

# ▶ KEY LOCATIONS & SALES NETWORK



## Jindal Steel Limited

### Registered Office:

O.P. Jindal Marg, Hisar-125 005, (Haryana),  
Tel: +91 1662 222471-84

### Plant Address:

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Taraimal, Raigarh, Chhattisgarh 496001, India

### Sales & Marketing

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## HOLLOW SECTION STEEL SOLUTIONS



CIRCULAR  
HOLLOW SECTION (CHS)



RECTANGULAR  
HOLLOW SECTION (RHS)



SQUARE HOLLOW  
SECTION (SHS)

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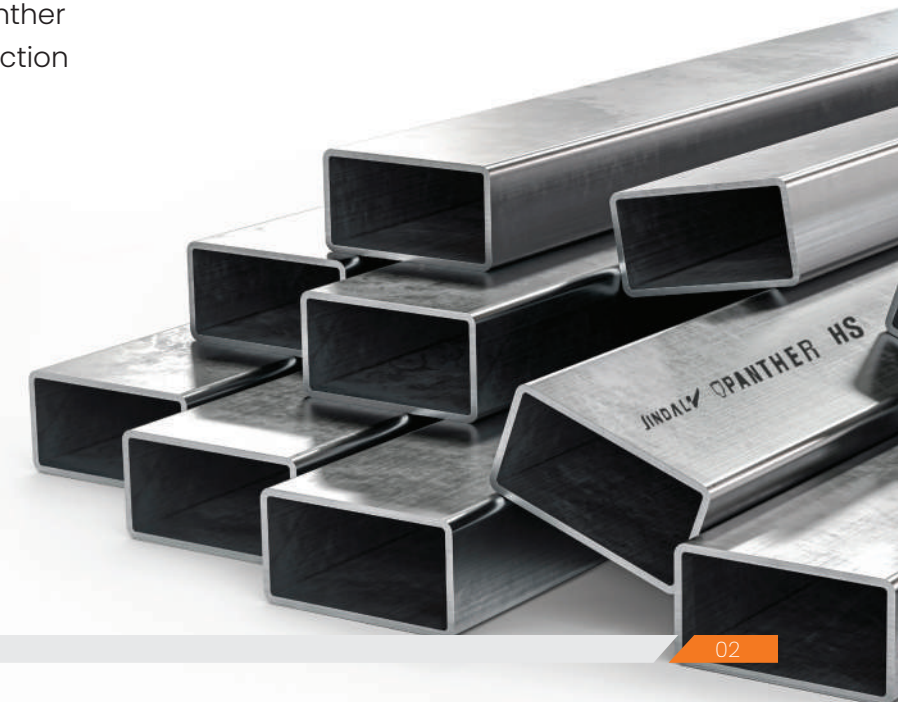
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# CHAIRMAN'S MESSAGE

The steel industry has always been characterised by its ever changing nature. This has shaped our industry and the world at large, compelling organisations to demonstrate innovation, agility and resilience to survive and thrive. Only companies with scale, sustainability, and growth are likely to survive the ever growing complexity of the industry. Amongst the leading steel players in India, our Company has successfully navigated through the challenges and has emerged stronger and better than before. This has been possible because we define ourselves by our resolve to innovate, introduce new products, our ability to set new standards for enriching lives, and our relentless adherence to our cherished value system.

As the Indian economy progresses to become one of the world's largest and fastest growing economies, we are resolute in our commitment to help build the nation of our dreams. Our commitment to the nation extends beyond the expansion of its steel - making facilities. Our Company is actively implementing holistic sustainable social development projects in the communities located in the vicinity of its plants and beyond resulting in enhancing their Human Development Index (HDI). As India re-emerges as one of the fastest growing major economies in the world, steel is set to play a significant role in its growth story. Infrastructure will continue to act as an economic multiplier for India. As our Company forges ahead, I firmly believe that we are at the right place at the right time with the right elements.



**NAVEEN JINDAL**  
CHAIRMAN, JINDAL STEEL & POWER

## ▶ ABOUT JINDAL STEEL

Jindal Steel is a prominent Indian business house with a significant presence in the steel, mining, and infrastructure sectors. The company operates globally, with business operations spanning India and Africa. Under the leadership of Chairman Mr Naveen Jindal, Jindal Steel has experienced remarkable growth, offering a product portfolio that caters to the entire steel value chain and supports the "Make in India" vision. The organisation emphasises innovation, enhancing capabilities, and enriching lives to drive its growth and commitment to building a self-reliant nation. With an investment of more than \$12 billion across the globe, Jindal Steel has received numerous awards for its innovative business and social practices.

The company offers a wide range of customised and standardised high-quality steel products from its integrated steel plants in Angul, Raigarh & Patratu, India, utilising cutting-edge manufacturing facilities. Jindal Steel focuses on innovation, excellence, and sustainability, delivering eco-friendly and high-performance steel solutions. Its diverse product portfolio serves various sectors, including infrastructure, construction, and automotive, establishing a strong presence in over 80 countries.



# ▶ OUR MISSION, VISION AND VALUES

## Mission

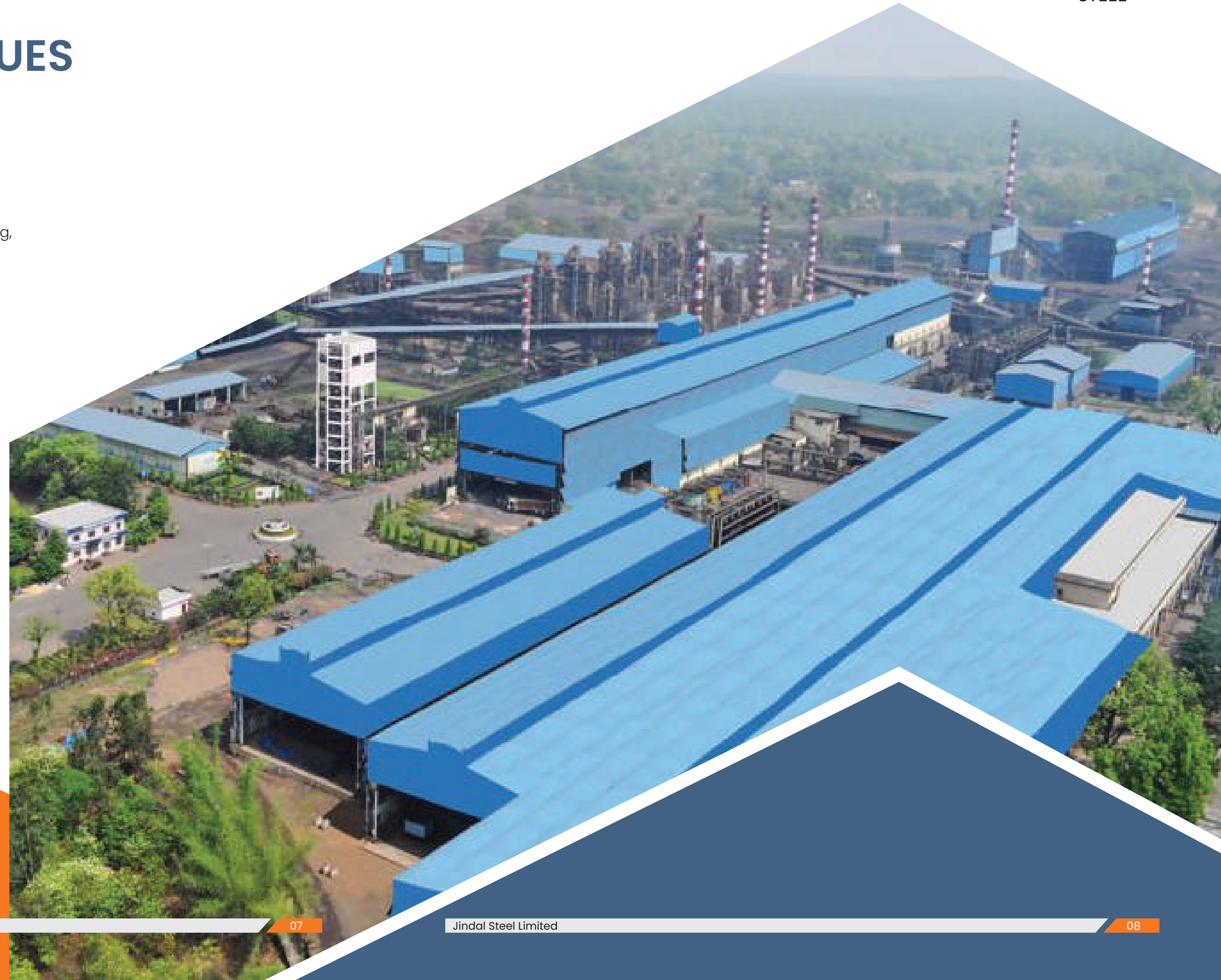
Building Nations, Empowering Communities

## Vision

An ever-flourishing company focused on nation building, value creation and sustainable development.

## Values

- Extreme Ownership
- Better Than Before
- Respect For People
- Sustainability



# TUBE MILL – STRUCTURALS SECTIONS

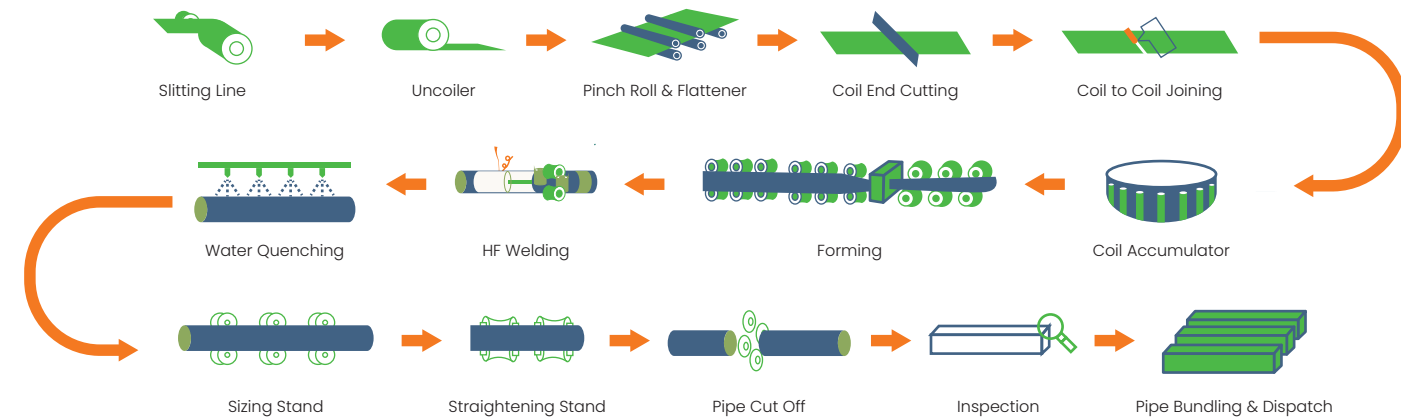
## Technology

The production of Hollow Sections is through Direct Forming Technology (DFT) in its 0.75 million TPA capacity Hollow section Mill. The DFT system 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.

