THAI PREMIUM PIPE

STEEL PIPE AND TUBE

Standard ASTM, AS/NZ, BS, EN, JIS, TIS





THAI PREMIUM PIPE CO., LTD.

บริษัท ไทยพรีเมี่ยมไพพ์ จำกัด

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Vision & Mission

Vision

Green Steel for The Green World



Mission

Continuously improve, implement and comply with total quality management system by letting everyone in all level participate in development.













About TPP



Thai Premium Pipe Company Limited (TPP)
45 Moo 2 Chaimongkol, Muang Samut Sakhon, Samut Sakhon province, 74000, Thailand
Established since 2002 I Business : Manufacturing ERW steel pipes

- Registered capital : 400 million THB
- Employees : 300
- Production capacity : 120,000 - 180,000 MT per year
- Email : contact@thaipremiumpipe.com

Production Capacity : 10,000 - 15,000 MT/Month



Certifications



มาตรฐานระบบคุณภาพ
ISO 9001:2015



มาตรฐานระบบคุณภาพ
ISO 14001:2015



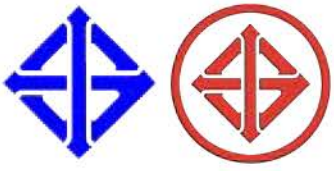
ความสามารถห้องปฏิบัติการทดสอบ



มาตรฐานผลิตภัณฑ์ประเภท
Metallic Sprinkler Pipe



มาตรฐานผลิตภัณฑ์ประเภท
Automatic Fire Sprinkler Pipe



มาตรฐานผลิตภัณฑ์อุตสาหกรรม
(มอก.)



ACRS



MIT



ระบบความปลอดภัยตั้งแต่ต้นทาง
ของการขนส่ง



มาตรฐานคาร์บอนฟุตพริ้นต์
ขององค์กร



มาตรฐานคาร์บอนฟุตพริ้นต์
ของผลิตภัณฑ์



โครงการอุตสาหกรรมสีเขียว
ระดับ 3 : ระบบสีเขียว









Quality Policy

Thai Premium Pipe Company Limited emphasizes on Total Quality Management System. To enhance its ability to conduct a business, we normally implement quality management system (ISO 9001) and encourage employees in all level to participate in total quality management system. As stated in our quality policy, we are all committed to customer satisfaction, collective responsibility, continuous improvement and on-timedelivery. Satisfying customers is priority one.

"Continually improve the qualities of products, exceed customers' expectation and deliver on time."

The following are our guidelines to accomplish our goal :

- Strictly comply with product standards, customer requirements and federal regulation.
- Increase customer satisfaction and confidence in the quality of the product and services.
- Always improve performance and increase effectiveness in the workplace
- Continually improve the management system (ISO) and the effectiveness of the quality management.
- Encourage everyone in the organization to participate in development of total quality management system.

Inspection Process

THAI PREMIUM PIPE CO., LTD.



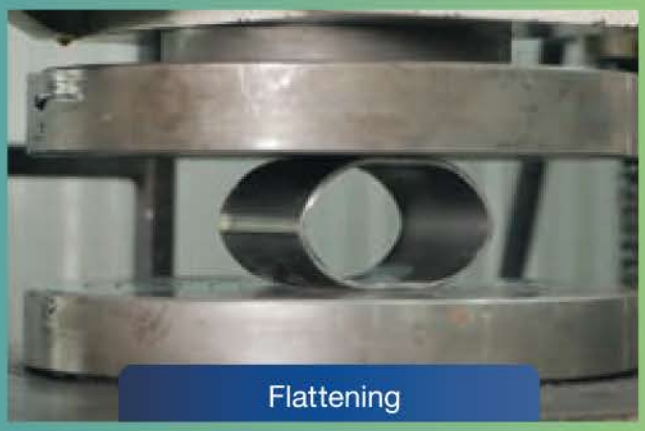




Tension test



Chemical test



Flattening



Tension test



Hydrostatic test



Impact test

Product & Services

SPECIFICATION		HOLLOW STRUCTURAL SECTIONS	PIPING SYSTEM
ASTM	American Society for Testing and Materials	ASTM A500	ASTM A53, A795
AS	Australian Standards	AS1163	AS1074
BS	British Standards	BS1139	BS1387
EN	European Standards	BS EN10219	BS EN10255
JIS	Japanese Industrial Standards	JIS G3444, JIS G3466	JIS G3452, G3454
TIS	Thai Industrial Standards	TIS107	











CONNECTIONS

- PLAIN ENDS
- THREADED ENDS
- GROOVED ENDS
- BEVELED ENDS

Product List

Pipes for Ordinary Uses & Pressure Purposes

Material Grade	Standard Specification		Round Pipe	Galvanized Pipe
Grade A, B	ASTM A53 (Sch 5, 10, 40,80)	Welded Black Steel Pipes for Pressure Purposes		
Light, Medium, Heavy	AS 1074-1989	Steel Tubes and Tubulars for Odinary Service		
Light, Medium, Heavy	BS 1387	Screwed and Socketed Steel Tubes and Tubular and for Plain End Steel Tubes Suitable for Welding		
Medium & Heavy Series	EN 10255	Non-alloy Steel Tubes Suitable for Welding and Threading		
STPG 370 STPG 410	JIS G3454	Carbon Steel Pipe for Pressure Service		

Hollow Structural Sections

Material Grade	Standard Specification		Round Tube	Rectangular Tube	Square Tube
Grade A, B, C, D	ASTM A500	Cold-Formed Welded Carbon Steel Structural Tubing in Rounds and Shapes			
C250 C350 C450	AS/NS 1163	Cold-formed Structural Steel Hollow Sections			
S235jRH S275j0H S275j2H S355j0H S355j2H	EN 10219	Cold Formed Welded Structural Hollow Sections of Non-alloy and Fine Grain Steels			
STKR400 STKR490	JIS G3466	Carbon Steel Square and Rectangular Pipes for General Structural Purposes			
STK400 STK490	JIS G3444	Carbon Steel Tubes for General Structural Purposes			
STK400 STK490 STKR400 STKR490	TIS 107-2561	Hollow Structural Steel Sections			

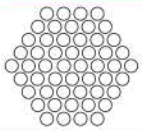
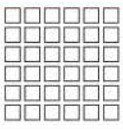
Tubes for Scaffolds

Material Grade		Standard Specification	Round Tube
S235GT	BS EN 39	Loose Steel Tubes for Scaffolds	

