Swan
Shaping the future

SWAN ALUMINIUMS PVT. LTD.

...NOTHING CUTS BETTER

ALFA

BIMETAL BANDSAW BLADES

INTRODUCTION

By the mid 1950's Mr. R. K. Malhotra was amongst the top technical management consultants in Europe and he worked for more than a hundred companies in Europe and many US companies with manufacturing operations/ commercial presence in Europe. His main speciality was alloy steel and cutting tools. He was requested to come back to India in order to help the fledging Razor blade industry started by his family. By the end of the fifties, Mr. R. K. Malhotra had built an organization which dominated the Indian Razor blade, saws of all types and Engineer's steel files. In sixties the "Saws and Engineer's steel files" divisions were discontinued as Razor blade which offered the greatest potential were under great threat from power houses like Tata, Hindustan Unilever, Union Carbide, Warner Lambert, Pfizer, Brooke Bond and Gillette. Irrespective of these hurdles, Mr. R. K. Malhotra was by late seventies able to control 100% of the Indian Market and dominant share in more than a hundred countries all over the world. This record has perhaps never been equaled by company anywhere in the world.

By the late seventies, Mr. R. K. Malhotra was obliged to exit the razor blade business and it was not until 1986 that he once again started SUPERMAX group in order to manufacture Razor blades again. By 2011, the SUPERMAX organization was once again became the leading Razor blade manufacturer in India with a dominant share in home market as well as in more than two hundred countries all over the world.

It was dream of R. K. Malhotra to restart production of bimetal saws in India and here is the dream come true...."**ALFA Bimetal Bandsaw Blade ....Nothing cuts better**."

The increased cost of manufacturing today is forcing manufacturers and machine operators to seek more economical ways to cut steel. Fortunately, sawing technology has improved greatly. Modern, high technology metals have generated new saw machine designs, and improved saw blades are helping keep manufacturing cost under control.

The information contained here is not meant to answer all of your band sawing questions. Each job is likely to present its own set of unique circumstances. However, by following the suggestions outlined here, you will be able to find economical and practical solutions more quickly.

Its Swans Management's commitment to provide best quality products with ever best economical cost supporting, best technical and service support to the customer.

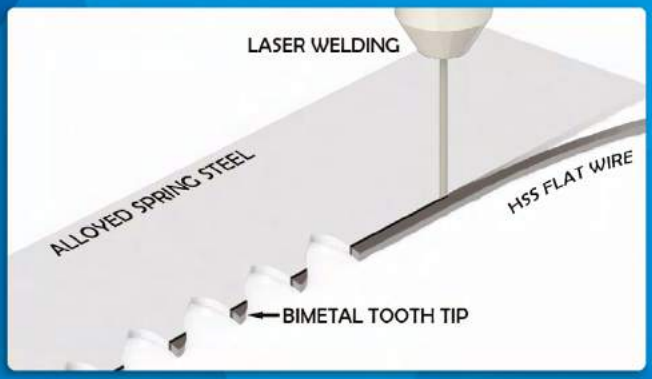
Best regards,
Team SWAN

BIMETAL STRIP DEVELOPMENT

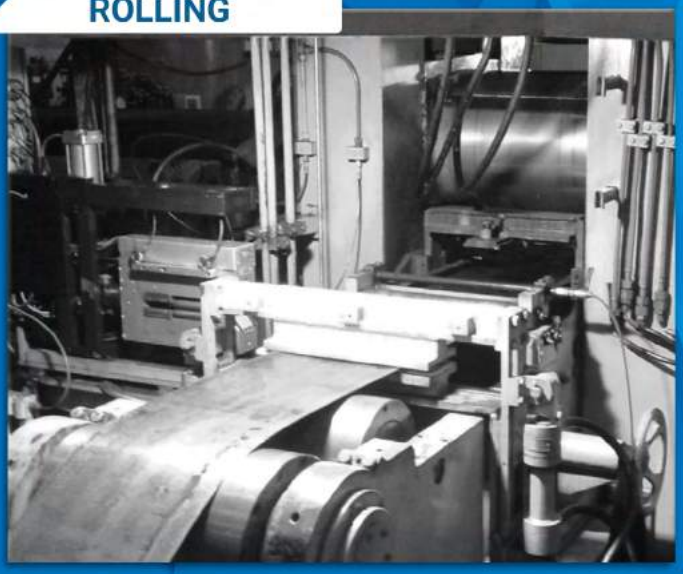
We have started with precision cold rolling mill and laser welding process for development of bimetal strips the world's best technology and equipment being used for production of quality products. This is the first successful proven research done in India.

