

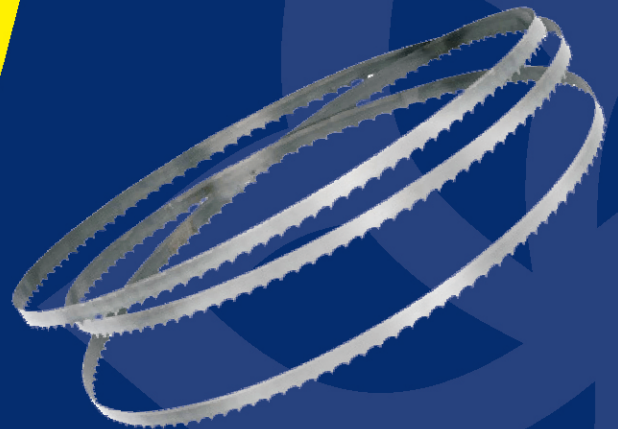


MIRANDA TOOLS
Premium quality cutting tools



ASHOK
PIRAMAL
GROUP

MIRANDA Bi-Metal Bandsaw Blades



www.mirandatools.in






MIRANDA BIMETAL[®] ALUMINA - M42

An extra-wide cut giving a half-setting 60% larger than that of a standard blade. This gives it a 60% larger set, which prevents the material from closing up after the cut has been made. A variable pitch with a raker group of 5 teeth reduces vibration during cutting. Blade especially developed to cut aluminum, a material difficult to saw, as it tends to "close up" when cut.


CONSTANT PITCH

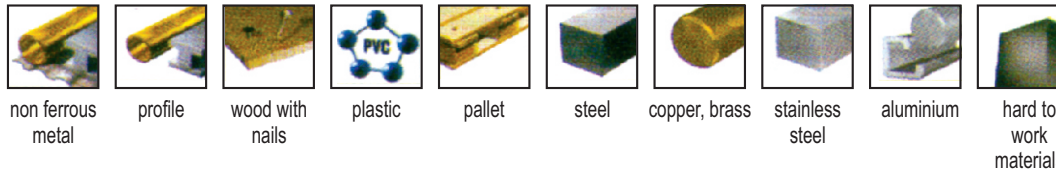
Type of teeth	Section (width*thickness)		Number of teeth per inch		
	mm	inch	1.25	2	3
 CI:HOOK	20x0.9	3/4x0.035			●
	27x0.9	1x0.035		●	●
	34x1.1	1 1/4x0.042	●	●	●
	41x1.3	1 1/2x0.050	●	●	

MIRANDA BIMETAL[®] KATANA - M42

Made from M42 steel with VX teeth, this new blade is an unrivaled combination between hardness and resilience. The tooth design increases the rigidity of the blade and results in a straighter, more accurate cut. The reduced cutting angle offers greater tip sharpness, enabling optimum penetration particularly in "sticky" materials & requires less cutting effort. Ideal for cutting stainless steel and cold workable materials.

VARIABLE PITCH

Type of teeth	Section (width*thickness)		Number of teeth per inch				
	mm	inch	0.75/1.25	1.2/2	2/3	3/4	4/6
 VX:HARD	27x0.9	1x0.035				●	●
	34x1.1	1 1/4x0.042			●	●	
	41x1.3	1 1/2x0.050		●	●	●	
	54X1.6	2x0.063		●	●		
	67x1.6	2 5/8x0.063	●	●	●		




MIRANDA BIMETAL TITAN - M51


Bi-Metal band saw combines a superior alloy steel backing which permits maximum loading with a very high quality High Speed Steel (M51) cutting edge. This blade offers outstanding performance both in cutting and penetration on automatic and semi automatic machines

- USE ● Fully & semi automatic machines. ● Stainless steel. ● High hardness (130 N / mm²) high alloy steel. ● Fireproof steel. ● Super alloy steel : Inconel-Hastelloy-Monel.

