

Structural steel equal and unequal leg angles —

Part 1: Dimensions

The European Standard EN 10056-1:1998 has the status of a
British Standard

ICS 77.140.70

National foreword

This British Standard is the English language version of EN 10056-1:1997. It supersedes BS 4848-4:1972 which is withdrawn

The UK participation in its preparation was entrusted to Technical Committee ISE/13, Structural steel sections, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 8, an inside back cover and a back cover.

Amendments issued since publication

Amd. No.	Date	Text affected

This British Standard, having been prepared under the direction of the Engineering Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 January 1999

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ISBN 0 580 29343 2

ICS 77.140.70

Descriptors: iron- and steel products, hot rolled products, angle irons, designation, dimensions, sections

English version

Structural steel equal and unequal leg angles — Part 1: Dimensions

Cornières à ailes égales et inégales en acier de
construction — Partie 1: Dimensions

Gleichschenklige und ungleichschenklige Winkel
aus Stahl — Teil 1: Maße

This European Standard was approved by CEN on 21 December 1997.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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/TC11, Structural steel sections, the Secretariat of which is held by BSI.

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 February 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

The discussions within ECISS/TC11 were based on Euronorms 56 and 57 and ISO 657-1 and ISO 657-2.

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

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1 Scope

This part of this European Standard specifies requirements for the nominal dimensions of hot-rolled equal and unequal leg angles. This European Standard does not apply to angles with square roots. These requirements do not apply to equal and unequal leg angles rolled from stainless steel. Tolerances for equal and unequal leg angles are given in EN 10056-2.

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*.

EN 10056-2, *Structural steel equal and unequal leg angles — Part 2: Tolerances on shape and dimensions*.

3 Definitions

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

4 Designation

The designation of the hot-rolled equal and unequal leg angles shall comprise:

- 1) the letter L for angles;
- 2) the number of this European Standard;
- 3) the leg length a (in mm);
- 4) the leg length a or b (in mm);
- 5) the leg thickness t (in mm).

EXAMPLE

Either:

L EN 10056-1-70 × 70 × 7; or

L EN 10056-1-50 × 30 × 5.

5 Dimensions

Hot-rolled equal and unequal leg angles complying with this European Standard shall be delivered with the dimensions given in Tables 1 and 2 and illustrated in Figures 1 and 2.