Bimetal Blade:

This blade is made up of two materials and hence termed as Bi-metal. Its back part is of alloyed spring steel and the cutting edge is of high speed steel. They are welded together using laser welding technique.



ROLLING



SLITTING

INSPECTION

LASER WELDING

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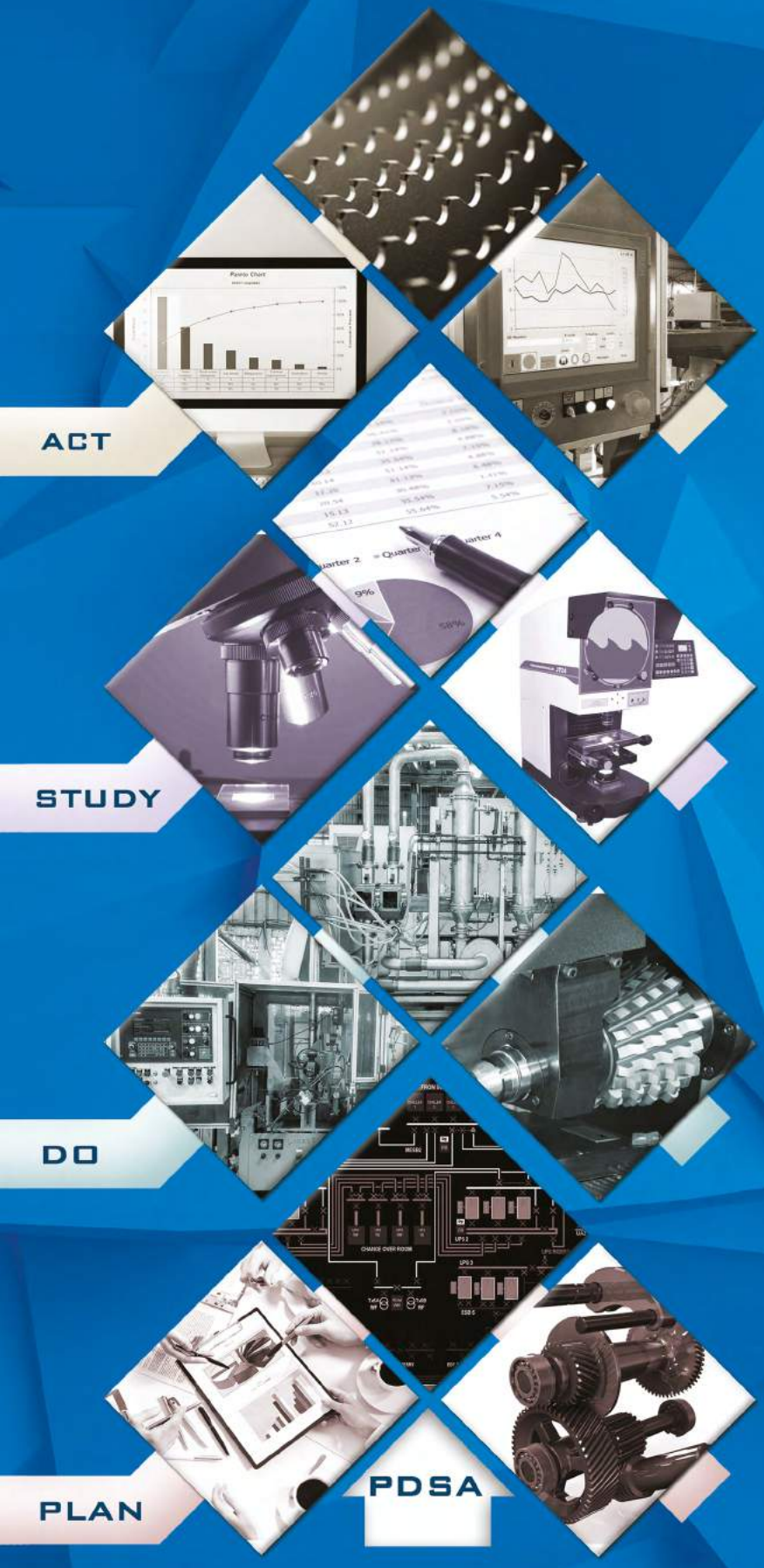
MODERN MANUFACTURING PLANT



- Designing Creation
- Advance Technology
- Lean Manufacturing
- Quality Analytics
- Knowledge Management
- Revolutionary Economic
- Corporate Social Responsibility

SW-MS

Specially designed skip tooth with large gullet and standard rake angle.

