SYMBOLS

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

a	=	Sectional area in sq cm
b	=	Width of flange
A	=	The longer leg of an unequal angle or one of the legs in the case of an equal angle
b	=	The shorter leg of an unequal angle or one of the legs in the case of an equal angle
C_{xx}	=	The lesser of the two extreme fibre distances from the X-X axis
C_{yy}	=	The lesser of the two extreme fibre distances from the Y-Y axis
D	=	Slope of flange
D	=	The outstand of the bulb in the case of bulb angles
e_{xz}	=	Distance of extreme fibre from the X-X axis
	=	Distance of extreme fibre from the Y-Y axis
g	=	Rivet gauge distance in the flange
g_1	=	Rivet gauge distance in the web
h	=	Overall depth of section
I_{mm}	=	Moment of inertia about the U-U axis
I_{vv}	=	Moment of inertia about the V-V axis
I_{xx}	=	Moment of inertia about the X-X axis
I_x	=	Product of inertia about the X-X and Y-Y axis
I_{yy}	=	Moment of inertia about the Y-Y axis
M	=	Maximum allowable moment
r_1	=	Radius at root of the flange
r_2	=	Radius at toe of the flange
r_3	=	Radius of bulb corners in the case of bulb angles
r_{uu}	=	Radius of gyration about the U-U axis
I_w	=	Radius of gyration about the V-V axis
r_{xx}	=	Radius of gyration about the X-X axis
R_{yy}	=	Radius of gyration about the Y-Y
S	=	Maximum allowable shear in the web
t	=	Thickness of angles, plates, etc.
t_c	=	Mean thickness of compression flange
t_f	=	Thickness of flange at the centre of the outstand
t_t	=	Mean thickness of tension flange
t_2	=	Thickness of web
w	=	Calculated weight in kg per m (= 0.785 a)
Z_c	=	Modulus of extreme fibre of the compression flange
Z_1	=	Modulus of section based on the distance of extreme fibre of the tension flange
Z_{xx}	=	Modulus of section about the X-X axis
Z_{yy}	=	Modulus of section about the Y-Y axis
Y-Y axis	=	A line parallel to the axis of the web of the section (in the case of berams, channels and tee bars) or parallel tc the axis of the longer flange (in the case of unequal angles and bulb angles) or elther flange (in the case of equal angles) and passing through the centre of gravity of the profile of the section
X-X axis	=	A line passing through the centre of gravity of the profile of the section, and at right angles to the Y-Y axis.
U-U and V-V axis	=	Lines passing through the centre of gravity of the profile of the section, representing the principal axis of the section

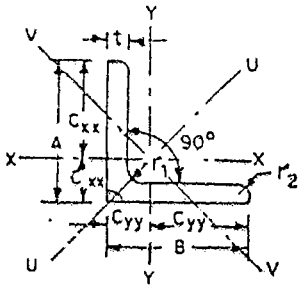

TABLE 1

ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES

Designation & size $A \times B$	Thickness t mm	Sectional Area a cm^2	Weight per Metre (w) Kg.	Weight per Metre (w) N	Centre of Gravity $C_{xx}=C_{yy}$ cm	Distance of Extreme Fibre $e_{xx}=e_{yy}$ cm
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	1.73
	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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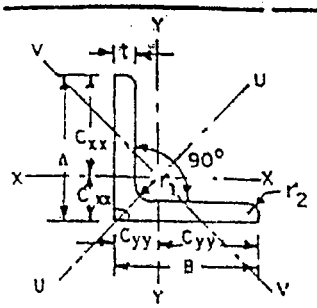

TABLE 1 *(Contd.)*

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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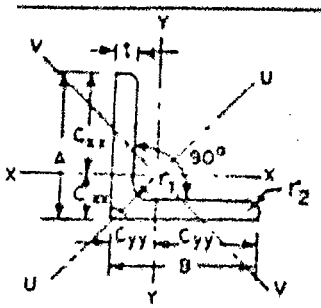

