

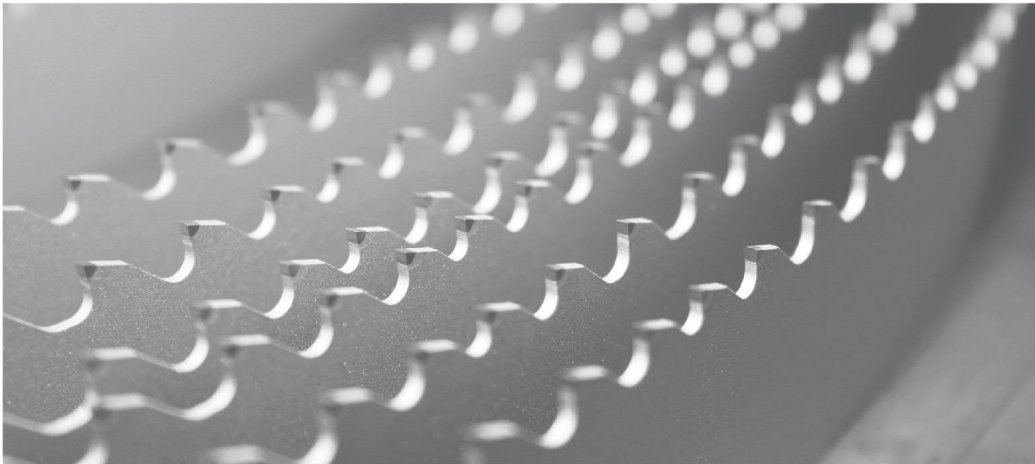


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2019.08





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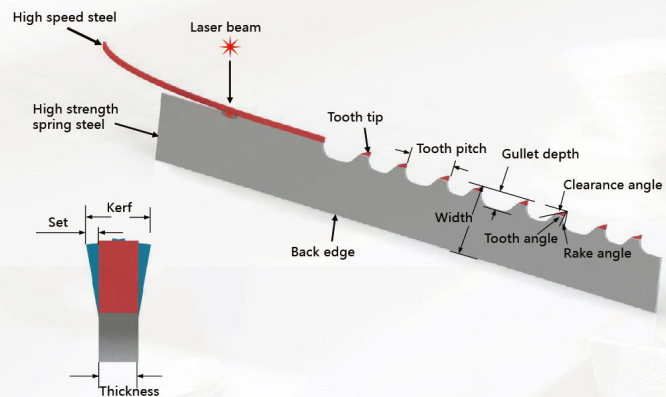
The Company

Bandsaw cutting has evolved into an integral part of modern production processes. Bichamp Cutting Technology rises to the challenges that these processes bring. Thanks to dedicated R&D, modern and reliable manufacturing facilities and a skilled manufacturing team with many years of experience, Bichamp produces high performance band saw blades, which are perfectly suited to meet global customers' specific requirements.

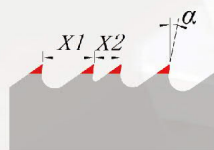
The responsibility for the quality and performance of the products, drives Bichamp continuously to invest in the facilities, processes and people. This enables its research and development teams to integrate the best manufacturing and product technology, and for its customers to experience the results in products, which outperform conventional band saw blades and bring more value.

All materials and equipments used in manufacturing are imported to the factory, which is based in Changsha city in Hunan province. Bichamp started manufacturing in 2003 and has since become the leading band saw manufacturer in China. Since 2017, Bichamp have been listed on the Shenzhen Stock Exchange in China.

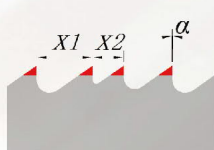
Band Saw Geometry



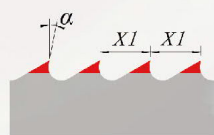
Tooth Profile



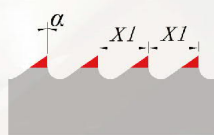
Tooth profile=VP
Variable pitch: $X1 \neq X2$
Positive rake angle: $\alpha > 0^\circ$



Tooth profile=VS
Variable pitch: $X1 \neq X2$
Standard tooth: $\alpha = 0^\circ$



Tooth profile=CP
Constant pitch: $X1 = X1$
Positive rake angle: $\alpha > 0^\circ$



Tooth profile=CS
Constant pitch: $X1 = X1$
Standard tooth: $\alpha = 0^\circ$

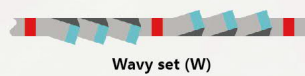
Tooth Set



Group set (G)



Standard set (S)



Wavy set (W)

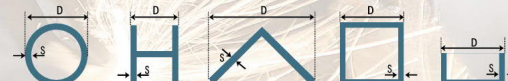


Variable set (V)

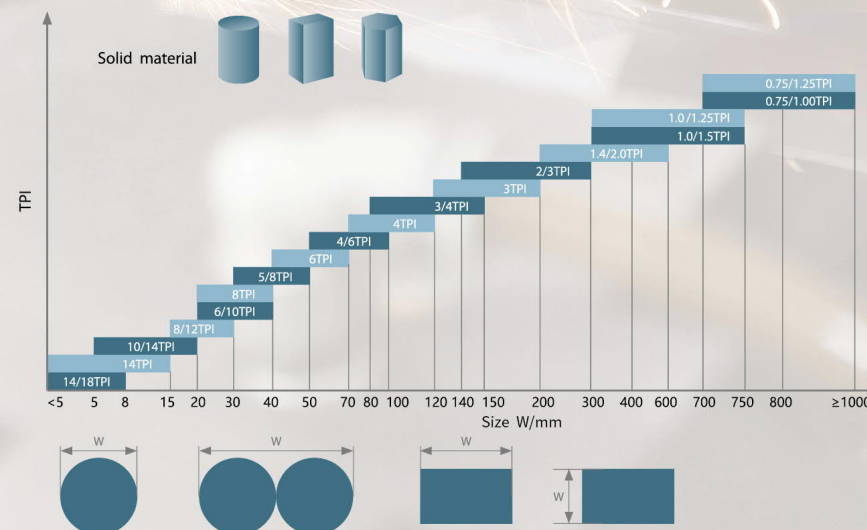
Tooth Pitch Selection Chart for Pipes and Profiles