SR. NO.	SIZE IN MM	CONSTANT TPI	VARIABLE TPI
1	13 x 0.65	4,10,14,18	6/10,8/12,10/14
2	13 x 0.90	4,10,14,18	6/10,8/12,10/14
3	20 x 0.90	4,8,10,14,18	4/6,5/8,6/10,8/12,10/14
4	27 x 0.90	4,8,10,14,18	4/6,5/8,6/10,8/12,10/14
5	34 x 1.10	4	4/6,5/8,6/10,8/12
6	41 x 1.30	4	4/6,5/8,6/10

Cutting Application:

Mild steel, EN series, High Carbon Steels, Structural Steels, Tool steels having large profiles and solids (Upto 35 HRC).

SW-SAS

Specially designed tooth geometry with positive rake angle having additional relief angle and deep gullet.

SR. NO.	SIZE IN MM	VARIABLE TPI
1	27 x 0.90	2/3,3/4,4/6
2	34 x 1.10	2/3,3/4,4/6
3	41 x 1.30	1.4/2,2/3,3/4,4/6
4	54 x 1.60	1.4/2,2/3,3/4,4/6
5	67 x 1.60	1.4/2,2/3,3/4,4/6
6	80 x 1.60	3/4

Cutting Application:

Structural Steels, Deep drawing steel, Machine steel, Spring Steel, Medium alloy Steel, Nitriding Steel, Stainless steel.

TOOTH PROFILES

SW-AL

Specially designed skip tooth with shallow gullet and positive rake angle.

SR. NO.	SIZE IN MM	CONSTANT TPI
1	13 x 0.65	6
2	13 x 0.90	6
3	20 x 0.90	3,6
4	27 x 0.90	3,6
5	34 x 1.10	3,6
6	41 x 1.30	2

Cutting Application:

Aluminium die casting extrusion and other Non Ferrous Metals/Alloys.

SW-LCT

Specially designed tooth geometry with positive rake angle having additional relief angle and deep gullet.

SR. NO.	SIZE IN MM	VARIABLE TPI
1	41 x 1.30	1.4/2
2	54 x 1.60	1.4/2
3	67 x 1.60	1/1.3,1.4/2,0.75/1.25
4	80 x 1.60	1/1.3,1.4/2,0.75/1.25

Cutting Application:

Quenched and Tempered steel, Case hardened steel, High alloy steel, Hot work steel, Nitriding steel, Stainless steel, High speed steel, Rust and heat resistant steel. It can be used for Hardened material upto 45HRC.

SW-IC

Specially designed tooth geometry having strong tooth for absorbing shocks due to interrupted cut.

SR. NO.	SIZE IN MM	VARIABLE TPI
1	27 x 0.90	2/3,3/4,4/6,5/7,5/8
2	34 x 1.10	2/3,3/4,4/6,5/7,5/8
3	41 x 1.30	2/3,3/4,4/6,5/8
4	54 x 1.60	2/3,3/4,4/6
5	67 x 1.60	2/3,3/4

Cutting Application:

Bundle cutting for pipes, Tubing and Structural steel.

BREAK-IN PROCEDURE

What is Break-in?

A new band saw blade has razor sharp tooth tips In order to withstand the cutting pressures used in band sawing, tooth tips should be honed to form micro-fine radius. Failure to perform this honing will cause microscopic damage to the tip of the teeth, resulting in reduced blade life.

How to Break-in a blade?

Select the proper band speed for the material to be cut.

Reduce the feed force/rate to achieve a cutting rate 20% to 50% of normal (soft materials require a larger feed rate reduction than harder materials)

Begin the ***first cut at the reduced rate.*** Make sure the teeth are forming a chip. Small adjustment to the band speed may be in the event of excessive noise/vibration.

During the first cut, i***ncrease feed rate/force slightly*** once the blade fully enters the work piece.

With each following cut, ***gradually increase feed rate/force*** until normal cutting rate is reached.

