BRITISH STANDARD

BS EN
10067 : 1997

Hot rolled bulb flats — Dimensions and tolerances on shape, dimensions and mass

The European Standard EN 10067 : 1996 has the status of a British Standard

ICS 77.140.50; 77.140.60

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ISE/13, Structural steel sections, upon which the following bodies were represented:

British Iron and Steel Producers Association
Health and Safety Executive
Department of Transport

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Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
Foreword	2
Text of EN 10067	3

National foreword

This British Standard has been prepared by Technical Committee ISE/13 and is the English language version of EN 10067 : 1996, *Hot rolled bulb flats — Dimensions and tolerances on shape, dimensions and mass*, published by the European Committee for Standardization (CEN).

This British Standard completely supersedes BS 4848 : Part 5 : 1980 which is now withdrawn.

Cross-references

Publication referred to	Corresponding British Standard
EN 10079	BS EN 10079 *Definition of steel products*

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 6, an inside back cover and a back cover.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 10067

October 1996

ICS 77.140.50; 77.140.60

Descriptors: Iron and steel products, hot rolled products, metal bars, flat bars, designation, dimensions, dimensional tolerances, form tolerances

English version

Hot rolled bulb flats — Dimensions and tolerances on shape, dimensions and mass

Plats à boudin laminés à chaud — Dimensions et tolérances sur la forme, les dimensions et la masse

Warmgewalzter Wulstflachstahl — Maße, Grenzabmaße und Formtoleranzen

This European Standard was approved by CEN on 1996-08-04. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 11, Structural steel sections, the Secretariat of which is held by BSI.

The discussions within ECISS/TC 11 were based on Euronorm 67 (1978).

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 April 1997, and conflicting national standards shall be withdrawn at the latest by April 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom.

Contents

		Page
Foreword		2
1	Scope	3
2	Normative references	3
3	Definitions	3
4	Designation	3
5	Dimensions	3
6	Tolerances on shape and dimensions	3
7	Tolerance on mass	3

1 Scope

This European Standard specifies requirements for the nominal dimensions and tolerances on shape, dimensions and mass of hot-rolled bulb flats. These requirements do not apply to bulb flats rolled from stainless steel.

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 10079 *Definition of steel products*

3 Definitions

For the purposes of this European Standard the definitions in EN 10079 apply.

4 Designation

The designation of the hot-rolled bulb flats shall comprise:

1) the term 'bulb flat';
2) the number of this European Standard;
3) the nominal width b (in mm);
4) the nominal thickness t (in mm).

Example: Bulb flat EN 10067-200 $\times$ 10.

5 Dimensions

Hot-rolled bulb flats complying with this European Standard shall be delivered with the dimensions given in table 1 and illustrated in figure 1.

NOTE. The geometric properties, the data on the cross-section, and the surface area are derived from the nominal dimensions.

6 Tolerances on shape and dimensions

6.1 Width and thickness

The width and thickness tolerances shall be as given in table 2.

The width shall be measured on the longer side of the leg.

6.2 Tolerance for out of squareness of weld edge

The angle by which the weld edge deviates from the vertical (θ) shall not exceed 4° (see figure 2).

6.3 Corner radius

The maximum values for the corner radius r_1 shall be as given in table 3.

6.4 Length

6.4.1 Hot-rolled bulb flats shall be delivered in lengths up to and including 18 m. Lengths greater than 18 m shall be agreed at the time of ordering.

6.4.2 The length tolerances shall be $^{+100}_{0}$ mm. Closer length tolerances shall be specially agreed at the time of ordering.

6.5 Straightness

The straightness tolerance q shall be 0,0035 L. The dimension q shall be measured as illustrated in figure 3 along the entire length L.

7 Tolerance on mass

The mass tolerances shall be:

$^{+6}_{-2}$ % of the total mass for deliveries of 5 t or more,

and

$^{+8}_{-2,7}$ % of the total mass for deliveries of less than 5 t.

The mass deviation shall be the difference between the actual delivery mass and the theoretical mass. The theoretical mass shall be calculated from the data in table 1 and the ordered length in metres.

NOTE. The masses given in table 1 are derived from the sectional areas using a density of 7,85 kg/dm^3.

