



SLOVENSKI STANDARD

oSIST prEN 10051:2022

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Kontinuirno vroče valjane pločevine in trakovi iz legiranih in nelegiranih jekel brez prevleke - Tolerance mer in oblik

Continuously hot-rolled strip and plate/sheet cut from wide strip of non-alloy and alloy steels - Tolerances on dimensions and shape

Kontinuierlich warmgewalztes Band und Blech abgelängt aus Warmbreitband aus unlegierten und legierten Stählen - Grenzabmaße und Formtoleranzen

Bandes et tôles issues de bandes refendues laminées à chaud en continu, en aciers alliés - Tolérances sur les dimensions et la forme

Ta slovenski standard je istoveten z: prEN 10051

ICS:

77.140.50	Ploščati jekleni izdelki in polizdelki	Flat steel products and semi-products
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English Version

Continuously hot-rolled strip and plate/sheet cut from wide strip of non-alloy and alloy steels - Tolerances on dimensions and shape

Bandes et tôles issues de bandes refendues laminées à chaud en continu, en aciers alliés - Tolérances sur les dimensions et la forme

Kontinuierlich warmgewalztes Band und Blech abgelängt aus Warmbreitband aus unlegierten und legierten Stählen - Grenzabmaße und Formtoleranzen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 459/SC 3.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 10051:2022) has been prepared by Technical Committee CEN/TC 459/SC 3 “Structural steels other than reinforcements”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN enquiry.

This document will supersede EN 10051:2010.

In comparison with the previous edition EN 10051:2010, the following technical modifications have been made:

- tolerances on flatness were revised;
- options were revised, a new option for only positive thickness tolerances was introduced and the options were moved from Annex B to 5.2;
- thickness tolerances for strip and sheet/plate with minimum yield strength > 960 MPa must be agreed;
- flatness measurement revised;
- change regarding the cropping of coils;
- editorial revised.

<https://standards.iteh.ai/catalog/standards/sist/5ca38cbf-de43-4b0e-a18a-69ccd5b34d42/osist-pren-10051-2022>

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1 Scope

This document specifies tolerances on dimensions and shape for continuously hot-rolled uncoated plate/sheet and strip with a maximum width of 2 200 mm and a maximum thickness of 25 mm of non-alloy and alloy steels in accordance with Table 1 (see also Annex B). This document also applies to hot-rolled strip for cold rolling.

Table 1 — Field of application

Product	Thickness mm	Steel grades according to: (but not limited to)	
<ul style="list-style-type: none"> • wide strip (width: 600 mm $\leq w \leq$ 2 200 mm), • sheet/plate cut from wide strip, • strip $w <$ 600 mm slit from wide strip 	\leq 25 mm	EN 10025-2 to -6, EN 10028-2 to -6, EN ISO 683-1 and 683-2, EN ISO 683-3, EN ISO 683-5, EN 10111, EN 10120, EN 10149-2 and -3, EN 10207, EN 10225-1 EN 10338, EN ISO 4957.	Structural steels Steels for pressure purposes Steels for quenching and tempering Case hardening steels Nitriding steels Low carbon steel sheet and strip for cold forming Steel sheet and strip for welded gas cylinders High yield strength steels for cold forming Steels for simple pressure vessels Plates for fixed offshore structures Non-coated products of multiphase steels for cold forming Tool steels

NOTE 1 This document does not apply to:

- hot-rolled strip rolled in widths $w <$ 600 mm (see EN 10048);
- hot-rolled patterned steel strip and plate/sheet cut from wide strip (EN 10363);
- uncoated or electrolytically coated cold rolled sheet and strip (see EN 10131);
- hot-dip coated steel sheet and strip (EN 10143);
- stainless steels.

NOTE 2 This document can also be used for steels from other standards, e.g. steels for shipbuilding.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10020, *Definition and classification of grades of steel*

EN 10079, *Definition of steel products*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10020, EN 10079 and the following apply.

3.1

non-alloy and alloy steels

see EN 10020

3.2

wide strip and sheet/plate

see EN 10079

3.3

crown

difference in thickness between one of the edges and the centre of a rolled product

4 Information to be supplied by the purchaser

4.1 General

The following information shall be supplied by the purchaser at the time of enquiry and order:

- a) the quantity to be delivered;
- b) designation of the product (wide strip, sheet/plate cut from wide strip, strip slit from wide strip);
- c) number of this dimensional standard (EN 10051);
- d) nominal thickness and width in mm;
- e) nominal length in mm (for sheet and plate);
- f) upper width tolerances for sheet/plate with thickness > 15 mm (see 6.3);
- g) tolerances on flatness for sheet/plate of thickness ≤ 3 mm of category D (see 6.4 and Table 9);
- h) edge camber requirements for strip < 600 mm wide, which was slit from wide strip (see 7.4).

