

PRECISION STRIP STEEL

INTELLIGENT SOLUTIONS
MADE BY

Eberle

PRECISION IS OUR PASSION.



Producing strip steel to the most exacting international quality levels requires precision to be an absolute passion. The result – individual solutions that perfectly match the technical and business needs of our customers.

This passion for precision has been driving us at Eberle for more than 175 years. Add to this accomplishment our experienced and highly motivated employees, and you will understand why we are at the cutting edge of innovation. Expertise and a relentless focus on quality combine to ensure that our customers obtain the highest product quality in all three business units:

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

Production of pocket watch springs began shortly after fret saw manufacturing was founded in 1836. We have also been specializing in cold rolling since 1883. We found that the only way to ensure the quality requirements of the materials we used was to establish our own cold rolling mill. That is just what we did – and nothing in our approach has changed since then.

Our corporate policy is

the finest quality and total customer satisfaction.

What this means for your process chain is

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



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OUR CORE COMPETENCIES



→ Materials testing

To ensure that our products are of outstanding quality the pre-materials we use must satisfy the most stringent quality demands. We make sure of this by selecting our suppliers and monitoring incoming goods extremely carefully. And of course, we always use a spark spectrometer to conduct a chemical analysis and rigorously check the purity grade. We employ a specially developed process to verify the purity grades, adhering to strict guidelines that well exceed the DIN standard.

→ Cold rolling

A high-precision radiometric measuring system and state-of-the-art electronic control technology enable us to achieve thickness tolerances of up to $\pm 0,001$ mm. We use our own roll machining to satisfy customers' specific requirements for surface roughness.

→ Tempering

We combine our experience and expertise with the latest technology - ensuring you get the narrowest tolerances in terms of tensile strength. We conduct a continual analysis to make sure the microstructure we are producing is precisely matched to the required applications.

→ Automated surface control

Eberle was the first manufacturer of precision strip steel to introduce a 100% dual-sided, optical surface control as part of the finishing process. This control system was developed in cooperation with the world market leader, and has enabled us to fully implement our zero defect strategy.

→ Cutting

Our advanced cutting technology guarantees the excellent straightness of our products.

→ Edge finishing

Using our advanced edge shaping system, we are in the position to produce highly-precise standard edge profiles, as well as customized edge profiles.



Highest flexibility in edge finishing – we carry out your requirements.

Code	Edge finish	Description	
KG		Slit $2,00 \leq w \leq 250,00 \text{ mm}$ [$.079 \leq w \leq 9.843 \text{ in}$]	
KE		Deburred $t < 0,65 \text{ mm}$: $4,00 \leq w \leq 250,00 \text{ mm}$ [$t < .026 \text{ in}$: $.157 \leq w \leq 9.843 \text{ in}$] $t \geq 0,65 \text{ mm}$: $4,00 \leq w \leq 150,00 \text{ mm}$ [$t \geq .026 \text{ in}$: $.157 \leq w \leq 5.906 \text{ in}$]	
K2		Bevelled $t \geq 0,30 \text{ mm}$ [$t \geq .012 \text{ in}$] $10,00 \leq w \leq 150,00 \text{ mm}$ [$.394 \leq w \leq 5.906 \text{ in}$] Tip: s Bevel angle: x	
K3		Rectangular rounded $t \geq 0,15 \text{ mm}$ [$t \geq .006 \text{ in}$] $6,00 \leq w \leq 150,00 \text{ mm}$ [$.236 \leq w \leq 5.906 \text{ in}$]	Standard radiuses r $0,15 \leq t < 0,25 \text{ mm}$: $0,04 \text{ mm}$ [$.006 \leq t < .010 \text{ in}$: $.0016 \text{ in}$] $0,25 \leq t < 0,80 \text{ mm}$: $0,08 \text{ mm}$ [$.010 \leq t < .031 \text{ in}$: $.0031 \text{ in}$] $0,80 \leq t < 1,27 \text{ mm}$: $0,15 \text{ mm}$ [$.031 \leq t < .050 \text{ in}$: $.0059 \text{ in}$] $1,27 \leq t \leq 1,75 \text{ mm}$: $0,20 \text{ mm}$ [$.050 \leq t \leq .069 \text{ in}$: $.0078 \text{ in}$]
K4		Rounded $t \geq 0,06 \text{ mm}$ [$t \geq .0024 \text{ in}$] $4,00 \leq w \leq 150,00 \text{ mm}$ [$.157 \leq w \leq 5.906 \text{ in}$]	

