SRI LANKA STANDARD 949 : PART 5 : 1992

UDC 669 . 14 . 018 - 412

SPECIFICATION FOR

DIMENSIONS OF HOT ROLLED STEEL BARS FOR STRUCTURAL AND GENERAL ENGINEERING PURPOSES

PART 5 - FLATS

SRI LANKA STANDARDS INSTITUTION

SPECIFICATION FOR DIMENSIONS OF HOT ROLLED STEEL BARS FOR STRUCTURAL AND GENERAL ENGINEERING PURPOSES

PART 5 FLATS

SLS 949 : Part 5 : 1992

(Attached AMD 224)

Gr. 6

SRI LANKA STANDARDS INSTITUTION
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Colombo 3,
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.

AMENDMENT NO. 01 APPROVED ON 1996-10-17 TO SLS 949 : PART 5 : 1992

SRI LANKA STANDARD SPECIFICATION FOR DIMENSIONS OF HOT ROLLED STEEL BARS FOR STRUCTURAL AND GENERAL ENGINEERING PURPOSES
PART 5 : FLATS

PAGE 1 AND PAGE 3

Title of Standard

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

'SPECIFICATION FOR HOT ROLLED STEEL BARS FOR STRUCTURAL AND GENERAL ENGINEERING PURPOSES
PART 5 - FLATS

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, marking, testing and sampling of hot-rolled steel flats used for structural and general engineering purposes".

PAGE 10

Clause 6.3.7 Tolerance on twist

Incorporate the following after this clause.

"6.4 Chemical composition

The chemical composition of hot rolled steel flats shall be in accordance with **6.1** of **SLS 1006 : Part 1 : 1993** or **6.1** of **SLS 1006 : Part 2 : 1993** as applicable**.**

6.5 Manufacture

The manufacture of hot rolled steel flats shall be in accordance with **6.2** of **SLS 1006 : Part 1 : 1993** or **6.2** of **SLS 1006 : Part 2 : 1993** as applicable**.**

6.6 Finish

The finish of hot rolled steel flats shall be in accordance with **6.3** of **SLS 1006 : Part 1 : 1993** or **6.3** of **SLS 1006 : Part 2 : 1993** as applicable

6.7 Mechanical Properties

The mechanical properties of hot rolled steel flats shall be in accordance with **6.4** of **LS 1006 : Part 1 : 1993** or **6.4** of **SLS 1006 : Part 2 : 1993** as applicable

7 MARKING

The marking of hot rolled steel flats shall be in accordance with **7** of **SLS 1006 : Part 1 : 1993** or **7** of **SLS 1006 : Part 2 : 1993** as applicable

8 METHODS OF TEST

The methods of test of hot rolled steel flats shall be in accordance with **8** of **SLS 1006 : Part 1 : 1993** or **8** of **SLS 1006 : Part 2 : 1993** as applicable

9 CERTIFICATE OF COMPLIANCE

The certificate of compliance of hot rolled steel flats shall be in accordance with **9** of **SLS 1006 : Part 1 : 1993** or **9** of **SLS 1006 : Part 2 : 1993** as applicable

APPENDIX A

Sampling and criteria for conformity

The sampling and criteria for conformity of hot rolled steel flats shall be in accordance with Appendix **A** of **SLS 1006 : Part 1 : 1993** or Appendix **A** of **SLS 1006 : Part 2 : 1993** as applicable".

SRI LANKA STANDARD
SPECIFICATION FOR DIMENSIONS OF HOT ROLLED STEEL BARS FOR STRUCTURAL AND GENERAL ENGINEERING PURPOSES

PART 5 FLATS

FOREWORD

This standard was approved by the Sectoral Committee on Metal and Metal Products and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 92-01-20.

With the formulation of SLS 874 : 1989 Steel Products it became necessary to revise SLS 74 : 1969 Dimensions of round and square steel bars for structural and general engineering purposes and SLS 75 : 1969 Dimensions of steel flats for structural and general engineering purposes.

