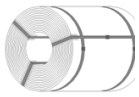
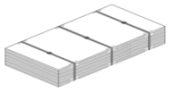
HOT ROLLED PRODUCTS

HOT ROLLED STRIPS ARE PRODUCED ON A SEMI-CONTINUOUS ROLLING MILL. IT CONSISTS OF A DUO REVERSING VERTICAL AND HORIZONTAL ROUGHING STAND AND A SIX-STAND QUARTO MILL.

LIBERTY

MAIN PARAMETERS

	COIL	SHEET
		
Thickness; h (mm)	1.2 – 18.0	1.2 – 12.5
Width; b (mm)	800 – 1540	800 – 1540 with mill edge 800 – 1500 with trimmed edge
Length; l (mm)		1600 – 8000 up to the thickness of max. 8 mm 1600 – 12000 above the thickness of 8 mm
Edge trimming		applied within the thickness range of 2.0 - 8.0 mm for plain sheets in strength categories I-V. and for sheets with pattern in strength categories I-IV.

COIL WEIGHTS AND DIMENSIONS

WIDTH b (mm)	800 – 860	861 – 950	951 – 1050	1051 – 1150	1151 – 1250	1251 – 1350	1351 – 1450	1451 – 1540
WEIGHT (t)	4 – 7.5 10 – 12.5	4.5 – 8.5 11 – 14	5 – 9.5 12.5 – 15.5	5.5 – 10.5 14 – 17	6 – 11.5 15 – 18.5	6.5 – 12.5 16 – 20	7.5 – 13.5 17.5 – 21.5	8 – 14 19 – 23

Coil outside diameter: max. 1950 mm;
Coil inside diameter: 750 ± 50 mm

SHEET DIMENSIONS

Commercial sheet dimensions

WIDTH b (mm)	LENGTH l (mm)			
	2000	2500	3000	6000
1000	h = 1.5; 2; 2.5; 3; 4; 5; 6; 8; 10; 12 mm	—		—
1250	—	h = 2; 2.5; 3; 4; 5; 6; 8; 10; 12 mm		—
1500	—	—	h = 2.5; 3; 4; 5; 6; 8; 10; 12 mm	h = 2.5; 3; 4; 5; 6; 8; 10; 12 mm

PRODUCT GROUPS

The latest issued standards are applied for our products. The mechanical properties and chemical compositions in the tables are valid taking into account the supplementary specifications of the indicated standards.

DEFINITION OF STRENGTH CATEGORIES

According to EN 10051
Category 'A' with minimum yield strength Re ≤ 300 MPa
Category 'B' with minimum yield strength 300 MPa < Re ≤ 360 MPa
Category 'C' with minimum yield strength 360 MPa < Re ≤ 420 MPa
Category 'D' with minimum yield strength 420 MPa < Re ≤ 900 MPa

HOT ROLLED PRODUCTS

The manufacturer uses the company steel standard DASZ 03 instead of EN 10051:

Category I. Steel grades characterised with maximum yield strength, used for cold rolling,
Category II. Steel grades with yield strength 185 MPa ≤ Re < 235 MPa,
Category III. Steel grades with yield strength 235 MPa ≤ Re < 260 MPa,
Category IV. Steel grades with yield strength 260 MPa ≤ Re < 340 MPa,
Category V. Steel grades with yield strength 340 MPa ≤ Re < 420 MPa,
Category VI. Steel grades with yield strength 420 MPa ≤ Re < 460 MPa,
Category VII. Steel grades with yield strength 460 MPa ≤ Re < 500 MPa,
Category VIII. Steel grades with yield strength 500 MPa ≤ Re < 600 MPa.

DASZ 03 standard includes the producible dimension ranges as well as dimensional tolerances by strength categories. These tolerances are either the same as or stricter than that specified by EN 10051 standard.

Tolerances of hot rolled products according to DASZ 03 standard are included in chapter TOLERANCES.
In case of standards with the same number, but from different years the specifications of the standard included in the delivery contract are normative.

HOT ROLLED MILD STEELS

Steels for cold rolling

Typical applications: re-rolling, pressing base material, small and medium scale deep-drawing and production of parts.

STRENGTH CATEGORY	DIN 1614	ASTM A568 SAE
I.	St 22	1010
	RRSt 23	1008
	St 24	1006

Steels with increased yield strength for cold rolling are included in chapter Fine-grained steels for cold rolling.

Steels for enamelling

Typical applications: boilers, ovens, gas convector and other household appliances.

STRENGTH CATEGORY	DIN 1623	DASZ 206
I.	EK 2	—
	EK 4	—
	—	Fe P13-B

Steels for cold forming

Typical applications: depending on the steel grade these steels are applied for parts made by small, medium and large scale deep drawing, such as compressors and for bent, cold formed products.

STRENGTH CATEGORY	EN 10111	DIN 1614
I.	DD11	StW 22
	DD12	RRStW 23
	DD13	StW 24
	DD14	—

HOT ROLLED NON-ALLOY STRUCTURAL STEELS

Typical applications: construction, production of welded structures, pressed parts, bent sections and tubes.

