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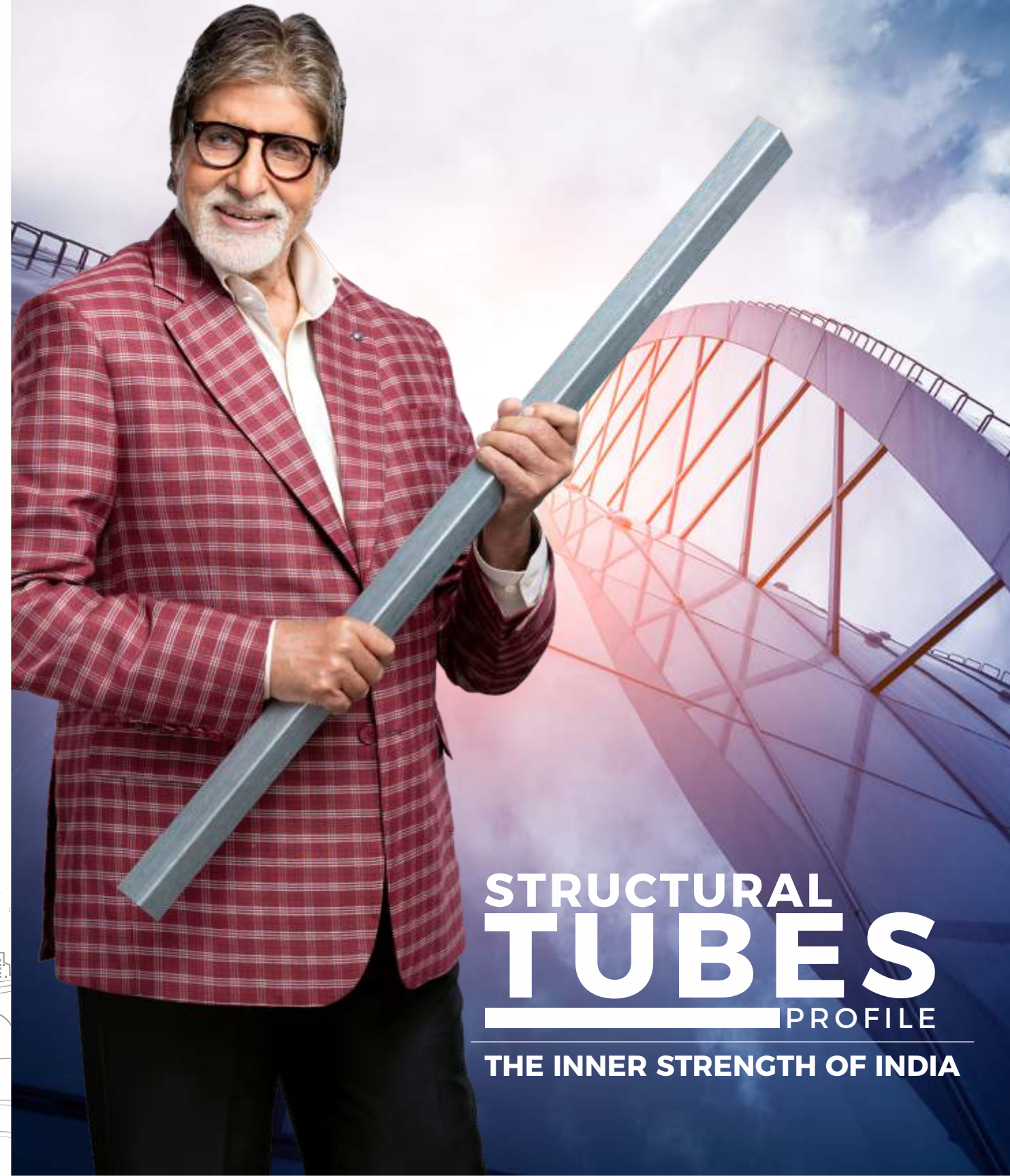
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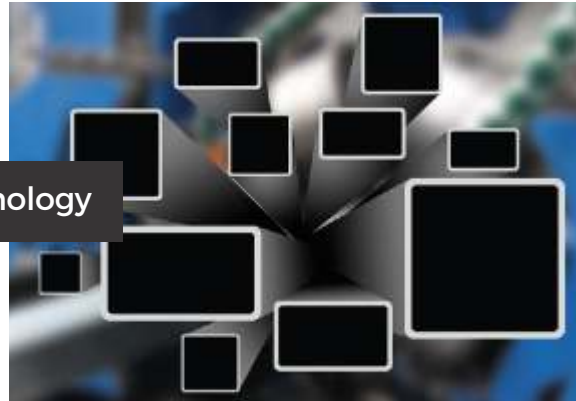
INDIA'S
No. 1
STEEL PIPES BRAND



**STRUCTURAL
TUBES**
PROFILE
THE INNER STRENGTH OF INDIA

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Direct Forming Technology



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Square Hollow Sections



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Rectangular Hollow Sections



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Circular Hollow Section

▪ Structural

COMPANY OVERVIEW

APL Apollo Tubes Limited is the largest producer of Electric Resistance Welded (ERW) steel pipes and tubes in India, with a capacity to produce more than 2.5 million tons per annum. It caters extensively to the region and exports to over 20 countries globally. The company's vast distribution network is spread across India, with warehouses and branch offices in 25 cities.

At APL Apollo believes in pioneering changes to cater to an ever evolving economy by infusing superior cutting-edge technology and innovation. Founded in 1986 in the capital city of Delhi, India, it has catapulted its growth over the last three decades by introducing a range of new products, improvising quality, increasing productivity, benchmarking the entire product line and eventually gaining the mind space of a large number of customers, therefore, redefining the market space for steel pipes business.

The organisation believes in measuring its success and pushing its limits through regular review and feedback generation. Customer centric approach and best practices from across the globe enables the organisation upscale the core business with creativity and purpose.

The Company's products are certified by reputed international agencies like SGS (France), CE (Europe) etc. It has received the Recognised Export House status and is also ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified. Additionally, all our products are BIS - marked.

DIRECT FORMING TECHNOLOGY (DFT)

A REVOLUTIONARY ITALIAN TECHNOLOGY IN INDIA

LATEST GLOBAL TECHNOLOGY FIRST TIME IN INDIA

This technology opens a new era in steel tube production. The use of Direct Forming Technology (DFT) is pioneered by APL Apollo in India and is the only company using this high tech production methodology in the most elaborate manner.

The DFT system is the result of many years of experience and know ledge in the tube field. This method brings undisputed advantages in terms of flexibility, production capability and cost reduction. This innovation enables the possibility to produce any size, included in the mill range, without roll change, resulting in extreme reduction in set up time.