This standard is issued in five parts to meet that necessity and it supersedes SLS 74 : 1969 and SLS 75 : 1969.

The other parts of this standard are :

Part 1 Round bars
Part 2 Square bars
Part 3 Hexagonal bars
Part 4 Octagonal bars

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, the assistance derived from the following publications is gratefully acknowledged.

ISO	1035 : 1980 (E)		Hot rolled steel bars
		Part 3	Dimensions of flat bars
		Part 4	Tolerances
BS	4449 : 1988		Carbon steel bars for the reinforcement of concrete

1 SCOPE

This standard specifies dimensions and tolerances of hot rolled steel flats used for structural and general engineering purposes.

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 purpose of this standard the following definition shall apply:

flats : Finished product of rectangular cross-section, rolled on the fourfaces, thickness being not less than 5 mm and width not greater than 150 mm, the thickness should be greater than 1/10 of the width.

4 SYMBOLS

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

b = width of flat }
t = thickness of flat } (see Figure 1)

5 DESIGNATION

Steel flats shall be designated by the word 'flats' followed by the width and thickness of section in 'mm', as given below.

Flats b x t

EXAMPLE:

Flats 20 X 5 (see Table 1)

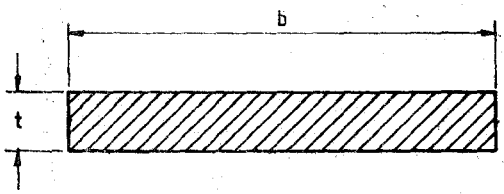

FIGURE 1 - Section of flat

6 REQUIREMENTS

6.1 Dimensions

Dimensions shall be as given in Table 1 (a) and Table 1 (b) (see Fig. 1)

6.2 Mass

The mass per metre length shall be as given in Table 1 (a) and Table 1 (b)

6.3 Tolerances

6.3.1 Tolerance on width

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

TABLE 1 (a) - Dimensions and mass per unit length (Preferred size)

Thickness (t) mm	5	6	8	10	12	15	20	25	30	40	50
Width (b) mm	Mass per unit length (kg/m)										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
20	0.78	0.94	1.26	1.57	-	-	-	-	-	-	-
25	0.98	1.18	1.57	1.96	2.36	-	-	-	-	-	-
30	1.18	1.41	1.88	2.36	2.83	3.53	4.71	-	-	-	-
35	1.37	1.65	2.20	2.75	3.30	4.12	5.50	-	-	-	-
40	1.57	1.88	2.51	3.14	3.77	4.71	6.28	-	-	-	-
45	1.77	2.12	2.83	3.53	4.24	5.30	7.07	-	-	-	-
50	1.96	2.36	3.14	3.93	4.71	5.89	7.85	9.8	11.8	-	-
60	2.36	2.83	3.77	4.71	5.65	7.07	9.42	11.8	14.1	-	-
70	2.75	3.30	4.40	5.50	6.59	8.24	11.0	13.7	16.5	-	-
80	3.14	3.77	5.02	6.28	7.54	9.42	12.6	15.7	18.8	25.1	-
90	3.53	4.24	5.65	7.07	8.48	10.6	14.1	17.7	21.2	28.3	-
100	3.93	4.71	6.28	7.85	9.42	11.8	15.7	19.6	23.6	31.4	-
120	-	5.65	7.54	9.42	11.30	14.1	18.8	23.6	28.3	37.7	47.1
150	-	7.07	9.42	11.80	14.10	17.7	23.6	29.4	35.3	47.1	58.9

NOTE

The values of mass are based on a density of steel of 7.85 kg/dm^3.

