

BS EN 10029 : 1991

Tolerances on dimensions, shape and mass for hot rolled steel plates 3mm thick or above

Tolerances on dimensions

Thickness

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 0.3mm;
- class C: for all plus tolerances depending on the nominal thickness;
- class D: for symmetrical tolerances depending on the nominal thickness.

At the time of enquiry and order the purchaser shall indicate if class A, B, C or D tolerances are required.

Additionally and within the tolerance limits in nominal thickness, the tolerances between minimum and maximum thickness of an individual plate given in table 1 shall apply to class A, B, C and D tolerances.

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

Table 1. Tolerances on thickness - dimensions in mm

Nominal thickness	Tolerances on the nominal thickness ¹⁾								Maximum thickness difference within a plate					
	Class A		Class B		Class C		Class D		Nominal plate width					
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	≥ 600 < 2000	≥ 2000 < 2500	≥ 2500 < 3000	≥ 3000 < 3500	≥ 3500 < 4000	≥ 4000
≥ 3 < 5	-0.4	+0.8	-0.3	+0.9	-0	+1.2	-0.6	+0.6	0.8	0.9	0.9	-	-	-
≥ 5 < 8	-0.4	+1.1	-0.3	+1.2	-0	+1.5	-0.75	+0.75	0.9	0.9	1.0	1.0	-	-
≥ 8 < 15	-0.5	+1.2	-0.3	+1.4	-0	+1.7	-0.85	+0.85	0.9	1.0	1.0	1.1	1.1	1.2
≥ 15 < 25	-0.6	+1.3	-0.3	+1.6	-0	+1.9	-0.92	+0.92	1.0	1.1	1.2	1.2	1.3	1.4
≥ 25 < 40	-0.8	+1.4	-0.3	+1.9	-0	+2.2	-1.1	+1.1	1.1	1.2	1.2	1.3	1.3	1.4
≥ 40 < 80	-1.0	+1.8	-0.3	+2.5	-0	+2.8	-1.4	+1.4	1.2	1.3	1.4	1.4	1.5	1.6
≥ 80 < 150	-1.0	+2.2	-0.3	+2.9	-0	+3.2	-1.6	+1.6	1.3	1.4	1.5	1.5	1.6	1.7
≥ 150 < 250	-1.2	+2.4	-0.3	+3.3	-0	+3.6	-1.8	+1.8	1.4	1.5	1.6	1.6	1.7	-

¹⁾ These thickness tolerances apply outside ground areas

Width

Tolerances on width are given in table 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.

Length

Tolerances on length are given in table 3.

Tolerances on shape

Edge camber and out-of-squareness

The edge camber and the out-of-squareness of a plate shall be limited so that it shall be possible to inscribe a rectangle with the dimensions of the ordered plate within the delivered size.

Additionally, if agreed at the time of the enquiry and order, edge camber shall be limited to 0.2% of the actual length of the plate and out-of-squareness to 1% of the actual width of the plate (G).

Flatness

Tolerances on flatness are given in table 4 for normal tolerances and in table 5 for special tolerances. Unless otherwise specified in the order, the plates shall be supplied with normal tolerances.

Table 2. Tolerances on width - dimensions in mm

Nominal width	Tolerances	
	Lower	Upper
≥ 600 < 2000	0	+ 20
≥ 2000 < 3000	0	+ 25
≥ 3000	0	+ 30

Table 3. Tolerances on width of sheet and wide strip - dimensions in mm

Nominal length	Tolerances	
	Lower	Upper
< 4000	0	+ 20
≥ 4000 < 6000	0	+ 30
≥ 6000 < 8000	0	+ 40
≥ 8000 < 10000	0	+ 50
≥ 10000 < 15000	0	+ 75
≥ 15000 ≤ 20000 ¹⁾	0	+ 100

¹⁾ Tolerances on plates with a nominal length > 20000 mm shall be agreed at the time of the enquiry and order.



The steel types according to tables 4 and 5 are defined as follows.

Steel type L: Products with a specified minimum yield strength ≤ 460 N/mm², neither quenched nor quenched and tempered.

Steel type H: Products with a specified minimum yield strength > 460 N/mm² and < 700 N/mm² and all grades of quenched and quenched and tempered products.

Table 4. Normal tolerances for flatness, Class N dimensions in mm				
Nominal thickness	Steel type L		Steel type H	
	Measuring length			
	1000	2000	1000	2000
$\geq 3 < 5$	9	14	12	17
$\geq 5 < 8$	8	12	11	15
$\geq 8 < 15$	7	11	10	14
$\geq 15 < 25$	7	10	10	13
$\geq 25 < 40$	6	9	9	12
$\geq 40 < 250$	5	8	8	11

If the distance between the points of contact of the straight-edge and the plate is < 1000 mm the permissible deviation from flatness shall comply with the following requirements:

for steel type L max. 1% or for steel type H max. 1.5% of the distance between points of contact on the plate between 300 mm to 1000 mm, but not exceeding the values given in table 4.

Table 5. Special tolerances for flatness, class S - dimensions in mm						
Nominal thickness	Steel type L ¹⁾			Steel type H		
	Plate width					
	< 2750		≥ 2750			
	Measuring length					
	1000	2000	1000	2000	1000	2000
$\geq 3 < 8$	4	8	5	10	Shall be agreed at the	
$\geq 8 \leq 250$	3	6	6	6	time of enquiry and order	

¹⁾ Tighter tolerances shall be the subject of special agreement at the time of enquiry and order

If the distance between the points of contact of the straight-edge and the plate is < 1000 mm the permissible deviation from flatness shall comply with the following requirements:

max. 0.5% of the distance between the points of contact, but not exceeding the values in table 5 and not < 2 mm.

