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HANDBOOK
FOR
STRUCTURAL ENGINEERS

1. STRUCTURAL STEEL SECTIONS
(Revised)

BUREAU OF INDIAN STANDARDS

STRUCTURAL ENGINEERS' HANDBOOK No. 1

(Revised)

SP : 6(1) - 1964

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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FOREWORD

Steel, which is a very important basic raw material for industrialization, had been receiving considerable attention from the Planning Commission even from the very early stages of the country's First Five Year Plan period. The Planning Commission not only envisaged an increase in production capacity in the country, but also considered the question of even greater importance, namely the taking of urgent measures for the conservation of available resources. Its expert committees came to the conclusion that a good proportion of the steel consumed by the structural steel industry in India could be saved if higher efficiency procedures were adopted in the production and use of steel. The Planning Commission, therefore, recommended to the Government of India that the Indian Standards Institution should take up a Steel Economy Project and prepare a series of Indian Standard Specifications and Codes of Practice in the field of steel production and utilization.

Over nine years of continuous study in India and abroad, and the deliberations at numerous sittings of committees, panels and study groups, have resulted in the formulation of a number of Indian Standards in the field of steel production, design and use, a list of which is included in Appendix A.

The published basic Indian Standards on hot rolled structural sections are :

IS : 808-1957 Specification for Rolled Steel Beam, Channel and Angle Sections

IS : 1161-1958 Specification for Steel Tubes for Structural Purposes

IS : 1173-1957 Specification for Rolled Steel Sections, Tee Bars

IS : 1252-1958 Specification for Rolled Steel Sections, Bulb Angles

IS : 1730-1961 Dimensions for Steel Plate, Sheet and Strip for Structural and General Engineering Purposes

IS : 1731-1961 Dimensions for Steel Flats for Structural and General Engineering Purposes

IS : 1732-1961 Dimensions for Round and Square Steel Bars for Structural and General Engineering Purposes

IS : 1863-1961 Dimensions for Rolled Steel Bulb Plates

IS : 1864-1963 Dimensions for Angle Sections with Legs of Unequal Width and Thickness

IS : 2314-1963 Specification for Steel Sheet Piling Sections

The design and fabrication of steel structures is covered by the following published basic Indian Standards:

IS : 800-1962 Code of Practice for Use of Structural Steel in General Building Construction (*Revised*)

IS : 801-1958 Code of Practice for Use of Cold Formed Light Gauge Steel Sections in Structures

IS : 806-1958 Code of Practice for Use of Steel Tubes in General Building Construction

IS : 816-1956 Code of Practice for Use of Metal Arc Welding for General Construction in Mild Steel

In order to reduce the work involved in design computations, and to facilitate the use of the Indian Standard Code of Practice for Use of Structural Steel in General Building Construction [IS : 800-1962 (*Revised*)], it is proposed to make available a number of design handbooks showing typical designs of different types of structures. This revised Handbook, which gives the properties of structural steel sections, was first issued in 1959. This is the first revision of the Handbook. Other handbooks for the structural engineers proposed to be published in the series in due course are expected to cover the following subjects :

1) Application of plastic theory in design of steel structures,
2) Designing and detailing welded joints and connections,
3) Design of rigid frame structures in steel,
4) Economy of steel through choice of fabrication methods,
5) Functions of good design in steel economy,
6) High strength bolting in steel structures,
7) Large span shed type buildings in steel,
8) Light-weight open web steel joist construction,
9) Multi-storey steel framed structures for offices and residences,
10) Roof trusses in steel,
11) Single-storey industrial and mill type buildings in steel,
12) Steel transmission towers,
13) Steelwork in cranes and hoists,
14) Structural use of light gauge sections, and
15) Structural use of tubular sections.

This Handbook is based on the following Indian Standards :

IS : 800-1956 Code of Practice for Use of Structural Steel in General Building Construction

IS : 808-1957 Specification for Rolled Steel Beam, Channel and Angle Sections

IS : 1136-1958 Preferred Sizes for Wrought Metal Products

IS : 1138-1958 Sizes of Metal Strip, Sheet, Bars (Round and Square), Flats and Plate (for Structural and General Engineering Purposes)

IS : 1173-1957 Specification for Rolled Steel Sections, Tee Bars

IS : 1252-1958 Specification for Rolled Steel Sections, Bulb Angles

IS : 1730-1961 Dimensions for Steel Plate, Sheet and Strip for Structural and General Engineering Purposes

IS : 1731-1961 Dimensions for Steel Flats for Structural and General Engineering Purposes

IS : 1732-1961 Dimensions for Round and Square Steel Bars for Structural and General Engineering Purposes

IS : 1929-1961 Specification for Rivets for General Purposes (12 to 48 mm Diameter)

The first edition of this Handbook, which had been processed by Structurals Sectional Committee, SMDC 6, was approved for publication by the Structural and Metals Division Council of ISI.

At the time of the earlier edition of the Handbook, the last four standards mentioned above had not been published. In the present revised edition, changes required in the light of the provisions in these standards have been incorporated in Tables VII, VIII, IX, X, XIX, XXIII, XXIX, XXX and XXXI with the approval of SMDC 6, the present composition of which is given in Appendix B.

In view of the decision of the Government of India to change over to the metric system, all values in this Handbook have been specified in the metric system.

No handbook of this type can be made complete for all times. As designers, detailers and fabricators begin to use it, they will be able to suggest modifications and additions for improving its utility. They are requested to send such valuable suggestions, which ISI will receive with appreciation and gratitude.

INTRODUCTION

Users of structural steel have now available to them various handbooks which facilitate designing, detailing and fabrication practices. These handbooks are based on the existing standards for hot-rolled steel products in inch system. With the formulation of Indian Standards for higher efficiency hot-rolled steel sections, listed in Appendix A, it was pointed out by the producers and users of steel in India that it was essential to make available a suitable handbook to guide the users of the new Indian Standards. This Handbook which was first published in 1959 is the result of an attempt to meet that demand.

The matter contained in the Handbook is arranged from the point of view of maximum convenience in using the Handbook in the design office. Broadly speaking, the contents have been grouped as follows:

Section A	Structural Shapes and Other Steel Products (Tables I-X);
Section B	Beams, Channels and Compound Sections Used as Girders (Tables XI-XXIII);
Section C	Angles, Single and Double, Used as Struts and Ties (Tables XXIV-XXXI); and
Section D	Beams, Channels and Other Compound Sections Used as Columns (Tables XXXII-XXXVIII).

The requirements laid down in IS : 800-1956 Code of Practice for Use of Structural Steel in General Building Construction, have been taken note of in working out the properties contained in this Handbook. References to the appropriate clauses of IS : 800-1956, with the help of which the properties have been worked out, have been included in suitable footnotes.

The rivet gauge distances given in Tables I, II and XXXI are computed in accordance with **25.2** and **25.4** of IS : 800-1956. In arriving at the various gauge distances, an attempt has been made to accommodate the largest possible size of rivet in every section. It will be noticed that in case of beams, the rivet gauges have been kept the same, in most cases, irrespective of the width of flange. This has been done to enable the use of multiple punches in fabricating shops, as it would enable the use of the same punch for a number of beam sections. In the case of beams and channels, the gauge distances in webs have been given only for guidance. The actual gauge distance in the web will depend on the type of end connections. It may be specially noted that the values of g_1, given in Tables I and II, are the minimum values.

The rivet gauge distances can be changed, depending upon the rivet size. This should, however, be done only with the specific understanding between the fabricator and the design office.

The allowable loads given in Tables XII and XIII are for beams and channels, used as girders. It is assumed here that the beams and channels have adequate lateral supports for the compression flange.

Note — Supports which give effective lateral restraint are adequate lateral supports. Restraint against torsion at the ends may generally be deemed to be provided by rigidity of the section in the case of rolled steel beams bearing on a seating or connected to another member by web cleats and by bearing stiffeners in the case of plate girders.

The mean thickness of flanges given in different tables has been arrived at based on the gross area of each flange. The gross area of each flange has been assumed to be equal to the area of additional plate plus the area of flange of the rolled section (width of flange × thickness of flange). In the case of Tables XV and XVI, where channels have been used for the top flange, only the web area of the channel is included in computing the gross area of the flange.

The present fabrication and design office practice in the country is to take the diameter of the rivet hole $\frac{1}{16}$ in. (or 1·6 mm) more than the normal diameter of rivet. The continental practice is to assume the diameter of the hole to be bigger than the nominal diameter of the rivet by 1 mm. In this Handbook, wherever the diameter of hole is considered; it is taken as 1 mm more than the nominal diameter of the rivet. It is expected that with improved methods of fabrication, it will be possible to achieve this in this country also.

SYMBOLS

Letter symbols used in this handbook shall have the meaning assigned to them as indicated below:

a = Sectional area in sq cm

b = Width of flange

A = The longer leg of an unequal angle or one of the legs in the case of an equal angle

B = The shorter leg of an unequal angle or one of the legs in the case of an equal angle

C_{xx} = The lesser of the two extreme fibre distances from the X-X axis

C_{yy} = The lesser of the two extreme fibre distances from the Y-Y axis

D = Slope of flange

D = The outstand of the bulb in the case of bulb angles

e_{xx} = Distance of extreme fibre from the X-X axis

e_{yy} = Distance of extreme fibre from the Y-Y axis

g = Rivet gauge distance in the flange

g_1 = Rivet gauge distance in the web

h = Overall depth of section

I_{uu} = Moment of inertia about the U-U axis

I_{vv} = Moment of inertia about the V-V axis

I_{xx} = Moment of inertia about the X-X axis

I_{xy} = Product of inertia about the X-X and Y-Y axes

I_{yy} = Moment of inertia about the Y-Y axis

M = Maximum allowable moment

r_1 = Radius at root of the flange

r_2 = Radius at toe of the flange

r_3 = Radius of bulb corners in the case of bulb angles

r_{uu} = Radius of gyration about the U-U axis

r_{vv} = Radius of gyration about the V-V axis

r_{xx} = Radius of gyration about the X-X axis

r_{yy} = Radius of gyration about the Y-Y axis

S = Maximum allowable shear in the web

t = Thickness of angles, plates, etc

t_c = Mean thickness of compression flange

t_f = Thickness of flange at the centre of of the outstand

t_t = Mean thickness of tension flange

t_w = Thickness of web

w = Calculated weight in kg per m (= 0·785 a)

Z_c = Modulus of section based on the distance of extreme fibre of the compression flange

Z_t = Modulus of section based on the distance of extreme fibre of the tension flange

Z_{xx} = Modulus of section about the X-X axis

Z_{yy} = Modulus of section about the Y-Y axis

Y-Y axis = A line parallel to the axis of the web of the section (in the case of beams, channels and tee bars) or parallel to the axis of the longer flange (in the case of unequal angles and bulb angles) or either flange (in the case of equal angles) and passing through the centre of gravity of the profile of the section

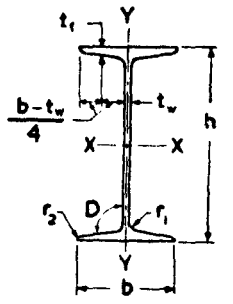
X-X axis = A line passing through the centre of gravity of the profile of the section, and at right angles to the Y-Y axis

U-U and V-V axes = Lines passing through the centre of gravity of the profile of the section, representing the principal axes of the section

SECTION A
STRUCTURAL SHAPES AND OTHER STEEL PRODUCTS
(TABLES I-X)

TABLE I ROLLED STEEL BEAMS

DIMENSIONS AND PROPERTIES



Designation	Weight per Metre	Sectional Area	Depth of Section	Width of Flange	Thickness of Flange	Thickness of Web	Moments of Inertia		Radii of Gyration	
	w	a	h	b	t_f	t_w	I_{xx}	I_{yy}	r_{xx}	r_{yy}
	kg	cm^2	mm	mm	mm	mm	cm^4	cm^4	cm	cm
ISJB 150	7·1	9·01	150	50	4·6	3·0	322·1	9·2	5·98	1·01
ISJB 175	8·1	10·28	175	50	4·8	3·2	479·3	9·7	6·83	0·97
ISJB 200	9·9	12·64	200	60	5·0	3·4	780·7	17·3	7·86	1·17
ISJB 225	12·8	16·28	225	80	5·0	3·7	1 308·5	40·5	8·97	1·58
ISLB 75	6·1	7·71	75	50	5·0	3·7	72·7	10·0	3·07	1·14
ISLB 100	8·0	10·21	100	50	6·4	4·0	168·0	12·7	4·06	1·12
ISLB 125	11·9	15·12	125	75	6·5	4·4	406·8	43·4	5·19	1·69
ISLB 150	14·2	18·08	150	80	6·8	4·8	688·2	55·2	6·17	1·75
ISLB 175	16·7	21·30	175	90	6·9	5·1	1 096·2	79·6	7·17	1·93
ISLB 200	19·8	25·27	200	100	7·3	5·4	1 696·6	115·4	8·19	2·13
ISLB 225	23·5	29·92	225	100	8·6	5·8	2 501·9	112·7	9·15	1·94
ISLB 250	27·9	35·53	250	125	8·2	6·1	3 717·8	193·4	10·23	2·33
ISLB 275	33·0	42·02	275	140	8·8	6·4	5 375·3	287·0	11·31	2·61
ISLB 300	37·7	48·08	300	150	9·4	6·7	7 332·9	376·2	12·35	2·80
ISLB 325	43·1	54·90	325	165	9·8	7·0	9 874·6	510·8	13·41	3·05
ISLB 350	49·5	63·01	350	165	11·4	7·4	13 158·3	631·9	14·45	3·17
ISLB 400	56·9	72·43	400	165	12·5	8·0	19 306·3	716·4	16·33	3·15
ISLB 450	65·3	83·14	450	170	13·4	8·6	27 536·1	853·0	18·20	3·20
ISLB 500	75·0	95·50	500	180	14·1	9·2	38 579·0	1 063·9	20·10	3·34
ISLB 550	86·3	109·97	550	190	15·0	9·9	53 161·6	1 335·1	21·99	3·48
ISLB 600	99·5	126·69	600	210	15·5	10·5	72 867·6	1 821·9	23·98	3·79
ISMB 100	11·5	14·60	100	75	7·2	4·0	257·5	40·8	4·20	1·67
ISMB 125	13·0	16·60	125	75	7·6	4·4	449·0	43·7	5·20	1·62
ISMB 150	14·9	19·00	150	80	7·6	4·8	726·4	52·6	6·18	1·66
ISMB 175	19·3	24·62	175	90	8·6	5·5	1 272·0	85·0	7·19	1·86
ISMB 200	25·4	32·33	200	100	10·8	5·7	2 235·4	150·0	8·32	2·15
ISMB 225	31·2	39·72	225	110	11·8	6·5	3 441·8	218·3	9·31	2·34
ISMB 250	37·3	47·55	250	125	12·5	6·9	5 131·6	334·5	10·39	2·65
ISMB 300	44·2	56·26	300	140	12·4	7·5	8 603·6	453·9	12·37	2·84
ISMB 350	52·4	66·71	350	140	14·2	8·1	13 630·3	537·7	14·29	2·84
ISMB 400	61·6	78·46	400	140	16·0	8·9	20 458·4	622·1	16·15	2·82
ISMB 450	72·4	92·27	450	150	17·4	9·4	30 390·8	834·0	18·15	3·01
ISMB 500	86·9	110·74	500	180	17·2	10·2	45 218·3	1 369·8	20·21	3·52

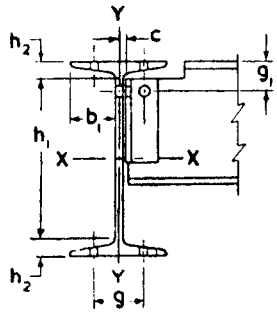


TABLE I ROLLED STEEL BEAMS

DIMENSIONS AND PROPERTIES

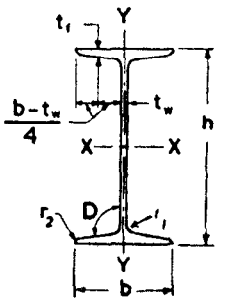
Moduli of Section		Radius at Root	Radius at Toe	Slope of Flange	Connection Details						Maximum Size of Flange Rivet	Designation
Z_{xx}	Z_{yy}	r_1	r_2	D	h_1	h_2	b_1	C	g	g_1 (*Min*)		
cm^3	cm^3	mm	mm	degrees	mm	mm	mm	mm	mm	mm	mm	
42·9	3·7	5·0	1·5	91·5	130·4	9·80	23·50	3·00	30	45	6	**ISJB 150**
54·8	3·9	5·0	1·5	91·5	155·0	10·00	23·40	3·10	30	45	6	**ISJB 175**
78·1	5·8	5·0	1·5	91·5	179·5	10·25	28·38	3·20	30	45	6	**ISJB 200**
116·3	10·1	6·5	1·5	91·5	201·1	11·95	38·15	3·35	40	45	12	**ISJB 225**
19·4	4·0	6·5	2·0	91·5	51·7	11·65	23·15	3·35	30	—	6	**ISLB 75**
33·6	5·1	7·0	3·0	91·5	73·0	13·50	23·00	3·50	30	50	6	**ISLB 100**
65·1	11·6	8·0	3·0	91·5	95·4	14·80	35·30	3·70	35	50	12	**ISLB 125**
91·8	13·8	9·5	3·0	91·5	116·9	16·55	37·60	3·90	40	50	12	**ISLB 150**
125·3	17·7	9·5	3·0	91·5	141·6	16·70	42·45	4·05	50	50	12	**ISLB 175**
169·7	23·1	9·5	3·0	91·5	165·7	17·15	47·30	4·20	55	50	16	**ISLB 200**
222·4	22·5	12·0	6·0	98	180·3	22·35	47·10	4·45	55	55	16	**ISLB 225**
297·4	30·9	13·0	6·5	98	202·6	23·70	59·45	4·55	65	60	22	**ISLB 250**
392·4	41·0	14·0	7·0	98	223·7	25·65	66·80	4·70	80	60	22	**ISLB 275**
488·9	50·2	15·0	7·5	98	245·1	27·45	71·65	4·85	90	60	22	**ISLB 300**
607·7	61·9	16·0	8·0	98	266·5	29·25	79·00	5·00	100	65	25	**ISLB 325**
751·9	76·6	16·0	8·0	98	288·3	30·85	78·80	5·20	100	65	25	**ISLB 350**
965·3	86·8	16·0	8·0	98	336·2	31·90	78·50	5·50	100	65	25	**ISLB 400**
1 223·8	100·4	16·0	8·0	98	384·0	33·00	80·70	5·80	100	70	25	**ISLB 450**
1 543·2	118·2	17·0	8·5	98	430·2	34·90	85·40	6·10	100	70	28	**ISLB 500**
1 933·2	140·5	18·0	9·0	98	476·1	36·95	90·05	6·45	100	70	32	**ISLB 550**
2 428·9	173·5	20·0	10·0	98	520·2	39·90	99·75	6·75	140, 100	75	25, 32	**ISLB 600**
51·5	10·9	9·0	4·5	98	65 0	17·50	35·50	3·50	35	55	12	**ISMB 100**
71·8	11·7	9·0	4·5	98	89·2	17·90	35·30	3·70	35	55	12	**ISMB 125**
96·9	13·1	9·0	4·5	98	113·9	18·05	37·60	3·90	40	55	12	**ISMB 150**
145·4	18·9	10·0	5·0	98	134·5	20·25	42·25	4·25	50	55	12	**ISMB 175**
223·5	30·0	11·0	5·5	98	152·7	23·65	47·15	4·35	55	60	16	**ISMB 200**
305·9	39·7	12·0	6·0	98	173·3	25·85	51·75	4·75	60	60	20	**ISMB 225**
410·5	53·5	13·0	6·5	98	194·1	27·95	59·05	4·95	65	65	22	**ISMB 250**
573·6	64·8	14·0	7·0	98	241·5	29·25	66·25	5·25	80	65	22	**ISMB 300**
778·9	76·8	14·0	7·0	98	288·0	31·00	65·95	5·55	80	65	22	**ISMB 350**
1 022·9	88·9	14·0	7·0	98	334·4	32·80	65·55	5·95	80	70	22	**ISMB 400**
1 350·7	111·2	15·0	7·5	98	379·2	35·40	70·30	6·20	90	70	22	**ISMB 450**
1 808·7	152·2	17·0	8·5	98	424·1	37·95	84·90	6·60	100	75	28	**ISMB 500**

(Continued)

TABLE I ROLLED STEEL BEAMS

DIMENSIONS AND PROPERTIES

(Continued)



Designation	Weight per Metre	Sectional Area	Depth of Section	Width of Flange	Thickness of Flange	Thickness of Web	Moments of Inertia		Radii of Gyration	
	w	a	h	b	t_f	t_w	I_{xx}	I_{yy}	r_{xx}	r_{yy}
	kg	cm^2	mm	mm	mm	mm	cm^4	cm^4	cm	cm
ISMB 550	103·7	132·11	550	190	19·3	11·2	64 893·6	1 833·8	22·16	3·73
ISMB 600	122·6	156·21	600	210	20·8	12·0	91 813·0	2 651·0	24·24	4·12
ISWB 150	17·0	21·67	150	100	7·0	5·4	839·1	94·8	6·22	2·09
ISWB 175	22·1	28·11	175	125	7·4	5·8	1 509·4	188·6	7·33	2·59
ISWB 200	28·8	36·71	200	140	9·0	6·1	2 624·5	328·8	8·46	2·99
ISWB 225	33·9	43·24	225	150	9·9	6·4	3 920·5	448·6	9·52	3·22
ISWB 250	40·9	52·05	250	200	9·0	6·7	5 943·1	857·5	10·69	4·06
ISWB 300	48·1	61·33	300	200	10·0	7·4	9 821·6	990·1	12·66	4·02
ISWB 350	56·9	72·50	350	200	11·4	8·0	15 521·7	1 175·9	14·63	4·03
ISWB 400	66·7	85·01	400	200	13·0	8·6	23 426·7	1 388·0	16·60	4·04
ISWB 450	79·4	101·15	450	200	15·4	9·2	35 057·6	1 706·7	18·63	4·11
ISWB 500	95·2	121·22	500	250	14·7	9·9	52 290·9	2 987·8	20·77	4·96
ISWB 550	112·5	143·34	550	250	17·6	10·5	74 906·1	3 740·6	22·86	5·11
ISWB 600	133·7	170·38	600	250	21·3	11·2	106 198·5	4 702·5	24·97	5·25
ISWB 600	145·1	184·86	600	250	23·6	11·8	115 626·6	5 298·3	25·01	5·35
ISHB 150	27·1	34·48	150	150	9·0	5·4	1 455·6	431·7	6·50	3·54
ISHB 150	30·6	38·98	150	150	9·0	8·4	1 540·0	460·3	6·29	3·44
ISHB 150	34·6	44·08	150	150	9·0	11·8	1 635·6	494·9	6·09	3·35
ISHB 200	37·3	47·54	200	200	9·0	6·1	3 608·4	967·1	8·71	4·51
ISHB 200	40·0	50·94	200	200	9·0	7·8	3 721·8	994·6	8·55	4·42
ISHB 225	43·1	54·94	225	225	9·1	6·5	5 279·5	1 353·8	9·80	4·96
ISHB 225	46·8	59·66	225	225	9·1	8·6	5 478·8	1 396·6	9·58	4·84
ISHB 250	51·0	64·96	250	250	9·7	6·9	7 736·5	1 961·3	10·91	5·49
ISHB 250	54·7	69·71	250	250	9·7	8·8	7 983·9	2 011·7	10·70	5·37
ISHB 300	58·8	74·85	300	250	10·6	7·6	12 545·2	2 193·6	12·95	5·41
ISHB 300	63·0	80·25	300	250	10·6	9·4	12 950·2	2 246 7	12·70	5·29
ISHB 350	67·4	85·91	350	250	11·6	8·3	19 159·7	2 451·4	14·93	5·34
ISHB 350	72·4	92·21	350	250	11·6	10·1	19 802·8	2 510·5	14·65	5·22
ISHB 400	77·4	98·66	400	250	12·7	9·1	28 083·5	2 728·3	16·87	5·26
ISHB 400	82·2	104·66	400	250	12·7	10·6	28 823·5	2 783·0	16·61	5·16
ISHB 450	87·2	111·14	450	250	13·7	9·8	39 210·8	2 985·2	18·78	5·18
ISHB 450	92·5	117·89	450	250	13·7	11·3	40 349·9	3 045·0	18·50	5·08

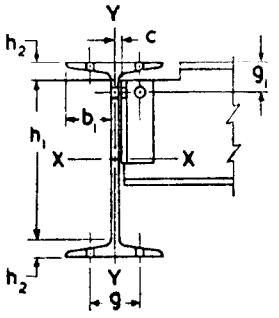


TABLE I ROLLED STEEL BEAMS

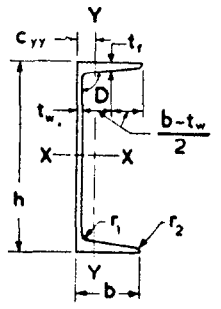
DIMENSIONS AND PROPERTIES

(Continued)

Moduli of Section		Radius at Root	Radius at Toe	Slope of Flange	Connection Details						Maximum Size of Flange Rivet	Designation
Z_{xx}	Z_{yy}	r_1	r_2	D	h_1	h_2	b_1	C	g	g_1 (*Min*)		
cm³	cm³	mm	mm	degrees	mm	mm	mm	mm	mm	mm	mm	
2 359·8	193·0	18·0	9·0	98	467·5	41·25	89·40	7·10	100	75	32	**ISMB 550**
3 060·4	252·5	20·0	10·0	98	509·7	45·15	99·00	7·50	140, 100	80	25, 32	**ISMB 600**
111·9	19·0	8·0	4·0	96	116·6	16·70	47·30	4·20	55	55	16	**ISWB 150**
172·5	30·2	8·0	4·0	96	139·5	17·75	59·60	4·40	65	55	22	**ISWB 175**
262·5	47·0	9·0	4·5	96	158·8	20·60	66·95	4·55	80	55	22	**ISWB 200**
348·5	59·8	9·0	4·5	96	181·4	21·80	71·80	4·70	90	55	22	**ISWB 225**
475·4	85·7	10·0	5·0	96	203·8	23·10	96·65	4·85	140, 100	60	22, 32	**ISWB 250**
654·8	99·0	11·0	5·5	96	250·1	24·95	96·30	5·20	140, 100	60	22, 32	**ISWB 300**
887·0	117·6	12·0	6·0	96	295·5	27·25	96·00	5·50	140, 100	60	22, 32	**ISWB 350**
1 171·3	138·8	13·0	6·5	96	340·5	29·75	95·70	5·80	140, 100	65	22, 32	**ISWB 400**
1 558·1	170·7	14·0	7·0	96	384·0	33·00	95·40	6·10	140, 100	70	22, 32	**ISWB 450**
2 091·6	239·0	15·0	7·5	96	431·0	34·50	120·05	6·45	140	70	32	**ISWB 500**
2 723·9	299·2	16·0	8·0	96	473·4	38·30	119·75	6·75	140	75	32	**ISWB 550**
3 540·0	376·2	17·0	8·5	96	514·2	42·90	119·40	7·10	140	80	32	**ISWB 600**
3 854·2	423·9	18·0	9·0	96	507·9	46·05	119·10	7·40	140	80	32	**ISWB 600**
194·1	57·6	8·0	4·0	94	112·0	19·0	72·30	4·20	90	55	22	**ISHB 150**
205·3	60·2	8·0	4·0	94	112·0	19·0	70·80	5·70	90	55	22	**ISHB 150**
218·1	63·2	8·0	4·0	94	112·0	19·0	69·10	7·40	90	55	22	**ISHB 150**
360·8	96·7	9·0	4·5	94	158·4	20·8	96·95	4·55	140, 100	55	22, 32	**ISHB 200**
372·2	98·6	9·0	4·5	94	158·4	20·8	96·10	5·40	140, 100	55	22, 32	**ISHB 200**
469·3	120·3	10·0	5·0	94	180·5	22·2	109·25	4·75	140	55	28	**ISHB 225**
487·0	123·0	10·0	5·0	94	180·5	22·2	108·20	5·80	140	55	28	**ISHB 225**
618·9	156·9	10·0	5·0	94	203·5	23·2	121·55	4·95	140	60	32	**ISHB 250**
638·7	159·7	10·0	5·0	94	203·5	23·2	120·60	5·90	140	60	32	**ISHB 250**
836·3	175·5	11·0	5·5	94	249·8	25·1	121·20	5·30	140	60	32	**ISHB 300**
863·3	178·4	11·0	5·5	94	249·8	25·1	120·30	6·20	140	60	32	**ISHB 300**
1 094·8	196·1	12·0	6·0	94	296·0	27·0	120·85	5·65	140	60	32	**ISHB 350**
1 131·6	199·4	12·0	6·0	94	296·0	27·0	119·95	6·55	140	60	32	**ISHB 350**
1 404·2	218·3	14·0	7·0	94	340·1	29·9	120·45	6·05	140	65	32	**ISHB 400**
1 444·2	221·3	14·0	7·0	94	340·1	29·9	119·70	6·80	140	65	32	**ISHB 400**
1 742·7	238·8	15·0	7·5	94	386·2	31·9	120·10	6·40	140	65	32	**ISHB 450**
1 793·3	242·1	15·0	7·5	94	386·2	31·9	119·35	7·15	140	65	32	**ISHB 450**

TABLE II ROLLED STEEL CHANNELS

DIMENSIONS AND PROPERTIES



Designation	Weight per Metre	Sectional Area	Depth of Section	Width of Flange	Thickness of Flange	Thickness of Web	Centre of Gravity	Moments of Inertia		Radii of Gyration	
	w	a	h	b	t_f	t_w	C_{yy}	I_{xx}	I_{yy}	r_{xx}	r_{yy}
	kg	cm^2	mm	mm	mm	mm	cm	cm^4	cm^4	cm	cm
ISJC 100	5·8	7·41	100	45	5·1	3·0	1·40	123·8	14·9	4·09	1·42
ISJC 125	7·9	10·07	125	50	6·6	3·0	1·64	270·0	25·7	5·18	1·60
ISJC 150	9·9	12·65	150	55	6·9	3·6	1·66	471·1	37·9	6·10	1·73
ISJC 175	11·2	14·24	175	60	6·9	3·6	1·75	719·9	50·5	7·11	1·88
ISJC 200	13·9	17·77	200	70	7·1	4·1	1·97	1 161·2	84·2	8·08	2·18
ISLC 75	5·7	7·26	75	40	6·0	3·7	1·35	66·1	11·5	3·02	1·26
ISLC 100	7·9	10·02	100	50	6·4	4·0	1·62	164·7	24·8	4·06	1·57
ISLC 125	10·7	13·67	125	65	6·6	4·4	2·04	356·8	57·2	5·11	2·05
ISLC 150	14·4	18·36	150	75	7·8	4·8	2·38	697·2	103·2	6·16	2·37
ISLC 175	17·6	22·40	175	75	9·5	5·1	2·40	1 148·4	126·5	7·16	2·38
ISLC 200	20·6	26·22	200	75	10·8	5·5	2·35	1 725·5	146·9	8·11	2·37
ISLC 225	24·0	30·53	225	90	10·2	5·8	2·46	2 547·9	209·5	9·14	2·62
ISLC 250	28·0	35·65	250	100	10·7	6·1	2·70	3 687·9	298·4	10·17	2·89
ISLC 300	33·1	42·11	300	100	11·6	6·7	2·55	6 047·9	346·0	11·98	2·87
ISLC 350	38·8	49·47	350	100	12·5	7·4	2·41	9·312·6	394·6	13·72	2·82
ISLC 400	45·7	58·25	400	100	14·0	8·0	2·36	13 989·5	460·4	15·50	2·81
ISMC 75	6·8	8·67	75	40	7·3	4·4	1·31	76·0	12·6	2·96	1·21
ISMC 100	9·2	11·70	100	50	7·5	4·7	1·53	186·7	25·9	4·00	1·49
ISMC 125	12·7	16·19	125	65	8·1	5·0	1·94	416·4	59·9	5·07	1·92
ISMC 150	16·4	20·88	150	75	9·0	5·4	2·22	779·4	102·3	6·11	2·21
ISMC 175	19·1	24·38	175	75	10·2	5·7	2·20	1 223·3	121·0	7·08	2·23
ISMC 200	22·1	28·21	200	75	11·4	6·1	2·17	1 819·3	140·4	8·03	2·23
ISMC 225	25·9	33·01	225	80	12·4	6·4	2·30	2 694·6	187·2	9·03	2·38
ISMC 250	30·4	38·67	250	80	14·1	7·1	2·30	3 816·8	219·1	9·94	2·38
ISMC 300	35·8	45·64	300	90	13·6	7·6	2·36	6 362·6	310·8	11·81	2·61
ISMC 350	42·1	53·66	350	100	13·5	8·1	2·44	10 008·0	430·6	13·66	2·83
ISMC 400	49·4	62·93	400	100	15·3	8·6	2·42	15 082·8	504·8	15·48	2·83

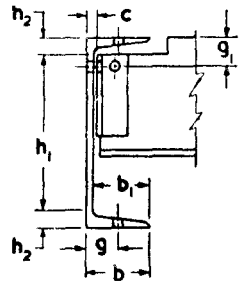


TABLE II ROLLED STEEL CHANNELS

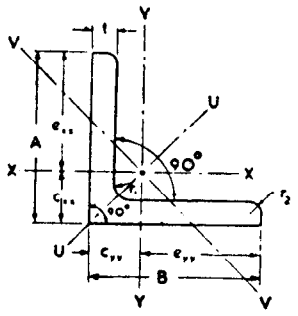
DIMENSIONS AND PROPERTIES

Moduli of Section		Radius at Root	Radius at Toe	Slope of Flange	Connection Details						Maximum Size of Flange Rivet	Designation
Z_{xx}	Z_{yy}	r_1	r_2	D	h_1	h_2	$b_1/2$	C	g	g_1 (*Min*)		
cm^3	cm^3	mm	mm	degrees	mm	mm	mm	mm	mm	mm	mm	
24·8	4·8	6·0	2·0	91·5	77·0	11·5	21·0	4·5	25	50	12	**ISJC 100**
43·2	7·6	6·0	2·5	91·5	98·9	13·1	23·5	4·5	28	50	16	**ISJC 125**
62·8	9·9	7·0	3·0	91·5	121·2	14·4	25·7	5·1	30	50	20	**ISJC 150**
82·3	11·9	7·0	3·0	91·5	146·1	14·5	28·2	5·1	35	50	20	**ISJC 175**
116·1	16·7	8·0	3·5	91·5	168·5	15·8	33·0	5·6	40	50	22	**ISJC 200**
17·6	4·3	6·0	2·0	91·5	50·4	12·3	18·2	5·2	21	—	12	**ISLC 75**
32·9	7·3	6·0	2·0	91·5	74·3	12·8	23·0	5·5	28	50	16	**ISLC 100**
57·1	12·8	7·0	2·5	91·5	96·6	14·2	30·3	5·9	35	50	22	**ISLC 125**
93·0	20·2	8·0	3·5	91·5	117·0	16·5	35·1	6·3	40	50	25	**ISLC 150**
131·3	24·8	8·0	4·0	91·5	138·6	18·2	35·0	6·6	40	55	25	**ISLC 157**
172·6	28·5	8·5	4·5	91·5	160·0	20·0	34·8	7·0	40	55	25	**ISLC 200**
226·5	32·0	11·0	5·5	96	175·9	24·5	42·1	7·3	50	60	28	**ISLC 225**
295·0	40·9	11·0	5·5	96	198·9	25·5	47·0	7·6	60	60	28	**ISLC 250**
403·2	46·4	12·0	6·0	96	245·4	27·3	46·7	8·2	60	60	28	**ISLC 300**
532·1	52·0	13·0	6·0	96	291·9	29·1	46·3	8·9	60	65	28	**ISLC 350**
699·5	60·2	14·0	7·0	96	337·1	31·4	46·0	9·5	60	65	28	**ISLC 400**
20·3	4·7	8·5	4·5	96	41·4	16·8	17·8	5·9	21	—	12	**ISMC 75**
37·3	7·5	9·0	4·5	96	64·0	18·0	22·7	6·2	28	50	16	**ISMC 100**
66·6	13·1	9·5	5·0	96	85·4	19·8	30·0	6·5	35	55	22	**ISMC 125**
103·9	19·4	10·0	5·0	96	106·7	21·7	34·8	6·9	40	55	25	**ISMC 150**
139·8	22·8	10·5	5·5	96	128·4	23·3	34·7	7·2	40	55	25	**ISMC 175**
181·9	26·3	11·0	5·5	96	150·2	24·9	34·5	7·6	40	60	25	**ISMC 200**
239·5	32·8	12·0	6·0	96	170·9	27·1	36·8	7·9	45	60	25	**ISMC 225**
305·3	38·4	12·0	6·0	96	192·5	28·7	36·5	8·6	45	65	25	**ISMC 250**
424·2	46·8	13·0	6·5	96	240·7	29·6	41·2	9·1	50	65	28	**ISMC 300**
571·9	57·0	14·0	7·0	96	288·1	30·9	46·0	9·6	60	65	28	**ISMC 350**
754·1	66·6	15·0	7·5	96	332·8	33·6	45·7	10·1	60	70	28	**ISMC 400**

Note — Values of 'g' are meant for one row of rivets only. In sufficiently wide flanges, if two rows are desirable, different gauges will have to be adopted.

TABLE III ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES



Designation	Size	Thickness	Sectional Area	Weight per Metre	Centre of Gravity	Distance of Extreme Fibre
	$A \times B$	t	a	w	$C_{xx}=C_{yy}$	$e_{xx}=e_{yy}$
	mm mm	mm	cm²	kg	cm	cm
ISA 2020	20×20	3·0	1·12	0·9	0·59	1·41
		4·0	1·45	1·1	0·63	1·37
ISA 2525	25×25	3·0	1·41	1·1	0·71	1·79
		4·0	1·84	1·4	0·75	1·75
		5·0	2·25	1·8	0·79	1·71
ISA 3030	30×30	3·0	1·73	1·4	0·83	2·17
		4·0	2·26	1·8	0·87	2·13
		5·0	2·77	2·2	0·92	2·08
ISA 3535	35×35	3·0	2·03	1·6	0·95	2·55
		4·0	2·66	2·1	1·00	2·50
		5·0	3·27	2·6	1·04	2·46
		6·0	3·86	3·0	1·08	2·42
ISA 4040	40×40	3·0	2·34	1·8	1·08	2·92
		4·0	3·07	2·4	1·12	2·88
		5·0	3·78	3·0	1·16	2·84
		6·0	4·47	3·5	1·20	2·80
ISA 4545	45×45	3·0	2·64	2·1	1·20	3·30
		4·0	3·47	2·7	1·25	3·25
		5·0	4·28	3·4	1·29	3·21
		6·0	5·07	4·0	1·33	3·17
ISA 5050	50×50	3·0	2·95	2·3	1·32	3·68
		4·0	3·88	3·0	1·37	3·63
		5·0	4·79	3·8	1·41	3·59
		6·0	5·68	4·5	1·45	3·55
ISA 5555	55×55	5·0	5·27	4·1	1·53	3·97
		6·0	6·26	4·9	1·57	3·93
		8·0	8·18	6·4	1·65	3·85
		10·0	10·02	7·9	1·72	3·78
ISA 6060	60×60	5·0	5·75	4·5	1·65	4·35
		6·0	6·84	5·4	1·69	4·31
		8·0	8·96	7·0	1·77	4·23
		10·0	11·00	8·6	1·85	4·15
ISA 6565	65×65	5·0	6·25	4·9	1·77	4·73
		6·0	7·44	5·8	1·81	4·69
		8·0	9·76	7·7	1·89	4·61
		10·0	12·00	9·4	1·97	4·53

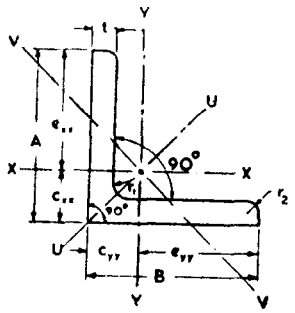


TABLE III ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES

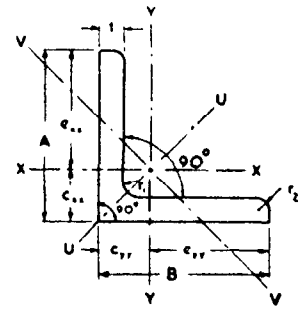
Moments of Inertia			Radii of Gyration			Modulus of Section	Radius at Root	Radius at Toe	Product of Inertia	Designation
$I_{xx}=I_{yy}$	I_{uu}	I_{vv}	$r_{xx}=r_{yy}$	r_{uu}	r_{vv}	$Z_{xx}=Z_{yy}$	r_1	r_2	I_{xy}	
cm⁴	cm⁴	cm⁴	cm	cm	cm	cm³	mm	mm	cm⁴	
0·4	0·6	0·2	0·58	0·73	0·37	0·3	4·0	2·5	0·2	**ISA 2020**
0·5	0·8	0·2	0·58	0·72	0·37	0·4			0·3	
0·8	1·2	0·3	0·73	0·93	0·47	0·4	4·5	3·0	0·4	**ISA 2525**
1·0	1·6	0·4	0·73	0·91	0·47	0·6			0·6	
1·2	1·8	0·5	0·72	0·91	0·47	0·7			0·7	
1·4	2·2	0·6	0·89	1·13	0·57	0·6	5·0	3·0	0·8	**ISA 3030**
1·8	2·8	0·7	0·89	1·12	0·57	0·8			1·0	
2·1	3·4	0·9	0·88	1·11	0·57	1·0			1·2	
2·3	3·6	0·9	1·05	1·33	0·67	0·9	5·0	3·0	1·3	**ISA 3535**
2·9	4·7	1·2	1·05	1·32	0·67	1·2			1·7	
3·5	5·6	1·5	1·04	1·31	0·67	1·4			2·1	
4·1	6·5	1·7	1·03	1·29	0·67	1·7			2·4	
3·4	5·5	1·4	1·21	1·54	0·77	1·2	5·5	3·0	2·0	**ISA 4040**
4·5	7·1	1·8	1·21	1·53	0·77	1·6			2·6	
5·4	8·6	2·2	1·20	1·51	0·77	1·9			3·2	
6·3	10·0	2·6	1·19	1·50	0·77	2·3			3·7	
5·0	8·0	2·0	1·38	1·74	0·87	1·5	5·5	3·0	2·9	**ISA 4545**
6·5	10·4	2·6	1·37	1·73	0·87	2·0			3·8	
7·9	12·6	3·2	1·36	1·72	0·87	2·5			4·6	
9·2	14·6	3·8	1·35	1·70	0·87	2·9			5·4	
6·9	11·1	2·8	1·53	1·94	0·97	1·9	6·0	3·0	4·1	**ISA 5050**
9·1	14·5	3·6	1·53	1·93	0·97	2·5			5·3	
11·0	17·6	4·5	1·52	1·92	0·97	3·1			6·5	
12·9	20·6	5·3	1·51	1·90	0·96	3·6			7·6	
14·7	23·5	5·9	1·67	2·11	1·06	3·7	6·5	4·0	8·6	**ISA 5555**
17·3	27·5	7·0	1·66	2·10	1·06	4·4			10·1	
22·0	34·9	9·1	1·64	2·07	1·06	5·7			12·8	
26·3	41·5	11·2	1·62	2·03	1·06	7·0			15·1	
19·2	30·6	7·7	1·82	2·31	1·16	4·4	6·5	4·5	11·3	**ISA 6060**
22·6	36·0	9·1	1·82	2·29	1·15	5·2			13·3	
29·0	46·0	11·9	1·80	2·27	1·15	6·8			16·9	
34·8	54·9	14·6	1·78	2·23	1·15	8·4			20·1	
24·7	39·4	9·9	1·99	2·51	1·26	5·2	6·5	4·5	14·5	**ISA 6565**
29·1	46·5	11·7	1·98	2·50	1·26	6·2			17·2	
37·4	59·5	15·3	1·96	2·47	1·25	8·1			22·0	
45·0	71·3	18·8	1·94	2·44	1·25	9·9			26·2	

(Continued)

TABLE III ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES

(Continued)



Designation	Size	Thickness	Sectional Area	Weight per Metre	Centre of Gravity	Distance of Extreme Fibre
	$A \times B$	t	a	w	$C_{xx}=C_{yy}$	$e_{xx}=e_{yy}$
	mm mm	mm	cm^2	kg	cm	cm
ISA 7070	70×70	5·0	6·77	5·3	1·89	5·11
		6·0	8·06	6·3	1·94	5·06
		8·0	10·58	8·3	2·02	4·98
		10·0	13·02	10·2	2·10	4·90
ISA 7575	75×75	5·0	7·27	5·7	2·02	5·48
		6·0	8·66	6·8	2·06	5·44
		8·0	11·38	8·9	2·14	5·36
		10·0	14·02	11·0	2·22	5·28
ISA 8080	80×80	6·0	9·29	7·3	2·18	5·82
		8·0	12·21	9·6	2·27	5·73
		10·0	15·05	11·8	2·34	5·66
		12·0	17·81	14·0	2·42	5·58
ISA 9090	90×90	6·0	10·47	8·2	2·42	6·58
		8·0	13·79	10·8	2·51	6·49
		10·0	17·03	13·4	2·59	6·41
		12·0	20·19	15·8	2·66	6·34
ISA 100100	100×100	6·0	11·67	9·2	2·67	7·33
		8·0	15·39	12·1	2·76	7·24
		10·0	19·03	14·9	2·84	7·16
		12·0	22·59	17·7	2·92	7·08
ISA 110110	110×110	8·0	17·02	13·4	3·00	8·00
		10·0	21·06	16·5	3·08	7·92
		12·0	25·02	19·6	3·16	7·84
		15·0	30·81	24·2	3·27	7·73
ISA 130130	130×130	8·0	20·22	15·9	3·50	9·50
		10·0	25·06	19·7	3·58	9·42
		12·0	29·82	23·4	3·66	9·34
		15·0	36·81	28·9	3·78	9·22
ISA 150150	150×150	10·0	29·03	22·8	4·06	10·94
		12·0	34·59	27·2	4·14	10·86
		15·0	42·78	33·6	4·26	10·74
		18·0	50·79	39·9	4·38	10·62
ISA 200200	200×200	12·0	46·61	36·6	5·36	14·64
		15·0	57·80	45·4	5·49	14·51
		18·0	68·81	54·0	5·61	14·39
		25·0	93·80	73·6	5·88	14·12