Advantages of APL Apollo's DFT tubes

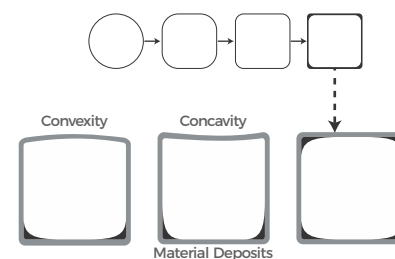
- Direct material saving of 2% to 10% depending upon specifications, size and thickness as compared to tubes manufactured by conventional technology.
- Physical and Theoretical weight of the tubes will be same, as per IS 4923.
- Corner radius are sharp, uniform and aesthetically looks good
- Odd sizes (any size can be rolled out subject to minimum order quantity)
- Short delivery period

Examples mentioned below are indicative only and demonstrate the percentage of material saved in hollow sections made from DFT method as compared to conventional method

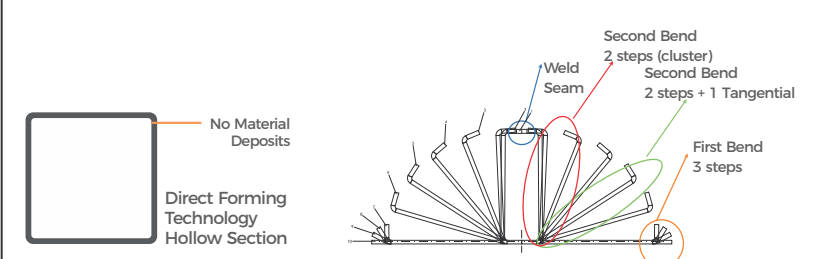
SQUARE HOLLOW SECTION (SHS)			RECTANGULAR HOLLOW SECTION (RHS)			GRADES	
HxB	T	Material Savings	HxB	T	Material Savings	Grade(YST)	
mm	mm	%	mm	mm	%		LENGTH
60x60	2.0	3%	100x50	2.0	3%	210 Mpa	Standard
	2.9	5%		4.0	5%	240 Mpa	
	3.0	7%		6.0	10%	310 Mpa	
100x100	2.0	2%	200X100	2.9	3%	355 Mpa	Special*
	4.0	4%		3.6	4%		
	6.0	5%		5.0	5%		
300x300	8.0	4.0	400x200	8.0	4%		Length
	10.0	4.0		10.0	4%		Standard
	12.0	4.0		12.0	4%		Special*

* made on order

CONVENTIONAL TECHNOLOGY



DIRECT FORMING TECHNOLOGY



SQUARE HOLLOW SECTION

Product Range

12mm X 12mm to 300mm X 300mm

Thickness

1mm to 12mm



SQUARE HOLLOW SECTION (SHS) IS : 4923 : 1997/EN 10219-1 : 2006*/ASTM A-500

Dimension	Weight	Area	Moment of Inertia		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants	
			I _{xx}	I _{yy}	R _{xx}	R _{yy}	Z _{xx}	Z _{yy}	S _{xx}	S _{yy}	J	C
mm	kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³
12X12X1.6	0.47	0.60	0.10	0.10	0.41	0.41	0.17	0.17	0.22	0.22	0.12	0.18
12X12X1.8	0.51	0.65	0.10	0.10	0.39	0.39	0.17	0.17	0.24	0.24	0.10	0.16
12X12X2.0	0.55	0.70	0.11	0.11	0.40	0.40	0.19	0.19	0.25	0.25	0.07	0.13
15X15X1.6	0.62	0.79	0.23	0.23	0.54	0.54	0.31	0.31	0.39	0.39	0.32	0.38
15X15X1.8	0.68	0.87	0.24	0.24	0.53	0.53	0.32	0.32	0.41	0.41	0.31	0.37
15X15X2.0	0.74	0.94	0.25	0.25	0.52	0.52	0.34	0.34	0.44	0.44	0.28	0.35
15X15X2.2	0.79	1.00	0.25	0.25	0.50	0.50	0.34	0.34	0.46	0.46	0.24	0.32
20X20X1.6	0.87	1.11	0.61	0.61	0.74	0.74	0.61	0.61	0.75	0.75	0.95	0.84
20X20X1.8	0.97	1.23	0.65	0.65	0.73	0.73	0.65	0.65	0.82	0.82	0.99	0.88
20X20X2.0	1.05	1.34	0.69	0.69	0.72	0.72	0.69	0.69	0.88	0.88	1.01	0.90
20X20X2.2	1.13	1.44	0.73	0.73	0.71	0.71	0.73	0.73	0.93	0.93	1.00	0.90
20X20X2.6	1.29	1.64	0.78	0.78	0.69	0.69	0.78	0.78	1.02	1.02	0.92	0.85
25X25X1.6	1.12	1.43	1.28	1.28	0.95	0.95	1.03	1.03	1.24	1.24	2.05	1.46
25X25X1.8	1.25	1.59	1.38	1.38	0.93	0.93	1.11	1.11	1.35	1.35	2.20	1.56
25X25X2.0	1.37	1.74	1.48	1.48	0.92	0.92	1.19	1.19	1.47	1.47	2.32	1.64
25X25X2.2	1.48	1.88	1.57	1.57	0.91	0.91	1.26	1.26	1.57	1.57	2.40	1.70
25X25X2.6	1.70	2.16	1.72	1.72	0.89	0.89	1.38	1.38	1.76	1.76	2.47	1.76
25X25X2.9	1.84	2.35	1.81	1.81	0.88	0.88	1.45	1.45	1.88	1.88	2.41	1.75
30X30X1.6	1.37	1.75	2.31	2.31	1.15	1.15	1.54	1.54	1.84	1.84	3.73	2.24
30X30X1.8	1.53	1.95	2.52	2.52	1.14	1.14	1.68	1.68	2.03	2.03	4.06	2.42
30X30X2.0	1.68	2.14	2.72	2.72	1.13	1.13	1.82	1.82	2.21	2.21	4.35	2.59
30X30X2.2	1.82	2.32	2.91	2.91	1.12	1.12	1.94	1.94	2.37	2.37	4.60	2.72
30X30X2.6	2.10	2.68	3.23	3.23	1.10	1.10	2.16	2.16	2.68	2.68	4.96	2.93
30X30X2.9	2.30	2.93	3.44	3.44	1.08	1.08	2.30	2.30	2.89	2.89	5.09	3.02
30X30X3.2	2.49	3.17	3.62	3.62	1.07	1.07	2.42	2.42	3.08	3.08	5.10	3.05
32X32X1.6	1.48	1.88	2.84	2.84	1.23	1.23	1.78	1.78	2.12	2.12	4.59	2.60
32X32X1.8	1.64	2.09	3.11	3.11	1.22	1.22	1.95	1.95	2.33	2.33	5.02	2.82
32X32X2.0	1.81	2.30	3.36	3.36	1.21	1.21	2.10	2.10	2.54	2.54	5.40	3.02
32X32X2.2	1.96	2.50	3.60	3.60	1.20	1.20	2.25	2.25	2.74	2.74	5.74	3.19
32X32X2.6	2.26	2.88	4.02	4.02	1.18	1.18	2.52	2.52	3.11	3.11	6.26	3.47
32X32X2.9	2.48	3.16	4.30	4.30	1.17	1.17	2.69	2.69	3.36	3.36	6.51	3.60
32X32X3.2	2.68	3.42	4.54	4.54	1.15	1.15	2.84	2.84	3.59	3.59	6.62	3.68
38X38X1.6	1.77	2.26	4.92	4.92	1.48	1.48	2.59	2.59	3.06	3.06	7.93	3.82
38X38X2.0	2.18	2.78	5.88	5.88	1.45	1.45	3.10	3.10	3.70	3.70	9.49	4.51
38X38X2.2	2.38	3.03	6.32	6.32	1.44	1.44	3.33	3.33	4.00	4.00	10.19	4.81
38X38X2.6	2.76	3.51	7.14	7.14	1.43	1.43	3.76	3.76	4.57	4.57	11.39	5.33
38X38X2.9	3.03	3.86	7.68	7.68	1.41	1.41	4.05	4.05	4.97	4.97	12.10	5.65
38X38X3.2	3.29	4.19	8.18	8.18	1.40	1.40	4.31	4.31	5.34	5.34	12.64	5.89
38X38X3.6	3.63	4.62	8.76	8.76	1.38	1.38	4.62	4.62	5.80	5.80	13.07	6.10
40X40X1.6	1.88	2.39	5.79	5.79	1.56	1.56	2.90	2.90	3.41	3.41	9.32	4.28
40X40X2.0	2.31	2.94	6.94	6.94	1.54	1.54	3.47	3.47	4.13	4.13	11.20	5.07

SQUARE HOLLOW SECTION (SHS) IS : 4923 : 1997/EN 10219-1 : 2006*/ASTM A-500

Table with 13 columns: Dimension (mm), Weight (kg/m), Area (cm2), Moment of Inertia (Ixx, Iyy in cm4), Radius of Gyration (Rxx, Ryy in cm), Elastic Modulus (Zxx, Zyy in cm3), Plastic Modulus (Sxx, Syy in cm3), and Torsional Constants (J, C in cm4, cm3). Rows range from 110x110x4.5 to 150x150x7.0.

