SRI LANKA STANDARD 907 : PART 5 : 1990

UDC 669 . 14 . 018 - 41

SPECIFICATION FOR

DIMENSIONS AND SECTIONAL PROPERTIES OF HOT ROLLED STRUCTURAL STEEL SECTIONS

PART 5 - T SECTIONS (TEES)

SRI LANKA STANDARDS INSTITUTION

SPECIFICATION FOR DIMENSIONS AND SECTIONAL PROPERTIES OF HOT ROLLED STRUCTURAL STEEL SECTIONS

PART 5 T SECTIONS. (TEES)

SLS 907 : Part 5 : 1990

(Attached AMD 220)

Gr. 6

SRI LANKA STANDARDS INSTITUTION
53, Dharmapala Mawatha,
Colombo 3,
Sri Lanka.

DRAFTING COMMITTEE ON STEEL PRODUCTS

CONSTITUTION

CHAIRMAN	*REPRESENTING*
Prof. N.R. Arthenayake	Open University of Sri Lanka
MEMBERS	
Mr L.S. de Alwis	National Engineering Research and Development Centre
Mr P.A.G. de Alwis	St. Anthony's Industries Group
Mr N.N.I.R. Fernando	Ceylon Petroleum Corporation
Mr S. Prabhakar	Colombo Dockyard (Private) Limited
Mr D.K. Sarath Kumara	Ceylon Steel Corporation
Mr K. Sivananthan	Government Factory
Dr S.R. Tittagala	University of Moratuwa
Mr K. Wijesinghe	Sri Lanka Ports Authority

TECHNICAL SECRETARIAT

SRI LANKA STANDARDS INSTITUTION

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.

AMENDMENT No. 01 APPROVED ON 1996-10-17 TO SLS 907 : Part 5 : 1990

SRI LANKA STANDARD SPECIFICATION FOR DIMENSIONS AND SECTIONAL PROPERTIES OF HOT ROLLED STRUCTURAL STEEL SECTIONS
PART 5 - T SECTIONS (TEES)

PAGE 1 AND 3

Title of Standard

Delete the existing title of the standard and substitute the following:

'SPECIFICATION FOR HOT ROLLED STRUCTURAL STEEL SECTIONS
PART 5 – T SECTIONS (TEES)"

PAGE 4

Clause 1 Scope

Delete the contents and substitute the following:

"This standard specifies the requirements for chemical composition, manufacture, finish mechanical properties, dimensions, sectional properties, marking, testing and sampling of hot-rolled structural steel T sections".

PAGE 10

Clause 6.3.7 Tolerance on mass

Incorporate the following after this clause:

"6.4 Chemical composition

The chemical composition of hot rolled T sections shall be in accordance with **6.1** of **SLS 1006 : Part 1 : 1993.**

6.5 Manufacture

The manufacture of hot rolled T sections shall be in accordance with **6.2** of **SLS 1006 : Part 1 : 1993.**

6.6 Finish

The finish of hot rolled T sections shall be in accordance with **6.3** of **SLS 1006 : Part 1 : 1993.**

6.7 Mechanical Properties

The mechanical properties of hot rolled T sections shall be in accordance with **6.4** of **SLS 1006 : Part 1 : 1993"**

PAGE 10

Clause 7 MARKING

Incorporate the following after this clause:

"8 METHODS OF TEST

The methods of test of hot rolled T sections shall be in accordance with **8** of **SLS 1006 : Part 1 : 1993.**

9 CERTIFICATE OF COMPLIANCE

The certificate of compliance of hot rolled T sections shall be in accordance with **9** of **SLS 1006 : Part 1 : 1993.**

APPENDIX A

Sampling and criteria for conformity

The sampling and criteria for conformity of hot rolled T sections shall be in accordance with Appendix **A** of **SLS 1006 : Part 1 : 1993.**

SRI LANKA STANDARD

SPECIFICATION FOR DIMENSIONS AND SECTIONAL PROPERTIES OF HOT ROLLED STRUCTURAL STEEL SECTIONS

PART 5 T SECTIONS (TEES)

FOREWORD

This Standard was authorized for adoption and publication by the Council of the Sri Lanka Standard Institution on 90-12-12, after the draft, finalized by the Drafting Committee on Steel Products had been approved by the Mechanical Engineering Divisional Committee.

