



BX TOOL



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Benxi Tool Co., Ltd.



Company Profile

Benxi Tool Co., Ltd. was built in 1953, from the production of various kinds of cutting tools which has changed gradually specializing in the production of bi-metal band saw blade manufacturer. The company is integrated with research, production and marketing with the purpose of seeking the best quality in production. After over 60 years of efforts, we have become one of the leading band saw blade manufacturers in China, with an annual output rank of ten in the world. Our products are exported to more than 30 countries. For stable and high-quality products, we strictly choose the best quality raw materials and adopt world-advanced production technology and equipment. Benxi Tool will do our best to meet your needs and provide quality products and service on delivery to meet your various requests. Our engineers and staff will support your advanced requirement professionally.



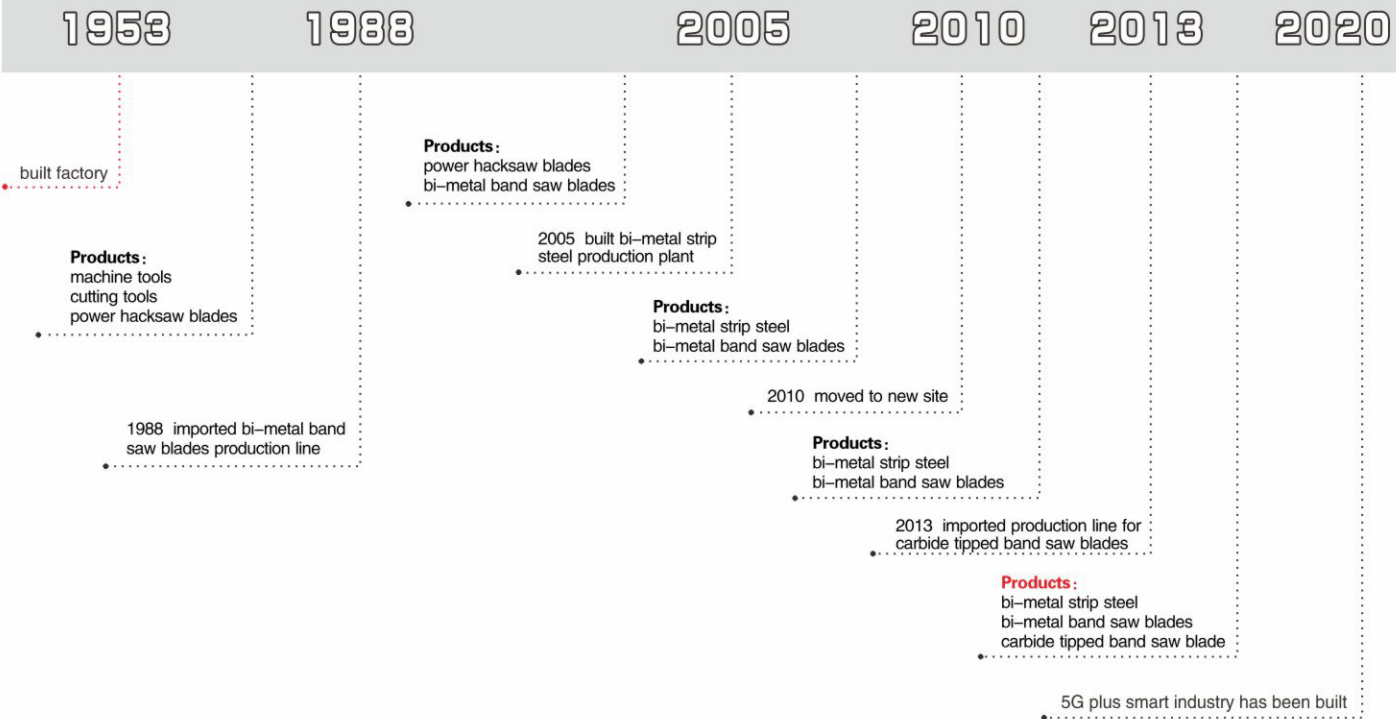
Benxi Tool Co.,Ltd.— before



Benxi Shuangying New Material Technology Co., Ltd
(bi-metal strip steel production plant)



