



SLOVENSKI STANDARD
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Hot-rolled steel plates 3 mm thick or above - Tolerances on dimensions and shape

Warmgewalztes Stahlblech von 3 mm Dicke an - Grenzabmaße und Formtoleranzen

Tôles en acier laminées à chaud, d'épaisseur égale ou supérieure à 3 mm - Tolérances sur les dimensions et la forme

Ta slovenski standard je istoveten z: prEN 10029

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

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Foreword

This document (prEN 10029:2009) has been prepared by Technical Committee ECISS/TC 12 “Structural steels and steels for pressure purposes, flat products - Dimensions and tolerances”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 10029:1991.

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[SIST EN 10029:2011](https://standards.iteh.ai/catalog/standards/sist/de3ce951-88d7-42d4-9ce1-5dc846a1ceec/sist-en-10029-2011)

<https://standards.iteh.ai/catalog/standards/sist/de3ce951-88d7-42d4-9ce1-5dc846a1ceec/sist-en-10029-2011>

prEN 10029:2009 (E)**1 Scope**

This European Standard specifies tolerances on dimensions and shape for hot-rolled non-alloy and alloy steel plates with the following characteristics:

nominal thickness $3 \text{ mm} \leq t \leq 400 \text{ mm}$;

nominal width $w \geq 600 \text{ mm}$;

Tolerances for products of width $w < 600 \text{ mm}$ cut or slit from plate should be agreed between manufacturer and purchaser at the time of enquiry and order.

This European Standard applies, but is not limited – to plates made of steel grades defined in EN 10025-2 to EN 10025-6, EN 10028-2 to EN 10028-6, EN 10083-2 and EN 10083-3, EN 10084, EN 10085, EN 10149-2 and EN 10149-3 and EN 10207 (see also Annex A). It does not apply to stainless steels.

This European Standard does not include round plates, custom-made plates, chequer or bulb plate for flooring and wide flats.

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 10079, *Definition of steel products*

EN 10163-1, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections — Part 1: General requirements*

EN 10163-2, *Delivery requirements for surface conditions of hot-rolled steel plates, wide flats and sections — Part 2: Plate and wide flats*

3 Terms and definitions

For the purposes of this document, the following term and definition apply.

3.1**plate**

see EN 10079

4 Information to be supplied by the purchaser**4.1 Mandatory Information**

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

- a) the quantity to be delivered;
- b) the designation of the product form (plate);
- c) the number of this dimensional standard (EN 10029);

- d) nominal thickness in millimetres;
- e) nominal width in millimetres;
- f) nominal length in millimetres;

Plates according to this mandatory information given by the purchaser in the order shall be delivered as follows:

- tolerance class A for thickness unless otherwise stated, i.e. in the technical delivery conditions, (see 6.1, Table 1);
- trimmed edges;
- normal edge camber and out-of-squareness (see 7.1);
- normal tolerances for flatness, class N (see 7.2, Table 4).

If no specific choice is made by the purchaser concerning points a) to f) the supplier shall refer back to the purchaser.

4.2 Options

A number of Options are specified in this European Standard 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 European Standard (see 4.1).

- a) If thickness tolerance class B, C or D is required, include B, C or D in the order designation (see 5 and 6.1);
- b) If plate with mill edges is required, include NK in the order designation (see 6.2.2);
- c) if plate with limited edge camber and out-of-squareness is required, include letter G in the order designation and the max. values for edge camber and out-of-squareness (see 7.1);
- d) if plate with special flatness tolerances is required, include the letter S in the order designation (see 7.2.1 and Table 5);
- e) if tighter tolerances for flatness than class S (7.2.3) are required, the agreed flatness tolerances (see Table 5, footnote b) are to be reported;
- f) if plates with a nominal length $l > 20\,000$ mm are required, the agreed tolerances on length (see 6.3, Table 3) are to be reported;
- g) for plates with untrimmed edges, the chosen and agreed measuring points for the measurement of the thickness (see 8.2) are to be reported.

4.3 Example

EXAMPLE 20 plates according to this European Standard with nominal thickness of 20 mm, thickness tolerance class A, nominal width 2 000 mm, with trimmed edges, nominal length 4 500 mm, with normal flatness tolerances of steel S235JR (1.0038), as specified in EN 10025-2:

20 plates EN 10029 – 20 x 2 000 x 4 500
Steel EN 10025-2 – S235JR

or

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20 plates EN 10029 – 20 x 2 000 x 4 500
Steel EN 10025-2 – 1.0038

5 Delivery condition

Plate according to this European standard can be supplied:

- With thickness tolerances of class A, B, C or D (see 6.1);
- With trimmed edges or with mill edges (NK) (see 6.2.2);
- With normal or limited edge camber and out-of-squareness (G) (see 7.1);
- With normal (N) or with special (S) flatness tolerances (see 7.2).

6 Tolerances on dimensions

6.1 Thickness

6.1.1 Tolerances on thickness are given in Table 1. Plates may be supplied with either:

- Class A: for minus thickness tolerances depending on the nominal thickness;
- Class B: for a fixed minus tolerance of 0,3 mm;
- Class C: for a fixed minus tolerance of 0,0 mm;
- Class D: for symmetrical tolerances.

