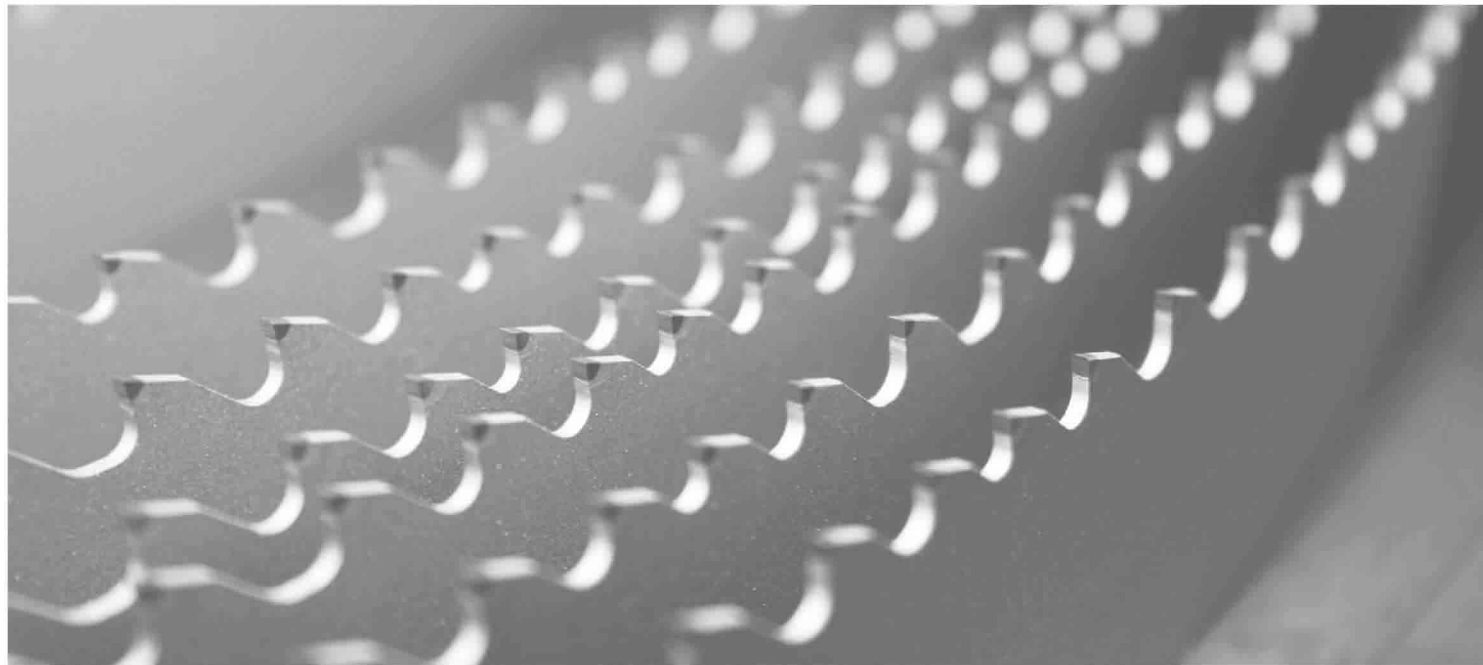




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2019.11



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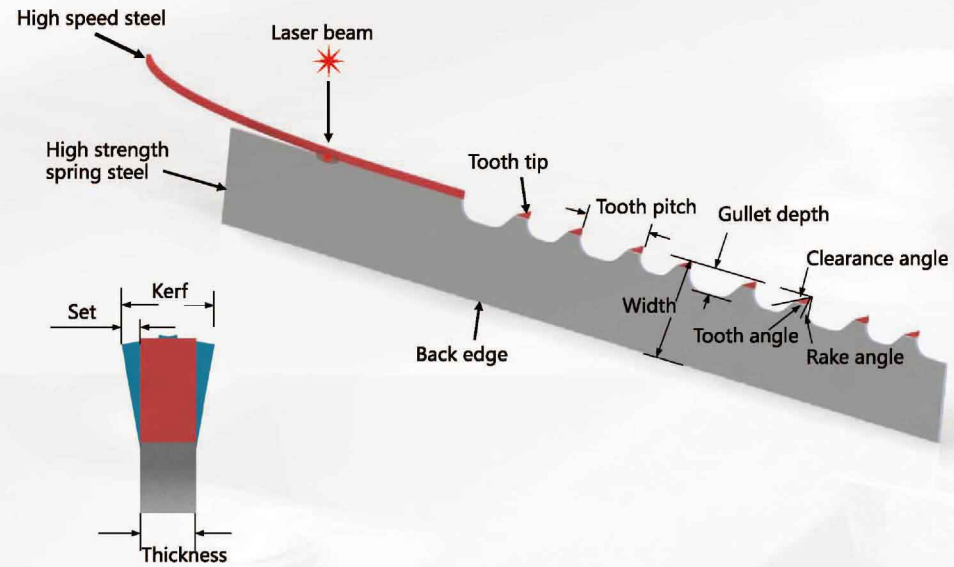
The Company

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.