STRENGTH CATEGORY	EN 10025-2	DIN 17100
II.	S185	St 33
III.	— — S235JR S235J0 S235J2	St 37-2 USt 37-2 RSt 37-2 St 37-3 —

HOT ROLLED PRODUCTS

STRENGTH CATEGORY	EN 10025-2	DIN 17100
IV.	S275JR S275J0 S275J2	St 44-2 St 44-3 —
V.	S355JR S355J0 S355J2 S355K2	— St 52-3 — —
VI.	E295	St 50-2
VII.	E335	St 60-2
VIII.	E360	St 70-2

EN 10025-2 standard: The products are delivered in normalizing rolled or as-rolled condition. If the product is ordered with normalizing rolling the +N marking shall be added to the grade specification. If the product is ordered in as-rolled condition the +AR marking shall be added to the grade specification If cold forming (cold bending, edge bending, roller-type forming) is required when ordering, the steel grade name has to be completed with the letter C (e.g. S355J2C +N).

STEELS RESISTANT TO ATMOSPHERIC CORROSION

Typical applications: support and cover elements of outdoor surfaces exposed to weather conditions and production of containers suitable for sea transport.

Steels resistant to atmospheric corrosion can be used profitably as structural steels, because there is no need for additional surface protection. The continuous brown surface layer that develops in one year slows down further corrosion of the steel. The qualities produced according to DASZ 210 standard are phosphor alloyed and atmospheric corrosion resistant steel grades that have been developed based on quality CORTEN A.

STRENGTH CATEGORY	EN 10025-5	DASZ 210
III.	S235J0W	—
	S235J2W	—
IV.	—	D-COR-TEN 410
V.	S355J0W	—
	S355J2W	—
	S355J0WP	—
	S355J2WP	D-COR-TEN 510

HOT ROLLED PRODUCTS

STEELS FOR MANUFACTURING BOILERS AND PRESSURE VESSELS

Typical applications: pressure vessels, gas bottles, boilers and containers.

The characteristics of these steel types are excellent formability, weldability and low content of impurities.

STRENGTH CATEGORY	EN 10028-2	EN 10028-3	EN 10207	EN 10120
III.	P235GH +N	—	—	—
	—	—	—	P245NB
	—	—	P235S	—
IV.	P265GH +N	—	—	—
	—	—	—	P265NB
	—	—	P265S	—
	—	P275N	—	—
	—	P275NH	—	—
	—	P275NL1	—	—
	—	—	P275SL	—
	P295GH +N	—	—	—
	—	—	—	P310NB
V.	P355GH +N	—	—	—
	16Mo3	—	—	—
	—	—	—	P355NB
	—	P355N	—	—
	—	P355NH	—	—
	—	P355NL1	—	—

Symbols:
GH, H for high temperature service, with hot yield point test
L for low temperature service
B base material of gas bottles
P base material of pressure vessels and boiler plates
S cold toughness, applicable also at low temperature
SL cold toughness, with specification of impact test value at -50°C
N produced by normalizing rolling

STEELS FOR PIPES AND TUBES

Typical applications: spirally and longitudinally welded tubes with different diameters.

The characteristics of these steel types are weldability, toughness and low content of impurities.

STRENGTH CATEGORY	EN ISO 3183	API SPEC 5L
II.	—	Gr A
IV.	L245NE	Gr B
	L290NE	X 42
	—	X 46
V.	L360NE, ME	X 52

These steel grades can be ordered only based on a separate agreement.

Symbols according to EN ISO 3183 standard:
N by normalizing rolling
M by thermomechanical rolling

HOT ROLLED PRODUCTS

FINE-GRAINED STEEL

Typical applications: welded structures, bridges, containers and water tanks exposed to high load at low ambient temperature.

Hot rolled steels with high strength, with extremely good weldability and formability properties. Specifically developed combination of high strength properties and good formability.

Fine-grained steels produced by normalizing rolling

STRENGTH CATEGORY	EN 10025-3	EN 10149-3	SEW 092
IV.	S275N, NL	S260NC	QStE 260 N
	—	S315NC	—
V.	S355N, NL	S355NC	QStE 340 N
	—	—	QStE 380 N
VI.	S420N, NL	S420NC	QStE 420 N
VII.	S460N, NL	S460NC	QStE 460 N

Symbols according to EN 10025-3 standard:
N by normalizing rolling, impact test at -20°C
NL by normalizing rolling, impact test at -50°C

Fine-grained steels produced by thermomechanical rolling

STRENGTH CATEGORY	EN EN 10149-2	EN 10025-4	SEW 092
IV.	S315MC	S275M, ML	—
V.	S355MC	S355M, ML	QStE 340 TM
	—	—	QStE 380 TM
VI.	S420MC	S420M, ML	QStE 420 TM
VII.	S460MC	S460M, ML	QStE 460 TM
VIII.	S500MC	—	QStE 500 TM
	S550MC	—	QStE 550 TM

Symbols according to EN 10149-2 standard:
M by thermomechanical rolling
C suitable for cold flanging

Fine-grained steels for cold rolling

STRENGTH CATEGORY	SEW 093
IV.	ZStE 260
	ZStE 300
V.	ZStE 340
VI.	ZStE 380
VII.	ZStE 420

HOT ROLLED PRODUCTS

TEMPERING, CASE HARDENING AND SPRING STEELS

Typical applications: machine parts as tempered steels or austempered steels.

Delivery condition: hot rolled.

STRENGTH CATEGORY	ISO 683-1	ISO 683-2
V.	C25E	
	C35E	
	C40E *	
	C45E *	
	C50E *	
		20MnB5 *
VI.		30MnB5 *
	C55E *	
	C60E *	
	28Mn6 *	
		25CrMo4 *
		34CrMo4 *
VII.		51CrV4 *

*Can be ordered only based on a separate agreement.