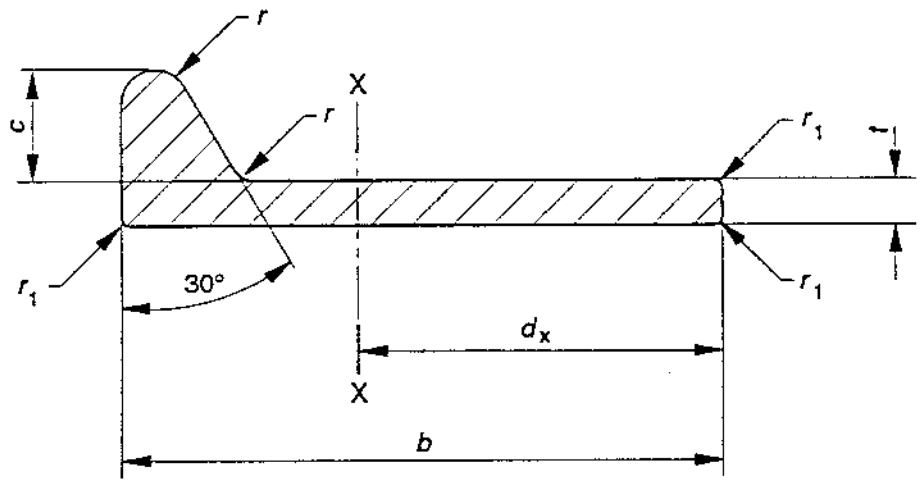

Figure 1. Shape of bulb flat

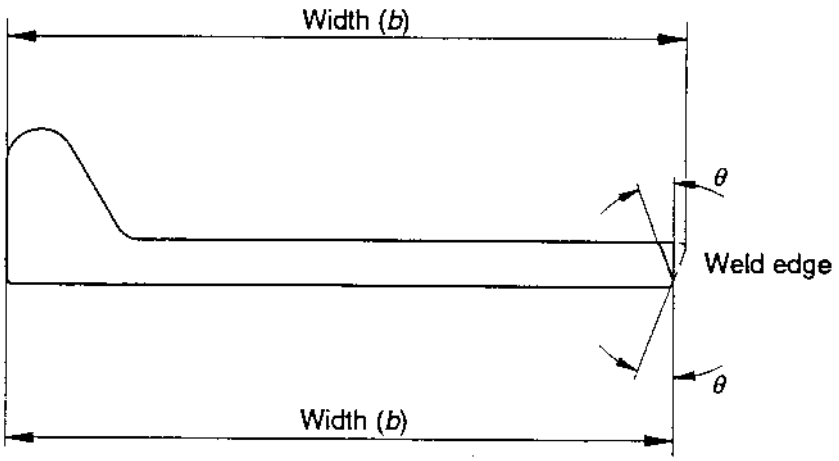

Figure 2. Tolerance for out of squareness of weld edge

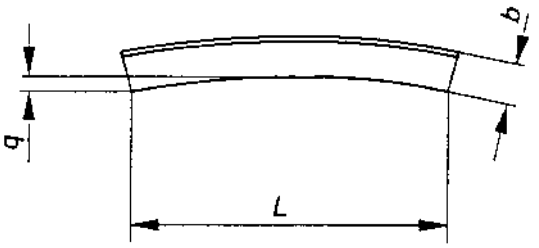

Figure 3. Tolerance on straightness

Table 1. Dimensions, sectional areas, mass/unit length, surface areas and geometric properties of bulb flats