FOR SOLIDS / STRUCTUTALS

Round Solid Bar

DIAMETER (MM)	0-10	10-15	15-20	20-30	30-75	75-150	150-250	250-500	500-900	900-1500
TEETH PER INCH/25MM	10/14	8/12	6/10	5/8	4/6	3/4	2/3	1.4/2	1/1.3	0.75/1.25

Square / Rectangular Solid

WIDTH (MM)	0-10	10-15	15-20	20-25	25-50	50-100	100-200	200-400	400-800	800-1500
TEETH PER INCH/25MM	10/14	8/12	6/10	5/8	4/6	3/4	2/3	1.4/2	1/1.3	0.75/1.25

Structural Sections

WALL THICKNESS (MM)	0-3	3-4	4-5	5-7	7-15	15-30	30-50
TEETH PER INCH/25MM	10/14	8/12	6/10	5/8	4/6	3/4	2/3

FOR PIPES / TUBES

S = Thickness

D = Diameter

D(mm)	20	40	60	80	100	120	150	200	300	400	500	600	700
S(mm)	Tooth Pitch (TPI)												
2	14	14	14	14	14	14	10/14	10/14	8/12	8/12	6/10	6/10	5/8
3	14	14	10/14	10/14	10/14	10/14	8/12	8/12	6/10	6/10	5/8	5/8	5/8
4	14	14	10/14	10/14	8/12	8/12	8/12	8/12	5/8	5/8	4/6	4/6	4/6
5	14	10/14	10/14	10/14	8/12	8/12	8/12	6/10	5/8	5/8	4/6	4/6	4/6
6	14	10/14	10/14	8/12	8/12	8/12	8/12	5/8	5/8	4/6	4/6	4/6	3/4
8	14	10/14	8/12	8/12	8/12	6/10	6/10	5/8	4/6	4/6	4/6	3/4	3/4
10		8/12	6/10	6/10	6/10	5/8	5/8	4/6	4/6	4/6	3/4	3/4	3/4
12		8/12	6/10	6/10	5/8	5/8	4/6	4/6	4/6	3/4	3/4	3/4	3/4
15		8/12	6/10	5/8	5/8	4/6	4/6	4/6	3/4	3/4	3/4	2/3	2/3
20			6/10	5/8	4/6	4/6	4/6	3/4	3/4	3/4	2/3	2/3	2/3
30				4/6	4/6	4/6	3/4	3/4	3/4	2/3	2/3	2/3	2/3
50						3/4	3/4	3/4	2/3	2/3	2/3	2/3	2/3
75								2/3	2/3	2/3	2/3	2/3	1.4-2
100									2/3	2/3	1.4/2	1.4/2	1.4/2
150										2/3	1.4/2	1.4/2	1.4/2
200											1.4/2	1.4/2	1.4/2

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BIMETAL SPEED CHART

MATERIAL (ANNEALED)	MATERIAL		BAND SPEED (METER/MIN)
	TYPE	GRADE	
NICKEL BASE ALLOY	NICKEL ALLOYS	MONEL K500	15
		Duranickel 301	10
	IRON-BASED SUPER ALLOYS	A286, Incolloy825	20
		Incolloy 600	10
		Piromet X-15	15
	NICKEL-BASED ALLOYS	Inconel 600, Inconel 718, Nimonic 90	15
		NI-SPAN-C 902, RENE 41	15
		Inconel 625,	20
		Hastalloy B, Waspalloy	10
		Nimonic 75, RENE 88	10
TITANIUM ALLOY	Titanium Alloys	CP Titanium	20
		Ti-6Al-4V	15
TOOL STEEL	Low Alloy Tool Steel	L-6	40
	Water-Hardening Tool Steel	W-1	40
	Cold-Work Tool Steel	D-2	20
	Air-Hardening Tool Steel	A-2	40
		A-6	35
		A-10	25
	Hot Work Tool Steel	H-13	35
		H-25	20
	Oil-Hardening Tool Steel	O-1	35
		O-2	35
	High Speed Tool Steel	M-2, M-10	25
		M-4, M-42	25
		T-1	20
		T-15	15
	Shock Resistant Tool Steel	S-1	35
		S-5, S-7	35
STAINLESS STEEL	Stainless Steel	304	30
		316	20
		410,420	35
		440A	20
		440C	15
	Precipitation Hardening Stainless Steel	17-4 PH	15
		15-5 PH	15
	Free Machining Stainless Steel	420F	40
		301	35
MOLD STEEL	Mold Steel	P-3	50
		P-2	45
BEARING STEEL	Cr Alloy Steel	52100	45
ALLOY STEEL	Mn Steel	1541	55
		1524	45
	Cr-Mo Steel	4140	65
		41I50	65
		4150H	55
	Cr Alloy Steel	6150	55
		5160	55
	Ni-Cr-Mo Steel	4340	55
		8620	60
		8640	50
		E9310	45
STRUCTURAL STEEL	Structural Steel	A36	70
CARBON STEEL	Leaded, Free Machining Low Carbon Steel	1145	75
		1215	95
		12L14	100
	Low Carbon Steel	10,081,018	75
		1030	70
	Medium Carbon Steel	1035	70
		1045	65
	HIGH Carbon Steel	1060	55
		1080	55
		1095	50
ALUMINIUM/NON-FERROUS	Aluminium Alloys	2,024,505,260,617,070	80
	Copper Alloys	CDA 220	60
		CDA360	85
		Cu Ni (30%)	55
		Be Cu	45
	Bronze Alloys	AMPCO 18	50
		AMPCO 21	45
		AMPCO 25	30
		Leaded Tin Bronze	85
		AL Bronze 865	40
		Mn Bronze	60
		932	80
		937	70
	Brass Alloys	Cartridge Brass, Red Brass (85%)	60
		Naval Brass	55