Benxi Tool Co.,Ltd.— Today





▲ Imported laser welding line



▲ Imported cold rolling machine



▲ Imported strip levelling machine



▲ Imported milling machine



▲ Imported welding machine



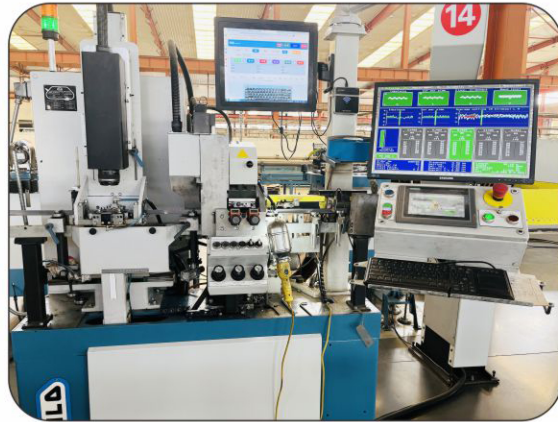
▲ Imported straightness machine



▲ Imported metallographic microscope



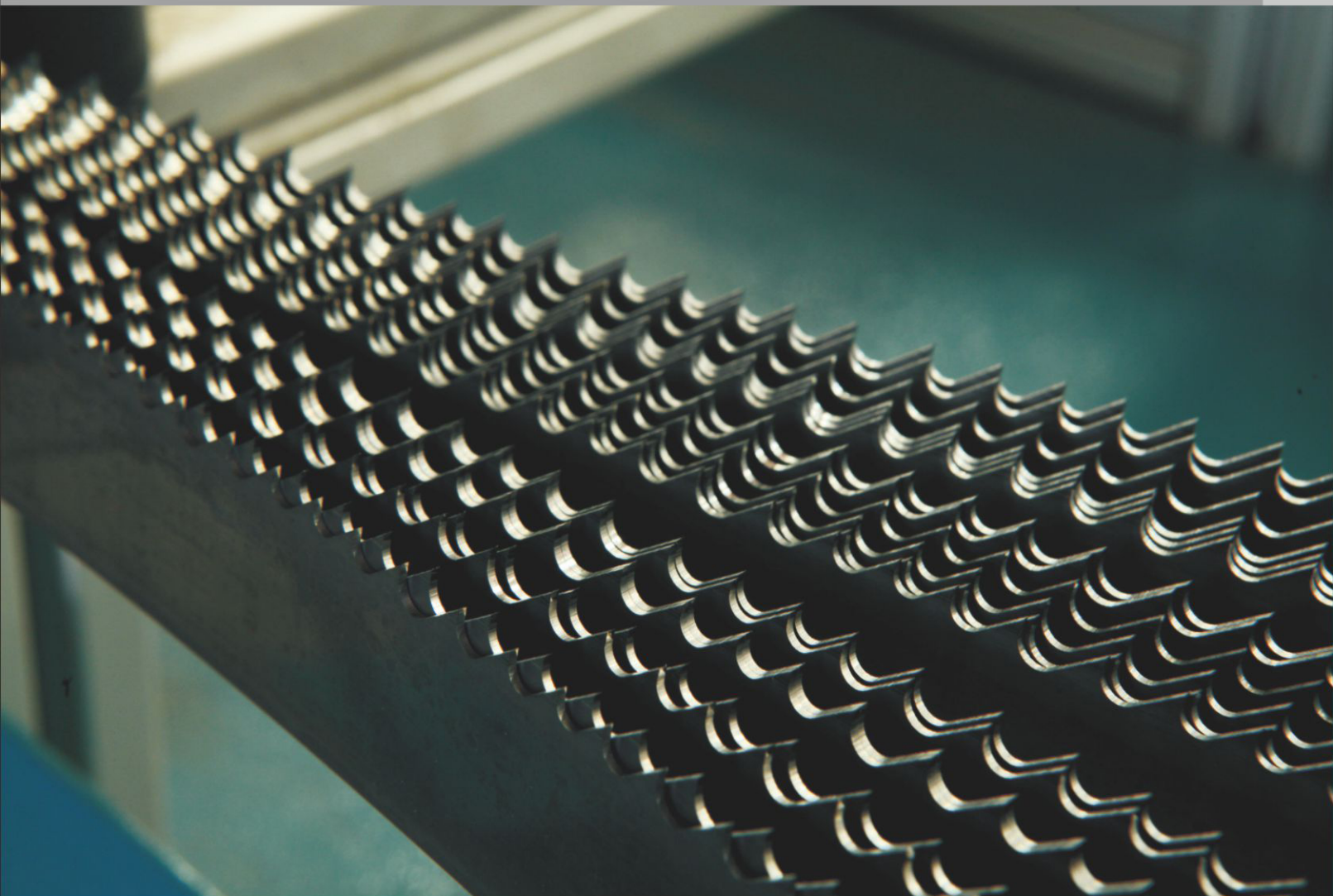
▲ Imported heat treatment production line



▲ Imported setter machine

Technology & Equipments

We have the most advanced technology and production equipments for producing band saw blade.



PRODUCT

Your cutting solution

We provide best quality and invest in research & development to support client's development.

