



# Bichamp

CUTTING TECHNOLOGY



Bi-Metal Steel Strips

"Bichamp" brand  
Bi-metal Bandsaw  
Blades



"HJ" brand Metal  
Cutting Saw Machines



BICHAMP CUTTING TECHNOLOGY (HUNAN) CO.,LTD.

"Bichamp" Bi-metal Bandsaw Blades & "HJ" Metal cutting Saw Machines



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## Company Profile

**Bichamp Cutting Technology (Hunan) Co., Ltd.** was found in 2003 and located at Hunan Foreign Investment Zone containing 156 mu (10.5 ha) land. The company was a sole foreign investment enterprise established by homecoming student abroad, and now becomes a joint-venture after successfully purchasing Zoomlion Hunan Machine Tool Works Branch, which enjoyed 30 years experience in producing blades and 60 years experience in producing saw machines.

Now the company has the capacity of annually producing 2300 tons bi-metal steel strips, 10 million Bi-metal Bandsaw Blades and 3500 sets of Metal Cutting Saw Machine, the revenue of main business will reach 500 million and profit will reach 150 Million and become the biggest bi-metal steel strips manufacturer in Asia and main base for producing Bi-metal Bandsaw Blade and Saw Machine in the world.

As the key enterprise in China machine tool industry, standing director of China Machine Tool Industry Association (CMTIA), managing director of Saw Machine Branch of CMTIA and secretary general of China Metal Cutting Saw Machine Association, we undertakes the duty to formulate and revise the China national industry standards. Moreover, as the sole enterprise which engaged in Bi-metal Steel Strips, Bi-metal Bandsaw Blades and Saw Machines, our main business forms a

nice products chain which relates and improves each other.

With the advantage of the strong technology strength and wide market, we have achieved jump-development in recent years. In April of 2005, our "Technology of manufacturing Bi-metal Steel Strips" passed through the examination by experts organized by Hunan Science & Technology Bureau; In October of 2005, our project of "Bi-metal Steel Strips for High Speed Cutting" was awarded "National High and New Technology Industrialization Demonstration Project" by China National Development and Reform Commission. In year of 2006, we are approved by the National Foreign Experts Bureau to be the one of key enterprises, which will enjoy special support on obtain know-how from foreign expert and technician overseas training. In October of 2006, we won the prize of "New Science and Technology Contribution" awarded by Wangcheng County Science and Technology Bureau. In June of 2007, the company project was listed as the key project of Science and Technology Plan of Changsha City Government.

Taking the core concept of "To be the Responsible", the Bichamp people will redound upon society for high quality products and good service. Bichamp Cutting Technology (Hunan) Co., Ltd. will initiative to participate in international competition to be a first-class manufacturer of metal cutting products in the world.

## General information of all products

### Bi-Metal Steel Strips

Are made of cobalt high speed steel HSS for the teeth and spring steel as a back material, are joined during the Electron-beam welding process. They are suitable for producing band saw, hole saw, hack saw, reciprocating saw and some other cutting tools.



### "Bichamp" brand Bi-metal Bandsaw Blades

Are made of imported M42 high speed steel for edge and imported spring steel for backer by means of a series of advanced equipment and technique processing such as electron beam welding and specific heat treatment, etc. With total imported material, imported manufacturing equipment, and nearly 30 years of experience in this field, our blade is of best quality.

- **Available size:** 19x0.9mm, 27x0.9mm, 34x1.07mm, 41x1.27mm, 54x1.6mm, 67x1.6mm with various tooth type and tooth per inch.
- **Edge material:** imported M42 high speed steel,
- **Back material:** imported spring steel.
- **Manufacturing Equipment:** Several blade manufacturing line, which are mainly imported from Germany, Sweden, etc.
- The tooth edge has good hot hardness and the blade body offers excellent fatigue-resistance. It is suitable for cutting various ferrous and nonferrous at high speed
- Both regular blade for cutting normal material and specific technique processed extra-hard blade for material difficult to machine are available. They can satisfy different cutting requirements.
- Charactered by narrow kerf, high productivity, energy saving, it is the latest cutting tool to save raw material and reduce power resources consumption.
- Supplied in coils or welded loops as required.