BASIC MAINTENANCE

Scheduled maintenance of sawing machines has always been necessary for proper and efficient cutting, but for today's super alloys that requirement is more important than ever. Besides following the manufacturer's maintenance instructions, attending to these additional items will help ensure long life and efficient operation.

Band Wheels: Remove any chips. Make sure they turn freely.

Blade Tension: Use a tension meter to ensure accuracy.

Blade Tracking: Make sure the blade tracks true and rides correctly in the guides.

Chip Brush: Engage properly to keep chips from re-entering the cut.

Guides: Make sure guides are not chipped or cracked. Guides must hold the blade with the right pressure and be positioned as close as possible to the work piece.

Guide Arm: For maximum support, move as close as possible to the work piece.

Sawing Fluid: Be sure to use clean, properly mixed lubricant applied at the cutting point. Test for radio with a refractometer and visually inspect to be sure. If new fluid is needed, mix properly, starting with water then adding lubrication fluid according to the manufacturer's recommendation.

SAFETY INSTRUCTIONS

Be careful opening welded loops as they are packed under tension.

While unpacking and installing the tools, always wear safety shoes, gloves and safety glasses.

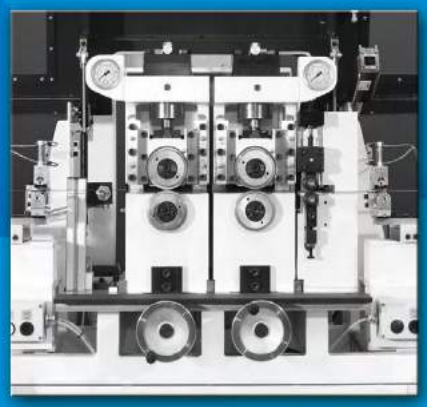
Taking off tooth protection after installing the blade on the machine.

Close the cover of the bandsaw during cutting operation.

If possible, turn off the main switch during blade changes.

You find additional safety instructions in the manual of your band saw machinery manufacturer.

You can receive free guidelines from ALFA team.



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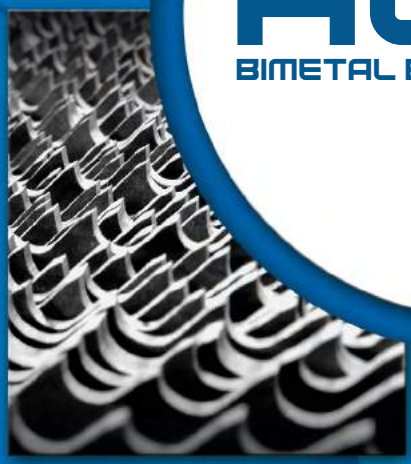
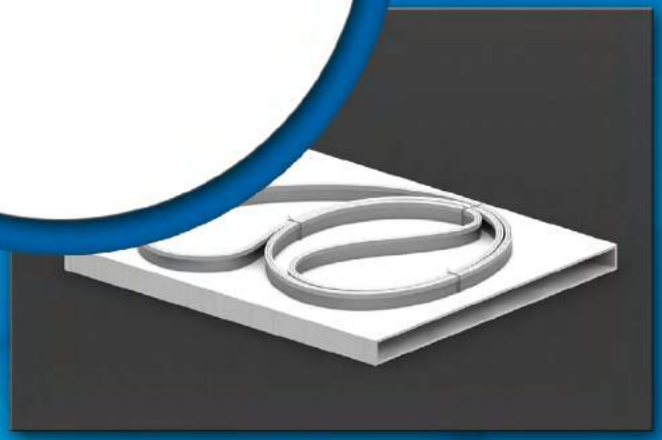
BIMETAL BANDSAW BALDES





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