TECHNICAL PARAMETERS

THICKNESS TOLERANCES

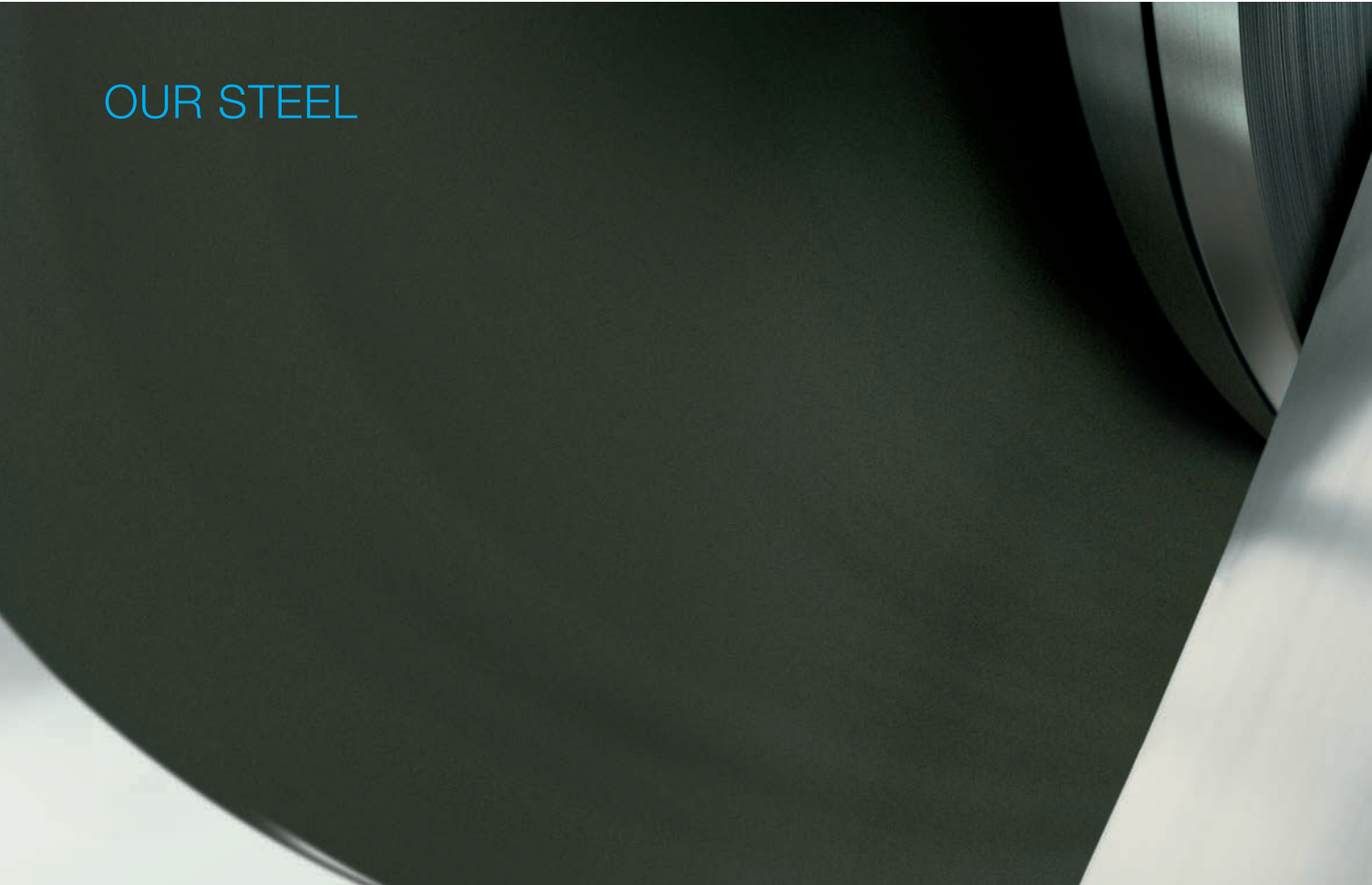
Thickness t		Tolerances ±mm / ± in									
mm	in	T1		T2		T3		T4		T5	
0,020 ≤ t < 0,040	.0008 ≤ t < .0016	0,004	.00016	0,003	.00012	0,002	.00008	0,0015	.00006	-	-
0,040 ≤ t < 0,063	.0016 ≤ t < .0025	0,005	.00020	0,004	.00016	0,003	.00012	0,002	.00008	-	-
0,063 ≤ t < 0,100	.0025 ≤ t < .0039	0,006	.00024	0,005	.00020	0,004	.00016	0,003	.00012	0,002	.00008
0,100 ≤ t < 0,125	.0039 ≤ t < .0049	0,007	.00028	0,005	.00020	0,004	.00016	0,003	.00012	0,002	.00008
0,125 ≤ t < 0,160	.0049 ≤ t < .0063	0,009	.00035	0,006	.00024	0,005	.00020	0,004	.00016	0,003	.00012
0,160 ≤ t < 0,200	.0063 ≤ t < .0079	0,010	.00039	0,007	.00028	0,005	.00020	0,004	.00016	0,003	.00012
0,200 ≤ t < 0,250	.0079 ≤ t < .0098	0,011	.00043	0,008	.00031	0,006	.00024	0,004	.00016	0,003	.00012
0,250 ≤ t < 0,315	.0098 ≤ t < .0124	0,013	.00051	0,009	.00035	0,007	.00028	0,005	.00020	0,004	.00016
0,315 ≤ t < 0,400	.0124 ≤ t < .0157	0,015	.00059	0,011	.00043	0,008	.00031	0,006	.00024	0,004	.00016
0,400 ≤ t < 0,500	.0157 ≤ t < .0197	0,017	.00067	0,012	.00047	0,009	.00035	0,006	.00024	0,004	.00016
0,500 ≤ t < 0,630	.0197 ≤ t < .0248	0,020	.00079	0,014	.00055	0,010	.00039	0,007	.00028	0,005	.00020
0,630 ≤ t < 0,800	.0248 ≤ t < .0315	0,023	.00091	0,017	.00067	0,012	.00047	0,008	.00031	0,006	.00024
0,800 ≤ t < 1,000	.0315 ≤ t < .0394	0,027	.00106	0,019	.00075	0,013	.00051	0,009	.00035	0,007	.00028
1,000 ≤ t < 1,250	.0394 ≤ t < .0492	0,034	.00134	0,024	.00094	0,017	.00067	0,012	.00047	0,008	.00031
1,250 ≤ t < 1,600	.0492 ≤ t < .0630	0,039	.00154	0,028	.00110	0,020	.00079	-	-	-	-
1,600 ≤ t ≤ 1,750	.0630 ≤ t ≤ .0689	0,046	.00181	0,033	.00130	0,023	.00091	-	-	-	-

WIDTH TOLERANCES

Thickness t		Width w		Tolerances ± mm / ± in					
mm	in	mm	in	B1		B2		B3	
t < 0,250	t < .0098	w < 20,00	w < .79	0,07	.003	0,05	.002	0,03	.001
		20,00 ≤ w < 50,00	.79 ≤ w < 1.97	0,10	.004	0,07	.003	0,05	.002
		50,00 ≤ w < 125,00	1.97 ≤ w < 4.92	0,15	.006	0,11	.004	0,07	.003
0,250 ≤ t < 0,500	.0098 ≤ t < .0197	w ≥ 125,00	w ≥ 4.92	0,20	.008	0,15	.006	0,10	.004
		w < 20,00	w < .79	0,10	.004	0,07	.003	0,05	.002
		20,00 ≤ w < 50,00	.79 ≤ w < 1.97	0,15	.006	0,11	.004	0,07	.003
0,500 ≤ t < 1,000	.0197 ≤ t < .0394	50,00 ≤ w < 125,00	1.97 ≤ w < 4.92	0,20	.008	0,15	.006	0,10	.004
		w ≥ 125,00	w ≥ 4.92	0,25	.010	0,20	.008	0,15	.006
		w < 20,00	w < .79	0,15	.006	0,11	.004	0,07	.003
1,000 ≤ t < 1,600	.0394 ≤ t < .0630	20,00 ≤ w < 50,00	.79 ≤ w < 1.97	0,20	.008	0,15	.006	0,10	.004
		50,00 ≤ w < 125,00	1.97 ≤ w < 4.92	0,25	.010	0,20	.008	0,15	.006
		w ≥ 125,00	w ≥ 4.92	0,30	.012	0,25	.010	0,15	.006
1,600 ≤ t ≤ 1,750	.0630 ≤ t ≤ .0689	w < 20,00	w < .79	0,20	.008	0,15	.006	0,10	.004
		20,00 ≤ w < 50,00	.79 ≤ w < 1.97	0,25	.010	0,20	.008	0,15	.006
		50,00 ≤ w < 125,00	1.97 ≤ w < 4.92	0,30	.012	0,25	.010	0,15	.006
		w ≥ 125,00	w ≥ 4.92	0,35	.014	0,25	.010	0,20	.008
		w < 20,00	w < .79	0,25	.010	0,20	.008	0,15	.006
		20,00 ≤ w < 50,00	.79 ≤ w < 1.97	0,30	.012	0,20	.008	0,15	.006
		50,00 ≤ w < 125,00	1.97 ≤ w < 4.92	0,35	.014	0,30	.012	0,20	.008
		w ≥ 125,00	w ≥ 4.92	0,40	.016	0,30	.012	0,20	.008