### "HJ" brand Metal Cutting Saw Machines

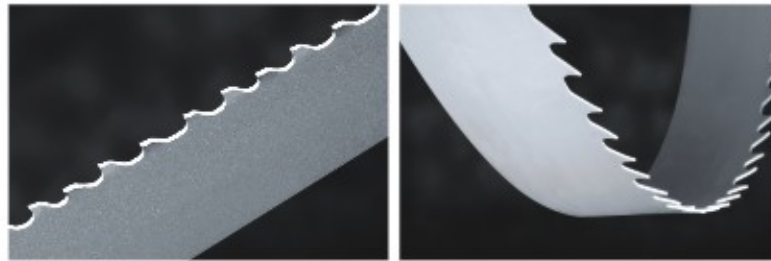
Have been well received both in China and abroad. The affiliated "Changsha Saw Machine Research Institute" of National Machinery Industry Bureau locates in the factory. With tremendous technical strength, 60 years experience in producing saw machines, we have advantages in designing & manufacturing large and special-purpose machine according to customer's requirement. Following saw machines are available:

- **Vertical Bandsaw Machine**
  - Normal Vertical Bandsaw Machine { G5132, G5328 }
  - Block Vertical Bandsaw Machine { G5335, G5385, G5310 }
- **Horizontal Bandsaw Machine**
  - Swivel Horizontal Bandsaw Machine { G4022/G4022x40, G4025D }
  - Double Column Horizontal Bandsaw Machine { G4225/GZ4225, G4240/GZ4240/G4250/GZ4250, G4265/GZ4265, G42100 }
- **Circular saw Machine**
  - High Speed Circular Saw Machine { GZL 607 }
  - Carbide Circular Saw Machine { GKT623, GKT608 }
- **Special-purpose Saw Machine**
  - Special designed for cutting aluminum material
  - Special designed for cutting copper material
  - Special designed for double direction of cutting and drilling hole.
- Flash Butt Welder { For welding bandsaw blades }

**Available Blade with different Rake Angle Tooth Type and TPI**

Remark: ● Regular TPI—We manufacture it in batches all the time.  
▲ Special TPI — We manufacture it as required.

**Blade size (Width x thickness)**



**0 Degree Constant pitch**

They are traditional tooth shape for general cutting of small solid workpieces.

mm	inch	3	4	6	8
19 x 0.9	3/4 x 0.035		●	●	▲
27 x 0.9	1 x 0.035	●	●	●	●
34 x 1.1	11/4 x 0.042	●	●	●	▲
41 x 1.3	11/2 x 0.050	▲	▲	▲	▲

**0 Degree Variable pitch**— They are suitable for multi-purpose cutting of thin-walled tubes and profiles in most materials.

mm	Inch	3/4	4/6	5/8	6/10	8/12	10/14
13 x 0.6	1/2 x 0.025				▲	▲	●
19 x 0.9	3/4 x 0.035	▲	●	●	●	●	●
27 x 0.9	1 x 0.035	●	●	●	●	●	●
34 x 1.1	11/4 x 0.042	▲	●	●	▲	▲	▲
41 x 1.3	11/2 x 0.050	▲	●	●			

**7 Degree Variable pitch**

With positive cutting angle to decrease cutting forces, it is for cutting steel, stainless steel, light alloys, aluminum..... Can be used for every kind of material.

