• **Variable Pitch – 0° Rake:** For structrual and thin-walled material solids.

Width x Thickness		TPI							
in	mm	4/6	5/8	6/10	8/11	8/12	10/14	12/16	14/18
		Variable Pitch – 0° Rake							
½ x .020	13 x 0.50				▼		▼	▼	▼
½ x .025	13 x 0.64			▼		▼	▼		▼
½ x .035	13 x 0.90						▼		
¾ x .035	19 x 0.90			▼		▼	▼		
1 x .035	27 x 0.90	▼	▼	▼		▼	▼		
1¼ x .042	34 x 1.10		▼	▼					

Straight Pitch

• **Raker:** For interrupted cutting with better surface finish in aluminum and other non-ferrous materials.
• **Wavy:** For thin sections including sheets, tubes, pipes, and small shapes.
• **Hook:** For faster cutting in aluminum and other non-ferrous materials.

Width x Thickness		TPI									
in	mm	6	8	10	14	18	14	18	24	3	4
		Raker					Wavy			Hook	
½ x .020	13 x 0.50			▼		▼	▼	▼	▼		
½ x .025	13 x 0.64	▼			▼	▼				▼	▼
¾ x .035	19 x 0.90		▼	▼	▼					▼	
1 x .035	27 x 0.90				▼						

M42

DIE BAND BLADES

For smaller cross sections of tool/die steels.

Features:

• **Variable:** For small cross sections of tool steels and die blocks.
• **Raker:** For hand-fed small cross sections of tool steels and die blocks.
• **Hook:** For large cross sections of tool steels and die blocks.

Width x Thickness		TPI			
in	mm	8/12	10/14	14	4
		Variable Pitch		Raker	Hook
⅜ x .035	9 x 0.90				▼
½ x .025	13 x 0.64	▼			
½ x .035	13 x 0.90		▼	▼	▼

Users:
- Tool and Die shops
- Vertical band saw machines

Applications:
- Die blocks
- Tool steels
- "D" grade steels

MATRIX II

DIE BAND BLADES

For solids with low to moderate machinability.

Features:

• **Variable:** For small cross sections of tool steels and die blocks.
• **Raker:** For hand-fed small cross sections of tool steels and die blocks.
• **Hook:** For large cross sections of tool steels and die blocks.

Width x Thickness		TPI					
in	mm	6/10	8/12	10/14	14	18	4
		Variable Pitch			Raker		Hook
½ x .025	13 x 0.64	▼	▼	▼	▼	▼	▼

Users:
- Tool and Die shops
- Vertical band saw machines

Applications:
- Die blocks
- Tool steels
- "D" grade steels

SPECIALTY GRIT

TUNGSTEN CARBIDE GRIT

TUNGSTEN CARBIDE GRIT

Designed for cutting materials too hard or abrasive for standard bi-metal blades.

Features:
- Very smooth finish
- Superior wear resistance
- Reversible, extending blade life
- Different Grit finishes

Width x Thickness		Gulleted			Continuous	
in	mm	Grit Type			Grit Type	
		Medium	Medium/ Coarse	Coarse	Medium	Coarse
¼ x .020	6 x 0.50				▼	
⅜ x .025	9 x 0.64	▼	▼			
½ x .025	13 x 0.64	▼	▼		▼	
¾ x .032	19 x 0.80		▼	▼		
1 x .035	27 x 0.90		▼	▼	▼	▼
1¼ x .042	34 x 1.10			▼		

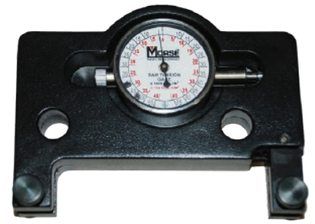
Users:
- Construction
- Glass and abrasive manufacturing
- Fabricators

Applications:
- Fiberglass
- Cast Iron
- Graphite
- Plexiglass
- Ceramics
- Cable and wire rope
- Tires and wire reinforced rubber
- Brittle materials or surfaces that chip

ACCESSORIES BAND SAW MACHINES

TENSION GAUGE

Quickly measures blade tension while the blade is on the machine, both under-tensioned and over-tensioned conditions. Proper tensioning of blades will provide optimal blade life and precise cutting results.



Features:
- Durable cast powder-coated body
- Calibrating gauge measures in lbs/in2 and kgs/cm2
- Quality storage box with protective foam inserts

Users:
- All band saw users

Part	005005	Model	TENSIONGAUGE

TOOTH BRUSH

Ensure optimal cutting conditions when using industrial band saw blades. Fits virtually every saw on the market and efficiently clears chips from blade teeth gullets.

Features:
- 11 brush configurations to fit many saw models
- Made with Neodymium Magnets with a pull force rating of 75 lbs
- Long-lasting brass brushes
- Easy-to-install and change configuration

Users:
- All band saw users

Assembly with brush

Part	183116	Model	TOOTHBRUSHA

Brush refills - 3/Pack

Part	183123	Model	TOOTHBRUSH-3

RADR

The RadR Feed Rate Monitor uses radar – 200x more accurate than a draw wire option – to gauge feed rate speeds. Pair the feed rate monitor with any Morse band saw blade to guarantee maximized cutting results.

Features:
- Improved accuracy with precision radar measurement
- Can display readings in both imperial and metric
- Calculates run rates in real time to immediately guide correct machine settings
- Easy-to-read display screen in bright or low light
- Rechargeable battery has 20 hours of continuous life
- Full recharge in 11 hours, or 20-minute quick charge will deliver 2 hours of operation

Users:
- All band saw users

Part	005029	Model	FEEDRATEMONITOR

TOOTH PROTECTION

Protective plastic covering for band saw blade teeth to prevent chipping.

4000' .40 (1" - 1½")

Part	004008	Model	BNDEDGPROTB

2000' .45 (2" and larger)

Part	004015	Model	BNDEDGPROT2B

WOOD CARBIDE TIPPED

QUIKSILVER® CT

CARBIDE TIPPED WOOD CUTTING

Specially designed for fine-finish wood cutting applications.
** For optimal performance **DO NOT BREAK IN** QuikSilver CT blades*

Features:
- Specially designed for wood cutting
- Carbide tipped teeth
- Cuts hard exotic woods

Width x Thickness		TPI	
in	mm	.75/1	1.5/2.0
		Variable Pitch – Positive Rake	
1½ x .050	41 x 1.30		▼
2 x .042	54 x 1.10	▼	

Users:
- Flooring production
- Mills
- Construction
- Fabrication
- Specialty shops

Applications:
- Hardwood flooring
- Millwork
- Musical tonewoods
- MDF
- Specialty wood cutting

WOOD BI-METAL

QUIKSILVER® B1/B2

BI-METAL WOOD CUTTING

Designed for wood based material production cutting.

B1:
For softwood to semi-hard wood such as pine, ash, and poplar.

B2:
For hard woods like oak, walnut, cherry, and maple.

Width x Thickness		TPI		
in	mm	5/8	1	1.14
		Variable Pitch – Positive Rake	Hook	
QuikSilver B1 Production/Wood Mill				
1¼ x .042	34 x 1.10	▼		▼
QuikSilver B2 Production/Wood Mill				
1¼ x .042	34 x 1.10			▼
2 x .050	54 x 1.30		▼	

Users:
- Vertical and horizontal resaw machines
- Portable saw mills
- Contour cutting on vertical machines

Applications:
- Wood
- Low alloy ferrous and non-ferrous metals

WOOD CARBON

QUIKSILVER® HEF/HB

HEF/HB WOOD MILL

Blades are manufactured from a single piece of high carbon steel with individually hardened tooth tips.

HEF Hard Edge Flex Back:
For wood applications on high-speed vertical band saws and for resaw applications where blade breakage is a concern.

HB Hard Edge Hard Back:
For straight cuts in woods and non-ferrous metals and for resaw applications.

HEF

Width x Thickness		TPI		
in	mm	1.14	1.3	2
		Hook		
1 x .035	25 x 0.90		▼	▼
1¼ x .035	32 x 0.90		▼	
1¼ x .042	32 x 1.10	▼▼	▼	
1½ x .045	38 x 1.14	▼		
2 x .035	51 x 0.90		▼	
2 x .042	51 x 1.10	▼		

HB

Width x Thickness		TPI
in	mm	1.3
		Hook
1 x .035	27 x 0.90	▼
1¼ x .042	32 x 1.10	▼

Users:
- Portable and stationary wood mills
- Single and multi-head resaw systems
- Scragg mills

Applications:
- Wood cutting

▼ Available with 6" rake angle

QUIKSILVER® WMF/WMH

WMF/WMH WOOD MILL

One-piece design to minimize blade fatigue.

WMF Wood Mill Flex Back:
For wood applications and resaw use when fatigue resistance is needed.

WMH Wood Mill Hard Back:
For wood applications and resaw use when rigidity is needed.

WMF

Width x Thickness		TPI		
in	mm	1.14	1.3	2
		Hook		
1 x .035	25 x 0.90		▼	▼
1¼ x .042	32 x 1.10	▼	▼	

WMH

Width x Thickness		TPI		
in	mm	1.14	1.3	2
		Hook		
1 x .035	25 x 0.90		▼	▼
1¼ x .042	32 x 1.10	▼	▼	
1½ x .045	38 x 1.14	▼		
2 x .042	51 x 1.10	▼		

Users:
- Wood cutting with increased fatigue resistance

Applications:
- Wood cutting

WOOD CARBON

QUIKSILVER®

FURNITURE BLADES

Designed for wood-based material production cutting.