SURFACE ROUGHNESS

Thickness t		Roughness					
mm	in	Class 1		Class 2		Class 3	
t ≤ 0,500	t ≤ .0197	Ra ≤ 0,30 μm Rt ≤ 3,00 μm	Ra ≤ 11.8 μin Rt ≤ 118 μin	Ra ≤ 0,25 μm Rt ≤ 2,50 μm	Ra ≤ 9.8 μin Rt ≤ 98 μin	Ra ≤ 0,13 μm Rt ≤ 1,50 μm	Ra ≤ 5.1 μin Rt ≤ 59 μin
0,500 < t ≤ 0,700	.0197 < t ≤ .0276	Ra ≤ 0,35 μm Rt ≤ 3,50 μm	Ra ≤ 13.8 μin Rt ≤ 138 μin			Ra ≤ 0,20 μm Rt ≤ 2,00 μm	Ra ≤ 7.9 μin Rt ≤ 79 μin
0,700 < t ≤ 1,000	.0276 < t ≤ .0394						
1,000 < t ≤ 1,750	.0394 < t ≤ .0689	Ra ≤ 0,40 μm Rt ≤ 4,00 μm	Ra ≤ 15.7 μin Rt ≤ 157 μin	Ra ≤ 0,35 μm Rt ≤ 3,50 μm	Ra ≤ 13.8 μin Rt ≤ 138 μin	Ra ≤ 0,30 μm Rt ≤ 3,00 μm	Ra ≤ 11.8 μin Rt ≤ 118 μin




OUR STEEL

Leading-edge technology at your service.

Your product incorporates your experience and our know-how.

To ensure our precision strip steel is the finest quality we continually develop our technology and carefully select our supply sources. Our dedicated and committed employees will respond fast and flexibly to your requests.

For the most exacting demands – precision strip steel from Eberle.

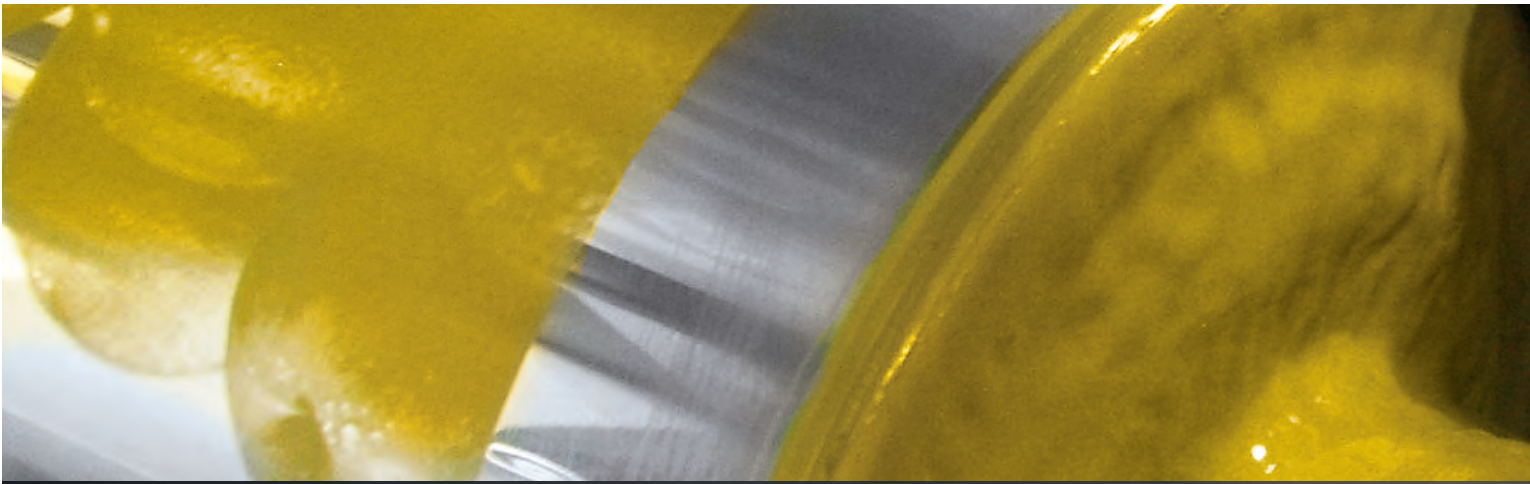


We are experts in materials with the tightest tolerances in hardened and tempered condition.

We supply a range of dimensions in a **thickness of 0,02 – 1,75 mm [.0008 – .0689 in]** and a **width of 2 – 250 mm [.08 – 9.84 in]**. Eberle precision strip steel is used in industries such as:

- › **printing**
- › **compressors**
- › **automotive**
- › **paper manufacturing**
- › **textile production**
- › **mechanical engineering**
- › **musical instruments**
- › **measurement and control instrument construction**
- › **electrical and electronics**
- › **metalworking and machining**

We will carry out your specific requirements.