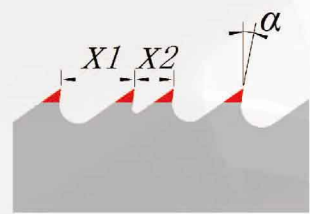
The responsibility for the quality and performance of the products, drives Bichamp continuously to invest in the facilities, processes and people. This enables its research and development teams to integrate the best manufacturing and product technology, and for its customers to experience the results 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 become the leading band saw manufacturer in China. Since 2017, Bichamp have been listed on the Shenzhen Stock Exchange in China.

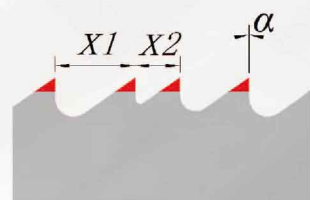
Band Saw Geometry



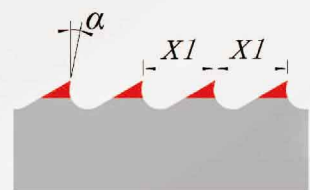
Tooth Profile



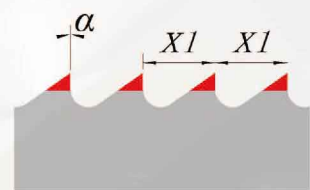
Tooth profile=VP
Variable pitch: $X1 \neq X2$
Positive rake angle: $\alpha > 0^\circ$



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: $\alpha = 0^\circ$

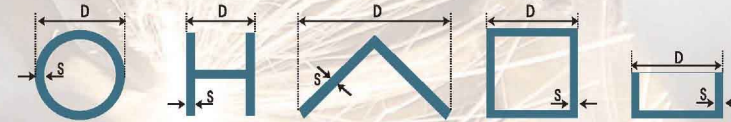
Tooth Set



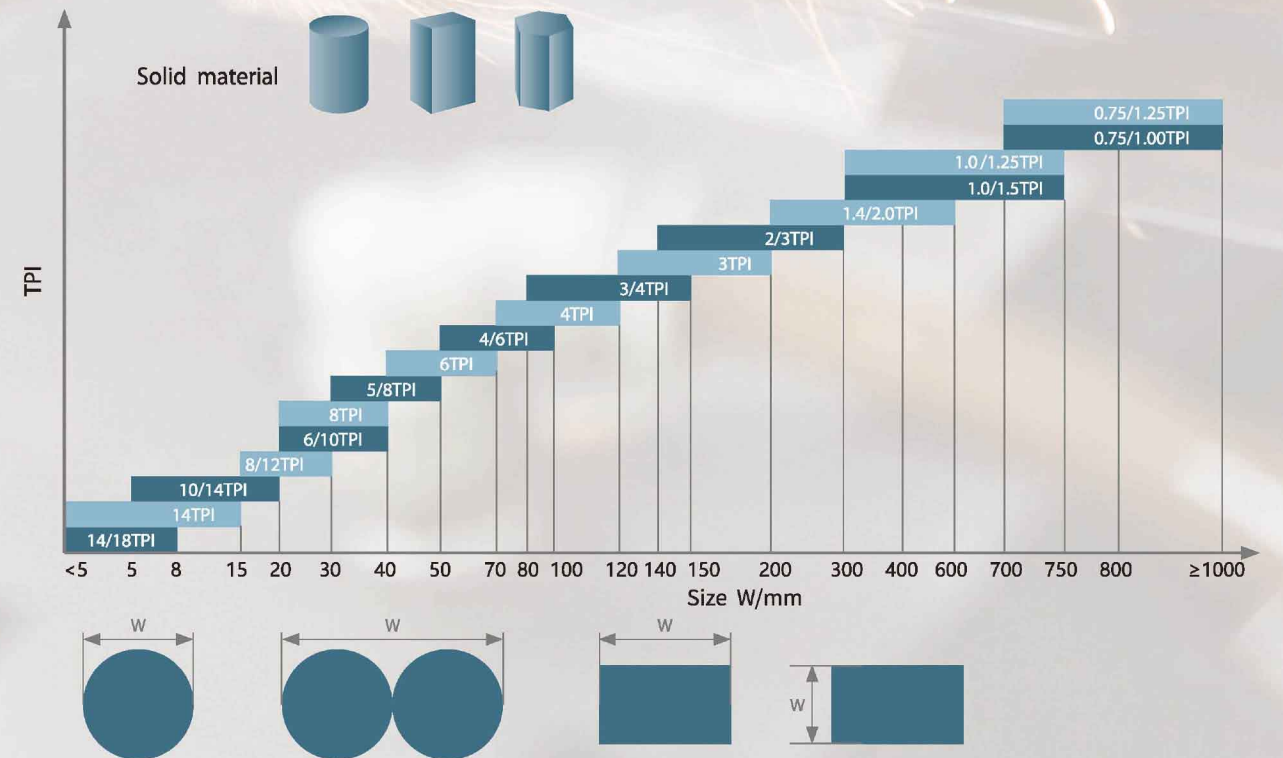
Tooth Pitch Selection Chart for Pipes and Profiles