HOOK ETS:
For easy contour cuts in wood and non-ferrous metals.

HOOK RAKER SET:
Faster cutting while maintaining precision required in the furniture industry.

Width x Thickness		TPI					
in	mm	3	4	2	3	4	6
		Hook ETS		Hook Raker Set			
¼ x .025	6 x 0.64					▼	▼
⅜ x .025	9 x 0.64	▼			▼	▼	▼
⅜ x .032	9 x 0.80	▼	▼				
½ x .025	13 x 0.64	▼			▼	▼	▼
½ x .032	13 x 0.80	▼	▼				
¾ x .032	19 x 0.80	▼		▼	▼	▼	▼

Users:
- Furniture industry
- High-speed vertical cutting band saw machines

Applications:
- Large, vertical, high-speed wood cutting machines
- Wood
- Chip board
- Plywood
- Cardboard

Minimum radius cut for a given blade width

Blade Width		Minimum Radius		Material Thickness 1"/25mm
in	mm	in	mm	
1	25	7 ¼	184	
¾	19	5 7/16	138	
⅝	16	3 ¾	95	
½	13	2 ½	63	
⅜	10	1 ¼	32	
¼	6	⅝	16	
3/16	5	⅜	10	
⅛	3	¼	6	

QUIKSILVER® HB

HARD BACK BLADES

Stiffer blades offer straighter cuts in wood and metal cutting.

*** Can be resharpened**

RAKER:
For hand-fed, straight wood cutting applications.

WAVY:
Stiffer blades ideal for cutting smaller wood contour applications.

HOOK:
For fast cuts in wood cutting applications.

Users:
- Wood cutting
- Maintenance
- Short metal production

Applications:
- Blade speeds <4,000 sfm
- Wood
- Low Alloy
- Plastic
- Plywood
- Cork
- Composition board
- Easy-to-machine ferrous metals
- Non-ferrous metals (brass/copper, bronze, aluminum, lead)

Width x Thickness		TPI										
in	mm	6	10	14	18	12	18	1.3	2	3	4	6
		Raker				Wavy		Hook				
¼ x .025	6 x 0.64		▼	▼							▼	▼
⅜ x .025	9 x 0.64			▼						▼	▼	▼
½ x .025	13 x 0.64	▼	▼	▼	▼		▼			▼	▼	▼
⅝ x .032	16 x 0.80										▼	
¾ x .032	19 x 0.80	▼	▼	▼		▼				▼▼		
1 x .035	25 x 0.90	▼	▼	▼				▼	▼	▼		
1¼ x .042	32 x 1.10	▼						▼				

▼ Standard Set - Regular Offset ▼ Double Set Raker (DSR)

WOOD CARBON

QUIKSILVER® HEF

FLEXBACK BLADES

Designed to be more fatigue resistant and offer longer blade life than hard back blades.

RAKER:
For hand-fed wood cutting applications.

WAVY:
For cutting smaller wood contour applications.

HOOK:
For fast cuts in wood applications.

SKIP:
Best to prevent clogging from applications with stringy chips.

Users:
- Wood production
- Short metal production
- Maintenance
- General purpose cutting

Applications:
- Blade speeds up to 15,000 sfm
- Wood
- Plastic
- Cork
- Plywood
- Aluminum
- Non-ferrous metals
- Low alloy steel
- Composition board

Width x Thickness		TPI															
in	mm	6	8	10	14	18	24	18	32	1.14	1.3	2	3	4	6	4	6
		Raker						Wavy		Hook						Skip	
⅛ x .025	3 x 0.64				▼	▼											
¼ x .025	6 x 0.64			▼	▼	▼								▼	▼	▼	▼
⅜ x .025	9 x 0.64		▼	▼	▼	▼							▼	▼	▼	▼	
½ x .020	13 x 0.50			▼													
½ x .025	13 x 0.64	▼		▼	▼	▼	▼	▼	▼				▼ ▼	▼	▼	▼	
⅝ x .032	16 x 0.80												▼	▼			
¾ x .032	19 x 0.80	▼		▼	▼	▼						▼	▼	▼	▼		
¾ x .050	19 x 1.30											▼					
1 x .035	25 x 0.90				▼						▼	▼	▼	▼			
1¼ x .035	32 x 0.90										▼						
1¼ x .042	32 x 1.10									▼	▼						
1¼ x .042 *Bright*	32 x 1.10									▼							
1½ x .045	38 x 1.14									▼							
2 x .035	51 x 0.90										▼						
2 x .042	51 x 1.10									▼							

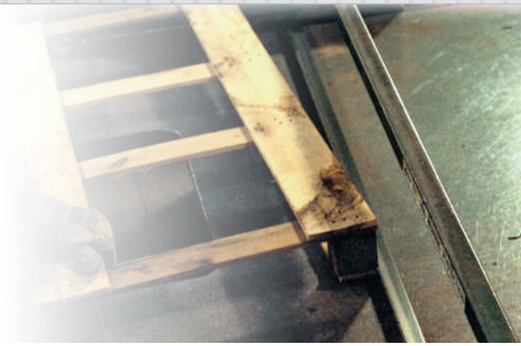
▼ Standard Set ▼ Wide Kerf * "Bright" specifications have an unblued, silver surface finish.

SPECIALTY PALLET

QUIKSILVER®

PALLET DISMANTLING

Specially designed to withstand the rough service required on dismantling machines while cutting through pallet nails and staples.



Features:
- Bi-metal options
- Special grade carbon steel
- Straight or variable pitch options available

M42 - BI-METAL

Premium general purpose blades designed to withstand rough service required on dismantling machines.

MATRIX II - BI-METAL

Designed to withstand rough service required on pallet dismantling machines.

CARBON HARD BACK (HB) Special

The economical option for pallet dismantling.

Variable Pitch – Positive Rake

Width x Thickness		TPI
in	mm	5/8
1¼ x .042	34 x 1.10	▼

Width x Thickness		TPI
in	mm	5/8
1¼ x .042	34 x 1.10	▼

Width x Thickness		TPI	
in	mm	5/7	5/8
1¼ x .042	32 x 1.10	▼	▼

DISTRIBUTOR TRAINING SCHOOL

Learn the basics of Power Tool Accessories (PTA) and/or band saw blade offerings from the experts during our on-site Morse University training events. The objective is to increase the knowledge of our distributor partners to be confident and competent in selling and applying the entire portfolio of Morse products. Multiple offerings throughout the year.

TRAINING TOPICS:

- COMPANY HISTORY
- INTRODUCTION
- PRE-TEST
- BLADE BASICS
- MACHINE BASICS
- BLADE BREAK-IN
- MACHINE FEED SYSTEMS
- DEMONSTRATIONS
  - *Metal cutting Circular Saw Blades*
  - *Power Tool Accessories*
- REVOLUTION® INDUSTRIAL CIRCULAR SAW BLADES
- BAND SAW MACHINES
- POWER TOOL ACCESSORIES PRESENTATION
- PLANT TOUR
- HANDS ON DEMONSTRATIONS
  - *Blade Break-In*
  - *Tooth Damage*
  - *Blade Folding*
- BAND SAW PRODUCT SELECTION
- TOOTH SELECTION, BAND SPEEDS
- PROBLEMS and SOLUTIONS
- SITUATIONAL SELLING
- DIGITAL ASSETS

WHERE:
Morse manufacturing plant | Canton, Ohio

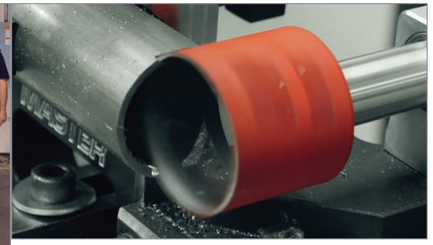
HOTEL:
Up to 3 nights provided

MEALS:
All meals provided

Space is limited. Ask your sales rep for upcoming dates!

COMMERCIAL POWER TOOL ACCESSORIES

Morse also offers a comprehensive line of power tools and accessories, including hole cutting and boring, precision hole cutting, and reciprocating, circular, and portable band saw blade offerings. Below is a snapshot of our cutting solution brands for PTA users.



HOLE CUTTING & BORING

METAL CUTTING CIRCULAR SAW BLADES

PRECISION HOLE CUTTING

PORTABLE BAND SAW BLADES

RECIPROCATING SAW BLADES

MORSE PTA CATALOG

BLADE PART NUMBERS

The M. K. Morse Company uses 10-digit band saw blade part numbers (with a "C" or "R" suffix for coils).

The first 6 digits of the part number identify the material and size specifications. The last 4 digits identify the length of the blade for both weld-to-length bands and coil stock.

The band saw blade part number reference chart below provides the same details we have in-house to configure the new part numbers. Customer Service at Morse will assist all band saw blade distributors with any cross referencing needed. If you have any questions, please contact your Morse Customer Service Representative.

