BS EN 485-3 : 1994

Aluminium and aluminium alloys - Sheet, Strip and plate

Part 3. Tolerances on shape and dimensions for hot-rolled products

Table 1. Thickness tolerances - dimensions in millimetres

Specified thickness		Thickness tolerance for specified width				
Over	Up to and including	Up to and including 1250	Over 1250 up to and including 1600	Over 1600 up to and including 2000	Over 2000 up to and including 2500	Over 2500 up to and including 3500
≥2.5	4	±0.28	±0.28	±0.32	±0.35	±0.40
4	5	±0.30	±0.30	±0.35	±0.40	±0.45
5	6	±0.32	±0.32	±0.40	±0.45	±0.50
6	8	±0.35	±0.40	±0.40	±0.50	±0.55
8	10	±0.45	±0.50	±0.50	±0.55	±0.60
10	15	±0.50	±0.60	±0.65	±0.65	±0.80
15	20	±0.60	±0.70	±0.75	±0.80	±0.90
20	30	±0.65	±0.75	±0.85	±0.90	±1.0
30	40	±0.75	±0.85	±1.0	±1.1	±1.2
40	50	±0.90	±1.0	±1.1	±1.2	±1.5
50	60	±1.1	±1.2	±1.4	±1.5	±1.7
60	80	±1.4	±1.5	±1.7	±1.9	±2.0
80	100	±1.7	±1.8	±1.9	±2.1	±2.2
100	150	±2.2	±2.2	±2.7	±2.8	-
150	200	±2.8	±2.8	±3.3	±3.3	-

Dimensional Tolerances

Thickness

Thickness tolerances for sheet, strip and plate are specified in table 1.

Width

Width tolerances for strip are specified in table 2.

Table 2. Width tolerances for strip - dimensions in mm

Specified thickness	Width tolerance for specified width	
	Less than 500	500 up to and including 2500
From 2.5 up to and including 15	by agreement	+8 0

Width tolerances for sheet and plate are specified in table 3.

Length

Length tolerances for strip are not specified.
Length tolerances for sheet and plate are specified in table 3.

Shape Tolerances

Lateral curvature

Lateral curvature tolerances for strip are not specified.

Lateral curvature tolerances for sheet and plate with cut or sawn edges are specified in table 4.

The deviation from straightness, *d*, is measured as indicated in figure 1, while the sheet or plate is resting on an horizontal base plate.

Flatness

Flatness tolerances for strip are not specified.

Flatness tolerances for sheet and plate are specified in table 5 and are expressed as a percentage of the length L and/or the width *W* and/or the measured chord length *l*.

Deviation from flatness, *d*, resulting from arching, buckling or edge waves, is measured as shown in figures 2 to 5 , using a lightweight straightedge and a feeler gauge, dial gauge or scale, while the sheet or plate is resting on an horizontal base plate concave side upwards.

These tolerances do not apply to sheet and plate supplied in the O (annealed) or F (as fabricated) tempers.

These tolerances do not include end or corner turnup.

Squareness

Squareness tolerances for strip are not specified.

Squareness tolerances for sheet and plate are specified in table 6.

The squareness tolerance is expressed as the maximum allowable difference in length of diagonals AA and BB as shown in figure 6.

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Part 3. Tolerances on shape and dimensions for hot-rolled products

Table 3. Width and length tolerances for sheet and plate- dimensions in millimetres

Specified thickness		Width and length tolerance for specified width and length			
Over	Up to and including	Up to and including 1000	Over 1000 up to and including 2000	Over 2000 up to and including 3000	Over 3000 up to and including (*)
-	6	+6 0	+7 0	+8 0	+11 0
6	12	+6 0	+8 0	+10 0	+12 0
12	50	+7 0	+9 0	+12 0	+14 0
50	200	+10 0	+12 0	+14 0	+16 0

(*) Width up to 3500mm and length up to 15 000 mm

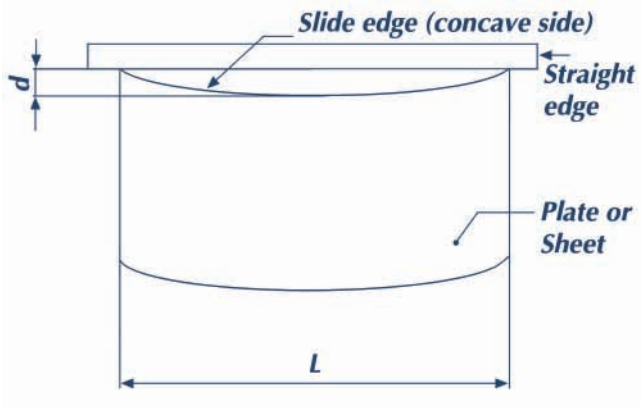
Table 4. Lateral curvature tolerances for sheet and plate- dimensions in millimetres

Specified thickness		Lateral curvature d_{max} for specified length L			
Over	Up to and including	Up to and including 2000	Over 2000 up to and including 3000	Over 3000 up to and including 5000	Over 5000 up to and including 15000
-	1250	4	7	10	0.2% of specified
1250	1500	3	6	8	length
1500	2000	3	6	7	
2000	3500	-	5	6	