4.2 Options

A number of options are specified in this document and listed below. If the purchaser does not indicate his wish to implement any of these options, the supplier shall supply in accordance with the basic specification of this document (see 4.1 and 5.1):

- 1) whether trimmed edges or mill edges are required, otherwise the edge condition is at the discretion of the manufacturer (see 5.1);
- 2) whether coils may be delivered with welded seams (see 5.2);
- 3) whether the minimum thickness of the product shall be the nominal thickness and the full range of the thickness tolerance from Tables 3 to 6 (disposition of tolerances) shall be valid only as a positive tolerance (see 6.1.2 and Annex A);
- 4) whether thickness and/or flatness tolerances of steel grades with a minimum specified yield strength > 960 MPa need to be agreed (see 6.1.2);

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- 5) whether for sheet/plate special tolerances on flatness are required (see 6.4 and Table 9);
- 6) whether for sheet/plate the tolerances on out-of-squareness and edge camber shall be replaced by a requirement that a perfect rectangle formed by the ordered width and length dimensions can be superimposed into the sheets delivered (see 6.7);
- 7) whether for hot-rolled-strip for cold rolling, maximum values for crown according to Table 10 and permissible thickness differences within one coil according to Table 11 are required (see 7.2.2);
- 8) whether for hot-rolled strip for cold rolling more severe tolerances on thickness and crown are required (see 7.2.3).

4.3 Designation

EXAMPLE 1 20 sheets according to EN 10051 with nominal thickness of 2,0 mm, nominal width 1 200 mm, with trimmed edges (T), nominal length 2 500 mm of steel 34Cr4 (1.7033) as specified in EN ISO 683-2:

20 sheets EN 10051 – 2,0 × 1 200T × 2 500
steel EN ISO 683-2 – 34Cr4

EXAMPLE 2 5 t of strip according to EN 10051 with nominal thickness of 4,5 mm, nominal width 1 500 mm, with mill edges (M) of steel S235JR (1.0038), as specified in EN 10025-2:

5 t strip EN 10051 – 4,5 × 1 500M
steel EN 10025-2 – S235JR

5 Form of supply

5.1 Sheet/plate and strip shall be supplied with mill edges (M) or with trimmed edges (T), as agreed at the time of enquiry and order (see option 1). In the absence of information on the form of supply, sheet/plate and strip shall be supplied with one of both edge conditions at the discretion of the manufacturer.

5.2 The possibility of delivering coils with welding seams can be agreed at the time of enquiry and order. The indication of the location of the weld can be agreed at the same time (see option 2).

5.3 Where no specific choice is made by the purchaser concerning points 4.1 f), g), and h), the choice of the values is at the discretion of the manufacturer.

6 Tolerances for sheet/plate**6.1 Thickness**

6.1.1 The tolerances on thickness for continuously hot-rolled low carbon steel sheet/plate for cold forming according to EN 10111 are given in Table 2.

Table 2 — Tolerances on thickness for hot-rolled low carbon steel sheet/plate and strip for cold forming

Dimensions in millimetres

Nominal thickness t	Tolerances for a nominal width w			
	$w \leq 1\,200$	$1\,200 < w \leq 1\,500$	$1\,500 < w \leq 1\,800$	$w > 1\,800$
$t \leq 2,00$	$\pm 0,13$	$\pm 0,14$	$\pm 0,16$	-
$2,00 < t \leq 2,50$	$\pm 0,14$	$\pm 0,16$	$\pm 0,17$	$\pm 0,19$
$2,50 < t \leq 3,00$	$\pm 0,15$	$\pm 0,17$	$\pm 0,18$	$\pm 0,20$
$3,00 < t \leq 4,00$	$\pm 0,17$	$\pm 0,18$	$\pm 0,20$	$\pm 0,20$
$4,00 < t \leq 5,00$	$\pm 0,18$	$\pm 0,20$	$\pm 0,21$	$\pm 0,22$
$5,00 < t \leq 6,00$	$\pm 0,20$	$\pm 0,21$	$\pm 0,22$	$\pm 0,23$
$6,00 < t \leq 8,00$	$\pm 0,22$	$\pm 0,23$	$\pm 0,23$	$\pm 0,26$
$8,00 < t \leq 11,00$	$\pm 0,24$	$\pm 0,25$	$\pm 0,25$	$\pm 0,28$

6.1.2 The tolerances on thickness for steels, not covered by 6.1.1, are given in Tables 3 to 6. These tolerances are indicated as categories A, B, C, D. The dimensional tolerances of steel grades which do not have a specified minimum yield strength are the ones of category D.

