

**SRI LANKA STANDARD 907 PART 4 : 2016**  
**UDC 669.14**

**SPECIFICATION FOR**  
**HOT ROLLED STRUCTURAL STEEL**  
**SECTIONS**  
**PART 4 : L SECTIONS ( EQUAL AND UNEQUAL**  
**ANGLES)**  
**(FIRST REVISION)**

**SRI LANKA STANDARDS INSTITUTION**



**Sri Lanka Standard**  
**SPECIFICATION FOR HOT ROLLED STRUCTURAL STEEL SECTIONS**  
**PART 4: L SECTIONS ( EQUAL AND UNEQUAL ANGLES)**  
*(First Revision)*

**SLS 907 Part 4 : 2016**

**Gr. 11**

**Sri Lanka Standards Institution**  
**No. 17, Victoria Place**  
**Elvitigala Mawatha**  
**Colombo 8**  
**Sri Lanka**

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

© SLSI 2016

All right reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the SLSI.

**Sri Lanka Standard**  
**SPECIFICATION FOR HOT ROLLED STRUCTURAL STEEL SECTIONS**  
**PART 4: L SECTIONS ( EQUAL AND UNEQUAL ANGLES)**

## **FORWORD**

This standard was approved by the Sectoral Committee on Materials, Mechanical Systems and Manufacturing Engineering and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2016-11-24.

After formulation of the standard SLS 874 : 1990 Steel products, in two parts (Part 1 Classification and definitions, Part 2 Identification marking), it has become necessary to present the contents of SLS 907 on U sections, L sections and T sections together with other sections such as I,H and special section not covered therein.

This is the first revision of SLS 907 Part 4 and it supersedes SLS 907 Part 4: 1990.

The other parts of this standard are:

Part 1	I sections
Part 2	H sections
Part 3	U sections (Channels)
Part 5	T sections (Tees)
Part 6	Special sections

All values given in this standard are in SI units.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or an analysis shall be rounded off in accordance with **SLS 102**. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.

In the preparation of this standard, assistance derived from relevant publications of the International Organization for Standardization and the British Standards Institution is gratefully acknowledged.

## **1 SCOPE**

This standard specifies the requirements for chemical composition, manufacture, finish, mechanical properties, dimensions, sectional properties, marking, testing and sampling of hot rolled structural steel L sections used principally for general purpose structural steels. The L section steels specified in this standard which are categorized under S235, S275, S355, S450, SG205, SG250, SG285 and SG345 are intended for use in welded or bolted structures.

## 2 REFERENCES

SLS	102	presentation of numerical values
SLS	874	steel products
	Part 1	Classification and definitions
	Part 2	Identification markings

## 3 DEFINITIONS

For the purposes of this standard the following definitions shall apply (see Figures 1 and 2):

**3.1 Y-Y axis :** A line parallel to the axis of the either flange (in the case of equal angles) or longer flange (in the case of unequal angles) and passing through the center of gravity of the profile of the section .

**3.2 X-X axis :** A line passing through the center of gravity of the profile of the section and at right angles to the Y-Y axis.

**3.3 U-U and V-V axis :** line passing through the center of gravity of the profile of the section representing the principal axis of the section.

## 4 SYMBOLS

The symbols used in this standard shall have the meaning assigned to them as given below:

A,B	-	Leg length
m	-	Mass per unit length
a	-	Sectional area
t	-	Thickness
r <sub>1</sub>	-	Root radius
r <sub>2</sub>	-	Toe radius
I <sub>x</sub>	)	- Moments of inertia
I <sub>u</sub>	)	
I <sub>v</sub>	)	
r <sub>x</sub>	)	- Radii of gyration
r <sub>u</sub>	)	
r <sub>v</sub>	)	
Z <sub>x</sub>	)	- Moduli of section
Z <sub>u</sub>	)	
Z <sub>v</sub>	)	
δ, Δ	-	Tolerances