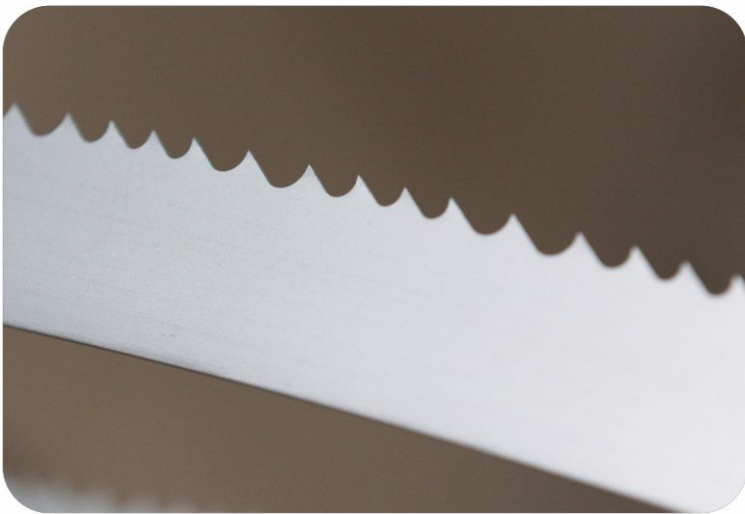
Products Range



Bi-metal Strip Steel



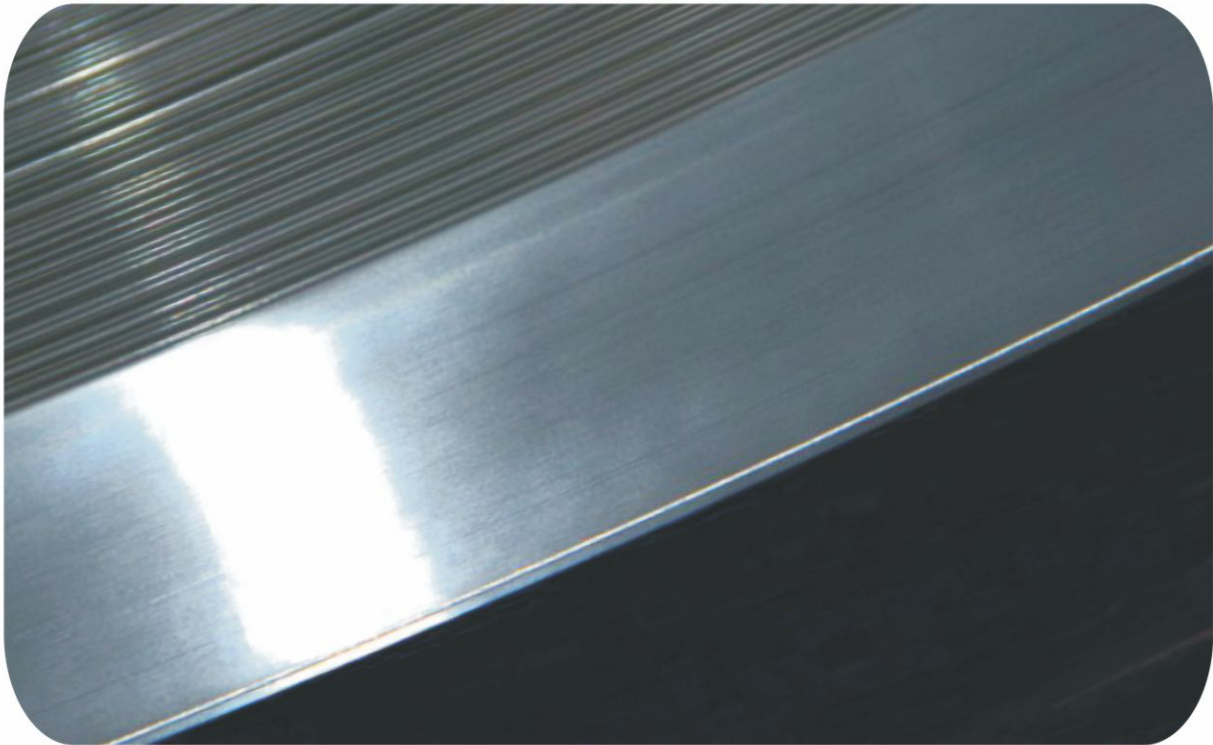
Carbide Tipped Band Saw Blade



Bi-metal Band Saw Blade

- M51 series
- Premium series
- Classic series

Bi-metal Strip Steel



Bi-metal strip steel is welded by two materials, imported spring steel as backing strip steel, the high speed steel as edge material, which are jointing by the international advanced laser welding technology.