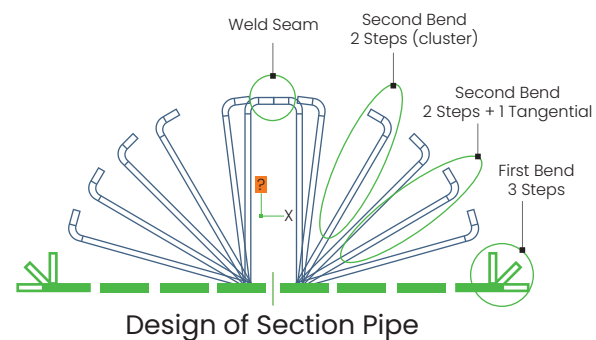
## Advantages of Direct Forming Technology (DFT):

- Precise dimensional tolerance with assured corner radius control.
- Uniformity of dimensions across the length and lot.
- Superior surface finish.
- Higher customisation and flexibility.
- Shorter lead time.

## Process Flows



## Process of Pipe Formation



## WHY HOLLOW SECTIONS?

Steel hollow sections are the most versatile and efficient form for construction and mechanical applications. Many of the strongest and most impressive structures in the world today would not have been possible without hollow sections.

## Advantages of hollow sections are:

- Hollow sections are inherently strong and efficient.
- Hollow sections give superior strength to-weight ratio than those using comparable steel, concrete or timber products.
- Hollow sections offer greater resistance to bending and twisting than solid steel sections of similar size.
- Hollow sections can be cut, welded, and shaped into different configurations.
- These comes in wide variety and customized forms and dimensions.
- Hollow sections are more environment friendly as its uses lesser resources and are also reusable as well recyclable.

# BENEFITS & APPLICATIONS

The application of Hollow Section are:



Shopping Malls



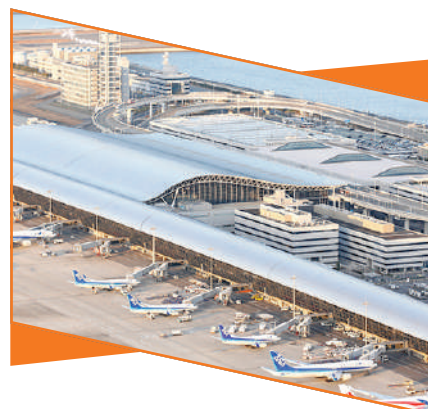
Stadiums



Railway Station /Bus Stand



Industrial Sheds



Airport Terminals



Trucks and Bus Body Manufacturing



Material Racks



Power Plants



Infrastructural Projects

# LIST OF KEY CUSTOMER



# HIGH STRENGTH STEEL & CHEMICAL COMPOSITION

CHEMICAL & MECHANICAL PROPERTIES									
IS 2062:2011 (Clauses 5, 8.1, 8.2, 10.3, 10.3.1, 11.3.1, 12.2)									
Grade Designation	Ladle Analysis, Percent Max					Carbon Equivalent (CE), Max	Tensile Strength R_Min Mpa	Yield stress	Percentage Elongation A, min at Gauge Length L=5.65
	C	Mn	S	P	Si				
E 250	0.22	1.50	0.045	0.045	0.45	0.41	410	250	23
E 300	0.20	1.50	0.045	0.045	0.45	0.44	440	300	22
E 350	0.20	1.55	0.045	0.045	0.45	0.47	490	350	22
E 410	0.20	1.60	0.045	0.045	0.45	0.50	540	410	20

CHEMICAL & MECHANICAL PROPERTIES								
IS 10784:2004 Table 1 & 3 (Clauses 7.1, 7.2, 8.3, & 9.2.4)								
Grade	Ladle Analysis, Percent Max				Carbon Equivalent (CE), Max	Tensile Strength Min Mpa	Yield stress Min Mpa	Percentage Elongation A, min at Gauge Length L=5.65
	C	Mn	S	P				
1	0.10	0.50	0.040	0.040	-	290	170	30
2	0.12	0.60	0.040	0.040	-	330	210	28
3	0.16	1.20	0.040	0.040	-	410	240	25
4	0.20	1.30	0.040	0.040	0.45	430	275	20
5	0.25	1.30	0.040	0.040	0.45	490	310	15

TENSILE PROPERTIES OF STEELS TUBES FOR STRUCTURAL PURPOSE				
IS 1161:2014, TABLE 2, (Clauses 3.1 and 11.2)				
S. No.	Grade	Tensile Strength	Yield Strength	Elongation on Gauge Length
		Min	Min	5.65 √5, Min
		Mpa	Mpa	Percent
1	YST 210	330	210	20
2	YST 240	410	240	17
3	YST 310	450	310	14
4	YST 355	490	355	10

TENSILE PROPERTIES OF STEELS TUBES SECTIONS				
IS 4923:2017, TABLE 4, (Clauses 19.2)				
S. No.	Grade	Tensile Strength	Yield Strength	Elongation
		Min	Min	Min
		Mpa	Mpa	Percent
1	YST 210	330	210	20
2	YST 240	410	240	15
3	YST 310	450	310	14
4	YST 355	490	355	10

ALLOWABLE STRESS VALUE (IN MPA) AND DIMENSIONAL TOLERANCE										
IS 4923:2017, TABLE 4, (Clauses 19.2)										
S. No.	Grade	Tensile Strength	Yield Strength	Elongation	DIMENSIONAL TOLERANCE					
		Min	Min	Min	Outside Dimensional	Thickness	Squareness	Corner radius	Weight	
		Mpa	Mpa	Percent					Individual Lengths	On Lot of 10 MT
1	YST 210	330	210	20	+/- with a minimum of +/-0.50 min	±7.5%	90 deg. +/-2 deg	3t Max	10%-8%	± 7%
2	YST 240	410	240	15						
3	YST 310	450	310	10						
4	YST 355	490	355	10						

\* Customised sections can also be manufactured.

## Advantages of using high strength steel:

- Less dead weight.
- Higher overall saving due to less material, transportation, and fabrication cost.
- Better aesthetics.
- More usable area.
- Increase load carrying capacity.

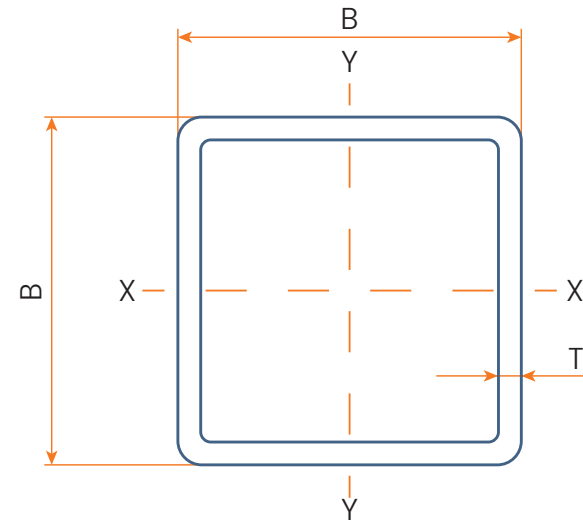


# PRODUCT RANGE

## Square Hollow Section (SHS)

**Dimensions** 60mm X 60mm to 600mm X 600mm

**Thickness** 3mm to 22mm



Square Hollow Sections (SHS) are characterized by their profile, their length, and their quality. NSSL manufactures Square Hollow Sections in various configurations.



# SQUARE HOLLOW SECTION (SHS) SIZE CHART

Square Section Tube(60x60-600x600) Up to YST - 550MPa																	
Thickness (mm)→ Section ↓	3	4	5	6	7	8	9	10	11	12	13.5	14	15	16	18	20	22
60x60																	
72x72																	
90x90																	
120x120																	
130x130																	
150x150																	
200x200																	
220x220																	
250x250																	
280x280																	
300x300																	
320x320																	
350x350																	
380x380																	
400x400																	
450x450																	
480x480																	
500x500																	
550x550																	
580x580																	
600x600																	

Square Section Tube(60x60-600x600) Up to YST - 355MPa																	
Thickness (mm)→ Section ↓	3	4	5	6	7	8	9	10	11	12	14	15	16	18	20	21	22
60x60																	
72x72																	
90x90																	
120x120																	
130x130																	
150x150																	
200x200																	
220x220																	
250x250																	
280x280																	
300x300																	
320x320																	
350x350																	
380x380																	
400x400																	
450x450																	
480x480																	
500x500																	
550x550																	
580x580																	
600x600																	

