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By:
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SYMBOLS

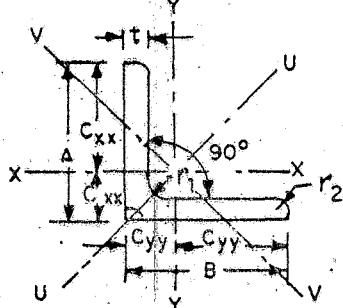
Letter symbols used in this handbook shall have the meaning assigned to them as indicated below :

a	=	Sectional area in sq cm	r_{uu}	=	Radius of gyration about the U-U axis
b	=	Width of flange	l_w	=	Radius of gyration about the V-V axis
A	=	The longer leg of an unequal angle or one of the legs in the case of an equal angle	r_{xx}	=	Radius of gyration about the X-X axis
b	=	The shorter leg of an unequal angle or one of the legs in the case of an equal angle	R_{yy}	=	Radius of gyration about the Y-Y axis
C_{xx}	=	The lesser of the two extreme fibre distances from the X-X axis	S	=	Maximum allowable shear in the web
C_{yy}	=	The lesser of the two extreme fibre distances from the Y-Y axis	t	=	Thickness of angles, plates, etc.
D	=	Slope of flange	t_c	=	Mean thickness of compression flange
D	=	The outstand of the bulb in the case of bulb angles	t_f	=	Thickness of flange at the centre of the outstand
e_{xz}	=	Distance of extreme fibre from the X-X axis	t_t	=	Mean thickness of tension flange
	=	Distance of extreme fibre from the Y-Y axis	t_2	=	Thickness of web
g	=	Rivet gauge distance in the flange	w	=	Calculated weight in kg per m (= 0.785 a)
g_1	=	Rivet gauge distance in the web	Z_c	=	Modulus of extreme fibre of the compression flange
h	=	Overall depth of section	Z_1	=	Modulus of section based on the distance of extreme fibre of the tension flange
I_{mm}	=	Moment of inertia about the U-U axis	Z_{xx}	=	Modulus of section about the X-X axis
I_{vv}	=	Moment of inertia about the V-V axis	Z_{yy}	=	Modulus of section about the Y-Y axis
I_{xx}	=	Moment of inertia about the X-X 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
I_x	=	Product of inertia about the X-X and Y-Y axis	$X-X$ axis	=	A line passing through the centre of gravity of the profile of the section, and at right angles to the Y-Y axis
I_{yy}	=	Moment of inertia about the Y-Y axis	$U-U$ and $V-V$ axis	=	Lines passing through the centre of gravity of the profile of the section, representing the principal axis of the section
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			

TABLE 1

ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES



Designation & size $A \times B$	Thickness t mm	Sectional Area a cm^2	Weight per Metre (w)		Centre of Gravity $C_{xx} = C_{yy}$ cm	Distance of Extreme Fibre $e_{xx} = e_{yy}$ cm
			Kg.	N		
ISA 2020	3.0	1.12	0.9	8.8	0.59	1.41
	4.0	1.45	1.1	10.8	0.63	1.37
ISA 2525	3.0	1.41	1.1	10.8	0.71	1.79
	4.0	1.84	1.4	13.7	0.75	1.75
	5.0	2.25	1.8	17.7	0.79	1.71
ISA 3030	3.0	1.73	1.4	13.7	0.83	2.17
	4.0	2.26	1.8	17.7	0.87	2.13
	5.0	2.77	2.2	21.6	0.92	2.08
ISA 3535	3.0	2.03	1.6	15.7	0.95	2.55
	4.0	2.66	2.1	20.6	1.00	2.50
	5.0	3.27	2.6	25.5	1.04	2.46
	6.0	3.86	3.0	29.4	1.08	2.42
ISA 4040	3.0	2.34	1.8	17.7	1.08	2.92
	4.0	3.07	2.4	23.5	1.12	2.88
	5.0	3.78	3.0	29.4	1.16	2.84
	6.0	4.47	3.5	34.3	1.20	2.80
ISA 4545	3.0	2.64	2.1	20.6	1.20	3.30
	4.0	3.47	2.7	26.5	1.25	3.25
	5.0	4.28	3.4	33.4	1.29	3.21
	6.0	5.07	4.0	39.2	1.33	3.17
ISA 5050	3.0	2.95	2.3	22.6	1.32	3.68
	4.0	3.88	3.0	29.4	1.37	3.63
	5.0	4.79	3.8	37.3	1.41	3.59
	6.0	5.68	4.5	44.1	1.45	3.55
ISA 5555	5.0	5.27	4.1	40.2	1.53	3.97
	6.0	6.26	4.9	48.1	1.57	3.93
	8.0	8.18	6.4	62.8	1.65	3.85
	10.0	10.02	7.9	77.5	1.72	3.78
ISA 6060	5.0	5.75	4.5	44.1	1.65	4.35
	6.0	6.84	5.4	53.0	1.69	4.31
	8.0	8.96	7.0	68.7	1.77	4.23
	10.0	11.00	8.6	84.4	1.85	4.15
ISA 6565	5.0	6.25	4.9	48.1	1.77	4.73
	6.0	7.44	5.8	56.9	1.81	4.69
	8.0	9.76	7.7	75.5	1.89	4.61
	10.0	12.00	9.4	92.2	1.97	4.53

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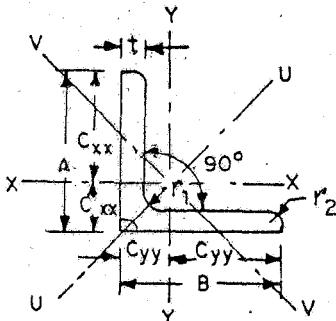


TABLE 1 (Contd.)

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 & Size		
$I_{xx} = I_{yy}$ cm ⁴	I_{uu} cm ⁴	I_{vv} cm ⁴	$r_{xx} = r_{yy}$ cm	r_{uu} cm	r_{vv} cm	$Z_{xx} = Z_{yy}$ cm ³	r_1 mm	r_2 mm	I_{xy} cm ⁴	A × B
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	

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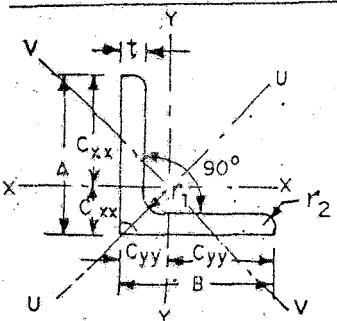


TABLE I (Contd.)

ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES

Designation & Size <i>A x B</i>	Thickness <i>t</i> mm	Sectional Area <i>a</i> cm ²	Weight per Metre (W)		Centre of Gravity <i>C_{xx} = C_{yy}</i> cm	Distance of Extreme Fibre <i>e_{xx} = e_{yy}</i> cm
			kg	N		
ISA 7070	5.0	6.77	5.3	52.0	1.89	5.11
	6.0	8.06	6.3	61.8	1.94	5.06
	8.0	10.58	8.3	81.4	2.02	4.98
	10.0	13.02	10.2	100.1	2.10	4.90
ISA 7575	5.0	7.27	5.7	55.9	2.02	5.48
	6.0	8.66	6.8	66.7	2.06	5.44
	8.0	11.38	8.9	87.3	2.14	5.36
	10.0	14.02	11.0	107.9	2.22	5.28
ISA 8080	6.0	9.29	7.3	71.6	2.18	5.82
	8.0	12.21	9.6	94.2	2.27	5.73
	10.0	15.05	11.8	115.8	2.34	5.66
	12.0	17.81	14.0	137.3	2.42	5.58
ISA 9090	6.0	10.47	8.2	80.4	2.42	6.58
	8.0	13.79	10.8	105.9	2.51	6.49
	10.0	17.03	13.4	131.5	2.59	6.41
	12.0	20.19	15.8	155.0	2.66	6.34
ISA 100100	6.0	11.67	9.2	90.2	2.67	7.33
	8.0	15.39	12.1	118.7	2.76	7.24
	10.0	19.03	14.9	146.2	2.84	7.16
	12.0	22.59	17.7	173.6	2.92	7.08
ISA 110110	8.0	17.02	13.4	131.5	3.00	8.00
	10.0	21.06	16.5	161.9	3.08	7.92
	12.0	25.02	19.6	192.3	3.16	7.84
	15.0	30.81	24.2	237.4	3.27	7.73
ISA 130130	8.0	20.22	15.9	156.0	3.50	9.50
	10.0	25.06	19.7	193.3	3.58	9.42
	12.0	29.82	23.4	229.6	3.66	9.34
	15.0	36.81	28.9	283.5	3.78	9.22
ISA 150150	10.0	29.03	22.8	223.7	4.06	10.94
	12.0	34.59	27.2	266.8	4.14	10.86
	15.0	42.78	33.6	329.6	4.26	10.74
	18.0	50.79	39.9	391.4	4.38	10.62
ISA 200200	12.0	46.61	36.6	359.0	5.36	14.64
	15.0	57.80	45.4	445.4	5.49	14.51
	18.0	68.81	54.0	529.7	5.61	14.39
	25.0	93.80	73.6	722.0	5.88	14.12

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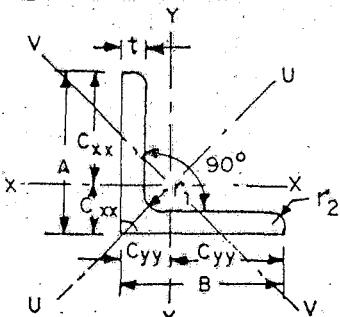


TABLE 1 (Contd.)

ROLLED STEEL EQUAL ANGLES

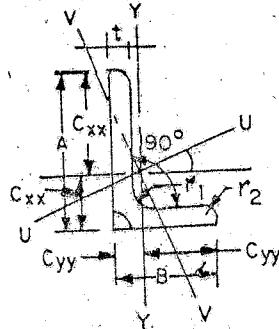
DIMENSIONS AND PROPERTIES

Moments of Inertia			Radii of Gyration			Modulus of Section $Z_{xx}=Z_{yy}$	Radius at Root r_1	Radius at Toe r_2	Product of Inertia I_{xy}	Designation $A \times B$
$I_{xx} = I_{yy}$ cm ⁴	I_{uu} cm ⁴	I_{vv} cm ⁴	$r_{xx} = r_{yy}$ cm	r_{uu} cm	r_{vv} cm					
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	1174.8	296.0	4.61	5.83	2.93	67.7			435.0	
896.8	1429.7	363.8	4.58	5.78	2.92	83.5			529.1	
1048.9	1668.2	429.5	4.54	5.73	2.91	98.7			616.0	
1788.9	2862.0	715.9	6.20	7.84	3.92	122.2	15.0	10.0	1058.9	ISA 200200
2197.7	3511.8	883.7	6.17	7.79	3.91	151.4			1301.2	
2588.7	4130.8	1046.5	6.13	7.75	3.90	179.9			1530.5	
3436.3	5460.9	1411.6	6.05	7.63	3.88	243.3			2015.7	

TABLE 2

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES



Designation & Size	Thickness mm	Sectional Area cm ²	Weight per Metre kg/m	Centre of Gravity		Distance of Extreme Fibre		Moment of Inertia				
				A	B	C _{xx} cm	C _{yy} cm	e _{xx} cm	e _{yy} cm	I _{xx} cm ⁴	I _{yy} cm ⁴	
ISA 3020	3.0	1.41	1.1	10.8	0.98	0.49	2.02	1.51	1.2	0.4	1.4	0.2
	4.0	1.84	1.4	13.7	1.02	0.53	1.98	1.47	1.5	0.5	1.8	0.3
	5.0	2.25	1.8	17.7	1.06	0.57	1.94	1.43	1.9	0.6	2.1	0.4
ISA 4025	3.0	1.88	1.5	14.7	1.30	0.57	2.70	1.93	3.0	0.9	3.3	0.5
	4.0	2.46	1.9	18.6	1.35	0.62	2.65	1.88	3.8	1.1	4.3	0.7
	5.0	3.02	2.4	23.5	1.39	0.66	2.61	1.84	4.6	1.4	5.1	0.8
	6.0	3.56	2.8	27.5	1.43	0.69	2.57	1.81	5.4	1.6	5.9	1.0
ISA 4530	3.0	2.18	1.7	16.7	1.42	0.69	3.08	2.31	4.4	1.5	5.0	0.9
	4.0	2.86	2.2	21.6	1.47	0.73	3.03	2.27	5.7	2.0	6.5	1.1
	5.0	3.52	2.8	27.5	1.51	0.77	2.99	2.23	6.9	2.4	7.9	1.4
	6.0	4.16	3.3	32.4	1.55	0.81	2.95	2.19	8.0	2.8	9.2	1.7
ISA 5030	3.0	2.34	1.8	17.7	1.63	0.65	3.37	2.35	5.9	1.6	6.5	1.0
	4.0	3.07	2.4	23.5	1.68	0.70	3.33	2.30	7.7	2.1	8.5	1.2
	5.0	3.78	3.0	29.4	1.72	0.74	3.28	2.26	9.3	2.5	10.3	1.5
	6.0	4.47	3.5	34.3	1.76	0.78	3.24	2.22	10.9	2.9	11.9	1.8
ISA 6040	5.0	4.76	3.7	36.3	1.95	0.96	4.05	3.04	16.9	6.0	19.5	3.4
	6.0	5.65	4.4	43.2	1.99	1.00	4.01	3.00	19.9	7.0	22.8	4.0
	8.0	7.37	5.8	56.9	2.07	1.08	3.93	2.92	25.4	8.0	29.0	5.2
ISA 6545	5.0	5.26	4.1	40.2	2.07	1.08	4.43	3.42	22.1	8.6	25.9	4.8
	6.0	6.25	4.9	48.1	2.11	1.12	4.39	3.38	26.0	10.1	30.4	5.7
	8.0	8.17	6.4	62.8	2.19	1.20	4.31	3.30	33.2	12.8	38.7	7.4
ISA 7045	5.0	5.52	4.3	42.2	2.27	1.04	4.73	3.46	27.2	8.8	30.9	5.1
	6.0	6.56	5.2	51.0	2.32	1.09	4.68	3.41	32.0	10.3	36.3	6.0
	8.0	8.58	6.7	65.7	2.40	1.16	4.60	3.34	41.0	13.1	46.3	7.8
	10.0	10.52	8.3	81.4	2.48	1.24	4.52	3.26	49.3	15.6	55.4	9.5
ISA 7550	5.0	6.02	4.7	46.1	2.39	1.16	5.11	3.84	34.1	12.2	39.4	6.9
	6.0	7.16	5.6	54.9	2.44	1.20	5.06	3.80	40.3	14.3	46.4	8.2
	8.0	9.38	7.4	72.6	2.52	1.28	4.98	3.72	51.8	18.3	59.4	10.6
	10.0	11.52	9.0	88.3	2.60	1.36	4.90	3.64	62.3	21.8	71.2	12.9
ISA 8050	5.0	6.27	4.9	48.1	2.60	1.12	5.40	3.88	40.6	12.3	45.7	7.2
	6.0	7.46	5.9	57.9	2.64	1.16	5.36	3.84	48.0	14.4	53.9	8.5
	8.0	9.78	7.7	75.5	2.73	1.24	5.27	3.76	61.9	18.5	69.3	11.0
	10.0	12.02	9.4	92.2	2.81	1.32	5.19	3.68	74.7	22.1	83.3	13.5

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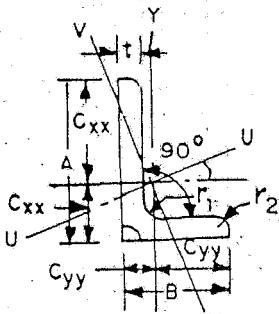


TABLE 2 (Contd.)

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Radii of Gyration				Moduli of Section		$\tan \alpha$	Radius at Root r_1	Radius at Toe r_2	Product of Inertia I_{xy}	Designation & size $A \times B$
r_{xx} cm	r_{yy} cm	r_{uu} cm	r_{vv} cm	Z_{xx} cm ³	Z_{yy} cm ³					
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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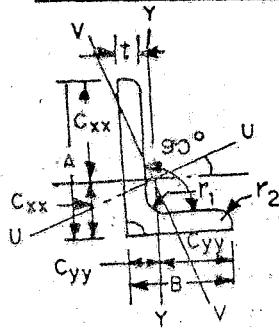


TABLE 2 (Contd.)

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Designation & Size	Thickness (t)	Sectional Area $A \times B$	Weight per Metre (W)	Centre of Gravity		Distance of Extreme Fibre		Moment of Inertia			
				C_{xx} cm	C_{yy} cm	e_{xx} cm	e_{yy} cm	I_{xx} cm ⁴	I_{yy} cm ⁴	I_{uu} cm ⁴	I_{vv} cm ⁴
ISA 9060	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	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	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	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	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	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	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	1020.9	221.2
ISA 200100	10.0	29.03	22.8	6.96	2.01	13.04	7.99	1210.0	209.2	1286.7	132.5
	12.0	34.59	27.2	7.05	2.10	12.95	7.90	1431.7	246.2	1521.0	156.8
	15.0	42.78	33.6	7.18	2.22	12.82	7.78	1750.5	298.1	1856.7	191.9
ISA 200150	10.0	34.00	26.7	5.99	3.51	14.01	11.49	1377.9	669.6	1696.6	350.8
	12.0	40.56	31.8	6.08	3.60	13.92	11.40	1634.9	793.2	2010.8	417.2
	15.0	50.25	39.4	6.20	3.72	13.80	11.28	2005.6	969.9	2461.9	513.6
	18.0	59.76	46.9	6.33	3.84	13.67	11.16	2359.4	1136.9	2889.5	606.9

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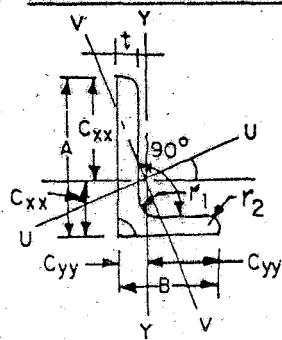


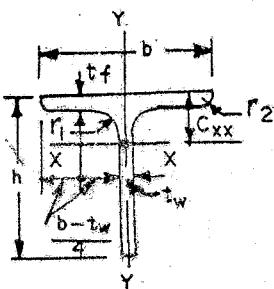
TABLE 2 (Contd.)

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Radii of Gyration				Moduli of Section		$\tan \alpha$	Radius at Root r_1 mm	Radius at Toe r_2 mm	Product of Inertia I_{xy} cm ⁴	Designation & Size A × B
r_{xx} cm	r_{yy} cm	r_{uu} cm	r_{vv} cm	Z_{xx} cm ³	Z_{yy} cm ³					
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 3



ROLLED STEEL TEE BARS

DIMENSIONS AND PROPERTIES

Designation	Size $b \times h$	Weight per Metre (W)		Sectional Area a cm^2	Depth of Section h mm	Width of Flange b mm	Thickness of Flange t_f mm	Thickness of Web t_w mm	Centre of Gravity C_{xx} cm	Moments of Inertia	
		kg	N							I_{xx} cm^4	I_{yy} cm^4
ISNT 20	20 × 20	0.9	8.8	1.13	20	20	3.0	3.0	0.60	0.4	0.2
ISNT 30	30 × 30	1.4	13.7	1.75	30	30	3.0	3.0	0.83	1.4	0.6
ISNT 40	40 × 40	3.5	34.3	4.48	40	40	6.0	6.0	1.20	6.3	3.0
ISNT 50	50 × 50	4.5	44.1	5.70	50	50	6.0	6.0	1.44	12.7	5.9
ISNT 60	60 × 60	5.4	53.0	6.90	60	60	6.0	6.0	1.67	22.5	10.1
ISNT 80	80 × 80	9.6	94.2	12.25	80	80	8.0	8.0	2.23	71.2	32.3
ISNT 100	100 × 100	15.0	147.2	19.10	100	100	10.0	10.0	2.79	173.8	79.9
ISNT 150	150 × 150	22.8	223.7	29.08	150	150	10.0	10.0	3.95	603.8	267.5
ISHT 75	100 × 75	15.3	150.1	19.49	75	150	9.0	8.4	1.62	96.2	230.2
ISHT 100	250 × 100	20.0	196.2	25.47	100	200	9.0	7.8	1.91	193.8	497.3
ISHT 125	250 × 125	27.4	268.8	34.85	125	250	9.7	8.8	2.37	415.4	1005.8
ISHT 150	250 × 150	29.4	288.4	37.42	150	250	10.6	7.6	2.66	573.7	1096.8
ISST 100	50 × 100	8.1	79.5	10.37	100	50	10.0	5.8	3.03	99.0	9.6
ISST 150	75 × 150	15.7	154.0	19.96	150	75	11.6	8.0	4.75	450.2	37.0
ISST 200	165 × 200	28.4	278.6	36.22	200	165	12.5	8.0	4.78	1267.8	358.2
ISST 250	182 × 250	37.5	367.9	47.75	250	180	14.1	9.2	6.40	2774.4	532.0
ISLT 50	50 × 50	4.0	39.2	5.11	50	50	6.4	4.0	1.19	9.9	6.4
ISLT 75	80 × 75	7.1	69.7	9.04	75	80	6.8	4.8	1.72	41.9	27.6
ISLT 100	100 × 100	12.7	124.6	16.16	100	100	10.8	5.7	2.13	116.6	75.0
ISJT 75	50 × 75	3.5	34.3	4.50	75	50	4.6	3.0	2.00	24.8	4.6
ISJT 87.5	50 × 87.5	4.0	39.2	5.14	87.5	50	4.8	3.2	2.50	39.0	4.8
ISJT 100	60 × 100	5.0	49.0	6.32	100	60	5.0	3.4	2.81	63.5	8.6
ISJT 112.5	80 × 112.5	6.4	62.8	8.14	112.5	80	5.0	3.7	3.01	101.6	20.2

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

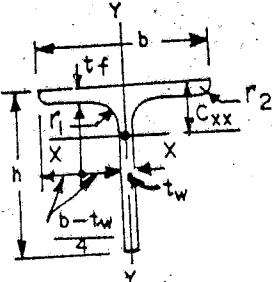


TABLE 3 (Contd.)

ROLLED STEEL TEE BARS

DIMENSIONS AND PROPERTIES

Radius of Gyration	Moduli of Section	Radius at Root	Radius at Toe	Slope of Flange	Designation
r_{xx} cm	r_{yy} cm	Z_{xx} cm ³	Z_{yy} cm ³	D degrees	
0.59	0.39	0.3	0.2	91	ISNT 20
0.89	0.57	0.6	0.4	91	ISNT 30
1.18	0.82	2.2	1.5	91	ISNT 40
1.50	1.02	3.6	2.4	91	ISNT 50
1.81	1.21	5.2	3.4	91	ISNT 60
2.41	1.62	12.3	8.1	91	ISNT 80
3.02	2.05	24.1	16.0	91	ISNT 100
4.56	3.03	54.6	35.7	91	ISNT 150
2.22	3.44	16.4	30.1	94	ISHT 75
2.76	4.42	24.0	49.3	94	ISHT 100
3.45	5.37	41.0	79.9	94	ISHT 125
3.92	5.41	46.5	87.7	94	ISHT 150
3.09	0.96	14.2	3.8	98	ISST 100
4.75	1.36	43.9	9.9	98	ISST 150
5.92	3.15	83.3	43.4	98	ISST 200
7.62	3.34	149.2	59.1	98	ISST 250
1.39	1.12	2.6	2.5	91.5	ISLT 50
2.15	1.75	7.2	6.9	91.5	ISLT 75
2.69	2.15	14.8	15.0	91.5	ISLT 100
2.35	1.01	4.5	1.8	91.5	ISJT 75
2.75	0.97	6.2	1.9	91.5	ISJT 87.5
3.17	1.17	8.8	2.9	91.5	ISJT 100
3.53	1.58	12.3	5.1	91.5	ISJT 112.5

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

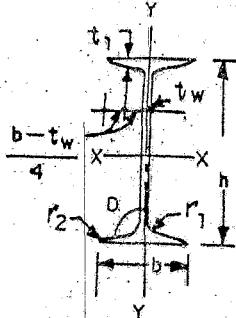


TABLE 4

ROLLED STEEL BEAMS

DIMENSIONS AND PROPERTIES

Designation	Weight per Metre (W)	Sectional Area	Depth of Section	Width of Flange	Thickness of Flange	Thickness of Web	Moments of Inertia	Radius of Gyration			
	kg	N	cm ²	mm	mm	mm	I_{xx} cm ⁴	I_{yy} cm ⁴	r_{xx} cm	r_{yy} cm	
ISJB 150	7.1	69.7	9.01	150	50	4.6	3.0	322.1	9.2	5.98	1.01
ISJB 175	8.1	79.5	10.28	175	50	4.8	3.2	479.3	9.7	6.83	0.97
ISJB 200	9.9	97.1	12.64	200	60	5.0	3.4	780.7	17.3	7.86	1.17
ISJB 225	12.8	125.6	16.28	225	80	5.0	3.7	1308.5	40.5	8.97	1.58
ISLB 75	6.1	59.8	7.71	75	50	5.0	3.7	72.7	10.0	3.07	1.14
ISLB 100	8.0	78.5	10.21	100	50	6.4	4.0	168.0	12.7	4.06	1.12
ISLB 125	11.9	116.7	15.12	125	75	6.5	4.4	406.8	43.4	5.19	1.69
ISLB 150	14.2	139.3	18.08	150	80	6.8	4.8	688.2	55.2	6.17	1.75
ISLB 175	16.7	163.8	21.30	175	90	6.9	5.1	1096.2	79.6	7.17	1.93
ISLB 200	19.8	194.2	25.27	200	100	7.3	5.4	1696.6	115.4	8.19	2.13
ISLB 225	23.5	230.5	29.92	225	100	8.6	5.8	2501.9	112.7	9.15	1.94
ISLB 250	27.9	273.7	35.53	250	125	8.2	6.1	3717.8	193.4	10.23	2.33
ISLB 275	33.0	323.7	42.02	275	140	8.8	6.4	5375.3	287.0	11.31	2.61
ISLB 300	37.7	369.8	48.08	300	150	9.4	6.7	7332.9	376.2	12.35	2.80
ISLB 325	43.1	422.8	54.90	325	165	9.8	7.0	9874.6	510.8	13.41	3.05
ISLB 350	49.5	485.6	63.01	350	165	11.4	7.4	13158.3	631.9	14.45	3.17
ISLB 400	56.9	558.2	72.43	400	165	12.5	8.0	19306.3	716.4	16.33	3.15
ISLB 450	65.3	640.6	83.14	450	170	13.4	8.6	27536.1	853.0	18.20	3.20
ISLB 500	75.0	735.8	95.50	500	180	14.1	9.2	38579.0	1063.9	20.10	3.34
ISLB 550	86.3	846.6	109.97	550	190	15.0	9.9	53161.6	1335.1	21.99	3.48
ISLB 600	99.5	976.1	126.69	600	210	15.5	10.5	72867.6	1821.9	23.98	3.79
ISMB 100	11.5	112.8	14.60	100	75	7.2	4.0	257.5	40.8	4.20	1.67
ISMB 125	13.0	127.5	16.60	125	75	7.6	4.4	449.0	43.7	5.20	1.62
ISMB 150	14.9	146.2	19.00	150	80	7.6	4.8	726.4	52.6	6.18	1.66
ISMB 175	19.3	189.3	24.62	175	90	8.6	5.5	1272.0	85.0	7.19	1.86
ISMB 200	25.4	249.2	32.33	200	100	10.8	5.7	2235.4	150.0	8.32	2.15
ISMB 225	31.2	306.1	39.72	225	110	11.8	6.5	3441.8	218.3	9.31	2.34
ISMB 250	37.3	365.9	47.55	250	125	12.5	6.9	5131.6	334.5	10.39	2.65
ISMB 300	44.2	433.6	56.26	300	140	12.4	7.5	8603.6	453.9	12.37	2.84
ISMB 350	52.4	514.0	66.71	350	140	14.2	8.1	13630.3	537.7	14.29	2.84
ISMB 400	61.6	604.3	78.46	400	140	16.0	8.9	20458.4	622.1	16.15	2.82
ISMB 450	72.4	710.2	92.27	450	150	17.4	9.4	30390.8	834.0	18.15	3.01
ISMB 500	86.9	852.5	110.74	500	180	17.2	10.2	45218.3	1369.8	20.21	3.52

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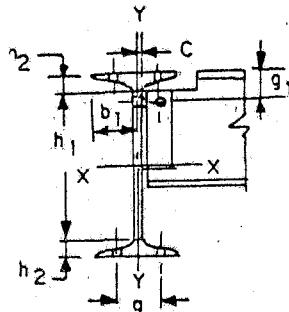


TABLE 4 (Contd.)

ROLLED STEEL BEAMS

DIMENSIONS AND PROPERTIES

Moduli of Section	Z_{xx}	Z_{yy}	Radius at Root r_1	Radius at Toe T_2	Slope of Flange D	Connection Details						Maximum size of Flange Rivet	Designation
						h_1	h_2	b_1	C	g^*	g_1 (Min)		
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	201.5	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	47.18	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	
1223.8	100.4	16.0	8.0	98	384.0	33.00	80.70	5.80	100	70	25	ISLB 450	
1543.2	118.2	17.0	8.5	98	430.2	34.90	85.40	6.10	100	70	28	ISLB 500	
1933.2	140.5	18.0	9.0	98	476.1	36.95	90.05	6.45	100	70	32	ISLB 550	
2428.9	173.5	20.0	10.0	98	520.0	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	
1022.9	88.9	14.0	7.0	98	334.4	32.80	65.55	5.95	80	70	22	ISMB 400	
1350.7	111.2	15.0	7.5	98	379.2	35.40	70.30	6.20	90	70	22	ISMB 450	
1808.7	152.2	17.0	8.5	98	424.1	37.95	84.90	6.60	100	75	28	ISMB 500	

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*The value of 'g' are meant for one row of rivets only.

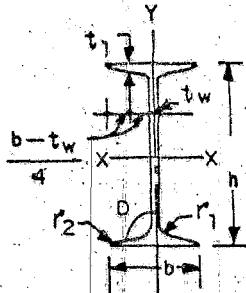


TABLE 4 (Contd.)

ROLLED STEEL BEAMS

DIMENSIONS AND PROPERTIES

Designation	Weight per Metre (W)	Sectional Area a_g	Depth of Section h	Width of Flange b_f	Thickness of Flange t_f	Thickness of Web t_w	Moment of Inertia I_{xx}	Moment of Inertia I_{yy}	Radii of Gyration r_{xx}	Radii of Gyration r_{yy}	
	kg	N	cm ²	mm	mm	mm	mm	cm ⁴	cm ⁴	cm	cm
ISMB 550	103.7	1017.3	132.11	550	190	19.3	11.2	64893.6	1833.8	22.16	3.73
ISMB 600	122.6	1202.7	156.21	600	210	20.8	12.0	91813.0	2651.0	24.24	4.12
ISWB 150	17.0	166.8	21.67	150	100	7.0	5.4	839.1	94.8	6.22	2.09
ISWB 175	22.1	216.8	28.11	175	125	7.4	5.8	1509.4	188.6	7.33	2.59
ISWB 200	28.8	282.5	36.71	200	140	9.0	6.1	2624.5	328.8	8.46	2.99
ISWB 225	33.9	332.6	43.24	225	150	9.9	6.4	3920.5	448.6	9.52	3.22
ISWB 250	40.9	401.2	52.05	250	200	9.0	6.7	5943.1	857.5	10.69	4.06
ISWB 300	48.1	471.9	61.33	300	200	10.0	7.4	9821.6	990.1	12.66	4.02
ISWB 350	56.9	558.2	72.50	350	200	11.4	8.0	15521.7	1175.9	14.63	4.03
ISWB 400	66.7	654.3	85.01	400	200	13.0	8.6	23426.7	1388.0	16.60	4.04
ISWB 450	79.4	778.9	101.15	450	200	15.4	9.2	35057.6	1706.7	18.63	4.11
ISWB 500	95.2	933.9	121.22	500	250	14.7	9.9	52290.9	2987.8	20.77	4.96
ISWB 550	112.5	1103.6	143.34	550	250	17.6	10.5	74906.1	3740.6	22.86	5.11
ISWB 600	133.7	1311.6	170.38	600	250	21.3	11.2	106198.5	4702.5	24.97	5.25
ISWB 600	145.1	1423.4	184.86	600	250	23.6	11.8	115626.6	5298.3	25.01	5.35
ISHB 150	27.1	265.9	34.48	150	150	9.0	5.4	1455.6	431.7	6.50	3.54
ISHB 150	30.6	300.2	38.98	150	150	9.0	8.4	1540.0	460.3	6.29	3.44
ISHB 150	34.6	339.4	44.08	150	150	9.0	11.8	1635.6	494.9	6.09	3.35
ISHB 200	37.3	365.9	47.54	200	200	9.0	6.1	3608.4	967.1	8.71	4.51
ISHB 200	40.0	392.4	50.94	200	200	9.0	7.8	3721.8	994.6	8.55	4.42
ISHB 225	43.1	422.8	54.94	225	225	9.1	6.5	5279.5	1353.8	9.80	4.96
ISHB 225	46.8	459.1	59.66	225	225	9.1	8.6	5478.8	1396.6	9.58	4.84
ISHB 250	51.0	500.3	64.96	250	250	9.7	6.9	7736.5	1961.3	10.91	5.49
ISHB 250	54.7	536.6	69.71	250	250	9.7	8.8	7983.9	2011.7	10.70	5.37
ISHB 300	58.8	576.8	74.85	300	250	10.6	7.6	12545.2	2193.6	12.95	5.41
ISHB 300	63.0	618.0	80.25	300	250	10.6	9.4	12950.2	2246.7	12.70	5.29
ISHB 350	67.4	661.2	85.91	350	250	11.6	8.3	19159.7	2451.4	14.93	5.34
ISHB 350	72.4	710.2	92.21	350	250	11.6	10.1	19802.8	2510.5	14.65	5.22
ISHB 400	77.4	759.3	98.66	400	250	12.7	9.1	28083.5	2728.3	16.87	5.26
ISHB 400	82.2	806.4	104.66	400	250	12.7	10.6	28823.5	2783.0	16.61	5.16
ISHB 450	87.2	855.4	111.14	450	250	13.7	9.8	39210.8	2985.2	18.78	5.18
ISHB 450	92.5	907.4	117.89	450	250	13.7	11.3	40349.9	3045.0	18.50	5.08

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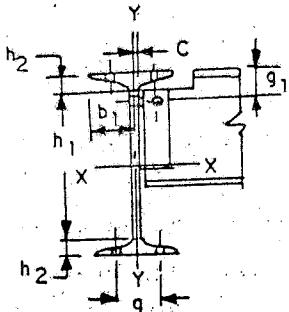


TABLE 4 (Contd.)