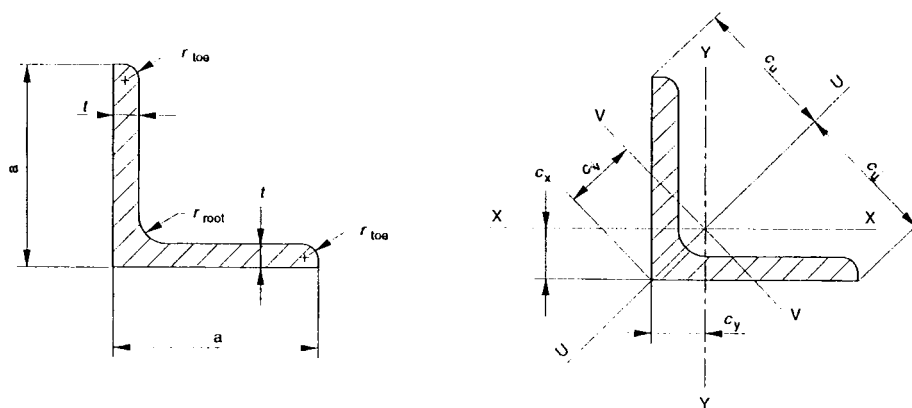


Figure 1 — Equal leg angles

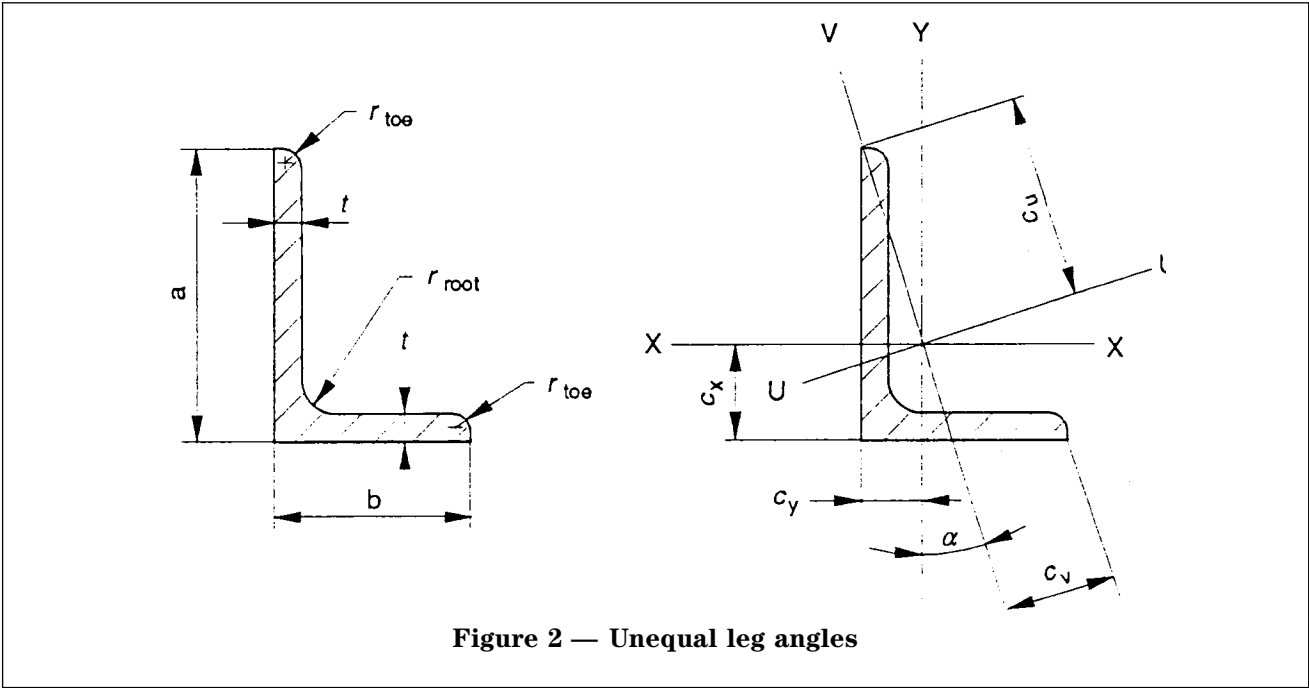


Table 1 — Dimensions and sectional properties of hot-rolled equal-leg angles

Designation	Mass	Sectional area	Dimensions			Distances of centre of gravity			Sectional properties about axes							
									X–X = Y–Y			U–U		V–V		
			a mm	t mm	r_{root} mm	$c_x = c_y$ cm	c_u cm	c_v cm	$I_x = I_y$ cm ⁴	$r_x = r_y$ cm	$Z_x = Z_y$ cm ³	I_u cm ⁴	r_u cm	I_v cm ⁴	r_v cm	Z_v cm ³
kg/m	cm ²															
20 × 20 × 3	0,882	1,12	20	3	3,5	0,598	1,41	0,846	0,392	0,590	0,279	0,618	0,742	0,165	0,383	0,195
25 × 25 × 3	1,12	1,42	25	3	3,5	0,723	1,77	1,02	0,803	0,751	0,452	1,27	0,945	0,334	0,484	0,326
25 × 25 × 4	1,45	1,85	25	4	3,5	0,762	1,77	1,08	1,02	0,741	0,586	1,61	0,931	0,430	0,482	0,399
30 × 30 × 3	1,36	1,74	30	3	5	0,835	2,12	1,18	1,40	0,899	0,649	2,22	1,13	0,585	0,581	0,496
30 × 30 × 4	1,78	2,27	30	4	5	0,878	2,12	1,24	1,80	0,892	0,850	2,85	1,12	0,754	0,577	0,607
35 × 35 × 4	2,09	2,67	35	4	5	1,00	2,47	1,42	2,95	1,05	1,18	4,68	1,32	1,23	0,678	0,865
40 × 40 × 4	2,42	3,08	40	4	6	1,12	2,83	1,58	4,47	1,21	1,55	7,09	1,52	1,86	0,777	1,17
40 × 40 × 5	2,97	3,79	40	5	6	1,16	2,83	1,64	5,43	1,20	1,91	8,60	1,51	2,26	0,773	1,38
45 × 45 × 4,5	3,06	3,90	45	4,5	7	1,25	3,18	1,78	7,14	1,35	2,20	11,4	1,71	2,94	0,870	1,65
50 × 50 × 4	3,06	3,89	50	4	7	1,36	3,54	1,92	8,97	1,52	2,46	14,2	1,91	3,73	0,979	1,94
50 × 50 × 5	3,77	4,80	50	5	7	1,40	3,54	1,99	11,0	1,51	3,05	17,4	1,90	4,55	0,973	2,29
50 × 50 × 6	4,47	5,69	50	6	7	1,45	3,54	2,04	12,8	1,50	3,61	20,3	1,89	5,34	0,968	2,61
