

HOLLOW STRUCTURAL SECTIONS



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Chemical Composition

	HS41
	Max
Carbon	0.25
Silicon	-
Manganese	-
Phosphorus	0.40
Sulphur	0.40

Mechanical Properties

	HS41
	Min
Tensile	400 MPa
Yield	235 MPa
Elongation	12-23%

TIS 107 : HOLLOW STRUCTURAL STEEL SECTIONS - ROUND TUBES

Nominal Size		Outside Diameter (mm)			Thickness	Weight	Area	Moment of inertia	Section Modulus	Radius of Gyration
inch	mm	mean	min	max	mm	kg/m	cm ²	cm ⁴	cm ³	cm
1/2"	15	21.7	21.2	22.2	2.0	0.972	1.238	0.607	0.560	0.70
3/4"	20	27.2	26.7	27.7	2.3	1.41	1.80	1.41	1.03	0.88
1"	25	34	33.5	34.5	2.3	1.80	2.29	2.89	1.70	1.12
1-1/4"	32	42.7	42.2	43.2	2.3	2.29	2.92	5.97	2.80	1.43
1-1/2"	40	48.6	48.1	49.1	2.3 3.2	2.63 3.58	3.35 4.56	8.99 11.80	3.70 4.86	1.64 1.61
2"	50	60.5	59.9	61.11	3.2 4.0	4.52 5.57	5.76 7.10	23.70 28.50	7.84 9.41	2.03 2.00
2-1/2"	65	76.3	75.54	77.06	3.2 4.0	5.77 7.13	7.35 9.09	49.20 59.50	12.90 15.60	2.59 2.65
3"	80	89.1	88.21	89.99	3.2 4.0	6.78 8.39	8.64 10.69	79.80 97.00	17.90 21.80	3.04 3.01
3-1/2"	90	101.6	100.58	102.62	3.2 4.0	7.76 9.63	9.89 12.26	120 146	23.60 28.80	3.48 3.45
4"	100	114.3	113.16	115.44	3.2 4.5 5.6	8.77 12.2 15.0	11.17 15.52 19.12	172 234 283	30.20 41.00 49.60	3.93 3.89 3.85
5"	125	139.8	138.4	141.2	4.5 6.0	15.0 19.8	19.13 25.22	438 566	62.70 80.90	4.79 4.74
6"	150	165.2	163.55	166.85	4.5 6.0	17.8 23.6	22.72 30.01	734 952	88.90 115	5.68 5.63

TOLERANCE

OD	DN < 50 mm: ± 0.5 mm
	DN ≥ 50 mm: ± 1%
WT	< 4.0 mm: + 0.6/-0.5 mm
	4 ≤ t < 12 mm: +15% , - 12.5%
	≥ 12 mm: +15% , - 1.5 mm
Weight	± 10%

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Mechanical Properties

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Tensile	400 MPa
Yield	235 MPa
Elongation	12-23%

TIS 107 : HOLLOW STRUCTURAL STEEL SECTIONS - SQUARE TUBES

Nominal Size	Thickness	Weight	Cross Sectional Area	Moment of Inertia	Modulus of Section	Radius of Gyration
				cm ⁴	cm ³	cm
mm	mm	kg/m	cm ²	$I_x I_y$	$Z_x Z_y$	$i_x i_y$
25 x 25	2.0	1.36	1.737	1.48	1.19	0.924
	2.3	1.53	1.972	1.61	1.29	0.904
32 x 32	2.3	2.04	2.596	3.71	2.32	1.20
	3.2	2.69	3.423	4.54	2.84	1.15
38 x 38	2.3	2.47	3.148	6.54	3.44	1.44
	3.2	3.29	4.191	8.18	4.30	1.40
50 x 50	2.3	3.34	4.252	15.9	6.34	1.93
	3.2	4.50	5.727	20.4	8.16	1.89
60 x 60	2.3	4.06	5.172	28.3	9.44	2.34
	3.2	5.50	7.007	36.9	12.3	2.30
	4.0	6.71	8.548	43.6	14.5	2.26
75 x 75	3.2	7.01	8.927	75.5	20.1	2.91
	4.0	8.59	10.948	90.2	24.1	2.87
90 x 90	3.2	8.51	10.85	135	29.9	3.52
	4.0	10.48	13.35	162	36.0	3.48
	4.5	11.67	14.87	178	39.5	3.46
100 x 100	3.2	9.52	12.13	187	37.5	3.93
	4.0	11.70	14.95	226	45.3	3.89
	4.5	13.10	16.67	249	49.9	3.87
150 x 150	4.5	20.10	25.67	896	120	5.91
	6.0	26.40	33.63	1150	153	5.84

