

BS EN 10258 : 1997

Cold-rolled stainless steel narrow strip and cut lengths

Tolerances on shape and length

Tolerances on dimensions and shape

Tolerances on Thickness

The tolerances on thickness are given in **Table 1**

Tolerances on Width

The tolerances on width are given in **Table 2**

Tolerances on Length

The tolerances on length are given in **Table 3**

Flatness and Edge Waviness Tolerances

i. The flatness tolerance of cut lengths shall not exceed 10mm for normal cases and 7mm where a special tolerance (FS) is required

This requirement does not apply to material supplied in the work hardened condition

ii. For skin passed or stretch levelled strip, the waviness of the edges, i.e. the ratio of wave height (h) to wave length (l) shall be max. 0,03 for nominal thickness up to 1,00mm and max. 0,02 for nominal thickness over 1,00mm (see **figure 1**)

Tolerances on Out-of-Squareness

The out-of-squareness of cut lengths in widths 250mm and above shall not exceed 0,5% of the actual width of the product

For cut lengths in widths less than 250mm, the value is to be agreed at the time of enquiry and order

Tolerances on Edge Camber

The edge camber tolerances are given in **Table 4**.

These tolerances do not apply to material supplied in the work-hardened condition, for which any requirement shall be agreed between manufacturer and customer

Measurement

Thickness

The thickness may be measured at any arbitrarily chosen point on the product at least 10mm from the edges. For widths up to and including 20mm, it shall be measured at the centre of the product width.

When ordering fine (f) or precision (p) thickness tolerances, it can be agreed that the permissible deviations from thickness shall be maintained over the whole width of the product.

Width

Width is measured perpendicularly to the rolling direction of the product

Length

The length is measured along the rolling direction of the cut length

Table 1. Tolerances on nominal thickness ⁽¹⁾											
Dimensions in mm											
Nominal width (w)		w < 125			125 < w < 250			250 < w < 600			
Equal to and over	Less than	Nominal thickness (t)	Normal	Fine (F)	Precision (P)	Normal	Fine (F)	Precision (P)	Normal	Fine (F)	Precision (P)
0.10	0.15	± 0.01	± 0.008	± 0.006	± 0.015	± 0.012	± 0.008	± 0.02	± 0.015	± 0.1	
0.15	0.20	± 0.015	± 0.01	± 0.008	± 0.02	± 0.012	± 0.1	± 0.025	± 0.015	± 0.012	
0.20	0.25	± 0.015	± 0.012	± 0.008	± 0.02	± 0.015	± 0.1	± 0.025	± 0.02	± 0.012	
0.25	0.30	± 0.017	± 0.012	± 0.009	± 0.025	± 0.015	± 0.012	± 0.03	± 0.02	± 0.015	
0.30	0.40	± 0.02	± 0.015	± 0.01	± 0.025	± 0.02	± 0.012	± 0.03	± 0.025	± 0.015	
0.40	0.50	± 0.025	± 0.02	± 0.012	± 0.03	± 0.02	± 0.015	± 0.035	± 0.025	± 0.018	
0.50	0.60	± 0.03	± 0.02	± 0.014	± 0.03	± 0.025	± 0.015	± 0.04	± 0.03	± 0.02	
0.60	0.80	± 0.03	± 0.025	± 0.015	± 0.035	± 0.03	± 0.018	± 0.04	± 0.035	± 0.025	
0.80	1.00	± 0.03	± 0.025	± 0.018	± 0.04	± 0.03	± 0.02	± 0.05	± 0.035	± 0.025	
1.00	1.20	± 0.035	± 0.03	± 0.02	± 0.045	± 0.035	± 0.025	± 0.05	± 0.04	± 0.03	
1.20	1.50	± 0.04	± 0.03	± 0.02	± 0.05	± 0.035	± 0.025	± 0.06	± 0.045	± 0.03	
1.50	2.00	± 0.05	± 0.035	± 0.025	± 0.06	± 0.04	± 0.03	± 0.07	± 0.05	± 0.035	
2.00	2.50	± 0.05	± 0.035	± 0.025	± 0.07	± 0.045	± 0.03	± 0.08	± 0.06	± 0.04	
2.50	3.00 ⁽³⁾	± 0.06	± 0.045	± 0.03	± 0.07	± 0.05	± 0.035	± 0.09	± 0.07	± 0.045	

(1) By agreement the tolerances may alternatively be totally '+' or totally '-' or unevenly distributed. In any case, the total range of the tolerance shall remain in this table

(2) For thickness below 0,05mm, the values for the tolerances are to be agreed at the time of enquiry and order

(3) Including 3,00m

Flatness

- i. Flatness tolerances can be measured in the following ways:
 - a) Maximum deviation from a flat horizontal surface. With the cut length lying its own mass on a flat surface, the maximum deviation from flatness is the maximum distance between the lower surface of the cut length and the flat horizontal surface
 - b) To measure the flatness, the cut length shall be laid on an approximately flat surface. Deviation with respect to flatness shall be taken as the greatest distance between the cut length and a straight edge placed upon it. The straight edge should be either 1000mm or 2000mm. It may be placed on the cut length at any position and in any direction. Only the position between the points of contact of cut length and straight edge shall be taken into account.