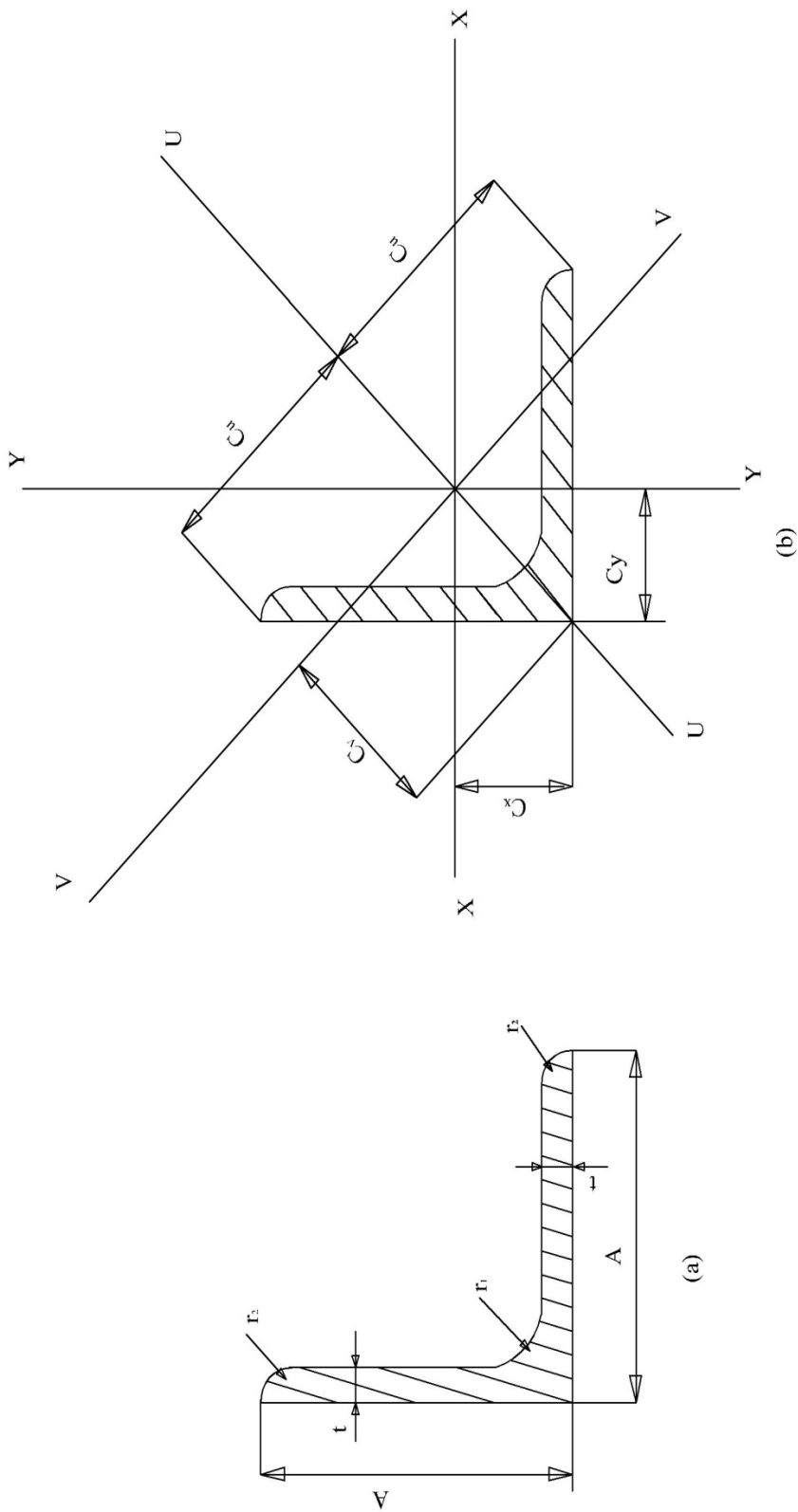


FIGURE 1 - Equal angles

## 5 DESIGNATION

Steel L section shall be designated by the letter L followed by leg length and thickness as follows:

In the case of equal angles,

L A x A x t

Example :

L 20 x 20 x 3 (see Table 1)

In the case of unequal angles,

L A x B x t

Example :

L 30 x 20 x 3 (see Table 2)

## 6 REQUIREMENTS

### 6.1 Dimensions and sectional properties

The dimensions and sectional properties shall be as given in Tables 1 and 2.

### 6.2 Mass

The mass per metre values shall be as given in Tables 1 and 2.

### 6.3 Tolerance

#### 6.3.1 Tolerance on leg length ( $\delta_{A,B}$ )

Tolerance on leg length as specified in Table 3.

#### 6.3.2 Tolerance on thickness( $\delta_t$ )

Tolerance on thickness of equal and unequal angles shall be as specified in Table 3.



**Table 1 –Dimensional and sectional properties of Hot-rolled equal angles**

Designation A x A x t	Mass m kg/m	Sectional area a cm <sup>2</sup>	Dimensions			Distances of center of gravity			Sectional properties about axes								
			A mm	t mm	r <sub>1</sub> mm	C <sub>x</sub> =C <sub>y</sub> cm	C <sub>u</sub> cm	C <sub>v</sub> cm	X-X =Y-Y			U-U		V-V			
									I <sub>x</sub> =I <sub>y</sub> cm <sup>4</sup>	r <sub>x</sub> =r <sub>y</sub> cm	Z <sub>x</sub> =Z <sub>y</sub> cm <sup>3</sup>	I <sub>u</sub> cm <sup>4</sup>	r <sub>u</sub> cm	I <sub>v</sub> cm <sup>4</sup>	r <sub>v</sub> cm	Z <sub>v</sub> cm <sup>3</sup>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
20x20x3	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	
25x25x3	1.12	1.42	25	3	3.5	0.723	1.77	1.02	1.803	0.751	0.452	1.27	0.945	0.334	0.484	0.326	
25x25x4	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	
25x25x5	1.80	2.25	25	5	4.5	0.79	1.77	1.14	1.2	0.72	0.7	1.8	0.91	0.5	0.47	0.46	
30x30x3	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	
30x30x4	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	
30x30x5	2.20	2.77	30	5	5	0.92	2.12	1.30	2.1	0.88	1.0	3.4	1.11	0.9	0.57	0.71	
35x35x4	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	
35x35x5	2.57	3.28	35	5	5	1.04	2.47	1.48	3.56	1.04	1.46	5.64	1.31	1.49	0.675	0.01	
40x40x3	1.84	2.35	40	3	6	1.07	2.83	1.52	3.45	1.21	1.18	5.45	1.52	1.44	0.788	0.949	
40x40x4	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	
40x40x5	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	
40x40x6	3.5	4.47	40	5	5	1.20	2.83	1.70	6.3	1.19	2.3	10.0	1.50	2.60	0.77	1.59	
45x45x4	2.74	3.49	45	4	7	1.23	3.18	1.75	6.43	1.36	1.97	10.2	1.71	2.68	0.876	1.53	
45x45x5	3.38	4.30	45	5	7	1.28	3.18	1.81	7.84	1.35	2.43	12.4	1.70	3.26	0.871	1.80	
50x50x4	3.06	3.89	50	4	7	1.36	3.54	1.92	8.9	1.52	2.46	14.2	1.91	3.73	0.979	1.94	
50x50x5	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	
50x50x6	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	
60x60x5	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	
60x60x6	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	3.46	
60x60x8	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	
65x65x5*	4.97	6.25	65	5	9	1.77	4.6	2.61	24.7	1.99	5.22	39.2	2.49	10.2	1.27	3.91	
65x65x6	5.91	7.53	65	6	9	1.80	4.60	2.55	29.2	1.97	6.21	46.3	2.48	12.1	1.27	4.74	
65x65x8	7.73	9.85	65	8	9	1.89	4.60	2.67	37.5	1.95	8.13	59.4	2.46	15.6	1.26	5.84	