1ST AND 2ND DIGITS		MATERIAL/TOOTH SET STYLE
Part #	Material Type	Set Style
11	QS HEF Carbon	Hook - Heavy Set
14	QS HEF Carbon	Wavy
15	QS HEF Carbon	Skip
16	QS HEF Carbon	Raker Or Variable Pitch
17	QS HEF Carbon	QuikSilver WMF - Hook
18	QS HEF Carbon	Hook
20	QS HEF Carbon	Bright
30	Matrix II	Positive Rake, 10°
31	Matrix II	Positive Rake, 10°- Heavy Set
34	Matrix II	Wavy
36	Matrix II	Raker
38	Matrix II	Hook
39	Matrix II	Variable Pitch, 0°
00	M42	Positive Rake, 6°
40	M42	Positive Rake, 10°
42	M42	Variable Pitch, 0°
46	M42	Raker
48	M42	Hook
43	The Morse Achiever	Variable Pitch, 0°
55	Independence II	Positive Rake, 6°
57	Independence EXS	Positive Rake, Various °
63	QS Hard Back Carbon	Hook - Double Set Raker
64	QS Hard Back Carbon	Wavy
65	QS Hard Back Carbon	Skip
66	QS Hard Back Carbon	Raker Or Variable Pitch
67	QS Hard Back Carbon	QuikSilver WMH - Hook
68	QS Hard Back Carbon	Hook
70	Tun. Carbide Grit - Continuous	Medium
72	Tun. Carbide Grit - Continuous	Coarse
73	Tun. Carbide Grit - Gulleted	Medium
74	Tun. Carbide Grit - Gulleted	Medium Coarse
75	Tun. Carbide Grit - Gulleted	Coarse
78	Maverick	Positive Rake, 10°
80	Mfactor - Carbide Tipped	Aluminum Foundry (FB+)
81	Mfactor - Carbide Tipped	Case Hardened (CH)
82	Mfactor - Carbide Tipped	General Purpose (GP)
84	Mfactor - Carbide Tipped	GES
85	Mfactor - Carbide Tipped	Foundry Set (FBS)
86	Mfactor - Carbide Tipped	GES Wide Set
87	Jawbreaker - Carbide Tipped	Variable Pitch
91	Challenger	Positive Rake, Various °
92	Challenger	Positive Rake, Various ° - Heavy Set
AA	QuikSilver B1	Raker
AC	QuikSilver B1	Hook
AD	QuikSilver B1	Variable Pitch, 0°
DA	QuikSilver B2	Raker
DC	QuikSilver B2	Hook
GA	QuikSilver Carbide Tipped	Wood Production

3RD and 4TH DIGITS	
Part #	Width x Thickness
20	.25 x .020
21	.50 x .020
30	.125 x .025
32	.25 x .025
33	.375 x .025
34	.50 x .025
40	.25 x .032
41	.375 x .032
42	.50 x .032
43	.625 x .032
44	.75 x .032
50	.25 x .035
51	.375 x .035
52	.50 x .035
54	.75 x .035
55	1 x .035
56	1.25 x .035
57	2 x .035
60	1 x .042
61	1.25 x .042
62	2 x .042
63	1.5 x .042
70	1.25 x .045
71	1.5 x .045
80	.75 x .050
81	1.5 x .050
82	2 x .050
84	1.5 x .055
88	2 x .055
90	2 x .063
91	2.625 x .063
92	3 x .063

5TH and 6TH DIGITS	
Part #	TPI
00	Carbide Grit
01	1
02	2
03	3
04	4
06	6
08	8
10	10
12	12
13	10 / 14
14	14
15	12 / 16
16	14 / 18
18	18
23	2 / 3
24	24
32	32
34	3 / 4
46	4 / 6
57	5 / 7
58	5 / 8
68	6 / 10
80	8 / 11
81	8 / 12
91	.75 / 1.1
92	1.4 / 2.5
93	1.3
94	1.14
96	1.1 / 1.5
97	1 / 1.5
98	1.5 / 2

EXAMPLE 1 — PREVIOUS PART **#ZCTNGES23**

Therefore:	M Factor GES	1.5 x .050	2/3	125' "Random Coil"	
Is shown as:	**84**	**81**	**23**	**000R**	

NEW PART # 848123100C

EXAMPLE 2 — PREVIOUS PART **#ZWED035H04M42**

Therefore:	Independence II	1 x .035	2/3	35' 8-1/2"	(For 1/2" use 4/8", thus 4) *Last digit goes by 1/8"*
Is shown as:	**55**	**55**	**23**	**428**	**4**

NEW PART # 5555234284 (If adding SParc, 5555234284GS)

84 81 23 000R

7TH, 8TH, and 9TH DIGITS	BLADE LENGTH

Overall length in inches. (Unless using Coil Stock.) If a **100 FOOT** coil - use **100C**. If a **RANDOM LENGTH** coil - use **000R**.

10TH DIGIT		FRACTION OF INCH/MILLIMETER	
Part #	Inch Length	Part #	mm Length
0	Even Length	0	Even Length
1	1/8"	1	3
2	1/4"	2	6.4
3	3/8"	3	9.5
4	1/2"	4	12.7
5	5/8"	5	16
6	3/4"	6	19
7	7/8"	7	22
C	Coil Stock	C	Coil Stock

SParc Technology

SParc can be added to 1" and wider blades with a 2/3 TPI and coarser. It is available for the following bi-metal materials: Independence II, Independence EXS, Maverick, M-Factor GP, and M-Factor GES. (Add GS on to the end of the part #, see example on left).

BLADE OPTIMIZATION

USING METAL CHIPS TO TROUBLESHOOT

You can improve the productivity of your metal cutting operation by paying close attention to the chips made by the blade cutting through metal. This chart shows some of the common problems that can be discovered and solved by paying attention to chips in a large variety of materials.

Chip Form	Chip Condition	Chip color	Blade Speed	Blade Feed Rate	Other
	Thick, Hard and Short	Blue or Brown	Decrease ↓	Decrease ↓	Check Cutting Fluid and Mix
	Thin and Curled	Silver	Suitable ✓	Suitable ✓	
	Powder	Silver	Decrease ↓	Increase ↑	
	Thin and Tightly Curled	Silver	Suitable ✓	Decrease ↓	Check Tooth Pitch

BI-METAL BLADE BREAK-IN

THE IMPORTANCE OF PROPER BLADE BREAK-IN

Blade break-in is a "honing" process that will significantly influence the performance of these band saw blades. Done properly, the cutting edge is conditioned to remain sharper longer, extending the blades performance and cutting life. Done improperly, premature blade wear, tooth damage, and poor cutting performance are the result.

RULE OF THUMB FOR BLADE BREAK-IN

- Should always be started in a new cut
- Avoid starting break-in on sharp edges or corners
- Blade speed remains the same for material being cut
- Reduce feed rate for material by 50%
- Maintain feed rate for 20 minutes or 75 sq. inches, whichever comes first
- After that, gradually increase feed pressure until normal feed rate for material is achieved

BladeWizard®
bladewizard.com

Blade Break-in is not recommended for Morse Carbide Tip bands in many applications. Please consult your Morse sales professional for best practices.

CHOOSING THE CORRECT BLADE

TOOTH SELECTION

Cut costs with the right choice.

For maximum cutting efficiency and lowest cost per cut, it is important to select a blade with the right number of teeth per inch (TPI) for the material being cut. Material size and shape dictate tooth selection.

Consider this:

(1) The width of the cut:

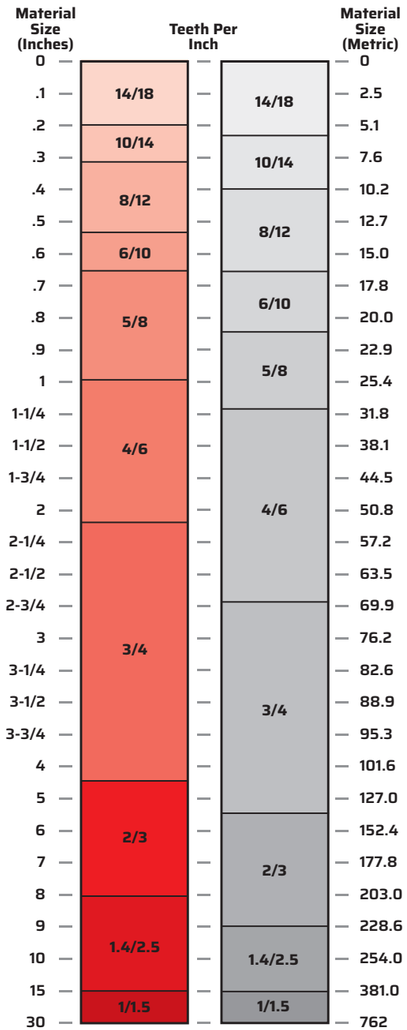
The distance in the cut that each tooth must travel from the point it enters and exits the work piece.

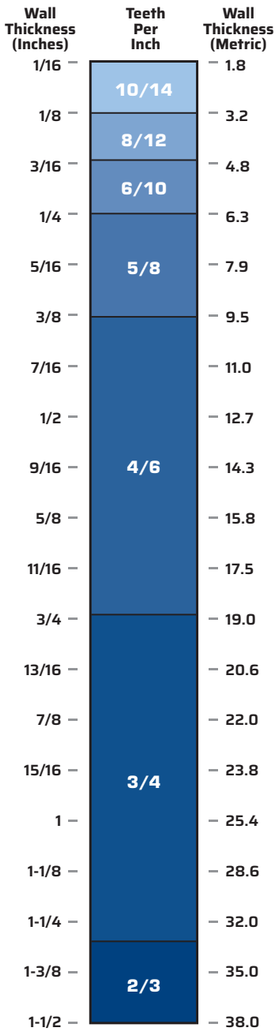
(2) The shape of the work piece

CHART USAGE

Select TPI using the chart below.

Find the colored chart for the type of material you wish to cut. Move up to the correct material size next to the chart. Follow across to the appropriate TPI for your blade.