After formulation of the standard SLS 874 : 1989 Steel Products, in two parts (Part 1 Classification and definitions, Part 2 Identification markings), it has become necessary to present the contents of SLS 73 : 1969 on U sections, L sections and T sections together with other sections such as I,H and special sections not covered therein.

This standard is issued in six parts to meet that necessity and it supersedes SLS 73 : 1969.

The other parts of this standard are:

Part 1 I sections

Part 2 H sections

Part 3 U sections (channels)

Part 4 L sections (equal and unequal angles)

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 obtained from relevant publications of the International Organization for Standardization and the British Standards Institution is gratefully acknowledged.

1 SCOPE

This standard specifies the dimensions, tolerances and sectional properties of hot-rolled structural steel T sections.

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 Figure 1) :

3.1 Y-Y axis : A line parallel to the axis of the web of the section and passing through the centre of gravity of the profile of the section.

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

4 SYMBOLS

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

D		- Depth of section
B		- Width of flange
m		- Mass per unit length
a		- Sectional area
t_f		- Thickness of flange
t_w		- Thickness of web
r_1		- Root radius
r_2		- Toe radius
r_3		- Radius at bottom of web
I_x	)	
I_y	)	- Moments of inertia
r_x	)	
r_y	)	- Radii of gyration
z_x	)	
z_y	)	- Moduli of section
δ, Δ		- Tolerances

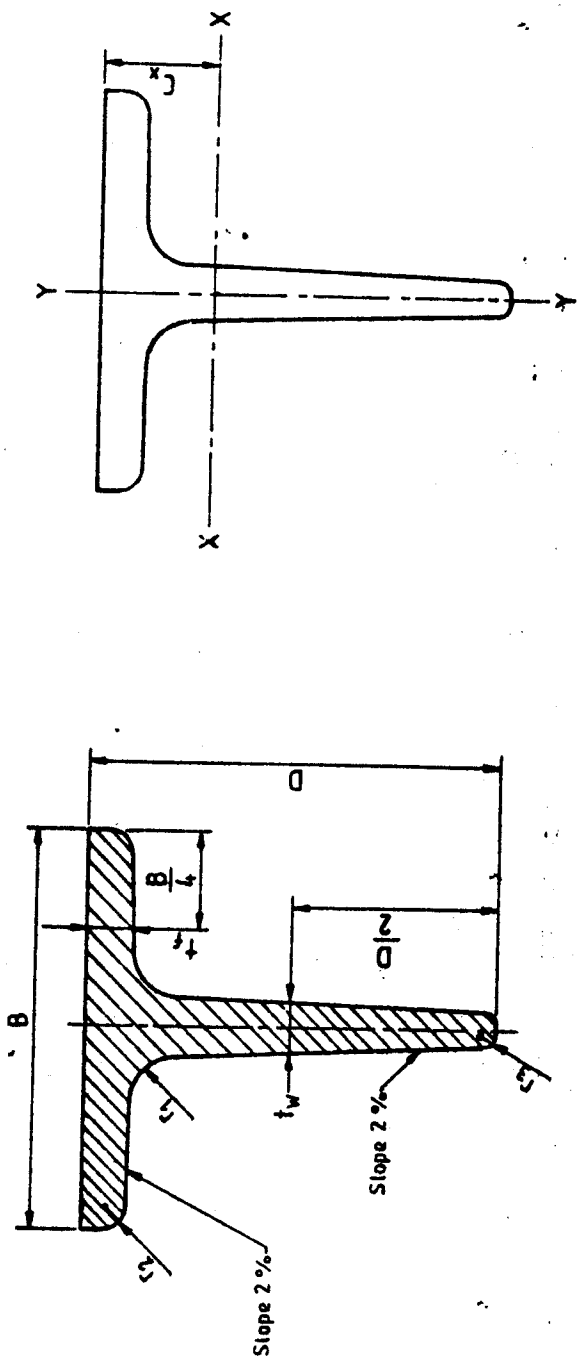

FIGURE 1 - Hot-rolled steel tee sections with equal depth and flange width

TABLE 1 - Hot-rolled steel tee sections with equal depth and flange width - Dimensions and sectional properties

