

BIMETAL STRIP STEEL

INTELLIGENT SOLUTIONS
MADE BY

Eberle

BONDS THAT HOLD FOREVER.



We are the experts in producing non-separable material bonds through highly specialized welding processes.

Our expertise in this core competence is based on three fundamental strengths – quality, experience and innovation. State-of-the-art production facilities, decades of experience in welding and the continual quest for improvement are your guarantee of the highest product quality.

Every day our highly qualified employees ensure that our quality standards are met precisely in all three business units:

- > **Precision strip steel**
- > **Bimetal strip steel**
- > **Band saw blades**

The continual quest for improvement combined with the latest technological processes has made Eberle an internationally recognized leader in innovation.

Our corporate policy is

the finest quality and total customer satisfaction.

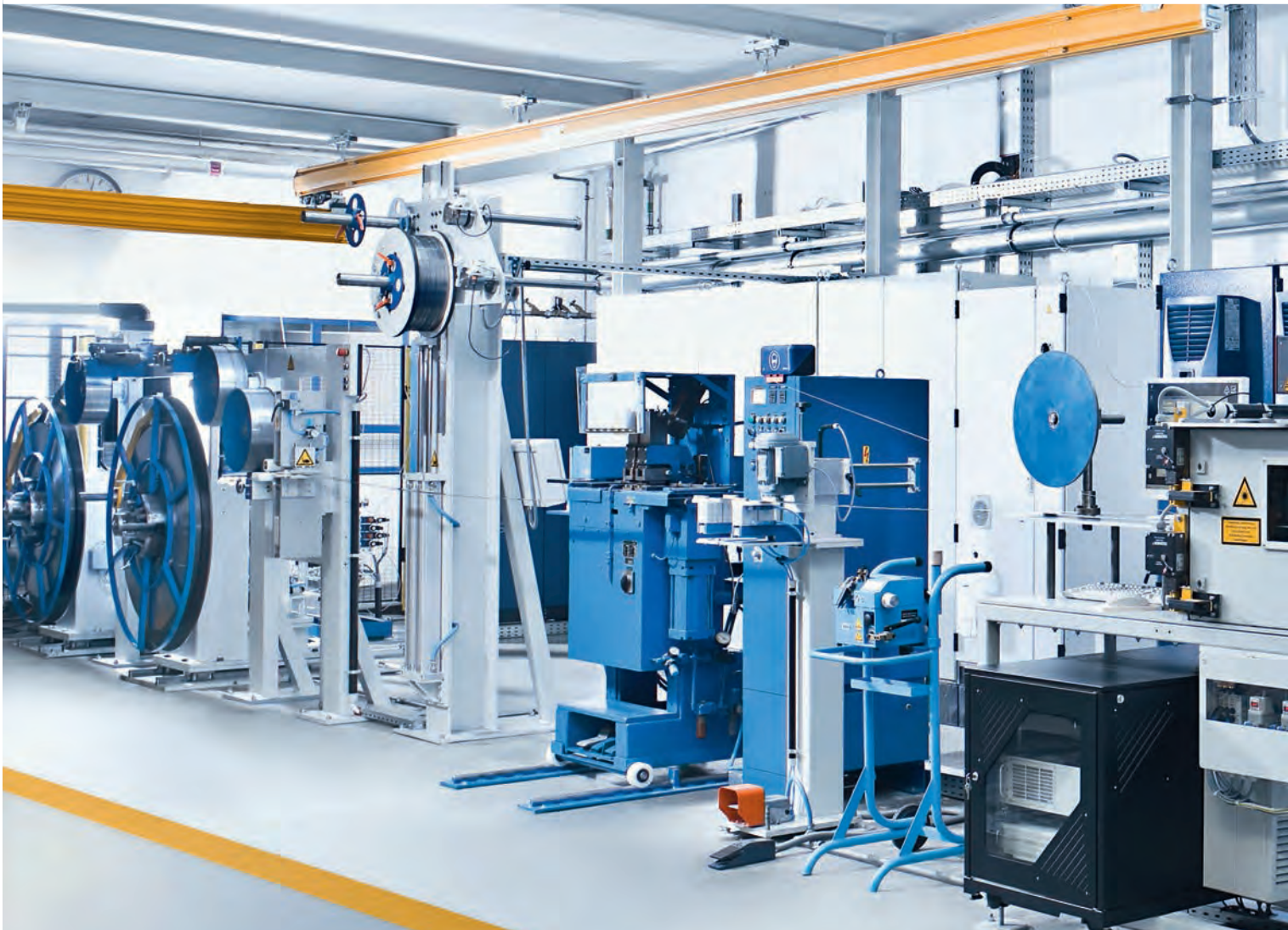
For your process chain this means:

