IS 4923:1997 | Hollow Steel Sections for Structural Use - Specification

This standard specifies dimensions, mass, tolerances, mechanical properties and chemical composition for square and rectangular hollow steel sections used in structural applications.

Scope: the base tables printed on the supplied PDF pages 17 and 18. Later amendments in the file add sizes and are not included in these two transcribed pages.

Table 1 | Dimensions and Properties of Square Hollow Sections

Clause 8.1 and note in Annex A

Designation mm	Depth / width mm	Thickness mm	Weight kg/m	Area cm2	Moment of inertia cm4	Radius of gyration cm	Elastic modulus cm3	Plastic modulus cm3
25.0 x 25.0 x 2.6	25.0	2.6	1.69	2.16	1.72	0.89	1.38	1.76
25.0 x 25.0 x 3.2	25.0	3.2	1.98	2.53	1.89	0.86	1.51	1.98
30.0 x 30.0 x 2.6	30.0	2.6	2.10	2.68	3.23	1.10	2.15	2.68
30.0 x 30.0 x 3.2	30.0	3.2	2.49	3.17	3.62	1.07	2.41	3.08
30.0 x 30.0 x 4.0	30.0	4.0	2.94	3.75	3.97	1.03	2.64	3.50
32.0 x 32.0 x 2.6	32.0	2.6	2.26	2.88	4.02	1.18	2.51	3.11
32.0 x 32.0 x 3.2	32.0	3.2	2.69	3.42	4.54	1.15	2.84	3.59
32.0 x 32.0 x 4.0	32.0	4.0	3.19	4.07	5.02	1.11	3.14	4.11
35.0 x 35.0 x 2.6	35.0	2.6	2.51	3.20	5.43	1.30	3.10	3.81
35.0 x 35.0 x 3.2	35.0	3.2	2.99	3.81	6.18	1.27	3.53	4.42
35.0 x 35.0 x 4.0	35.0	4.0	3.57	4.55	6.93	1.23	3.96	5.11
38.0 x 38.0 x 2.6	38.0	2.6	2.75	3.51	7.14	1.43	3.76	4.57
38.0 x 38.0 x 2.9	38.0	2.9	3.03	3.86	7.68	1.41	4.04	4.97
38.0 x 38.0 x 3.2	38.0	3.2	3.29	4.19	8.18	1.40	4.30	5.34
38.0 x 38.0 x 3.6	38.0	3.6	3.63	4.62	8.76	1.38	4.61	5.80
38.0 x 38.0 x 4.0	38.0	4.0	3.95	5.03	9.26	1.36	4.87	6.22
40.0 x 40.0 x 2.6	40.0	2.6	2.92	3.72	8.45	1.51	4.22	5.12
40.0 x 40.0 x 3.2	40.0	3.2	3.49	4.45	9.72	1.48	4.86	6.01
40.0 x 40.0 x 3.6	40.0	3.6	3.85	4.91	10.45	1.46	5.22	6.53
40.0 x 40.0 x 4.0	40.0	4.0	4.20	5.35	11.07	1.44	5.54	7.01
45.0 x 45.0 x 2.6	45.0	2.6	3.32	4.24	12.47	1.71	5.52	6.64
45.0 x 45.0 x 2.9	45.0	2.9	3.66	4.67	13.45	1.70	5.98	7.25
45.0 x 45.0 x 3.2	45.0	3.2	3.99	5.09	14.41	1.68	6.40	7.83
45.0 x 45.0 x 3.6	45.0	3.6	4.42	5.63	15.57	1.66	6.92	8.55

Source: supplied IS 4923:1997, printed pages 5 and 6. Base tables only.