TABLE 1 *(Contd.)*

ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES

Designation & Size $A \times B$	Thickness t mm	Sectional Area a cm^2	Weight per Metre (W) kg	Weight per Metre (W) N	Centre of Gravity $C_{xx} = C_{yy}$ cm	Distance of Extreme Fibre $e_{xx} = e_{yy}$ cm
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	57.60	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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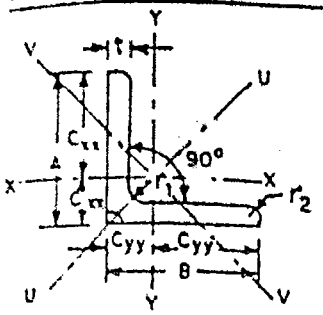

TABLE 1 *(Contd.)*

ROLLED STEEL EQUAL ANGLES

DIMENSIONS AND PROPERTIES

Moments of Inertia			Radii of Gyration			Modulus of Section	Radius at Root	Radius at Toe	Product of Inertia	Designation
$I_{xx} = I_{yy}$	I_{uu}	I_{vv}	$r_{xx} = r_{yy}$	r_{uu}	r_{vv}	$Z_{xx}=Z_{yy}$	r_1	r_2	I_{xy}	$A \times B$
cm^4	cm^4	cm^4	cm	cm	cm	cm^3	mm	mm	cm^4	
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	

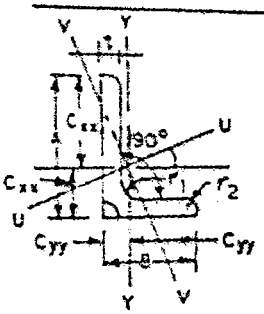

TABLE 2

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Designation & Size	Thick-ness	Sectional Area	Weight per Metre		Centre of Gravity		Distance of Extreme Fibre		Moment of Inertia			
$A \times B$	t	a	w		C_{xx}	C_{yy}	e_{xx}	e_{yy}	I_{xx}	I_{yy}	I_{uu}	I_{vv}
	mm	cm^2	kg	N	cm	cm	cm	cm	cm^4	cm^4	cm^4	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 8060	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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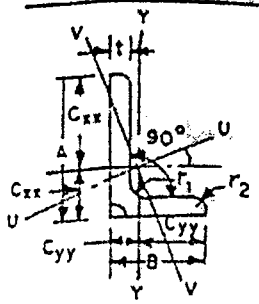

TABLE 2 *(Contd.)*

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Radii of Gyration				Modull of Section		tan α	Radius at Root	Radius at Toe	Product of Inertia	Designation & size
r_{xx}	r_{yy}	r_{uu}	r_{vv}	Z_{xx}	Z_{yy}		r_1	r_2	I_{xy}	A × B
cm	cm	cm	cm	cm³	cm³		mm	mm	cm⁴	
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	5.5	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	2.20	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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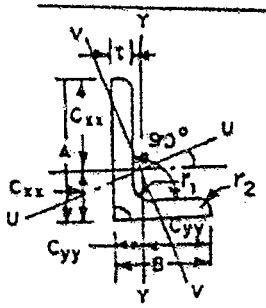