BLADE RECOMMENDATION CHECKLIST

Completed by:

Date:

Contact Morse Technical Assistance
Complete and Fax to: 1(330) 453-1111
or call 1(330) 453-8187 or visit www.bladewizard.com

User Information

Company:

Address:

Contact:

Phone No.:

Distributor Information

Company:

Address:

Contact:

Phone No.:

Fax No.:

e-mail:

Current Blade Information

Manufacturer:

Length: Width:

Blade Thickness: Tooth Pitch:

Type: ☐ Carbide Tipped ☐ High Performance Bi-Metal ☐ M42 ☐ Structural ☐ Carbon ☐ Matrix ☐ Other

Monthly blade usage:

Current blade distributor:

Current blade cost: $ (Estimated Year Usage)

Machine Information

Make:

Model:

☐ Vertical ☐ Horizontal

SFPM:

IPM:

Application Information

Solid Square | Solid Round | I-Beam | Angle Iron | Channel Iron ↓ | Round Tubing ↓ | Square Tubing ↓

On the lines provided below each icon, **list material width and/or wall thickness** (if applicable) for each material type being cut

Types of Cutting

(Check all that apply)

Single Piece Cut-off

Bundled Cut-off 1. Number of pieces: _____ 2. Check each configuration that applies:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Materials Being Cut

(Check all that apply)

Type	Grade
☐ Non-Ferrous	
☐ Mild Carbon Steels	
☐ Tool Steels	
☐ Stainless Steels	
☐ Super Alloys	
☐ Other	

Production Usage (per day)

☐ Light (2 hrs. or less)
☐ Medium (3-6 hrs.)
☐ Heavy (7 hrs. or more)

Problems with Present Blade

☐ Breaking blades ☐ Premature dulling
☐ Tooth strippage ☐ Higher production required
☐ Cost

Blade Recommendation

BLADE SPEED/REMOVAL RATES

For use with Bi-Metal Blades*

Stock Dimensions Tooth Pitch	Up to 2" 5/7, 5/8, 4/6, 3/4		From 2" - 4" 4/6, 3/4		From 4" - 6" 3/4, 2/3		From 6" - 10" 1.4/2.5, 1.5/2		From 10" - 12" 1.4/2.5, 1.5/2		From 12" - 16" 1.0/1.5, 1.1/1.5, .75/1.0		From 16" - 20" 1.0/1.5, 1.1/1.5, .75/1.0	
Material (Annealed)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)
Aluminum Alloys:														
2024 - 5052 6061 - 7075	300	10 - 15	300	10 - 15	300	10 - 15	300	10 - 15	300	10 - 15	300	10 - 15	300	10 - 15
Copper Alloys														
CDA 220	250	8 - 12	230	7 - 11	220	7 - 11	210	6 - 10	200	5 - 9	180	4 - 8	150	4 - 8
CDA 360	325	11 - 15	300	10 - 15	290	10 - 15	275	8 - 12	250	7 - 11	225	6 - 10	200	5 - 10
Copper Nickel (30%)	230	7 - 11	220	7 - 11	200	6 - 10	180	5 - 9	160	5 - 9	140	4 - 8	120	4 - 8
Beryllium Copper	180	5 - 9	170	5 - 9	160	4 - 8	140	4 - 8	130	3 - 7	120	3 - 7	110	3 - 7
Bronze Alloys														
AMPCO 18	200	5 - 9	180	5 - 9	170	4 - 8	150	4 - 8	140	4 - 8	130	4 - 8	120	3 - 7
AMPCO 21	170	4 - 8	160	4 - 8	150	4 - 8	140	4 - 8	130	3 - 7	120	3 - 7	110	2 - 6
AMPCO 25	120	2 - 6	110	2 - 6	100	2 - 6	100	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5
Leaded Tin Bronze	320	10 - 15	300	10 - 15	280	10 - 15	260	7 - 11	220	5 - 9	200	4 - 8	180	4 - 8
Aluminum Bronze 865	160	6 - 10	150	6 - 10	140	5 - 9	130	4 - 8	120	3 - 7	110	2 - 6	100	2 - 6
Manganese Bronze	230	7 - 11	220	7 - 11	210	6 - 10	190	6 - 10	170	5 - 9	150	4 - 8	140	3 - 7
932	300	10 - 14	290	10 - 14	270	9 - 13	250	6 - 10	220	5 - 9	200	5 - 9	160	4 - 8
937	270	8 - 12	250	8 - 12	240	7 - 11	210	6 - 10	200	5 - 9	180	5 - 9	160	4 - 8
Brass Alloys														
Cartridge / Red Brass (85%)	240	9 - 13	220	8 - 12	210	8 - 12	200	7 - 11	180	6 - 10	160	4 - 10	140	4 - 10
Naval Brass	220	6 - 10	200	6 - 10	190	6 - 10	170	4 - 8	160	4 - 8	140	4 - 8	130	4 - 8
Carbon Steels														
1008, 1013, 1015, 1018, 1035, 1045, 1048	300	11 - 15	280	10 - 14	260	10 - 14	240	8 - 12	220	6 - 10	200	6 - 10	180	4 - 8
1030	270	8 - 12	250	8 - 12	240	7 - 11	210	6 - 10	200	5 - 9	180	5 - 9	160	4 - 8
1060, 1065	230	7 - 11	220	7 - 11	210	6 - 10	190	6 - 10	170	5 - 9	150	4 - 8	140	3 - 7
1080, 1095	220	7 - 11	210	6 - 10	200	6 - 10	180	5 - 9	160	5 - 9	140	4 - 10	130	4 - 10
Free Machining Steels														
1108, 1111, 1112, 1113, 1115, 1137, 1145, 1151, 1212, 1213	300	11 - 15	280	10 - 14	260	10 - 14	240	8 - 12	220	6 - 10	200	6 - 10	180	4 - 8
1215	350	12 - 16	330	12 - 16	310	12 - 16	290	10 - 14	280	8 - 12	260	8 - 12	240	6 - 10
12L14	380	12 - 16	360	12 - 14	340	12 - 14	320	10 - 14	300	8 - 12	260	8 - 12	230	6 - 10
Structural Steel														
A36	280	10 - 14	260	10 - 14	240	10 - 14	220	8 - 12	200	8 - 12	180	6 - 10	160	6 - 10
Manganese Steels														
1320, 1330, 1345	270	8 - 12	250	8 - 12	240	7 - 11	210	6 - 10	200	5 - 9	180	5 - 9	160	4 - 8
1513, 1524, 1536	250	5 - 9	240	5 - 9	230	5 - 8	210	4 - 8	200	4 - 8	180	3 - 7	160	3 - 7
1541, 1312	220	7 - 11	210	6 - 10	200	6 - 10	180	5 - 9	160	5 - 9	140	4 - 10	130	4 - 10
1524	200	6 - 10	190	6 - 10	180	5 - 9	160	4 - 8	140	4 - 8	120	4 - 8	100	3 - 7
Molybdenum Steels														
4017, 4024, 4032, 4042	270	8 - 12	250	8 - 12	240	7 - 11	210	6 - 10	200	5 - 9	180	5 - 9	160	4 - 8
4047, 4066	220	7 - 11	210	6 - 10	200	6 - 10	180	5 - 9	160	5 - 9	140	4 - 10	130	4 - 10
Chrome Moly Steels														
4130, 4140, 41L50, 4150H	250	5 - 9	240	5 - 9	230	5 - 8	210	4 - 8	200	4 - 8	180	3 - 7	160	3 - 7
4142, 4150	200	6 - 10	190	6 - 10	180	5 - 9	160	4 - 8	140	4 - 8	120	4 - 8	100	3 - 7
Chrome Alloy Steels														
5045, 5046, 5120, 5135	250	5 - 9	240	5 - 9	230	5 - 8	210	4 - 8	200	4 - 8	180	3 - 7	160	3 - 7
5140, 5160, 6117, 6120	220	7 - 11	210	6 - 10	200	6 - 10	180	5 - 9	160	5 - 9	140	4 - 10	130	4 - 10
50100, 52100	180	5 - 9	170	5 - 9	160	5 - 9	150	4 - 8	130	4 - 8	120	3 - 7	100	3 - 7
6150	200	6 - 10	190	6 - 10	180	5 - 9	160	4 - 8	140	4 - 8	120	4 - 8	100	3 - 7
Nickel Chrome-Moly Steels														
4317, 4320, 8615, 8620, 8627, 9747, 9763	230	7 - 11	220	7 - 11	210	6 - 10	190	6 - 10	170	5 - 9	150	4 - 8	140	3 - 7
4337, 4340	210	5 - 9	200	5 - 9	190	5 - 9	170	4 - 8	160	4 - 8	140	3 - 7	130	3 - 7
8630, 8640, 8645, 8647, 8660, 8715, 8750, 9437, 9445	200	6 - 10	190	6 - 10	180	5 - 9	160	4 - 8	140	4 - 8	120	4 - 8	100	3 - 7
9310, 9317	170	2 - 6	160	2 - 6	150	1 - 5	130	1 - 5	120	1 - 5	110	1 - 5	100	1 - 5
9840, 9850	220	7 - 11	210	6 - 10	200	6 - 10	180	5 - 9	160	5 - 9	140	4 - 10	130	4 - 10
E9310	180	5 - 9	170	5 - 9	160	5 - 9	150	4 - 8	130	4 - 8	120	3 - 7	100	3 - 7
Nickel-Moly Steels														
4608, 4621	220	7 - 11	210	6 - 10	200	6 - 10	180	5 - 9	160	5 - 9	140	4 - 10	130	4 - 10
4640	200	6 - 10	190	6 - 10	180	5 - 9	160	4 - 8	140	4 - 8	120	4 - 8	100	3 - 7
4812, 4820	180	5 - 9	170	5 - 9	160	5 - 9	150	4 - 8	130	4 - 8	120	3 - 7	100	3 - 7
Silicon Steels														
9255, 9260	180	5 - 9	170	5 - 9	160	5 - 9	150	4 - 8	130	4 - 8	120	3 - 7	100	3 - 7
9261, 9262	170	2 - 6	160	2 - 6	150	1 - 5	130	1 - 5	120	1 - 5	110	1 - 5	100	1 - 5

* Reduce speeds by 50% for carbon blades. For carbide tipped blades, ask your Morse sales contact.