SQUARE HOLLOW SECTION (SHS) IS : 4923 : 1997/EN 10219-1 : 2006*/ASTM A-500

Table with 13 columns: Dimension (mm), Weight (kg/m), Area (cm2), Moment of Inertia (Ixx, Iyy in cm4), Radius of Gyration (Rxx, Ryy in cm), Elastic Modulus (Zxx, Zyy in cm3), Plastic Modulus (Sxx, Syy in cm3), and Torsional Constants (J, C in cm4, cm3). Rows range from 150x150x8.0 to 225x225x6.0.

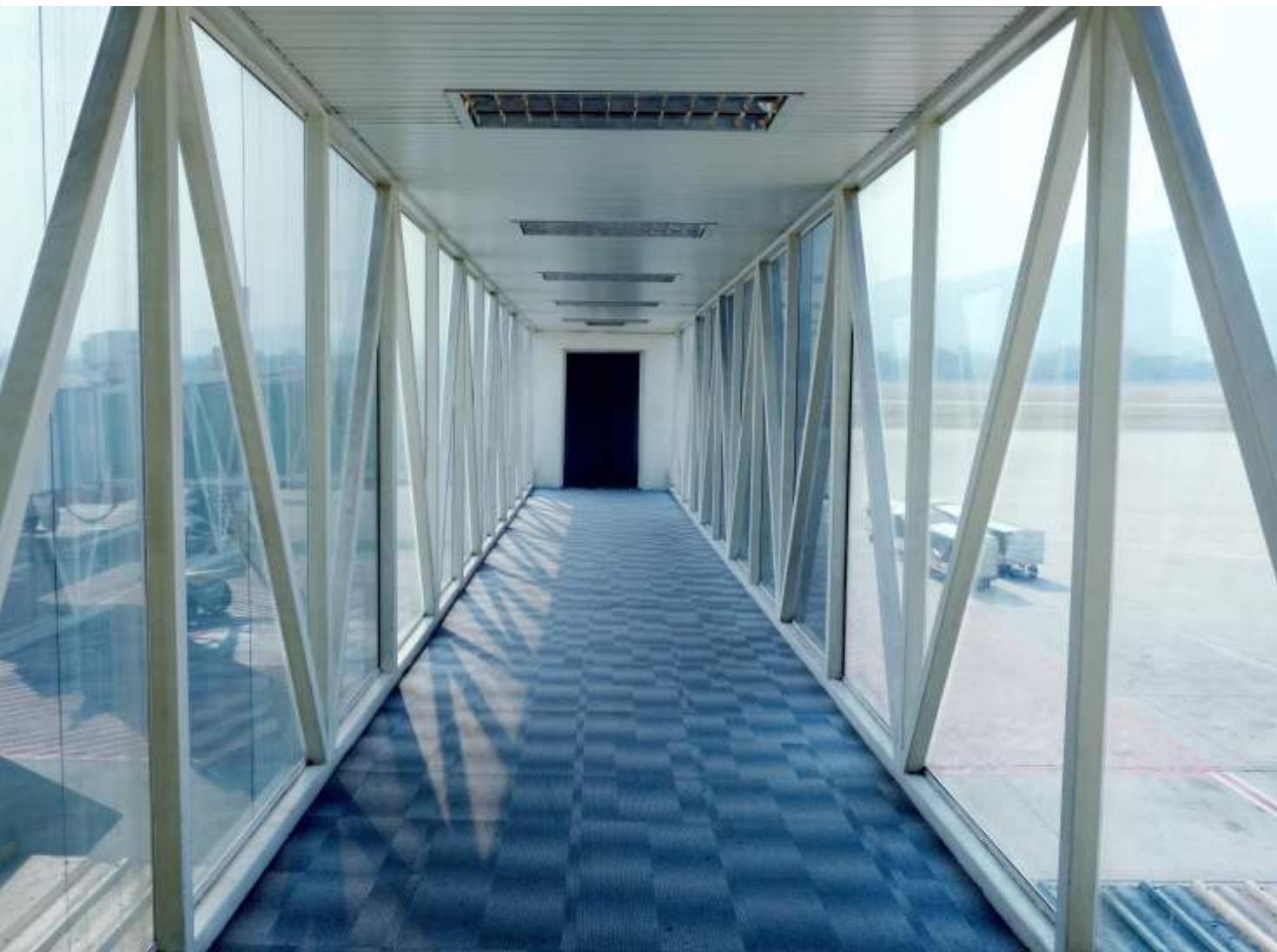
RECTANGULAR HOLLOW SECTION

Product Range

26mm X 13mm to 400mm X 200mm

Thickness

1mm to 12mm



RECTANGULAR HOLLOW SECTION (RHS) IS : 4923 : 1997/EN 10219-1 : 2006*/ASTM A-500

Dimension	Weight	Area	Moment of Inertia		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants	
			I _{xx}	I _{yy}	R _{xx}	R _{yy}	Z _{xx}	Z _{yy}	S _{xx}	S _{yy}	J	C
mm	kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³
26X13X1.6	0.85	1.08	0.83	0.27	0.88	0.50	0.64	0.42	0.84	0.51	0.63	0.66
26X13X1.8	0.93	1.19	0.89	0.29	0.86	0.49	0.69	0.45	0.91	0.55	0.64	0.67
26X13X2.0	1.02	1.30	0.94	0.30	0.85	0.48	0.73	0.47	0.98	0.59	0.64	0.67
30X20X1.6	1.12	1.43	1.66	0.88	1.08	0.78	1.11	0.88	1.39	1.05	1.85	1.38
30X20X1.8	1.25	1.59	1.81	0.95	1.07	0.77	1.21	0.95	1.52	1.14	1.98	1.47
30X20X2.0	1.37	1.74	1.94	1.02	1.06	0.77	1.30	1.02	1.65	1.24	2.08	1.55
30X20X2.5	1.64	2.09	2.21	1.15	1.03	0.74	1.48	1.15	1.92	1.44	2.18	1.64
40X10X1.6	1.12	1.43	2.25	0.22	1.25	0.39	1.13	0.44	1.57	0.54	0.65	0.76
40X10X1.8	1.25	1.59	2.44	0.24	1.24	0.39	1.22	0.48	1.72	0.59	0.66	0.78
40X10X2.0	1.37	1.74	2.60	0.25	1.22	0.38	1.30	0.50	1.85	0.63	0.65	0.78
40X20X1.6	1.37	1.75	3.43	1.15	1.40	0.81	1.72	1.15	2.18	1.34	2.83	1.92
40X20X1.8	1.53	1.95	3.75	1.25	1.39	0.80	1.88	1.25	2.40	1.47	3.06	2.07
40X20X2.0	1.68	2.14	4.05	1.34	1.38	0.79	2.03	1.34	2.61	1.60	3.25	2.19
40X20X2.5	2.03	2.59	4.69	1.54	1.35	0.77	2.35	1.54	3.09	1.88	3.55	2.40
40X25X1.6	1.50	1.91	4.02	1.93	1.45	1.01	2.01	1.55	2.49	1.80	4.25	2.51
40X25X1.8	1.67	2.13	4.41	2.11	1.44	1.00	2.21	1.69	2.75	1.98	4.64	2.72
40X25X2.0	1.84	2.34	4.77	2.28	1.43	0.99	2.39	1.83	2.99	2.16	4.99	2.91
40X25X2.5	2.23	2.84	5.57	2.64	1.40	0.96	2.79	2.12	3.56	2.56	5.64	3.27
40X25X2.9	2.53	3.22	6.11	2.88	1.38	0.95	3.06	2.31	3.96	2.84	5.92	3.44
50X25X1.6	1.75	2.23	7.02	2.37	1.77	1.03	2.81	1.90	3.53	2.17	5.83	3.21
50X25X2.0	2.15	2.74	8.38	2.81	1.75	1.01	3.36	2.25	4.26	2.62	6.90	3.76