**Table 1 –Dimensional and sectional properties of Hot –rolled equal angles (continued)**

Designation  A x A x t	Mass  m kg/m	Sectional area  a cm <sup>2</sup>	Dimensions			Distances of center of gravity			Sectional properties about axes								
			A mm	t mm	r <sub>1</sub> mm	C <sub>x</sub> =C <sub>y</sub> cm	C <sub>u</sub> cm	C <sub>v</sub> cm	X-X =Y-Y			U-U		V-V			
									I <sub>x</sub> =I <sub>y</sub> cm <sup>4</sup>	r <sub>x</sub> = r <sub>y</sub> cm	Z <sub>x</sub> =Z <sub>y</sub> cm <sup>3</sup>	I <sub>u</sub> cm <sup>4</sup>	r <sub>u</sub> cm	I <sub>v</sub> cm <sup>4</sup>	r <sub>v</sub> cm	Z <sub>v</sub> cm <sup>3</sup>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
70x70x 6	6.38	8.13	70	6	9	1.39	4.95	2.73	36.9	2.13	7.27	58.5	2.68	15.3	1.37	5.60	
70x70x 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	
75x75x 5*	5.76	7.34	75	5	9	2.02	5.30	2.84	38.7	2.31	7.06	61.9	2.92	15.5	1.47	5.46	
75x75x 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	
75x75x 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	
75x75x 10	11.0	14.0	75	10	7	2.22	5.30	3.14	71.4	2.26	13.5	113	2.84	29.4	1.45	9.36	
80x80x 6	7.34	9.35	80	6	10	2.17	5.66	3.07	55.8	2.44	9.57	88.5	3.08	23.1	1.57	7.55	
80x80x 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	
80x80x 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	
90x90x 6*	8.28	10.5	90	6	10	2.42	6.36	3.42	80.1	2.77	12.2	128	3.50	32.0	1.75	9.35	
90x90x 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	
90x90x 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	
90x90x 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	
90x90x 10	15.0	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	
100x100x6*	9.26	11.8	100	6	12	2.64	7.07	3.74	111	3.09	15.1	176	3.87	45.8	1.97	12.2	
100x100x7*	10.7	13.7	100	7	12	2.69	7.07	3.81	128	3.07	17.5	204	3.86	52.7	1.96	13.8	
100x100x8	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	
100x100x10	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	
100x100x12	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	
110x110x8*	13.4	17.1	110	8	12	2.99	7.78	4.22	196	3.38	24.4	310.5	4.26	80.11	2.16	18.98	
110x110x10*	16.6	21.2	110	10	13	3.06	7.78	4.33	238	3.35	30.0	378.2	4.23	97.74	2.15	22.57	
110x110x12*	19.7	25.1	110	12	13	3.15	7.78	4.45	279	3.33	35.5	443.2	4.20	115.0	2.14	25.84	
120x120x8	14.7	18.7	120	8	13	3.23	8.49	4.56	255	3.69	29.1	405	4.65	105	2.37	23.1	
120x120x10	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	
120x120x12	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 –Dimensional and sectional properties of Hot –rolled equal angles (continued)