For use with Bi-Metal Blades*

Stock Dimensions Tooth Pitch	Up to 2" 5/7, 5/8, 4/6, 3/4		From 2" - 4" 4/6, 3/4		From 4" - 6" 3/4, 2/3		From 6" - 10" 1.4/2.5, 1.5/2		From 10" - 12" 1.4/2.5, 1.5/2		From 12" - 16" 1.0/1.5, 1.1/1.5, .75/1.0		From 16" - 20" 1.0/1.5, 1.1/1.5, .75/1.0	
Material (Annealed)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)	Blade Speed (SFPM)	Cutting Rate (SIPM)
Low Alloy Tool Steels														
L-6, L-7	180	5 - 9	170	5 - 9	160	5 - 9	150	4 - 8	130	4 - 8	120	3 - 7	100	3 - 7
Water-Hardening Tool Steels														
W-1	200	6 - 10	190	6 - 10	180	5 - 9	160	4 - 8	140	4 - 8	120	4 - 8	100	3 - 7
Die Steels														
D-2, D-3	100	1 - 5	90	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5	70	1 - 5	60	1 - 5
D-7	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5
A-2	180	4 - 8	170	4 - 8	160	4 - 8	150	4 - 8	130	3 - 7	110	3 - 7	100	2 - 6
A-6	140	2 - 6	130	2 - 6	130	2 - 6	120	1 - 5	110	1 - 5	100	1 - 5	90	1 - 5
A-10	110	2 - 6	100	2 - 6	100	2 - 6	90	2 - 6	80	2 - 6	70	2 - 6	60	2 - 6
O-1, O-2, O-6	250	5 - 9	240	5 - 9	230	5 - 8	210	4 - 8	200	4 - 8	180	3 - 7	160	3 - 7
Hot Work Tool Steels														
H-11, H12, H-13, H-13 Mod, H21	150	2 - 6	140	2 - 6	130	2 - 6	120	1 - 5	110	1 - 5	100	1 - 5	90	1 - 5
H-22, H-24 H-25	100	1 - 5	90	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5
High Speed Tool Steels														
M-1	140	2 - 6	130	2 - 6	130	2 - 6	120	1 - 5	110	1 - 5	100	1 - 5	90	1 - 5
M-2, M-3, M-10	110	2 - 6	100	2 - 6	100	2 - 6	90	2 - 6	80	2 - 6	70	2 - 6	60	2 - 6
M-4, M-42 , T-1	100	1 - 5	90	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5
T-15	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5
Mold Steels														
P-3	190	5 - 9	180	5 - 9	170	5 - 9	150	4 - 8	140	4 - 8	130	4 - 8	120	3 - 7
P-20	180	4 - 8	170	4 - 8	160	4 - 8	150	3 - 7	140	3 - 7	130	3 - 7	110	2 - 6
Shock Resistant Tool Steels:														
S-1, S-7	180	4 - 8	170	4 - 8	160	4 - 8	150	4 - 8	130	3 - 7	110	3 - 7	100	2 - 6
S-2, S-5	150	2 - 6	140	2 - 6	130	2 - 6	120	1 - 5	110	1 - 5	100	1 - 5	90	1 - 5
Stainless Steels:														
201, 202, 302, 304, 321, 347	110	2 - 6	100	2 - 6	100	2 - 6	90	2 - 6	80	2 - 6	70	2 - 6	60	2 - 6
303,303F	120	2 - 6	110	2 - 6	100	2 - 6	100	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5
308, 309, 310, 330, 430, 446	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5
314, 316, 317, 440 A, 440 B, 440 C, 17-4 PH, 15-5 PH	100	1 - 5	90	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5
410, 420, 420F, 440 F, 443	140	2 - 6	130	2 - 6	130	2 - 6	120	1 - 5	110	1 - 5	100	1 - 5	90	1 - 5
416, 430F	180	4 - 8	170	4 - 8	160	4 - 8	150	3 - 7	140	3 - 7	130	3 - 7	110	2 - 6
Nickel Alloys														
2317	190	5 - 9	180	5 - 9	170	5 - 9	150	4 - 8	140	4 - 8	130	4 - 8	120	3 - 7
2330, 2345	170	2 - 6	160	2 - 6	150	1 - 5	130	1 - 5	120	1 - 5	110	1 - 5	100	1 - 5
2512, 2517, Monel R	140	2 - 6	130	2 - 6	130	2 - 6	120	1 - 5	110	1 - 5	100	1 - 5	90	1 - 5
Monel, Inconel 625, Inconel 718, Nimonic 90, NI-SPAN-C 962 Rene 41	100	1 - 5	90	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5
Monel K-500, Monel KR, Inconel 600, Hastelloy B, Waspalloy, Nimonic 75, Rene 88	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5
Duranickel	60	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5
Titanium Alloys														
TI-4 AL-4 MO, TI-140 A, 2CR-2M0 TI-150 A, MST-GAL 4V	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5	50	1 - 5
CP Titanium TI-6AI-4V 99% PURE TITANIUM	100	1 - 5	90	1 - 5	90	1 - 5	80	1 - 5	70	1 - 5	60	1 - 5	50	1 - 5
Cast Iron														
A536 (120-90-02)	200	6 - 10	190	6 - 10	180	5 - 9	160	4 - 8	140	4 - 8	120	4 - 8	100	3 - 7
A536 (60-40-18), A48 (Class 20-20ksi), A48 (Class 40-40ksi), A48 (Class 60-60ksi)	250	5 - 9	240	5 - 9	230	5 - 8	210	4 - 8	200	4 - 8	180	3 - 7	160	3 - 7

BLADE SPEED/FEED

Find your band speed recommendation from pages 26 and 27.

	TPI - .75/1			TPI - 1/1.5			TPI - 1.5/2			TPI - 1.4/2.5			TPI - 2/3		
Band Speed (sfpm)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)
60	0.05	0.09	0.13	0.07	0.14	0.18	0.10	0.19	0.25	0.11	0.21	0.28	0.18	0.36	0.54
70	0.06	0.11	0.15	0.08	0.16	0.21	0.12	0.22	0.29	0.13	0.25	0.33	0.21	0.42	0.63
80	0.07	0.13	0.17	0.10	0.18	0.24	0.13	0.25	0.34	0.15	0.28	0.37	0.24	0.48	0.72
90	0.08	0.14	0.19	0.11	0.20	0.27	0.15	0.28	0.38	0.17	0.32	0.42	0.27	0.54	0.81
100	0.08	0.16	0.21	0.12	0.23	0.30	0.17	0.32	0.42	0.19	0.35	0.47	0.30	0.60	0.90
110	0.09	0.17	0.23	0.13	0.25	0.33	0.18	0.35	0.46	0.21	0.39	0.51	0.33	0.66	0.99
120	0.10	0.19	0.25	0.14	0.27	0.36	0.20	0.38	0.50	0.22	0.42	0.56	0.36	0.72	1.08
130	0.11	0.20	0.27	0.16	0.29	0.39	0.22	0.41	0.55	0.24	0.46	0.61	0.39	0.78	1.17
140	0.12	0.22	0.29	0.17	0.32	0.42	0.24	0.44	0.59	0.26	0.49	0.66	0.42	0.84	1.26
150	0.13	0.24	0.32	0.18	0.34	0.45	0.25	0.47	0.63	0.28	0.53	0.70	0.45	0.90	1.35
160	0.13	0.25	0.34	0.19	0.36	0.48	0.27	0.50	0.67	0.30	0.56	0.75	0.48	0.96	1.44
170	0.14	0.27	0.36	0.20	0.38	0.51	0.29	0.54	0.71	0.32	0.60	0.80	0.51	1.02	1.53
180	0.15	0.28	0.38	0.22	0.41	0.54	0.30	0.57	0.76	0.34	0.63	0.84	0.54	1.08	1.62
190	0.16	0.30	0.40	0.23	0.43	0.57	0.32	0.60	0.80	0.36	0.67	0.89	0.57	1.14	1.71
200	0.17	0.32	0.42	0.24	0.45	0.60	0.34	0.63	0.84	0.37	0.70	0.94	0.60	1.20	1.80
210	0.18	0.33	0.44	0.25	0.47	0.63	0.35	0.66	0.88	0.39	0.74	0.98	0.63	1.26	1.89
220	0.18	0.35	0.46	0.26	0.50	0.66	0.37	0.69	0.92	0.41	0.77	1.03	0.66	1.32	1.98
230	0.19	0.36	0.48	0.28	0.52	0.69	0.39	0.72	0.97	0.43	0.81	1.08	0.69	1.38	2.07
240	0.20	0.38	0.50	0.29	0.54	0.72	0.40	0.76	1.01	0.45	0.84	1.12	0.72	1.44	2.16
250	0.21	0.39	0.53	0.30	0.56	0.75	0.42	0.79	1.05	0.47	0.88	1.17	0.75	1.50	2.25
260	0.22	0.41	0.55	0.31	0.59	0.78	0.44	0.82	1.09	0.49	0.91	1.22	0.78	1.56	2.34
270	0.23	0.43	0.57	0.32	0.61	0.81	0.45	0.85	1.13	0.51	0.95	1.26	0.81	1.62	2.43
280	0.24	0.44	0.59	0.34	0.63	0.84	0.47	0.88	1.18	0.52	0.98	1.31	0.84	1.68	2.52
290	0.24	0.46	0.61	0.35	0.65	0.87	0.49	0.91	1.22	0.54	1.02	1.36	0.87	1.74	2.61
300	0.25	0.47	0.63	0.36	0.68	0.90	0.50	0.95	1.26	0.56	1.05	1.40	0.90	1.80	2.70
310	0.26	0.49	0.65	0.37	0.70	0.93	0.52	0.98	1.30	0.58	1.09	1.45	0.93	1.86	2.79
320	0.27	0.50	0.67	0.38	0.72	0.96	0.54	1.01	1.34	0.60	1.12	1.50	0.96	1.92	2.88
330	0.28	0.52	0.69	0.40	0.74	0.99	0.55	1.04	1.39	0.62	1.16	1.54	0.99	1.98	2.97
340	0.29	0.54	0.71	0.41	0.77	1.02	0.57	1.07	1.43	0.64	1.19	1.59	1.02	2.04	3.06
350	0.29	0.55	0.74	0.42	0.79	1.05	0.59	1.10	1.47	0.66	1.23	1.64	1.05	2.10	3.15
360	0.30	0.57	0.76	0.43	0.81	1.08	0.60	1.13	1.51	0.67	1.26	1.68	1.08	2.16	3.24
370	0.31	0.58	0.78	0.44	0.83	1.11	0.62	1.17	1.55	0.69	1.30	1.73	1.11	2.22	3.33
380	0.32	0.60	0.80	0.46	0.86	1.14	0.64	1.20	1.60	0.71	1.33	1.78	1.14	2.28	3.42
390	0.33	0.61	0.82	0.47	0.88	1.17	0.66	1.23	1.64	0.73	1.37	1.83	1.17	2.34	3.51
400	0.34	0.63	0.84	0.48	0.90	1.20	0.67	1.26	1.68	0.75	1.40	1.87	1.20	2.40	3.60

