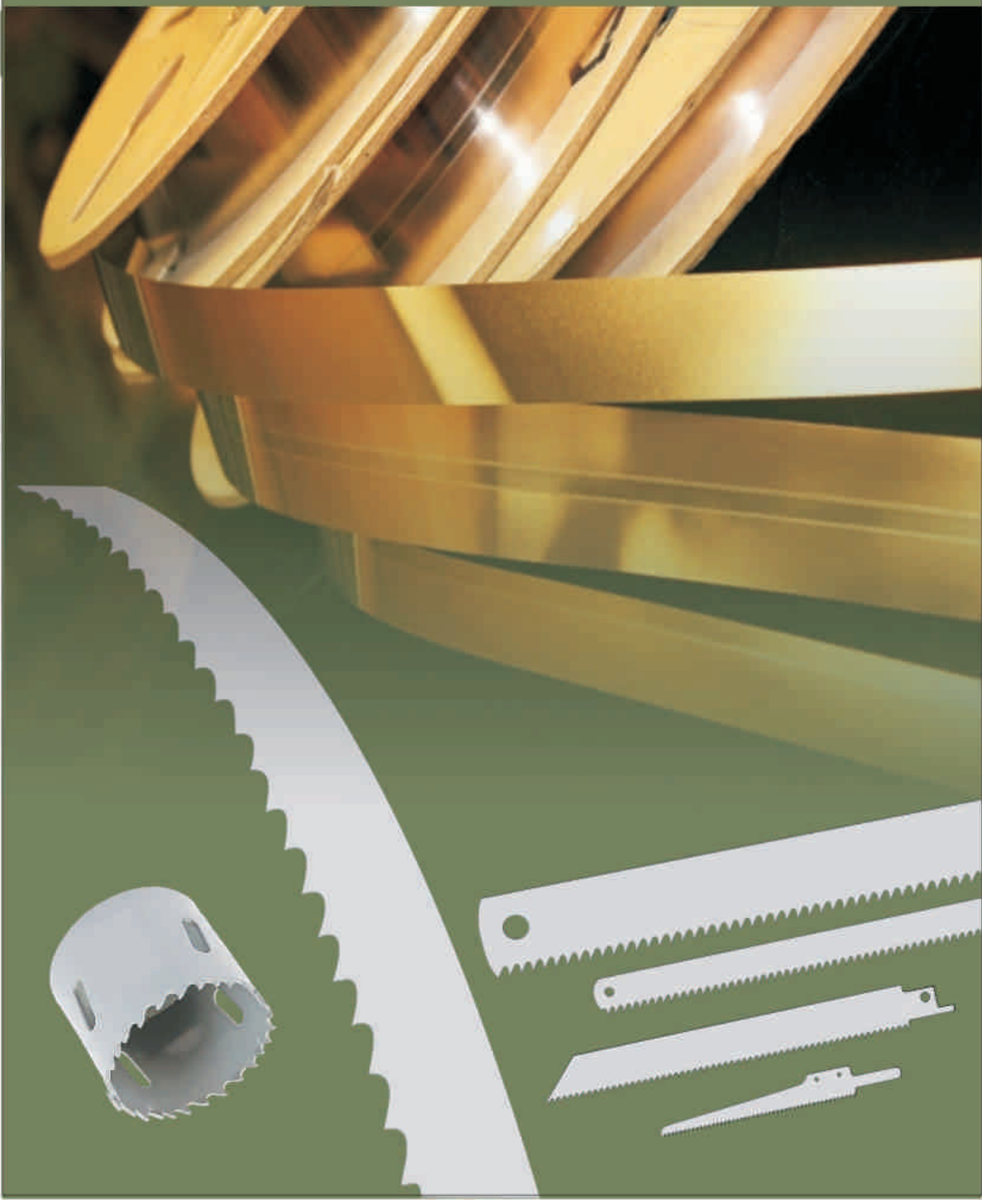
MAGICUT® Steel

HSS Bimetal Strips



Company Profile

Prologue

Magicut, established in 1982, is a leader in the field of Cutting Tools, Hand Tool and Power Tool Accessories. Magicut has since gradually evolved into manufacturing of Bimetal Strips as well.

Magicut's origins go back to 1948 when the founder, Late Mr. R..C. Gupta opened a hardware retail shop and a few years later started wholesaling as well. In 1963 he started his first factory for Engine Bearings and gradually expanded to manufacture a variety of product such as Bearings, Diesel Engine Spares, Copper Alloys and Tools. Over the last 64 years, though diversification took place, the focus has never shifted away from Engineering.

Magicut is headquartered in Mumbai with its plant at Palghar from where it is offering a comprehensive range of products, all from a single source. Besides an extensive domestic sales network it has satisfied the needs of numerous, diverse customers across the globe.

The company has gained a wealth of experience covering the manufacturing of engineering products and has always kept pace with the rapid developments of the modern high technology production techniques. With the desire to leverage this knowledge and for servicing the growing need of the international market we have set up a manufacturing facility for Bimetal Strips.