Designation A x A x t	Mass m kg/m	Sectional area a cm <sup>2</sup>	Dimensions			Distances of center of gravity			Sectional properties about axes							
			A mm	t mm	r <sub>1</sub> mm	C <sub>x</sub> =C <sub>v</sub> cm	C <sub>u</sub> cm	C <sub>v</sub> cm	X-X =Y-Y			U-U		V-V		
									I <sub>x</sub> =I <sub>y</sub> cm <sup>4</sup>	r <sub>x</sub> =r <sub>y</sub> cm	Z <sub>x</sub> =Z <sub>y</sub> cm <sup>3</sup>	I <sub>u</sub> cm <sup>4</sup>	r <sub>u</sub> cm	I <sub>v</sub> cm <sup>4</sup>	r <sub>v</sub> cm	Z <sub>v</sub> cm <sup>3</sup>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
125x125x8	15.3	19.5	125	8	13	3.35	8.84	4.74	290	3.85	31.7	461	4.85	120	2.47	25.3
125x125x10	19.0	24.2	125	10	13	3.44	8.84	4.86	356	3.84	39.3	565	4.83	146	2.46	30.1
125x125x12	22.6	28.7	125	12	13	3.52	8.84	4.98	418	3.81	46.4	664	4.81	172	2.45	34.6
130x130x10*	19.8	25.2	125	10	14	3.55	9.19	5.03	401	3.99	42.5	638	5.03	165	2.55	32.8
130x130x12*	23.5	30.0	125	12	14	3.64	9.19	5.15	472	3.97	50.4	751	5.00	194	2.54	37.7
150x150x10	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
150x150x12	27.3	34.8	150	12	16	4.12	10.6	5.83	737	4.60	67.7	1170	5.80	303	2.95	52.0
150x150x15	33.8	43.0	150	15	16	4.25	10.6	6.01	898	4.57	83.5	1430	5.76	370	2.93	61.6
150x150x16*	35.9	45.7	150	16	16	4.29	10.6	6.06	950	4.56	88.7	1509	5.74	391	2.92	64.5
150x150x20*	44.2	56.3	150	20	20	4.37	10.6	6.28	1146	4.51	108.6	1817	5.68	476	2.91	75.8
180x180x15	40.9	52.1	180	15	18	4.98	12.7	7.05	1590	5.52	122	2520	6.96	653	3.54	92.7
180x180x18	48.6	61.9	180	18	18	5.10	12.7	7.22	1870	5.49	145	2960	6.92	768	3.52	106
200x200x16	48.5	61.8	200	16	18	5.52	14.1	7.81	2340	6.61	162	3720	7.76	960	3.94	123
200x200x20	59.9	76.3	200	24	18	5.84	14.1	8.04	2850	6.11	199	4530	7.70	1170	3.92	146
200x200x24	71.1	90.6	200	24	18	5.84	14.1	8.26	3330	6.06	235	5280	7.64	1380	3.90	167
250x250x28	104	133	250	28	18	7.24	17.7	10.2	7700	7.62	433	12200	9.61	3170	4.89	309
250x250x35	128	163	250	35	18	7.50	17.7	10.6	9280	7.54	529	14700	9.48	3860	4.87	364

**NOTE**

$$a = [t(2A - t) + 0.2146 (r_1^2 - 2r_2^2)] \times 1/100$$

Where *a* is the sectional area, in square centimeters;

*t* is the thickness, in millimeters;

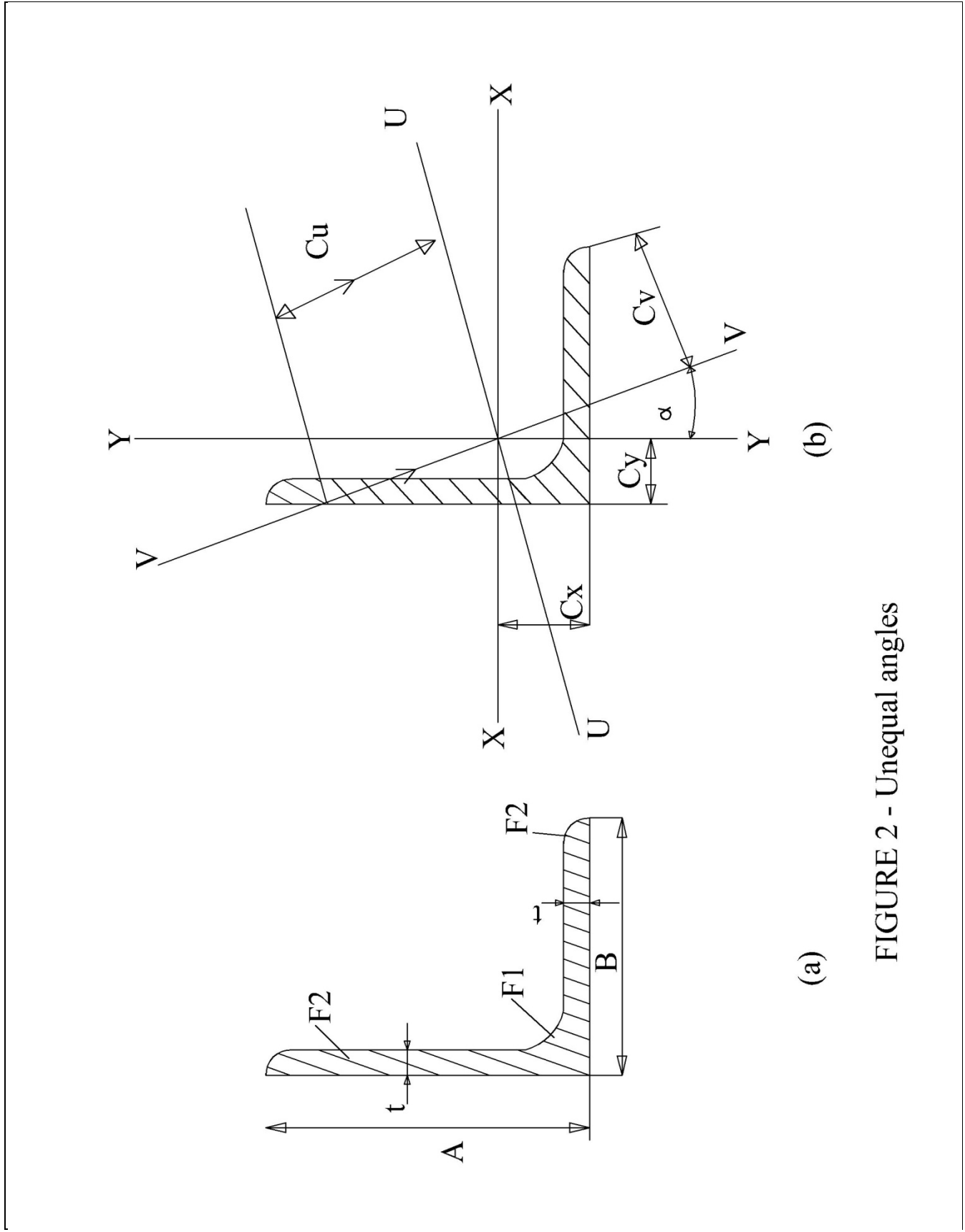
*r*<sub>1</sub> is the root radius, in millimeters;