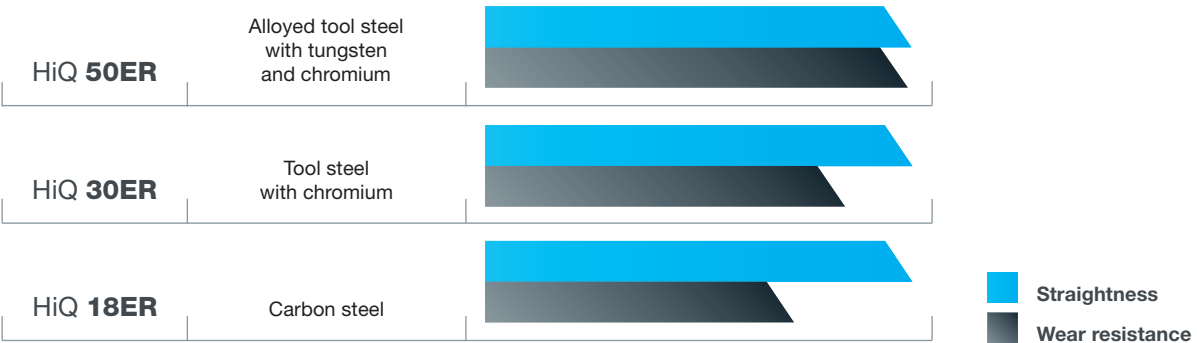


DOCTOR BLADE STEEL

We supply the appropriate steel grades and processing for each type of doctor blade that you manufacture.

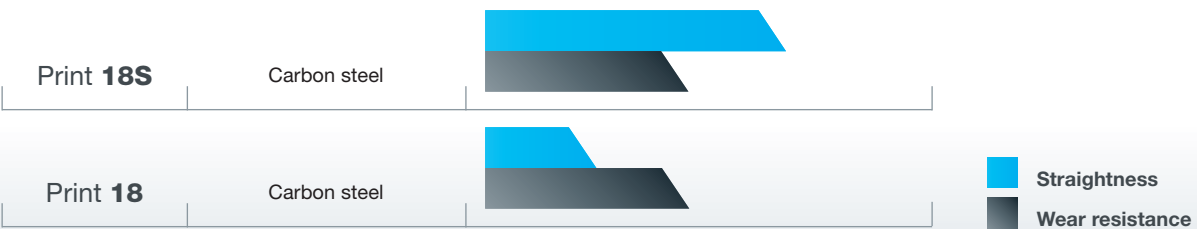
The special characteristics of our High Quality grades are determined by:

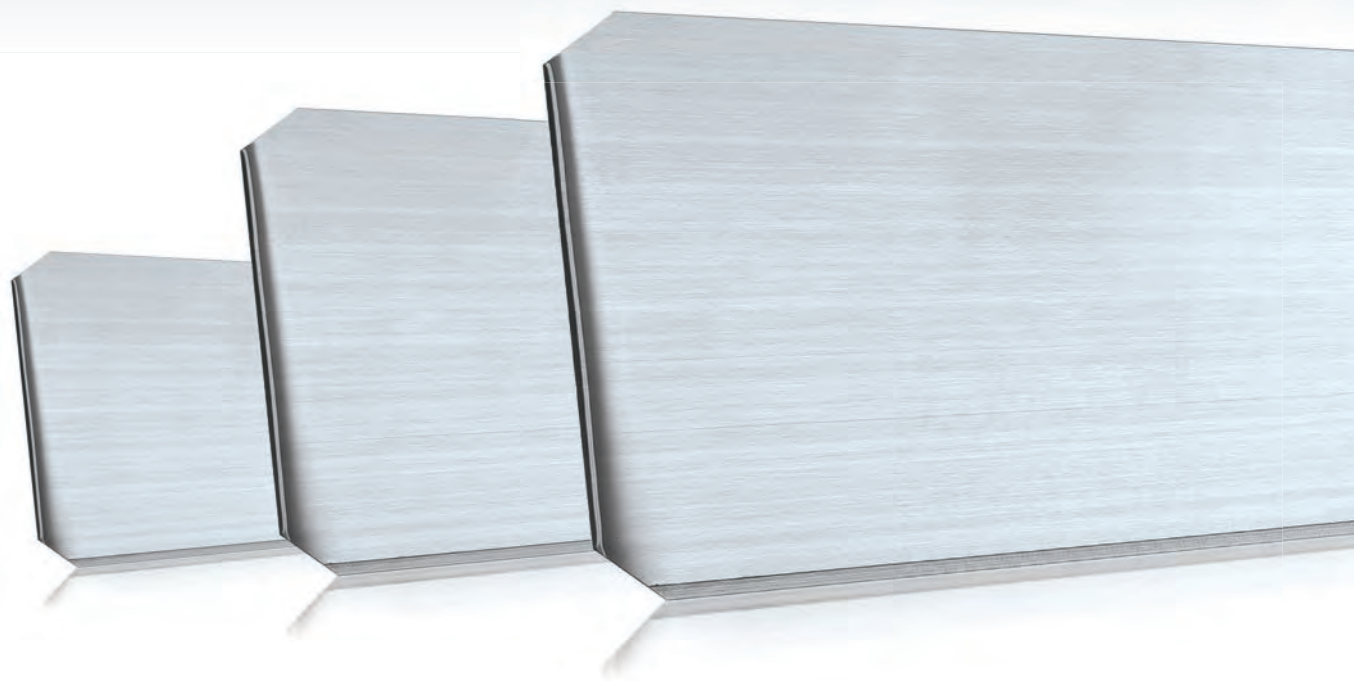
- › maximum straightness deviation of 0,6 mm / 3 m [.024 in/10 ft]
- › superior purity grade
- › constant and specially adapted microstructure
- › best flatness metrics
- › exact edge geometries



Our Print grades feature the following winning criteria:

- › defined straightness
- › constant microstructure
- › best flatness
- › exact edge geometries





**WE RECOMMEND THE FOLLOWING
PARAMETERS FOR YOU:**

Thickness tolerance:	T2
Tensile strength:	range M
Flatness:	class 3
Surface:	white polished
Edges:	rounded

High Quality	Straightness class
HiQ 50ER	5
HiQ 30ER	5
HiQ 18ER	5
Print	
Print 18S	4
Print 18	3

Alternative parameters on request.
For technical parameters see fold-out pages.