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	6/10	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	6/10	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	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	1.0/1.5	1.0/1.5
150										1.4/2.0	1.4/2.0	1.0/1.5	1.0/1.5	1.0/1.5
200											1.0/1.5	0.75/1.25	0.75/1.25	0.75/1.00
250												0.75/1.25	0.75/1.25	0.75/1.00
>300														0.75/1.25
														0.75/1.00

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 & ALUMINUM ALLOYS	BRONZE/BERILLIUM COPPER /BRASS	MILD STEELS	STRUCTURAL STEELS	LOW ALLOY STEELS	BEARING STEELS	DIE STEELS	STAINLESS STEELS	TOOL STEELS	TI & TI-ALLOYS	INCONEL/NICKLE BASED ALLOYS	WOOD	PALLET
FICUT®	Very recommended	Recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Not recommended	Not recommended	Very recommended	Very recommended
AA®	Very recommended	Recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Not recommended	Not recommended	Very recommended	Very recommended
TANCUT®	Very recommended	Recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Not recommended	Not recommended	Very recommended	Very recommended
DTCUT	Very recommended	Recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Not recommended	Not recommended	Very recommended	Very recommended
PROCUT	Very recommended	Not recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Not recommended	Not recommended	Very recommended	Very recommended
REINCUT	Very recommended	Recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Very recommended	Not recommended	Not recommended	Very recommended	Very recommended
WOODCUT	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Very recommended	Very recommended
PALLETCUT	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Very recommended

Very recommended
 Recommended
 Not recommended

FICUT® (M42 GENERAL PURPOSE)	08
AA® (B2000 GENERAL PURPOSE)	09
TANCUT® (B2000 HIGH PERFORMANCE)	10
DTCUT (B2000 EXTREME CUTTING RATE)	11
PROCUT (B2000 OPTIMIZED FOR STRUCTURAL CUTTING)	12
REINCUT (M42 OPTIMIZED FOR BUNDLE CUTTING)	13
WOODCUT (M42 WOOD PERFORMANCE)	14
PALLETCUT (M42 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		2/3	3/4	4/6	5/8	6/10	8/12	10/14	14/18
MM	Inches	$\alpha=7^\circ$	$\alpha=7^\circ$	$\alpha=7^\circ$	$\alpha=0^\circ$	$\alpha=0^\circ$	$\alpha=0^\circ$	$\alpha=0^\circ$	$\alpha=0^\circ$
13x0.65	1/2x 0.025					VS-G	VS-G	VS-G	VS-W
13x0.90	1/2x 0.035					VS-G	VS-G	VS-G	
19x0.90	3/4x 0.035			VS-G	VS-G	VS-G	VS-G	VS-G	VS-W
27x0.90	1x 0.035	VP-G	VP-G	VS-G	VS-G	VS-G	VS-G	VS-G	
34x1.10	1-1/4x 0.042	VP-G	VP-G	VS-G	VS-G		VS-G		
41x1.30	1-1/2x 0.050	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	4	6	14	18
MM	Inches	$\alpha=10^\circ$	$\alpha=10^\circ$	$\alpha=10^\circ$	$\alpha=0^\circ$	$\alpha=0^\circ$	$\alpha=0^\circ$	$\alpha=0^\circ$
13x0.65	1/2x 0.025					CS-S	CS-S	CS-S
13x0.90	1/2x 0.035		CP-S	CP-S			CS-S	
19x0.90	3/4x 0.035		CP-S		CS-S			CS-W
27x0.90	1x 0.035	CP-S			CS-S	CS-S		
34x1.10	1-1/4x 0.042				CS-S			
41x1.30	1-1/2x 0.050							



B2000 GENERAL PURPOSE

Benefits:

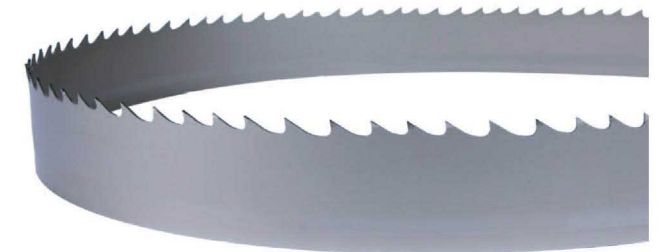
The all-purpose blade meets different demands.
The powder HSS teeth offer the best balance of better wear resistance and toughness, higher hardness than M42.