*r*<sub>2</sub> is the toe radius, in millimeters; and equal to half the root radius (*r*<sub>1</sub>)

*A* is the leg length, in millimeters

Mass is calculated on the basis of density of 7.85 kg/dm<sup>3</sup>

\* shall be manufactured if there exists an agreement between the manufacturer and the purchaser.



(a)

(b)

FIGURE 2 - Unequal angles

Table 2 –Dimensional and sectional properties of Hot –rolled unequal angles

Designation  A x B x t	Mass	Sectional area	Dimensions				Distances of center of gravity				Sectional properties about axes								Inclina- tion of V-V axis tan $\alpha$		
	m	a	A	B	t	r <sub>1</sub>	C <sub>x</sub>	C <sub>y</sub>	C <sub>u</sub>	C <sub>v</sub>	X-X			Y-Y			U-U			V-V	
	kg/m	cm <sup>2</sup>	mm	mm	mm	mm	cm	cm	cm	cm	I <sub>x</sub>	r <sub>x</sub>	Z <sub>x</sub>	I <sub>y</sub>	r <sub>y</sub>	Z <sub>y</sub>	I <sub>u</sub>	r <sub>u</sub>		I <sub>v</sub>	r <sub>v</sub>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
30x20x3	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
30x20x4	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
40x20x4	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
40x25x4	1.93	2.46	40	25	4	4	1.036	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
45x30x5	2.76	3.52	45	30	5	4	1.52	0.779	3.04	1.58	6.98	1.41	2.35	2.47	0.837	1.11	8.00	1.51	1.45	0.641	0.429
50x30x4	2.41	3.07	50	30	4	5	1.68	0.701	3.36	1.67	7.71	1.59	2.33	2.09	0.825	0.907	8.53	1.67	1.27	0.644	0.356
50x30x5	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
50x40x5	3.36	4.28	50	40	5	5	1.55	1.06	3.49	1.85	10.3	1.55	3.00	5.85	1.17	1.99	13.2	1.75	3.03	0.842	0.621
60x30x5	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
60x30x6	3.98	5.07	60	30	6	5	2.21	0.723	3.85	1.76	18.2	1.90	4.81	3.05	0.776	1.34	19.3	1.95	2.01	0.630	0.253
60x40x5	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
60x40x6	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
60x50x6	4.93	6.28	60	50	6	6	1.84	1.34	4.20	2.22	21.7	1.86	5.22	13.7	1.47	3.73	28.5	2.13	6.84	1.04	0.677
60x50x8	6.44	8.20	60	50	8	6	1.91	1.42	4.18	2.24	27.7	1.84	6.77	17.3	1.45	8.84	36.2	2.10	8.81	1.04	0.672
65x50x5	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
65x50x6	5.16	6.58	65	50	5	6	1.99	1.29	4.52	2.39	27.2	2.03	6.10	14.0	1.46	3.77	33.8	2.27	7.43	1.06	0.575
65x50x8	6.75	8.60	65	50	8	6	2.11	1.37	4.49	2.39	34.8	2.01	7.39	17.7	1.44	4.89	43.0	2.33	9.57	1.05	0.569