ROLLED STEEL BEAMS

DIMENSIONS AND PROPERTIES

Moduli of Section Z_{xx}	Z_{yy}	Radius at Root r_1	Radius at Toe r_2	Slope of Flange D	Connection Details							Maximum Size of Flange Rivet	Design- ation
					h_1	h_2	b_1	C	g	g_1 (Min)			
2359.8	193.0	18.0	9.0	.98	467.5	41.25	89.40	7.10	100	75	32	ISMB 550	
3060.4	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	
1171.3	138.8	13.0	6.5	.96	340.5	29.75	95.70	5.80	140,100	65	22,32	ISWB 400	
1558.1	170.7	14.0	7.0	.96	384.0	33.00	95.40	6.10	140,100	70	22,32	ISWB 450	
2091.6	239.0	15.0	7.5	.96	431.0	34.50	120.05	6.45	140	70	32	ISWB 500	
2723.9	299.2	16.0	8.0	.96	473.4	38.30	119.75	6.75	140	75	32	ISWB 550	
3540.0	376.2	17.0	8.5	.96	514.2	42.90	119.40	7.10	140	80	32	ISWB 600	
3854.2	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	
1094.8	196.1	12.0	6.0	.94	296.0	27.0	120.85	5.65	140	60	32	ISHB 350	
1131.6	199.4	12.0	6.0	.94	296.0	27.0	119.95	6.55	140	60	32	ISHB 350	
1404.2	218.3	14.0	7.0	.94	340.1	29.9	120.45	6.05	140	65	32	ISHB 400	
1444.2	221.3	14.0	7.0	.94	340.1	29.9	119.70	6.80	140	65	32	ISHB 400	
1742.7	238.8	15.0	7.5	.94	386.2	31.9	120.10	6.40	140	65	32	ISHB 450	
1793.3	242.1	15.0	7.5	.94	386.2	31.9	119.35	7.15	140	65	32	ISHB 450	

The value of 'g' are meant for one row of rivets only.

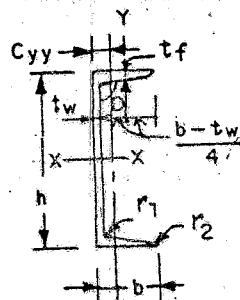


TABLE 5

ROLLED STEEL CHANNELS

DIMENSIONS AND PROPERTIES

Designation	Weight per Metre (W)		Sectional Area	Depth of Section h	Width of Flange b	Thickness of Flange t _f	Thickness of Web t _w	Centre of Gravity c _{yy}	Moments of Inertia		Radius of Gyration	
	kg	N							cm ²	cm ⁴	cm	cm
ISJC 100	5.8	56.9	7.41	100	45	5.1	3.0	1.40	123.8	14.9	4.09	1.42
ISJC 125	7.9	77.5	10.07	125	50	6.6	3.0	1.64	270.0	25.7	5.18	1.60
ISJC 150	9.9	97.1	12.65	150	55	6.9	3.6	1.66	471.1	37.9	6.10	1.73
ISJC 175	11.2	109.9	14.24	175	60	6.9	3.6	1.75	719.9	50.5	7.11	1.88
ISJC 200	13.9	136.4	17.77	200	70	7.1	4.1	1.97	1161.2	84.2	8.08	2.18
ISLC 75	5.7	55.9	7.26	75	40	6.0	3.7	1.35	66.1	11.5	3.02	1.26
ISLC 100	7.9	77.5	10.02	100	50	6.4	4.0	1.62	164.7	24.8	4.06	1.57
ISLC 125	10.7	105.0	13.67	125	65	6.6	4.4	2.04	356.8	57.2	5.11	2.05
ISLC 150	14.4	141.3	18.36	150	75	7.8	4.8	2.38	697.2	103.2	6.16	2.37
ISLC 175	17.6	172.7	22.40	175	75	9.5	5.1	2.40	1148.4	126.5	7.16	2.38
ISLC 200	20.6	202.1	26.22	200	75	10.8	5.5	2.35	1725.5	146.9	8.11	2.37
ISLC 225	24.0	235.4	30.53	225	90	10.2	5.8	2.46	2547.9	209.5	9.14	2.62
ISLC 250	28.0	274.7	35.65	250	100	10.7	6.1	2.70	3687.9	298.4	10.17	2.89
ISLC 300	33.1	324.7	42.11	300	100	11.6	6.7	2.55	6047.9	346.0	11.98	2.87
ISLC 350	38.8	380.6	49.47	350	100	12.5	7.4	2.41	9312.6	394.6	13.72	2.82
ISLC 400	45.7	448.3	58.25	400	100	14.0	8.0	2.36	13989.5	460.4	15.50	2.81
ISMC 75	6.8	66.7	8.67	75	40	7.3	4.4	1.31	76.0	12.6	2.96	1.21
ISMC 100	9.2	90.3	11.70	100	50	7.5	4.7	1.53	186.7	25.9	4.00	1.49
ISMC 125	12.7	124.6	16.19	125	65	8.1	5.0	1.94	416.4	59.9	5.07	1.92
ISMC 150	16.4	160.9	20.88	150	75	9.0	5.4	2.22	779.4	102.3	6.11	2.21
ISMC 175	19.1	187.4	24.38	175	75	10.2	5.7	2.20	1223.3	121.0	7.08	2.23
ISMC 200	22.1	216.8	28.21	200	75	11.4	6.1	2.17	1819.3	140.4	8.03	2.23
ISMC 225	25.9	254.1	33.01	225	80	12.4	6.4	2.30	2694.6	187.2	9.03	2.38
ISMC 250	30.4	298.2	38.67	350	80	14.1	7.1	2.30	3816.8	219.1	9.94	2.38
ISMC 300	35.8	351.2	45.64	300	90	13.6	7.6	2.36	6362.6	310.8	11.81	2.61
ISMC 350	42.1	413.0	53.66	350	100	13.5	8.1	2.44	10008.0	430.6	13.66	2.83
ISMC 400	49.4	484.6	62.93	400	100	15.3	8.6	2.42	15082.8	504.8	15.48	2.83

(Continued)

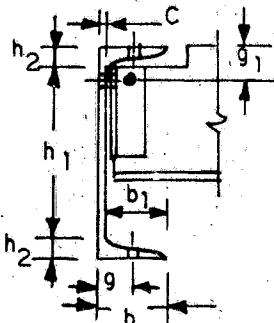


TABLE 5 (Contd.)

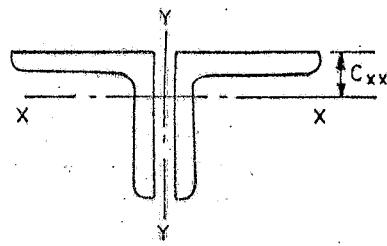
ROLLED STEEL CHANNELS

DIMENSIONS AND PROPERTIES

Moduli of Section	Radius at Root	Radius at Toe	Slope of Flange.	D	Connection Details						Maximum Size of Flange Rivet	Designation				
					Z_x	Z_y	r_1	r_2	degrees	h_1	h_2	$b_1/2$	C	g^*	g_1 (Min)	
cm ³	cm ³	mm	mm							mm	mm	mm	mm	mm	mm	mm
24.8	4.8	6.0	2.0		91.5	24.8	77.0	11.5	21.0	4.5	25	50	12	ISJC 100		
43.2	7.6	6.0	2.5		91.5	43.2	98.9	13.1	23.5	4.5	28	50	16	ISJC 125		
62.8	9.9	7.0	3.0		91.5	62.8	121.2	14.4	25.7	5.1	30	50	20	ISJC 150		
82.3	11.9	7.0	3.0		91.5	82.3	146.1	14.5	28.2	5.1	35	50	20	ISJC 175		
116.1	16.7	8.0	3.5		91.5	116.1	168.5	15.8	33.0	5.6	40	50	22	ISJC 200		
17.6	4.3	6.0	2.0		91.5	17.6	50.4	12.3	18.2	5.2	21	—	12	ISLC 75		
32.9	7.3	6.0	2.0		91.5	32.9	74.3	12.8	23.0	5.5	28	50	16	ISLC 100		
57.1	12.8	7.0	2.5		91.5	57.1	96.6	14.2	30.3	5.9	35	50	22	ISLC 125		
93.0	20.2	8.0	3.5		91.5	93.0	117.0	16.5	35.1	6.3	40	50	25	ISLC 150		
131.3	24.8	8.0	4.0		91.5	131.3	138.6	18.2	35.0	6.6	40	55	25	ISLC 157		
172.6	28.5	8.5	4.5		91.5	172.6	160.0	20.0	34.8	7.0	40	55	25	ISLC 200		
226.5	32.0	11.0	5.5		96	226.5	175.9	24.5	42.1	7.3	50	60	28	ISLC 225		
295.0	40.9	11.0	5.5		96	295.0	198.9	25.5	47.0	7.6	60	60	28	ISLC 250		
403.2	46.4	12.0	6.0		96	403.2	245.4	27.3	46.7	8.2	60	60	28	ISLC 300		
532.1	52.0	13.0	6.0		96	532.1	291.9	29.1	46.3	8.9	60	65	28	ISLC 350		
699.5	60.2	14.0	7.0		96	699.5	337.1	31.4	46.0	9.5	60	65	28	ISLC 400		
20.3	4.7	8.5	4.5		96	20.3	41.4	16.8	17.8	5.9	21	—	12	ISMC 75		
37.3	7.5	9.0	4.5		96	37.3	64.0	18.0	22.7	6.2	28	50	16	ISMC 100		
66.6	13.1	9.5	5.0		96	66.6	85.4	19.8	30.0	6.5	35	55	22	ISMC 125		
103.9	19.4	10.0	5.0		96	103.9	106.7	21.7	34.8	6.9	40	55	25	ISMC 150		
139.8	22.8	10.5	5.5		96	139.8	128.4	23.3	34.7	7.2	40	55	25	ISMC 175		
181.9	26.3	11.0	5.5		96	181.9	150.2	24.9	34.5	7.6	40	60	25	ISMC 200		
239.5	32.8	12.0	6.0		96	239.5	170.9	27.1	36.8	7.9	45	60	25	ISMC 225		
305.3	38.4	12.0	6.0		96	305.3	192.5	28.7	36.5	8.6	45	65	25	ISMC 250		
424.2	46.8	13.0	6.5		96	424.2	240.7	29.6	41.2	9.1	50	65	28	ISMC 300		
571.9	57.0	14.0	7.0		96	571.9	288.1	30.9	46.0	9.6	60	65	28	ISMC 350		
754.1	66.6	15.0	7.5		96	754.1	332.8	33.6	45.7	10.1	60	70	28	ISMC 400		

*The Values of 'g' are meant for one row of rivets only.

TABLE 6

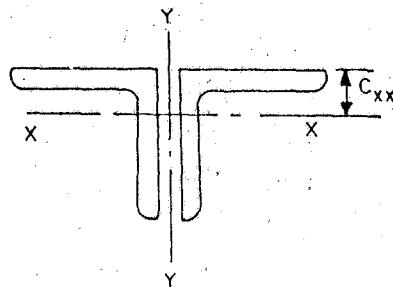


PROPERTIES OF TWO EQUAL ANGLES BACK TO BACK

Designation	Size of Each Angle A × B	Thickness mm	Weight per Metre (W)		Sectional Area a cm ²	Moment of Inertia I_{xx} cm ⁴	Modulus of Section Z_{xx} cm ²	Radius of Gyration r_{xx} cm
			mm	kg	N			
ISA 5050	50 × 50	3.0	4.6	45.1	5.90	13.8	3.8	1.53
		4.0	6.0	58.9	7.76	18.2	5.0	1.53
		5.0	7.6	74.6	9.58	22.0	6.2	1.52
		6.0	9.0	88.3	11.36	25.8	7.2	1.51
ISA 5555	55 × 55	5.0	8.2	80.4	10.54	29.4	7.4	1.67
		6.0	9.8	96.1	12.52	34.6	8.8	1.66
		8.0	12.8	125.6	16.36	44.0	11.4	1.64
		10.0	15.8	155.0	20.04	52.6	14.0	1.62
ISA 6060	60 × 60	5.0	9.0	88.3	11.50	38.4	8.8	1.82
		6.0	10.8	105.9	13.68	45.2	10.4	1.82
		8.0	14.0	137.3	17.92	58.0	13.6	1.80
		10.0	17.2	168.7	22.00	69.6	16.8	1.78
ISA 6565	65 × 65	5.0	9.8	96.1	12.50	49.4	10.4	1.99
		6.0	11.6	113.8	14.88	58.2	12.4	1.98
		8.0	15.4	151.1	19.52	74.8	16.2	1.96
		10.0	18.8	184.4	24.00	90.0	19.8	1.94
ISA 7070	70 × 70	5.0	10.6	104.0	13.54	62.2	12.2	2.15
		6.0	12.6	123.6	16.12	73.6	14.6	2.14
		8.0	16.6	162.8	21.16	94.8	19.0	2.12
		10.0	20.4	200.1	26.04	114.4	23.4	2.10
ISA 7575	75 × 75	5.0	11.4	111.8	14.54	77.4	14.2	2.31
		6.0	13.6	133.4	17.32	91.4	16.8	2.30
		8.0	17.8	174.6	22.76	118.0	22.0	2.28
		10.0	22.0	215.8	28.04	142.8	27.0	2.26
ISA 8080	80 × 80	6.0	14.6	143.2	18.58	112.0	19.2	2.46
		8.0	19.2	188.4	24.42	145.0	25.2	2.44
		10.0	23.6	231.5	30.10	175.4	31.0	2.41
		12.0	28.0	274.7	35.62	203.8	36.6	2.39

(Continued)

TABLE 6 (contd.)



PROPERTIES OF TWO EQUAL ANGLES BACK TO BACK

Distance of Centre of Gravity C_{xx} cm	Radii of Gyration About Y-Y Axis, in cm					Designation	
	Distance, Back to Back of Angles, in cm						
	0.0	0.6	1.0	1.4	1.8	2.2	
1.32	2.02	2.22	2.38	2.53	2.69	2.86	ISA 5050
1.37	2.06	2.26	2.42	2.57	2.74	2.91	
1.41	2.07	2.28	2.44	2.60	2.76	2.93	
1.45	2.09	2.31	2.46	2.63	2.79	2.96	
1.53	2.26	2.48	2.63	2.79	2.95	3.12	ISA 5555
1.57	2.28	2.50	2.65	2.81	2.98	3.14	
1.65	2.33	2.55	2.70	2.87	3.03	3.20	
1.72	2.36	2.59	2.75	2.91	3.08	3.30	
1.65	2.46	2.67	2.82	2.98	3.14	3.30	ISA 6060
1.69	2.48	2.70	2.85	3.00	3.16	3.33	
1.77	2.52	2.74	2.89	3.06	3.22	3.39	
1.85	2.57	2.79	2.95	3.11	3.28	3.44	
1.77	2.66	2.87	3.02	3.17	3.33	3.49	ISA 6565
1.81	2.68	2.89	3.04	3.20	3.35	3.52	
1.89	2.72	2.94	3.09	3.25	3.41	3.57	
1.97	2.76	2.98	3.14	3.30	3.46	3.63	
1.89	2.86	3.06	3.21	3.36	3.52	3.68	ISA 7070
1.94	2.88	3.10	3.24	3.40	3.55	3.72	
2.02	2.93	3.14	3.29	3.45	3.61	3.77	
2.10	2.97	3.19	3.34	3.50	3.66	3.82	
2.02	3.07	3.27	3.42	3.57	3.72	3.88	ISA 7575
2.06	3.08	3.29	3.44	3.59	3.75	3.91	
2.14	3.12	3.34	3.49	3.64	3.80	3.96	
2.22	3.17	3.38	3.54	3.69	3.85	4.01	
2.18	3.28	3.49	3.63	3.79	3.94	4.10	ISA 8080
2.27	3.33	3.54	3.69	3.84	4.00	4.16	
2.34	3.36	3.58	3.73	3.88	4.04	4.20	
2.42	3.40	3.62	3.77	3.93	4.09	4.26	

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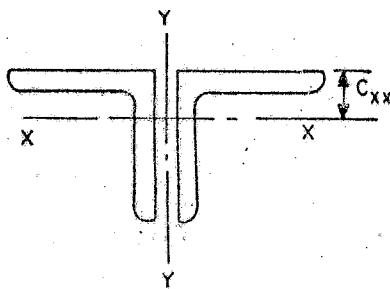


TABLE 6 (Contd.)

PROPERTIES OF TWO EQUAL ANGLES BACK TO BACK

Designation	Size of Each Angles $A \times B$	Thickness t	Weight per Metre (W)		Sectional Area a	Moment of Inertia I_{xx}	Modulus of Section Z_{xx}	Radius of Gyration r_{xx}
			mm mm	kg N				
ISA 9090	90 × 90	6.0	16.4	160.9	20.94	160.2	24.4	2.77
		8.0	21.6	211.9	27.58	208.4	32.0	2.75
		10.0	26.8	262.9	34.06	253.4	39.6	2.73
		12.0	31.6	310.0	40.38	295.8	46.6	2.71
ISA 100100	100 × 100	6.0	18.4	180.5	23.34	222.6	30.4	3.09
		8.0	24.2	237.4	30.78	290.2	40.0	3.07
		10.0	29.8	292.3	38.06	354.0	49.4	3.05
		12.0	35.4	347.3	45.18	414.0	58.4	3.03
ISA 110110	110 × 110	8.0	26.8	262.9	34.04	390.0	48.8	3.38
		10.0	38.0	372.8	42.12	476.8	60.2	3.36
		12.0	39.2	384.6	50.04	559.2	71.4	3.34
		15.0	48.4	474.8	61.62	674.8	87.4	3.31
ISA 130130	130 × 130	8.0	31.8	312.0	40.44	656.6	69.0	4.03
		10.0	39.4	386.5	50.12	805.4	85.4	4.01
		12.0	46.8	459.1	59.64	947.6	101.4	3.99
		15.0	57.8	567.0	73.62	1149.2	124.6	3.95
ISA 150150	150 × 150	10.0	45.6	447.3	58.06	1244.8	113.8	4.63
		12.0	54.4	533.7	69.18	1470.8	135.4	4.61
		15.0	67.2	659.2	85.56	1793.6	167.0	4.58
		18.0	79.8	782.8	101.58	2097.8	197.4	4.54
ISA 200200	200 × 200	12.0	73.2	718.1	93.22	3577.8	244.4	6.20
		15.0	90.8	890.7	115.60	4395.4	302.8	6.17
		18.0	108.0	1059.5	137.62	5177.4	359.8	6.13
		25.0	147.2	1444.0	187.60	6872.6	486.6	6.05

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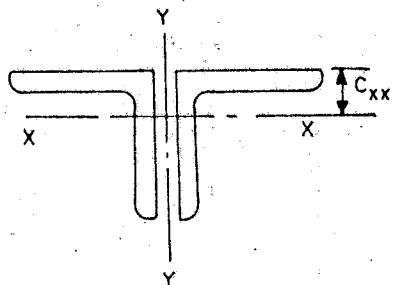


TABLE 6 (Contd.)

PROPERTIES OF TWO EQUAL ANGLES BACK TO BACK

Distance of Centre of Gravity cm	C _{XX}	Radii of Gyration About Y-Y Axis, in cm					Designation
		0.0	0.6	1.0	1.4	1.8	
2.42	3.68	3.88	4.02	4.17	4.32	4.48	ISA 9090
2.51	3.72	3.93	4.08	4.23	4.38	4.54	
2.59	3.76	3.97	4.12	4.27	4.43	4.59	
2.66	3.79	4.01	4.16	4.31	4.47	4.63	
2.67	4.08	4.28	4.43	4.57	4.72	4.87	ISA 100100
2.76	4.13	4.33	4.48	4.63	4.78	4.93	
2.84	4.17	4.38	4.52	4.67	4.83	4.98	
2.92	4.20	4.41	4.56	4.71	4.87	5.02	
3.00	4.52	4.73	4.87	5.01	5.16	5.32	ISA 110110
3.08	4.56	4.77	4.91	5.06	5.21	5.37	
3.16	4.60	4.81	4.96	5.11	5.26	5.41	
3.27	4.65	4.87	5.02	5.17	5.32	5.48	
3.50	5.34	5.54	5.68	5.82	5.97	6.12	ISA 130130
3.58	5.37	5.58	5.72	5.86	6.01	6.16	
3.66	5.41	5.62	5.76	5.91	6.06	6.21	
3.78	5.46	5.67	5.82	5.97	6.12	6.27	
4.06	6.15	6.36	6.50	6.64	6.78	6.93	ISA 150150
4.14	6.20	6.40	6.54	6.68	6.83	6.98	
4.26	6.25	6.46	6.60	6.75	6.90	7.05	
4.38	6.31	6.52	6.67	6.82	6.97	7.12	
5.36	8.19	9.39	8.53	8.67	8.31	8.96	ISA 200200
5.49	8.26	8.46	8.60	8.74	8.88	9.02	
5.61	8.31	8.52	8.66	8.80	8.94	9.09	
5.88	8.44	8.65	8.79	8.94	9.09	9.24	

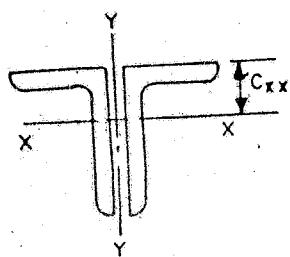


TABLE 7

**PROPERTIES OF TWO UNEQUAL
ANGLES BACK TO BACK**

(LONGER LEGS BACK TO BACK)

Designation	Size of Each Angles	Thickness A × B	t	Weight per Metre (W)		Sectional Area a	Moment of Inertia I_{xx}	Modulus of Section Z_{xx}	Radius of Gyration r_{xx}
				mm mm	kg	N	cm ²	cm ⁴	cm ³
ISA 6545	65 × 45	5.0	8.2	8.2	80.4	10.52	44.2	10.0	2.05
			6.0	9.8	96.1	12.50	52.0	11.8	2.04
			8.0	12.8	125.6	16.34	66.4	15.4	2.02
ISA 7045	70 × 45	5.0	8.6	8.6	84.4	11.04	54.4	11.4	2.22
			6.0	10.4	102.0	13.12	64.0	13.6	2.21
			8.0	13.4	131.5	17.16	82.0	17.8	2.19
			10.0	16.6	162.8	21.04	98.6	21.8	2.16
ISA 7550	75 × 50	5.0	9.4	9.4	92.2	12.04	68.2	13.4	2.38
			6.0	11.2	109.9	14.32	80.6	16.0	2.37
			8.0	14.8	145.2	18.76	103.6	20.8	2.35
			10.0	18.0	176.6	23.04	124.6	25.4	2.33
ISA 8050	80 × 50	5.0	9.8	9.8	96.1	12.54	81.2	15.0	2.55
			6.0	11.8	115.8	14.92	96.0	18.0	2.54
			8.0	15.4	151.1	19.56	123.8	23.4	2.52
			10.0	18.8	184.4	24.04	149.4	28.8	2.49
ISA 9060	90 × 60	6.0	13.6	13.6	133.4	17.30	141.2	23.0	2.86
			8.0	17.8	174.6	22.74	183.0	30.2	2.84
			10.0	22.0	215.8	28.02	221.8	37.2	2.81
			12.0	26.0	255.1	33.14	258.2	44.0	2.79
ISA 10065	100 × 65	6.0	15.0	15.0	147.2	19.10	193.4	28.4	3.18
			8.0	19.8	192.2	25.14	251.8	37.4	3.16
			10.0	24.4	239.4	31.02	306.4	46.2	3.14
ISA 10075	100 × 75	6.0	16.0	16.0	157.0	20.28	201.8	28.8	3.15
			8.0	21.0	206.0	26.72	263.2	38.2	3.14
			10.0	26.0	255.1	33.00	320.8	47.2	3.12
			12.0	30.8	302.2	39.12	375.0	55.8	3.10

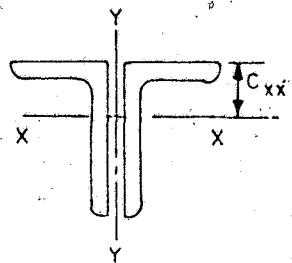


TABLE 7 (Contd.)

PROPERTIES OF TWO UNEQUAL ANGLES BACK TO BACK

(LONGER LEGS BACK TO BACK)

Distance of Centre of Gravity C_{xx} cm	Radii of Gyration About Y-Y Axis, in cm.						Designation
	0.0	0.6	1.0	1.4	1.8	2.2	
2.07	1.67	1.88	2.03	2.19	2.36	2.53	ISA 6545
2.11	1.69	1.91	2.06	2.22	2.39	2.56	
2.19	1.73	1.95	2.11	2.28	2.44	2.62	
2.27	1.64	1.84	1.99	2.15	2.31	2.48	ISA 7045
2.32	1.66	1.87	2.02	2.18	2.35	2.52	
2.40	1.69	1.91	2.07	2.23	2.40	2.58	
2.48	1.74	1.96	2.12	2.29	2.46	2.64	
2.39	1.84	2.04	2.19	2.34	2.50	2.67	ISA 7550
2.44	1.85	2.06	2.21	2.37	2.53	2.70	
2.52	1.89	2.11	2.26	2.42	2.59	2.76	
2.60	1.93	2.16	2.31	2.48	2.65	2.82	
2.60	1.79	1.99	2.14	2.30	2.46	2.62	ISA 8050
2.64	1.81	2.02	2.16	2.32	2.48	2.65	
2.73	1.85	2.06	2.22	2.38	2.54	2.71	
2.81	1.89	2.11	2.27	2.43	2.60	2.77	
2.87	2.20	2.40	2.55	2.70	2.86	3.02	ISA 9060
2.96	2.24	2.45	2.60	2.76	2.92	3.08	
3.04	2.28	2.49	2.64	2.80	2.97	3.13	
3.12	2.32	2.54	2.70	2.86	3.02	3.19	
3.19	2.36	2.55	2.70	2.85	3.00	3.16	ISA 10065
3.28	2.40	2.60	2.75	2.90	3.06	3.22	
3.37	2.43	2.64	2.79	2.95	3.11	3.27	
3.01	2.82	3.02	3.16	3.31	3.46	3.62	ISA 10075
3.10	2.87	3.07	3.22	3.37	3.52	3.68	
3.19	2.91	3.12	3.27	3.42	3.58	3.74	
3.27	2.95	2.16	3.31	3.47	3.63	3.79	

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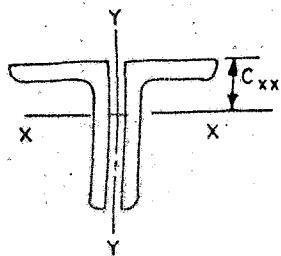


TABLE 7 (Contd.)

PROPERTIES OF TWO UNEQUAL ANGLES BACK TO BACK

(LONGER LEGS BACK TO BACK)

Designation	Size of Each Angle $A \times B$	Thickness t mm mm	Weight per Metre (W)		Sectional Area a cm ²	Moment of Inertia I_{xx} cm ⁴	Modulus of Section Z_{xx} cm ³	Radius of Gyration r_{xy} cm
			kg	N				
ISA 12575	125 x 75	6.0	18.4	180.5	23.32	375.6	44.4	4.01
		8.0	24.2	237.4	30.76	491.0	58.8	4.00
		10.0	29.8	292.3	38.04	600.6	72.6	3.97
ISA 12595	125 x 95	6.0	20.2	198.2	25.72	406.4	46.2	3.97
		8.0	26.6	260.9	33.96	532.0	61.2	3.96
		10.0	33.0	323.7	42.04	651.6	75.6	3.94
		12.0	39.2	384.6	49.96	765.2	89.6	3.91
ISA 15075	150 x 75	8.0	27.4	268.8	34.84	814.4	83.4	4.83
		10.0	33.8	331.6	43.12	998.2	103.2	4.81
		12.0	40.2	394.4	51.24	1174.0	122.4	4.79
ISA 150115	150 x 115	8.0	32.4	317.8	41.16	931.4	88.4	4.76
		10.0	40.0	392.4	51.04	1146.6	109.8	4.74
		12.0	47.6	467.0	60.76	1353.0	130.6	4.72
		15.0	59.0	578.8	75.04	1647.0	160.8	4.69
ISA 200100	200 x 100	10.0	45.6	447.3	58.06	2420.0	185.6	6.46
		12.0	54.4	533.7	69.18	2863.4	221.2	6.43
		15.0	67.2	659.2	85.56	3501.0	273.0	6.40
ISA 200150	200 x 150	10.0	53.4	523.9	68.00	2755.8	196.6	6.37
		12.0	63.6	623.9	81.12	3269.8	234.8	6.35
		15.0	78.8	773.0	100.50	4011.2	290.8	6.32
		18.0	93.8	920.2	119.52	4718.8	345.0	6.29

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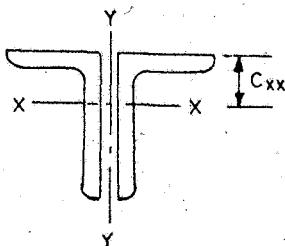


TABLE 7 (Contd.)

PROPERTIES OF TWO UNEQUAL ANGLES BACK TO BACK

(LONGER LEGS BACK TO BACK)

Distance of Centre of Gravity cm	c _{xx}	Radii of Gyration About Y-Y Axis, in cm					Designation
		0.0	0.6	1.0	1.4	1.8	
4.05	2.64	2.83	2.97	3.11	3.26	3.41	ISA 12575
4.15	2.68	2.88	3.02	3.17	3.32	3.48	
4.24	2.72	2.92	3.07	3.22	3.37	3.53	
3.70	3.59	3.78	3.92	4.06	4.20	4.35	ISA 12595
3.80	3.63	3.83	3.97	4.11	4.26	4.41	
3.88	3.67	3.87	4.01	4.16	4.31	4.46	
3.96	3.70	3.91	4.05	4.20	4.36	4.51	
5.23	2.52	2.72	2.86	3.00	3.15	3.31	ISA 15075
5.32	2.56	2.76	2.90	3.05	3.20	3.36	
5.41	2.60	2.80	2.95	3.10	3.25	3.42	
4.46	4.37	4.56	4.69	4.83	4.98	5.14	ISA 150115
4.55	4.41	4.61	4.75	4.89	5.03	5.18	
4.64	4.45	4.65	4.79	4.93	5.08	5.23	
4.76	4.50	4.71	4.85	5.00	5.15	5.30	
6.96	3.35	3.54	3.68	3.81	3.96	4.11	ISA 200100
7.05	3.40	3.59	3.73	3.87	4.01	4.17	
7.81	3.45	3.65	3.79	3.94	4.09	4.24	
5.99	5.66	5.85	5.98	6.12	6.26	6.40	ISA 200150
6.08	5.70	5.90	6.03	6.17	6.31	6.45	
6.20	5.76	5.96	6.09	6.23	6.38	6.52	
6.33	5.81	6.01	6.15	6.30	6.44	6.59	

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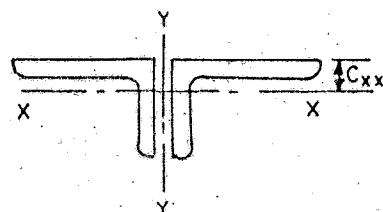


TABLE 8

PROPERTIES OF TWO UNEQUAL ANGLES BACK TO BACK

(SHORTER LEGS BACK TO BACK)

Designation	Size of Each Angle	Thickness $A \times B$	Weight per Meter (w)	Sectional Area a	Moment of Inertia I_{xx}	Modulus of Section Z_{xx}	Radius of Gyration r_{xx}	
ISA 6545	65 x 45	5.0	8.2	80.4	10.52	17.2	5.0	1.28
		6.0	9.8	96.1	12.50	20.2	6.0	1.27
		8.0	12.8	125.6	16.34	25.6	7.8	1.25
ISA 7045	70 x 45	5.0	8.6	108.4	11.04	17.6	5.0	1.26
		6.0	10.4	102.0	13.12	20.6	6.0	1.25
		8.0	13.4	131.5	17.16	26.2	7.8	1.24
		10.0	16.6	162.8	21.04	31.2	9.6	1.22
ISA 7550	75 x 50	5.0	9.4	92.2	12.04	24.4	6.4	1.42
		6.0	11.2	109.9	14.32	28.6	7.6	1.41
		8.0	14.8	145.2	18.76	36.6	9.8	1.40
		10.0	18.0	176.6	23.04	43.6	12.0	1.38
ISA 8050	80 x 50	5.0	9.8	96.1	12.54	24.6	6.4	1.40
		6.0	11.8	115.8	14.92	28.8	7.6	1.39
		8.0	15.4	151.1	19.56	37.0	9.8	1.37
		10.0	18.8	184.4	24.04	44.2	12.0	1.36
ISA 9060	90 x 60	6.0	13.6	133.4	17.30	50.4	11.0	1.71
		8.0	17.8	174.6	22.74	64.8	14.4	1.69
		10.0	22.0	215.8	28.02	78.2	17.6	1.67
		12.0	26.0	255.1	33.14	90.4	20.6	1.65
ISA 10065	100 x 65	6.0	15.0	147.2	19.10	64.8	12.8	1.84
		8.0	19.8	194.2	25.14	83.8	17.0	1.83
		10.0	24.4	239.4	31.02	101.4	20.8	1.81
ISA 10075	100 x 75	6.0	16.0	157.0	20.28	97.4	17.0	2.19
		8.0	21.0	206.0	26.72	126.6	22.4	2.18
		10.0	26.0	255.1	33.00	153.8	27.6	2.16
		12.0	30.8	302.1	39.12	179.0	32.6	2.14

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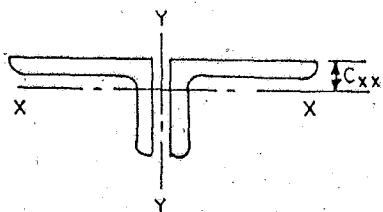


TABLE 8 (Contd.)