Steel Tube for Conveyor Roller

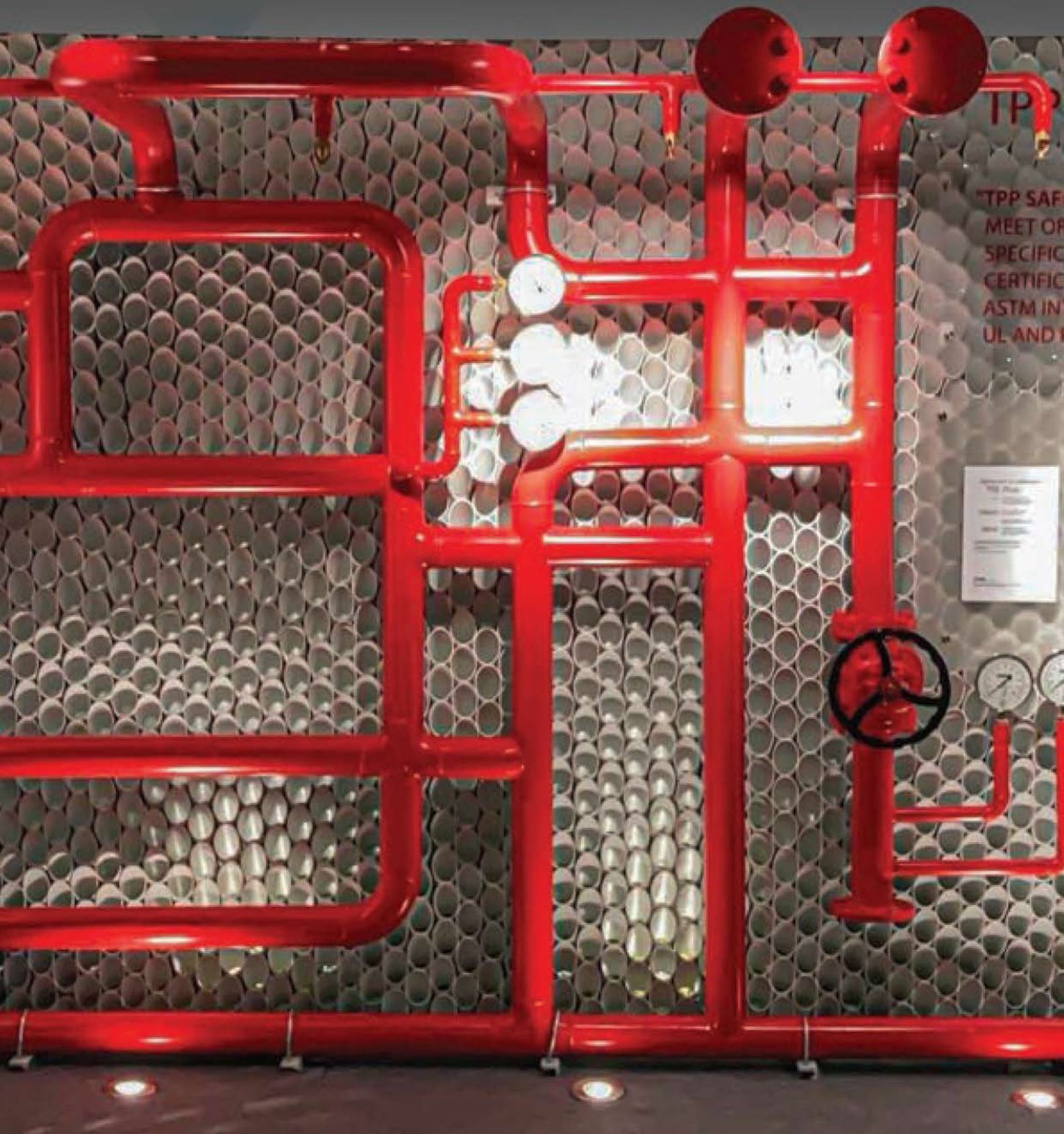
Material Grade	Standard Specification		Round Tube
SS400	-	Steel Tubes for Conveyor Roller	

Mill Packing Standard

Round	Square	Rectangular
Bundle in Hexagonal Shape	Bundle in Hollow Shape	
		

Carbon Steel Pipes for

ORDINARY PURPOSES & PIPING SYSTEM



Pipes for Fire Sprinkler Systems Ordinary Uses & Pressure Pipes

ASTM A53 (Schedule 5, 10, 40)

Welded Black Steel Pipes for Pressure Purposes

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength N/mm2 (min)	Tensile Strength N/mm2 (min)	Elongation % (min)	Material of Grade
Grade A	0.250	-	0.95	0.050	0.045	205	330	22	-
Grade B	0.300	-	1.20	0.050	0.045	240	415	18	-

NOMINAL SIZE		THICKNESS MM	OUTSIDE DIAMETER MM	WEIGHT (PLAIN END) KG/M	TEST PRESSURE(KPA)		SCHEDULE
in	mm	Std.	Std.	STD	Grade A	Grade B	
1/2"	15	2.77	21.30	1.27	4800	4800	40
3/4"	20	1.65	26.70	1.02	-	-	5
		2.11	26.70	1.28	-	-	10
		2.87	26.70	1.69	4800	4800	40
1"	25	1.65	33.40	1.29	-	-	5
		2.77	33.40	2.08	-	-	10
		3.38	33.40	2.50	4800	4800	40
1-1/4"	32	1.65	42.20	1.65	-	-	5
		2.77	42.20	2.96	-	-	10
		3.56	42.20	3.39	8300	9000	40
1-1/2"	40	1.65	48.30	1.90	-	-	5
		2.77	48.30	3.11	-	-	10
		3.68	48.30	4.05	8300	9000	40
2"	50	1.65	60.30	2.35	6735	7885	5
		2.77	60.30	3.91	11295	13223	10
		3.91	60.30	5.44	15900	17200	40
2-1/2"	65	2.11	73.00	3.69	7104	8317	5
		3.05	73.00	5.25	10271	12025	10
		5.16	73.00	8.63	17200	17200	40
3"	80	2.11	88.90	4.51	5834	6830	5
		3.05	88.90	6.44	8434	9874	10
		5.49	88.90	11.29	15300	17200	40
3-1/2"	90	2.11	101.60	5.17	5105	5976	5
		3.05	101.60	7.40	7380	8640	10
		5.74	101.60	13.57	14000	16300	40
4"	100	2.11	114.30	5.83	4537	5312	5
		3.05	114.30	8.35	6560	7680	10
		6.02	114.30	16.07	13100	15200	40
5"	125	2.77	141.30	9.41	4820	5643	5
		3.40	141.30	11.60	5926	6937	10
		6.55	141.30	21.77	11500	13400	40
6"	150	2.77	168.30	11.08	4047	4738	5
		3.40	168.30	13.80	4975	5824	10
		7.11	168.30	28.26	10500	12300	40
8"	200	8.18	219.10	42.55	9200	10800	40

Dimension Tolerances

Outside Diameter	≤ 48.3 mm. : ± 0.4 mm. ≥ 60.3 mm. : ± 1%
Thickness	- 12.5%
Weight	± 10%

Steel Pipes for Fire Sprinkler System

c UL US
LISTED
EX27817

FM
APPROVED

ASTM A53
Schedule 40 : 1/2” -6”

1/2", 3/4", 1", 1 1/4", 1 1/2",
2", 2 1/2", 3", 3 1/2", 4", 5" and 6"

ASTM A795
Schedule 10 : 3/4” -6”

3/4", 1", 1 1/4", 1 1/2", 2",
2 1/2", 3", 3 1/2", 4", 5", and 6"

ASTM A795
Schedule 7 : 1” - 4”

1", 1 1/4", 1 1/2", 2",
2 1/2", 3", 4" and 6"





ASTM A53

Carbon Steel Pipes for Fire Protection Use

FM APPROVED

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)										MECHANICAL PROPERTIES (Min)		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Yield Strength	Tensile Strength	Elongation
											MPa	MPa	%
Grade A	0.25		0.95	0.05	0.045	0.40	0.40	0.40	0.15	0.08	205	330	As Per Standard
Grade B	0.30		1.20	0.05	0.045	0.40	0.40	0.40	0.15	0.08	240	415	As Per Standard

NOMINAL SIZE		THICKNESS MM	OUTSIDE DIAMETER MM	WEIGHT (PLAIN END) KG/M	TEST PRESSURE(KPA)				SCHEDULE
					Grade A		Grade B		
in	mm	Std.	Std.	STD	Psi	kPa	Psi	kPa	
1/2"	15	2.77	21.30	1.27	1200	8300	1200	8300	40
3/4"	20	2.87	26.70	1.69	1200	8300	1200	8300	40
1"	25	3.38	33.40	2.50	1200	8300	1200	8300	40
1-1/4"	32	3.56	42.20	3.39	1200	8300	1200	9000	40
1-1/2"	40	3.68	48.30	4.05	1200	8300	1200	9000	40
2"	50	3.91	60.30	5.44	2300	15900	2300	17200	40
2-1/2"	65	5.16	73.30	8.63	2500	17200	2500	17200	40
3"	80	5.49	88.90	11.29	2220	15300	2220	17200	40
3-1/2"	90	5.74	101.60	13.57	2030	14000	2030	15200	40
4"	100	6.02	114.30	16.07	1900	13100	1900	13400	40
6"	150	7.11	168.30	28.26	1520	10500	1520	12300	40
8"	200	8.18	219.10	42.55	1340	9200	1520	10800	40