**Table 2 –Dimensional and sectional properties of Hot –rolled unequal angles(continued)**

Designation  A x B x t	Mass	Sectional area	Dimensions				Distances of centre of gravity				Sectional properties about axes								Inclination of V-V axis tan $\alpha$		
	m	a	A	B	t	r <sub>1</sub>	C <sub>x</sub>	C <sub>y</sub>	C <sub>u</sub>	C <sub>v</sub>	X-X			Y-Y			U-U			V-V	
											I <sub>x</sub>	r <sub>x</sub>	Z <sub>x</sub>	I <sub>y</sub>	r <sub>y</sub>	Z <sub>y</sub>	I <sub>u</sub>	r <sub>u</sub>		I <sub>v</sub>	r <sub>v</sub>
kg/m	cm <sup>2</sup>	mm	mm	mm	mm	cm	cm	cm	cm	cm <sup>4</sup>	cm	cm <sup>3</sup>	cm <sup>4</sup>	cm	cm <sup>3</sup>	cm <sup>4</sup>	cm	cm	cm	cm	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
70x50x6	5.41	6.89	70	50	6	7	2.23	1.25	4.83	2.52	33.4	2.19	8.08	16.0	1.42	4.35	45.3	2.39	9.06	1.07	0.500
70x50x7	6.25	7.96	70	50	7	7	2.27	1.29	4.81	2.52	38.2	2.19	8.08	16.0	1.42	4.35	45.3	2.9	9.06	1.7	0.493
75x50x6	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
75x50x8	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
80x40x6	5.41	6.89	80	4	6	7	2.85	0.88	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
80x40x8	7.07	9.01	80	40	8	7	2.94	0.96	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
80x60x6	6.37	8.11	80	60	6	8	2.47	1.48	5.57	2.92	51.4	2.52	9.29	24.8	1.75	5.49	62.8	2.78	13.8	1.29	0.547
80x60x7	7.36	9.38	80	60	7	8	2.51	1.52	5.53	2.92	59.0	2.51	10.7	28.4	1.74	6.34	72.0	2.77	15.4	1.28	0.546
80x60x8	8.34	10.6	80	60	8	8	2.55	1.56	5.53	2.92	66.3	2.50	12.2	31.8	1.763	7.16	80.8	2.76	17.3	1.27	0.544
90x60x8	8.97	11.4	90	60	8	8	2.96	1.48	6.13	3.16	92.3	2.84	15.3	32.8	1.70	7.27	106	3.05	19.0	1.29	0.434
90x65x6	7.07	9.01	90	65	6	8	2.79	1.56	6.24	3.27	73.4	2.85	11.8	32.3	1.89	6.53	87.9	3.12	17.8	1.41	0.510
90x65x8	9.29	11.8	90	65	8	8	2.88	1.64	6.20	3.26	94.9	2.83	15.5	41.5	1.87	8.54	113	3.10	23.0	1.39	0.507
90x75x8	9.91	12.6	90	75	8	8	2.72	1.98	6.31	3.35	99.5	2.81	15.8	62.7	2.23	11.4	131	3.22	31.2	1.57	0.679
90x75x10	12.2	15.6	90	75	10	8	2.80	2.06	6.29	3.35	121	2.79	19.5	75.8	2.21	13.9	159	3.19	38.1	1.56	0.676
90x75x13	15.6	19.8	90	75	13	8	2.91	2.17	6.26	3.38	150	2.75	24.6	93.7	2.17	17.6	196	3.14	47.9	1.55	0.670
100x50x6	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
100x50x8	8.97	11.4	100	50	6	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
100x50x10	11.0	14.1	100	50	10	8	3.68	1.21	6.42	2.93	141	3.16	22.3	23.6	1.29	6.21	149	3.25	15.5	1.05	0.253

Table 2 –Dimensional and sectional properties of Hot –rolled unequal angles(continued)

Designation  A x B x t	Mass	Sectional area	Dimensions				Distances of centre of gravity				Sectional properties about axes								Inclinati on of V_V axis tan $\alpha$			
	m	a	A	B	t	r <sub>1</sub>	C <sub>x</sub>	C <sub>y</sub>	C <sub>u</sub>	C <sub>v</sub>	X-X			Y-Y			U-U			V-V		
	kg/m	cm <sup>2</sup>	mm	mm	mm	mm	cm	cm	cm	cm	I <sub>x</sub>	r <sub>x</sub>	Z <sub>x</sub>	I <sub>y</sub>	r <sub>y</sub>	Z <sub>y</sub>	I <sub>u</sub>	r <sub>u</sub>		I <sub>v</sub>	r <sub>v</sub>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
100x65x7	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	8.54	144	3.39	22.0	1.40	0.415	
100x65x8	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	0.415	
100x65x10	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	
100x75x8	10.6	13.5	100	75	10	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	
100x75x10	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	
100x75x12	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	
100x90x10	14.2	18.1	100	90	10	10	2.96	2.47	7.40	3.68	172	3.08	24.4	132	2.69	20.1	242	3.66	61.2	1.84	0.797	
100x90x13	18.1	23.1	100	90	13	10	3.08	2.59	7.03	3.71	215	3.05	31.0	164	2.66	25.5	301	3.61	77.1	1.83	0.794	
120x80x8	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	
120x80x10	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	46.6	1.74	0.437	
120x80x12	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	
125x75x8	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	
125x75x10	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	
125x75x12	17.8	22.7	125	75	12	11	4.31	1.81	8.33	4.15	354	3.95	43.2	95.5	2.05	16.9	391	4.15	58.5	1.61	0.354	
125x90x10	16.2	20.6	125	90	10	11	3.95	2.23	8.53	4.52	321	3.95	37.7	140	2.60	20.6	384	4.31	77.4	1.94	0.506	
125x90x13	20.7	26.4	125	90	13	11	4.08	2.81	8.58	4.52	404	3.91	48.0	175	2.57	26.2	481	4.27	97.4	1.92	0.501	
135x65x8	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	
135x65x10	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	
150x75x9	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	
150x75x10	17.0	21.7	150	75	10	12	5.31	1.61	9.79	4.48	501	4.81	46.7	77.9	1.99	13.1	483	4.96	50.2	1.60	0.261	
150x75x12	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	
150x75x15	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	