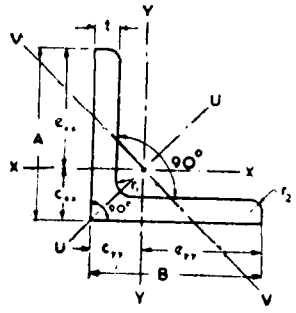


TABLE III ROLLED STEEL EQUAL ANGLES

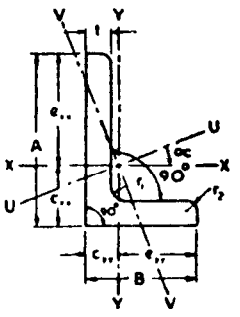
DIMENSIONS AND PROPERTIES

(Continued)

Moments of Inertia			Radii of Gyration			Modulus of Section	Radius at Root	Radius at Toe	Product of Inertia	Designation
$I_{xx}=I_{yy}$	I_{uu}	I_{vv}	$r_{xx}=r_{yy}$	r_{uu}	r_{vv}	$Z_{xx}=Z_{yy}$	r_1	r_2	I_{xy}	
cm⁴	cm⁴	cm⁴	cm	cm	cm	cm³	mm	mm	cm⁴	
31·1	49·8	12·5	2·15	2·71	1·36	6·1	7·0	4·5	18·4	**ISA 7070**
36·8	58·8	14·8	2·14	2·70	1·36	7·3			21·7	
47·4	75·5	19·3	2·12	2·67	1·35	9·5			27·9	
57·2	90·7	23·7	2·10	2·64	1·35	11·7			33·3	
38·7	61·9	15·5	2·31	2·92	1·46	7·1	7·0	4·5	22·8	**ISA 7575**
45·7	73·1	18·4	2·30	2 91	1·46	8·4			27·0	
59·0	94·1	24·0	2·28	2·88	1·45	11·0			34·8	
71·4	113·3	29·4	2·26	2·84	1·45	13·5			41·7	
56·0	89 6	22·5	2·46	3·11	1·56	9·6	8·0	4·5	33·0	**ISA 8080**
72·5	115·6	29·4	2·44	3·08	1·55	12·6			42·7	
87·7	139·5	36·0	2·41	3·04	1·55	15·5			51·4	
101·9	161·4	42·4	2·39	3·01	1·54	18·3			59·2	
80·1	128 1	32·0	2·77	3·50	1·75	12·2	8·5	5·5	47·2	**ISA 9090**
104·2	166·4	42·0	2·75	3·47	1·75	16·0			61·5	
126·7	201·9	51·6	2·73	3·44	1·74	19·8			74·5	
147·9	234·9	60·9	2·71	3·41	1·74	23·3			86·5	
111·3	178·1	44·5	3·09	3·91	1·95	15·2	8·5	5·5	65·7	**ISA 100100**
145·1	231·8	58·4	3·07	3·88	1·95	20·0			85·8	
177·0	282·2	71·8	3·05	3·85	1·94	24·7			104·4	
207·0	329·3	84·7	3·03	3·82	1·94	29·2			121·6	
195·0	311·7	78·2	3·38	4·28	2·14	24·4	10·0	6·0	115·1	**ISA 110110**
238·4	380·5	96·3	3·36	4·25	2·14	30·1			140·6	
279·6	445·3	113·8	3·34	4·22	2·13	35·7			164·5	
337·4	535·4	139·3	3·31	4·17	2·13	43·7			197·0	
328·3	525·1	131·4	4·03	5·10	2·55	34·5	10·0	6·0	194·2	**ISA 130130**
402·7	643·4	162·1	4·01	5·07	2·54	42·7			238·3	
473·8	755·9	191·8	3·99	5·03	2·54	50·7			279·9	
574·6	914·2	235·0	3·95	4·98	2·53	62·3			337·8	
622·4	995·4	249·4	4·63	5·86	2·93	56·9	12·0	8·0	368·2	**ISA 150150**
735·4	1 174·8	296·0	4·61	5·83	2·93	67·7			435·0	
896·8	1 429·7	363·8	4·58	5·78	2·92	83·5			529·1	
1 048·9	1 668·2	429·5	4·54	5·73	2·91	98·7			616·0	
1 788·9	2 862·0	715·9	6·20	7·84	3·92	122·2	15·0	10·0	1 058·9	**ISA 200200**
2 197·7	3 511·8	883·7	6·17	7·79	3·91	151·4			1 301·2	
2 588·7	4 130·8	1 046·5	6·13	7·75	3·90	179·9			1 530·5	
3 436·3	5 460·9	1 411·6	6·05	7·63	3·88	243·3			2 015·7	

TABLE IV ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES



Designation	Size	Thickness	Sectional Area	Weight per Metre	Centre of Gravity		Distance of Extreme Fibre		Moments of Inertia			
	A×B	t	a	w	C_{xx}	C_{yy}	e_{xx}	e_{yy}	I_{xx}	I_{yy}	I_{uu}	I_{vv}
	mm mm	mm	cm²	kg	cm	cm	cm	cm	cm⁴	cm⁴	cm⁴	cm⁴
ISA 3020	30×20	3·0	1·41	1·1	0·98	0·49	2·02	1·51	1·2	0·4	1·4	0·2
		4·0	1·84	1·4	1·02	0·53	1·98	1·47	1·5	0·5	1·8	0·3
		5·0	2·25	1·8	1·06	0·57	1·94	1·43	1·9	0·6	2·1	0·4
ISA 4025	40×25	3·0	1·88	1·5	1·30	0·57	2·70	1·93	3·0	0·9	3·3	0·5
		4·0	2·46	1·9	1·35	0·62	2·65	1·88	3·8	1·1	4·3	0·7
		5·0	3·02	2·4	1·39	0·66	2·61	1·84	4·6	1·4	5·1	0·8
		6·0	3·56	2·8	1·43	0·69	2·57	1·81	5·4	1·6	5·9	1·0
ISA 4530	45×30	3·0	2·18	1·7	1·42	0·69	3·08	2·31	4·4	1·5	5·0	0·9
		4·0	2·86	2·2	1·47	0·73	3·03	2·27	5·7	2·0	6·5	1·1
		5·0	3·52	2·8	1·51	0·77	2·99	2·23	6·9	2·4	7·9	1·4
		6·0	4·16	3·3	1·55	0·81	2·95	2·19	8·0	2·8	9·2	1·7
ISA 5030	50×30	3·0	2·34	1·8	1·63	0·65	3·37	2·35	5·9	1·6	6·5	1·0
		4·0	3·07	2·4	1·68	0·70	3·33	2·30	7·7	2·1	8·5	1·2
		5·0	3·78	3·0	1·72	0·74	3·28	2·26	9·3	2·5	10·3	1·5
		6·0	4·47	3·5	1·76	0·78	3·24	2·22	10·9	2·9	11·9	1·8
ISA 6040	60×40	5·0	4·76	3·7	1·95	0·96	4·05	3·04	16·9	6·0	19·5	3·4
		6·0	5·65	4·4	1·99	1·00	4·01	3·00	19·9	7·0	22·8	4·0
		8·0	7·37	5·8	2·07	1·08	3·93	2·92	25·4	8·0	29·0	5·2
ISA 6545	65×45	5·0	5·26	4·1	2·07	1·08	4·43	3·42	22·1	8·6	25·9	4·8
		6·0	6·25	4·9	2·11	1·12	4·39	3·38	26·0	10·1	30·4	5·7
		8·0	8·17	6·4	2·19	1·20	4·31	3·30	33·2	12·8	38·7	7·4
ISA 7045	70×45	5·0	5·52	4·3	2·27	1·04	4·73	3·46	27·2	8·8	30·9	5·1
		6·0	6·56	5·2	2·32	1·09	4·68	3·41	32·0	10·3	36·3	6·0
		8·0	8·58	6·7	2·40	1·16	4·60	3·34	41·0	13·1	46·3	7·8
		10·0	10·52	8·3	2·48	1·24	4·52	3·26	49·3	15·6	55·4	9·5
ISA 7550	75×50	5·0	6·02	4·7	2·39	1·16	5·11	3·84	34·1	12·2	39·4	6·9
		6·0	7·16	5·6	2·44	1·20	5·06	3·80	40·3	14·3	46·4	8·2
		8·0	9·38	7·4	2·52	1·28	4·98	3·72	51·8	18·3	59·4	10·6
		10·0	11·52	9·0	2·60	1·36	4·90	3·64	62·3	21·8	71·2	12·9
ISA 8050	80×50	5·0	6·27	4·9	2·60	1·12	5·40	3·88	40·6	12·3	45·7	7·2
		6·0	7·46	5·9	2·64	1·16	5·36	3·84	48·0	14·4	53·9	8·5
		8·0	9·78	7·7	2·73	1·24	5·27	3·76	61·9	18·5	69·3	11·0
		10·0	12·02	9·4	2·81	1·32	5·19	3·68	74·7	22·1	83·3	13·5

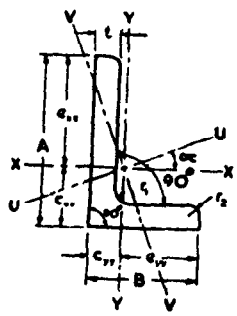


TABLE IV ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Radii of Gyration				Moduli of Section		tan α	Radius at Root	Radius at Toe	Product of Inertia	Designation
r_{xx}	r_{yy}	r_{uu}	r_{vv}	Z_{xx}	Z_{yy}		r_1	r_2	I_{xy}	
cm	cm	cm	cm	cm^3	cm^3		mm	mm	cm^4	
0·92	0·54	0·99	0·41	0·6	0·3	0·43	4·5	3·0	0·4	**ISA 3020**
0·92	0·54	0·98	0·41	0·8	0·4	0·42			0·5	
0·91	0·53	0·97	0·41	1·0	0·4	0·41			0·6	
1·25	0·68	1·33	0·52	1·1	0·5	0·38	5·0	3·0	0·9	**ISA 4025**
1·25	0·68	1·32	0·52	1·4	0·6	0·38			1·2	
1·24	0·67	1·31	0·52	1·8	0·7	0·37			1·4	
1·23	0·66	1·29	0·52	2·1	0·9	0·37			1·6	
1·42	0·84	1·52	0·63	1·4	0·7	0·44	5·0	3·0	1·5	**ISA 4530**
1·41	0·84	1·51	0·63	1·9	0·9	0·43			1·9	
1·40	0·83	1·50	0·63	2·3	1·1	0·43			2·3	
1·39	0·82	1·49	0·63	2·7	1·3	0·42			2·7	
1·59	0·82	1·67	0·65	1·7	0·7	0·36	5·5	3·0	1·7	**ISA 5030**
1·58	0·82	1·66	0·63	2·3	0·9	0·36			2·3	
1·57	0·81	1·65	0·63	2·8	1·1	0·35			2·7	
1·56	0·80	1·64	0·63	3·4	1·3	0·35			3·1	
1·89	1·12	2·02	0·85	4·2	2·0	0·44	6·0	4·0	5·8	**ISA 6040**
1·88	1·11	2·01	0·85	5·0	2·3	0·43			6·8	
1·86	1·10	1·98	0·84	6·5	3·0	0·42			8·5	
2·05	1·28	2·22	0·96	5·0	2·5	0·47	6·0	4·0	8·0	**ISA 6545**
2·04	1·27	2·21	0·95	5·9	3·0	0·47			9·4	
2·02	1·25	2·18	0·95	7·7	3·9	0·46			11·8	
2·22	1·26	2·36	0·96	5·7	2·5	0·41	6·5	4·0	8·9	**ISA 7045**
2·21	1·25	2·35	0·96	6·8	3·0	0·41			10·5	
2·19	1·24	2·32	0·95	8·9	3·9	0·40			13·2	
2·16	1·22	2·29	0·95	10·9	4·8	0·39			15·5	
2·38	1·42	2·56	1·07	6·7	3·2	0·44	6·5	4·0	11·8	**ISA 7550**
2·37	1·41	2·55	1·07	8·0	3·8	0·44			13·9	
2·35	1·40	2·52	1·06	10·4	4·9	0·43			17·7	
2·33	1·38	2·49	1·06	12·7	6·0	0·42			20·9	
2·55	1·40	2·70	1·07	7·5	3·2	0·39	7·0	4·5	12·9	**ISA 8050**
2·54	1·39	2·69	1·07	9·0	3·8	0·39			15·2	
2·52	1·37	2·66	1·06	11·7	4·9	0·38			19·3	
2·49	1·36	2·63	1·06	14·4	6·0	0·38			22·9	

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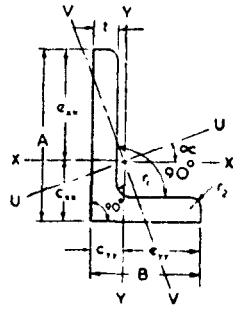
TABLE IV ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

(Continued)



Designation	Size	Thickness	Sectional Area	Weight per Metre	Centre of Gravity		Distance of Extreme Fibre		Moments of Inertia			
	$A \times B$	t	a	w	C_{xx}	C_{yy}	e_{xx}	e_{yy}	I_{xx}	I_{yy}	I_{uu}	I_{vv}
	mm mm	mm	cm^2	kg	cm	cm	cm	cm	cm^4	cm^4	cm^4	cm^4
ISA 9060	90×60	6·0	8·65	6·8	2·87	1·39	6·13	4·61	70·6	25·2	81·5	14·3
		8·0	11·37	8·9	2·96	1·48	6·04	4·52	91·5	32·4	105·3	18·6
		10·0	14·01	11·0	3·04	1·55	5·96	4·45	110·9	39·1	127·3	22·8
		12·0	16·57	13·0	3·12	1·63	5·88	4·37	129·1	45·2	147·5	26·8
ISA 10065	100×65	6·0	9·55	7·5	3·19	1·47	6·81	5·03	96·7	32·4	110·6	18·6
		8·0	12·57	9·9	3·28	1·55	6·72	4·93	125·9	41·9	143·6	24·2
		10·0	15·51	12·2	3·37	1·63	6·63	4·87	153·2	50·7	174·2	29·7
ISA 10075	100×75	6·0	10·14	8·0	3·01	1·78	6·99	5·72	100·9	48·7	124·0	25·6
		8·0	13·36	10·5	3·10	1·87	6·90	5·63	131·6	63·3	161·3	33·6
		10·0	16·50	13·0	3·19	1·95	6·81	5·55	160·4	76·9	196·1	41·2
		12·0	19·56	15·4	3·27	2·03	6·73	5·47	187·5	89·5	228·4	48·6
ISA 12575	125×75	6·0	11·66	9·2	4·05	1·59	8·45	5·91	187·8	51·6	208·9	30·5
		8·0	15·38	12·1	4·15	1·68	8·35	5·82	245·5	67·2	272·8	40·0
		10·0	19·02	14·9	4·24	1·76	8·26	5·74	300·3	81·6	332·9	49·1
ISA 12595	125×95	6·0	12·86	10·1	3·70	2·22	8·80	7·28	203·2	102·1	252·3	52·9
		8·0	16·98	13·3	3·80	2·31	8·70	7·19	266·0	133·3	329·7	69·6
		10·0	21·02	16·5	3·88	2·39	8·62	7·11	325·8	162·7	402·9	85·6
		12·0	24·98	19·6	3·96	2·47	8·54	7·03	382·6	190·4	472·0	101·0
ISA 15075	150×75	8·0	17·42	13·7	5·23	1·53	9·77	5·97	407·2	70·2	432·8	44·5
		10·0	21·56	16·9	5·32	1·61	9·68	5·89	499·1	85·3	529·8	54·6
		12·0	25·62	20·1	5·41	1·69	9·59	5·81	587·0	99·5	622·2	64·3
ISA 150115	150×115	8·0	20·58	16·2	4·46	2·73	10·54	8·77	465·7	238·9	581·2	123·3
		10·0	25·52	20·0	4·55	2·82	10·45	8·68	573·3	293·4	714·3	152·4
		12·0	30·38	23·8	4·64	2·90	10·36	8·60	676·5	345·3	841·4	180·4
		15·0	37·52	29·5	4·76	3·02	10·24	8·48	823·5	418·6	1 020·9	221·2
ISA 200100	200×100	10·0	29·03	22·8	6·96	2·01	13·04	7·99	1 210·0	209·2	1 286·7	132·5
		12·0	34·59	27·2	7·05	2·10	12·95	7·90	1 431·7	246·2	1 521·0	156·8
		15·0	42·78	33·6	7·18	2·22	12·82	7·78	1 750·5	298·1	1 856·7	191·9
ISA 200150	200×150	10·0	34·00	26·7	5·99	3·51	14·01	11·49	1 377·9	669·6	1 696·6	350·8
		12·0	40·56	31·8	6·08	3·60	13·92	11·40	1 634·9	793·2	2 010·8	417·2
		15·0	50·25	39·4	6·20	3·72	13·80	11·28	2 005·6	969·9	2 461·9	513·6
		18·0	59·76	46·9	6·33	3·84	13·67	11·16	2 359·4	1 136·9	2 889·5	606·9

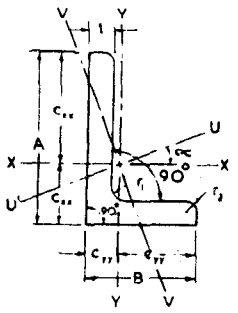


TABLE IV ROLLED STEEL UNEQUAL ANGLES

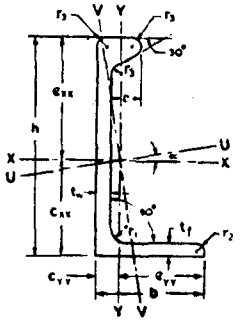
DIMENSIONS AND PROPERTIES

(Continued)

Radii of Gyration				Moduli of Section		tan α	Radius at Root	Radius at Toe	Product of Inertia	Designation
r_{xx}	r_{yy}	r_{uu}	r_{vv}	Z_{xx}	Z_{yy}		r_1	r_2	I_{xy}	
cm	cm	cm	cm	cm^3	cm^3		mm	mm	cm^4	
2·86	1·71	3·07	1·28	11·5	5·5	0·44	7·5	5·0	24·5	**ISA 9060**
2·84	1·69	3·04	1·28	15·1	7·2	0·44			31·5	
2·81	1·67	3·01	1·27	18·6	8·8	0·43			37·8	
2·79	1·65	2·98	1·27	22·0	10·3	0·42			43·3	
3·18	1·84	3·40	1·39	14·2	6·4	0·42	8·0	5·5	32·5	**ISA 10065**
3·16	1·83	3·38	1·39	18·7	8·5	0·42			42·0	
3·14	1·81	3·35	1·38	23·1	10·4	0·41			50·7	
3·15	2·19	3·50	1·59	14·4	8·5	0·55	8·5	6·0	41·0	**ISA 10075**
3·14	2·18	3·48	1·59	19·1	11·2	0·55			53·4	
3·12	2·16	3·45	1·58	23·6	13·8	0·55			64·7	
3·10	2·14	3·42	1·58	27·9	16·3	0·54			74·9	
4·01	2·10	4·23	1·62	22·2	8·7	0·37	9·0	6·0	56·7	**ISA 12575**
4·00	2·09	4·21	1·61	29·4	11·5	0·36			74·0	
3·97	2·07	4·18	1·61	36·3	14·2	0·36			89·9	
3·97	2·82	4·43	2·03	23·1	14·0	0·57	9·0	6·0	84·5	**ISA 12595**
3·96	2·80	4·41	2·02	30·6	18·5	0·57			110·6	
3·94	2·78	4·38	2·02	37·8	22·9	0·57			135·0	
3·91	2·76	4·35	2·01	44·8	27·1	0·56			157·7	
4·83	2·01	4·98	1·60	41·7	11·8	0·27	10·0	6·0	95·5	**ISA 15075**
4·81	1·99	4·96	1·59	51·6	14·5	0·26			116·2	
4·79	1·97	4·93	1·58	61·2	17·1	0·26			135·2	
4·76	3·41	5·31	2·45	44·2	27·2	0·58	11·0	7·5	195·9	**ISA 150115**
4·74	3·39	5·29	2·44	54·9	33·8	0·58			241·0	
4·72	3·37	5·26	2·44	65·3	40·2	0·58			283·6	
4·69	3·34	5·22	2·43	80·4	49·4	0·57			342·8	
6·46	2·68	6·66	2·14	92·8	26·2	0·27	12·0	8·0	284·8	**ISA 200100**
6·43	2·67	6·63	2·13	110·6	31·1	0·26			335·3	
6·40	2·64	6·59	2·12	136·5	38·3	0·26			405·4	
6·37	4·44	7·06	3·21	98·3	58·3	0·56	13·5	9·5	564·1	**ISA 200150**
6·35	4·42	7·04	3·21	117·4	69·6	0·56			669·1	
6·32	4·39	7·00	3·20	145·4	86·0	0·55			818·5	
6·28	4·36	6·95	3·19	172·5	101·9				958·1	

TABLE V ROLLED STEEL BULB ANGLES

DIMENSIONS AND PROPERTIES



Designation	Weight per Metre	Sectional Area	Size	Thickness of Web	Thickness of Flange		Radius at Root	Radius at Toe	Radius at Bulb Corners	Centre of Gravity	
	w	a	$h \times b$	t_w	t_f	D	r_1	r_2	r_3	C_{xx}	C_{yy}
	kg	cm^2	mm × mm	mm	mm	mm	mm	mm	mm	cm	cm
ISBA 100	8·6	10·94	100 × 65	6·0	6·0	13	10·0	5·0	4·0	3·92	1·43
ISBA 100	9·6	12·17	100 × 65	7·0	6·5	13	10·0	5·0	4·0	3·95	1·43
ISBA 125	12·2	15·60	125 × 75	7·0	7·0	16	11·0	5·5	5·0	5·06	1·60
ISBA 125	13·4	17·11	125 × 75	8·0	7·5	16	11·0	5·5	5·0	5·08	1·61
ISBA 150	16·1	20·45	150 × 75	8·0	8·0	20	11·0	5·5	6·0	6·52	1·55
ISBA 150	18·8	23·94	150 × 75	10·0	9·0	20	11·0	5·5	6·0	6·53	1·57
ISBA 175	20·0	25·54	175 × 90	8·0	9·0	23	13·5	6·5	7·0	7 44	1·89
ISBA 175	23·3	29·66	175 × 90	10·0	10·0	23	13·5	6·5	7·0	7·46	1·90
ISBA 175	26·5	33·74	175 × 90	12·0	11·0	23	13·5	6·5	7·0	7·49	1·92
ISBA 200	28·2	35·95	200 × 90	11·0	11·0	26	13·5	6·5	8·0	8·87	1·86
ISBA 200	33·6	42·76	200 × 90	14·0	12·5	26	13·5	6·5	8·0	8·89	1·91
ISBA 225	31·4	39·94	225 × 90	11·0	11·0	29	13·5	6·5	9·0	10·40	1·80
ISBA 225	37·3	47·50	225 × 90	14·0	12·5	29	13·5	6·5	9·0	10·37	1·85
ISBA 250	34·9	44·41	250 × 90	11·0	11·0	33	13·5	6·5	10·0	12·07	1·78
ISBA 250	39·2	49·96	250 × 90	13·0	12·0	33	13·5	6·5	10·0	11·99	1·81
ISBA 275	40·9	52·13	275 × 90	12·0	12·0	36	13·5	6·5	11·0	13·54	1·80
ISBA 275	45·6	58·15	275 × 90	14·0	13·0	36	13·5	6·5	11·0	13·45	1·83
ISBA 300	47·5	60·47	300 × 90	13·0	13·0	39	13·5	6·5	12·0	15·02	1·82
ISBA 300	52·6	66·96	300 × 90	15·0	14·0	39	13·5	6·5	12·0	14·92	1·86

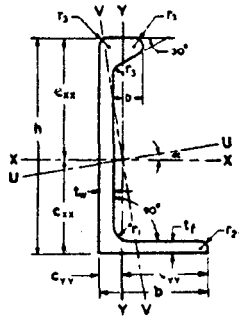


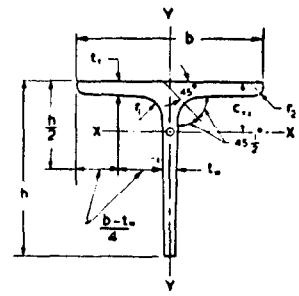
TABLE V ROLLED STEEL BULB ANGLES

DIMENSIONS AND PROPERTIES

Distance of Extreme Fibres		tan x	Moments of Inertia				Radii of Gyration				Moduli of Section		Designation
e_{xx}	e_{yy}		I_{xx}	I_{yy}	I_{uu} (Max)	I_{vv} (Min)	r_{xx}	r_{yy}	r_{uu} (Max)	r_{vv} (Min)	Z_{xx}	Z_{yy}	
cm	cm		cm^4	cm^4	cm^4	cm^4	cm	cm	cm	cm	cm^3	cm^3	
6·08	5·07	0·291	142·9	33·0	153·0	22·8	3·61	1·74	3·74	1·44	23·5	6·5	**ISBA 100**
6·05	5·07	0·288	154·7	35·7	165·4	24·9	3·56	1·71	3·69	1·43	25·6	7·0	**ISBA 100**
7·44	5·90	0·248	321·8	60·4	338·9	43·3	4·54	1·97	4·66	1·67	43·2	10·2	**ISBA 125**
7·42	5·89	0·246	344·5	64·6	362·4	46·6	4·49	1·94	4·60	1·65	46·4	11·0	**ISBA 125**
8·48	5·95	0·167	612·6	71·4	626·1	55·9	5·47	1·87	5·54	1·65	72·2	12·0	**ISBA 150**
8·47	5·93	0·162	686·4	79·8	702·9	63·4	5·36	1·83	5·42	1·63	81·1	13·5	**ISBA 150**
10·06	7·11	0·185	1 073·0	137·2	1 106·1	104·1	6·48	2·32	6·58	2·02	106·6	19·3	**ISBA 175**
10·04	7·10	0·181	1 192·9	152·3	1 288·0	117·2	6·34	2·27	6·43	1·99	118·8	21·4	**ISBA 175**
10·01	7·08	0·177	1 310·0	166·5	1 346·8	129·7	6·23	2·22	6·32	1·96	130·9	23·5	**ISBA 175**
11·13	7·14	0·136	1 879·6	172·0	1 911·6	140·1	7·23	2·19	7·29	1·97	168·9	24·1	**ISBA 200**
11·11	7·09	0·131	2 131·2	193·6	2 165·0	159·8	7·06	2·13	7·12	1·93	191·8	27·3	**ISBA 200**
12·10	7·20	0·103	2 662·8	178·9	2 689·3	152·4	8·17	2·12	8·21	1·95	220·1	24·9	**ISBA 225**
12·13	7·15	0·098	3 016·6	201·9	3 043·9	174·6	7·97	2·06	8·01	1·92	248·7	28·2	**ISBA 225**
12·93	7·22	0·075	3 683·4	188·0	3 703·0	168·4	9·11	2·06	9·13	1·95	284·8	26·0	**ISBA 250**
13·01	7·19	0·072	4 006·4	204·7	4 026·3	184·8	8·96	2·02	8·98	1·92	308·0	28·5	**ISBA 250**
13·96	7·21	0·057	5 161·9	213·0	5 178·0	197·0	9·95	2·02	9·97	1·94	369·7	29·6	**ISBA 275**
14·05	7·17	0·054	5 582·2	230·6	5 598·2	214·7	9·80	1·99	9·81	1·92	397·4	32·2	**ISBA 275**
15·02	7·18	0·042	7 033·9	241·2	7 046·2	228·8	10·79	2·00	10·80	1·95	468·4	33·6	**ISBA 300**
15·08	7·14	0·040	7 568·8	260·0	7 580·8	248·0	10·63	1·97	10·64	1·92	501·9	36·4	**ISBA 300**

TABLE VI ROLLED STEEL TEE BARS

DIMENSIONS AND PROPERTIES



Designation	Weight per Metre	Sectional Area	Depth of Section	Width of Flange	Thickness of Flange	Thickness of Web	Centre of Gravity	Moments of Inertia	
	w	a	h	b	t_f	t_w	C_{xx}	I_{xx}	I_{yy}
	kg	cm^2	mm	mm	mm	mm	cm	cm^4	cm^4
ISNT 20	0·9	1·13	20	20	3·0	3·0	0·60	0·4	0·2
ISNT 30	1·4	1·75	30	30	3·0	3·0	0·83	1·4	0·6
ISNT 40	3·5	4·48	40	40	6·0	6·0	1·20	6·3	3·0
ISNT 50	4·5	5·70	50	50	6·0	6·0	1·44	12·7	5·9
ISNT 60	5·4	6·90	60	60	6·0	6·0	1·67	22·5	10·1
ISNT 80	9·6	12·25	80	80	8·0	8·0	2·23	71·2	32·3
ISNT 100	15·0	19·10	100	100	10·0	10·0	2·79	173·8	79·9
ISNT 150	22·8	29·08	150	150	10·0	10·0	3·95	603·8	267·5
ISHT 75	15·3	19·49	75	150	9·0	8·4	1·62	96·2	230·2
ISHT 100	20·0	25·47	100	200	9·0	7·8	1·91	193·8	497·3
ISHT 125	27·4	34·85	125	250	9·7	8·8	2·37	415·4	1 005·8
ISHT 150	29·4	37·42	150	250	10·6	7·6	2·66	573·7	1 096·8
ISST 100	8·1	10·37	100	50	10·0	5·8	3·03	99·0	9·6
ISST 150	15·7	19·96	150	75	11·6	8·0	4·75	450·2	37·0
ISST 200	28·4	36·22	200	165	12·5	8·0	4·78	1 267·8	358·2
ISST 250	37·5	47·75	250	180	14·1	9·2	6·40	2·774·4	532·0
ISLT 50	4·0	5·11	50	50	6·4	4·0	1·19	9·9	6·4
ISLT 75	7·1	9·04	75	80	6·8	4·8	1·72	41·9	27·6
ISLT 100	12·7	16·16	100	100	10·8	5·7	2·13	116·6	75·0
ISJT 75	3·5	4·50	75	50	4·6	3·0	2·00	24·8	4·6
ISJT 87·5	4·0	5·14	87·5	50	4·8	3·2	2·50	39·0	4·8
ISJT 100	5·0	6·32	100	60	5·0	3·4	2·81	63·5	8·6
ISJT 112·5	6·4	8·14	112·5	80	5·0	3·7	3·01	101·6	20·2

Note — In the case of the ISNT sections, the taper of one degree is divided equally between the web and the flange.

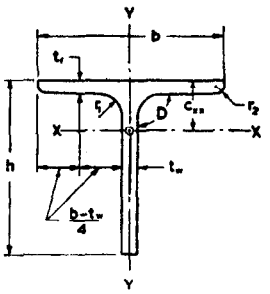


TABLE VI ROLLED STEEL TEE BARS

DIMENSIONS AND PROPERTIES

Radii of Gyration		Moduli of Section		Radius at Root	Radius at Toe	Slope of Flange	Designation
r_{xx}	r_{yy}	Z_{xx}	Z_{yy}	r_1	r_2	D	
cm	cm	cm^3	cm^3	mm	mm	degrees	
0·59	0·39	0·3	0·2	4·0	3·0	91	**ISNT 20**
0·89	0·57	0·6	0·4	5·0	3·5	91	**ISNT 30**
1·18	0·82	2·2	1·5	5·5	4·0	91	**ISNT 40**
1·50	1·02	3·6	2·4	6·0	4·0	91	**ISNT 50**
1·81	1·21	5·2	3·4	6·5	4·5	91	**ISNT 60**
2·41	1·62	12·3	8·1	8·0	5·5	91	**ISNT 80**
3·02	2·05	24·1	16·0	9·0	6·0	91	**ISNT 100**
4·56	3·03	54·6	35·7	10·0	7·0	91	**ISNT 150**
2·22	3·44	16·4	30·1	8·0	4·0	94	**ISHT 75**
2·76	4·42	24·0	49·3	9·0	4·5	94	**ISHT 100**
3·45	5·37	41·0	79·9	10·0	5·0	94	**ISHT 125**
3·92	5·41	46·5	87·7	11·0	5·5	94	**ISHT 150**
3·09	0·96	14·2	3·8	8·0	4·0	98	**ISST 100**
4·75	1·36	43·9	9·9	9·0	4·5	98	**ISST 150**
5·92	3·15	83·3	43·4	16·0	8·0	98	**ISST 200**
7·62	3·34	149·2	59·1	17·0	8·5	98	**ISST 250**
1·39	1·12	2·6	2·5	7·0	3·0	91·5	**ISLT 50**
2·15	1·75	7·2	6·9	9·5	3·0	91·5	**ISLT 75**
2·69	2·15	14·8	15·0	11·0	5·5	98	**ISLT 100**
2·35	1·01	4·5	1·8	5·0	1·5	91·5	**ISJT 75**
2·75	0·97	6·2	1·9	5·0	1·5	91·5	**ISJT 87·5**
3·17	1·17	8·8	2·9	5·0	1·5	91·5	**ISJT 100**
3·53	1·58	12·3	5·1	6·5	1·5	91·5	**ISJT 112·5**

Note — In the case of the ISNT sections, the taper of one degree is divided equally between the web and the flange.

TABLE VII PLATES

Width b mm	900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500
Length l mm	SURFACE AREA IN m^2											
2 000	1·80	2·00	2·20	2·40	2·50	2·80	3·00	3·20	3·60	4·00	4·40	5·00
2 200	1·98	2·20	2·42	2·64	2·75	3·08	3·30	3·52	3·96	4·40	4·84	5·50
2 500	2·25	2·50	2·75	3·00	3·125	3·50	3·75	4·00	4·50	5·00	5·50	6·25
2 800	2·52	2·80	3·08	3·36	3·50	3·92	4·20	4·48	5·04	5·60	6·16	7·00
3 200	2·88	3·20	3·52	3·84	4·00	4·48	4·80	5·12	5·76	6·40	7·04	8·00
3 600	3·24	3·60	3·96	4·32	4·50	5·04	5·40	5·76	6·48	7·20	7·92	9·00
4 000	3·60	4·00	4·40	4·80	5·00	5·60	6·00	6·40	7·20	8·00	8·80	10·00
4 500	4·05	4·50	4·95	5·40	5·625	6·30	6·75	7·20	8·10	9·00	9·90	11·25
5 000	4·50	5·00	5·50	6·00	6·25	7·00	7·50	8·00	9·00	10·00	11·00	12·50
5 600	5·04	5·60	6·16	6·72	7·00	7·84	8·40	8·96	10·08	11·20	12·32	14·00
6 300	5·67	6·30	6·93	7·56	7·875	8·82	9·45	10·08	11·34	12·60	13·86	15·75
7 100	6·39	7·10	7·81	8·52	8·875	9·94	10·65	11·36	12·78	14·20	15·62	17·75
8 000	7·20	8·00	8·80	9·60	10·000	11·20	12·00	12·80	14·40	16·00	17·60	20·00
9 000	8·10	9·00	9·90	10·80	11·25	12·60	13·50	14·40	16·20	18·00	19·80	22·50
10 000	9·00	10·00	11·00	12·00	12·50	14·00	15·00	16·00	18·00	20·00	22·00	25·00
11 000	9·90	11·00	12·10	13·20	13·75	15·40	16·50	17·60	19·80	22·00	24·20	27·50
12 500	11·25	12·50	13·75	15·00	15·625	17·50	18·75	20·00	22·50	25·00	27·50	31·25
	WEIGHT IN kg — 5-mm Plate											
2 000	70·6	78·5	86·4	94·2	98·1	109·9	117·8	125·6	141·3	157·0	172·7	196·2
2 200	77·7	86·4	95·0	103·6	107·9	120·9	129·5	138·2	155·4	172·7	190·0	215·9
2 500	88·3	98·1	107·9	117·8	122·7	137·4	147·2	157·0	176·6	196·2	215·9	245·3
2 800	98·9	109·9	120·9	131·9	137·4	153·9	164·8	175·8	197·8	219·8	241·8	274·8
3 200	113·0	125·6	138·2	150·7	157·0	175·8	188·4	201·0	226·1	251·2	276·3	314·0
3 600	127·2	141·3	155·4	169·6	176·6	197·8	212·0	226·1	254·3	282·6	310·9	353·2
4 000	141·3	157·0	172·7	188·4	196·2	219·8	235·5	251·2	282·6	314·0	345·4	392·5
4 500	159·0	176·6	194·3	212·0	220·8	247·3	264·9	282·6	317·9	353·2	388·6	441·6
5 000	176·6	196·2	215·9	235·5	245·3	274·8	294·4	314·0	353·2	392·5	431·8	490·6
5 600	197·8	219·8	241·8	263·8	274·8	307·7	329·7	351·7	395·6	439·6	483·6	549·5
6 300	222·5	247·3	272·0	296·7	309·1	346·2	370·9	395·6	445·1	494·6	544·0	618·2
7 100	250·8	278·7	306·5	334·4	348·3	390·1	418·0	445·9	501·6	557·4	613·1	696·7
8 000	282·6	314·0	345·4	376·8	392·5	439·6	471·0	502·4	565·2	628·0	690·8	785·0
9 000	317·9	353·2	388·6	423·9	441·6	494·6	529·9	565·2	635·8	706·5	777·2	883·1
10 000	353·2	392·5	431·8	471·0	490·6	549·5	588·8	628·0	706·5	785·0	863·5	981·2
11 000	388·6	431·8	474·9	518·1	539·7	604·4	647·6	690·8	777·2	863·5	949·8	1 079·4
12 500	441·6	490·6	539·7	588·8	613·3	686·9	735·9	785·0	883·1	981·2	1 079·4	1 226·6

(Continued)

TABLE VII PLATES — (*Continued*)

900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500	Width *b* mm
					WEIGHT IN kg							**Length** *l* mm
					6-mm Plate							
84·8	94·2	103·6	113·0	117·8	131·9	141·3	150·7	169·6	188·4	207·2	235·5	**2 000**
93·3	103·6	114·0	124·3	129·5	145·1	155·4	165·8	186·5	207·2	228·0	259·0	**2 200**
106·0	117·8	129·5	141·3	147·2	164·8	176·6	188·4	212·0	235·5	259·0	294·4	**2 500**
118·7	131·9	145·1	158·3	164·9	184·6	197·8	211·0	237·4	263·8	290·1	329·7	**2 800**
135·6	150·7	165·8	180·9	188·4	211·0	226·1	241·2	271·3	301·4	331·6	376·8	**3 200**
152·6	169·6	186·5	203·5	212·0	237·4	254·3	271·3	305·2	339·1	373·0	423·9	**3 600**
169·6	188·4	207·2	226·1	235·5	263·8	282·6	301·4	339·1	376·8	414·5	471·0	**4 000**
190·8	212·0	233·1	254·3	264·9	296·7	317·9	339·1	381·5	423·9	466·3	529·9	**4 500**
212·0	235·5	259·0	282·6	294·4	329·7	353·2	376·8	423·9	471·0	518·1	588·8	**5 000**
237·4	263·8	290·1	316·5	329·7	369·3	395·6	422·0	474·8	527·5	580·3	659·4	**5 600**
267·1	296·7	326·4	356·1	370·9	415·4	445·1	474·8	534·1	593·5	652·8	741·8	**6 300**
301·0	334·4	367·9	401·3	418·0	468·2	501·6	535·1	601·9	668·8	735·7	836·0	**7 100**
339·1	376·8	414·5	452·2	471·0	527·5	565·2	602·9	678·2	753·6	829·0	942·0	**8 000**
381·5	423·9	466·3	508·7	529·9	593·5	635·8	678·2	763·0	847·8	932·6	1 059·8	**9 000**
423·9	471·0	518·1	565·2	588·8	659·4	706·5	753·6	847·8	942·0	1 036·2	1 177·5	**10 000**
466·3	518·1	569·9	621·7	647·6	725·3	777·2	829·0	932·6	1 036·2	1 139·8	1 295·2	**11 000**
529·9	588·8	647·6	706·5	735·9	824·2	883·1	942·0	1 059·8	1 177·5	1 295·2	1 471·9	**12 500**
					8-mm Plate							
113·0	125·6	138·2	150·7	157·0	175·8	188·4	201·0	226·1	251·2	276·3	314·0	**2 000**
124·3	138·2	152·0	165·8	172·7	193·4	207·2	221·1	248·7	276·3	304·0	345·4	**2 200**
141·3	157·0	172·7	188·4	196·2	219·8	235·5	251·2	282·6	314·0	345·4	392·4	**2 500**
158·3	175·8	193·4	211·0	219·8	246·2	263·8	281·3	316·5	351·7	386·8	439·6	**2 800**
180·9	201·0	221·1	241·2	251·2	281·3	301·4	321·5	361·7	401·9	442·1	502·4	**3 200**
203·5	226·1	248·7	271·3	282·6	316·5	339·1	361·7	406·9	452·2	497·4	565·2	**3 600**
226·1	251·2	276·3	301·4	314·0	351·7	376·8	401·9	452·2	502·4	552·6	628·0	**4 000**
254·3	282·6	310·9	339·1	353·2	395·6	423·9	452·2	508·7	565·2	621·7	706·5	**4 500**
282·6	314·0	345·4	376·8	392·5	439·6	471·0	502·4	565·2	628·0	690·8	785·0	**5 000**
316·5	351·7	386·8	422·0	439·6	492·4	527·5	562·7	633·0	703·4	773·7	879·2	**5 600**
356·1	395·6	435·2	474·8	494·6	553·9	593·5	633·0	712·2	791·3	870·4	989·1	**6 300**
401·3	445·9	490·5	535·1	557·4	624·2	668·8	713·4	802·6	891·8	980·9	1 114·7	**7 100**
452·2	502·4	552·6	602·9	628·0	703·4	753·6	803·8	904·3	1 004·8	1 105·3	1 256·0	**8 000**
508·7	565·2	621·7	678·2	706·5	791·3	847·8	904·3	1 017·4	1 130·4	1 243·4	1 413·0	**9 000**
565·2	628·0	690·8	753·6	785·0	879·2	942·0	1 004·8	1 130·4	1 256·0	1 381·6	1 570·0	**10 000**
621·7	690·8	759·9	829·0	863·5	967·1	1 036·2	1 105·3	1 243·4	1 381·6	1 519·8	1 727·0	**11 000**
706·5	785·0	863·5	942·0	981·2	1 099·0	1 177·5	1 256·0	1 413·0	1 570·0	1 727·0	1 962·5	**12 500**

(*Continued*)

TABLE VII PLATES — (*Continued*)

Width *b* mm	900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500
Length mm	**WEIGHT IN kg**											
	10-mm Plate											
2 000	141·3	157·0	172·7	188·4	196·2	219·8	235·5	251·2	282·6	314·0	345·4	392·5
2 200	155·4	172·7	190·0	207·2	215·9	241·8	259·0	276·3	310·9	345·4	379·9	431·8
2 500	176·6	196·2	215·9	235·5	245·3	274·8	294·4	314·0	353·2	392·5	431·8	490·6
2 800	197·8	219·8	241·8	263·8	274·8	307·7	329·7	351·7	395·6	439·6	483·6	549·5
3 200	226·1	251·2	276·3	301·4	314·0	351·7	376·8	401·9	452·2	502·4	552·6	628·0
3 600	254·3	282·6	310·9	339·1	353·2	395·6	423·9	452·2	508·7	565·2	621·7	706·5
4 000	282·6	314·0	345·4	376·8	392·5	439·6	471·0	502·4	565·2	628·0	690·8	785·0
4 500	317·9	353·2	388·6	423·9	441·6	494·6	529·9	565·2	635·8	706·5	777·2	883·1
5 000	353·2	392·5	431·8	471·0	490·6	549·5	588·8	628·0	706·5	785·0	863·5	981·2
5 600	395·6	439·6	483·6	527·5	549·5	615·4	659·4	703·4	791·3	879·2	967·1	1 099·0
6 300	445·1	494·6	544·0	593·5	618·2	692·4	741·8	791·3	890·2	989·1	1 088·0	1 236·4
7 100	501·6	557·4	613·1	668 8	696·7	780·3	836·0	891·8	1 003·2	1 114·7	1 226·2	1 393·4
8 000	565·2	628·0	690·8	753·6	785·0	879·2	942·0	1 004·8	1 130·4	1 256·0	1 381·6	1 570·0
9 000	635·8	706·5	777·2	847·8	883·1	989·1	1 059·8	1 130·4	1 271·7	1 413·0	1 554·3	1 766·2
10 000	706·5	785·0	863·5	942·0	981·2	1 099·0	1 177·5	1 256·0	1 413·0	1 570·0	1 727·0	1 962·5
11 000	777·2	863·5	949·8	1 036·2	1 079·4	1 208·9	1 295·2	1 381·6	1 554·3	1 727·0	1 899·7	2 158·8
12 500	883·1	981·2	1 079·1	1 177·5	1 226·6	1 373·8	1 471·9	1 570·0	1 766·2	1 962·5	2 158·8	2 453·1
	12-mm Plate											
2 000	169·6	188·4	207·2	226·1	235·5	263·8	282·6	301·4	339·1	376·8	414·5	471·0
2 200	186·5	207·2	228 0	248·7	259·0	290·1	310·9	331·6	373·0	414·5	455·9	518·1
2 500	212·0	235·5	259·0	282·6	294·4	329·7	353·2	376·8	423·9	471·0	518·1	588·8
2 800	237·4	263·8	290·1	316·5	329·7	369·3	395·6	422·0	474·8	527·5	580·3	659·4
3 200	271·3	301·4	331·6	361·7	376·8	422·0	452·2	482·3	542·6	602·9	663·2	753·6
3 600	305·2	339·1	373·0	406·9	423·9	474·8	508·7	542·6	610·4	678·2	746·1	847·8
4 000	339·1	376·8	414·5	452·2	471·0	527·5	565·2	602·9	678·2	753·6	829·0	942·0
4 500	381·5	423·9	466·3	508·7	529·9	593·5	635·8	678·2	763·0	847·8	932·6	1 059·8
5 000	423·9	471·0	518·1	565·2	588·8	659·4	706·5	753·6	847·8	942·0	1 036·2	1 177·5
5 600	474·8	527·5	580·3	633·0	659·4	738·5	791·3	844·0	949·5	1 055·0	1 160·5	1 318·8
6 300	534·1	593·5	652·8	712·2	741·8	830·8	890·2	949·5	1 068·2	1 186·9	1 305·6	1 483·6
7 100	601·9	668·8	735·7	802·6	836·0	936·3	1 003·2	1 070·1	1 203·9	1 337·6	1 471·4	1 672 0
8 000	678·2	753·6	829·0	904·3	942·0	1 055·0	1 130·4	1 205·8	1 356·5	1 507·2	1 657·9	1 884·0
9 000	763·0	847·8	932·6	1 017·4	1 059·8	1 186·9	1 271·7	1 356·5	1 526·0	1 695·6	1 865·2	2 119·5
10 000	847·8	942·0	1 036·2	1 130·4	1 177·5	1 318·8	1 413·0	1 507·2	1 695·6	1 884·0	2 072·4	2 355·0
11 000	932·6	1 036·2	1 139·8	1 243·4	1 295·2	1 450·7	1 554·3	1 657·9	1 865·2	2 072·4	2 279·6	2 590·5
12 500	1 059·8	1 177·5	1 295·2	1 413·0	1 471·9	1 648·5	1 766·2	1 884·0	2 119·5	2 355·0	2 590·5	2 943·8