Features:

Powder metallurgy (B2000) 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
MM	Inches	$\alpha=10^\circ$	$\alpha=10^\circ$	$\alpha=10^\circ$	$\alpha=10^\circ$	$\alpha=7^\circ$	$\alpha=0^\circ$
27x0.90	1x 0.035			VP-G	VP-G	VP-G	VS-G
34x1.10	1-1/4x 0.042			VP-G	VP-G	VP-G	VS-G
41x1.30	1-1/2x 0.050	VP-G	VP-G	VP-G	VP-G	VP-G	
54x1.60	2x 0.063	VP-G	VP-G	VP-G	VP-G	VP-G	
67x1.60	2-5/8x 0.063	VP-G	VP-G	VP-G	VP-G	VP-G	

TANCUT®

B2000 HIGH PERFORMANCE

Benefits:

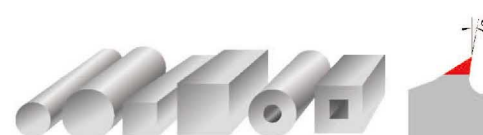
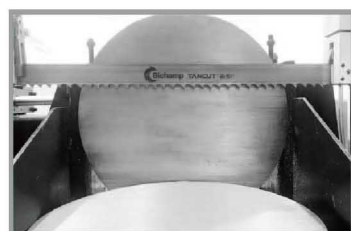
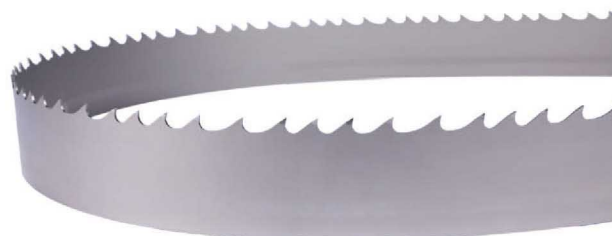
Professional blade for difficult-to-cut materials.
Higher hardness than M42.

Features:

Powder metallurgy (B2000) high speed steel edge.
Premium backing material for optimum fatigue life.

Applications:

Difficult-to-cut solid materials with higher 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

B2000 EXTREME CUTTING RATE

Benefits:

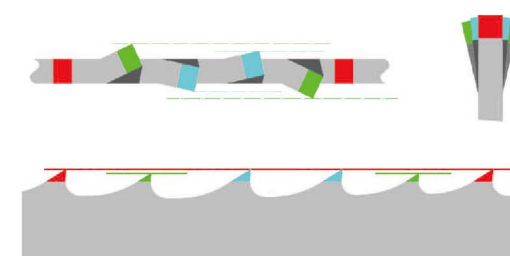
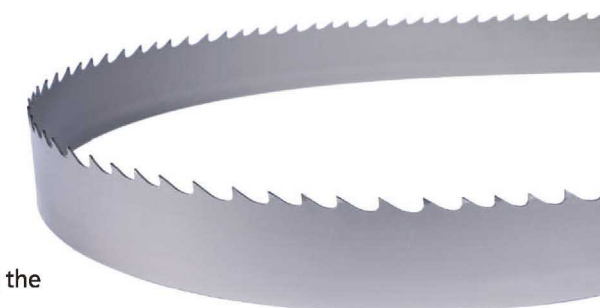
Special designed high-low tooth profile for easier penetrating the material and reducing cutting forces.

Features:

Powder metallurgy (B2000) high speed steel edge.
Premium backing material for optimum fatigue life.
Tooth height difference and special set design for smooth cutting.

Applications:

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



Width x Thickness		0.75/1	1.0/1.5	1.4/2	2/3	3/4
MM	Inches	$\alpha=10^\circ$	$\alpha=5^\circ$	$\alpha=10^\circ$	$\alpha=10^\circ$	$\alpha=10^\circ$
27x0.90	1x 0.035					VP-V
34x1.10	1-1/4x 0.042				VP-V	VP-V
41x1.30	1-1/2x 0.050		VP-V	VP-V	VP-V	
54x1.60	2 x 0.063	VP-V	VP-V	VP-V	VP-V	
67x1.60	2-5/8x 0.063	VP-V	VP-V	VP-V		
80x1.60	3 x 0.063	VP-V	VP-V			

PROCUT

B2000 OPTIMIZED FOR STRUCTURAL CUTTING

Benefits:

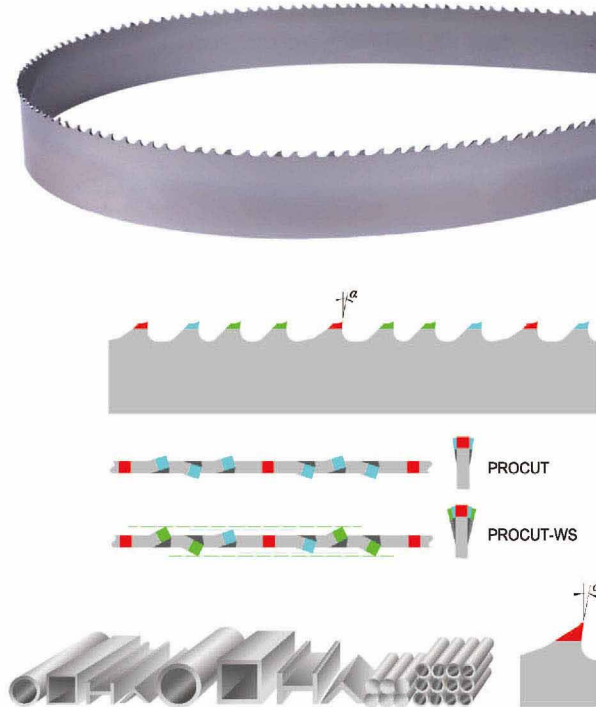
Special tooth design to reduce risk of chipping and improve blade life, allow for heavier penetration under fast cutting rate.