Magicut's success has hinged upon its ability to consistently deliver standard quality and timely execution of delivery schedules. We continue to maintain and continuously upgrade the quality of our products so as to maximize customer satisfaction and future growth.

Standard

Magicut's products are manufactured confirming to IS, BS, DIN, JIS & ISO standard.

Plant

Magicut boast of state-of-art manufacturing and testing facilities. Our Bimetal Strip facility is having the latest high-tech equipment including a technologically advanced laser welding machine from Germany.

Packaging

After checking that all products meet the set quality standard, they are packed and ready for dispatch. Extreme care is taken to ensure that the product reaches their destination in perfect condition.

Finish

A high level of finish is maintained in keeping with the requirements of a precision bimetal strips.

Inspection

Magicut is equipped with the most modern and precise testing equipments, that are periodically calibrated. Our well equipped laboratory tests these all products for physical appearance, surface finish, dimensions and other variables. Before dispatching a whole battery of tests, from checking of chemical composition to microscopic test for carbide distribution are carried out. Every product we supply passes through stringent inspection tests.

Quality Policy

We at Trident Tools Ltd. are committed to enhance customer satisfaction by manufacturing and supplying products that consistently meet or exceed customer requirements. We shall achieve this by:

- Manufacturing Quality Products
- Continual improvement in Processes, System and Productivity by bench marking and innovation in our products
- Involvement of Employees at all levels.

Corporate Philosophy

Our corporate philosophy can be summed up as Customer Satisfaction, Reliability, Innovation, Quality and Service. We follow a policy of not compromising quality under any circumstances and a commitment of continuously bringing innovation products and services into the markets. We take our commitments seriously and believe in honoring them.

Environment Responsibility

Magicut feels climate change as the greatest threat affecting economic stability, vulnerable communities and the society at large. The endemic depletion of natural resources and the destruction of fragile environmental and social systems through the second half of the last century have compelled us to review our development patterns. Magicut is working towards increasing greenery around our plants and minimizing waste generation by promoting recovery, recycle and reuse. We have already planted about six thousand trees around our Palghar plant and are moving towards environmentally friendly technologies.

Materials & Standards

High Speed Steel (HSS) Edge Wire					
Grade	**Magicut M2**	**Magicut M3**	**Magicut MatrixII**	**Magicut M42**	**Magicut M51**
DIN -Standard	HS 6-5-2	HS 6-6-2	HS 1-5-1-8	HS 2-9-1-8	HS 10-4-3-10
Material-No.	1.3343	–	1.3270	1.3247	1.3207
AISI-Standard	M2	M3	MatrixII	M42	M51
Elements	Composition [weight -%]				
C	0.84 - 0.94	1.00 - 1.10	0.70 - 0.75	1.05 - 1.15	1.20 - 1.35
Si	max 0.45	max 0.45	0.20 - 0.40	max 0.70	max 0.45
Mn	max 0.40	max 0.40	0.15 - 0.40	max 0.40	max 0.40
P	max 0.030	max 0.030	max 0.030	max 0.030	max 0.030
S	max 0.030	max 0.030	max 0.030	max 0.030	max 0.030
Cr	3.80 - 4.50	3.80 - 4.50	3.80 - 4.40	3.50 - 4.50	3.80 - 4.50
Mo	4.70 - 5.20	5.50 - 6.50	4.75 - 5.25	9.00 - 10.00	3.20 - 3.90
V	1.70 - 2.10	2.30 - 2.60	0.85 - 1.10	0.90 - 1.30	3.00 - 3.50
Co	–	–	7.70 - 8.30	7.50 - 8.30	9.00 - 10.00
W	5.90 - 6.70	5.90 - 6.70	0.80 -1.10	1.20 - 1.90	9.50 - 10.50

Backing Material				
Grade	**Magicut 6150**	**Magicut X32**	**Magicut D6A**	**Magicut 6135**
DIN -Standard	51CrV4	X32CrMoV4-1	46CrMoV4	–
Material-No.	1.8159	1.2390	1.2791	1.7035
AISI-Standard	6150	–	D6A	6135
Elements	Composition [weight -%]			
C	0.47 - 0.55	0.29 - 0.33	0.44 - 0.49	0.32 - 0.38
Si	0.15 - 0.40	0.20 - 0.35	0.10 - 0.30	0.20 - 0.35
Mn	0.70 - 1.10	0.90 - 1.10	0.60 - 0.90	0.60 - 0.90
P	< 0.035	max 0.020	max 0.020	max 0.020
S	< 0.035	max 0.010	max 0.015	max 0.020
Cr	0.90 - 1.20	3.80 - 4.00	0.90 - 1.20	0.80 - 1.10
Ni	–	0.60 - 0.80	0.40 - 0.70	–
Mo	–	1.00 - 1.20	0.90 - 1.10	–
V	0.10 - 0.20	0.30 - 0.40	0.08 - 0.12	0.15 - 0.25