(*Continued*)

TABLE VII PLATES — (*Continued*)

900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500	Width *b* mm
					WEIGHT IN kg							**Length** *l* mm
					14-mm Plate							
197·8	219·8	241·8	263·8	274·8	307·7	329·7	351·7	395·6	439·6	483·6	549·5	**2 000**
217·6	241·8	266·0	290·1	302·2	338·5	362·7	386·8	435·2	483·6	531·9	604·4	**2 200**
247·3	274·8	302·2	329·7	343·4	384·6	412·1	439·6	494·6	549·5	604·4	686·9	**2 500**
276·9	307·7	338·5	369·3	384·7	430·8	461·6	492·4	553·9	615·4	677·0	769·3	**2 800**
316·5	351·7	386·8	422·0	439·6	492·4	527·5	562·7	633·0	703·4	773·7	879·2	**3 200**
356·1	395·6	435·2	474·8	494·6	553·9	593·5	633·0	712·2	791·3	870·4	989·1	**3 600**
395·6	439·6	483·6	527·5	549·5	615·4	659·4	703·4	791·3	879·2	967·1	1 099·0	**4 000**
445·1	494·6	544·0	593·5	618·2	692·4	741·8	791·3	890·2	989·1	1 088·0	1 236·4	**4 500**
494·6	549·5	604·4	659·4	686·9	769·3	824·2	879·2	989·1	1 099·0	1 208·9	1 373·8	**5 000**
553·9	615·4	677·0	738·5	769·3	861·6	923·2	984·7	1 107·8	1 230·9	1 354·0	1 538·6	**5 600**
623·1	692·4	761·6	830·8	865·5	969·3	1 038·6	1 107·8	1 246·3	1 384·7	1 523·2	1 730·9	**6 300**
702·3	780·3	858·3	936·3	975·4	1 092·4	1 170·4	1 248·5	1 404·5	1 560·6	1 716·6	1 950·7	**7 100**
791·3	879·2	967·1	1 055·0	1 099·0	1 230·9	1 318·8	1 406·7	1 582·6	1 758·4	1 934·2	2 198·0	**8 000**
890·2	989·1	1 088·0	1 186·9	1 236·4	1 384·7	1 483·6	1 582·6	1 780·4	1 978·2	2 176·0	2 472·8	**9 000**
989·1	1 099·0	1 208·9	1 318·8	1 373·8	1 538·6	1 648·5	1 758·4	1 978·2	2 198·0	2 417·8	2 747·5	**10 000**
1 088·0	1 208·9	1 329·8	1 450·7	1 511·1	1 692·5	1 813·4	1 934·2	2 176·0	2 417·8	2 659·6	3 022·2	**11 000**
1 236·4	1 373·8	1 511·1	1 648·5	1 717·2	1 923·2	2 060·6	2 198·0	2 472·8	2 747·5	3 022·2	3 434·4	**12 500**
					16-mm Plate							
226·1	251·2	276·3	301·4	314·0	351·7	376·8	401·9	452·2	502·4	552·6	628·0	**2 000**
248·7	276·3	304·0	331·6	345·4	386·8	414·5	442·1	497·4	552·6	607·9	690·8	**2 200**
282·6	314·0	345·4	376·8	392·5	439·6	471·0	502·2	565·2	628·0	690·8	785·0	**2 500**
316·5	351·7	386·8	422·0	439·6	492·4	527·5	562·7	633·0	703·4	773·7	879·2	**2 800**
361·7	401·9	442·1	482·3	502·4	562·7	602·9	643·1	723·5	803·8	884·2	1 004·8	**3 200**
406·9	452·2	497·4	542·6	565·2	633·0	678·2	723·5	813·9	904·3	994·8	1 130·4	**3 600**
452·2	502·4	552·6	602·9	628·0	703·4	753·6	803·8	904·3	1 004·8	1 105·3	1 256·0	**4 000**
508·7	565·2	621·7	678·2	706·5	791·3	847·8	904·3	1 017·4	1 130·4	1 243·4	1 413·0	**4 500**
565·2	628·0	690·8	753·6	785·0	879·2	942·0	1 004·8	1 130·4	1 256·0	1 381·6	1 570·0	**5 000**
633·0	703·4	773·7	844·0	879·2	984·7	1 055·0	1 125·4	1 266·0	1 406·7	1 547·4	1 758·4	**5 600**
712·2	791·3	870·4	949·5	989·1	1 107·8	1 186·9	1 266·0	1 424·3	1 582·6	1 740·8	1 978·2	**6 300**
802·6	891·8	980·9	1 070·1	1 114·7	1 248·5	1 337·6	1 426·8	1 605·2	1 783·5	1 961·9	2 229·4	**7 100**
904·3	1 004·8	1 105·3	1 205·8	1 256·0	1 406·7	1 507·2	1 607·7	1 808·6	2 009·6	2 210·6	2 512·0	**8 000**
1 017·4	1 130·4	1 243·4	1 356·5	1 413·0	1 582·6	1 695·6	1 808·6	2 034·7	2 260·8	2 486·9	2 826·0	**9 000**
1 130·4	1 256·0	1 381·6	1 507·2	1 570·0	1 758·4	1 884·0	2 009·6	2 260·8	2 512·0	2 763·2	3 140·0	**10 000**
1 243·4	1 381·6	1 519·8	1 657·9	1 727·0	1 934·2	2 072·4	2 210·6	2 486·9	2 763·2	3 039·5	3 454·0	**11 000**
1 413·0	1 570·0	1 727·0	1 884·0	1 962·5	2 198·0	2 355·0	2 512·0	2 826·0	3 140·0	3 454·0	3 925·0	**12 500**

(*Continued*)

TABLE VII PLATES — (*Continued*)

Width *b* mm	900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500
Length *l* mm	WEIGHT IN kg											
	18-mm Plate											
2 000	254·3	282·6	310·9	339·1	353·2	395·6	423·9	452·2	508·7	565·2	621·7	706·5
2 200	279·8	310·9	341·9	373·0	388·6	435·2	466·3	497·4	559·5	621·7	683·9	777·2
2 500	317·9	353·2	388·6	423·9	441·6	494·6	529·9	565·2	635·8	706·5	777·2	883·1
2 800	356·1	395·6	435·2	474·8	494·6	553·9	593·5	633·0	712·2	791·3	870·4	989·1
3 200	406·9	452·2	497·4	542·6	565·2	633·0	678·2	723·5	813·9	904·3	994·8	1 130·4
3 600	457·8	508·7	559·5	610·4	635·8	712·2	763·0	813·9	915·6	1 017·4	1 119·1	1 271·7
4 000	508·7	565·2	621·7	678·2	706·5	791·3	847·8	904·3	1 017·4	1 130·4	1 243·4	1 413·0
4 500	572·3	635·8	699·4	763·0	794·8	890·2	953·8	1 017·4	1 144·5	1 271·7	1 398·9	1 589·6
5 000	635·8	706·5	777·2	847·8	883·1	989·1	1 059·8	1 130·4	1 271·7	1 413·0	1 554·3	1 766·2
5 600	712·2	791·3	870·4	949·5	989·1	1 107·8	1 186·9	1 266·0	1 424·3	1 582·6	1 740·8	1 978·2
6 300	801·2	890·2	979·2	1 068·2	1 112·7	1 246·3	1 335·3	1 424·3	1 602·3	1 780·4	1 958·4	2 225·5
7 100	902·9	1 003·2	1 103·6	1 203·9	1 254·0	1 404·5	1 504·8	1 605·2	1 805·8	2 006·5	2 207·1	2 508·1
8 000	1 017·4	1 130·4	1 243·4	1 356·5	1 413·0	1 582·6	1 695·6	1 808·6	2 034·7	2 260·8	2 486·9	2 826·0
9 000	1 144·5	1 271·7	1 398·9	1 526·0	1 589·6	1 780·4	1 907·6	2 034·7	2 289·1	2 543·4	2 797·7	3 179·2
10 000	1 271·7	1 413·0	1 554·3	1 695·6	1 766·2	1 978·2	2 119·5	2 260·8	2 543·4	2 826·0	3 108·6	3 532·5
11 000	1 398·9	1 554·3	1 709·7	1 865·2	1 942·9	2 176·0	2 331·4	2 486·9	2 797·7	3 108·6	3 419·5	3 885·8
12 500	1 589·6	1 766·2	1 942·9	2 119·5	2 207·8	2 472·8	2 649·4	2 826·0	3 179·2	3 532·5	3 885·8	4 415·6
	20-mm Plate											
2 000	282·6	314·0	345·4	376·8	392·5	439·6	471·0	502·4	565·2	628·0	690·8	785·0
2 200	310·9	345·4	379·9	414·5	431·8	483·6	518·1	552·6	621·7	690·8	759·9	863·5
2 500	353·2	392·5	431·8	471·0	490·6	549·5	588·8	628·0	706·5	785·0	863·5	981·2
2 800	395·6	439·6	483·6	527·5	549·5	615·4	659·4	703·4	791·3	879·2	967·1	1 099·0
3 200	452·2	502·4	552·6	602·9	628·0	703·4	753·6	803·8	904·3	1 004·8	1 105·3	1 256·0
3 600	508·7	565·2	621·7	678·2	706·5	791·3	847·8	904·3	1 017·4	1 130·4	1 243·4	1 413·0
4 000	565·2	628·0	690·8	753·6	785·0	879·2	942·0	1 004·8	1 130·4	1 256·0	1 381·6	1 570·0
4 500	635·8	706·5	777·2	847·8	883·1	989·1	1 059·8	1 130·4	1 271·7	1 413·0	1 554·3	1 766·2
5 000	706·5	785·0	863·5	942·0	981·2	1 099·0	1 177·5	1 256·0	1 413·0	1 570·0	1 727·0	1 962·5
5 600	791·3	879·2	967·1	1 055·0	1 099·0	1 230·9	1 318·8	1 406·7	1 582·6	1 758·4	1 934·2	2 198·0
6 300	890·2	989·1	1 088·0	1 186·9	1 236·4	1 384·7	1 483·6	1 582·6	1 780·4	1 978·2	2 176·0	2 472·8
7 100	1 003·2	1 114·7	1 226·2	1 337·6	1 393·4	1 560·6	1 672·0	1 783·5	2 006·5	2 229·4	2 452·4	2 786·8
8 000	1 130·4	1 256·0	1 381·6	1 507·2	1 570·0	1 758·4	1 834·0	2 009·6	2 260·8	2 512·0	2 763·2	3 140·0
9 000	1 271·7	1 413·0	1 554·3	1 695·6	1 766·2	1 978·2	2 119·5	2 260·8	2 543·4	2 826·0	3 108·6	3 532·5
10 000	1 413·0	1 570·0	1 727·0	1 834·0	1 962·5	2 198·0	2 355·0	2 512·0	2 826·0	3 140·0	3 454·0	3 925·0
11 000	1 554·3	1 727·0	1 899·7	2 072·4	2 158·8	2 417·8	2 590·5	2 763·2	3 108·6	3 454·0	3 799·4	4 317·5
12 500	1 766·2	1 962·5	2 158·8	2 355·0	2 453·1	2 747·5	2 943·8	3 140·0	3 532·5	3 925·0	4 317·5	4 906·2

(*Continued*)

TABLE VII PLATES—(*Continued*)

900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500	Width *b* mm
					WEIGHT IN kg							Length *l* mm
					22-mm Plate							
310·9	345·4	379·9	414·5	431·8	483·6	518·1	552·6	621·7	690·8	759·9	863·5	2 000
341·9	379·9	417·9	455·9	474·9	531·9	569·9	607·9	683·9	759·9	835·9	949·8	2 200
388·6	431·8	474·9	518·1	539·7	604·4	647·6	690·8	777·2	863·5	949·9	1 079·4	2 500
435·2	483·6	531·9	580·3	604·4	677·0	725·3	773·7	870·4	967·1	1 063·8	1 208·9	2 800
497·4	552·6	607·9	663·2	690·8	773·7	829·0	884·2	994·8	1 105·3	1 215·8	1 381·6	3 200
559·5	621·7	683·9	746·1	777·2	870·4	932·6	994·8	1 119·1	1 243·4	1 367·8	1 554·3	3 600
621·7	690·8	759·9	829·0	863·5	967·1	1 036·2	1 105·3	1 243·4	1 381·6	1 519·8	1 727·0	4 000
699·4	777·2	854·9	932·6	971·4	1 088·0	1 165·7	1 243·4	1 398·9	1 554·3	1 709·7	1 942·9	4 500
777·2	863·5	949·8	1 036·2	1 079·4	1 208·9	1 295·2	1 381·6	1 554·3	1 727·0	1 899·7	2 158·8	5 000
870·4	967·1	1 063·8	1 160·5	1 208·9	1 354·0	1 450·7	1 547·4	1 740·8	1 934·2	2 127·7	2 417·8	5 600
979·2	1 088·0	1 196·8	1 305·6	1 360·0	1 523·2	1 632·0	1 740·8	1 958·4	2 176·0	2 393·6	2 720·0	6 300
1 103·6	1 226·2	1 348·8	1 471·4	1 532·7	1 716·6	1 839·3	1 961·9	2 207·1	2 452·3	2 697·6	3 065·4	7 100
1 243·4	1 381·6	1 519·8	1 657·9	1 727·0	1 934·2	2 072·4	2 210·6	2 486·9	2 763·2	3 039·5	3 454·0	8 000
1 398·9	1 554·3	1 709·7	1 865·2	1 942·9	2 176·0	2 331·4	2 486·9	2 797·7	3 108·6	3 419·5	3 885·8	9 000
1 554·3	1 727·0	1 899·7	2 072·4	2 158·8	2 417·8	2 590·5	2 763·2	3 108·6	3 454·0	3 799·4	4 317·5	10 000
1 709·7	1 899·7	2 089·7	2 279·6	2 374·6	2 659·6	2 849·6	3 039·5	3 419·5	3 799·4	4 179·3	4 749·2	11 000
1 942·9	2 158·8	2 374·6	2 590·5	2 698·4	3 022·2	3 238·1	3 454·0	3 885·8	4 317·5	4 749·2	5 396·9	12 500
					25-mm Plate							
353·2	392·5	431·8	471·0	490·6	549·5	588·8	628·0	706·5	785·0	863·5	981·2	2 000
388·6	431·8	474·9	518·1	539·7	604·4	647·6	690·8	777·2	863·5	949·8	1 079·4	2 200
441·6	490·6	539·7	588·8	613·3	686·9	735·9	785·0	883·1	981·2	1 079·4	1 226·6	2 500
494·6	549·5	604·4	659·4	686·9	769·3	824·2	879·2	989·1	1 099·0	1 208·9	1 373·8	2 800
565·2	628·0	690·8	753·6	785·0	879·2	942·0	1 004·8	1 130·4	1 256·0	1 381·6	1 570·0	3 200
635·8	706·5	777·2	847·8	883·1	989·1	1 059·8	1 130·4	1 271·7	1 413·0	1 554·3	1 766·2	3 600
706·5	785·0	863·5	942·0	981·2	1 099·0	1 177·5	1 256·0	1 413·0	1 570·0	1 727·0	1 962·5	4 000
794·8	883·1	971·4	1 059·8	1 103·9	1 236·4	1 324·7	1 413·0	1 589·6	1 766·2	1 942·9	2 207·8	4 500
883·1	981·2	1 079·4	1 177·5	1 226·6	1 373·8	1 471·9	1 570·0	1 766·2	1 962·5	2 158·8	2 453·1	5 000
989·1	1 099·0	1 208·9	1 318·8	1 373·8	1 538·6	1 648·5	1 758·4	1 978·2	2 198·0	2 417·8	2 747·5	5 600
1 112·7	12 36·4	1 360·0	1 483·6	1 545·5	1 730·9	1 854·6	1 978·2	2 225·5	2 472·8	2 720·0	3 090·9	6 300
1 254·0	1 393·4	1 532·7	1 672·0	1 741·7	1 950·7	2 090·1	2 229·4	2 508·1	2 786·8	3 065·4	3 483·4	7 100
1 413·0	1 570·0	1 727·0	1 884·0	1 962·5	2 198·0	2 355·0	2 512·0	2 826·0	3 140·0	3 454·0	3 925·0	8 000
1 589·6	1 766·2	1 948·9	2 119·5	2 207·8	2 472·8	2 649·4	2 826·0	3 179·2	3 532·5	3 885·8	4 415·6	9 000
1 766·2	1 962·5	2 158·8	2 355·0	2 453·1	2 747·5	2 943·8	3 140·0	3 532·5	3 925·0	4 317·5	4 906·2	10 000
1 942·9	2 158·8	2 374·6	2 590·5	2 698·4	3 022·3	3 238·1	3 454·0	3 885·8	4 317·5	4 749·2	5 396·9	11 000
2 207·8	2 453·1	2 698·4	2 943·8	3 066·4	3 434·4	3 679·7	3 925·0	4 415·6	4 906·2	5 396·9	6 132·8	12 500

(*Continued*)

TABLE VII PLATES — (*Continued*)

Width *b* mm	900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500
Length mm	WEIGHT IN kg											
	28-mm Plate											
2 000	395·6	439·6	483·6	527·5	549·5	615·4	659·4	703·4	791·3	879·2	967·1	1 099·0
2 200	435·2	483·6	531·9	580·3	604·4	677·0	725·3	773·7	870·4	967·1	1 063·8	1 208·9
2 500	494·6	549·5	604·4	659·4	686·9	769·3	824·2	879·2	989·1	1 099·0	1 208·9	1 373·8
2 800	553·9	615·4	677·0	738·5	769·3	861·6	923·2	984·7	1 107·8	1 230·9	1 354·0	1 538·6
3 200	633·0	703·4	773·7	844·0	879·2	984·7	1 055·0	1 125·4	1 266·0	1 406·7	1 547·4	1 758·4
3 600	712·2	791·3	870·4	949·5	989·1	1 107·8	1 186·9	1 266·0	1 424·3	1 582·6	1 740·8	1 978·2
4 000	791·3	879·2	967·1	1 055·0	1 099·0	1 230·9	1 318·8	1 406·7	1 582·6	1 758·4	1 934·2	2 198·0
4 500	890·2	989·1	1 088·0	1 187·0	1 236·4	1 384·7	1 483·6	1 582·6	1 780·4	1 978·2	2 176·0	2 472·8
5 000	989·1	1 099·0	1 208·9	1 318·8	1 373·8	1 538·6	1 648·5	1 758·4	1 978·2	2 198·0	2 417·8	2 747·5
5 600	1 107·8	1 230·9	1 354·0	1 477·0	1 538·6	1 723·2	1 846·3	1 969·4	2 215·6	2 461·8	2 707·9	3 077·2
6 300	1 246·3	1 384·7	1 523·2	1 661·7	1 730·9	1 938·6	2 077·1	2 215·6	2 492·5	2 769·5	3 046·4	3 461·9
7 100	1 404·5	1 560·6	1 716·6	1 872·7	1 950·7	2 184·8	2 340·9	2 496·9	2 809·0	3 121·2	3 433·3	3 901·5
8 000	1 582·6	1 758·4	1 934·2	2 110·1	2 198·0	2 461·8	2 637·6	2 813·4	3 165·1	3 516·8	3 868·5	4 396·0
9 000	1 780·4	1 978·2	2 176·0	2 373·8	2 472·8	2 769·5	2 967·3	3 165·1	3 560·8	3 956·4	4 352·0	4 945·5
10 000	1 978·2	2 198·0	2 417·8	2 637·6	2 747·5	3 077·2	3 297·0	3 516·8	3 956·4	4 396·0	4 835·6	5 495·0
11 000	2 176·0	2 417·8	2 659·6	2 901·4	3 022·2	3 384·9	3 626·7	3 868·5	4 352·0	4 835·6	5 319·2	6 044·5
12 500	2 472·8	2 747·5	3 022·2	3 297·0	3 434·4	3 846·5	4 121·2	4 396·0	4 945·5	5 495·0	6 044·5	—
	32-mm Plate											
2 000	452·2	502·4	552·6	602·9	628·0	703·4	753·6	803·8	904·3	1 004·8	1 105·3	1 256·0
2 200	497·4	552·6	607·9	663·2	690·8	773·7	829·0	884·2	994·8	1 105·3	1 215·8	1 381·6
2 500	565·2	628·0	690·8	753·6	785·0	879·2	942·0	1 004·8	1 130·4	1 256·0	1 381·6	1 570·0
2 800	633·0	703·4	773·7	844·0	879·2	984·7	1 055·0	1 125·4	1 266·0	1 406·7	1 547·4	1 758·4
3 200	723·5	803·8	884·2	964·6	1 004·8	1 125·4	1 205·8	1 286·1	1 446·9	1 607·7	1 768·4	2 009·6
3 600	813·9	904·3	994·8	1 085·2	1 130·4	1 266·0	1 356·5	1 446·9	1 627·8	1 808·6	1 989·5	2 260·8
4 000	904·3	1 004·8	1 105·3	1 205·8	1 256·0	1 406·7	1 507·2	1 607·7	1 808·6	2 009·6	2 210·6	2 512·0
4 500	1 017·4	1 130·4	1 243·4	1 356·5	1 413·0	1 582·2	1 695·6	1 808·6	2 034·7	2 260·8	2 486·9	2 826·0
5 000	1 130·4	1 256·0	1 381·6	1 507·2	1 570·0	1 758·4	1 884·0	2 009·6	2 260·8	2 512·0	2 763·2	3 140·0
5 600	1 266·0	1 406·7	1 547·4	1 688·1	1 758·4	1 969·4	2 110·1	2 250·8	2 532·1	2 813·4	3 094·8	3 516·8
6 300	1 424·3	1 582·6	1 740·8	1 899·1	1 978·2	2 215·6	2 373·8	2 532·1	2 848·6	3 165·1	3 481·6	3 956·4
7 100	1 605·2	1 783·5	1 961·9	2 140·2	2 229·4	2 496·9	2 675·3	2 853·6	3 210·3	3 567·0	3 923·7	4 458·8
8 000	1 808·6	2 009·6	2 210·6	2 411·5	2 512·0	2 813·4	3 014·4	3 215·4	3 617·3	4 019·2	4 421·1	5 024·0
9 000	2 034·7	2 260·8	2 486·9	2 713·0	2 826·0	3 165·1	3 391·2	3 617·3	4 069·4	4 521·6	4 973·8	5 652·0
10 000	2 260·8	2 512·0	2 763·2	3 014·4	3 140·0	3 516·8	3 768·0	4 019·2	4 521·6	5 024·0	5 526·4	6 280·0
11 000	2 486·9	2 763·2	3 039·5	3 315·8	3 454·0	3 868·5	4 144·8	4 421·1	4 973·8	5 526·4	6 079·0	—
12 500	2 826·0	3 140·0	3 454·0	3 768·0	3 925·0	4 396·0	4 710·0	5 024·0	5 652·0	6 280·0	—	—

(*Continued*)

TABLE VII PLATES — (*Continued*)

900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500	Width *b* mm
					WEIGHT IN kg							**Length** *l* mm
					36-mm Plate							
508·7	565·2	621·7	678·2	706·5	791·3	847·8	904·3	1 017·4	1 130·4	1 243·3	1 413·0	2 000
559·5	621·7	683·9	746·1	777·2	870·4	932·6	994·8	1 119·1	1 243·4	1 367·8	1 554·3	2 200
635·8	706·5	777·2	847·8	883·1	989·1	1 059·8	1 130·4	1 271·7	1 413·0	1 554·3	1 766·2	2 500
712·2	791·3	870·4	949·5	989·1	1 107·8	1 186·9	1 266·0	1 424·3	1 582·6	1 740·8	1 978·2	2 800
813·9	904·3	994·8	1 085·2	1 130·4	1 266·0	1 356·5	1 446·9	1 627·8	1 808·6	1 989·5	2 260·8	3 200
915·6	1 017·4	1 119·0	1 220·8	1 271·7	1 424·3	1 526·0	1 627·8	1 831·2	2 034·7	2 238·2	2 543·4	3 600
1 017·4	1 130·4	1 243·4	1 356·5	1 413·0	1 582·6	1 695·6	1 808·6	2 034·7	2 260·8	2 486·9	2 826·0	4 000
1 144·5	1 271·7	1 398·9	1 526·0	1 589·6	1 780·4	1 907·6	2 034·7	2 289·1	2 543·4	2 797·7	3·179·2	4 500
1 271·7	1 413·0	1 554·3	1 695·6	1 766·2	1 978·2	2 119·5	2 260·8	2 543·4	2 826·0	3 108·6	3 532·5	5 000
1 424·3	1 582·6	1 740·8	1 899·1	1 978·2	2 215·6	2 373·8	2 532·0	2 848·6	3 165·1	3 481·6	3 956·4	5 600
1 602·3	1 780·4	1 958·4	2 136·4	2 225·5	2 492·5	2 670·6	2 848·6	3 204·7	3 560·8	3 916·8	4 451·0	6 300
1 805·8	2 006·5	2 207·1	2 407·8	2 508·1	2 809·0	3 009·7	3 210·3	3 611·6	4 012·9	4 414·2	5 016·2	7 100
2 034·7	2 260·8	2 486·9	2 713·0	2 826·0	3 165·1	3 391·2	3 617·3	4 069·4	4 521·6	4 973·8	5 652·0	8 000
2 289·1	2 543·4	2 797·7	3 052·1	3 179·2	3 560·8	3 815·1	4 069·4	4 578·1	5 086·8	5 595·5	6 358·5	9 000
2 543·4	2 826·0	3 108·6	3 391·2	3 532·5	3 956·4	4 239·0	4 521·6	5 086·8	5 652·0	6 217·2	—	10 000
2 797·7	3 108·6	3 419·5	3 730·3	3 885·8	4 352·0	4 662·9	4 973·8	5 595·5	6 217·2	—	—	11 000
3 179·2	3 532·5	3 885·8	4 239·0	4 415·6	4 945·5	5 298·8	5 652·0	6 358·5	—	—	—	12 500
					40-mm Plate							
565·2	628·0	690·8	753·6	785·0	879·2	942·0	1 004·8	1 130·4	1 256·0	1 381·6	1 570·0	2 000
621·7	690·8	759·9	829·0	863·5	967·1	1 036·2	1 105·3	1 243·4	1 381·6	1 519·8	1 727·0	2 200
706·5	785·0	863·5	942·0	981·2	1 099·0	1 177·5	1 256·0	1 413·0	1 570·0	1 727·0	1 962·5	2 500
791·3	879·2	967·1	1 055·0	1 099·0	1 230·9	1 318·8	1 406·7	1 582·6	1 758·4	1 934·2	2 198·0	2 800
904·3	1 004·8	1 105·3	1 205·8	1 256·0	1 406·7	1 507·2	1 607·7	1 808·6	2 009·6	2 210·6	2 512·0	3 200
1 017·4	1 130·4	1 243·4	1 356·5	1 413·0	1 582·6	1 695·6	1 808·6	2 034·7	2 260·8	2 486·9	2 826·0	3 600
1 130·4	1 256·0	1 381·6	1 507·2	1 570·0	1 758·4	1 884·0	2 009·6	2 260·8	2 512·0	2 763·2	3 140·0	4 000
1 271·7	1 413·0	1 554·3	1 695·6	1 766·2	1 978·2	2 119·5	2 260·8	2 543·4	2 826·0	3 108·6	3 532·5	4 500
1 413·0	1 570·0	1 727·0	1 884·0	1 962·5	2 198·0	2 355·0	2 512·0	2 826·0	3 140·0	3 154·0	3 925·0	5 000
1 582·6	1 758·4	1 934·2	2 110·1	2 198·0	2 461·8	2 637·6	2 813·4	3 165·1	3 516·8	3 868·5	4 396·0	5 600
1 780·4	1 978·2	2 176·0	2 373·8	2 472·8	2 769·5	2 967·3	3 165·1	3 560·8	3 956·4	4 352·0	4 945·5	6 300
2 006·5	2 229·4	2 452·3	2 675·3	2 786·8	3 121·2	3 344·1	3 567·0	4 012·9	4 458·8	4 904·7	5 573·5	7 100
2 260·8	2 512·0	2 763·2	3 014·4	3 140·0	3 516·8	3 768·0	4 019·2	4 521·6	5 024·0	5 526·4	6 280·0	8 000
2 543·4	2 826·0	3 108·6	3 391·2	3 532·5	3 956·4	4 239·0	4 521·6	5 086·8	5 652·0	6 217·2	—	9 000
2 826·0	3 140·0	3 454·0	3 768·0	3 925·0	4 396·0	4 710·0	5 024·0	5 652·0	6 280·0	—	—	10 000
3 108·6	3 454·0	3 799·4	4 144·8	4 317·5	4 835·6	5 181·0	5 526·4	6 217·2	—	—	—	11 000
3 532·5	3 925·0	4 317·5	4 710·0	4 906·2	5 495·0	5 887·5	6 280·0	—	—	—	—	12 500

(*Continued*)

TABLE VII PLATES — (*Continued*)

Width *b* mm	900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500
Length *l* mm	WEIGHT IN kg											
	45-mm Plate											
2 000	635·8	706·5	777·2	847·8	883·1	989·1	1 059·8	1 130·4	1 271·7	1 413·0	1 554·3	1 766·2
2 200	699·4	777·2	854·9	932·6	971·4	1 088·0	1 165·7	1 243·4	1 398·9	1 554·3	1 709·7	1 942·9
2 500	794·8	883·1	971·4	1 059·8	1 103·9	1 236·4	1 324·7	1 413·0	1 589·6	1 766·2	1 942·9	2 207·8
2 800	890·2	989·1	1 088·0	1 186·9	1 236·4	1 384·7	1 483·6	1 582·6	1 780·4	1 978·2	2 176·0	2 472·8
3 200	1 017·4	1 130·4	1 243·4	1 356·5	1 413·0	1 582·6	1 695·6	1 808·6	2 034·7	2 260·8	2 486·9	2 826·0
3 600	1 144·5	1 271·7	1 398·9	1 526·0	1 589·6	1 780·4	1 907·6	2 034·7	2 289·1	2 543·4	2 797·7	3 179·2
4 000	1 271·7	1 413·0	1 554·3	1 695·6	1 766·2	1 978·2	2 119·5	2 260·8	2 543·4	2 826·0	3 108·6	3 532·5
4 500	1 430·7	1 589·6	1 748·6	1 907·6	1 987·0	2 225·5	2 384·4	2 543·4	2 861·3	3 179·2	3 497·2	3 974·1
5 000	1 589·6	1 766·2	1 942·9	2 119·5	2 207·8	2 472·8	2 649·4	2 826·0	2 179·2	3 532·5	3 885·8	4 415·6
5 600	1 780·4	1 978·2	2 176·0	2 373·8	2 472·8	2 769·5	2 967·3	3 165·1	3 560·8	3 956·4	4 352·0	4 945·5
6 300	2 002·9	2 225·5	2 448·0	2 670·6	2 781·8	3 115·7	3 338·2	3 560·8	4 005·9	4 451·0	4 816·0	5 563·7
7 100	2 257·3	2 508·0	2 758·9	3 009·7	3 135·1	3 511·3	3 762·1	4 012·9	4 514·5	5 016·2	5 517·8	6 270·2
8 000	2 543·4	2 826·0	3 108·6	3 391·2	3 532·5	3 956·1	4 239·0	4 521·6	5 086·8	5 652·0	6 217·2	—
9 000	2 861·3	3 179·2	3 497·2	3 815·1	3 974·1	4 451·0	4 768·9	5 086·8	5 722·6	6 358·5	—	—
10 000	3 179·2	3 532·5	3 885·8	4 239·0	4 415·6	4 945·5	5 298·8	5 652·0	6 358·5	—	—	—
11 000	3 497·2	3 885·8	4 274·3	4 662·9	4 857·2	5 440·1	5 828·6	6 217·2	—	—	—	—
12 500	3 974·1	4 415·6	4 857·2	5 298·8	5 519·5	6 181·9	—	—	—	—	—	—
	50-mm Plate											
2 000	706·5	785·0	863·5	942·0	981·2	1 099·0	1 177·5	1 256·0	1 413·0	1 570·0	1 727·0	1 962·5
2 200	777·2	863·5	949·8	1 036·2	1 079·4	1 208·9	1 295·2	1 381·6	1 554·3	1 727·0	1 899·7	2 158·8
2 500	883·1	981·2	1 079·4	1 177·5	1 226·6	1 373·8	1 471·9	1 570·0	1 766·2	1 962·5	2 158·8	2 453·1
2 800	989·1	1 099·0	1 208·9	1 318·8	1 373·8	1 538·6	1 648·5	1 758·4	1 978·2	2 198·0	2 417·8	2 747·5
3 200	1 130·4	1 256·0	1 381·6	1 507·2	1 570·0	1 758·4	1 884·0	2 009·6	2 260·8	2 512·0	2 763·2	3 140·0
3 600	1 271·7	1 413·0	1 554·3	1 695·6	1 766·2	1 978·2	2 119·5	2 260·8	2 543·4	2 826·0	3 108·6	3 532·5
4 000	1 413·0	1 570·0	1 727·0	1 884·0	1 962·5	2 198·5	2 355·0	2 512·0	2 826·0	3 140·0	3 454·0	3 925·0
4 500	1 589·6	1 766·2	1 942·9	2 119·5	2 207·8	2 472·8	2 649·4	2 826·0	3 179·2	3 532·5	3 885·8	4 415·6
5 000	1 766·2	1 962·5	2 158·8	2 355·0	2 453·1	2 747·5	2 943·8	3 140·0	3 532·5	3 925·0	4 317·5	4 906·2
5 600	1 978·2	2 198·0	2 417·8	2 637·6	2 747·5	3 077·2	3 297·0	3 516·8	3 956·4	4 396·0	4 835·6	5 495·0
6 300	2 225·5	2 472·8	2 720·0	2 967·3	3 090·9	3 461·8	3 709·1	3 956·4	4 451·0	4 945·5	5 440·0	6 181·9
7 100	2 508·1	2 786·8	3 065·4	3 344·1	3 483·4	3 901·4	4 180·1	4 458·8	5 016·2	5 573·5	6 130·8	—
8 000	2 826·0	3 140·0	3 454·0	3 768·0	3 925·0	4 396·0	4 710·0	5 024·0	5 652·0	6 280·0	—	—
9 000	3 179·2	3 532·5	3 885·8	4 239·0	4 415·6	4 945·5	5 298·8	5 652·0	6 358·5	—	—	—
10 000	3 532·5	3 925·0	4 317·5	4 710·0	4 906·2	5 495·0	5 887·5	6 280·0	—	—	—	—
11 000	3 885·8	4 317·5	4 749·2	5 181·0	5 396·9	6 044·5	6 476·2	—	—	—	—	—
12 500	4 415·6	4 906·2	5 396·9	5 887·5	6 132·8	—	—	—	—	—	—	—

(*Continued*)

TABLE VII PLATES — (*Continued*)

900	1 000	1 100	1 200	1 250	1 400	1 500	1 600	1 800	2 000	2 200	2 500	Width *b* mm
					WEIGHT IN kg							Length *l* mm
					56-mm Plate							
791·3	879·2	967·1	1 055·0	1 099·0	1 230·9	1 318·8	1 406·7	1 582·6	1 758·4	1 934·2	2 198·0	2 000
870·4	967·1	1 063·8	1 160·5	1 208·9	1 354·0	1 450·7	1 547·4	1 740·8	1 934·2	2 127·7	2 417·8	2 200
989·1	1 099·0	1 208·9	1 318·8	1 373·8	1 538·6	1 648·5	1 758·4	1 978·2	2 198·0	2 417·8	2 747·5	2 500
1 107·8	1 230·9	1 354·0	1 477·1	1 538·6	1 723·2	1 846·3	1 969·4	2 215·6	2 461·8	2 707·9	3 077·2	2 800
1 266·0	1 406·7	1 547·4	1 688·1	1 758·4	1 969·4	2 110·1	2 250·8	2 532·1	2 813·4	3 094·8	3 516·8	3 200
1 424·3	1 582·6	1 740·8	1 899·1	1 978·2	2 215·6	2 373·8	2 532·1	2 848·6	3 165·1	3 481·6	3 956·4	3 600
1 582·6	1 758·4	1 934·2	2 110·1	2 198·0	2 461·8	2 637·6	2 813·4	3 165·1	3 516·8	3 868·5	4 396·0	4 000
1 780·4	1 978·2	2 176·0	2 373·8	2 472·8	2 769·5	2 967·3	3 165·1	3 560·8	3 956·4	4 352·0	4 945·5	4 500
1 978·2	2 198·0	2 417·8	2 637·6	2 747·5	3 077·2	3 297·0	3 516·8	3 956·4	4 396·0	4 835·6	5 495·0	5 000
2 215·6	2 461·8	2 707·9	2 954·1	3 077·2	3 446·5	3 692·6	3 938·8	4 431·2	4 923·5	5 415·9	6 154·4	5 600
2 492·5	2 769·5	3 046·4	3 323·4	3 461·9	3 877·3	4 154·2	4 431·2	4 985·1	5 540·0	6 092·9	—	6 300
2 809·0	3 121·2	3 433·3	3 745·4	3 901·4	4 369·6	4 681·7	4 993·9	5 618·1	6 242·3	—	—	7 100
3 165·1	3 516·8	3 868·5	4 220·2	4 396·0	4 923·5	5 275·2	5 626·9	6 330·2	—	—	—	8 000
3 560·8	3 956·4	4 352·0	4 747·7	4 945·5	5 539·0	5 934·6	6 330·2	—	—	—	—	9 000
3 956·4	4 396·0	4 835·6	5 275·2	5 495·0	6 154·4	—	—	—	—	—	—	10 000
4 352·0	4 835·6	5 319·2	5 802·7	6 044·5	—	—	—	—	—	—	—	11 000
4 945·5	5 495·0	6 044·5	—	—	—	—	—	—	—	—	—	12 500
					63-mm Plate							
890·2	989·1	1 088·0	1 186·9	1 236·4	1 384·7	1 483·6	1 582·6	1 780·4	1 978·2	2 176·0	2 472·8	2 000
979·2	1 088·0	1 196·8	1 305·6	1 360·0	1 523·2	1 632·0	1 740·8	1 958·4	2 176·0	2 393·6	2 720·0	2 200
1 112·7	1 236·4	1 360·0	1 483·6	1 545·5	1 730·9	1 854·6	1 978·2	2 225·5	2 472·8	2 720·0	3 090·9	2 500
1 246·3	1 384·7	1 523·2	1 661·7	1 730·9	1 938·6	2 077·1	2 215·6	2 492·5	2 769·5	3 046·4	3 461·8	2 800
1 424·3	1 582·6	1 740·8	1 899·1	1 978·2	2 215·6	2 373·8	2 532·1	2 848·6	3 165·1	3 481·6	3 956·4	3 200
1 602·3	1 780·4	1 958·4	2 136·5	2 225·5	2 492·5	2 670·6	2 848·6	3 204·7	3 560·8	3 916·8	4 451·0	3 600
1 780·4	1 978·2	2 176·0	2 373·8	2 472·8	2 769·5	2 967·3	3 165·1	3 560·8	3 956·4	4 352·0	4 945·5	4 000
2 002·9	2 225·5	2 448·0	2 670·6	2 781·8	3 115·7	3 338·2	3 560·8	4 005·9	4 451·0	4 896·0	5 563·7	4 500
2 225·5	2 472·8	2 720·0	2 967·3	3 090·9	3 461·8	3 709·1	3 956·4	4 451·5	4 945·5	5 440·0	6 181·9	5 000
2 492·5	2 769·5	3 046·4	3 323·4	3 461·8	3 877·3	4 154·2	4 431·2	4 985·1	5 539·0	6 092·9	—	5 600
2 804·1	3 115·7	3 427·2	3 738·8	3 894·6	4 361·9	4 673·5	4 985·1	5 608·2	6 231·3	—	—	6 300
3 160·2	3 511·3	3 862·4	4 213·6	4 389·1	4 915·8	5 267·0	5 618·1	6 320·3	—	—	—	7 100
3 560·8	3 956·4	4 352·0	4 747·7	4 945·5	5 539·0	5 934·6	6 330·2	—	—	—	—	8 000
4 005·9	4 451·0	4 896·0	5 341·1	5 563·7	6 231·3	—	—	—	—	—	—	9 000
4 451·0	4 945·5	5 440·0	5 934·6	6 181·9	—	—	—	—	—	—	—	10 000
4 896·0	5 440·0	5 984·1	—	—	—	—	—	—	—	—	—	11 000
5 563·7	6 181·9	—	—	—	—	—	—	—	—	—	—	12 500

TABLE VIII SHEET AND STRIP

SHEET

Size mm × mm	Standard Nominal Surface Area in m^2	Standard Nominal Thickness in mm: 0·40	0·50	0·63	0·80	0·90	1·00	1·12	1·25	1·40
		Weight in kg								
1 800 × 600	1·08	3·4	4·2	5·3	6·8	7·6	8·5	9·5	10·6	11·9
750	1·35	4·2	5·3	6·7	8·5	9·5	10·6	11·9	13·2	14·8
900	1·62	5·1	6·4	8·0	10·2	11·4	12·7	14·2	15·9	17·8
1 000	1·80	5·7	7·1	8·9	11·3	12·7	14·2	15·8	17·7	19·8
1 100	1·98	6·2	7·8	9·8	12·4	14·0	15·6	17·4	19·4	21·8
1 200	2·16	6·8	8·5	10·7	13·6	15·3	17·0	19·0	21·2	23·7
1 250	2·25	7·1	8·8	11·1	14·1	15·9	17·6	19·8	22·1	24·7
1 400	2·52	7·9	9·9	12·5	15·8	17·8	19·8	22·2	24·7	27·7
1 500	2·70	8·5	0·6	13·4	17·0	19·1	21·2	23·8	26·5	29·7
2 000 × 600	1·20	3·8	4·7	5·9	7·5	8·5	9·4	10·6	11·8	13·2
750	1·50	4·7	5·9	7·4	9·4	10·6	11·8	13·2	14·7	16·5
900	1·80	5·7	7·1	8·9	11·3	12·7	14·1	15·8	17·7	19·8
1 000	2·00	6·3	7·8	9·9	12·6	14·1	15·7	17·6	19·6	22·0
1 100	2·20	6·9	8·6	10·9	13·8	15·5	17·3	19·3	21·6	24·2
1 200	2·40	7·5	9·4	11·9	15·1	17·0	18·8	21·1	23·6	26·4
1 250	2·50	7·8	9·8	12·4	15·7	17·7	19·6	22·0	24·5	27·5
1 400	2·80	8·8	11·0	13·8	17·6	19·8	22·0	24·6	27·5	30·8
1 500	3·00	9·4	11·8	14·8	18·8	21·2	23·6	26·4	29·4	33·0
2 200 × 600	1·32	4·1	5·2	6·5	8·3	9·3	10·4	11·6	13·0	14·5
750	1·65	5·2	6·5	8·2	10·4	11·7	13·0	14·5	16·2	18·1
900	1·98	6·2	7·8	9·8	12·4	14·0	15·5	17·4	19·4	21·8
1 000	2·20	6·9	8·6	10·9	13·8	15·5	17·3	19·3	21·6	24·2
1 100	2·42	7·6	9·5	12·0	15·2	17·1	19·0	21·3	23·7	26·6
1 200	2·64	8·3	10·4	13·1	16·6	18·7	20·7	23·2	25·9	29·0
1 250	2·75	8·6	10·8	13·6	17·3	19·4	21·6	24·2	27·0	30·2
1 400	3·08	9·7	12·1	15·2	19·3	21·8	24·2	27·1	30·2	33·8
1 500	3·30	10·4	13·0	16·3	20·7	23·3	25·9	29·0	32·4	36·3
2 500 × 600	1·50	4·7	5·9	7·4	9·4	10·6	11·8	13·2	14·7	16·5
750	1·875	5·9	7·4	9·3	11·8	13·2	14·7	16·5	18·4	20·6
900	2·25	7·1	8·8	11·1	14·1	15·9	17·7	19·8	22·1	24·7
1 000	2·50	7·8	9·8	12·4	15·7	17·7	19·6	22·0	24·5	27·5
1 100	2·75	8·6	10·8	13·6	17·3	19·4	21·6	24·2	27·0	30·2
1 200	3·00	9·4	11·8	14·8	18·8	21·2	23·6	26·4	29·4	33·0
1 250	3·125	9·8	12·3	15·5	19·6	22·1	24·5	27·5	30·7	34·3
1 400	3·50	11·0	13·7	17·3	22·0	24·7	27·5	30·8	34·3	38·5
1 500	3·75	11·8	14·7	18·5	23·6	26·5	29·4	33·0	36·8	41·2