TABLE 1 (b) - Dimensions and mass per unit length (Second-preference size)

Thickness (t) mm	5	6	8	10	12	15	20	25	30	40	50
Width (b) mm	Mass per unit length (kg/m)										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
12	0.47	0.57	0.75	-	-	-	-	-	-	-	-
16	0.63	0.75	1.00	1.26	1.51	-	-	-	-	-	-
20	-	-	-	-	1.88	2.36	-	-	-	-	-
25	-	-	-	-	-	2.94	-	-	-	-	-
40	-	-	-		-	-	-	7.9	9.4	-	-
45	-	-	-	-	-	-	-	8.8	10.6	-	-
60	-	-	-	-	-	-	-	-	-	18.8	-
65	2.55	3.06	4.08	5.10	6.12	7.65	10.2	12.8	15.3	20.4	-
70	-	-	-	-	-	-	-	-	-	22.0	-
75	2.94	3.53	4.71	5.89	7.07	8.83	11.8	14.7	17.7	23.6	-
80	-	-	-	-	-	-	-	-	-	-	31.4
90	-	-	-	-	-	-	-	-	-	-	35.3
100	-	-	-	-	-	-	-	-	-	-	39.2
130	-	6.12	8.16	10.2	12.2	15.3	20.4	25.6	30.6	40.8	51.2
140	-	6.59	8.79	11.0	13.2	16.5	22.0	27.5	33.0	44.0	55.0

NOTES

1. *The values of mass are based on a density of steel of 7.85 kg/dm^3.*
2. *Table 1 (a) gives the preferred sizes of flats and Table 1 (b) gives the second preference sizes which should be ordered when it is not possible to use the sizes given in Table 1 (a).*

TABLE 2 - Tolerance on width

Nominal width (b)		Tolerances on width
Over	Up to and including	
mm	mm	mm
(1)	(2)	(3)
-	50	± 0.8
50	75	± 1.2
75	100	± 1.5
100	125	± 2.0
125	150	± 2.5

6.3.2 *Tolerance on thickness*

The tolerance on thickness shall be as given in Table 3.

TABLE 3 - Tolerance on thickness

Nominal thickness (t)		Tolerance on thickness for nominal width (b)	
Over	Up to and including	$b \leqslant 50$	$50 < b \leqslant 150$
mm	mm	mm	mm
(1)	(2)	(3)	(4)
-	20	± 0.4	± 0.5
20	40	± 0.8	± 1.0
40	-	-	± 1.5

6.3.3 *Tolerance on length*

Each bar shall be cut to a ± 25 mm of the length specified by the purchaser.

Where a minimum length is requested it shall be subject to a

tolerance of +50 mm.
-0

Where a maximum length is requested it shall be subject to a

tolerance of +0 mm.
-50

6.3.4 *Tolerance on mass*

The tolerance on mass shall be ± 4.0 per cent of the calculated mass given in Table 1 (a) and Table 1 (b).

6.3.5 *Tolerance on out-of-section*

The permissible out-of-section for all sizes of flats measured as the maximum difference in the distance across opposite flats of the same cross-section, shall be 75 per cent of the total tolerance specified on the nominal width or thickness as the case may be as given in Table 2 or 3.

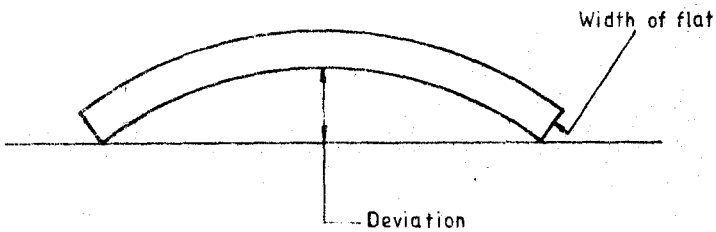

FIGURE 2 - Deviation from straightness

6.3.6 *Tolerance on straightness (see Figure 2)*

The tolerance on straightness shall be as given in Table 4.

TABLE 4 - Tolerance on straightness

Measurement over (1)	Tolerance on straightness (2)
Any one metre length	4.0 mm/m
The total length (l)	0.004 x (l)

6.3.7 *Tolerance on twist*

If twist tolerances are required by the purchaser, these shall be specified in the order. The method of measurement shall be agreed.

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.*

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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.

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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.

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