60 × 60 × 5	4,57	5,82	60	5	8	1,64	4,24	2,32	19,4	1,82	4,45	30,7	2,30	8,03	1,17	3,46
60 × 60 × 6	5,42	6,91	60	6	8	1,69	4,24	2,39	22,8	1,82	5,29	36,1	2,29	9,44	1,17	3,96
60 × 60 × 8	7,09	9,03	60	8	8	1,77	4,24	2,50	29,2	1,80	6,89	46,1	2,26	12,2	1,16	4,86
65 × 65 × 7	6,83	8,7	65	7	9	1,85	4,60	2,62	33,4	1,96	7,18	53,0	2,47	13,8	1,26	5,27
70 × 70 × 6	6,38	8,13	70	6	9	1,93	4,95	2,73	36,9	2,13	7,27	58,5	2,68	15,3	1,37	5,60
70 × 70 × 7	7,38	9,40	70	7	9	1,97	4,95	2,79	42,3	2,12	8,41	67,1	2,67	17,5	1,36	6,28
75 × 75 × 6	6,85	8,73	75	6	9	2,05	5,30	2,90	45,8	2,29	8,41	72,7	2,89	18,9	1,47	6,53
75 × 75 × 8	8,99	11,4	75	8	9	2,14	5,30	3,02	59,1	2,27	11,0	93,8	2,86	24,5	1,46	8,09
80 × 80 × 8	9,63	12,3	80	8	10	2,26	5,66	3,19	72,2	2,43	12,6	115	3,06	29,9	1,56	9,37
80 × 80 × 10	11,9	15,1	80	10	10	2,34	5,66	3,30	87,5	2,41	15,4	139	3,03	36,4	1,55	11,0
90 × 90 × 7	9,61	12,2	90	7	11	2,45	6,36	3,47	92,6	2,75	14,1	147	3,46	38,3	1,77	11,0
90 × 90 × 8	10,9	13,9	90	8	11	2,50	6,36	3,53	104	2,74	16,1	166	3,45	43,1	1,76	12,2
90 × 90 × 9	12,2	15,5	90	9	11	2,54	6,36	3,59	116	2,73	17,9	184	3,44	47,9	1,76	13,3
90 × 90 × 10	13,4	17,1	90	10	11	2,58	6,36	3,65	127	2,72	19,8	201	3,42	52,6	1,75	14,4
100 × 100 × 8	12,2	15,5	100	8	12	2,74	7,07	3,87	145	3,06	19,9	230	3,85	59,9	1,96	15,5
100 × 100 × 10	15,0	19,2	100	10	12	2,82	7,07	3,99	177	3,04	24,6	280	3,83	73,0	1,95	18,3
100 × 100 × 12	17,8	22,7	100	12	12	2,90	7,07	4,11	207	3,02	29,1	328	3,80	85,7	1,94	20,9
120 × 120 × 10	18,2	23,2	120	10	13	3,31	8,49	4,69	313	3,67	36,0	497	4,63	129	2,36	27,5
120 × 120 × 12	21,6	27,5	120	12	13	3,40	8,49	4,80	368	3,65	42,7	584	4,60	152	2,35	31,6

