



SLOVENSKI STANDARD

SIST EN 755-8:2008

01-maj-2008

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SIST EN 755-8:1999

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Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 8: Porthole tubes, tolerances on dimensions and form

Aluminium und Aluminiumlegierungen - Stranggepresste Stangen, Rohre und Profile - Teil 8: Mit Kammerwerkzeug stranggepresste Rohre, Grenzabmaße und Formtoleranzen

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Aluminium et alliage d'aluminium - Barres, tubes et profilés - Partie 8 : Tubes filés a pont, tolérances sur dimensions et forme [SIST EN 755-8:2008](#)

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English Version

Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 8: Porthole tubes, tolerances on dimensions and form

Aluminium et alliages d'aluminium - Barres, tubes et profilés filés - Partie 8: Tubes filés à pont, tolérances sur dimensions et forme

Aluminium und Aluminiumlegierungen - Stranggepresste Stangen, Rohre und Profile - Teil 8: Mit Kammerwerkzeug stranggepresste Rohre, Grenzabmaße und Formtoleranzen

This European Standard was approved by CEN on 10 February 2008.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Page

| | |
|--|----|
| Foreword | 3 |
| 1 Scope..... | 5 |
| 2 Tolerances on dimensions..... | 6 |
| 2.1 General | 6 |
| 2.2 Diameter - Round tube..... | 6 |
| 2.3 Width, depth or width across flats - squares, rectangles, hexagons, octagons | 7 |
| 2.4 Wall thickness variation (eccentricity)..... | 8 |
| 2.5 Length | 9 |
| 2.6 Squareness of cut ends..... | 10 |
| 3 Tolerances on form | 10 |
| 3.1 General | 10 |
| 3.2 Straightness | 10 |
| 3.3 Convexity-Concavity..... | 11 |
| 3.4 Twist | 12 |
| 3.5 Angularity..... | 13 |
| 3.6 Corner and fillet radii | 14 |
| 3.7 Depth of dents for round tube | 15 |
| Annex A (informative) Wall thickness variation (eccentricity)..... | 16 |
| A.1 General | 16 |
| A.2 Specifying round tube sizes and tolerances | 16 |
| A.2.1 General | 16 |
| A.2.2 Wall thickness variation for tubes specified as $OD \times t$ or $ID \times t$ | 16 |
| A.2.3 Wall thickness variation for tubes specified as $OD \times ID$ | 17 |
| Bibliography | 18 |

Foreword

This document (EN 755-8:2008) 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 755-8:1998.

Within its programme of work, Technical committee CEN/TC 132 entrusted CEN/TC 132/WG 5 "*Extruded and drawn products*" to revise EN 755-8:1998.

The following technical modifications have been introduced during the revision:

- Clause 1: Scope is clarified with respect to what is not included
Alloys EN AW-5049, EN AW-6008, EN AW-6110A, EN AW-6014, EN AW-6360, EN AW-6262A, EN AW-6065, EN AW-6182, EN AW-7108, EN AW-7108A are added
- Subclause 2.4 and Table 3: Requirements to wall thickness variation (eccentricity) is introduced
- Annex A: Informative Annex A is added explaining wall thickness variation (eccentricity)

EN 755 comprises the following parts under the general title "*Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles*": standards.iteh.ai/catalog/standards/sist/a2f21b47-8aac-46ac-a8d8-ac2a51dfb0e1/sist-en-755-8-2008

- *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*
- *Part 9: Profiles, tolerances on dimensions and form*

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This document specifies the tolerances on dimensions and form for aluminium and aluminium alloy extruded porthole tubes with an outside diameter (OD) from 8 mm to 450 mm (round tube, see Figure 1) or with a cross section contained within a circumscribing circle (CD) from 10 mm to 350 mm (other than round tube, see Figure 2), supplied in straight lengths.