SIZE (mm)	SIZE (inch)
13×0.6	1/2×0.025
16×0.6	3/5×0.025
19×0.9	3/4×0.035
27×0.9	1×0.035
34×1.1	1 1/4×0.042
41×1.3	1 1/2×0.050
54×1.6	2×0.063
67×1.6	2 5/8×0.063
80×1.6	3 5/8×0.063

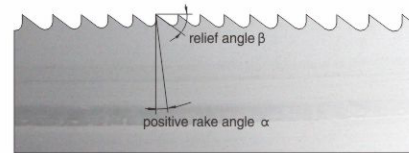
Special sizes can be available to meet your requirement

Tooth Forms

Normal Tooth [T]

Feature: With Sharp teeth, high cutting efficiency, large cutting angle, strong cutting ability, and high versatility, it can effectively reduce sawing vibration and maintain a small noise.

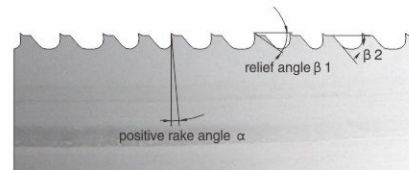
Application: Suitable for sawing carbon steel, alloy steel, non-ferrous metals, and other low-hardness metal materials.



Protective Tooth [PT]

Feature: The tensile strength of the teeth is enhanced, and it is a special tooth type for sawing pipes and profiles.

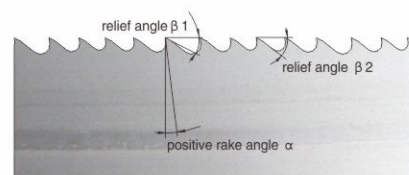
Application: Mainly suitable for sawing thin-walled pipes, special profiles, binding pipes and profiles cutting.



Back angle Tooth [BT]

Feature: Enhanced tooth strength, better tooth edge strength, high cutting efficiency, good impact resistance, can be used for cutting all types of steel, fast cutting speed, straight and flat cutting surface, and good ability of chip removal.

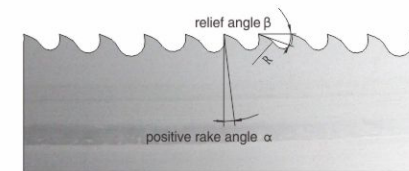
Application: Suitable for cutting high-temperature alloys, nickel alloys, titanium alloys, low-alloy steels, carbon steels, etc.



Turtle Back Tooth [TT]

Feature: The serrated wedge angle is large, the tooth tip has strong impact resistance, good chip removal performance, and high cutting efficiency.

Application: Suitable for strong cutting, solid round steel, pipes and stainless steel, alloy steel, die steel and other flexible materials, especially suitable for cutting relatively viscous materials.



High Low Tooth [HL]

Feature: High penetration, cutting ability and efficiency, low cutting resistance.

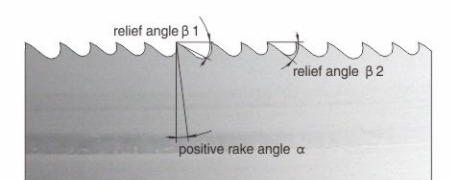
Application: Suitable for sawing high-hardness solid materials, such as large stainless steel plates and die steel plates.



Special Protective Tooth [SPT]

Feature: Compared with ordinary Protective Tooth, it increases the thickness of the tooth tip and increases the impact resistance.

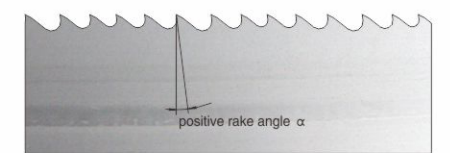
Application: cutting thick-walled pipes, bundling materials, and various special-shaped materials (I-beams, railway steels, angle pipes, steel pipes, etc.)



7 Special Variable Tooth [9°7ST]

Feature: Strengthened the chip removal ability, in the saw-cutting process, strengthened the wear resistance of the side tip of the teeth.

Application: Suitable for stainless steel, die steel, spring steel, bearing steel and other more hardness steel and also can cut the normal steels with high hardness after quenching and tempering treatment.



Combine Tooth

Feature: Fast cutting rate. Efficient.

Application: Tubes, Profiles, Section steel, solid materials.



Special sizes can be available to meet your requirement

Carbide Tipped Band Saw Blade

CT



- Performs extremely well cutting hard materials
- High abrasion resistance carbide teeth materials
- Special teeth set mode design: set teeth or unset teeth

Application

- **Setting Tooth** -- suitable for cutting stainless steels, high temperature alloy steels, titanium alloys, nickel-based alloys and other materials which difficult to cut.
- **Non Setting Tooth** -- suitable for cutting aluminum and aluminum alloys, copper and other non-ferrous metals, and non-metallic materials such as graphite.

M51

Bi-metal Band Saw Blade



- The tooth material is made of special high-speed steel, which not only has excellent abrasion resistance and red hardness, but also has splendid impact toughness performance.
- In terms of tooth shape design, the unique rake angle and double relief angle design are adopted to improve sawing efficiency while ensuring the stability and durability of the teeth.
- High-performance tooth material combined with high-strength backer exhibits great resistance to fatigue crack growth.