TABLE 2 *(Contd.)*

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Designation & Size $A \times B$	Thickness t	Sectional Area a	Weight per Metre (W)		Centre of Gravity		Distance of Extreme Fibre		Moment of Inertia			
					C_{xx}	C_{yy}	e_{xx}	e_{yy}	I_{xx}	I_{yy}	I_{uu}	I_{vv}
	mm	cm^2	kg	N	cm	cm	cm	cm	cm^4	cm^4	cm^4	cm^4
ISA 9060	6.0	8.65	6.8	66.7	2.87	1.39	6.13	4.61	70.6	25.2	81.5	14.3
	8.0	11.37	8.9	87.3	2.96	1.48	6.04	4.52	91.5	32.4	105.3	18.6
	10.0	14.01	11.0	107.9	3.04	1.55	5.96	4.45	110.9	39.1	127.3	22.8
	12.0	16.57	13.0	127.5	3.12	1.63	5.88	4.37	129.1	45.2	147.5	26.8
ISA 10065	6.0	9.55	7.5	73.6	3.19	1.47	6.81	5.03	96.7	32.4	110.6	18.6
	8.0	12.57	9.9	97.1	3.28	1.55	6.72	4.93	125.9	41.9	143.6	24.2
	10.0	15.51	12.2	119.7	3.37	1.63	6.63	4.87	153.2	50.7	174.2	29.7
ISA 10075	6.0	10.14	8.0	78.5	3.01	1.78	6.99	5.72	100.9	48.7	124.0	25.6
	8.0	13.36	10.5	103.0	3.10	1.87	6.90	5.63	131.6	63.3	161.3	33.6
	10.0	16.50	13.0	131.4	3.19	1.95	6.81	5.55	160.4	76.9	196.1	41.2
	12.0	19.56	15.4	151.1	3.27	2.03	6.73	5.47	187.5	89.5	228.4	48.6
ISA 12575	6.0	11.66	9.2	90.3	4.05	1.59	8.45	5.91	187.8	51.6	208.9	30.5
	8.0	15.38	12.1	118.7	4.15	1.68	8.35	5.82	245.5	67.2	272.8	40.0
	10.0	19.02	14.9	146.2	4.24	1.76	8.26	5.74	300.3	81.6	332.9	49.1
ISA 12595	6.0	12.86	10.1	99.1	3.70	2.[illegible]	8.80	7.28	203.2	102.1	252.3	52.9
	8.0	16.98	13.3	130.5	3.80	2.31	8.70	7.19	266.0	133.3	329.7	69.8
	10.0	21.02	16.5	161.9	3.88	2.39	8.62	7.11	325.8	162.7	402.9	85.6
	12.0	24.98	19.6	192.3	3.96	2.47	8.54	7.03	382.6	190.4	472.0	101.0
ISA 15075	8.0	17.42	13.7	134.4	5.23	1.53	9.77	5.97	[illegible]	70.2	432.8	44.5
	10.0	21.56	16.9	165.8	5.32	1.61	9.68	5.89	499.1	[illegible]	529.8	54.6
	12.0	25.62	20.1	197.2	5.41	1.69	9.59	5.81	587.0	99.5	[illegible]	64.3
ISA 150115	8.0	20.58	16.2	158.9	4.46	2.73	10.54	8.77	465.7	238.9	581.2	[illegible]
	10.0	25.52	20.0	196.2	4.55	2.82	10.45	8.68	573.3	293.4	714.3	152.4
	12.0	30.38	23.8	233.5	4.64	2.90	10.36	8.60	676.5	345.3	841.4	180.4
	15.0	37.52	29.5	289.4	4.76	3.02	10.24	8.48	823.5	418.6	1020.9	221.2
ISA 200100	10.0	29.03	22.8	223.7	6.96	2.01	13.04	7.99	1210.0	209.2	1286.7	132.5
	12.0	34.59	27.2	266.8	7.05	2.10	12.95	7.90	1431.7	246.2	1521.0	156.8
	15.0	42.78	33.6	329.6	7.16	2.22	12.82	7.78	1750.5	298.1	1856.7	191.9
ISA 200150	10.0	34.00	26.7	261.9	5.99	3.51	14.01	11.49	1377.9	669.6	1696.6	350.8
	12.0	40.56	31.8	312.0	6.08	3.60	13.92	11.40	1634.9	793.2	2010.8	417.2
	15.0	50.25	39.4	386.5	6.20	3.72	13.80	11.28	2005.6	969.9	2461.9	513.8
	18.0	59.76	46.9	460.1	6.33	3.84	13.67	11.16	2359.4	1136.9	2889.5	606.9

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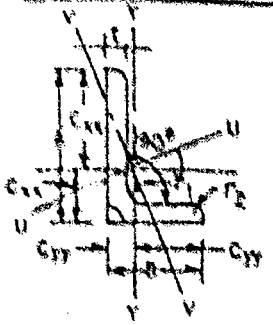

TABLE 2 (Contd.)