Designation	Area of cross-section	Mass	Dimensions							Location of centre of gravity	Sectional properties about axes					
											X - X			Y - Y		
											Mom. Int.	Mod. of Sec.	Rad. of Gy.	Mom. Int.	Mod. of Sec.	Rad. of Gy.
D x B	a	m	D	B	t_f	t_w	r_1	r_2	r_3	C_x	I_x	Z_x	r_x	I_y	Z_y	r_y
	cm^2	kg/m	mm	mm	mm	mm	mm	mm	mm	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
T 20 x 20	1.12	0.88	20	20	3	3	3	1.5	1	0.58	0.38	0.27	0.58	0.20	0.20	0.42
T 25 x 25	1.64	1.29	25	25	3.5	3.5	3.5	2	1	0.73	0.87	0.49	0.73	0.43	0.34	0.51
T 30 x 30	2.26	1.77	30	30	4	4	4	2	1	0.85	1.72	0.80	0.87	0.87	0.58	0.62
T 35 x 35	2.97	2.33	35	35	4.5	4.5	4.5	2.5	1	0.99	3.10	1.23	1.04	1.57	0.90	0.73
T 40 x 40	3.77	2.96	40	40	5	5	5	2.5	1	1.12	5.26	1.84	1.18	2.58	1.29	0.83
T 45 x 45	4.67	3.67	45	45	5.5	5.5	5.5	3	1.5	1.26	8.13	2.51	1.32	4.01	1.78	0.93
T 50 x 50	5.66	4.44	50	50	6	6	6	3	1.5	1.39	12.1	3.36	1.46	6.06	2.42	1.03
T 60 x 60	7.94	6.23	60	60	7	7	7	3.5	2	1.66	23.8	5.48	1.73	12.2	4.07	1.24
T 70 x 70	10.6	8.32	70	70	8	8	8	4	2	1.94	44.5	8.79	2.05	22.1	6.32	1.44
T 75 x 75	11.6	9.08	75	75	8	8	8	4.5	2	2.14	60.5	11.3	2.29	28.1	7.49	1.56
T 80 x 80	13.6	10.7	80	80	9	9	9	4.5	2	2.22	73.7	12.8	2.33	37.0	9.25	1.65
T 90 x 90	17.1	13.4	90	90	10	10	10	5	2.5	2.48	119	18.2	2.64	58.5	13.0	1.85
T 100 x 100	20.9	16.4	100	100	11	11	11	5.5	3	2.74	179	24.6	2.92	88.3	17.7	2.05
T 120 x 120	29.6	23.2	120	120	13	13	13	6.5	3	3.28	366	42.0	3.51	178	29.7	2.45
T 140 x 140	39.9	31.3	140	140	15	15	15	7.5	4	3.80	360	64.7	4.07	330	47.2	2.38

5 DESIGNATION

Steel T sections shall be designated by the letter T followed by depth of section and width of flange as follows.

T DxB

Example :

T 20 x 20 (see Table 1)

6 REQUIREMENTS

6.1 Dimensions and sectional properties

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

6.2 Mass

The mass per metre values shall be as given in Table 1.

6.3 Tolerance

6.3.1 *Tolerance on depth (δ_D)*

The tolerance on depth shall be as given in Table 2.

TABLE 2 - Tolerance on depth

Dimensions in millimetres

Depth (D)		Tolerance on depth (δ_D)	
Over	Up to and including	Lower limit	Upper limit
(1)	(2)	(3)	(4)
-	60	-1.5	+2.0
60	100	-1.5	+2.5
100	-	-2.0	+3.0

6.3.2 *Tolerance on width of flange (δ_B)*

The tolerance on flange width shall be as given in Table 3.

TABLE 3 - Tolerance on width of flange

Dimensions in millimetres

Width (B)		Tolerance on width (δ_B) (3)
Over (1)	Up to and including (2)	
-	100	±2
100	-	±2%

6.3.3 *Tolerance on length (δ_l)*

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 ±25 mm of that length. When a minimum length is specified, it shall be cut to within +50, -0mm of that minimum length.

b) 'Exact length' When a section is to be cut to an 'exact' length, it shall be cold sawn to within ± 3.2 mm of that length.

6.3.4 *Tolerance on squareness of flange (δ_{sq})*

The flange shall be perpendicular to the web within a tolerance of one degree (1°).

6.3.5 *Camber*

Camber measured as shown in Figure 2 shall not exceed 0.20 per cent of the total length.