Application

Suitable for a variety of hard-to-cut materials

- Bearing Steel
- Die Steel
- Tool Steel
- Stainless Steel
- Titanium Alloys
- Nickel Alloys, etc.

Bi-metal Band Saw Blade

Premium



- For universal use with excellent quality and high-cost performance.
- Adopt a special tooth design, which is conducive to improving the cutting rate and guarantees smooth chip removal.
- Premium high-speed steel for tooth material, excellent abrasion resistance and red hardness, excellent sawing and lifespan.

Application

Application is universal, meeting the sawing of various ordinary or some hard-to-cut materials.

- | | | |
|---------------------|--------------------|-------------------------|
| • Non-ferrous Metal | • Structural Steel | • Die Steel |
| • Cast Iron | • Alloy Steel | • Tool Steel |
| • Carbon Steel | • Bearing Steel | • Stainless Steel, etc. |

Classic

Bi-metal Band Saw Blade



Superior quality at a competitive price, it can better meet "low cost" budget requirements at the same price.

Application

- | | |
|--|--------------------|
| • Soft Material | • Structural Steel |
| • Low Hardness Carbon Steel(10#, 20 #, 25 #, 45 #, etc.) | |
| • Low Alloy Steel, etc. | |

Bi-metal band saw blade teeth list(M51/Premium/Classic)

13×0.6 $1/2 \times 0.025$	16×0.6 $3/5 \times 0.025$	19×0.9 $3/4 \times 0.035$	27×0.9 1×0.035	34×1.1 $1\ 1/4 \times 0.042$	41×1.3 $1\ 1/2 \times 0.050$	54×1.6 2×0.063	67×1.6 $2\ 5/8 \times 0.063$	80×1.6 $3\ 5/8 \times 0.063$
24T	14T	14T	10/14T	8/12T	5/8T	4/6T	2/3BT	1.4/2.0LPT
14/18T		10/14T	8/12T	6/10T	6/10T	1.4/2.0T	3/4BT	1.0/1.3DT
12/16T		8/12T	8/11T	5/8T	4/6T	1.25T	3/4ET	1.4/2.0DT
14T		6/10T	6/10T	4/6T	3/4T	1/1.25T	1.4/2.0LPT	0.75/1.25T
10/14T		8/11T	5/8T	3/4T	2/3T	0.75/1.25T	1/1.25T	
8/12T		8T	5/7T	2/3T	1.4/2.0T	1.2/1.6T	1.4/2.0DT	
6/10T		4/6T	6T	4/6PT	1.25T	1.4/2.0DT	1.4/2.0T	
6T		4/6BT	4/6T	3/4PT	1/1.25T	2/3BT	1.25T	
13×0.9 $1/2 \times 0.035$		3/4T	4T	3/4SPT	3/4PT	3/4BT	1.2/1.6T	
14T			3/4T	5/8TT	3/4SPT	3/4ET	1.0/1.3DT	
10/14T			2/3T	4/6TT	4/6PT	3/4PT	1.4/2.0LPT	
8/12T			2T	3/4TT	3/4TT	1.0/1.3DT		
6/10T			4/6PT	2/3TT	2/3HL	0.75/1.25T		
			3/4PT	2/3HL	3/497ST			
			4/6TT	3/4HL	4/6BT			
			3/4TT	3/497ST	2/3BT			
			3/497ST	4/6BT	3/4BT			
			4/6BT	2/3BT	2/3TT			
			2/3BT	3/4BT	3/4HL			
			3/4BT	4/6SPT	3/4ET			
			3/4SPT	5/7T	1.4/2.0DT			
			2/3HL	3/4ET	1.4/2.0LPT			
			3/4HL					
			4/6SPT					
			3T					
			3/4ET					
			5/8TT					

- T—Normal Tooth(constant or variable pitch)