| Thickness S/mm | Diameter D/mm | | | | | | | | | | | | | |
|----------------|---------------|-------|-------|-------|-------|-------|-------|-------|------|------|---------|---------|-----------|-----------|
| | 15 | 20 | 40 | 60 | 80 | 100 | 120 | 150 | 200 | 300 | 400 | 500 | 600 | >700 |
| 2 | 14/18 | 14/18 | 14/18 | 10/14 | 10/14 | 10/14 | 10/14 | 10/14 | 8/12 | 8/12 | 8/12 | 6/10 | 6/10 | 5/8 |
| 3 | 14/18 | 14/18 | 10/14 | 10/14 | 10/14 | 8/12 | 8/12 | 8/12 | 8/12 | 6/10 | 6/10 | 6/10 | 5/8 | 5/8 |
| 4 | 14/18 | 10/14 | 10/14 | 10/14 | 8/12 | 8/12 | 6/10 | 6/10 | 5/8 | 5/8 | 5/8 | 4/6 | 4/6 | 4/6 |
| 5 | 10/14 | 10/14 | 8/12 | 8/12 | 8/12 | 6/10 | 6/10 | 5/8 | 5/8 | 5/8 | 4/6 | 4/6 | 4/6 | 4/6 |
| 6 | 10/14 | 10/14 | 8/12 | 8/12 | 6/10 | 5/8 | 5/8 | 5/8 | 4/6 | 4/6 | 4/6 | 4/6 | 4/6 | 3/4 |
| 8 | | 10/14 | 8/12 | 6/10 | 5/8 | 5/8 | 5/8 | 4/6 | 4/6 | 4/6 | 4/6 | 4/6 | 4/6 | 3/4 |
| 10 | | | 6/10 | 6/10 | 5/8 | 5/8 | 5/8 | 4/6 | 4/6 | 4/6 | 4/6 | 3/4 | 3/4 | 3/4 |
| 12 | | | 6/10 | 5/8 | 5/8 | 4/6 | 4/6 | 4/6 | 4/6 | 4/6 | 3/4 | 3/4 | 3/4 | 3/4 |
| 15 | | | 6/10 | 4/6 | 4/6 | 4/6 | 4/6 | 4/6 | 3/4 | 3/4 | 3/4 | 3/4 | 3/4 | 2/3 |
| 20 | | | | 4/6 | 4/6 | 3/4 | 3/4 | 3/4 | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 |
| 30 | | | | | 3/4 | 3/4 | 3/4 | 3/4 | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 |
| 50 | | | | | | | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 | 1.4/2.0 |
| 75 | | | | | | | | | 2/3 | 2/3 | 2/3 | 1.4/2.0 | 1.4/2.0 | 1.4/2.0 |
| 100 | | | | | | | | | | | 1.4/2.0 | 1.4/2.0 | 1.0/1.5 | 1.0/1.25 |
| 150 | | | | | | | | | | | 1.4/2.0 | 1.0/1.5 | 1.0/1.5 | 1.0/1.25 |
| 200 | | | | | | | | | | | | 1.0/1.5 | 0.75/1.25 | 0.75/1.00 |
| 250 | | | | | | | | | | | | | 0.75/1.25 | 0.75/1.00 |
| >300 | | | | | | | | | | | | | | 0.75/1.25 |

For two or more material, add up all wall thickness



Tooth Pitch Selection Chart for Solid Materials



| BICHAMP BIMETAL BAND SAW BLADES SELECTION | | | | | | | | | | | | | |
|---|------------------------------|--------------------------------|-------------|-------------------|------------------|----------------|------------|------------------|-------------|------------------|------------------------------|------|--------|
| PRODUCT SERIES | ALUMINUM AND ALUMINUM ALLOYS | BRONZE/BERILLIUM COPPER /BRASS | MILD STEELS | STRUCTURAL STEELS | LOW ALLOY STEELS | BEARING STEELS | DIE STEELS | STAINLESS STEELS | TOOL STEELS | TI AND TI-ALLOYS | INCONEL/ NICKLE BASED ALLOYS | WOOD | PALLET |
| FICUT® | | | | | | | | | | | | | |
| AA® | | | | | | | | | | | | | |
| TANCUT® | | | | | | | | | | | | | |
| DTCUT | | | | | | | | | | | | | |
| PROCUT | | | | | | | | | | | | | |
| REINCUT | | | | | | | | | | | | | |
| WOODCUT | | | | | | | | | | | | | |
| PALLETCUT | | | | | | | | | | | | | |

Recommend:



| | |
|--|----|
| FICUT® (M42 GENERAL PURPOSE) | 08 |
| AA® (PM GENERAL PURPOSE) | 09 |
| TANCUT® (HIGH PERFORMANCE) | 10 |
| DTCUT (EXTREME CUTTING RATE) | 11 |
| PROCUT (OPTIMIZED FOR CUTTING STRUCTURALS) | 12 |
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| WOODCUT (WOOD PERFORMANCE) | 14 |
| PALLETCUT (PALLET PERFORMANCE) | 14 |

FICUT®

M42 GENERAL PURPOSE

Variable pitch

Benefits:

Multi-Purpose blade for basic workshop operations.

Features:

M42 high speed steel edge.

Variable pitch with both positive rake angle and standard tooth.

Applications:

For profiles and solid materials.



| Tooth Form | | Positive rake angle | | | Standard tooth | | | | | |
|-------------------|---------------|---------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Width x Thickness | | 1.4/2.0 | 2/3 | 3/4 | 4/6 | 5/8 | 6/10 | 8/12 | 10/14 | 14/18 |
| MM | Inches | $\alpha=10^\circ$ | $\alpha=7^\circ$ | $\alpha=7^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ |
| 13 x 0.65 | 1/2 x 0.025 | | | | VS-G | VS-G | VS-G | VS-G | VS-G | VS-W |
| 13 x 0.90 | 1/2 x 0.035 | | | | | | VS-G | VS-G | VS-G | |
| 19 x 0.90 | 3/4 x 0.035 | | | | VS-G | VS-G | VS-G | VS-G | VS-G | VS-W |
| 27 x 0.90 | 1 x 0.035 | | VP-G | VP-G | VS-G | VS-G | VS-G | VS-G | VS-G | |
| 34 x 1.10 | 1-1/4 x 0.042 | | VP-G | VP-G | VS-G | VS-G | | VS-G | | |
| 41 x 1.30 | 1-1/2 x 0.050 | VP-G | VP-G | VP-G | VS-G | VS-G | | | | |

Constant pitch

Benefits:

Professional blade for manual operations.

