SLOVENSKI STANDARD

SIST EN 755-5:2008

01-maj-2008

Nadomeġļa:

SIST EN 755-5:1998

Aluminij in aluminijeve zlitine - Iztiskane palice/drogovi, cevi in profili - 5. del: Palice s pravokotnim prerezom, tolerance mer in oblike

Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 5: Rectangular bars, tolerances on dimensions and form

Aluminium und Aluminiumlegierungen - Stranggepresste Stangen, Rohre und Profile - Teil 5: Rechteckstangen, Grenzabmaße und Formtoleranzen

Aluminium et alliages d'aluminium - Barres, tubes et profilés filés - Partie 5 : Barres rectangulaires, tolérances sur dimensions et forme

Ta slovenski standard je istoveten z: **EN 755-5:2008**

ICS:

77.150.10

SIST EN 755-5:2008 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 755-5

March 2008

ICS 77.150.10

Supersedes EN 755-5:1995

English Version

Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 5: Rectangular bars, tolerances on dimensions and form

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Ref. No. EN 755-5:2008: E

Contents

Page

Foreword 3

1 Scope 5

2 Alloy groups 5

3 Tolerances on dimensions 5
3.1 Thickness and width 5
3.2 Corner radii 6
3.3 Length 7
3.4 Squareness of cut ends 7

4 Tolerances on form 8
4.1 Straightness 8
4.2 Convexity-Concavity 9
4.3 Twist 10
4.4 Squareness 11

Bibliography 13

Foreword

This document (EN 755-5:2008) 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of an identical text or by endorsement, at the latest by September 2008, and conflicting national standards shall be withdrawn at the latest by September 2008.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 755-5:1995.

Within its programme of work, Technical committee CEN/TC 132 entrusted CEN/TC 132/WG 5 "*Extruded and drawn products*" to revise EN 755-5:1995.

The following technical modifications have been introduced during the revision:

— Clause 2: Alloys EN AW-3102, EN AW-6008, EN AW-6010A, EN AW-6014, EN AW-6023, EN AW-6360, EN AW-6262A, EN AW-6065 and EN AW-6182 are added in Group I

— Clause 2: Alloys EN AW-5049, EN AW-7108, EN AW-7108A and EN AW-7021 are added in Group II

EN 755 comprises the following parts under the general title "*Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles*":

— *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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1 Scope

This document specifies the tolerances on dimensions and form for aluminium and aluminium alloy extruded rectangular bars having thicknesses in the range from 2 mm up to 240 mm and widths in the range from 10 mm up to 600 mm.

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

2 Alloy groups

The division into group I and group II of the most commonly used general engineering alloys is specified in Table 1. Grouping of other alloys is subject to agreement between supplier and purchaser.

Table 1 — Alloy groups

Group I	EN AW-1050A, EN AW-1070A, EN AW-1200, EN AW-1350 EN AW-3102, EN AW-3003, EN AW-3103 EN AW-5005, EN AW-5005A, EN AW-5051A, EN AW-5251 EN AW-6101A, EN AW-6101B, EN AW-6005, EN AW-6005A, EN AW-6106, EN AW-6008, EN AW-6010A, EN AW-6012, EN AW-6014, EN AW-6018, EN AW-6023, 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
Group II	EN AW-2007, EN AW-2011, EN AW-2011A, EN AW-2014, EN AW-2014A, EN AW-2017A, EN AW-2024, EN AW-2030 EN AW-5019, EN AW-5049, EN AW-5052, EN AW-5154A, EN AW-5454, EN AW-5754, EN AW-5083, EN AW-5086 EN AW-7003, EN AW-7005, EN AW-7108, EN AW-7108A, EN AW-7020, EN AW-7021, EN AW-7022, EN AW-7049A, EN AW-7075

3 Tolerances on dimensions

3.1 Thickness and width

The tolerances on thickness and width are specified in Tables 2 and 3.

For the purpose 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 1.