WEAR RESISTANT STEELS

Typical applications: primarily for production of parts exposed to wear and tear, plough iron, breast board and sliding bases.

Wear resistance and toughness of different parts produced by boron micro-alloy, fine-grained hot rolled products are adjustable by annealing, hardening and in case of need subsequent tempering performed at the end-user. Orders can only be placed on the basis of a technical agreement.

STRENGTH CATEGORY	DASZ 200
VII.	DHR 42
	DHR 48
	DHR 50
	DHR 52

SPECIAL PRODUCTS

HOT ROLLED SHEETS FOR PLASMA AND LASER CUTTING

The requirements of suitability for laser cutting are summarised in DASZ 216 standard. These products are ultra-high purity steels with low inclusion content, produced according to reduced chemical composition limit values, with reduced S-, P- and Si-contents; fine-grained, micro-alloy, with more reduced mechanical values than those specified by similar standards and low internal stress, suitable for cold flanging, as well as for plasma and laser cutting. Steel grades, specified by DASZ 216 standard or any other national or international standards, suitable for plasma and laser cutting, can be ordered.

Reduced flatness

In case of ordering **plain** sheets the flatness tolerances, depending on the strength categories according to EN 10051 standard, are given in the following table. Definition of the strength categories (A, B, C, D) according to EN 10051 standard are included in chapter PRODUCT GROUPS of this catalogue.

FLATNESS TOLERANCE MAX (mm/m)			
A	B	C	D
4	4	5	5

Patterned sheets flatness tolerance (mm/m)

WIDTH b (mm)	THICKNESS h (mm)			
	1.60 – 1.99	2.00 – 2.30	2.31 – 2.99	3.00 – 12.00
800 – 1300	10	8	8	8
1301 – 1540	—	—	—	8

HOT ROLLED PRODUCTS FOR GALVANIZING

Suitability for hot-dip galvanizing according to EN 10025 standard is specified in the following table.

CLASS	ELEMENTS IN MASS PERCENT		
	Si	Si + 2.5 P	P
1	Si ≤ 0.030	≤ 0.090	—
2*	Si ≤ 0.350	—	—
3	0.14 ≤ Si ≤ 0.25	—	≤ 0.035

CLASS 2 REFERS ONLY TO SPECIAL ZINC-ALLOYS.

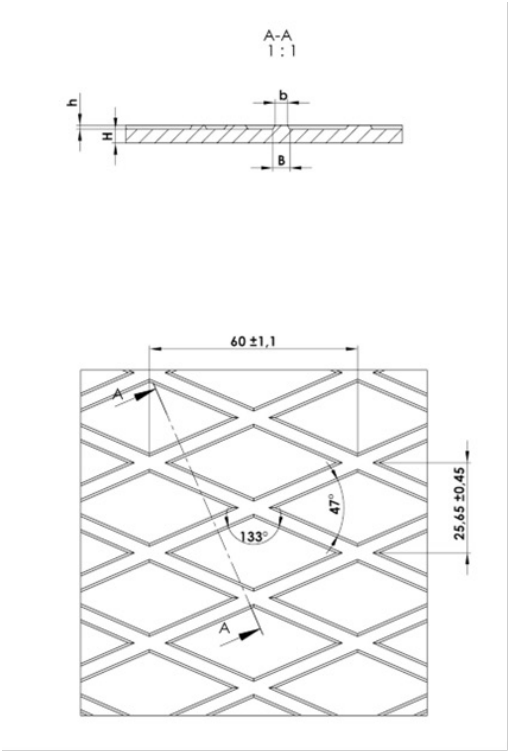
HOT ROLLED PRODUCTS

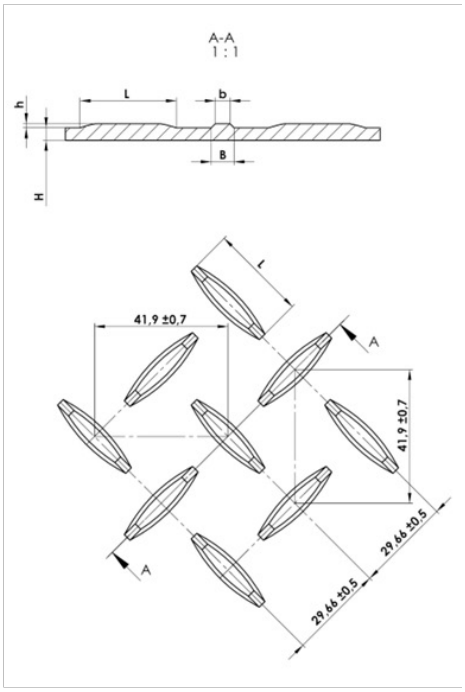
PATTERNED COILS AND SHEETS (DASZ 141)

Typical applications: construction industrial stairs, paths, pavements and warehouse areas.

Patterned products can be ordered in steel grades with strength categories I-V. according to DASZ 03 standard.