- **Success through increased quality**
- **Precision in the production process**
- **Perfection in the finished product**



CORE COMPETENCES _____	4/5
EBERLE BI-/TRIMETALL	
Tailored Strip Steel _____	6
Hardened Bi-/Trimetal _____	7
EBERLE BIMETAL STRIP STEEL for	
Band Saw Blades _____	8
Jig Saw Blades _____	9
Hole Saws _____	10
Hand Hacksaw Blades _____	11
TECHNICAL DATA _____	12/13

YOUR CENTER OF EXCELLENCE FOR WELDING AND HEAT TREATMENT



J. N. Eberle & Cie. is the only manufacturer in the world that can process the backing material, produce the bimetal and manufacture the saw blades for high-performance band saws all under one roof. This unique capability has enabled us to establish a center of excellence in welding and heat treatment. The result is a superior class of premium products.

Core competence – welding

Our decades of experience in welding a wide variety of material combinations in strip form guarantees the quality of the Eberle superior class products. We are able to continually optimize the quality of the welded joints because we have our own in-house expertise in rolling, cutting and edge processing.

We can weld metal strips of various widths and thicknesses for you – discover the quality of our joints for yourself.



Core competence – heat treatment

In addition to welding a wide variety of material combinations, heat treatment is another in-house core expertise of ours. By combining know-how and the latest technologies we are able to achieve the narrowest tolerances in terms of tensile strength and precisely matched microstructure for whatever the particular application is.

Our top-quality bimetal and trimetal products build process reliability into your supply chain and optimize your throughput rates, which together make a decisive contribution to the high quality of your end product.

**Tell us the materials you want to combine –
we'll make it happen for you.**

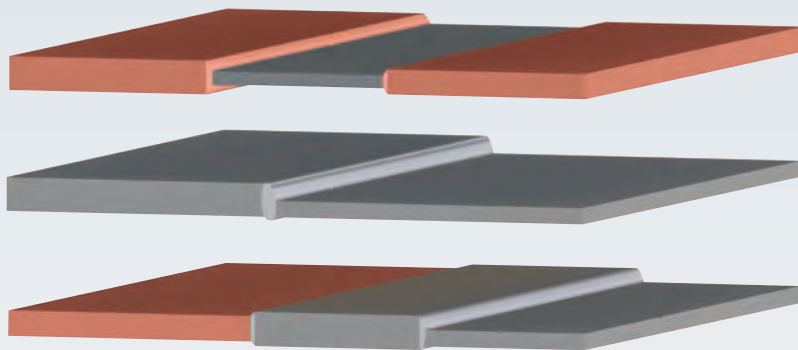
innovation@eberle-augsburg.de



TAILORED STRIP STEEL

Whether the metal materials are identical or very different – we will weld a wide variety of different dimensions for you. Up to three strips with a maximum total width of 100 mm can be joined together into a continuous special strip to match your needs.

Take advantage of these economical and premium quality alternatives for your products!