(*Continued*)

TABLE VIII SHEET AND STRIP — (*Continued*)

SHEET

1·60	1·80	2·00	2·24	2·50	2·80	3·15	3·55	4·00	Standard Nominal Thickness in mm	
Weight in kg									Standard Nominal Surface Area in m^2	Size mm × mm
13·6	15·3	17·0	19·0	21·2	23·7	26·7	30·1	33·9	1·08	1 800 × 600
17·0	19·1	21·2	23·7	26·5	29·7	33·4	37·6	42·4	1·35	750
20·3	22·9	25·4	28·5	31·8	35·6	40·1	45·1	50·9	1·62	900
22·6	25·4	28·3	31·7	35·3	39·6	44·5	50·2	56·5	1·80	1 000
24·9	28·0	31·1	34·8	38·9	43·5	49·0	55·2	62·2	1·98	1 100
27·1	30·5	33·9	38·0	42·4	47·5	53·4	60·2	67·8	2·16	1 200
28·3	31·8	35·3	39·6	44·2	49·5	55·6	62·7	70·6	2·25	1 250
31·7	35·6	39·6	44·3	49·5	55·4	62·3	70·2	79·1	2·52	1 400
33·9	38·2	42·4	47·5	53·0	59·3	66·8	75·2	84·8	2·70	1 500
15·1	17·0	18·8	21·1	23·6	26·4	29·7	33·4	37·7	1·20	2 000 × 600
18·8	21·2	23·6	26·4	29·4	33·0	37·1	41·8	47·1	1·50	750
22·6	25·4	28·3	31·7	35·3	39·6	44·5	50·2	56·5	1·80	900
25·1	28·3	31·4	35·2	39·2	44·0	49·5	55·7	62·8	2·00	1 000
27·6	31·1	34·5	38·7	43·2	48·4	54·4	61·3	69·1	2·20	1 100
30·1	33·9	37·7	42·2	47·1	52·8	59·3	66·9	75·4	2·40	1 200
31·4	35·3	39·2	44·0	49·1	55·0	61·8	69·7	78·5	2·50	1 250
35·2	39·6	44·0	49·2	55·0	61·5	69·2	78·0	87·9	2·80	1 400
37·7	42·4	47·1	52·8	58·9	65·9	74·2	83·6	94·2	3·00	1 500
16·6	18·7	20·7	23·2	25·9	29·0	32·6	36·8	41·4	1·32	2 200 × 600
20·7	23·3	25·9	29·0	32·4	36·3	40·8	46·0	51·8	1·65	750
24·9	28·0	31·1	34·8	38·9	43·5	49·0	55·2	62·2	1·98	900
27·6	31·1	34·5	38·7	43·2	48·4	54·4	61·3	69·1	2·20	1 000
30·4	34·2	38·0	42·6	47·5	53·2	59·8	67·4	76·0	2·42	1 100
33·2	37·3	41·4	46·4	51·8	58·0	65·3	73·6	82·9	2·64	1 200
34·5	38·9	43·2	48·4	54·0	60·4	68·0	76·6	86·4	2·75	1 250
38·7	43·5	48·4	54·2	60·4	67·7	76·2	85·8	96·7	3·08	1 400
41·4	46·6	51·8	58·0	64·8	72·5	81·6	92·0	103·6	3·30	1 500
18·8	21·2	23·6	26·4	29·4	33·0	37·1	41·8	47·1	1·50	2 500 × 600
23·6	26·5	29·4	33·0	36·8	41·2	46·4	52·3	58·9	1·875	750
28·3	31·8	35·3	39·6	44·2	49·5	55·6	62·7	70·6	2·25	900
31·4	35·3	39·2	44·0	49·1	55·0	61·8	69·7	78·5	2·50	1 000
34·5	38·9	43·2	48·4	54·0	60·4	68·0	76·6	86·4	2·75	1 100
37·7	42·4	47·1	52·8	58·9	65·9	74·2	83·6	94·2	3·00	1 200
39·2	44·2	49·1	55·0	61·3	68·7	77·3	87·1	98·1	3·125	1 250
44·0	49·5	55·0	61·5	68·7	76·9	86·5	97·5	109·9	3·50	1 400
47·1	53·0	58·9	65·9	73·6	82·4	92·7	104·5	117·8	3·75	1 500

(*Continued*)

TABLE VIII SHEET AND STRIP — (*Continued*)

SHEET

Size mm × mm	Standard Nominal Surface Area in m^2	Standard Nominal Thickness in mm: 0·40	0·50	0·63	0·80	0·90	1·00	1·12	1·25	1·40
		Weight in kg								
2 800 × 600	1·68	5·3	6·6	8·3	10·6	11·9	13·2	14·8	16·5	18·5
750	2·10	6·6	8·2	10·4	13·2	14·8	16·5	18·5	20·6	23·1
900	2·52	7·9	9·9	12·5	15·8	17·8	19·8	22·2	24·7	27·7
1 000	2·80	8·8	11·0	13·8	17·6	19·8	22·0	24·6	27·5	30·8
1 100	3·08	9·7	12·1	15·2	19·3	21·8	24·2	27·1	30·2	33·8
1 200	3·36	10·6	13·2	16·6	21·1	23·7	26·4	29·5	33·0	36·9
1 250	3·50	11·0	13·7	17·3	22·0	24·7	27·5	30·8	34·3	38·5
1 400	3·92	12·3	15·4	19·4	24·6	27·7	30·8	34·5	38·5	43·1
1 500	4·20	13·2	16·5	20·8	26·4	29·7	33·0	36·9	41·2	46·2
3 200 × 600	1·92	6·0	7·5	9·5	12·1	13·6	15·1	16·9	18·8	21·1
750	2·40	7·5	9·4	11·9	15·1	17·0	18·8	21·1	23·6	26·4
900	2·88	9·0	11·3	14·2	18·1	20·3	22·6	25·3	28·3	31·7
1 000	3·20	10·0	12·6	15·8	20·1	22·6	25·1	28·1	31·4	35·2
1 100	3·52	11·1	13·8	17·4	22·1	24·9	27·6	30·9	34·5	38·7
1 200	3·84	12·1	15·1	19·0	24·1	27·1	30·1	33·8	37·7	42·2
1 250	4·00	12·6	15·7	19·8	25·1	28·3	31·4	35·2	39·2	44·0
1 400	4·48	14·1	17·6	22·2	28·1	31·7	35·2	39·4	44·0	49·2
1 500	4·80	15·1	18·8	23·7	30·1	33·9	37·7	42·2	47·1	52·8
3 600 × 600	2·16	6·8	8·5	10·7	13·6	15·3	17·0	19·0	21·2	23·7
750	2·70	8·5	10·6	13·4	17·0	19·1	21·2	23·7	26·5	29·7
900	3·24	10·2	12·7	16·0	20·3	22·9	25·4	28·5	31·8	35·6
1 000	3·60	11·3	14·1	17·8	22·6	25·4	28·3	31·7	35·3	39·6
1 100	3·96	12·4	15·5	19·6	24·9	28·0	31·1	34·8	38·9	43·5
1 200	4·32	13·6	17·0	21·4	27·1	30·5	33·9	38·0	42·4	47·5
1 250	4·50	14·1	17·7	22·3	28·3	31·8	35·3	39·6	44·2	49·5
1 400	5·04	15·8	19·8	24·9	31·7	35·6	39·6	44·3	49·5	55·4
1 500	5·40	17·0	21·2	26·7	33·9	38·2	42·4	47·5	53·0	59·3
4 000 × 600	2·40	7·5	9·4	11·9	15·1	17·0	18·8	21·1	23·6	26·4
750	3·00	9·4	11·8	14·8	18·8	21·2	23·6	26·4	29·4	33·0
900	3·60	11·3	14·1	17·8	22·6	25·4	28·3	31·7	35·3	39·6
1 000	4·00	12·6	15·7	19·8	25·1	28·3	31·4	35·2	39·2	44·0
1 100	4·40	13·8	17·3	21·8	27·6	31·1	34·5	38·7	43·2	48·4
1 200	4·80	15·1	18·8	23·7	30·1	33·9	37·7	42·2	47·1	52·8
1 250	5·00	15·7	19·6	24·7	31·4	35·3	39·2	44·0	49·1	55·0
1 400	5·60	17·6	22·0	27·7	35·2	39·6	44·0	49·2	55·0	61·5
1 500	6·00	18·8	23·6	29·7	37·7	42·4	47·1	52·8	58·9	65·9

(*Continued*)

TABLE VIII SHEET AND STRIP — (*Continued*)

SHEET

1·60	1·80	2·00	2·24	2·50	2·80	3·15	3·55	4·00	Standard Nominal Thickness in mm	
Weight in kg									Standard Nominal Surface Area in m^2	Size mm × mm
21·1	23·7	26·4	29·5	33·0	36·9	41·5	46·8	52·8	1·68	2 800 × 600
26·4	29·7	33·0	36·9	41·2	46·2	51·9	58·5	65·9	2·10	750
31·7	35·6	39·6	44·3	49·5	55·4	62·3	70·2	79·1	2·52	900
35·2	39·6	44·0	49·2	55·0	61·5	69·2	78·0	87·9	2·80	1 000
38·7	43·5	48·4	54·2	60·4	67·7	76·2	85·8	96·7	3·08	1 100
42·2	47·5	52·8	59·1	65·9	73·9	83·1	93·6	105·5	3·36	1 200
44·0	49·5	55·0	61·5	68·7	76·9	86·5	97·5	109·9	3·50	1 250
49·2	55·4	61·5	68·9	76·9	86·2	96·9	109·2	123·1	3·92	1 400
52·8	59·3	65·9	73·9	82·4	92·3	103·8	117·0	131·9	4·20	1 500
24·1	27·1	30·1	33·8	37·7	42·2	47·5	53·5	60·3	1·92	3 200 × 600
30·1	33·9	37·7	42·2	47·1	52·8	59·3	66·9	75·4	2·40	750
36·2	40·7	45·2	50·6	56·5	63·3	71·2	80·3	90·4	2·88	900
40·2	45·2	50·2	56·3	62·8	70·3	79·1	89·2	100·5	3·20	1 000
44·2	49·7	55·3	61·9	69·1	77·4	87·0	98·1	110·5	3·52	1 100
48·2	54·3	60·3	67·5	75·4	84·4	95·0	110·7	120·6	3·84	1 200
50·2	56·5	62·8	70·3	78·5	87·9	98·9	111·5	125·6	4·00	1 250
56·3	63·3	70·3	78·8	87·9	98·5	110·8	124·8	140·7	4·48	1 400
60·3	67·8	75·4	84·4	94·2	105·5	118·7	133·8	150·7	4·80	1 500
27·1	30·5	33·9	38·0	42·4	47·5	53·4	60·2	67·8	2·16	3 600 × 600
33·9	38·2	42·4	47·5	53·0	59·3	66·8	75·2	84·8	2·70	750
40·7	45·8	50·9	57·0	63·6	71·2	80·1	90·3	101·7	3·24	900
45·2	50·9	56·5	63·3	70·6	79·1	89·0	100·3	113·0	3·60	1 000
49·7	56·0	62·2	69·6	77·7	87·0	97·9	110·4	124·3	3·96	1 100
54·3	61·0	67·8	76·0	84·8	95·0	106·8	120·4	135·6	4·32	1 200
56·5	63·6	70·6	79·1	88·3	98·9	111·3	125·4	141·3	4·50	1 250
63·3	71·2	79·1	88·6	98·9	110·8	124·6	140·5	158·3	5·04	1 400
67·8	76·3	84·8	95·0	106·0	118·7	133·5	150·5	169·6	5·40	1 500
30·1	33·9	37·7	42·2	47·1	52·8	59·3	66·9	75·4	2·40	4 000 × 600
37·7	42·4	47·1	52·8	58·9	65·9	74·2	83·6	94·2	3·00	750
45·2	50·9	56·5	63·3	70·6	79·1	89·0	100·3	113·0	3·60	900
50·2	56·5	62·8	70·3	78·5	87·9	98·9	111·5	125·6	4·00	1 000
55·3	62·2	69·1	77·4	86·4	96·7	108·8	122·6	138·2	4·40	1 100
60·3	67·8	75·4	84·4	94·2	105·5	118·7	133·8	150·7	4·80	1 200
62·8	70·6	78·5	87·9	98·1	109·9	123·6	139·3	157·0	5·00	1 250
70·3	79·1	87·9	98·5	109·9	123·1	138·5	156·1	175·8	5·60	1 400
75·4	84·8	94·2	105·5	117·8	131·9	148·4	167·2	188·4	6·00	1 500

(*Continued*)

TABLE VIII SHEET AND STRIP

(Continued)

STRIP

Thickness *t* mm	1·60	1·80	2·00	2·24	2·50	2·80	3·15
Width *b* mm	Weight in kg/m						
100	1·3	1·4	1·6	1·8	2·0	2·2	2·5
125	1·6	1·8	2·0	2·2	2·4	2·7	3·1
160	2·0	2·3	2·5	2·8	3·1	3·5	4·0
200	2·5	2·8	3·1	3·5	3·9	4·4	4·9
250	3·1	3·5	3·9	4·4	4·9	5·5	6·2
320	4·0	4·5	5·0	5·6	6·3	7·0	7·9
400	5·0	5·6	6·3	7·0	7·8	8·8	9·9
500	6·3	7·1	7·8	8·8	9·8	11·0	12·4
650	8·2	9·2	10·2	11·4	12·8	14·3	16·1
800	10·0	11·3	12·6	14·1	15·7	17·6	19·8
950	—	13·4	14·9	16·7	18·6	20·9	23·5
1 050	—	—	16·5	18·5	20·6	23·1	26·0
1 150	—	—	—	20·2	22·6	25·3	28·4
1 250	—	—	—	—	24·5	27·5	30·9
1 300	—	—	—		—	28·6	32·1
1 450	—	—	—	—	—	—	35·8
1 550	—	—		—	—	—	38·3

(Continued)

Note — Combinations denoted by dashes are not manufactured.

TABLE VIII SHEET AND STRIP

(Continued)

STRIP

3·55	4·00	4·50	5·0	6·0	8·0	10·0	Thickness *t* mm
Weight in kg/m							Width *b* mm
2·8	3·1	3·5	3·9	4·7	6·3	7·8	100
3·5	3·9	4·4	4·9	5·9	7·8	9·8	125
4·5	5·0	5·6	6·3	7·5	10·0	12·6	160
5·6	6·3	7·1	7·8	9·4	12·6	15·7	200
7·0	7·8	8·8	9·8	11·8	15·7	19·6	250
8·9	10·0	11·3	12·6	15·1	20·1	25·1	320
11·1	12·6	14·1	15·7	18·8	25·1	31·4	400
13·9	15·7	17·7	19·6	23·6	31·4	39·2	500
18·1	20·4	23·0	25·5	30·6	40·8	51·0	650
22·3	25·1	28·3	31·4	37·7	50·2	62·8	800
26·5	29·8	33·6	37·3	44·7	59·7	74·6	950
29·3	33·0	37·1	41·2	49·5	65·9	82·4	1 050
32·0	36·1	40·6	45·1	54·2	72·2	90·3	1 150
34·8	39·2	44·2	49·1	58·9	78·5	98·1	1 250
36·2	40·8	45·9	51·0	61·2	81·6	102·0	1 300
40·4	45·5	51·2	56·9	68·3	91·1	113·8	1 450
43·2	48·7	54·7	60·8	73·0	97·3	121·7	1 550

TABLE IX MILD STEEL FLATS

Thickness *t* mm	3·0	4·0	5·0	6·0	8·0	10·0	12
Width *b* mm	Weight in kg/m Length						
10	0·2	0·3	0·5	—	—	—	—
15	0·4	0·5	0·6	0·7	0·9	—	—
20	0·5	0·6	0·8	0·9	1·3	1·6	—
25	0·6	0·8	1·0	1·2	1·6	2·0	2·4
30	0·7	0·9	1·2	1·4	1·9	2·4	2·8
35	0·8	1·1	1·4	1·6	2·2	2·8	3·3
40	0·9	1·3	1·6	1·9	2·5	3·1	3·8
45	1·1	1·4	1·8	2·1	2·8	3·5	4·2
50	1·2	1·6	2·0	2·4	3·1	3·9	4·7
55	1·3	1·7	2·2	2·6	3·4	4·3	5·2
60	1·4	1·9	2·4	2·8	3·8	4·7	5·6
65	—	—	—	3·1	4·1	5·1	6·1
70	—	—	—	3·3	4·4	5·5	6·6
75	—	—	—	3·5	4·7	5·9	7·1
80	—	—	—	3·8	5·0	6·3	7·5
90	—	—	—	4·2	5·6	7·1	8·5
100	—	—	—	4·7	6·3	7·8	9·4
110	—	—	—	5·2	6·9	8·6	10·4
120	—	—	—	5·6	7·5	9·4	11·3
130	—	—	—	—	8·2	10·2	12·2
140	—	—	—	—	8·8	11·0	13·2
150	—	—	—	—	9·4	11·8	14·1
200	—	—	—	—	—	15·7	18·8
250	—	—	—	—	—	19·6	23·6
300	—	—	—	—	—	—	28·3
400	—	—	—	—	—	—	—

(*Continued*

Note — The weight per metre values are calculated on the basis that steel weighs 7·85 g/cm³ and are rounded off to one decimal place in kg.

TABLE IX MILD STEEL FLATS — (*Continued*)

16	18	20	25	32	40	Thickness *t* mm
Weight in kg/m Length						Width *b* mm
—	—	—	—	—	—	10
—	—	—	—	—	—	15
—	—	—	—	—	—	20
—	—	—	—	—	—	25
3·8	—	—	—	—	—	30
4·4	5·0	5·5	—	—	—	35
5·0	5·6	6·3	—	—	—	40
5·6	6·4	7·1	—	—	—	45
6·3	7·1	7·8	9·8	—	—	50
6·9	7·8	8·6	10·8	—	—	55
7·5	8·5	9·4	11·8	15·1	—	60
8·2	9·2	10·2	12·8	16·3	20·4	65
8·8	9·9	11·0	13·7	17·6	22·0	70
9·4	10·6	11·8	14·7	18·8	23·6	75
10·0	11·3	12·6	15·7	20·1	25·1	80
11·3	12·7	14·1	17·7	22·6	28·3	90
12·6	14·1	15·7	19·6	25·1	31·4	100
13·8	15·5	17·3	21·6	27·6	34·5	110
15·1	17·0	18·8	23·6	30·1	37·7	120
16·3	18·4	20·4	25·5	32·7	40·8	130
17·6	19·8	22·0	27·5	35·2	44·0	140
18·8	21·2	23·6	29·4	37·7	47·1	150
25·1	28·3	31·4	39·2	50·2	62·8	200
31·4	35·3	39·2	49·1	62·8	78·5	250
37·7	42·4	47·1	58·9	75·4	94·2	300
50·2	56·5	62·8	78·5	100·5	125·6	400

(Continued)

Note — The weight per metre values are calculated on the basis that steel weighs 7·85 g/cm³ and are rounded off to one decimal place in kg.

TABLE IX MILD STEEL FLATS — (*Continued*)

Thickness t mm	3·0	4·0	5·0	6·0	8·0	10·0	12
Width b mm	**Cross-Sectional Area in cm²**						
10	0·30	0·40	0·50	0·60	—	—	—
15	0·45	0·60	0·75	0·90	1·20	—	—
20	0·60	0·80	1·00	1·20	1·60	2·00	—
25	0·75	1·00	1·25	1·50	2·00	2·50	3·00
30	0·90	1·20	1·50	1·80	2·40	3·00	3·60
35	1·05	1·40	1·75	2·10	2·80	3·50	4·20
40	1·20	1·60	2·00	2·40	3·20	4·00	4·80
45	1·35	1·80	2·25	2·70	3·60	4·50	5·40
50	1·50	2·00	2·50	3·00	4·00	5·00	6·00
55	1·65	2·20	2·75	3·30	4·40	5·50	6·60
60	1·80	2·40	3·00	3·60	4·80	6·00	7·20
65	—	—	—	3·90	5·20	6·50	7·80
70	—	—	—	4·20	5·60	7·00	8·40
75	—	—	—	4·50	6·00	7·50	9·00
80	—	—	—	4·80	6·40	8·00	9·00
90	—	—	—	5·40	7·20	9·00	10·80
100	—	—	—	6·00	8·00	10·00	12·00
110	—	—	—	—	8·80	11·00	13·20
120	—	—	—	—	9·60	12·00	14·40
130	—	—	—	—	10·40	13·00	15·60
140	—	—	—	—	11·20	14·00	16·80
150	—	—	—	—	12·00	15·00	18·00
200	—	—	—	—	—	20·00	24·00
250	—	—	—	—	—	25·00	30·00
300	—	—	—	—	—	—	36·00
400	—	—	—	—	—	—	—

(*Continued*)

TABLE IX MILD STEEL FLATS—(*Continued*)

16	18	20	25	32	40	Thickness *t* mm
Cross-Sectional Area in cm^2						Width *b* mm
—	—	—	—	—	—	10
—	—	—	—	—	—	15
—	—	—	—	—	—	20
—	—	—	—	—	—	25
4·80	—	—	—	—	—	30
5·60	6·30	7·00	—	—	—	35
6·40	7·20	8·00	—	—	—	40
7·20	8·10	9·00	—	—	—	45
8·00	9·00	10·00	12·50	—	—	50
8·80	9·90	11·00	13·75	—	—	55
9·60	10·80	12·00	15·00	19·20	—	60
10·40	11·70	13·00	16·25	20·80	26·00	65
11·20	12·60	14·00	17·50	22·40	28·00	70
12·00	13·50	15·00	18·75	24·00	30·00	75
12·80	14·40	16·00	20·00	25·60	32·00	80
14·40	16·20	18·00	22·50	28·80	36·00	90
16·00	18·00	20·00	25·00	32·00	40·00	100
17·60	19·80	22·00	27·50	35·20	44·00	110
19·20	21·60	24·00	30·00	38·40	48·00	120
20·80	23·40	26·00	32·50	41·60	52·00	130
22·40	25·20	28·00	35·00	44·80	56·00	140
24·00	27·00	30·00	37·50	48·00	60·00	150
32·00	36·00	40·00	50·00	64·00	80·00	200
40·00	45·00	50·00	62·50	80·00	100·00	250
48·00	54·00	60·00	75·00	96·00	120·00	300
64·00	72·00	80·00	100·00	128·00	160·00	400

TABLE X BARS

ROUND BARS

Designation	Diameter	Cross-Sectional Area	*Weight per Metre	Perimeter
	mm	cm^2	kg	cm
ISRO 5	5·0	0·20	0·2	1·6
ISRO 6	6·0	0·28	0·2	1·9
ISRO 8	8·0	0·50	0·4	2·5
ISRO 10	10·0	0·79	0·6	3·1
ISRO 12	12	1·13	0·9	3·8
ISRO 16	16	2·01	1·6	5·0
ISRO 20	20	3·14	2·5	6·3
ISRO 25	25	4·91	3·8	7·8
ISRO 28	28	6·16	4·8	9·8
ISRO 32	32	8·04	6·3	10·1
ISRO 36	36	10·18	8·0	11·3
ISRO 40	40	12·57	9·9	12·6
ISRO 45	45	15·90	12·5	14·1
ISRO 50	50	19·64	15·4	15·7
ISRO 56	56	24·63	19·3	17·6
ISRO 63	63	31·17	24·5	19·8
ISRO 71	71	39·59	31·1	22·3
ISRO 80	80	50·26	39·5	25·1
ISRO 90	90	63·26	49·9	28·3
ISRO 100	100	78·54	61·7	31·4
ISRO 110	110	95·03	74·6	34·6
ISRO 125	125	122·72	96·3	39·3
ISRO 140	140	153·94	120·8	44·0
ISRO 160	160	201·06	157·8	50·3
ISRO 180	180	254·47	199·8	56·6
ISRO 200	200	314·16	246·6	62·8

SQUARE BARS

Designation	Side Width	Cross-Sectional Area	*Weight per Metre	Perimeter
	mm	cm^2	kg	cm
ISSQ 5	5·0	0·25	0·2	2·0
ISSQ 6	6·0	0·36	0·3	2·4
ISSQ 8	8·0	0·64	0·5	3·2
ISSQ 10	10·0	1·00	0·8	4·0
ISSQ 12	12	1·44	1·1	4·8
ISSQ 16	16	2·56	2·0	6·4
ISSQ 20	20	4·00	3·1	8·0
ISSQ 25	25	6·25	4·9	10·0
ISSQ 32	32	10·24	8·0	12·8
ISSQ 40	40	16·00	12·6	16·0
ISSQ 50	50	25·00	19·6	20·0
ISSQ 63	63	39·69	31·2	25·2
ISSQ 80	80	64·00	50·2	32·0
ISSQ 100	100	100·00	78·5	40·0

*The weights per metre of bars given in the table are calculated on the basis that steel weighs 7·85 g/cm^3 and are rounded off to one decimal place in kg.

SECTION B
BEAMS, CHANNELS AND COMPOUND SECTIONS USED AS GIRDERS
(TABLES XI-XXIII)

TABLE XI ECONOMY IN THE SELECTION OF BEAMS AND CHANNELS USED AS FLEXURAL MEMBERS BASED ON SECTION MODULI

Modulus of Section Z_{xx}	Designation	Weight per Metre w	Shear Carrying Capacity S	Modulus of Section Z_{xx}	Designation	Weight per Metre w	Shear Carrying Capacity S	Modulus of Section Z_{xx}	Designation	Weight per Metre w	Shear Carrying Capacity S
cm^3		kg	$kg \times 10^3$	cm^3		kg	$kg \times 10^3$	cm^3		kg	$kg \times 10^3$
3 854·2	*ISWB 600	145·1	66·9	532·1	*ISLC 350	38·8	24·5	116·3	*ISJB 225	12·8	7·9
3 540·0	*ISWB 600	133·7	63·5	488·9	*ISLB 300	37·7	19·0	116·1	ISJC 200	13·9	7·7
3 060·4	*ISMB 600	122·6	68·0					111·9	ISWB 150	17·0	7·7
				475·4	ISWB 250	40·9	15·8				
2 723·9	*ISWB 550	112·5	54·6	424·2	*ISMC 300	35·8	21·5	103·9	ISMC 150	16·4	7·7
2 428·9	*ISLB 600	99·5	59·5	410·5	ISMB 250	37·3	16·3	96·9	ISMB 150	14·9	6·8
2 359·8	ISMB 550	103·7	58·2					93·0	ISLC 150	14·4	6·8
				403·2	*ISLC 300	33·1	19·0				
2 091·6	*ISWB 500	95·2	46·8	392·4	*ISLB 275	33·0	16·6	91·8	ISLB 150	14·2	6·8
1 933·2	*ISLB 550	86·3	51·5	348·5	ISWB 225	33·9	13·6	82·3	*ISJC 175	11·2	6·0
1 808·7	ISMB 500	86·9	48·2					78·1	ISJB 200	9·9	6·4
				305·9	*ISMB 225	31·2	13·8				
1 558·1	*ISWB 450	79·4	39·1	305·3	*ISMC 250	30·4	16·8	71·8	ISMB 125	13·0	5·2
1 543·2	*ISLB 500	75·0	43·5	297·4	*ISLB 250	27·9	14·4	66·6	ISMC 125	12·7	5·9
1 350·7	*ISMB 450	72·4	40·0					65·1	ISLB 125	11·9	5·2
				295·0	ISLC 250	28·0	14·4				
1 223·8	*ISLB 450	65·3	36·6	262·5	ISWB 200	28·8	11·5	62·8	ISJC 150	9·9	5·1
1 171·3	ISWB 400	66·7	32·5					57·1	ISLC 125	10·7	5·2
1 022·9	*ISMB 400	61·6	33·6	239·5	*ISMC 225	25·9	13·6	54·8	*ISJB 175	8·1	5·3
				226·5	*ISLC 225	24·0	12·3				
965·3	*ISLB 400	56·9	30·2	223·5	ISMB 200	25·4	10·8	51·5	ISMB 100	11·5	3·8
887·0	ISWB 350	56·9	26·5					43·2	*ISJC 125	7·9	3·5
778·9	*ISMB 350	52·4	26·8	222·4	*ISLB 225	23·5	12·3	42·9	*ISJB 150	7·1	4·3
				181·9	*ISMC 200	22·1	11·5				
754·1	*ISMC 400	49·4	32·5	172·6	*ISLC 200	20·6	10·4	37·3	ISMC 100	9·2	4·4
751·9	ISLB 350	49·5	24·5	172·5	*ISWB 175	22·1	9·6	33·6	ISLB 100	8·0	3·8
699·5	*ISLC 400	45·7	30·2	169·7	*ISLB 200	19·8	10·2	32·9	ISLC 100	7·9	3·8
654·8	ISWB 300	48·1	21·0	145·4	*ISMB 175	19·3	9·1	24·8	*ISJC 100	5·8	2·8
607·7	*ISLB 325	43·1	21·5					20·3	ISMC 75	6·8	3·1
573·6	ISMB 300	44·2	21·3	139·8	*ISMC 175	19·1	9·4	19·4	ISLB 75	6·1	2·6
				131·3	*ISLC 175	17·6	8·4				
571·9	*ISMC 350	42·1	26·8	125·3	*ISLB 175	16·7	8·4	17·6	*ISLC 75	5·7	2·6

Note — For using this table, proceed as follows:

i) Find, in the column headed 'Modulus of Section', the value equal to or, failing that, the value next higher to the required value of Z_{xx}.

ii) If the section opposite this selected value in the next column headed 'Designation' bears an asterisk, choose it, as it is the lightest beam in the series to serve the requirement. Otherwise, proceed higher up and choose the first section bearing the asterisk, as all sections above the section opposite to the selected value also satisfy the requirement with regard to Z_{xx}.

iii) If conditions require that the section must not exceed a certain depth, proceed up the column until the section with the required depth is reached. Check up to see that no lighter beam with an asterisk, of the same depth, appears higher up.

iv) Check up the selected section for web capacity in shear. Also, make proper provision in cases of eccentric loading or any other special conditions of loading.

v) It is assumed in this table that the compression flanges of the section so chosen have adequate lateral support.

TABLE XII ALLOWABLE UNIFORM LOADS ON BEAMS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE

Designation	ISLB 600	ISMB 600	ISWB 600	ISWB 600	Deflection in cm for ISLB 600, ISMB 600, ISWB 600 and ISWB 600	ISLB 550	ISMB 550	ISWB 550	Deflection in cm for ISLB 550, ISMB 550 and ISWB 550
$h \times b$ mm × mm	600 × 210	600 × 210	600 × 250	600 × 250		550 × 190	550 × 190	550 × 250	
w kg/m	99·5	122·6	133·7	145·1		86·3	103·7	112·5	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**								
1·0	306·0	385·6	446·0	485·6	0·03	243·6	297·3	343·2	0·03
1·5	204·0	257·1	297·4	323·8	0·06	162·4	198·2	228·8	0·06
2·0	153·0	192·8	223·0	242·8	0·10	121·8	148·6	171·6	0·11
2·5	122·4	154·2	178·4	194·3	0·16	97·4	118·9	137·3	0·18
3·0	102·0	128·6	148·7	161·9	0·23	81·2	99·1	114·4	0·26
3·5	87·4	110·2	127·4	138·8	0·32	69·6	85·0	98·1	0·35
4·0	76·5	96·4	111·5	121·4	0·42	60·9	74·3	85·8	0·45
4·5	68·0	85·7	99·1	107·9	0·53	54·1	66·1	76·3	0·58
5·0	61·2	77·1	89·2	97·2	0·65	48·7	59·4	68·6	0·71
5·5	55·6	70·1	81·1	88·3	0·79	44·3	54·1	62·4	0·86
6·0	51·0	64·3	74·4	81·0	0·94	40·6	49·6	57·2	1·02
6·5	47·1	59·3	68·6	74·7	1·10	37·5	45·7	52·8	1·20
7·0	43·7	55·1	63·7	69·4	1·28	34·8	42·5	49·0	1·39
7·5	40·8	51·4	59·5	64·8	1·46	32·5	39·6	45·8	1·60
8·0	38·2	48·2	55·8	60·7	1·67	30·4	37·2	42·9	1·82
8·5	36·0	45·4	52·5	57·1	1·88	28·7	35·0	40·3	2·05
9·0	34·0	42·8	49·6	54·0	2·11	27·0	33·0	38·1	2·30
9·5	32·2	40·6	47·0	51·1	2·35	25·6	31·3	36·1	2·56
10·0	30·6	38·6	44·6	48·6	2·60	24·4	29·7	34·3	2·84
10·5	29·1	36·7	42·5	46·2	2·87	23·2	28·3	32·7	3·13
11·0	27·8	35·0	40·6	44·2	3·15	22·2	27·0	31·2	3·44
11·5	26·6	33·5	38·8	42·2	3·44	21·2	25·9	30·0	3·76
12·0	25·5	32·2	37·2	40·5	3·75	20·3	24·8	28·6	4·09
12·5	24·5	30·8	35·7	38·9	4·07	19·5	23·8	27·5	4·44
13·0	23·6	29·6	34·3	37·4	4·40	18·8	22·8	26·4	4·80
13·5	22·7	28·6	33·0	36·0	4·75	—	—	—	—
14·0	21·8	27·6	31·8	34·7	5·10	—	—	—	—
14·5	21·1	26·6	30·8	33·5	5·48	—	—	—	—
15·0	20·4	25·7	29·8	32·4	5·86	—	—	—	—
Z_{xx}, cm^3	2 428·9	3 060·4	3 540·0	3 854·2		1 933·2	2 359·8	2 723·9	
S, kg × 10^3	59·5	68·0	63·5	66·9		51·5	58·2	54·6	
L_u, metres	4·5	5·0	6·0	6·5		4·0	4·5	6·0	
R, kg × 10^3	2·0	2·3	2·1	2·2		1·9	2·1	2·0	
B', cm	30·0	30·0	30·0	30·0		27·5	27·5	27·5	

(*Continued*)

Note 1 — Loads above the full line can be allowed provided the webs are strengthened suitably for Shear.

Note 2 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 3 — Symbols.

S = Maximum Web Shear

L_u = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XII ALLOWABLE UNIFORM LOADS ON BEAMS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE

(Continued)

Designation	ISLB 500	ISMB 500	ISWB 500	Deflection in cm for ISLB 500, ISMB 500 and ISWB 500	ISLB 450	ISMB 450	ISWB 450	Deflection in cm for ISLB 450, ISMB 450 and ISWB 450
$h \times b$ mm × mm	500 × 180	500 × 180	500 × 250		450 × 170	450 × 150	450 × 200	
w kg/m	75·0	86·9	95·2		65·3	72·4	79·4	
Span in Metres	Allowable Uniform Loads in kg × 10^3							
1·0	194·4	227·9	263·5	0·03	154·2	170·2	196·3	0·03
1·5	129·6	151·9	175·7	0·07	102·8	113·5	130·9	0·08
2·0	97·2	114·0	131·8	0·12	77·1	85·1	98·2	0·14
2·5	77·8	91·2	105·4	0·20	61·7	68·1	78·5	0·22
3·0	64·8	76·0	87·8	0·28	51·4	56·8	65·4	0·31
3·5	55·6	65·1	75·3	0·38	44·1	48·6	56·1	0·43
4·0	48·6	57·0	65·9	0·50	38·6	42·6	49·1	0·56
4·5	43·2	50·6	58·6	0·63	34·3	37·8	43·6	0·70
5·0	38·9	45·6	52·7	0·78	30·8	34·0	39·2	0·87
5·5	35·4	41·4	47·9	0·95	28·0	30·9	35·7	1·05
6·0	32·4	38·0	43·9	1·13	25·7	28·4	32·7	1·25
6·5	29·9	35·1	40·5	1·32	23·7	26·2	30·2	1·47
7·0	27·8	32·6	37·6	1·53	22·0	24·3	28·0	1·70
7·5	25·9	30·4	35·1	1·76	20·6	22·7	26·2	1·95
8·0	24·3	28·5	33·0	2·00	19·3	21·3	24·6	2·22
8·5	22·9	26·8	31·0	2·26	18·1	20·0	23·1	2·51
9·0	21·6	25·3	29·3	2·53	17·2	18·9	21·8	2·81
9·5	20·5	24·0	27·7	2·82	16·2	17·9	20·7	3·13
10·0	19·4	22·8	26·3	3·13	15·4	17·0	19·6	3·47
10·5	18·5	21·7	25·1	3·45	14·7	16·2	18·7	3·83
11·0	17·7	20·7	24·0	3·78	14·0	15·4	17·8	4·20
11·5	16·9	19·8	22·9	4·13	—	—	—	—
12·0	16·2	19·0	22·0	4·50	—	—	—	—
Z_{xx}, cm^3	1 543·2	1 808·7	2 091·6		1 223·8	1 350·7	1 558·1	
S, kg × 10^3	43·5	48·2	46·8		36·6	40·0	39·1	
L_u, metres	4·0	4·0	5·5		4·0	3·5	4·5	
R, kg × 10^3	1·7	1·9	1·9		1·6	1·8	1·7	
B', cm	25·0	25·0	25·0		22·5	22·5	22·5	

(Continued)

Note 1 — Loads above the full line can be allowed provided the webs are strengthened suitably for Shear.

Note 2 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 3 — Symbols:

S = Maximum Web Shear.

L_u = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XII ALLOWABLE UNIFORM LOADS ON BEAMS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE

(Continued)

Designation	ISLB 400	ISMB 400	ISWB 400	Deflection in cm for ISLB 400, ISMB 400 and ISWB 400	ISLB 350	ISMB 350	ISWB 350	Deflection in cm for ISLB 350, ISMB 350 and ISWB 350
$h \times b$ mm × mm	400 × 165	400 × 140	400 × 200		350 × 165	350 × 140	350 × 200	
w kg/m	56·9	61·6	66·7		49·5	52·4	56·9	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**							
1·0	121·6	128·9	147·6	0·04	94·7	98·1	111·8	0·04
1·5	81·1	85·9	98·4	0·09	63·2	65·4	74·5	0·10
2·0	60·8	64·4	73·8	0·16	47·4	49·0	55·9	0·18
2·5	48·7	51·6	59·0	0·24	37·9	39·3	44·7	0·28
3·0	40·6	43·0	49·2	0·35	31·6	32·7	37·2	0·40
3·5	34·8	36·8	42·2	0·48	27·1	28·0	31·9	0·55
4·0	30·4	32·2	36·9	0·62	23·7	24·5	28·0	0·71
4·5	27·0	28·6	32·8	0·79	21·1	21·8	24·8	0·90
5·0	24·4	25·8	29·5	0·98	19·0	19·6	22·4	1·12
5·5	22·1	23·4	26·8	1·18	17·2	17·8	20·3	1·35
6·0	20·3	21·5	24·6	1·41	15·8	16·4	18·6	1·61
6·5	18·7	19·8	22·7	1·65	14·6	15·1	17·2	1·89
7·0	17·4	18·4	21·1	1·91	13·6	14·0	16·0	2·19
7·5	16·2	17·2	19·7	2·20	12·6	13·1	14·9	2·51
8·0	15·2	16·1	18·4	2·50	11·8	12·2	14·0	2·86
8·5	14·3	15·2	17·4	2·82	11·1	11·5	13·1	3·23
9·0	13·5	14·3	16·4	3·16	10·6	10·9	12·4	3·62
9·5	12·8	13·6	15·5	3·53	—	—	—	—
10·0	12·2	12·9	14·8	3·91	—	—	—	—
Z_{xx}, cm³	965·3	1 022·9	1 171·3		751·9	778·9	887·0	
S, kg × 10^3	30·2	33·6	32·5		24·5	26·8	26·5	
L_u, metres	3·5	3·5	4·5		3·5	3·5	4·5	
R, kg × 10^3	1·5	1·7	1·6		1·4	1·5	1·5	
B', cm	20·0	20·0	20·0		17·5	17·5	17·5	

(Continued)

Note 1 — Loads above the full line can be allowed provided the webs are strengthened suitably for Shear.

Note 2 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 3 — Symbols:

S = Maximum Web Shear.

L_u = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XII ALLOWABLE UNIFORM LOADS ON BEAMS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE

(Continued)

Designation	ISLB 325	Deflection in cm for ISLB 325	ISLB 300	ISMB 300	ISWB 300	Deflection in cm for ISLB 300, ISMB 300 and ISWB 300	ISLB 275	Deflection in cm for ISLB 275
$h \times b$ mm × mm	325 × 165		300 × 150	300 × 140	300 × 200		275 × 140	
w kg/m	43·1		37·7	44·2	48·1		33·0	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**							
1·0	76·6	0·05	61·6	72·3	82·5	0·05	49·4	0·06
1·5	51·0	0·11	41·1	48·2	55·0	0·12	33·0	0·13
2·0	38·3	0·19	30·8	36·2	41·2	0·21	24·7	0·23
2·5	30·6	0·30	24·6	28·9	33·0	0·33	19·8	0·36
3·0	25·5	0·43	20·6	24·1	27·5	0·47	16·5	0·51
3·5	21·9	0·59	17·6	20·6	23·6	0·64	14·1	0·70
4·0	19·2	0·77	15·4	18·1	20·6	0·83	12·4	0·91
4·5	17·0	0·97	13·7	16·1	18·3	1·05	11·0	1·15
5·0	15·3	1·20	12·3	14·4	16·5	1·30	9·9	1·42
5·5	13·9	1·45	11·2	13·1	15·0	1·58	9·0	1·72
6·0	12·8	1·73	10·3	12·0	13·8	1·88	8·2	2·05
6·5	11·8	2·03	9·5	11·1	12·7	2·20	—	—
7·0	11·0	2·36	8·8	10·3	11·8	2·55	—	—
Z_{xx}, cm^3	607·7		488·9	973·6	654·8		392·4	
S, kg × 10^3	21·5		19·0	21·3	21·0		16·6	
L_u, metres	3·5		3·5	3·5	4·5		3·0	
R, kg × 10^3	1·3		1·3	1·4	1·4		1·2	
B', cm	16·3		15·0	15·0	15·0		13·8	

(Continued)

Note 1 — Loads above the full line can be allowed provided the webs are strengthened suitably for Shear.
Note 2 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.
Note 3 — Symbols:
S = Maximum Web Shear.
L_u = Length of Span up to which tabulated loads are safe with or without lateral support.
R = Increase in Bearing Capacity for every additional centimetre of Bearing.
B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XII ALLOWABLE UNIFORM LOADS ON BEAMS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE — (*Continued*)

Designation	ISLB 250	ISMB 250	ISWB 250	Deflection in cm for ISLB 250, ISMB 250 and ISWB 250	ISJB 225	ISLB 225	ISMB 225	ISWB 225	Deflection in cm for ISJB 225, ISLB 225, ISMB 225 and ISWB 225
$h \times b$ mm × mm	250 × 125	250 × 125	250 × 200		225 × 80	225 × 100	225 × 110	225 × 150	
w kg/m	27·9	37·3	40·9		12·8	23·5	31·2	33·9	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**								
1·0	37·5	51·7	59·9	0·06	14·7	28·0	38·5	43·9	0·07
1·5	25·0	34·5	39·9	0·14	9·8	18·7	25·7	29·3	0·16
2·0	18·8	25·8	30·0	0·25	7·4	14·0	19·2	22·0	0·28
2·5	15·0	20·7	24·0	0·39	5·9	11·2	15·4	17·6	0·43
3·0	12·5	17·2	20·0	0·56	4·9	9·4	12·8	14·6	0·62
3·5	10·7	14·8	17·1	0·77	4·2	8·0	11·0	12·5	0·85
4·0	9·4	12·9	15·0	1·00	3·7	7·0	9·6	11·0	1·11
4·5	8·3	11·5	13·3	1·27	3·3	6·2	8·6	9·8	1·41
5·0	7·5	10·4	12·0	1·56	2·9	5·6	7·7	8·8	1·74
5·5	6·8	9·4	10·9	1·89	—	—	—	—	—
6·0	6·2	8·6	10·0	2·25	—	—	—	—	—
Z_{xx}, cm^3	297·4	410·5	475·4		116·3	222·4	305·9	348·5	
S, kg × 10^3	14·4	16·3	15·8		7·9	12·3	13·8	13·6	
L_u, metres	3·0	3·5	5·0		1·5	2·5	3·0	4·0	
R, kg × 10^3	1·2	1·3	1·3		0·7	1·1	1·2	1·2	
B', cm	12·5	12·5	12·5		11·3	11·3	11·3	11·3	

Designation	ISJB 200	ISLB 200	ISMB 200	ISWB 200	Deflection in cm for ISJB 200, ISLB 200, ISMB 200 and ISWB 200	ISJB 175	ISLB 175	ISMB 175	ISWB 175	Deflection in cm for ISJB 175, ISLB 175, ISMB 175 and ISWB 175
$h \times b$ mm × mm	200 × 60	200 × 100	200 × 100	200 × 140		175 × 50	175 × 90	175 × 90	175 × 125	
w kg/m	9·9	19·8	25·4	28·8		8·1	16·7	19·3	22·1	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**									
1·0	9·8	21·4	28·2	33·1	0·08	6·9	15·8	18·3	21·7	0·09
1·5	6·6	14·3	18·8	22·1	0·18	4·6	10·5	12·2	14·5	0·20
2·0	4·9	10·7	14·1	16·6	0·31	3·4	7·9	9·2	10·8	0·36
2·5	3·9	8·6	11·3	13·2	0·49	2·8	6·3	7·3	8·7	0·56
3·0	3·3	7·2	9·4	11·0	0·70	2·3	5·2	6·1	7·2	0·80
3·5	2·8	6·1	8·0	9·4	0·96	2·0	4·5	5·2	6·2	1·09
4·0	2·4	5·4	7·0	8·3	1·25	1·7	4·0	4·6	5·4	1·43
4·5	2·2	4·8	6·3	7·4	1·58	—	—	—	—	—
5·0	2·0	4·3	5·6	6·6	1·95	—	—	—	—	—
Z_{xx}, cm^3	78·1	169·7	223·5	262·5		54·8	125·3	145·4	172·5	
S, kg × 10^3	6·4	10·2	10·8	11·5		5·3	8·4	9·1	9·6	
L_u, metres	1·0	2·5	3·0	3·5		1·0	2·0	2·5	3·0	
R, kg × 10^3	0·6	1·0	1·1	1·2		0·6	1·0	1·0	1·1	
B', cm	10·0	10·0	10·0	10·0		8·8	8·8	8·8	8·8	

(*Continued*)

Note 1 — Loads above the full line can be allowed provided the webs are strengthened suitably for Shear.