**SQUARE HOLLOW SECTION (SHS) PROPERTIES IS 4923-2017/ EN10219-1:2006/ ASTM A-500**

Sizes	Dimension			Area cm <sup>2</sup>	Weight kg/m	Moment of Inertia I cm <sup>4</sup>	Radius of Gyration R cm	Elastic Modulus Z cm <sup>3</sup>	Plastic modulus S cm <sup>3</sup>	Torsion		Surface Area cm <sup>2</sup> /cm	Superfacial Area / mtr length As m <sup>2</sup> /m	Nominal Length / Ton m
	H mm	B mm	T mm							J cm <sup>4</sup>	C cm <sup>3</sup>			
150 X 150 X 4	150	150	4.0	22.9	18.0	808.4	5.94	108	125	1265	162	48.7	0.586	55.5
150 X 150 X 5	150	150	5.0	28.4	22.3	983.3	5.89	131	153	1554	197	48.4	0.583	44.9
150 X 150 X 6	150	150	6.0	33.6	26.4	1148.0	5.84	153	180	1833	230	48.1	0.579	37.9
150 X 150 X 8	150	150	8.0	43.2	33.9	1422.2	5.73	190	226	2357	290	47.4	0.573	29.5
150 X 150 X 10	150	150	10.0	52.6	41.3	1673.2	5.64	223	269	2838	343	46.8	0.566	24.2
150 X 150 X 12	150	150	12.0	60.1	47.1	1841.3	5.54	246	298	3274	390	46.1	0.559	21.2
160 X 160 X 4	160	160	4.0	24.5	19.3	987.8	6.34	123	143	1541	185	52.0	0.626	51.9
160 X 160 X 5	160	160	5.0	30.4	23.8	1203.6	6.30	150	175	1896	226	51.7	0.623	42.0
160 X 160 X 6	160	160	6.0	36.0	28.3	1407.7	6.25	176	206	2239	264	51.4	0.619	35.4
160 X 160 X 8	160	160	8.0	46.4	36.5	1752.4	6.14	219	260	2887	335	50.8	0.613	27.4
160 X 160 X 10	160	160	10.0	56.6	44.4	2069.9	6.05	259	311	3485	397	50.1	0.606	22.5
160 X 160 X 12	160	160	12.0	64.9	50.9	2290.5	5.94	286	346	4033	453	49.5	0.599	19.6
175 X 175 X 4	175	175	4.0	26.9	21.2	1303.8	6.96	149	172	2028	224	57.0	0.686	47.3
175 X 175 X 5	175	175	5.0	33.4	26.2	1592.3	6.91	182	211	2498	273	56.7	0.683	38.2
175 X 175 X 6	175	175	6.0	39.6	31.1	1866.5	6.86	213	249	2954	320	56.4	0.679	32.1
175 X 175 X 8	175	175	8.0	51.2	40.2	2338.2	6.75	267	316	3822	408	55.8	0.673	24.9
175 X 175 X 10	175	175	10.0	62.6	49.1	2775.3	6.66	317	379	4630	486	55.1	0.666	20.4
175 X 175 X 12	175	175	12.0	72.1	56.6	3093.2	6.55	354	425	5378	556	54.5	0.659	17.7
180 X 180 X 4	180	180	4.0	27.7	21.8	1422.5	7.16	158	182	2210	237	58.7	0.706	45.9
180 X 180 X 5	180	180	5.0	34.4	27.0	1738.3	7.11	193	224	2724	290	58.4	0.703	37.1
180 X 180 X 6	180	180	6.0	40.8	32.1	2039.0	7.07	227	264	3223	340	58.1	0.699	31.2
180 X 180 X 8	180	180	8.0	52.8	41.5	2558.9	6.96	284	336	4173	433	57.4	0.693	24.1
180 X 180 X 10	180	180	10.0	64.6	50.7	3042.0	6.86	338	404	5060	518	56.8	0.686	19.7
180 X 180 X 12	180	180	12.0	74.5	58.5	3397.5	6.75	377	454	5884	593	56.1	0.679	17.1
200 X 200 X 4	200	200	4.0	30.9	24.3	1969.0	7.98	197	226	3049	295	65.4	0.786	41.2
200 X 200 X 5	200	200	5.0	38.4	30.1	2411.7	7.93	241	279	3763	362	65.1	0.783	33.2
200 X 200 X 6	200	200	6.0	45.6	35.8	2835.5	7.88	284	330	4459	426	64.7	0.779	27.9
200 X 200 X 8	200	200	8.0	59.2	46.5	3580.9	7.77	358	421	5792	545	64.1	0.773	21.5
200 X 200 X 10	200	200	10.0	72.6	57.0	4279.2	7.68	428	508	7048	654	63.4	0.766	17.6
200 X 200 X 12	200	200	12.0	84.1	66.0	4814.7	7.57	481	576	8226	753	62.8	0.759	15.2
220 X 220 X 4	220	220	4.0	34.1	26.8	2640.1	8.79	240	275	4076	360	72.0	0.866	37.3
220 X 220 X 5	220	220	5.0	42.4	33.2	3239.8	8.75	295	340	5038	442	71.7	0.863	30.1
220 X 220 X 6	220	220	6.0	50.4	39.6	3816.4	8.70	347	402	5976	521	71.4	0.859	25.3
220 X 220 X 8	220	220	8.0	65.6	51.5	4844.2	8.59	440	516	7784	669	70.8	0.853	19.4
220 X 220 X 10	220	220	10.0	80.6	63.2	5813.6	8.49	529	625	9498	806	70.1	0.846	15.8
220 X 220 X 12	220	220	12.0	93.7	73.5	6580.6	8.38	598	712	11118	932	69.5	0.839	13.6
225 X 225 X 4	225	225	4.0	34.9	27.4	2828.8	9.00	251	288	4365	377	73.7	0.886	36.5
225 X 225 X 5	225	225	5.0	43.4	34.0	3472.9	8.95	309	356	5396	463	73.4	0.883	29.4
225 X 225 X 6	225	225	6.0	51.6	40.5	4092.7	8.90	364	421	6403	546	73.1	0.879	24.7
225 X 225 X 8	225	225	8.0	67.2	52.8	5200.7	8.79	462	541	8344	702	72.4	0.873	18.9
225 X 225 X 10	225	225	10.0	82.6	64.8	6247.4	8.70	555	656	10188	846	71.8	0.866	15.4
225 X 225 X 12	225	225	12.0	96.1	75.4	7081.0	8.59	629	748	11933	979	71.1	0.859	13.3
250 X 250 X 4	250	250	4.0	38.9	30.6	3908.3	10.02	313	358	6014	469	82.0	0.986	32.7
250 X 250 X 5	250	250	5.0	48.4	38.0	4807.1	9.97	385	442	7443	577	81.7	0.983	26.3
250 X 250 X 6	250	250	6.0	57.6	45.2	5675.5	9.92	454	524	8843	681	81.4	0.979	22.1
250 X 250 X 8	250	250	8.0	75.2	59.1	7247.7	9.81	580	676	11552	879	80.8	0.973	16.9
250 X 250 X 10	250	250	10.0	92.6	72.7	8742.4	9.72	699	822	14141	1064	80.1	0.966	13.8
250 X 250 X 12	250	250	12.0	108.1	84.8	9967.0	9.60	797	944	16610	1236	79.5	0.959	11.8
250 X 250 X 14	250	250	14.0	123.7	97.1	11186.6	9.51	895	1066	18957	1395	78.8	0.952	10.3
280 X 280 X 5	280	280	5.0	54.4	42.7	6812.4	11.20	487	558	10513	730	91.7	1.103	23.4
280 X 280 X 6	280	280	6.0	64.8	50.9	8057.5	11.15	576	663	12504	863	91.4	1.099	19.6
280 X 280 X 8	280	280	8.0	84.8	66.6	10338.2	11.04	738	858	16373	1118	90.8	1.093	15.0
280 X 280 X 10	280	280	10.0	104.6	82.1	12519.6	10.94	894	1046	20092	1358	90.1	1.086	12.2
280 X 280 X 12	280	280	12.0	122.5	96.1	14353.7	10.83	1025	1208	23660	1583	89.5	1.079	10.4
280 X 280 X 14	280	280	14.0	140.5	110.3	16179.8	10.73	1156	1370	27077	1794	88.8	1.072	9.1

**SQUARE HOLLOW SECTION (SHS) PROPERTIES IS 4923-2017/ EN10219-1:2006/ ASTM A-500**

Sizes	Dimension			Area cm <sup>2</sup>	Weight kg/m	Moment of Inertia I cm <sup>4</sup>	Radius of Gyration R cm	Elastic Modulus Z cm <sup>3</sup>	Plastic modulus S cm <sup>3</sup>	Torsion		Surface Area cm <sup>2</sup> /cm	Superfacial Area / mtr length As m <sup>2</sup> /m	Nominal Length / Ton m
	H mm	B mm	T mm							J cm <sup>4</sup>	C cm <sup>3</sup>			
300 X 300 X 5	300	300	5.0	58.4	45.8	8419.3	12.01	561	643	12968	842	98.4	1.183	21.8
300 X 300 X 6	300	300	6.0	69.6	54.7	9967.9	11.96	665	764	15434	997	98.1	1.179	18.3
300 X 300 X 8	300	300	8.0	91.2	71.6	12823.0	11.85	855	991	20236	1294	97.4	1.173	14.0
300 X 300 X 10	300	300	10.0	112.6	88.4	15562.6	11.76	1038	1211	24866	1574	96.8	1.166	11.3
300 X 300 X 12	300	300	12.0	132.1	103.7	17898.0	11.64	1193	1402	29323	1839	96.1	1.159	9.6
300 X 300 X 14	300	300	14.0	151.7	119.1	20223.0	11.54	1348	1593	33606	2088	95.5	1.152	8.4
300 X 300 X 15	300	300	15.0	161.3	126.7	21321.9	11.50	1421	1685	35682	2207	95.2	1.148	7.9
300 X 300 X 16	300	300	16.0	170.8	134.1	22379.5	11.45	1492	1774	37714	2322	94.8	1.145	7.5
320 X 320 X 5	320	320	5.0	62.4	48.9	10261.0	12.83	641	734	15779	962	105.1	1.263	20.4
320 X 320 X 6	320	320	6.0	74.4	58.4	12158.7	12.78	760	873	18789	1140	104.7	1.259	17.1
320 X 320 X 8	320	320	8.0	97.6	76.6	15677.1	12.67	980	1133	24663	1482	104.1	1.253	13.0
320 X 320 X 10	320	320	10.0	120.6	94.6	19062.6	12.57	1191	1387	30341	1806	103.4	1.246	10.6
320 X 320 X 12	320	320	12.0	141.7	111.2	21982.8	12.46	1374	1610	35822	2113	102.8	1.239	9.0
320 X 320 X 14	320	320	14.0	162.9	127.9	24890.0	12.36	1556	1834	41106	2404	102.2	1.232	7.8
320 X 320 X 15	320	320	15.0	173.3	136.1	26269.9	12.31	1642	1941	43674	2543	101.8	1.228	7.3
320 X 320 X 16	320	320	16.0	183.6	144.1	27602.0	12.26	1725	2045	46192	2678	101.5	1.225	6.9
350 X 350 X 5	350	350	5.0	68.4	53.7	13498.6	14.05	771	882	20714	1157	115.1	1.383	18.6
320 X 320 X 6	320	320	6.0	74.4	58.4	12158.7	12.78	760	873	18789	1140	104.7	1.259	17.1
320 X 320 X 8	320	320	8.0	97.6	76.6	15677.1	12.67	980	1133	24663	1482	104.1	1.253	13.0
320 X 320 X 10	320	320	10.0	120.6	94.6	19062.6	12.57	1191	1387	30341	1806	103.4	1.246	10.6
320 X 320 X 12	320	320	12.0	141.7	111.2	21982.8	12.46	1374	1610	35822	2113	102.8	1.239	9.0
320 X 320 X 14	320	320	14.0	162.9	127.9	24890.0	12.36	1556	1834	41106	2404	102.2	1.232	7.8
320 X 320 X 15	320	320	15.0	173.3	13									