TITAN - CI CONSTANT PITCH

Type of teeth	Section (width*thickness)		Number of teeth per inch		
	mm	inch	1.2	2	3
 CI:HOOK	34x1.1	1 1/4x0.042		●	●
	41x1.3	1 1/2x0.050	●	●	●
	54X1.6	2x0.063	●	●	

TITAN - VX VARIABLE PITCH

Type of teeth	Section (width*thickness)		Number of teeth per inch			
	mm	inch	0.75/1.25	1.2/2	2/3	3/4
 VX:HARD	27x0.9	1x0.035			●	●
	34x1.1	1 1/4x0.042			●	●
	41x1.3	1 1/2x0.050		●	●	●
	54X1.3	2x0.050		●	●	
	54X1.6	2x0.063		●	●	
	67x1.6	2 5/8x0.063	●	●	●	



MIRANDA TOOLS

Miranda range charts below will help you select the proper band saw material for your application. Criteria to be considered includes :
Quality of material-relating to number of cuts required, length of band, section type, material to be cut and teething.

MIRANDA BIMETAL® RANGE

Miranda Bimetal® offers you a full range to satisfy all needs.

	Aluminum		Bronze		Low Carbon steels		High Carbon steels		Alloy steels	Bearing steels	Steel for moulds	Tools Steel	Stainless steels	Nickel based stainless	Titanium
	Profiles	Solids	Profiles	Solids	Profiles	Solids	Profiles	Solids	Solids	Solids	Solids	Solids	Solids	Solids	Solids
FURIA															
PROFILA															
KATANA															
TITAN															
ALUMINIA															
CSm/mn	+600		+100		90		70		60		45		40	20	15

MIRANDA BIMETAL® helps you to choose the right teething.

CUTTING ANGLE

- Use a positive cutting angle to cut non ferrous materials.

CI, VI, VIL, VX, V+



- Use a neutral cutting angle for alloyed construction steel and for profiles.

H, VN

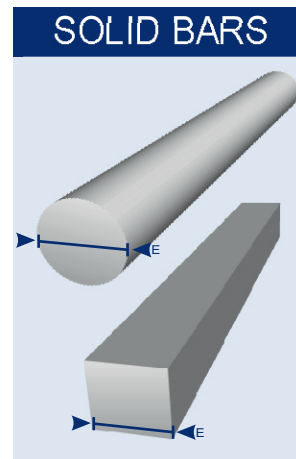


PITCH

Choose the teething with the charts.
The teething is in TPI (number of teeth per inch)

When the sections to be cut are variable use a variable pitch blade to allow a wider application range.

L (mm) \ E (mm)	20	40	60	80	100	120	150	200	300	500
2	14	14	10/14	10/14	10/14	10/14	10/14	8/12	6/10	6/10
3	10/14	10/14	10/14	10/14	8/12	8/12	8/12	6/10	6/10	5/8
4	8/12	8/12	8/12	8/12	8/12	6/10	6/10	6/10	5/8	5/8
5	8/12	8/12	8/12	6/10	6/10	6/10	6/10	5/8	5/8	4/6
6	6/10	6/10	6/10	6/10	6/10	6/10	5/8	5/8	4/6	4/6
8	6/10	6/10	6/10	6/10	5/8	5/8	5/8	4/6	4/6	3/4
10	5/8	5/8	5/8	5/8	5/8	5/8	4/6	4/6	3/4	3/4
12	5/8	5/8	5/8	4/6	4/6	4/6	4/6	3/4	3/4	3/4
15	4/6	4/6	4/6	4/6	4/6	4/6	4/6	3/4	3/4	2/3
20		4/6	4/6	4/6	3/4	3/4	3/4	2/3	2/3	2/3
30			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	1.2/2

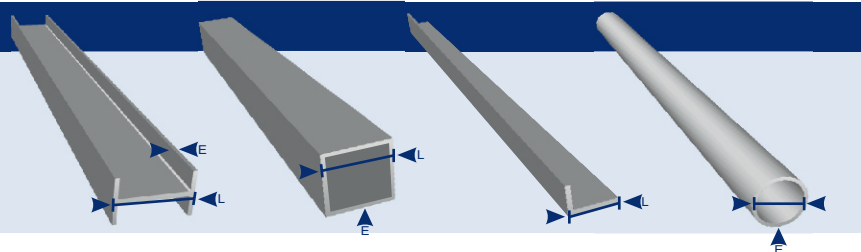


Constant pitch	THICKNESS E (mm)	Variable pitch
18	2	10/14
	3	
14	5	8/12
	8	
10	12	6/10
	16	
8	22	5/8
	30	
4	40	4/6
	70	
4	100	3/4
	140	
3	200	2/3
	240	
2	300	1.2/2
	450	
1.2	600	0.75/1.25
0.75		

PROFILES AND PIPES

If the unit forms hollows :

- Take E = E * (Number of walls / 2)
- Take L = length of batch and report to the table.