Features:

M42 high speed steel edge.

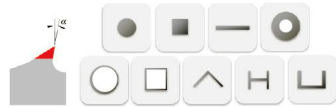
Constant pitch with both positive rake angle and standard tooth to obtain uniform cutting force.

Applications:

Hand-fed vertical bandsaw machines.

Contour cutting.

Portable bandsaw machines.



| Tooth Form | | Positive rake angle | | | Standard tooth | | | | | |
|-------------------|---------------|---------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Width x Thickness | | 2 | 3 | 4 | 3 | 4 | 6 | 8 | 14 | 18 |
| MM | Inches | $\alpha=10^\circ$ | $\alpha=10^\circ$ | $\alpha=10^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ |
| 13 x 0.65 | 1/2 x 0.025 | | | | | | CS-S | | CS-S | CS-S |
| 13 x 0.90 | 1/2 x 0.035 | | CP-S | CP-S | | | CS-S | | CS-S | |
| 19 x 0.90 | 3/4 x 0.035 | | CP-S | | CS-S | CS-S | CS-S | | CS-S | CS-W |
| 27 x 0.90 | 1 x 0.035 | CP-S | | | CS-S | CS-S | CS-S | CS-S | CS-S | |
| 34 x 1.10 | 1-1/4 x 0.042 | | | | CS-S | | CS-S | | | |
| 41 x 1.30 | 1-1/2 x 0.050 | | | | CS-S | | CS-S | | | |



PM GENERAL PURPOSE



Benefits:

The all-purpose blade meets different demands.

The powder HSS teeth offer the best balance of wear resistance and toughness, better hardness than M42.

Features:

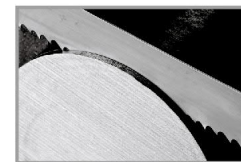
Powder metallurgy (PM) high speed steel edge.

Variable pitch with positive rake angle.

Patented heat treatment process and optimized surface treatment.

Applications:

Different solid metals from mild steel to metals with hardness up to 40HRC.



| Tooth Form | | Positive rake angle | | | | | Standard tooth | | |
|-------------------|---------------|---------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Width x Thickness | | 1.0/1.5 | 1.4/2.0 | 2/3 | 3/4 | 4/6 | 5/8 | 6/10 | 8/12 |
| MM | Inches | $\alpha=10^\circ$ | $\alpha=7^\circ$ | $\alpha=7^\circ$ | $\alpha=7^\circ$ | $\alpha=7^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ | $\alpha=0^\circ$ |
| 27 x 0.90 | 1 x 0.035 | | | VP-G | VP-G | VS-G | VS-G | VS-G | VS-G |
| 34 x 1.10 | 1-1/4 x 0.042 | | | VP-G | VP-G | VS-G | VS-G | VS-G | VS-G |
| 41 x 1.30 | 1-1/2 x 0.050 | VP-G | VP-G | VP-G | VP-G | VS-G | VS-G | VS-G | |
| 54 x 1.60 | 2 x 0.063 | VP-G | VP-G | VP-G | VP-G | VS-G | | | |
| 67 x 1.60 | 2-5/8 x 0.063 | VP-G | VP-G | VP-G | VP-G | | | | |

TANCUT®

HIGH PERFORMANCE

Benefits:

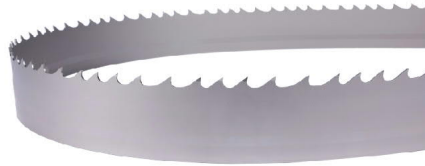
Professional blade for difficult-to-cut materials.
Better hardness than M42.

Features:

Powder metallurgy high speed steel edge.
Premium backing material for optimum fatigue life.

Applications:

Difficult-to-cut solid materials with hardness up to 45HRC or tensile strength up to 1200MPa.



| Tooth Form | | TPI | | | | | |
|-------------------|---------------|-------------------|------------------|-------------------|-------------------|-------------------|------------------|
| Width x Thickness | | 0.75/1.25 | 1.0/1.5 | 1.4/2.0 | 2/3 | 3/4 | 4/6 |
| MM | Inches | $\alpha=10^\circ$ | $\alpha=7^\circ$ | $\alpha=10^\circ$ | $\alpha=10^\circ$ | $\alpha=10^\circ$ | $\alpha=7^\circ$ |
| 27 x 0.90 | 1 x 0.035 | | | | VP-G | VP-G | VP-G |
| 34 x 1.10 | 1-1/4 x 0.042 | | | | VP-G | VP-G | VP-G |
| 41 x 1.30 | 1-1/2 x 0.050 | | | VP-G | VP-G | VP-G | VP-G |
| 54 x 1.60 | 2 x 0.063 | VP-G | VP-G | VP-G | VP-G | VP-G | |
| 67 x 1.60 | 2-5/8 x 0.063 | VP-G | VP-G | VP-G | VP-G | VP-G | |
| 80 x 1.60 | 3 x 0.063 | VP-G | | | | | |

DTCUT

EXTREME CUTTING RATE

Benefits:

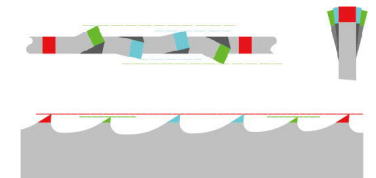
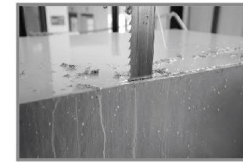
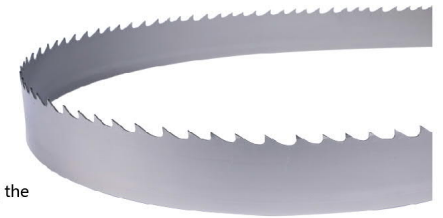
Special designed high-low tooth profile for easier penetrating the material and reducing cutting forces.

Features:

Powder metallurgy high speed steel edge.
Premium backing material for optimum fatigue life.
Tooth height difference and special set design for smoothly cutting.