Thickness tolerances with only positive tolerances by keeping the full range of the tolerance from Tables 3 to 6 (disposition of tolerances) can be agreed at the time of enquiry and order (see Option 3 and Annex A).

Table 3 — Tolerances on thickness for strip and sheet/plate of steels with a specified minimum yield strength $R_e \leq 300$ MPa (category A)

Dimensions in millimetres

Nominal thickness t	Tolerances for a nominal width w			
	$w \leq 1\,200$	$1\,200 < w \leq 1\,500$	$1\,500 < w \leq 1\,800$	$w > 1\,800$
$t \leq 2,00$	$\pm 0,17$	$\pm 0,19$	$\pm 0,21$	-
$2,00 < t \leq 2,50$	$\pm 0,18$	$\pm 0,21$	$\pm 0,23$	$\pm 0,25$
$2,50 < t \leq 3,00$	$\pm 0,20$	$\pm 0,22$	$\pm 0,24$	$\pm 0,26$
$3,00 < t \leq 4,00$	$\pm 0,22$	$\pm 0,24$	$\pm 0,26$	$\pm 0,27$
$4,00 < t \leq 5,00$	$\pm 0,24$	$\pm 0,26$	$\pm 0,28$	$\pm 0,29$
$5,00 < t \leq 6,00$	$\pm 0,26$	$\pm 0,28$	$\pm 0,29$	$\pm 0,31$
$6,00 < t \leq 8,00$	$\pm 0,29$	$\pm 0,30$	$\pm 0,31$	$\pm 0,35$
$8,00 < t \leq 10,00$	$\pm 0,32$	$\pm 0,33$	$\pm 0,34$	$\pm 0,40$
$10,00 < t \leq 12,50$	$\pm 0,35$	$\pm 0,36$	$\pm 0,37$	$\pm 0,43$
$12,50 < t \leq 15,00$	$\pm 0,37$	$\pm 0,38$	$\pm 0,40$	$\pm 0,46$
$15,00 < t \leq 25,00$	$\pm 0,40$	$\pm 0,42$	$\pm 0,45$	$\pm 0,50$

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Table 4 — Tolerances on thickness for strip and sheet/plate of steels with a specified minimum yield strength $300 \text{ MPa} < R_e \leq 360 \text{ MPa}$ (category B)

Dimensions in millimetres

Nominal thickness t	Tolerances for a nominal width w			
	$w \leq 1\,200$	$1\,200 < w \leq 1\,500$	$1\,500 < w \leq 1\,800$	$w > 1\,800$
$t \leq 2,00$	$\pm 0,20$	$\pm 0,22$	$\pm 0,24$	–
$2,00 < t \leq 2,50$	$\pm 0,21$	$\pm 0,24$	$\pm 0,26$	$\pm 0,29$
$2,50 < t \leq 3,00$	$\pm 0,23$	$\pm 0,25$	$\pm 0,28$	$\pm 0,30$
$3,00 < t \leq 4,00$	$\pm 0,25$	$\pm 0,28$	$\pm 0,30$	$\pm 0,31$
$4,00 < t \leq 5,00$	$\pm 0,28$	$\pm 0,30$	$\pm 0,32$	$\pm 0,33$
$5,00 < t \leq 6,00$	$\pm 0,30$	$\pm 0,32$	$\pm 0,33$	$\pm 0,36$
$6,00 < t \leq 8,00$	$\pm 0,33$	$\pm 0,35$	$\pm 0,36$	$\pm 0,40$
$8,00 < t \leq 10,00$	$\pm 0,37$	$\pm 0,38$	$\pm 0,39$	$\pm 0,46$
$10,00 < t \leq 12,50$	$\pm 0,40$	$\pm 0,41$	$\pm 0,43$	$\pm 0,49$
$12,50 < t \leq 15,00$	$\pm 0,43$	$\pm 0,44$	$\pm 0,46$	$\pm 0,53$
$15,00 < t \leq 25,00$	$\pm 0,46$	$\pm 0,48$	$\pm 0,52$	$\pm 0,58$