50X25X2.5	2.62	3.34	9.89	3.28	1.72	0.99	3.96	2.63	5.11	3.12	7.93	4.29
50X25X2.9	2.98	3.80	10.93	3.60	1.70	0.97	4.38	2.88	5.72	3.48	8.48	4.58
50X25X3.2	3.24	4.13	11.63	3.80	1.68	0.96	4.66	3.04	6.14	3.73	8.72	4.72
50X30X1.6	1.88	2.39	7.96	3.60	1.82	1.23	3.19	2.40	3.91	2.75	8.07	3.96
50X30X2.0	2.31	2.94	9.54	4.29	1.80	1.21	3.82	2.86	4.74	3.33	9.65	4.67
50X30X2.5	2.82	3.59	11.30	5.05	1.77	1.19	4.52	3.37	5.70	3.98	11.28	5.40
50X30X2.9	3.21	4.09	12.54	5.58	1.75	1.17	5.02	3.72	6.40	4.47	12.27	5.85
50X30X3.2	3.49	4.45	13.38	5.93	1.73	1.15	5.36	3.96	6.89	4.80	12.81	6.11
60X40X1.6	2.38	3.03	15.22	8.16	2.24	1.64	5.08	4.08	6.12	4.64	17.10	6.63
60X40X2.0	2.94	3.74	18.41	9.83	2.22	1.62	6.14	4.92	7.47	5.65	20.77	7.96
60X40X2.5	3.60	4.59	22.07	11.74	2.19	1.60	7.36	5.87	9.06	6.84	24.89	9.41
60X40X2.9	4.12	5.25	24.74	13.11	2.17	1.58	8.25	6.56	10.25	7.73	27.76	10.41
60X40X3.2	4.50	5.73	26.61	14.07	2.15	1.57	8.87	7.04	11.09	8.36	29.63	11.05
60X40X3.6	4.98	6.35	28.90	15.23	2.13	1.55	9.64	7.62	12.16	9.15	31.72	11.79
66X33X1.6	2.36	3.00	16.85	5.74	2.37	1.38	5.11	3.48	6.34	3.92	14.01	5.94
66X33X2.0	2.90	3.70	20.37	6.90	2.35	1.37	6.18	4.19	7.73	4.77	16.94	7.09
66X33X2.5	3.56	4.54	24.40	8.19	2.32	1.34	7.40	4.97	9.37	5.75	20.14	8.33
66X33X2.9	4.07	5.19	27.33	9.12	2.29	1.33	8.29	5.53	10.59	6.49	22.31	9.17
66X33X3.2	4.44	5.66	29.37	9.75	2.28	1.31	8.90	5.91	11.46	7.01	23.67	9.70
75X25X1.6	2.38	3.03	19.74	3.47	2.55	1.07	5.27	2.78	6.81	3.11	9.94	4.97

RECTANGULAR HOLLOW SECTION (RHS) IS : 4923 : 1997/EN 10219-1 : 2006*/ASTM A-500

Table with 13 columns: Dimension (mm), Weight (kg/m), Area (cm2), Moment of Inertia (Ixx, Iyy in cm4), Radius of Gyration (Rxx, Ryy in cm), Elastic Modulus (Zxx, Zyy in cm3), Plastic Modulus (Sxx, Syy in cm3), and Torsional Constants (J, C in cm4, cm3). Rows list dimensions from 75x25x2.0 to 120x60x4.0.

RECTANGULAR HOLLOW SECTION (RHS) IS : 4923 : 1997/EN 10219-1 : 2006*/ASTM A-500

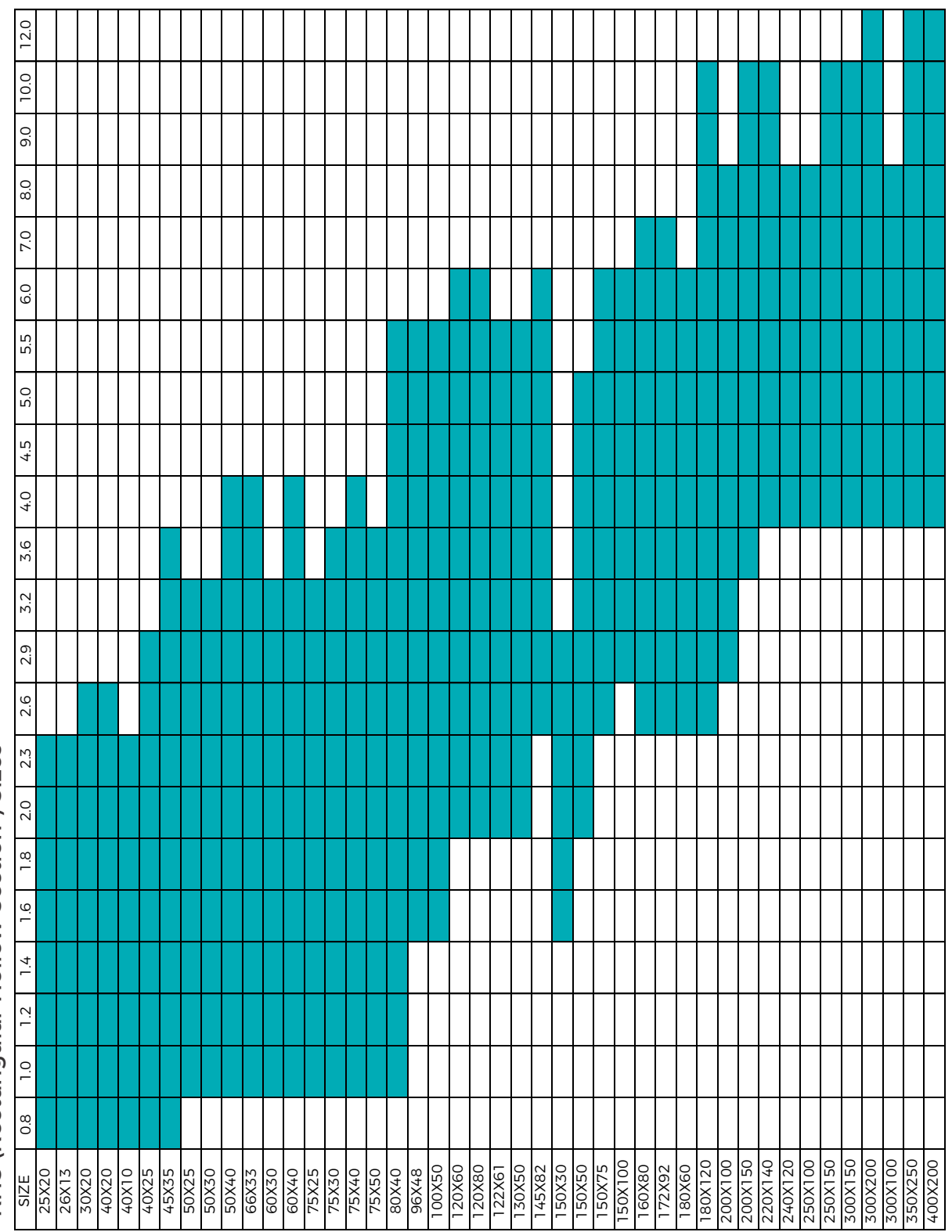
Table with 13 columns: Dimension (mm), Weight (kg/m), Area (cm2), Moment of Inertia (Ixx, Iyy in cm4), Radius of Gyration (Rxx, Ryy in cm), Elastic Modulus (Zxx, Zyy in cm3), Plastic Modulus (Sxx, Syy in cm3), and Torsional Constants (J, C in cm4, cm3). Rows list dimensions from 120x60x5.0 to 240x120x6.0.