SQUARE HOLLOW SECTION (SHS) PROPERTIES IS 4923-2017/ EN10219-1:2006/ ASTM A-500														
Sizes	Dimension			Area A cm <sup>2</sup>	Weight M kg/m	Moment of Inertia I cm <sup>4</sup>	Radius of Gyration R cm	Elastic Modulus Z cm <sup>3</sup>	Plastic modulus S cm <sup>3</sup>	Torsion		Surface Area cm <sup>2</sup> /cm	Superficial Area / mtr length As m <sup>2</sup> /m	Nominal Length / Ton m
	H mm	B mm	T mm							J cm <sup>4</sup>	C cm <sup>3</sup>			
480 X 480 X 5	480	480	5.0	94.4	74.1	35364.0	19.36	1473	1677	53936	2210	158.4	1.903	13.5
480 X 480 X 6	480	480	6.0	112.8	88.6	42083.3	19.31	1753	2000	64397	2630	158.1	1.899	11.3
480 X 480 X 8	480	480	8.0	148.8	116.8	54879.2	19.20	2287	2621	84989	3448	157.4	1.893	8.6
480 X 480 X 10	480	480	10.0	184.6	144.9	67359.9	19.10	2807	3232	105143	4239	156.8	1.886	6.9
480 X 480 X 12	480	480	12.0	218.5	171.5	78731.1	18.98	3280	3795	124857	5002	156.1	1.879	5.8
480 X 480 X 14	480	480	14.0	252.5	198.2	90059.5	18.88	3752	4360	144131	5738	155.5	1.872	5.0
480 X 480 X 15	480	480	15.0	269.3	211.4	95542.9	18.83	3981	4636	153602	6096	155.2	1.868	4.7
480 X 480 X 16	480	480	16.0	286.0	224.5	100907.8	18.78	4204	4906	162963	6448	154.8	1.865	4.5
480 X 480 X 18	480	480	18.0	318.7	250.2	111287.9	18.69	4637	5433	181351	7133	154.2	1.858	4.0
480 X 480 X 19	480	480	19.0	334.9	262.9	116306.0	18.64	4846	5690	190379	7466	153.9	1.855	3.8
480 X 480 X 20	480	480	20.0	350.8	275.4	121211.4	18.59	5050	5942	199295	7792	153.6	1.851	3.6
500 X 500 X 8	500	500	8.0	155.2	121.9	62209.6	20.02	2488	2850	96219	3752	164.1	1.973	8.2
500 X 500 X 10	500	500	10.0	192.6	151.2	76414.1	19.92	3057	3517	119088	4615	163.4	1.966	6.6
500 X 500 X 12	500	500	12.0	228.1	179.0	89409.3	19.80	3576	4133	141480	5449	162.8	1.959	5.6
500 X 500 X 13	500	500	13.0	246.0	193.1	95949.4	19.75	3838	4445	152497	5856	162.5	1.955	5.2
500 X 500 X 14	500	500	14.0	263.7	207.0	102356.9	19.70	4094	4752	163395	6256	162.2	1.952	4.8
500 X 500 X 15	500	500	15.0	281.3	220.9	108633.2	19.65	4345	5054	174172	6649	161.8	1.948	4.5
500 X 500 X 16	500	500	16.0	298.8	234.5	114779.9	19.60	4591	5350	184830	7035	161.5	1.945	4.3
500 X 500 X 17	500	500	17.0	316.0	248.1	120798.5	19.55	4832	5642	195367	7414	161.2	1.942	4.0
500 X 500 X 18	500	500	18.0	333.1	261.5	126690.7	19.50	5068	5929	205784	7787	160.9	1.938	3.8
500 X 500 X 19	500	500	19.0	350.1	274.8	132457.8	19.45	5298	6211	216081	8153	160.6	1.935	3.6
500 X 500 X 20	500	500	20.0	366.8	288.0	138101.5	19.40	5524	6488	226257	8513	160.2	1.931	3.5
500 X 500 X 22	500	500	22.0	399.9	313.9	149024.5	19.31	5961	7028	246247	9213	159.6	1.924	3.2
550 X 550 X 8	550	550	8.0	171.2	134.4	83327.6	22.06	3030	3465	128527	4566	180.8	2.173	7.4
550 X 550 X 10	550	550	10.0	212.6	166.9	102519.7	21.96	3728	4280	159224	5625	180.1	2.166	6.0
550 X 550 X 12	550	550	12.0	252.1	197.9	120234.0	21.84	4372	5041	189346	6652	179.5	2.159	5.1
550 X 550 X 13	550	550	13.0	272.0	213.5	129142.1	21.79	4696	5425	204190	7153	179.1	2.155	4.7
550 X 550 X 14	550	550	14.0	291.7	229.0	137887.5	21.74	5014	5804	218890	7647	178.8	2.152	4.4
550 X 550 X 15	550	550	15.0	311.3	244.4	146471.7	21.69	5326	6177	233445	8134	178.5	2.148	4.1
550 X 550 X 16	550	550	16.0	330.8	259.7	154896.6	21.64	5633	6544	247855	8613	178.2	2.145	3.9
550 X 550 X 18	550	550	18.0	369.1	289.8	171275.1	21.54	6228	7263	276240	9548	177.5	2.138	3.5
550 X 550 X 19	550	550	19.0	388.1	304.6	179232.1	21.49	6518	7615	290214	10004	177.2	2.135	3.3
550 X 550 X 20	550	550	20.0	406.8	319.4	187036.6	21.44	6801	7961	304043	10454	176.9	2.131	3.1
550 X 550 X 22	550	550	22.0	443.9	348.4	202194.4	21.34	7353	8636	331264	11330	176.3	2.124	2.9
580 X 580 X 6	580	580	6.0	136.8	107.4	74890.6	23.39	2582	2939	114209	3873	191.4	2.299	9.3
580 X 580 X 8	580	580	8.0	180.8	142.0	98040.8	23.28	3381	3863	151004	5093	190.8	2.293	7.0
580 X 580 X 10	580	580	10.0	224.6	176.3	120722.5	23.19	4163	4775	187161	6279	190.1	2.286	5.7
580 X 580 X 12	580	580	12.0	266.5	209.2	141752.2	23.06	4888	5629	222678	7431	189.5	2.279	4.8
580 X 580 X 14	580	580	14.0	308.5	242.2	162712.4	22.96	5611	6485	257552	8550	188.8	2.272	4.1
580 X 580 X 15	580	580	15.0	329.3	258.5	172920.9	22.91	5963	6905	274749	9097	188.5	2.268	3.9
580 X 580 X 16	580	580	16.0	350.0	274.7	182950.6	22.86	6309	7319	291784	9636	188.2	2.265	3.6
580 X 580 X 18	580	580	18.0	390.7	306.7	202481.2	22.76	6982	8129	325371	10691	187.5	2.258	3.3
580 X 580 X 19	580	580	19.0	410.9	322.5	211985.7	22.71	7310	8525	341923	11206	187.2	2.255	3.1
580 X 580 X 20	580	580	20.0	430.8	338.2	221318.6	22.66	7632	8916	358312	11714	186.9	2.251	3.0
580 X 580 X 22	580	580	22.0	470.3	369.2	239477.0	22.57	8258	9680	390606	12706	186.3	2.244	2.7
600 X 600 X 6	600	600	6.0	141.6	111.2	83022.9	24.21	2767	3148	126541	4150	198.1	2.379	9.0
600 X 600 X 8	600	600	8.0	187.2	147.0	108754.1	24.10	3625	4140	167358	5460	197.4	2.373	6.8
600 X 600 X 10	600	600	10.0	232.6	182.6	133982.4	24.00	4466	5119	207492	6735	196.8	2.366	5.5
600 X 600 X 12	600	600	12.0	276.1	216.7	157437.4	23.88	5248	6039	246941	7974	196.1	2.359	4.6
600 X 600 X 14	600	600	14.0	319.7	251.0	180816.9	23.78	6027	6961	285704	9179	195.5	2.352	4.0
600 X 600 X 15	600	600	15.0	341.3	268.0	192214.5	23.73	6407	7413	304827	9769	195.2	2.348	3.7
600 X 600 X 16	600	600	16.0	362.8	284.8	203420.0	23.68	6781	7859	323778	10351	194.8	2.345	3.5
600 X 600 X 18	600	600	18.0	405.1	318.0	225261.7	23.58	7509	8732	361163	11489	194.2	2.338	3.1

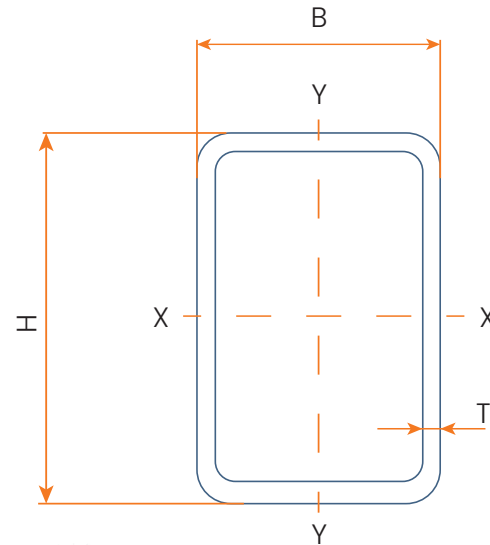
SQUARE HOLLOW SECTION (SHS) PROPERTIES IS 4923-2017/ EN10219-1:2006/ ASTM A-500														
Sizes	Dimension			Area A cm <sup>2</sup>	Weight M kg/m	Moment of Inertia I cm <sup>4</sup>	Radius of Gyration R cm	Elastic Modulus Z cm <sup>3</sup>	Plastic modulus S cm <sup>3</sup>	Torsion		Surface Area cm <sup>2</sup> /cm	Superficial Area / mtr length As m <sup>2</sup> /m	Nominal Length / Ton m
	H mm	B mm	T mm							J cm <sup>4</sup>	C cm <sup>3</sup>			
600 X 600 X 19	600	600	19.0	426.1	334.5	235901.8	23.53	7863	9161	379597	12046	193.9	2.335	3.0
600 X 600 X 20	600	600	20.0	446.8	350.8	246357.0	23.48	8212	9583	397858	12594	193.6	2.331	2.9
600 X 600 X 22	600	600	22.0	487.9	383.0	266720.7	23.38	8891	10409	433860	13668	192.9	2.324	2.6

# PRODUCT RANGE

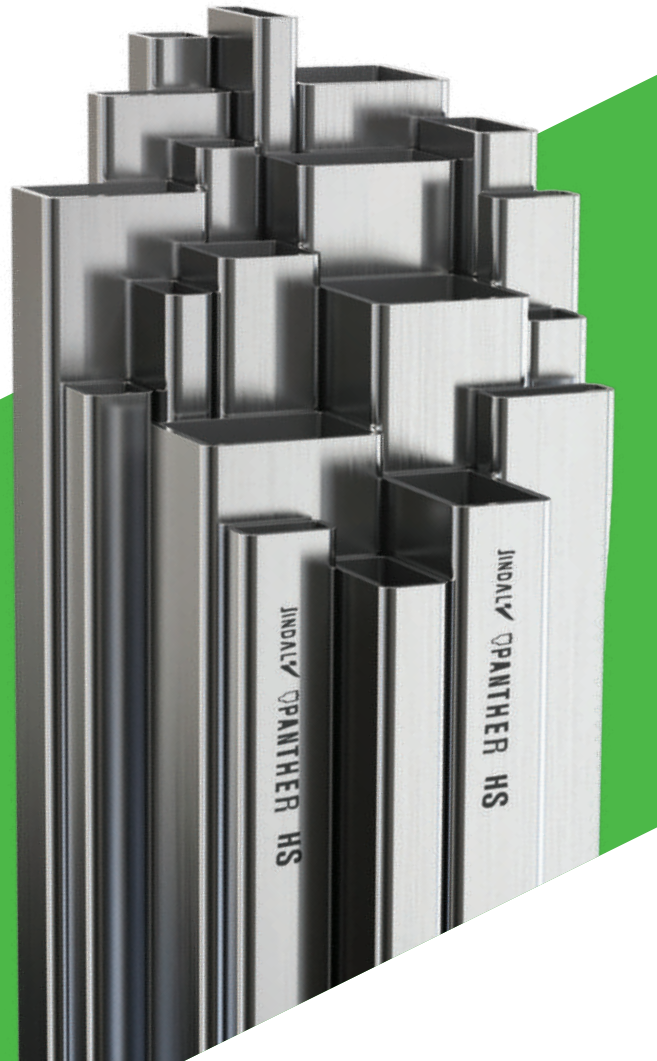
## Rectangular Hollow Section (RHS)

**Dimensions** 96mm X 48mm to 600mm X 550mm

**Thickness** 3mm to 22mm



Rectangular Hollow Sections (RHS) are characterized by their profile, their length, and their quality. NSSL manufactures Square Hollow Sections in various configurations.