Pattern types

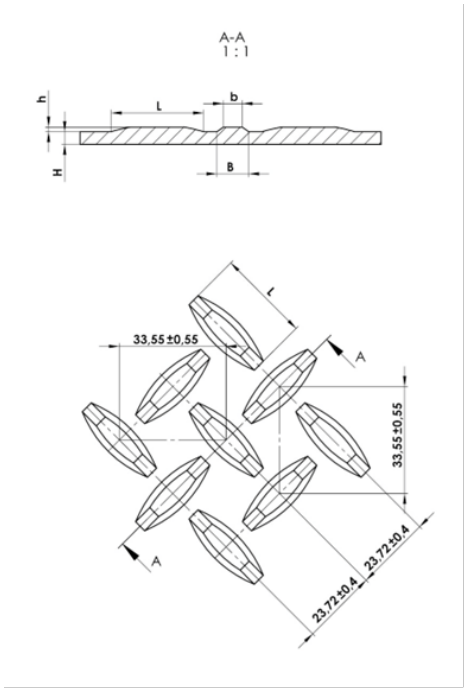




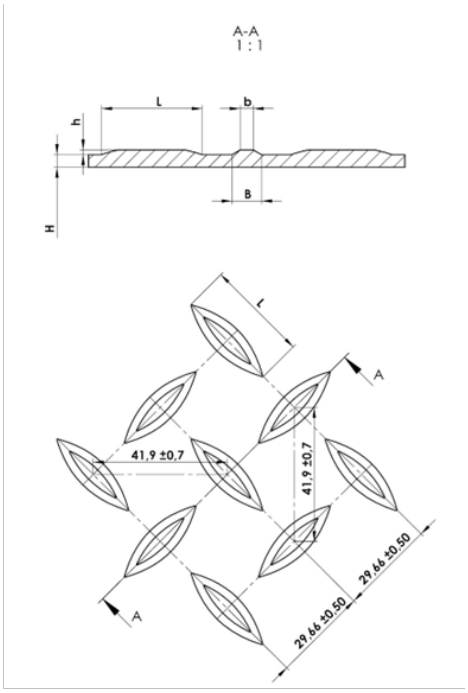
Diamond pattern

Teardrop pattern

HOT ROLLED PRODUCTS



Dense teardrop pattern



Wide teardrop pattern

Pattern parameters of coils and sheets

	PATTERN WIDTH AND LENGTH			
	DIAMOND	TEARDROP	DENSE TEARDROP	WIDE TEARDROP
Top width (mm)	2.81 – 4.20	3.90 – 7.10	4.90 – 8.45	3.84 – 7.22
Bottom width (mm)	4.20 – 4.90	6.30 – 8.30	8.20 – 10.10	8.00 – 9.30
Length (mm)	—	27.30 – 33.60	24.30 – 29.30	30.00 – 32.00

PATTERN HEIGHT		
THICKNESS; h (mm)	MINIMAL PATTERN HEIGHT (mm)	MAXIMAL PATTERN HEIGHT (mm)
1.60 – 2.30	0.60	2.00
2.31 – 3.00	0.80	
3.01 – 9.99	1.00*	
10.00 – 16.50**	0.80	

* WIDE TEARDORP PATTERN: MINIMAL PATTERN HEIGHT 0,8 MM.
** ABOVE 12 MM THICKNESS IT CAN ONLY BE ORDERED IN COILS.

SURFACE

Our products are delivered according to EN 10163-2 standard class B sub-class 3.

TOLERANCES

The specified values for tolerances shall not apply to the uncropped ends of the coil for a total length "l", which is calculated using the formula:

$$l\,(m) = \frac{90}{(\text{nominal thickness (mm)})} \leq 20\,(m)$$

THICKNESS TOLERANCES

Thickness tolerances of plain products

Strength category I. *normal* thickness tolerances

THICKNESS: h (mm)	WIDTH; b (mm)								
	b < 980	980 ≤ b ≤ 1050	1050 < b ≤ 1120	1120 < B ≤ 1200	1200 < b ≤ 1220	1220 < b ≤ 1300	1300 < b ≤ 1420	1420 < b ≤ 1500	b > 1500
1.20-1.29	–	± 0.13	–	–	–	–	–	–	–
1.30-1.49	± 0.13			–	–	–	–	–	–
1.50-1.79	± 0.13				± 0.14	–	–	–	–
1.80-2.00	± 0.13				± 0.14		–	–	–
2.01-2.19	± 0.14				± 0.16		–	–	–
2.20-2.49	± 0.14				± 0.16			–	–
2.50	± 0.14				± 0.16				± 0.17
2.51-3.00	± 0.15				± 0.17				± 0.18
3.01-4.00	± 0.17				± 0.18				± 0.20
4.01-5.00	± 0.18				± 0.20				± 0.21
5.01-6.00	± 0.20				± 0.21				± 0.22
6.01-8.00	± 0.22				± 0.23				± 0.23
8.01-11.00	± 0.24				± 0.25				± 0.25
11.01-12.50	± 0.35				± 0.36				± 0.37
12.51-15.00	± 0.37				± 0.38				± 0.40
15.01-18.00	± 0.40				± 0.42				± 0.45

Strength category I. minimum reduced thickness tolerances to undertake

Thickness: h (mm)	Width; b (mm)								
	b<980	980 ≤ b ≤ 1050	1050 ≤ b ≤ 1120	1120 ≤ b ≤ 1200	1200 ≤ b ≤ 1220	1220 ≤ b ≤ 1300	1300 ≤ b ≤ 1420	1420 ≤ b ≤ 1500	b> 1500
1.20-1.29	–	± 0.07	–	–	–	–	–	–	–
1.30-1.49	± 0.07			–	–	–	–	–	–
1.50-1.79	± 0.07					–	–	–	–
1.80-2.00	± 0.08						–	–	–
2.01-2.19	± 0.08						–	–	–
2.20-2.49	± 0.08							–	–
2.50	± 0.08								
2.51-3.00	± 0.08								
3.01-4.00	± 0.09								
4.01-5.00	± 0.09								
5.01-6.00	± 0.09				± 0.10				
6.01-8.00	± 0.10								± 0.11
8.01-11.00	± 0.12						± 0.13		± 0.13
11.01-12.50	± 0.18						± 0.18		± 0.19
12.51-15.00	± 0.19						± 0.19		± 0.20
15.01-18.00	± 0.20						± 0.21		