Features:

Powder metallurgy (B2000) high speed edge.
Impact resistant design for strong teeth.

Applications:

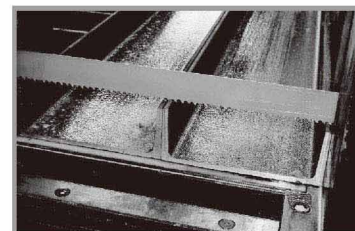
For steel beams and different profiles.



Tooth Form		TPI		
Width x Thickness		2/3	3/4	4/6
MM	Inches	$\alpha=7^\circ$	$\alpha=7^\circ$	$\alpha=7^\circ$
27x0.90	1x 0.035		VP-G	VP-G
34x1.10	1-1/4x 0.042		VP-G	VP-G
41x1.30	1-1/2x 0.050	VP-G	VP-G	VP-G
54x1.60	2 x0.063	VP-G	VP-G	VP-G
67x1.60	2-5/8 x0.063	VP-G	VP-G	

PROCUT-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	7°	7°
27x0.90	1x 0.035		
34x1.10	1-1/4x 0.042		
41x1.30	1-1/2x 0.050	VP-V	VP-V
54x1.60	2x0.063	VP-V	VP-V
67x1.60	2-5/8x0.063	VP-V	VP-V

REINCUT

M42 OPTIMIZED FOR BUNDLE CUTTING

Benefits:

The reinforced tooth design and special set pattern reduce vibrations.

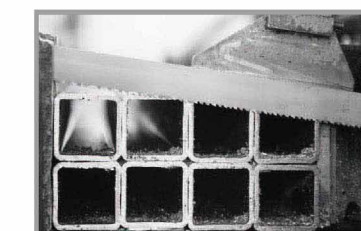
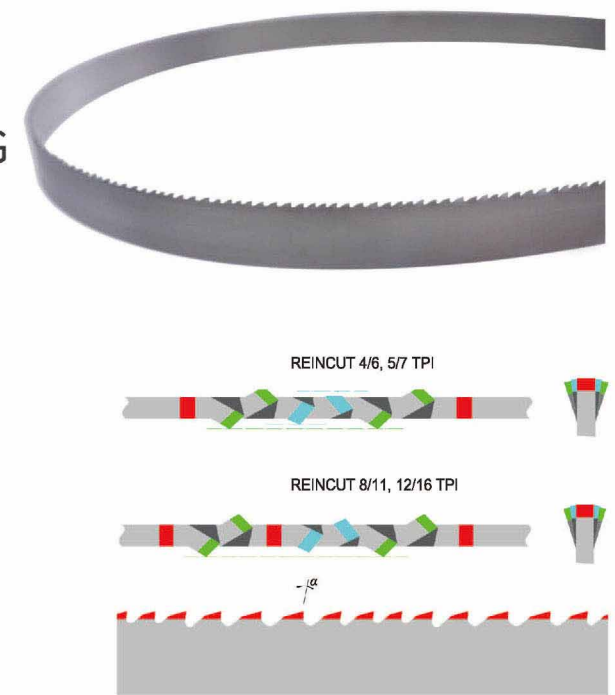
Special tooth design to reduce risk of chipping and improve blade life.

Features:

Powder metallurgy (B2000) high speed edge.
Impact resistant design for strong teeth.
Various set design.

Applications:

Bundle cutting of small solid bars or tubes.



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
13x0.9	1/2 x 0.035			VP-V	
19x0.9	3/4 x 0.035		VP-V	VP-V	
27x0.9	1 x 0.035	VP-V	VP-V	VP-V	VP-V
34x1.1	1-1/4 x 0.042	VP-V	VP-V		
41x1.3	1-1/2 x 0.050		VP-V		

WOODCUT

M42 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	
34 x 1.10	1-1/4 x 0.042	1.1 CP-S

PALLETCUT

M42 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	
34 x 1.10	1-1/4 x 0.042	5/8 VS-G