■ BT—Back Angle Tooth

■ TT—Turtle Back Tooth

■ PT—Protective Tooth
- SPT—Strong Protective Tooth

■ HL—High Low Tooth

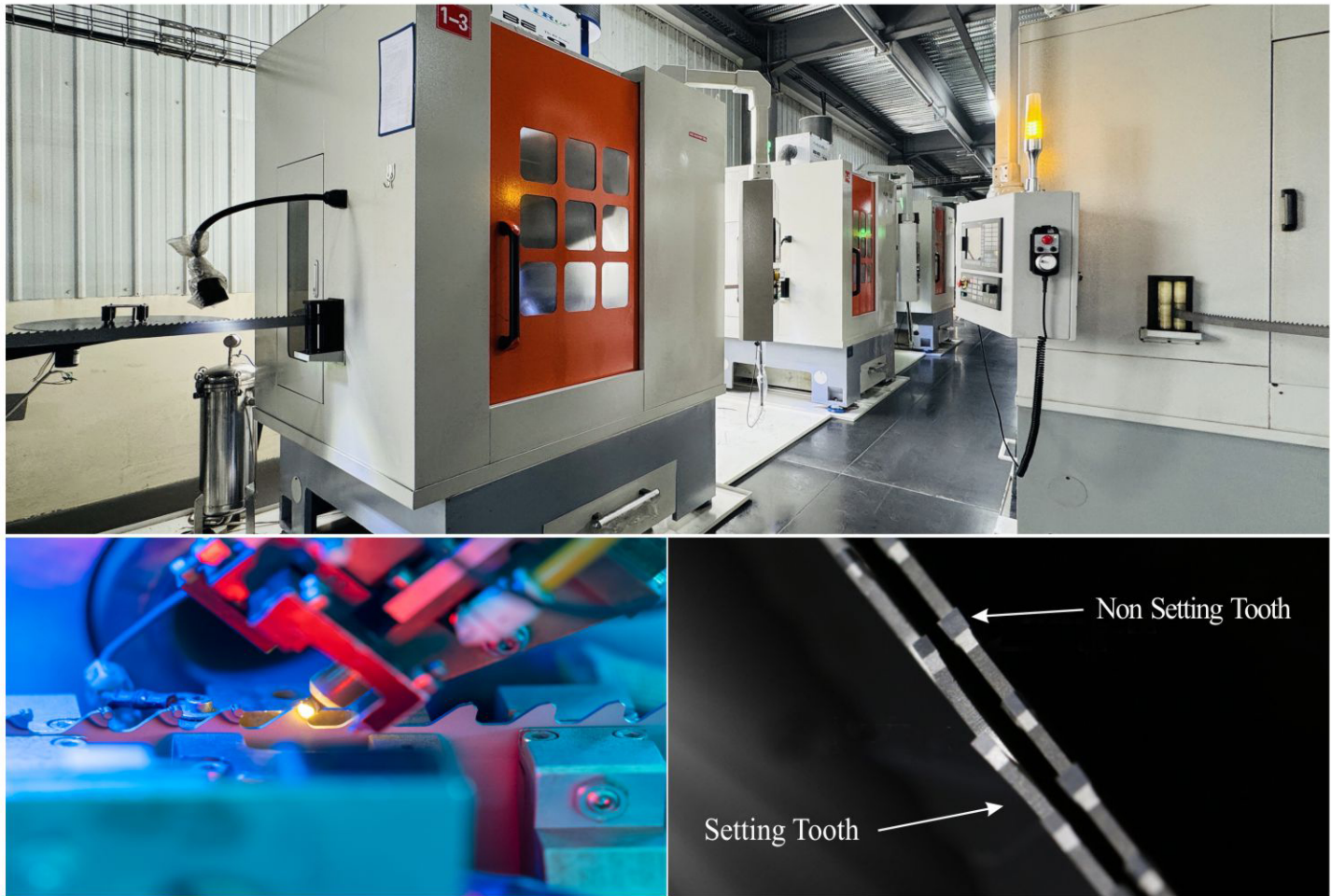
■ 9° 7ST—7 Special Variable Tooth

Note: Special sizes can be available to meet your requirement.

Carbide tipped band saw blade teeth list


TPI	19 × 0.9	27 × 0.9	34 × 1.1	41 × 1.3	54 × 1.6	67 × 1.6	80 × 1.6
	3/4 × 0.035	1 × 0.035	1 1/4 × 0.042	1 1/2 × 0.050	2 × 0.063	2 5/8 × 0.063	3 5/8 × 0.063
3	● ▲	● ▲	● ▲				
3/4	● ▲	● ▲	● ▲	● ▲	● ▲		
2/3		● ▲	● ▲	● ▲	● ▲		
1.4/2.0			● ▲	● ▲	● ▲	● ▲	● ▲
1/1.25				● ▲	● ▲	● ▲	● ▲

● --Setting Tooth ▲ --Non Setting Tooth




Tooth Set

Standard Set



The raker set (left-right-straight) is useful for all types of steel, especially for cutting thicknesses of 5 mm and more.

Left-right Set



In a variable set there is one unset tooth per tooth interval. The rest of the teeth are bent alternately left/right. This set facilitates low-vibration and low-noise cutting.

Wave Set



The wave set is well suited for thin materials up to 3/16", such as sheet metal, thin-walled tubing and cross sections.