Table 2 — Width and thickness tolerances for alloy group I

Dimensions in millimetres

Width W			Thickness t tolerances for thickness ranges								
Over	Up to and including	Tole-rances	$2 \le t \le 6$	$6 < t \le 10$	$10 < t \le 18$	$18 < t \le 30$	$30 < t \le 50$	$50 < t \le 80$	$80 < t \le 120$	$120 < t \le 180$	$180 < t \le 240$
≥ 10	18	± 0,25	±0,20	± 0,25	± 0,25	-	-	-	-	-	-
18	30	± 0,30	±0,20	± 0,25	± 0,30	± 0,30	-	-	-	-	-
30	50	± 0,40	±0,25	± 0,25	± 0,30	± 0,35	± 0,40	-	-	-	-
50	80	± 0,60	±0,25	± 0,30	± 0,35	± 0,40	± 0,50	± 0,60	-	-	-
80	120	± 0,80	±0,30	± 0,35	± 0,40	± 0,45	± 0,60	± 0,70	± 0,80	-	-
120	180	± 1,0	±0,40	± 0,45	± 0,50	± 0,55	± 0,60	± 0,70	± 0,90	± 1,0	
180	240	± 1,4	-	± 0,55	± 0,60	± 0,65	± 0,70	± 0,80	± 1,0	± 1,2	± 1,4
240	350	± 1,8	-	± 0,65	± 0,70	± 0,75	± 0,80	± 0,90	± 1,1	± 1,3	± 1,5
350	450	± 2,2	-	-	± 0,80	± 0,85	± 0,90	± 1,0	± 1,2	± 1,4	± 1,6
450	600	± 3,0	-	-	-	-	± 0,90	± 1,0	± 1,4	-	-

Table 3 — Width and thickness tolerances for alloy group II

Dimensions in millimetres

Width W			Thickness t tolerances for thickness ranges								
Over	Up to and including	Tole-rances	$2 \le t \le 6$	$6 < t \le 10$	$10 < t \le 18$	$18 < t \le 30$	$30 < t \le 50$	$50 < t \le 80$	$80 < t \le 120$	$120 < t \le 180$	$180 < t \le 240$
≥ 10	18	± 0,35	±0,25	± 0,30	± 0,35	-	-	-	-	-	-
18	30	± 0,40	±0,25	± 0,30	± 0,40	± 0,40	-	-	-	-	-
30	50	± 0,50	±0,30	± 0,30	± 0,40	± 0,50	± 0,50	-	-	-	-
50	80	± 0,70	±0,30	± 0,35	± 0,45	± 0,60	± 0,70	± 0,70	-	-	-
80	120	± 1,0	±0,35	± 0,40	± 0,50	± 0,60	± 0,70	± 0,80	± 1,0	-	-
120	180	± 1,4	±0,45	± 0,50	± 0,55	± 0,70	± 0,80	± 1,0	± 1,1	± 1,4	
180	240	± 1,8	-	± 0,60	± 0,65	± 0,70	± 0,90	± 1,1	± 1,3	± 1,6	± 1,8
240	350	± 2,2	-	± 0,70	± 0,75	± 0,80	± 0,90	± 1,2	± 1,4	± 1,7	± 1,9
350	450	± 2,8	-	-	± 0,90	± 1,0	± 1,1	± 1,4	± 1,8	± 2,1	± 2,3
450	600	± 3,5	-	-	-	-	± 1,2	± 1,4	± 1,8	-	-

3.2 Corner radii

Maximum corner radii are specified in Table 4.

Table 4 — Maximum corner radii

Dimensions in millimetres

Thickness t		Maximum corner radii	
Over	Up to and including	Alloy group I	Alloy group II
≥ 2	10	0,6	1,0
10	30	1,0	1,5
30	80	1,8	2,5
80	120	2,0	3,0
120	180	2,5	4,0
180	240	3,5	5,0

3.3 Length

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

Table 5 — Fixed length tolerances (plus only)

Dimensions in millimetres

Width W		Tolerances on length		
Over	Up to and including	$L \leq 2\,000$	$2\,000 < L \leq 5000$	$L > 5\,000$
-	100	$^{+5}_{0}$	$^{+7}_{0}$	$^{+10}_{0}$
100	200	$^{+7}_{0}$	$^{+9}_{0}$	$^{+12}_{0}$
200	450	$^{+8}_{0}$	$^{+11}_{0}$	$^{+14}_{0}$
450	600	$^{+9}_{0}$	$^{+12}_{0}$	$^{+16}_{0}$

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

3.4 Squareness of cut ends

The squareness of cut ends shall be within half of the fixed length tolerance range (Table 5) 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).