Table 1 — Tolerances on thickness

Dimensions in mm

Nominal thickness t	Tolerances on the nominal thickness (see 6.1.1)							
	Class A		Class B		Class C		Class D	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
$3 \leq t < 5$	-0,3	+0,7	-0,3	+0,7	-0	+1,0	-0,5	+0,5
$5 \leq t < 8$	-0,4	+0,8	-0,3	+0,9	-0	+1,2	-0,6	+0,6
$8 \leq t < 15$	-0,5	+0,9	-0,3	+1,1	-0	+1,4	-0,7	+0,7
$15 \leq t < 25$	-0,6	+1,0	-0,3	+1,3	-0	+1,6	-0,8	+0,8
$25 \leq t < 40$	-0,7	+1,3	-0,3	+1,7	-0	+2,0	-1,0	+1,0
$40 \leq t < 80$	-0,9	+1,7	-0,3	+2,3	-0	+2,6	-1,3	+1,3
$80 \leq t < 150$	-1,1	+2,1	-0,3	+2,9	-0	+3,2	-1,6	+1,6
$150 \leq t < 250$	-1,2	+2,4	-0,3	+3,3	-0	+3,6	-1,8	+1,8
$250 \leq t \leq 400$	-1,3	+3,5	-0,3	+4,5	-0	+4,8	-2,4	+2,4

These thickness tolerances apply outside ground areas (see 6.1.2)

At the time of enquiry and order the purchaser shall indicate if class A, B, C or D tolerances is required (see 4.1 and 4.2). If no class is stated, class A applies.

6.1.2 For permissible limits concerning surface imperfections and requirements for repair EN 10163-1 and EN 10163-2 apply.

6.2 Width

6.2.1 Tolerances on width for plates with trimmed edges are given in Table 2 depending on the thickness of the plate.

Table 2 — Tolerances on width

Dimensions in mm

Nominal thickness t	Tolerances	
	Lower	Upper
$t < 40$	0	+ 20
$40 \leq t < 150$	0	+ 25
$150 \leq t \leq 400$	0	+ 30

6.2.2 Tolerances on width for plates with untrimmed edges (NK) shall be the subject of agreement between the manufacturer and purchaser at the time of enquiry and order, see 4.2, Option b.

6.3 Length

Tolerances on length are given in Table 3.

<https://standards.iteh.ai/catalog/standards/sist/de3ce951-88d7-42d4-9ce1-5dc8> **Table 3 — Tolerances on length**

Dimensions in mm

Nominal length l	Tolerances	
	Lower	Upper
$l < 4\ 000$	0	+ 20
$4\ 000 \leq l < 6\ 000$	0	+ 30
$6\ 000 \leq l < 8\ 000$	0	+ 40
$8\ 000 \leq l < 10\ 000$	0	+ 50
$10\ 000 \leq l < 15\ 000$	0	+ 75
$15\ 000 \leq l \leq 20\ 000^a$	0	+ 100

^a Tolerances on plates with a nominal length $l > 20\ 000$ mm shall be agreed at the time of enquiry and order, see 4.2, Option f.

7 Tolerances on shape

7.1 Edge camber and out-of squareness

For plate specified with normal edge camber and out-of squareness in the order, the edge camber and out of squareness shall be so that it is possible to inscribe a rectangle with the dimensions of the ordered plate within the delivered size.

For plate specified with limited edge camber and out-of squareness (G) in the order, the maximal values for edge camber and out of squareness shall be agreed at the time of enquiry and order (see 4.2, option c)).

7.2 Flatness

7.2.1 General

Tolerances on flatness are given in Table 4 for normal tolerances (class N) and in Table 5 for special tolerances (class S). The plate shall be supplied with normal tolerances, only if otherwise specified in the order the plate shall be supplied with special tolerances, see 4.2 Option d.

Deviation from flatness shall be determined by measuring the deviation in distance between the plate and a straight edge (for details see clause 8.7). Straight edges of a length of 1 000 mm are used if the wave pitches (distance between the points of contact of the straight edge and the plate) are smaller or equal than 1 000 mm. For longer wave pitches straight edges of a length of 2 000 mm are used. Deviations from flatness ≤ 2 mm shall not be considered as a wave and not be taken into account.

NOTE It is pointed out that bad handling and storage can adversely affect the flatness of the product.

The steel types according to Tables 4 and 5 are defined as follows:

- Steel type L: Products with a specified minimum yield strength $R_e \leq 460$ MPa, neither quenched nor quenched and tempered.
- Steel type H: Products with a specified yield strength $R_e > 460$ MPa and all grades of quenched and quenched and tempered products.

7.2.2 Normal tolerances (class N)

For normal tolerances: If the the wave pitch (distance between the points of contact of the straight edge and the plate) is $< 1\ 000$ mm the permissible deviation from flatness shall comply with the following requirements:

For distances between the points of contact of two waves between 300 and 1 000 mm the max. flatness tolerance for steel type L is 1% or for steel type H is 1,5 % of the wave pitch, but not exceeding the values in Table 4.