Applications:

Medium-size to large solid materials.
Higher feed rate for difficult-to-cut materials.



| Tooth Form | | TPI | | | | |
|-------------------|---------------|-------------------|------------------|-------------------|-------------------|-------------------|
| Width x Thickness | | 0.75/1.0 | 1.0/1.5 | 1.4/2.0 | 2/3 | 3/4 |
| MM | Inches | $\alpha=10^\circ$ | $\alpha=5^\circ$ | $\alpha=10^\circ$ | $\alpha=10^\circ$ | $\alpha=10^\circ$ |
| 27 x 0.90 | 1 x 0.035 | | | | VP-V | VP-V |
| 34 x 1.10 | 1-1/4 x 0.042 | | | | VP-V | VP-V |
| 41 x 1.30 | 1-1/2 x 0.050 | | VP-V | VP-V | VP-V | VP-V |
| 54 x 1.60 | 2 x 0.063 | VP-V | VP-V | VP-V | VP-V | VP-V |
| 67 x 1.60 | 2-5/8 x 0.063 | VP-V | VP-V | VP-V | VP-V | |
| 80 x 1.60 | 3 x 0.063 | VP-V | | | | |

PRO CUT

OPTIMIZED FOR CUTTING STRUCTURALS

Benefits:

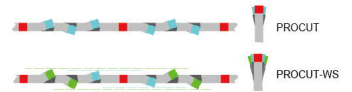
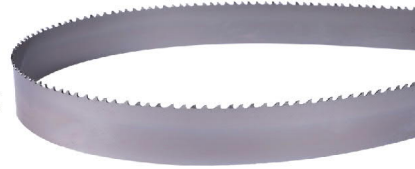
Special tooth design to reduce risk of chipping and improve blade life.

Features:

Impact resistant design for strong teeth.

Applications:

For steel beams and different profiles.



| Tooth Form | | TPI | | |
|-------------------|---------------|------------------|------------------|------------------|
| Width x Thickness | | 2/3 | 3/4 | 4/6 |
| MM | Inches | $\alpha=7^\circ$ | $\alpha=7^\circ$ | $\alpha=7^\circ$ |
| 19 x 0.90 | 3/4 x 0.035 | | | VP-G |
| 27 x 0.90 | 1 x 0.035 | | VP-G | VP-G |
| 34 x 1.10 | 1-1/4 x 0.042 | | VP-G | VP-G |
| 41 x 1.30 | 1-1/2 x 0.050 | VP-G | VP-G | VP-G |
| 54 x 1.60 | 2 x 0.063 | VP-G | VP-G | VP-G |
| 67 x 1.60 | 2-5/8 x 0.063 | VP-G | VP-G | VP-G |

PRO CUT-WS

Wide Set (WS) to create wider kerf to prevent blade from pinching.

For large cross sections steel beams, structural material with residual stress.



| Tooth Form | | TPI | |
|-------------------|---------------|------------------|------------------|
| Width x Thickness | | 2/3 | 3/4 |
| MM | Inches | $\alpha=7^\circ$ | $\alpha=7^\circ$ |
| 27 x 0.90 | 1 x 0.035 | | VP-V |
| 34 x 1.10 | 1-1/4 x 0.042 | | VP-V |
| 41 x 1.30 | 1-1/2 x 0.050 | VP-V | VP-V |
| 54 x 1.60 | 2 x 0.063 | VP-V | VP-V |
| 67 x 1.60 | 2-5/8 x 0.063 | VP-V | VP-V |

REIN CUT

OPTIMIZED FOR BUNDLE CUTTING

Benefits:

The reinforced tooth design and special set pattern reduce vibrations.

Special tooth design to reduce risk of chipping and improve blade life.

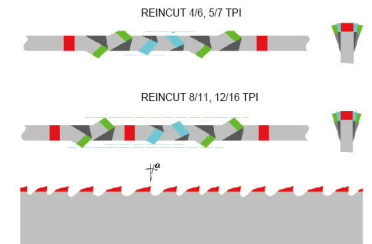
Features:

Impact resistant design for strong teeth.

Various set design.

Applications:

Bundle cutting of small solid bars or tubes.



| Tooth Form | | TPI | | | |
|-------------------|---------------|------------------|------------------|------------------|------------------|
| Width x Thickness | | 4/6 | 5/7 | 8/11 | 12/16 |
| MM | Inches | $\alpha=7^\circ$ | $\alpha=7^\circ$ | $\alpha=7^\circ$ | $\alpha=7^\circ$ |
| 13x0.65 | 1/2 x 0.025 | | VP-V | VP-V | VP-V |
| 13x0.90 | 1/2 x 0.035 | | VP-V | VP-V | VP-V |
| 19x0.90 | 3/4 x 0.035 | | VP-V | VP-V | VP-V |
| 27x0.90 | 1 x 0.035 | VP-V | VP-V | VP-V | |
| 34x1.10 | 1 1/4 x 0.042 | VP-V | VP-V | | |
| 41x1.30 | 1 1/2 x 0.050 | | VP-V | | |



WOODCUT

WOOD PERFORMANCE

Specially designed blade for various woodworking materials cutting.
High speed steel tooth tips, increased heat and wear resistance.



| Width x Thickness | | TPI |
|-------------------|---------------|------|
| MM | Inches | 1.1 |
| 34 x 1.10 | 1-1/4 x 0.042 | CP-S |

PALLETCUT

PALLET PERFORMANCE

With Vari-tooth design cuts through nails and screws.
Improved blade life while reducing vibration.
Combines the flexibility of spring steel backer with the wear
resistance of high speed steel tooth.



| Width x Thickness | | TPI |
|-------------------|---------------|------|
| MM | Inches | 5/8 |
| 34 x 1.10 | 1-1/4 x 0.042 | VS-G |

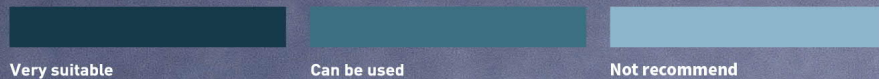


BICHAMP CARBIDE TIPPED BAND SAW BLADES SELECTION

| PRODUCT SERIES | HARD WOOD | ALUMINUM AND ALUMINUM ALLOYS | BRONZE BERYLLIUM COPPER /BRASS | MILD STEELS | STRUCTURAL STEELS | LOW ALLOY STEELS | BEARING STEELS | DIE STEELS | STAINLESS STEELS | TOOL STEELS | TI AND TI-ALLOYS | INCONEL NICKLE BASED ALLOYS | CASE HARDENED MATERIAL |
|----------------|-----------|------------------------------|--------------------------------|-------------|-------------------|------------------|----------------|------------|------------------|-------------|------------------|-----------------------------|------------------------|
| CB-MP™ | | | | | | | | | | | | | |
| CB-PRO™ | | | | | | | | | | | | | |
| TCB-MP™ | | | | | | | | | | | | | |
| TCB-PRO AL™ | | | | | | | | | | | | | |
| TCB-WOOD | | | | | | | | | | | | | |

All the above products are not suitable for thin wall structural materials and for the solid material of which the diameter is less than 50mm.