# RECTANGULAR HOLLOW SECTION (RHS) SIZE CHART

RECTANGULAR SECTION TUBE (120x90-600x550) Upto YST- 350MPa Rectangle tube (H / W ≤ 2.5, H ≥ W)																	
Thickness (mm) → Section ↓	3	4	5	6	7	8	9	10	11	12	14	15	16	18	20	21	22
120x90																	
150x120																	
200x100																	
240x120																	
250x150																	
260x180																	
250x200																	
300x200																	
350x200																	
350x250																	
400x200																	
400x250																	
500x200																	
500x250																	
350x300																	
400x300																	
500x300																	
450x400																	
600x400																	
500x450																	
600x500																	
600x550																	

# RECTANGULAR HOLLOW SECTION (RHS) SIZE CHART

RECTANGULAR SECTION TUBE (120x90-600x550) Upto YST- 550MPa Rectangle tube (H / W ≤ 2.5, H ≥ W)																	
Thickness (mm) → Section ↓	3	4	5	6	7	8	9	10	11	12	13.5	14	15	16	18	20	22
120x90																	
150x120																	
200x100																	
240x120																	
250x150																	
350x150																	
260x180																	
250x200																	
300x200																	
350x200																	
350x250																	
350x300																	
400x250																	
400x300																	
450x400																	
500x450																	
500x250																	
500x300																	
500x200																	
600x400																	
600x550																	

RECTANGULAR HOLLOW SECTION (RHS) PROPERTIES IS 4923-2017/ EN10219-1:2006/ ASTM A-500																			
Sizes	Dimension			Area	Weight kg/m	Moment of Inertia		Radius of Gyration		Elastic Modulus		Plastic modulus		Torsion		Surface Area cm <sup>2</sup> /cm	Superficial Area / mtr length As m <sup>2</sup> /m	Nominal Length / Ton m	
	H mm	B mm	T mm			I <sub>xx</sub> cm <sup>4</sup>	I <sub>yy</sub> cm <sup>4</sup>	R <sub>xx</sub> cm	R <sub>yy</sub> cm	Z <sub>xx</sub> cm <sup>3</sup>	Z <sub>yy</sub> cm <sup>3</sup>	S <sub>xx</sub> cm <sup>3</sup>	S <sub>yy</sub> cm <sup>3</sup>	J cm <sup>4</sup>	C cm <sup>3</sup>				
200 X 100 X 4	200	100	4.0	22.9	18.0	1200	410	7.23	4.23	120	82	148	90	985	142	65.38	0.586	55.5	
200 X 100 X 5	200	100	5.0	28.4	22.3	1459	496	7.17	4.18	146	99	181	109	1206	172	65.06	0.583	44.9	
200 X 100 X 6	200	100	6.0	33.6	26.4	1703	575	7.12	4.14	170	115	213	127	1417	200	64.74	0.579	37.9	
200 X 100 X 8	200	100	8.0	43.2	33.9	2091	700	6.95	4.02	209	140	267	154	1808	251	64.09	0.573	29.5	
200 X 100 X 10	200	100	10.0	52.6	41.3	2444	807	6.82	3.92	244	161	318	178	2158	294	63.45	0.566	24.2	
240 X 120 X 4	240	120	4.0	27.7	21.8	2111	725	8.72	5.11	176	121	216	132	1726	208	78.71	0.706	45.9	
240 X 120 X 5	240	120	5.0	34.4	27.0	2580	881	8.67	5.06	215	147	266	161	2121	254	78.39	0.703	37.1	
240 X 120 X 6	240	120	6.0	40.8	32.1	3026	1029	8.61	5.02	252	171	313	188	2501	297	78.07	0.699	31.2	
240 X 120 X 8	240	120	8.0	52.8	41.5	3772	1273	8.45	4.91	314	212	397	232	3218	376	77.42	0.693	24.1	
240 X 120 X 10	240	120	10.0	64.6	50.7	4467	1491	8.32	4.81	372	249	477	273	3876	447	76.78	0.686	19.7	
250 X 150 X 4	250	150	4.0	30.9	24.3	2697	1234	9.33	6.31	216	164	260	181	2665	275	82.05	0.786	41.2	
250 X 150 X 5	250	150	5.0	38.4	30.1	3304	1507	9.28	6.27	264	201	320	222	3285	337	81.72	0.783	33.2	
250 X 150 X 6	250	150	6.0	45.6	35.8	3886	1766	9.23	6.22	311	235	378	262	3886	396	81.40	0.779	27.9	
250 X 150 X 8	250	150	8.0	59.2	46.5	4886	2210	9.08	6.11	391	295	482	329	5032	505	80.76	0.773	21.5	
250 X 150 X 10	250	150	10.0	72.6	57.0	5825	2617	8.96	6.01	466	349	582	392	6104	604	80.11	0.766	17.6	
250 X 150 X 12	250	150	12.0	84.1	66.0	6458	2885	8.77	5.86	517	385	658	432	7101	694	79.47	0.759	15.2	
250 X 200 X 4	250	200	4.0	34.9	27.4	3302	2351	9.72	8.20	264	235	309	265	4254	372	82.05	0.886	36.5	
250 X 200 X 5	250	200	5.0	43.4	34.0	4055	2884	9.67	8.16	324	288	381	326	5257	457	81.72	0.883	29.4	
250 X 200 X 6	250	200	6.0	51.6	40.5	4779	3394	9.62	8.11	382	339	451	386	6237	538	81.40	0.879	24.7	
250 X 200 X 8	250	200	8.0	67.2	52.8	6057	4292	9.49	7.99	485	429	579	492	8124	692	80.76	0.873	18.9	
250 X 200 X 10	250	200	10.0	82.6	64.8	7266	5131	9.38	7.88	581	513	702	594	9914	834	80.11	0.866	15.4	
250 X 200 X 12	250	200	12.0	96.1	75.4	8159	5736	9.22	7.73	653	574	801	673	11606	965	79.47	0.859	13.3	
260 X 180 X 4	260	180	4.0	34.1	26.8	3358	1917	9.92	7.49	258	213	306	237	3801	347	85.38	0.866	37.3	
260 X 180 X 5	260	180	5.0	42.4	33.2	4121	2348	9.86	7.45	317	261	377	291	4695	426	85.06	0.863	30.1	
260 X 180 X 6	260	180	6.0	50.4	39.6	4856	2761	9.81	7.40	374	307	447	344	5566	501	84.74	0.859	25.3	
260 X 180 X 8	260	180	8.0	65.6	51.5	6145	3483	9.68	7.28	473	387	573	437	7239	644	84.09	0.853	19.4	
260 X 180 X 10	260	180	10.0	80.6	63.2	7363	4154	9.56	7.18	566	462	694	526	8820	774	83.45	0.846	15.8	
260 X 180 X 12	260	180	12.0	93.7	73.5	8245	4630	9.38	7.03	634	514	790	590	10309	894	82.80	0.839	13.6	
300 X 200 X 4	300	200	4.0	38.9	30.6	5073	2736	11.41	8.38	338	274	401	303	5527	449	98.71	0.986	32.7	
300 X 200 X 5	300	200	5.0	48.4	38.0	6241	3359	11.36	8.33	416	336	496	373	6836	552	98.39	0.983	26.3	
300 X 200 X 6	300	200	6.0	57.6	45.2	7370	3959	11.31	8.29	491	396	588	441	8115	651	98.07	0.979	22.1	
300 X 200 X 8	300	200	8.0	75.2	59.1	9389	5030	11.17	8.18	626	503	757	563	10586	840	97.42	0.973	16.9	
300 X 200 X 10	300	200	10.0	92.6	72.7	11313	6035	11.05	8.07	754	603	921	681	12939	1014	96.78	0.966	13.8	
300 X 200 X 12	300	200	12.0	108.1	84.8	12788	6798	10.88	7.93	853	680	1056	770	15173	1177	96.14	0.959	11.8	
300 X 200 X 14	300	200	14.0	123.7	97.1	14287	7556	10.75	7.81	952	756	1193	863	17289	1326	95.49	0.952	10.3	
350 X 200 X 4	350	200	4.0	42.9	33.7	7331	3120	13.06	8.52	419	312	504	341	6849	526	115.38	1.086	29.7	
350 X 200 X 5	350	200	5.0	53.4	41.9	9032	3834	13.01	8.48	516	383	623	420	8475	647	115.06	1.083	23.9	
350 X 200 X 6	350	200	6.0	63.6	50.0	10682	4524	12.96	8.43	610	452	739	497	10065	764	114.74	1.079	20.0	
350 X 200 X 8	350	200	8.0	83.2	65.3	13662	5768	12.81	8.32	781	577	955	635	13142	987	114.09	1.073	15.3	
350 X 200 X 10	350	200	10.0	102.6	80.5	16517	6938	12.69	8.22	944	694	1165	767	16078	1195	113.45	1.066	12.4	
350 X 200 X 12	350	200	12.0	120.1	94.2	18768	7860	12.50	8.09	1072	786	1341	868	18874	1389	112.80	1.059	10.6	
350 X 200 X 14	350	200	14.0	137.7	108.1	21055	8769	12.36	7.98	1203	877	1520	972	21530	1569	112.16	1.052	9.2	
350 X 250 X 4	350	250	4.0	46.9	36.9	8528	5117	13.48	10.44	487	409	573	454	9871	663	115.38	1.186	27.1	
350 X 250 X 5	350	250	5.0	58.4	45.8	10520	6303	13.43	10.39	601	504	709	562	12234	817	115.06	1.183	21.8	
350 X 250 X 6	350	250	6.0	69.6	54.7	12457	7454	13.38	10.35	712	596	843	666	14554	967	114.74	1.179	18.3	
350 X 250 X 8	350	250	8.0	91.2	71.6	16001	9558	13.24	10.23	914	765	1092	858	19066	1254	114.09	1.173	14.0	
350 X 250 X 10	350	250	10.0	112.6	88.4	19407	11559	13.13	10.13	1099	925	1335	1045	23409	1525	113.45	1.169	11.3	
350 X 250 X 12	350	250	12.0	132.1	103.7	22197	13190	12.96	9.99	1268	1055	1544	1198	27580	1779	112.80	1.159	9.6	
350 X 250 X 14	350	250	14.0	151.7	119.1	25009	14810	12.84	9.88	1429	1185	1755	1355	31580	2018	112.16	1.152	8.4	
350 X 300 X 5	350	300	5.0	63.4	49.7	12008	9502	13.77	12.25	686	633	795	715	16339	987	115.06	1.283	20.1	
350 X 300 X 6	350	300	6.0	75.6	59.4	14233	11255	13.72	12.20	813	750	946	850	19457	1170	114.74	1.279	16.8	
350 X 300 X 8	350	300	8.0	99.2	77.9	18341	14488	13.59	12.08	1048	966	1229	1102	25542	1521	114.09	1.273	12.8	
350 X 300 X 10	350	300	10.0	122.6	96.2	22298	17588	13.49	11.98	1274	1173	1505	1347	31425	1854	113.45	1.266	10.4	
350 X 300 X 12	350	300	12.0	144.1	113.1	25625	20172	13.34	11.83	1464	1345	1747	1559	37106	2170				