This standard only applies to extruded porthole tube for general engineering applications made in the following alloys:

- EN AW-1050A, EN AW-1200, EN AW-1350;
- EN AW-3003, EN AW-3103;
- EN AW-5005, EN AW-5005A, EN AW-5049, EN AW-5051A, EN AW-5251, EN AW-5052;
- EN AW-6101A, EN AW-6101B, EN AW-6005, EN AW-6005A, EN AW-6008, EN AW-6110A, EN AW-6012, EN AW-6014, EN AW-6018, EN AW-6351, EN AW-6060, EN AW-6360, EN AW-6061, EN AW-6261, EN AW-6262, EN AW-6262A, EN AW-6063, EN AW-6063A, EN AW-6463, EN AW-6065, EN AW-6081, EN AW-6082; EN AW-6182,
- EN AW-7003, EN AW-7005, EN AW-7108, EN AW-7108A, EN AW-7020.

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

This standard only applies to tube produced by the tube porthole/bridge method.

This standard does not apply to:

- extruded tubes produced by the seamless, die/mandrel method (EN 755-7),
- tubes delivered in coils (prEN 13957),
- coiled tubes cut to length (prEN 13957).

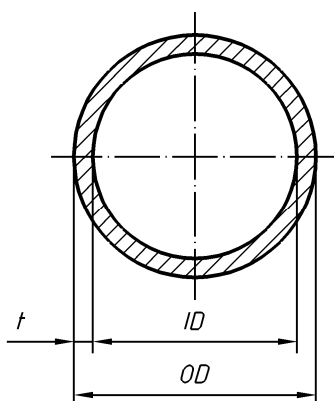


Figure 1 — Round tube

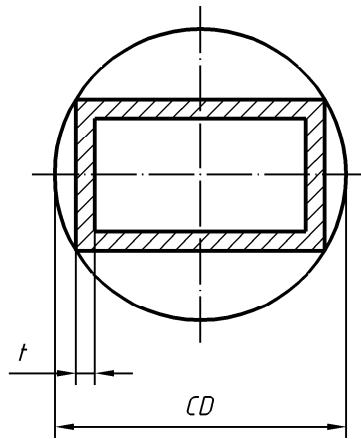


Figure 2 — Circumscribing circle for other than round tube

2 Tolerances on dimensions

2.1 General

When outside diameter OD , inside diameter ID , and wall thickness t (or their equivalent dimensions in other than round tube) are all specified, standard tolerances shall apply to any two of these dimensions, but not to all three. As a result, the purchaser shall only state two nominal dimensions on any given order.

2.2 Diameter - Round tube

Mean diameter is defined as the average of two diameter measurements taken at right angles to each other at any position along the length.

The tolerances on diameter are specified in Table 1.

Table 1 — Tolerances on diameter for round tube

Dimensions in millimetres

| Diameter (OD or ID) | | Tolerance on diameter | | | |
|------------------------|------------------------|---|--|-----------------------------------|-------------------------------|
| | | Maximum allowable deviation of mean diameter from specified diameter ^f | Maximum allowable deviation of diameter at any point from specified diameter ^a | | |
| Over | Up to and including | | Non-annealed and non heat treated tube ^b | Heat treated tube ^c | Annealed tube ^d |
| ≥ 8 | 18 | ± 0,25 ^e | ± 0,40 ^e | ± 0,60 ^e | ± 1,5 ^e |
| 18 | 30 | ± 0,30 | ± 0,50 | ± 0,70 | ± 1,8 |
| 30 | 50 | ± 0,35 | ± 0,60 | ± 0,90 | ± 2,2 |
| 50 | 80 | ± 0,40 | ± 0,70 | ± 1,1 | ± 2,6 |
| 80 | 120 | ± 0,60 | ± 0,90 | ± 1,4 | ± 3,6 |
| 120 | 200 | ± 0,90 | ± 1,4 | ± 2,0 | ± 5,0 |
| 200 | 350 | ± 1,4 | ± 1,9 | ± 3,0 | ± 7,6 |
| 350 | 450 | ± 1,9 | ± 2,8 | ± 4,0 | ± 10,0 |

^a Not applicable to tubes having a wall thickness less than 2,5 % of the specified outside diameter. The tolerance for tubes with wall thickness less than 2,5 % of the specified outside diameter shall be determined by multiplying the applicable tolerance as follows:

- wall thickness over 2,0 % up to and including 2,5 % of outside diameter : 1,5 x tolerance;
- wall thickness over 1,5 % up to and including 2,0 % of outside diameter : 2,0 x tolerance;
- wall thickness over 1,0 % up to and including 1,5 % of outside diameter : 3,0 x tolerance;
- wall thickness over 0,5 % up to and including 1,0 % of outside diameter : 4,0 x tolerance.