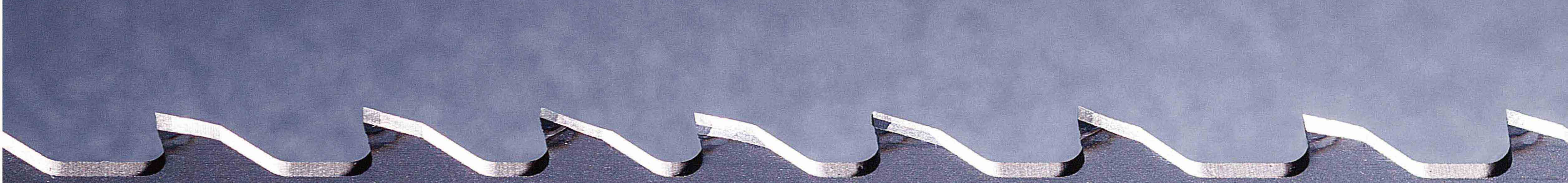


BICHAMP CARBIDE TIPPED BAND SAW BLADES SELECTION

PRODUCT SERIES	HARD WOOD	ALUMINUM & ALUMINUM ALLOYS	BRONZE BERILLIUM COPPER /BRASS	MILD STEELS	STRUCTURAL STEELS	LOW ALLOY STEELS	BEARING STEELS	DIE STEELS	STAINLESS STEELS	TOOL STEELS	TI & TI-ALLOYS	INCONEL NICKLE BASED ALLOYS	CASE HARDENED MATERIAL
CB-MP™	Not recommended	Recommended	Very recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
CB-PRO™	Not recommended	Recommended	Recommended	Not recommended	Not recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
TCB-MP™	Very recommended	Recommended	Very recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended
TCB-PRO AL™	Not recommended	Very recommended	Recommended	Not recommended	Not recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended	Recommended

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

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.



CB-MP™

TRIPLE-CHIP SET

Benefits:

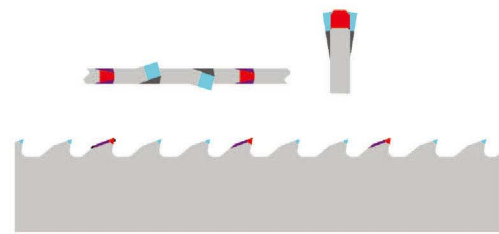
Set style carbide tipped band saw blade, designed for multi-purpose applications cutting a wide variety of materials.

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:

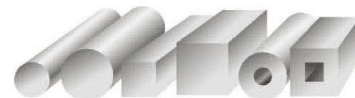
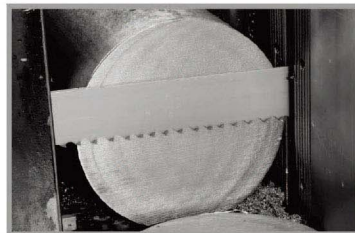
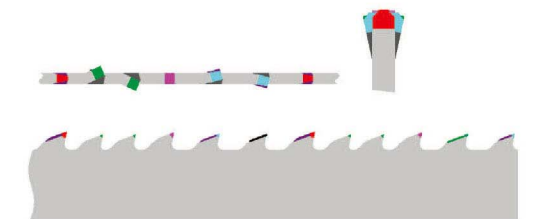
Multi-chamfer ground set style carbide tipped band saw blade for difficult to cut materials providing excellent cutting performance.

Features:

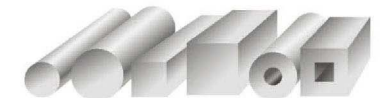
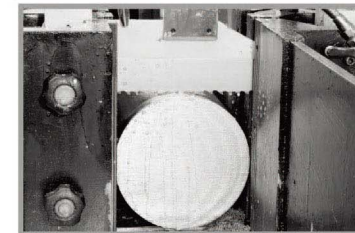
Multi-chip tooth geometry to reduce cutting forces and improve blade life.
 High precision multi-setting of teeth improves surface finish.

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
19x0.90	3/4x 0.035					•	
27x0.90	1x 0.035				•	•	•
34x1.10	1-1/4x 0.042				•		•
41x1.30	1-1/2x 0.050			•	•		•
54 x 1.60	2x0.063		•	•	•		
67 x 1.60	2-5/8 x0.063	•	•	•			
80 x 1.60	3 x0.063	•					



Width x Thickness		TPI					
MM	Inches	0.75/1.0	1.0/1.25	1.4/2.0	2/3	3/4	
34x1.10	1-1/4x 0.042				•	•	
41x1.30	1-1/2x 0.050			•	•	•	
54 x 1.60	2 x0.063		•	•	•		
67x1.60	2-5/8 x0.063	•	•	•			
80 x 1.60	3 x0.063	•	•				

TCB-MP™

TRIPLE-CHIP NON-SET

Benefits:

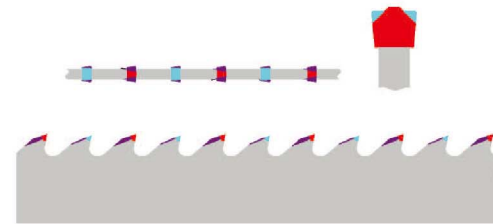
Non-set carbide tipped band saw blade designed for general purpose applications at high efficiency.