Table 5. Flatness tolerances for sheet and plate

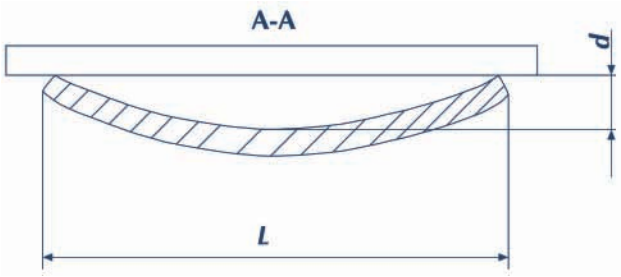
Specified thickness - mm		Total deviation - %		Partial deviation - % (for a chord of at least 300mm)
Over	Up to and including	on length d_{max} / L	on width d_{max} / W	d_{max} / L
≥2.5	3.0	0.4	0.5	0.5
3.0	6.0	0.3	0.4	0.35
6.0	50	0.2	0.4	0.3
50	200	0.2	0.2	by agreement

Fig 1. Lateral curvature of plate or sheet of length



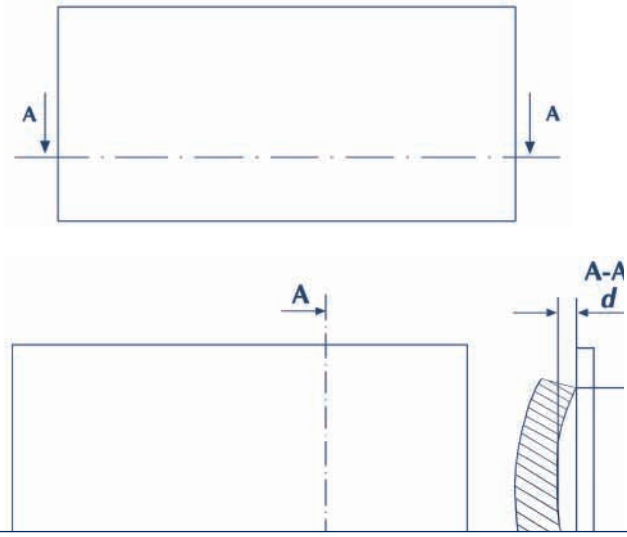
d = deviation from straightness
L = length of the sheet or plate

Fig 2. Transverse arch



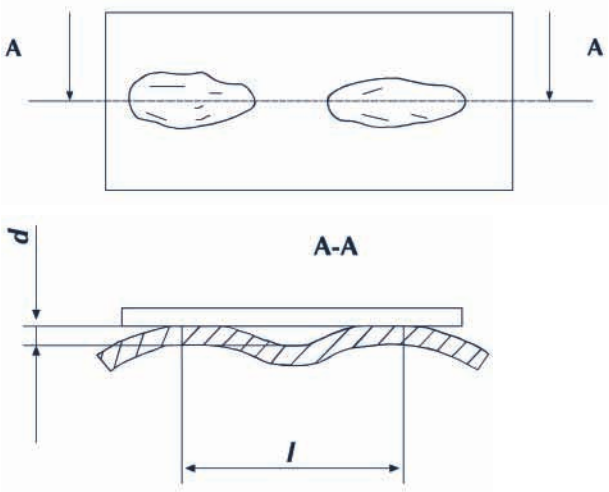
d = deviation from flatness
W = width of the sheet or plate

Fig 3. Longitudinal arch



d = deviation from flatness
L = length of the sheet or plate

Fig 4. Buckles

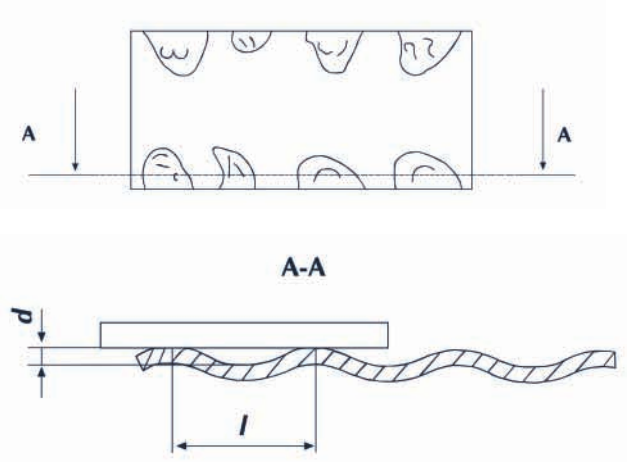


d = deviation from flatness
L = length of buckle (chord)

Table 6. Squareness tolerances for sheet and plate - dimensions in millimetres

Specified length		Squareness tolerance for specified width			
Over	Up to and including	Up to and including 1000	Over 1000 up to and including 1500	Over 1500 up to and including 2000	Over 2000 up to and including 3500
-	2000	6	7	8	-
2000	3000	7	7	9	10
3000	3500	7	8	10	10
3500	5000	8	10	10	12
5000	-	12	12	15	15

Fig 5. Edge Waves



d = deviation from straightness
L = length of the sheet or plate

Fig 6. Measurement of squareness