How to choose TPI

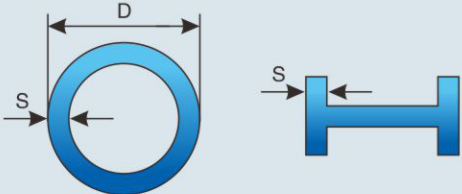
Solid Materials

Diameter of Workpiece (mm)	TPI
≤30	5/8T、6T、8/12T
30-50	6T、4/6T、4T
50-100	4T、3/4T、4/6T
100-150	3/4T、2/3T
150-200	3/4T、2/3T
200-300	2/3T、2T、1.25T、1.4/2.0T
300-500	1.25T、1/1.25T、1.4/2.0T
≥500	1/1.25T、0.75/1.25

Tubing and Profiles Material

D(mm)	20	40	60	80	100	150	200	300	500
S(mm)	TPI								
2	14	14	14	14	10/14	10/14	10/14	10/14	8/12
3	14	10/14	10/14	8/12	8/12	8/12	6/10	6/10	6/10
4	14	10/14	10/14	8/12	8/12	6/10	6/10	5/8	4/6
5	14	10/14	10/14	8/12	6/10	6/10	5/8	4/6	4/6
6	14	10/14	8/12	8/12	6/10	5/8	5/8	4/6	4/6
8	14	8/12	6/10	6/10	6/10	5/8	5/8	4/6	4/6
10		6/10	6/10	5/8	5/8	4/6	4/6	4/6	3/4
12		6/10	5/8	4/6	4/6	4/6	4/6	3/4	3/4
15				4/6	4/6	3/4	3/4	3/4	2/3
20				4/6	4/6	3/4	3/4	3/4	2/3
30				3/4	3/4	3/4	2/3	2/3	2/3
50						2/3	2/3	2/3	1.4/2.0
75							2/3	1.4/2.0	1.4/2.0
100								1.4/2.0	0.75/1.25
150									0.75/1.25

According to the wall thickness of cutting tubes and profile materials when choose the tooth pattern for tensile tooth



Products/Applications

Carbide Tipped Band Saw Blade

- **Setting tooth**
suitable for cutting stainless steels, high temperature alloy steels, titanium alloys, nickel-based alloys and other materials which difficult to cut.
- **Non Setting Tooth**
suitable for cutting aluminum and aluminum alloys, copper and other non-ferrous metals, and non-metallic materials such as graphite.



M51 Bi-metal Band Saw Blade

- Suitable for a variety of hard-to-cut materials
- Bearing Steel
 - Die Steel
 - Tool Steel
 - Stainless Steel
 - Titanium Alloys
 - Nickel Alloys, etc.



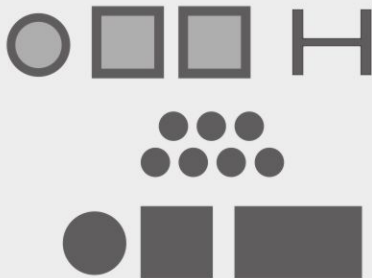
Premium Bi-metal Band Saw Blade

- Application is universal, meeting the sawing of various ordinary or some hard-to-cut materials.
- Non-ferrous Metal
 - Structural Steel
 - Die Steel
 - Cast Iron
 - Alloy Steel
 - Tool Steel
 - Carbon Steel
 - Bearing Steel
 - Stainless Steel, etc.



Classic Bi-metal Band Saw Blade

- Soft Material
- Structural Steel
- Low Hardness Carbon Steel(10#, 20 #, 25 #, 45 #, etc.)
- Low Alloy Steel, etc.



How to Use Well Band Saw Blade

- 1.When install blade, must make sure that all the teeth part are shown outside the guide. And the direction of teeth is the same with the direction of wheel rotation.
- 2.The tension of blade will be different for the difference of blade width and thickness. And also along with increasing using time of band saw machine, the tension will be reduced by blade stretched. So please make sure the blade tension is in good situation. We recommend blade tension is 300N/mm².
- 3.Choose cutting liquid: the main function of cutting liquid is cooling and lubricating during cutting. And also have antirust function for workpiece. The higher concentration of cutting liquid will increase the cooling capacity, and the lower concentration will not good with lubrication. So the compounding concentration of cutting liquid should be moderate. We recommend you choose water cutting liquid.

How to Make Running In

Running in should operate with work piece. It is very important for bimetal blade get the best operating life. During running in, the cutting speed should be 1/3 of normal speed; the feed in quantity is 1/4 of normal. Usually, after 5–10 pieces cutting, adjust relative parameters to normal cutting condition gradually.