Strength category II–III. normal thickness tolerances

Thickness: h (mm)	Width; b (mm)								
	b<980	980 ≤ b ≤ 1050	1050 ≤ b ≤ 1120	1120 ≤ b ≤ 1200	1200 ≤ b ≤ 1220	1220 ≤ b ≤ 1300	1300 ≤ b ≤ 1420	1420 ≤ b ≤ 1500	b> 1500
1.20-1.29	–	± 0.17	–	–	–	–	–	–	–
1.30-1.49	± 0.17			–	–	–	–	–	–
1.50-1.79	± 0.17				± 0.19	–	–	–	–
1.80-2.00	± 0.17				± 0.19		–	–	–
2.01-2.19	± 0.18				± 0.21		–	–	–
2.20-2.49	± 0.18				± 0.21			–	–
2.50	± 0.18				± 0.21				± 0.23
2.51-3.00	± 0.20				± 0.22				± 0.24
3.01-4.00	± 0.22				± 0.24				± 0.26
4.01-5.00	± 0.24				± 0.26				± 0.28
5.01-6.00	± 0.26				± 0.28				± 0.29
6.01-8.00	± 0.29				± 0.30				± 0.31
8.01-10.00	± 0.32				± 0.33				± 0.34
10.01-12.50	± 0.35				± 0.36				± 0.37
12.51-15.00	± 0.37				± 0.38				± 0.40
15.01-18.00	± 0.40				± 0.42				± 0.45

Strength category II. - III. minimum reduced thickness tolerances to undertake

Thickness: h (mm)	Width; b (mm)								
	b<980	980 ≤ b ≤ 1050	1050 ≤ b ≤ 1120	1120 ≤ b ≤ 1200	1200 ≤ b ≤ 1220	1220 ≤ b ≤ 1300	1300 ≤ b ≤ 1420	1420 ≤ b ≤ 1500	b> 1500
1.20-1.29	–	± 0.07	–	–	–	–	–	–	–
1.30-1.49	± 0.07			–	–	–	–	–	–
1.50-1.79	± 0.07					–	–	–	–
1,80-2.19	± 0.08						–	–	–
2.20-2.49	± 0.08							–	–
2.50-3.00	± 0.08								
3.01-4.00	± 0.09								
4.01-5.00	± 0.10								
5.01-6.00	± 0.11								± 0.12
6.01-8.00	± 0.15								± 0.16
8.01-10.00	± 0.16						± 0.17		± 0.17
10.01-12.50	± 0.18						± 0.18		± 0.19
12.51-15.00	± 0.19						± 0.19		± 0.20
15.01-18.00	± 0.20						± 0.21		

Strength category IV. normal thickness tolerances

Thickness: h (mm)	Width; b (mm)						
	b ≤ 1120	1120 ≤ b ≤ 1200	1200 ≤ b ≤ 1250	1250 ≤ b ≤ 1300	1300 ≤ b ≤ 1420	1420 ≤ b ≤ 1500	b > 1500
1.50-1.69	± 0.17	–	–	–	–	–	–
1.70-1.89	± 0.17		–	–	–	–	–
1.90-1.99	± 0.17		± 0.19	–	–	–	–
2.00	± 0.17		± 0.19		–	–	–
2.01-2.39	± 0.18		± 0.21		–	–	–
2.40-2.50	± 0.18		± 0.21			–	–
2.51-2.79	± 0.20		± 0.22			–	–
2.80-3.00	± 0.20		± 0.22				± 0.24
3.01-4.00	± 0.22		± 0.24				± 0.26
4.01-5.00	± 0.24		± 0.26				± 0.28
5.01-6.00	± 0.26		± 0.28				± 0.29
6.01-8.00	± 0.29		± 0.30				± 0.31
8.01-10.00	± 0.32		± 0.33				± 0.34
10.01-12.50	± 0.35		± 0.36				± 0.37
12.51-15.00	± 0.37		± 0.38				± 0.40
15.01-18.00	± 0.40		± 0.42				± 0.45

Strength category IV. minimum reduced thickness tolerances to undertake

Thickness: h (mm)	Width; b (mm)						
	b≤ 1120	1120 ≤ b ≤ 1200	1200 ≤ b ≤ 1250	1250 ≤ b ≤ 1300	1300 ≤ b ≤ 1420	1420 ≤ b ≤ 1500	b> 1500
1.50-1.69	± 0.08	–	–	–	–	–	–
1.70-1.89	± 0.08		–	–	–	–	–
1.90-1.99	± 0.08			–	–	–	–
2.00-2.39	± 0.09				–	–	–
2.40-2.50						–	–
2.51-2.79	± 0.09					–	–
2.80-3.00	± 0.09						
3.01-4.00	± 0.09						
4.01-5.00	± 0.10						
5.01-6.00	± 0.11		± 0.12				
6.01-8.00	± 0.15		± 0.16				
8.01-10.00	± 0.16		± 0.17				
10.01-12.50	± 0.18		± 0.19				
12.51-15.00	± 0.19		± 0.20				
15.01-18.00	± 0.20		± 0.21				

Normal thickness tolerances of our products of the strength category V. and above are specified according to DASZ 03 standard being equal to or stricter than the values specified by EN 10051 standard.