RECTANGULAR HOLLOW SECTION (RHS) IS : 4923 : 1997/EN 10219-1 : 2006*/ASTM A-500

Dimension	Weight	Area	Moment of Inertia		Radius of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants	
			I _{xx} cm ⁴	I _{yy} cm ⁴	R _{xx} cm	R _{yy} cm	Z _{xx} cm ³	Z _{yy} cm ³	S _{xx} cm ³	S _{yy} cm ³	J cm ⁴	C cm ³
240X120X7.0	37.04	47.18	3449.84	1169.52	8.55	4.98	287.49	194.92	359.51	221.76	2869.55	331.03
240X120X8.0	41.91	53.39	3851.84	1299.95	8.49	4.93	320.99	216.66	403.89	248.66	3196.64	366.11
250X100X4.0	21.16	26.95	2091.66	502.99	8.81	4.32	167.34	100.60	210.41	110.90	1335.40	177.41
250X100X5.0	26.19	33.36	2553.76	609.85	8.75	4.28	204.31	121.97	258.51	135.84	1631.59	214.59
250X100X6.0	31.11	39.63	2992.34	709.63	8.69	4.23	239.39	141.93	304.85	159.70	1908.64	248.83
250X100X7.0	35.94	45.78	3407.80	802.57	8.63	4.19	272.63	160.52	349.43	182.49	2164.59	280.08
250X100X8.0	40.66	51.79	3800.53	888.89	8.57	4.14	304.05	177.78	392.27	204.23	2397.53	308.31
250X150X4.0	24.30	30.95	2696.87	1234.24	9.33	6.31	215.75	164.57	259.61	183.27	2696.49	274.12
250X150X5.0	30.11	38.36	3304.18	1507.95	9.28	6.27	264.34	201.06	319.76	225.48	3322.96	334.43
250X150X6.0	35.82	45.63	3885.56	1768.35	9.23	6.23	310.85	235.78	378.05	266.28	3924.87	391.36
250X150X7.0	41.43	52.78	4441.44	2015.73	9.17	6.18	355.32	268.77	434.48	305.69	4499.45	444.86
250X150X8.0	46.94	59.79	4972.24	2250.41	9.12	6.14	397.78	300.06	489.07	343.71	5043.97	494.90
250X150X9.0	52.34	66.67	5478.35	2472.70	9.06	6.09	438.27	329.70	541.84	380.37	5555.73	541.41
250X150X10.0	57.63	73.42	5960.20	2682.88	9.01	6.04	476.82	357.72	592.79	415.67	6032.07	584.33
280X100X4.0	23.04	29.35	2785.31	558.32	9.74	4.36	198.96	111.67	252.63	122.42	1543.27	199.54
280X100X5.0	28.54	36.36	3406.6	677.6	9.68	4.32	243.33	135.52	310.8	150.09	1886.82	241.68
280X100X6.0	33.94	43.23	3998.76	789.27	9.62	4.27	285.63	157.86	367	176.62	2209.32	280.67
280X100X8.0	44.42	56.59	5097.47	990.72	9.49	4.18	364.11	198.15	473.56	226.31	2783.2	349.01
300X150X4.0	27.44	34.95	4196.67	1447.46	10.96	6.44	279.78	193.00	341.98	212.47	3455.16	330.97
300X150X5.0	34.04	43.36	5153.13	1770.87	10.90	6.39	343.55	236.12	421.90	261.73	4261.58	404.51
300X150X6.0	40.53	51.63	6073.51	2079.57	10.85	6.35	404.91	277.28	499.63	309.48	5039.24	474.31
300X150X8.0	53.22	67.79	7807.95	2654.12	10.73	6.26	520.53	353.89	648.55	400.51	6496.60	602.47
300X150X9.0	59.40	75.67	8623.00	2920.63	10.67	6.21	574.87	389.42	719.77	443.82	7170.57	660.74
300X150X10.0	65.48	83.42	9403.90	3173.71	10.62	6.17	626.93	423.17	788.86	485.67	7804.31	715.07
300X200X4.0	30.58	38.95	5072.88	2736.56	11.41	8.38	338.20	273.66	401.18	304.84	5589.58	447.72
300X200X5.0	37.96	48.36	6241.05	3360.92	11.36	8.34	416.07	336.10	495.65	376.37	6919.17	549.43
300X200X6.0	45.24	57.63	7370.23	3962.19	11.31	8.29	491.35	396.22	587.83	446.07	8214.59	646.97
300X200X8.0	59.50	75.79	9513.66	5097.04	11.20	8.20	634.25	509.71	765.35	579.99	10688.71	829.36
300X200X9.0	66.47	84.67	10528.93	5631.42	11.15	8.16	701.93	563.15	850.72	644.25	11860.33	914.11
300X200X10.0	73.33	93.42	11507.24	6144.30	11.10	8.11	767.15	614.43	933.86	706.73	12983.61	994.50
300X200X12.0	86.77	110.53	13354.97	7107.11	10.99	8.02	890.34	710.72	1093.47	826.41	15071.27	1141.95
350X250X5.0	45.81	58.36	10519.88	6305.84	13.43	10.39	601.14	504.47	709.04	564.76	12375.85	814.43
350X250X6.0	54.66	69.63	12457.31	7458.44	13.43	10.35	711.85	596.68	842.61	670.85	14733.26	962.58
350X250X8.0	72.06	91.79	16170.48	9659.06	13.27	10.26	924.03	772.73	1101.63	876.27	19295.99	1243.82
350X250X10.0	89.03	113.42	19672.08	11723.53	13.17	10.17	1124.12	937.89	1349.92	1072.79	23627.09	1504.66
350X250X12.0	105.61	134.53	22966.89	13655.73	13.07	10.08	1312.4	1092.46	1587.6	1260.54	27692.08	1744.69
400X200X5.0	45.81	58.36	12489.82	4311.75	14.63	8.60	624.50	431.18	762.43	473.87	10269.69	739.55
400X200X6.0	54.66	69.63	14789.35	5091.63	14.57	8.55	739.47	509.17	905.99	562.47	12205.15	872.78
400X200X8.0	72.06	91.79	19195.28	6572.45	14.46	8.46	959.77	657.25	1184.31	733.59	15926.47	1124.29
400X200X10.0	89.03	113.42	23348.08	7950.97	14.35	8.37	1167.41	795.10	1450.98	896.73	19422.50	1355.55
400X200X12.0	105.61	134.53	27252.93	9230.63	14.23	8.28	1362.65	923.07	1706.13	1052.01	22662.53	1566.20

*This specification conforms to CE Mark conferred by Det Norske Veritas, Netherlands. Torsional Constant as per EN 10219-2:2006