RECTANGULAR HOLLOW SECTION (RHS) PROPERTIES IS 4923-2017/ EN10219-1:2006/ ASTM A-500																		
Sizes	Dimension			Area	Weight	Moment of Inertia		Radius of Gyration		Elastic Modulus		Plastic modulus		Torsion		Surface Area	Superficial Area / mtr length	Nominal Length / Ton
	H	B	T			I <sub>xx</sub>	I <sub>yy</sub>	R <sub>xx</sub>	R <sub>yy</sub>	Z <sub>xx</sub>	Z <sub>yy</sub>	S <sub>xx</sub>	S <sub>yy</sub>	J	C			
	mm	mm	mm	cm <sup>2</sup>	kg/m	cm <sup>4</sup>	cm <sup>4</sup>	cm	cm	cm <sup>3</sup>	cm <sup>3</sup>	cm <sup>4</sup>	cm <sup>3</sup>	cm <sup>4</sup>	cm <sup>2</sup> /cm	m <sup>2</sup> /m	m	
500 X 200 X 5	500	200	5.0	68.4	53.7	21656	5261	17.80	8.77	866	526	1079	562	13622	932	165.06	1.383	18.6
500 X 200 X 6	500	200	6.0	81.6	64.1	25690	6218	17.74	8.73	1028	622	1284	665	16188	1103	164.74	1.379	15.6
500 X 200 X 8	500	200	8.0	107.2	84.2	33122	7981	17.57	8.63	1325	798	1669	849	21160	1429	164.09	1.373	11.9
500 X 200 X 10	500	200	10.0	132.6	104.1	40321	9648	17.44	8.53	1613	965	2047	1027	25922	1737	163.45	1.366	9.6
500 X 200 X 12	500	200	12.0	156.1	122.5	46312	11045	17.23	8.41	1852	1105	2377	1160	30473	2025	162.80	1.359	8.2
500 X 200 X 15	500	200	15.0	191.3	150.2	55259	13041	16.99	8.26	2210	1304	2871	1364	36905	2424	161.84	1.348	6.7
500 X 200 X 16	500	200	16.0	202.8	159.2	58016	13642	16.91	8.20	2321	1364	3027	1424	38944	2549	161.52	1.345	6.3
500 X 250 X 5	500	250	5.0	73.4	57.6	24719	8555	18.36	10.80	989	684	1203	740	20040	1177	165.06	1.483	17.4
500 X 250 X 6	500	250	6.0	87.6	68.8	29351	10134	18.30	10.75	1174	811	1432	879	23857	1395	164.74	1.479	14.5
500 X 250 X 8	500	250	8.0	115.2	90.5	37963	13073	18.15	10.65	1519	1046	1866	1132	31301	1816	164.09	1.473	11.1
500 X 250 X 10	500	250	10.0	142.6	111.9	46324	15882	18.03	10.55	1853	1271	2292	1379	38491	2216	163.45	1.466	8.9
500 X 250 X 12	500	250	12.0	168.1	131.9	53458	18293	17.84	10.43	2138	1463	2669	1580	45427	2595	162.80	1.459	7.6
500 X 250 X 15	500	250	15.0	206.3	162.0	64083	21781	17.62	10.27	2563	1743	3235	1885	55353	3127	161.84	1.448	6.2
500 X 250 X 16	500	250	16.0	218.8	171.7	67390	22851	17.55	10.22	2696	1828	3414	1978	58534	3294	161.52	1.445	5.8
500 X 300 X 5	500	300	5.0	78.4	61.5	27782	12766	18.83	12.76	1111	851	1327	932	27202	1422	165.06	1.583	16.3
500 X 300 X 6	500	300	6.0	93.6	73.5	33012	15146	18.78	12.72	1320	1010	1581	1108	32420	1688	164.74	1.579	13.6
500 X 300 X 8	500	300	8.0	123.2	96.7	42805	19606	18.64	12.61	1712	1307	2063	1436	42635	2203	164.09	1.573	10.3
500 X 300 X 10	500	300	10.0	152.6	119.8	52328	23898	18.52	12.52	2093	1593	2537	1757	52553	2695	163.45	1.566	8.3
500 X 300 X 12	500	300	12.0	180.1	141.3	60603	27641	18.35	12.39	2424	1843	2962	2031	62173	3165	162.80	1.559	7.1
500 X 300 X 15	500	300	15.0	221.3	173.8	72907	33101	18.15	12.23	2916	2207	3599	2444	76044	3830	161.84	1.548	5.9
500 X 300 X 16	500	300	16.0	234.8	184.3	76763	34795	18.08	12.17	3071	2320	3802	2573	80519	4041	161.52	1.545	5.4
500 X 450 X 5	500	450	5.0	93.4	73.3	36971	31525	19.90	18.38	1479	1401	1698	1580	51959	2157	165.06	1.883	13.6
500 X 450 X 6	500	450	6.0	111.6	87.6	43994	37503	19.85	18.33	1760	1667	2025	1884	62031	2566	164.74	1.879	11.4
500 X 450 X 8	500	450	8.0	147.2	115.6	57330	48847	19.73	18.21	2293	2171	2653	2467	81854	3364	164.09	1.873	8.7
500 X 450 X 10	500	450	10.0	182.6	143.3	70338	59888	19.63	18.11	2814	2662	3272	3039	101247	4135	163.45	1.866	7.0
500 X 450 X 12	500	450	12.0	216.1	169.6	82041	69790	19.49	17.97	3282	3102	3841	3563	120211	4878	162.80	1.859	5.9
500 X 450 X 15	500	450	15.0	266.3	209.1	99378	84409	19.32	17.80	3975	3752	4690	4345	147848	5943	161.84	1.848	4.8
500 X 450 X 16	500	450	16.0	315.1	247.4	115492	97918	19.14	17.63	4620	4352	5495	5084	174510	6951	160.87	1.838	4.0
500 X 450 X 20	500	450	20.0	346.8	272.3	125567	106312	19.03	17.51	5023	4725	6008	5553	191742	7592	160.23	1.831	3.7
600 X 200 X 6	600	200	6.0	93.6	73.5	40673	7347	20.84	8.86	1356	735	1722	777	20409	1329	198.07	1.579	13.6
600 X 200 X 8	600	200	8.0	123.2	96.7	52631	9456	20.67	8.76	1754	946	2246	991	26686	1724	197.42	1.573	10.3
600 X 200 X 10	600	200	10.0	152.6	119.8	64268	11455	20.52	8.66	2142	1145	2759	1199	32701	2098	196.78	1.566	8.3
600 X 200 X 12	600	200	12.0	180.1	141.3	74179	13169	20.30	8.55	2473	1317	3217	1354	38455	2450	196.14	1.559	7.1
600 X 200 X 15	600	200	15.0	221.3	173.8	89003	15614	20.05	8.40	2967	1561	3903	1593	46602	2939	195.17	1.548	5.8
600 X 300 X 6	600	300	6.0	105.6	82.9	51258	17739	22.03	12.96	1709	1183	2079	1280	41554	2034	198.07	1.779	12.1
600 X 300 X 8	600	300	8.0	139.2	109.3	66650	23017	21.88	12.86	2222	1534	2719	1659	54674	2658	197.42	1.773	9.1
600 X 300 X 10	600	300	10.0	172.6	135.5	81674	28104	21.76	12.76	2722	1874	3349	2029	67428	3256	196.78	1.766	7.4
600 X 300 X 12	600	300	12.0	204.1	160.2	94926	32620	21.57	12.64	3164	2175	3922	2346	79816	3829	196.14	1.759	6.2
600 X 300 X 15	600	300	15.0	251.3	197.3	114676	39198	21.36	12.49	3823	2613	4780	2823	97710	4642	195.17	1.748	5.1
600 X 300 X 16	600	300	16.0	266.8	209.4	120915	41254	21.29	12.44	4030	2750	5055	2972	103491	4902	194.85	1.745	4.8
600 X 400 X 8	600	400	8.0	155.2	121.9	80670	43540	22.80	16.75	2689	2177	3193	2406	88432	3592	197.42	1.973	8.2
600 X 400 X 10	600	400	10.0	192.6	151.2	99081	53382	22.68	16.65	3303	2669	3939	2959	109372	4415	196.78	1.966	6.6
600 X 400 X 12	600	400	12.0	228.1	179.0	115674	62275	22.52	16.52	3856	3114	4628	3457	129844	5210	196.14	1.959	5.6
600 X 400 X 15	600	400	15.0	281.3	220.9	140348	75349	22.33	16.37	4678	3767	5658	4203	159670	6350	195.17	1.948	4.5
600 X 400 X 18	600	400	18.0	333.1	261.5	163378	87448	22.15	16.20	5446	4372	6637	4902	188436	7429	194.21	1.938	3.8
600 X 400 X 20	600	400	20.0	366.8	288.0	177829	94978	22.02	16.09	5928	4749	7263	5343	207023	8116	193.56	1.931	3.5
600 X 480 X 8	600	480	8.0	168.0	131.9	91885	65509	23.38	19.74	3063	2730	3572	3061	118489	4339	197.42	2.133	7.6
600 X 480 X 10	600	480	10.0	208.6	163.7	113006	80489	23.28	19.64	3767	3354	4411	3775	146735	5343	196.78	2.126	6.1
600 X 480 X 12	600	480	12.0	247.3	194.1	132272	94152	23.13	19.51	4409	3923	5192	4432	174428	6315	196.14	2.119	5.2
600 X 480 X 15	600	480	15.0	305.3	239.7	160886	114327	22.95	19.35	5363	4764	6360	5415	214928	7717	195.17	2.108	4.2
600 X 480 X 18	600	480	18.0	361.9	284.1	187773	133181	22.78	19.18	6259	5549	7475	6348	254177	9052	194.21	2.098	3.5
600 X 480 X 20	600	480	20.0	398.8	313.1	204752	145023	22.66	19.07	6825	6043	8191	6943	279647	9906	193.56	2.091	3.2
600 X 550 X 5	600	550	5.0	113.4	89.0	65219	57188	23.99	22.46	2174	2080	2487	2345	92746	3187	198.39	2.283	11.2
600 X 550 X 6	600	550	6.0	135.6	106.5	77722	68138	23.94	22.41	2591	2478	2970	2799	110827	3798	198.07	2.279	9.4
600 X 550 X 8	600	550	8.0	179.2	140.7	101699	89128	23.82	22.30	3390	3241	3903	3677	146518	4993	197.42	2.273	7.1
600 X 550 X 10	600	550	10.0	222.6	174.7	125191	109665	23.72	22.20	4173	3988	4824	4542	181582	6155	196.78	2.266	5.7
600 X 550 X 12	600	550	12.0	264.1	207.3	146795	128513	23.58	22.06	4893	4673	5686	5349	216016	7283	196.14	2.259	4.8
600 X 550 X 15	600	550	15.0	326.3	256.2	178857	156421	23.41	21.89	5962	5688	6974	6554	266486	8914	195.17	2.248	3.9
600 X 550 X 18	600	550	18.0	387.1	303.9	209120	182666	23.24	21.72	6971	6642	8209	7707	315533	10473	194.21	2.238	3.3
600 X 550 X 20	600	550	20.0	426.8	335.1	228309	199245	23.13	21.61	7610	7245	9003	8448	347438	11474	193.56	2.231	3.0
600 X 550 X 22	600	550	22.0	465.9	365.7	246720	215096	23.01	21.49	8224	7822	9773	9165	378707	12444	192.92	2.224	2.7