How to Choose Correct Cutting Speed

Workpiece Material	Cutting parameter	Specification				
		27	34	41	54	67
Structural Steel	Cutting Speed m/min	70 ~ 80	60 ~ 70	50 ~ 60	45 ~ 50	40 ~ 50
	Cutting Rate cm/min	50 ~ 60				
Middle/Low Steel	Cutting Speed m/min	65 ~ 80	55 ~ 70	50 ~ 65	40 ~ 55	
	Cutting Rate cm/min	45 ~ 55				
Hardened and Tempered Steel/ Alloy Steel	Cutting Speed m/min	55 ~ 70	50 ~ 65	45 ~ 60	40 ~ 55	
	Cutting Rate cm/min	40 ~ 50				
Bearing Steel/ Spring Steel/ Tool Steel	Cutting Speed m/min	40 ~ 55		35 ~ 50	30 ~ 45	
	Cutting Rate cm/min	30 ~ 40			25 ~ 35	
Die Steel/ High speed Tool Steel	Cutting Speed m/min	35 ~ 45	30 ~ 45	25 ~ 40		20 ~ 35
	Cutting Rate cm/min	25 ~ 35			20 ~ 30	
Stainless Steel/ Heat-resistant Steel	Cutting Speed m/min	35 ~ 45		25 ~ 40		20 ~ 35
	Cutting Rate cm/min	20 ~ 30				
Aluminum Alloys	Cutting Speed m/min	80 ~ 150			60 ~ 80	
	Cutting Rate cm/min	70 ~ 150				
Copper Alloys	Cutting Speed m/min	60 ~ 90			40 ~ 60	
	Cutting Rate cm/min	45 ~ 50			30 ~ 40	
Profile Steel	Cutting Speed m/min	50 ~ 80			45 ~ 65	
	Cutting Rate cm/min	40 ~ 70			30 ~ 50	

The Common Cutting Problems and Solutions

Problem	Main Reason	Solution
Cut slanting	a. Badly running in, teeth earlier passivation	a. Properly running-in at the beginning using
	b. Speed too fast and feed too more	b. Properly choose the cutting speed and feed
	c. Improper cooling (cutting fluid flow is abnormal)	c. Properly adjust the cutting fluid flow and ratio
	d. Wrong TPI	d. Choose correct TPI by the diameter of workpiece
	e. Tension too small(Improper adjustment of blade tension)	e. Properly adjust blade tension
	f. Guide arm open too wide	f. Choose the width of guide arm basic on the diameter of workpiece
	g. Jaw and workpiece are loosen	g. Adjust jaw tightness of band saw machine
Easily broken tooth	a. New blade not running-in and feed too more	a. Properly running in at the beginning running of blade
	b. Wrong TPI, chips block the gullet	b. Choose correct TPI by the diameter of workpiece
	c. At the beginning of cutting, blade not correctly contact with workpiece, teeth suddenly broken by high load	c. Properly adjust the cutting speed and feed amount
	d. Workpiece with inclusions, hardness is uneven.	d. Change the workpiece or change another kurf
Chips block the gullet	a. Improper ratio of cutting liquid	a. Properly use cutting liquid
	b. Problem with wire brush	b. Adjust wire brush or change the brush
	c. Wrong TPI	c. Choose correct TPI by the diameter of workpiece
Cutting surface rough	a. Teeth passivation, side teeth damaged, few teeth broken	a. Properly running in at the beginning running of blade, avoid of teeth passivation or damage
	b. Wrong position of guide arm and workpiece, Blade tension is not enough	b. Choose the width of guide arm basic on the diameter of workpiece, Properly adjust the blade tension
	c. Cutting speed too fast	c. Properly adjust the feed amount
	d. Improper choice of blade length	d. choose the blade length by the equipment requirement
Blade backing easily break	a. Blade tension too big	a. Adjust the blade tension, better use torque spanner
	b. Feed speed too fast, downward pressure too big	b. Properly adjust feed speed and downward pressure
	c. Three points on a line of driving wheel, driven wheel and guide inaccuracy, result to the blade backing break under high load	c. Adjust the line of driving wheel, driven wheel and guide, be sure that blade working with a proper torque line
	d. Friction of blade backing and saw wheel too big, then make the cracks	d. Adjust the clearance distance between blade backing and the edge of band saw machine's saw wheel
	e. Guide block or top pressure board wore	e. Adjust or change the guide block or top pressure board
	f. Cutting liquid flow too small, improper cooling	f. Properly adjust the cutting fluid flow and ratio
Welding part easily break	a. Bad welding quality, welding seam not good, annealing under the tempering	a. Adjust the parameter of welding machine, make sure welding quality
	b. The grinding of welding part too thin	b. properly grind the welding part
Partly broken teeth or distortion	a. Cutting speed too fast lead to the blade teeth directly contact with workpiece	a. Properly adjust the feed amount, when the machine stop running, keep 12~15mm distance between the teeth of blade and workpiece

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We sincerely welcome old and
new customers to visit our factory!!

Please note:

Benxi Lion Technology Import and Export Co., Ltd is the daughter company of Benxi Tool Co.,Ltd which is responsible for the import and export business for Benxi Tool Co.,Ltd.

To be continued.....