Nominal size	Dimensions for				Area of section	Mass/unit length	Surface area	Distance to centre of gravity	Geometric properties about the x-x axis	
	b (mm)	t (mm)	c (mm)	r (mm)	A cm^2	G kg/m	U m^2/m	d_x cm	I_x cm^4 **moment of inertia**	W_x cm^3 **elastic modulus**
80 × 5	80	5	14	4	5,41	4,25	0,189	4,9	33,87	6,91
80 × 6		6			6,21	4,88	0,191	4,78	38,7	8,1
100 × 7	100	7	15,5	4,5	8,74	6,86	0,236	5,87	85,3	14,5
100 × 8		8			9,74	7,65	0,238	5,78	94,3	16,3
120 × 6	120	6	17	5	9,32	7,32	0,276	7,21	133	18,5
120 × 7		7			10,52	8,26	0,278	7,07	149	21
120 × 8		8			11,72	9,2	0,28	6,96	165	23,6
140 × 7	140	7	19	5,5	12,43	9,75	0,32	8,32	241	29
140 × 8		8			13,83	10,85	0,322	8,18	266	32,5
140 × 10		10			16,63	13,05	0,326	7,99	315	39,5
160 × 7	160	7	22	6	14,6	11, 46	0,365	9,66	373	38,6
160 × 8		8			16,2	12,72	0,367	9,5	411	43,3
160 × 9		9			17,8	13,97	0,369	9,37	449	47,9
160 × 11		11			21	16,49	0,373	9,16	522	57
180 × 8	180	8	25	7	18,86	14,8	0,411	10,89	609	55,9
180 × 9		9			20,66	16,22	0,413	10,73	664	61,8
180 × 10		10			22,46	17,63	0,415	10,59	717	67,7
180 × 11		11			24,26	19,04	0,417	10,47	770	73,5
200 × 9	200	9	28	8	23,66	18,57	0,457	12,12	942	77,7
200 × 10		10			25,66	20,14	0,459	11,96	1017	85,1
200 × 11		11			27,66	21,71	0,461	11,82	1091	92,3
200 × 12		12			29,66	23,28	0,463	11,69	1164	99,5
220 × 10	220	10	31	9	29	22,77	0,503	13,35	1396	105
220 × 11		11			31,2	24,5	0,506	13,19	1496	114
220 × 12		12			33,4	26,22	0,507	13,04	1595	122
240 × 10	240	10	34	10	32,49	25,5	0,547	14,77	1865	126
240 × 11		11			34,89	27,39	0,549	14,58	1997	137
240 × 12		12			37,29	29,27	0,551	14,42	2127	148
260 × 10	260	10	37	11	36,11	28,35	0,591	16,22	2434	150
260 × 11		11			38,71	30,39	0,593	16	2605	163
260 × 12		12			41,31	32,43	0,596	15,81	2774	175
280 × 11	280	11	40	12	42,68	33,5	0,637	17,44	3333	191
280 × 12		12			45,48	35,7	0,639	17,23	3647	206
280 × 13		13			48,28	37,9	0,641	17,04	3757	221
300 × 11	300	11	43	13	46,78	36,7	0,681	18,9	4192	222
300 × 12		12			49,79	39,09	0,683	18,7	4459	239
300 × 13		13			52,79	41,44	0,685	18,45	4722	256
320 × 12	320	12	46	14	54,25	42,6	0,728	20,12	5525	275
320 × 13		13			57,45	45,09	0,73	19,89	5849	294
320 × 14		14			60,85	47,6	0,732	19,68	6168	313
340 × 12	340	12	49	15	58,84	46,2	0,772	21,69	6757	313
340 × 13		13			62,24	48,86	0,774	21,34	7152	335
340 × 14		14			65,54	51,5	0,776	21,1	7540	357
370 × 13	370	13	53,5	16,5	69,7	54,7	0,84	23,54	9469	402
370 × 14		14			73,4	57,6	0,842	23,29	9980	429
370 × 15		15			77,1	60,5	0,844	23,06	10483	456

Table 1. Dimensions, sectional areas, mass/unit length, surface areas and geometric properties of bulb flats *(continued)*

Nominal size	**Dimensions for**				**Area of section**	**Mass/unit length**	**Surface area**	**Distance to centre of gravity**	**Geometric properties about the x-x axis**	
	b (mm)	t (mm)	c (mm)	r (mm)	A cm^2	G kg/m	U m^2/m	d_x cm	I_x cm^4 **moment of inertia**	W_x cm^3 **elastic modulus**
400 × 14	400	14	58	18	81,48	63,96	0,908	25,49	12924	507
400 × 15		15			85,48	67,1	0,91	25,24	13573	538
400 × 16		16			89,48	70,2	0,912	25	14211	568
430 × 14	430	14	62,5	19,5	89,7	70,6	0,975	27,7	16460	594
430 × 15		15			94,19	73,9	0,976	27,46	17249	629
430 × 17		17			102,79	80,7	0,98	26,95	18853	700
430 × 19		19			111,39	87,4	0,984	26,53	20413	770
430 × 20		20			115	90,8	0,986	26,3	21180	804

Table 2. Tolerances on dimensions

Dimensions in mm

Dimensions				**Tolerances**	
b		t			
>	≤	≥	≤	**for b**	**for t**
	120	5	8	± 1,5	+ 0,7 −0,3
120	180	7	11	± 2.0	+ 1,0 −0,3
180	300	9	13	± 3,0	+ 1,0 −0,4
300	430	12	20	± 4,0	+ 1,2 −0,4

Table 3. Maximum value of corner radius r_1

Dimensions in mm

Thickness t		**Corner radius r_1 max**
>	≤	
	5	1,5
5	9	2
9	13	3
13	20	4

List of references

See national foreword.

BSI — British Standards Institution

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