

# BS EN 755-3 : 1995

## Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles

### Part 3. Round bars, tolerances on dimensions and form

#### Tolerances on dimensions and form

##### Diameter

The tolerances on diameter are specified in table 1.

For the purposes of this standard the alloys are distributed into two groups which correspond to varying difficulty when manufacturing the products.

The division into group I and group II of the most commonly used general engineering alloys is specified in table 4.

Diameter $D$		Tolerances	
Over	Up to	Alloy group I	Alloy group II
≥8	18	±0.22	±0.30
18	25	±0.25	±0.35
25	40	±0.30	±0.40
40	50	±0.35	±0.45
50	65	±0.40	±0.50
65	80	±0.45	±0.70
80	100	±0.55	±0.90
100	120	±0.65	±1.0
120	150	±0.80	±1.2
150	180	±1.0	±1.4
180	220	±1.15	±1.7
220	270	±1.3	±2.0
270	320	1.6	±2.5

##### Ovality

Ovality is the difference between the maximum and minimum diameters measured in one cross-section.

The maximum permissible ovality is 50% of the tolerance range specified in table 1; e.g. for a diameter tolerance of +0.22mm, the maximum permissible ovality is 0.22mm.

##### Straightness

Deviations from straightness,  $h_s$  and  $h_t$ , shall be measured as shown in figure 1 with the bar placed in a horizontal baseplate so that its mass decreases the deviation.

The straightness tolerances are specified in table 2.

The straightness tolerances apply to bars in all tempers except O and T x 510. If a straightness tolerance is required for either O or T x 510 temper, it shall be agreed between purchaser and supplier.

Diameter $D$		Maximum deviation from straightness $h_t$ mm/m	Maximum localised kink in any 300 mm portion $h_s$
Over	Up to		
≥8	80	2	0.8
80	120	2	1.0
120	220	3	1.5
200	320	6	3.0

##### Length

If fixed lengths are to be supplied, this shall be stated on the order. The fixed length tolerances are specified in table 3.

Diameter $D$		Tolerances on length		
Over	Up to	$L \leq 2000$	$2000 < L \leq 5000$	$L \geq 5000$
-	100	+5	+7	+10
		0	0	0
1	200	+7	+9	+12
		0	0	0
200	320	+8	+11	-
		0	0	

If no fixed or minimum length is specified in the order, round extruded bars may be delivered in random lengths. The actual lengths and tolerances on random lengths shall be agreed between purchaser and supplier.

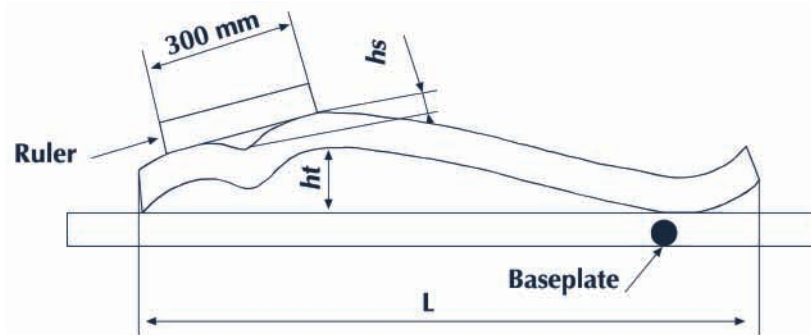
##### Squareness of cut ends

The squareness of cut ends shall be within half of the fixed-length tolerance range (table 3) for both fixed and random lengths, e.g. for a fixed length tolerance of +10 mm the squareness of cut ends shall be within 5mm.



**BS EN 755-3 : 1995** cont.  
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**Fig 6. Measurement of squareness**



**Table 4. Alloy groups**

Group I	Group II
EN AW- 1050A, EN AW- 1070A, EN AW- 1200, EN AW- 1350	EN AW 2007, EN AW-2011, EN AW-2011A, EN AW-2014,
EN AW- 3003, EN AW- 3103	EN AW-2014A, EN AW-2017A, EN AW-2024, EN AW- 2030
EN AW 5005, EN AW- 5005A, EN AW- 5015A, EN AW-5251	EN AW 5019 (1), EN AW-5052, EN AW-5154A, EN AW-5454,
EN AW 6101A, EN AW-6101B, EN AW- 6005, EN AW-6005A,	EN AW-5754, EN AW-5083, EN AW-5086
EN AW-6106, EN AW-6012. EN AW-6018	EN AW-7003, EN AW-7005A, EN AW-7020, EN AW-7022,
EN AW-6351, EN AW-6060, EN AW- 6061, EN AW-6261,	EN AW-7049A, EN AW-7075
EN AW-6262. EN AW-6063, EN AW-6063A	
EN AW-6463, EN AW-6081, EN AW- 6082	(1) EN AW-5019 is the new designation for EN AW-5056A.