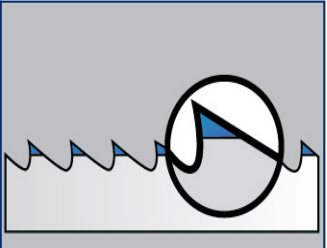
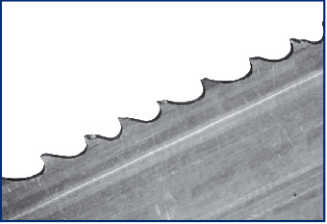
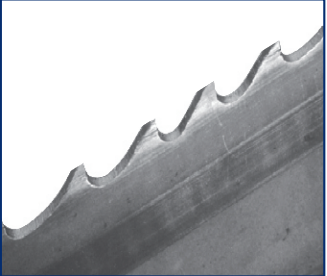
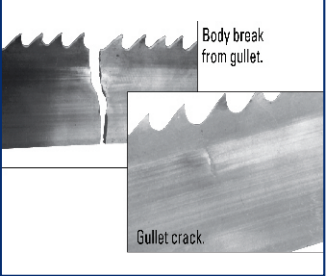
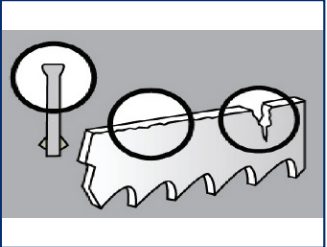



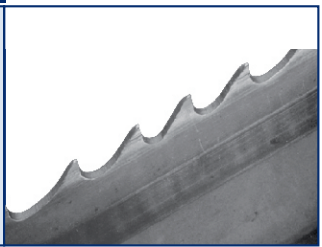
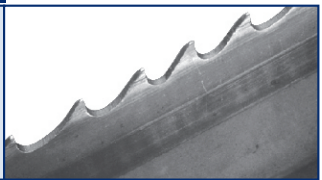
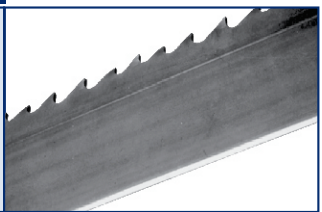
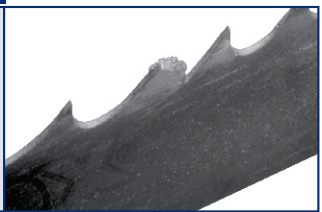
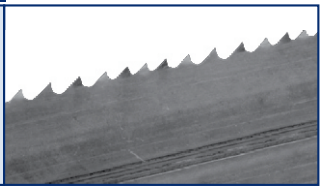
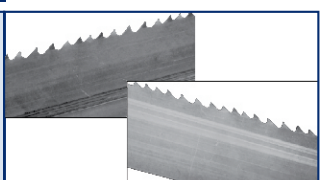
Blade Tension :

Once the blade is correctly seated on the machine, start tensioning the blade. As it tightens it is vital to check whether the blade remains in the correct position.

Follow the values given by the machine manufacturer. You can also use a tension gauge to verify the adjustments. If the machine manufacturer has not given indication of blade tension, use this chart as a guide.

Section (mm)	Horizontal Machine		Vertical Machine	
	Min	Max	Min	Max
20	14	20	18	24
27	16	22	19	26
34	21	27	23	30
41	23	28	24	29
54	24	31	24	31
67	24	31	24	31