Our products of the strength category V. and above can also be ordered with reduced tolerances, if agreed.

Thickness tolerances of patterned products

Thickness: h (mm)	Width; b (mm)		
	b ≤ 1040	1040 < b ≤ 1300	1300 < b ≤ 1540
1.60-1.79	± 0.17	–	–
1.80-1.99	± 0.20	± 0.20	–
2.00-2.29	± 0.20	± 0.20	–
2.30-2.50	± 0.20	± 0.28	–
2.51-2.99	± 0.20	± 0.28	–
3.00-4.00	± 0.28	± 0.29	± 0.29
4.01-4.99	± 0.28	± 0.30	± 0.30
5.00-5.99	± 0.30	± 0.33	± 0.33
6.00-6.99	± 0.33	± 0.35	± 0.35
7.00-8.50	± 0.36	± 0.38	± 0.38
8.51-10.00	± 0.40	± 0.41	± 0.41
10.01-16.5	± 0.44	± 0.44	± 0.44

* The thickness (h) is the dimension of the part of the material without patterns.

WIDTH TOLERANCES

Width tolerances of coils and sheets mill edges	
Width; b (mm)	Width tolerance (mm)
800 ≤ b ≤ 1540	-0 / + 20

Width tolerances of sheets trimmed edges	
Width; b (mm)	Width tolerance (mm)
b ≤ 1200	-0 / + 3.0
1200 < b ≤ 1500	-0 / + 5.0

LENGTH TOLERANCES

Length tolerances of sheets	
Length; l (mm)	Length tolerance (mm)
2000	-0 / +8
2500	-0 / +9
3000	-0 / +9
6000	-0 / +11

Length tolerances of sheets can be calculated as follows: - 0/+ 7 mm basic tolerance, + 0.6 mm/m.

FLATNESS

In case of ordering plain sheets the flatness tolerances, depending on the strength categories and width ranges according to EN 10051 standard, are included in the following table. The definition of the strength categories (A, B, C, D) according to EN 10051 standard is included in chapter PRODUCT GROUPS.

Width; b (mm)	Flatness tolerance max. (mm/m)			
	A	B	C	D
b ≤ 1200	15	18	23	as agreed
1200 < b ≤ 1500	18	23	30	as agreed
b > 1500	23	28	38	as agreed

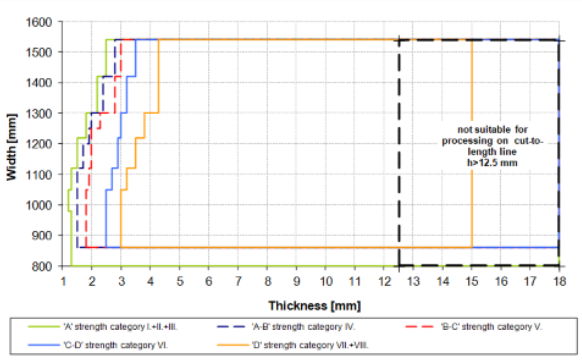
Patterned sheets flatness tolerance (mm/m)

Width; b (mm)	Thickness; h (mm)				
	1.60-1.99	2.00-2.30	2.31-2.99	3.00	3.01-12.00
800 – 1300	25	20	15	15	15
1301 – 1540	—	—	—	20	15

DIMENSIONS

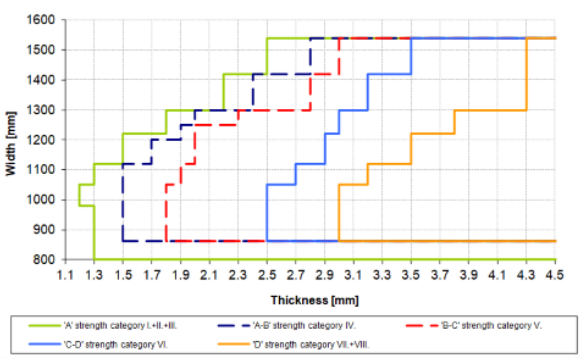
The dimensions are given by strength categories. Strength categories of different qualities are included in chapter PRODUCT GROUPS.

PLAIN PRODUCTS



I. + II. + III. Strength category			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
1.20	1.29	980	1050
1.30	1.49	800	1120
1.50	1.79	800	1220
1.80	2.19	800	1300
2.20	2.49	800	1420
2.50	18.00	800	1540

Strength category IV.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
1.50	1.69	861	1120
1.70	1.89	861	1200
1.90	1.99	861	1250
2.00	2.39	861	1300
2.40	2.79	861	1420
2.80	18.00	861	1540



Strength category V.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
1.80	1.89	861	1050
1.90	1.99	861	1120
2.00	2.29	861	1250
2.30	2.79	861	1300
2.80	2.99	861	1420
3.00	18.00	861	1540

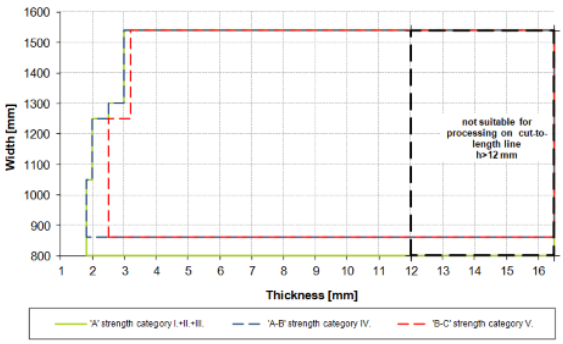
Strength category VI.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
2.50	2.69	861	1050
2.70	2.89	861	1120
2.90	2.99	861	1220
3.00	3.19	861	1300
3.20	3.49	861	1420
3.50	18.00	861	1540

Note: At tensile strength category VII+VIII h > 10.0 mm dimensions are not suitable for cutting on our cutting line.