Recommend:



CB-MP™ (TRIPLE-CHIP SET) 18

CB-PRO™ (MULTI-CHIP SET) 19

TCB-MP™ (TRIPLE-CHIP NON-SET) 20

TCB-PRO AL™ (MULTI-CHIP NON-SET) 21

TCB-WOOD (TRIPLE-CHIP NON-SET) 22

CB-MP™

TRIPLE-CHIP SET

Benefits:

Set style carbide tipped band saw blade, designed for multi-purpose applications cutting a wide variety of materials.

Features:

Set style carbide tipped band saw blades based on triple chip design.

Special selected ultra-fine grain carbide tips for sharp teeth.

High quality blade due to precision tip welding and grinding.

Applications:

All different kinds of materials and applications.

Metals with surface hardness up to 60HRc.

Contour cutting on vertical machines.



CB-PRO™

MULTI-CHIP SET

Benefits:

Multi-chamfer ground set style carbide tipped band saw blade for difficult to cut materials providing excellent cutting performance.

Features:

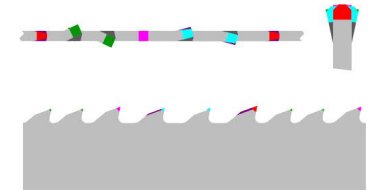
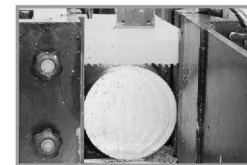
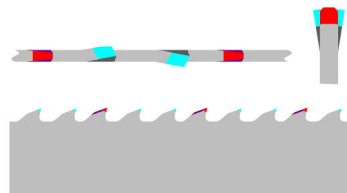
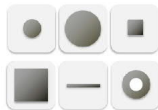
Multi-chip tooth geometry to reduce cutting forces and improve blade life.

High precision multi-setting of teeth improves surface finish.

Applications:

Solid materials with long chips.

Ideal for stainless steel, mold steel, superalloy, Ni-base alloy like inconel, Cu-base alloy like copper and bronze, etc.



| Width x Thickness | | TPI | | | | | |
|-------------------|---------------|----------|----------|---------|-----|---|-----|
| MM | Inches | 0.75/1.0 | 1.0/1.25 | 1.4/2.0 | 2/3 | 3 | 3/4 |
| 19 x 0.90 | 3/4 x 0.035 | | | | | • | |
| 27 x 0.90 | 1 x 0.035 | | | | • | • | • |
| 34 x 1.10 | 1-1/4 x 0.042 | | | | • | • | • |
| 41 x 1.30 | 1-1/2 x 0.050 | | | • | • | | • |
| 54 x 1.60 | 2 x 0.063 | • | • | • | • | | |
| 67 x 1.60 | 2-5/8 x 0.063 | • | • | • | • | | |
| 80 x 1.60 | 3 x 0.063 | • | • | • | | | |

| Width x Thickness | | TPI | | | | | |
|-------------------|---------------|----------|----------|---------|-----|---|-----|
| MM | Inches | 0.75/1.0 | 1.0/1.25 | 1.4/2.0 | 2/3 | 3 | 3/4 |
| 34 x 1.10 | 1-1/4 x 0.042 | | | | • | • | |
| 41 x 1.30 | 1-1/2 x 0.050 | | | • | • | • | |
| 54 x 1.60 | 2 x 0.063 | • | • | • | • | | |
| 67 x 1.60 | 2-5/8 x 0.063 | • | • | • | | | |
| 80 x 1.60 | 3 x 0.063 | • | • | • | | | |

TCB-MP™

TRIPLE-CHIP NON-SET

Benefits:

Non-set carbide tipped band saw blade designed for general purpose applications at high efficiency.

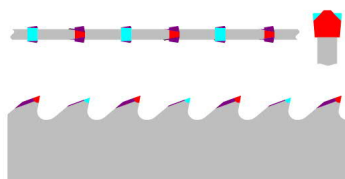
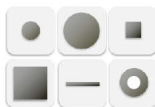
Features:

Traditional triple chip tooth design.

High precision grinding of teeth to improve surface finish.

Applications:

The all-round blade for all kind of applications and materials.



| Width x Thickness | | TPI | |
|-------------------|---------------|-----|---|
| MM | Inches | 2/3 | 3 |
| 13 x 0.90 | 1/2 x 0.035 | | • |
| 27 x 0.90 | 1 x 0.035 | • | • |
| 34 x 1.10 | 1-1/4 x 0.042 | • | |
| 41 x 1.30 | 1-1/2 x 0.050 | • | |

TCB-PRO AL™

MULTI-CHIP NON-SET

Benefits:

Special designed multi-chip carbide tipped band saw blade for cutting aluminum and other non-ferrous materials.

Features:

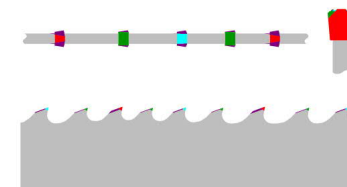
Multi-chip non-set style carbide tipped band saw.

Special selected carbide grade for cutting non-ferrous materials.

Premium backing material for optimum fatigue life at high band speeds.

Applications:

Non-ferrous, especially aluminum.



| Width x Thickness | | TPI | |
|-------------------|---------------|---------|-----|
| MM | Inches | 1.4/2.0 | 2/3 |
| 27 x 0.90 | 1 x 0.035 | | • |
| 34 x 1.10 | 1-1/4 x 0.042 | • | • |
| 41 x 1.30 | 1-1/2 x 0.050 | • | • |
| 54 x 1.30 | 2 x 0.050 | • | |

TCB-WOOD

TRIPLE-CHIP NON-SET

Benefits:

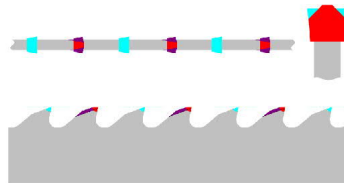
Special designed tooth shape based on triple-chip carbide tipped band saw blade especially suitable for high-speed wood cutting. Improved manufacturing precision ensures better surface finish.

