

# Aluminium and aluminium alloys — Cold drawn rod/bar and tube —

## Part 6: Hexagonal bars, tolerances on dimensions and form

ICS 77.150.10

## National foreword

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The UK participation in its preparation was entrusted to Technical Committee NFE/35, Light metals and their alloys.

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Aluminium and aluminium alloys - Cold drawn rod/bar and tube -  
Part 6: Hexagonal bars, tolerances on dimensions and form

Aluminium et alliages d'aluminium - Barres et tubes étirés -  
Partie 6: Barres hexagonales, tolérances sur dimensions et  
forme

Aluminium und Aluminiumlegierungen - Gezogene Stangen  
und Rohre - Teil 6: Sechskantstangen, Grenzabmaße und  
Formtoleranzen

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## Foreword

This document (EN 754-6:2008) has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2008, and conflicting national standards shall be withdrawn at the latest by September 2008.

This document supersedes EN 754-6:1995.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 5 "*Extruded and drawn products*" to revise EN 754-6:1995

The following technical modifications have been introduced during the revision:

- Only editorial changes to bring this part in line with the other parts of EN 754

EN 754 comprises the following parts under the general title "*Aluminium and aluminium alloys — Cold drawn rod/bar and tube*":

- *Part 1: Technical conditions for inspection and delivery*
- *Part 2: Mechanical properties*
- *Part 3: Round bars, tolerances on dimensions and form*
- *Part 4: Square bars, tolerances on dimensions and form*
- *Part 5: Rectangular bars, tolerances on dimensions and form*
- *Part 6: Hexagonal bars, tolerances on dimensions and form*
- *Part 7: Seamless tubes, tolerances on dimensions and form*
- *Part 8: Porthole tubes, tolerances on dimensions and form*

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## 1 Scope

This document specifies the tolerances on dimensions and form for aluminium and aluminium alloy cold drawn hexagonal bars having widths across flats in the range from 3 mm up to and including 80 mm.

The temper designations used in this part are according to EN 515.

## 2 Tolerances on dimensions

### 2.1 Width across flats

The tolerances on width across flats are specified in Table 1.

**Table 1 — Tolerances on width across flats**

Dimensions in millimetres

Width across flats $S$		Tolerances
Over	Up to and including	
$\geq 3$	6	0 - 0,08
6	10	0 - 0,09
10	18	0 - 0,11
18	30	0 - 0,13
30	50	0 - 0,16
50	65	0 - 0,19
65	80	0 - 0,30

### 2.2 Corner radii

Maximum corner radii are specified in Table 2.

**Table 2 — Maximum corner radii**

Dimensions in millimetres

Width across flats $S$		Maximum corner radii
Over	Up to and including	
$\geq 3$	8	0,2
8	30	0,4
30	60	0,6
60	80	0,8

## 2.3 Length

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

**Table 3 — Fixed length tolerances**

Dimensions in millimetres

Width across flats $S$		Tolerances on length		
From	Up to and including	$L \leq 2\ 000$	$2\ 000 < L \leq 5\ 000$	$L > 5\ 000$
3	80	+5 0	+7 0	+10 0

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

## 2.4 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  ${}^{+10}_0$  mm the squareness of cut ends shall be within 5 mm).