PROPERTIES OF TWO UNEQUAL ANGLES BACK TO BACK

(SHORTER LEGS BACK TO BACK)

Distance of Centre of Gravity C_{xx} cm	Radii of Gyration About Y-Y Axis, in cm					Designation	
	Distance, Back to Back of Angles, in cm						
	0.0	0.6	1.0	1.4	1.8		
1.08	2.91	3.13	3.29	3.45	3.61	3.78	ISA 6545
1.12	2.93	3.16	3.31	3.47	3.64	3.80	
1.20	2.98	3.20	3.36	3.52	3.69	3.86	
1.04	3.17	3.40	3.55	3.71	3.87	4.04	ISA 7045
1.09	3.20	3.43	3.58	3.74	3.90	4.07	
1.16	3.25	3.47	3.63	3.79	3.96	4.13	
1.24	3.29	3.52	3.68	3.85	4.01	4.18	
1.16	3.37	3.59	3.74	3.90	4.06	4.22	ISA 7550
1.20	3.40	3.62	3.78	3.94	4.10	4.26	
1.28	3.45	3.67	3.83	3.99	4.15	4.32	
1.36	3.49	3.72	3.88	4.04	4.20	4.37	
1.12	3.64	3.86	4.01	4.17	4.33	4.49	ISA 8050
1.16	3.66	3.88	4.04	4.19	4.36	4.52	
1.24	3.71	3.94	4.09	4.25	4.42	4.58	
1.32	3.76	3.99	4.14	4.31	4.47	4.64	
1.39	4.05	4.27	4.42	4.52	4.73	4.89	ISA 9060
1.48	4.10	4.32	4.47	4.63	4.79	4.95	
1.55	4.14	4.37	4.52	4.68	4.84	5.01	
1.63	4.19	4.41	4.57	4.73	4.89	5.06	
1.47	4.51	4.72	4.87	5.03	5.18	5.34	ISA 10065
1.55	4.56	4.78	4.93	5.08	5.24	5.40	
1.63	4.61	4.83	4.99	5.14	5.30	5.46	
1.78	4.36	4.57	4.72	4.87	5.02	5.18	ISA 10075
1.87	4.41	4.63	4.78	4.93	5.08	5.24	
1.95	4.44	4.68	4.83	4.99	5.14	5.29	
2.03	4.50	4.73	4.88	5.03	5.19	5.36	

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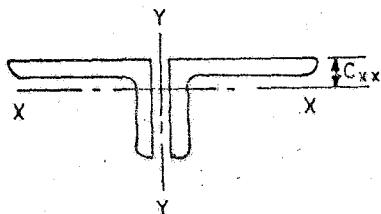


TABLE 8 (Contd.)

PROPERTIES OF TWO UNEQUAL ANGLES BACK TO BACK

(SHORTER LEGS BACK TO BACK)

Designation	Size of Each Angle <i>A × B</i>	Thickness <i>t</i> mm mm	Weight per Metre (W)		Sectional Area <i>a</i> cm ²	Moment of Inertia <i>I_{xx}</i> cm ⁴	Modulus of Section <i>Z_{xx}</i> cm ³	Radius of Gyration <i>Y_{xx}</i> cm
			kg	N				
ISA 12575	125 × 75	6.0	18.4	180.5	23.32	103.2	17.4	2.10
		8.0	24.2	237.4	30.76	134.4	23.0	2.09
		10.0	29.8	292.3	38.04	163.2	28.4	2.07
ISA 12595	125 × 95	6.0	20.2	198.2	25.72	204.2	28.0	2.82
		8.0	26.6	260.9	33.96	266.6	37.0	2.80
		10.0	33.0	323.7	42.04	325.4	45.8	2.78
		12.0	39.2	384.6	49.96	380.8	54.2	2.76
ISA 15075	150 × 75	8.0	27.4	268.8	34.84	140.4	23.6	2.01
		10.0	33.8	331.6	43.12	170.6	29.0	1.99
		12.0	40.2	394.4	51.24	199.0	34.2	1.97
ISA 150115	150 × 115	8.0	32.4	317.8	41.16	477.8	54.4	3.41
		10.0	40.0	392.4	51.04	586.8	67.6	3.39
		12.0	47.6	467.0	60.76	690.8	80.4	3.37
		15.0	59.0	578.8	75.04	837.2	98.8	3.34
ISA 200100	200 × 100	10.0	45.6	447.3	58.06	418.4	52.4	2.68
		12.0	54.4	533.7	69.18	492.4	62.2	2.67
		15.0	67.2	659.2	85.56	596.2	76.6	2.64
ISA 200150	200 × 150	10.0	53.4	523.9	68.00	1339.2	116.6	4.44
		12.0	63.6	623.9	81.12	1586.4	139.2	4.42
		15.0	78.8	773.0	100.50	1939.8	172.0	4.39
		18.0	93.8	920.2	119.52	2273.8	203.8	4.36

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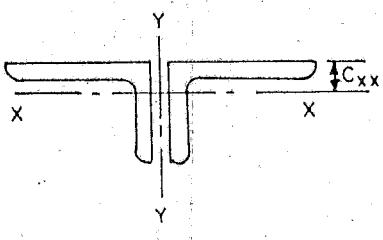


TABLE 8 (Contd.)

PROPERTIES OF TWO UNEQUAL ANGLES BACK TO BACK

(SHORTER LEGS BACK TO BACK)

Distance of Centre of Gravity C_{xx} cm	Radii of Gyration About Y-Y, in cm						Designation	
	Distance, Back to Back of Angles, in cm							
	0.0	0.6	1.0	1.4	1.8	2.2		
1.59	5.71	5.92	6.07	6.22	6.37	6.53	ISA 12575	
1.68	5.76	5.98	6.13	6.28	6.44	6.60		
1.76	5.81	6.03	6.18	6.34	6.50	6.66		
2.22	5.43	5.64	5.78	5.93	6.08	6.23	ISA 12595	
2.31	5.49	5.70	5.84	5.99	6.14	6.30		
2.39	5.53	5.74	5.89	6.04	6.19	6.35		
2.47	5.57	5.78	5.93	6.09	6.24	6.40		
1.53	7.12	7.35	7.50	7.65	7.81	7.96	ISA 15075	
1.61	7.17	7.40	7.55	7.71	7.86	8.02		
1.69	7.22	7.45	7.61	7.76	7.92	8.08		
2.73	6.52	6.73	6.87	7.02	7.17	7.32	ISA 150115	
2.82	6.57	6.78	6.93	7.07	7.22	7.37		
2.90	6.62	6.83	6.98	7.13	7.28	7.43		
3.02	6.68	6.90	7.04	7.19	7.35	7.50		
2.01	9.49	9.72	9.87	10.02	10.17	10.33	ISA 200100	
2.10	9.54	9.77	9.92	10.07	10.23	10.38		
2.22	9.62	9.84	9.99	10.15	10.31	10.46		
3.51	8.74	8.95	9.09	9.23	9.38	9.53	ISA 200150	
3.60	8.79	9.00	9.14	9.29	9.44	9.58		
3.72	8.85	9.06	9.21	9.36	9.50	9.65		
3.84	8.92	9.13	9.28	9.43	9.58	9.73		

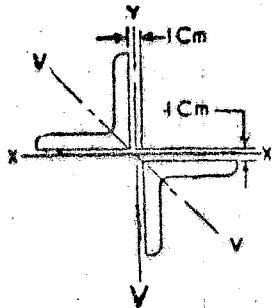


TABLE 9

PROPERTIES OF STARRED ANGLES

TWO EQUAL ANGLES STARRED

Space between Parallel Faces = 1 cm

Size $A \times B \times t$	Total Area a	Least Radius of Gyration r_{yy}	Size $A \times B \times t$	Total Area a	Least Radius of Gyration r_{yy}
mm mm mm	cm ²	cm	mm mm mm	cm ²	cm
50 × 50 × 3.0	5.90	1.94	80 × 80 × 10.0	30.10	3.04
4.0	7.76	1.93	12.0	35.62	3.01
5.0	9.58	1.92	90 × 90 × 6.0	20.94	3.50
6.0	11.36	1.90	8.0	27.58	3.47
55 × 55 × 5.0	10.54	2.11	10.0	34.06	3.44
6.0	12.52	2.10	12.0	40.38	3.41
8.0	16.36	2.07	100 × 100 × 6.0	23.34	3.91
10.0	20.04	2.03	8.0	30.78	3.88
60 × 60 × 5.0	11.50	2.31	10.0	38.06	3.85
6.0	13.68	2.29	12.0	45.18	3.82
8.0	17.92	2.27	110 × 110 × 8.0	34.04	4.28
10.0	22.00	2.23	10.0	42.12	4.25
65 × 65 × 5.0	12.50	2.51	12.0	50.04	4.22
6.0	14.88	2.50	15.0	61.62	4.17
8.0	19.52	2.47	130 × 130 × 8.0	40.44	5.10
10.0	24.00	2.44	10.0	50.12	5.07
70 × 70 × 5.0	13.54	2.71	12.0	59.64	5.03
6.0	16.12	2.70	15.0	73.62	4.98
8.0	21.16	2.67	150 × 150 × 10.0	58.06	5.86
10.0	26.04	2.64	12.0	69.18	5.83
75 × 75 × 5.0	14.54	2.92	15.0	85.56	5.78
6.0	17.32	2.91	18.0	101.58	5.73
8.0	22.76	2.88	200 × 200 × 12.0	93.22	7.84
10.0	28.04	2.84	15.0	115.60	7.79
80 × 80 × 6.0	18.58	3.11	18.0	137.62	7.75
8.0	24.42	3.08	20.0	187.60	7.63

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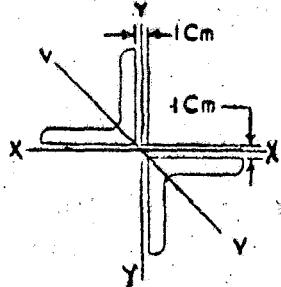


TABLE 10

PROPERTIES OF STARRED ANGLES

TWO UNEQUAL ANGLES STARRED
Space Between Parallel Faces = 1 cm

Size $A \times B \times t$	Total Area a	Least Radius of Gyration r_{vv}	Size $A \times B \times t$	Total Area a	Least Radius of Gyration r_{vv}
mm mm mm	cm ²	cm	mm mm mm	cm ²	cm
65 × 45 × 5.0	10.52	1.81	100 × 75 × 10.0	33.00	2.98
6.0	12.50	1.81	12.0	39.12	2.97
8.0	16.34	1.80	125 × 75 × 6.0	23.32	2.84
			8.0	30.76	2.86
70 × 45 × 5.0	11.04	1.79	10.0	38.04	2.86
6.0	13.12	1.80	125 × 95 × 6.0	25.72	3.76
8.0	17.16	1.79	8.0	33.96	3.77
10.0	21.04	1.79	150 × 75 × 8.0	34.84	2.72
			10.0	43.12	2.73
75 × 50 × 5.0	12.04	2.00	150 × 115 × 8.0	41.16	4.52
6.0	14.32	2.00	10.0	51.04	4.53
8.0	18.76	1.99			
10.0	23.04	1.99			
80 × 50 × 5.0	12.54	1.97			
6.0	14.92	1.97			
8.0	19.56	1.97			
10.0	24.04	1.97			
90 × 60 × 6.0	17.30	2.36			
8.0	22.74	2.37			
10.0	28.02	2.37			
12.0	33.14	2.36	200 × 100 × 10.0	58.06	3.55
			12.0	69.18	3.57
100 × 65 × 6.0	19.10	2.53	15.0	85.56	3.59
8.0	25.14	2.54			
10.0	31.02	2.54	200 × 150 × 10.0	68.00	5.83
			12.0	81.12	5.84
100 × 75 × 6.0	20.28	2.97	15.0	100.50	5.85
8.0	26.72	2.98	18.0	119.52	5.86

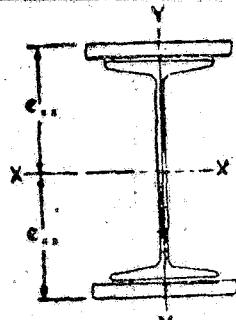


TABLE 11

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (GIRDERS)

Composed of	Weight per Meter (W)	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			
				O	e _{xx}	I _{xx}	I _{yy}							
Designation	Width	Thickness	mm	mm	kg	N	cm ²	mm	cm	cm ⁴	cm ⁴	cm	cm ³ kg.m × 10 ³	kg × 10 ³
ISWB 150	160.0	10.0	42.1	413.0	53.67	14.4	8.50	2889.8	777.5	3.81	340.0	5.4	7.7	
	12.0	47.2	463.0		60.07	16.4	8.70	3363.1	914.0	3.90	386.6	6.1		
	16.0	57.2	561.1		72.87	20.4	9.10	4377.2	1187.1	4.04	481.0	7.6		
	20.0	67.3	660.2		85.67	24.4	9.50	5484.4	1460.1	4.13	577.3	9.1		
	25.0	79.8	782.8		101.67	29.4	10.00	7005.8	1801.5	4.21	700.6	11.0		
ISWB 175	200.0	10.0	53.5	524.8	68.11	14.6	9.75	4935.2	1521.9	4.73	506.2	8.0	9.6	
	12.0	59.7	585.7		76.11	16.6	9.95	5711.3	1788.6	4.85	574.0	9.0		
	16.0	72.3	709.3		92.11	20.6	10.35	7360.0	2321.9	5.02	711.1	11.2		
	20.0	84.9	832.9		108.11	24.6	10.75	9141.1	2855.3	5.14	850.3	13.4		
	25.0	100.6	986.9		128.11	29.6	11.25	11561.5	3521.9	5.24	1027.7	16.2		
ISMB 200	160.0	10.0	50.5	495.4	64.33	16.8	11.00	5766.1	832.7	3.60	524.2	8.3	10.8	
	12.0	55.5	544.5		70.73	18.8	11.20	6554.6	969.2	3.70	585.2	9.2		
	16.0	65.6	643.5		83.53	22.8	11.60	8218.3	1242.3	3.86	708.5	11.2		
	20.0	75.6	741.6		96.33	26.8	12.00	10000.7	1515.3	3.97	833.4	13.1		
	25.0	88.2	865.2		112.33	31.8	12.50	12402.1	1856.7	4.07	992.2	15.6		
ISWB 200	200.0	10.0	60.2	590.6	76.71	16.3	11.00	7037.8	1662.1	4.66	639.8	10.1	11.5	
	12.0	66.5	652.4		84.71	18.3	11.20	8023.5	1928.8	4.77	716.4	11.3		
	16.0	79.1	776.0		100.71	22.3	11.60	10103.1	2462.1	4.94	871.0	13.7		
	20.0	91.6	898.6		116.71	26.3	12.00	12331.2	2995.5	5.07	1027.6	16.2		
	25.0	107.3	1052.6		136.71	31.3	12.50	15332.8	3662.1	5.18	1226.6	19.3		
ISMB 225	160.0	10.0	56.3	552.3	71.72	18.1	12.25	7862.4	901.0	3.54	641.8	10.1	13.8	
	12.0	61.3	601.4		78.12	20.1	12.45	8838.5	1037.5	3.64	709.9	11.2		
	16.0	71.4	700.4		90.92	24.1	12.85	10887.0	1310.6	3.80	847.2	13.3		
	20.0	81.4	798.5		103.72	28.1	13.25	13067.0	1583.6	3.91	986.2	15.5		
	25.0	94.0	922.1		119.72	33.1	13.75	15983.5	1925.0	4.01	1162.4	18.3		
ISWB 225	200.0	10.0	65.3	640.6	83.24	17.4	12.25	9446.2	1781.9	4.63	771.1	12.1	13.6	
	12.0	71.6	702.4		91.24	19.4	12.45	10666.4	2048.6	4.74	856.7	13.5		
	16.0	84.2	826.0		107.24	23.4	12.85	13227.0	2581.9	4.91	1029.3	16.2		
	20.0	96.7	948.6		123.24	27.4	13.25	15952.0	3115.3	5.03	1203.9	19.0		
	25.0	112.4	1102.6		143.24	32.4	13.75	19597.6	3781.9	5.14	1425.3	22.4		
ISMB 250	200.0	10.0	68.7	673.9	87.55	17.8	13.50	11894.9	1667.8	4.36	881.1	13.9	16.3	
	12.0	75.0	735.8		95.55	19.8	13.70	13374.6	1934.5	4.50	976.3	15.4		
	16.0	87.6	859.4		111.55	23.8	14.10	16466.2	2467.8	4.70	1167.8	18.4		
	20.0	100.1	982.0		127.55	27.8	14.50	19738.3	3001.2	4.85	13613	21.4		
	25.0	115.8	1136.0		147.55	32.8	15.00	24089.9	3667.8	4.99	1606.0	25.3		

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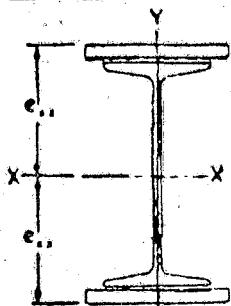


TABLE 11. (Contd.)

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (GIRDERS)

Joist	Composed of		Weight per Metre (W)	Sec-tional Area	Mean Thick-ness of Flanges	Extreme Fibre Distance	Gross Moments of Inertia			Least Radius of Gyration	Modulus of Section	Maxi-mum Allowable Moment	Maxi-mum Allow-Shear
	Joist	Cover Plates					a	e_{xx}	I_{xx_4}	I_{yy_4}			
Designation	Width mm	Thickness mm	kg N	cm ²	mm	cm	cm ⁴	cm ⁴	cm ⁴	cm	z _{xx}	M kg.m × 10 ³	S kg × 10 ³
ISWB 250	320.0	10.0	91.1	893.7	116.05	15.6	13.50	16764.4	6318.8	7.38	1241.8	19.6	15.8
	12.0	101.1	991.8	128.85	17.6	13.70	19132.0	7411.1	7.58	1396.5	22.0		
	16.0	121.2	1189.0	154.45	21.6	14.10	24078.5	9595.6	7.88	1707.7	26.9		
	20.0	141.3	1386.2	180.05	25.6	14.50	29313.8	11780.2	8.09	2021.6	31.8		
	25.0	166.5	1633.4	212.05	30.6	15.00	36276.0	14510.8	8.27	2418.4	38.1		
ISMB 300	200.0	10.0	75.6	741.6	96.26	18.7	16.00	18216.9	1787.2	4.31	1138.6	17.9	21.3
	12.0	81.8	802.5	104.26	20.7	16.20	20290.6	2053.9	4.44	1252.5	19.7		
	16.0	94.4	926.1	120.26	24.7	16.60	24594.2	2587.2	4.64	1481.6	23.3		
	20.0	107.0	1049.7	136.26	28.7	17.00	29110.3	3120.6	4.79	1712.4	27.0		
	25.0	122.7	1203.7	156.26	33.7	17.50	35061.9	3787.2	4.92	2003.5	31.6		
	32.0	144.6	1418.5	185.26	40.7	18.20	43984.5	4720.6	5.06	2416.7	38.1		
ISWB 300	320.0	10.0	98.4	965.3	125.33	16.2	16.00	25202.9	6451.4	7.17	1575.2	24.8	21.0
	12.0	108.4	1063.4	138.13	18.2	16.20	28520.9	7543.7	7.39	1760.5	27.7		
	16.0	128.5	1260.6	163.73	22.2	16.60	35406.6	9728.2	7.71	2132.9	33.6		
	20.0	148.6	1457.8	189.33	26.2	17.00	42632.3	11912.8	7.93	2507.8	39.5		
	25.0	173.7	1704.0	221.33	31.2	17.50	52154.5	14643.4	8.13	2980.3	46.9		
	32.0	208.9	2049.3	266.13	38.2	18.20	66431.1	18466.4	8.33	3650.1	57.5		
ISWB 350	200.0	10.0	83.8	822.1	106.71	19.9	18.50	26593.6	1871.0	4.19	1437.5	22.6	26.8
	12.0	90.0	882.9	114.71	21.9	18.70	29361.3	2137.7	4.32	1570.1	24.7		
	16.0	102.6	1006.5	130.71	25.9	19.10	35076.9	2671.0	4.52	1836.5	28.9		
	20.0	115.2	1130.1	146.71	29.9	19.50	41037.0	3204.4	4.67	2104.5	33.1		
	25.0	130.9	1284.1	166.71	34.9	20.00	48838.6	3871.0	4.82	2441.9	38.5		
	32.0	152.8	1499.0	194.71	41.9	20.70	60435.2	4804.4	4.97	2919.6	46.0		
ISWB 350	320.0	10.0	107.2	1051.6	136.50	17.1	18.50	36263.0	6637.2	6.97	1960.2	30.9	26.5
	12.0	117.2	1149.7	149.30	19.1	18.70	40691.4	7729.5	7.20	2176.0	34.3		
	16.0	137.3	1346.9	174.90	23.1	19.10	49836.3	9914.0	7.53	2609.2	41.1		
	20.0	157.4	1544.1	200.50	27.1	19.50	59372.4	12098.6	7.77	3044.7	48.0		
	25.0	182.5	1790.3	232.50	32.1	20.00	71855.0	14829.2	7.99	3592.8	56.6		
	32.0	217.7	2135.6	277.30	39.1	20.70	90409.6	18652.2	8.20	4367.6	68.8		
ISMB 400	200.0	10.0	93.0	912.3	118.46	21.2	21.00	37271.7	1955.4	4.06	1774.8	28.0	33.6
	12.0	99.3	974.1	126.46	23.2	21.20	40833.4	2222.1	4.19	1926.1	30.3		
	16.0	111.3	1091.9	142.46	27.2	21.60	48161.0	2755.4	4.40	2229.7	35.1		
	20.0	124.4	1220.4	158.46	31.2	22.00	55765.1	3288.8	4.56	2534.8	39.9		
	25.0	140.1	1374.4	178.46	36.2	22.50	65666.7	3955.4	4.71	2918.5	46.0		
	32.0	162.1	1590.2	206.46	43.2	23.20	80287.3	4888.8	4.87	3460.7	54.5		

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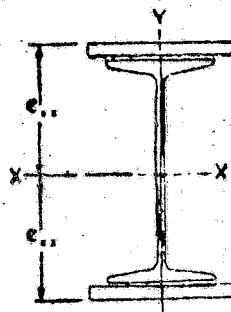


TABLE 11 (Contd.)

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (GIRDERS)

Joist Designation	Composed of		Weight per Metre (W)	Sec- tional Area A	Mean Thickness of Flange t	Extreme Fibre Distance e_{xx}	Gross Moment of Inertia		Least Radius of Gyration r_{yy}	Modulus of Section, Z_{xx}	Maxi- mum allowable moment M	Maximum allowable shear S	
	Joist	Cover Plates					I_{xx}	I_{yy}					
	Width mm	Thickness mm	kg N	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	1147.8	149.01	18.1	21.00	50328.0	6849.3	6.78	2396.6	37.7	32.5
	12.0	127.0	1245.9	161.81	20.1	21.20	56026.8	7941.6	7.01	2642.8	41.6		
	16.0	147.1	1443.0	187.41	24.1	21.60	67750.9	10126.1	7.35	3136.6	49.4		
	20.0	167.2	1640.2	213.01	28.1	22.00	79917.4	12310.7	7.60	3632.6	57.2		
	25.0	192.3	1886.5	345.01	33.1	22.50	95760.0	15041.3	7.84	4256.0	67.0		
	32.0	227.5	2231.8	289.01	40.1	23.20	119153.0	18864.3	8.07	5135.9	80.9		
	40.0	267.7	2626.1	341.01	48.1	24.00	147672.0	23233.3	8.25	6153.0	96.9		
ISMB 450	200.0	10.0	1018.3	132.27	23.0	23.50	51554.1	2167.3	4.05	2193.8	34.6	40.0	
	12.0	110.1	1080.1	140.27	25.0	23.70	56009.8	2434.0	4.17	2363.3	37.2		
	16.0	122.7	1203.7	156.27	29.0	24.10	65149.4	2967.3	4.36	2703.3	42.6		
	20.0	135.2	1326.3	172.27	33.0	24.50	74597.5	3500.7	4.51	3044.8	48.0		
	25.0	150.9	1480.3	192.27	38.0	25.00	86849.1	4167.3	4.66	3474.0	54.7		
	32.0	172.9	1696.1	220.27	45.0	25.70	104843.7	5100.7	4.81	4079.5	64.3		
	40.0	198.0	1942.4	252.27	53.0	26.50	126644.1	6167.3	4.94	4779.0	75.3		
ISWB 450	320.0	10.0	129.6	1271.4	165.15	19.6	23.50	68918.9	7168.0	6.59	2932.7	46.2	39.1
	12.0	139.7	1370.5	177.95	21.6	23.70	76048.1	8260.3	6.81	3208.8	50.5		
	16.0	159.8	1567.6	203.55	25.6	24.10	90671.4	10444.8	7.16	3762.3	59.3		
	20.0	179.9	1764.8	229.15	29.6	24.50	105788.3	12629.4	7.42	4317.9	68.0		
	25.0	205.0	2011.0	261.15	34.6	25.00	125390.9	15360.0	7.67	5015.6	79.0		
	32.0	240.2	2356.4	305.95	41.6	25.70	154182.3	19183.0	7.92	5999.3	94.5		
	40.0	280.4	2750.7	357.15	49.6	26.50	189062.9	23552.0	8.12	7134.5	112.4		
ISMB 500	250.0	10.0	126.2	1238.0	160.74	22.4	26.00	77735.0	3974.0	4.97	2989.8	47.1	48.2
	12.0	134.0	1314.5	170.74	24.4	26.20	84547.1	4494.8	5.13	3227.0	50.8		
	16.0	149.7	1468.6	190.74	28.4	26.60	98486.6	5536.5	5.39	3702.5	58.3		
	20.0	165.4	1622.6	210.74	32.4	27.00	112851.6	6578.1	5.59	4179.7	65.8		
	25.0	185.1	1815.8	235.74	37.4	27.50	131416.2	7880.2	5.78	4778.8	75.3		
	32.0	212.5	2084.6	270.74	44.4	28.20	158564.4	9703.1	5.99	5622.9	88.6		
	40.0	243.9	2392.7	310.74	52.4	29.00	191285.0	11786.5	6.16	6596.0	103.9		
ISWB 500	400.0	10.0	158.0	1550.0	201.22	19.2	26.00	104317.6	13654.5	8.24	4012.2	47.4	46.8
	12.0	170.5	1672.6	217.22	21.2	26.20	115217.0	15787.8	8.53	4397.6	50.4		
	16.0	195.6	1918.8	249.22	25.2	26.60	137520.1	20054.5	8.97	5169.9	56.2		
	20.0	220.8	2166.0	281.22	29.2	27.00	160504.2	24321.1	9.30	5944.6	62.1		
	25.0	252.2	2474.1	321.22	34.2	27.50	190207.6	29654.5	9.61	6916.6	69.5		
	32.0	296.1	2904.7	377.22	41.2	28.20	233644.7	37121.1	9.82	8285.3	79.9		
	40.0	346.4	3398.2	441.22	49.2	29.00	285997.6	45654.5	10.17	9862.0	92.0		

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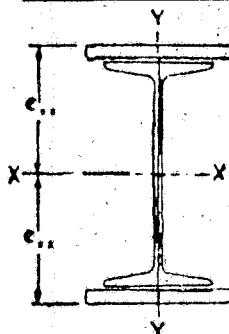


TABLE 11 (Contd.)

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (GIRDERS)

Composed of Joist	Weight per Metre (W)		Sectional Area σ	Mean Thickness of Flanges	Extreme Fibre Distance	Gross Moment of Inertia		Least Radius of Gyration r_{yy}	Modulus of Section Z_{xx}	Maximum Allowable Moment M	Maximum Allowable Shear S	
	Width mm	Thickness mm				e_{xx}	I_{xx}					
Designation	Width mm	Thickness mm										
	kg	N	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	1402.8	82.11	24.7	28.50	104097.8	4438.0	4.94	3652.6	57.5	58.2
	12.0	150.8	1479.3	192.11	26.7	28.70	112277.4	4958.8	5.08	3912.1	61.6	
	16.0	166.5	1633.4	212.11	30.7	29.10	128981.9	6000.5	5.32	4432.4	69.8	
	20.0	182.2	1787.4	232.11	34.7	29.50	146151.9	7042.1	5.51	4954.3	78.0	
	25.0	201.8	1979.7	257.11	39.7	30.00	168279.0	8344.2	5.70	5609.3	88.3	
	32.0	229.3	2249.4	292.11	46.7	30.70	200519.7	10167.1	5.90	6531.6	102.9	
	40.0	260.7	2557.5	332.11	54.7	31.50	239210.3	12250.5	6.07	7594.0	119.6	
ISWB 550 400.0	10.0	175.3	1719.7	223.34	21.0	28.50	137632.8	14407.3	8.03	4829.2	76.1	54.6
	12.0	187.9	1843.3	239.34	23.0	28.70	150720.2	16540.6	8.31	5251.6	82.7	
	16.0	213.0	2089.5	271.34	27.0	29.10	177447.3	20807.3	8.76	6097.8	96.0	
	20.0	238.1	2335.8	303.34	31.0	29.50	204919.4	25073.9	9.09	6946.4	109.4	
	25.0	269.5	2643.8	343.34	36.0	30.00	240322.3	30407.3	9.41	8010.8	126.2	
	32.0	313.5	3075.4	399.34	43.0	30.70	291907.9	37873.9	9.74	9508.4	149.8	
	40.0	363.7	3567.9	463.34	51.0	31.50	353812.8	46407.3	10.06	11232.2	176.9	
ISMB 600 320.0	10.0	172.9	1696.1	220.21	23.6	31.00	151354.3	8112.3	6.07	4882.4	76.9	68.0
	12.0	182.9	1794.2	233.01	25.6	31.20	163734.7	9204.6	6.29	5247.9	82.7	
	16.0	203.0	1991.4	258.61	29.6	31.60	188975.6	11389.1	6.64	5980.2	94.2	
	20.0	223.1	2188.6	284.21	33.6	32.00	214863.7	13573.7	6.91	6714.5	105.8	
	25.0	248.2	2434.8	316.21	38.6	32.50	248146.3	16304.3	7.18	7635.3	120.3	
	32.0	283.4	2780.2	361.01	45.6	33.20	296492.9	20127.3	7.47	8930.5	140.7	
	40.0	323.6	3174.5	412.21	53.6	34.00	354298.3	24496.3	7.71	10420.5	164.1	
ISWB 600 400.0	10.0	196.5	1927.7	250.38	23.3	31.00	180625.2	15369.2	7.83	5826.6	91.8	63.5
	12.0	209.1	2051.3	266.38	25.3	31.20	196100.6	17502.5	8.11	6285.3	99.0	
	16.0	234.2	2297.5	298.38	29.3	31.60	227651.7	21769.2	8.54	7204.2	113.5	
	20.0	259.3	2543.7	330.38	33.3	32.00	260011.8	26035.8	8.88	8125.4	128.0	
	25.0	290.7	2851.8	370.38	38.3	32.50	301615.2	31369.2	9.20	9280.5	146.2	
	32.0	334.7	3283.4	426.38	45.3	33.20	362048.3	38835.3	9.54	10905.1	171.8	
	40.0	384.9	3775.9	490.38	53.3	34.00	434305.2	47369.2	9.83	12773.7	201.2	
ISWB 600 400.0	10.0	207.9	2039.5	264.86	24.8	31.00	190053.3	15965.0	7.76	6130.8	96.6	66.9
	12.0	220.5	2163.1	280.86	26.8	31.20	205528.7	18098.3	8.03	6587.5	103.8	
	16.0	245.6	2409.3	312.86	30.8	31.60	237079.8	22365.0	8.45	7502.5	118.2	
	20.0	270.7	2655.6	344.86	34.8	32.00	269439.9	26631.6	8.79	8420.0	132.6	
	25.0	302.1	2963.6	384.86	39.8	32.50	311043.3	31965.0	9.11	9570.6	150.7	
	32.0	346.1	3395.2	440.86	46.8	33.20	371476.4	39431.6	9.46	11189.0	176.2	
	40.0	396.3	3887.7	504.86	54.8	34.00	443733.3	47965.0	9.75	13051.0	205.6	

- Note (1)** The properties given in this Table are based on the gross area of the section.
- (2)** The mean thickness of flange is computed according to Note 2 in Table II of IS : 800-1956.
- (3)** The maximum allowable moment is computed on the basis of the allowable stress specified in 9.2.1. of IS : 800-1956 and the gross modulus of section (Z_{xx}) given in this Table.
- (4)** The maximum allowable shear is computed on the basis of the allowable shear stress specified in 9.3.2. and the effective sectional area defined in 20.6.2.2. of IS : 800-1956.