**Table 2 –Dimensional and sectional properties of Hot –rolled unequal angles(continued)**

Designation  A x B x t	Mass	Sectional area	Dimensions				Distances of center of gravity				Sectional properties about axes										Inclination of V-V axis tan α
											X-X			Y-Y			U-U		V-V		
	m	a	A	B	t	r <sub>1</sub>	C <sub>x</sub>	C <sub>y</sub>	C <sub>u</sub>	C <sub>v</sub>	I <sub>x</sub>	r <sub>x</sub>	Z	I <sub>y</sub>	r <sub>y</sub>	Z <sub>y</sub>	I <sub>u</sub>	r <sub>u</sub>	I <sub>v</sub>	r <sub>v</sub>	
kg/m	cm <sup>2</sup>	m	mm	mm	mm	cm	cm	cm	cm	cm <sup>4</sup>	cm	cm <sup>3</sup>	cm <sup>4</sup>	cm	cm <sup>3</sup>	cm <sup>4</sup>	cm <sup>4</sup>	cm <sup>4</sup>	cm.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
150x90x10	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
150x90x12	21.6	27.5	150	90	1	12	5.08	2.12	10.1	5.00	627	4.77	63.3	146	2.51	21.0	591	5.05	88.3	1.95	0.360
150x90x15	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
150x100x10	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
150x100x12	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
150x100x16	29.5	37.6	150	100	16	12	5.06	2.58	10.2	5.26	834	4.71	83.9	296	2.80	39.8	957	5.05	173	2.14	0.431
180x90x10	20.5	26.2	180	90	10	12	6.31	1.86	11.8	5.42	882	5.81	75.4	153	2.42	21.4	937	5.99	97.9	1.94	0.264
200x100x10	23.0	29.2	200	100	10	15	6.93	2.01	13.2	6.05	1220	6.46	93.2	210	2.68	26.3	1290	6.65	135	2.15	0.263
200x100x12	27.3	34.8	200	100	12	15	7.03	2.10	13.1	6.00	1440	6.43	111	247	2.67	31.3	1530	6.63	159	2.14	0.262
200x100x14	31.6	40.3	200	100	14	15	7.12	2.18	13.0	5.97	1654	6.41	128.4	282	2.65	36.1	1755	6.60	182	2.13	0.261
200x100x16	35.9	45.7	200	100	16	15	7.20	2.26	13.0	5.93	1861	6.38	145	316	2.63	40.8	1972	6.57	205.	2.12	0.259
200x150x12	32.0	40.8	200	150	12	15	6.08	3.61	13.9	7.34	1650	1.36	119	803	4.44	70.5	2030	7.04	430	3.25	0.552
200x150x15	39.6	50.5	200	150	15	15	6.21	3.73	13.9	7.33	2022	6.33	147	979	4.400	86.9	2476	7.00	526	3.23	0.551
200x150x20	52.0	66.2	200	150	20	15	6.41	3.93	13.8	7.34	2602	6.27	191	1252	4.35	113	3176	6.92	678	3.20	0.546
200x150x25	64.0	81.5	200	150	25	15	6.60	4.11	13.7	7.36	3139	6.21	234	1501	4.29	138	3816	6.84	825	3.18	0.541

**NOTE**

$$a = [t (A+B-t) + 0.2146 (r_1^2 - 2r_2^2)] \times 1/100$$

Where

a is the sectional area, in square centimetres;

t is the thickness, in millimeters;

r<sub>1</sub> is the root radius, in millimeters;

r<sub>2</sub> is the root radius, in millimeters; and equal to half the root radius (r<sub>1</sub>)

A is the toe radius, in millimeters.

Mass is calculated on the basis of density of steel of 7.85 kg/dm<sup>3</sup>



**Table 3** – Tolerance on leg length and thickness

*Dimensions in millimeters*

Leg Length		Tolerance on leg length ( $\Delta A$ or $\Delta B$ ) (3)	Tolerance on thickness ( $\Delta t$ ) (4)
Over (1)	Up to including (2)		
-	50	$\pm 1.0$	$\pm 0.5$
50	100	$\pm 1.5$	$\pm 0.8$
100	150	$\pm 2.0$	$\pm 1.0$
150	200	$\pm 3.0$	$\pm 1.2$

**NOTE:** For unequal angles the longer leg length shall be taken as the reference.

### 6.3.3 Tolerance on length

Sections ordered as ‘specified’ or as ‘exact’ lengths shall be supplied as follows:

- a) ‘Specified lengths’ when a section is to be cut to a specified length, it shall be cut to within  $\pm 25$  mm of that length. When a minimum length is specified, it shall be cut to within  $+50,-0$  mm of that minimum length.
- b) ‘Exact length’ when a section is to be cut to an exact length, it shall be cold drawn to within  $\pm 3.2$  mm of that length.