## 3 Tolerances on form

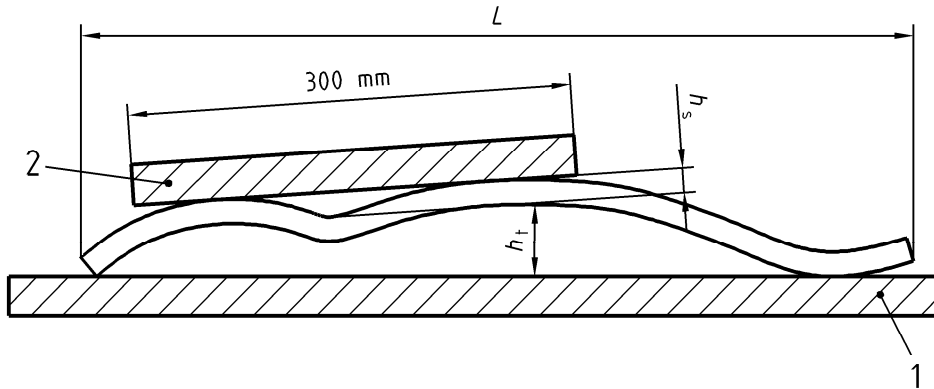
### 3.1 Straightness

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

The straightness tolerances are specified in Table 4. (The straightness tolerance  $h_t$  applies to the whole length, e.g. for a length of 6 m the maximum deviation from straightness  $h_t$  is the value given in the table multiplied by 6 m).

For hexagonal bars with width across flats less than 10 mm, the straightness tolerances shall be agreed upon between supplier and purchaser.

The straightness tolerances apply to hexagonal bars with width across flats 10 mm and greater in all tempers except O and Tx51. If a straightness tolerance is required for either O or Tx51 temper, it shall be agreed between supplier and purchaser.



**Key**

- 1 base plate
- 2 straight edge

**Figure 1 — Measurement of deviation from straightness**

**Table 4 — Straightness tolerances**

Dimensions in millimetres

With across flats $S$		Maximum deviation from straightness per metre length $h_t/length$ mm/m	Maximum localized kink in any 300 mm portion $h_s$
From	Up to and including		
10	80	2	0,6

**3.2 Convexity - Concavity**

The convexity - concavity tolerances for hexagonal bar shall be included within the width across flats tolerances as given in Table 1.

**3.3 Twist**

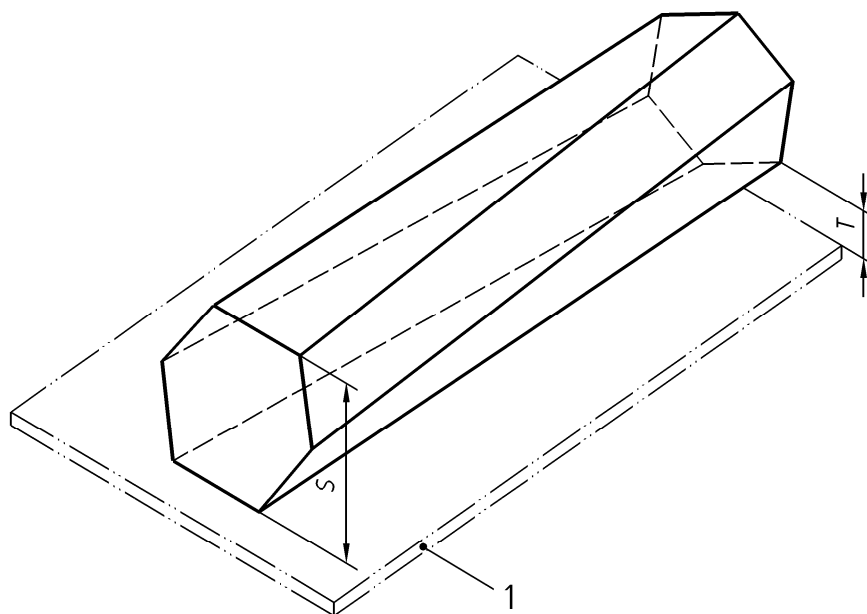
The twist measurement shall be carried out as shown in Figure 2.

The twist tolerances are specified in Table 5.

For bars with width across flats less than 10 mm, the twist tolerances shall be agreed between supplier and purchaser.

The twist tolerances apply to bars with width across flats 10 mm and greater in all tempers except O and Tx51. If a twist tolerance is required for either O or Tx51 temper, it shall be agreed between supplier and purchaser.





**Key**

1 base plate

**Figure 2 — Measurement of twist**

**Table 5 — Twist tolerances**

Dimensions in millimetres

Width across flats $S$		Twist tolerances $T$	
Over	Up to and including	per 1 000 mm of length	over the total length
$\geq 10$	30	1	2
30	80	1,5	2,5

## **Bibliography**

- [1] EN 515, *Aluminium and aluminium alloys — Wrought products — Temper designations*



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