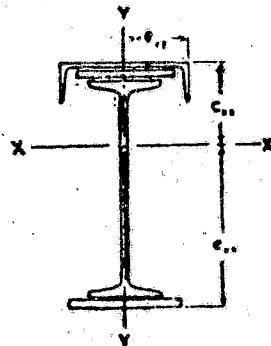


TABLE 12

SINGLE JOIST WITH CHANNEL AND PLATES ON BOTH FLANGES (GIRDERS)

Designation	Joist w kg N	Composed of				Weight per Metre (W) kg	Sectional Area a cm ²	Centre of Gravity C _{xx} cm	Mean Thickness of Flanges mm				
		Top Flange		Bottom Flange					Top	Bottom			
		Channel	Plate	Plate	Plate								
ISMB 600	122.6	ISM C 400	49.4	320 x 10.0	320 x 20.0	247.4	2427.0	315.14	29.18	27.5	33.6		
	1202.7		484.6	—	12.0	25.0	265.0	2599.7	337.54	30.46	29.1	38.6	
				—	16.0	32.0	292.6	2870.4	372.74	31.84	32.3	45.6	
				—	20.0	40.0	322.7	3165.7	411.14	33.34	35.5	53.6	
		ISM C 350	42.1	250 x 10.0	320 x 20.0	234.6	2301.4	298.87	30.62	27.7	33.6		
			413.0	—	12.0	25.0	251.1	2463.3	319.87	32.00	29.2	38.6	
				—	16.0	32.0	276.6	2713.4	352.27	33.53	32.0	45.6	
				—	20.0	40.0	304.5	2987.1	387.87	35.17	34.9	53.6	
		ISM C 400	49.4	—	320 x 10.0	197.1	1933.6	251.14	27.62	19.5	23.6		
			484.6	—	12.0	202.2	1983.6	257.54	28.47	25.6			
				—	16.0	212.2	2081.7	270.34	30.07	29.6			
		ISM C 350	42.1	—	320 x 10.0	189.9	1862.9	241.87	28.55	20.6	23.6		
			413.0	—	12.0	194.9	1912.0	248.27	29.41	25.6			
				—	16.0	204.9	2010.1	261.07	31.02	29.6			
				—	20.0	215.0	2109.2	273.87	32.50	33.6			
SWB 600	133.7	ISM C 400	49.4	320 x 10.0	320 x 20.0	258.5	2535.9	329.31	29.30	29.9	36.6		
	1311.6		484.6	—	12.0	25.0	276.1	2708.5	351.71	30.52	31.5	41.6	
				—	16.0	32.0	303.7	2979.3	386.91	31.86	34.7	48.6	
				—	20.0	40.0	333.9	3275.6	425.31	33.32	37.9	56.6	
		ISM C 350	42.1	250 x 10.0	320 x 20.0	245.7	2410.3	313.04	30.68	30.5	36.6		
			413.0	—	12.0	25.0	262.2	2572.2	334.04	32.00	31.9	41.6	
				—	16.0	32.0	287.7	2822.3	366.44	33.49	34.7	48.6	
				—	20.0	40.0	315.6	3096.0	402.04	35.09	37.6	56.6	
		ISM C 400	49.4	—	320 x 10.0	208.3	2043.4	265.31	27.79	21.9	26.6		
			484.6	—	12.0	213.3	2092.5	271.71	28.60	28.6			
				—	16.0	223.3	2190.6	284.51	30.11	32.6			
		ISM C 350	42.1	—	320 x 10.0	201.0	1971.8	256.04	28.68	23.3	26.6		
			413.0	—	12.0	206.0	2020.9	262.44	29.49	28.6			
				—	16.0	216.1	2119.9	275.24	31.01	32.6			

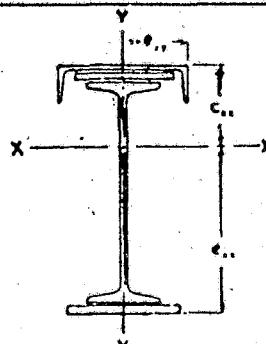


TABLE 12(Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON BOTH FLANGES (GIRDERS)

Extreme Fibre Distances		Gross Moment of Inertia		Radius of Gyration		Moduli of Section		Maximum Allowable Moment		Maximum Allowable Shear	
e_{xx}	e_{yy}	I_{xx}	I_{yy}	r_{yy}		Z_{xx}			M	S	
cm	cm	cm ⁴	cm ⁴	Whole Section	Top Flange Only	Z_c	Z_t				
34.68	20.00	235892.2	25925.8	19138.6	9.07	8084.1	6801.9	107.1		68.0	
34.10		260866.4	27837.3	19684.9	9.08	8564.4	7649.9	120.5			
33.82		299883.3	30841.0	20777.3	9.10	9418.8	8866.7	139.7			
33.52		343302.5	34177.8	21869.7	9.11	10297.7	10241.0	161.3			
33.19	17.50	222893.7	19422.4	12635.4	8.06	7278.4	6716.5	105.8			
32.51		245424.1	21048.2	12896.0	8.11	7670.7	7548.1	118.9			
32.08		280290.7	23480.5	13417.0	8.16	8358.6	8738.1	137.6			
31.64		318880.7	26185.8	13938.0	8.22	9066.2	10079.2	158.7			
34.24	20.00	170351.8	20464.5	16407.8	9.03	6167.7	4975.2	78.4			
33.59		177711.4	21010.6	16408.0	9.03	6241.4	5291.1	83.3			
32.39		191631.5	22102.9	16408.2	9.04	6372.2	5916.9	93.2			
31.31		204609.7	23195.1	16408.4	9.05	6486.1	6534.2	102.9			
33.26	17.50	163968.8	15389.7	11333.2	7.98	5748.0	4930.1	77.6			
32.60		170907.2	15935.8	11333.3	8.01	5811.0	5242.7	82.6			
31.39		184002.1	17028.1	11333.5	8.08	5931.9	5861.7	92.3			
30.31		196179.3	18120.3	11333.7	8.13	6037.1	6471.5	101.9			
33.35	15.00	150938.0	10315.7	7687.8	6.74	5313.3	4525.5	71.3			
32.83		156412.7	10576.1	7687.9	6.75	5369.7	4764.2	75.0			
31.87		166872.3	11096.9	7688.1	6.77	5472.2	5236.8	82.5			
30.99		176746.1	11617.8	7688.2	6.79	5563.7	5702.9	89.8			
34.56	20.00	250375.1	27977.3	20164.4	9.22	7546.7	7243.6	114.1		63.5	
34.04		275280.7	29888.8	20710.7	9.22	9018.8	8088.1	127.4			
33.80		314274.1	30892.5	21803.0	9.22	9863.7	9298.5	146.5			
33.54		357691.1	36169.5	22895.4	9.22	10734.4	10665.2	168.0			
33.13	17.50	237298.3	21473.9	13661.2	8.28	7735.2	7162.1	112.8			
32.51		259809.6	23099.7	13921.7	8.32	8120.1	7990.7	125.9			
32.12		294693.4	25532.0	14442.7	8.35	8799.5	9174.7	144.5			
31.72		333342.5	28237.3	14963.7	8.38	9499.9	10508.6	165.5			
34.07	20.00	184878.1	22516.0	17433.7	9.21	6652.0	5426.9	85.5			
33.46		192173.4	23062.1	17433.8	9.21	6719.9	5743.0	90.5			
32.35		206025.4	24154.4	17434.0	9.21	6841.9	6369.1	100.3			
33.13	17.50	178422.6	17441.2	12359.0	8.25	6222.0	5384.9	84.8			
32.52		185319.0	17987.3	12359.1	8.28	6284.8	5698.0	89.7			
31.40		198388.2	19079.6	12359.3	8.33	6397.9	6317.8	99.5			

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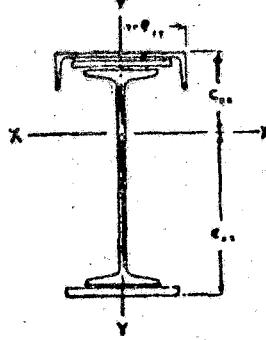


TABLE 12 (cont.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Designa- tion	W kg N	Composed of				Weight Per Metre (W) Kg N	Sectional Area a	Centre of Gravity C _{xx}	Mean Thickness of Flanges Top Bottom mm mm	
		Joist		Top Flange	Bottom Flange					
		Channel	Plate	Plate	Width x Thick- ness					
ISWB 600	145.1 1423.4	ISM C 400 484.6	49.4 12.0 16.0 20.0	320 x 10.0 320 x 20.0 32.0 40.0	269.9 287.5 315.1 345.2	2647.7 2820.4 3091.1 3386.4	343.79 366.19 401.39 439.79	29.40 30.58 31.88 33.31	31.4 33.0 36.2 39.4	38.4 43.4 50.4 58.4
		ISM C 350 413.0	42.1 12.0 16.0 20.0	250 x 10.0 250 x 20.0 32.0 40.0	257.1 273.6 299.0 327.0	2522.2 2684.0 2933.2 3207.9	327.52 348.52 380.92 416.52	30.73 32.00 33.45 35.01	32.1 33.5 36.4 39.2	38.4 43.4 50.4 58.4
		ISM C 400 484.6	49.4 — — —	320 x 10.0 320 x 20.0 12.0 16.0	219.6 224.7 234.7	2154.3 2204.3 2302.4	279.79 286.19 298.99	27.95 28.71 20.15	23.4 30.4 34.4	28.4 30.4 34.4
		ISM C 350 413.0	42.1 — — —	320 x 10.0 320 x 20.0 12.0 16.0	212.4 217.4 227.4	2083.6 2132.7 2230.8	270.52 276.92 289.72	28.79 29.56 31.00	25.0 30.4 34.4	28.4 30.4 34.4
ISM C 550	103.7 1017.3	ISM C 350 413.0	42.1 12.0 16.0 20.0	250 x 10.0 250 x 20.0 32.0 40.0	215.7 232.2 257.6 285.6	2116.0 2277.9 2527.1 2801.7	274.77 295.77 328.17 363.77	28.15 29.52 31.05 32.66	25.7 27.1 30.0 32.9	31.5 36.5 43.5 51.5
		ISM C 350 413.0	42.1 — — —	320 x 10.0 320 x 20.0 12.0 16.0	170.9 176.0 186.0	1676.5 1726.6 1824.7	217.77 224.17 236.97	26.05 26.93 28.57	18.6 23.5 27.5	21.5 23.5 27.5
		ISM C 300 351.2	35.8 — — —	250 x 10.0 250 x 20.0 12.0 16.0	159.2 163.1 170.9	1561.8 1600.0 1676.5	202.75 207.75 217.75	25.88 26.63 28.03	19.8 26.7 30.7	24.7 26.7 30.7
		ISM C 250 298.2	30.4 — — —	250 x 10.0 250 x 20.0 12.0 16.0	153.7 157.6 165.5	1507.8 1546.1 1623.6	195.78 200.78 210.78	26.67 27.42 28.83	21.8 26.7 30.7	24.7 26.7 30.7

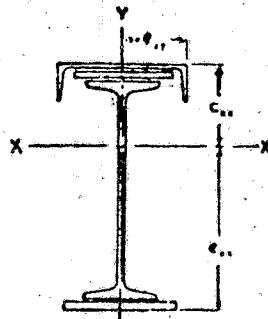


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Extreme Fibre Distances		Gross Moments of Inertia			Radius of Gyration	Moduli of Section		Maximum Allowable Moment	Maximum Allowable Shear	
		e_{xx}	e_{yy}	I_{xx}	I_{yy}	r_{yy}	Z_c	Z_x	M	
		cm	cm	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg.m × 10 ³	kg × 10 ⁴
34.46	20.00	259894.4	28573.1	20462.3	9.12	8839.0	7542.6	118.8	66.9	
33.98		284747.6	30484.6	21008.5	9.12	9310.2	8381.0	132.0		
33.78		323707.2	33488.3	22100.9	9.13	10152.9	9583.7	150.9		
33.55		367122.2	36765.1	23193.3	9.14	11022.5	10941.4	172.3		
33.08	17.50	246744.1	22069.7	13959.1	8.21	8030.0	7458.5	117.5		
32.51		269237.7	23695.5	14219.6	8.25	8414.6	8280.8	130.4		
32.16		304137.8	26127.8	14740.6	8.28	9092.7	9456.6	148.9		
31.80		342843.2	28833.1	15261.6	8.32	9792.7	10781.2	169.8		
33.91	20.00	194435.4	23111.8	17731.6	9.09	6956.1	5734.1	90.3		
33.35		201671.9	23657.9	17731.7	9.09	7023.9	6047.5	95.2		
32.31		215461.2	24750.2	17731.9	9.10	7146.7	6668.2	105.0		
33.02	17.50	187913.1	18037.0	12656.9	8.17	6526.9	5691.0	89.6		
32.45		194771.1	18583.1	12657.0	8.19	6589.9	6001.4	94.9		
31.41		207816.8	19675.4	12657.2	8.24	6704.1	6615.9	104.2		
30.66	17.50	175306.3	18605.2	12226.8	8.23	6226.9	5718.3	90.1	58.2	
29.98		194503.9	20231.0	12487.4	8.27	6587.8	6486.7	102.2		
29.56		224235.2	22663.3	13008.4	8.31	7222.0	7585.5	119.5		
29.15		257183.8	25368.6	13529.3	8.35	7874.2	8823.3	139.0		
30.76	17.50	125214.8	14572.5	10924.6	8.18	4806.7	4070.7	64.1		
30.08		131135.8	15118.6	10924.7	8.21	4869.3	4359.7	68.7		
28.84		142237.4	16210.9	10924.9	8.27	4979.2	4931.4	77.7		
30.88	15.00	114276.0	9498.5	7279.2	6.84	4415.2	3700.9	58.3		
30.33		118958.7	9758.7	7279.3	6.85	4467.4	3921.9	61.8		
29.33		127852.8	10279.7	7279.5	6.87	4561.3	4359.1	68.7		
30.04	12.50	110209.4	6952.7	4733.5	5.96	4132.7	3668.5	57.8		
29.49		114639.0	17213.1	4733.6	5.99	4181.1	3087.2	61.2		
28.48		123036.8	7733.9	4733.8	6.06	4268.1	4319.7	68.0		

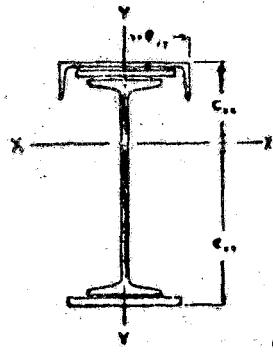


TABLE 12 (cont.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Joist Designation	Composed of				Weight per Metre	Sectional Area a	Centre of Gravity	Mean Thickness of Flanges				
	Top Flange							Top	Bottom			
	Channel	Plate	Plate	Width x Thick-ness								
	kg	kg	mm	mm	kg	N	cm ²	cm	mm	mm		
ISWB 550	112.5	ISM C 400	49.4	320 x 10.0	320 x 20.0	237.3	2327.9	302.27	26.82	27.6	33.8	
	1103.6		484.6		12.0	254.9	2500.6	324.67	28.06	29.2	38.8	
				16.0	25.0	282.5	2771.3	359.87	29.40	32.4	45.8	
				20.0	32.0	312.6	3066.6	398.27	30.85	35.6	53.8	
		ISM C 350	42.1	250 x 10.0	320 x 20.0	224.5	2202.3	286.00	28.20	27.8	33.8	
			413.0		12.0	241.0	2364.2	307.00	29.52	29.2	38.8	
				16.0	25.0	266.4	2613.4	339.40	31.01	32.1	45.8	
				20.0	32.0	294.4	2888.1	375.00	32.59	35.0	53.8	
		ISM C 400	49.4		320 x 10.0	187.0	1834.5	238.27	25.27	19.6	23.8	
			484.6		12.0	192.1	1884.5	244.67	26.10		25.8	
					16.0	202.1	1982.6	257.47	27.65		29.8	
		ISM C 350	42.1		320 x 10.0	179.8	1763.8	229.00	26.16	20.7	23.8	
			413.0		12.0	184.8	1812.9	235.40	27.00		25.8	
					16.0	194.8	1911.0	248.20	28.55		29.8	
ISM C 500	86.9	ISM C 350	42.1	250 x 10.0	320 x 20.0	198.9	1951.2	253.40	25.70	24.1	29.7	
	852.5		413.0		12.0	215.4	2113.1	274.40	27.06	25.5	34.7	
				16.0	25.0	240.8	2362.2	306.80	28.56	28.4	41.7	
				20.0	32.0	268.8	2636.9	342.40	30.13	31.2	49.7	
		ISM C 350	42.1		320 x 10.0	154.2	1512.7	196.40	23.58	17.0	19.7	
			413.0		12.0	159.2	1561.8	202.80	24.47		21.7	
					16.0	169.2	1659.9	215.60	26.12		25.7	
		ISM C 300	35.8		250 x 10.0	142.4	1396.9	181.38	23.39	17.9	23.4	
			351.2		12.0	146.3	1435.2	186.38	24.15		24.4	
					16.0	154.2	1512.7	196.38	25.58		28.4	
		ISM C 250	30.4		250 x 10.0	136.9	1343.0	174.41	24.17	19.5	22.4	
			298.2		12.0	140.8	1381.2	179.41	24.94		24.4	
					16.0	148.7	1458.7	189.41	26.38		28.4	

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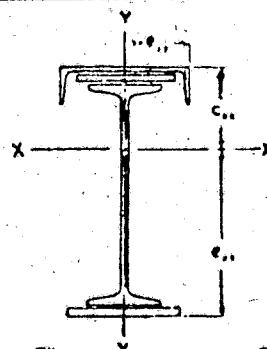


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Extreme Fibre Distances		Gross Moments of Inertia		Radius of Gyration		Moduli of Section		Maximum Allowable Moment		Maximum Allowable Shear	
		e_{xx}	e_{yy}	I_{xx}	I_{yy}	r_{yy}	Z_1	Z_{xx}	M	s	
cm	cm	cm ⁴	cm ⁴	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg.m. $\times 10^3$	kg $\times 10^3$	
32.04	20.00	196231.3	27015.4	19683.5	9.45	7316.2	6124.8	96.5	54.6		
31.50		217525.8	28926.9	20229.8	9.44	7752.1	6905.6	108.8			
31.26		250843.9	31930.6	21322.1	9.42	8532.7	8023.9	126.4			
31.01		288010.6	35207.4	22414.5	9.40	9336.9	9286.6	146.3			
30.61	17.50	185333.2	20512.0	13180.3	8.47	6572.4	6054.4	95.4			
29.99		204516.4	22137.8	13440.8	8.49	6927.0	6820.5	107.4			
29.60		234261.8	24570.1	13961.7	8.51	7554.1	7914.6	124.7			
29.22		267256.6	27275.4	14482.7	8.53	8200.2	9146.8	144.1			
31.59	20.00	140570.2	21554.1	16952.8	9.51	5562.9	4449.7	70.1			
30.96		146829.6	22100.2	16952.9	9.50	5626.0	4742.3	74.7			
29.81		158641.3	23192.5	16953.0	9.49	5738.0	5321.3	83.8			
30.65	17.50	135281.9	16479.3	11878.1	8.48	5171.2	4413.9	69.5			
30.01		141168.7	17025.4	11878.2	8.50	5229.1	4703.5	74.1			
28.86		152250.6	18117.7	11878.3	8.54	5331.9	5276.4	83.1			
28.11	17.50	136749.0	18141.2	11994.9	8.46	5320.9	4864.8	76.6	48.2		
27.45		152873.0	19767.0	12255.4	8.49	5649.5	5569.0	87.7			
27.05		177877.9	22199.3	12776.3	8.51	6228.8	6575.2	103.6			
26.68		205641.6	24904.6	13297.3	8.53	6825.0	7707.9	121.4			
28.23	17.50	94789.4	14108.5	10692.7	8.48	4020.0	3357.7	52.9			
27.54		99764.0	14654.6	10692.8	8.50	4076.4	3623.0	57.1			
26.29		109026.6	15746.9	10692.9	8.55	4174.0	4147.1	65.3			
28.37	15.00	85756.4	9034.5	7047.3	7.06	3666.9	3022.4	47.6			
27.81		89701.3	9294.9	7047.4	7.06	3714.3	3225.6	50.8			
26.78		97147.3	9815.7	7047.5	7.07	3798.3	3627.2	57.1			
27.54	12.50	82476.9	6488.7	4501.6	6.10	3411.7	2995.3	47.2			
26.97		86189.0	6749.1	4501.6	6.13	3455.2	3196.3	50.3			
25.93		93179.0	7269.9	4501.8	6.20	3532.3	3593.4	56.6			

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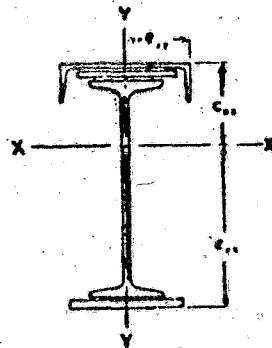


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Joist Designation	Composed of			Weight per Metre (W)	Sectional Area a	Centre of Gravity Cxx	Mean Thickness of Flanges					
	Top Flange		Bottom Flange				Top	Bottom				
	Channel	Plate	Plate									
	Kg/N	Kg/N	Width x Thickness	Width x Thickness	kg	N	cm ²	cm	mm			
ISWB 500	95.2	ISM C 400	49.4	320 x 10.0	320 x 20.0	219.9	2157.2	280.15	24.40	25.8	31.5	
	933.9		484.6		12.0	25.0	237.5	2329.9	302.55	25.63	27.4	36.5
				16.0	32.0	265.1	2600.6	337.75	26.95	30.6	43.5	
				20.0	40.0	295.3	2896.9	376.15	28.37	33.8	51.5	
		ISM C 350	42.1	250 x 10.0	320 x 20.0	207.1	2031.7	263.88	25.74	25.7	31.5	
			413.0		12.0	25.0	223.6	2193.5	284.88	27.06	27.2	36.5
				16.0	32.0	249.1	2443.7	317.28	28.52	30.0	43.5	
				20.0	40.0	277.0	2717.4	352.88	30.06	32.9	51.5	
		ISM C 400	49.4	—	320 x 10.0	169.7	1664.8	216.15	22.81	17.8	21.5	
			484.6	—	12.0	174.7	1713.8	222.55	23.65	—	23.5	
				—	16.0	184.7	1811.9	235.35	25.21	—	27.5	
		ISM C 350	42.1	—	320 x 10.0	162.4	1593.1	206.88	23.69	21.5	21.5	
			413.0	—	12.0	167.4	1642.2	213.28	24.54	18.6	23.5	
				—	16.0	177.5	1741.3	226.08	26.11	27.5	27.5	
ISMB 450	72.4	ISM C 300	35.8	—	250 x 10.0	127.9	1254.7	162.91	20.93	16.3	20.4	
	710.2		351.2	—	12.0	131.8	1293.0	167.91	21.71	—	22.4	
				—	16.0	139.7	1370.5	177.91	23.14	—	26.4	
		ISM C 250	30.4	—	250 x 10.0	122.4	1200.7	155.94	21.71	17.5	20.4	
			298.2	—	12.0	126.3	1239.0	160.94	22.49	—	22.4	
				—	16.0	134.2	1316.5	170.94	23.93	—	26.4	
		ISM C 225	25.9	—	200 x 10.0	114.0	1118.3	145.28	21.57	18.0	23.0	
			254.1	—	12.0	117.2	1149.7	149.28	22.25	—	25.0	
				—	16.0	123.5	1211.5	157.28	23.51	—	29.0	

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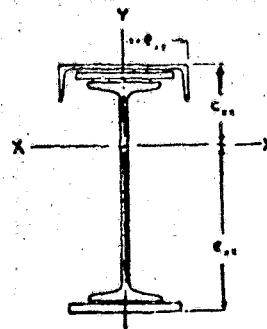


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Extreme Fibre Distance cm	Gross Moments of Inertia I_{xx} I_{yy}	Radius of Gyration		Moduli of Section		Maximum Allowable Moment M	Maximum Allowable Shear S		
		r_{yy}		Z_c	Z_t				
		Whole Section	Top Flange Only						
29.46	20.00	152781.2	26262.6	19307.2	9.68	6262.3	5185.5	81.7	46.8
28.93		170717.9	28174.1	19853.4	9.65	6661.7	5900.4	92.9	
28.71		198797.6	31177.8	20945.7	9.61	7377.1	6923.9	109.1	
28.49		230194.5	34454.6	22038.1	9.57	8114.6	8079.2	127.2	
28.07	17.50	143934.0	19759.2	12803.9	8.65	5587.0	5124.9	80.7	
27.45		159945.7	21385.0	13064.4	8.66	5911.3	5826.3	91.8	
27.09		184963.8	23817.3	13585.3	8.66	6485.6	6827.6	107.5	
26.75		212768.9	26522.6	14106.2	8.67	7077.7	7954.5	125.3	
29.05	20.00	106172.6	20801.3	16576.5	9.81	4654.5	3654.9	57.6	
28.41		111454.1	21347.4	16576.5	9.79	4712.8	3922.9	61.8	
27.25		121362.3	22439.7	16576.6	9.76	4815.0	4452.9	70.1	
28.12	17.50	101911.5	15726.5	11501.7	8.72	4301.4	3624.5	57.1	
27.47		106854.4	16272.6	11501.8	8.73	4354.4	3889.8	61.3	
26.30		116100.2	17364.9	11501.9	8.76	4447.3	4413.8	69.5	
25.83	15.00	62983.5	8498.7	6779.4	7.22	3008.6	2438.8	38.4	40.0
25.25		66244.2	8759.1	6779.5	7.22	3051.8	2623.1	41.3	
24.22		72359.1	9279.9	6779.6	7.22	3127.4	2987.2	47.0	
25.00	12.50	60394.7	5952.9	4233.7	6.18	2781.6	2416.0	38.1	
24.42		63446.4	6213.3	4233.8	6.21	2820.9	2598.3	40.9	
23.38		69152.5	6734.1	4233.8	6.28	2889.5	2958.0	46.6	
25.07	11.25	55138.5	4195.3	3111.5	5.37	2556.1	2199.5	34.6	
24.59		57604.5	4328.6	3111.5	5.38	2589.5	2342.2	36.9	
23.73		62272.6	4595.3	3111.6	5.41	2649.1	2623.8	41.3	

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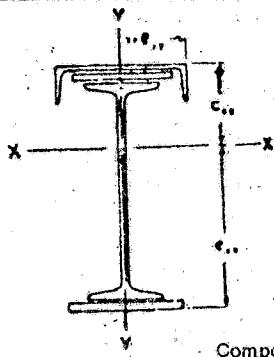


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Joist Designa- tion	W kg	Composed of				Weight per Metre (W) kg	Sectional Area N	Centre of Gravity C _{xx} cm	Mean Thickness of Flanges Top mm Bottom mm					
		Top Flange		Bottom Flange					a					
		Channel Designa- tion w	Plate Width × Thick- ness	Plate Width × Thick- ness	Plate Width × Thick- ness									
ISWB 450	79.4 778.9	ISMC 350 413.0	42.1 250 × 10.0	320 × 20.0	191.4 207.9 233.3 261.3	1877.6 2039.5 2288.7 2563.4	243.81 264.81 297.21 332.81	23.31 24.60 26.02 27.51	24.0 25.5 28.3 31.2	29.6 34.6 41.6 49.6				
		ISMC 350 413.0	42.1 —	320 × 10.0 12.0 16.0 20.0	146.6 151.7 161.7	1438.1 1488.2 1586.3	186.81 193.21 206.01	21.26 22.10 23.66	16.9 21.6 25.6	19.6				
		ISMC 300 351.2	35.8 —	250 × 10.0 12.0 16.0	134.9 138.8 146.6	1323.4 1361.6 1438.1	171.79 176.79 186.79	21.05 21.78 23.14	17.9 24.3 28.3	22.3				
ISMC 400	61.6 604.3	ISMC 300 351.2	35.8 —	250 × 10.0 12.0 16.0	117.0 121.0 128.8	1447.8 1187.0 1263.5	149.10 154.10 164.10	18.56 19.32 20.71	15.1 21.0 25.0	19.0				
		ISMC 250 298.2	30.4 —	250 × 10.0 12.0 16.0	111.6 115.5 123.3	1094.8 1133.1 1209.6	142.13 147.13 157.13	19.31 20.07 21.47	16.1 21.0 25.0	19.0				
		ISMC 225 254.1	25.9 —	200 × 10.0 12.0 16.0	103.2 106.3 112.6	1012.4 1042.8 1104.6	131.47 135.47 143.47	19.15 19.82 21.06	16.4 23.2 27.2	21.2				
		ISMC 200 216.8	22.1 —	200 × 10.0 12.0 16.0	99.4 102.6 108.9	975.1 1006.5 1068.3	126.67 130.67 138.67	19.74 20.41 21.66	17.3 23.2 27.2	21.2				
ISWB 400	66.7 654.3	ISMC 350 413.0	42.1 —	250 × 10.0 12.0 16.0 20.0	320 × 20.0 25.0 32.0 40.0	178.7 195.2 220.6 248.6	1753.0 1914.9 2164.1 2438.8	227.67 248.67 281.07 316.67	20.90 22.14 23.51 24.94	22.7 24.1 27.0 29.8	28.1 33.1 40.1 48.1			
		ISMC 350 413.0	42.1 —	320 × 10.0 12.0 16.0	134.0 139.0 149.0	1314.5 1363.6 1461.7	170.67 177.07 189.87	18.88 19.71 21.23	15.5 20.1 24.1	18.1				
		ISMC 300 351.2	35.8 —	250 × 10.0 12.0 16.0	122.2 126.1 134.0	1198.8 1237.0 1314.5	155.65 160.65 170.65	18.66 19.38 20.71	16.3 22.4 26.4	20.4				

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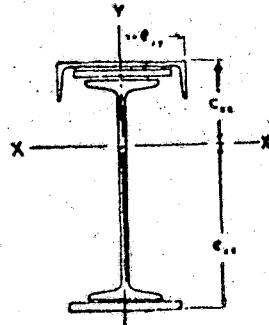