Table 1 — Dimensions and sectional properties of hot-rolled equal-leg angles

Designation	Mass	Sectional area	Dimensions			Distances of centre of gravity			Sectional properties about axes							
			a	t	r _{root}	c _x = c _y	c _u	c _v	X – X = Y – Y			U – U		V – V		
									I _x = I _y	r _x = r _y	Z _x = Z _y	I _u	r _u	I _v	r _v	Z _v
	kg/m	cm ²	mm	mm	mm	cm	cm	cm	cm ⁴	cm	cm ³	cm ⁴	cm	cm ⁴	cm	cm ³
130 × 130 × 12	23,6	30,0	130	12	14	3,64	9,19	5,15	472	3,97	50,4	750	5,00	194	2,54	37,7
150 × 150 × 10	23,0	29,3	150	10	16	4,03	10,6	5,71	624	4,62	56,9	990	5,82	258	2,97	45,1
150 × 150 × 12	27,3	34,8	150	12	16	4,12	10,6	5,83	737	4,60	67,7	1 170	5,80	303	2,95	52,0
150 × 150 × 15	33,8	43,0	150	15	16	4,25	10,6	6,01	898	4,57	83,5	1 430	5,76	370	2,93	61,6
160 × 160 × 15	36,2	46,1	160	15	17	4,49	11,3	6,35	1 100	4,88	95,6	1 750	6,15	453	3,14	71,3
180 × 180 × 16	43,5	55,4	180	16	18	5,02	12,7	7,11	1 680	5,51	130	2 690	6,96	679	3,50	95,5
180 × 180 × 18	48,6	61,9	180	18	18	5,10	12,7	7,22	1 870	5,49	145	2 960	6,92	768	3,52	106
200 × 200 × 16	48,5	61,8	200	16	18	5,52	14,1	7,81	2 340	6,16	162	3 720	7,76	960	3,94	123
200 × 200 × 18	54,3	69,1	200	18	18	5,60	14,1	7,92	2 600	6,13	181	4 150	7,75	1 050	3,90	133
200 × 200 × 20	59,9	76,3	200	20	18	5,68	14,1	8,04	2 850	6,11	199	4 530	7,70	1 170	3,92	146
200 × 200 × 24	71,1	90,6	200	24	18	5,84	14,1	8,26	3 330	6,06	235	5 280	7,64	1 380	3,90	167
250 × 250 × 28	104	133	250	28	18	7,24	17,7	10,2	7 700	7,62	433	12 200	9,61	3 170	4,89	309
250 × 250 × 35	128	163	250	35	18	7,50	17,7	10,6	9 260	7,54	529	14 700	9,48	3 860	4,87	364
NOTE 1 The sectional area has been calculated using the formula: $S = [t(2a - t) + 0,214 \, 6(r_{\text{root}}^2 - 2r_{\text{toe}}^2)]/100$ where <i>S</i> is the sectional area, in square centimetres; <i>t</i> is the thickness, in millimetres; <i>r_{root}</i> is the root radius, in millimetres; <i>r_{toe}</i> is the toe radius, in millimetres (sectional properties have been calculated assuming a toe radius equal to half the root radius); <i>a</i> is the leg length, in millimetres; <i>I</i> is moment of inertia; <i>Z</i> is the section modulus; <i>r</i> is the radius of gyration (the subscripts x, y, u and v denote the axis). NOTE 2 Mass is calculated on the basis of density of steel of 7,85 kg/dm³.																