Features:

Triple-chip design non-set style carbide.
Special designed tooth shape for high-speed wood cutting.

Applications:

Different hard wood, foam, graphite materials at high-speed cutting.



| Width x Thickness | | TPI | | | |
|-------------------|-------------|-----|-----|---|---|
| MM | Inches | 1.3 | 1.6 | 2 | 3 |
| 13 x 0.90 | 1/2 x 0.035 | | | | • |
| 27 x 0.90 | 1 x 0.035 | • | • | • | |

ACCESSORIES



Refractometer

The proper concentration of cooling liquid can reduce tooth wear of band saw blades. By using refractometer, the mix ratio of cooling liquid can be read in percentage and checked easily.



Tension meter

Proper tension is a key parameter for straight cutting and could also keep band saw blades in good fatigue life. The Bichamp tension meter helps you to check the tension simply and quickly.



Tachometer

Cutting speed can effect the life, efficiency and noise rate of the teeth. Tachometer provides you more objectively measure value for adjustment.



Toolkit

Includes: tension gauge, refractometer, tachometer, tape, dial gauge, magnifying glass, wrench and screwdrivers etc., which help you to check and maintain the band saw machine.

Speed Chart

| Materials | CHN Grade | German DIN | Japan JIS | Bi-Metal | | Carbide Tipped | |
|--|----------------------------------|--------------------------------|------------------------|------------|--------|----------------|---------------|
| | | | | Band Speed | | Band Speed | |
| | | | | FPM | MPM | FPM | MPM |
| Aluminum Alloys | 2024, 5052, 6061, 7075 | 3.1355, 3.3525, 3.3211, 3.4365 | 2024, 5052, 6061, 7075 | 275-340 | 84-104 | 3,500-8,000* | 1000 - 2600 * |
| Copper Alloys | CDA 220 | 2.023 | C2200 | 210 | 64 | 210 | 64 |
| | CDA 360 | 2.0375 | C3601 | 295 | 89 | 295 | 90 |
| | Cu Ni (30%) | 2.0835 | - | 200 | 61 | 200 | 61 |
| | Be Cu | - | - | 160 | 49 | 160 | 49 |
| Bronze Alloys | AMPCO 18 | - | - | 180 | 55 | 180 | 55 |
| | AMPCO 21 | - | - | 160 | 49 | 160 | 49 |
| | AMPCO 25 | - | - | 110 | 34 | 110 | 34 |
| | Leaded Tin Bronze | 2.1177 | - | 290 | 88 | 290 | 88 |
| | Al Bronze 865 | 2.0976 | AlBCin1 | 150 | 46 | 150 | 46 |
| | Mn Bronze | 2.0602 | - | 215 | 65 | 215 | 66 |
| | 932 | - | - | 280 | 85 | 280 | 85 |
| | 937 | - | - | 250 | 76 | 250 | 76 |
| Brass Alloys | Cartridge Brass, Red Brass (85%) | - | BC6 | 220 | 67 | 220 | 67 |
| | Naval Brass | - | YCuZnSn | 200 | 61 | 200 | 61 |
| Leaded, Free Machining Low Carbon Steels | 1145 | - | - | 270 | 82 | 290 | 88 |
| | 1215 | 1.0736 | SUM 25 | 325 | 99 | 325 | 99 |
| | 12L14 | 1.0718 | SUM 24L | 350 | 107 | 350 | 107 |
| Structural Steels | A36 | 1.0132 | - | 250 | 76 | | |
| Low Carbon Steels | 1008, 1018 | 1.0310, 1.0453 | S9CK | 270 | 82 | 250 | 76 |
| | 1030 | 1.1178 | S 30 C | 250 | 76 | 240 | 73 |
| Medium Carbon Steels | 1035 | 1.0501 | S 35 C | 240 | 73 | 230 | 70 |
| | 1045 | 1.0503, 1.1191 | S 45 C | 230 | 70 | 220 | 67 |
| High Carbon Steels | 1060 | 1.0601 | S 58 C, S60 CM | 200 | 61 | 200 ** | 61 ** |
| | 1080 | 1.1259 | 1080 | 195 | 59 | 195 ** | 59 ** |
| | 1095 | 1.0618 | SUP 4 | 185 | 56 | 185 ** | 56 ** |
| Mn Steels | 1541 | 1.1167 | SMn 438 (H) | 200 | 61 | | |
| | 1524 | 1.0499 | SCMn1, SCMn21 | 170 | 52 | | |
| Cr-Mo Steels | 4140 | 1.7225 | SCM 440 (H) | 225 | 68 | | |
| | 41L50 | - | - | 235 | 71 | | |
| | 4150H | - | - | 200 | 61 | | |
| Cr Alloy Steels | 6150 | 1.8159 | SUP 10 | 190 | 58 | | |
| | 52100 | 1.3505 | SUJ 2 | 160 | 49 | | |
| | 5160 | 1.7176 | SUP 9 (A)5 | 195 | 59 | | |
| Ni-Cr-Mo Steels | 4340 | 1.6565 | SNCM 439, SNCM 8 | 195 | 59 | | |
| | 8620 | 1.6523 | SNCM 220H, SNCM21 | 215 | 65 | | |
| | 8640 | 1.6546 | SNCM 240 | 185 | 56 | | |
| | E9310 | 1.6657 | - | 160 | 49 | | |
| Low Alloy Tool Steels | L-6 | 1.2714 | SKT 4 | 145 | 44 | 192 | 59 |