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Extreme Fibre Distances		Gross Moments of Inertia		Radius of Gyration		Moduli of Section		Maximum Allowable Moment		Maximum Allowable Shear	
e_{xx}	e_{yy}	I_{xx}	I_{yy}		r_{yy}	Z_c	Z_t	M	S		
cm	cm	cm ⁴	cm ⁴	Whole Section	Top Flange Only	cm ³	cm ³	kg.m × 10 ³	kg × 10 ³		
25.50	17.50	109500.7	18478.1	12163.4	8.71	4698.2	4293.6	67.6	39.1		
24.91		122801.8	20103.9	12423.9	8.71	4992.8	4929.0	77.6			
24.59		143501.0	22536.2	12944.8	8.71	5514.9	5835.9	91.9			
24.30		166568.3	25241.5	13465.7	8.71	6053.8	6856.0	108.0			
25.55	17.50	75002.0	14445.4	10861.2	8.79	3528.7	2934.9	46.2			
24.91		79074.8	14991.5	10861.3	8.81	3577.3	3175.0	50.0			
23.75		86641.2	16083.8	10861.4	8.84	3661.2	3648.8	57.5			
25.71	15.00	67695.9	9371.4	7215.8	7.39	3215.3	2633.5	41.5			
25.18		70931.4	9631.8	7215.9	7.38	3256.1	2817.5	44.4			
24.22		77026.0	10152.6	7215.9	7.37	3328.3	3180.6	50.1			
23.20	15.00	46011.0	8086.8	6573.5	7.36	2478.4	1983.7	31.2	33.6		
22.64		48636.3	8347.2	6573.6	7.36	2517.3	2148.3	33.8			
21.65		53534.8	8868.0	6573.6	7.35	2584.7	2473.0	39.0			
22.40	12.50	44012.4	5541.0	4027.8	6.24	2279.6	1964.6	30.9			
21.84		46458.3	5801.4	4027.8	6.28	2314.6	2127.4	33.5			
20.84		51006.2	6322.2	4027.9	6.34	2375.2	2448.0	38.6			
22.49	11.25	39864.9	3783.4	2905.6	5.36	2081.3	1772.9	27.9			
22.02		41845.3	3916.7	2905.6	5.38	2111.2	1900.4	29.9			
21.18		25574.7	4183.4	2905.7	5.40	2164.1	2151.7	33.9			
21.87	10.00	38502.0	2908.1	2030.3	4.79	1950.4	1760.5	27.7			
21.40		40373.6	3041.4	2030.3	4.82	1977.9	1886.8	29.7			
20.55		43890.0	3308.1	2030.4	4.88	2026.4	2135.6	33.6			
22.91	17.50	82554.2	18159.4	12004.0	8.93	3950.5	3602.9	56.7	32.5		
22.37		93305.3	19785.2	12264.5	8.92	4214.7	4170.7	65.7			
22.10		110096.2	22217.5	12785.4	8.89	4683.6	4981.0	78.5			
21.87		128882.1	24922.8	13306.3	8.87	5168.7	5891.8	92.8			
22.93	17.50	54778.9	14126.7	10701.9	9.10	2901.7	2388.8	37.6			
22.30		58051.2	14672.8	10701.9	9.10	2945.2	2603.3	41.0			
21.18		64094.3	15765.1	10702.0	9.11	3019.4	3025.8	47.7			
23.10	15.00	49009.6	9052.7	7056.5	7.63	2626.8	2121.4	33.4			
22.58		51617.6	9313.1	7056.5	7.61	2663.5	2285.9	36.0			
21.65		56503.2	9833.9	7056.6	7.59	2727.7	2610.4	41.1			

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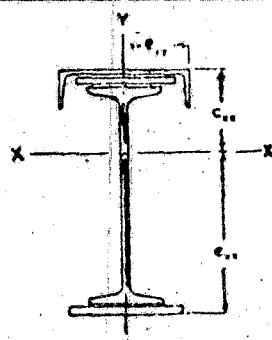


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Designa- tion	Joist w kg/N	Composed of				Weight per Metre (W) kg	Sectional Area cm ²	Centre of Gravity C _{xx} cm	Mean Thickness of Flanges Top mm Bottom mm				
		Top Flange		Bottom Flange					Top	Bottom			
		Channel Designa- tion kg/N	Plate w mm	Plate Width x Thick- ness mm mm	Plate Width x Thick- ness mm mm				N	N			
ISMB 350	52.4	ISM C 300	35.8	—	250 x 10.0	107.8	1057.5	137.35	16.25	14.2	18.0		
	514.0		351.2	—	12.0	111.7	1095.8	142.35	16.98	20.0			
				—	16.0	119.6	1173.3	152.35	18.30	24.0			
		ISM C 250	30.4	—	250 x 10.0	102.3	1003.6	130.38	16.94	15.0	18.0		
			298.2	—	12.0	106.3	1042.8	135.38	17.68	20.0			
				—	16.0	114.1	1119.3	145.38	19.01	24.0			
		ISM C 225	25.9	—	200 x 10.0	94.0	922.1	119.72	16.78	15.2	19.9		
			254.1	—	12.0	97.1	952.6	123.72	17.42	21.9			
				—	16.0	103.4	1014.4	131.72	18.62	25.9			
		ISM C 200	22.1	—	200 x 10.0	90.2	884.9	114.92	17.33	16.0	19.9		
			216.8	—	12.0	93.4	916.3	118.92	17.98	21.9			
				—	16.0	99.6	977.1	126.92	19.18	25.9			
ISWB 350	56.9	ISM C 350	42.1	250 10.0	320 x 20.0	168.9	1656.9	215.16	18.51	21.8	27.1		
	558.2		413.0	12.0	25.0	185.4	1818.8	236.16	19.68	23.2	32.1		
				16.0	32.0	210.8	2067.9	268.56	20.98	26.0	39.1		
				20.0	40.0	238.8	2342.6	304.16	22.32	28.9	47.1		
		ISM C 350	42.1	—	320 x 10.0	124.2	1218.4	158.16	16.57	14.6	17.1		
			413.0	—	12.0	129.2	1267.4	164.56	17.36	19.1			
				—	16.0	139.2	1365.6	177.36	18.79	23.1			
		ISM C 300	35.8	—	250 x 10.0	112.4	1102.6	143.14	16.33	15.2	19.1		
			351.2	—	12.0	116.3	1140.9	148.14	17.07	21.1			
				—	16.0	124.1	1217.4	158.14	18.30	25.1			

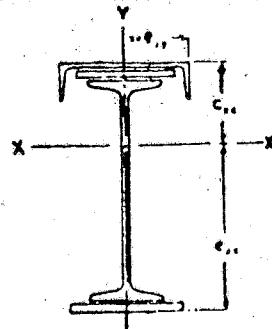


TABLE 12 (Contd.)

SINGLE JOIST WITH CHANNEL AND PLATES ON THE FLANGES (GIRDERS)

Extreme Fibre Distance		Gross Moments of Inertia.		Radius of Gyration		Moduli of Section		Maximum Allowable Moment	Maximum Allowable Shear
e_{xx}	e_{yy}	I_{xx}	I_{yy}	r_{yy}	Z_{xx}	Z_c	Z_t	M	S
cm	cm	cm ⁴	cm ⁴	cm	cm ³	cm ³	kg-m × 10 ³	kg × 10 ³	
20.51	15.00	33028.1	8202.4	6631.4	7.73	2032.1	1610.6	25.4	26.8
19.98		35076.8	8462.8	6631.4	7.71	2066.2	1755.3	27.6	
19.06		38883.2	8983.6	6631.5	7.68	2124.6	2040.2	32.1	
19.77	12.50	31530.5	5656.6	4085.6	6.59	1861.0	1595.5	25.1	
19.23		33431.2	5917.0	4085.6	6.61	1891.3	1738.2	27.4	
18.30		36948.2	6437.8	4085.7	6.65	1943.3	2019.4	31.8	
19.86	11.25	28360.0	3899.0	2963.4	5.71	1690.2	1428.0	22.5	
19.42		29902.1	4032.3	2963.4	5.71	1716.1	1540.1	24.3	
18.62		32793.3	4299.0	2963.5	5.71	1761.5	1760.8	27.7	
19.28	10.00	27350.1	3023.7	2088.1	5.13	1578.2	1418.6	22.3	
18.83		28802.0	3157.0	2088.1	5.15	1601.7	1529.7	24.1	
18.03		31516.1	3423.7	2088.2	5.19	1643.1	1748.1	27.5	
20.30	17.50	61114.9	17947.3	11898.0	9.13	3301.0	3011.2	47.4	26.5
19.83		69579.5	19573.1	12158.5	9.10	3534.9	3509.5	55.3	
19.63		82872.0	22005.4	12679.3	9.05	3950.7	4220.9	66.5	
19.49		97828.0	24710.7	13200.2	9.01	4382.5	5020.0	79.1	
20.24	17.50	39357.4	13914.6	10595.9	9.38	2375.6	1944.3	30.6	
19.65		41902.9	14460.7	10595.9	9.37	2413.9	2132.3	33.6	
18.62		46583.1	15553.0	10596.0	9.36	2479.0	2502.0	39.4	
2043	15.00	34941.9	8840.6	6950.5	7.86	2139.2	1710.7	26.9	
19.93		36977.4	9101.0	6950.5	7.84	2171.7	1855.1	29.2	
19.06		40774.6	9621.8	6950.6	7.80	2228.1	2139.3	33.7	

- NOTE :** (1) The properties given in this Table are based on the gross area of the section.
(2) The mean thickness of flanges is computed according to Note 2 in Table II of IS : 800-1956.
(3) The maximum allowable moment is computed on the basis of allowable stress specified in 9.2.1. of IS 800-1956 and gross modulus of section (Z) given in this Table.
(4) The maximum allowable shear is computed on the basis of the allowable shear stress specified in 9.3.2. and the effective sectional area defined in 20.6.2.2. of IS : 800-1956.

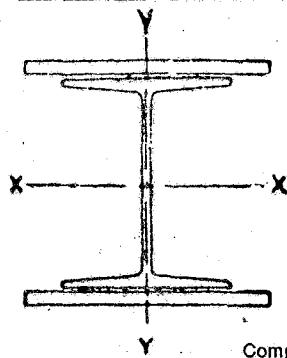


TABLE 13

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (COLUMNS)

Designation	w	Width	Thickness	(W)	Weight per Metre	Sectional Area a	Moduli of Section		Radii of Gyration	
							Z _{xx}	Z _{yy}	r _{xx}	r _{yy}
ISHB 150	27.1	265.9	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	1109.1	555.4	8.34	6.60
				32.0	152.7	194.48	1387.1	701.2	8.74	6.71
				40.0	184.1	234.48	1719.3	867.9	9.18	6.80
ISHB 150	30.6	300.2	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	1117.5	557.7	8.26	6.52
				32.0	156.2	198.98	1395.0	703.5	8.66	6.65
				40.0	187.6	238.98	1726.7	870.2	9.12	6.75
ISHB 150	34.6	339.4	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	1127.1	560.4	8.16	6.44
				32.0	160.2	197.1.6	1403.9	706.3	8.58	6.58
				40.0	191.6	240.08	1735.0	872.9	9.04	6.69
ISHB 200	37.3	365.9	250	12.0	84.4	828.0	107.54	924.8	327.4	9.81
				16.0	100.1	982.0	127.54	1117.0	410.7	10.08
				20.0	115.8	1136.0	147.54	1311.8	494.0	10.33
				25.0	135.4	1328.3	172.54	1559.5	598.2	10.63
				32.0	162.9	1598.0	207.54	1914.7	744.0	11.04
				40.0	194.3	1906.1	247.54	2333.9	910.7	11.49
ISHB 200	40.0	392.4	250	12.0	87.1	854.4	110.94	934.9	329.6	9.72
				16.0	102.8	1008.5	130.94	1126.7	412.9	9.99
				20.0	118.5	1162.5	150.94	1321.3	496.2	10.25
				25.0	138.1	1354.8	175.94	1568.6	600.4	10.56
				32.0	165.6	1624.5	210.94	1923.3	746.2	10.97
				40.0	197.0	1932.6	250.94	2342.0	912.9	11.43

(Continued)

NOTE : Properties given in this Table are based on the gross area of the section.

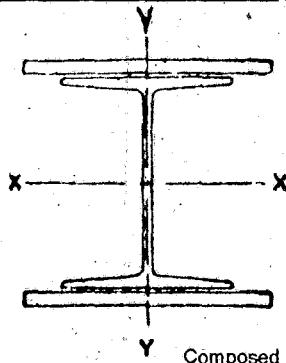


TABLE 13 (contd.)

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (COLUMNS)

Designation	w	Width	Thickness	(W)	a	Weight per Metre	Sectional Area	Moduli of Section		Radii of Gyration	
								cm ²	cm ³	cm ³	cm
ISHB 225	431.1	422.8	320	(W)	a	Weight per Metre	Sectional Area	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
								cm ²	cm ³	cm	cm
								kg	N	mm	mm
ISHB 225	43.1	422.8	320	(W)	a	Weight per Metre	Sectional Area	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
								cm ²	cm ³	cm	cm
								kg	N	mm	mm
ISHB 225	46.8	459.1	320	(W)	a	Weight per Metre	Sectional Area	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
								cm ²	cm ³	cm	cm
								kg	N	mm	mm
ISHB 250	51.0	500.3	320	(W)	a	Weight per Metre	Sectional Area	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
								cm ²	cm ³	cm	cm
								kg	N	mm	mm
ISHB 250	54.7	536.6	320	(W)	a	Weight per Metre	Sectional Area	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
								cm ²	cm ³	cm	cm
								kg	N	mm	mm
ISHB 250	51.0	500.3	400	(W)	a	Weight per Metre	Sectional Area	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}
								cm ²	cm ³	cm	cm
								kg	N	mm	mm

(Continued)

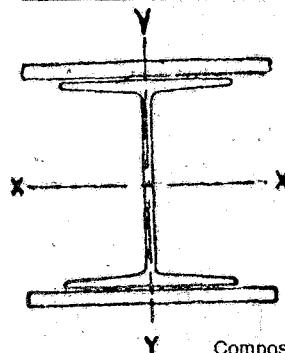


TABLE 13 (Contd.)

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (COLUMNS)

Designation	Steel Joist	Width mm.	Thickness mm.	Composed of		Weight per Metre	Sectional Area	Moduli of Sectional Radii of Gyration			
				Steel Joist	Plates			(W)	a	Z_{xx}	Z_{yy}
				kg	N	kg	cm ²	cm ³	cm ³	cm	cm
ISHB 250	54.7	536.6	400	12.0	130.1	1276.3	165.71	1786.1	740.6	12.15	9.45
				16.0	155.2	1522.5	197.71	2174.0	953.9	12.45	9.82
				20.0	180.3	1768.7	229.71	2565.3	1167.3	12.73	10.08
				25.0	211.7	2076.8	269.71	3060.0	1433.9	13.05	10.31
				32.0	255.7	2508.4	325.71	3764.2	1807.3	13.47	10.53
				40.0	305.9	3000.9	389.71	4587.3	2233.9	13.94	10.71
ISHB 300	58.8	576.8	320	12.0	119.0	1167.4	151.65	1928.7	546.7	14.35	7.59
				16.0	139.1	1364.6	177.25	2297.0	683.2	14.67	7.85
				20.0	159.2	1561.8	202.85	2668.0	819.8	14.95	8.04
				25.0	184.4	1809.0	234.85	3135.9	990.4	15.29	8.21
				32.0	219.5	2153.3	279.65	3799.7	1229.4	15.73	8.39
				40.0	259.7	2547.7	330.85	4572.1	1302.4	16.20	8.52
ISHB 300	63.0	618.0	320	12.0	123.3	1209.6	157.05	1953.7	550.0	14.20	7.49
				16.0	143.4	1406.8	182.65	2321.4	686.6	14.53	7.76
				20.0	163.5	1603.9	208.25	2691.8	823.1	14.82	7.95
				25.0	188.6	1850.2	240.25	3159.0	993.8	15.17	8.14
				32.0	223.8	2195.5	285.05	3822.0	1232.7	15.62	8.32
				40.0	264.0	2589.8	336.25	4593.4	1505.8	16.11	8.46
ISHB 300	58.8	576.8	400	12.0	134.1	1315.5	170.8	2217.2	749.7	14.50	9.37
				16.0	159.2	1561.8	202.85	2682.3	963.0	14.82	9.74
				20.0	184.4	1809.0	234.85	3150.5	1176.3	15.10	10.01
				25.0	215.8	2117.0	274.85	3740.7	1443.0	15.43	10.25
				32.0	259.7	2547.7	330.85	4577.3	1816.3	15.87	10.48
				40.0	310.0	3041.1	394.85	5550.1	2243.0	16.34	10.66
ISHB 300	63.0	618.0	400	12.0	138.4	1357.7	176.25	2242.2	752.3	14.36	9.24
				16.0	163.5	1603.9	208.25	2706.7	965.7	14.69	9.63
				20.0	188.6	1850.2	240.25	3174.3	1179.0	14.99	9.91
				25.0	220.0	2158.2	280.25	3763.8	1445.7	15.33	10.16
				32.0	264.0	2589.8	336.25	4599.6	1819.0	15.78	10.40
				40.0	314.2	3082.3	400.25	5571.4	2245.7	16.26	10.59

(Continued)

NOTE : Properties given in this Table are based on the gross area of the section.

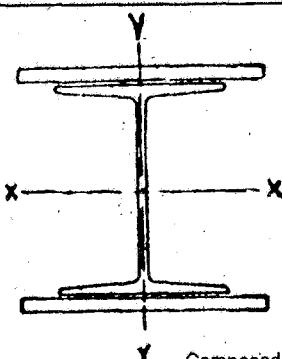


TABLE 13 (Contd.)

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (COLUMNS)

Designation	w	Width	Thickness	(W)	a	Weight per Metre	Sectional Area	Moduli of Section Radii of Gyration									
								kg	N	mm	mm	kg	N	cm ²	cm ⁴	cm ³	cm
ISHB 350	67.4	661.2	320	12.0	127.7	1252.7	162.71	2370.6	562.8	16.51	7.44						
				16.0	147.8	1449.9	188.31	2799.7	699.3	16.85	7.71						
				20.0	167.9	1647.1	213.91	3231.3	835.9	17.16	7.91						
				25.0	193.0	1893.3	245.91	3774.7	1006.5	17.52	8.09						
				32.0	228.2	2238.6	290.71	4543.4	1245.5	17.99	8.28						
				40.0	268.4	2633.0	341.91	5434.7	1518.5	18.49	8.43						
ISHB 350	72.4	710.2	320	12.0	132.7	1301.8	169.01	2404.9	566.5	16.31	7.32						
				16.0	152.8	1499.0	194.61	2833.4	703.0	16.68	7.60						
				20.0	172.9	1696.1	220.21	3264.3	839.6	17.00	7.81						
ISHB 350	72.4	710.2	320	25.0	198.0	1942.4	252.21	3906.8	1010.2	17.37	8.01						
				32.0	233.2	2287.7	297.01	4574.4	1249.2	17.86	8.20						
				40.0	273.3	2681.1	348.21	5464.6	1522.2	18.37	8.36						
ISHB 350	67.4	661.2	400	12.0	142.8	1400.9	181.91	2707.0	762.6	16.68	9.16						
				16.0	167.9	1647.1	213.91	3248.8	975.9	17.03	9.55						
				20.0	193.0	1893.3	245.91	3793.5	1189.2	17.34	9.83						
				25.0	224.4	2201.4	285.91	4478.8	1455.9	17.70	10.09						
				32.0	268.4	2633.0	341.91	5447.8	1829.2	18.16	10.34						
				40.0	318.6	3125.5	405.91	6570.5	2255.9	18.66	10.54						
ISHB 350	72.4	710.2	400	12.0	147.7	1448.9	188.21	2741.4	765.5	16.50	9.02						
				16.0	172.9	1696.1	220.21	3282.5	978.9	16.87	9.43						
				20.0	198.0	1942.4	252.21	3826.5	1192.2	17.20	9.72						
				25.0	229.4	2250.4	292.21	4511.0	1458.9	17.57	9.99						
				32.0	273.3	2681.1	348.21	5478.9	1832.2	28.05	10.26						
				40.0	323.6	3174.5	412.21	6600.4	2258.9	18.55	10.47						
ISHB 400	77.4	759.3	320	12.0	137.7	1350.8	175.46	2862.4	580.1	18.60	7.27						
				16.0	157.8	1548.0	201.06	3352.2	716.7	18.98	7.55						
				20.0	177.9	1745.2	226.66	3844.3	853.2	19.32	7.76						
				25.0	203.0	1991.4	258.66	4463.0	1023.9	19.70	7.96						
				32.0	238.2	2336.7	303.46	5336.6	1262.8	20.20	8.16						
				40.0	278.4	2731.1	354.66	6347.0	1535.9	20.72	8.32						

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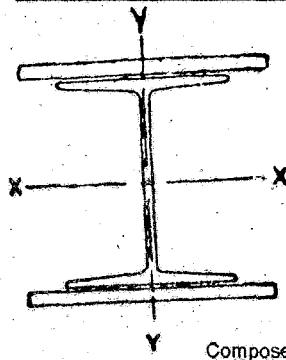


TABLE 13 (Contd.)

SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (COLUMNS)

Designation	W	Plates Each Flange to Form		(W)	Weight per Metre	Sectional Area a	Moduli of Section Radii of Gyration						
		Width	Thickness				Z _{xx}	Z _{yy}	r _{xx}	r _{yy}			
							kg	N	mm	mm	kg	N	cm ²
ISHB 400	82.2	806.4	320	12.0	142.4	1396.9	181.46	2897.3	583.5	18.40	7.17		
				16.0	162.5	1594.1	207.06	3386.5	720.1	18.80	7.46		
				20.0	182.6	1791.3	232.66	3877.9	856.6	19.15	7.68		
				25.0	207.8	2038.5	264.66	4495.9	1027.3	19.55	7.88		
				32.0	242.9	2382.8	309.46	5368.5	1266.2	20.06	8.09		
				40.0	283.1	2777.2	360.66	6377.9	1539.3	20.60	8.26		
ISHB 400	77.4	759.3	400	12.0	152.8	1499.0	194.66	3246.9	776.4	18.80	8.93		
				16.0	177.9	1745.2	226.66	3865.2	989.7	19.19	9.35		
				20.0	203.0	1991.4	258.66	4486.2	1203.1	19.53	9.64		
				25.0	234.4	2299.5	298.66	5266.7	1469.7	19.92	9.92		
				32.0	278.4	2731.1	354.66	6368.2	1843.1	20.41	10.19		
				40.0	328.6	3223.6	418.66	7641.3	2269.7	20.93	10.41		
ISHB 400	82.2	806.4	400	12.0	157.5	1545.1	200.66	3281.8	779.2	18.62	8.81		
				16.0	182.6	1791.3	232.66	3899.5	992.5	19.03	9.24		
				20.0	207.8	2038.5	264.66	4519.9	1205.8	19.38	9.55		
				25.0	239.2	2346.6	304.66	5299.6	1472.5	19.78	9.83		
				32.0	283.1	2777.2	360.66	6400.1	1845.8	20.29	10.12		
				40.0	333.4	3270.7	424.66	7672.1	2272.5	20.82	10.35		
ISHB 450	87.2	855.4	320	12.0	147.5	1447.0	187.94	3384.0	596.2	20.66	7.12		
				16.0	167.6	1644.2	213.54	3934.6	732.7	21.07	7.41		
				20.0	187.7	1841.3	239.14	4487.4	869.2	21.44	7.63		
				25.0	212.8	2087.6	271.14	5181.8	1039.9	21.86	7.83		
				32.0	248.0	2432.9	315.94	6160.9	1278.8	22.39	8.05		
				40.0	288.2	2827.2	367.14	7291.2	1551.9	22.94	8.22		
ISHB 450	92.5	907.4	320	12.0	152.8	1499.0	194.69	3432.1	599.9	20.44	7.02		
				16.0	172.9	1696.1	220.29	3981.9	736.4	20.87	7.31		
				20.0	193.0	1893.3	245.89	4533.9	873.0	21.25	7.54		
				25.0	218.1	2139.6	277.89	5227.3	1043.6	21.69	7.75		
				32.0	253.3	2484.9	322.69	6205.2	1282.6	22.23	7.97		
				40.0	293.5	2879.2	373.89	7334.2	1555.6	22.80	8.16		

(Continued)

NOTE : Properties given in this Table are based on the gross area of the section.

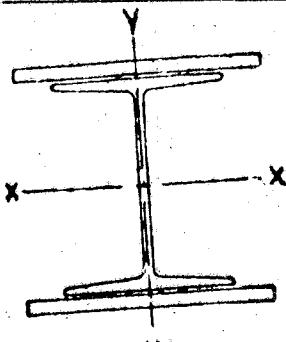


TABLE 13 (Contd.)

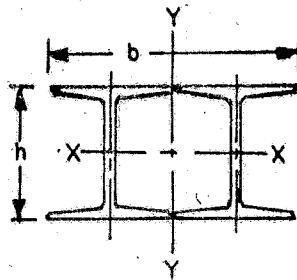
SINGLE JOIST WITH ADDITIONAL PLATES ON BOTH FLANGES (COLUMNS)

Designation	W	Plates Each Flange to Form		(W)	a	Weight per Metre	Sectional Area	Moduli of Section Radii of Gyration					
		Width	Thickness					Z_{xx}	Z_{yy}				
									r_{xx}				
ISHB 450	87.2	855.4	400	12.0	162.6	1595.1	207.14	3816.4	789.3	20.90	8.73		
				16.0	187.7	1841.3	239.14	4511.5	1002.6	21.32	9.16		
				20.0	212.8	2087.6	271.14	5209.1	1215.9	21.70	9.47		
				25.0	244.2	2395.6	311.14	6085.1	1482.6	22.11	9.76		
				32.0	288.2	2827.2	367.14	7319.7	1855.9	22.64	10.05		
				40.0	338.4	3319.7	431.14	8744.1	2282.6	23.18	10.29		
ISHB 450	92.5	907.4	400	12.0	167.9	1647.1	213.89	3864.5	792.2	20.69	8.61		
				16.0	193.0	1893.3	245.89	4558.8	1005.6	21.14	9.04		
				20.0	218.1	2139.6	277.89	5255.6	1218.9	21.53	9.37		
				25.0	249.5	2447.6	317.89	6130.7	1485.6	21.96	9.67		
				32.0	293.5	2879.2	373.89	7364.0	1858.9	22.50	9.97		
				40.0	343.7	3371.7	437.89	8787.0	2285.6	23.96	10.22		

NOTE : Properties given in this Table are based on the gross area of the section.

TABLE 14

**TWO JOISTS OF SAME SIZE WITH
FLANGES BUTTING AND
WELDED (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 N	kg N	cm ²	cm ⁴	cm ³	cm ³	cm	cm		
150 x 300	ISHB 150	27.9	265.8	54.2	531.7	68.96	2911.2	4742.4	388.2	316.2	6.50	8.29
150 x 300	ISHB 150	30.6	300.2	61.2	600.4	77.96	3080.0	5483.0	410.6	358.4	6.29	8.39
150 x 300	ISHB 150	34.6	339.4	69.2	678.8	88.16	3271.2	6381.0	436.2	408.0	6.09	8.51
200 x 400	ISHB 200	37.3	365.9	74.6	731.8	95.08	7216.8	11442.2	721.6	572.1	8.71	10.97
200 x 400	ISHB 200	40.0	392.4	80.0	784.8	101.88	7443.6	12351.1	744.4	612.4	8.55	11.01
225 x 450	ISHB 225	43.1	422.8	86.2	845.6	109.88	10559.0	16614.3	938.6	738.4	9.80	12.30
225 x 450	ISHB 225	46.8	459.1	93.6	918.2	119.32	10957.6	18177.8	974.0	800.4	9.58	12.34
250 x 500	ISHB 250	51.0	500.3	102.0	1000.6	129.92	15473.0	24222.6	1237.8	968.7	10.91	13.65
250 x 500	ISHB 250	54.7	536.6	109.4	1073.2	139.42	15967.8	26104.2	1277.4	1037.7	10.70	13.69
300 x 500	ISHB 300	58.8	576.8	117.6	1153.6	149.70	25090.4	27777.8	1672.6	1111.1	12.95	13.62
300 x 500	ISHB 300	63.0	618.1	126.0	1236.1	160.50	25900.4	29934.0	1726.6	1188.8	12.70	13.66
350 x 500	ISHB 350	67.4	661.2	134.8	1322.4	171.82	38319.4	31749.7	2189.7	1270.0	14.93	13.59
350 x 500	ISHB 350	72.4	710.3	144.8	1420.5	184.42	39605.6	34253.1	2263.2	1360.3	14.65	13.63
400 x 500	ISHB 400	77.4	759.3	154.8	1518.6	197.32	56167.0	36287.8	2808.4	1451.5	16.87	13.56
400 x 500	ISHB 400	82.2	806.4	164.4	1612.8	209.32	57647.0	38665.9	2888.4	1537.4	16.61	13.59
450 x 500	ISHB 450	87.2	855.4	174.4	1710.9	222.28	78421.6	40701.6	3485.4	1628.1	18.78	13.53
450 x 500	ISHB 450	92.5	907.4	185.0	1814.8	235.78	80699.8	43374.0	3586.6	1724.6	18.50	13.56

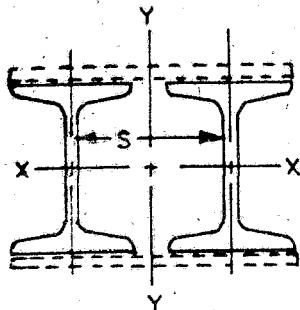


TABLE 15

TWO JOISTS OF SAME SIZE LACED OR BATTENED (COLUMNS)

	Designation	ISHB 150	ISHB 150	ISHB 150		
	W, Kg N	27.1 265.8	30.6 300.2	34.6 339.4		
Weight per Metre, kg N	54.2 531.7	61.2 600.4	69.2 678.8			
Sectional Area, cm ²	68.96	77.96	88.16			
Moment of Inertia, I_{xx} , cm ⁴	2911.2	3080.0	3271.2			
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 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}
cm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm
15.0	4742.3	316.2	8.29	—	—	—
17.5	6143.1	378.0	9.44	6889.4	420.1	9.40
20.0	7759.3	443.4	10.61	8716.6	493.9	10.57
22.5	9591.1	511.5	11.79	10787.4	570.8	11.76
25.0	11638.3	581.9	12.99	13101.8	650.2	12.96
27.5	13901.1	654.2	14.20	15659.9	731.8	14.17
30.0	16379.3	728.0	15.41	18461.6	815.1	15.39
35.0	21982.3	879.3	17.85	24795.8	985.9	17.83
40.0	28447.3	1034.4	20.31	32104.6	1161.1	20.29
					36253.8	1303.2
						20.28

(Continued)

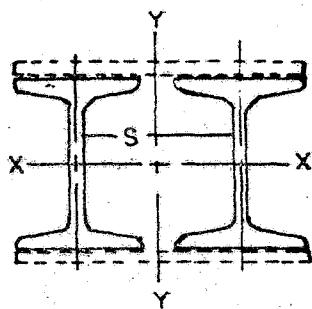


TABLE 15 (Contd.)

TWO JOISTS OF SAME SIZE LACED OR BATTENED (COLUMNS)

Designation		ISHB 200			ISHB 200			ISHB 225		
		W kg	37.3		40.0			43.1		
		N	365.9		392.4			422.8		
	Weight per Metre, kg		74.6		80.0			86.2		
	N		731.8		784.8			845.6.		
	Sectional Area, cm ²		95.08		101.88			109.88		
	Moment of Inertia, I_{xx} cm ⁴		7216.8		7443.6			10559.0		
	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 Beam S	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	
cm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm	
20.0	11442.3	572.1	10.97	—	—	—	—	—	—	
22.5	13967.8	657.3	12.12	14883.3	697.6	12.09	16614.4	738.4	12.30	
25.0	16790.5	746.2	13.29	17907.9	792.9	13.26	19876.4	836.9	13.45	
27.5	19910.3	838.3	14.47	21250.8	891.6	14.44	23481.9	939.3	14.62	
30.0	23327.3	933.1	15.66	24912.1	993.1	15.64	27430.7	1045.0	15.80	
35.0	31052.5	1129.2	18.07	33189.9	1203.2	18.05	36358.4	1264.6	18.19	
40.0	39966.3	1332.2	20.50	42741.1	1420.7	20.48	46659.7	1493.1	20.61	
45.0	50068.5	1540.6	22.95	53565.9	1643.9	22.93	58334.4	1728.4	23.04	
50.0	61359.3	1753.1	25.40	65664.1	1871.6	25.39	71382.7	1969.2	25.49	
55.0	—	—	—	—	—	—	—	—	—	
60.0	—	—	—	—	—	—	—	—	—	

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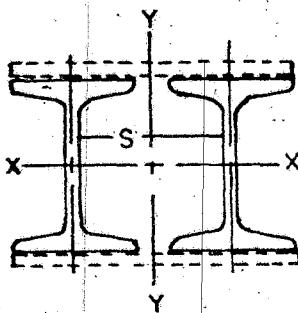


TABLE 15 (Contd.)

TWO JOISTS OF SAME SIZE LACED OR BATTENED (COLUMNS)

ISHB 225	ISHB 250			ISHB 250			ISHB 300				
46.8	51.0			54.7			58.8				
459.1	500.3			536.6			576.8				
93.6	102.0			109.4			117.6				
918.2	1000.6			1073.2			1153.6				
119.32	129.92			139.42			149.70				
10957.6	15473.0			15967.8			25090.4				
974.0	1237.8			1277.4			1672.6				
9.58	10.91			10.70			12.95				
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}	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}
cm^4	cm^3	cm									
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
21436.9	898.6	13.40	24222.5	968.9	13.65	—	—	—	27777.8	1111.1	13.62
25352.1	1009.8	14.58	28485.5	1085.2	14.81	30382.4	1153.3	14.76	32689.8	1245.3	14.78
29640.1	1124.6	15.76	33154.5	1205.6	15.97	35392.9	1282.6	15.93	38069.6	1384.4	15.95
39334.9	1363.2	18.16	43710.5	1457.0	18.34	46720.7	1552.4	18.31	50232.8	1674.4	18.32
50521.1	1611.3	20.58	55890.5	1719.7	20.74	59791.4	1834.4	20.71	64267.1	1977.5	20.72
63198.9	1866.8	23.01	69694.5	1991.3	23.16	74604.7	2125.8	23.13	80172.8	2290.7	23.14
77368.1	2128.1	25.46	85122.5	2269.9	25.60	91160.9	2424.8	25.57	97949.6	2612.0	25.58
—	—	—	—	—	—	—	—	—	117597.8	2939.9	28.03
—	—	—	—	—	—	—	—	—	139117.1	3273.3	30.48

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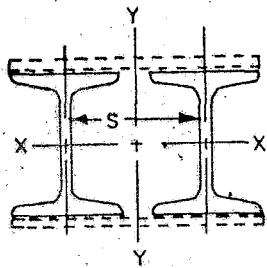


TABLE 15 (Contd.)