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
27 x 0.90	1x 0.035	•	•
34 x 1.10	1-1/4x 0.042	•	
41 x 1.30	1-1/2x 0.050	•	

TCB-PRO AL™

MULTI-CHIP NON-SET

Benefits:

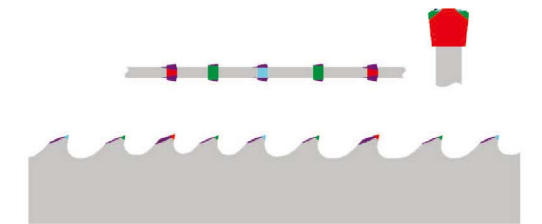
Special designed multi-chip carbide tipped band saw blade for cutting aluminum and other non-ferrous materials.

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
34 x 1.10	1-1/4x 0.042		•
41x1.30	1-1/2x 0.050	•	•
54x1.30	2x 0.050	•	

ACCESSORIES



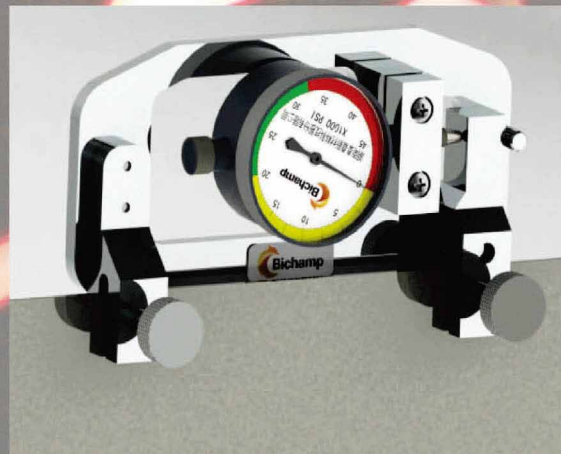
Refractometer

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.



Tachometer

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



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.



Toolkit

Includes: tension gauge, refractometer, tachometer, tape, dialgauge, 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
Bronze Alloys	Be Cu	-	-	160	49	160	49
	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
Brass Alloys	932	-	-	280	85	280	85
	937	-	-	250	76	250	76
	Cartridge Brass, Red Brass (85%)	-	BC6	220	67	220	67
Leaded, Free Machining Low Carbon Steels	Naval Brass	-	YCuZnSn	200	61	200	61
	1145	-	-	270	82	290	88
Structural Steels	1215	1.0736	SUM 25	325	99	325	99
	12L14	1.0718	SUM 24L	350	107	350	107
Low Carbon Steels	A36	1.0132	-	250	76		
	1008, 1018	1.0310, 1.0453	S9CK	270	82	250	76
Medium Carbon Steels	1030	1.1178	S 30 C	250	76	240	73
	1035	1.0501	S 35 C	240	73	230	70
High Carbon Steels	1045	1.0503, 1.1191	S 45 C	230	70	220	67
	1060	1.0601	S 58 C , S60 CM	200	61	200 **	61 **
	1080	1.1259	1080	195	59	195 **	59 **
Mn Steels	1095	1.0618	SUP 4	185	56	185 **	56 **
	1541	1.1167	SMn 438 (H)	200	61		
Cr-Mo Steels	1524	1.0499	SCMn1, SCMn21	170	52		
	4140	1.7225	SCM 440 (H)	225	68		
Cr Alloy Steels	41L50	-	-	235	71		
	4150H	-	-	200	61		
Ni-Cr-Mo Steels	6150	1.8159	SUP 10	190	58		
	52100	1.3505	SUJ 2	160	49		
Low Alloy Tool Steels	5160	1.7176	SUP 9 (A)5	195	59		
	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		
	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
Air-Quenched Tool Steels	A-2	1.2363	SHD 12	164	50	197	60
	A-6	-	-	148	45	180	55
Hot Work Tool Steels	A-10	-	-	98	30	131	40
	H-13	1.2344	SKD 61	148	45	180	55
Oil-Quenched Tool Steels	H-25	-	-	98	30	131	40
	O-1	1.251	SKS 3	148	45	197	60
High Speed Tool Steels	O-2	1.2842	-	148	45	180	55
	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
Mold Steels	T-15	1.3202	SKH 10	66	20	66	20
	P-3	-	-	180	55	164	50
Shock Resistant Tool Steels	P-20	1.2328	-	164	50	131	40
	S-1	1.2542	SKS 41	148	45	-	-
Stainless Steels	S-5, S-7	1.2823	-	131	40	-	-
	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
Precipitation Hardening Stainless Steels	440A	1.4109	SUS 440 A	82	25	148	45
	440C	1.4125	SUS 440 C	82	25	148	45
Free Machining 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
Nickel-Based Alloys	420F	-	-	164	50	197	60
	301	1.431	-	131	40	164	50
	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
Iron Based Super Alloys	Hastalloy B	2.4800	Ni-Mo28	66	20	82	25
	RENE 88	2.4951	-	66	20	82	25
Titanium Alloys	A286	1.498	SUH 660	82	25	82	25
	Incoloy® 600	-	-	66	20	82	25
	Pyromet X-15	-	-	82	25	98	30
Cast Irons	-	3.7025	-	82	25	164	50
	Ti-6Al-4V	3.7615	-	66	20	164	50
	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)