### 6.3.4 Tolerance on squariness ( $\Delta_{sq}$ )

The deviation shall be measured at the end of the leg as shown in figure 3

The leg shall be perpendicular to each other within a maximum deviation at the end as specified in Table 4.

**Table 4** – Tolerance on squariness ( $\Delta_{sq}$ )

*Dimensions in millimeters*

Leg length		Tolerance on squariness ( $\Delta_{sq}$ ) (3)
Over (1)	Up to and including (2)	
-	50	1.0
50	100	2.0
100	200	3.0

**NOTE:** For unequal the longer leg length shall be taken as the reference.

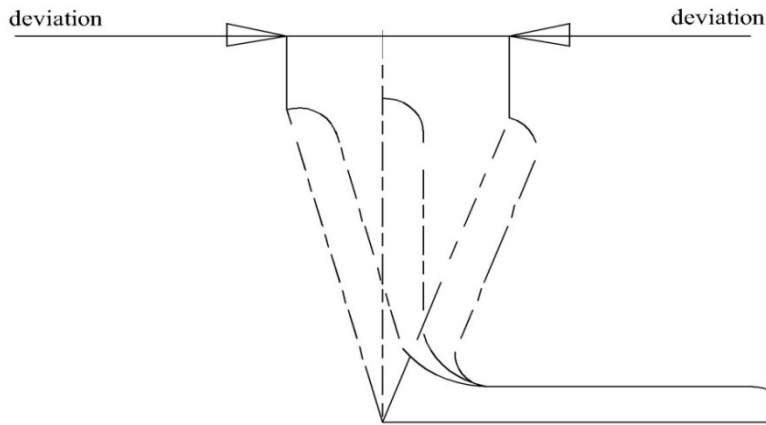


FIGURE 03 - Measurement of deviation

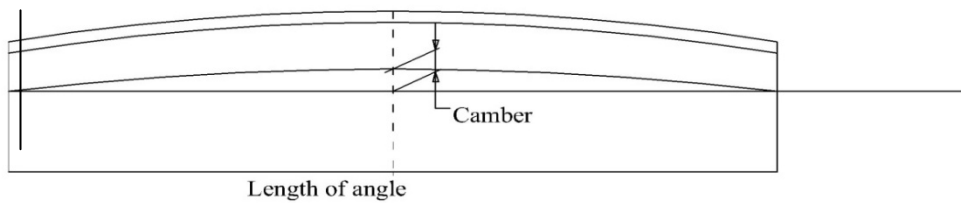


FIGURE 04 - Measurement of Camber

### 6.3.5 Tolerance on straightness ( $\Delta_{st}$ )

The camber shall be measured as shown in Figure 4.

The maximum permissible camber for equal and unequal angles shall be as specified in Table 5.

**Table 5** – Camber

*dimensions in millimeters*

Leg length		Tolerance on straightness in per cent ( $\Delta_{st}$ ) (3)
Over (1)	Up to and including (2)	
50	150	0.4 % of length
150	200	0.25 % of length

**NOTE:** For unequal angles the longer leg length shall be taken as the reference.

### **6.3.6 Tolerance on mass ( $\delta_m$ )**

The tolerance on mass shall be  $\pm 2.5$  per cent to the mass in the case of thicknesses of over 3 mm and  $\pm 5$  per cent in the case of sections of thickness of 3 mm and below.

### **6.4 Chemical Composition**

The chemical composition of hot rolled L sections shall be in accordance with clause **6.1** of **SLS 1006: Part 1: 2016**

### **6.5 Manufacture**

The manufacture of hot rolled L sections shall be in accordance with clause **6.2** of **SLS 1006: Part 1: 2016**

### **6.6 Mechanical properties**

The Mechanical properties hot rolled L sections shall be in accordance with clause **6.3** of **SLS 1006: Part 1: 2016**

### **6.7 Finish**

The finish of hot rolled L sections shall be in accordance with clause **6.4** of **SLS 1006: Part 1: 2016**

## **7 MARKING**

The L sections shall be securely bundled and durable, readable tie on tag attached with the following details.

1. Manufacturer's name or Trade Mark,
2. Steel grade and Size,
3. Heat number or Batch Number,
4. Quantity, and
5. Weight

## **8 METHOD OF TEST**

Test method of hot rolled L sections shall be in accordance with clause **8** of **SLS 1006 : Part 1:2016**

## **9 CERTIFICATE OF COMPLIANCE**

The certificate of compliance of hot rolled L sections shall be in accordance with clause **9** of **SLS 1006: Part 1: 2016**

**APENDIX A**

**Sampling and criteria for conformity**

The sampling for conformity of hot rolled L sections shall be in accordance with Appendix A of **SLS 1006 : Part 1 : 2016**

----- § -----

## **SLS CERTIFICATION MARK**

*The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI which includes surveillance inspection of the factory, testing of both factory and market samples.*

*Further particulars of the terms and conditions of the permit may be obtained from the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*



## SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science, Technology and Research.

The Principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote Standardization and quality control by educational, consultancy and research and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and Administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in return are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution Endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of Standardization as are of special interest to Sri Lanka.