1.	Premature dulling of teeth	Solution	
Probable cause : <ul style="list-style-type: none"> ✦ Improper break-in ✦ Teeth in wrong direction ✦ Bad steel structure not homogenous ✦ Hard spots or abrasive material ✦ Cutting fluid badly used ✦ Too high cutting speed 		<ul style="list-style-type: none"> ✦ Reduce speed and feed during break in of 30% ✦ Flip blade inside out ✦ Check material hardness ✦ Increase Feed ✦ Check coolant mixture % ✦ Check cutting conditions 	
2.	Teeth fracture	Solution	
Probable cause : <ul style="list-style-type: none"> ✦ Improper break-in ✦ Work piece not clamped ✦ Incorrect tooth selection ✦ Guides arms not adjusted properly ✦ Incorrect speed or feed 		<ul style="list-style-type: none"> ✦ Reduce speed and feed during break in of 30% ✦ Check hydraulic pressure ✦ Check cutting conditions ✦ Adjust or replace the guide arms ✦ Adjust speed and feed 	
3.	Teeth Stripping	Solution	
Probable cause : <ul style="list-style-type: none"> ✦ Improper or on break-in ✦ Parts not held properly ✦ Incorrect tooth selection ✦ Lack of lubricant ✦ Feed too high ✦ Bad steel homogeneity ✦ Bad chip removal 		<ul style="list-style-type: none"> ✦ Reduce speed and feed during break in of 30% ✦ Check hydraulic feed ✦ Check cutting conditions ✦ Check lubricant ✦ Reduce feed and check cutting conditions ✦ Check hardness ✦ Check the brush and chip removal 	
4.	Blade breakage or cracks in gullet	Solution	
Probable cause : <ul style="list-style-type: none"> ✦ Too high blade tension ✦ Excessive feed ✦ Incorrect tooth selection (too coarse) ✦ No lubricant or incorrect lubricant ✦ Guide arms too far from the work ✦ Guides too tight (twisting of the blade) ✦ Teeth working before starting the cut 		<ul style="list-style-type: none"> ✦ Reduce tension ✦ Reduce feed ✦ Check cutting conditions ✦ Check lubricant conditions ✦ Reduce to the length to be cut ✦ Check the blade position inside the guide ✦ Allow 15mm clearance before starting cut 	
5.	Wear on back of blade	Solution	
Probable cause : <ul style="list-style-type: none"> ✦ Incorrect tension of the blade ✦ Too high feed on the back ✦ Too high feed ✦ Blade incorrectly set up ✦ Worn guides ✦ Bad set up creates cracks 		<ul style="list-style-type: none"> ✦ Reduce tension ✦ Reduce feed ✦ Check cutting conditions ✦ Check blade position ✦ Check guides arms and rollers ✦ Change blade and check guide arms 	
6.	Chip weld on the teeth	Solution	
Probable cause : <ul style="list-style-type: none"> ✦ Cut badly cooled or/and incorrect lubricant or no coolant ✦ Too high cutting speed ✦ Incorrect chip removal 		<ul style="list-style-type: none"> ✦ Check lubricant and coolant nozzles position ✦ Reduce speed ✦ Check the brush and its position 	

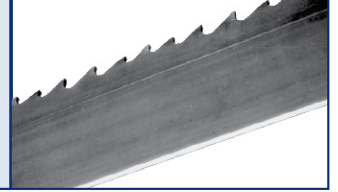
7.	Wear on the two sides of the teeth	Solution	
Probable cause : <ul style="list-style-type: none"> ◆ Incorrect set up of the blade ◆ Teeth rubbing on the guides arms ◆ Guide arms are too wide for the blade ◆ Insufficient blade tension ◆ Non homogeneous material ◆ Worn cut guides 		<ul style="list-style-type: none"> ◆ Adjust guides arms width ◆ Adjust guide arms width ◆ See machine operator's manual for blade thickness ◆ Check blade tension ◆ Check work piece hardness ◆ Replace guide arms 	
8.	Wear on one side of the teeth	Solution	
Probable cause : <ul style="list-style-type: none"> ◆ Teeth are in contact with wheels due to a rollers wear ◆ Incorrect guides position ◆ The bade is twisted when cutting hard material ◆ The bade is rubbing on the machine 		<ul style="list-style-type: none"> ◆ Check wheels surface ◆ Check guides ◆ No: correct blade ◆ Check blade position 	
9.	Blade wear	Solution	
Probable cause : <ul style="list-style-type: none"> ◆ Work badly cooled or/and incorrect lubricant or no lubricant ◆ Cutting speed too high ◆ Incorrect feed ◆ The blade has cut running backwards 		<ul style="list-style-type: none"> ◆ Check lubricant and nozzles position ◆ Check cutting parameters ◆ Check cutting parameters ◆ Check the teeth direction before setting up the blade 	
10.	Tooth gullet overloaded	Solution	
Probable cause : <ul style="list-style-type: none"> ◆ Too fine pitch ◆ Too high feed ◆ Incorrect feed ◆ No brush or worn out ◆ Incorrect lubricant or no lubricant 		<ul style="list-style-type: none"> ◆ Select a new blade ◆ Decrease feed ◆ Check cutting parameters ◆ Check the brush and position ◆ Check the lubricant 	
11.	Wear on each side of the blade	Solution	
Probable cause : <ul style="list-style-type: none"> ◆ Worn guides or chips between guides and blades ◆ Tips of the guides are too tightened ◆ Lack of lubricant between guides and blade ◆ Incorrect lubricant or no lubricant 		<ul style="list-style-type: none"> ◆ Check guides and nozzles position ◆ Check the free movement of the blade ◆ Check lubricant ◆ Check lubricant 	
12.	Uneven wear and spots on the sides of the blade	Solution	
Probable cause : <ul style="list-style-type: none"> ◆ Damaged or missing guides ◆ The blade l rubbing on part of the machine ◆ Chips jammed in the guides ◆ Incorrect lubricant or no lubricant 		<ul style="list-style-type: none"> ◆ Check guides and replace/adjust as necessary ◆ Check the free movement of the blade ◆ Check the obstruction ◆ Check lubricant 	