Table 5 — Tolerances on thickness for strip and sheet/plate of steels with a specified minimum yield strength $360 \text{ MPa} < R_e \leq 420 \text{ MPa}$ (category C)

Dimensions in millimetres

Nominal thickness t	Tolerances for a nominal width w			
	$w \leq 1\,200$	$1\,200 < w \leq 1\,500$	$1\,500 < w \leq 1\,800$	$w > 1\,800$
$t \leq 2,00$	$\pm 0,22$	$\pm 0,25$	$\pm 0,27$	–
$2,00 < t \leq 2,50$	$\pm 0,23$	$\pm 0,27$	$\pm 0,30$	$\pm 0,33$
$2,50 < t \leq 3,00$	$\pm 0,26$	$\pm 0,29$	$\pm 0,31$	$\pm 0,34$
$3,00 < t \leq 4,00$	$\pm 0,29$	$\pm 0,31$	$\pm 0,34$	$\pm 0,35$
$4,00 < t \leq 5,00$	$\pm 0,31$	$\pm 0,34$	$\pm 0,36$	$\pm 0,38$
$5,00 < t \leq 6,00$	$\pm 0,34$	$\pm 0,36$	$\pm 0,38$	$\pm 0,40$
$6,00 < t \leq 8,00$	$\pm 0,38$	$\pm 0,39$	$\pm 0,40$	$\pm 0,46$
$8,00 < t \leq 10,00$	$\pm 0,42$	$\pm 0,43$	$\pm 0,44$	$\pm 0,52$
$10,00 < t \leq 12,50$	$\pm 0,46$	$\pm 0,47$	$\pm 0,48$	$\pm 0,56$
$12,50 < t \leq 15,00$	$\pm 0,48$	$\pm 0,49$	$\pm 0,52$	$\pm 0,60$
$15,00 < t \leq 25,00$	$\pm 0,52$	$\pm 0,55$	$\pm 0,59$	$\pm 0,65$

Table 6 — Tolerances on thickness for strip and sheet/plate of steels with a specified minimum yield strength $420 \text{ MPa} < R_e \leq 960 \text{ MPa}$ (category D)

Dimensions in millimetres

Nominal thickness t	Tolerances for a nominal width w			
	$w \leq 1\,200$	$1\,200 < w \leq 1\,500$	$1\,500 < w \leq 1\,800$	$w > 1\,800$
$t \leq 2,00$	$\pm 0,24$	$\pm 0,27$	$\pm 0,29$	-
$2,00 < t \leq 2,50$	$\pm 0,25$	$\pm 0,29$	$\pm 0,32$	$\pm 0,35$
$2,50 < t \leq 3,00$	$\pm 0,28$	$\pm 0,31$	$\pm 0,34$	$\pm 0,36$
$3,00 < t \leq 4,00$	$\pm 0,31$	$\pm 0,34$	$\pm 0,36$	$\pm 0,38$
$4,00 < t \leq 5,00$	$\pm 0,34$	$\pm 0,36$	$\pm 0,39$	$\pm 0,41$
$5,00 < t \leq 6,00$	$\pm 0,36$	$\pm 0,39$	$\pm 0,41$	$\pm 0,43$
$6,00 < t \leq 8,00$	$\pm 0,41$	$\pm 0,42$	$\pm 0,43$	$\pm 0,49$
$8,00 < t \leq 10,00$	$\pm 0,45$	$\pm 0,46$	$\pm 0,48$	$\pm 0,56$
$10,00 < t \leq 12,50$	$\pm 0,49$	$\pm 0,50$	$\pm 0,52$	$\pm 0,60$
$12,50 < t \leq 15,00$	$\pm 0,52$	$\pm 0,53$	$\pm 0,56$	$\pm 0,64$
$15,00 < t \leq 25,00$	$\pm 0,56$	$\pm 0,59$	$\pm 0,63$	$\pm 0,70$

Thickness tolerances of steel grades with a minimum specified yield strength $> 960 \text{ MPa}$ need to be agreed at the time of enquiry and order (see Option 4). If no agreement is made, the thickness tolerances of such products are at the discretion of the manufacturer.

6.2 Length

The tolerances on length for sheet/plate shall be as given in Table 7.

Table 7 — Tolerances on length for sheet/plate

Dimensions in millimetres

Nominal length l	Tolerances	
	Lower	Upper
$l \leq 2\,000$	0	+10
$2\,000 < l \leq 8\,000$	0	+0,005 x l
$l > 8\,000$	0	+40

6.3 Width

The tolerances on width for sheet/plate shall be as given in Table 8.