Table 2 — Dimensions and sectional properties of hot-rolled unequal leg angles

Designation	Mass	Sectional area	Dimensions				Distances of centre of gravity				Sectional properties about axes										Inclination of V–V axis
											X–X			Y–Y			U–U		V–V		
			<i>a</i>	<i>b</i>	<i>t</i>	<i>r</i> _{root}					<i>c</i> _x	<i>c</i> _y	<i>c</i> _u	<i>c</i> _v	<i>I</i> _x	<i>r</i> _x	<i>Z</i> _x	<i>I</i> _y	<i>r</i> _y	<i>Z</i> _y	
kg/m	cm ²	mm	mm	mm	mm	cm	cm	cm	cm	cm ⁴	cm	cm ³	cm ⁴	cm	cm ³	cm ⁴	cm	cm ⁴	cm		
30 × 20 × 3	1,12	1,43	30	20	3	4	0,990	0,502	2,05	1,04	1,25	0,935	0,621	0,437	0,553	0,292	1,43	1,00	0,256	0,424	0,427
30 × 20 × 4	1,46	1,86	30	20	4	4	1,03	0,541	2,02	1,04	1,59	0,925	0,807	0,553	0,546	0,379	1,81	0,988	0,330	0,421	0,421
40 × 20 × 4	1,77	2,26	40	20	4	4	1,47	0,48	2,58	1,17	3,59	1,26	1,42	0,600	0,514	0,393	3,80	1,30	0,393	0,417	0,252
40 × 25 × 4	1,93	2,46	40	25	4	4	1,36	0,623	2,69	1,35	3,89	1,26	1,47	1,16	0,687	0,619	4,35	1,33	0,700	0,534	0,380
45 × 30 × 4	2,25	2,87	45	30	4	4,5	1,48	0,74	3,07	1,58	5,78	1,42	1,91	2,05	0,85	0,91	6,65	1,52	1,18	0,64	0,436
50 × 30 × 5	2,96	3,78	50	30	5	5	1,73	0,741	3,33	1,65	9,36	1,57	2,86	2,51	0,816	1,11	10,3	1,65	1,54	0,639	0,352
60 × 30 × 5	3,36	4,28	60	30	5	5	2,17	0,684	3,88	1,77	15,6	1,91	4,07	2,63	0,784	1,14	16,5	1,97	1,71	0,633	0,257
60 × 40 × 5	3,76	4,79	60	40	5	6	1,96	0,972	4,10	2,11	17,2	1,89	4,25	6,11	1,13	2,02	19,7	2,03	3,54	0,86	0,434
60 × 40 × 6	4,46	5,68	60	40	6	6	2,00	1,01	4,08	2,10	20,1	1,88	5,03	7,12	1,12	2,38	23,1	2,02	4,16	0,855	0,431
65 × 50 × 5	4,35	5,54	65	50	5	6	1,99	1,25	4,53	2,39	23,2	2,05	5,14	11,9	1,47	3,19	28,8	2,28	6,32	1,07	0,577
70 × 50 × 6	5,41	6,89	70	50	6	7	2,23	1,25	4,83	2,52	33,4	2,20	7,01	14,2	1,43	3,78	39,7	2,40	7,92	1,07	0,500
75 × 50 × 6	5,65	7,19	75	50	6	7	2,44	1,21	5,12	2,64	40,5	2,37	8,01	14,4	1,42	3,81	46,6	2,55	8,36	1,08	0,435