Hollow Steel Sections for Structural Use | IS 4923:1997

Designation mm	Depth / width mm	Thickness mm	Weight kg/m	Area cm2	Moment of inertia cm4	Radius of gyration cm	Elastic modulus cm3	Plastic modulus cm3
45.0 x 45.0 x 4.5	45.0	4.5	5.31	6.77	17.74	1.62	7.88	9.99
49.5 x 49.5 x 2.9	49.5	2.9	4.07	5.19	18.37	1.88	7.42	8.93
49.5 x 49.5 x 3.6	49.5	3.6	4.93	6.28	21.42	1.85	8.66	10.60
49.5 x 49.5 x 4.5	49.5	4.5	5.95	7.58	24.64	1.80	9.96	12.47
63.5 x 63.5 x 3.2	63.5	3.2	5.85	7.45	44.35	2.44	13.97	16.65
63.5 x 63.5 x 3.6	63.5	3.6	6.51	8.29	48.55	2.42	15.29	18.36
63.5 x 63.5 x 4.5	63.5	4.5	7.93	10.10	57.00	2.38	17.95	21.93
72.0 x 72.0 x 3.2	72.0	3.2	6.71	8.54	66.32	2.79	18.42	21.80
72.0 x 72.0 x 4.0	72.0	4.0	8.22	10.47	79.03	2.75	21.95	26.32
72.0 x 72.0 x 4.8	72.0	4.8	9.66	12.31	90.31	2.71	25.09	30.49
75.0 x 75.0 x 3.2	75.0	3.2	7.01	8.93	75.53	2.91	20.41	23.79
75.0 x 75.0 x 4.0	75.0	4.0	8.59	10.95	90.19	2.87	24.05	28.76
75.0 x 75.0 x 4.9	75.0	4.9	10.30	13.12	104.82	2.83	27.95	33.92
88.9 x 88.9 x 3.6	88.9	3.6	9.38	11.95	142.83	3.46	32.13	37.85
88.9 x 88.9 x 4.5	88.9	4.5	11.52	14.67	170.97	3.41	38.46	45.85
88.9 x 88.9 x 4.9	88.9	4.9	12.44	15.85	182.57	3.39	41.07	49.23
91.5 x 91.5 x 3.6	91.5	3.6	9.67	12.32	156.49	3.56	34.21	40.24
91.5 x 91.5 x 4.5	91.5	4.5	11.88	15.14	187.57	3.52	41.00	48.79
91.5 x 91.5 x 5.4	91.5	5.4	14.01	17.85	215.68	3.48	47.14	56.77
100.0 x 100.0 x 4.0	100.0	4.0	11.73	14.95	226.35	3.89	45.27	53.30
100.0 x 100.0 x 5.0	100.0	5.0	14.41	18.36	271.10	3.84	54.22	64.59
100.0 x 100.0 x 6.0	100.0	6.0	16.98	21.63	311.47	3.79	62.29	75.10
113.5 x 113.5 x 4.5	113.5	4.5	14.99	19.10	372.88	4.42	65.71	77.33
113.5 x 113.5 x 4.8	113.5	4.8	15.92	20.28	393.31	4.40	69.30	81.81
113.5 x 113.5 x 5.4	113.5	5.4	17.74	22.60	432.58	4.38	76.23	90.55
113.5 x 113.5 x 6.0	113.5	6.0	19.53	24.87	469.81	4.35	82.79	98.96
125.0 x 125.0 x 4.5	125.0	4.5	16.62	21.17	505.83	4.89	80.93	94.84
125.0 x 125.0 x 5.0	125.0	5.0	18.33	23.36	552.62	4.86	88.42	104.10
125.0 x 125.0 x 6.0	125.5	6.0	21.69	27.63	640.89	4.82	102.54	121.87
132.0 x 132.0 x 4.8	132.0	4.8	18.71	23.83	634.39	5.16	96.12	112.69

Source: supplied IS 4923:1997, printed pages 5 and 6. Base tables only.

Designation mm	Depth / width mm	Thickness mm	Weight kg/m	Area cm2	Moment of inertia cm4	Radius of gyration cm	Elastic modulus cm3	Plastic modulus cm3
132.0 x 132.0 x 5.4	132.0	5.4	20.88	26.59	700.11	5.13	106.08	125.02
132.0 x 132.0 x 6.0	132.0	6.0	23.01	29.31	762.98	5.10	115.60	136.98
150.0 x 150.0 x 5.0	150.0	5.0	22.26	28.36	982.12	5.89	130.95	152.98
150.0 x 150.0 x 6.0	150.0	6.0	26.40	33.63	1145.91	5.84	152.79	179.88

Source discrepancy retained: for designation 125 x 125 x 6, the printed depth/width is 125.5 mm. Verify before use.