	TPI - 3/4			TPI - 4/6			TPI - 5/7 and 5/8			TPI - 6/10			TPI - 8/11		
Band Speed (sfpm)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)	Blade Life / Surface Finish (in / min)	Balanced Cutting (in / min)	Production Cutting (in / min)
60	0.25	0.50	0.76	0.36	0.72	1.08	0.47	0.94	1.40	0.58	1.15	1.73	0.68	1.37	2.05
70	0.29	0.59	0.88	0.42	0.84	1.26	0.55	1.09	1.64	0.67	1.34	2.02	0.80	1.60	2.39
80	0.34	0.67	1.01	0.48	0.96	1.44	0.62	1.25	1.87	0.77	1.54	2.30	0.91	1.82	2.74
90	0.38	0.76	1.13	0.54	1.08	1.62	0.70	1.40	2.11	0.86	1.73	2.59	1.03	2.05	3.08
100	0.42	0.84	1.26	0.60	1.20	1.80	0.78	1.56	2.34	0.96	1.92	2.88	1.14	2.28	3.42
110	0.46	0.92	1.39	0.66	1.32	1.98	0.86	1.72	2.57	1.06	2.11	3.17	1.25	2.51	3.76
120	0.50	1.01	1.51	0.72	1.44	2.16	0.94	1.87	2.81	1.15	2.30	3.46	1.37	2.74	4.10
130	0.55	1.09	1.64	0.78	1.56	2.34	1.01	2.03	3.04	1.25	2.50	3.74	1.48	2.96	4.45
140	0.59	1.18	1.76	0.84	1.68	2.52	1.09	2.18	3.28	1.34	2.69	4.03	1.60	3.19	4.79
150	0.63	1.26	1.89	0.90	1.80	2.70	1.17	2.34	3.51	1.44	2.88	4.32	1.71	3.42	5.13
160	0.67	1.34	2.02	0.96	1.92	2.88	1.25	2.50	3.74	1.54	3.07	4.61	1.82	3.65	5.47
170	0.71	1.43	2.14	1.02	2.04	3.06	1.33	2.65	3.98	1.63	3.26	4.90	1.94	3.88	5.81
180	0.76	1.51	2.27	1.08	2.16	3.24	1.40	2.81	4.21	1.73	3.46	5.18	2.05	4.10	6.16
190	0.80	1.60	2.39	1.14	2.28	3.42	1.48	2.96	4.45	1.82	3.65	5.47	2.17	4.33	6.50
200	0.84	1.68	2.52	1.20	2.40	3.60	1.56	3.12	4.68	1.92	3.84	5.76	2.28	4.56	6.84
210	0.88	1.76	2.65	1.26	2.52	3.78	1.64	3.28	4.91	2.02	4.03	6.05	2.39	4.79	7.18
220	0.92	1.85	2.77	1.32	2.64	3.96	1.72	3.43	5.15	2.11	4.22	6.34	2.51	5.02	7.52
230	0.97	1.93	2.90	1.38	2.76	4.14	1.79	3.59	5.38	2.21	4.42	6.62	2.62	5.24	7.87
240	1.01	2.02	3.02	1.44	2.88	4.32	1.87	3.74	5.62	2.30	4.61	6.91	2.74	5.47	8.21
250	1.05	2.10	3.15	1.50	3.00	4.50	1.95	3.90	5.85	2.40	4.80	7.20	2.85	5.70	8.55
260	1.09	2.18	3.28	1.56	3.12	4.68	2.03	4.06	6.08	2.50	4.99	7.49	2.96	5.93	8.89
270	1.13	2.27	3.40	1.62	3.24	4.86	2.11	4.21	6.32	2.59	5.18	7.78	3.08	6.16	9.23
280	1.18	2.35	3.53	1.68	3.36	5.04	2.18	4.37	6.55	2.69	5.38	8.06	3.19	6.38	9.58
290	1.22	2.44	3.65	1.74	3.48	5.22	2.26	4.52	6.79	2.78	5.57	8.35	3.31	6.61	9.92
300	1.26	2.52	3.78	1.80	3.60	5.40	2.34	4.68	7.02	2.88	5.76	8.64	3.42	6.84	10.26
310	1.30	2.60	3.91	1.86	3.72	5.58	2.42	4.84	7.25	2.98	5.95	8.93	3.53	7.07	10.60
320	1.34	2.69	4.03	1.92	3.84	5.76	2.50	4.99	7.49	3.07	6.14	9.22	3.65	7.30	10.94
330	1.39	2.77	4.16	1.98	3.96	5.94	2.57	5.15	7.72	3.17	6.34	9.50	3.76	7.52	11.29
340	1.43	2.86	4.28	2.04	4.08	6.12	2.65	5.30	7.96	3.26	6.53	9.79	3.88	7.75	11.63
350	1.47	2.94	4.41	2.10	4.20	6.30	2.73	5.46	8.19	3.36	6.72	10.08	3.99	7.98	11.97
360	1.51	3.02	4.54	2.16	4.32	6.48	2.81	5.62	8.42	3.46	6.91	10.37	4.10	8.21	12.31
370	1.55	3.11	4.66	2.22	4.44	6.66	2.89	5.77	8.66	3.55	7.10	10.66	4.22	8.44	12.65
380	1.60	3.19	4.79	2.28	4.56	6.84	2.96	5.93	8.89	3.65	7.30	10.94	4.33	8.66	13.00
390	1.64	3.28	4.91	2.34	4.68	7.02	3.04	6.08	9.13	3.74	7.49	11.23	4.45	8.89	13.34
400	1.68	3.36	5.04	2.40	4.80	7.20	3.12	6.24	9.36	3.84	7.68	11.52	4.56	9.12	13.68