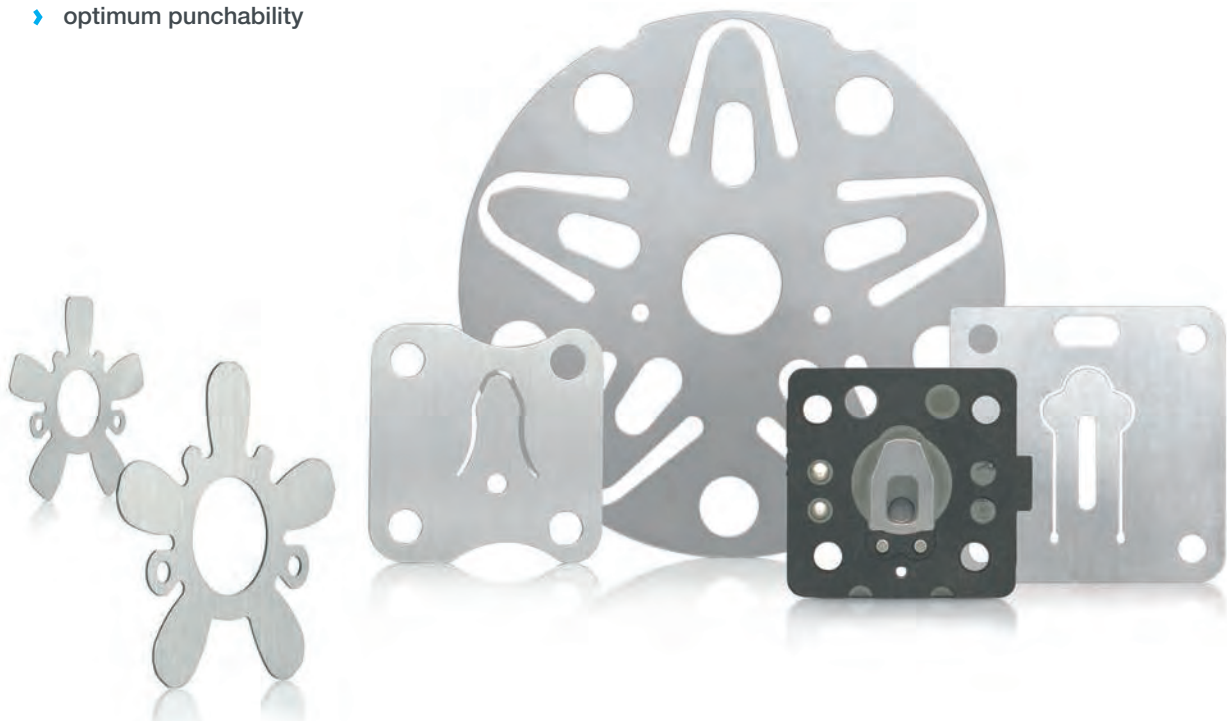


FLAPPER VALVE STEEL

We provide you with the best flapper valve steel for your needs, as used in compressors of all kinds, such as in air conditioning equipment cooling units.

Eberle flapper valve steel excels through:

- › highest fatigue resistance
- › excellent surface finish
- › superior purity grade
- › constant and homogeneous microstructure
- › best flatness metrics
- › optimum punchability



WE RECOMMEND THE FOLLOWING PARAMETERS FOR YOU:

Thickness tolerance:	T3 – T4
Roughness:	class 3
Tensile strength:	range M
Flatness:	class 3
Surface:	white polished
Edges:	slit / deburred

For technical parameters see fold-out pages.



SHOCK ABSORBER STEEL

We have the right precision strip steel for your shock absorber valves, offering the following outstanding features:

- › optimum punchability
- › best flatness
- › high fatigue resistance
- › very good surface finish
- › constant and homogeneous microstructure



WE RECOMMEND THE FOLLOWING PARAMETERS FOR YOU:

Thickness tolerance:	T2
Roughness:	class 2
Tensile strength:	range M
Flatness:	class 3
Surface:	white polished
Edges:	slit / deburred

For technical parameters see fold-out pages.



REED STEEL

We offer the perfect weaving reed steel for your reed combs for manufacturing filter fabrics, textiles, technical fabrics with the finest mesh sizes, glass, plastic and carbon fiber fabrics, filter sieves and other applications.

Our weaving reed steel offers the following outstanding features:

- › perfect edge rounding
- › constant hardness combined with high abrasion resistance and wear resistance
- › excellent geometry precision
- › tightest thickness and width tolerances



WE RECOMMEND THE FOLLOWING PARAMETERS FOR YOU:

Thickness tolerance:	T5 and better
Tensile strength:	range M
Flatness:	class 4
Surface:	white polished
Width tolerance:	B 3
Edges:	t ≤ 0,06 mm [.0024 in]: deburred t > 0,06 mm [.0024 in]: rounded

For technical parameters see fold-out pages.



FEELER GAUGE STEEL

We have the perfect precision strip steel for your feeler gauges, offering the following outstanding properties:

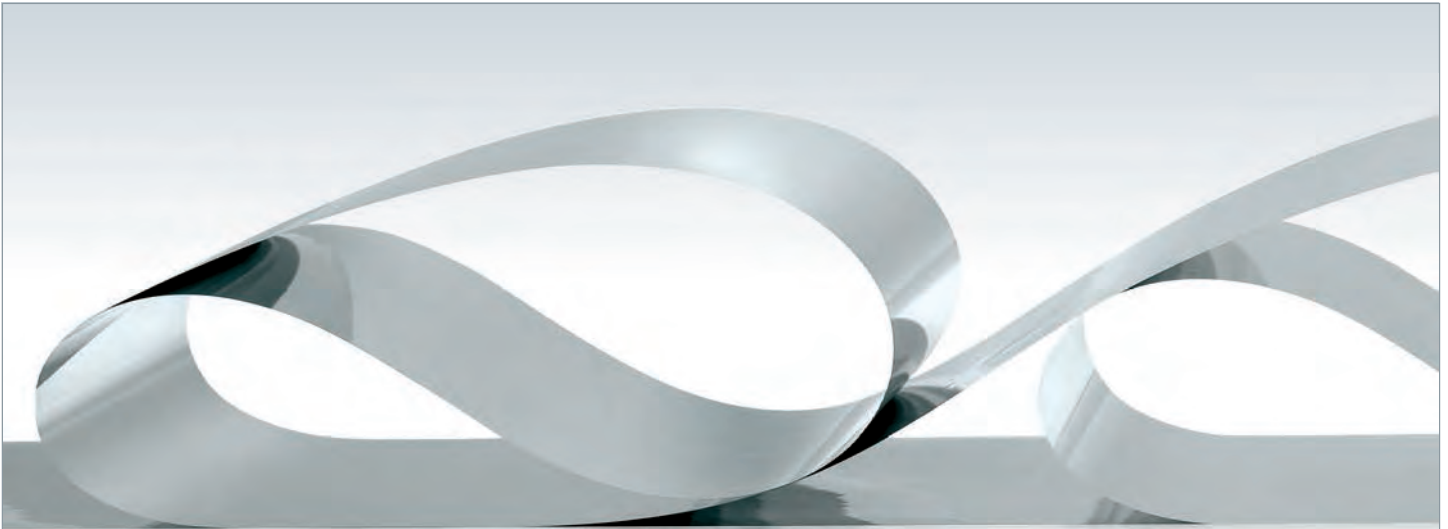
- > best thickness and width tolerances
- > good surface finish
- > optimum edge geometry



WE RECOMMEND THE FOLLOWING PARAMETERS FOR YOU:

Thickness tolerance:	T2 – T4
Tensile strength:	range M
Flatness:	class 2
Surface:	white polished
Edges:	t < 0.10 mm [.0039 in]: deburred t ≥ 0.10 mm [.0039 in]: rounded

For technical parameters see fold-out pages.