VII. + VIII. Strength category			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
3.00	3.19	861	1050
3.20	3.49	861	1120
3.50	3.79	861	1220
3.80	4.29	861	1300
4.30	15.00	861	1540

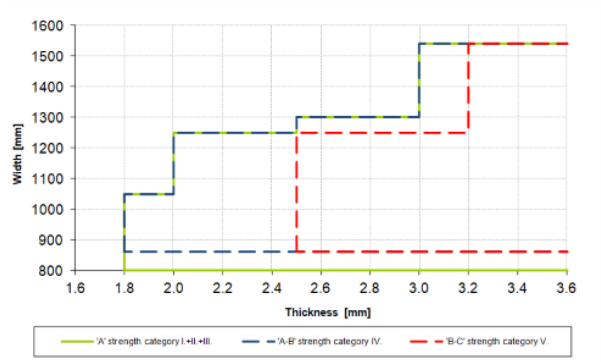
PATTERNED PRODUCTS

Diamond



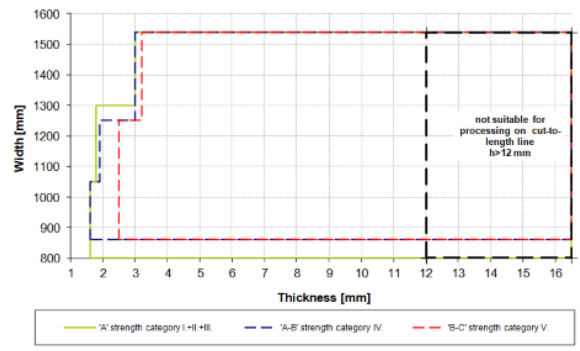
Strength category I.+II.+III.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
1.80	1.99	800	1050
2.00	2.49	800	1250
2.50	2.99	800	1300
3.00	16.50	800	1540

Strength category IV.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
1.80	1.99	861	1050
2.00	2.49	861	1250
2.50	2.99	861	1300
3.00	16.50	861	1540



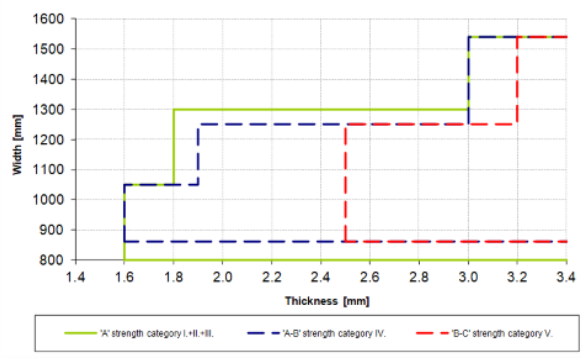
Strength category V.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
2.50	3.19	861	1250
3.20	16.50	861	1540

Teardrops



Strength category I.+II.+III.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
1.60	1.79	800	1050
1.80	2.99	800	1300
3.00	16.50	800	1540

Strength category IV.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
1.60	1.89	861	1050
1.90	2.99	861	1250
3.00	16.50	861	1540



Strength category V.			
Thickness; h (mm)		Width; b (mm)	
Min.	Max.	Min.	Max.
2.50	3.19	861	1250
3.20	16.50	861	1540

PACKAGING

Base types according to DASZ 34 standard

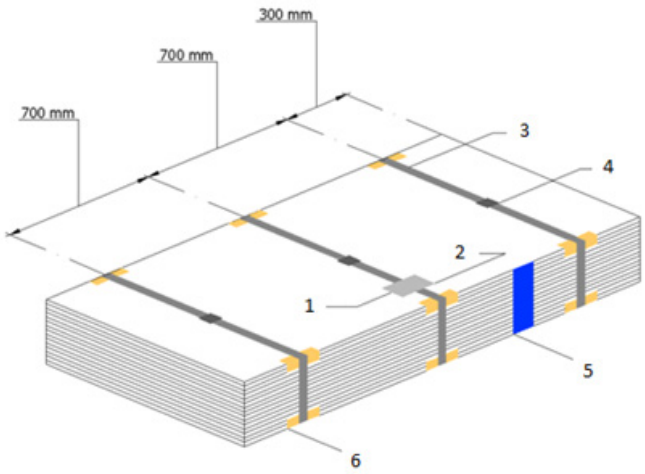
Product is identified by CODE 39 bar code labels