ROLLED STEEL UNEQUAL ANGLES

DIMENSIONS AND PROPERTIES

Radii of Gyration				Modulii of Section		tan α	Radius at Root	Radius at Toe	Product of Inertia	Designation & Size
r_{uu} cm	r_{vv} cm	r_{uu} cm	r_{yy} cm	Z_{uu} cm³	Z_{vv} cm³		r_1 mm	r_2 mm	I_{uv} cm⁴	A × B
2.66	1.71	3.07	1.86	11.5	5.5	0.44	7.5	5.0	24.5	ISA 9050
2.64	1.69	3.04	1.88	15.1	7.2	0.44			31.5	
2.61	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	2.52	4.43	2.03	23.1	14.0	0.57	9.0	6.0	84.5	ISA 12595
3.96	2.50	4.41	2.02	30.6	18.5	0.57			110.6	
3.94	2.48	4.38	2.02	37.8	22.9	0.57			135.0	
3.91	2.46	4.35	2.01	44.8	27.1	0.56			157.7	
4.83	2.01	4.96	1.60	41.7	11.8	0.27	10.0	6.0	95.8	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	193.9	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	
6.48	2.68	6.66	2.14	92.6	26.2	0.27	12.0	8.0	264.8	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	136.6	38.3	0.26			405.4	
6.37	4.44	7.06	3.21	96.3	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	172.8	101.9				956.1	

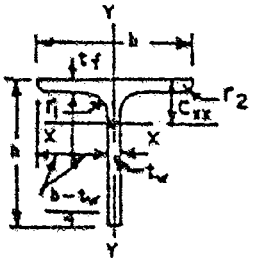

TABLE 3

ROLLED STEEL TEE BARS

DIMENSIONS AND PROPERTIES

Designation	Size $b \times h$	Weight per Metre (W)		Sectional Area	Depth of Section	Width of Flange	Thickness of Flange	Thickness of Web	Centre of Gravity	Moments of Inertia	
		kg	N	a cm²	h mm	b mm	t_f mm	t_w mm	C_{xx} cm	I_{xx} cm⁴	I_{YY} cm⁴
ISNT 20	20 x 20	0.9	8.8	1.13	20	20	3.0	3.0	0.60	0.4	0.2
ISNT 30	30 x 30	1.4	13.7	1.75	30	30	3.0	3.0	0.83	1.4	0.6
ISNT 40	40 x 40	3.5	34.3	4.48	40	40	6.0	6.0	1.20	6.3	3.0
ISNT 50	50 x 50	4.5	44.1	5.70	50	50	6.0	6.0	1.44	12.7	5.9
ISNT 60	60 x 60	5.4	53.0	6.90	60	60	6.0	6.0	1.67	22.5	10.1
ISNT 80	80 x 80	9.6	94.2	12.25	80	80	8.0	8.0	2.23	71.2	32.3
ISNT 100	100 x 100	15.0	147.2	19.10	100	100	10.0	10.0	2.79	173.8	79.9
ISNT 150	150 x 150	22.8	223.7	29.08	150	150	10.0	10.0	3.95	603.8	267.5
ISHT 75	100 x 75	15.3	150.1	19.49	75	150	9.0	8.4	1.62	96.2	230.2
ISHT 100	250 x 100	20.0	196.2	25.47	100	200	9.0	7.8	1.91	193.8	497.3
ISHT 125	250 x 125	27.4	268.8	34.85	125	250	9.7	8.8	2.37	415.4	1005.8
ISHT 150	250 x 150	29.4	288.4	37.42	150	250	10.6	7.6	2.66	573.7	1096.8
ISST 100	50 x 100	8.1	79.5	10.37	100	50	10.0	5.8	3.03	99.0	9.6
ISST 150	75 x 150	15.7	154.0	19.96	150	75	11.6	8.0	4.75	450.2	37.0
ISST 200	165 x 200	28.4	278.6	36.22	200	165	12.5	8.0	4.78	1267.8	358.2
ISST 250	182 x 250	37.5	367.9	47.75	250	180	14.1	9.2	6.40	2774.4	532.0
ISLT 50	50 x 50	4.0	39.2	5.11	50	50	6.4	4.0	1.19	9.9	6.4
ISLT 75	80 x 75	7.1	69.7	9.04	75	80	6.8	4.8	1.72	41.9	27.6
ISLT 100	100 x 100	12.7	124.6	16.16	100	100	10.8	5.7	2.13	116.6	75.0
ISJT 75	50 x 75	3.5	34.3	4.50	75	50	4.6	3.0	2.00	24.8	4.6
ISJT 87.5	50 x 87.5	4.0	39.2	5.14	87.5	50	4.8	3.2	2.50	39.0	4.8
ISJT 100	60 x 100	5.0	49.0	6.32	100	60	5.0	3.4	2.81	63.5	8.6
ISJT 112.5	80 x 112.5	6.4	62.8	8.14	112.5	80	5.0	3.7	3.01	101.8	20.2

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