SPRING STEEL

We offer a wide range of various different parameters to inspire you with new possibilities.

Take our word for it – just tell us what your specific requirements are and consider it done!

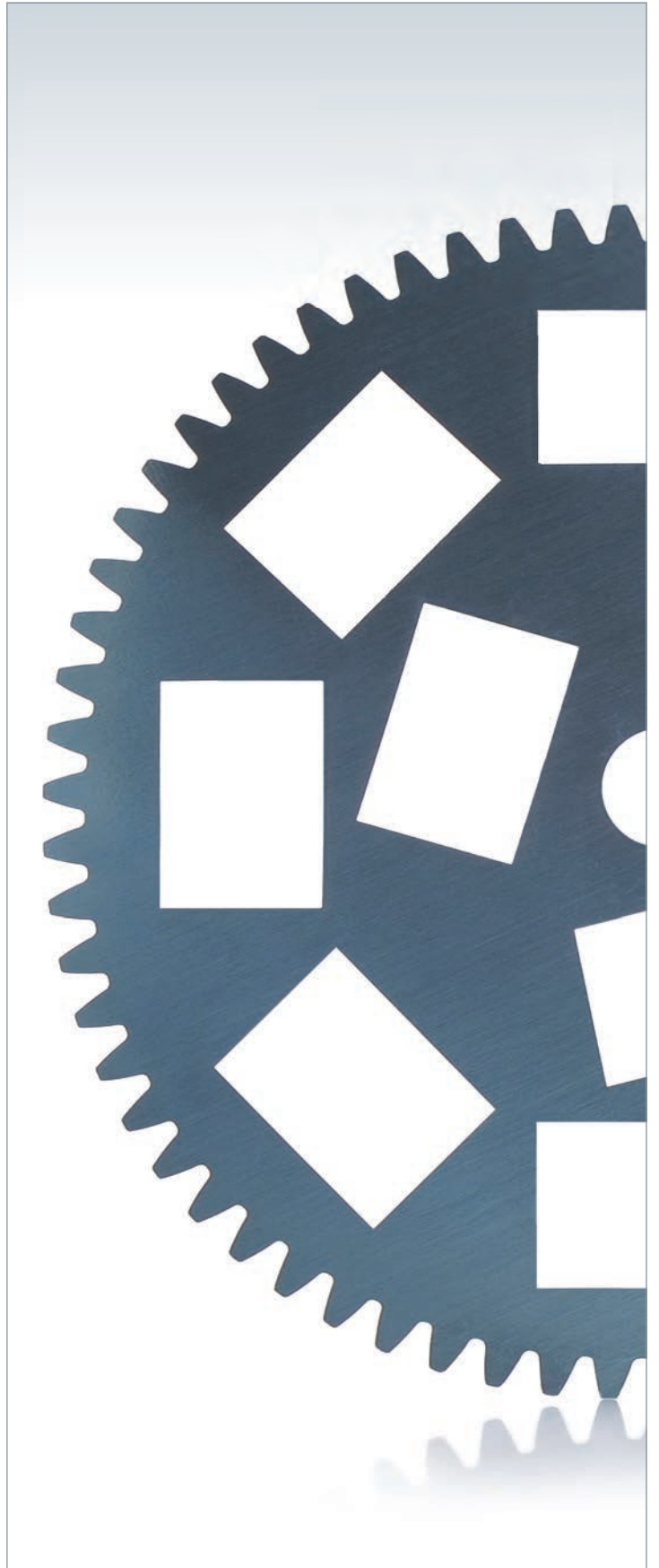
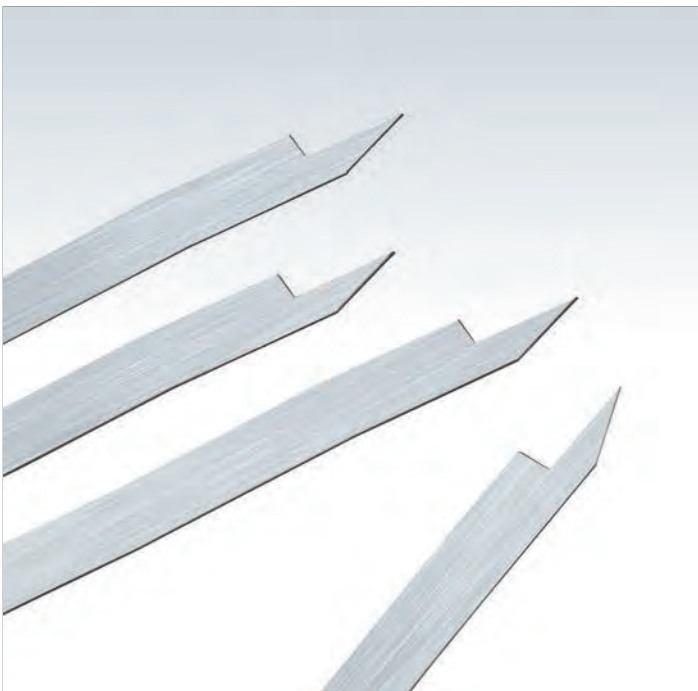
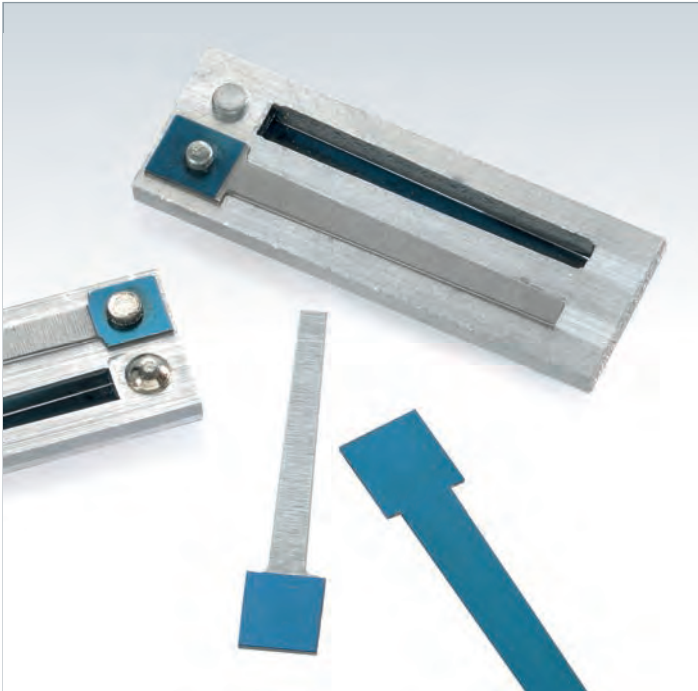
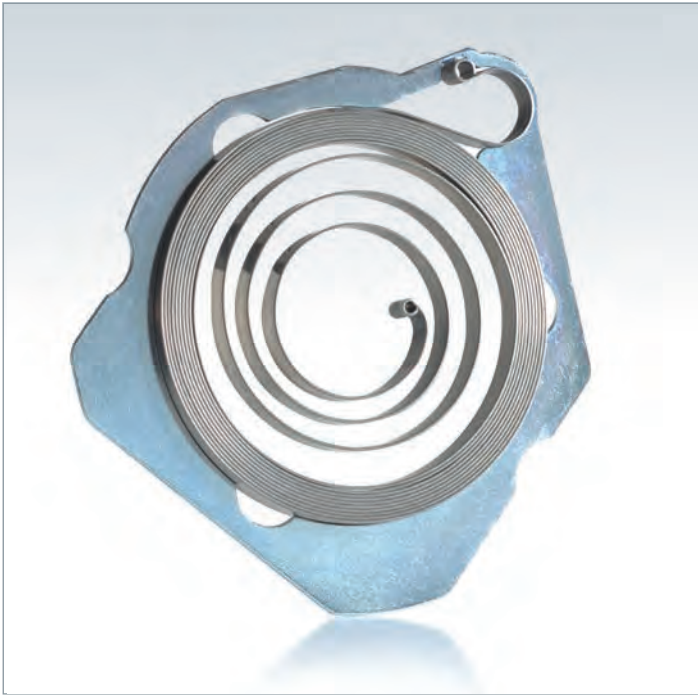
Our precision strip steel exhibits the following parameters to suit your specific needs:

- › thickness tolerance
- › width tolerance
- › roughness
- › tensile strength
- › flatness
- › surface finish
- › straightness
- › edge finish

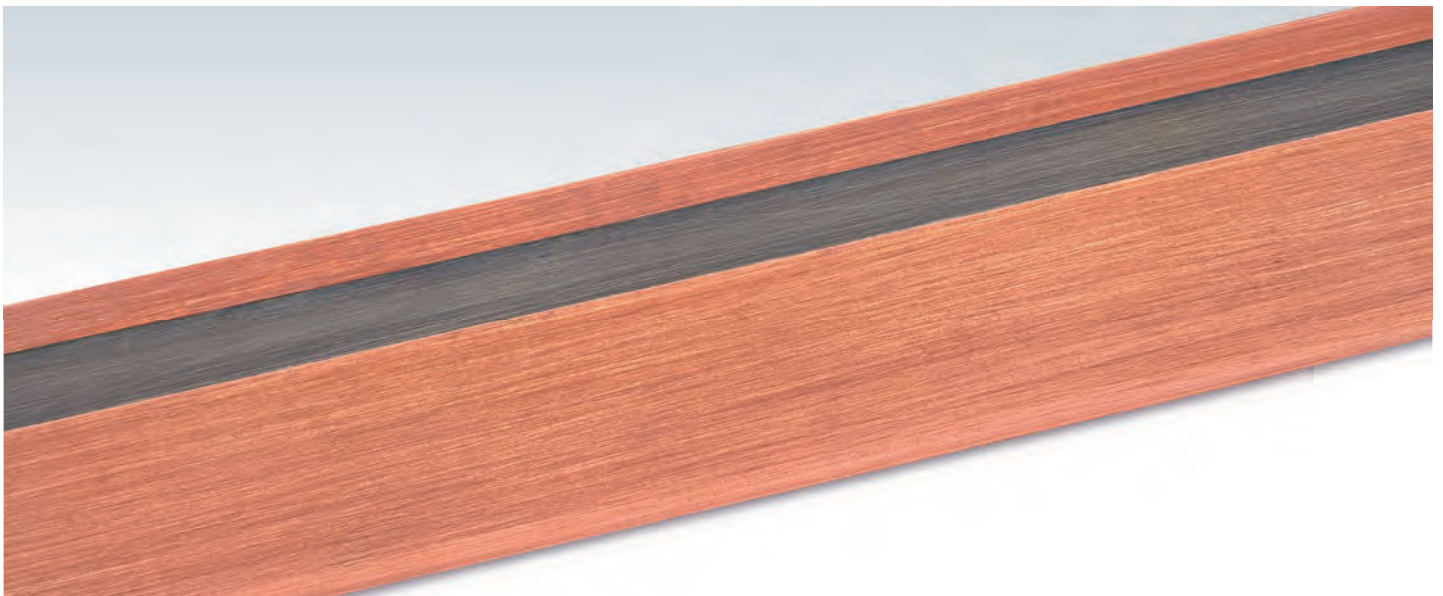
EBERLE SPRING STEEL STRIP IS USED IN THE FOLLOWING PRODUCTS AND OTHERS:

- coater and creping blades
- springs
- lapping carriers
- knives
- musical instrument reeds
- textile plates and needles
- formed parts

Just contact us and our strip steel experts will be happy to give you all the professional advice you need.



Our spring strip steel is also an ideal solution for many other applications.