Note 2 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 3 — Symbols:

S = Maximum Web Shear.

L_u = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XII ALLOWABLE UNIFORM LOADS ON BEAMS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE — (*Continued*)

Designation	ISJB 150	ISLB 150	ISMB 150	ISWB 150	Deflection in cm for ISJB 150, ISLB 150, ISMB 150 and ISWB 150	ISLB 125	ISMB 125	Deflection in cm for ISLB 125 and ISMB 125
$h \times b$ mm × mm	150×50	150×80	150×80	150×100		125×75	125×75	
w kg/m	7·1	14·2	14·9	17·0		11·9	13·0	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**							
1·0	5·4	11·6	12·2	14·1	0·10	8·2	9·0	0·12
1·5	3·6	7·7	8·1	9·4	0·23	5·5	6·0	0·28
2·0	2·7	5·8	6·1	7·0	0·42	4·1	4·5	0·50
2·5	2·2	4·6	4·9	5·6	0·65	3·3	3·6	0·78
3·0	1·8	3·8	4·0	4·7	0·94	2·8	3·0	1·12
3·5	1·5	3·3	3·5	4·0	1·28	—	—	—
4·0	1·4	2·9	3·0	3·5	1·67	—	—	—
Z_{xx}, cm³	42·9	91·8	96·9	111·9		65·1	71·8	
S, kg × 10^3	4·3	6·8	6·8	7·7		5·2	5·2	
L_w, metres	1·0	2·0	2·0	2·5		2·0	2·5	
R, kg × 10^3	0·6	0·9	0·9	1·0		0·8	0·8	
B', cm	7·5	7·5	7·5	7·5		6·3	6·3	

Designation	ISLB 100	ISMB 100	Deflection in cm for ISLB 100 and ISMB 100	ISLB 75	Deflection in cm for ISLB 75
$h \times b$ mm × mm	100×50	100×75		75×50	
w kg/m	8·0	11·5		6·1	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**				
1·0	4·2	6·5	0·16	2·4	0·21
1·5	2·8	4·3	0·35	1·6	0·47
2·0	2·1	3·3	0·62	1·2	0·83
2·5	1·7	2·6	0·98	—	—
3·0	1·4	2·2	1·41	—	—
Z_{xx}, cm³	33·6	51·5		19·4	
S, kg × 10^3	3·8	3·8		2·6	
L_w, metres	1·5	2·5		1·5	
R, kg × 10^3	0·8	0·8		0·7	
B', cm	5·0	5·0		3·8	

Note 1 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 2 — Symbols:

S = Maximum Web Shear.

L_w = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XIII ALLOWABLE UNIFORM LOADS ON CHANNELS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE

Designation	ISLC 400	ISMC 400	Deflection in cm for	ISLC 350	ISMC 350	Deflection in cm for	ISLC 300	ISMC 300	Deflection in cm for
$h \times b$ mm × mm	400 × 100	400 × 100	ISLC 400 and	350 × 100	350 × 100	ISLC 350 and	300 × 100	300 × 90	ISLC 300 and
w kg/m	45·7	49·4	ISMC 400	38·8	42·1	ISMC 350	33·1	35·8	ISMC 300
Span in Metres	**Allowable Uniform Loads in kg × 10^3**								
1·0	83·9	90·5	0·04	63·9	68·6	0·04	48·4	50·9	0·05
1·5	56·0	60·3	0·08	42·6	45·8	0·10	32·3	33·9	0·11
2·0	42·0	45·2	0·15	31·9	34·3	0·17	24·2	25·5	0·20
2·5	33·6	36·2	0·23	25·5	27·5	0·27	19·4	20·4	0·31
3·0	28·0	30·2	0·33	21·3	22·9	0·38	16·1	17·0	0·45
3·5	24·0	25·9	0·46	18·2	19·6	0·52	13·8	14·5	0·61
4·0	21·0	22·6	0·60	16·0	17·2	0·68	12·1	12·7	0·79
4·5	18·7	20·1	0·75	14·2	15·3	0·86	10·8	11·3	1·00
5·0	16·8	18·1	0·93	12·8	13·7	1·06	9·7	10·2	1·24
5·5	15·3	16·5	1·13	11·6	12·5	1·29	8·8	9·3	1·50
6·0	14·0	15·1	1·34	10·6	11·4	1·53	8·1	8·5	1·79
6·5	12·9	13·9	1·57	9·8	10·6	1·80	7·4	7·8	2·10
7·0	12·0	12·9	1·82	9·1	9·8	2·08	6·9	7·3	2·43
7·5	11·2	12·1	2·09	8·5	9·2	2·39	—	—	—
8·0	10·5	11·3	2·38	8·0	8·6	2·72	—	—	—
8·5	9·9	10·6	2·69	7·5	8·1	3·07	—	—	—
9·0	9·3	10·1	3·01	7·1	7·6	3·44	—	—	—
Z_{xx}, cm³	699·5	754·1		532·1	571·9		403·2	424·2	
S, kg × 10^3	30·2	32·5		24·5	26·8		19·0	21·5	
L_u, metres	2·5	2·5		2·5	2·5		2·5	2·5	
R, kg × 10^3	1·5	1·6		1·4	1·5		1·3	1·4	
B', cm	20·0	20·0		17·5	17·5		15·0	15·0	

(*Continued*)

Note 1 — Loads above the full line can be allowed provided the webs are strengthened suitably for Shear.

Note 2 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 3 — Symbols:

S = Maximum Web Shear.

L_u = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XIII ALLOWABLE UNIFORM LOADS ON CHANNELS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE — (*Continued*)

Designation	ISLC 250	ISMC 250	Deflection in cm for	ISLC 225	ISMC 225	Deflection in cm for
$h \times b$ mm × mm	250 × 100	250 × 80	ISLC 250 and	225 × 90	225 × 80	ISLC 225 and
w kg/m	28·0	30·4	ISMC 250	24·0	25·9	ISMC 225
Span in Metres	**Allowable Uniform Loads in kg × 10^3**					
1·0	35·4	36·6	0·06	27·2	28·7	0·07
1·5	23·6	24·4	0·13	18·1	19·2	0·15
2·0	17·7	18·3	0·24	13·6	14·4	0·26
2·5	14·2	14·7	0·37	10·9	11·5	0·41
3·0	11·8	12·2	0·54	9·1	9·6	0·60
3·5	10·1	10·5	0·73	7·8	8·2	0·81
4·0	8·8	9·2	0·95	6·8	7·2	1·06
4·5	7·9	8·1	1·21	6·0	6·4	1·34
5·0	7·1	7·3	1·49	5·4	5·7	1·65
5·5	6·4	6·7	1·80	—	—	—
6·0	5·9	6·1	2·14	—	—	—
Z_{xx}, cm^3	295·0	305·3		226·5	239·5	
S, kg × 10^3	14·4	16·8		12·3	13·6	
L_u, metres	2·5	2·5		2·5	2·5	
R, kg × 10^3	1·2	1·3		1·1	1·2	
B', cm	12·5	12·5		11·2	11·2	

Designation	ISJC 200	ISLC 200	ISMC 200	Deflection in cm for	ISJC 175	ISLC 175	ISMC 175	Deflection in cm for
$h \times b$ mm × mm	200 × 70	200 × 75	200 × 75	ISJC 200, ISLC 200 and	175 × 60	175 × 75	175 × 75	ISJC 175, ISLC 175 and
w kg/m	13·9	20·6	22·1	ISMC 200	11·2	17·6	19·1	ISMC 175
Span in Metres	**Allowable Uniform Loads in kg × 10^3**							
1·0	13·9	20·7	21·8	0·07	9·9	15·8	16·8	0·08
1·5	9·3	13·8	14·6	0·17	6·6	10·5	11·2	0·19
2·0	7·0	13·4	10·9	0·30	4·9	7·9	8·4	0·34
2·5	5·6	8·3	8·7	0·46	4·0	6·3	6·7	0·53
3·0	4·6	6·9	7·3	0·67	3·3	5·3	5·6	0·77
3·5	4·0	5·9	6·2	0·91	2·8	4·5	4·8	1·04
4·0	3·5	5·2	5·5	1·19	2·5	3·9	4·2	1·36
4·5	3·1	4·6	4·9	1·51	—	—	—	—
5·0	2·8	4·1	4·4	1·86	—	—	—	—
Z_{xx}, cm^3	116·1	172·6	181·9		82·3	131·3	139·8	
S, kg × 10^3	7·7	10·4	11·5		6·0	8·4	9·4	
L_u, metres	1·5	2·0	2·5		1·5	2·0	2·5	
R, kg × 10^3	0·8	1·0	1·2		0·7	1·0	1·1	
B', cm	10·0	10·0	10·0		8·8	8·8	8·8	

(*Continued*)

Note 1 — Loads above the full line can be allowed provided the webs are strengthened suitably for Shear.

Note 2 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 3 — Symbols:

S = Maximum Web Shear.

L_u = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XIII ALLOWABLE UNIFORM LOADS ON CHANNELS WITH ADEQUATE LATERAL SUPPORT FOR COMPRESSION FLANGE — (*Continued*)

Designation	ISJC 150	ISLC 150	ISMC 150	Deflection in cm for ISJC 150, ISLC 150 and ISMC 150	ISJC 125	ISLC 125	ISMC 125	Deflection in cm for ISJC 125, ISLC 125 and ISMC 125
$h \times b$ mm × mm	150 × 55	150 × 75	150 × 75		125 × 50	125 × 65	125 × 65	
w kg/m	9·9	14·4	16·4		7·9	10·7	12·7	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**							
1·0	7·5	11·2	12·5	0·10	5·2	6·9	8·0	0·12
1·5	5·0	7·4	8·3	0·22	3·5	4·6	5·3	0·27
2·0	3·8	5·6	6·2	0·40	2·6	3·4	4·0	0·48
2·5	3·0	4·5	5·0	0·62	2·1	2·7	3·2	0·74
3·0	2·5	3·7	4·2	0·89	1·7	2·3	2·7	1·07
3·5	2·2	3·2	3·6	1·22	—	—	—	—
4·0	1·9	2·8	3·1	1·59	—	—	—	—
Z_{xx}, cm^3	62·8	93·0	103·9		43·2	57·1	66·6	
S, kg × 10^3	5·1	6·8	7·7		3·5	5·2	5·9	
L_u, metres	1·5	2·0	2·5		1·5	2·0	2·0	
R, kg × 10^3	0·7	0·9	1·0		0·6	0·8	0·9	
B', cm	7·5	7·5	7·5		6·2	6·2	6·2	

Designation	ISJC 100	ISLC 100	ISMC 100	Deflection in cm for ISJC 100, ISLC 100 and ISMC 100	ISLC 75	ISMC 75	Deflection in cm for ISLC 75 and ISMC 75
$h \times b$ mm × mm	100 × 45	100 × 50	100 × 50		75 × 40	75 × 40	
w kg/m	5·8	7·9	9·2		5·7	6·8	
Span in Metres	**Allowable Uniform Loads in kg × 10^3**						
1·0	3·0	3·9	4·5	0·15	2·1	2·4	0·20
1·5	2·0	2·6	3·0	0·33	1·4	1·6	0·45
2·0	1·5	2·0	2·2	0·60	1·1	1·2	0·79
2·5	1·2	1·6	1·8	0·93	—	—	—
3·0	1·0	1·3	1·5	1·34	—	—	—
Z_{xx}, cm^3	24·8	32·9	37·3		17·6	20·3	
S, kg × 10^3	2·8	3·8	4·4		2·6	3·1	
L_u, metres	1·0	1·5	2·0		1·5	2·0	
R, kg × 10^3	0·6	0·8	0·9		0·7	0·8	
B', cm	5·0	5·0	5·0		3·8	3·8	

Note 1 — In the case of loads below the dotted line, the deflection exceeds the limit of 1/325 of the Span.

Note 2 — Symbols:

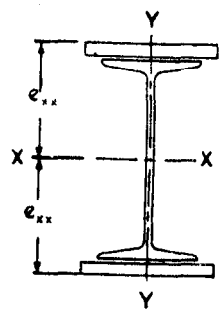
S = Maximum Web Shear.

L_u = Length of Span up to which tabulated loads are safe with or without lateral support.

R = Increase in Bearing Capacity for every additional centimetre of Bearing.

B' = Length of Bearing to develop a Bearing Capacity of S.

TABLE XIV SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS GIRDERS



Composed of			Weight per Metre	Sectional Area	Mean Thickness of Flanges	Extreme Fibre Distance	Gross Moments of Inertia		Least Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
Joist Designation	Cover Plates Width	Thickness	w	a		e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
	mm	mm	kg	cm^2	mm	cm	cm^4	cm^4	cm	cm^3	kg-m$\times 10^3$	kg$\times 10^3$
ISWB 150	160·0	10·0	42·1	53·67	14·4	8·50	2 889·8	777·5	3·81	340·0	5·4	7·7
		12·0	47·2	60·07	16·4	8·70	3 363·1	914·0	3·90	386·6	6·1	
		16·0	57·2	72·87	20·4	9·10	4 377·2	1 187 1	4·04	481·0	7·6	
		20·0	67·3	85·67	24·4	9·50	5 484·4	1 460·1	4·13	577·3	9·1	
		25·0	79·8	101·67	29·4	10·00	7 005·8	1 801·5	4·21	700·6	11·0	
ISWB 175	200·0	10·0	53·5	68·11	14·6	9·75	4 935·2	1 521·9	4·73	506·2	8·0	9·6
		12·0	59·7	76·11	16·6	9·95	5 711·3	1 788·6	4·85	574·0	9·0	
		16·0	72·3	92·11	20·6	10·35	7 360·0	2 321·9	5·02	711·1	11·2	
		20·0	84·9	108·11	24·6	10·75	9 141·1	2 855·3	5·14	850·3	13·4	
		25·0	100·6	128·11	29·6	11·25	11 561·5	3 521·9	5·24	1 027·7	16·2	
ISMB 200	160·0	10·0	50·5	64 33	16·8	11·00	5 766·1	832·7	3·60	524·2	8·3	10·8
		12·0	55·5	70·73	18·8	11·20	6 554·6	969·2	3·70	585·2	9·2	
		16·0	65·6	83·53	22·8	11·60	8 218·3	1 242·3	3·86	708·5	11·2	
		20·0	75·6	96·33	26·8	12·00	10 000·7	1 515·3	3·97	833·4	13·1	
		25·0	88·2	112·33	31·8	12·50	12 402·1	1 856·7	4·07	992·2	15·6	
ISWB 200	200·0	10·0	60·2	76·71	16·3	11·00	7 037·8	1 662·1	4·66	639·8	10·1	11·5
		12·0	66·5	84·71	18·3	11·20	8 023·5	1 928·8	4·77	716·4	11·3	
		16·0	79·1	100·71	22·3	11·60	10 103·1	2 462·1	4·94	871·0	13·7	
		20·0	91·6	116·71	26·3	12·00	12 331·2	2 995·5	5·07	1 027·6	16·2	
		25·0	107·3	136·71	31·3	12·50	15 332·8	3 662·1	5·18	1 226·6	19·3	
ISMB 225	160·0	10·0	56·3	71·72	18·1	12·25	7 862·4	901·0	3·54	641·8	10·1	13·8
		12·0	61·3	78·12	20·1	12·45	8 838·5	1 037·5	3·64	709·9	11·2	
		16·0	71·4	90·92	24·1	12·85	10 887·0	1 310·6	3·80	847·2	13·3	
		20·0	81·4	103·72	28·1	13·25	13 067·0	1 583·6	3·91	986·2	15·5	
		25·0	94·0	119·72	33·1	13·75	15 983·5	1 925·0	4·01	1 162·4	18·3	
ISWB 225	200·0	10·0	65·3	83·24	17·4	12·25	9 446·2	1 781·9	4·63	771·1	12·1	13·6
		12·0	71·6	91·24	19·4	12·45	10 666·4	2 048·6	4·74	856·7	13·5	
		16·0	84·2	107·24	23·4	12·85	13 227·0	2 581·9	4·91	1 029·3	16·2	
		20·0	96·7	123·24	27·4	13·25	15 952·0	3 115·3	5·03	1 203·9	19·0	
		25·0	112·4	143·24	32·4	13·75	19 597·6	3 781·9	5·14	1 425·3	22·4	
ISMB 250	200 0	10·0	68·7	87·55	17·8	13·50	11 894·9	1 667·8	4·36	881·1	13·9	16·3
		12·0	75·0	95·55	19·8	13·70	13 374·6	1 934·5	4·50	976·3	15·4	
		16·0	87·6	111·55	23·8	14·10	16 466·2	2 467·8	4·70	1 167·8	18·4	
		20·0	100·1	127·55	27·8	14·50	19 738·3	3 001·2	4·85	1 361·3	21·4	
		25·0	115·8	147·55	32·8	15·00	24 089·9	3 667·8	4·99	1 606·0	25·3	

(Continued)

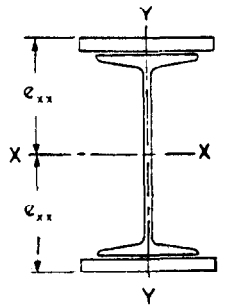
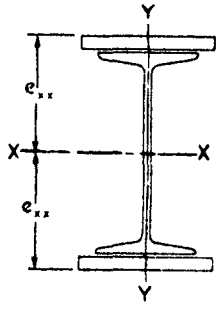


TABLE XIV SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS GIRDERS—(*Continued*)

Composed of			Weight per Metre	Sectional Area	Mean Thickness of Flanges	Extreme Fibre Distance	Gross Moments of Inertia		Least Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
Joist Designation	Cover Plates Width	Thickness	w	a		e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
	mm	mm	kg	cm²	mm	cm	cm⁴	cm⁴	cm	cm³	kg-m × 10³	kg × 10³
ISWB 250	320·0	10·0	91·1	116·05	15·6	13·50	16 764·4	6 318·8	7·38	1 241·8	19·6	15·8
		12·0	101·1	128·85	17·6	13·70	19 132·0	7 411·1	7·58	1 396·5	22·0	
		16·0	121·2	154·45	21·6	14·10	24 078·5	9 595·6	7·88	1 707·7	26·9	
		20·0	141·3	180·05	25·6	14·50	29 313·8	11 780·2	8·09	2 021·6	31·8	
		25·0	166·5	212·05	30·6	15·00	36 276·0	14 510·8	8·27	2 418·4	38·1	
ISMB 300	200·0	10·0	75·6	96·26	18·7	16·00	18 216·9	1 787·2	4·31	1 138·6	17·9	21·3
		12·0	81·8	104·26	20·7	16·20	20 290·6	2 053·9	4·44	1 252·5	19·7	
		16·0	94·4	120·26	24·7	16·60	24 594·2	2 587·2	4·64	1 481·6	23·3	
		20·0	107·0	136·26	28·7	17·00	29 110·3	3 120·6	4·79	1 712·4	27·0	
		25·0	122·7	156·26	33·7	17·50	35 061·9	3 787·2	4·92	2 003·5	31·6	
		32·0	144·6	185·26	40·7	18·20	43 984·5	4 720·6	5·06	2 416·7	38·1	
ISWB 300	320·0	10·0	98·4	125·33	16·2	16·00	25 202·9	6 451·4	7·17	1 575·2	24·8	21·0
		12·0	108·4	138·13	18·2	16·20	28 520·9	7 543·7	7·39	1 760·5	27·7	
		16·0	128·5	163·73	22·2	16·60	35 406·6	9 728·2	7·71	2 132·9	33·6	
		20·0	148·6	189·33	26·2	17·00	42 632·3	11 912·8	7·93	2 507·8	39·5	
		25·0	173·7	221·33	31·2	17·50	52 154·5	14 643·4	8·13	2 980·3	46·9	
		32·0	208·9	266·13	38·2	18·20	66 431·1	18 466·4	8·33	3 650·1	57·5	
ISMB 350	200·0	10·0	83·8	106·71	19·9	18·50	26 593·6	1 871·0	4·19	1 437·5	22·6	26·8
		12·0	90·0	114·71	21·9	18·70	29 361·3	2 137·7	4·32	1 570·1	24·7	
		16·0	102·6	130·71	25·9	19·10	35 076·9	2 671·0	4·52	1 836·5	28·9	
		20·0	115·2	146·71	29·9	19·50	41 037·0	3 204·4	4·67	2 104·5	33·1	
		25·0	130·9	166·71	34·9	20·00	48 838·6	3 871·0	4·82	2 441·9	38·5	
		32·0	152·8	194·71	41·9	20·70	60 435·2	4 804·4	4·97	2 919·6	46·0	
ISWB 350	320·0	10·0	107·2	136·50	17·1	18·50	36 263·0	6 637·2	6·97	1 960·2	30·9	26·5
		12·0	117·2	149·30	19·1	18·70	40 691·4	7 729·5	7·20	2 176·0	34·3	
		16·0	137·3	174·90	23·1	19·10	49 836·3	9 914·0	7·53	2 609·2	41·1	
		20·0	157·4	200·50	27·1	19·50	59 372·4	12 098·6	7·77	3 044·7	48·0	
		25·0	182·5	232·50	32·1	20·00	71 855·0	14 829·2	7·99	3 592·8	56·6	
		32·0	217·7	277·30	39·1	20·70	90 409·6	18 652·2	8·20	4 367·6	68·8	
ISMB 400	200·0	10·0	93·0	118·46	21·2	21·00	37 271·7	1 955·4	4·06	1 774·8	28·0	33·6
		12·0	99·3	126·46	23·2	21·20	40 833·4	2 222·1	4·19	1 926·1	30·3	
		16·0	111·3	142·46	27·2	21·60	48 161·0	2 755·4	4·40	2 229·7	35·1	
		20·0	124·4	158·46	31·2	22·00	55 765·1	3 288·8	4·56	2 534·8	39·9	
		25·0	140·1	178·46	36·2	22·50	65 666·7	3 955·4	4·71	2 918·5	46·0	
		32·0	162·1	206·46	43·2	23·20	80 287·3	4 888·8	4·87	3 460·7	54·5	

(*Continued*)

TABLE XIV SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS GIRDERS — (*Continued*)



Composed of			Weight per Metre	Sectional Area	Mean Thickness of Flanges	Extreme Fibre Distance	Gross Moments of Inertia		Least Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
Joist	Cover Plates											
Designation	Width	Thickness	w	a		e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
	mm	mm	kg	cm^2	mm	cm	cm^4	cm^4	cm	cm^3	kg-m × 10^3	kg × 10^3
ISWB 400	320·0	10·0	117·0	149·01	18·1	21·00	50 328·0	6 849·3	6·78	2 396·6	37·7	32·5
		12·0	127·0	161·81	20·1	21·20	56 026·8	7 941·6	7·01	2 642·8	41·6	
		16·0	147·1	187·41	24·1	21·60	67 750·9	10 126·1	7·35	3 136·6	49·4	
		20·0	167·2	213·01	28·1	22·00	79 917·4	12 310·7	7·60	3 632·6	57·2	
		25·0	192·3	345·01	33·1	22·50	95 760·0	15 041·3	7·84	4 256·0	67·0	
		32·0	227·5	289·81	40·1	23·20	119 153·0	18 864·3	8·07	5 135·9	80·9	
		40·0	267·7	341·01	48·1	24·00	147 672·0	23 233·3	8·25	6 153·0	96·9	
ISMB 450	200·0	10·0	103·8	132·27	23·0	23·50	51 554·1	2 167·3	4·05	2 193·8	34·6	40·0
		12·0	110·1	140·27	25·0	23·70	56 009·8	2 434·0	4·17	2 363·3	37·2	
		16·0	122·7	156·27	29·0	24·10	65 149·4	2 967·3	4·36	2 703·3	42·6	
		20·0	135·2	172·27	33·0	24·50	74 597·5	3 500·7	4·51	3 044·8	48·0	
		25·0	150·9	192·27	38·0	25·00	86 849·1	4 167·3	4·66	3 474·0	54·7	
		32·0	172·9	220·27	45·0	25·70	104 843·7	5 100·7	4·81	4 079·5	64·3	
		40·0	198·0	252·27	53·0	26·50	126 644·1	6 167·3	4·94	4 779·0	75·3	
ISWB 450	320·0	10·0	129·6	165·15	19·6	23·50	68 918·9	7 168·0	6·59	2 932·7	46·2	39·;
		12·0	139·7	177·95	21·6	23·70	76 048·1	8 260·3	6·81	3 208·8	50·5	
		16·0	159·8	203·55	25·6	24·10	90 671·4	10 444·8	7·16	3 762·3	59·3	
		20·0	179·9	229·15	29·6	24·50	105 788·3	12 629·4	7·42	4 317·9	68·0	
		25·0	205·0	261·15	34·6	25·00	125 390·9	15 360·0	7·67	5 015·6	79·0	
		32·0	240·2	305·95	41·6	25·70	154 182·3	19 183·0	7·92	5 999·3	94·5	
		40·0	280·4	357·15	49·6	26·50	189 062·9	23 552·0	8·12	7 134·5	112·4	
ISMB 500	250·0	10·0	126·2	160·74	22·4	26·00	77 735·0	3 974·0	4·97	2 989·8	47·1	48·2
		12·0	134·0	170·74	24·4	26·20	84 547·1	4 494·8	5·13	3 227·0	50·8	
		16·0	149·7	190·74	28·4	26·60	98 486·6	5 536·5	5·39	3 702·5	58·3	
		20·0	165·4	210·74	32·4	27·00	112 851·6	6 578·1	5·59	4 179·7	65·8	
		25·0	185·1	235·74	37·4	27·50	131 416·2	7 880·2	5·78	4 778·8	75·3	
		32·0	212·5	270·74	44·4	28·20	158 564·4	9 703·1	5·99	5 622·9	88·6	
		40·0	243·9	310·74	52·4	29·00	191 285·0	11 786·5	6·16	6 596·0	103·9	
ISWB 500	400·0	10·0	158·0	201·22	19·2	26·00	104 317·6	13 654·5	8·24	4 012·2	47·4	46·8
		12·0	170·5	217·22	21·2	26·20	115 217·0	15 787·8	8·53	4 397·6	50·4	
		16·0	195·6	249·22	25·2	26·60	137 520·1	20 054·5	8·97	5 169·9	56·2	
		20·0	220·8	281·22	29·2	27·00	160 504·2	24 321·1	9·30	5 944·6	62·1	
		25·0	252·2	321·22	34·2	27·50	190 207·6	29 654·5	9·61	6 916·6	69·5	
		32·0	296·1	377·22	41·2	28·20	233 644·7	37 121·1	9·82	8 285·3	79·9	
		40·0	346·4	441·22	49·2	29·00	285 997·6	45 654·5	10·17	9 862·0	92·0	

(*Continued*)

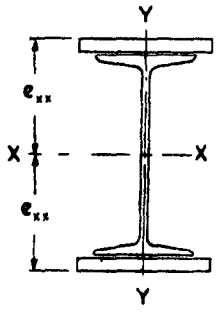


TABLE XIV SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS GIRDERS — (*Continued*)

Composed of			Weight per Metre	Sectional Area	Mean Thickness of Flanges	Extreme Fibre Distance	Gross Moments of Inertia		Least Radius of Gyration	Modulus of Section	Maximum Allowable Moment	Maximum Allowable Shear
Joist	Cover Plates											
Designation	Width	Thickness	w	a		e_{xx}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	M	S
	mm	mm	kg	cm^2	mm	cm	cm^4	cm^4	cm	cm^3	kg-m × 10^3	kg × 10^3
ISMB 550	250·0	10·0	143·0	182·11	24·7	28·50	104 097·8	4 438·0	4·94	3 652·6	57·5	58·2
		12·0	150·8	192·11	26·7	28·70	112 277·4	4 958·8	5·08	3 912·1	61·6	
		16·0	166·5	212·11	30·7	29·10	128 981·9	6 000·5	5·32	4 432·4	69·8	
		20·0	182·2	232·11	34·7	29·50	146 151·9	7 042·1	5·51	4 954·3	78·0	
		25·0	201·8	257·11	39·7	30·00	168 279·0	8 344·2	5·70	5 609·3	88·3	
		32·0	229·3	292·11	46·7	30·70	200 519·7	10 167·1	5·90	6 531·6	102·9	
		40·0	260·7	332·11	54·7	31·50	239 210·3	12 250·5	6·07	7 594·0	119·6	
ISWB 550	400·0	10·0	175·3	223·34	21·0	28·50	137 632·8	14 407·3	8·03	4 829·2	76·1	54·6
		12·0	187·9	239·34	23·0	28·70	150 720·2	16 540·6	8·31	5 251·6	82·7	
		16·0	213·0	271·34	27·0	29·10	177 447·3	20 807·3	8·76	6 097·8	96·0	
		20·0	238·1	303·34	31·0	29·50	204 919·4	25 073·9	9·09	6 946·4	109·4	
		25·0	269·5	343·34	36·0	30·00	240 322·8	30 407·3	9·41	8 010·8	126·2	

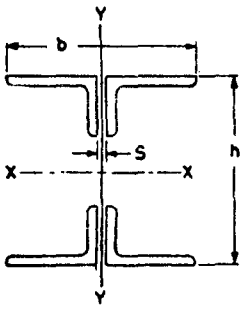


TABLE XXVIII PROPERTIES OF STRUTS MADE UP OF FOUR UNEQUAL ANGLES LACED

(Continued)

Nominal Size	Composed of Four Unequal Angles Each of Size	Weight per Metre	Sectional Area	Space Between Angles	Radii of Gyration		Moduli of Section	
$h \times b$	$A \times B \times t$			S	r_{xx}	r_{yy}	Z_{xx}	Z_{yy}
mm mm	mm mm mm	kg	cm²	cm	cm	cm	cm³	cm³
210×210	100×75 × 6·0	32·0	40·56	1·0	8·99	4·72	312·3	86·0
	8·0	42·0	53·44		8·90	4·78	403·2	116·1
	10·0	52·0	66·00		8·82	4·83	488·8	146·7
	12·0	61·6	78·24		8·74	4·88	568·7	177·3
260×260	125×75 × 6·0	36·8	46·64	1·0	11·60	6·07	483·0	132·1
	8·0	48·4	61·52		11·51	6·13	627·1	177·9
	10·0	59·6	76·08		11·43	6·19	764·5	223·9
260×260	125×95 × 6·0	40·4	51·44	1·0	11·14	5·78	491·2	132·3
	8·0	53·2	67·92		11·05	5·84	638·1	178·4
	10·0	66·0	84·08		10·97	5·89	778·1	224·3
	12·0	78·4	99·92		10·89	5·93	910·8	270·6
310×310	150×75 × 8·0	54·8	69·68	1·0	14·11	7·50	895·5	252·7
	10·0	67·6	86·24		14·03	7·55	1 095·5	317·3
	12·0	80·4	102·48		13·95	7·61	1 286·6	382·4
310×310	150×115× 8·0	64·8	82·32	1·0	13·22	6·87	927·7	250·8
	10·0	80·0	102·08		13·13	6·93	1 134·6	315·9
	12·0	95·2	121·52		13·04	6·98	1 333·8	381·7
	15·0	118·0	150·08		12·92	7·04	1 616·1	480·4
410×410	200×100× 10·0	91·2	116·12	1·0	18·68	9·87	1 977·4	551·3
	12·0	108·8	138·36		18·59	9·92	2 333·1	664·1
	15·0	134·4	171·12		18·47	10·00	2 847·5	833·9
410×410	200×150× 10·0	106·8	136·00	1·0	17·56	9·09	2 045·7	548·3
	12·0	127·2	162·24		17·47	9·14	2 415·1	661·7
	15·0	157·6	201·00		17·35	9·21	2 950·0	831·5
	18·0	187·6	239·04		17·22	9·28	3 458·3	1 004·3

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)

EQUAL ANGLES

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
50×50× 3·0	2·3	2·95	0·97	0	—	2·57	3·6
				1	17·5	1·91	2·7
4·0	3·0	3·88	0·97	0	—	3·38	4·8
				1	17·5	2·49	3·5
5·0	3·8	4·79	0·97	0	—	4·17	5·9
				1	17·5	3·06	4·4
6·0	4·5	5·68	0·96	0	—	4·94	7·0
				1	17·5	3·62	5·1
55×55× 5·0	4·1	5·27	1·06	0	—	4·59	6·5
				1	21·5	3·22	4·6
6·0	4·9	6·26	1·06	0	—	5·45	7·7
				1	21·5	3·80	5·4
8·0	6·4	8·18	1·06	0	—	7·12	10·1
				1	21·5	4·92	7·0
10 0	7·9	10·02	1·06	0	—	8·72	12·4
				1	21·5	5·97	8·5
60×60× 5·0	4·5	5·75	1·16	0	—	5·00	7·1
				1	21·5	3·64	5·2
6·0	5·4	6·84	1·15	0	—	5·95	8·5
				1	21·5	4·32	6·1
8·0	7·0	8·96	1·15	0	—	7·80	11·1
				1	21·5	5·62	8·0
10·0	8·6	11·00	1·15	0	—	9·57	13·6
				1	21·5	6·84	9·7
65×65× 5·0	4·9	6·25	1·26	0	—	5·44	7·7
				1	21·5	4·09	5·8
6·0	5·8	7·44	1·26	0	—	6·48	9·2
				1	21·5	4·85	6·9
8·0	7·7	9·76	1·25	0	—	8·49	12·1
				1	21·5	6·33	9·0
10·0	9·4	12·00	1·25	0	—	10·44	14·8
				1	21·5	7·73	11·0

(Continued)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG) — (*Continued*)

EQUAL ANGLES

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
70×70× 5·0	5·3	6·77	1·36	0	—	5·89	8·4
				1	21·5	4·55	6·5
6·0	6·3	8·06	1·36	0	—	7·02	10·0
				1	21·5	5·40	7·7
8·0	8·3	10·58	1·35	0	—	9·21	13·1
				1	21·5	7·05	10·0
10·0	10·2	13·02	1·35	0	—	11·33	16·1
				1	21·5	8·64	12·3
75×75× 5·0	5·7	7·27	1·46	0	—	6·33	9·0
				1	21·5	4·99	7·1
6·0	6·8	8·66	1·46	0	—	7·54	10·7
				1	21·5	5·93	8·4
8·0	8·9	11·38	1·45	0	—	9·90	14·1
				1	21·5	7·76	11·0
10·0	11·0	14·02	1·45	0	—	12·20	17·3
				1	21·5	9·52	13·5
80×80× 6·0	7·3	9·29	1·56	0	—	8·09	11·5
				1	21·5	6·48	9·2
8·0	9·6	12·21	1·55	0	—	10·63	15·1
				1	21·5	8·49	12·1
10·0	11·8	15·05	1·55	0	—	13·10	18·6
				1	21·5	10·42	14·8
12·0	14·0	17·81	1·54	0	—	15·50	22·0
				1	21·5	12·29	17·5
90×90× 6·0	8·2	10·47	1·75	0	—	9·11	12·9
				1	21·5	7·52	10·7
8·0	10·8	13·79	1·75	0	—	12·00	17·0
				1	21·5	9·88	14·0
10·0	13·4	17·03	1·74	0	—	14·82	21·0
				1	21·5	12·16	17·3
12·0	15·8	20·19	1·74	0	—	17·57	25·0
				1	21·5	14·38	20·4

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG) — (*Continued*)

EQUAL ANGLES

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
100 × 100 × 6·0	9·2	11·67	1·95	0	—	10·16	14·4
				1	21·5	8·57	12·2
				2	13·5	8·15	11·6
8·0	12·1	15·39	1·95	0	—	13·40	19·0
				1	21·5	11·28	16·0
				2	13·5	10·71	15·2
10·0	14·9	19·03	1·94	0	—	16·56	23·5
				1	21·5	13·92	19·8
				2	13·5	13·21	18·8
12·0	17·7	22·59	1·94	0	—	19·66	27·9
				1	21·5	16·48	23·4
				2	13·5	15·63	22·2
110 × 110 × 8·0	13·4	17·02	2·14	0	—	14·81	21·0
				1	21·5	12·71	18·0
				2	13·5	12·14	17·2
10·0	16·5	21·06	2·14	0	—	18·33	26·0
				1	21·5	15·69	22·3
				2	13·5	14·99	21·3
12·0	19·6	25·02	2·13	0	—	21·78	30·9
				1	21·5	18·61	26·4
				2	13·5	17·77	25·2
15·0	24·2	30·81	2·13	0	—	26·82	38·1
				1	21·5	22·86	32·5
				2	13·5	21·80	31·0
130 × 130 × 8·0	15·9	20·22	2·55	0	—	17·60	25·0
				1	21·5	15·50	22·0
				2	21·5	13·28	18·9
10·0	19·7	25·06	2·54	0	—	21·81	31·0
				1	21·5	19·19	27·2
				2	21·5	16·40	23·3

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG) — (*Continued*)

EQUAL ANGLES

Composed of One Angle of Size $A \times B \times t$	Weight per Metre w	Gross Area	Minimum Radius of Gyration	Holes Deducted No.	Holes Deducted Dia	Effective Area	Allowable Load
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^2$
130 × 130 × 12·0	23·4	29·82	2·54	0	—	25·95	36·9
				1	21·5	22·81	32·4
				2	21·5	19·46	27·6
15·0	28·9	36·81	2·53	0	—	32·04	45·5
				1	21·5	28·10	39·9
				2	21·5	23·92	34·0
150 × 150 × 10·0	22·8	29·03	2·93	0	—	25·27	35·9
				1	23·5	22·40	31·8
				2	23·5	19·38	27·5
12·0	27·2	34·59	2·93	0	—	30·11	42·8
				1	23·5	26·67	37·9
				2	23·5	23·04	32·7
15·0	33·6	42·78	2·92	0	—	37·23	52·9
				1	23·5	32·94	46·8
				2	23·5	28·39	40·3
18·0	39·9	50·79	2·91	0	—	44·21	62·8
				1	23·5	39·05	55·4
				2	23·5	33·59	47·7
200 × 200 × 12·0	36·6	46·61	3·92	0	—	40·57	57·6
				1	29	36·34	51·6
				2	29	31·89	45·3
15·0	45·4	57·80	3·91	0	—	50·31	71·4
				1	29	45·02	63·9
				2	29	39·46	56·0
18·0	54·0	68·81	3·90	0	—	59·89	85·0
				1	29	53·54	76·0
				2	29	46·86	66·5
25·0	73·6	93·80	3·88	0	—	81·64	115·9
				1	29	72·82	103·4
				2	29	63·53	90·2

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of One Angle of Size $A \times B \times t$	Weight per Metre w	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
mm mm mm	kg	cm^2	cm		mm	cm^2	kg × 10^3
50×30× 3·0	1·8	2·34	0·65	0	—	1·79	2·5
4·0	2·4	3·07	0·63	0	—	2·35	3·3
5·0	3·0	3·78	0·63	0	—	2·88	4·1
6·0	3·5	4·47	0·63	0	—	3·40	4·8
60×40× 5·0	3·7	4·76	0·85	0	—	3·75	5·3
6·0	4·4	5·65	0·85	0	—	4·45	6·3
8·0	5·8	7·37	0·84	0	—	5·79	8·2
65×45× 5·0	4·1	5·26	0·96	0	—	4·20	6·0
6·0	4·9	6·25	0·95	0	—	4·98	7·1
8·0	6·4	8·17	0·95	0	—	6·50	9·2
70×45× 5·0	4·3	5·52	0·96	0	—	4·31	6·1
6·0	5·2	6·56	0·96	0	—	5·12	7·3
8·0	6·7	8·58	0·95	0	—	6·68	9·5
10·0	8 3	10·52	0·95	0	—	8·16	11·6
75×50× 5·0	4·7	6·02	1·07	0	—	4·76	6·8
				1	17·5	3·48	4·9
6·0	5·6	7·16	1·07	0	—	5·65	8·0
				1	17·5	4·12	5·8
8·0	·4	9·38	1·06	0	—	7·39	10·5
				1	17·5	5·33	7·6
10·0	9·0	11·52	1·06	0	—	9·05	12·9
				1	17·5	6·47	9·2
80×50× 5·0	4·9	6·27	1·07	0	—	4·86	6·9
				1	17·5	3·55	5·0
6·0	5·9	7·46	1·07	0	—	5·77	8·2
				1	17·5	4·20	6·0

(Continued)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
80 x 50 x 8·0	7·7	9·78	1·06	0	—	7·55	10·7
				1	17·5	5·44	7·7
10·0	9·4	12·02	1·06	0	—	9·25	13·1
				1	17·5	6·61	9·4
90 x 60 x 6·0	6·8	8·65	1·28	0	—	6·83	9·7
				1	21·5	4·95	7·0
8·0	8·9	11·37	1·28	0	—	8·96	12·7
				1	21·5	6·44	9·2
10·0	11·0	14·01	1·27	0	—	11·02	15·7
				1	21·5	7·86	11·2
12·0	13·0	16·57	1·27	0	—	13·02	18·5
				1	21·5	9·20	13·1
100 x 65 x 6·0	7·5	9·55	1·39	0	—	7·49	10·6
				1	21·5	5·61	8·0
8·0	9·9	12·57	1·39	0	—	9·84	14·0
				1	21·5	7·32	10·4
10·0	12·2	15·51	1·38	0	—	12·12	17·2
				1	21·5	8·96	12·7
100 x 75 x 5·0	8·0	10·14	1·59	0	—	8·28	11·8
				1	21·5	6·51	9·2
8·0	10·5	13·36	1·59	0	—	10·89	15·5
				1	21·5	8·54	12·1
10·0	13·0	16·50	1·58	0	—	13·44	19·1
				1	21·5	10·49	14·9
12·0	15·4	19·56	1·58	0	—	15·92	22·6
				1	21·5	12·36	17·6

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
125×75× 6·0	9·2	11·66	1·62	0	—	8·93	12·7
				1	21·5	7·02	10·0
8·0	12·1	15·38	1·61	0	—	11·76	16·7
				1	21·5	9·20	13·1
10·0	14·9	19·02	1·61	0	—	14·52	20·6
				1	21·5	11·30	16·0
125×95× 6·0	10·1	12·86	2·03	0	—	10·54	15·0
				1	21·5	8·81	12·5
8·0	13·3	16·98	2·02	0	—	13·90	19·7
				1	21·5	11·59	16·5
10·0	16·5	21·02	2·02	0	—	17·20	24·4
				1	21·5	14·31	20·3
12·0	19·6	24·98	2·01	0	—	20·42	29·0
				1	21·5	16·95	24·1
150×75× 8·0	13·7	17·42	1·60	0	—	12·53	17·8
				1	21·5	9·77	13·9
10·0	16·9	21·56	1·59	0	—	15·46	22·0
				1	21·5	12·00	17·0
12·0	20·1	25·62	1·58	0	—	18·32	26·0
				1	21·5	14·14	20·1
150×115× 8·0	16·2	20·58	2·45	0	—	16·90	24·0
				1	21·5	14·61	20·8
				2	13·5	14·00	19·9
10·0	20·0	25·52	2·44	0	—	20·54	29·2
				1	21·5	18·08	25·7
				2	13·5	17·32	24·6

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
150 × 115 × 12·0	23·8	30·38	2·44	0	—	24·91	35·4
				1	21·5	21·48	30·5
				2	13·5	20·56	29·2
15·0	29·5	37·52	2·43	0	—	30·74	43·7
				1	21·5	26·45	37·6
				2	13·5	25·29	35·9
200 × 100 × 10·0	22·8	29·03	2·14	0	—	20·87	29·6
				1	21·5	17·49	24·8
				2	13·5	16·56	23·5
12·0	27·2	34·59	2·13	0	—	24·82	35·3
				1	21·5	20·75	29·5
				2	13·5	19·63	27·9
15·0	33·6	42·78	2·12	0	—	30·61	43·5
				1	21·5	25·49	36·2
				2	13·5	24·09	34·2
200 × 150 × 10·0	26·7	34·00	3·21	0	—	27·76	39·4
				1	23·5	24·64	35·0
				2	23·5	21·30	30·2
12·0	31·8	40·56	3·2	0	—	33·10	47·0
				1	23·5	29·35	41·7
				2	23·5	25·33	36·0
15·0	39·4	50·25	3·20	0	—	40·98	58·2
				1	23·5	36·29	51·5
				2	23·5	31·25	44·4
18·0	46·9	59·76	3·19	0	—	48·70	69·2
				1	23·5	43·06	61·2
				2	23·5	37·01	52·6

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
50 × 30 × 3·0	1·8	2·34	0·65	0	—	2·19	3·1
				1	17·5	1·60	2·3
4·0	2·4	3·07	0·63	0	—	2·88	4·1
				1	17·5	2·09	3·0
5·0	3·0	3·78	0·63	0	—	3·54	5·0
				1	17·5	2·57	3·6
6·0	3·5	4·47	0·63	0	—	4·20	6·0
				1	17·5	3·02	4·3
60 × 40 × 5·0	3·7	4·76	0·85	0	—	4·41	6·3
				1	21·5	3·18	4·5
6·0	4·4	5·65	0·85	0	—	5·24	7·4
				1	21·5	3·77	5·3
8·0	5·8	7·37	0·84	0	—	6·84	9·7
				1	21·5	4·88	6·9
65 × 45 × 5·0	4·1	5·26	0·96	0	—	4·85	6·9
				1	21·5	3·62	5·1
6·0	4·9	6·25	0·95	0	—	5·77	8·2
				1	21·5	4·29	6·1
8·0	6·4	8·17	0·95	0	—	7·54	10·7
				1	21·5	5·57	7·9
70 × 45 × 5·0	4·3	5·52	0·96	0	—	5·13	7·3
				1	21·5	3·92	5·6
6·0	5·2	6·56	0·96	0	—	6·10	8·7
				1	21·5	4·65	6·6
8·0	6·7	8·58	0·95	0	—	7·99	11·3
				1	21·5	6·06	8·6
10·0	8·3	10·52	0·95	0	—	9·81	13·9
				1	21·5	7·39	10·5

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
75×50× 5·0	4·7	6·02	1·07	0	—	5·57	7·9
				1	21·5	4·36	6·2
6·0	5·6	7·16	1·07	0	—	6·63	9·4
				1	21·5	5·17	7·3
8·0	7·4	9·38	1·06	0	—	8·70	12·4
				1	21·5	6·75	9·6
10·0	9·0	11·52	1·06	0	—	10·69	15·2
				1	21·5	8·26	11·7
80×50× 5·0	4·9	6·27	1·07	0	—	5·85	8·3
				1	21·5	4·65	6·6
6·0	5·9	7·46	1·07	0	—	6·96	9·9
				1	21·5	5·52	7·8
8·0	7·7	9·78	1·06	0	—	9·13	13·0
				1	21·5	7·22	10·2
10·0	9·4	12·02	1·06	0	—	11·24	16·0
				1	21·5	8·84	12·6
90×60× 6·0	6·8	8·65	1·28	0	—	8·01	11·4
				1	21·5	6·56	9·3
8·0	8·9	11·37	1·28	0	—	10·54	15·0
				1	21·5	8·60	12·2
10·0	11·0	14·01	1·27	0	—	12·99	18·5
				1	21·5	10·58	15·0
12·0	13·0	16·57	1·27	0	—	15·38	21·8
				1	21·5	12·48	17·7
100×65× 6·0	7·5	9·55	1·39	0	—	11·02	15·6
				1	21·5	7·43	10·5
				2	13·5	7·05	10·0

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
100×65× 8·0	9·9	12·57	1·39	0	—	11·68	16·6
				1	21·5	9·76	13·9
				2	13·5	9·26	13·1
10·0	12·2	15·51	1·38	0		14·42	20·5
				1	21·5	12·03	17·1
				2	13·5	11·39	16·2
100×75× 6·0	8·0	10·14	1·59	0	—	9·25	13·1
				1	21·5	7·77	11·0
				2	13·5	7·38	10·5
8·0	10·5	13·36	1·59	0	—	12·19	17·3
				1	21·5	10·22	14·5
				2	13·5	9·70	13·8
10·0	13·0	16·50	1·58	0	—	15·06	21·4
				1	21·5	12·60	17·9
				2	13·5	11·95	17·0
12·0	15·4	19·56	1·58	0	—	17·87	25·4
				1	21·5	14·91	21·2
				2	13·5	14·13	20·1
125×75× 6·0	9·2	11·66	1·62	0	—	10·92	15·5
				1	21·5	9·50	13·5
				2	21·5	8·03	11·4
8·0	12·1	15·38	1·61	0	—	14·41	20·5
				1	21·5	12·52	17·8
				2	21·5	10·57	15·0
10·0	14·9	19·02	1·61	0	—	17·83	25·3
				1	21·5	15·47	22·0
				2	21·5	13·03	18·5

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of One Angle of Size $A \times B \times t$	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
125×95× 6·0	10·1	12·86	2·03	0	—	11·70	16·6
				1	21·5	10·23	14·5
				2	21·5	8·68	12·3
8·0	13·3	16·98	2·02	0	—	15·46	22·0
				1	21·5	13·49	19·2
				2	21·5	11·43	16·2
10·0	16·5	21·02	2·02	0	—	19·15	27·2
				1	21·5	16·69	23·7
				2	21·5	14·10	20·0
12·0	19·6	24·98	2·01	0	—	22·76	32·3
				1	21·5	19·81	28·1
				2	21·5	16·71	23·7
150×75× 8·0	13·7	17·42	1·60	0	—	16·59	23·6
				1	23·5	14·58	20·7
				2	23·5	12·51	17·8
10·0	16·9	21·56	1·59	0	—	20·54	29·2
				1	23·5	18·03	25·6
				2	23·5	15·45	21·9
12·0	20·1	25·62	1·58	0	—	24·42	34·7
				1	23·5	21·41	30·4
				2	23·5	18·32	26·0
150×115× 8·0	16·2	20·58	2·45	0	—	18·71	26·6
				1	23·5	16·56	23·5
				2	23·5	14·31	20·3
10·0	20·0	25·52	2·44	0	—	23·21	33·0
				1	23·5	20·52	29·1
				2	23·5	17·72	25·2

(*Continued*)

TABLE XXIX SINGLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of One Angle of Size	Weight per Metre	Gross Area	Minimum Radius of Gyration	Holes Deducted		Effective Area	Allowable Load
				No.	Dia		
$A \times B \times t$	w						
mm mm mm	kg	cm^2	cm		mm	cm^2	$kg \times 10^3$
150 × 115 × 12·0	23·8	30·38	2·44	0	—	27·64	39·2
				1	23·5	24·41	34·7
				2	23·5	21·04	29·9
15·0	29·5	37·52	2·43	0	—	34·15	48·5
				1	23·5	30·12	42·8
				2	23·5	25·91	36·8
200 × 100 × 10·0	22·8	29·03	2·14	0	—	27·64	39·3
				1	29	24·54	34·8
				2	29	21·37	30·3
12·0	27·2	34·59	2·13	0	—	32·95	46·8
				1	29	29·23	41·5
				2	29	25·43	36·1
15·0	33·6	42·78	2·12	0	—	40·78	57·9
				1	29	36·13	51·3
				2	29	31·38	44·6
200 × 150 × 10·0	26·7	34·00	3·21	0	—	31·01	44·0
				1	29	27·71	39·3
				2	29	24·28	34·5
12·0	31·8	40·56	3·21	0	—	37·00	52·5
				1	29	33·04	46·9
				2	29	28·93	41·1
15·0	39·4	50·25	3·20	0	—	45·85	65·1
				1	29	40·90	58·1
				2	29	35·77	50·8
18·0	46·9	59·76	3·19	0	—	54·55	77·5
				1	29	48·61	69·0
				2	29	42·45	60·3

Note 1 — The diameters of the holes deducted are assumed to be one millimetre larger than the corresponding rivet sizes.