TWO JOISTS OF SAME SIZE LACED OR BATTENED (COLUMNS)

		Designation	ISHB 300		ISHB 350		ISHB 350		
	w, kg N		63.0 618.0		67.4 661.2		72.4 710.2		
	Weight per Metre, kg N		126.0 1236.1		134.8 1322.4		144.8 1420.5		
	Sectional Area, cm ²		160.50		171.82		184.42		
	Moment of Inertia, I_{xx} , cm ⁴		25900.4		38319.4		39605.6		
	Modulus of Section, Z_{xx} , cm ³		1726.6		2189.6		2263.2		
	Radius of Gyration, r_{xx} , cm		12.70		14.93		14.65		
Spacing Between C to C of Beams <i>S</i>	Moment of Inertia I_{yy} cm ⁴	Modulus of Section Z_{yy} cm ³	Radius of Gyration r_{yy} cm	Moment of Inertia I_{yy} cm ⁴	Modulus of Section Z_{yy} cm ³	Radius of Gyration r_{yy} cm	Moment of Inertia I_{yy} cm ⁴	Modulus of Section Z_{yy} cm ³	Radius of Gyration r_{yy} cm
25.0	—	—	—	31749.7	1270.0	13.59	—	—	—
27.5	34837.9	1322.6	14.77	37387.5	1424.3	14.75	39887.9	1514.3	14.71
30.0	40605.8	1471.8	15.91	43562.3	1584.1	15.92	46515.5	1686.0	15.88
35.0	53646.5	1782.9	18.28	57522.7	1917.4	18.30	61499.7	2043.9	18.26
40.0	68693.3	2107.8	20.69	73630.8	2265.6	20.70	78789.0	2417.6	20.67
45.0	85746.5	2443.6	23.11	91886.7	2625.3	23.13	98383.7	2803.8	23.10
50.0	104805.8	2788.1	25.55	112290.3	2994.4	25.56	120283.5	3199.9	25.54
55.0	125871.5	3139.7	28.00	134841.7	3371.0	28.01	144488.7	3604.1	27.99
60.0	148943.3	3497.1	30.46	159540.8	3753.9	30.47	170999.0	4015.0	30.45
65.0	—	—	—	—	—	—	—	—	
70.0	—	—	—	—	—	—	—	—	

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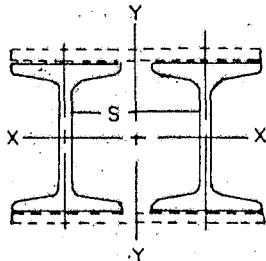


TABLE 15 (Contd.)

TWO JOISTS OF SAME SIZE LACED OR BATTENED (COLUMNS)

ISHB 400				ISHB 400				ISHB 450				ISHB 450			
77.4		82.2			87.2				92.5						
759.3		806.4			855.4				907.4						
154.8		164.4			174.4				185.0						
1518.6		1612.8			1710.9				1814.8						
197.32		209.32			222.28				235.78						
56167.0		57647.0			78421.6				80699.8						
2808.4		2888.4			3485.4				3586.6						
16.87		16.61			18.78				18.50						
Moment of Inertia	Modulus of Section	Radius of Gyration													
I_{yy}	Z_{yy}	r_{yy}													
cm ⁴	cm ³	cm													
36287.9	1451.5	13.56	—	—	—	40701.7	1628.1	13.53	—	—	—				
42762.4	1629.0	14.72	45140.5	171.7	14.69	47995.3	1828.4	14.69	50667.2	1924.7	14.66				
49853.6	1812.9	15.89	52662.9	1909.8	15.86	55983.5	2035.8	15.87	59140.5	2144.7	15.84				
65885.9	2196.2	18.27	69670.2	2316.5	18.24	74043.7	2468.1	18.25	78297.6	2603.4	18.22				
84384.6	2596.5	20.68	89293.9	2741.2	20.65	94882.5	2919.5	20.66	100402.0	3082.2	20.64				
105349.9	3010.0	23.11	111534.2	3179.9	23.08	118499.7	3385.7	23.09	125453.6	3576.7	23.07				
128781.6	3434.2	25.55	136390.9	3629.8	25.53	144895.5	3863.9	25.53	153452.5	4083.9	25.51				
154679.9	3867.0	28.00	163864.2	4088.9	27.98	174069.7	4351.7	27.99	184398.6	4601.3	27.97				
183044.6	4306.9	30.46	193953.9	4555.6	30.44	206022.5	4847.6	30.44	218292.0	5127.2	30.47				
213875.9	4752.8	32.92	226660.2	5028.5	32.91	240753.7	5350.1	32.91	255132.6	5660.2	32.89				
247173.6	5203.7	35.39	261982.9	5506.7	35.38	278263.5	5858.2	35.38	294920.5	6199.1	35.37				

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

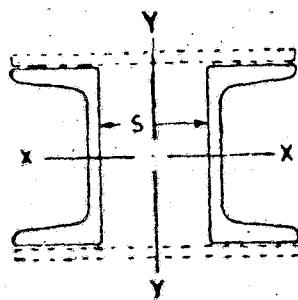


TABLE 16

TWO CHANNELS OF SAME SIZE
LACED OR BATTENED (COLUMNS)

Designation		ISJC 100			ISJC 125			ISJC 150		
Weight, kg N		11.6 113.8			15.8 155.0			19.8 194.2		
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	
<i>s</i>	I_{yy} cm ⁴	Z_{yy} cm ³	r_{yy} cm	I_{yy} cm ⁴	Z_{yy} cm ³	r_{yy} cm	I_{yy} cm ⁴	Z_{yy} cm ³	r_{yy} cm	
mm										
0.0	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	39.6	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	4.38	
50.0	255.2	36.5	4.15	396.5	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	1035.8	103.6	6.40	
100.0	636.8	67.0	6.56	939.4	93.9	6.83	1198.0	114.1	6.88	
120.0	841.3	80.1	7.53	1227.0	111.5	7.81	1560.3	135.7	7.85	
140.0	1075.5	93.5	8.52	1554.8	129.6	8.79	1973.2	157.9	8.83	
160.0	1339.3	107.1	9.51	1923.0	147.9	9.77	2436.7	180.5	9.81	
180.0	1632.7	120.9	10.50	2331.4	166.5	10.76	2950.8	203.5	10.80	
200.0	1955.8	134.9	11.49	2780.2	185.3	11.75	3515.5	226.8	11.79	
220.0	2308.5	148.9	12.48	3269.2	204.3	12.74	4130.8	250.3	12.78	
240.0	2690.9	163.1	13.47	3798.4	223.4	13.73	4796.7	274.1	13.77	
260.0	3102.9	177.3	14.47	4368.0	242.7	14.73	5513.2	298.0	14.76	
280.0	3544.5	191.6	15.47	4977.8	262.0	15.72	6280.3	322.1	15.76	
300.0	4015.8	205.9	16.46	5628.0	281.4	16.72	7098.0	346.2	16.75	
320.0	4516.7	220.3	17.46	6318.4	300.9	17.71	7966.3	370.5	17.74	
340.0	5047.3	234.8	18.46	7049.0	320.4	18.71	8885.1	394.9	18.74	
360.0	5607.5	249.2	19.45	7820.0	340.0	19.70	9854.6	419.3	19.74	
380.0	6197.3	263.7	20.45	8631.2	359.6	20.70	10874.7	443.9	20.73	
400.0	6816.8	278.2	21.45	9482.8	379.3	21.70	11945.4	468.4	21.73	

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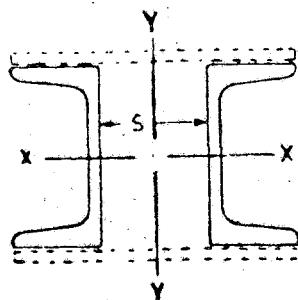


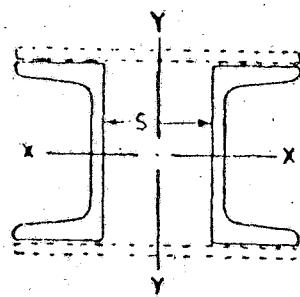
TABLE 16 (Contd.)

TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

		ISJC 175			ISJC 200			ISJC 75		
		Weight, kg			22.4		27.8		11.4	
		N			219.7		272.7		111.8	
		Area, cm ²		28.48	35.54		14.52			
		Moment of Inertia I_x , cm ⁴		1439.8	2322.4		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 S	Moment of Inertia I_{yy}	Modulus of Section Z_{yy}	Radius of Gyration r_{yy}	Moment of Inertia I_{xy}	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}	
mm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm	
0.0	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	1046.3	104.6	5.43	297.8	42.5	4.53	
70.0	886.0	93.3	5.58	1231.8	117.3	5.89	364.5	48.6	5.01	
80.0	1042.6	104.3	6.05	1435.1	130.5	6.35	438.6	54.8	5.50	
90.0	1213.5	115.6	6.53	1656.1	144.0	6.83	519.9	61.2	5.98	
100.0	1398.6	127.1	7.01	1895.0	157.9	7.30	608.5	67.6	6.47	
120.0	1811.6	151.0	7.98	2425.9	186.6	8.26	807.4	80.7	7.46	
140.0	2281.5	175.5	8.95	3028.0	216.3	9.23	1035.4	94.1	8.44	
160.0	2808.4	200.6	9.93	3701.1	246.7	10.20	1292.4	107.7	9.43	
180.0	3392.2	226.1	10.91	4445.3	277.8	11.18	1578.4	121.4	10.43	
200.0	4033.0	252.1	11.90	5260.6	309.4	12.17	1893.5	135.3	11.42	
220.0	4730.8	278.3	12.89	6147.0	341.5	13.15	2237.6	149.2	12.41	
240.0	5485.5	304.8	13.88	7104.4	373.9	14.14	2610.8	163.2	13.41	
260.0	6297.2	331.4	14.87	8132.9	406.6	15.13	3013.0	177.2	14.41	
280.0	7165.8	358.3	15.86	9232.6	439.6	16.12	3444.2	191.3	15.40	
300.0	8091.4	385.3	16.86	10403.2	472.9	17.11	3904.5	205.5	16.40	
320.0	9074.0	412.5	17.85	11645.0	506.3	18.10	4393.8	219.7	17.40	
340.0	10113.5	439.7	18.84	12957.9	539.9	19.09	4912.2	233.9	18.39	
360.0	11210.0	467.1	19.84	14341.8	573.7	20.09	5459.6	248.2	19.39	
380.0	12363.4	494.5	20.84	15796.8	607.6	21.08	6036.1	262.4	20.39	
400.0	13573.8	522.1	21.83	17322.9	641.6	22.08	6641.5	276.7	21.39	

(Continued)

TABLE 16 (Contd.)



TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

Designation		ISLC 100		ISLC 125		ISLC 150	
Weight, Kg		15.8		21.4		28.8	
N		155.0		209.9		282.5	
Area, cm ²		20.04		27.34		36.72	
Moment of Inertia I_{xx} , cm ⁴		329.4		713.6		1394.4	
Modulus of Section Z_{xx} , cm ³		65.9		114.2		186.0	
Radius of Gyration r_{xx} , cm		4.06		5.11		6.16	
Spacing Between Webs	Moment of Inertia	Modulus of Section	Radius of Gyration	Moment of Inertia	Modulus of Section	Moment of Inertia	Modulus of Section
S mm	I_{yy} , cm ⁴	Z_{yy} , cm ³	r_{yy} , cm	I_{yy} , cm ⁴	Z_{yy} , cm ³	r_{yy} , cm	Z_{yy} , cm ³
0.0	102.2	20.4	2.26	228.2	35.1	2.89	414.4
5.0	119.7	22.8	2.44	257.8	38.2	3.07	460.4
10.0	139.7	25.4	2.64	290.8	41.5	3.30	511.0
15.0	162.2	28.2	2.84	327.2	45.1	3.46	566.1
20.0	187.2	31.2	3.06	367.1	49.0	3.66	625.9
25.0	214.7	34.4	3.27	410.3	52.9	3.87	690.3
30.0	244.7	37.6	3.49	457.0	57.1	4.09	759.2
35.0	277.2	41.1	3.72	507.1	61.5	4.31	832.7
40.0	312.2	44.6	3.95	560.6	66.0	4.53	910.9
45.0	349.7	48.2	4.18	617.6	70.6	4.75	993.6
50.0	389.8	52.0	4.41	677.9	75.3	4.98	1080.9
60.0	477.3	59.7	4.88	808.9	85.2	5.44	1269.2
70.0	574.9	67.6	5.36	953.5	95.4	5.91	1476.0
80.0	682.6	75.8	5.84	1111.8	105.9	6.38	1701.1
90.0	800.2	84.2	6.32	1253.8	116.7	6.85	1944.5
100.0	927.8	92.8	6.80	1469.4	127.8	7.33	2206.3
120.0	1213.2	110.3	7.78	1881.7	150.5	8.30	2785.0
140.0	1538.7	128.2	8.76	2348.7	174.0	9.27	3437.2
160.0	1904.2	146.5	9.75	2870.3	198.0	10.25	4162.8
180.0	2309.8	165.0	10.74	3446.6	222.4	12.28	4961.8
200.0	2755.5	183.7	11.73	4077.7	247.1	12.21	5834.3
220.0	3241.3	202.6	12.72	4763.3	272.2	13.20	6780.2
240.0	3767.1	221.6	13.71	5503.7	297.5	14.19	7799.5
260.0	4333.0	240.7	14.70	6298.8	323.0	15.18	8892.3
280.0	4939.0	259.9	15.70	7148.5	348.7	16.17	10058.5
300.0	5585.1	279.3	16.69	8052.9	374.6	17.16	11298.2
320.0	6271.3	298.6	17.69	9012.0	400.5	18.16	12404.9
340.0	6997.6	318.1	18.69	10025.7	426.6	19.15	13997.9
360.0	7763.9	337.6	19.68	11094.2	452.8	20.14	15457.8
380.0	8570.3	357.1	20.68	12217.3	479.1	21.14	16991.3
400.0	9416.8	376.7	21.68	13395.1	505.5	22.13	18598.1
							676.3

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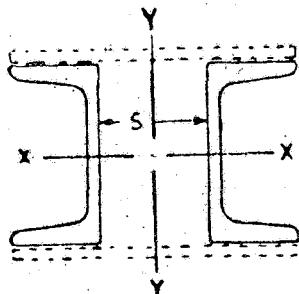


TABLE 16 (Contd.)

TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

		ISLC 175			ISLC 200			ISLC 225		
Spacing Between Webs <i>S</i> mm	Moment of Inertia <i>I_{yy}</i> cm ⁴	ISLC 175		ISLC 200		ISLC 225		Radius of Gyration <i>r_{yy}</i> cm		
		Modulus of Section <i>Z_{yy}</i> cm ³	Radius of Gyration <i>r_{yy}</i> cm	Modulus of Section <i>Z_{yy}</i> cm ³	Radius of Gyration <i>r_{yy}</i> cm	Modulus of Section <i>Z_{yy}</i> cm ³	Radius of Gyration <i>r_{yy}</i> cm			
0.0	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	629.1	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	1048.2	107.5	4.14	
20.0	770.9	90.7	4.15	882.3	103.8	4.10	1150.0	115.0	4.34	
25.0	849.8	97.1	4.36	973.4	111.2	4.31	1259.4	122.9	4.54	
30.0	934.4	103.8	4.57	1071.1	119.0	4.52	1376.5	131.1	4.75	
35.0	1024.6	110.8	4.78	1175.3	127.1	4.73	1501.2	139.6	4.96	
40.0	1120.3	117.9	5.00	1286.1	135.4	3.95	1633.6	148.5	5.17	
45.0	1221.7	125.3	5.22	1403.4	143.9	5.17	1773.6	157.6	5.39	
50.0	1328.6	132.9	5.45	1527.3	152.7	5.40	1921.2	167.1	5.61	
60.0	1559.4	148.5	5.90	1794.8	170.9	5.85	2239.3	186.6	6.06	
70.0	1812.5	164.8	6.36	2088.4	189.9	6.31	2587.9	207.0	6.51	
80.0	2088.0	181.6	6.83	2408.3	209.4	6.78	2967.1	228.2	6.97	
90.0	2385.9	198.8	7.30	2754.4	229.5	7.25	3376.8	250.1	7.44	
100.0	2706.2	216.5	7.77	3126.7	250.1	7.72	3817.1	272.6	7.91	
120.0	3414.1	252.9	8.73	3950.0	292.6	8.68	4789.2	319.7	8.86	
140.0	4211.5	290.5	9.70	4878.2	336.4	9.64	5883.4	367.7	9.82	
160.0	5098.6	328.9	10.67	5911.3	381.4	10.62	7099.7	417.6	10.78	
180.0	6075.2	368.3	11.64	7049.3	427.2	11.59	8438.1	468.8	11.76	
200.0	7141.4	408.1	12.63	8292.1	473.8	12.57	9898.7	521.0	12.73	
220.0	8297.3	448.5	13.61	9639.8	521.1	13.56	11481.3	574.1	13.71	
240.0	9542.7	489.4	14.59	11092.4	568.8	14.54	13186.1	627.9	14.70	
260.0	10877.8	530.6	15.58	12649.8	617.1	15.53	15013.0	682.4	15.68	
280.0	12302.4	572.9	16.57	14312.2	665.7	16.52	16962.1	737.5	16.87	
300.0	13816.1	614.1	17.56	16079.4	714.6	17.51	19033.2	793.1	17.66	
320.0	15420.5	656.2	18.55	17951.5	763.9	18.50	21226.5	849.1	18.64	
340.0	17113.9	698.5	19.54	19928.5	813.4	19.49	23541.9	905.5	19.64	
360.0	18897.0	741.1	20.54	2210.4	863.2	20.49	25979.4	962.2	20.62	
380.0	20769.6	783.8	21.53	24197.1	913.1	21.48	28539.1	1019.3	21.62	
400.0	22731.8	826.6	22.53	26488.8	963.2	22.48	31220.8	1076.6	22.61	
450.0	—	—	—	—	—	—	38459.5	1220.9	25.10	
500.0	—	—	—	—	—	—	46461.4	1366.5	27.58	

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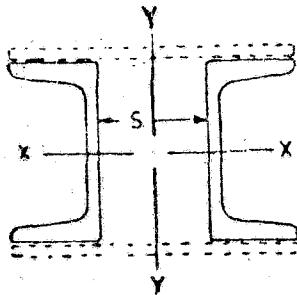


TABLE 16 (Contd.)

TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

		Designation	ISLC 250		ISLC 300		ISLC 350	
		Weight kg N	56.0 549.4		66.2 649.4		77.6 761.3	
		Area, cm ²	71.30		84.22		98.94	
		Moment of Inertia I_{xx} , cm ⁴	7375.0		12095.8		18625.2	
		Modulus of Section Z_{xx} , cm ²	590.0		806.4		1064.2	
		Radius of Gyration r_{xx} , cm	10.17		11.98		13.72	
Spacing Between Webs <i>S</i>	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}
mm	cm ⁴	cm ³	cm	cm ⁴	cm ³	cm	cm ⁴	cm ³
0.0	1116.6	111.7	3.96	1239.6	124.0	3.84	1363.9	136.4
5.0	1217.3	118.8	4.13	1352.3	131.9	4.01	1489.3	145.3
10.0	1326.9	126.4	4.31	1475.5	140.5	4.19	1627.0	155.0
15.0	1445.4	134.5	4.50	1609.2	149.7	4.37	1777.2	165.3
20.0	1572.9	143.0	4.70	1753.4	159.4	4.56	1939.7	176.3
25.0	1709.3	151.9	4.90	1908.1	169.6	4.76	2114.6	188.0
30.0	1854.5	161.3	5.10	2073.4	180.3	4.96	2301.8	200.2
35.0	2008.7	171.0	5.31	2249.2	191.4	5.17	2501.4	212.9
40.0	2171.8	181.0	5.52	2435.6	203.0	5.38	2713.4	226.1
45.0	2343.8	191.3	5.73	2632.4	214.9	5.59	2937.7	239.8
50.0	2524.8	202.0	5.95	2839.8	227.2	5.81	3174.5	254.0
60.0	2913.3	224.1	6.39	3286.2	252.8	6.25	3685.0	283.5
70.0	3337.6	247.2	6.84	3774.7	279.6	6.69	4245.0	314.4
80.0	3797.5	271.2	7.30	4305.2	307.5	7.15	4854.5	346.7
90.0	4293.0	296.1	7.76	4877.9	336.4	7.61	5513.4	380.2
100.0	4824.2	321.6	8.23	5492.8	366.2	8.08	6221.8	414.8
120.0	5993.5	374.6	9.17	6848.7	428.0	9.02	7787.0	486.7
140.0	7305.4	429.7	10.12	8373.1	492.5	9.97	9550.1	561.8
160.0	8759.9	486.7	11.08	10065.9	559.2	9.93	11511.1	639.5
180.0	10357.1	545.1	12.05	11927.2	627.7	11.90	13670.0	719.5
200.0	12096.8	604.8	13.03	13956.9	697.8	12.87	16026.8	801.3
220.0	13979.1	665.7	14.00	16155.0	769.3	13.85	18581.4	884.8
240.0	16004.0	727.5	14.98	18521.6	841.9	14.83	21333.9	969.7
260.0	18171.5	790.1	15.96	21056.6	915.5	15.81	24284.3	1055.8
280.0	20481.7	853.4	16.95	23760.1	990.0	16.80	27432.6	1143.0
300.0	22934.4	917.4	17.93	26632.0	1065.3	17.78	30778.7	1231.1
320.0	25529.7	981.9	18.92	29672.3	1141.2	18.77	34322.7	1320.1
340.0	28267.6	1046.9	19.91	32881.1	1217.8	19.76	38064.7	1409.8
360.0	31148.1	1112.4	20.90	36258.3	1294.9	20.75	42004.4	1500.2
380.0	34171.3	1178.3	21.89	39804.0	1372.6	21.74	46142.1	1591.1
400.0	37337.0	1244.6	22.88	43518.1	1450.6	22.73	50477.7	1682.6
450.0	45875.2	1411.5	25.37	53540.3	1647.4	25.21	62182.3	1913.3
500.0	55304.6	1580.1	27.85	64615.2	1846.1	27.70	75123.6	2146.4
550.0	—	—	—	76742.9	2046.5	30.19	89301.7	2381.4
600.0	—	—	—	89923.3	2248.1	32.68	104716.6	2617.9

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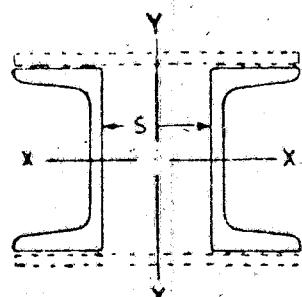


TABLE 16 (Contd.)

TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

Designation		ISLC 400		ISMC 75		ISMC 100	
Weight, kg	N	91.4	896.6	13.6	133.4	18.4	180.5
Area, cm ²		116.50		17.34		23.40	
Moment of Inertia I_{xx} , cm ⁴		27979.0		152.0		373.4	
Modulus 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, mm	Moment of Inertia, I_y , cm ⁴	Modulus of Section, Z_{yy} , cm ³	Radius of Gyration, r_y , cm	Moment of Inertia, I_y , cm ⁴	Modulus of Section, Z_{yy} , cm ³	Radius of Gyration, r_y , cm	Moment of Inertia, I_y , cm ⁴
0.0	1569.7	157.0	3.67	55.0	13.7	1.78	106.6
5.0	1714.4	167.3	3.84	67.4	15.9	1.97	125.9
10.0	1873.7	178.4	4.01	82.0	18.2	2.17	148.2
15.0	2047.6	190.5	4.19	98.8	20.8	2.39	173.4
20.0	2236.0	203.3	4.38	117.7	23.5	2.61	201.6
25.0	2439.0	216.8	4.58	138.8	26.4	2.83	232.6
30.0	2656.6	231.0	4.78	162.1	29.5	3.06	266.6
35.0	2888.7	245.8	4.98	187.6	32.6	3.29	303.5
40.0	3135.4	261.3	5.19	215.2	35.9	3.52	343.4
45.0	3396.7	277.3	5.40	245.0	39.2	3.76	386.1
50.0	3672.5	293.8	5.61	276.9	42.6	4.00	431.8
60.0	4267.8	328.3	6.05	347.3	49.6	4.48	532.0
70.0	4921.4	364.5	6.50	426.4	56.9	4.96	643.8
80.0	5633.2	402.4	6.95	514.1	64.3	5.45	767.4
90.0	6403.2	441.6	7.41	610.5	71.8	5.93	902.6
100.0	7231.6	482.1	7.88	715.6	79.5	6.42	1049.6
120.0	9062.9	566.4	8.82	951.8	95.2	7.41	1378.6
140.0	11127.3	654.5	9.77	1222.6	111.1	8.40	1754.4
160.0	13424.7	745.8	10.74	1528.2	127.3	9.39	2177.0
180.0	15955.1	839.7	11.70	1868.4	143.7	10.38	2646.4
200.0	18718.5	935.9	12.68	2243.3	160.2	11.37	3162.6
220.0	21714.8	1034.0	13.65	2652.8	176.9	12.37	3725.6
240.0	24944.2	1133.8	14.63	3097.1	193.6	13.36	4335.4
260.0	28406.6	1235.1	15.62	3576.0	210.4	14.36	4992.0
280.0	32102.0	1337.6	16.60	5089.6	227.2	15.36	5695.4
300.0	36030.4	1441.2	17.59	4637.9	244.1	16.35	6445.6
320.0	40191.7	1545.8	18.57	4220.9	261.0	17.35	7242.6
340.0	44586.1	1651.3	19.56	5838.5	278.0	18.35	8086.4
360.0	49213.5	1757.6	20.55	6490.9	295.0	19.35	8977.0
380.0	54073.9	1864.6	21.54	7177.9	312.1	20.35	9914.5
400.0	59167.3	1972.2	22.54	7899.6	329.1	21.34	10898.7
450.0	72920.1	2243.7	25.02	—	—	—	—
500.0	88129.2	2518.0	27.50	—	—	—	—
550.0	104794.5	2794.5	29.99	—	—	—	—
600.0	122916.1	3072.9	32.48	—	—	—	—

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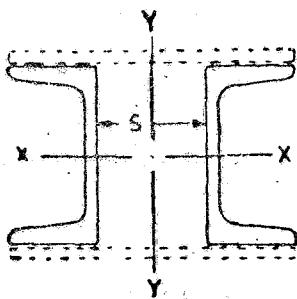


TABLE 16 (Contd.)

TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

Designation		ISMC 125			ISMC 150			ISMC 175		
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	
		I_y cm 4	Z_{yy} cm 3	r_y cm	I_y cm 4	Z_{yy} cm 3	r_y cm	I_y cm 4	Z_{yy} cm 3	r_y cm
S										
mm	cm 4	cm 3	cm	cm 4	cm 3	cm	cm 4	cm 3	cm	
0.0	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	1002.8	108.4	4.53	
40.0	622.5	73.2	4.38	948.3	99.8	4.77	1102.1	116.0	4.75	
45.0	688.3	78.7	4.61	1039.0	106.6	4.99	1207.6	123.9	4.98	
50.0	758.1	84.2	4.84	1134.9	113.5	5.21	1319.1	131.9	5.20	
60.0	910.0	95.8	5.30	1342.5	127.9	5.67	1560.5	148.6	5.66	
70.0	1078.0	107.8	5.77	1570.9	142.8	6.13	1826.2	166.0	6.12	
80.0	1262.3	120.2	6.24	1820.2	158.3	6.60	2116.3	184.0	6.59	
90.0	1462.7	133.0	6.72	2090.4	174.2	7.08	2430.8	202.6	7.06	
100.0	1679.3	146.0	7.20	2381.5	190.5	7.55	2769.7	221.6	7.54	
120.0	2161.2	172.9	8.17	3026.3	224.2	8.51	3520.6	260.8	8.50	
140.0	2707.7	200.6	9.14	3754.6	258.9	9.48	4369.0	301.3	9.47	
160.0	3319.1	228.9	10.12	4566.4	294.6	10.46	5315.0	342.9	10.44	
180.0	3995.2	257.8	11.11	5461.7	331.0	11.44	6358.5	385.4	11.42	
200.0	4736.0	287.0	12.09	6440.6	368.0	12.42	7499.4	428.5	12.40	
220.0	5541.6	316.7	13.08	7502.9	405.6	13.40	8737.9	472.8	13.39	
240.0	6412.0	346.6	14.07	8648.8	443.5	14.39	10074.0	516.6	14.37	
260.0	7374.1	378.2	15.09	9878.2	481.9	15.38	11507.5	561.3	15.36	
280.0	8347.0	407.2	16.06	11191.2	520.5	16.37	13038.6	606.9	16.35	
300.0	9411.7	437.8	17.05	12587.6	559.4	17.36	14667.2	651.9	17.34	
320.0	10541.1	468.5	18.04	14067.6	598.6	18.35	16393.3	697.6	18.34	
340.0	11735.3	499.4	19.04	15631.1	638.0	19.35	18216.9	743.5	19.33	
360.0	12994.2	530.4	20.03	17278.1	677.6	20.34	20138.0	789.7	20.32	
380.0	14317.9	561.5	21.03	19008.6	717.3	21.34	22156.7	836.1	21.32	
400.0	15706.4	592.7	22.02	20822.7	757.2	22.33	24272.9	822.7	22.31	

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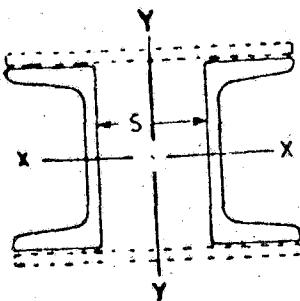


TABLE 16 (Contd.)

TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

		Designation	ISMC 200		ISMC 225		ISMC 250	
Weight, kg	N		44.2		51.8		60.8	
			433.6		508.1		596.4	
Area, cm ²			56.42		66.02		77.34	
Moment of Inertia I_{xx} , cm ⁴			3638.6		5389.2		7633.6	
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
S	I_{yy} cm ⁴	Z_{yy} cm ³	r_{yy} cm	I_{yy} cm ⁴	Z_{yy} cm ³	r_{yy} cm	I_{yy} cm ⁴	Z_{yy} cm ³
mm								
0.0	546.5	72.9	3.11	723.6	90.5	3.31	847.3	105.9
5.0	611.2	78.9	3.29	803.7	97.4	3.49	941.1	114.1
10.0	683.0	85.4	3.48	892.0	104.9	3.68	1044.5	122.9
15.0	761.9	92.3	3.67	988.6	113.0	3.87	1157.7	132.3
20.0	847.8	99.7	3.88	1093.4	121.5	4.07	1280.4	142.3
25.0	940.7	107.5	4.08	1206.4	130.4	4.27	1412.9	152.7
30.0	1040.7	115.6	4.29	1327.7	139.8	4.48	1555.0	163.7
35.0	1147.8	124.1	4.51	1457.3	149.5	4.70	1706.8	175.1
40.0	1261.9	132.8	4.73	1595.1	159.5	4.92	1868.2	186.8
45.0	1383.0	141.9	4.95	1741.2	169.9	5.14	2039.3	199.0
50.0	1511.3	151.1	5.18	1895.5	180.5	5.36	2220.1	211.4
60.0	1788.8	170.4	5.63	2228.9	202.6	5.81	2610.7	237.3
70.0	2094.6	190.4	6.09	2595.3	225.7	6.27	3039.9	264.3
80.0	2428.6	211.2	6.56	2994.7	249.6	6.74	3507.8	292.3
90.0	2790.9	232.6	7.03	3427.2	274.2	7.20	4014.4	321.2
100.0	3181.3	254.5	7.51	3892.6	299.4	7.68	4559.6	350.7
120.0	4046.8	299.8	8.47	4922.5	351.6	8.63	5766.2	411.9
140.0	5025.1	346.6	9.44	6084.5	405.6	9.60	7127.3	475.2
160.0	6116.3	394.6	10.41	7378.5	461.2	10.57	8643.2	540.2
180.0	7320.3	443.7	11.39	8804.5	517.9	11.55	10313.7	606.7
200.0	8637.1	493.5	12.37	10362.6	575.7	12.53	12139.0	674.4
220.0	10066.8	544.2	13.36	12052.7	634.4	13.51	14118.9	743.1
240.0	11609.3	595.3	14.34	13874.8	693.7	14.50	16253.5	812.7
260.0	13264.7	647.1	15.33	15829.0	753.8	15.48	18542.7	883.0
280.0	15032.9	699.2	16.32	17915.3	814.3	16.47	20986.7	953.9
300.0	16913.9	751.7	17.31	20133.5	875.4	17.46	23585.3	1025.4
320.0	18907.8	804.6	18.31	22483.8	836.8	18.45	26338.6	1097.4
340.0	21014.5	857.7	19.30	24966.2	998.6	19.45	29245.6	1169.9
360.0	23234.1	911.1	20.29	27580.6	1060.8	20.44	32309.2	1242.7
380.0	25566.5	964.8	21.29	30327.0	1123.2	21.43	35526.6	1315.8
400.0	28011.7	1018.6	22.28	33205.5	1185.9	22.43	38898.6	1389.2
450.0	—	—	—	40979.3	1343.6	24.91	48005.4	1573.9
500.0	—	—	—	49578.4	1502.4	27.40	58078.9	1760.0

(Continued)

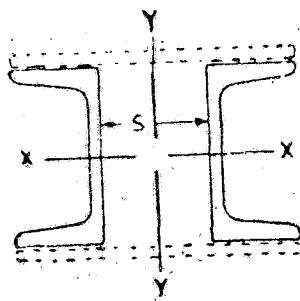


TABLE 16 (Contd.)