Dimension Tolerances

Outside Diameter	NPS 1 1/2 in (40 mm) : ± 0.016 in (0.41 mm) NPS 2 in (50 mm) : ± 1% from specifed OD
Thickness	-12.5% , +Not Limit
Weight	± 10%
Length	0 mm ,+ 50 mm

Metallic Sprinkler Pipe for Fire Protection Service

UL

NOMINAL SIZE		THICKNESS MM	OUTSIDE DIAMETER MM	WEIGHT (PLAIN END) KG/M	Hydrostatic Test Pressure (Grade A, B)				SCHEDULE
					for 1 minute		for 5 seconds		
inch	mm	Std.	mm	Kg/m	psi	kPa	psi	kPa	
3/4"	20	2.87	26.70	1.69	600	4100	1200	8300	40
1"	25	3.38	33.40	2.50	600	4100	1200	8300	40
1-1/4"	32	3.56	42.20	3.39	600	4100	1200	8300	40
1-1/2"	40	3.68	48.30	4.05	600	4100	1200	8300	40
2"	50	3.91	60.30	5.44	600	4100	1200	8300	40
2-1/2"	65	5.16	73.00	8.63	600	4100	1200	8300	40
3"	80	5.49	88.90	11.29	600	4100	1200	8300	40
3-1/2"	90	5.74	101.60	13.57	600	4100	1200	8300	40
4"	100	6.02	114.30	16.07	600	4100	1200	8300	40
5"	125	6.55	141.30	21.77	600	4100	1200	8300	40
6"	150	7.11	168.30	28.26	600	4100	1200	8300	40
8"	200	8.18	219.10	42.55	600	4100	1200	8300	40

ASTM 795

Carbon Steel Pipes for Fire Protection Use

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength N/mm2 (min)	Tensile Strength N/mm2 (min)	Elongation % (min)	Material of Grade
Grade A	0.25	-	0.95	0.035	0.035	-	-	-	-
Grade B	0.30	-	1.20	0.035	0.035	-	-	-	-

NOMINAL SIZE		THICKNESS MM	OUTSIDE DIAMETER MM	WEIGHT (PLAIN END) KG/M	RATED WORKING PRESSURE	TEST PRESSURE(KPA)		SCHEDULE
in	mm	Std.	Std.	STD	psi	Grade A, B		
3/4"	20	2.11	26.70	1.28	300	1200	8300	10
1"	25	2.77	33.40	2.09	300	1200	8300	10
1-1/4"	32	2.77	42.20	2.69	300	1200	8300	10
1-1/2"	40	2.77	48.30	3.11	300	1200	8300	10
2"	50	2.77	60.30	3.93	300	1200	8300	10
2-1/2"	65	3.05	73.00	5.26	300	1200	8300	10
3"	80	3.05	88.90	6.46	300	1200	8300	10
3-1/2"	90	3.05	101.60	7.41	300	1200	8300	10
4"	100	3.05	114.30	8.37	300	1200	8300	10
5"	125	3.40	141.30	11.58	300	1200	8300	10
6"	150	3.40	168.30	13.85	300	1200	8300	10
8"	200	4.78	219.10	25.26	225	900	6200	10

Dimension Tolerances

Outside Diameter	NPS 1 1/2 in (40 mm) : ± 0.016 in (0.41 mm) NPS 2 in (50 mm) : ± 1% from specifed OD
Thickness	-12.5% , +Not Limit
Weight	± 5%
Length	0 mm ,+ 50 mm



AS 1074-1989

Steel Tubes and Tubulars for Ordinary Service

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)				MECHANICAL PROPERTIES (Min)		
	C Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength	Elongation
					N/mm²	N/mm²	% (min.)
-	0.40	-	0.045	0.045	195	320-460	20

Light class

NOMINAL SIZE			THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm		Std.	Min	Max	Std.	Min	Max	KG/M	cm²
1/2"	DN 15	21.4	2.00	1.84	2.16	21.4	21.0	21.4	0.947	0.956
3/4"	DN 20	26.9	2.30	2.12	2.48	26.9	26.4	26.9	1.38	1.39
1"	DN 25	33.8	2.60	2.39	2.81	33.8	33.2	33.8	1.98	2.00
1¼"	DN 32	42.5	2.60	2.39	2.81	42.5	41.9	42.5	2.54	2.57
1½"	DN 40	48.4	2.90	2.67	3.13	48.4	47.8	48.4	3.23	3.27
2"	DN 50	60.2	2.90	2.67	3.13	60.2	26.6	60.2	4.08	4.15
2½"	DN 55	76.0	3.20	2.94	3.46	76.0	75.2	76.0	5.71	5.83
3"	DN 80	88.7	3.20	2.94	3.46	88.7	87.9	88.7	6.72	6.89
4"	DN 100	113.9	3.60	3.31	3.86	113.9	113.0	113.9	9.75	10.00

Medium class

NOMINAL SIZE			THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm		Std.	Min	Max	Std.	Min	Max	KG/M	KG/M
1/2"	DN 15	21.7	2.60	2.34	2.86	21.7	21.10	21.70	1.21	1.22
3/4"	DN 20	27.2	2.60	2.34	2.86	27.2	26.60	27.20	1.56	1.57
1"	DN 25	34.2	3.20	2.88	3.52	34.2	33.40	34.20	2.41	2.43
1¼"	DN 32	42.9	3.20	2.88	3.52	42.9	42.10	42.90	3.10	3.13
1½"	DN 40	48.8	3.20	2.88	3.52	48.8	48.00	48.80	3.57	3.61
2	DN 50	60.8	3.60	3.24	3.96	60.8	59.80	60.80	5.03	5.10
2-1/2"	DN 55	76.6	3.60	3.24	3.96	76.6	75.40	76.60	6.43	6.55
3"	DN 80	89.5	4.00	3.60	4.40	89.5	88.10	89.50	8.37	8.54
4"	DN 100	114.9	4.50	4.05	4.95	114.9	113.30	114.90	12.20	12.50
5"	DN 125	140.6	5.00	4.50	5.50	140.6	138.70	140.60	16.60	17.10
6"	DN 150	166.1	5.00	4.50	5.50	166.1	164.10	166.10	19.70	20.30

Heavy class

NOMINAL SIZE			THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm		Std.	Min	Max	Std.	Min	Max	KG/M	KG/M
1/2"	DN 15	21.7	3.20	2.88	3.52	21.7	21.10	21.70	1.44	1.45
3/4"	DN 20	27.2	3.20	2.88	3.52	27.2	26.60	27.20	1.87	1.88
1"	DN 25	34.2	4.00	3.60	4.40	34.2	33.40	34.20	2.94	2.96
1¼"	DN 32	42.9	4.00	3.60	4.40	42.9	42.10	42.90	3.80	3.83
1½"	DN 40	48.8	4.00	3.60	4.40	48.8	48.00	48.80	4.38	4.42
2	DN 50	60.8	4.50	4.05	4.95	60.8	59.80	60.80	6.19	6.26
2-1/2"	DN 55	76.6	4.50	4.05	4.95	76.6	75.40	76.60	7.93	8.05
3"	DN 80	89.5	5.00	4.50	5.50	89.5	88.10	89.50	10.30	10.50
4"	DN 100	114.9	5.40	4.86	5.94	114.9	113.30	114.90	14.50	14.80
5"	DN 125	140.6	5.40	4.86	5.94	140.6	138.70	140.60	17.90	18.40
6"	DN 150	166.1	5.40	4.86	5.94	166.1	164.10	166.10	21.30	21.90

Dimension Tolerances

Thickness — M and H series : + No limit, - 10%
L2 series : + No limit , -8%

Weight — + 10% , - 8%

BS 1387 : 1985

Screwed and Socketed Steel Tubes and Tubular and for Plain End Steel Tubes Suitable for Welding

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)		
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength	Elongation
						N/mm²	N/mm²	% (min.)
-	0.20	-	1.20	0.045	0.045	195	320-460	20