Note 2 — The maximum allowable load is computed on the basis of the allowable stress specified in **9.1.1** and the effective sectional area defined in **19.3.1** of IS : 800-1956.

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)

EQUAL ANGLES

Composed of Two Angles Each of Size $A \times B \times t$	Weight per Metre w	Sectional Area a	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
			No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
50 × 50 × 3·0	4·6	5·90	0	—	5·90	8·4	0	—	5·41	7·7
			1	17·5	4·85	6·9	1	17·5	4·15	5·9
4·0	6·0	7·76	0	—	7·76	11·0	0	—	7·11	10·1
			1	17·5	6·36	9·0	1	17·5	5·44	7·7
5·0	7·6	9·58	0	—	9·58	13·6	0	—	8·78	12·5
			1	17·5	·83	11·1	1	17·5	6·68	9·5
6·0	9·0	11·36	0	—	11·36	16·1	0	—	10·41	14·8
			1	17·5	9·26	13·1	1	17·5	7·89	11·2
55 × 55 × 5·0	8·2	10·54	0	—	10·54	15·0	0	—	9·66	13·7
			1	21·5	8·39	11·9	1	21·5	7·06	10·0
6·0	9·8	12·52	0	—	12·52	17·8	0	—	11·48	16·3
			1	21·5	9·94	14·1	1	21·5	8·35	11·9
8·0	12·8	16·36	0	—	16·36	23·2	0	—	15·00	21·3
			1	21·5	12·92	18·3	1	21·5	10·82	15·4
10·0	15·8	20·04	0	—	20·04	28·5	0	—	18·37	26·1
			1	21·5	15·74	22·4	1	21·5	13·14	18·7
60 × 60 × 5·0	9·0	11·50	0	—	11·50	16·3	0	—	10·54	15·0
			1	21·5	9·35	13·3	1	21·5	7·96	11·3
6·0	10·8	13·68	0	—	13·68	19·4	0	—	12·54	17·8
			1	21·5	11·10	15·8	1	21·5	9·44	13·4
8·0	14·0	17·92	0	—	17·92	25·4	0	—	16·43	23·3
			1	21·5	14·48	20·6	1	21·5	12·28	17·4
10·0	17·2	22·00	0	—	22·00	31·2	0	—	20·17	28·6
			1	21·5	17·70	25·1	1	21·5	14·98	21·3
65 × 65 × 5·0	9·8	12·50	0	—	12·50	17·8	0	—	11·46	16·3
			1	21·5	10·35	14·7	1	21·5	8·89	12·6
6·0	11·6	14·88	0	—	14·88	21·1	0	—	13·64	19·4
			1	21·5	12·30	17·5	1	21·5	10·56	15·0
8·0	15·4	19·52	0	—	19·52	27·7	0	—	17·89	25·4
			1	21·5	16·08	22·8	1	21·5	13·78	19·6
10·0	18·8	24·00	0	—	24·00	34·1	0	—	22·00	31·2
			1	21·5	19·70	28·0	1	21·5	16·85	23·9

(Continued)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG) — (*Continued*)

EQUAL ANGLES

Composed of Two Angles Each of Size	Weight per Metre	Sectional Area	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
$A \times B \times t$	w	a	No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
70 × 70 × 5·0	10·6	13·54	0	—	13·54	19·2	0	—	12·41	17·6
			1	21·5	11·39	16·2	1	21·5	9·86	14·0
6·0	12·6	16·12	0	—	16·12	22·9	0	—	14·78	21·0
			1	21·5	13·54	19·2	1	21·5	11·71	16·6
8·0	16·6	21·16	0	—	21·16	30·0	0	—	19·40	27·5
			1	21·5	17·72	25·2	1	21·5	15·30	21·7
10·0	20·4	26·04	0	—	26·04	37·0	0	—	23·87	33·9
			1	21·5	21·74	30·9	1	21·5	18·75	26·6
75 × 75 × 5·0	11·4	14 54	0	—	14·54	20·6	0	—	13·33	18·9
			1	21·5	12·39	17·6	1	21·5	10·78	15·3
6·0	13·6	17·32	0	—	17·32	24·6	0	—	15·88	22·5
			1	21·5	14·74	20·9	1	21·5	12·82	18·2
8·0	17·8	22·76	0	—	22·76	32·3	0	—	20·86	29·6
			1	21·5	19·32	27·4	1	21·5	16·78	23·8
10·0	22·0	28·04	0	—	28·04	39·8	0	—	25·70	36·5
			1	21·5	23·74	33·7	1	21·5	20·60	29·3
80 × 80 × 6·0	14·6	18·58	0	—	18·58	26·4	0	—	17·03	24·2
			1	21·5	16·00	22·7	1	21·5	13·98	19·9
8·0	19·2	24·42	0	—	24·42	34·7	0	—	22·38	31·8
			1	21·5	20·98	29·8	1	21·5	18·32	26·0
10·0	23·6	30·10	0	—	30·10	42·7	0	—	27·59	39·2
			1	21·5	25·80	36·6	1	21·5	22·51	32·0
12·0	28·0	35·62	0	—	35·62	50·6	0	—	32·65	46·4
			1	21·5	30·46	43·3	1	21·5	26·55	37·7
90 × 90 × 6·0	16·4	20·94	0	—	20·94	29·7	0	—	19·20	27·3
			1	21·5	18·36	26·1	1	21·5	16·16	23·0
8·0	21·6	27·58	0	—	27·58	39·2	0	—	25·28	35·9
				21·5	24·14	34·3	1	21·5	21·24	30·2
10·0	26·8	34·06	0	—	34·06	48·4	0	—	31·22	44·3
			1	21·5	29·76	42·3	1	21·5	26·16	37·2
12·0	31·6	40·38	0	—	40·38	57·3	0	—	37·02	52·6
			1	21·5	35·22	50·0	1	21·5	30·94	43·9

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG) — (*Continued*)

EQUAL ANGLES

Composed of Two Angles Each of Size $A \times B \times t$	Weight per Metre w	Sectional Area a	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
			No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
100×100× 6·0	18·4	23·34	0	—	23·34	33·1	0	—	21·40	30·4
			1	21·5	20·76	29·5	1	21·5	18·38	26·1
			2	13·5	20·10	28·5	2	13·5	17·57	24·9
8·0	24·2	30·78	0	—	30·78	43·7	0	—	28·22	40·1
			1	21·5	27·34	38·8	1	21·5	24·19	34·3
			2	13·5	26·46	37·6	2	13·5	23·11	32·8
10·0	29·8	38·06	0	—	38·06	54·0	0	—	34·89	49·5
			1	21·5	33·76	47·9	1	21·5	29·85	42·4
			2	13·5	32·66	46·4	2	13·5	28·51	40·5
12·0	35·4	45·18	0	—	45·18	64·2	0	—	41·42	58·8
			1	21·5	40·02	56·8	1	21·5	35·37	50·2
			2	13·5	38·70	55·0	2	13·5	33·75	47·9
110×110× 8·0	26·8	34·04	0	—	34·04	48·3	0	—	31·20	44·3
			1	21·5	30·60	43·5	1	21·5	27·19	38·6
			2	13·5	29·72	42·2	2	13·5	26·12	37·1
10·0	33·0	42·12	0	—	42·12	59·8	0	—	38·61	54·8
			1	21·5	37·82	53·7	1	21·5	33·59	47·7
			2	13·5	36·72	52·1	2	13·5	32·26	45·8
12·0	39·2	50·04	0	—	50·04	71·1	0	—	45·87	65·1
			1	21·5	44·88	63·7	1	21·5	39·84	56·6
			2	13·5	43·56	61·9	2	13·5	38·24	54·3
15·0	48·4	61·62	0	—	61·62	87·5	0	—	56·48	80·2
			1	21·5	55·17	78·3	1	21·5	48·95	69·5
			2	13·5	53·52	76·0	2	13·5	46·95	66·7
130×130× 8·0	31·8	40·44	0	—	40·44	57·4	0	—	37·07	52·6
			1	21·5	37·00	52·5	1	21·5	33·07	47·0
			2	21·5	33·56	47·7	2	21·5	28·86	41·0
10·0	39·4	50·12	0	—	50·12	71·2	0	—	45·94	65·2
			1	21·5	45·82	65·1	1	21·5	40·95	58·1
			2	21·5	41·52	59·0	2	21·5	35·67	50·7

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG) — (*Continued*)

EQUAL ANGLES

Composed of Two Angles Each of Size $A \times B \times t$	Weight per Metre w	Sectional Area a	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
			No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	kg × 10^3		mm	cm^2	kg × 10^3
130 × 130 × 12·0	46·8	59·64	0	—	59·64	84·7	0	—	54·67	77·6
			1	21·5	54·48	77·4	1	21·5	48·67	69·1
			2	21·5	49·32	70·0	2	21·5	42·34	60·1
15·0	57·8	73·62	0	—	73·62	104·5	0	—	67·48	95·8
			1	21·5	67·17	95·4	1	21·5	59·98	85·2
			2	21·5	60·72	86·2	2	21·5	52·05	73·9
150 × 150 × 10·0	45·6	58·06	0	—	58·06	82·4	0	—	53·22	75·6
			1	23·5	53·36	75·8	1	23·5	47·77	67·8
			2	23·5	48·66	69·1	2	23·5	42·03	59·7
12·0	54·4	69·18	0	—	69·18	98·2	0	—	63·42	90·0
			1	23·5	63·54	90·2	1	23·5	56·86	80·8
			2	23·5	57·90	82·2	2	23·5	49·98	71·0
15·0	67·2	85·56	0	—	85·56	121·5	0	—	78·43	111·4
			1	23·5	78·51	111·5	1	23·5	70·24	99·7
			2	23·5	71·46	101·5	2	23·5	61·63	87·5
18·0	79·8	101·58	0	—	101·58	144·2	0	—	93·12	132·2
			1	23·5	93·12	132·2	1	23·5	83·29	118·3
			2	23·5	84·66	120·2	2	23·5	72·94	103·6
200 × 200 × 12·0	73·2	93·22	0	—	93·22	132·4	0	—	85·45	121·3
			1	29	86·26	122·5	1	29	77·39	109·9
			2	29	79·30	112·6	2	29	68·96	97·9
15·0	90·8	115·60	0	—	115·60	164·2	0	—	105·97	150·5
			1	29	106·90	151·8	1	29	95·88	136·2
			2	29	98·20	139·4	2	29	85·34	121·2
18·0	108·0	137·62	0	—	137·62	195·4	0	—	126·15	179·1
			1	29	127·18	180·6	1	29	114·05	162·0
			2	29	116·74	165·8	2	29	101·39	144·0
25·0	147·2	187·60	0	—	187·60	266·4	0	—	171·97	244·2
			1	29	173·10	245·8	1	29	155·16	220·3
			2	29	158·60	225·2	2	29	137·54	195·3

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of Two Angles Each of Size	Weight per Metre	Sectional Area	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
A×B×t	w	a	No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
50 × 30 × 3·0	3·6	4·68	0	—	4·68	6·6	0	—	3·94	5·6
4·0	4·8	6·14	0	—	6·14	8·7	0	—	5·16	7·3
5·0	6·0	7·56	0	—	7·56	10·7	0	—	6·34	9·0
6·0	7·0	8·94	0	—	8·94	12·7	0	—	7·48	10·6
60 × 40 × 5·0	7·4	9·52	0	—	9·52	13·5	0	—	8·17	11·6
6·0	8·8	11·30	0	—	11·30	16·0	0	—	9·69	13·8
8·0	11·6	14·74	0	—	14·74	20·9	0	—	12·61	17·9
65 × 45 × 5·0	8·2	10·52	0	—	10·52	14·9	0	—	9·10	12·9
6·0	9·8	12·50	0	—	12·50	17·8	0	—	10·80	15·3
8·0	12·8	16·34	0	—	16·34	23·2	0	—	14·10	20·0
70×45× 5·0	8·6	11·04	0	—	11·04	15·7	0	—	9·41	13·4
6·0	10·4	13·12	0	—	13·12	18·6	0	—	11·17	15·9
8·0	13·4	17·16	0	—	17·16	24·4	0	—	14·59	20·7
10·0	16·6	21·04	0	—	21·04	29·9	0	—	17·85	25·3
75 × 50 × 5·0	9·4	12·04	0	—	12·04	17·1	0	—	10·34	14·7
			1	17·5	10·29	14·6	1	17·5	7·93	11·3
6·0	11·2	14·32	0	—	14·32	20·3	0	—	12·29	17·5
			1	17·5	12·22	17·4	1	17·5	9·39	13·3
8·0	14·8	18·76	0	—	18·76	26·6	0	—	16·08	22·8
			1	17·5	15·96	22·7	1	17·5	12·18	17·3
10·0	18·0	23·04	0	—	23·04	32·7	0	—	19·71	28·0
			1	17·5	19·54	27·7	1	17·5	14·82	21·0
80 × 50 × 5·0	9·8	12·54	0	—	12·54	17·8	0	—	10·63	15·1
			1	17·5	10·79	15·3	1	17·5	8·15	11·6
6·0	11·8	14·92	0	—	14·92	21·2	0	—	12·64	17·9
			1	17·5	12·82	18·2	1	17·5	9·65	13·7

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of Two Angles Each of Size $A \times B \times t$	Weight per Metre	Sectional Area	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
			No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
80×50× 8·0	15·4	19·56	0	—	19·56	27·8	0	—	16·54	23·5
			1	17·5	16·76	23·8	1	17·5	12·53	17·8
10·0	18·8	24·04	0	—	24·04	34·1	0	—	20·29	28·8
			1	17·5	20·54	29·2	1	17·5	15·25	21·7
90×60× 6·0	13·6	17·30	0	—	17·30	24·6	0	—	14·86	21·1
			1	21·5	14·72	20·9	1	21·5	11·29	16·0
8·0	17·8	22·74	0	—	22·74	32·3	0	—	19·51	27·7
			1	21·5	19·30	27·4	1	21·5	14·72	20·9
10·0	22·0	28·02	0	—	28·02	39·8	0	—	24·00	34·1
			1	21·5	23·72	33·7	1	21·5	18·00	25·6
12·0	26·0	33·14	0	—	33·14	47·1	0	—	28·36	40·3
			1	21·5	27·98	39·7	1	21·5	21·11	30·0
100×65× 6·0	15·0	19·10	0	—	19·10	27·1	0	—	16·32	23·2
			1	21·5	16·52	23·5	1	21·5	12·75	18·1
8·0	19·8	25·14	0	—	25·14	35·7	0	—	21·46	30·5
			1	21·5	21·70	30·8	1	21·5	16·68	23·7
10·0	24·4	31·02	0	—	31·02	44·0	0	—	26·45	37·6
			1	21·5	26·72	37·9	1	21·5	20·44	29·0
100×75× 6·0	16·0	20·28	0	—	20·28	28·8	0	—	17·81	25·3
			1	21·5	17·70	25·1	1	21·5	14·47	20·5
8·0	21·0	26·72	0	—	26·72	37·9	0	—	23·45	33·3
			1	21·5	23·28	33·1	1	21·5	18·99	27·0
10·0	26·0	33·00	0	—	33·00	46·9	0	—	28·94	41·1
			1	21·5	28·70	40·8	1	21·5	23·35	33·2
12·0	30·8	39·12	0	—	39·12	55·6	0	—	34·29	48·7
			1	21·5	33·96	48·2	1	21·5	27·56	39·1

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(Continued)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of Two Angles Each of Size	Weight per Metre	Sectional Area	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
$A \times B \times t$	w	a	No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
125×75× 6·0	18·4	23·32	0	—	23·32	33·1	0	—	19·61	27·8
			1	21·5	20·74	29·5	1	21·5	15·97	22·7
8·0	24·2	30·76	0	—	30·76	43·7	0	—	25·84	36·7
			1	21·5	27·32	38·8	1	21·5	20·96	29·8
10·0	29·8	38·04	0	—	38·04	54·0	0	—	31·91	45·3
			1	21·5	33·74	47·9	1	21·5	25·80	36·6
125×95× 6·0	20·2	25·72	0	—	25·72	36·5	0	—	22·65	32·2
			1	21·5	23·14	32·9	1	21·5	19·37	27·5
8·0	26·6	33·96	0	—	33·96	48·2	0	—	29·89	42·4
			1	21·5	30·52	43·3	1	21·5	25·52	36·2
10·0	33·0	42·04	0	—	42·04	59·7	0	—	36·98	52·5
			1	21·5	37·74	53·6	1	21·5	31·51	44·7
12·0	39·2	49·96	0	—	49·96	70·9	0	—	43·93	62·4
			1	21·5	44·80	63·6	1	21·5	37·35	53·0
150×75× 8·0	27·4	34·84	0	—	34·84	49·5	0	—	28·05	39·8
			1	21·5	31·40	44·6	1	21·5	22·74	32·3
10·0	33·8	43·12	0	—	43·12	61·2	0	—	34·62	49·2
			1	21·5	38·82	55·1	1	21·5	27·97	39·7
12·0	40·2	51·24	0	—	51·24	72·8	0	—	41·06	58·3
			1	21·5	46·08	65·4	1	21·5	33·04	46·9
150×115× 8·0	32·4	41·16	0	—	41·16	58·4	0	—	36·29	51·5
			1	21·5	37·72	53·6	1	21·5	31·97	45·4
			2	13·5	36·84	52·3	2	13·5	30·81	43·8
10·0	40·0	51·04	0	—	51·04	72·5	0	—	44·99	63·9
			1	21·5	46·74	66·4	1	21·5	39·58	56·2
			2	13·5	45·64	64·8	2	13·5	38·13	54·1

(Continued)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of Two Angles Each of Size	Weight per Metre	Sectional Area	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
$A \times B \times t$	w	a	No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
150×115×12·0	47·6	60·76	0	—	60·76	86·3	0	—	53·53	76·0
			1	21·5	55·60	79·0	1	21·5	47·04	66·8
			2	13·5	54·28	77·1	2	13·5	45·29	64·3
15·0	59·0	75·04	0	—	75·04	106·6	0	—	66·08	93·8
			1	21·5	68·59	97·4	1	21·5	57·94	82·3
			2	13·5	66·94	95·1	2	13·5	55·76	79·2
200×100×10·0	45·6	58·06	0	—	58·06	82·4	0	—	46·71	66·3
			1	21·5	53·76	76·3	1	21·5	40·24	57·1
			2	13·5	52·66	74·8	2	13·5	38·45	54·6
12·0	54·4	69·18	0	—	69·18	98·2	0	—	55·58	78·9
			1	21·5	64·02	90·8	1	21·5	47·79	67·9
			2	13·5	62·70	89·0	2	13·5	45·63	64·8
15·0	67·2	85·56	0	—	85·56	121·5	0	—	68·58	97·4
			1	21·5	79·11	112·3	1	21·5	58·81	83·5
			2	13·5	77·46	110·0	2	13·5	56·08	79·6
200×150×10·0	53·4	68·00	0	—	68·00	96·6	0	—	59·73	84·3
			1	23·5	63·30	89·9	1	23·5	53·82	76·4
			2	23·5	58·60	83·2	2	23·5	47·50	67·4
12·0	63·6	81·12	0	—	81·12	115·2	0	—	71·24	101·2
			1	23·5	75·48	107·2	1	23·5	64·14	91·1
			2	23·5	69·84	99·2	2	23·5	56·54	80·3
15·0	78·8	100·50	0	—	100·50	142·7	0	—	88·22	125·3
			1	23·5	93·45	132·7	1	23·5	79·34	112·7
			2	23·5	86·40	122·7	2	23·5	69·81	99·1
18·0	93·8	119·52	0	—	119·52	169·7	0	—	104·86	148·9
			1	23·5	111·06	157·7	1	23·5	94·19	133·8
			2	23·5	102·60	145·7	2	23·5	82·73	117·5

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (SHORTER LEG CONNECTED)

Composed of Two Angles Each of Size $A \times B \times t$	Weight per Metre w	Sectional Area a	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
			No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
50×30× 3·0	3·6	4·68	0	—	4·68	6·6	0	—	4·50	6·4
			1	17·5	3·63	5·2	1	17·5	2·28	3·2
4·0	4·8	6·14	0	—	6·14	8·7	0	—	5·90	8·4
			1	17·5	4·74	6·7	1	17·5	2·92	4·1
5·0	6·0	7·56	0	—	7·56	10·7	0	—	7·27	10·3
			1	17·5	5·81	8·3	1	17·5	3·51	5·0
6·0	7·0	8·94	0	—	8·94	12·7	0	—	8·60	12·2
			1	17·5	6·84	9·7	1	17·5	4·05	5·7
60×40× 5·0	7·4	9·52	0	—	9·52	13·5	0	—	9·09	12·9
			1	21·5	7·37	10·5	1	21·5	4·97	7·1
6·0	8·8	11·30	0	—	11·30	16·0	0	—	10·79	15·3
			1	21·5	8·72	12·4	1	21·5	5·82	8·3
8·0	11·6	14·74	0	—	14·74	20·9	0	—	14·08	20·0
			1	21·5	11·30	16·0	1	21·5	7·40	10·5
65×45× 5·0	8·2	10·52	0	—	10·52	14·9	0	—	10·01	14·2
			1	21·5	8·37	11·9	1	21·5	6·04	8·6
6·0	9·8	12·50	0	—	12·50	17·8	0	—	11·90	16·9
			1	21·5	9·92	14·1	1	21·5	7·12	10·1
8·0	12·8	16·34	0	—	16·34	23·2	0	—	15·56	22·1
			1	21·5	12·90	18·3	1	21·5	9·14	13·0
70×45× 5·0	8·6	11·04	0	—	11·04	15·7	0	—	10·56	15·0
			1	21·5	8·89	12·6	1	21·5	6·25	8·9
6·0	10·4	13·12	0	—	13·12	18·6	0	—	12·56	17·8
			1	21·5	10·54	15·0	1	21·5	7·37	10·5
8·0	13·4	17·16	0	—	17·16	24·4	0	—	16·43	23·3
			1	21·5	13·72	19·5	1	21·5	9·46	13·4
10·0	16·6	21·04	0	—	21·04	29·9	0	—	20·16	28·6
			1	21·5	16·74	23·8	1	21·5	11·38	16·2

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of Two Angles Each of Size	Weight per Metre	Sectional Area	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
$A \times B \times t$	w	a	No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
75×50× 5·0	9·4	12·04	0	—	12·04	17·1	0	—	11·49	16·3
			1	21·5	9·89	14·0	1	21·5	9·14	13·0
6·0	11·2	14·32	0	—	14·32	20·3	0	—	13·67	19·4
			1	21·5	11·74	16·7	1	21·5	10·85	15·4
8·0	14·8	18·76	0	—	18·76	26·6	0	—	17·91	25·4
			1	21·5	15·32	21·8	1	21·5	14·16	20·1
10·0	18·0	23·04	0	—	23·04	32·7	0	—	22·01	31·3
			1	21·5	18·74	26·6	1	21·5	17·33	24·6
80×50× 5·0	9·8	12·54	0	—	12·54	17·8	0	—	12·02	17·1
			1	21·5	10·39	14·8	1	21·5	9·70	13·8
6·0	11·8	14·92	0	—	14·92	21·2	0	—	14·30	20·3
			1	21·5	12·34	17·5	1	21·5	11·52	16·4
8·0	15·4	19·56	0	—	19·56	27·8	0	—	18·76	26·6
			1	21·5	16·12	22·9	1	21·5	15·05	21·4
10·0	18·8	24·04	0	—	24·04	34·1	0	—	23·07	32·8
			1	21·5	19·74	28·0	1	21·5	18·44	26·2
90×60× 6·0	13·6	17·30	0	—	17·30	24·6	0	—	16·51	23·4
			1	21·5	14·72	20·9	1	21·5	13·70	19·5
8·0	17·8	22·74	0	—	22·74	32·3	0	—	21·71	30·8
			1	21·5	19·30	27·4	1	21·5	17·97	25·5
10·0	22·0	28·02	0	—	28·02	39·8	0	—	26·76	38·0
			1	21·5	23·72	33·7	1	21·5	22·09	31·4
12·0	26·0	33·14	0	—	33·14	47·1	0	—	31·66	45·0
			1	21·5	27·98	39·7	1	21·5	26·07	37·0
100×65× 6·0	15·0	19·10	0	—	19·10	27·1	0	—	18·26	25·9
			1	21·5	16·52	23·5	1	21·5	15·47	22·0
			2	13·5	15·86	22·5	2	13·5	14·74	20·9

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of Two Angles Each of Size	Weight per Metre	Sectional Area	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
A×B×t	w	a	No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
100×65× 8·0	19·8	25·14	0	—	25·14	35·7	0	—	24·04	34·1
			1	21·5	21·70	30·8	1	21·5	20·33	28·9
			2	13·5	20·82	29·6	2	13·5	19·35	27·5
10·0	24·4	31·02	0	—	31·02	44·0	0	—	29·67	42·1
			1	21·5	26·72	37·9	1	21·5	25·03	35·5
			2	13·5	25·62	36·4	2	13·5	23·82	33·8
100×75× 6·0	16·0	20·28	0	—	20·28	28·8	0	—	19·16	27·2
			1	21·5	17·70	25·1	1	21·5	16·32	23·2
			2	13·5	17·04	24·2	2	13·5	15·57	22·1
8·0	21·0	26·72	0	—	26·72	37·9	0	—	25·26	35·9
			1	21·5	23·28	33·1	1	21·5	21·46	30·5
			2	13·5	22·40	31·8	2	13·5	20·46	29·1
10·0	26·0	33·00	0	—	33·00	46·9	0	—	31·20	44·3
			1	21·5	28·70	40·8	1	21·5	26·46	37·6
			2	13·5	27·60	39·2	2	13·5	25·21	35·8
12·0	30·8	39·12	0	—	39·12	55·6	0	—	37·00	52·5
			1	21·5	33·96	48·2	1	21·5	31·31	44·5
			2	13·5	32·64	46·3	2	13·5	29·81	42·3
125×75× 6·0	18·4	23·32	0	—	23·32	33·1	0	—	22·41	31·8
			1	21·5	20·74	29·5	1	21·5	19·65	27·9
			2	21·5	18·16	25·8	2	21·5	16·82	23·9
8·0	24·2	30·76	0	—	30·76	43·7	0	—	29·56	42·0
			1	21·5	27·32	38·8	1	21·5	25·90	36·8
			2	21·5	23·88	33·9	2	21·5	22·13	31·4
10·0	29·8	38·04	0	—	38·04	54·0	0	—	36·57	51·9
			1	21·5	33·74	47·9	1	21·5	31·99	45·4
			2	21·5	29·44	41·8	2	21·5	27·28	38·7

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of Two Angles Each of Size $A \times B \times t$	Weight per Metre w	Sectional Area a	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
			No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
125×95× 6·0	20·2	25·72	0	—	25·72	36·5	0	—	24·27	34·5
			1	21·5	23·14	32·9	1	21·5	21·43	30·4
			2	21·5	20·56	29·2	2	21·5	18·47	26·2
8·0	26·6	33·96	0	—	33·96	48·2	0	—	32·06	45·5
			1	21·5	30·52	43·3	1	21·5	28·27	40·1
			2	21·5	27·08	38·5	2	21·5	24·32	34·5
10·0	33·0	42·04	0	—	42·04	59·7	0	—	39·69	56·4
			1	21·5	37·74	53·6	1	21·5	34·96	49·6
			2	21·5	33·44	47·5	2	21·5	30·03	42·6
12·0	39·2	49·96	0	—	49·96	70·9	0	—	47·18	67·0
			1	21·5	44·80	63·6	1	21·5	41·50	58·9
			2	21·5	39·64	56·3	2	21·5	35·58	50·5
150×75× 8·0	27·4	34·84	0	—	34·84	49·5	0	—	33·83	48·0
			1	23·5	31·08	44·1	1	23·5	29·89	42·4
			2	23·5	27·32	38·8	2	23·5	25·89	36·8
10·0	33·8	43·12	0	—	43·12	61·2	0	—	41·88	59·5
			1	23·5	38·42	54·6	1	23·5	36·96	52·5
			2	23·5	33·72	47·9	2	23·5	31·96	45·4
12·0	40·2	51·24	0	—	51·24	72·8	0	—	49·78	70·7
			1	23·5	45·60	64·8	1	23·5	43·89	62·3
			2	23·5	39·96	56·7	2	23·5	37·89	53·8
150×115× 8·0	32·4	41·16	0	—	41·16	58·4	0	—	38·81	55·1
			1	23·5	37·40	53·1	1	23·5	34·67	49·2
			2	23·5	33·64	47·8	2	23·5	30·38	43·1
10·0	40·0	51·04	0	—	51·04	72·5	0	—	48·14	68·4
			1	23·5	46·34	65·8	1	23·5	42·96	61·0
			2	23·5	41·64	59·1	2	23·5	37·60	53·4
12·0	47·6	60·76	0	—	60·76	86·3	0	—	57·32	81·4
			1	23·5	55·12	78·3	1	23·5	51·11	72·6
			2	23·5	49·48	70·3	2	23·5	44·68	63·4

(*Continued*)

TABLE XXX DOUBLE ANGLES USED AS TIES (CONNECTED BY ONE LEG)—(*Continued*)

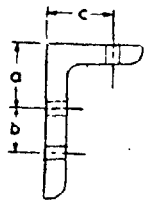
UNEQUAL ANGLES (LONGER LEG CONNECTED)

Composed of Two Angles Each of Size $A \times B \times t$	Weight per Metre w	Sectional Area a	Angles on Both Sides of the Gusset				Angles on One Side of the Gusset			
			Holes Deducted		Effective Area	Allowable Load	Holes Deducted		Effective Area	Allowable Load
			No.	Dia			No.	Dia		
mm mm mm	kg	cm^2		mm	cm^2	$kg \times 10^3$		mm	cm^2	$kg \times 10^3$
150 × 115 × 15·0	59·0	75·04	0	—	75·04	106·6	0	—	70·81	100·5
			1	23·5	67·99	96·5	1	23·5	63·05	89·5
			2	23·5	60·94	86·5	2	23·5	55·01	78·1
200 × 100 × 10·0	45·6	58·06	0	—	58·06	82·4	0	—	56·37	80·0
			1	29	52·26	74·2	1	29	50·31	71·4
			2	29	46·46	66·0	2	29	44·14	62·7
12·0	54·4	69·18	0	—	69·18	98·2	0	—	67·18	95·4
			1	29	62·22	88·4	1	29	59·91	85·1
			2	29	55·26	78·5	2	29	52·52	74·6
15·0	67·2	85·56	0	—	85·56	121·5	0	—	83·10	118·0
			1	29	76·86	109·1	1	29	74·03	105·1
			2	29	68·16	96·8	2	29	64·78	92·0
200 × 150 × 10·0	53·4	68·00	0	—	68·00	96·6	0	—	64·24	91·2
			1	29	52·20	88·3	1	29	57·89	82·2
			2	29	56·40	80·1	2	29	51·33	72·9
12·0	63·6	81·12	0	—	81·12	115·2	0	—	76·65	108·8
			1	29	74·16	105·3	1	29	69·02	98·0
			2	29	67·20	95·4	2	29	61·16	86·8
15·0	78·8	100·50	0	—	100·50	142·7	0	—	94·99	134·9
			1	29	91·80	130·4	1	29	85·46	121·3
			2	29	83·10	118·0	2	29	75·63	107·4
18·0	93·8	119·52	0	—	119·52	169·7	0	—	112·99	160·4
			1	29	109·08	154·9	1	29	101·55	144·2
			2	29	98·64	140·1	2	29	89·76	127·5

Note 1 — The diameters of the holes deducted are assumed to be one millimetre larger than the corresponding rivet sizes.

Note 2 — The maximum allowable load is computed on the basis of the allowable stress specified in **9.1.1** and the effective sectional area defined in **19.3.2** and **19.3.3** of **IS : 800-1956**.

TABLE XXXI RIVET GAUGE DISTANCES IN LEGS OF ANGLES



Leg Size	Double Row of Rivets		Single Row of Rivets	Maximum Rivet Size for Double Row of Rivets
	a	*b*	*c*	
mm	mm	mm	mm	mm
200	75	85	115	27
150	55	65	90	22
130	50	55	80	20
125	45	55	75	20
115	45	50	70	12
110	45	45	65	12
100	40	40	60	12
95	—	—	55	—
90	—	—	50	—
80	—	—	45	—
75	—	—	40	—
70	—	—	40	—
65	—	—	35	—
60	—	—	35	—
55	—	—	30	—
50	—	—	28	—
45	—	—	25	—
40	—	—	21	—
35	—	—	19	—
30	—	—	17	—
25	—	—	15	—
20	—	—	12	—

SECTION D
BEAMS, CHANNELS AND OTHER COMPOUND SECTIONS USED AS COLUMNS
(TABLES XXXII-XXXVIII)

TABLE XXXII SAFE CONCENTRIC LOADS ON ROLLED STEEL COLUMN SECTIONS

H-BEAMS TO BE USED AS COLUMNS

Designation		ISHB 150			ISHB 200		ISHB 225		ISHB 250	
Size (mm) h b		150 × 150	150 × 150	150 × 150	200 × 200	200 × 200	225 × 225	225 × 225	250 × 250	250 × 250
Sectional Area, cm^2		34·48	38·98	44·08	47·54	50·94	44·94	59·66	64·96	69·71
Weignt per Metre, kg		27·1	30·6	34·6	37·3	40·0	43·1	46·8	51·0	54·7
Radii of Gyration	r_{xx}, cm	6·50	6·29	6·09	8·71	8·55	9·80	9·58	10·91	10·70
	r_{yy}, cm	3·54	3·44	3·35	4·51	4·42	4·96	4·84	5·49	5·37
X-X AXIS Effective Length in Metres		Safe Concentric Loads in kg								
	4·0	39 084·4	43 849·0	49 199·4	56 333·3	60 265·9	65 719·5	71 242·5	78 212·2	83 840·9
	5·0	36 450·7	40 617·2	45 132·1	54 639·7	58 350·4	64 407·6	69 689·3	76 989·0	82 480·6
	6·0	32 681·7	35 950·0	39 507·4	52 421·3	55 879·4	62 349·0	67 353·3	75 224·8	80 454·5
	7·0	28 119·8	30 557·4	33 170·0	49 268·3	52 240·3	59 861·0	64 426·4	72 919·1	77 882·3
	8·0	23 608·2	25 423·9	27 343·9	45 241·8	47 750·7	56 436·8	60 480·2	70 050·9	74 581·2
	9·0	19 651·0	21 068·5	22 582·2	40 616·6	42 644·8	52 289·4	55 737·4	66 327·4	70 364·8
	10·0	16 396·6	17 315·2	18 362·0	35 827·5	37 448·6	47 569·1	50 411·6	61 921·8	65 408·9
	11·0	13 479·0	14 191·1	14 893·7	31 343·0	32 633·5	42 616·6	44 955·4	56 947·7	59 884·2
	12·0	11 182·1	11 830·7	12 494·8	27 326·6	28 368·2	37 889·5	39 819·4	51 648·5	54 130·8
	13·0	9 447·5	9 899·7	10 389·0	23 935·3	24 783·0	33 577·3	35 171·6	46 527·8	48 600·9
	14·0	7 967·5	8 374·8	8 826·1	20 644·4	21 339·4	29 769·6	31 152·9	41 785·6	43 501·0
	15·0	6 845·6	7 168·4	7 533·8	17 902·9	18 411·7	26 389·1	27 377·1	37 471·0	38 889·7
	16·0	5 901·4	—	—	15 566·0	16 083·9	23 148·8	23 996·8	33 719·0	34 980·7
	17·0	—	—	—	13 759·5	14 148·2	20 365·9	20 998·6	30 108·7	31 009·9
	18·0	—	—	—	12 076·3	12 365·0	17 993·4	18 683·7	26 800·5	27 609·1
	19·0	—	—	—	10 671·0	10 980·4	16 129·9	16 665·7	23 871·8	24 497·5
	20·0	—	—	—	9 544·0	9 808·8	14 380·8	14 777·5	21 353·6	22 062·2
	22·0	—	—	—	—	—	11 593·5	11 974·3	17 477·5	17 927·8
	24·0	—	—	—	—	—	9 513·6	—	14 294·1	14 736·8
	26·0	—	—	—	—	—	—	—	11 965·9	12 283·9

(Continued)

TABLE XXXII SAFE CONCENTRIC LOADS ON ROLLED STEEL COLUMN SECTIONS

(*Continued*)

H-BEAMS TO BE USED AS COLUMNS

Designation		ISHB 150			ISHB 200		ISHB 225		ISHB 250	
Size (mm) $h \times b$		150 × 150	150 × 150	150 × 150	200 × 200	200 × 200	225 × 225	225 × 225	250 × 250	250 × 250
Sectional Area, cm^2		34·48	38·98	44·08	47·54	50·94	54·94	59·66	64·96	69·71
Weight per Metre, kg		27·1	30·6	34·6	37·3	40·0	43·1	46·8	51·0	54·7
Radii of Gyration	r_{xx}, cm	6·50	6·29	6·09	8·71	8·55	9·80	9·58	10·91	10·70
	r_{yy}, cm	3·54	3·44	3·35	4·51	4·42	4·96	4·84	5·49	5·37

Y-Y AXIS — Effective Length in Metres	Safe Concentric Loads in kg								
2·0	39 741·6	44 698·4	50 299·7	56 496·5	60 440·3	65 779·7	71 299·7	78 237·8	83 861·1
2·5	37 731·5	42 184·2	47 196·5	54 975·3	58 703·3	64 527·0	69 802·2	77 029·6	82 508·8
3·0	34 645·5	38 477·2	42 766·4	52 893·0	56 385·5	62 521·7	67 517·2	75 308·1	80 508·1
3·5	30 804·4	33 854·1	37 207·9	50 064·4	53 171·2	60 142·8	64 689·3	73 028·0	77 956·7
4·0	26 522·0	28 884·2	31 477·5	46 418·1	49 050·1	56 829·9	60 853·2	70 228·3	74 694·3
4·5	22 508·5	24 331·3	26 417·1	42 110·9	44 210·8	52 797·3	56 217·6	66 571·0	70 518·6
5·0	19 015·7	20 538·6	22 194·3	37 442·5	39 127·0	48 171·4	50 985·4	62 238·2	65 611·1
5·5	16 078·0	17 100·5	18 368·1	32 973·7	34 333·6	43 259·8	45 562·3	57 320·7	60 124·9
6·0	13 433·4	14 274·5	15 172·3	28 923·3	30 013·8	38 534·9	40 431·6	52 052·4	54 380·8
6·5	11 299·1	12 068·2	12 919·8	25 400·6	26 315·6	34 205·6	35 766·2	46 953·1	48 852·8
7·0	9 695·8	10 271·2	10 892·2	22 910·7	22 816·0	30 337·9	31 691·4	42 204·5	43 743·0
7·5	8 258·0	8 758·8	9 353·8	19 296·5	19 795·3	27 008·5	27 968·6	37 878·2	39 135·2
8·0	7 171·8	7 605·0	8 079·9	16 748·3	17 146·4	23 701·1	24 520·3	34 084·5	35 210·5
8·5	6 234·0	6 614·9	—	14 794·4	15 210·7	20 910·2	21 513·4	30 505·2	31 264·0
9·0	—	—	—	13 092·5	13 402·3	18 410·4	19 079·3	27 146·8	27 835·2
9·5	—	—	—	11 528·4	11 828·3	16 542·4	17 056·8	24 210·6	24 712·2
10·0	—	—	—	10 292·4	10 570·0	14 789·8	15 165·6	21 612·2	22 230·5
11·0	—	—	—	8 310·0	8 496·8	11 894·5	12 260·1	17 727·6	18 089·7
12·0	—	—	—	—	—	9 773·8	10 040·9	14 512·1	14 855·2
13·0	—	—	—	—	—	—	—	12 154·0	12 387·5

(*Continued*)

TABLE XXXII SAFE CONCENTRIC LOADS ON ROLLED STEEL COLUMN SECTIONS

(*Continued*)

H-BEAMS TO BE USED AS COLUMNS

Designation		ISHB 300		ISHB 350		ISHB 400		ISHB 450	
Size (mm) $h \times b$		300 × 250	300 × 250	350 × 250	350 × 250	400 × 250	400 × 250	450 × 250	450 × 250
Sectional Area, cm^2		74·85	80·25	85·91	92·21	98·66	104·66	111·14	117·89
Weight per Metre, kg		58·8	63·0	67·4	72·4	77·4	82·2	87·2	92·5
Radii of Gyration	r_{xx}, cm	12·95	12·70	14·93	14·65	16·87	16·61	18·78	18·50
	r_{yy}, cm	5·41	5·29	5·34	5·22	5·26	5·16	5·18	5·08