Table 2 | Dimensions and Properties of Rectangular Hollow Sections

Clause 8.1 and note in Annex A

Designation mm	Depth mm	Width mm	Thick. mm	Weight kg/m	Area cm2	I x-x cm4	I y-y cm4	r x-x cm	r y-y cm	Elastic x-x cm3	Elastic y-y cm3	Plastic x-x cm3	Plastic y-y cm3
50.0 x 25.0 x 2.9	50.0	25.0	2.9	2.98	3.80	10.93	3.60	1.70	0.97	4.37	2.88	5.72	3.48
50.0 x 25.0 x 3.2	50.0	25.0	3.2	3.24	4.13	11.63	3.80	1.68	0.96	4.65	3.04	6.14	3.73
60.0 x 40.0 x 2.9	60.0	40.0	2.9	4.12	5.25	24.74	13.11	2.17	1.58	8.25	6.56	10.25	7.73
66.0 x 33.0 x 2.9	66.0	33.0	2.9	4.07	5.19	27.33	9.12	2.29	1.33	8.28	5.53	10.59	6.49
66.0 x 33.0 x 3.6	66.0	33.0	3.6	4.93	6.28	31.87	10.52	2.25	1.29	9.66	6.37	12.56	7.66
66.0 x 33.0 x 4.5	66.0	33.0	4.5	5.95	7.58	36.64	11.93	2.20	1.25	11.10	7.23	14.77	8.94
70.0 x 30.0 x 2.9	70.0	30.0	2.9	4.12	5.25	29.82	7.72	2.38	1.21	8.52	5.14	11.07	6.04
70.0 x 30.0 x 3.2	70.0	30.0	3.2	4.50	5.73	32.04	8.24	2.37	1.20	9.15	5.49	11.98	6.51
70.0 x 30.0 x 4.0	70.0	30.0	4.0	5.45	6.95	37.23	9.42	2.31	1.16	10.64	6.28	14.20	7.66
80.0 x 40.0 x 2.9	80.0	40.0	2.9	5.03	6.41	50.87	17.11	2.82	1.63	12.72	8.56	16.07	9.88
80.0 x 40.0 x 3.2	80.0	40.0	3.2	5.50	7.01	54.94	18.41	2.80	1.62	13.74	9.21	17.46	10.72
80.0 x 40.0 x 4.0	80.0	40.0	4.0	6.71	8.55	64.79	21.49	2.75	1.59	16.20	10.74	20.91	12.77
96.0 x 48.0 x 3.2	96.0	48.0	3.2	6.71	8.54	98.61	33.28	3.40	1.97	20.54	13.87	25.85	15.91
96.0 x 48.0 x 4.0	96.0	48.0	4.0	8.22	10.47	117.54	39.32	3.55	1.94	24.49	16.30	31.21	19.14
96.0 x 48.0 x 4.8	96.0	48.0	4.8	9.66	12.31	134.35	44.55	3.30	1.90	27.99	18.56	36.13	22.08
100.0 x 50.0 x 3.2	100.0	50.0	3.2	7.01	8.93	112.29	37.95	3.55	2.06	22.46	15.18	28.20	17.37
100.0 x 50.0 x 4.0	100.0	50.0	4.0	8.59	10.95	134.14	44.95	3.50	2.03	26.83	17.98	34.10	20.93
122.0 x 61.0 x 3.6	122.0	61.0	3.6	9.67	12.32	232.61	78.83	4.34	2.35	38.13	25.84	47.71	29.42
122.0 x 61.0 x 4.5	122.0	61.0	4.5	11.88	15.14	278.94	93.78	4.29	2.49	45.73	30.75	57.85	35.56
122.0 x 61.0 x 5.4	122.0	61.0	5.4	14.01	17.85	320.83	107.03	4.24	2.45	52.60	35.09	67.29	41.22
127.0 x 50.0 x 3.6	127.0	50.0	3.6	9.34	11.89	227.08	52.05	4.37	2.09	35.76	20.82	45.95	23.70
127.0 x 50.0 x 4.6	127.0	50.0	4.6	11.69	14.89	276.33	62.46	4.31	2.05	43.52	24.98	56.66	29.04
145.0 x 82.0 x 4.8	145.0	82.0	4.8	15.92	20.28	555.16	228.50	5.23	3.36	76.57	55.73	94.93	63.93
145.0 x 82.0 x 5.4	145.0	82.0	5.4	17.74	22.60	610.85	250.59	5.20	3.33	84.26	61.12	105.07	70.66
172.0 x 92.0 x 4.8	172.0	92.0	4.8	18.71	23.83	917.13	346.91	6.20	3.82	106.64	75.41	132.08	85.61
172.0 x 92.0 x 5.4	172.0	92.0	5.4	20.88	26.59	1012.47	381.74	6.17	3.79	117.73	82.99	146.55	94.86

I = moment of inertia; r = radius of gyration. Values and axis labels are reproduced from the supplied pages. Confirm applicable amendments and source inconsistencies before use.