TWO CHANNELS OF SAME SIZE LACED OR BATTENED (COLUMNS)

		Designation		ISMC 300		ISMC 350		ISMC 400		
		Weight, kg		71.6		84.2		98.8		
		N		702.4		826.0		969.2		
		Area, cm ²		91.28		107.32		125.86		
		Moment of Inertia I _{xx} , cm ⁴		12725.2		20016.0		30165.6		
		Modulus of Section Z _{xx} , cm ³		848.4		1143.8		1508.2		
		Radius of Gyration r _{xx} , cm		11.81		13.66		15.48		
Spacing Between Webs	S mm	Moment of Inertia I _{yy} , cm ⁴	Modulus of Section Z _{yy} , cm ³	Radius of Gyration r _{yy} , cm	Moment of Inertia I _{yy} , cm ⁴	Modulus of Section Z _{yy} , cm ³	Radius of Gyration r _{yy} , cm	Moment of Inertia I _{yy} , cm ⁴	Modulus of Section Z _{yy} , cm ³	Radius of Gyration r _{yy} , cm
0.0	1130.0	125.6	3.52	1500.1	150.0	3.74	1746.7	174.7	3.73	
5.0	1243.4	134.4	3.69	1637.8	159.8	3.91	1906.8	186.0	3.89	
10.0	1368.2	144.0	3.87	1788.8	170.4	4.08	2082.7	198.4	4.07	
15.0	1504.5	154.3	4.06	1953.3	181.7	4.27	2274.4	211.6	4.25	
20.0	1652.1	165.2	4.25	2131.2	193.7	4.46	2481.7	225.6	4.44	
25.0	1811.2	176.7	4.45	2322.5	206.4	4.65	2704.8	240.4	4.64	
30.0	1991.6	188.7	4.66	2527.2	219.8	4.85	2943.6	256.0	4.84	
35.0	2163.5	201.3	4.87	2745.3	233.6	5.06	3198.2	272.2	5.04	
40.0	2356.8	214.3	5.08	2976.9	248.1	5.27	3468.5	289.0	5.25	
45.0	2561.5	227.7	5.30	3221.8	263.0	5.48	3754.5	306.5	5.46	
50.0	2777.6	241.5	5.52	3480.2	278.4	5.69	4056.2	324.5	5.68	
60.0	3244.0	270.3	5.96	4037.2	310.6	6.13	4706.9	362.1	6.12	
70.0	3756.1	300.5	6.41	4647.8	344.3	6.58	5420.5	401.5	6.56	
80.0	4313.8	331.8	6.87	5312.1	379.4	7.04	6197.1	442.6	7.02	
90.0	4917.2	364.2	7.34	6030.1	415.9	7.50	7036.6	485.3	7.48	
100.0	5566.2	397.6	7.81	6801.7	453.4	7.96	7939.0	529.3	7.94	
120.0	7001.1	466.7	8.76	8506.0	531.6	8.90	9932.6	620.8	8.88	
140.0	8618.6	538.7	9.72	10424.9	613.2	9.86	12178.0	716.4	9.84	
160.0	10418.6	612.9	10.66	12558.4	697.7	10.82	14675.0	815.3	10.80	
180.0	12401.2	689.0	11.66	14906.6	784.6	11.79	17423.8	917.0	11.77	
200.0	14566.4	766.7	12.63	17469.4	873.5	12.76	20424.3	1021.2	12.74	
220.0	16914.1	845.7	13.61	20246.8	964.1	13.74	23676.5	1127.5	13.72	
240.0	19444.4	925.9	14.60	23238.9	1056.3	14.72	27180.5	1235.5	14.70	
260.0	22157.3	1007.1	15.58	26445.6	1149.8	15.70	30936.1	1345.0	15.68	
280.0	25052.7	1089.2	16.57	29867.0	1244.5	16.68	34943.5	1456.0	16.66	
300.0	28130.6	1172.1	17.56	33503.0	1340.1	17.67	39202.6	1568.1	17.65	
320.0	31391.1	1255.6	18.54	37353.6	1436.7	18.66	43713.4	1681.3	18.64	
340.0	34834.2	1339.8	19.54	41418.9	1534.0	19.65	47476.5	1795.4	19.63	
360.0	38459.9	1424.4	20.53	45698.8	1632.1	20.64	53490.2	1910.4	20.62	
380.0	42268.1	1509.6	21.52	50193.4	1730.8	21.63	58756.2	2026.1	21.61	
400.0	46258.8	1595.1	22.51	54902.6	1830.1	22.62	64273.9	2142.5	22.60	
450.0	57034.4	1810.6	25.00	67614.6	2080.4	25.10	79169.5	2436.0	25.08	
500.0	68951.0	2028.0	27.48	81668.2	2333.4	27.59	95638.2	2732.5	27.57	
550.0	82008.6	2246.8	29.97	97063.2	2588.4	30.07	113680.3	3031.5	30.05	
600.0	96207.2	2466.9	32.47	113799.8	2845.0	32.56	133295.6	3332.4	32.54	

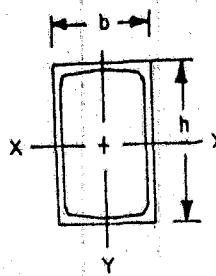


TABLE 17

DOUBLE CHANNELS WITH FLANGES BUTTING AND WELDED TOE TO TOE (COLUMNS)

Nominal Size	Composed of Two Channels, Each of Same size		Weight per Metre (W)	Sectional Area	Moment of Inertia		Moduli of Section		Radius of Gyration			
	h x b	Designation			I_{xx}	I_{yy}	Z_{xx}	Z_{yy}	r_{xx}	r_{yy}		
mm mm	w	kg/m	N/m	kg	N	cm ²	cm ⁴	cm ²	cm ³	cm	cm	
100 x 90	ISJC 100	5.8	56.9	11.6	113.8	14.82	247.6	172.2	49.6	38.3	4.09	3.41
125 x 100	ISJC 125	7.9	77.5	15.8	155.0	20.14	540.0	278.8	86.4	55.8	5.18	3.72
150 x 110	ISJC 150	9.9	97.1	19.8	194.2	25.30	942.2	448.9	125.6	81.6	6.10	4.21
175 x 120	ISJC 175	11.2	109.9	22.4	219.7	28.48	1439.8	615.4	164.6	102.6	7.11	4.65
200 x 140	ISJC 200	13.9	136.4	27.8	272.7	35.54	2322.4	1067.6	232.2	152.5	8.08	5.48
75 x 80	ISLC 75	5.7	55.9	11.4	111.8	14.52	132.2	125.0	35.2	31.2	3.02	2.93
100 x 100	ISLC 100	7.9	77.5	15.8	155.0	20.04	329.4	278.5	65.8	55.7	4.06	3.73
125 x 130	ISLC 125	10.7	105.0	21.4	209.9	27.34	713.6	658.2	114.2	101.3	5.11	4.91
150 x 150	ISLC 150	14.4	141.3	28.8	282.5	36.72	1394.4	1169.0	186.0	155.9	6.16	5.64
175 x 150	ISLC 175	17.6	172.7	35.2	345.3	44.80	2296.8	1418.3	262.6	189.1	7.16	5.63
200 x 150	ISLC 200	20.6	202.1	41.2	404.2	52.44	3451.0	1684.6	245.2	224.6	8.11	5.67
225 x 150	ISLC 225	24.0	235.4	48.0	470.9	61.06	5095.8	3030.6	453.0	336.7	9.14	7.05
250 x 200	ISLC 250	28.0	274.9	56.0	549.8	71.30	7375.0	4396.4	590.0	439.6	10.17	7.85
300 x 200	ISLC 300	33.1	324.7	66.2	649.4	84.22	12095.8	5366.4	806.4	536.6	11.98	7.98
350 x 200	ISLC 350	38.8	380.6	77.6	761.3	98.94	18625.2	6489.0	1064.2	648.9	13.72	8.10
400 x 200	ISLC 400	45.7	448.3	91.4	896.6	116.50	27979.0	7720.9	1399.0	772.1	15.50	8.14
75 x 80	ISMC 75	6.8	66.7	13.6	133.4	17.34	152.0	150.7	40.6	37.7	2.96	2.95
100 x 100	ISMC 100	9.2	90.3	18.4	180.5	23.40	373.4	333.6	74.6	66.7	4.00	3.78
125 x 130	ISMC 125	12.7	124.6	25.4	249.2	32.38	838.8	793.1	133.2	122.0	5.07	4.95
150 x 150	ISMC 150	16.4	160.9	32.8	321.8	41.76	1558.8	1368.8	207.8	182.5	6.11	5.73
175 x 150	ISMC 175	19.1	187.4	38.2	374.7	48.76	2446.6	1611.7	279.6	214.9	7.08	5.75
200 x 150	ISMC 200	22.1	216.8	44.2	433.6	56.42	3638.6	1883.6	363.8	251.2	8.03	5.78
225 x 160	ISMC 225	25.9	254.1	51.8	508.2	66.02	5389.2	2519.4	479.0	314.9	9.03	6.18
250 x 160	ISMC 250	30.4	298.2	60.8	596.4	77.34	7633.6	2951.0	610.6	368.9	9.94	6.18
300 x 180	ISMC 300	35.8	351.2	71.6	702.4	91.28	12725.2	4646.1	848.4	516.2	11.81	7.13
350 x 200	ISMC 350	42.1	413.0	84.2	826.0	107.32	20016.0	6994.9	1143.8	699.5	13.66	8.07
400 x 200	ISMC 400	49.4	484.6	98.8	969.2	125.86	30165.6	8241.1	1508.2	824.1	15.48	8.09

TABLE 18

EDGE DISTANCE OF HOLES

Diameter of Hole mm	Distance to Sheared or Hand Flame Cut Edge mm	Distance to Rolled, Machine Flame Cut, Sawn or Planed Edge mm
13.5 and below	19	17
15.5	25	22
17.5	29	25
19.5	32	29
21.5	32	29
23.5	38	32
25.5	44	38
29.0	51	44
32.0	57	51
35.0	57	51

TABLE 19

PERMISSIBLE STRESS σ_{ac} (N/mm²) IN AXIAL COMPRESSION FOR STEELS WITH VARIOUS YIELD STRESS

TABLE 20

**AREAS OF GROUPS OF ROUND BARS
(AREA In cm²)**

Diam. mm	Number of bars									
	1	2	3	4	5	6	7	8	9	10
5	0.20	0.39	0.59	0.79	0.98	1.18	1.37	1.57	1.77	1.96
6	0.28	0.56	0.85	1.13	1.41	1.70	1.98	2.26	2.54	2.83
7	0.38	0.77	1.15	1.54	1.92	2.31	2.69	3.08	3.46	3.85
8	0.50	1.00	1.51	2.01	2.51	3.01	3.52	4.02	4.52	5.03
10	0.79	1.57	2.36	3.14	3.96	4.71	5.50	6.28	7.07	7.85
12	1.13	2.26	3.39	4.52	5.65	6.79	7.92	9.05	10.18	11.31
14	1.54	3.08	4.62	6.16	7.70	9.24	10.78	12.32	13.85	15.39
16	2.01	4.02	6.03	8.04	10.05	12.06	14.07	16.08	18.10	20.11
18	2.54	5.09	7.63	10.18	12.72	15.26	17.81	20.36	22.90	25.45
20	3.14	6.28	9.42	12.57	15.71	18.84	21.99	25.14	28.28	31.42
22	3.80	7.60	11.40	15.21	19.01	22.81	26.61	30.41	34.21	38.01
24	4.52	9.05	13.57	18.10	22.62	27.14	31.67	36.19	40.72	45.24
26	5.31	10.62	15.93	21.24	26.55	31.86	37.17	42.47	47.78	53.09
28	6.16	12.31	18.47	24.63	30.79	36.94	43.10	49.26	55.42	61.58
30	7.07	14.14	21.21	28.27	35.34	42.41	49.48	56.55	63.62	70.69
32	8.04	16.08	24.13	32.17	40.21	48.26	56.30	64.34	72.38	80.42
34	9.08	18.16	27.24	36.32	45.40	54.48	63.56	72.63	81.71	90.74
36	10.18	20.36	30.54	40.72	50.90	61.07	71.25	81.43	91.61	101.79
38	11.34	22.68	34.02	45.36	56.70	68.04	79.38	90.73	102.07	113.41
40	12.57	25.13	37.70	50.26	62.83	75.40	87.96	100.53	113.10	125.66
45	15.90	31.81	47.71	63.62	79.52	95.43	111.33	127.23	143.14	159.04
50	19.64	39.27	58.91	78.54	98.15	117.81	137.45	157.08	176.72	196.35

TABLE 21

PERIMETER OF ROUND BARS

Dia. of bars (mm)	Perimeter in cms	Dia. of bars (mm)	Perimeter in cms
5	1.57	24	7.54
6	1.89	26	8.17
7	2.20	28	8.80
8	2.51	30	9.42
10	3.14	32	10.05
12	3.77	34	10.68
14	4.40	36	11.31
16	5.03	38	11.94
18	5.65	40	12.57
20	6.28	45	14.14
22	6.91	50	15.71

TABLE 22

ROUND BARS

Designation	Diameter	Cross-Sectional Area	*Weight per Metre		Perimeter
			kg	N	
ISRO 5	5.0 mm	0.20 cm	0.2	2.0	1.6
ISRO 6	6.0	0.28	0.2	2.0	1.9
ISRO 8	8.0	0.50	0.4	3.9	2.5
ISRO 10	10.0	0.79	0.6	5.9	3.1
ISRO 12	12	1.13	0.9	8.8	3.8
ISRO 16	16	2.01	1.6	15.7	5.0
ISRO 20	20	3.14	2.5	24.5	6.3
ISRO 25	25	4.91	3.8	37.3	7.8
ISRO 28	28	6.16	4.8	47.1	8.8
ISRO 32	32	8.04	6.3	61.8	10.1
ISRO 36	36	10.18	8.0	78.5	11.3
ISRO 40	40	12.57	9.9	97.1	12.6
ISRO 45	45	15.90	12.5	122.6	14.1
ISRO 50	50	19.64	15.4	151.1	15.7
ISRO 56	56	24.63	19.3	189.3	17.6
ISRO 63	63	31.17	24.5	240.3	19.8
ISRO 71	71	39.59	31.1	305.1	22.3
ISRO 80	80	50.26	39.5	387.5	25.1
ISRO 90	90	63.26	49.9	489.5	28.3
ISRO 100	100	78.54	61.7	605.3	31.4
ISRO 110	110	95.03	74.6	731.8	34.6
ISRO 125	125	122.72	96.3	944.7	39.3
ISRO 140	140	153.94	120.8	1185.0	44.0
ISRO 160	160	201.06	157.8	1548.0	50.3
ISRO 180	180	254.47	199.8	1960.0	56.6
ISRO 200	200	314.16	246.6	2419.2	62.8

TABLE 23

SQUARE BARS

Designation	Side Width	Cross-Sectional Area	*Weight per Metre		Perimeter
			kg	N	
ISSQ 5	5.0	0.25	0.2	2.0	2.0
ISSQ 6	6.0	0.36	0.3	2.9	2.4
ISSQ 8	8.0	0.64	0.5	4.9	3.2
ISSQ 10	10.0	1.00	0.8	7.8	4.0
ISSQ 12	12	1.44	1.1	10.8	4.8
ISSQ 16	16	2.56	2.0	19.6	6.4
ISSQ 20	20	4.00	3.1	30.4	8.0
ISSQ 25	25	6.25	4.9	48.1	10.0
ISSQ 32	32	10.24	8.0	78.5	12.8
ISSQ 40	40	16.00	12.6	123.6	16.0
ISSQ 50	50	25.00	19.6	192.3	20.0
ISSQ 63	63	39.69	31.2	306.1	25.2
ISSQ 80	80	64.00	50.2	492.5	32.0
ISSQ 100	100	100.00	78.5	770.1	40.0

*The weights per metre of bars given in the table are calculated on the basis that steel weighs 7.85 g/cm a 0.077 N/cm and are rounded off to one decimal place in kg.

TABLE 24

MILD STEEL FLATS

Thickness <i>t</i> mm	3.0	4.0	5.0	6.0	8.0	10.0	12					
Width <i>b</i> mm	Weight per metre length (W)											
	kg	N	kg	N	kg	N	kg	N	kg	N	kg	N
10	0.2	2.0	0.3	2.9	0.5	4.9	—	—	—	—	—	—
15	0.4	3.9	0.5	4.9	0.6	5.9	0.7	6.9	0.9	8.8	—	—
20	0.5	4.9	0.6	5.9	0.8	7.8	0.9	8.8	1.3	12.8	1.6	15.7
25	0.6	5.9	0.8	7.8	1.0	9.8	1.2	11.8	1.6	15.7	2.0	19.6
30	0.7	6.9	0.9	8.8	1.2	11.8	1.4	13.7	1.9	18.6	2.4	23.5
35	0.8	7.8	1.1	10.8	1.4	13.7	1.6	15.7	2.2	21.6	2.8	27.5
40	0.9	8.8	1.3	12.8	1.6	15.7	1.9	18.6	2.5	24.5	3.1	30.4
45	1.1	10.8	1.4	13.7	1.8	17.7	2.1	20.6	2.8	27.5	3.5	34.3
50	1.2	11.8	1.6	15.7	2.0	19.6	2.4	23.5	3.1	30.4	3.9	38.3
55	1.3	12.8	1.7	16.7	2.2	21.6	2.6	25.5	3.4	33.4	4.3	42.2
60	1.4	13.7	1.9	18.6	2.4	23.5	2.8	27.5	3.8	37.3	4.7	46.1
65	—	—	—	—	—	—	3.1	30.4	4.1	40.2	5.1	50.0
70	—	—	—	—	—	—	3.3	32.4	4.4	43.2	5.5	54.0
75	—	—	—	—	—	—	3.5	34.3	4.7	46.1	5.9	57.9
80	—	—	—	—	—	—	3.8	37.3	5.0	49.1	6.3	61.8
90	—	—	—	—	—	—	4.2	41.2	5.6	54.9	7.1	69.7
100	—	—	—	—	—	—	4.7	46.1	6.3	61.8	7.8	76.5
110	—	—	—	—	—	—	5.2	51.0	6.9	67.7	8.6	84.4
120	—	—	—	—	—	—	5.6	54.9	7.5	73.6	9.4	92.2
130	—	—	—	—	—	—	—	—	8.2	80.4	10.2	100.1
140	—	—	—	—	—	—	—	—	8.8	86.3	11.0	107.9
150	—	—	—	—	—	—	—	—	9.4	92.2	11.8	115.8
200	—	—	—	—	—	—	—	—	—	—	15.7	154.0
250	—	—	—	—	—	—	—	—	—	—	19.6	192.3
300	—	—	—	—	—	—	—	—	—	—	—	28.3
400	—	—	—	—	—	—	—	—	—	—	—	277.6

(Continued)

Note. The weight per metre values are calculated on the basis that steel weighs 7.85 g/cm^2 and are rounded off to one decimal place in kg.

TABLE 24 (Contd.)

MILD STEEL FLATS

	16	18	20	25	32	40	Thickness <i>t</i> mm					
	Weight per metre length (W)						Width <i>b</i> mm					
	kg	N	kg	N	kg	N	kg	N	kg	N	kg	N
	—	—	—	—	—	—	10		—	—	—	—
	—	—	—	—	—	—	15		—	—	—	—
	—	—	—	—	—	—	20		—	—	—	—
	—	—	—	—	—	—	25		—	—	—	—
3.8	37.3	—	—	—	—	—	30		—	—	—	—
4.4	43.2	5.0	49.1	5.5	—	—	35		—	—	—	—
5.0	49.1	5.6	54.9	6.3	61.8	—	40		—	—	—	—
5.6	54.9	6.4	62.8	7.1	69.7	—	45		—	—	—	—
6.3	61.8	7.1	69.7	7.8	76.5	9.8 96.1	50		—	—	—	—
6.9	67.7	7.8	76.5	8.6	84.4	10.8 105.9	55		—	—	—	—
7.5	73.6	8.5	83.4	9.4	92.2	11.8 115.8	60		—	—	—	—
8.2	80.4	9.2	90.3	10.2	100.1	12.8 125.6	65		16.3	159.9	20.4	200.1
8.8	86.3	9.9	97.1	11.0	107.9	13.7 134.4	70		17.6	172.7	22.2	215.8
9.4	92.2	10.6	104.0	11.8	115.8	14.7 144.2	75		18.8	184.4	23.6	231.5
10.0	98.1	11.3	110.9	12.6	123.6	15.7 154.0	80		20.1	197.2	25.1	246.2
11.3	110.9	12.7	124.6	14.1	138.3	17.7, 173.6	90		22.6	221.7	28.3	277.6
12.6	123.6	14.1	138.3	15.7	154.0	19.6 192.3	100		25.1	246.2	31.4	308.0
13.6	135.4	15.5	152.0	17.3	169.7	21.6 211.9	110		27.6	270.8	34.5	338.4
15.4	148.1	17.9	166.8	18.8	184.4	23.6 231.5	120		30.1	295.3	37.7	369.8
16.3	159.9	18.4	180.5	20.4	200.1	25.5 250.2	130		32.7	320.8	40.8	400.2
17.6	172.7	19.8	194.2	22.0	215.8	27.5 269.8	140		35.2	345.3	44.0	431.6
18.8	184.4	21.2	208.0	23.6	231.5	29.4 288.4	150		37.7	369.8	47.1	462.1
25.1	246.2	28.3	277.6	31.4	308.0	39.2 384.6	200		50.2	492.5	62.8	616.1
31.4	308.0	35.3	346.3	39.2	384.6	49.1 481.7	250		62.8	616.1	78.5	770.1
37.7	369.8	42.4	415.9	47.1	462.1	58.9 577.8	300		75.4	739.7	94.2	924.1
50.2	492.5	56.5	554.3	62.8	616.1	78.5 970.1	400		100.5	985.9	125.6	1232.1

Note. The weight per metre values are calculated on the basis that steel weighs 7.85 g/cm^2 and are rounded off to one decimal place in kg.

TABLE 25

MILD STEEL FLATS

Thickness <i>t</i> mm	3.0	4.0	5.0	6.0	8.0	10.0	12
Width <i>b</i> mm	Cross-Sectional Area in cm ²						
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 25 (Contd.)**MILD STEEL FLATS**

16	18	20	25	32	40	Thickness <i>t</i> mm
Cross-Sectional Area in cm ²						
—	—	—	—	—	—	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

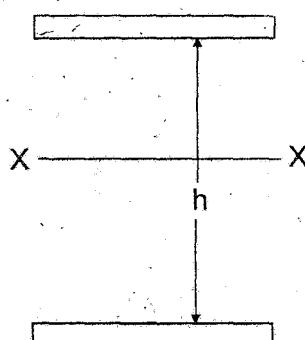


TABLE 26

**MOMENT OF INERTIA OF TWO FLANGES
PER CENTIMETRE WIDTH ABOUT
THE X-X AXIS**

Thickness of Each Flange mm	9.0	10.0	11	12	14	16	18	20	22	25
Depth <i>h</i> cm	Moment of Inertia in cm ⁴									
7.5	31.9	36.3	40.9	45.7	55.9	66.9	78.8	91.6	105.3	127.6
8.0	35.8	40.6	45.8	51.1	62.3	74.4	87.4	101.3	116.2	140.4
10.0	53.6	60.7	68.0	75.6	91.4	108.3	126.3	145.3	165.5	197.9
12.5	80.9	91.3	101.9	112.9	135.7	159.7	185.0	211.6	239.5	283.9
15.0	113.9	128.2	142.8	157.8	188.7	221.1	255.0	290.3	327.2	385.4
16.0	128.6	144.7	161.0	177.8	212.4	248.5	286.1	325.3	366.1	430.4
17.5	152.5	171.3	190.5	210.1	250.5	293.2	336.2	381.6	428.7	502.6
20.0	196.7	220.7	245.1	270.0	321.0	373.9	428.7	485.3	543.9	635.4
22.5	246.5	276.3	306.5	337.3	400.3	465.3	532.4	601.6	672.9	783.9
25.0	302.0	338.2	347.9	412.2	488.3	566.7	647.4	730.3	815.6	947.9
27.5	363.1	406.3	450.1	494.4	585.1	678.1	773.5	871.6	972.1	1127.6
30.0	429.8	480.7	532.2	584.4	690.6	799.5	911.1	1025.3	1142.3	1322.9
32.0	487.2	544.7	602.8	661.6	781.3	903.9	1029.2	1157.3	1283.4	1490.4
32.5	502.1	561.3	621.1	681.7	804.9	930.9	1059.8	1191.6	1326.3	1533.9
35.0	580.1	648.2	717.0	786.6	927.9	1072.3	1219.8	1370.3	1524.0	1760.4
40.0	752.9	840.7	929.3	1018.8	1200.2	1385.1	1573.5	1765.3	1960.7	2260.4
45.0	948.2	1058.2	1169.1	1281.0	1507.5	1737.9	1972.2	2210.3	2452.4	2822.9
50.0	1166.0	1300.7	1436.4	1573.2	1849.8	2130.7	2415.9	2705.3	2999.1	3447.9
55.0	1406.3	1568.2	1731.2	1895.4	2227.1	2563.5	2904.6	3250.3	3600.8	4135.4
60.0	1669.1	1860.7	2053.5	2247.6	2639.4	3036.3	3438.3	3845.3	4257.5	4885.4
63.0	1837.6	2048.2	2260.1	2473.3	2903.6	3339.2	3780.1	4226.3	4677.9	5365.4
83.0	2945.3	3280.7	3617.7	3956.4	4638.6	5327.5	6032.1	6725.3	7434.3	8510.4
100.0	4581.5	5100.7	5621.9	6145.2	7197.8	8258.7	9327.9	10405.3	11491.1	13135.4
125.0	7133.0	7938.2	8745.9	9556.2	11184.3	12822.7	14471.7	16130.3	17799.6	20322.9
160.0	11650.1	12960.7	14274.5	15591.6	18235.4	20892.3	23562.3	26245.3	28941.5	33010.4
200.0	18162.5	20200.7	22242.9	24289.2	28393.8	32514.7	36651.9	40805.3	44975.1	51260.4
250.0	28328.0	31500.7	34678.4	37861.2	44241.8	50642.7	57063.9	63505.3	69967.1	79697.9

Note. To obtain the Moment of Inertia of two Flanges of a particular width, multiply the value obtained from the Table by that width.

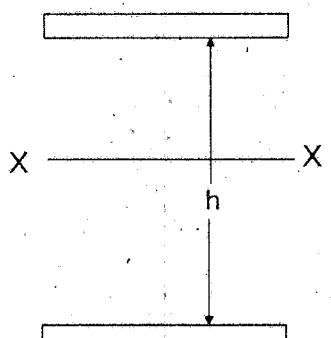


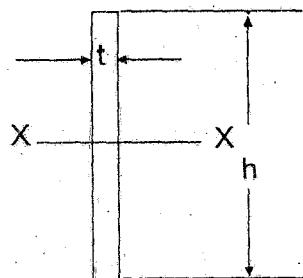
TABLE 26 (Contd.)

MOMENT OF INERTIA OF TWO FLANGES PER CENTIMETRE WIDTH ABOUT THE X-X AXIS

28	32	36	40	45	50	56	63	71	80	Thickness of each Flange mm
Moment of Inertia in cm ⁴										Depth <i>h</i> cm
152.2	188.6	229.6	275.2	339.2	411.3	509.8	641.6	816.4	1046.3	7.5
167.0	206.2	250.0	298.7	366.8	443.3	547.2	685.8	866.6	1109.3	8.0
233.0	284.2	340.7	402.7	488.2	583.3	710.7	878.6	1097.7	1381.3	10.0
331.4	399.8	474.4	555.2	665.4	786.5	946.6	1155.0	1423.4	1766.3	12.5
447.2	535.4	630.5	732.7	870.8	1020.8	1217.5	1470.8	1793.5	2201.3	15.0
498.5	595.3	699.3	810.7	960.8	1123.3	1335.6	1608.1	1951.5	2389.3	16.0
580.6	691.0	809.2	935.2	1104.2	1286.5	1523.4	1826.0	2208.0	2686.3	17.5
731.4	866.6	1010.3	1162.7	1365.8	1583.3	1864.3	2220.5	2666.8	3221.3	20.0
899.8	1062.2	1234.0	1415.2	1595.2	1911.5	2240.2	2654.4	3170.0	3806.3	22.5
1085.6	1277.8	1480.1	1692.7	1973.2	2270.8	2651.1	3127.7	3717.6	4441.3	25.0
1289.0	1513.4	1748.8	1995.2	2319.2	2661.5	3097.0	3640.4	4309.6	5126.3	27.5
1509.8	1769.0	2039.9	2322.7	2693.2	3083.3	3577.9	4192.4	4945.9	5061.3	30.0
1699.1	1987.9	2289.0	2602.7	3012.8	3443.3	3987.8	4662.4	5484.4	6485.3	32.5
1748.2	2044.6	2353.6	2675.2	3095.4	3536.5	4093.8	4783.8	5526.6	6646.3	35.0
2004.0	2340.2	2689.7	3052.7	3525.8	4020.8	4644.7	5414.6	6351.7	7481.3	37.5
2568.2	2991.4	3429.5	3882.7	4470.8	5083.3	5851.5	6794.3	7935.0	9301.3	40.0
3202.4	3722.6	4259.3	4812.7	5528.2	6270.8	7198.3	8331.5	9695.8	11321.3	45.0
3906.6	4533.8	5179.1	5842.7	6698.2	7583.3	8685.1	10026.2	11634.1	13541.3	50.0
4680.8	5425.0	6188.9	6972.7	7980.8	9020.8	10311.9	11878.4	13749.9	15961.3	55.0
5525.0	6396.2	7288.7	8202.7	9375.8	10583/3	12078.7	13888.1	16043.2	18581.3	60.0
6065.2	7017.4	7991.8	8988.7	10266.8	11580.8	13206.0	15169.5	17504.4	20249.3	63.0
9601.8	11081.0	12587.9	14122.7	16080.8	18083.3	20545.9	23501.9	26991.4	31061.3	80.0
14798.6	17045.8	19327.1	21642.7	24585.8	27583.3	31253.1	35635.7	40779.6	46741.3	100.0
22869.6	26301.8	29776.1	33292.7	37748.2	42270.8	47787.1	54346.7	62006.1	70841.3	125.0
37109.0	42620.2	48184.7	53802.7	60900.8	68083.3	76814.7	87157.1	99184.2	112981.3	160.0
57582.6	66069.8	74632.1	83242.7	94110.8	105083.3	118389.1	134104.7	152320.6	173141.3	200.0
89474.6	102581.3	115771.1	129042.7	145748.2	162583.3	182957.1	206964.2	234715.1	266341.3	250.0

Note. To obtain the Moment of Inertia of two Flanges of a particular width, multiply the value obtained from the Table by that width.