Speed Chart

| | | | | | | | |
|--|------------------|----------------|------------------|-----|----|-----|----|
| Water-Quenched Tool Steels | W-1 | 1.1673 | SK 1 | 148 | 45 | 180 | 55 |
| Cold-Work Tool Steels | D-2 | 1.2379 | SKD 11 | 98 | 30 | 180 | 55 |
| | A-2 | 1.2363 | SHD 12 | 164 | 50 | 197 | 60 |
| Air-Quenched Tool Steels | A-6 | - | - | 148 | 45 | 180 | 55 |
| | A-10 | - | - | 98 | 30 | 131 | 40 |
| Hot Work Tool Steels | H-13 | 1.2344 | SKD 61 | 148 | 45 | 180 | 55 |
| | H-25 | - | - | 98 | 30 | 131 | 40 |
| Oil-Quenched Tool Steels | O-1 | 1.251 | SKS 3 | 148 | 45 | 197 | 60 |
| | O-2 | 1.2842 | | 148 | 45 | 180 | 55 |
| High Speed Tool Steels | M-2, M-10 | 1.3343 | SKH 9 | 115 | 35 | 98 | 30 |
| | M-4 | 1.3348 | SKH 54 | 98 | 30 | 98 | 30 |
| | T-1 | 1.3355 | SKH 2 | 98 | 30 | 82 | 25 |
| | T-15 | 1.3202 | SKH 10 | 66 | 20 | 66 | 20 |
| Mold Steels | P-3 | - | - | 180 | 55 | 164 | 50 |
| | P-20 | 1.2328 | - | 164 | 50 | 131 | 40 |
| Shock Resistant Tool Steels | S-1 | 1.2542 | SKS 41 | 148 | 45 | - | - |
| | S-5, S-7 | 1.2823 | - | 131 | 40 | - | - |
| Stainless Steels | 304 | 1.4301 | SUS 304 | 82 | 25 | 164 | 50 |
| | 316 | 1.4401 | SUS 316 | 98 | 30 | 131 | 40 |
| | 410 | 1.4006 | SUS 410 | 148 | 45 | 180 | 55 |
| | 440A | 1.4109 | SUS 440 A | 82 | 25 | 148 | 45 |
| | 440C | 1.4125 | SUS 440 C | 82 | 25 | 148 | 45 |
| Precipitation Hardening Stainless Steels | 17-4 PH | 1.4542, 1.4568 | SUS 630, SUS 631 | 82 | 25 | 115 | 35 |
| | 15-5 PH | 1.4545 | - | 82 | 25 | 98 | 30 |
| Free Machining Stainless Steels | 420F | - | - | 164 | 50 | 197 | 60 |
| | 301 | 1.431 | - | 131 | 40 | 164 | 50 |
| Nickel-Based Alloys | Monel® K-500 | 2.4375 | - | 82 | 25 | 98 | 30 |
| | Duranickel 301 | - | - | 66 | 20 | 82 | 25 |
| | Inconel® 600 | 2.4816, 2.4668 | NCF-600 | 66 | 20 | 98 | 30 |
| | RENE 41 | 2.4973 | | 66 | 20 | 98 | 30 |
| | Inconel® 625 | 2.4831 | - | 82 | 25 | 115 | 35 |
| | Hastalloy B | 2.4800 | Ni-Mo28 | 66 | 20 | 82 | 25 |
| | RENE 88 | 2.4951 | - | 66 | 20 | 82 | 25 |
| Iron Based Super Alloys | A286 | 1.498 | SUH 660 | 82 | 25 | 82 | 25 |
| | Incoloy® 600 | - | - | 66 | 20 | 82 | 25 |
| | Pyromet X-15 | - | - | 82 | 25 | 98 | 30 |
| Titanium Alloys | - | 3.7025 | - | 82 | 25 | 164 | 50 |
| | Ti-6Al-4V | 3.7615 | - | 66 | 20 | 164 | 50 |
| Cast Irons | A536 (60-40-18) | 0.704 | FCD 40 | 230 | 70 | - | - |
| | A536 (120-90-02) | 0.708 | - | 115 | 35 | - | - |
| | A48 (L20) | 0.601 | FC 10 | 164 | 50 | - | - |
| | A48 (L40) | 0.6025 | FC 25 | 82 | 25 | - | - |
| | A48 (L60) | 0.604 | - | 98 | 30 | - | - |

* For metal cutting saws run between 275 and 350 FPM (88 and 107MPM)

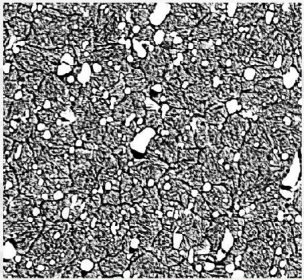
** Typically for hardened and case hardened carbon steels with hardness up to 61 HRC