RHS (Rectangular Hollow Section) Sizes



CIRCULAR HOLLOW SECTION

Product Range

21.3mm to 355.6mm

Thickness

1mm to 10mm



CIRCULAR HOLLOW SECTION FOR STRUCTURAL PURPOSES CONFORMING TO IS:1161 : 2014

Outside Diameter	Thickness	Mass	Area of Cross Section	Internal Volume	Moment of Inertia	Elastic Modulus	Plastic Modulus	Radius of Gyration	Square of Radius of Gyration	Torsional Constant
mm	mm	kg/m	cm ²	cm ³ /m	cm ⁴	cm ³	cm ³	cm	cm ²	cm ³
21.3	1.6	0.78	0.99	257	0.48	0.45	0.62	0.70	0.49	0.91
21.3	1.8	0.86	1.10	246	0.53	0.50	0.69	0.69	0.48	0.99
21.3	2.0	0.95	1.21	235	0.57	0.54	0.75	0.69	0.47	1.07
21.3	2.3	1.08	1.37	219	0.63	0.59	0.83	0.68	0.46	1.18
21.3	2.6	1.20	1.53	204	0.68	0.64	0.92	0.67	0.45	1.28
21.3	2.9	1.31	1.68	189	0.73	0.68	0.99	0.66	0.43	1.37
26.4	1.6	0.98	1.25	423	0.96	0.73	0.99	0.88	0.77	1.46
26.4	1.8	1.09	1.39	408	1.06	0.80	1.09	0.87	0.76	1.60
26.4	2.0	1.20	1.53	394	1.15	0.87	1.19	0.87	0.75	1.74
26.4	2.3	1.36	1.74	373	1.28	0.97	1.34	0.86	0.73	1.93
26.4	2.6	1.52	1.94	353	1.39	1.06	1.48	0.85	0.72	2.11
26.4	2.9	1.68	2.14	333	1.50	1.14	1.61	0.84	0.70	2.27
33.7	1.6	1.26	1.61	731	2.08	1.24	1.65	1.14	1.29	2.47
33.7	1.8	1.41	1.80	712	2.30	1.37	1.83	1.13	1.28	2.73
33.7	2.0	1.56	1.99	693	2.51	1.49	2.01	1.12	1.26	2.98
33.7	2.3	1.78	2.27	665	2.81	1.67	2.27	1.11	1.24	3.34
33.7	2.6	1.99	2.54	638	3.09	1.84	2.52	1.10	1.22	3.67
33.7	2.9	2.20	2.81	611	3.36	1.99	2.76	1.09	1.20	3.98
33.7	3.2	2.40	3.07	585	3.60	2.14	2.99	1.08	1.18	4.28
33.7	3.6	2.67	3.40	552	3.91	2.32	3.28	1.07	1.15	4.64
42.4	1.6	1.61	2.05	1207	4.27	2.02	2.66	1.44	2.08	4.03
42.4	1.8	1.80	2.30	1182	4.74	2.24	2.97	1.44	2.06	4.47
42.4	2.0	1.99	2.54	1158	5.19	2.45	3.27	1.43	2.05	4.90
42.4	2.3	2.27	2.90	1122	5.84	2.76	3.70	1.42	2.02	5.51
42.4	2.6	2.55	3.25	1087	6.46	3.05	4.12	1.41	1.99	6.10
42.4	2.9	2.82	3.60	1052	7.06	3.33	4.53	1.40	1.96	6.66
42.4	3.2	3.09	3.94	1018	7.62	3.59	4.93	1.39	1.93	7.19
42.4	3.6	3.44	4.39	973	8.33	3.93	5.44	1.38	1.90	7.86
48.3	1.6	1.84	2.35	1598	6.41	2.65	3.49	1.65	2.73	5.31
48.3	1.8	2.06	2.63	1569	7.12	2.95	3.89	1.65	2.71	5.89
48.3	2.0	2.28	2.91	1541	7.81	3.23	4.29	1.64	2.68	6.47
48.3	2.3	2.60	3.32	1500	8.81	3.65	4.87	1.63	2.65	7.30
48.3	2.6	2.92	3.73	1459	9.78	4.05	5.44	1.62	2.62	8.10
48.3	2.9	3.24	4.14	1419	10.70	4.43	5.99	1.61	2.59	8.86
48.3	3.2	3.55	4.53	1379	11.59	4.80	6.52	1.60	2.56	9.59
48.3	3.6	3.96	5.06	1327	12.71	5.26	7.21	1.59	2.51	10.52
48.3	4.0	4.36	5.57	1276	13.77	5.70	7.87	1.57	2.47	11.40
48.3	4.5	4.85	6.19	1213	15.01	6.21	8.66	1.56	2.42	12.43
48.3	5.0	5.33	6.80	1152	16.15	6.69	9.42	1.54	2.37	13.38
60.3	1.6	2.31	2.95	2561	12.72	4.22	5.51	2.08	4.31	8.44
60.3	2.0	2.87	3.66	2489	15.58	5.17	6.80	2.06	4.25	10.34
60.3	2.3	3.28	4.19	2437	17.65	5.85	7.74	2.05	4.21	11.71
60.3	2.6	3.69	4.71	2384	19.65	6.52	8.66	2.04	4.17	13.04
60.3	2.9	4.09	5.23	2333	21.59	7.16	9.56	2.03	4.13	14.32
60.3	3.2	4.49	5.74	2282	23.47	7.78	10.44	2.02	4.09	15.57
60.3	3.6	5.02	6.41	2215	25.87	8.58	11.59	2.01	4.03	17.16
60.3	4.0	5.54	7.07	2148	28.17	9.34	12.70	2.00	3.98	18.69