X-X AXIS	Effective Length in Metres	Safe Concentric Loads in kg							
	4·0	90 898·0	97 367·9	104 714·6	112 351·1	120 529·0	127 824·0	136 016·5	144 243·2
	5·0	89 857·6	96 230·5	103 926·9	111 441·9	120 002·7	127 247·3	135 483·9	143 669·7
	6·0	88 627·6	94 860·6	102 884·7	110 273·7	118 982·1	126 113·1	134 756·4	142 838·1
	7·0	86 931·2	92 895·4	101 618·8	108 889·0	117 870·4	124 889·2	133 691·1	141 691·0
	8·0	84 770·6	90 476·5	99 921·9	106 909·5	116 583·8	123 502·9	132 510·4	140 391·1
	9·0	82 343·1	87 704·4	97 835·9	104 564·3	114 834·6	121 503·7	131 208·4	138 989·1
	10·0	78 996·8	83 976·2	95 419·2	101 920·7	112 729·3	119 222·4	129 401·1	136 918·1
	11·0	75 105·8	79 558·1	92 465·3	98 480·0	110 315·8	116 576·0	127 270·6	134 624·0
	12·0	70 724·9	74 612·3	89 028·5	94 537·3	107 669·6	113 530·0	124 880·1	131 985·8
	13·0	65 910·2	69 253·9	84 885·5	90 005·5	104 219·2	109 812·4	122 394·6	129 255·2
	14·0	60 766·1	63 635·7	80 386·1	84 909·4	100 385·5	105 511·6	119 049·9	125 495·5
	15·0	55 752·9	58 201·5	75 585·9	79 553·0	96 174·8	100 939·5	115 558·3	121 570·1
	16·0	50 968·2	53 103·4	70 464·7	73 951·2	91 438·5	95 709·7	111 315·8	116 981·9
	17·0	46 478 4	48 359·1	65 443·1	68 516·4	86 538·8	90 332·3	106 991·0	112 148·4
	18·0	42 374·7	44 025·6	60 528·4	63 288·5	81 333·8	84 724·4	102 079·1	106 859·3
	19·0	38 824·1	40 234·3	55 982·6	58 316·1	76 206·6	79 254·4	97 089·0	101 379·0
	20·0	35 322·8	36 383·0	51 708·8	53 824·5	71 177·2	73 865·4	91 822·0	95 707·6
	22·0	29 011·2	29 839·1	44 232·8	45 916·8	61 869·3	64 115·0	81 526·2	34 680·1
	24·0	24 093·0	24 835·8	37 299·9	38 590·4	53 810·5	55 684·6	71 953·8	74 522·4
	26·0	20 335·5	20 851·1	31 573·1	32 446·0	46 752·0	48 055·0	63 354·1	65 518·2
	28·0	17 146·7	17 579·2	27 006·5	27 883·9	40 206·6	41 265·1	56 062·5	57 855·3
	30·0	14 733·9	15 101·5	23 297·7	23 943·7	34 550·4	35 365·9	48 852·6	50 335·8
	32·0	12 697·1	—	20 068·5	20 633·6	30 295·4	31 136·8	42 805·4	43 976·1
	34·0	—	—	17 572·1	18 077·3	26 576·7	27 202·4	37 393·2	38 566·0
	36·0	—	—	15 395·0	15 844·1	23 268·8	23 844·8	33 406·6	34 341·0

(*Continued*)

TABLE XXXII SAFE CONCENTRIC LOADS ON ROLLED STEEL COLUMN SECTIONS

(Continued)

H-BEAMS TO BE USED AS COLUMNS

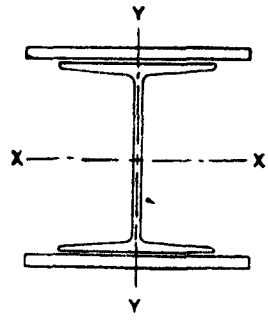
Designation		ISHB 300		ISHB 350		ISHB 400		ISHB 450	
Size (mm) $h \times b$		300 × 250	300 × 250	350 × 250	350 × 250	400 × 250	400 × 250	450 × 250	450 × 250
Sectional Area, cm^2		74·85	80·25	85·91	92·21	98·66	104·66	111·14	117·89
Weight per Metre, kg		58·8	63·0	67·4	72·4	77·4	82·2	87·2	92·5
Radii of Gyration	r_{xx}, cm	12·95	12·70	14·93	14·65	16·87	16·61	18·78	18·50
	r_{yy}, cm	5·41	5·29	5·34	5·22	5·26	5·16	5·18	5·08
Y-Y AXIS — Effective Length in Metres		Safe Concentric Loads in kg							
	2·0	90 082·0	96 452·5	103 315·4	110 744·2	118 549·9	125 612·9	133 423·6	141 361·9
	2·5	88 644·9	94 855·5	101 631·5	108 863·1	116 556·9	123 436·0	131 123·0	138 839·1
	·0	86 556·5	92 432·0	99 123·0	105 958·5	113 528·1	120 013·6	127 533·2	134 795·4
	3·5	83 854·5	89 406·5	95 935·7	102 390·0	109 759·2	115 869·1	123 165·3	129 985·5
	4·0	80 448·8	85 458·2	91 846·4	97 641·2	104 806·5	110 269·8	117 297·2	123 360·1
	4·5	76 055·1	80 450·6	86 623·1	91 684·4	98 561·3	103 309·9	109 973·0	115 202·1
	5·0	70 875·5	74 592·4	80 480·5	84 741·0	91 260·5	95 209·2	101 448·6	105 759·1
	5·5	65 059·6	68 108·2	73 650·6	77 115·2	83 209·8	86 386·4	92 135·1	95 538·1
	6·0	58 921·9	61 439·4	66 554·5	69 388·0	74 981·6	77 553·1	82 788·2	85 505·6
	6·5	52 978·8	55 075·6	59 741·8	62 085·0	67 167·7	69 264·0	73 985·9	76 180·5
	7·0	47 514·8	49 233·4	53 461·8	55 409·0	59 995·1	61 728·5	65 961·6	67 751·4
	7·5	42 567·2	44 001·1	47 791·7	49 507·5	53 621·7	55 145·4	58 937·5	60 501·1
	8·0	38 308·2	39 442·9	42 963·6	44 177·8	47 968·5	49 012·3	52 447·0	53 451·3
	8·5	34 101·7	34 868·6	38 058·1	39 050·9	42 413·9	43 318·8	46 356·5	47 238·5
	9·0	30 359·2	31 008·6	33 882·9	34 643·3	37 668·4	38 326·5	41 055·1	41 650·5
	9·5	26 998·4	27 445·5	30 059·9	30 724·4	33 337·2	34 119·2	36 498·4	37 276·8
	10·0	24 214·0	24 821·3	27 087·4	27 755·2	30 150·5	30 749·1	32 919·7	33 492·5
	11·0	19 760·4	20 078·6	21 993·0	22 342·5	24 329·6	24 741·6	26 484·7	26 914·3
	12·0	16 197·5	16 555·6	18 092·6	18 460·4	20 097·0	20 419·2	21 872·4	22 186·9
	13·0	13 510·4	13 787·0	15 077·2	15 353·0	16 732·7	—	—	—

Note 1 — The safe loads given in this Table are tabulated for ratio of slenderness up to but not exceeding 250.

Note 2 — The values below the zigzag dotted lines are for ratio of slenderness exceeding 180.

Note 3 — This Table is based on the requirements specified in **9.1.2** of IS : 800-1956.

TABLE XXXIII SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS COLUMNS



Composed of				Weight per Metre	Sectional Area	Moduli of Section		Radii of Gyration	
One Steel Joist		Plates Each Flange to Form				Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
Designation	w	Width	Thickness						
	kg	mm	mm	kg	cm^2	cm^3	cm^3		cm
ISHB 150	27·1	250	12·0	74·2	94·48	620·6	284·5	7·56	6·14
			16·0	89·9	114·48	767·5	367·9	7·81	6·34
			20·0	105·6	134·48	917·3	451·2	8·05	6·48
			25·0	125·2	159·48	1 109·1	555·4	8·34	6·60
			32·0	152·7	194·48	1 387·1	701·2	8·74	6·71
			40·0	184·1	234·48	1 719·3	867·9	9·18	6·80
ISHB 150	30·6	250	12·0	77·7	98·98	630·3	286·8	7·44	6·02
			16·0	93·4	118·98	776·7	370·2	7·71	6·24
			20·0	109·1	138·98	926·1	453·5	7·96	6·39
			25·0	128·7	163·98	1 117·5	557·7	8·26	6·52
			32·0	156·2	198·98	1 395·0	703·5	8·66	6·65
			40·0	187·6	238·98	1 726·7	870·2	9·12	6·75
ISHB 150	34·6	250	12·0	81·7	104·08	641·3	289·6	7·32	5·90
			16·0	97·4	124·08	787·2	372·9	7·60	6·13
			20·0	113·1	144·08	936·2	456·3	7·86	6·29
			25·0	132·7	169·08	1 127·1	560·4	8·16	6·44
			32·0	160·2	204·08	1 403·9	706·3	8·58	6·58
			40·0	191·6	240·08	1 735·0	872·9	9·04	6·69
ISHB 200	37·3	250	12·0	84·4	107·54	924·8	327·4	9·81	6·17
			16·0	100·1	127·54	1 117·0	410·7	10·08	6·34
			20·0	115·8	147·54	1 311·8	494·0	10·33	6·47
			25·0	135·4	172·54	1 559·5	598·2	10·63	6·58
			32·0	162·9	207·54	1 914·7	744·0	11·04	6·69
			40·0	194·3	247·54	2 333·9	910·7	11·49	6·78
ISHB 200	40·0	250	12·0	87·1	110·94	934·9	329·6	9·72	6·09
			16·0	102·8	130·94	1 126·7	412·9	9·99	6·28
			20·0	118·5	150·94	1 321·3	496·2	10·25	6·41
			25·0	138·1	175·94	1 568·6	600·4	10·56	6·53
			32·0	165·6	210·94	1 923·3	746·2	10·97	6·65
			40·0	197·0	250·94	2 342·0	912·9	11·43	6·74
ISHB 225	43·1	320	12·0	103·4	131·74	1 291·0	494·2	11·05	7·75
			16·0	123·5	157·34	1 569·7	630·7	11·32	8·01
			20·0	143·6	182·94	1 851·3	767·3	11·58	8·19

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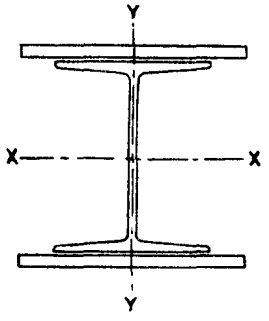


TABLE XXXIII SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS COLUMNS

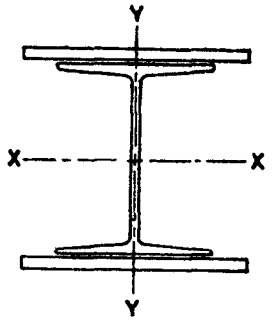
(Continued)

Composed of				Weight per Metre	Sectional Area	Moduli of Section		Radii of Gyration	
One Steel Joist		Plates Each Flange to Form				Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
Designation	w	Width	Thickness						
	kg	mm	mm	kg	cm^2	cm^3	cm^3	cm	cm
ISHB 225	43·1	320	25·0	168·7	214·94	2 208·2	937·9	11·89	8·36
			32·0	203·9	259·74	2 717·7	1 176·9	12·30	8·51
			40·0	244·1	310·94	3 315·7	1 449·9	12·75	8·64
ISHB 225	46·8	320	12·0	107·1	136·46	1 307·0	496·9	10·92	7·63
			16·0	127·2	162·06	1 585·2	633·4	11·21	7·91
			20·0	147·3	187·66	1 866·4	770·0	11·48	8·10
			25·0	172·4	219·66	2 222·7	940·6	11·80	8·28
			32·0	207·6	264·46	2 731·5	1 179·6	12·22	8·45
			40·0	247·8	315·66	3 328·8	1 452·6	12·68	8·58
ISHB 250	51·0	320	12·0	111·3	141·76	1 527·4	532·2	12·15	7·75
			16·0	131·4	167·36	1 834·9	668·7	12·43	8·00
			20·0	151·5	192·96	2 145·3	806·2	12·70	8·17
			25·0	176·6	224·96	2 538·0	975·9	13·01	8·39
			32·0	211·8	269·76	3 097·3	1 214·8	13·43	8·49
			40·0	252·8	320·96	3 751·6	1 487·9	13·89	8·61
ISHB 250	54·7	320	12·0	115·0	146·51	1 545·5	535·3	12·02	7·65
			16·0	135·1	172·11	1 852·4	671·9	12·32	7·90
			20·0	155·2	197·71	2 162·4	808·4	12·59	8·09
			25·0	180·3	229·71	2 554·5	979·1	12·92	8·26
			32·0	215·5	274·51	3 113·1	1 218·0	13·34	8·43
			40·0	255·7	325·71	3 766·6	1 491·1	13·81	8·56
ISHB 250	51·0	400	12·0	126 4	160·96	1 768·1	738·1	12·27	9·63
			16·0	151·5	192·96	2 156·4	951·4	12·55	9·93
			20·0	176·6	224·96	2 548·3	1 164·7	12·82	10·18
			25·0	208·0	264·96	3 043·5	1 431·4	13·13	10·39
			32·0	252·0	320·96	3 748·4	1 804·7	13·54	10·60
			40·0	302·2	384·96	4 572·3	2 231·4	14·00	10·77
ISHB 250	54·7	400	12·0	130·1	165·71	1 786·1	740·6	12·15	9·45
			16·0	155·2	197·71	2 174·0	953·9	12·45	9·82
			20·0	180·3	229·71	2 565·3	1 167·3	12·73	10·08
			25·0	211·7	269·71	3 060·0	1 433·9	13·05	10·31
			32·0	255·7	325·71	3 764·2	1 807·3	13·47	10·53
			40·0	305·9	389·71	4 587·3	2 233·9	13·94	10·71

(Continued)

TABLE XXXIII SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS COLUMNS

(*Continued*)



Composed of				Weight per Metre	Sectional Area	Moduli of Section		Radii of Gyration	
One Steel Joist		Plates Each Flange to Form				Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
Designation	w	Width	Thickness						
	kg	mm	mm	kg	cm²	cm³	cm³	cm	cm
ISHB 300	58·8	320	12·0	119·0	151·65	1 928·7	546·7	14·35	7·59
			16·0	139·1	177·25	2 297·0	683·2	14·67	7·85
			20·0	159·2	202 85	2 668·0	819·8	14·95	8·04
			25·0	184·4	234·85	3 135·9	990·4	15·29	8·21
			32·0	219·5	279·65	3 799·7	1 229·4	15·73	8·39
			40·0	259·7	330·85	4 572·1	1 302·4	16·20	8·52
ISHB 300	63·0	320	12·0	123·3	157·05	1 953·7	550·0	14·20	7·49
			16·0	143·4	182·65	2 321·4	686·6	14·53	7·76
			20·0	163·5	208·25	2 691·8	823·1	14·82	7·95
			25·0	188·6	240·25	3 159·0	993·8	15·17	8·14
			32·0	223·8	285·05	3 822·0	1 232·7	15·62	8·32
			40·0	264·0	336·25	4 593·4	1 505·8	16·11	8·46
ISHB 300	58·8	400	12·0	134·1	170·8	2 217·2	749·7	14·50	9·37
			16·0	159·2	202·85	2 682·3	963·0	14·82	9·74
			20·0	184·4	234·85	3 150·5	1 176·3	15·10	10·01
			25·0	215·8	274·85	3 740·7	1 443·0	15·43	10·25
			32·0	259·7	330·85	4 577·3	1 816·3	15·87	10·48
			40·0	310·0	394·85	5 550·1	2 243·0	16·34	10·66
ISHB 300	63·0	400	12·0	138·4	176·25	2 242·2	752·3	14·36	9·24
			16·0	163·5	208·25	2 706·7	965·7	14·69	9·63
			20·0	188·6	240·25	3 174·3	1 179·0	14·99	9·91
			25·0	220·0	280·25	3 763·8	1 445·7	15·33	10·16
			32·0	264·0	336·25	4 599·6	1 819·0	15·78	10·40
			40·0	314·2	400·25	5 571·4	2 245·7	16·26	10·59
ISHB 350	67·4	320	12·0	127·7	162·71	2 370·6	562·8	16·51	7·44
			16·0	147·8	188·31	2 799·7	699·3	16·85	7·71
			20·0	167·9	213·91	3 231·3	835·9	17·16	7·91
			25·0	193·0	245·91	3 774·7	1 006·5	17·52	8·09
			32·0	228·2	290·71	4 543·4	1 245·5	17·99	8·28
			40·0	268·4	341·91	5 434·7	1 518·5	18·49	8·43
ISHB 350	72·4	320	12·0	132·7	169·01	2 404·9	566·5	16·31	7·32
			16·0	152·8	194·61	2 833·4	703·0	16·68	7·60
			20·0	172·9	220·21	3 264·3	839·6	17·00	7·81

(*Continued*)

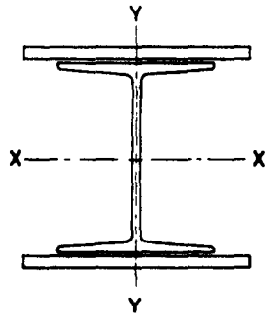


TABLE XXXIII SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS COLUMNS

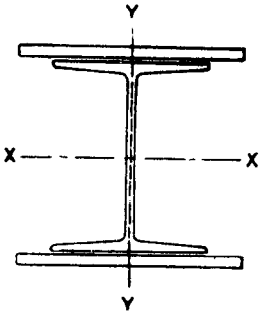
(Continued)

Composed of				Weight per Metre	Sectional Area	Moduli of Section		Radii of Gyration	
One Steel Joist		Plates Each Flange to Form				Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
Designation	w	Width	Thickness						
	kg	mm	mm	kg	cm²	cm³	cm³	cm	cm
ISHB 350	72·4	320	25·0	198·0	252·21	3 906·8	1 010·2	17·37	8·01
			32·0	233·2	297·01	4 574·4	1 249·2	17·86	8·20
			40·0	273·3	348·21	5 464·6	1 522·2	18·37	8·36
ISHB 350	67·4	400	12·0	142·8	181·91	2 707·0	762·6	16·68	9·16
			16·0	167·9	213·91	3 248·8	975·9	17·03	9·55
			20·0	193·0	245·91	3 793·5	1 189·2	17·34	9·83
			25·0	224·4	285·91	4 478·8	1 455·9	17·70	10·09
			32·0	268·4	341·91	5 447·8	1 829·2	18·16	10·34
			40·0	318·6	405·91	6 570·5	2 255·9	18·66	10·54
ISHB 350	72·4	400	12·0	147·7	188·21	2 741·4	765·5	16·50	9·02
			16·0	172·9	220·21	3 282·5	978·9	16·87	9·43
			20·0	198·0	252·21	3 826·5	1 192·2	17·20	9·72
			25·0	229·4	292·21	4 511·0	1 458·9	17·57	9·99
			32·0	273·3	348·21	5 478·9	1 832·2	28·05	10·26
			40·0	323·6	412·21	6 600·4	2 258·9	18·55	10·47
ISHB 400	77·4	320	12·0	137·7	175·46	2 862·4	580·1	18·60	7·27
			16·0	157·8	201·06	3 352·2	716·7	18·98	7·55
			20·0	177·9	226·66	3 844·3	853·2	19·32	7·76
			25·0	203·0	258·66	4 463·0	1 023·9	19·70	7·96
			32·0	238·2	303·46	5 336·6	1 262·8	20·20	8·16
			40·0	278·4	354·66	6 347·0	1 535·9	20·72	8 32
ISHB 400	82·2	320	12·0	142·4	181·46	2 897·3	583·5	18·40	7·17
			16·0	162 5	207·06	3 386·5	720·1	18·80	7·46
			20·0	182·6	232·66	3 877·9	856·6	19·15	7·68
			25·0	207·8	264·66	4 495·9	1 027·3	19·55	7·88
			32·0	242·9	309·46	5 368·5	1 266·2	20·06	8·09
			40·0	283·1	360·66	6 377·9	1 539·3	20·60	8·26
ISHB 400	77·4	400	12·0	152·8	194·66	3 246·9	776·4	18·80	8·93
			16·0	177·9	226·66	3 865·2	989·7	19·19	9·35
			20·0	203·0	258·66	4 486·2	1 203·1	19·53	9·64
			25·0	234·4	298·66	5 266·7	1 469·7	19·92	9·92
			32·0	278·4	354·66	6 368·2	1 843·1	20·41	10·19
			40·0	328·6	418·66	7 641·3	2 269·7	20·93	10·41

(Continued)

TABLE XXXIII SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES TO BE USED AS COLUMNS

(*Continued*)



Composed of				Weight per Metre	Sectional Area	Moduli of Section		Radii of Gyration	
One Steel Joist		Plates Each Flange to Form				Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
Designation	w	Width	Thickness						
	kg	mm	mm	kg	cm^2	cm^3	cm^3	cm	cm
ISHB 400	82·2	400	12·0	157·5	200·66	3 281·8	779·2	18·62	8·81
			16·0	182·6	232·66	3 899·5	992·5	19·03	9·24
			20·0	207·8	264·66	4 519·9	1 205·8	19·38	9·55
			25·0	239·2	304·66	5 299·6	1 472·5	19·78	9·83
			32·0	283·1	360·66	6 400·1	1 845·8	20·29	10·12
			40·0	333·4	424·66	7 672·1	2 272·5	20·82	10·35
ISHB 450	87·2	320	12·0	147·5	187·94	3 384·0	596·2	20·66	7·12
			16·0	167·6	213·54	3 934·6	732·7	21·07	7·41
			20·0	187·7	239·14	4 487·4	869·2	21·44	7·63
			25·0	212·8	271·14	5 181·8	1 039·9	21·86	7·83
			32·0	248·0	315·94	6 160·9	1 278·8	22·39	8·05
			40·0	288·2	367·14	7 291·2	1 551·9	22·94	8·22
ISHB 450	92·5	320	12·0	152·8	194·69	3 432·1	599·9	20·44	7·02
			16·0	172·9	220·29	3 981·9	736·4	20·87	7·31
			20·0	193·0	245·89	4 533·9	873·0	21·25	7·54
			25·0	218·1	277·89	5 227·3	1 043·6	21·69	7·75
			32·0	253·3	322·69	6 205·2	1 282·6	22·23	7·97
			40·0	293·5	373·89	7 334·2	1 555·6	22·80	8·16
ISHB 450	87·2	400	12·0	162·6	207·14	3 816·4	789·3	20·90	8·73
			16·0	187·7	239·14	4 511·5	1 002·6	21·32	9·16
			20·0	212·8	271·14	5 209·1	1 215·9	21·70	9·47
			25·0	244·2	311·14	6 085·1	1 482·6	22·11	9·76
			32·0	288·2	367·14	7 319·7	1 855·9	22·64	10·05
			40·0	338·4	431·14	8 744·1	2 282·6	23·18	10·29
ISHB 450	92·5	400	12·0	167·9	213·89	3 864·5	792·2	20·69	8·61
			16·0	193·0	245·89	4 558·8	1 005·6	21·14	9·04
			20·0	218·1	277·89	5 255·6	1 218·9	21·53	9·37
			25·0	249·5	317·89	6 130·7	1 485·6	21·96	9·67
			32·0	293·5	373·89	7 364·0	1 858·9	22·50	9·97
			40·0	343·7	437·89	8 787·0	2 285·6	23·06	10·22

Note — Properties given in this Table are based on the gross area of the section.

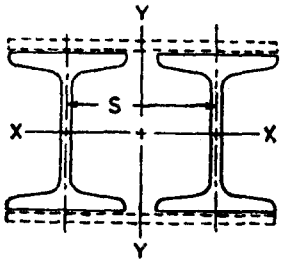


TABLE XXXIV DOUBLE JOISTS LACED OR BATTENED TO BE USED AS COLUMNS

COMPOSED OF TWO ISHB SECTIONS OF SAME SIZE

Designation	ISHB 150	ISHB 150	ISHB 150
w, kg	27·1	30·6	34·6
Weight per Metre, kg	54·2	61·2	69·2
Sectional Area, cm^2	68·96	77·96	88·16
Moment of Inertia, I_{xx}, cm^4	2 911·2	3 080·0	3 271·2
Modulus of Section, Z_{xx}, cm^3	388·2	410·6	436·2
Radius of Gyration, r_{xx}, cm	6·50	6·29	6·09

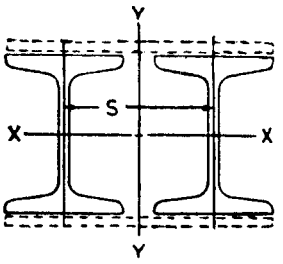
Spacing Between C to C of Beams	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
cm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
15·0	4 742·3	316·2	8·29	—	—	—	—	—	—
17·5	6 143·1	378·0	9·44	6 889·4	420·1	9·40	7 739·5	467·1	9·37
20·0	7 759·3	443·4	10·61	8 716·6	493·9	10·57	9 805·8	550·3	10·55
22·5	9 591·1	511·5	11·79	10 787·4	570·8	11·76	12 147·5	637·0	11·74
25·0	11 638·3	581·9	12·99	13 101·8	650·2	12·96	14 764·8	726·6	12·94
27·5	13 901·1	654·2	14·20	15 659·9	731·8	14·17	17 657·5	818·6	14·15
30·0	16 379·3	728·0	15·41	18 461·6	815·1	15·39	20 825·8	912·6	15·37
35·0	21 982·3	879·3	17·85	24 795·8	985·9	17·83	27 988·8	1 105·4	17·82
40·0	28 447·3	1 034·4	20·31	32 104·6	1 161·1	20·29	36 253·8	1 303·2	20·28

(Continued)

TABLE XXXIV DOUBLE JOISTS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO ISHB SECTIONS OF SAME SIZE



Designation	ISHB 200	ISHB 200	ISHB 225
w, kg	37·3	40·0	43·1
Weight per Metre, kg	74·6	80·0	86·2
Sectional Area, cm^2	95·08	101·88	109·88
Moment of Inertia, I_{xx}, cm^4	7 216·8	7 443·6	10 559·0
Modulus of Section Z_{xx}, cm^3	721·6	744·4	938·6
Radius of Gyration, r_{xx}, cm	8·71	8·55	9·80

Spacing Between C to C of Beams S	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}
cm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
20·0	11 442·3	572·1	10·97	—	—	—	—	—	—
22·5	13 967·8	657·3	12·12	14 883·3	697·6	12·09	16 614·4	738·4	12·30
25·0	16 790·5	746·2	13·29	17 907·9	792·9	13·26	19 876·4	836·9	13·45
27·5	19 910·3	838·3	14·47	21 250·8	891·6	14·44	23 481·9	939·3	14·62
30·0	23 327·3	933·1	15·66	24 912·1	993·1	15·64	27 430·1	1 045·0	15·80
35·0	31 052·5	1 129·2	18·07	33 189·9	1 203·2	18·05	36 358·4	1 264·6	18·19
40·0	39 966·3	1 332·2	20·50	42 741·1	1 420·7	20·48	46 659·7	1 493·1	20·61
45·0	50 068·5	1 540·6	22·95	53 565·9	1 643·9	22·93	58 334·4	1 728·4	23·04
50·0	61 359·3	1 753·1	25·40	65 664·1	1 871·6	25·39	71 382·7	1 969·2	25·49
55·0	—	—	—	—	—	—	—	—	—
60·0	—	—	—	—	—	—	—	—	—

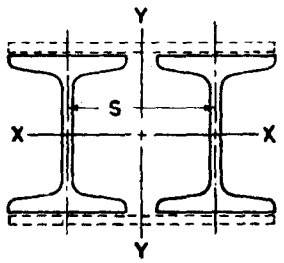


TABLE XXXIV DOUBLE JOISTS LACED OR BATTENED TO BE USED AS COLUMNS

COMPOSED OF TWO ISHB SECTIONS OF SAME SIZE

ISHB 225	ISHB 250	ISHB 250	ISHB 300
46·8	51·0	54·7	58·8
93·6	102·0	109·4	117·6
119·32	129·92	139·42	149·70
10 957·6	15 473·0	15 967·8	25 090·4
974·0	1 237·8	1 277·4	1 672·6
9·58	10·91	10·70	12·95

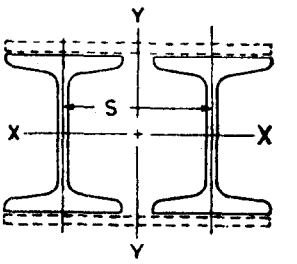
Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
cm⁴	cm³	cm	cm⁴	cm³	cm	cm⁴	cm³	cm	cm⁴	cm³	cm
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
21 436·9	898·6	13·40	24 222·5	968·9	13·65	—	—	—	27 777·8	1 111·1	13·62
25 352·1	1 009·8	14·58	28 485·5	1 085·2	14·81	30 382·4	1 153·3	14·76	32 689·8	1 245·3	14·78
29 640·1	1 124·6	15·76	33 154·5	1 205·6	15·97	35 392·9	1 282·6	15·93	38 069·6	1 384·4	15·95
39 334·9	1 363·2	18·16	43 710·5	1 457·0	18·34	46 720·7	1 552·4	18·31	50 232·8	1 674·4	18·32
50 521·1	1 611·3	20·58	55 890·5	1 719·7	20·74	59 791·4	1 834·4	20·71	64 267·1	1 977·5	20·72
63 198·9	1 866·8	23·01	69 694·5	1 991·3	23·16	74 604·7	2 125·8	23·13	80 172·8	2 290·7	23·14
77 368·1	2 128·1	25·46	85 122·5	2 269·9	25·60	91 160·9	2 424·8	25·57	97 949·6	2 612·0	25·58
—	—	—	—	—	—	—	—	—	117 597·8	2 939·9	28·03
—	—	—	—	—	—	—	—	—	139 117·1	3 273·3	30·48

(Continued)

TABLE XXXIV DOUBLE JOISTS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO ISHB SECTIONS OF SAME SIZE



Designation	ISHB 300	ISHB 350	ISHB 350
w, kg	63·0	67·4	72·4
Weight per Metre, kg	126·0	134·8	144·8
Sectional Area, cm^2	160·50	171·82	184·42
Moment of Inertia, I_{xx}, cm^4	25 900·4	38 319·4	39 605·6
Modulus of Section, Z_{xx}, cm^3	1 726·6	2 189·6	2 263·2
Radius of Gyration, r_{xx}, cm	12·70	14·93	14·65

Spacing Between C to C of Beams S	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}
cm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
25·0	—	—	—	31 749·7	1 270·0	13·59	—	—	—
27·5	34 837·9	1 322·6	14·77	37 387·5	1 424·3	14·75	39 887·9	1 514·3	14·71
30·0	40 605·8	1 471·8	15·91	43 562·3	1 584·1	15·92	46 515·5	1 686·0	15·88
35·0	53 646·5	1 782·9	18·28	57 522·7	1 917·4	18·30	61 499·7	2 043·9	18·26
40·0	68 693·3	2 107·8	20·69	73 630·8	2 265·6	20·70	78 789·0	2 417·6	20·67
45·0	85 746·5	2 443·6	23·11	91 886·7	2 625·3	23·13	98 383·7	2 803·8	23·10
50·0	104 805·8	2 788·1	25·55	112 290·3	2 994·4	25·56	120 283·5	3 199·9	25·54
55·0	125 871·5	3 139·7	28·00	134 841·7	3 371·0	28·01	144 488·7	3 604·1	27·99
60·0	148 943·3	3 497·1	30·46	159 540·8	3 753·9	30·47	170 999·0	4 015·0	30·45
65·0	—	—	—	—	—	—	—	—	—
70·0	—	—	—	—	—	—	—	—	—

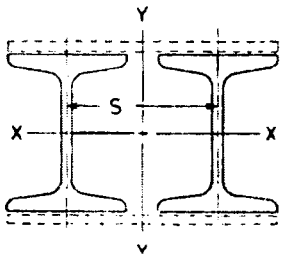


TABLE XXXIV DOUBLE JOISTS LACED OR BATTENED TO BE USED AS COLUMNS

COMPOSED OF TWO ISHB SECTIONS OF SAME SIZE

ISHB 400	ISHB 400	ISHB 450	ISHB 450
77·4	82·2	87·2	92·5
154·8	164·4	174·4	185·0
197·32	209·32	222·28	235·78
56 167·0	57 647·0	78 421·6	80 699·8
2 808·4	2 888·4	3 485·4	3 586·6
16·87	16·61	18·78	18·50

Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
36 287·9	1 451·5	13·56	—	—	—	40 701·7	1 628·1	13·53	—	—	—
42 762·4	1 629·0	14·72	45 140·5	1 714·7	14·69	47 995·3	1 828·4	14·69	50 667·2	1 924·7	14·66
49 853·6	1 812·9	15·89	52 662·9	1 909·8	15·86	55 983·5	2 035·8	15·87	59 140·5	2 144·7	15·84
65 885·9	2 196·2	18·27	69 670·2	2 316·5	18·24	74 043·7	2 468·1	18·25	78 297·6	2 603·4	18·22
84 384·6	2 596·5	20·68	89 293·9	2 741·2	20·65	94 882·5	2 919·5	20·66	100 402·0	3 082·2	20·64
105 349·9	3 010·0	23·11	111 534·2	3 179·9	23·08	118 499·7	3 385·7	23·09	125 453·6	3 576·7	23·07
128 781·6	3 434·2	25·55	136 390·9	3 629·8	25·53	144 895·5	3 863·9	25·53	153 452·5	4 083·9	25·51
154 679·9	3 867·0	28·00	163 864·2	4 088·9	27·98	174 069·7	4 351·7	27·99	184 398·6	4 601·3	27·97
183 044·6	4 306·9	30·46	193 953·9	4 555·6	30·44	206 022·5	4 847·6	30·44	218 292·0	5 127·2	30·43
213 875·9	4 752·8	32·92	226 660·2	5 028·5	32·91	240 753·7	5 350·1	32·91	255 132·6	5 660·2	32·89
247 173·6	5 203·7	35·39	261 982·9	5 506·7	35·38	278 263·5	5 858·2	35·38	294 920·5	6 199·1	35·37

Note — The properties given in this Table are based on the gross area of the section.

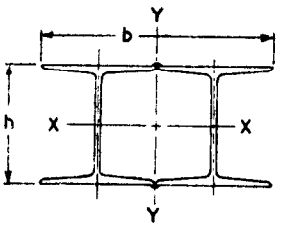


TABLE XXXV DOUBLE JOISTS WITH FLANGES BUTTING AND WELDED TOE TO TOE TO BE USED AS COLUMNS

Nominal Size	Composed of Two Joists Each of the Same Size		Weight per Metre	Sectional Area	Moments of Inertia		Moduli of Section		Radii of Gyration	
$h \times b$	Designation	w	w	a	I_{xx}	I_{yy}	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
mm mm		kg	kg	cm^2	cm^4	cm^4	cm^3	cm^3	cm	cm
150×300	ISHB 150	27·1	54·2	68·96	2 911·2	4 742·4	388·2	316·2	6·50	8·29
150×300	ISHB 150	30·6	61·2	77·96	3 080·0	5 483·0	410·6	358·4	6·29	8·39
150×300	ISHB 150	34·6	69·2	88·16	3 271·2	6 381·0	436·2	408·0	6·09	8·51
200×400	ISHB 200	37·3	74·6	95·08	7 216·8	11 442·2	721·6	572·1	8·71	10·97
200×400	ISHB 200	40·0	80·0	101·88	7 443·6	12 351·1	744·4	612·4	8·55	11·01
225×450	ISHB 225	43·1	86·2	109·88	10 559·0	16 614·3	938·6	738·4	9·80	12·30
225×450	ISHB 225	46·8	93·6	119·32	10 957·6	18 177·8	974·0	800·4	9·58	12·34
250×500	ISHB 250	51·0	102·0	129·92	15 473·0	24 222·6	1 237·8	968·7	10·91	13·65
250×500	ISHB 250	54·7	109·4	139·42	15 967·8	26 140·2	1 277·4	1 037·7	10·70	13·69
300×500	ISHB 300	58·8	117·6	149·70	25 090·4	27 777·8	1 672·6	1 111·1	12·95	13·62
300×500	ISHB 300	63·0	126·0	160·50	25 900·4	29 934·0	1 726·6	1 188·8	12·70	13·66
350×500	ISHB 350	67·4	134·8	171·82	38 319·4	31 749·7	2 189·6	1 270·0	14·93	13·59
350×500	ISHB 350	72·4	144·8	184·42	39 605·6	34 253·1	2 263·2	1 360·3	14·65	13·63
400×500	ISHB 400	77·4	154·8	197·32	56 167·0	36 287·8	2 808·4	1 451·5	16·87	13·56
400×500	ISHB 400	82·2	164·4	209·32	57 647·0	38 665·9	2 888·4	1 537·4	16·61	13·59
450×500	ISHB 450	87·2	174·4	222·28	78 421·6	40 701·6	3 485·4	1 628·1	18·78	13·53
450×500	ISHB 450	92·5	185·0	235·78	80 699·8	43 374·0	3 586·6	1 724·6	18·50	13·56

TABLE XXXVI SAFE CONCENTRIC LOADS ON CHANNEL SECTIONS TO BE USED AS COLUMNS

	Designation	ISLC 400	ISMC 400	ISLC 350	ISMC 350	ISLC 300	ISMC 300	ISLC 250
	Area, cm^2	58·25	62·93	49·47	53·66	42·11	45·64	35·65
	Weight per Metre, kg	45·7	49·4	38·8	42·1	33·1	35·8	28·0
	Radii of Gyration r_{xx}, cm	15·50	15·48	13·72	13·66	11·98	11·81	10·17
	Radii of Gyration r_{yy}, cm	2·81	2·83	2·82	2·83	2·87	2·61	2·89
				Safe Concentric Loads in kg				
X-X AXIS	4·0	71 051·8	76 758·5	60 193·2	65 285·2	50 948·9	55 180·3	42 751·6
	5·0	70 595·2	76 262·4	59 581·8	64 612·8	50 286·9	54 442·1	41 990·0
	6·0	69 918·8	75 530·6	58 858·9	63 821·5	49 508·7	53 540·5	40 769·7
	7·0	69 122·1	74 667·5	57 995·0	62 863·8	48 243·3	52 149·2	39 318·9
	8·0	68 163·8	73 625·2	56 697·0	61 449·6	46 806·6	50 546·1	37 321·6
	9·0	66 810·9	72 161·7	55 232·7	59 845·9	44 963·4	48 441·4	34 859·7
	10·0	65 300·1	70 524·5	53 475·6	57 903·6	42 699·5	45 884·0	32 009·2
	11·0	63 625·9	68 703·8	51 337·0	55 549·1	40 084·4	42 943·9	28 925·1
	12·0	61 408·6	66 305·3	48 740·9	52 720·8	37 162·7	39 692·3	25 890·8
Y-Y AXIS	2·0	63 556·6	68 865·4	54 050·9	58 704·0	46 291·5	48 328·2	39 261·3
	2·5	56 758·8	61 608·5	48 317·3	52 533·1	41 596·3	41 943·2	35 371·9
	3·0	47 986·4	52 263·4	40 921·6	44 564·6	35 528·2	34 344·1	30 306·1
	3·5	39 202·2	42 792·4	33 466·5	36 488·8	29 207·5	27 425·1	24 965·7
	4·0	31 740·4	34 668·1	27 104·6	29 561·3	23 729·0	21 866·1	20 331·2
	4·5	25 472·7	27 940·9	21 796·5	23 825·0	19 269·5	17 146·9	16 548·7
	5·0	20 370·0	22 377·9	17 448·1	19 081·5	15 462·8	13 737·6	13 293·9
	5·5	16 758·5	18 381·9	14 341·4	15 674·1	12 666·7	11 058·6	10 873·2
	6·0	13 717·9	15 052·9	11 744·2	12 835·5	10 392·7	9 137·1	8 955·3

Effective Length in Metres

(Continued)

TABLE XXXVI SAFE CONCENTRIC LOADS ON CHANNEL SECTIONS TO BE USED AS COLUMNS

(*Continued*)

	Designation	ISMC 250	ISLC 225	ISMC 225	ISLC 200	ISMC 200	ISLC 175	ISMC 175
	Area, cm^2	38·67	30·53	33·01	26·22	28·21	22·40	24·38
	Weight per Metre, kg	30·4	24·0	25·9	20·6	22·1	17·6	19·1
	Radii of Gyration r_{xx}, cm	9·94	9·14	9·03	8·11	8·03	7·16	7·08
	Radii of Gyration r_{yy}, cm	2·38	2·62	2·38	2·37	2·23	2·38	2·23
				Safe Concentric Loads in kg				
X-X AXIS	4·0	46 306·1	36 322·1	39 233·9	30 873·8	33 186·6	25 869·4	28 100·6
	5·0	45 433·9	35 386·2	38 181·5	29 708·8	31 890·9	24 611·0	26 689·8
	6·0	44 025·0	34 080·3	36 737·8	28 173·4	30 189·0	22 660·9	24 497·8
	7·0	42 363·3	32 335·6	34 780·5	26 050·7	27 853·2	20 217·1	21 780·6
	8·0	40 043·7	30 066·0	32 254·9	23 473·7	25 025·1	17 474·4	18 754·3
	9·0	37 219·5	27 376·7	29 271·9	20 625·2	21 922·4	14 873·2	15 914·4
	10·0	33 976·5	24 431·9	26 032·3	17 905·5	18 990·7	12 574·9	13 446·6
	11·0	30 521·8	21 561·3	30 521·8	15 469·6	16 373·0	10 681·4	11 367·4
	12·0	27 195·8	18 954·1	27 195·8	13 403·8	14 171·6	8 943·2	9 498·3
Y-Y AXIS	2·0	39 056·7	32 380·1	33 340·1	26 414·0	27 344·0	22 624·0	23 631·5
	2·5	32 448·0	28 148·7	27 698·7	21 898·9	21 916·3	18 795·8	18 940·8
	3·0	25 568·6	23 089·8	21 826·2	17 226·5	16 863·9	14 810·9	14 574·4
	3·5	19 976·9	18 455·4	17 053·0	13 448·2	12 880·7	11 571·8	11 131·9
	4·0	15 348·1	14 736·8	13 101·7	10 309·7	9 676·0	8 890·6	8 362·3
	4·5	11 952·9	11 561·7	10 203·4	8 033·8	7 577·2	6 923·8	6 548·5
	5·0	9 427·7	9 259·7	8 047·8	6 337·4	5 969·2	5 461·1	5 158·8
	5·5	7 652·8	7 455·4	6 532·7	5 141·7	4 807·0	4 433·0	4 154·4
	6·0	—	6 167·1	—	—	—	—	—

Effective Length in Metres

(*Continued*)

TABLE XXXVI SAFE CONCENTRIC LOADS ON CHANNEL SECTIONS TO BE USED AS COLUMNS

(Continued)

	Designation	ISLC 150	ISMC 150	ISLC 125	ISMC 125	ISLC 100	ISMC 100	ISLC 75	ISMC 75
	Area, cm^2	18·36	20·88	13·67	16·19	10·02	11·70	7·26	8·67
	Weight per Metre, kg	14·4	16·4	10·7	12·7	7·9	9·2	5·7	6·8
	Radii of Gyration r_{xx}, cm	6·16	6·11	5·11	5·07	4·06	4·00	3·02	2·96
	Radii of Gyration r_{yy}, cm	2·37	2·21	2·05	1·92	1·57	1·49	1·26	1·21
		Safe Concentric Loads in kg							
X-X AXIS	4·0	20 549·8	23 323·8	14 342·0	16 926·9	8 980·6	10 342·8	4 447·5	5 146·0
	5·0	18 921·5	21 418·7	12 328·5	14 497·5	6 854·6	7 833·2	2 973·9	3 403·1
	6·0	16 626·1	18 769·9	9 995·7	11 709·4	5 133·2	5 838·3	2 020·0	2 305·3
	7·0	14 022·0	15 779·6	7 934·0	9 272·4	3 764·1	4 253·0	1 427·3	1 627·1
	8·0	11 585·6	13 016·1	6 274·7	7 309·4	2 840·3	3 205·8	—	—
	9·0	9 590·8	10 757·4	4 896·8	5 693·7	2 170·8	2 457·0	—	—
	10·0	7 822·8	8 755·0	3 933·9	4 579·1	1 712·5	1 930·5	—	—
	11·0	6 365·7	7 096·9	3 162·8	3 679·8	—	—	—	—
	12·0	5 335·8	5 961·7	2 608·5	3 032·3	—	—	—	—
Y-Y AXIS	2·0	18 495·9	20 105·4	12 360·4	13 711·3	6 519·0	7 020·0	3 235·8	3 563·4
	2·5	15 334·3	16 037·9	9 481·5	10 175·4	4 435·9	4 660·1	2 026·3	2 203·9
	3·0	12 062·5	12 302·5	7 122·1	7 462·0	3 031·0	3 159·0	1 340·2	1 459·2
	3·5	9 416·8	9 352·2	5 243·8	5 378·3	2 145·3	2 231·2	—	—
	4·0	7 219·2	7 028·2	3 958·8	4 031·3	—	—	—	—
	4·5	5 625·5	5 493·5	3 023·8	3 103·6	—	—	—	—
	5·0	4 437·6	4 332·6	2 389·5	—	—	—	—	—
	5·5	3 600·4	3 482·8	—	—	—	—	—	—

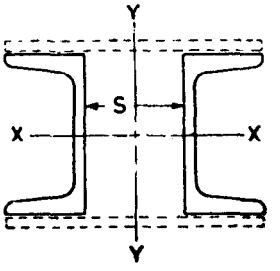
Effective Length in Metres

Note 1 — The safe loads given in this Table are tabulated for ratio of slenderness up to but not exceeding 250.