Light class

NOMINAL SIZE		THICKNESS MM		OUTSIDE DIAMETER MM		WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Min	Max	STD	cm²	cm⁴	cm³	cm
1/2"	15	2.0	1.84	21.0	21.4	0.95	1.200	0.580	0.54	0.70
3/4"	20	2.3	2.12	26.4	26.9	1.380	1.840	1.357	1.01	0.86
1"	25	2.6	2.39	33.2	33.8	1.980	2.548	3.124	1.85	1.11
1¼"	32	2.6	2.39	41.9	42.5	2.540	3.341	6.516	3.07	1.40
1½"	40	2.9	2.67	47.8	48.4	3.230	4.205	10.775	4.45	1.60
2"	50	2.9	2.67	59.6	60.2	4.080	5.365	21.489	7.14	2.00
2½"	65	3.2	2.94	75.2	76.0	5.710	7.392	48.598	12.79	2.56
3"	80	3.2	2.94	87.9	88.7	6.720	8.768	78.685	17.74	3.00
4"	100	3.6	3.31	113.0	113.9	9.750	12.744	189.988	33.36	3.86

Medium class

NOMINAL SIZE		THICKNESS MM		OUTSIDE DIAMETER MM		WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Min	Max	STD	cm²	cm⁴	cm³	cm
1/2"	15	2.6	2.34	21.1	21.7	1.210	1.534	0.725	0.67	0.69
3/4"	20	2.6	2.34	26.6	27.2	1.560	2.054	1.538	1.13	0.87
1"	25	3.2	2.88	33.4	34.2	2.410	3.184	3.785	2.21	1.09
1¼"	32	3.2	2.88	42.1	42.9	3.100	4.080	7.917	3.69	1.39
1½"	40	3.2	2.88	48.0	48.8	3.570	4.640	11.979	4.91	1.61
2"	50	3.6	3.24	59.8	60.8	5.030	6.516	26.573	8.74	2.02
2½"	65	3.6	3.24	75.4	76.6	6.430	8.280	55.152	14.40	2.58
3"	80	4.0	3.60	88.1	89.5	8.370	10.720	98.433	22.00	3.03
4"	100	4.5	4.05	113.3	114.9	12.200	15.750	238.273	41.47	3.89
5"	125	5.0	4.50	138.7	140.6	16.600	21.650	490.426	69.76	4.76
6"	150	5.0	4.50	164.1	166.1	19.700	25.450	822.071	98.99	5.68

Heavy class

NOMINAL SIZE		THICKNESS MM		OUTSIDE DIAMETER MM		WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Min	Max	STD	cm²	cm⁴	cm³	cm
1/2"	15	3.2	2.88	21.1	21.7	1.440	1.856	0.820	0.76	0.66
3/4"	20	3.2	2.88	26.6	27.2	1.870	2.496	1.769	1.30	0.84
1"	25	4.0	3.60	33.4	34.2	2.940	3.920	4.404	2.58	1.06
1¼"	32	4.0	3.60	42.1	42.9	3.800	5.000	9.348	4.36	1.37
1½"	40	4.0	3.60	48.0	48.8	4.380	5.720	14.242	5.84	1.58
2"	50	4.5	4.05	59.8	60.8	6.190	8.100	31.750	10.44	1.98
2½"	65	4.5	4.05	75.4	76.6	7.930	10.350	66.518	17.37	2.54
3"	80	5.0	4.50	88.1	89.5	10.300	13.400	118.930	26.58	2.98
4"	100	5.4	4.86	113.3	114.9	14.500	18.684	279.207	48.60	3.87
5"	125	5.4	4.86	138.7	140.6	17.900	23.382	525.111	74.70	4.74
6"	150	5.4	4.86	164.1	166.1	21.300	27.486	881.386	106.13	5.66

Dimension Tolerances

Thickness	Light tube (L) : - 8% Medium (M) and Heavy tube (H) : - 10%
Weight	+ 10% , - 8%
Hydrostatic Test	50 bar or 700 psi.

Color Marking

Class	Color
Light	Brown
Medium	Blue
Heavy	Red

BS EN 10255 : 2004

Non-alloy Steel Tubes Suitable for Welding and Threading

STEEL GRADE		(%) CHEMICAL COMPOSITION (Max)				MECHANICAL PROPERTIES (Min)			COLOR CODE
STEEL NAME	STEEL NUMBER	C Max	Mn Max	P Max	S Max	Yield Strenght MPa (min)	Tensile Strenght MPa	Elongation % (min)	Material of Grade
S 195T	1.0026	0.20	1.40	0.035	0.030	195	320 to 520	20	-

L Series

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm	Std.	Min	Max	Std.	Min	Max	KG/M	KG/M
3/8"	10	2.00	1.80	2.20	17.2	16.70	17.40	0.750	0.756
1/2"	15	2.30	2.07	2.53	21.3	21.00	21.70	1.08	1.09
1-1/4"	32	2.90	2.61	3.19	42.4	41.90	42.70	2.82	2.85
1-1/2"	40	2.90	2.61	3.19	48.3	47.80	48.60	3.25	3.29
2"	50	3.20	2.88	3.52	60.3	59.60	60.70	4.51	4.58
3"	80	3.20	2.88	3.52	88.9	87.90	88.70	6.76	6.93
3-1/2"	90	3.60	3.24	3.96	101.6	100.30	101.20	8.70	8.88
4"	100	3.60	3.24	3.96	114.3	113.00	113.90	9.83	10.10
5"	125	4.50	4.05	4.95	139.7	138.50	140.80	15.00	15.50
6"	150	4.50	4.05	4.95	165.1	163.90	166.50	17.80	18.40

L1 Series

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm	Std.	Min	Max	Std.	Min	Max	KG/M	KG/M
3/8"	10	2.00	1.84	2.00	17.2	16.70	17.40	0.742	0.748
1/2"	15	2.30	2.12	2.30	21.3	21.00	21.70	1.08	1.09
3/4"	20	2.30	2.12	2.30	26.9	26.40	27.10	1.39	1.40
1"	25	2.90	2.67	2.90	33.7	33.20	34.00	2.20	2.22
1-1/4"	32	2.90	2.67	2.90	42.4	41.90	42.70	2.82	2.85
1-1/2"	40	2.90	2.67	2.90	48.3	47.80	48.60	3.24	3.28
2"	50	3.20	2.94	3.20	60.3	59.60	60.70	4.49	4.56
2-1/2"	65	3.20	2.94	3.20	76.1	75.20	76.30	5.73	5.85
3"	80	3.60	3.31	3.60	88.9	87.90	89.40	7.55	7.72
4"	100	4.00	3.68	4.00	114.3	113.00	114.90	10.80	11.10

L2 Series

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm	Std.	Min	Max	Std.	Min	Max	KG/M	KG/M
3/8"	10	1.80	1.66	1.80	17.2	16.70	17.10	0.670	0.676
1/2"	15	2.00	1.84	2.00	21.3	21.00	21.40	0.947	0.956
3/4"	20	2.30	2.11	2.30	26.9	26.40	26.90	1.380	1.390
1"	25	2.60	2.39	2.60	33.7	33.20	33.80	1.980	2.000
1-1/4"	32	2.60	2.39	2.60	42.4	41.90	42.50	2.540	2.570
1-1/2"	40	2.90	2.66	2.90	48.3	47.80	48.40	3.230	3.270
2"	50	2.90	2.66	2.90	60.3	59.60	60.20	4.080	4.150
2-1/2"	65	3.20	2.94	3.20	76.1	75.20	76.00	5.710	5.830
3"	80	3.20	2.94	3.20	88.9	87.90	88.70	6.720	6.890
4"	100	3.60	3.31	3.60	114.3	113.00	113.90	9.750	10.000

Dimension Tolerances

Outside Diameter	≤ 48.3 mm. : ± 0.4 mm. ≥ 60.3 mm. : ± 1%
Thickness	Type L : ± 10% Type L1 and L2 : -8%
Weight	Type L : ± 7.5% Type L1 and L2 : + 10%, - 8%
Hydrostatic Test	50 bar or 700 psi