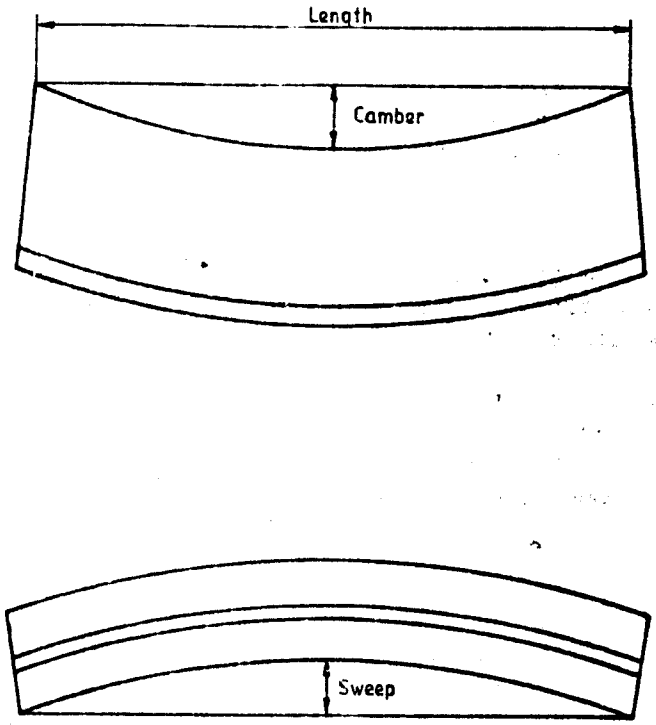

FIGURE 2 - Measurement of camber and sweep

6.3.6 *Sweep*

Sweep measured as shown in Figure 2 shall not exceed 0.20 per cent of the total length.

NOTE

Due to the greater flexibility of tees in comparison to columns about the Y-Y axis, sweep tolerance if necessary are subject to negotiation at the time of enquiry and order.

6.3.7 *Tolerance on mass* (δ_m)

The tolerance on mass shall be ± 2.5 per cent of the mass in the case of thicknesses of over 3 mm and ± 5 per cent in the case of sections of thickness of 3 mm.

7 MARKING

Markings of T-sections shall conform to SLS 874: Part 2.

Amendment No. 1 approved on 1996-10-17
to **SLS 907 : Part 5 : 1990**

Sri Lanka Standard
SPECIFICATION FOR DIMENSIONS AND SECTIONAL PROPERTIES OF HOT ROLLED STRUCTURAL STEEL SECTIONS
PART 5 - T SECTIONS (TEES)

PAGE 1 AND 3

Title of Standard

Delete the exsisting title of the standard and substitute the following:

"SPECIFICATION FOR HOT ROLLED STRUCTURAL STEEL SECTIONS
PART 5 - T SECTIONS (TEES)"

PAGE 4

Clause 1 Scope

Delete the contents and subsititute the following:

"This standard specifies the requirements for chemical composition, manufacture, finish, mechanical properties, dimensions, sectional properties, marking, testing and sampling of hot-rolled structural steel T sections".

PAGE 10

Clause 6.3.7 Tolerance on mass

Incorporate the following after this clause:

"6.4 Chemical composition

The chemical composition of hot rolled T sections shall be in accordance with **6.1** of **SLS 1006 : Part 1 : 1993**.

6.5 Manufacture

The manufacture of hot rolled T sections shall be in accordance with **6.2** of **SLS 1006 : Part 1 : 1993.**

6.6 Finish

The finish of hot rolled **T** sections shall be in accordance with **6.3** of **SLS 1006 : Part 1 : 1993.**

6.7 Mechanical Properties

The mechanical properties of hot rolled **T** sections shall be in accordance with **6.4** of **SLS 1006 : Part 1 : 1993".**

PAGE 10

Clause 7 MARKING

Incorporate the following after this clause:

" 8 METHODS OF TEST

The methods of test of hot rolled T sections shall be in accordance with **8** of **SLS 1006 : Part 1 : 1993.**

9 CERTIFICATE OF COMPLIANCE

The certificate of compliance of hot rolled T sectiions shall be in accordance with **9** of **SLS 1006 : Part 1 : 1993.**

APPENDIX A

Sampling and criteria for conformity

The sampling and criteria for conformity of hot rolled T sections shall be in accordance with Appendix A of **SLS 1006 : Part 1 : 1993**".

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.

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 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 turn 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.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.

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.*

Printed at SLSI (Printing Unit)