Material Combinations

Material Combinations

Thickness Tolerances	Thickness < 1.60 mm		± 0.020mm	Standard Dimension		HSS Edge Wire Width			Grade Combinations			
	Thickness ≥ 1.60 mm		± 0.025mm	Width	Thickness	1.016	1.575	2.000	M2	M42	M51	MatrixII
Width Tolerances	Width ≤ 35 mm		± 0.08mm	mm	mm	mm	mm	mm				
	Width ≥ 35 mm		± 0.10mm						51CrV4	X32CrMoV4-1		D6A
Camber	Width ≤ 12.7 mm		max 0.2mm/ 1 m	6.35	0.635	•						•
	Width ≥ 12.7 mm		max 0.1mm/ 1 m		0.889	•				•		•
Dish			max 0.1mm/ 1 m bandwidth	9.50	0.635	•				•		•
Twist			max. 5° on 1 meter reference		0.889	•				•		•
EdgeFinish	Edge Wire		square with max.radius of 0.08 mm	12.70	0.508	•			•	•		
	Backing		square with chamfered edges		0.635	•			•	•		•
Hardness	Edge Wire		240-320 HV		0.889	•			•	•		•
	Weld Seam		max 420 HV	19.05	0.889	•	•			•		
	Backing		180-250 HV	27.50	0.889	•	•			•	•	•
Surface Finish	Bright Finish			34.00	1.067		•			•	•	•
Surface Roughness	Rt ≤ 6,0 µm			41.00	1.270		•			•	•	•
Type of Delivery	In Coils			54.00	1.270		•			•		
	Standard Length	handhack	12.7 mm 320 - 360 m		1.600			•		•	•	
			< 20 mm 165 m	67.00	1.600			•		•	•	
			20 - 42 mm 180 - 220 m	80.00	1.600			•		•	•	
			> 42 mm 80 - 160 m									
			< 55 mm 105 - 165 m									
			≥67 mm 85 - 105 m									

Other Dimension and Combination are not mention above can also be manufactured against specific requirement.

Standard Dimension & Sizes

Bimetal Hand Hacksaw Strips

Size	
mm	inches
12.70 x 0.60	1/2” x 0.025”

Bimetal Air Saw Strips

Size	
mm	**inches**
12.7 x 0.60	1/2” x 0.025”

Bimetal Band Saw Strips

Size	
mm	inches
19 x 0.90	3/4” x 0.035”
27 x 0.90	1-1/16” x 0.035”
34 x 1.10	1-5/16” x 0.042”
41 x 1.30	1-5/8” x 0.050”
54 x 1.60	2-1/8” x 0.063”
67 x 1.60	2-5/8” x 0.063”

Bimetal Power Saw Strips

Size	
mm	inches
25 x 1.25	1” x 0.05”
32 x 1.60	1-1/4” x 0.063”
38 x 1.60	1-1/2” x 0.062”
40 x 1.85	1-1/2” x 0.08”
45 x 2.00	1-3/4” x 0.08”
50 x 2.50	2” x 0.100”

Bimetal Reciprocating Saw Strips

Size	
mm	inches
19 x 0.94	3/4” x 0.037”
19 x 1.27	3/4” x 0.050”
22 x 1.65	7/8” x 0.065”

Bimetal Hole Saw Strips

Size	
mm	inches
41.7 x 1.27	1.64” x 0.50”
47.6 x 1.27	1-7/8” x 0.50”

Other sizes are available on request.

Heat Treatment Guidelines

Heat Treatment can be defined as the controlled heating and cooling that alters physical and mechanical properties without changing the product shape. We give below information of the recommended temperatures for hardening and tempering that are to be used only as guidelines and these can vary depending upon the kind of furnace that are used - salt bath, continuos hardening or vacuum. The parameters are chosen depending upon the quality of the steel grade. The information on the hardening and tempering properties of high speed steel mentioned below are intended to offer some guidenance in adjusting the heat treatment cycle to the specific requirements.

Edge Wire Grade		M2	M3	M42	MatrixII	M51
Hardening	Holding time	30 – 60 s	30 – 60 s	30 – 60 s	30 – 60 s	30 – 60 s
	[°C]	1200 - 1220°	1200 - 1220°	1185 - 1205°	1185 - 1205°	1200 - 1220°
Tempering	Holding time	2 hr 2/3 times	3 hr 3 times	3 hr 3 times	3 hr 3 times	3 hr 3 times
	[°C]	530 - 550°	530 - 550°	540 - 560°	520 - 540°	520 - 540°
Resulting Hardness [HRC]		62 - 65	65 – 68	67 – 69	66 - 68	67 – 70

For obtaining high cutting hardness and toughness three tempering cycles are recommended.Proper heat treatment and hardness are not only a function of above hardening and tempering parameters and attention should be paid to resulting microstructure, particularly to the austenite grain size. In case the same are not alright then the hardening temperature should be adjusted accordingly.

Packing & Marking

Coils are oiled and wrapped around with a speed wax paper to avoid rust. These are then stacked on a pallet and wrapped around with a plastic sheet. Each coil is marked on the edge wire side with the following colours:

Grade	Colour
M2	Orange
M3	Yellow
MatrixII	Red
M42	Green
M51	Blue

Each coil is further labeled with size (mm), edge wire grade, edge wire heat no., backing material grade, backing material heat no., coil length, net weight, inspection remarks and production date.

MAGICUT® Steel

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