13. Excess wear to the back Solution

Probable cause :

- ◆ Excessive feed
- ◆ Too much pressure
- ◆ Blade badly positioned, rubbing on the wheels
- ◆ Guide tips worn

- ◆ Check cutting parameters
- ◆ Check cutting parameters, reduce pressure
- ◆ Check the wheels surface and the positioning
- ◆ Check the tips



14. Bowed blade towards teeth Solution

The blade makes a bow with the teeth are turned outwards

Probable cause :

- ◆ Excessive feed
- ◆ Guides too close to the work & rubbing near the teeth
- ◆ Blade out of the guides
- ◆ Wheel bearings wear due to excessive blade tension

- ◆ Check cutting conditions
- ◆ Check the blade for free movement
- ◆ Check the blade positioning
- ◆ Check wheels surface and blade tension



15. Bowed blade towards teeth Solution

The blade makes a bow with the teeth are turned outwards

Probable cause :

- ◆ Excessive feed
- ◆ Guide arms too tight, rubbing on the back
- ◆ Guides too far apart compared to the piece
- ◆ Wheel bearings wear due to excessive blade tension

- ◆ Check cutting conditions
- ◆ Check the blade for free
- ◆ Check the blade positioning
- ◆ Check wheels surface and blade tension

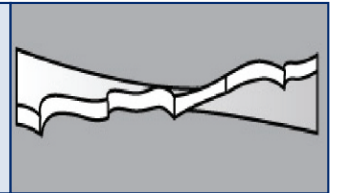


16. Twisted blade Solution

Probable cause :

- ◆ Excessive feed
- ◆ Guides too tight
- ◆ Work piece is loose
- ◆ No lubricant

- ◆ Check cutting conditions
- ◆ Check guide adjustment
- ◆ Check the hydraulic vice
- ◆ Check lubricant



17. Bad surface finish Solution

Probable cause :

- ◆ Worn out blade
- ◆ Feed and speed not correct
- ◆ Poor blade tension
- ◆ No guides
- ◆ Incorrect tooth select

- ◆ Replace the blade
- ◆ Check cutting conditions
- ◆ Check operator's manual for a correct tension
- ◆ Check the guide
- ◆ Check the manual and re select the tooth pitch

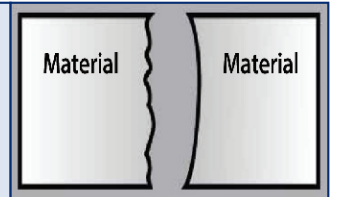


18. Wandering cuts - going off line Solution

Probable cause :

- ◆ Damage to the set of the teeth
- ◆ Over feeding
- ◆ Insufficient blade tension
- ◆ Guide set too far apart or not in line

- ◆ Check material hardness
- ◆ Check cutting conditions Reduce feed force
- ◆ Position arms as close to work as possible
- ◆ Check guides





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