CIRCULAR HOLLOW SECTION FOR STRUCTURAL PURPOSES CONFORMING TO IS:1161 : 2014

Outside Diameter	Thickness	Mass	Area of Cross Section	Internal Volume	Moment of Inertia	Elastic Modulus	Plastic Modulus	Radius of Gyration	Square of Radius of Gyration	Torsional Constant
mm	mm	kg/m	cm ²	cm ³ /m	cm ⁴	cm ³	cm ³	cm	cm ²	cm ³
60.3	4.5	6.18	7.89	2067	30.90	10.25	14.04	1.98	3.92	20.50
60.3	5.0	6.80	8.69	1987	33.48	11.10	15.33	1.96	3.85	22.21
76.2	2.0	3.65	4.66	4094	32.11	8.43	11.01	2.62	6.89	16.85
76.2	2.3	4.18	5.34	4026	36.49	9.58	12.56	2.61	6.83	19.15
76.2	2.6	4.71	6.01	3959	40.76	10.70	14.09	2.60	6.78	21.40
76.2	2.9	5.23	6.68	3893	44.92	11.79	15.59	2.59	6.73	23.58
76.2	3.2	5.75	7.34	3826	48.98	12.86	17.06	2.58	6.67	25.71
76.2	3.6	6.43	8.21	3739	54.23	14.23	18.99	2.57	6.60	28.47
76.2	4.0	7.10	9.07	3653	59.30	15.56	20.87	2.56	6.54	31.13
76.2	4.5	7.94	10.14	3547	65.39	17.16	23.16	2.54	6.45	34.33
76.2	5.0	8.76	11.18	3442	71.22	18.69	25.39	2.52	6.37	37.39
88.9	2.0	4.28	5.46	5661	51.57	11.60	15.11	3.07	9.44	23.20
88.9	2.3	4.90	6.26	5581	58.70	13.21	17.25	3.06	9.38	26.41
88.9	2.6	5.52	7.05	5502	65.68	14.78	19.37	3.05	9.32	29.55
88.9	2.9	6.14	7.84	5424	72.52	16.31	21.46	3.04	9.26	32.63
88.9	3.2	6.75	8.62	5346	79.21	17.82	23.51	3.03	9.19	35.64
88.9	3.6	7.55	9.65	5242	87.90	19.77	26.21	3.02	9.11	39.55
88.9	4.0	8.35	10.67	5140	96.34	21.67	28.85	3.00	9.03	43.35
88.9	4.5	9.34	11.93	5014	106.54	23.97	32.09	2.99	8.93	47.94
88.9	5.0	10.32	13.18	4889	116.37	26.18	35.24	2.97	8.83	52.36
101.6	2.0	4.90	6.26	7482	77.63	15.28	19.84	3.52	12.41	30.56
101.6	2.3	5.62	7.18	7390	88.48	17.42	22.68	3.51	12.33	34.84
101.6	2.6	6.33	8.09	7299	99.14	19.52	25.49	3.50	12.26	39.03
101.6	2.9	7.04	8.99	7208	109.59	21.57	28.26	3.49	12.19	43.15
101.6	3.2	7.75	9.89	7118	119.85	23.59	31.00	3.48	12.12	47.19
101.6	3.6	8.68	11.08	6999	133.24	26.23	34.59	3.47	12.02	52.46
101.6	4.0	9.60	12.26	6881	146.28	28.80	38.12	3.45	11.93	57.59
101.6	4.5	10.75	13.73	6735	162.13	31.92	42.46	3.44	11.81	63.83
101.6	5.0	11.88	15.17	6590	177.47	34.93	46.70	3.42	11.70	69.87
114.3	2.0	5.53	7.06	9555	111.27	19.47	25.23	3.97	15.77	38.94
114.3	2.3	6.34	8.09	9452	126.95	22.21	28.86	3.96	15.69	44.43
114.3	2.6	7.14	9.12	9348	142.37	24.91	32.45	3.95	15.60	49.82
114.3	2.9	7.95	10.15	9246	157.55	27.57	36.00	3.94	15.52	55.13
114.3	3.2	8.75	11.17	9144	172.47	30.18	39.51	3.93	15.44	60.36
114.3	3.6	9.80	12.52	9009	191.98	33.59	44.13	3.92	15.33	67.19
114.3	4.0	10.85	13.86	8875	211.07	36.93	48.69	3.90	15.23	73.86
114.3	4.5	12.15	15.52	8709	234.32	41.00	54.28	3.89	15.10	82.00
114.3	5.0	13.44	17.17	8544	256.92	44.96	59.77	3.87	14.96	89.91
114.3	6.0	15.99	20.41	8219	300.21	52.53	70.45	3.83	14.71	105.06
127.0	2.6	7.96	10.16	11652	196.65	30.97	40.24	4.40	19.35	61.94
127.0	2.9	8.85	11.31	11537	217.78	34.30	44.67	4.39	19.26	68.59
127.0	3.2	9.75	12.45	11423	238.60	37.57	49.06	4.38	19.17	75.15
127.0	3.6	10.93	13.96	11272	265.87	41.87	54.83	4.36	19.05	83.74
127.0	4.0	12.10	15.46	11122	292.61	46.08	60.54	4.35	18.93	92.16
127.0	4.5	13.56	17.32	10936	325.29	51.23	67.56	4.33	18.78	102.45
127.0	5.0	15.01	19.16	10751	357.14	56.24	74.46	4.32	18.64	112.48
127.0	6.0	17.86	22.81	10387	418.44	65.90	87.92	4.28	18.35	131.79

CIRCULAR HOLLOW SECTION FOR STRUCTURAL PURPOSES CONFORMING TO IS:1161 : 2014

Outside Diameter	Thickness	Mass	Area of Cross Section	Internal Volume	Moment of Inertia	Elastic Modulus	Plastic Modulus	Radius of Gyration	Square of Radius of Gyration	Torsional Constant
mm	mm	kg/m	cm ²	cm ³ /m	cm ⁴	cm ³	cm ³	cm	cm ²	cm ³
139.7	2.6	8.77	11.20	14208	263.21	37.68	48.88	4.85	23.50	75.36
139.7	2.9	9.76	12.46	14082	291.68	41.76	54.28	4.84	23.40	83.52
139.7	3.2	10.75	13.72	13956	319.78	45.78	59.63	4.83	23.30	91.56
139.7	3.6	12.05	15.39	13789	356.65	51.06	66.70	4.81	23.17	102.12
139.7	4.0	13.35	17.05	13623	392.86	56.24	73.68	4.80	23.04	112.49
139.7	4.5	14.97	19.11	13417	437.20	62.59	82.29	4.78	22.87	125.18
139.7	5.0	16.57	21.16	13212	480.54	68.80	90.76	4.77	22.71	137.59
139.7	6.0	19.73	25.20	12808	564.26	80.78	107.33	4.73	22.39	161.56
139.7	8.0	25.92	33.10	12018	720.29	103.12	138.93	4.66	21.76	206.24
165.1	2.6	10.39	13.27	20081	438.23	53.09	68.66	5.75	33.02	106.17
165.1	2.9	11.57	14.78	19931	486.13	58.89	76.30	5.74	32.90	117.78
165.1	3.2	12.74	16.28	19781	533.48	64.63	83.89	5.73	32.78	129.25
165.1	3.6	14.30	18.27	19582	595.79	72.17	93.91	5.71	32.62	144.35
165.1	4.0	15.85	20.24	19384	657.16	79.61	103.83	5.70	32.46	159.22
165.1	4.5	17.78	22.70	19138	732.57	88.74	116.10	5.68	32.27	177.49
165.1	5.0	19.69	25.15	18894	806.54	97.70	128.20	5.66	32.07	195.41
165.1	6.0	23.48	29.99	18409	950.25	115.11	151.95	5.63	31.69	230.22
165.1	8.0	30.92	39.48	17460	1221.25	147.94	197.61	5.56	30.93	295.88
168.3	2.6	10.60	13.53	20893	464.63	55.21	71.39	5.86	34.33	110.43
168.3	2.9	11.80	15.07	20739	515.46	61.26	79.34	5.85	34.21	122.51
168.3	3.2	13.00	16.60	20587	565.74	67.23	87.24	5.84	34.09	134.46
168.3	3.6	14.59	18.63	20384	631.90	75.09	97.67	5.82	33.92	150.18
168.3	4.0	16.17	20.65	20182	697.09	82.84	108.00	5.81	33.76	165.68
168.3	4.5	18.13	23.16	19931	777.22	92.36	120.77	5.79	33.56	184.72
168.3	5.0	20.09	25.65	19681	855.85	101.70	133.38	5.78	33.36	203.41
168.3	6.0	23.96	30.59	19187	1008.69	119.87	158.12	5.74	32.97	239.74
168.3	8.0	31.55	40.29	18218	1297.27	154.16	205.74	5.67	32.20	308.32
193.7	2.6	12.22	15.61	27907	712.68	73.59	94.96	6.76	45.66	147.17
193.7	2.9	13.61	17.38	27730	791.21	81.69	105.58	6.75	45.52	163.39
193.7	3.2	15.00	19.15	27553	869.00	89.73	116.14	6.74	45.38	179.45
193.7	3.6	16.84	21.50	27318	971.55	100.31	130.11	6.72	45.19	200.63
193.7	4.0	18.67	23.84	27084	1072.79	110.77	143.97	6.71	45.00	221.54
193.7	4.5	20.94	26.75	26793	1197.52	123.65	161.12	6.69	44.77	247.29
193.7	5.0	23.21	29.64	26504	1320.23	136.32	178.08	6.67	44.54	272.63
193.7	6.0	27.70	35.38	25930	1559.72	161.05	211.46	6.64	44.08	322.09
193.7	8.0	36.55	46.67	24801	2015.54	208.11	276.05	6.57	43.19	416.22
219.7	2.6	13.89	17.73	36136	1044.90	95.12	122.55	7.68	58.92	190.24
219.7	2.9	15.47	19.75	35934	1160.68	105.66	136.31	7.67	58.76	211.32
219.7	3.2	17.04	21.76	35733	1275.49	116.11	150.00	7.66	58.60	232.22
219.7	3.6	19.14	24.44	35466	1427.08	129.91	168.13	7.64	58.39	259.82
219.7	4.0	21.22	27.11	35199	1576.96	143.56	186.13	7.63	58.18	287.11
219.7	4.5	23.82	30.42	34867	1761.93	160.39	208.43	7.61	57.91	320.79
219.7	5.0	26.41	33.72	34537	1944.29	177.00	230.52	7.59	57.65	353.99
219.7	6.0	31.54	40.28	33882	2301.27	209.49	274.08	7.56	57.13	418.98
219.7	8.0	41.66	53.21	32589	2984.92	271.73	358.71	7.49	56.10	543.45
254.0	4.0	24.60	31.42	47529	2455.00	193.31	250.02	8.84	78.15	386.61
254.0	4.5	27.62	35.27	47144	2745.52	216.18	280.16	8.82	77.84	432.37