Trouble Shooting

▲ --major causes △ --secondary causes

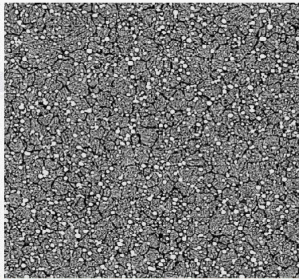
| Causes type | Trouble descriptions | | | | | | | | | | Solutions |
|----------------------|---|------------|--------------------------------|----------------|-------------|-------------------|---------------------------|--------------------|----------------|--------------------|--|
| | Check points | Early wear | Early tooth stripping/chipping | Early breakage | Crooked cut | Rough cut surface | Instability in bandsawing | Loud cutting noise | Blade stoppage | Too low efficiency | |
| Cutting parameters | Too high band saw blade speed | ▲ | | △ | | | △ | ▲ | | | Adjust the speed according to the parameter chart. |
| | Too low band saw blade speed | | △ | | | | △ | | | ▲ | Increase the band saw blade speed. |
| | Too high feed rate | △ | ▲ | △ | ▲ | ▲ | △ | △ | ▲ | | Lower down the feed rate. |
| | Too low feed rate | △ | | | | | | | | ▲ | Increase the feed rate. |
| | Improper feed pressure | ▲ | ▲ | ▲ | ▲ | △ | ▲ | ▲ | △ | △ | Adjust the feed pressure. |
| Bandsaw machine | Guides too far apart | | ▲ | △ | ▲ | △ | ▲ | ▲ | △ | ▲ | Adjust the guides. |
| | Too high blade tension | | | ▲ | | | | △ | | | Reduce the band saw blade tension. |
| | Too low blade tension | | ▲ | | ▲ | ▲ | △ | | ▲ | ▲ | Increase the band saw blade tension. |
| | Worn or damaged back-up guide or guide rollers | ▲ | ▲ | ▲ | ▲ | △ | △ | ▲ | | ▲ | Change the worn parts. |
| | Incorrect blade speed | | ▲ | △ | ▲ | ▲ | ▲ | △ | △ | ▲ | Check the main drive gears, bearings lifting mechanism of the frame. |
| | Incorrect installed brush | | ▲ | | △ | ▲ | ▲ | | | | Check the brush. |
| | Inconsistent Saw frame feed | ▲ | ▲ | ▲ | | ▲ | ▲ | △ | △ | ▲ | Check if there is air in the cylinder, whether the oil is deteriorating and the cylinder is worn or not. |
| | Band saw blade rubbing against bandsaw machine wheel flange | | | ▲ | | | ▲ | ▲ | | | Check the alignment of the bandsaw machine wheels. |
| | Poor material clamping | | ▲ | △ | ▲ | △ | △ | | △ | ▲ | Check the vise or repair it. |
| | Wrong traverse path of the bandsaw | △ | | | ▲ | | | | | | Check the perpendicular traverse path of the frame. |
| | Slippage of the driving belt on the driving wheel | | ▲ | | | △ | △ | | ▲ | ▲ | Check the belt tension or check for worn driving wheel. |
| | Vibration of the entire machine | ▲ | ▲ | △ | | ▲ | ▲ | ▲ | | ▲ | The machine maybe installed improperly or there is some vibration source from other parts. |
| | Wrong cutting fluid | ▲ | △ | | | △ | | ▲ | | △ | Change to correct cutting fluid. |
| | Insufficient cutting fluid supply | ▲ | △ | ▲ | | △ | | ▲ | | △ | Check the fluid hoses, increase the volume of the fluid, both on the cutting section and the insert section. |
| Lubricant | Improper concentration | ▲ | | | | ▲ | | △ | | | Adjust the concentration according to the brochure of the lubricant. |
| | Inappropriate blade type or blade pitch | ▲ | ▲ | | | △ | ▲ | △ | | △ | Select the pitch and blade type according to the application. |
| | Insufficient break-in process | ▲ | ▲ | | | △ | | | | | Perform sufficient break in process. |
| Selection of bandsaw | Cut product Jamming, too much edged burrs | ▲ | ▲ | | | △ | | △ | △ | △ | Proper break-in procedure, proper cutting parameters, proper lubricant application. |
| | Corroded blade | ▲ | | ▲ | | | | △ | | | Stored too long. Humidity is too high. Or the lubricant is corrosive. |
| | Too much wear of the blade | | △ | ▲ | ▲ | △ | | ▲ | △ | ▲ | Change the blade. |
| | Damaged teeth | ▲ | ▲ | | | | △ | △ | | △ | Change the blade. |
| | Bad butt weld | △ | ▲ | ▲ | | △ | ▲ | △ | | △ | Re-weld or change the blade. |
| | Unknown material | ▲ | △ | | △ | | | △ | | △ | Check the details of materials. Set the cutting parameter according to the chart. |
| | Hard points inside the material or hard surface | ▲ | ▲ | | △ | | | ▲ | | △ | Adjust the parameters, usually, need to lower down the speed or select a more protective teeth profile. |
| Work material | Too low rigidity of the material | △ | ▲ | | | ▲ | △ | ▲ | | △ | Proper tooth form and proper parameters. Proper Clamping method. |
| | Irregular shape | | ▲ | ▲ | △ | △ | ▲ | | △ | △ | Find the right clamping method. |
| | Finished parts interrupt the bandsaw operation | | ▲ | ▲ | | | | | △ | | Clear the parts and chips in time. |

State of the Art Tooth Materials



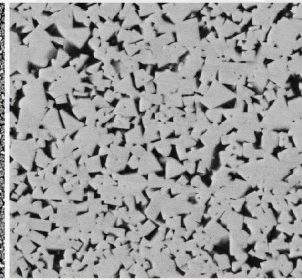
M42 high speed steel

Good heat treatment ensures fine microstructure of M42 high speed steel, offering great wear resistance and longer band life.



Powder metallurgy high speed steel

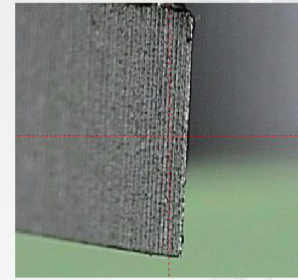
The high speed steel manufactured by powder metallurgy has finer and more homogeneous carbides distributed on martensite matrix, providing better combination of wear resistance and toughness.



Cemented carbide

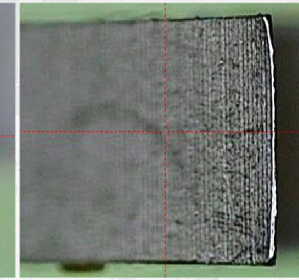
Bichamp uses sub-micro grain size tungsten carbide bonded with cobalt as tooth materials for carbide bandsaw blade, which is characterized by outstanding tooth wear resistance.

Break-In Procedure



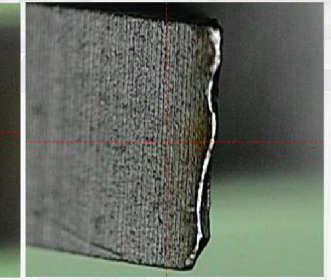
Before Break-In

Tooth tips are very sharp and sometimes with some small burs from manufacturing.



After proper Break-In

Proper Break-In makes blades gain a good tooth tip with small round cutting edge, which is beneficial for prolonging blade life.



After improper Break-In

Improper Break-In results in disastrous chipping on tooth tips, which shortens blade life greatly.

Chips Recognition



Thick, dark and oxidized:
Decrease feed rate or increase band speed.



Thin, short, loosely curled, even pulverised:
Increase feed rate or decrease band speed.



Silver, curled like springs:
Good sawing parameters choice.

How to Break-In?

For bi-metal band saw blade:

- 1) Use the recommended band speed for the material you want to cut.
- 2) Reduce the feed rate with 30-40%.
- 3) Run the blade for 30-60 min and slightly increase the feed with every cut.
- 4) Set band speed and feed rate as normal.

For carbide tipped band saw blade:

- 1) For the first cut, set feed and band speed parameters as for bimetal.
- 2) For the second cut increase band speed, while avoiding vibration.
- 3) Then increase feed to match band speed while avoiding vibration.
- 4) Repeat second cut till you have reached normal parameter values for a carbide tipped blade.