TOLERANCE

OD	A,B ≤ 100 mm: ± 1.5 mm
	A,B > 100 mm: ± 1.5%
WT	< 3.0 mm: ± 0.3 mm
	≥ 3.0 mm: ± 10%
Weight	± 10%

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Mechanical Properties

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Tensile	400 MPa
Yield	235 MPa
Elongation	12-23%

TIS 107 : Hollow Structural Steel Sections - Rectangular Tubes

Nominal Size	Thickness	Weight	Cross Sectional Area	Moment of Inertia		Modulus of Section		Radius of Gyration	
				cm ⁴		cm ³		cm	
				i _x	i _y	Z _x	Z _y	i _x	i _y
mm	mm	kg/m	cm ²						
50 x 25	2.3	2.44	3.102	9.31	3.10	3.72	2.48	1.73	1.00
	3.2	3.24	4.127	11.6	3.80	4.65	3.04	1.68	0.96
60 x 30	2.3	2.98	3.792	16.8	5.65	5.61	3.76	2.11	1.22
	3.2	3.99	5.087	21.4	7.08	7.15	4.72	2.05	1.18
75 x 38	2.3	3.81	4.850	34.6	12.0	9.23	6.30	2.67	1.57
	3.2	5.15	6.559	45.0	15.4	12.0	8.09	2.62	1.53
75 x 45	2.3	4.06	5.172	38.9	17.6	10.4	7.82	2.74	1.84
	3.2	5.50	7.007	50.8	22.8	13.5	10.10	2.69	1.80
90 x 45	2.3	4.60	5.862	61.0	20.8	13.6	9.22	3.23	1.88
	3.2	6.25	7.967	80.2	27.0	17.8	12.00	3.17	1.84
100 x 50	3.2	7.01	8.927	112	38.0	22.5	15.2	3.55	2.06
	4.0	8.59	10.95	142	46.7	28.4	18.7	3.55	2.03
	4.5	9.55	12.17	147	48.9	29.3	19.5	3.47	2.00
125 x 50	3.2	8.26	10.53	198	46.7	31.6	18.7	4.33	2.11
	4.0	10.2	12.95	238	55.6	38.0	22.0	4.28	2.07
	4.5	11.3	14.42	261	60.6	41.7	24.2	4.25	2.05
125 x 75	3.2	9.52	12.13	257	117	41.1	31.1	4.60	3.10
	4.0	11.7	14.95	311	141	49.7	37.5	4.56	3.07
	4.5	13.1	16.67	342	155	54.8	41.2	4.53	3.04
150 x 80	4.5	15.2	19.37	563	211	75.0	52.9	5.39	3.30
	6.0	19.8	25.23	710	264	94.7	66.1	5.31	3.24
150 x 100	4.5	16.6	21.17	658	352	87.7	70.4	5.58	4.08
	6.0	21.7	27.63	835	444	111	88.8	5.50	4.01
200 x 100	4.5	20.1	25.67	1330	455	133	90.9	7.20	4.21
	6.0	26.4	33.63	1700	577	170	115	7.12	4.14

TOLERANCE

OD	A,B ≤ 100 mm: ± 1.5 mm
	A,B > 100 mm: ± 1.5%
WT	< 3 mm: ± 0.3 mm
	≥ 3 mm: ± 10%
Weight	± 10%