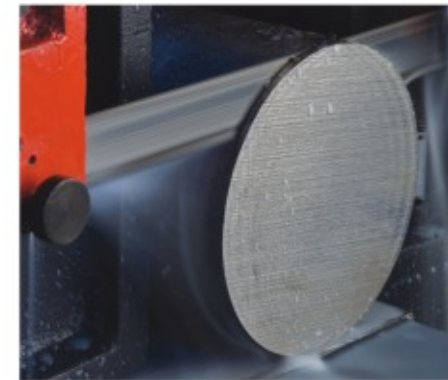
mm	inch	2/3	3/4	1.0/1.5	1.4/2.0	0.7/1.25
27 x 0.9	1 x 0.035	●	●			
34 x 1.1	1 1/4 x 0.042	●	●			
41 x 1.3	1 1/2 x 0.050	●	●	●	●	
54 x 1.6	2 x 0.63	▲	▲	●	●	
67 x 1.6	2 5/8 x 0.63	▲	▲	●	●	▲

**TPI (Teeth Per Inch)**

**10 Degree Turtle back tooth**

With curved back and a gullet with large chip capacity, it is excellent for cutting large workpieces of all types of steel.

mm	inch	3/4	4
27 x 0.9	1 x 0.035	●	●
34 x 1.1	11/4 x 0.042		●
41 x 1.3	11/2 x 0.050		●



**11 Degree Variable pitch**

with big rake angle, it is special for mould steel cutting.

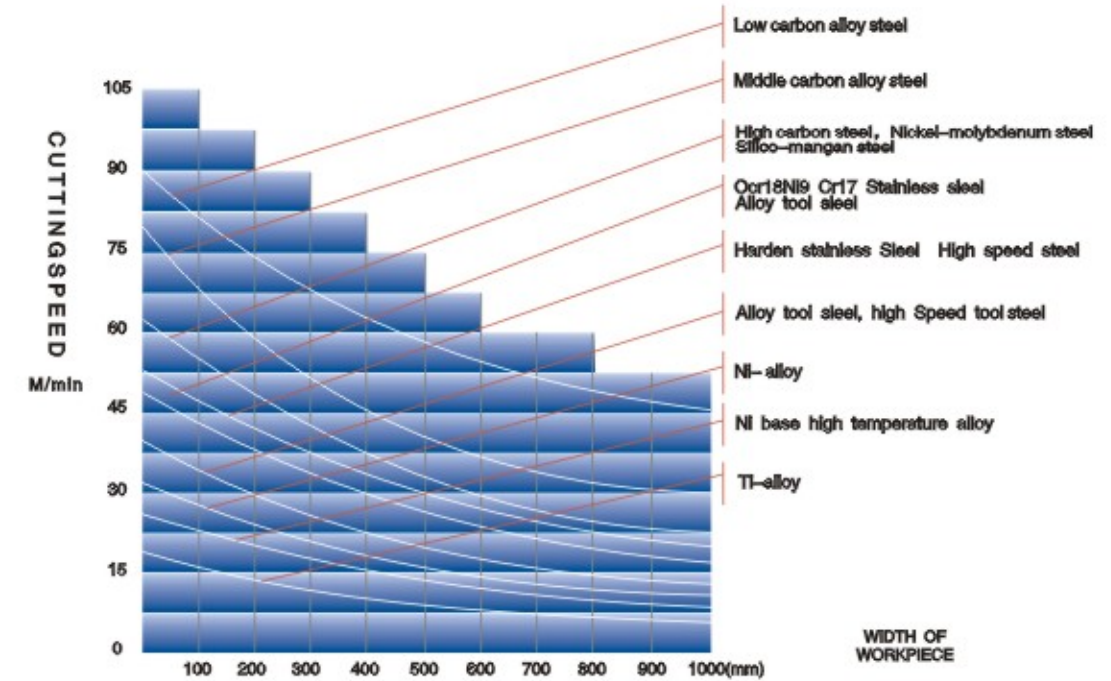
mm	inch	2/3	4/6
41 x 1.3	11/2 x 0.050	●	
34 x 1.1	11/4 x 0.042	●	●

**3 Degree Protective tooth**

Reinforced tooth design specifically developed for cutting bundles, tubes and profiles with excellent capacity and tool life.

mm	inch	3/4	4/6
27 x 0.9	1 x 0.035	●	●
34 x 1.1	11/4 x 0.042	●	●
41 x 1.3	11/2 x 0.050	●	

**M/MIN CUTTING SPEED**



NOTE: This list is suitable for the material of hardness HRC20(HB225).  
When the material of hardness is 30HRC (233HB) the cutting speed is 70 percent of this list.  
When the material of hardness is 35HRC (330HB) the cutting speed is 60 percent of this list.