SHEETS

Strapped bundles

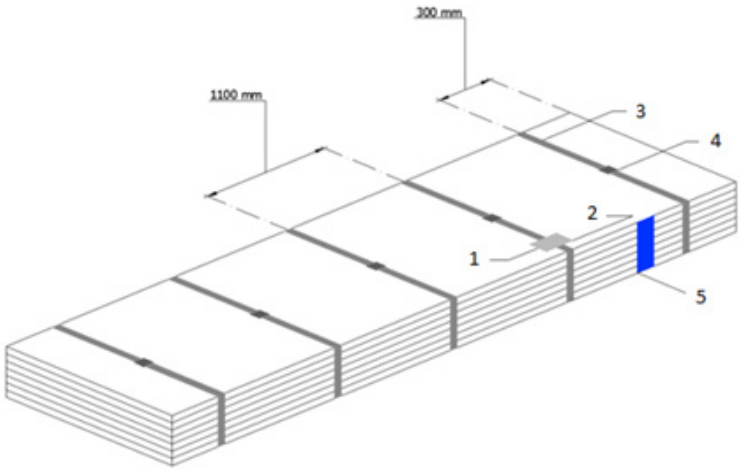
Length (l) = for example 2000 mm
Thickness (h) ≤ 3 mm

1. self-adhesive label
2. metal label
3. banding strap
4. seal
5. colour marking
6. edge protector



Length (l) = for example 5000 mm
Thickness (h) > 3 mm

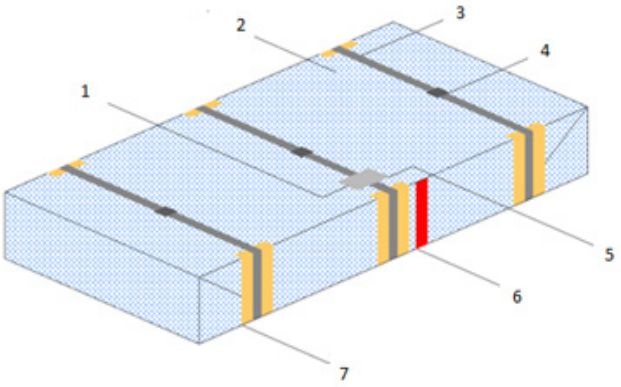
1. self-adhesive label
2. metal label
3. banding strap
4. seal
5. colour marking



Anti-corrosion packaging

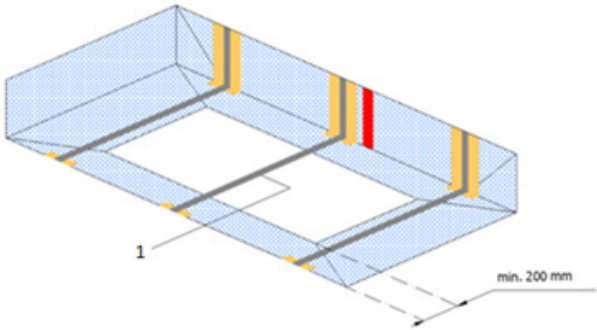
Length (l) = for example 2000 mm

1. self-adhesive label
2. packaging material
3. banding strap
4. seal
5. metal label
6. colour marking
7. edge protector



Packaged bundle – bottom view

1. Outer strap on the strap under packaging



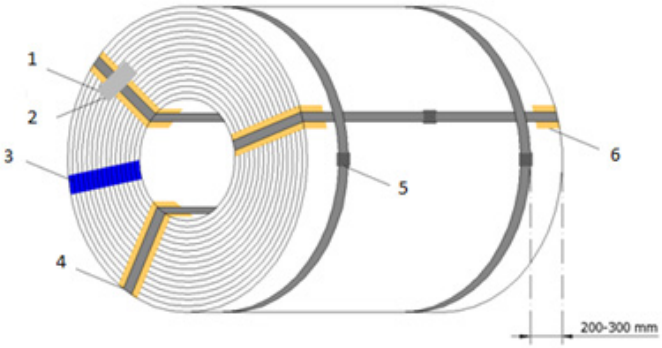
WIDE COILS

Strapped coil with horizontal eye

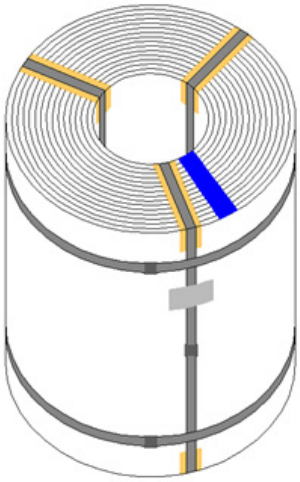
Width; (b) ≤ 1250 mm *

1. metal label
2. self-adhesive label
3. colour marking
4. banding strap
5. seal
6. edge protector

* Over the width of 1250 mm on the outer mantle the number of straps is 3.



Strapped coil with vertical eye



APPROBATED (CERTIFIED) PRODUCTS

Materials for pressure equipment manufacturing: from non-alloy structural steels wide coil and from wide coil cut-to-length sheets.

a) approved according to AD 2000 MERKBLATT W0 Certified by: ÉMI TÜV SÜD
b) approved according to PED 2014/68/EU Certified by: ÉMI TÜV SÜD
c) approved according to PER 2016/1105 Certified by: ÉMI TÜV SÜD

Hot rolled products for construction purposes with CE-mark

according to 305/2011/EU – CPR (EN 10025-1) Certified by: ÉMI TÜV SÜD.

Hot rolled plates of non-alloy and fine grain steel for construction purposes (UKCA)

according to 305/2011/EU – CPR (EN 10025-1) Certified by: ÉMI TÜV SÜD.

Certifications are available on request.

The products made by LIBERTY Steel Group in Hungary are always supplied with a Conformity Statement of Producer and agreement shall be reached about the type of statement at the time of placing the order. The available types of statements are included by standard EN 10204.

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