CUT TIME CALCULATOR

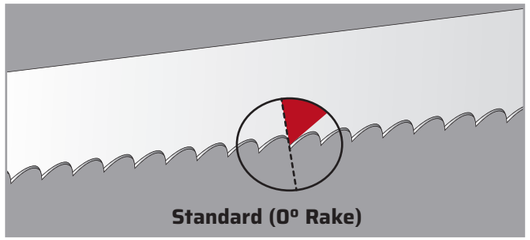
Removal Rate - Square Inches Per Minute																			
Bar Dia.	Bar Area, In²	1 IN² /MIN	2 IN² /MIN	3 IN² /MIN	4 IN² /MIN	5 IN² /MIN	6 IN² /MIN	7 IN² /MIN	8 IN² /MIN	9 IN² /MIN	10 IN² /MIN	11 IN² /MIN	12 IN² /MIN	13 IN² /MIN	14 IN² /MIN	15 IN² /MIN	16 IN² /MIN	17 IN² /MIN	18 IN² /MIN
1.00	0.79	.79	.39	.26	.20	.16	.13	.11	.10	.09	.08	.07	.07	.06	.06	.05	.05	.05	.04
1.25	1.23	1.2	.61	.41	.31	.25	.20	.18	.15	.14	.12	.11	.10	.09	.09	.08	.08	.07	.07
1.50	1.77	1.8	.88	.59	.44	.35	.29	.25	.22	.20	.18	.16	.15	.14	.13	.12	.11	.10	.10
1.75	2.41	2.4	1.2	.80	.60	.48	.40	.34	.30	.27	.24	.22	.20	.19	.17	.16	.15	.14	.13
2.00	3.14	3.1	1.6	1.0	.79	.63	.52	.45	.39	.35	.31	.29	.26	.24	.22	.21	.20	.18	.17
2.25	3.98	4.0	2.0	1.3	1.0	.80	.66	.57	.50	.44	.40	.36	.33	.31	.28	.27	.25	.23	.22
2.50	4.91	4.9	2.5	1.6	1.2	1.0	.82	.70	.61	.55	.49	.45	.41	.38	.35	.33	.31	.29	.27
2.75	5.94	5.9	3.0	2.0	1.5	1.2	1.0	.85	.74	.66	.59	.54	.49	.46	.42	.40	.37	.35	.33
3.00	7.07	7.1	3.5	2.4	1.8	1.4	1.2	1.0	.88	.79	.71	.64	.59	.54	.50	.47	.44	.42	.39
3.25	8.30	8.3	4.1	2.8	2.1	1.7	1.4	1.2	1.0	.92	.83	.75	.69	.64	.59	.55	.52	.49	.46
3.50	9.62	9.6	4.8	3.2	2.4	1.9	1.6	1.4	1.2	1.1	1.0	.87	.80	.74	.69	.64	.60	.57	.53
3.75	11.04	11.0	5.5	3.7	2.8	2.2	1.8	1.6	1.4	1.2	1.1	1.0	.92	.85	.79	.74	.69	.65	.61
4.00	12.57	12.6	6.3	4.2	3.1	2.5	2.1	1.8	1.6	1.4	1.3	1.1	1.0	1.0	.90	.84	.79	.74	.70
4.25	14.19	14.2	7.1	4.7	3.5	2.8	2.4	2.0	1.8	1.6	1.4	1.3	1.2	1.1	1.0	.95	.89	.83	.79
4.50	15.90	15.9	8.0	5.3	4.0	3.2	2.7	2.3	2.0	1.8	1.6	1.4	1.3	1.2	1.1	1.1	1.0	.94	.88
4.75	17.72	17.7	8.9	5.9	4.4	3.5	3.0	2.5	2.2	2.0	1.8	1.6	1.5	1.4	1.3	1.2	1.1	1.0	1.0
5.00	19.64	19.6	9.8	6.5	4.9	3.9	3.3	2.8	2.5	2.2	2.0	1.8	1.6	1.5	1.4	1.3	1.2	1.2	1.1
5.25	21.65	21.6	10.8	7.2	5.4	4.3	3.6	3.1	2.7	2.4	2.2	2.0	1.8	1.7	1.5	1.4	1.4	1.3	1.2
5.50	23.76	23.8	11.9	7.9	5.9	4.8	4.0	3.4	3.0	2.6	2.4	2.2	2.0	1.8	1.7	1.6	1.5	1.4	1.3
5.75	25.97	26.0	13.0	8.7	6.5	5.2	4.3	3.7	3.2	2.9	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.4
6.00	28.27	28.3	14.1	9.4	7.1	5.7	4.7	4.0	3.5	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.8	1.7	1.6
6.25	30.68	30.7	15.3	10.2	7.7	6.1	5.1	4.4	3.8	3.4	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.8	1.7
6.50	33.18	33.2	16.6	11.1	8.3	6.6	5.5	4.7	4.1	3.7	3.3	3.0	2.8	2.6	2.4	2.2	2.1	2.0	1.8
6.75	35.78	35.8	17.9	11.9	8.9	7.2	6.0	5.1	4.5	4.0	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.1	2.0
7.00	38.48	38.5	19.2	12.8	9.6	7.7	6.4	5.5	4.8	4.3	3.8	3.5	3.2	3.0	2.7	2.6	2.4	2.3	2.1
7.25	41.28	41.3	20.6	13.8	10.3	8.3	6.9	5.9	5.2	4.6	4.1	3.8	3.4	3.2	2.9	2.8	2.6	2.4	2.3
7.50	44.18	44.2	22.1	14.7	11.0	8.8	7.4	6.3	5.5	4.9	4.4	4.0	3.7	3.4	3.2	2.9	2.8	2.6	2.5
7.75	47.17	47.2	23.6	15.7	11.8	9.4	7.9	6.7	5.9	5.2	4.7	4.3	3.9	3.6	3.4	3.1	2.9	2.8	2.6
8.00	50.27	50.3	25.1	16.8	12.6	10.1	8.4	7.2	6.3	5.6	5.0	4.6	4.2	3.9	3.6	3.4	3.1	3.0	2.8
8.25	53.46	53.5	26.7	17.8	13.4	10.7	8.9	7.6	6.7	5.9	5.3	4.9	4.5	4.1	3.8	3.6	3.3	3.1	3.0
8.50	56.75	56.7	28.4	18.9	14.2	11.3	9.5	8.1	7.1	6.3	5.7	5.2	4.7	4.4	4.1	3.8	3.5	3.3	3.2
8.75	60.13	60.1	30.1	20.0	15.0	12.0	10.0	8.6	7.5	6.7	6.0	5.5	5.0	4.6	4.3	4.0	3.8	3.5	3.3
9.00	63.62	63.6	31.8	21.2	15.9	12.7	10.6	9.1	8.0	7.1	6.4	5.8	5.3	4.9	4.5	4.2	4.0	3.7	3.5
9.25	67.20	67.2	33.6	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.6	5.2	4.8	4.5	4.2	4.0	3.7
9.50	70.88	70.9	35.4	23.6	17.7	14.2	11.8	10.1	8.9	7.9	7.1	6.4	5.9	5.5	5.1	4.7	4.4	4.2	3.9
9.75	74.66	74.7	37.3	24.9	18.7	14.9	12.4	10.7	9.3	8.3	7.5	6.8	6.2	5.7	5.3	5.0	4.7	4.4	4.1
10.00	78.54	78.5	39.3	26.2	19.6	15.7	13.1	11.2	9.8	8.7	7.9	7.1	6.5	6.0	5.6	5.2	4.9	4.6	4.4

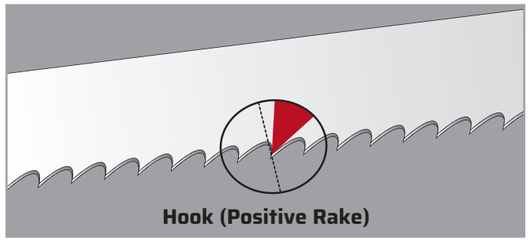
To find the area of bars larger than 10" diameter use the formula "π(3.14) x radius²".
Take half the diameter (radius) multiply it by itself.
Then multiply that by 3.14. Example: 20" bar.
Half the diameter is 10". 10 x 10 = 100. 100 x 3.14 = 314 square inches.

* Specific speed/feed rates and cut times for all applications and blades can be found on the Morse Blade Wizard

BladeWizard.com

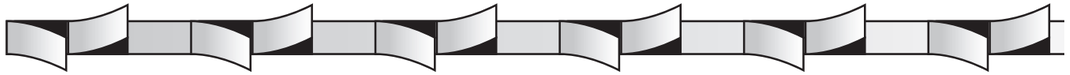
TOOTH SET SPECIFICATIONS





Here's where the blade makes the cut. The tooth design variables include shape, position, set, type, and spacing. The combination of these variables will determine whether the blade can move easily through your material without binding or becoming clogged with chips.

Raker

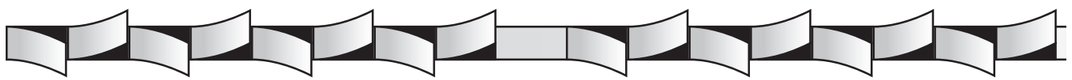


Recurring sequence of teeth - one set right, one set left, and one unset.

Modified Raker (double set raker)

Recurring sequence set left, right, left, right, straight tooth pattern.

Variable Pitch Modified Raker



Set sequence depends on the number of teeth in the variable pitch tooth pattern.
Recurring sequence with more than two set teeth before an unset tooth.

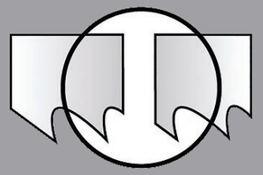
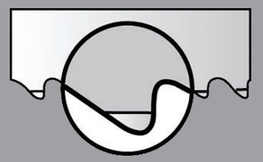
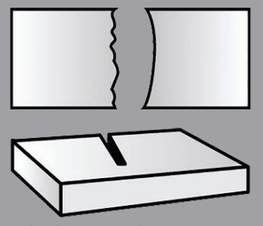
Wavy

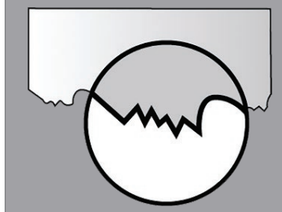
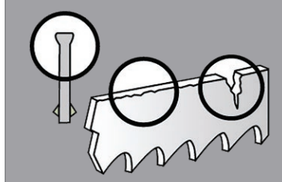
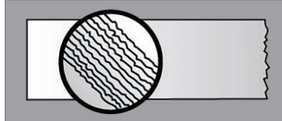
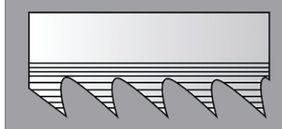
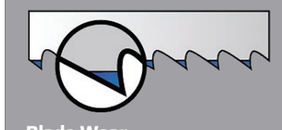
Groups of teeth, usually 3 or 4, set to each side in a controlled pattern with an unset tooth between groups.