Unless otherwise agreed the choice of measurement is left to the manufacturer

- ii. The measurement of waviness is only made on edges

- iii. Flatness and waviness are not normally measured by the manufacturer, unless compliance is in doubt.

Out-of-Squareness

- i. Out-of-square is the greatest deviation of an end edge from a straight edge of a square placed at right angles to a side and touching one corner (see figure 2)
- ii. Out-of-square is not normally measured by the manufacturer, unless compliance is in doubt.

Edge Camber

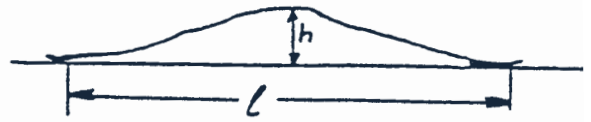
- i. Edge camber is the greatest deviation of a side edge from a straight line, the measurement being taken on the concave side with a straight edge (see figure 3)
- ii. Edge camber is not normally measured by the manufacturer, unless compliance is in doubt. If measured, this shall be done at a minimum distance of 3 laps from the end of the coil

Table 2. Tolerances on normal width ⁽¹⁾													
Dimensions in mm													
Nominal thickness (t)		nominal width (w)											
Equal to and over	Less than	w < 40			40 < w < 125			125 < w < 250			250 < w < 600		
		Normal	Fine (F)	Precision (P)	Normal	Fine (F)	Precision (P)	Normal	Fine (F)	Precision (P)	Normal	Fine (F)	Precision (P)
-	0.25	+ 0.17 0	+ 0.13 0	+ 0.10 0	+ 0.20 0	+ 0.15 0	+ 0.12 0	+ 0.25 0	+ 0.20 0	+ 0.15 0	+ 0.50 0	+ 0.50 0	+ 0.40 0
0.25	0.50	+ 0.20 0	+ 0.15 0	+ 0.12 0	+ 0.25 0	+ 0.20 0	+ 0.15 0	+ 0.30 0	+ 0.22 0	+ 0.17 0	+ 0.60 0	+ 0.50 0	+ 0.40 0
0.50	1.00	+ 0.25 0	+ 0.20 0	+ 0.15 0	+ 0.25 0	+ 0.22 0	+ 0.17 0	+ 0.40 0	+ 0.25 0	+ 0.20 0	+ 0.70 0	+ 0.60 0	+ 0.50 0
1.00	1.50	+ 0.25 0	+ 0.22 0	+ 0.15 0	+ 0.30 0	+ 0.25 0	+ 0.17 0	+ 0.50 0	+ 0.30 0	+ 0.22 0	+ 1.0 0	+ 0.70 0	+ 0.60 0
1.50	2.50	-	-	-	+ 0.40 0	+ 0.25 0	+ 0.20 0	+ 0.60 0	+ 0.40 0	+ 0.25 0	+ 1.0 0	+ 0.80 0	+ 0.60 0
2.50	3.00 ⁽²⁾	-	-	-	+ 0.50 0	+ 0.30 0	+ 0.25 0	+ 0.60 0	+ 0.40 0	+ 0.25 0	+ 1.2 0	+ 1.0 0	+ 0.80 0

(1) By agreement the tolerances may alternatively be either equally '+' or all '-.' In all cases, the total range of the tolerance shall remain in this table

(3) Including 3,00m

Table 3. Tolerances on nominal length		
Dimensions in mm		
Nominal length l	Tolerances	
	Normal	Special (S)
$l \leq 2000$	+ 3.00 0	+ 1.50 0
$2000 < l \leq 4000$	+ 5.00 0	+ 2.00 0



$\frac{h}{l}$ = waviness

figure 1. Edge waviness tolerance for strip

Table 4. Tolerances on edge camber					
Dimensions in mm					
Specified width		Edge camber tolerances			
Equal to and over	Less than	Normal		Restricted (R)	
		Measuring length		Measuring length	
		1000	2000	1000	2000
10	25	4	16	1.5	6
25	40	3	12	1.25	5
40	125	2	8	1	4
125	600	1.5	6	0.75	3

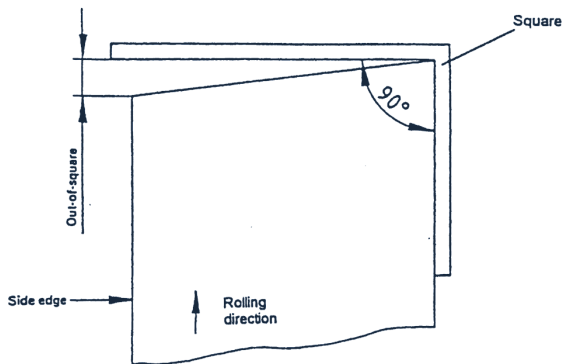


figure 2. Measurement of out-of-squareness

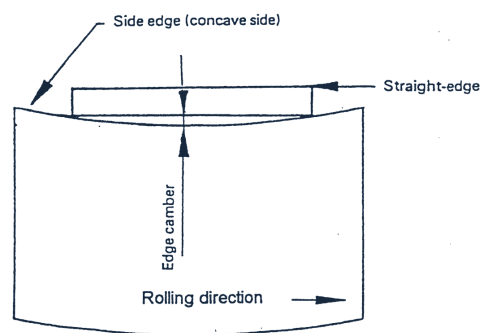


figure 3. Measurement of edge camber