TABLE 27



MOMENT OF INERTIA OF ONE WEB PLATE ABOUT ITS X-X AXIS

Thickness <i>t</i> mm	6.0	7.0	8.0	9.0	10.0	11	12
Depth <i>h</i> cm	Moment of Inertial in cm ⁴						
8.0	25.6	29.9	34.1	38.4	42.7	46.9	51.2
10.0	50.0	58.3	66.7	75.0	83.3	91.7	100.0
12.5	97.7	113.9	130.2	146.5	162.8	179.0	195.3
16.0	204.8	238.9	273.1	307.2	341.3	375.5	409.6
20.0	400.0	466.7	533.3	600.0	666.7	733.3	800.0
25.0	781.2	911.5	1041.7	1171.9	1302.1	1432.3	1562.5
32.0	1638.4	1911.5	2184.5	2457.6	2730.7	3003.7	3276.8
40.0	3200.0	3733.3	4266.7	4800.0	5333.3	5866.7	6400.0
50.0	6250.0	7291.7	8333.3	9375.0	10416.7	11458.3	12500.0
63.0	12502.4	14586.1	16669.8	18753.5	20837.2	22921.1	25004.7
80.0	25600.0	29866.7	34133.3	38400.0	42666.7	46933.3	51200.0
100.0	50000.0	58333.3	66666.7	75000.0	83333.3	91666.7	100000.0
125.0	97656.2	113932.3	130208.3	146484.4	162760.4	179036.5	195312.5
160.0	204800.0	238933.3	273066.7	307200.0	341333.3	375466.7	409600.0
200.0	400000.0	466666.7	533333.3	600000.0	666666.7	733333.3	800000.0
250.0	781250.0	911458.3	1041666.7	1171875.0	1302083.3	1432291.7	1562500.0
Thickness <i>t</i> mm	14	16	18	20	22	25	
Depth <i>h</i> cm	Moment of Inertia in cm ⁴						
8.0	59.7	68.3	76.8	85.3	93.9	106.7	
10.0	116.7	133.3	150.0	166.7	183.3	208.3	
12.5	227.9	260.4	294.6	325.5	358.1	406.9	
16.0	477.9	546.1	614.4	682.7	750.9	853.3	
20.0	933.3	1066.7	1200.0	1333.3	1466.7	1666.7	
25.0	1822.9	2083.3	2343.8	2604.2	2864.6	3255.2	
32.0	3822.9	4369.1	4915.2	5461.3	6007.5	6826.7	
40.0	7466.7	8533.3	9600.0	10666.7	11733.3	13333.3	
50.0	14583.3	16666.7	18750.0	20833.3	22916.7	26041.7	
63.0	29172.2	33339.6	37507.0	41674.5	45842.0	52093.1	
80.0	59733.3	68266.7	76800.0	85333.3	93866.7	106666.7	
100.0	116666.7	133333.3	150000.0	166666.7	183333.3	208333.3	
125.0	227864.4	260416.7	292968.8	325520.8	358072.9	406901.0	
160.0	477866.7	546133.3	614400.0	682666.7	750933.3	853333.3	
200.0	933333.3	1066666.7	1200000.0	1333333.3	1466666.7	1666666.7	
250.0	1822916.7	2083333.3	2234375.0	2604166.7	2864583.3	3255208.3	

TABLE 28
REDUCTION FOR AREA FOR RIVET HOLES

Diameter of Rivet mm	12	14	16	18	20	22	24
Rivet Hole Diameter mm	13.5	15.5	17.5	19.5	21.5	23.5	25.5
Thickness of Metal mm	Area of Rivet Holes in cm ²						
5.0	0.68	0.78	0.88	0.98	1.08	1.18	1.28
6.0	0.81	0.93	1.05	1.17	1.29	1.41	1.53
8.0	1.08	1.24	1.40	1.56	1.72	1.88	2.04
10.0	1.35	1.55	1.75	1.95	2.15	2.35	2.58
12.0	1.62	1.86	2.10	2.34	2.58	2.82	3.06
14.0	1.89	2.17	2.45	2.73	3.01	3.29	3.57
16.0	2.16	2.48	2.80	3.12	3.44	3.76	4.08
18.0	2.43	2.79	3.15	3.51	3.87	4.23	4.59
20.0	2.70	3.10	3.50	3.90	4.30	4.70	5.10
22.0	2.97	3.41	3.85	4.29	4.73	5.17	5.61
25.0	3.38	3.88	4.38	4.88	5.38	5.88	6.38
28.0	3.78	4.34	4.90	5.46	6.02	6.58	7.14
32.0	4.32	4.96	5.60	6.24	6.89	7.52	8.16
36.0	4.86	5.58	6.30	7.02	7.74	8.46	9.18
40.0	5.40	6.20	7.00	7.80	8.60	9.40	10.20
45.0	6.08	6.98	7.88	8.78	9.68	10.58	11.48
50.0	6.75	7.75	8.75	9.75	10.75	11.75	12.75
56.0	7.56	8.68	9.80	10.92	12.04	13.16	14.28
63.0	8.50	9.76	11.02	12.28	13.54	14.80	16.06
Diameter of Rivet mm	27	30	33	36	39	42	48
Rivet Hole Diameter mm	29.0	32.0	35.0	38.0	41.0	44.0	50.0
Thickness of Metal mm	Area of Rivet Holes in cm ²						
5.0	1.45	1.60	1.75	1.90	2.05	2.20	2.50
6.0	1.76	1.92	2.10	2.28	2.46	2.64	3.00
8.0	2.32	2.56	2.30	3.04	3.28	3.52	4.00
10.0	2.90	3.20	3.50	3.80	4.10	4.40	5.00
12.0	3.48	3.84	4.20	4.56	4.92	5.28	6.00
14.0	4.06	4.48	4.90	5.32	5.74	6.16	7.00
16.0	4.64	5.12	5.60	6.08	6.56	7.04	8.00
18.0	5.22	5.76	6.30	6.84	7.38	7.92	9.00
20.0	5.80	6.40	7.00	7.60	8.20	8.80	10.00
22.0	6.38	7.04	7.70	8.36	9.02	9.68	11.00
25.0	7.25	8.00	8.75	9.50	10.25	11.00	12.50
28.0	8.12	8.96	9.80	10.64	11.48	12.32	14.00
32.0	9.28	10.24	11.20	12.16	13.12	14.08	16.00
36.0	10.44	11.52	12.60	13.68	14.76	15.84	18.00
40.0	11.60	12.80	14.00	15.20	16.40	17.60	20.00
45.0	13.05	14.40	15.75	17.10	18.45	19.80	22.50
50.0	14.50	16.00	17.50	19.00	20.50	22.00	25.00
56.0	16.24	17.92	19.60	21.28	22.96	24.64	28.00
63.0	18.27	20.16	22.05	23.94	25.83	27.72	31.50

TABLE 29

STRIP

Thickness <i>t</i> mm	1.60		1.80		2.00		2.24		2.50		2.80		3.15	
Width <i>b</i> mm	Weight per metre (W)													
	kg	N	kg	N	kg	N	kg	N	kg	N	kg	N	kg	N
100	1.3	12.8	1.4	13.7	1.6	15.7	1.8	17.7	2.0	19.6	2.2	21.6	2.5	24.5
125	1.6	15.7	1.8	17.7	2.0	19.6	2.2	21.6	2.4	23.5	2.7	26.5	3.1	30.4
160	2.0	19.6	2.3	22.6	2.5	24.5	2.8	27.5	3.1	30.4	3.5	34.3	4.0	39.2
200	2.5	24.5	2.8	27.5	3.1	30.4	3.5	34.3	3.9	38.3	4.4	43.2	4.9	48.1
250	3.1	30.4	3.5	34.3	3.9	38.3	4.4	43.2	4.9	48.1	5.5	54.0	6.2	60.8
320	4.0	39.2	4.5	44.1	5.0	49.0	5.6	54.9	6.3	61.8	7.0	68.7	7.0	77.5
400	5.0	49.0	5.6	54.9	6.3	61.8	7.0	68.7	7.8	76.5	8.8	86.3	9.9	97.1
500	6.3	61.8	7.1	69.7	7.8	76.5	8.8	86.3	9.8	96.1	11.0	107.9	12.4	121.6
650	8.2	80.4	9.2	90.3	10.2	100.1	11.4	111.8	12.8	125.6	14.3	140.3	16.3	157.9
800	10.0	98.1	11.3	110.9	12.6	123.6	14.1	138.3	15.7	154.0	17.6	172.7	19.3	194.2
950	—	—	13.4	131.5	14.9	146.2	16.7	163.8	18.6	182.5	20.9	205.0	23.5	230.5
1050	—	—	—	—	16.5	161.9	18.5	181.5	20.6	202.1	23.1	226.6	26.0	255.1
1150	—	—	—	—	—	—	20.2	198.2	22.6	221.7	25.3	248.2	28.4	278.6
1250	—	—	—	—	—	—	—	—	24.5	240.3	27.5	269.8	30.9	303.1
1300	—	—	—	—	—	—	—	—	—	—	28.6	280.6	32.1	314.9
1450	—	—	—	—	—	—	—	—	—	—	—	—	35.8	351.2
1550	—	—	—	—	—	—	—	—	—	—	—	—	38.3	375.7

(Continued)

Note. Combinations denoted by dashes are not manufactured.

TABLE 29 (*Contd.*)

STRIP

3.55	4.00	4.50	5.0	6.0	8.0	10.0	Thickness <i>t</i> mm.							
Weight per metre (W)								Width <i>b</i> mm.						
kg.	N	kg.	N	kg.	N	kg.	N	kg.	N					
2.8	27.5	3.1	30.4	3.5	34.3	3.9	38.3	4.7	46.1	6.3	61.8	7.8	76.5	100
3.5	34.3	3.9	38.3	4.4	43.2	4.9	48.1	5.9	57.9	7.8	76.5	9.8	96.1	125
4.5	44.1	5.0	49.1	5.6	54.9	6.3	61.8	7.5	73.6	10.0	98.1	12.6	123.6	160
5.6	54.9	6.3	61.8	7.1	69.7	7.8	76.6	9.4	92.2	12.6	123.6	15.7	154.0	200
7.0	68.7	7.8	76.5	8.8	86.3	9.8	96.1	11.8	115.8	15.7	154.0	19.6	192.3	250
8.9	87.3	10.0	98.1	11.3	110.9	12.6	123.6	15.1	148.1	20.1	197.2	25.1	246.2	320
11.1	108.9	12.6	123.6	14.1	138.3	15.7	154.0	18.8	184.4	25.1	246.2	31.4	308.0	400
13.9	136.4	15.7	154.0	17.7	173.6	19.6	192.3	23.6	231.5	31.4	308.0	39.2	384.6	500
18.1	177.6	20.4	200.1	23.0	225.6	25.5	250.2	30.6	300.2	40.8	400.2	51.0	500.3	650
22.3	218.8	25.1	246.2	28.3	277.6	31.4	308.0	37.7	369.8	50.2	492.5	62.8	616.1	800
26.5	260.0	29.8	292.3	33.6	329.6	37.3	365.9	44.7	438.5	59.7	585.7	74.6	731.8	950
29.3	287.4	33.0	323.7	37.1	364.0	41.2	404.2	49.5	485.6	65.9	646.5	82.4	808.3	1050
32.0	313.9	36.1	354.1	40.6	398.3	45.1	442.4	54.2	531.7	72.2	708.3	90.3	885.8	1150
34.8	341.4	39.2	384.6	44.2	433.6	49.1	481.7	58.9	577.8	78.5	770.1	98.1	962.4	1250
36.2	355.1	40.8	400.2	45.9	450.3	51.0	500.3	61.2	600.4	81.6	800.5	102.0	1000.6	1300
40.4	396.3	45.5	446.4	51.2	502.3	56.9	558.2	68.3	670.0	91.1	893.7	113.8	1116.4	1450
43.2	423.8	48.7	447.7	54.7	536.6	60.8	596.4	73.0	716.1	97.3	954.5	121.7	1193.9	1550

TABLE 30

SHEET

Size mm x mm	Standard Nominal Thickness (mm)	0.40	0.50	0.63	0/80	0.90	1.00	1.12	1.25	1.40
		Standard Nominal Surface Area in m ²	Weight in kg							
2800 x 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
1000	2.80	8.8	11.0	13.8	17.6	19.8	22.0	24.6	27.5	30.8
1100	3.08	9.7	12.1	15.2	19.3	21.8	24.2	27.1	30.2	33.8
1200	3.36	10.6	13.2	16.6	21.1	23.7	26.4	29.5	33.0	36.9
1250	3.50	11.0	13.7	17.3	22.0	24.7	27.5	30.8	34.3	38.5
1400	3.92	12.8	15.4	19.4	24.6	27.7	30.8	34.5	38.5	43.1
1500	4.20	13.2	16.5	20.8	26.4	29.7	33.0	36.9	41.2	46.2
3200 x 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
1000	3.20	10.0	12.6	15.8	20.1	22.6	25.1	28.1	31.4	35.2
1100	3.52	11.1	13.8	17.4	22.1	24.9	27.6	30.9	34.5	38.7
1200	3.48	12.1	15.1	19.0	24.1	27.1	30.1	33.8	37.7	42.2
1250	4.00	12.6	15.7	19.8	25.1	28.3	31.4	35.2	39.2	44.0
1400	4.84	14.1	17.6	22.2	28.1	31.7	35.2	39.4	44.0	49.2
1500	4.80	15.1	18.8	23.7	30.1	33.9	37.7	42.2	47.1	52.8
3600 x 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
1000	3.60	11.3	14.1	17.8	22.6	25.4	28.3	31.7	35.3	39.6
1100	3.96	12.4	15.5	19.6	24.9	28.0	31.1	34.8	38.9	43.5
1200	4.32	13.6	17.0	21.4	27.1	30.5	33.9	38.0	42.4	47.5
1250	4.50	14.1	17.7	22.3	28.3	31.8	35.3	39.6	44.2	49.5
1400	5.04	15.8	19.8	24.9	31.7	35.6	39.6	44.3	49.5	55.4
1500	5.40	17.0	21.2	26.7	33.9	38.2	42.4	47.5	53.0	59.3
4000 x 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
1000	4.00	12.6	15.7	19.8	25.1	28.3	31.4	35.2	39.2	44.0
1100	4.40	13.8	17.3	21.8	27.6	31.1	34.5	38.7	43.2	48.4
1200	4.80	15.1	18.8	23.7	30.1	33.9	37.7	42.2	47.1	52.8
1250	5.00	15.7	19.6	24.7	31.4	35.3	39.2	44.0	49.1	55.0
1400	5.60	17.6	22.0	27.7	35.2	39.6	44.0	49.2	55.0	61.5
1500	6.00	18.8	23.6	29.7	37.7	42.4	47.1	52.8	58.9	65.9

(Continued)

TABLE 30 (Contd.)**SHEET**

1.60	1.80	2.00	2.24	2.50	2.80	3.15	3.55	4.00	Standard Nominal Thickness (mm)	Size mm x mm
Weight in kg										Standard Nominal Surface Area in m ²
21.1	23.7	26.4	29.5	33.0	36.9	41.5	46.8	52.8	1.68	2800 x 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	1000
38.7	43.5	48.4	54.2	60.4	67.7	76.2	85.8	96.7	3.08	1100
42.2	47.5	52.8	59.1	65.9	73.9	83.1	93.6	105.5	3.36	1200
44.0	49.5	55.0	61.5	68.7	76.9	86.5	97.5	109.9	3.50	1250
49.2	55.4	61.5	68.9	76.9	86.2	96.9	109.2	123.1	3.92	1400
52.8	59.3	65.9	73.9	82.4	92.3	103.8	117.0	131.9	4.20	1500
24.1	27.1	30.1	33.8	37.7	42.2	47.5	53.5	60.3	1.92	3200 x 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	1000
44.2	49.7	55.3	61.9	69.1	77.4	87.0	98.1	110.5	3.52	1100
48.2	54.3	60.3	67.5	75.4	84.4	95.0	110.7	120.6	3.84	1200
50.2	56.5	62.8	70.3	78.5	87.9	98.9	111.5	125.6	4.00	1250
56.3	63.3	70.3	78.8	87.9	98.5	110.8	124.8	140.7	4.48	1400
60.3	67.8	75.4	84.4	94.2	105.5	118.7	133.8	150.7	4.80	1500
27.1	30.5	33.9	38.0	42.4	47.5	53.4	60.2	67.8	2.16	3600 x 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	1000
49.7	56.0	62.2	69.6	77.7	87.0	97.9	110.4	124.3	3.96	1100
54.3	61.0	67.8	76.0	84.8	95.0	106.8	120.4	135.6	4.32	1200
56.5	63.6	70.6	79.1	88.3	98.9	111.3	125.4	141.3	4.50	1250
63.3	71.2	79.1	88.6	98.9	110.8	124.6	140.5	158.3	4.04	1400
67.8	76.3	84.8	95.0	106.0	118.7	133.5	150.5	169.6	5.40	1500
30.1	33.9	37.7	42.2	47.1	52.8	59.3	66.9	75.4	2.40	4000 x 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	89.0	11.5	125.6	4.00	1000
55.3	62.2	69.1	77.4	86.4	96.7	108.8	122.6	138.2	4.40	1100
60.3	67.8	75.4	84.4	94.2	105.5	118.7	133.8	150.7	4.80	1200
62.3	70.6	78.5	87.9	98.1	109.9	123.6	139.3	157.0	5.00	1250
70.3	79.1	87.9	98.5	109.1	123.1	138.5	156.1	175.8	5.40	1400
75.4	84.8	94.2	105.5	117.8	131.9	148.4	167.2	188.4	6.00	1500

TABLE 31

SAFE LOADS FOR SINGLE ANGLE STRUTS
SINGLE BOLTED OR SINGLE RIVETED END CONNECTIONS

Effective Lengths in Metres	0.50	1.00	1.50	2.00	2.50	3.00	3.50
Size A x B x t mm mm mm	Safe Loads in kg						
EQUAL ANGLES							
50 x 50 x 4.0	3637.1	2657.8	1462.0	792.3	—	—	—
5.0	4490.1	3281.2	1804.9	978.1	—	—	—
6.0	5315.3	3847.6	2094.8	1130.3	—	—	—
55 x 55 x 5.0	4989.6	3923.0	2318.3	1305.4	798.9	—	—
6.0	5927.0	4659.9	2753.8	1550.6	949.0	—	—
8.0	7744.8	6089.2	3598.4	2026.2	1240.1	—	—
10.0	9486.9	7458.9	4407.8	2482.0	1519.0	—	—
60 x 60 x 5.0	5483.8	4573.6	2922.7	1729.6	1060.9	—	—
6.0	6519.2	5410.4	3430.3	2018.5	1238.0	—	—
8.0	8539.8	7087.4	4493.4	2644.1	1621.8	—	—
10.0	10484.1	8701.1	5516.5	3246.1	1991.0	—	—
65 x 65 x 5.0	—	5218.0	3585.0	2226.9	1393.8	925.0	—
6.0	—	6212.4	4267.6	2650.9	1659.1	1101.1	—
8.0	—	8120.3	5533.9	3416.0	2137.4	1415.2	—
10.0	—	9984.0	4804.0	4200.0	2428.0	1740.0	—
70 x 70 x 5.0	—	5838.4	4292.2	2801.4	1769.9	1195.4	—
6.0	—	6950.9	5110.0	3335.2	2106.1	1411.3	—
8.0	—	9097.7	6647.4	4324.0	2724.4	1827.2	—
10.0	—	11195.9	8180.5	5321.3	3352.6	2248.6	—
75 x 75 x 6.0	—	7655.4	5953.8	4020.0	2643.9	1782.2	1259.2
8.0	—	10041.7	7766.8	5221.1	3423.1	2303.3	1629.6
10.0	—	12371.2	9568.6	6432.4	4217.2	2837.6	2007.7

(Continued)

TABLE 31 (Contd.)

SAFE LOADS FOR SINGLE ANGLE STRUTS

SINGLE BOLTED OR SINGLE RIVETED END CONNECTIONS

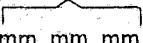
Effective Lengths in Metres	Size $A \times B \times t$ mm mm mm	1.00	1.50	2.00	2.50	3.00	3.50
		Safe Loads in kg					
EQUAL ANGLES	80 x 80 x 6.0	8347.1	6804.0	4787.1	3242.2	2212.9	1574.7
	8.0	10953.6	8892.5	6228.3	4210.0	2870.6	2042.7
	10.0	13501.4	10960.9	7677.0	5189.2	3538.3	2517.9
	12.0	15952.4	12896.2	8990.5	6066.1	4131.9	2940.4
	60 x 40 x 5.0	2776.0	1358.5	725.9	—	—	—
	6.0	3295.1	1612.5	861.6	—	—	—
	8.0	4227.4	2044.4	1090.8	—	—	—
	65 x 45 x 5.0	3563.1	1939.9	1046.7	—	—	—
	6.0	4185.0	2253.1	1212.5	—	—	—
	8.0	5470.6	2945.3	1585.0	—	—	—
	70 x 45 x 5.0	3739.2	2035.8	1098.5	—	—	—
	6.0	4443.7	2419.3	1305.4	—	—	—
	8.0	5745.2	3093.1	1664.5	—	—	—
	10.0	7044.2	3792.5	2040.9	—	—	—
	75 x 50 x 6.0	5371.4	3194.1	1808.6	1110.2	—	—
	8.0	6982.5	4126.3	2323.4	1422.0	—	—
	10.0	8575.5	5067.6	2853.5	1746.4	—	—
	80 x 50 x 6.0	5596.5	3327.9	1884.4	1157.8	—	—
	8.0	7280.2	4302.2	2422.5	1482.6	—	—
	10.0	8947.7	5287.6	2977.4	1822.9	—	—
	90 x 60 x 8.0	9559.9	6667.4	4193.3	2623.1	1751.0	—
	10.0	11739.0	8125.8	5080.0	3178.9	2115.5	—
	12.0	13884.0	9610.6	6008.3	3759.7	2502.1	—

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

2.—The values on the right side of the zig-zag dotted line are for ratio of slenderness exceeding 180.

3.—This Table is based on the requirements specified in 18.9.1.1 of IS : 800-1956.

TABLE 32
SAFE LOADS FOR SINGLE ANGLE STRUTS
DOUBLE BOLTED OR DOUBLE RIVETED OR WELDED END CONNECTIONS

Effective Lengths in Metres	Size A x B x C  mm mm mm	1.0	1.5	2.0	2.5	3.0	3.5
		Safe Loads in kg					
EQUAL ANGLES	50 x 50 x 4.0	3323.2	1826.3	991.0	—	—	—
	5.0	4102.6	2254.7	1223.4	—	—	—
	6.0	4810.4	2617.9	1414.3	—	—	—
	55 x 55 x 5.0	4906.4	2898.0	1636.3	995.5	—	—
	6.0	5828.1	3442.4	1943.7	1182.5	—	—
	8.0	7615.6	4498.2	2539.9	1545.2	—	—
	10.0	9328.6	5510.0	3111.2	1892.8	—	—
	60 x 60 x 5.0	5717.2	3653.6	2160.3	1327.1	—	—
	6.0	6764.1	4288.0	2521.2	1547.9	—	—
	8.0	8860.5	5617.0	3302.7	2027.6	—	—
	10.0	10877.9	6895.9	4054.6	2489.3	—	—
	65 x 65 x 5.0	6516.9	4482.5	2785.6	1744.4	1153.8	—
	6.0	7757.7	5336.0	3316.0	2076.5	1373.4	—
	8.0	10140.6	6919.8	4274.9	2674.2	1766.6	—
	10.0	12468.0	8508.0	5256.0	3288.0	2172.0	—
	70 x 70 x 5.0	7292.6	5365.2	3497.4	2213.8	1481.3	—
	6.0	8682.2	6387.6	4163.8	2635.6	1763.5	—
	8.0	11362.9	8309.5	5396.9	3411.0	2281.0	—
	10.0	13983.5	10225.9	6641.5	4197.6	2807.1	—
	75 x 75 x 6.0	9563.2	7444.1	5026.3	3301.2	2230.8	1571.8
	8.0	12,544.2	9710.6	6528.7	4275.5	2882.6	2034.7
	10.0	15454.2	11963.3	8043.3	5267.3	3551.3	2506.8
	80 x 80 x 6.0	10430.8	8508.7	5984.6	4056.9	2774.0	1963.0
	8.0	13687.4	11120.9	7785.1	5267.4	3597.1	2544.6
	10.0	16871.0	13707.5	9595.9	6492.6	4433.7	3136.4
	12.0	19934.7	16128.7	11238.1	7588.8	5175.6	3660.0

(Continued)

TABLE 32 (Contd.)
SAFE LOADS FOR SINGLE ANGLE STRUTS
DOUBLE BOLTED OR DOUBLE RIVETED OR WELDED END CONNECTIONS

Effective Lengths in Metres	Size $A \times B \times C$	Safe Loads in kg					
		1.5	2.0	2.5	3.0	3.5	4.0
EQUAL ANGLES	90 × 90 × 8.0	13761.0	10454.2	7472.8	5244.3	3778.5	2798.0
	10.0	16932.9	12815.1	9143.4	6398.2	4608.3	3409.4
	12.0	20074.9	15193.0	10840.0	7585.4	5463.4	4042.0
	100 × 100 × 8.0	16270.3	13253.9	9914.2	7317.9	5269.5	3979.9
	10.0	20072.8	16299.2	12160.2	8957.4	6443.6	4860.3
	12.0	23827.9	19348.3	14435.0	10633.1	7649.0	5769.5
	110 × 110 × 8.0	18677.7	15969.9	12531.8	9495.5	7146.7	5386.8
	10.0	23111.2	19760.6	15506.5	11749.4	8843.1	6665.5
	12.0	27409.4	23386.2	18304.6	13858.6	10408.3	7843.8
	15.0	33752.4	28798.1	22540.6	17065.7	12817.0	9658.9
	130 × 130 × 10.0	—	26222.8	22481.3	18176.0	14402.0	11362.2
	12.0	—	31203.6	26751.5	21628.4	17137.6	13520.4
	15.0	—	38451.7	32900.8	26547.4	21011.1	16549.8
EQUAL ANGLES	150 × 150 × 12.0	—	38232.3	34614.2	29840.8	24686.9	20190.2
	15.0	—	47242.0	42720.1	36773.7	30382.4	24829.5
	18.0	—	56036.6	50607.2	43501.6	35898.4	29310.9
	200 × 100 × 15.0	—	67735.8	64938.3	61169.7	56094.9	49910.9
	18.0	—	80604.0	77259.9	72745.9	66663.1	59259.2
	25.0	—	109783.5	105187.3	98940.2	90545.1	80339.7

Effective Lengths in Metres	Size $A \times B \times C$	Safe Loads in kg					
		1.0	1.5	2.0	2.5	3.0	3.5
EQUAL ANGLES	110 × 110 × 8.0	3286.6	—	—	—	—	—
	10.0	4066.7	—	—	—	—	—
	12.0	4778.8	—	—	—	—	—
	15.0	5884.7	—	—	—	—	—
	130 × 130 × 10.0	7119.5	5721.2	4716.3	—	—	—
	12.0	8471.9	6807.9	5612.1	—	—	—
	15.0	10365.7	8330.1	6861.4	—	—	—
	150 × 150 × 12.0	13282.6	10854.3	8983.0	6333.4	—	—
	15.0	16307.7	13330.2	11020.1	7764.6	—	—
	18.0	19218.9	15714.4	12971.6	9147.3	—	—
	200 × 200 × 15.0	37385.0	32079.0	27622.6	19917.9	15039.6	11542.7
	18.0	44327.4	38038.2	32719.2	23.560.5	17794.3	13658.8
	25.0	59938.2	51449.3	44151.7	31760.7	23956.5	18412.9

(Continued)

TABLE 32 (Contd.)

SAFE LOADS FOR SINGLE ANGLE STRUTS
DOUBLE BOLTED OR DOUBLE RIVETED OR WELDED END CONNECTIONS

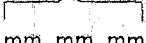
Effective Lengths in Metres	Size A x B x C	1.0	1.5	2.0	2.5	3.0	3.5
		Safe Loads in kg					
UNEQUAL ANGLES	mm mm mm						
	60 x 40 x 5.0	3471.0	1697.4	903.9	—	—	—
	6.0	4120.0	2014.8	1072.9	—	—	—
	8.0	5285.8	2555.2	1360.5	—	—	—
	65 x 45 x 5.0	4454.7	2424.3	1309.7	—	—	—
	6.0	5232.5	2817.5	1516.9	—	—	—
	8.0	6839.9	3683.0	1982.9	—	—	—
	70 x 45 x 5.0	4674.9	2544.2	1374.5	—	—	—
	6.0	5555.7	3023.5	1633.4	—	—	—
	8.0	7183.2	3867.9	2082.4	—	—	—
	10.0	8807.3	4742.4	2553.2	—	—	—
	75 x 50 x 6.0	6718.2	3994.6	2266.1	1382.6	—	—
	8.0	8732.8	5158.1	2912.5	1771.9	—	—
	10.0	10725.1	6334.8	3577.0	2176.1	—	—
	80 x 50 x 6.0	6999.7	4161.9	2361.1	1440.5	—	—
	8.0	9105.2	5378.0	3036.7	1847.4	—	—
	10.0	11190.6	6609.8	3732.2	2270.6	—	—
	90 x 60 x 8.0	11939.6	8336.5	5240.4	3285.9	2179.6	—
	10.0	14660.1	10161.5	6352.1	3980.2	2636.7	—
	12.0	17338.8	12018.2	7512.8	4707.5	3118.5	—
	100 x 65 x 8.0	13657.3	10227.0	6733.7	4282.6	2891.1	—
	10.0	16805.1	12510.4	8211.0	5212.9	3509.9	—
	100 x 75 x 8.0	15067.4	12438.2	8861.7	6077.5	4148.3	2935.2
	10.0	18582.3	15279.0	10840.5	7405.2	5055.6	3580.5
	12.0	22028.5	18112.6	12850.9	8778.5	5993.2	4244.5

(Continued)

TABLE 32 (Contd.)

SAFE LOADS FOR SINGLE ANGLE STRUTS

DOUBLE BOLTED OR DOUBLE RIVETED OR WELDED END CONNECTIONS

UNEQUAL ANGLES	Effective Lengths	1.0	1.5	2.0	2.5	3.0	3.5
	in Metres						
	Size A x B x C  mm mm mm	Safe Loads in kg					
125 x 75 x 10.0	21513.5	17892.1	12849.9	8878.5	6057.9	4304.2	
	—	22552.4	18754.0	14278.9	10676.1	7811.0	
	12.0	—	26746.1	22184.7	16846.5	12577.4	9182.6
	150 x 75 x 12.0	28853.2	23724.1	16832.3	11498.3	7850.0	5559.5
	150 x 115 x 12.0	—	34444.8	31133.4	26190.6	20831.6	16353.6
	15.0	—	42498.9	38360.4	32207.2	25577.4	20065.7
	200 x 100 x 15.0	—	46779.9	39828.2	31092.5	23524.7	17625.4
	200 x 150 x 15.0	—	—	56757.4	52767.5	47029.0	40230.2
18.0	—	—	67451.1	62664.3	55780.0	47658.6	
Effective Lengths		4.0	4.5	5.0	5.5	6.0	7.0
in Metres							
UNEQUAL ANGLES	Size A x B x C  mm mm mm	Safe Loads in kg					
	125 x 75 x 10.0	3185.8	—	—	—	—	—
	125 x 95 x 10.0	5891.9	4508.8	3552.4	—	—	—
	12.0	6924.5	5300.8	4171.7	—	—	—
	150 x 75 x 12.0	—	—	—	—	—	—
	150 x 115 x 12.0	12695.8	9873.5	7874.5	6355.5	5213.2	—
	15.0	15552.0	12096.4	9631.4	7777.9	6374.6	—
	200 x 100 x 15.0	13283.2	10207.3	8081.1	—	—	—
200 x 150 x 15.0	33642.4	27898.8	23160.2	19004.6	15003.6	11205.8	
	18.0	39824.1	33023.4	27364.1	22451.8	18675.0	13230.9

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

2—The values on the right side of the zig-zag dotted lines are for ratio of slenderness exceeding 180.

3—This Table is based on the requirements specified in 18.9.1.1 of IS : 800-1956.

TABLE 33

**AREAS OF ROUND BARS IN SLABS PER METRE
WIDTH FOR DIFFERENT SPACINGS**

Dia. of bars (mm)	Spacing of bars (cm)												
	6	8	10	12	14	16	18	20	22	24	26	28	30
5	3.27	2.45	1.96	1.64	1.40	1.23	1.09	0.98	0.89	0.82	0.75	0.70	0.65
6	4.71	3.53	2.83	2.63	2.02	1.76	1.57	1.41	1.28	1.18	1.09	1.01	0.94
7	6.41	4.81	3.85	3.20	2.75	2.40	2.17	1.92	1.75	1.60	1.48	1.37	1.28
8	8.37	6.28	5.02	4.19	3.59	3.14	2.79	2.51	2.28	2.09	1.93	1.79	1.67
10	13.09	9.82	7.85	6.54	5.61	4.91	4.36	3.93	3.57	3.27	3.02	2.80	2.62
11	15.84	11.88	9.50	7.92	6.79	5.94	5.28	4.75	4.32	3.96	3.65	3.39	3.17
12	18.85	14.14	11.31	9.42	8.08	7.07	6.28	5.65	5.14	4.71	4.35	4.04	3.77
14	26.65	19.24	15.39	12.83	11.00	9.62	8.55	7.70	7.00	6.41	5.92	5.50	5.13
16	33.54	25.13	20.10	16.76	14.36	12.56	11.18	10.05	9.14	8.38	7.73	7.18	7.70
18	42.41	31.80	25.44	21.20	18.17	15.90	14.14	12.75	11.56	10.60	9.78	9.08	8.48
20	52.36	39.27	31.41	26.18	22.44	19.64	17.45	15.71	14.29	13.09	12.08	11.22	10.47
22	—	47.51	38.01	31.67	27.15	23.75	21.12	19.00	17.28	15.84	14.62	13.57	13.67
25	—	61.36	49.08	40.90	35.06	30.68	27.27	24.54	22.31	20.45	18.88	17.53	16.36