Note 2 — The values below the zigzag dotted lines are for ratio of slenderness exceeding 180.

Note 3 — This Table is based on the requirements specified in 9.1.2 of IS : 800-1956.

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS



COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISJC 100	ISJC 125	ISJC 150
Weight, kg	11·6	15·8	19·8
Area, cm^2	14·82	20·14	25·30
Moment of Inertia I_{xx}, cm^4	247·6	540·0	942·2
Modulus of Section Z_{xx}, cm^3	49·6	86·4	125·6
Radius of Gyration r_{xx}, cm	4·09	5·18	6·10

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	58·8	13·1	1·99	105·6	21·1	2·29	145·5	26·5	2·40
5·0	70·1	14·8	2·18	123·3	23·5	2·47	168·1	29·2	2·58
10·0	83·3	16·7	2·37	143·6	26·1	2·67	193·8	32·3	2·77
15·0	98·3	18·7	2·58	166·4	28·9	2·87	222·7	35·6	2·97
20·0	115·2	20·9	2·79	191·8	32·0	3·09	254·8	39·2	3·17
25·0	133·9	23·3	3·01	219·6	35·1	3·30	290·0	43·0	3·39
30·0	154·4	25·7	3·23	250·0	38·5	3·52	328·4	46·9	3·60
35·0	176·9	28·3	3·45	282·9	41·9	3·75	370·0	51·0	3·82
40·0	201·1	30·9	3·68	318·2	45·5	3·98	414·7	55·3	4·05
45·0	227·2	33·7	3·92	356·2	49·1	4·21	462·6	59·7	4·28
50·0	255·2	36·5	4·15	396·6	52·9	4·44	513·6	64·2	4·51
60·0	316·7	42·2	4·62	485·0	60·6	4·91	625·2	73·6	4·97
70·0	385·6	48·2	5·10	583·5	68·6	5·38	749·4	83·3	5·44
80·0	462·0	54·3	5·58	692·0	76·9	5·86	886·3	93·3	5·92
90·0	545·7	60·6	6·07	810·7	85·3	6·34	1 035·8	103·6	6·40
100·0	636·8	67·0	6·56	939·4	93·9	6·83	1 198·0	114·1	6·88
120·0	841·3	80·1	7·53	1 227·0	111·5	7·81	1 560·3	135·7	7·85
140·0	1 075·5	93·5	8·52	1 554·8	129·6	8·79	1 973·2	157·9	8·83
160·0	1 339·3	107·1	9·51	1 923·0	147·9	9·77	2 436·7	180·5	9·81
180·0	1 632·7	120·9	10·50	2 331·4	166·5	10·76	2 950·8	203·5	10·80
200·0	1 955·8	134·9	11·49	2 780·2	185·3	11·75	3 515·5	226·8	11·79
220·0	2 308·5	148·9	12·48	3 269·2	204·3	12·74	4 130·8	250·3	12·78
240·0	2 690·9	163·1	13·47	3 798·4	223·4	13·73	4 796·7	274·1	13·77
260·0	3 102 9	177·3	14·47	4 368·0	242·7	14·73	5 513·2	298·0	14·76
280·0	3 544·5	191·6	15·47	4 977·8	262·0	15·72	6 280·3	322·1	15·76
300·0	4 015·8	205·9	16·46	5 628·0	281·4	16·72	7 098·0	346·2	16·75
320·0	4 516·7	220·3	17·46	6 318·4	300·9	17·71	7 966·3	370·5	17·74
340·0	5 047·3	234·8	18·46	7 049·0	320·4	18·71	8 885·1	394·9	18·74
360·0	5 607·5	249·2	19 45	7 820·0	340·0	19·70	9 854·6	419·3	19·74
380·0	6 197·3	263·7	20·45	8 631·2	359·6	20·70	10 874·7	443·9	20·73
400·0	6 816·8	278·2	21·45	9 482·8	379·3	21·70	11 945·4	468·4	21·73

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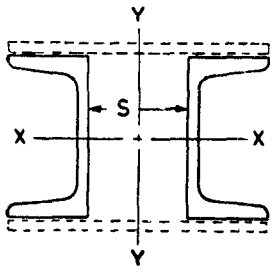

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISJC 175	ISJC 200	ISLC 75
Weight, kg	22·4	27·8	11·4
Area, cm^2	28·48	35·54	14·52
Moment of Inertia I_{xx}, cm^4	1 439·8	2 322·4	132·2
Modulus of Section Z_{xx}, cm^3	164·6	232·2	35·2
Radius of Gyration r_{xx}, cm	7·11	8·08	3·02

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	188·2	31·4	2·57	306·3	43·8	2·94	49·5	12·4	1·85
5·0	214·9	34·4	2·75	343·6	47·4	3·11	60 2	14·2	2·04
10·0	245·2	37·7	2·93	385·2	51·0	3·29	72·7	16·2	2·24
15·0	279·0	41·3	3·13	431·3	55·7	3·48	87·0	18·3	2·45
20·0	316·4	45·2	3·33	481·9	60·2	3·68	103·2	20·6	2·67
25·0	357·3	49·3	3·54	536·9	65·1	3 89	121·2	23·1	2·89
30·0	401·8	53·6	3·76	596·3	70·2	4 10	140·9	25·6	3·12
35·0	449·9	58·0	3·97	660·2	75·5	4 31	162 5	28·3	3·35
40·0	501·5	62·7	4·20	728·5	80·9	4·53	186 0	31·0	3·58
45·0	556·7	67·5	4·42	801·3	86·6	4·75	211·2	33·8	3·81
50·0	615·4	72·4	4·65	878·5	92·5	4·97	238·2	36·6	4·05
60·0	743·6	82·6	5·11	1 046·3	104·6	5·43	297·8	42·5	4·53
70·0	886·0	93·3	5·58	1 231·8	117·3	5·89	364 5	48·6	5·01
80·0	1 042·6	104·3	6·05	1 435·1	130·5	6·35	438·6	54·8	5·50
90·0	1 213·5	115·6	6·53	1 656·1	144·0	6·83	519 9	61·2	5·98
100·0	1 398·6	127·1	7·01	1 895·0	157 9	7·30	608·5	67·6	6·47
120·0	1 811·6	151·0	7·98	2 425·9	186·6	8·26	807·4	80·7	7·46
140·0	2 281 5	175·5	8·95	3 028·0	216·3	9·23	1 035·4	94·1	8·44
160·0	2 808·4	200·6	9·93	3 701·1	246·7	10·20	1 292·4	107·7	9·43
180·0	3 392·2	226·1	10·91	4 445·3	277·8	11·18	1 578·4	121·4	10·43
200·0	4 033·0	252·1	11·90	5 260·6	309·4	12·17	1 893·5	135·3	11·42
220·0	4 730·8	278·3	12·89	6 147·0	341·5	13·15	2 237·6	149·2	12·41
240·0	5 485·5	304·8	13·88	7 104·4	373·9	14·14	2 610·8	163·2	13·41
260·0	6 297·2	331·4	14·87	8 132·9	406·6	15·13	3 013·0	177·2	14·41
280·0	7 165·8	358·3	15·86	9 232·6	439·6	16·12	3 444·2	191·3	15·40
300·0	8 091·4	385·3	16·86	10 403·2	472·9	17·11	3 904·5	205·5	16·40
320·0	9 074·0	412·5	17·85	11 645·0	506·3	18·10	4 393·8	219·7	17·40
340·0	10 113·5	439·7	18·84	12 957·9	539 9	19·09	4 912·2	233·9	18·39
360·0	11 210·0	467·1	19·84	14 341·8	573·7	20·09	5 459·6	248·2	19·39
380·0	12 363·4	494·5	20·84	15 796·8	607·6	21·08	6 036·1	262·4	20·39
400·0	13 573·8	522·1	21·83	17 322·9	641·6	22·08	6 641·5	276·7	21·39

(Continued)

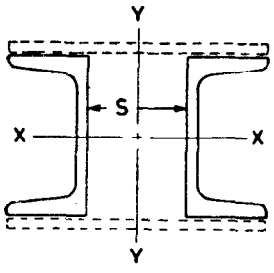

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISJC 175	ISJC 200	ISLC 75
Weight, kg	22·4	27·8	11·4
Area, cm^2	28·48	35·54	14·52
Moment of Inertia I_{xx}, cm^4	1 439·8	2 322·4	132·2
Modulus of Section Z_{xx}, cm^3	164·6	232·2	35·2
Radius of Gyration r_{xx}, cm	7·11	8·08	3·02

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	188·2	31·4	2·57	306·3	43·8	2·94	49·5	12·4	1·85
5·0	214·9	34·4	2·75	343·6	47·4	3·11	60·2	14·2	2·04
10·0	245·2	37·7	2·93	385·2	51·0	3·29	72·7	16·2	2·24
15·0	279·0	41·3	3·13	431·3	55·7	3·48	87·0	18·3	2·45
20·0	316·4	45·2	3·33	481·9	60·2	3·68	103·2	20·6	2·67
25·0	357·3	49·3	3·54	536·9	65·1	3 89	121·2	23·1	2·89
30·0	401·8	53·6	3·76	596·3	70·2	4·10	140·9	25·6	3·12
35·0	449·9	58·0	3·97	660·2	75·5	4·31	162·5	28·3	3·35
40·0	501·5	62·7	4·20	728·5	80·9	4·53	186 0	31·0	3·58
45·0	556·7	67·5	4·42	801·3	86·6	4·75	211·2	33·8	3·81
50·0	615·4	72·4	4·65	878·5	92·5	4·97	238·2	36·6	4·05
60·0	743·6	82·6	5·11	1 046·3	104·6	5·43	297·8	42·5	4·53
70·0	886·0	93·3	5·58	1 231·8	117·3	5·89	364·5	48·6	5·01
80·0	1 042·6	104·3	6·05	1 435·1	130·5	6·35	438·6	54·8	5·50
90·0	1 213·5	115·6	6·53	1 656·1	144·0	6·83	519·9	61·2	5·98
100·0	1 398·6	127·1	7·01	1 895·0	157 9	7·30	608·5	67·6	6·47
120·0	1 811·6	151·0	7·98	2 425·9	186·6	8·26	807·4	80·7	7·46
140·0	2 281·5	175·5	8·95	3 028·0	216·3	9·23	1 035·4	94·1	8·44
160·0	2 808·4	200·6	9·93	3 701·1	246·7	10·20	1 292·4	107·7	9·43
180·0	3 392·2	226·1	10·91	4 445·3	277·8	11·18	1 578·4	121·4	10·43
200·0	4 033·0	252·1	11·90	5 260·6	309·4	12·17	1 893·5	135·3	11·42
220·0	4 730·8	278·3	12·89	6 147·0	341·5	13·15	2 237·6	149·2	12·41
240·0	5 485·5	304·8	13·88	7 104·4	373·9	14·14	2 610·8	163·2	13·41
260·0	6 297·2	331·4	14·87	8 132·9	406·6	15·13	3 013·0	177·2	14·41
280·0	7 165·8	358·3	15·86	9 232·6	439·6	16·12	3 444·2	191·3	15·40
300·0	8 091·4	385·3	16·86	10 403·2	472·9	17·11	3 904·5	205·5	16·40
320·0	9 074·0	412·5	17·85	11 645·0	506·3	18·10	4 393·8	219·7	17·40
340·0	10 113·5	439·7	18·84	12 957·9	539·9	19·09	4 912·2	233·9	18·39
360·0	11 210·0	467·1	19·84	14 341·8	573·7	20·09	5 459·6	248·2	19·39
380·0	12·363·4	494·5	20·84	15 796·8	607·6	21·08	6 036·1	262·4	20·39
400·0	13 573·8	522·1	21·83	17 322·9	641·6	22·08	6 641·5	276·7	21·39

(Continued)

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISLC 175	ISLC 200	ISLC 225
Weight, kg	35·2	41·2	48·0
Area, cm^2	44·80	52·44	61·06
Moment of Inertia I_{xx}, cm^4	2 296·8	3 451·0	5 095·8
Modulus of Section Z_{xx}, cm^3	262·6	345·2	453·0
Radius of Gyration r_{xx}, cm	7·16	8·11	9·14

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	511·0	68·1	3·38	583·4	77·8	3·34	788·5	87·6	3·59
5·0	567·6	73·2	3·56	648·3	83·6	3·52	867·4	93·8	3·77
10·0	629·8	78·7	3·75	719·7	90·0	3·70	954·0	100·4	3·95
15·0	697·5	84·5	3·95	797·7	96·7	3·90	1 048·2	107·5	4·14
20·0	770·9	90·7	4·15	882·3	103·8	4·10	1 150·0	115·0	4·34
25·0	849·8	97·1	4·36	973·4	111·2	4·31	1 259·4	122·9	4·54
30·0	934·4	103·8	4·57	1 071·1	119·0	4·52	1 376·5	131·1	4·75
35·0	1 024·6	110·8	4·78	1 175·3	127·1	4·73	1 501·2	139·6	4·96
40·0	1 120·3	117·9	5·00	1 286·1	135·4	4·95	1 633·6	148·5	5·17
45·0	1 221·7	125·3	5·22	1 403·4	143·9	5·17	1 773·6	157·6	5·39
50·0	1 328·6	132·9	5·45	1 527·3	152·7	5·40	1 921·2	167·1	5·61
60·0	1 559·4	148·5	5·90	1 794·8	170·9	5·85	2 239·3	186·6	6·06
70·0	1 812·5	164·8	6·36	2 088·4	189·9	6·31	2 587·9	207·0	6·51
80·0	2 088·0	181·6	6·83	2 408·3	209·4	6·78	2 967·1	228·2	6·97
90·0	2 385·9	198·8	7·30	2 754·4	229·5	7·25	3 376·8	250·1	7·44
100·0	2 706·2	216·5	7·77	3 126·7	250·1	7·72	3 817·1	272·6	7·91
120·0	3 414·1	252·9	8·73	3 950·0	292·6	8·68	4 789·2	319·3	8·86
140·0	4 211·5	290·5	9·70	4 878·2	336·4	9·64	5 883·4	367·7	9·82
160·0	5 098·6	328·9	10·67	5 911·3	381·4	10·62	7 099·7	417·6	10·78
180·0	6 075·2	368·2	11·64	7 049·3	427·2	11·59	8 438·1	468·8	11·76
200·0	7 141·4	408·1	12·63	8 292·1	473·8	12·57	9 898·7	521·0	12·73
220·0	8 297·3	448·5	13·61	9 639·8	521·1	13·56	11 481·3	574·1	13·71
240·0	9 542·7	489·4	14·59	11 092·4	568·8	14·54	13 186·1	627·9	14·70
260·0	10 877·8	530·6	15·58	12 649·8	617·1	15·53	15 013·0	682·4	15·68
280·0	12 302·4	572·2	16·57	14 312·2	665·7	16·52	16 962·1	737·5	16·67
300·0	13 816·6	614·1	17·56	16 079·4	714·6	17·51	19 033·2	793·1	17·66
320·0	15 420·5	656·2	18·55	17 951·5	763·9	18·50	21 226·5	849·1	18·64
340·0	17 113·9	698·5	19·54	19 928·5	813·4	19·49	23 541·9	905·5	19·64
360·0	18 897·0	741·1	20·54	22 010·4	863·2	20·49	25 979·4	962·2	20·63
380·0	20 769·6	783·8	21·53	24 197·1	913·1	21·48	28 539·1	1 019·3	21·62
400·0	22 731·8	826·6	22·53	26 488·8	963·2	22·48	31 220·8	1 076·6	22·61
450·0	—	—	—	—	—	—	38 459·5	1 220·9	25·10
500·0	—	—	—	—	—	—	46 461·4	1 366·5	27·58

(Continued)

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISLC 250	ISLC 300	ISLC 350
Weight, kg	56·0	66·2	77·6
Area, cm^2	71·30	84·22	98·94
Moment of Inertia I_{xx}, cm^4	7 375·0	12 095·8	18 625·2
Modulus of Section Z_{xx}, cm^3	590·0	806·4	1 064·2
Radius of Gyration r_{xx}, cm	10·17	11·98	13·72

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	1 116·6	111·7	3·96	1 239·6	124·0	3·84	1 363·9	136·4	3·71
5·0	1 217·3	118·8	4·13	1 352·3	131·9	4·01	1 489·3	145·3	3·88
10·0	1 326·9	126·4	4·31	1 475·5	140·5	4·19	1 627·0	155·0	4·06
15·0	1 445·4	134·5	4·50	1 609·2	149·7	4·37	1 777·2	165·3	4·24
20·0	1 572·9	143·0	4·70	1 753·4	159·4	4·56	1 939·7	176·3	4·43
25·0	1 709·3	151·9	4·90	1 908·1	169·6	4·76	2 114·6	188·0	4·62
30·0	1 854·5	161·3	5·10	2 073·4	180·3	4·96	2 301·8	200·2	4·82
35·0	2 008·7	171·0	5·31	2 249·2	191·4	5·17	2 501·4	212·9	5·03
40·0	2 171·8	181·0	5·52	2 435·6	203·0	5·38	2 713·4	226·1	5·24
45·0	2 343·8	191·3	5·73	2 632·4	214·9	5·59	2 937·7	239·8	5·45
50·0	2 524·8	202·0	5·95	2 839·8	227·2	5·81	3 174·5	254·0	5·66
60·0	2 913·3	224·1	6·39	3 286·2	252·8	6·25	3 685·0	283·5	6·10
70·0	3 337·6	247·2	6·84	3 774·7	279·6	6·69	4 245·0	314·4	6·55
80·0	3 797·5	271·2	7·30	4 305·2	307·5	7·15	4 854·5	346·7	7·00
90·0	4 293·0	296·1	7·76	4 877·9	336·4	7·61	5 513·4	380·2	7·46
100·0	4 824·2	321·6	8·23	5 492·8	366·2	8·08	6 221·8	414·8	7·93
120·0	5 993·5	374·6	9·17	6 848·7	428·0	9·02	7 787·0	486·7	8·87
140·0	7 305·4	429·7	10·12	8 373·1	492·5	9·97	9 550·1	561·8	9·82
160·0	8 759·9	486·7	11·08	10 065·9	559·2	10·93	11 511·1	639·5	10·79
180·0	10 357·1	545·1	12·05	11 927·2	627·7	11·90	13 670·0	719·5	11·75
200·0	12 096·8	604·8	13·03	13 956·9	697·8	12·87	16 026·8	801·3	12·73
220·0	13 979·1	665·7	14·00	16 155·0	769·3	13·85	18 581·4	884·8	13·70
240·0	16 004·0	727·5	14·98	18 521·6	841·9	14·83	21 333·9	969·7	14·68
260·0	18 171·5	790·1	15·96	21 056·6	915·5	15·81	24 284·3	1 055·8	15·67
280·0	20 481·7	853·4	16·95	23 760·1	990·0	16·80	27 432·6	1 143·0	16·65
300·0	22 934·4	917·4	17·93	26 632·0	1 065·3	17·78	30 778·7	1 231·1	17·64
320·0	25 529·7	981·9	18·92	29 672·3	1 141·2	18·77	34 322·7	1 320·1	18·63
340·0	28 267·6	1 046·9	19·91	32 881·1	1 217·8	19·76	38 064·7	1 409·8	19·61
360·0	31 148·1	1 112·4	20·90	36 258·3	1 294·9	20·75	42 004·4	1 500·2	20·60
380·0	34 171·3	1 178·3	21·89	39 804·0	1 372·6	21·74	46 142·1	1 591·1	21·60
400·0	37 337·0	1 244·6	22·88	43 518·1	1 450·6	22·73	50 477·7	1 682·6	22·59
450·0	45 875·2	1 411·5	25·37	53 540·3	1 647·4	25·21	62 182·3	1 913·3	25·07
500·0	55 304·6	1 580·1	27·85	64 615·2	1 846·1	27·70	75 123·6	2 146·4	27·56
550·0	—	—	—	76 742·9	2 046·5	30·19	89 301·7	2 381·4	30·04
600·0	—	—	—	89 923·3	2 248·1	32·68	104 716·6	2 617·9	32·53

(Continued)

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISLC 400	ISMC 75	ISMC 100
Weight, kg	91·4	13·6	18·4
Area, cm^2	116·50	17·34	23·40
Moment of Inertia I_{xx}, cm^4	27 979·0	152·0	373·4
Moduius of Section Z_{xx}, cm^3	1399·0	40·6	74·6
Radius of Gyration r_{xx}, cm	15·50	2·96	4·00

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	1 569·7	157·0	3·67	55·0	13·7	1·78	106·6	21·3	2·13
5·0	1 714·4	167·3	3·84	67·4	15·9	1·97	125·9	24·0	2·32
10·0	1 873·7	178·4	4·01	82·0	18·2	2·17	148·2	27·0	2·52
15·0	2 047·6	190·5	4·19	98·8	20·8	2·39	173·4	30·2	2·72
20·0	2 236·0	203·3	4·38	117·7	23·5	2·61	201·6	33·6	2·94
25·0	2 439·0	216·8	4·58	138·8	26·4	2·83	232·6	37·2	3·15
30·0	2 656·6	231·0	4·78	162·1	29·5	3·06	266·6	41·0	3·38
35·0	2 888·7	245·8	4·98	187·6	32·6	3·29	303·5	45·0	3·60
40·0	3 135·4	261·3	5·19	215·2	35·9	3·52	343·4	49·1	3·83
45·0	3 396·7	277·3	5·40	245·0	39·2	3·76	386·1	53·3	4·06
50·0	3 672·5	293·8	5·61	276·9	42·6	4·00	431·8	57·6	4·30
60·0	4 267·8	328·3	6·05	347·3	49·6	4·48	532·0	66·5	4·77
70·0	4 921·4	364·5	6·50	426·4	56·9	4·96	643·8	75·7	5·25
80·0	5 633·2	402·4	6·95	514·1	64·3	5·45	767·4	85·3	5·73
90·0	6 403·2	441·6	7·41	610·5	71·8	5·93	902·6	95·0	6·21
100·0	7 231·6	482·1	7·88	715·6	79·5	6·42	1 049·6	105·0	6·70
120·0	9 062·9	566·4	8·82	951·8	95·2	7·41	1 378·6	125·3	7·68
140·0	11 127·3	654·5	9·77	1 222·6	111·1	8·40	1 754·4	146·2	8·66
160·0	13 424·7	745·8	10·74	1 528·2	127·3	9·39	2 177·0	167·5	9·65
180·0	15 955·1	839·7	11·70	1 868·4	143·7	10·38	2 646·4	189·0	10·63
200·0	18 718·5	935·9	12·68	2 243·3	160·2	11·37	3 162·6	210·8	11·63
220·0	21 714·8	1 034·0	13·65	2 652·8	176·9	12·37	3 725·6	232·9	12·62
240·0	24 944·2	1 133·8	14·63	3 097·1	193·6	13·36	4 335·4	255·0	13·61
260·0	28 406·6	1 235·1	15·62	3 576·0	210·4	14·36	4 992·0	277·3	14·61
280·0	32 102·0	1 337·6	16·60	5 089·6	227·2	15·36	5 695·4	299·8	15·60
300·0	36 030·4	1 441·2	17·59	4 637·9	244·1	16·35	6 445·6	322·3	16·60
320·0	40 191·7	1 545·8	18·57	4 220·9	261·0	17·35	7 242·6	344·9	17·59
340·0	44 586·1	1 651·3	19·56	5 838·5	278·0	18·35	8 086·4	367·6	18·59
360·0	49 213·5	1 757·6	20·55	6 490·9	295·0	19·35	8 977·0	390·3	19·59
380·0	54 073·9	1 864·6	21·54	7 177·9	312·1	20·35	9 914·5	413·1	20·58
400·0	59 167·3	1 972·2	22·54	7 899·6	329·1	21·34	10 898·7	435·9	21·58
450·0	72 920·1	2 243·7	25·02	—	—	—	—	—	—
500·0	88 129·2	2 518·0	27·50	—	—	—	—	—	—
550·0	104 794·5	2 794·5	29·99	—	—	—	—	—	—
600·0	122 916·1	3 072·9	32·48	—	—	—	—	—	—

(Continued)

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISMC 125	ISMC 150	ISMC 175
Weight, kg	25·4	32·8	38·2
Area, cm^2	32·38	41·76	48·76
Moment of Inertia I_{xx}, cm^4	832·8	1 558·8	2 446·6
Modulus of Section Z_{xx}, cm^3	133·2	207·8	279·6
Radius of Gyration r_{xx}, cm	5·07	6·11	7·08

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	241·7	37·2	2·73	410·4	54·7	3·13	478·0	63·7	3·13
5·0	275·1	40·8	2·91	459·4	59·3	3·32	534·7	69·0	3·31
10·0	312·6	44·7	3·11	513·6	64·2	3·51	597·5	74·7	3·50
15·0	354·1	48·8	3·31	573·0	69·4	3·70	666·3	80·8	3·70
20·0	399·7	53·3	3·51	637·6	75·0	3·91	741·3	87·2	3·90
25·0	449·3	58·0	3·72	707·4	80·8	4·12	822·4	94·0	4·11
30·0	503·0	62·9	3·94	782·5	86·9	4·33	909·5	101·1	4·32
35·0	560·7	68·0	4·16	862·8	93·3	4·55	1 002·8	108·4	4·53
40·0	622·5	73·2	4·38	948·3	99·8	4·77	1 102·1	116·0	4·75
45·0	688·3	78·7	4·61	1 039·0	106·6	4·99	1 207·6	123·9	4·98
50·0	758·1	84·2	4·84	1 134·9	113·5	5·21	1 319·1	131·9	5·20
60·0	910·0	95·8	5·30	1 342·5	127·9	5·67	1 560·5	148·6	5·66
70·0	1 078·0	107·8	5·77	1 570·9	142·8	6·13	1 826·2	166·0	6·12
80·0	1 262·3	120·2	6·24	1 820·2	158·3	6·60	2 116·3	184·0	6·59
90·0	1 462·7	133·0	6·72	2 090·4	174·2	7·08	2 430·8	202·6	7·06
100·0	1 679·3	146·0	7·20	2 381·5	190·5	7·55	2 769·7	221·6	7·54
120·0	2 161·2	172·9	8·17	3 026·3	224·2	8·51	3 520·6	260·8	8·50
140·0	2 707·7	200·6	9·14	3 754·6	258·9	9·48	4 369·0	301·3	9·47
160·0	3 319·1	228·9	10·12	4 566·4	294·6	10·46	5 315·0	342·9	10·44
180·0	3 995·2	257·8	11·11	5 461·7	331·0	11·44	6 358·5	385·4	11·42
200·0	4 736·0	287·0	12·09	6 440·6	368·0	12·42	7 499·4	428·5	12·40
220·0	5 541·6	316·7	13·08	7 502·9	405·6	13·40	8 737·9	472·3	13·39
240·0	6 412·0	346·6	14·07	8 648·8	443·5	14·39	10 074·0	516·6	14·37
260·0	7 374·1	378·2	15·09	9 878·2	481·9	15·38	11 507·5	561·3	15·36
280·0	8 347·0	407·2	16·06	11 191·2	520·5	16·37	13 038·6	606·4	16·35
300·0	9 411·7	437·8	17·05	12 587·6	559·4	17·36	14 667·2	651·9	17·34
320·0	10 541·1	468·5	18·04	14 067·6	598·6	18·35	16 393·3	697·6	18·34
340·0	11 735·3	499·4	19·04	15 631·1	638·0	19·35	18 216·9	743·5	19·33
360·0	12 994·2	530·4	20·03	17 278·1	677·6	20·34	20 138·0	789·7	20·32
380·0	14 317·9	561·5	21·03	19 008·6	717·3	21·34	22 156·7	836·1	21·32
400·0	15 706·4	592·7	22·02	20 822·7	757·2	22·33	24 272·9	882·7	22·31

(Continued)

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISMC 200	ISMC 225	ISMC 250
Weight, kg	44·2	51·8	60·8
Area, cm^2	56·42	66·02	77·34
Moment of Inertia I_{xx}, cm^4	3 638·6	5 389·2	7 633·6
Modulus of Section Z_{xx}, cm^3	363·8	479·0	610·6
Radius of Gyration r_{xx}, cm	8·03	9·03	9·94

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	546·5	72·9	3·11	723·6	90·5	3·31	847·3	105·9	3·31
5·0	611·2	78·9	3·29	803 7	97·4	3·49	941·1	114·1	3·49
10·0	683·0	85·4	3·48	892·0	104·9	3·68	1 044·5	122·9	3·68
15·0	761·9	92·3	3·67	988·6	113·0	3·87	1 157·7	132·3	3·87
20·0	847·8	99·7	3·88	1 093·4	121·5	4·07	1 280·4	142·3	4·07
25·0	940·7	107 5	4·08	1 206·4	130·4	4·27	1 412·9	152·7	4·27
30·0	1 040·7	115·6	4·29	1 327·7	139·8	4·48	1 555·0	163·7	4·48
35·0	1 147·8	124·1	4·51	1 457·3	149·5	4·70	1 706·8	175·1	4·70
40·0	1 261·9	132·8	4·73	1 595·1	159·5	4·92	1 868·2	186·8	4·91
45·0	1 383·0	141·9	4·95	1 741·2	169·9	5·14	2 039·3	199·0	5·14
50·0	1 511·3	151·1	5·18	1 895·5	180·5	5·36	2 220·1	211·4	5·36
60·0	1 788·8	170·4	5·63	2 228·9	202·6	5·81	2 610·7	237·3	5·81
70·0	2 094·6	190·4	6·09	2 595·3	225·7	6·27	3 039·9	264·3	6·27
80·0	2 428·6	211·2	6·56	2 994·7	249·6	6·74	3 507·8	292·3	6·73
90·0	2 790·9	232·6	7·03	3 427·2	274·2	7·20	4 014·4	321·2	7·20
100·0	3 181·3	254·5	7·51	3 892·6	299·4	7·68	4 559·6	350·7	7·68
120·0	4 046·8	299·8	8·47	4 922·5	351·6	8·63	5 766·2	411·9	8·63
140·0	5 025·1	346·6	9·44	6 084·5	405·6	9·60	7 127·3	475·2	9·60
160·0	6 116·3	394·6	10·41	7 378·5	461·2	10·57	8 643·2	540·2	10·57
180·0	7 320·3	443·7	11·39	8 804·5	517·9	11·55	10 313·7	606·7	11·55
200·0	8 637·1	493·5	12·37	10 362·6	575·7	12·53	12 139·0	674·4	12·53
220·0	10 066·8	544·2	13·36	12 052·7	634·4	13·51	14 118·9	743·1	13·51
240·0	11 609·3	595·3	14·34	13 874·8	693·7	14·50	16 253·5	812·7	14·50
260·0	13 264·7	647·1	15·33	15 829·0	753·8	15·48	18 542·7	883·0	15·48
280·0	15 032·9	699 2	16·32	17 915·3	814·3	16·47	20 986·7	953·9	16·47
300·0	16 913·9	751·7	17·31	20 133·5	875·4	17 46	23 585·3	1 025·4	17·46
320·0	18 907·8	804·6	18·31	22 483·8	936·8	18·45	26 338·6	1 097·4	18·45
340·0	21 014·5	857·7	19·30	24 966·2	998·6	19·45	29 246·6	1 169·9	19·45
360·0	23 234·1	911·1	20·29	27 580·6	1 060·8	20·44	32 309·2	1 242·7	20·44
380·0	25 566·5	964·8	21·29	30 327·0	1 123·2	21·43	35 526·6	1 315 8	21·43
400·0	28 011·7	1 018·6	22·28	33 205·5	1 185·9	22·43	38 898·6	1 389·2	22·43
450·0	—	—	—	40 979·3	1 343·6	24·91	48 005·4	1 573·9	24·91
500·0	—	—	—	49 578·4	1 502·4	27·40	58 078·9	1 760·0	27·40

(Continued)

TABLE XXXVII DOUBLE CHANNELS LACED OR BATTENED TO BE USED AS COLUMNS

(Continued)

COMPOSED OF TWO CHANNELS OF SAME SIZE

Designation	ISMC 300	ISMC 350	ISMC 400
Weight, kg	71·6	84·2	98·8
Area, cm^2	91·28	107·32	125·86
Moment of Inertia I_{xx}, cm^4	12 725·2	20 016·0	30 165·6
Modulus of Section Z_{xx}, cm^3	848·4	1 143·8	1 508·2
Radius of Gyration r_{xx}, cm	11·81	13·66	15·48

Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Radius of Gyration
S	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}	I_{yy}	Z_{yy}	r_{yy}
mm	cm^4	cm^3	cm	cm^4	cm^3	cm	cm^4	cm^3	cm
0	1 130·0	125·6	3·52	1 500·1	150·0	3·74	1 746·7	174·7	3·73
5·0	1 243·4	134·4	3·69	1 637·8	159·8	3·91	1 906·8	186·0	3·89
10·0	1 368·2	144·0	3·87	1 788·8	170·4	4·08	2 082·7	198·4	4·07
15·0	1 504·5	154·3	4·06	1 953·3	181·7	4·27	2 274·4	211·6	4·25
20·0	1 652·1	165·2	4·25	2 131·2	193·7	4·46	2 481·7	225·6	4·44
25·0	1 811·2	176·7	4·45	2 322·5	206·4	4·65	2 704·8	240·4	4·64
30·0	1 981·6	188·7	4·66	2 527·2	219·8	4·85	2 943·6	256·0	4·84
35·0	2 163·5	201·3	4·87	2 745·3	233·6	5·06	3 198·2	272·2	5·04
40·0	2 356·8	214·3	5·08	2 976·9	248·1	5·27	3 468·5	289·0	5·25
45·0	2 561·5	227·7	5·30	3 221·8	263·0	5·48	3 754·5	306·5	5·46
50·0	2 777·6	241·5	5·52	3 480·2	278·4	5·69	4 056·2	324·5	5·68
60·0	3 244·0	270·3	5·96	4 037·2	310·6	6·13	4 706·9	362·1	12
70·0	3 756·1	300·5	6·41	4 647·8	344 3	6·58	5 420·5	401·5	6·56
80·0	4 313·8	331·8	6·87	5 312·1	379·4	7·04	6 197·1	442·6	7·02
90·0	4 917·2	364·2	7·34	6 030·1	415·9	7·50	7 036·6	485·3	7·48
100·0	5 566·2	397·6	7·81	6 801·7	453·4	7·96	7 939·0	529·3	7·94
120·0	7 001·1	466·7	8·76	8 506·0	531·6	8·90	9 932·6	620·8	8·88
140·0	8 618·6	538·7	9·72	10 424·9	613·2	9·86	12 178·0	716·4	9·84
160·0	10 418·6	612·9	10·66	12 558·4	697·7	10·82	14 675·0	815·3	10·80
180·0	12 401·2	689·0	11·66	14 906·6	784·6	11·79	17 423·8	917·0	11·77
200·0	14 566·4	766·7	12·63	17 469·4	873·5	12·76	20 424·3	1 021·2	12·74
220·0	16 914·1	845·7	13·61	20 246·8	964·1	13·74	23 676·5	1 127·5	13·72
240·0	19 444·4	925·9	14·60	23 238·9	1 056·3	14·72	27 180·5	1 235·5	14·70
260·0	22 157·3	1 007·1	15·58	26 445·6	1 149·8	15·70	30 936·1	1 345·0	15·68
280·0	25 052·7	1 089·2	16·57	29 867·0	1 244·5	16·68	34 943·5	1 456·0	16·66
300·0	28 130·6	1 172·1	17·56	33 503·0	1 340·1	17·67	39 202·6	1 568·1	17·65
320·0	31 391·1	1 255·6	18·54	37 353·6	1 436·7	18·66	43 713·4	1 681·3	18·64
340·0	34 834·2	1 339·8	19·54	41 418·9	1 534·0	19·65	47 476·5	1 795·4	19·63
360·0	38 459·9	1 424·4	20·53	45 698·8	1 632·1	20·64	53 490·2	1 910·4	20·62
380·0	42 268·1	1 509·6	21·52	50 193·4	1 730·8	21·63	58 756·2	2 026·1	21·61
400·0	46 258 8	1 595·1	22·51	54 902·6	1 830·1	22·62	64 273·9	2 142·5	22·60
450·0	57 034·4	1 810·6	25·00	67 614·6	2 080·4	25·10	79 169·5	2 436·0	25·08
500·0	68 951·0	2 028·0	27·48	81 668·2	2 333·4	27·59	95 638·2	2 732·5	27·57
550·0	82 008·6	2 246·8	29·97	97 063·2	2 588·4	30·07	113 680·3	3 031·5	30·05
600·0	96 207·2	2 466·9	32·47	113 799·8	2 845·0	32·56	133 295·6	3 332·4	32·54

Note — The properties given in this Table are based on the gross area of the section.

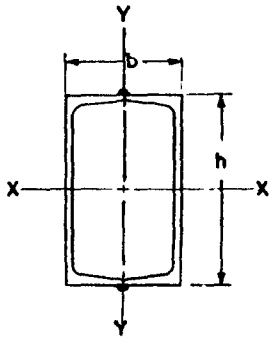

TABLE XXXVIII DOUBLE CHANNELS WITH FLANGES BUTTING AND WELDED TOE TO TOE TO BE USED AS COLUMNS

Nominal Size	Composed of Two Channels Each of Same Size		Weight per Metre	Sectional Area	Moments of Inertia		Moduli of Section		Radii of Gyration	
$h \times b$	Designation	w			I_{xx}	I_{yy}	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
mm mm		kg	kg	cm^2	cm^4	cm^4	cm^3	cm^3	cm	cm
100×90	ISJC 100	5·8	11·6	14·82	247·6	172·2	49·6	38·3	4·09	3·41
125×100	ISJC 125	7·9	15·8	20·14	540·0	278·8	86·4	55·8	5·18	3·72
150×110	ISJC 150	9·9	19·8	25·30	942·2	448·9	125·6	81·6	6·10	4·21
175×120	ISJC 175	11·2	22·4	28·48	1 439·8	615·4	164·6	102·6	7·11	4·65
200×140	ISJC 200	13·9	27·8	35·54	2 322·4	1 067·6	232·2	152·5	8·08	5·48
75×80	ISLC 75	5·7	11·4	14·52	132·2	125·0	35·2	31·2	3·02	2·93
100×100	ISLC 100	7·9	15·8	20·04	329·4	278·5	65·8	55·7	4·06	3·73
125×130	ISLC 125	10·7	21·4	27·34	713·6	658·2	114·2	101·3	5·11	4·91
150×150	ISLC 150	14·4	28·8	36·72	1 394·4	1 169·0	186·0	155·9	6·16	5·64
175×150	ISLC 175	17·6	35·2	44·80	2 296·8	1 418·3	262·6	189·1	7·16	5·63
200×150	ISLC 200	20·6	41·2	52·44	3 451·0	1 684·6	245·2	224·6	8·11	5·67
225×150	ISLC 225	24·0	48·0	61·06	5 095·8	3 030·6	453·0	336·7	9·14	7·05
250×200	ISLC 250	28·0	56·0	71·30	7 375·0	4 396·4	590·0	439·6	10·17	7·85
300×200	ISLC 300	33·1	66·2	84·22	12 095·8	5 366·4	806·4	536·6	11·98	7·98
350×200	ISLC 350	38·8	77·6	98·94	18 625·2	6 489·0	1 064·2	648·9	13·72	8·10
400×200	ISLC 400	45·7	91·4	116·50	27 979·0	7 720·9	1 399·0	772·1	15·50	8·14
75×80	ISMC 75	6·8	13·6	17·34	152·0	150·7	40·6	37·7	2·96	2·95
100×100	ISMC 100	9·2	18·4	23·40	373·4	333·6	74·6	66·7	4·00	3·78
125×130	ISMC 125	12·7	25·4	32·38	838·8	793·1	133·2	122·0	5·07	4·95
150×150	ISMC 150	16·4	32·8	41·76	1 558·8	1 368·8	207·8	182·5	6·11	5·73
175×150	ISMC 175	19·1	38·2	48·76	2 446·6	1 611·7	279·6	214·9	7·08	5·75
200×150	ISMC 200	22·1	44·2	56·42	3 638·6	1 883·6	363·8	251·2	8·03	5·78
225×160	ISMC 225	25·9	51·8	66·02	5 389·2	2 519·4	479·0	314·9	9·03	6·18
250×160	ISMC 250	30·4	60·8	77·34	7 633·6	2 951·0	610·6	368·9	9·94	6·18
300×180	ISMC 300	35·8	71·6	91·28	12 725·2	4 646·1	848·4	516·2	11·81	7·13
350×200	ISMC 350	42·1	84·2	107·32	20 016·0	6 994·9	1 143·8	699·5	13·66	8·07
400×200	ISMC 400	49·4	98·8	125·86	30 165·6	8 241·1	1 508·2	824·1	15·48	8·09

APPENDIX A

INDIAN STANDARDS FOR PRODUCTION, DESIGN AND USE OF STEEL IN STRUCTURE

The ISI has so far published the following Indian Standards in the field of production, design and utilization of steel:

IS : 800-1962 Code of Practice for Use of Structural Steel in General Building Construction (*Revised*)

IS : 801-1958 Code of Practice for Use of Cold Formed Light Gauge Steel Structural Members in General Building Construction

IS : 804-1958 Specification for Rectangular Pressed Steel Tanks

IS : 806-1957 Code of Practice for Use of Steel Tubes in General Building Construction

IS : 808-1957 Specification for Rolled Steel Beam, Channel and Angle Sections

IS : 811-1961 Specification for Cold Formed Light Gauge Structural Steel Sections

IS : 812-1957 Glossary of Terms Relating to Welding and Cutting of Metals

IS : 813-1956 Scheme of Symbols for Welding

IS : 814-1957 Specification for Covered Electrodes for Metal Arc Welding of Mild Steel

IS : 815-1956 Classification and Coding of Covered Electrodes for Metal Arc Welding of Mild Steel and Low Alloy High-Tensile Steels

IS : 816-1956 Code of Practice for Use of Metal Arc Welding for General Construction in Mild Steel

IS : 817-1957 Code of Practice for Training and Testing of Metal Arc Welders

IS : 818-1957 Code of Practice for Safety and Health Requirements in Electric and Gas Welding and Cutting Operations

IS : 819-1957 Code of Practice for Resistance Spot Welding for Light Assemblies in Mild Steel

IS : 1161-1958 Specification for Steel Tubes for Structural Purposes

IS : 1173-1957 Specification for Rolled Steel Sections, Tee Bars

IS : 1179-1957 Specification for Equipment for Eye and Face Protection During Welding

IS : 1181-1957 Qualifying Tests for Metal Arc Welders (Engaged in Welding Structures Other than Pipes)

IS : 1182-1957 General Recommendations for Radiographic Examination of Fusion Welded Joints

IS : 1252-1958 Specification for Rolled Steel Sections, Bulb Angles

IS : 1261-1959 Code of Practice for Seam Welding in Mild Steel

IS : 1278-1958 Specification for Filler Rods and Wires for Gas Welding

IS : 1323-1959 Code of Practice for Oxy-Acetylene Welding for Structural Work in Mild Steel

IS : 1730-1961 Dimensions for Steel Plate, Sheet and Strip for Structural and General Engineering Purposes

IS : 1731-1961 Dimensions for Steel Flats for Structural and General Engineering Purposes

IS : 1732-1961 Dimensions for Round and Square Steel Bars for Structural and General Engineering Purposes

IS : 1863-1961 Dimensions for Rolled Steel Bulb Plates

IS : 1864-1963 Dimensions for Angle Sections with Legs of Unequal Width and Thickness

IS : 2314-1963 Specification for Steel Sheet Piling Sections

APPENDIX B

COMPOSITION OF STRUCTURALS SECTIONAL COMMITTEE, SMDC 6

The ISI Structurals Sectional Committee which was responsible for processing this revised Handbook consists of the following:

Chairman	*Representing*
SHRI O. S. MURTHY	Ministry of Railways
Members	
SHRI S. BANERJEE	Steel Re-Rolling Mills Association of India, Calcutta
COL N. S. BHAGAT	Engineer-in-Chief's Branch, Army Headquarters
SHRI R. S. MEHANDRU (*Alternate*)	
SHRI R. K. CHATTERJEE	Durgapur Steel Project, Durgapur
SHRI S. DAS GUPTA	In personal capacity (*M. N. Dastur & Co. Pvt. Ltd., Calcutta*)
SHRI D. S. DESAI	M. N. Dastur & Co. Pvt. Ltd., Calcutta
SHRI M. DHAR	Braithwaite, Burn & Jessop Construction Co. Ltd., Calcutta
SHRI N. K. SARKAR (*Alternate*)	
SHRI S. GOSWAMI	Indian Iron & Steel Co. Ltd., Burnpur
SHRI N. C. DUTT (*Alternate*)	
SHRI S. GURURAJ	Tube Investments of India Ltd., Jamshedpur
SHRI G. C. KHANNA	Institution of Engineers (India), Calcutta
SHRI E. K. N. NAMBIAR	Directorate General of Supplies and Disposals (Inspection Wing), New Delhi
SHRI B. R. NAGAR (*Alternate*)	
SHRI M. M. PANJE	Bhilai Steel Project, Bhilai
SHRI S. R. PRAMANIK	Hindustan Steel Ltd., Rourkela
SHRI RABINDER SINGH	National Buildings Organization, New Delhi
DR. A. V. R. RAO (*Alternate*)	
SHRI G. F. L. REBELLO	Tata Iron & Steel Co. Ltd., Jamshedpur
SHRI K. SRINIVAS	Indian Aluminium Co. Ltd., Calcutta
SHRI N. GOPAL KRISHNAN (*Alternate*)	
SHRI T. R. SUBRAMANIAN	The Iron & Steel Control, Calcutta
SUPERINTENDING SURVEYOR OF WORKS II	Central Public Works Department, New Delhi
SHRI R. B. VAID	The Indian Lightgauge Metal Products Private Ltd., Bombay
SHRI A. S. VALLISHAYEE	Mysore Iron & Steel Works, Bhadravati
SHRI B. S. KRISHNAMACHAR, Deputy Director (S & M)	Director, ISI (*Ex-officio Member*)

Secretary

SHRI H. N. KRISHNAMURTHY
Assistant Director (S & M), ISI