75 × 50 × 8	7,39	9,41	75	50	8	7	2,52	1,29	5,08	2,62	52,0	2,35	10,4	18,4	1,40	4,95	59,6	2,52	10,8	1,07	0,430
80 × 40 × 6	5,41	6,89	80	40	6	7	2,85	0,884	5,20	2,38	44,9	2,55	8,73	7,59	1,05	2,44	47,6	2,63	4,93	0,845	0,258
80 × 40 × 8	7,07	9,01	80	40	8	7	2,94	0,963	5,14	2,34	57,6	2,53	11,4	9,61	1,03	3,16	60,9	2,60	6,34	0,838	0,253
80 × 60 × 7	7,36	9,38	80	60	7	8	2,51	1,52	5,55	2,92	59,0	2,51	10,7	28,4	1,74	6,34	72,0	2,77	15,4	1,28	0,546
100 × 50 × 6	6,84	8,71	100	50	6	8	3,51	1,05	6,55	3,00	89,9	3,21	13,8	15,4	1,33	3,89	95,4	3,31	9,92	1,07	0,262
100 × 50 × 8	8,97	11,4	100	50	8	8	3,60	1,13	6,48	2,96	116	3,19	18,2	19,7	1,31	5,08	123	3,28	12,8	1,06	0,258
100 × 65 × 7	8,77	11,2	100	65	7	10	3,23	1,51	6,83	3,49	113	3,17	16,6	37,6	1,83	7,53	128	3,39	22,0	1,40	0,415
100 × 65 × 8	9,94	12,7	100	65	8	10	3,27	1,55	6,81	3,47	127	3,16	18,9	42,2	1,83	8,54	144	3,37	24,8	1,40	0,413
100 × 65 × 10	12,3	15,6	100	65	10	10	3,36	1,63	6,76	3,45	154	3,14	23,2	51,0	1,81	10,5	175	3,35	30,1	1,39	0,410
100 × 75 × 8	10,6	13,5	100	75	8	10	3,10	1,87	6,95	3,65	133	3,14	19,3	64,1	2,18	11,4	162	3,47	34,6	1,60	0,547
100 × 75 × 10	13,0	16,6	100	75	10	10	3,19	1,95	6,92	3,65	162	3,12	23,8	77,6	2,16	14,0	197	3,45	42,2	1,59	0,544
100 × 75 × 12	15,4	19,7	100	75	12	10	3,27	2,03	6,89	3,65	189	3,10	28,0	90,2	2,14	16,5	230	3,42	49,5	1,59	0,540
120 × 80 × 8	12,2	15,5	120	80	8	11	3,83	1,87	8,23	4,23	226	3,82	27,6	80,8	2,28	13,2	260	4,10	46,6	1,74	0,437
120 × 80 × 10	15,0	19,1	120	80	10	11	3,92	1,95	8,19	4,21	276	3,80	34,1	98,1	2,26	16,2	317	4,07	56,8	1,72	0,435
120 × 80 × 12	17,8	22,7	120	80	12	11	4,00	2,03	8,15	4,20	323	3,77	40,4	114	2,24	19,1	371	4,04	66,7	1,71	0,431
125 × 75 × 8	12,2	15,5	125	75	8	11	4,14	1,68	8,44	4,20	247	4,00	29,6	67,6	2,09	11,6	274	4,21	40,9	1,63	0,360
125 × 75 × 10	15,0	19,1	125	75	10	11	4,23	1,76	8,39	4,17	302	3,97	36,5	82,1	2,07	14,3	334	4,18	49,9	1,61	0,357