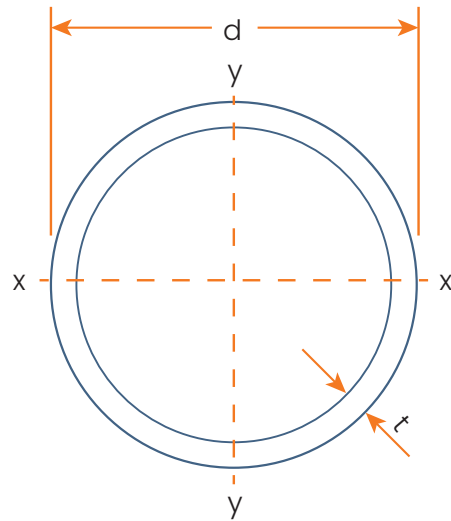


# PRODUCT RANGE

## Circular Hollow Section (CHS)

**Dimensions** 3" - 8"

**Thickness** 3mm to 12mm



Circular Hollow Sections (CHS) are characterized by their profile, their length, and their quality. NSSL manufactures Circular Hollow Sections in various configurations.



# CIRCULAR HOLLOW SECTION (CHS) SIZE CHART

CIRCULAR SECTION TUBE(3"-8") Upto YST - 280MPa (X42)																	
Thickness (mm)→ Section ↓	3	4	5	6	7	8	9	10	11	12	14	15	16	18	20	21	22
76																	
89																	
114.3																	
168.3																	
219.1																	

CIRCULAR SECTION TUBE(3"-8") Upto YST - 350MPa (X52)																	
Thickness (mm)→ Section ↓	3	4	5	6	7	8	9	10	11	12	14	15	16	18	20	21	22
76																	
89																	
114.3																	
168.3																	
219.1																	

CIRCULAR SECTION TUBE(3"-8") Upto YST - 480MPa (X70)																	
Thickness (mm)→ Section ↓	3	4	5	6	7	8	9	10	11	12	14	15	16	18	20	21	22
76																	
89																	
114.3																	
168.3																	
219.1																	

# QUALITY CONTROL FACILITIES

- Fully Equipped Mechanical Testing Laboratory
- Universal Testing Machines [Load capacity: up to 1000KN]
- Spectrometer
- Charpy Impact Testing Machine
- Brinell Cum Rockwell Hardness Tester
- Optical Microscope with Image Analyzer
- Profile Check



CIRCULAR HOLLOW SECTION (CHS) PROPERTIES IS 1161-2014/ EN10219-1:2006												
Sizes	Dimension		Cross Sectional Area	Weight	Second Moment of Inertia	Radius of Gyration	Elastic Modulus	Plastic modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area / mtr length	Nominal Length / Ton
	D mm	t mm	A cm <sup>2</sup>	M kg/m	I cm <sup>4</sup>	i cm	Z cm <sup>3</sup>	S cm <sup>3</sup>	J cm <sup>4</sup>	C cm <sup>3</sup>	As m <sup>2</sup> /m	m
76.1 X 3	76.1	3	6.9	5.41	46.1	2.59	12.1	16.0	92	24.2	0.239	184.9
76.1 X 4	76.1	4	9.1	7.11	59.1	2.55	15.5	20.8	118	31.0	0.239	140.6
76.1 X 5	76.1	5	11.2	8.77	70.9	2.52	18.6	25.3	142	37.3	0.239	114.1
88.9 X 3	88.9	3	8.1	6.36	74.8	3.04	16.8	22.1	150	33.6	0.279	157.3
76.1 X 4	76.1	4	9.1	7.11	59.1	2.55	15.5	20.8	118	31.0	0.239	140.6
88.9 X 5	88.9	5	13.2	10.35	116.4	2.97	26.2	35.2	233	52.4	0.279	96.7
88.9 X 6	88.9	6	15.6	12.27	134.9	2.94	30.4	41.3	270	60.7	0.279	81.5
88.9 X 6.3	88.9	6.3	16.3	12.83	140.2	2.93	31.5	43.1	280	63.1	0.279	77.9
88.9 X 7	88.9	7	18.0	14.14	152.1	2.91	34.2	47.1	304	68.4	0.279	70.7
101.6 X 3	101.6	3	9.3	7.29	113.0	3.49	22.3	29.2	226	44.5	0.319	137.1
101.6 X 4	101.6	4	12.3	9.63	146.3	3.45	28.8	38.1	293	57.6	0.319	103.9
101.6 X 5	101.6	5	15.2	11.91	177.5	3.42	34.9	46.7	355	69.9	0.319	84.0
101.6 X 6	101.6	6	18.0	14.15	206.7	3.39	40.7	54.9	413	81.4	0.319	70.7
101.6 X 6.3	101.6	6.3	18.9	14.81	215.1	3.38	42.3	57.3	430	84.7	0.319	67.5
101.6 X 7	101.6	7	20.8	16.33	234.0	3.35	46.1	62.8	468	92.1	0.319	61.2
114.3 X 3	114.3	3	10.5	8.23	162.5	3.94	28.4	37.2	325	56.9	0.359	121.4
114.3 X 4	114.3	4	13.9	10.88	211.1	3.90	36.9	48.7	422	73.9	0.359	91.9
114.3 X 5	114.3	5	17.2	13.48	256.9	3.87	45.0	59.8	514	89.9	0.359	74.2
114.3 X 6	114.3	6	20.4	16.03	300.2	3.83	52.5	70.4	600	105.1	0.359	62.4
114.3 X 6.3	114.3	6.3	21.4	16.78	312.7	3.82	54.7	73.6	625	109.4	0.359	59.6
114.3 X 7	114.3	7	23.6	18.52	341.0	3.80	59.7	80.7	682	119.3	0.359	54.0
168.3 X 3	168.3	3	15.6	12.23	532.3	5.85	63.3	82.0	1065	126.5	0.529	81.8
168.3 X 4	168.3	4	20.6	16.21	697.1	5.81	82.8	108.0	1394	165.7	0.529	61.7
168.3 X 5	168.3	5	25.7	20.14	855.8	5.78	101.7	133.4	1712	203.4	0.529	49.7
168.3 X 6	168.3	6	30.6	24.02	1008.7	5.74	119.9	158.1	2017	239.7	0.529	41.6
168.3 X 6.3	168.3	6.3	32.1	25.17	1053.4	5.73	125.2	165.4	2107	250.4	0.529	39.7
168.3 X 7	168.3	7	35.5	27.85	1155.8	5.71	137.3	182.2	2312	274.7	0.529	35.9
168.3 X 8	168.3	8	40.3	31.63	1297.3	5.67	154.2	205.7	2595	308.3	0.529	31.6
168.3 X 10	168.3	10	49.7	39.04	1564.0	5.61	185.9	250.9	3128	371.7	0.529	25.6
168.3 X 12	168.3	12	58.9	46.26	1810.0	5.54	215.1	293.7	3620	430.2	0.529	21.6
219.1 X 3	219.1	3	20.4	15.99	1189.1	7.64	108.5	140.1	2378	217.1	0.688	62.5
219.1 X 4	219.1	4	27.0	21.22	1563.8	7.61	142.8	185.1	3128	285.5	0.688	47.1
219.1 X 5	219.1	5	33.6	26.40	1928.0	7.57	176.0	229.2	3856	352.0	0.688	37.9
219.1 X 6	219.1	6	40.2	31.53	2281.9	7.54	208.3	272.5	4564	416.6	0.688	31.7
219.1 X 6.3	219.1	6.3	42.1	33.06	2386.1	7.53	217.8	285.4	4772	435.6	0.688	30.2
219.1 X 7	219.1	7	46.6	36.61	2625.7	7.50	239.7	315.0	5251	479.4	0.688	27.3
219.1 X 8	219.1	8	53.1	41.65	2959.6	7.47	270.2	356.7	5919	540.3	0.688	24.0
219.1 X 10	219.1	10	65.7	51.57	3598.4	7.40	328.5	437.6	7197	656.9	0.688	19.4
219.1 X 12	219.1	12	78.1	61.29	4199.9	7.33	383.4	515.3	8400	766.8	0.688	16.3