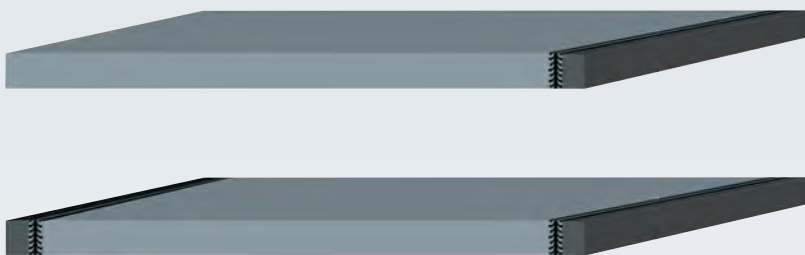
Tailored Strip Steel enables the specific properties of various materials to be uniquely combined, providing excellent abrasion resistance. These materials can be used for the most sophisticated purposes in the automotive and textile industries, the knife and scraper segment, too. Tailored Strip Steel also has the potential to significantly reduce your costs, since high cost materials can now be replaced with more affordable types of material.

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HARDENED BI-/TRIMETAL

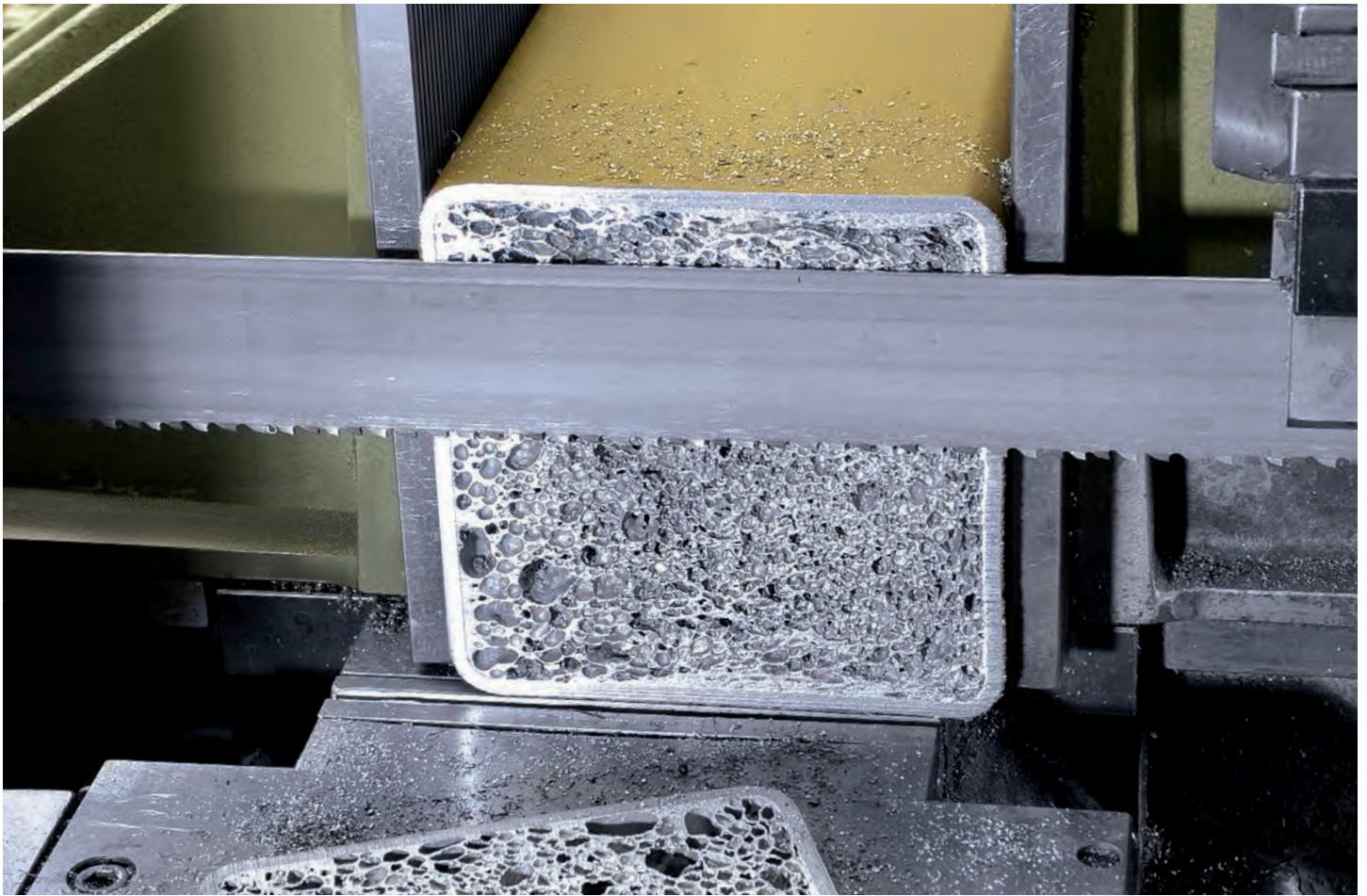
Hardened bi- and trimetal **provides an efficient way to increase service life and cut the costs of materials.** Working edges with a hardness of up to 1000 HV equip both the bi- and the trimetal with a high abrasion resistance. The increased service life and the opportunity to replace high-cost materials with affordable materials enable you to reduce your expenses considerably.