BS EN 10255 : 2004

Non-alloy Steel Tubes Suitable for Welding and Threading

STEEL GRADE		(%) CHEMICAL COMPOSITION (Max)				MECHANICAL PROPERTIES (Min)			COLOR CODE
STEEL NAME	STEEL NUMBER	C Max	Mn Max	P Max	S Max	Yield Strenght MPa (min)	Tensile Strenght MPa	Elongation % (min)	Material of Grade
S 195T	1.0026	0.20	1.40	0.035	0.030	195	320 to 520	20	-

M Series

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm	Std.	Min	Max	Std.	Min	Max	KG/M	KG/M
3/8"	10	2.30	2.07	2.53	17.2	16.70	17.50	0.840	0.845
1/2"	15	2.60	2.34	2.86	21.3	21.00	21.80	1.21	1.22
3/4"	20	2.60	2.34	2.86	26.9	26.50	27.30	1.560	1.570
1"	25	3.20	2.88	3.52	33.7	33.30	34.20	2.410	2.430
1-1/4"	32	3.20	2.88	3.52	42.4	42.00	42.90	3.100	3.130
1-1/2"	40	3.20	2.88	3.52	48.3	47.90	48.80	3.560	3.600
2"	50	3.60	3.24	3.96	60.3	59.70	60.80	5.030	5.100
2-1/2"	65	3.60	3.24	3.96	76.1	75.30	76.60	6.420	6.540
3"	80	4.00	3.60	4.40	88.9	88.00	89.50	8.360	8.50
4"	100	4.50	4.05	4.95	114.3	113.10	115.00	12.200	12.500
5"	125	5.00	4.50	5.50	139.7	138.50	140.80	16.600	17.100
6"	150	5.00	4.50	5.50	165.1	163.90	166.50	19.800	20.400

H Series

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			PLAIN END	THREADED AND SOCKETED
in	mm	Std.	Min	Max	Std.	Min	Max	KG/M	KG/M
3/8"	10	2.90	2.61	3.19	17.2	16.70	17.50	1.020	1.30
1/2"	15	3.20	2.88	3.52	21.3	21.00	21.80	1.44	1.45
3/4"	20	3.20	2.88	3.52	26.9	26.50	27.30	1.870	1.880
1"	25	4.00	3.60	4.40	33.7	33.30	34.20	2.930	2.950
1-1/4"	32	4.00	3.60	4.40	42.4	42.00	42.90	3.790	3.820
1-1/2"	40	4.00	3.60	4.40	48.3	47.90	48.80	4.370	4.410
2"	50	4.50	4.05	4.95	60.3	59.70	60.80	6.190	6.260
2-1/2"	65	4.50	4.05	4.95	76.1	75.30	76.60	7.930	8.050
3"	80	5.00	4.50	5.50	88.9	88.00	89.50	10.300	10.500
4"	100	5.40	4.86	5.94	114.3	113.10	115.00	14.500	14.800
5"	125	5.40	4.86	5.94	139.7	138.50	140.80	17.900	18.400
6"	150	5.40	4.86	5.94	165.1	163.90	166.50	21.300	21.900

Dimension Tolerances

Thickness	M and H series : ± 10%
Weight	M and H series : ± 7.5%
Hydrostatic Test	50 bar or 700 psi

JIS G3454

Carbon Steel Pipe for Pressure Service

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength N/mm2 (min)	Tensile Strength N/mm2 (min)	Elongation % (min)	Material of Grade
STPG370	0.25	0.35	0.30 - 0.90	0.04	0.04	215	370	30	-
STPG410	0.30	-	1.20	0.05	0.045	245	410	25	-

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	TEST PRESSURE(bar)	SCHEDULE
in	mm	Std.	Min	Max	Std.	Min	Max	STD		
1/2"	21.70	2.80	2.50	3.10	21.70	21.40	22.00	1.31	60	40
3/4"	27.20	2.90	2.60	3.20	27.20	26.90	27.50	1.74	60	40
1"	34.00	3.40	3.06	3.74	34.00	33.70	34.30	2.57	60	40
1-1/4"	42.70	3.60	3.24	3.96	42.70	42.36	43.04	3.47	60	40
1-1/2"	48.60	3.70	3.33	4.07	48.60	48.21	48.99	4.10	60	40
2"	60.50	3.90	3.51	4.29	60.50	60.02	60.98	5.44	60	40
2-1/2"	76.30	5.20	4.68	5.72	76.30	75.69	76.91	9.12	60	40
3"	89.10	5.50	4.95	6.05	89.10	88.39	89.81	11.30	60	40
3-1/2"	101.60	5.70	5.13	6.27	101.60	100.79	102.41	13.50	60	40
4"	114.30	6.00	5.40	6.60	114.30	113.39	115.21	16.00	60	40
5"	139.80	6.60	5.94	7.26	139.80	138.68	140.92	21.70	60	40
6"	165.20	7.10	6.39	7.81	165.20	163.88	166.52	27.70	60	40

Dimension Tolerances

Outside Diameter ≤ 34 mm. : ± 0.3 mm.
≥ 42.7 mm. : ± 8%

Thickness < 3.00 mm : ± 0.3 mm
≥ 3.00 mm : ± 10%

Weight N/A



Carbon Steel Pipes for

GENERAL PURPOSE STRUCTURE

ASTM A500

Cold-Formed Welded Carbon Steel Structural Tubing in Rounds and Shapes

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength N/mm2(min)	Tensile Strength N/mm2(min)	Elongation %	Material of Grade
Grade A	0.300	-	1.400	0.045	0.045	230	310	25	-
Grade B	0.300	-	1.400	0.045	0.045	290	400	23	-
Grade C	0.270	-	1.400	0.045	0.045	315	425	21	-
Grade D	0.300	-	1.400	0.045	0.045	250	400	23	-

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	cm2	cm4	cm3	cm
1/2"	15	2.77	2.49	3.05	21.30	21.19	21.41	1.27	1.613	0.708	0.665	0.662
3/4"	20	2.87	2.58	3.16	26.70	26.57	26.83	1.69	2.149	1.548	1.159	0.849
1"	25	2.64	2.38	2.90	33.40	33.23	33.57	2.00	2.552	3.014	1.821	1.092
		3.38	3.04	3.71	33.40	33.23	33.57	2.50	3.189	3.638	2.178	1.068
		4.55	4.10	5.01	33.40	33.23	33.57	3.24	4.126	4.399	2.634	1.033
1-1/4"	32	2.79	2.51	3.07	42.20	41.99	42.41	2.17	3.456	6.743	3.196	1.397
		3.56	3.20	3.92	42.20	41.99	42.41	3.39	4.323	8.137	3.856	1.372
		4.85	4.36	5.33	42.20	41.99	42.41	4.47	5.693	10.095	4.784	1.332
1-1/2"	40	2.90	2.61	3.19	48.30	48.06	48.54	3.25	4.138	10.705	4.433	1.608
		3.68	3.31	4.05	48.30	48.06	48.54	4.05	5.161	12.930	5.354	1.583
2"	50	3.07	2.76	3.38	60.30	59.85	60.75	4.33	5.522	22.672	7.520	2.026
		3.91	3.52	4.30	60.30	59.85	60.75	5.44	6.930	27.676	9.179	1.998
		5.54	4.99	6.09	60.30	59.85	60.75	7.48	9.534	36.104	11.975	1.946
2-1/2"	65	3.96	3.56	4.36	73.00	72.45	73.55	6.74	8.593	51.364	14.072	2.445
		4.78	4.30	5.25	73.00	72.45	73.55	8.04	10.249	59.913	16.415	2.418
		5.16	4.64	5.68	73.00	72.45	73.55	8.63	11.002	63.657	17.440	2.405
		7.01	6.31	7.71	73.00	72.45	73.55	11.41	14.539	80.031	21.926	2.346
3"	80	3.96	3.56	4.36	88.90	88.23	89.57	8.29	10.571	95.545	21.495	3.006
		4.78	4.30	5.26	88.90	88.23	89.57	9.92	12.637	112.104	25.228	2.979
		5.49	4.94	6.04	88.90	88.23	89.57	11.29	14.392	125.701	28.279	2.955
3-1/2"	90	3.96	3.56	4.36	101.60	100.84	102.36	9.53	12.152	145.053	28.554	3.455
		4.78	4.30	5.26	101.60	100.84	102.36	11.41	14.545	170.850	33.632	3.427
		5.74	5.17	6.31	101.60	100.84	102.36	13.57	17.293	199.349	39.242	3.395
4"	100	3.96	3.56	4.36	114.30	113.44	115.16	10.78	13.733	209.261	36.616	3.904
		4.78	4.30	5.26	114.30	113.44	115.16	12.91	16.453	247.155	43.247	3.876
		5.56	5.00	6.12	114.30	113.44	115.16	14.91	19.002	281.586	49.271	3.850
		6.02	5.42	6.62	114.30	113.44	115.16	16.07	20.487	301.173	52.699	3.834
5"	125	6.55	5.90	7.21	141.30	140.24	142.36	21.77	27.739	631.084	89.325	4.770
6"	150	7.11	6.40	7.82	168.30	167.04	169.56	28.26	36.019	1172.095	139.286	5.704