**Main Factors for Prolonging Blade Life**

- Select high quality bandsaw machine, operate and adjust it correctly are most important factors for ensuring blade life. Good rigidity and performance can prevent vibration and all kinds of stress effecting huge influence on blade.
- Select proper blade. It is impossible that one blade can meet all cut requirements. Moreover, blades with different type and feature have different function. Blade selection includes selection of width, tooth type, and p. I. T.
- Select proper cutting parameters. mainly include blade speed, feed speed, feed pressure, feed rate and blade tension, etc. The ideal chip shows tight, silver and a little warm. If the chip is burned, brown, heavy or pulverized, please adjust relative parameters.
- Proper selection of cut fluid and coolant mix rate can lubricate and cool down blade and wash away the material adding on the tooth edge.
- Running in a new blade correctly. "Run in" means to makes to the blade tooth gradually in normal condition through wearing tooth naturally, and eliminate tooth burr, which can prevent blade tooth premature breaking. It is especially important when cutting sudden changed cross-section material such as profiles, tubes, and exotic materials. When running in a new blade, please adjust the machine parameters to 50% normal cutting efficiency. When cutting area reach 200-600 square centimeter, and not exit unusual condition, please adjust relative parameters to normal cutting condition gradually.

### Bi-metal Bandsaw Blades trouble shooting

Problem	Possible Cause	Solution
Saw blade keeps breaking prematurely	a. Blade tension too high	a. Reduce tension
	b. Guides tight or maladjusted	b. After adjustment
	c. Speed too low for feed rate	c. Increase speed or decrease feed
	d. Speed too high	d. Reduce speed
	e. Cracking at the weld	e. Check welding technique
	f. Blade too thick for wheel diameter	f. Use lighter gauge
	g. Pitch too coarse	g. Use finer pitch
Blade starts to camber and cuts to one side – running out of square	a. Saw guides too far apart	a. Adjust closer to material
	b. Feed pressure too high	b. Reduce pressure
	c. Roller guides not adjusted	c. Adjust correctly
	d. Band pitch too fine	d. Use coarser pitch
	e. Set removed by guides	e. Adjust or chamfer guides
	f. Blade riding on wheel flange	f. Adjust wheel tracking
	g. Hard inclusion in material	g. Reduce cutting rate
Vibration whilst cutting	a. Work piece not securely held	a. Improve clamping
	b. Incorrect feed pressure	b. Adjust
	c. Not enough blade tension	c. Increase tension
	d. Wrong speed for thickness	d. Adjust
	e. Pitch too coarse	e. Use finer pitch
	f. Wrong tooth form	f. Use variable pitch
Blade dulls prematurely	a. New blade not 'run in'	a. See Bernards FAQ page
	b. Feed rate too light	b. Increase rate
	c. Speed too high	c. Reduce speed
	d. Pitch too coarse	d. Use finer pitch
	e. Coolant not directed	e. Direct at point of cut
	f. Saw idling through cut	f. Keep teeth engaged
	g. Incorrect saw guides for width	g. Use correct guides
	h. Teeth running in wrong direction	h. Refit blade correctly
	i. Wrong blade quality	i. Try different type
	Blade twisting	a. Saw guide arms too far apart
b. Blade binding in cut		b. Reduce feed rate
c. Not enough blade tension		c. Increase tension
d. Blade too wide for radius		d. Use narrower blade