You can choose from the Eberle materials or specify your individual requirements. Absolute straightness and the narrowest tolerances are fundamental to our approach.

Hardened bi- and trimetal can by nature be used across the most diverse industrial segments. Possible applications include die-cutting, creasing, folding, creping and scraping, among others.

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Bimetal Strip Steel for

BAND SAW BLADES

High Speed Steel
Carrier material
Dimensions

Eberle M42, Eberle M51, Eberle Matrix II
Eberle X32CrMoV4-1, Eberle D6A
see page 13

Width tolerance

$w \leq 35,0 \text{ mm}$: $\pm 0,080 \text{ mm}$
 $w > 35,0 \text{ mm}$: $\pm 0,100 \text{ mm}$

$w \leq 1.38 \text{ in}$: $\pm .0032 \text{ in}$
 $w > 1.38 \text{ in}$: $\pm .0039 \text{ in}$

Thickness tolerance

$t < 1,60 \text{ mm}$: $\pm 0,020 \text{ mm}$
 $t \geq 1,60 \text{ mm}$: $\pm 0,025 \text{ mm}$

$t < .063 \text{ in}$: $\pm .0008 \text{ in}$
 $t \geq .063 \text{ in}$: $\pm .0010 \text{ in}$

Parallelism

max. 0,02 mm

max. .0008 in

Straightness deviation

max. 1,0 mm/1 m

max. .04 in/3 ft

Flatness deviation

max. 1,0 $\mu\text{m}/\text{mm}$ strip width

max. 1,0 $\mu\text{m}/\text{mm}$ strip width

Torsion

max. 5° (reference length 1 m)

max. 5° (reference length 3 ft)

Surface finish

soft annealed and temper rolled
bright rolled

Hardness

HSS edge: 240 - 320 HV1
Welding zone: max. 420 HV1
Carrier material: 180 - 250 HV1

Edge finish

Edge wire: rectangular
Carrier material: rectangular rounded



Bimetal Strip Steel for

RECIPROCATING AND JIG SAW BLADES

High Speed Steel
Carrier material
Dimensions

Eberle Matrix II and on request
Eberle D6A and on request
see page 13

Width tolerance

$w \leq 11,0 \text{ mm}$: $\pm 0,050 \text{ mm}$
 $w > 11,0 \text{ mm}$: $\pm 0,080 \text{ mm}$

$w \leq .43 \text{ in}$: $\pm .0020 \text{ in}$
 $w > .43 \text{ in}$: $\pm .0032 \text{ in}$