Dimension Tolerances

Outside Diameter ≤ 48.0 mm. : ± 0.5 %
≥ 50.0 mm. : ± 0.75 %

Thickness ± 10%

Weight N/A

ASTM A500

Cold-Formed Welded Carbon Steel Structural Tubing in Rounds and Shapes

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength	Elongation	Material of Grade
						N/mm²(min)	N/mm²(min)	%	
Grade A	0.300	–	1.400	0.045	0.045	270	310	25	–
Grade B	0.300	–	1.400	0.045	0.045	315	400	23	–
Grade C	0.270	–	1.400	0.045	0.045	345	425	21	–
Grade D	0.300	–	1.400	0.045	0.045	250	400	23	–

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
in	mm	Std.	Min	Max	Std.	Min	Max	Std.	Min	Max	STD	cm²	cm⁴		cm³		cm	
												A	I_x	I_y	Z_x	Z_y	i_x	i_y
1"x 1/2"	25.4 x 12.7	1.00	0.90	1.10	25.4	24.90	25.90	12.70	12.20	13.20	0.555	0.700	0.55	0.19	0.43	0.29	0.89	0.52
		1.20	1.08	1.32	25.4	24.90	25.90	12.70	12.20	13.20	0.640	0.820	0.63	0.21	0.50	0.34	0.88	0.51
		1.40	1.26	1.54	25.4	24.90	25.90	12.70	12.20	13.20	0.740	0.940	0.70	0.24	0.55	0.38	0.87	0.51
		1.60	1.44	1.76	25.4	24.90	25.90	12.70	12.20	13.20	0.820	1.050	0.77	0.27	0.61	0.42	0.86	0.51
		1.80	1.62	1.98	25.4	24.90	25.90	12.70	12.20	13.20	0.910	1.160	0.83	0.30	0.65	0.47	0.85	0.51
1-1/2" x 1"	38.1 x 25.4	1.00	0.90	1.10	38.1	37.60	38.60	25.40	24.90	25.90	0.949	1.200	2.43	1.31	1.28	1.03	1.42	1.04
		1.20	1.08	1.32	38.1	37.60	38.60	25.40	24.90	25.90	1.120	1.430	2.84	1.52	1.49	1.20	1.41	1.03
		1.40	1.26	1.54	38.1	37.60	38.60	25.40	24.90	25.90	1.290	1.650	3.23	1.73	1.70	1.36	1.40	1.02
		1.60	1.44	1.76	38.1	37.60	38.60	25.40	24.90	25.90	1.460	1.860	3.60	1.92	1.89	1.51	1.39	1.02
		1.80	1.62	1.98	38.1	37.60	38.60	25.40	24.90	25.90	1.630	2.070	3.94	2.11	2.07	1.66	1.38	1.01
		2.00	1.80	2.20	38.1	37.60	38.60	25.40	24.90	25.90	1.790	2.280	4.27	2.28	2.24	1.80	1.37	1.00
		2.30	2.07	2.53	38.1	37.60	38.60	25.40	24.90	25.90	2.020	2.570	4.72	2.54	2.48	2.00	1.35	0.99
		2.80	2.52	3.08	38.1	37.60	38.60	25.40	24.90	25.90	2.390	3.040	5.41	2.95	2.84	2.33	1.33	0.99
		3.00	2.70	3.30	38.1	37.60	38.60	25.40	24.90	25.90	2.530	3.220	5.67	3.12	2.98	2.46	1.33	0.99
		3.20	2.88	3.52	38.1	37.60	38.60	25.40	24.90	25.90	2.660	3.390	5.93	3.30	3.11	2.60	1.32	0.99
2" x 1"	50.8 x 25.4	1.20	1.08	1.32	50.8	50.30	51.30	25.40	24.80	26.00	1.37	1.730	5.77	1.97	2.27	1.55	1.82	1.07
		1.40	1.26	1.54	50.8	50.30	51.30	25.40	24.80	26.00	1.57	2.000	6.58	2.24	2.59	1.76	1.81	1.06
		1.60	1.44	1.76	50.8	50.30	51.30	25.40	24.80	26.00	1.78	2.270	7.35	2.50	2.89	1.97	1.80	1.05
		1.80	1.62	1.98	50.8	50.30	51.30	25.40	24.80	26.00	1.99	2.530	8.08	2.74	3.18	2.16	1.79	1.04
		2.00	1.80	2.20	50.8	50.30	51.30	25.40	24.80	26.00	2.19	2.780	8.78	2.98	3.46	2.35	1.78	1.03
		2.30	2.07	2.53	50.8	50.30	51.30	25.40	24.80	26.00	2.48	3.160	9.76	3.32	3.84	2.61	1.76	1.00
		2.80	2.52	3.08	50.8	50.30	51.30	25.40	24.80	26.00	2.95	3.750	11.24	3.87	4.42	3.04	1.73	1.02
		3.00	2.70	3.30	50.8	50.30	51.30	25.40	24.80	26.00	3.12	3.980	11.78	4.09	4.64	3.22	1.72	1.01
		3.20	2.88	3.52	50.8	50.30	51.30	25.40	24.80	26.00	3.30	4.200	12.30	4.32	4.84	3.39	1.71	1.01
2-1/2" x 1-1/2	63.5 x 38.1	2.30	2.07	2.53	63.5	63.00	64.00	38.10	37.60	38.60	3.40	4.330	22.82	10.34	7.19	5.43	2.30	1.55
		2.80	2.52	3.08	63.5	63.00	64.00	38.10	37.60	38.60	4.06	5.170	26.65	12.07	8.39	6.34	2.27	1.53
		3.00	2.70	3.30	63.5	63.00	64.00	38.10	37.60	38.60	4.32	5.500	28.08	12.73	8.84	6.68	2.26	1.52
		3.20	2.88	3.52	63.5	63.00	64.00	38.10	37.60	38.60	4.58	5.830	29.46	13.38	9.28	7.02	2.25	1.51
3" x 1"	76.2 x 25.4	1.00	0.90	1.10	76.2	75.60	76.80	25.40	24.90	25.90	1.54	1.97	13.60	2.44	3.57	1.92	2.63	1.11
		1.20	1.08	1.32	76.2	75.60	76.80	25.40	24.90	25.90	1.86	2.34	16.05	2.86	4.21	2.25	2.62	1.11
		1.40	1.26	1.54	76.2	75.60	76.80	25.40	24.90	25.90	2.13	2.72	18.41	3.27	4.83	2.57	2.60	1.10
		1.60	1.44	1.76	76.2	75.60	76.80	25.40	24.90	25.90	2.42	3.08	20.68	3.65	5.43	2.87	2.59	1.09
		1.80	1.62	1.98	76.2	75.60	76.80	25.40	24.90	25.90	2.70	3.44	22.86	4.02	6.00	3.17	2.58	1.08
		2.00	1.80	2.20	76.2	75.60	76.80	25.40	24.90	25.90	2.98	3.80	24.96	4.37	6.55	3.44	2.56	1.07
		2.30	2.07	2.53	76.2	75.60	76.80	25.40	24.90	25.90	3.40	4.33	27.95	4.88	7.34	3.84	2.54	1.06
		2.80	2.52	3.08	76.2	75.60	76.80	25.40	24.90	25.90	4.06	5.17	32.54	5.69	8.54	4.48	2.51	1.05
		3.00	2.70	3.30	76.2	75.60	76.80	25.40	24.90	25.90	4.32	5.50	34.24	6.01	8.99	4.73	2.49	1.04
		3.20	2.88	3.52	76.2	75.60	76.80	25.40	24.90	25.90	4.58	5.83	35.87	6.33	9.42	4.98	2.48	1.04