Computerised Vickers Hardness Tester



Digital Motorised Rockwell Hardness Testing Machine



Image Analyser



Impact Testing Machine



Spectrometer

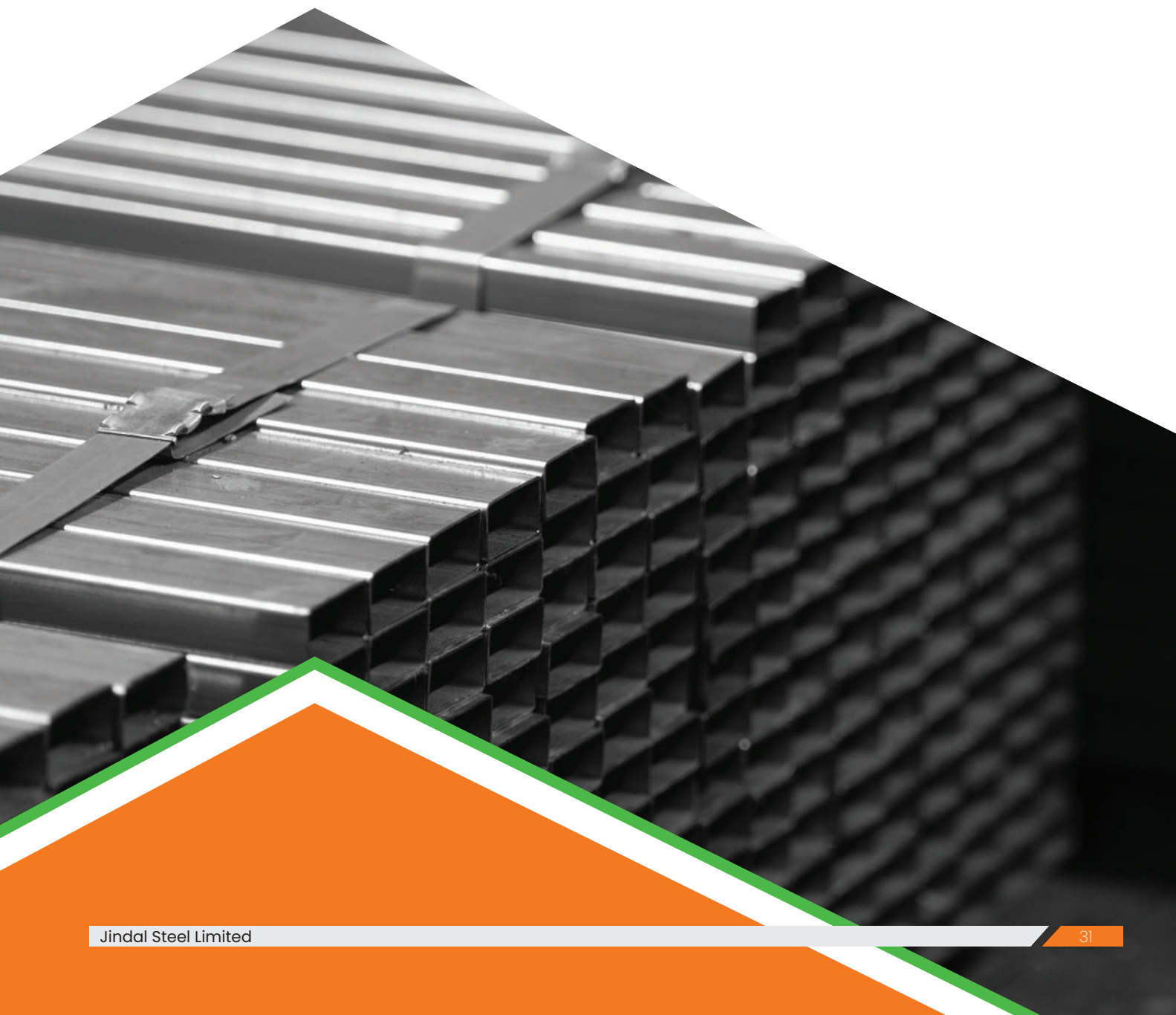


Universal Testing Machine

## PACKING & MARKING

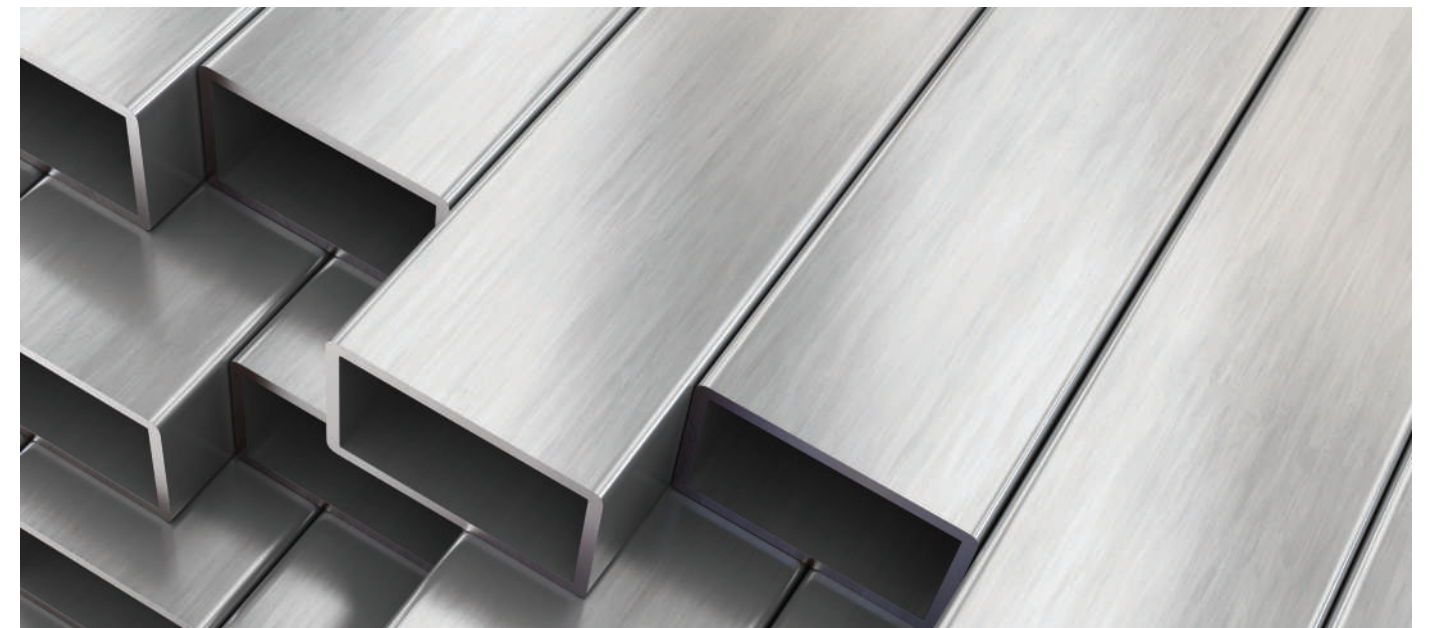
**Packing:** All the sections are supplied bare and either loose and/or in mill standard packing of maximum 5MT weight, each.

**Marking:** All above sections are supplied with details of size/ length/ steel grade/ heat number marked with indelible white paint on pieces and on the bundles, with bundle number additionally appearing on the bundle. Embossing on the sections are also done as per customer requirement.



## ADVANTAGES OF JINDAL PANTHER HOLLOW SECTION

- **Economy**  
 Steel savings with Hollow Sections under bending as well as axial load conditions are appreciable when compared with Parallel /Tapered flange sections.
- **Excellent Durability**  
 Due to clean steel quality, it is free from any harmful impurities and inclusions on account of in-house virgin raw material and state-of-art steel refining facilities.
- **Superior Weldability**  
 Due to its chemical composition of pure steel and lower carbon equivalent.
- **Product Range**  
 Widest range available lending more flexibility to designers and more cost-effective options to project owners.
- **Customized Length**  
 Can be supplied in customized length which has helps in considerable amount of steel wastage reduction at consumer's end.
- **Multiple Grades**  
 Wide range of high value grades available providing good opportunity for consumers to opt for rolled sections and avoid built up sections.



# CERTIFICATES

**Certificate of Approval**  
Issued by Indian Register Quality Systems

To certify that the Environmental Management Systems of

**Nalwa Special Steel Limited  
Chhattisgarh**

ADDRESS  
Gharghoda Road,  
Taramail, Raigarh-496001,  
Chhattisgarh

has been assessed and found conforming to the requirement of ISO 14001 : 2015

INITIAL CERTIFICATION DATE	CURRENT DATE OF GRANTING	EXPIRY DATE
JUNE 21, 2024	JUNE 21, 2024	JUNE 20, 2027

CERTIFICATION SCOPE  
Manufacturing & Dispatch of Structural Tubes/Pipes

Authorized Certification Body Signature  
Shashi Nath Mishra  
Head (RCS)

**Certificate of Approval**  
Issued by Indian Register Quality Systems

To certify that the Occupational Health and Safety Management Systems of

**Nalwa Special Steel Limited  
Chhattisgarh**

ADDRESS  
Gharghoda Road,  
Taramail, Raigarh-496001,  
Chhattisgarh

has been assessed and found conforming to the requirement of ISO 45001 : 2018

INITIAL CERTIFICATION DATE	CURRENT DATE OF GRANTING	EXPIRY DATE
JUNE 21, 2024	JUNE 21, 2024	JUNE 20, 2027

CERTIFICATION SCOPE  
Manufacturing & Dispatch of Structural Tubes/Pipes

Authorized Certification Body Signature  
Shashi Nath Mishra  
Head (RCS)

**Certificate of Approval**  
Issued by Indian Register Quality Systems

To certify that the Quality Management Systems of

**Nalwa Special Steel Limited  
Chhattisgarh**

ADDRESS  
Gharghoda Road,  
Taramail, Raigarh-496001,  
Chhattisgarh

has been assessed and found conforming to the requirement of ISO 9001: 2015

INITIAL CERTIFICATION DATE	CURRENT DATE OF GRANTING	EXPIRY DATE
JUNE 21, 2024	JUNE 21, 2024	JUNE 20, 2027

CERTIFICATION SCOPE  
Manufacturing & Dispatch of Structural Tubes/Pipes

Authorized Certification Body Signature  
Shashi Nath Mishra  
Head (RCS)



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**BUREAU OF INDIAN STANDARDS**  
Attachment to Licence No. CML/- 5900112211

CML-No	Name of the Licensee with the Factory Address	Name of the Product	Indian Standard No.
5900112211	Nalwa Special Steels Ltd - Taramail , Gharghoda Road , RAIGARH : 496001	HOLLOW STEEL SECTIONS FOR STRUCTURAL USE - SPECIFICATION	IS 4923 : 2017

**Endorsement No. 3 Dated 15-Mar-2025**

Whereas, the licence was valid upto Twenty Seventh March Two Thousand Twenty Five.

Now, consequent upon renewal, the validity of the licence given in schedule of the Licence Dated 26-MAR-2025 has been extended from Twenty Seventh March Two Thousand Twenty Five to Twenty Sixth March Two Thousand Twenty Six

Other terms and conditions of licence remain same.

Branch Head (Raipur Branch Office)

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**DNV**

**CERTIFICATE OF CONFORMITY OF THE  
FACTORY PRODUCTION CONTROL**

Certificate No.: 2388-CPR-24-15562 Rev. 0.0 Initial certification date: 24-10-2024 Validity end date: 24-10-2027

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction products Regulation or CPR), this certificate applies to the construction product(s)

**Cold formed welded structural hollow sections of non-alloy steels**  
to be used in metal structures or in composite metal and concrete structures

placed on the market under the name or trademark of  
**NALWA SPECIAL STEEL LIMITED**  
Taramail, Gharghoda Road, Raigarh - 496001, Chhattisgarh, India.

and produced in the manufacturing plant(s)  
**NALWA SPECIAL STEEL LIMITED**  
Taramail, Gharghoda Road, Raigarh - 496001, Chhattisgarh, India.

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard(s)  
**EN 10219-1:2006**  
under system 2+ are applied and that  
**THE FACTORY PRODUCTION CONTROL IS ASSESSED TO BE IN CONFORMITY WITH THE APPLICABLE REQUIREMENTS**

This certificate will remain valid as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified factory production control certification body.

For more details see Appendix accompanying this Certificate.

Place and date:  
Barendrecht, 24-10-2024

For the issuing office:  
Notified Body 2388, The Netherlands

Check Validity

**RVA PRODUCTS**  
RVA C 312

Bjorn Spongeveen  
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate Invalid.

NOTIFIED BODY 2388: DNV Business Assurance B.V., Zwaluwenweg 1, 2594 LB Barendrecht, The Netherlands, TEL: +31 10 2022 889 [www.dnv.com](http://www.dnv.com)