Thickness tolerance

$t < 1,60 \text{ mm}$: $\pm 0,020 \text{ mm}$
 $t \geq 1,60 \text{ mm}$: $\pm 0,025 \text{ mm}$

$t < .063 \text{ in}$: $\pm .0008 \text{ in}$
 $t \geq .063 \text{ in}$: $\pm .0010 \text{ in}$

Parallelism

max. 0,02 mm

max. .0008 in

Straightness deviation

max. 1,0 mm / 1 m

max. .04 in / 3 ft

Flatness deviation

max. 1,0 μm / mm strip width

max. 1,0 μm / mm strip width

Torsion

max. 5° (reference length 1 m)

max. 5° (reference length 3 ft)

Surface finish

soft annealed and temper rolled
bright rolled

Hardness

HSS edge: 240 - 320 HV1
Welding zone: max. 420 HV1
Carrier material: 180 - 250 HV1

Edge finish

Edge wire: rectangular
Carrier material: rectangular rounded



Bimetal Strip Steel for

HOLE SAWS

Material combinations

on request

Dimensions

on request

Width tolerance

$w \leq 35,0 \text{ mm}$: $\pm 0,080 \text{ mm}$

$w \leq 1.38 \text{ in}$: $\pm .0032 \text{ in}$

$w > 35,0 \text{ mm}$: $\pm 0,100 \text{ mm}$

$w > 1.38 \text{ in}$: $\pm .0039 \text{ in}$

Thickness tolerance

$t < 1,60 \text{ mm}$: $\pm 0,020 \text{ mm}$

$t < .063 \text{ in}$: $\pm .0008 \text{ in}$

$t \geq 1,60 \text{ mm}$: $\pm 0,025 \text{ mm}$

$t \geq .063 \text{ in}$: $\pm .0010 \text{ in}$

Parallelism

max. 0,02 mm

max. .0008 in

Straightness deviation

max. 1,0 mm/1 m

max. .04 in/3 ft

Flatness deviation

max. 1,0 μm /mm strip width

max. 1,0 μm /mm strip width

Torsion

max. 5° (reference length 1 m)

max. 5° (reference length 3 ft)

Surface finish

soft annealed and temper rolled

bright rolled

Hardness

HSS edge: max. 320 HV1

Welding zone: max. 420 HV1

Carrier material: max. 250 HV1

Edge finish

Edge wire: rectangular

Carrier material: rectangular rounded



Bimetal Strip Steel for

HAND HACKSAW BLADES

Material combinations Dimensions

Eberle M2 – 51CrV4 and on request

Width: 12,700 mm

Thickness: 0,600 mm

HSS-Width: 1,400 mm

Width: .500 in

Thickness: .024 in

HSS-Width: .055 in

Width tolerance Thickness tolerance Parallelism

± 0,100 mm

± 0,020 mm

max. 0,01 mm

± .0040 in

± .0008 in

max. .0004 in

Straightness deviation Flatness deviation Torsion

max. 1,0 mm/1 m

max. 1,0 µm/mm strip width

max. 5° (reference length 1 m)

max. .04 in/3 ft

max. 1,0 µm/mm strip width

max. 5° (reference length 3 ft)

Surface finish

soft annealed and temper rolled

bright rolled

Hardness

HSS edge: 240 - 320 HV1

Welding zone: max. 420 HV1

Carrier material: 180 - 250 HV1

Edge finish

Edge wire: rectangular

Carrier material: rectangular rounded

TECHNICAL DATA

Eberle Grades

High Speed Steel (HSS)