^b Applies to all alloys in F or H112 tempers.

^c Applies to all alloys in T4, T5, T6, T64, T66 and Tx511 tempers.

^d Applies to all alloys in O, H111 and Tx510 tempers.

^e This tolerance applies for outside diameter only, i.e. tube in this size range can only be specified as "Outside Diameter x Wall Thickness".

^f Not applicable to Tx510 or Tx511 tempers.

2.3 Width, depth or width across flats - squares, rectangles, hexagons, octagons

The tolerances on width, depth or width across flats are specified in Table 2.

Table 2 — Tolerances on width, depth or width across flats

Dimensions in millimetres

| Width, depth or width across flats | | Tolerances on width, depth or width across flats ^{a b} | | | | | | | |
|------------------------------------|---------------------|---|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|
| | | $CD \leq 100$ | | $100 < CD \leq 200$ | | $200 < CD \leq 300$ | | $300 < CD \leq 350$ | |
| Over | Up to and including | Column I _c | Column II _d | Column I _c | Column II _d | Column I _c | Column II _d | Column I _c | Column II _d |
| - | 10 | ± 0,25 | ± 0,40 | ± 0,30 | ± 0,50 | ± 0,35 | ± 0,55 | ± 0,40 | ± 0,60 |
| 10 | 25 | ± 0,30 | ± 0,50 | ± 0,40 | ± 0,70 | ± 0,50 | ± 0,80 | ± 0,60 | ± 0,90 |
| 25 | 50 | ± 0,50 | ± 0,80 | ± 0,60 | ± 0,90 | ± 0,80 | ± 1,0 | ± 0,90 | ± 1,2 |
| 50 | 100 | ± 0,70 | ± 1,0 | ± 0,90 | ± 1,2 | ± 1,1 | ± 1,3 | ± 1,3 | ± 1,6 |
| 100 | 150 | - | - | ± 1,1 | ± 1,5 | ± 1,3 | ± 1,7 | ± 1,5 | ± 1,8 |
| 150 | 200 | - | - | ± 1,3 | ± 1,9 | ± 1,5 | ± 2,2 | ± 1,8 | ± 2,4 |
| 200 | 300 | - | - | - | - | ± 1,7 | ± 2,5 | ± 2,1 | ± 2,8 |
| 300 | 350 | - | - | - | - | - | - | ± 2,8 | ± 3,5 |

^a Not applicable to tubes having a wall thickness less than 2,5 % of the specified outside width, depth or width across flats. The tolerance for tubes with wall thickness less than 2,5 % of the specified width, depth or width across flats shall be determined by multiplying the applicable tolerance as follows:

- wall thickness over 2,0 % up to and including 2,5 % of outside parameter : 1,5 x tolerance;
- wall thickness over 1,5 % up to and including 2,0 % of outside parameter : 2,0 x tolerance;
- wall thickness over 1,0 % up to and including 1,5 % of outside parameter : 3,0 x tolerance;
- wall thickness over 0,5 % up to and including 1,0 % of outside parameter : 4,0 x tolerance;

^b These tolerances do not apply to tempers O and Tx510. For these tempers the tolerances shall be subject to agreement between supplier and purchaser.

^c Column I is applicable to alloys mentioned in Clause 1 with exception of the alloys indicated in footnote d) of the table.