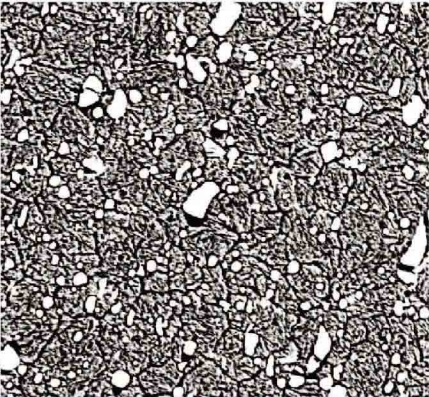

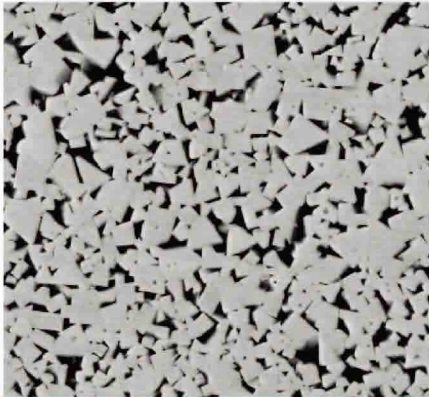
** Typically for hardened and case hardened carbon steels with hardness up to 61 HRC

Trouble Shooting

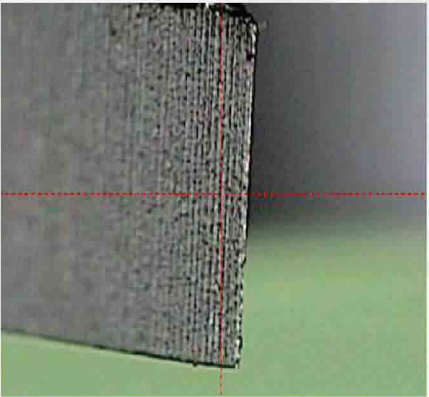
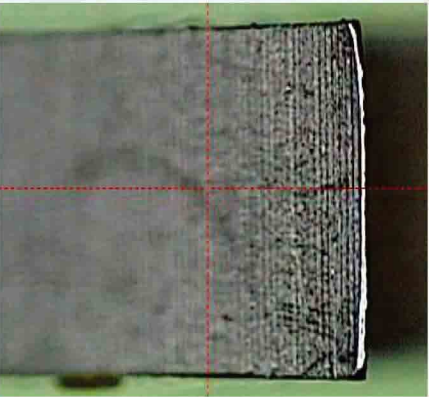
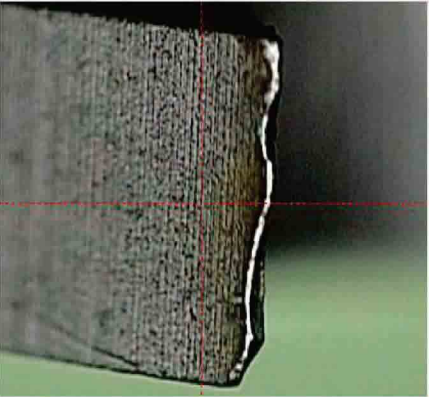
▲ –major causes △ –secondary causes

Causes type	Trouble descriptions	Early wear	Early tooth strippage/chipping	Early breakage	Crooked cut	Rough cut surface	Instability in bandsawing	Loud cutting noise	Blade stoppage	Too low efficiency	Solutions
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	▲	▲	▲	▲	△	▲	▲	△	△	
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.
Lubricant	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.
	Improper concentration	▲				▲		△			Adjust the concentration according to the brochure of the lubricant.
Selection of bandsaw	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.
	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.
Work material	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.
	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

		
<p>M42 high speed steel</p> <p>Good heat treatment ensures fine microstructure of M42 high speed steel, offering great wear resistance and longer band life.</p>	<p>Powder metallurgy high speed steel</p> <p>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.</p>	<p>Cemented carbide</p> <p>Bichamp uses sub-micro grain size tungsten carbide binded with cobalt as tooth materials for carbide bandsaw blade, which is characterized by outstanding tooth wear resistance.</p>

Break-In Procedure

		
<p>Before Break-In</p> <p>Tooth tips are very sharp and sometimes with some small burs from manufacturing.</p>	<p>After proper Break-In</p> <p>Proper Break-In makes blades gain a good tooth tip with small round cutting edge, which is beneficial for prolonging blade life.</p>	<p>After improper Break-In</p> <p>Improper Break-In results in disastrous chipping on tooth tips, which shortens blade life greatly.</p>

Chips Recognition

		
<p>Thick, dark and oxidized: Decrease feed rate or increase band speed.</p>	<p>Thin, short, loosely curled, even pulverised: Increase feed rate or decrease band speed.</p>	<p>Silver, curled like springs: Good sawing parameters choice.</p>

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.