Eberle Grade	Eberle M2	Eberle Matrix II	Eberle M3-1	Eberle M42	Eberle M51 PM
DIN-Standard	HS6-5-2	HS1-5-1-8	HS6-5-2C	HS2-10-1-8	HS10-4-3-10
Material-No.	1.3343	1.3270	1.3342	1.3247	1.3207
AISI-Standard	M2	Matrix II	M3 Class 1	M42	M51 PM
Elements	Composition (weight-%)				
C	0,85	0,73	1,05	1,05	1,28
Si	0,30	0,25	0,35	0,30	0,43
Mn	0,35	0,25	0,30	0,35	0,28
Cr	4,10	4,10	4,10	3,90	4,15
Mo	5,00	5,00	5,50	9,50	3,50
V	1,90	0,95	2,50	1,25	3,25
W	6,10	1,00	6,00	1,60	9,85
Co	--	8,00	--	8,25	10,00

Carrier Material

Eberle Grade	Eberle 51CrV4	Eberle 6135	Eberle D6A	Eberle X32CrMoV4-1
DIN-Standard	51CrV4	35CrV4	49CrMoNiV4-10	X32CrMoV4-1
Material-No.	1.8159	1.8190	1.7791	1.2390
AISI-Standard	6150	6135	D6A	--
Elements	Composition (weight-%)			
C	0,51	0,35	0,46	0,32
Si	0,30	0,30	0,20	0,30
Mn	0,90	0,75	0,75	1,00
Cr	1,05	0,95	1,00	3,90
Mo	--	--	1,00	1,10
V	0,17	0,20	0,11	0,35
Ni	--	--	0,55	0,70

TECHNICAL DATA

Eberle Material Combinations and Standard Dimensions

Bimetal Strip Steel for Band Saw Blades

Eberle Grade		Width		Thickness		HSS-Width	
HSS-Wire	Carrier Material	mm	in	mm	in	mm	in
Eberle M42	Eberle X32CrMoV4-1	6,350	.250	0,889	.035	1,016	.040
		9,520	.375	0,635	.025	1,016	.040
				0,889	.035	1,016	.040
		12,700	.500	0,635	.025	1,016	.040
				0,889	.035	1,016	.040
		19,050	.750	0,889	.035	1,016	.040
						1,575	.062
		27,508	1.083	0,889	.035	1,016	.040
						1,575	.062
		34,544	1.360	1,067	.042	1,575	.062
41,525	1.635	1,270	.050	1,575	.062		
54,500	2.145	1,270	.050	1,575	.062		
		1,600	.063	2,000	.079		
67,500	2.657	1,600	.063	2,000	.079		
80,400	3.165	1,600	.063	2,000	.079		
Eberle M51	Eberle X32CrMoV4-1	27,508	1.083	0,889	.035	1,575	.062
		34,544	1.360	1,067	.042	1,575	.062
		41,525	1.635	1,270	.050	1,575	.062
		54,500	2.145	1,600	.063	2,000	.079
		67,500	2.657	1,600	.063	2,000	.079
		80,400	3.165	1,600	.063	2,000	.079
Eberle Matrix II	Eberle D6A	12,700	.500	0,508	.020	1,016	.040
		27,508	1.083	0,889	.035	1,016	.040
						1,575	.062
		34,544	1.360	1,067	.043	1,575	.062
41,525	1.635	1,270	.050	1,575	.062		

Bimetal Strip Steel for Hand Hacksaw Blades

Eberle M2	Eberle 51CrV4	12,700	.500	0,600	.024	1,400	.055
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Bimetal Strip Steel for Reciprocating and Jig Saw Blades

Eberle Matrix II	Eberle D6A	8,000	.315	1,000	.039	1,016	.040
				1,270	.050	1,575	.062
		19,050	.750	0,889	.035	1,016	.040
				0,889	.035	1,575	.062
		25,400	1.000	1,270	.050	1,575	.062
				1,530	.060	1,575	.062

Further material combinations and dimensions on request.

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The logo for Eberle, featuring the word "Eberle" in a bold, italicized, sans-serif font.

J.N. Eberle & Cie. GmbH, Augsburg, Germany
Cold Rolling Mill and Saw Factory
Quality products since 1836