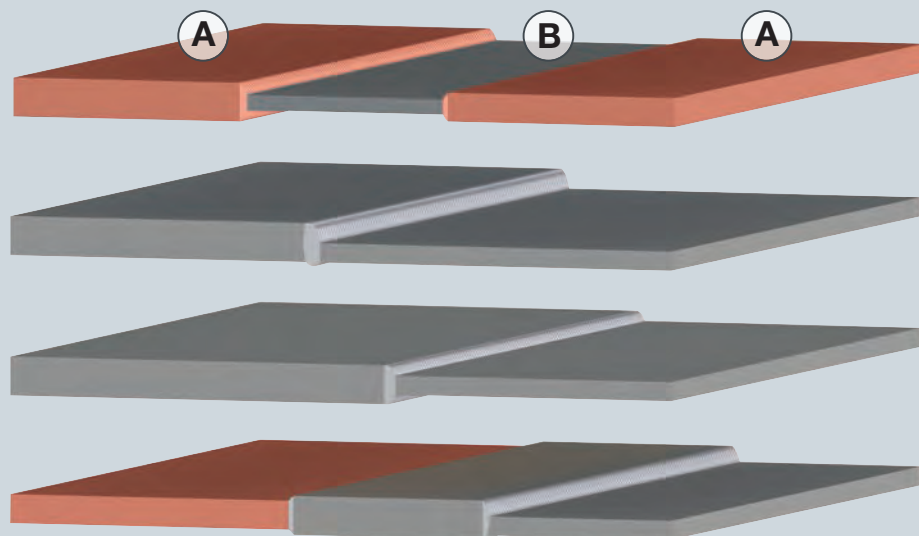
TAILORED STRIP STEEL

Whether you require just the one type of metallic material or a variety of different ones - we will weld a wide variety of different dimensions for you. Up to three strips with a maximum total width of 100 mm will be combined in a continuous roll into a semifinished product of your choice.

Why not benefit from this economic and high-end alternative?

Material **(A)**
e. g. copper

Material **(B)**
e. g. stainless steel



Tailored Strip Steel allows unique combinations of various material-specific properties. At the same time it offers potentials for reducing costs, as it replaces high-cost materials with more affordably priced types of material.

Tailored Strip Steel already enables highly delicate and sophisticated end applications in the automotive and textile industry, as well as applications in the knife and scraper segment with demanding requirements for excellent abrasion resistance and wear resistance.

**Talk to us about your special application –
an email is all it takes to start the steel rolling:
innovation@eberle-augsburg.de**

LOGISTICS-SERVICE



Reliability and flexibility are the key objectives of our logistics services. Our complete value chain, extending from procurement logistics and production control through to goods dispatch, is driven totally by absolute customer satisfaction.

Transport logistics between our Augsburg production site and our customers are handled reliably and quickly by experienced partners. Our freight forwarders have access to a global supply network that makes sure goods are available fast.

We deliver directly to our North American customers through our alliance with REGAL STEEL CO., WARREN, MI, USA. This flexibility in logistics enables us to organize slitting, warehousing and delivery conditions to the optimum effect.

Talk to us – we bridge distances.

Thickness t		Tensile strength MPa			Eberle Tolerance (±)
mm	in	Range L	Range M	Range H	
0,020 ≤ t < 0,100	.0008 ≤ t < .0039	–	630HV	–	25HV
0,100 ≤ t < 0,125	.0039 ≤ t < .0049	1800	2100	2300	50
0,125 ≤ t < 0,175	.0049 ≤ t < .0069	1800	2050	2250	50
0,175 ≤ t < 0,225	.0069 ≤ t < .0089	1750	2000	2200	50
0,225 ≤ t < 0,275	.0089 ≤ t < .0108	1750	1950	2200	50
0,275 ≤ t < 0,375	.0108 ≤ t < .0148	1700	1900	2150	50
0,375 ≤ t < 0,425	.0148 ≤ t < .0167	1650	1850	2100	50
0,425 ≤ t < 0,475	.0167 ≤ t < .0187	1600	1800	2050	50
0,475 ≤ t < 0,525	.0187 ≤ t < .0207	1550	1750	2000	50
0,525 ≤ t < 0,625	.0207 ≤ t < .0246	1550	1750	2000	50
0,625 ≤ t < 0,725	.0246 ≤ t < .0285	1500	1700	1950	50
0,725 ≤ t < 0,825	.0285 ≤ t < .0325	1500	1700	1950	50
0,825 ≤ t < 0,925	.0325 ≤ t < .0364	1450	1650	1900	50
0,925 ≤ t < 1,025	.0364 ≤ t < .0404	1450	1650	1900	50
1,025 ≤ t < 1,150	.0404 ≤ t < .0453	1450	1650	1900	50
1,150 ≤ t < 1,250	.0453 ≤ t < .0492	1400	1600	1850	50
1,250 ≤ t < 1,350	.0492 ≤ t < .0531	1400	1600	1850	50
1,350 ≤ t < 1,575	.0531 ≤ t < .0620	1400	1600	1850	50
1,575 ≤ t ≤ 1,750	.0620 ≤ t ≤ .0689	1350	1550	1800	50

Thickness t		Flatness deviation P			
mm	in	Class 1	Class 2	Class 3	Class 4
0,020 ≤ t < 0,100	.0008 ≤ t < .0039	P60	P50	P40	P30
0,100 ≤ t < 0,200	.0039 ≤ t < .0079	P50	P40	P30	P20
0,200 ≤ t < 0,350	.0079 ≤ t < .0138	P45	P35	P25	P15
0,350 ≤ t < 0,500	.0138 ≤ t < .0197	P40	P30	P20	P10
0,500 ≤ t ≤ 1,750	.0197 ≤ t ≤ .0689	P35	P25	P15	P10

P15 means maximum flatness deviation of 1,5 µm [.0015 in] per 1 mm [1 in] strip width

Strip width w		Measured length		Straightness deviation G mm / in					
mm	in	m	ft	Class 3		Class 4		Class 5	
w < 15,00	w < .591	0,5	1.6	1,6	.063	0,8	.031	0,6	.024
15,00 ≤ w < 35,00	.591 ≤ w < 1.378	1	3.3	1,8	.071	0,9	.035	0,6	.024
		3	10	3,6	.142	1,8	.071	1,2	.047
35,00 ≤ w < 125,00	1.378 ≤ w < 4.921	1	3.3	1,2	.047	0,6	.024	0,3	.012
		3	10	2,4	.094	1,2	.047	0,6	.024
125,00 ≤ w ≤ 250,00	4.921 ≤ w ≤ 9.843	1	3.3	1,2	.047	–	–	–	–

G0,6/3 [G.024/10] means maximum straightness deviation of 0,6 mm [.024 in] over a measuring length of 3 m [10 ft]

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