Table 2 — Dimensions and sectional properties of hot-rolled unequal leg angles

Designation	Mass	Sectional area	Dimensions				Distances of centre of gravity				Sectional properties about axes										Inclination of V–V axis	
											X–X			Y–Y			U–U		V–V			
			<i>a</i> mm	<i>b</i> mm	<i>t</i> mm	<i>r</i> _{root} mm	<i>c</i> _x cm	<i>c</i> _y cm	<i>c</i> _u cm	<i>c</i> _v cm	<i>I</i> _x cm ⁴	<i>r</i> _x cm	<i>Z</i> _x cm ³	<i>I</i> _y cm ⁴	<i>r</i> _y cm	<i>Z</i> _y cm ³	<i>I</i> _u cm ⁴	<i>r</i> _u cm	<i>I</i> _v cm ⁴	<i>r</i> _v cm		<i>tan α</i>
	kg/m	cm ²																				
125 × 75 × 12	17,8	22,7	125	75	12	11	4,31	1,84	8,33	4,15	354	3,95	43,2	95,5	2,05	16,9	391	4,15	58,5	1,61	0,354	
135 × 65 × 8	12,2	15,5	135	65	8	11	4,78	1,34	8,79	3,95	291	4,34	33,4	45,2	1,71	8,75	307	4,45	29,4	1,38	0,245	
135 × 65 × 10	15,0	19,1	135	65	10	11	4,88	1,42	8,72	3,91	356	4,31	41,3	54,7	1,69	10,8	375	4,43	35,9	1,37	0,243	
150 × 75 × 9	15,4	19,6	150	75	9	12	5,26	1,57	9,82	4,50	455	4,82	46,7	77,9	1,99	13,1	483	4,96	50,2	1,60	0,261	
150 × 75 × 10	17,0	21,7	150	75	10	12	5,31	1,61	9,79	4,48	501	4,81	51,6	85,6	1,99	14,5	531	4,95	55,1	1,60	0,261	
150 × 75 × 12	20,2	25,7	150	75	12	12	5,40	1,69	9,72	4,44	588	4,78	61,3	99,6	1,97	17,1	623	4,92	64,7	1,59	0,258	
150 × 75 × 15	24,8	31,7	150	75	15	12	5,52	1,81	9,63	4,40	713	4,75	75,2	119	1,94	21,0	753	4,88	78,6	1,58	0,253	
150 × 90 × 10	18,2	23,2	150	90	10	12	5,00	2,04	10,1	5,03	533	4,80	53,3	146	2,51	21,0	591	5,05	88,3	1,95	0,360	
150 × 90 × 12	21,6	27,5	150	90	12	12	5,08	2,12	10,1	5,00	627	4,77	63,3	171	2,49	24,8	694	5,02	104	1,94	0,358	
150 × 90 × 15	26,6	33,9	150	90	15	12	5,21	2,23	9,98	4,98	761	4,74	77,7	205	2,46	30,4	841	4,98	126	1,93	0,354	
150 × 100 × 10	19,0	24,2	150	100	10	12	4,81	2,34	10,3	5,29	553	4,79	54,2	199	2,87	25,9	637	5,13	114	2,17	0,438	
150 × 100 × 12	22,5	28,7	150	100	12	12	4,89	2,42	10,2	5,28	651	4,76	64,4	233	2,85	30,7	749	5,11	134	2,16	0,436	
200 × 100 × 10	23,0	29,2	200	100	10	15	6,93	2,01	13,2	6,05	1 220	6,46	93,2	210	2,68	26,3	1 290	6,65	135	2,15	0,263	
200 × 100 × 12	27,3	34,8	200	100	12	15	7,03	2,10	13,1	6,00	1 440	6,43	111	247	2,67	31,3	1 530	6,63	159	2,14	0,262	
200 × 100 × 15	33,75	43,0	200	100	15	15	7,16	2,22	13,0	5,84	1 758	6,4	137	299	2,64	38,5	1 864	6,59	193	2,12	0,260	
200 × 150 × 12	32,0	40,8	200	150	12	15	6,08	3,61	13,9	7,34	1 650	6,36	119	803	4,44	70,5	2 030	7,04	430	3,25	0,552	
200 × 150 × 15	39,6	50,5	200	150	15	15	6,21	3,73	13,9	7,33	2 022	6,33	147	979	4,40	86,9	2 476	7,00	526	3,23	0,551	
NOTE 1 The sectional area has been calculated using the formula:																						
$S = [t(a + b - t) + 0,214\,6(r_{\text{root}}^2 - 2r_{\text{toe}}^2)]/100$																						
where																						
S is the sectional area, in square centimetres;																						
t is the thickness, in millimetres;																						
r_{root} is the root radius, in millimetres;																						
r_{toe} is the toe radius, in millimetres (sectional properties have been calculated assuming a toe radius equal to half the root radius);																						
a and b are the leg lengths, in millimetres;																						
I is moment of inertia;																						
Z is the section modulus;																						
r is the radius of gyration (the subscripts x, y, u and v denote the axis).																						
NOTE 2 Mass is calculated on the basis of density of steel of 7,85 kg/dm ³ .																						

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