ASTM A500

Cold-Formed Welded Carbon Steel Structural Tubing in Rounds and Shapes

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
in	mm	Std.	Min	Max	Std.	Min	Max	Std.	Min	Max	STD	cm^2	cm^4		cm^3		cm	
												A	I_x	I_y	Z_x	Z_y	I_x	I_y
3" x 1-1/2"	76.2 x 38.1	2.30	2.07	2.53	76.2	75.60	76.80	38.10	37.60	38.60	3.83	4.91	35.93	12.22	9.43	6.41	2.71	1.58
		2.38	2.14	2.62	76.2	75.60	76.80	38.10	37.60	38.60	4.62	5.89	42.12	14.29	11.06	7.50	2.68	1.56
		3.00	2.70	3.30	76.2	75.60	76.80	38.10	37.60	38.60	4.92	6.27	44.46	15.09	11.67	7.92	2.66	1.55
		3.20	2.88	3.52	76.2	75.60	76.80	38.10	37.60	38.60	5.21	6.64	46.71	15.86	12.26	8.32	2.65	1.55
		4.00	3.60	4.40	76.2	75.60	76.80	38.10	37.60	38.60	6.35	8.09	54.99	18.84	14.43	9.89	2.61	1.53
		4.50	4.05	4.95	76.2	75.60	76.80	38.10	37.60	38.60	7.03	8.96	59.65	20.68	15.66	10.86	2.58	1.52
		5.00	4.50	5.50	76.2	75.60	76.80	38.10	37.60	38.60	7.68	9.79	63.98	22.60	16.79	11.86	2.56	1.52
3" x 2"	76.2 x 50.8	3.58	3.22	3.94	76.2	75.60	76.80	50.8	50.30	51.30	6.43	8.25	63.01	33.42	16.54	13.16	2.76	2.01
		4.78	4.30	5.26	76.2	75.60	76.80	50.8	50.30	51.30	8.32	10.64	77.48	40.78	20.33	16.05	2.70	1.96
		6.35	5.72	6.99	76.2	75.60	76.80	50.8	50.30	51.30	10.56	13.13	86.86	45.72	22.80	18.00	2.57	1.87
4"x 2"	101.6 x 50.8	3.96	3.56	4.36	101.6	100.80	102.40	50.8	50.30	51.30	8.60	11.04	140.10	47.00	27.58	18.50	3.56	2.06
		4.78	4.30	5.26	101.6	100.80	102.40	50.8	50.30	51.30	10.21	13.07	161.40	53.68	31.77	21.13	3.51	2.03
		6.35	5.72	6.99	101.6	100.80	102.40	50.8	50.30	51.30	13.09	16.36	186.08	61.76	36.69	24.31	3.38	1.94
4"x 3"	101.6 x 76.2	3.96	3.56	4.36	101.6	100.80	102.40	76.2	75.60	76.80	10.24	13.05	188.08	120.47	37.02	31.62	3.80	3.04
		4.78	4.30	5.26	101.6	100.80	102.40	76.2	75.60	76.80	12.11	15.50	218.35	139.50	42.98	36.61	3.75	3.00
		6.35	5.72	6.99	101.6	100.80	102.40	76.2	75.60	76.80	16.62	19.59	259.68	165.77	51.12	43.51	3.64	2.91
5" x 2"	127.0 x 50.8	2.30	2.07	2.53	127.0	126.20	127.80	50.80	50.30	51.30	6.15	7.83	155.39	37.27	24.47	14.67	4.45	2.18
		2.80	2.52	3.08	127.0	126.20	127.80	50.80	50.30	51.30	7.41	9.44	184.67	44.05	59.08	17.34	4.42	2.16
		3.00	2.70	3.30	127.0	126.20	127.80	50.80	50.30	51.30	7.91	10.08	195.94	46.65	30.86	18.37	4.41	2.15
		3.20	2.88	3.52	127.0	126.20	127.80	50.80	50.30	51.30	8.40	10.71	206.97	49.19	32.59	19.37	4.40	2.14
		4.00	3.60	4.40	127.0	126.20	127.80	50.80	50.30	51.30	10.34	13.17	248.69	58.83	39.16	23.16	4.35	2.11
		4.50	4.05	4.95	127.0	126.20	127.80	50.80	50.30	51.30	11.52	14.67	272.90	64.51	42.98	25.40	4.31	2.10
		5.00	4.50	5.50	127.0	126.20	127.80	50.80	50.30	51.30	12.67	16.14	295.74	70.00	46.57	27.56	4.28	2.08
		6.00	5.40	6.60	127.0	126.20	127.80	50.80	50.30	51.30	14.89	18.97	337.61	80.75	53.17	31.79	4.22	2.06
		6.35	5.72	6.99	127.0	126.20	127.80	50.80	50.30	51.30	15.64	19.93	351.15	84.54	55.30	33.28	4.20	2.06
5"x 3"	127.0 x 76.2	4.78	4.30	5.26	127.0	126.20	127.80	76.2	75.60	76.80	13.85	17.92	378.20	170.51	59.56	44.75	4.59	3.08
		6.35	5.72	6.99	127.0	126.20	127.80	76.2	75.60	76.80	17.89	22.81	456.23	205.22	71.85	53.86	4.47	3.00
6" x 2"	152.4 x 50.8	2.30	2.07	2.53	152.4	150.88	153.93	50.80	50.30	51.30	7.06	9.00	247.14	44.14	32.43	17.38	5.24	2.21
		2.80	2.52	3.08	152.4	150.88	153.93	50.80	50.30	51.30	8.53	10.86	294.53	52.25	38.65	20.57	5.21	2.19
		3.00	2.70	3.30	152.4	150.88	153.93	50.80	50.30	51.30	9.11	11.60	312.87	55.37	41.06	21.80	5.19	2.18
		3.20	2.88	3.52	152.4	150.88	153.93	50.80	50.30	51.30	9.68	12.33	330.86	58.41	43.42	23.00	5.18	2.18
		4.00	3.60	4.40	152.4	150.88	153.93	50.80	50.30	51.30	11.94	15.20	339.37	69.98	52.41	27.55	5.13	2.15
		4.50	4.05	4.95	152.4	150.88	153.93	50.80	50.30	51.30	13.31	16.96	439.47	76.80	57.67	30.24	5.09	2.13
		5.00	4.50	5.50	152.4	150.88	153.93	50.80	50.30	51.30	14.66	18.68	477.54	83.37	62.67	32.82	5.06	2.11
		6.00	5.40	6.60	152.4	150.88	153.93	50.80	50.30	51.30	17.28	22.02	547.88	96.13	71.90	37.85	4.99	2.09
		6.35	5.72	6.99	152.4	150.88	153.93	50.80	50.30	51.30	18.18	23.16	570.77	100.58	74.90	39.60	4.96	2.08
6"x 3"	152.4 x 76.2	4.78	4.30	5.26	152.4	150.88	153.93	76.2	75.60	76.80	15.74	20.35	595.87	201.52	78.20	52.89	5.41	3.15
		6.35	5.72	6.99	152.4	150.88	153.93	76.2	75.60	76.80	20.42	26.04	726.36	244.68	95.32	64.22	5.28	3.07
6"x 4"	152.4 x 101.6	4.78	4.30	5.26	152.4	150.88	153.93	101.6	100.80	102.40	17.65	22.78	728.21	389.21	95.57	76.62	5.65	4.13
		6.35	5.72	6.99	152.4	150.88	153.93	101.6	100.80	102.40	22.94	29.26	898.49	479.51	117.91	94.39	5.54	4.05