### Specifications of Saw Machines

Model	Description	Main Features	Cutting Capacity (mm)	Blade speed	Blade size	MOTOR (kw)			Net Weight	Machine Size		
				(m/min)	(W x Tx L) mm	Blade	Hydraulic	coolant	(kg)	(Lx Wx H)mm		
G4022 G4022X40	Semi-automatic Horizontal Bandsaw	1. Gemel type 2. Hydraulic clamping	○ Φ220 □ 220 x 220 □ 400 x 200	21, 34, 43, 60	7 x 0.9 x 3045	1.1	0.12	0.04	330/360	1600 x 610 x 1130		
G4025D			○ Φ250 v	30, 45, 60, 70	27 x 0.9 x 3420	2.2	0.75	0.04	660	1866 x 775 x 1235		
G4030			○ Φ300	25, 31, 40, 50, 63, 80	27 x 0.9 x 3820	2.2	0.37	0.08	950	1995 x 810 x 1295		
G4225	Semi-automatic Horizontal Bandsaw	1. Double column 2. Manual feeding, automatic cutting. 3. Double column, good rigidity, high efficiency.	○ Φ250	27, 40, 54, 75	27 x 0.9 x 3505	2.2	0.75	0.08	1400	2086 x 2052 x 1350		
G4240			○ Φ410 □ 410 x 410	20, 35, 50, 70	34 x 1.06 x 4585	4	1.5	0.09	2200	2300 x 1555 x 1040		
G4250			○ Φ500 □ 500 x 700	17, 25, 35, 45, 55, 65, 75	41 x 1.25 x 4880	5.5	1.5	0.12	2500	3100 x 2560 x 1880		
G4265			○ Φ650 □ 700 x 650	20, 40, 60	41 x 1.25 x 4881	5.5	2.2	4.5	5500	3680 x 2177 x 2200		
G42100			○ Φ1000 □ 1000 x 1000	10-60	54 x 1.6 x 11400	11	4	0.25	20000	7000 x 5250 x 3035		
GZ1225			Automatic Horizontal Bandsaw	1. Automatic feeding 2. Automatic aiming at cutting line 3. PLC control 4. Automatic stop in case of blade jam or breakage	○ Φ250	27, 40, 54, 75	27 x 0.9 x 3505	2.2	0.75	0.08	1600	2086 x 2052 x 1350
GZ1240					○ Φ410 □ 410 x 410	20, 35, 50, 70	34 x 1.06 x 4585	4	1.5	0.09	2500	2300 x 1555 x 2280
GZ1250	○ Φ500 □ 500 x 700	17, 25, 35, 45, 55, 65, 75			41 x 1.25 x 5240	5.5	1.5	0.12	2700	2800 x 1880 x 2740		
GZ1265	○ Φ650 □ 700 x 650	20, 40, 60			41 x 1.25 x 4881	5.5	2.2	4.5	6500	3700 x 2800 x 2200		
G5132	Vertical Bandsaw	Table moving			Max Thickness 320	15-90 180-1080	27 x 0.9 x 4250	2.2			1600	1245 x 1648 x 2400
G5335	Block Vertical Bandsaw	Saw head moving	Max Thickness 350	22-105	41 x 1.25 x 4570	4			5200	4160 x 2100 x 2190		
G5385			Max Thickness 850	12-72	67 x 1.6 x 7440	7.5	2.75		18000	9800 x 52400 x 3445		
G53100			Max Thickness 1000	2-72	67 x 1.6 x 76907	7.5	2.75		18600	9800 x 52400 x 3445		
GKT623	Carbide Circular Saw	1. NC control, log in and display the data and with the man-machine interface. 2. High speed and efficiency.	○ Φ15-65 □ 15-65	90-130 r/min	Φ285x12.0	5.5	2.2		2000	6650 x 1500 x 1700		
GKT608	Carbide Circular Saw	1. Clamping vice separating the cuts automatically. 2. Compressed air to cool the blade	○ Φ70-340	26, 32, 40, 48 r/min	Φ830 Φ965 Φ1020	55/67	7.5		8500	5200 x 2700 x 2260		

### Metal cutting saw machine



## Metal cutting saw machine