^d Column II is applicable to the following alloys: EN AW-5051A, EN AW-5251, EN AW-5049, EN AW-5052, EN AW-6110A, EN AW-6012, EN AW -6018, EN AW-6351, EN AW-6061, EN AW-6262, EN AW-6081, EN AW-6082, EN AW-7003, EN AW-7005, EN AW-7108, EN AW-7108A, EN AW-7020.

2.4 Wall thickness variation (eccentricity)

The tolerances on wall thickness variation (eccentricity) for round tubes are specified in Table 3 and wall thickness variation for other than round tubes in Table 4.

Table 3 — Tolerances on wall thickness variation (eccentricity) for round tubes

| Nominal wall thickness <i>t</i> mm | | Tolerance on wall thickness variation (eccentricity) % | | |
|--|------------------------|--|----------------------------------|---------------------|
| Over | Up to and including | For <i>OD</i> < 150 | For <i>OD</i> ≥ 150 and < 300 | For <i>OD</i> ≥ 300 |
| - | 3 | ± 7 | ± 9 | ± 11 |
| 3 | 5 | ± 6 | ± 8 | ± 10 |
| 5 | - | ± 5 | ± 7 | ± 9 |

NOTE Round tube dimensions can be expressed in three different ways i.e. outside diameter (*OD*) × wall thickness (*t*), inside diameter (*ID*) × *t* (where *t* is the nominal wall thickness) and *OD* × *ID*. Depending of the way of ordering the tube the values in Table 3 should be understood as follows (see Annex A for further explanation):

- for tubes specified as *OD* × *t* or *ID* × *t* the values are allowable variation at any point,
- for tubes specified as *OD* × *ID* the above values are allowable variation from the calculated mean wall thickness.

Table 4 — Tolerances on wall thickness for other than round tubes

Dimensions in millimetres

| Nominal wall thickness <i>t</i> | | Tolerances on wall thickness for circumscribing circle <i>CD</i> | | | | | |
|------------------------------------|------------------------|--|------------------------|-----------------------|------------------------|-----------------------|------------------------|
| | | <i>CD</i> ≤ 100 | | 100 < <i>CD</i> ≤ 300 | | 300 < <i>CD</i> ≤ 350 | |
| Over | Up to and including | Column I ^a | Column II ^b | Column I ^a | Column II ^b | Column I ^a | Column II ^b |
| ≥ 0,5 | 1,5 | ± 0,20 | ± 0,30 | ± 0,30 | ± 0,40 | - | - |
| 1,5 | 3 | ± 0,25 | ± 0,35 | ± 0,40 | ± 0,50 | ± 0,60 | ± 0,70 |
| 3 | 6 | ± 0,40 | ± 0,55 | ± 0,60 | ± 0,70 | ± 0,80 | ± 0,90 |
| 6 | 10 | ± 0,60 | ± 0,75 | ± 0,80 | ± 1,0 | ± 1,0 | ± 1,2 |
| 10 | 15 | ± 0,80 | ± 1,0 | ± 1,0 | ± 1,3 | ± 1,2 | ± 1,5 |
| 15 | 20 | ± 1,2 | ± 1,5 | ± 1,5 | ± 1,8 | ± 1,7 | ± 2,0 |
| 20 | 30 | ± 1,5 | ± 1,8 | ± 1,8 | ± 2,2 | ± 2,0 | ± 2,5 |
| 30 | 40 | - | - | ± 2,0 | ± 2,5 | ± 2,0 | ± 3,0 |

^a Column I is applicable to alloy mentioned under Clause 1 with exception of the alloys indicated in footnote b of the table.

^b Column II is applicable for the following alloys: EN AW-5051A, EN AW-5251, EN AW-5049, EN AW-5052, EN AW-6110A, EN AW-6012, EN AW-6018, EN AW-6351, EN AW-6061, EN AW-6262, EN AW-6081, EN AW-6082, EN AW-7003, EN AW-7005, EN AW-7108, EN AW-7108A, EN AW-7020.

2.5 Length

If fixed lengths are to be supplied, this shall be stated in the order document. The fixed length tolerances are specified in Table 5.