Case Study



Client

Kempegowda

INTERNATIONAL
AIRPORT
BENGALURU

Contractor

L & T

Sub - Contractor

**M/s. YONGNAM ENGINEERING
INDIA PVT LTD**



Steel Section Required
**RHS 350X250X10,
YST310, IS4923**

M/s. YONGNAM ENGINEERING - Sub - Contractor, for Bengaluru Airport had a requirement of hollow sections 350 mm X 250 mm X 10 mm from BIAL's preferred make list suppliers for constructing the Terminal building. The preferred make list suppliers were not able to manufacture the required sizes since they had the capability and capacity constraints.

YONGNAM ENGINEERING had almost taken a decision to import these sizes from China with a 60 day lead time which would have increased costs.

The contractor approached **APL Apollo Tubes Ltd**, for supplying Hollow Sections of size 350 mm X 250 mm X 10 mm. APL APOLLO were able to provide the required sizes and quantity within 7 days of issuing the purchase order.

This was possible because of **DFT (Direct Forming Technology)** which is installed only with APL APOLLO in India. This technology helps in giving customized sizes, greater flexibility and minimal lead time.

Conclusion : **APL Apollo have technology to service Customised Sizes in Minimal Lead Time**

* Photos are for representation purpose only
* Terms & conditions apply

Case Study



Client

Contractor
Shapoorji Pallonji & Co. Pvt Ltd

Consultant
Creative Group



Kartarpur Corridor is a very prestigious project, which is a gateway for pilgrims to visit the Gurdwara Kartarpur Sahib in Pakistan. The project is under the limelight of different international and national media houses as this project can be a stepping stone towards improving ties between two countries.

The project is scheduled to be inaugurated as per the defined timeline. The contractors of the project were running behind time with their approved vendors for supplying structural pipes & tubes. However approved vendors were unable to cater to the demand due to shorter lead time.

Creative Group & Shapoorji Pallonji & Co. Pvt. Ltd approached **APL Apollo Tubes** and requested to supply the required structural pipes & tubes in given time frame.

The principals to the project - Land Port Authority of India, a part of Ministry of Home Affairs, were approached by APL Apollo along with Creative Group & Shapoorji Pallonji & Co, to get an approval along with LOI. A presentation was made by APL Apollo to the concerned authorities which highlighted the manufacturing capabilities along with the credentials of the company.

APL Apollo was given a pre-approval on the 24th July, 2019 & an LOI on the 26th July 2019 to supply structural pipes.

APL Apollo started dispatches from the 27th July, 2019 and have supplied approximately 500 Tons out of the total requirement of 615 Tons within 7days of LOI.

Conclusion : **Faster Delivery, Flexibility on Sizes, Proximity of Plant Locations**

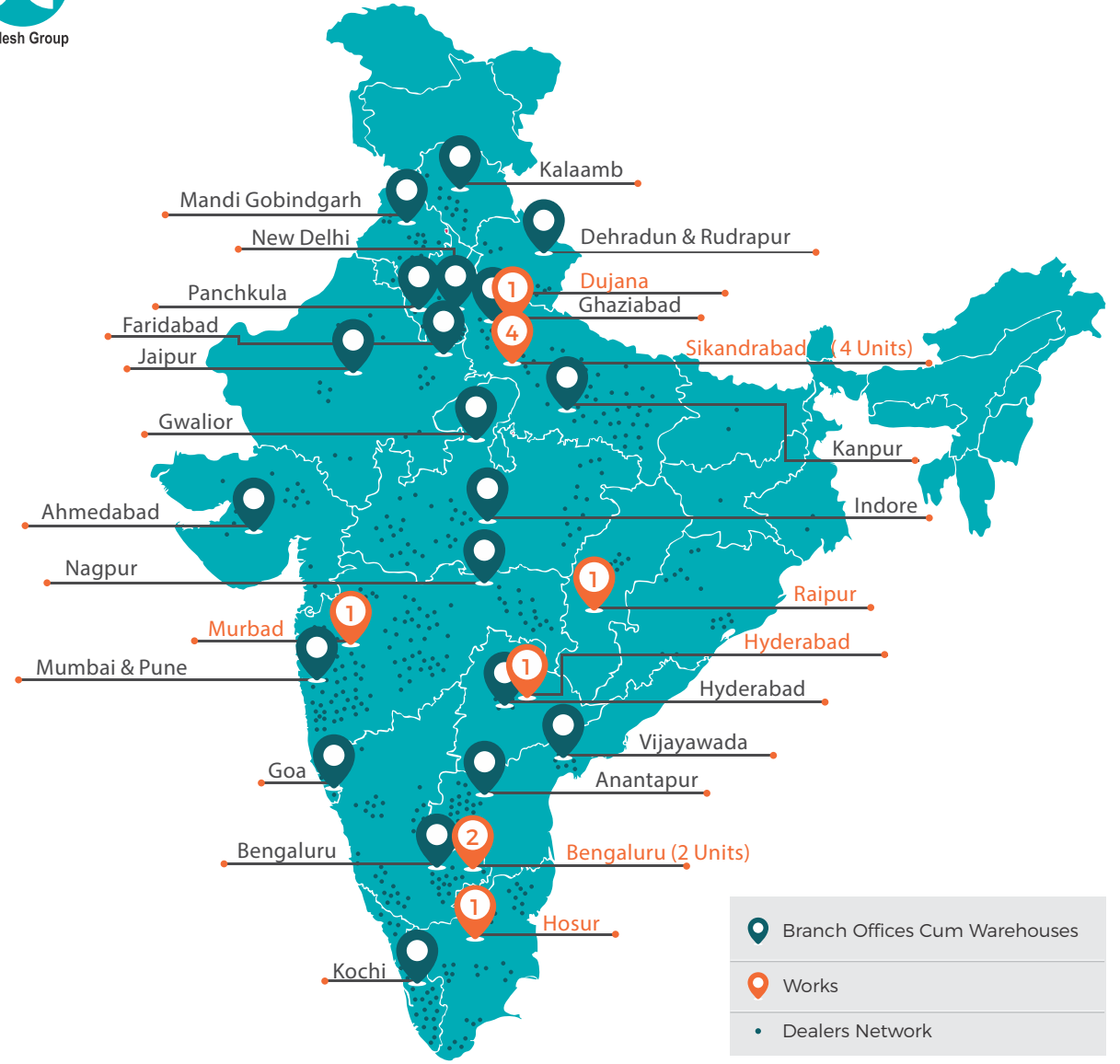
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Terms & conditions apply



SkyWalk ITO, New Delhi



NSP Metro Station DMRC New Delhi



No. 1 IN INDIA

2.5 MILLION TONS PRODUCTION

11 MANUFACTURING PLANTS

20+ EXPORTING TO COUNTRIES GLOBALLY

29 SALES OFFICES

800+ DEALERS & DISTRIBUTORS

1 000+ PRODUCT PORTFOLIO

2000 TOWNS & CITIES

1 LAKH RETAILERS & FABRICATORS