Alternate (ETS)

Every tooth set alternately to the left and right.

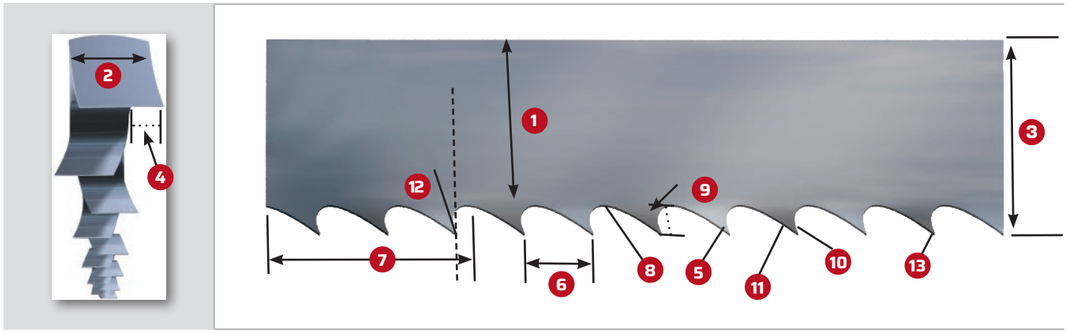
BLADE PROBLEM SOLVING

Problem	Problem Cause	Solution
 **Premature blade breakage** Straight break indicates fatigue	▼ Incorrect tooth pitch ▼ Blade tension incorrect ▼ Side guides too tight ▼ Damaged or misadjusted blade guides ▼ Excessive feed/force ▼ Incorrect cutting fluid ▼ Wrong blade size ▼ Blade rubbing on wheel flanges ▼ Teeth in contact with work before starting saw ▼ Incorrect blade speed	▼ Use correct tooth pitch ▼ Check blade tension with Band Tension Gauge ▼ Check side guide clearance (see machine manual) ▼ Check all guides for alignment/damage ▼ Reduce feed pressure/force ▼ Check coolant/refract ▼ Use correct size blade ▼ Adjust wheel alignment ▼ Allow clearance before starting cut ▼ Increase or decrease blade speed
 **Premature dulling of teeth**	▼ Teeth pointing in wrong direction / blade mounted backwards ▼ Improper or no blade break-in ▼ Hard spots in material ▼ Material work hardened ▼ Improper coolant ▼ Improper coolant concentration ▼ Speed too high ▼ Feed too light ▼ Improper tooth count	▼ Install blade correctly. If teeth are facing the wrong direction, flip blade inside out ▼ Break in blade properly (Page 23) ▼ Check for hardness or hard spots like scale or flame cut areas ▼ Increase feed rate ▼ Check coolant type ▼ Check coolant/refract ▼ Check recommended blade speed ▼ Increase feed rate ▼ Select proper tooth size
 **Crooked or out-of-square cuts**	▼ Tooth set damage ▼ Excessive feed pressure/force ▼ Improper tooth size ▼ Cutting fluid not applied evenly ▼ Guides worn or loose ▼ Insufficient blade tension ▼ Guide arms loose or set too far apart ▼ Chips not being cleaned from gullets	▼ Check for worn set on one side of blade ▼ Reduce feed pressure/force ▼ Check tooth size chart (Page 24) ▼ Check coolant nozzles ▼ Tighten or replace guides, check for proper alignment ▼ Adjust to recommended tension ▼ Position arms as close to work as possible. Tighten arms. ▼ Check chip brush
 **Chip Welding**	▼ Insufficient coolant flow ▼ Wrong coolant concentration ▼ Excessive speed and/or pressure ▼ Tooth size too small ▼ Chip brush not working	▼ Check coolant level and flow ▼ Check coolant ratio/refract ▼ Reduce speed and/or pressure ▼ Use coarser tooth pitch ▼ Repair or replace chip brush
 **Teeth Fracture** Back of tooth indicates work spinning in clamps	▼ Incorrect speed and/or feed ▼ Incorrect tooth pitch ▼ Saw guides not adjusted properly ▼ Chip brush not working ▼ Work spinning or moving in vise	▼ Check cutting chart (Pages 26-27) ▼ Check tooth size chart (Page 24) ▼ Adjust or replace saw guides ▼ Repair or replace chip brush ▼ Check bundle configuration/adjust vise pressure
 **Irregular Break** Indicates material movement	▼ Indexing out of sequence ▼ Material loose in vise	▼ Check proper machine movement ▼ Check vise or clamp

Problem	Problem Cause	Solution
 **Teeth Stripping**	▼ Feed pressure too high ▼ Tooth stuck in cut ▼ Improper or insufficient coolant ▼ Incorrect tooth size ▼ Hard spots in material ▼ Work spinning in vise - loose nest or bundle ▼ Blade speed too slow ▼ Blade teeth running backwards ▼ Chip brush not working	▼ Reduce feed pressure ▼ Do not enter old cut with a new blade ▼ Check coolant flow and concentration/refract ▼ Check tooth size chart (Page 24) ▼ Check material for hard inclusions ▼ Check clamping pressure - be sure work is held firmly ▼ Increase blade speed ▼ Reverse blade (turn inside out) ▼ Repair or replace chip brush
 **Wear on Back of Blades**	▼ Excessive feed pressure ▼ Insufficient blade tension ▼ Back-up guide frozen, damaged, or worn ▼ Blade rubbing on wheel flange	▼ Decrease feed pressure ▼ Increase blade tension and readjust guides ▼ Repair or replace back-up guide ▼ Adjust wheel alignment
 **Rough Cut** Washboard surface vibration and/or chatter	▼ Dull or damaged blade ▼ Incorrect speed or feed ▼ Insufficient blade support ▼ Incorrect tooth pitch ▼ Insufficient coolant	▼ Replace with new blade ▼ Use correct speed and feed ▼ Move guide arms as close as possible to the work ▼ Use finer pitch blade ▼ Check coolant flow
 **Wear Lines, Loss of Set**	▼ Saw guide inserts or wheel flange are riding on teeth ▼ Insufficient blade tension ▼ Hard spots in material ▼ Back-up guide worn	▼ Check machine manual for correct blade width ▼ Tension blade properly ▼ Check material for inclusions ▼ Replace guide
 **Twisted Blade** Profile sawing	▼ Blade binding in cut ▼ Side guides too tight ▼ Wrong size blade ▼ Work not firmly held ▼ Erratic coolant flow ▼ Incorrect blade tension	▼ Decrease feed pressure/force ▼ Adjust side guide gap ▼ Use correct size blade ▼ Check clamping pressure ▼ Check coolant nozzles ▼ Check blade tension
 **Blade Wear** Teeth blued	▼ Incorrect blade ▼ Incorrect feed or speed ▼ Improper or insufficient coolant ▼ "Blueing" caused by excessive heat	▼ Use coarser tooth pitch ▼ Use correct feed and speed ▼ Check coolant flow ▼ Check coolant flow

ANATOMY OF A SAW BLADE

Although it looks like a flat piece of metal with teeth, a quality industrial band saw blade is actually a sophisticated cutting tool. Its ability to efficiently cut through tough metals, composite materials, plastics, and woods depends on a variety of interrelated factors such as the design, spacing, and set of the teeth, the design and capacity of the gullets to make sure chips are efficiently removed, the composition of the backer strip, and the gauge of the metal. These considerations must be taken into account when selecting the right blade for your application.



1. **Blade Backer**..... The body of the blade not including tooth portion
2. **Gauge**..... The thickness of the blade
3. **Width**..... The tip of tooth to back of blade
4. **Set** ..... The positioning of teeth right or left
5. **Tooth** ..... The cutting portion of the saw blade
6. **Tooth Pitch** ..... The distance from one tooth tip to the next
7. **T.P.I.**..... The number of teeth per inch measured gullet to gullet
8. **Gullet** ..... The curved area between the tooth points
9. **Gullet Depth**..... The distance from the tooth tip to the bottom of the gullet
10. **Tooth Face** ..... The surface of the tooth on which the chip is formed
11. **Tooth Flank**..... The angled back surface of the tooth opposite the tooth face
12. **Tooth Rake Angle** ..... The angle of the tooth face measured with respect to a line perpendicular to the cutting direction of the saw
13. **Tooth Tip**..... The cutting edge of the saw tooth

WARNING about saw blade usage

Cutting tools can shatter and/or break under improper or severe use. Wear safety equipment, particularly goggles, gloves, and hearing protection, at all times in the vicinity of their use. Always follow band saw machine manufacturers' recommendations.

The M. K. Morse Company Warranty

The M. K. Morse Company warrants each new product manufactured and sold by it or one of its authorized distributors only against defects in workmanship and/or materials under normal service, proper installation, and use. THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT OF VERIFIED DEFECTIVE PRODUCTS AND EXCLUDES ANY AND ALL IMPLIED WARRANTY OF MERCHANTABILITY AND ALL RISK AND LIABILITY WHATSOEVER RESULTING FROM ANY USE OF SAID PRODUCTS, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGES. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE THEREOF. The provisions of this warranty and limitation of liability shall not be modified in any respect except by written document signed by an officer of The M. K. Morse Company.

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