Dimension Tolerances

Outside Diameter	≤ 65.0 mm. : ± 0.50 mm. 65.0-90.0 mm. : ± 0.60 mm. 90.0-140.0 mm. : ± 0.80 mm. > 140.0 mm. : ± 1%
Thickness	± 10%
Weight	N/A

ASTM A500

Cold-Formed Welded Carbon Steel Structural Tubing in Rounds and Shapes

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength	Elongation	Material of Grade
						N/mm²(min)	N/mm²(min)	%	
Grade A	0.300	–	1.400	0.045	0.045	270	310	25	–
Grade B	0.300	–	1.400	0.045	0.045	315	400	23	–
Grade C	0.270	–	1.400	0.045	0.045	345	425	21	–
Grade D	0.300	–	1.400	0.045	0.045	250	400	23	–

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
in	mm	Std.	Min	Max	Std.	Min	Max	STD	A	I_x	I_y	Z_x	Z_y	iX	i_y
									cm^2	cm^4		cm^3		cm	
1/2″x 1/2″	12.7 x 12.7	1.00	0.90	1.10	12.70	12.20	13.20	0.357	0.44	0.10		0.16		0.47	
		1.20	1.08	1.32	12.70	12.20	13.20	0.421	0.51	0.11		0.18		0.47	
		1.40	1.26	1.54	12.70	12.20	13.20	0.490	0.58	0.13		0.20		0.47	
		1.60	1.44	1.76	12.70	12.20	13.20	0.540	0.64	0.14		0.23		0.47	
		1.80	1.62	1.98	12.70	12.20	13.20	0.550	0.70	0.16		0.26		0.48	
5/8″x 5/8″	15.9 x 15.9	1.00	0.90	1.10	15.90	15.40	16.40	0.450	0.57	0.21		0.26		0.60	
		1.20	1.08	1.32	15.90	15.40	16.40	0.520	0.67	0.24		0.30		0.59	
		1.40	1.26	1.54	15.90	15.40	16.40	0.600	0.76	0.26		0.33		0.59	
		1.60	1.44	1.76	15.90	15.40	16.40	0.670	0.85	0.29		0.37		0.59	
		1.80	1.62	1.98	15.90	15.40	16.40	0.730	0.93	0.32		0.40		0.59	
3/4"x 3/4"	19.1 x 19.1	1.00	0.90	1.10	19.10	18.60	19.60	0.555	0.70	0.37		0.39		0.73	
		1.20	1.08	1.32	19.10	18.60	19.60	0.650	0.82	0.43		0.45		0.72	
		1.40	1.26	1.54	19.10	18.60	19.60	0.740	0.94	0.48		0.50		0.72	
		1.60	1.44	1.76	19.10	18.60	19.60	0.830	1.05	0.53		0.56		0.71	
		1.80	1.62	1.98	19.10	18.60	19.60	0.910	1.16	0.58		0.61		0.71	
7/8"x 7/8"	22.2 x 22.2	1.00	0.90	1.10	22.20	21.70	22.70	0.653	0.82	0.60		0.54		0.86	
		1.20	1.08	1.32	22.20	21.70	22.70	0.778	0.97	0.70		0.63		0.85	
		1.40	1.26	1.54	22.20	21.70	22.70	0.870	1.11	0.79		0.71		0.84	
		1.60	1.44	1.76	22.20	21.70	22.70	0.980	1.25	0.87		0.78		0.83	
		1.80	1.62	1.98	22.20	21.70	22.70	1.090	1.39	0.95		0.85		0.83	
1″x 1″	25.4 x 25.4	2.41	2.17	2.65	25.40	24.90	25.90	1.62	2.07	1.75		1.38		0.92	
		3.38	3.04	3.72	25.40	24.90	25.90	2.10	2.68	2.04		1.60		0.87	
1/1/4″x 1/1/4″	31.8 x 31.8	1.00	0.90	1.10	31.80	31.30	32.30	0.949	1.21	1.88		1.18		1.25	
		1.20	1.08	1.32	31.80	31.30	32.30	1.120	1.43	2.20		1.38		1.24	
		1.40	1.26	1.54	31.80	31.30	32.30	1.340	1.65	2.50		1.57		1.23	
		1.60	1.44	1.76	31.80	31.30	32.30	1.470	1.87	2.78		1.75		1.22	
		1.80	1.62	1.98	31.80	31.30	32.30	1.630	2.08	3.05		1.92		1.21	
		2.00	1.80	2.20	31.80	31.30	32.30	1.790	2.25	3.30		2.08		1.20	
		2.30	2.07	2.53	31.80	31.30	32.30	2.020	2.58	3.66		2.30		1.19	
		2.80	2.52	3.08	31.80	31.30	32.30	2.390	3.05	4.23		2.66		1.18	
		3.00	2.70	3.30	31.80	31.30	32.30	2.530	3.22	4.45		2.80		1.17	
		3.20	2.88	3.52	31.80	31.30	32.30	2.670	3.40	4.67		2.93		1.17	

Dimension Tolerances

Outside Diameter
≤ 65.0 mm. : ± 0.50 mm.
65.0-90.0 mm. : ± 0.60 mm.
90.0-140.0 mm. : ± 0.80 mm.
> 140.0 mm. : ± 1%

Thickness
± 10%

Weight
N/A

ASTM A500

Cold-Formed Welded Carbon Steel Structural Tubing in Rounds and Shapes

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
in	mm	Std.	Min	Max	Std.	Min	Max	STD	A	I_x	I_y	Z_x	Z_y	iX	i_y
									cm^2	cm^4		cm^3		cm	
1/1/2″x 1/1/2″	38.1 x 38.1	1.00	0.90	1.10	38.10	37.60	38.60	1.150	1.46	3.31		1.74		1.51	
		1.20	1.08	1.32	38.10	37.60	38.60	1.370	1.73	3.88		2.04		1.50	
		1.40	1.26	1.54	38.10	37.60	38.60	1.570	2.00	4.43		2.33		1.49	
		1.60	1.44	1.76	38.10	37.60	38.60	1.780	2.27	4.95		2.60		1.48	
		1.80	1.62	1.98	38.10	37.60	38.60	1.990	2.53	5.45		2.86		1.47	
		2.00	1.80	2.20	38.10	37.60	38.60	2.190	2.78	5.92		3.11		1.46	
		2.30	2.07	2.53	38.10	37.60	38.60	2.480	3.16	6.60		3.46		1.45	
		2.80	2.52	3.08	38.10	37.60	38.60	2.950	3.75	7.63		4.01		1.43	
		3.00	2.70	3.30	38.10	37.60	38.60	3.120	3.98	8.03		4.21		1.42	
		3.20	2.88	3.52	38.10	37.60	38.60	3.300	4.20	8.41		4.42		1.41	
2″x 2″	50.8 x 50.8	2.79	2.51	3.07	50.80	50.30	51.30	4.00	5.16	19.41		7.64		1.94	
		3.18	2.86	3.50	50.80	50.30	51.30	4.52	5.80	21.40		8.42		1.92	
		3.91	3.52	4.30	50.80	50.30	51.30	5.44	6.94	24.67		9.71		1.89	
		4.78	4.30	5.26	50.80	50.30	51.30	6.41	8.21	27.88		10.97		1.84	
2-1/2″x 2-1/2″	63.5 x 63.5	3.58	3.22	3.94	63.50	63.00	64.00	6.43	8.25	48.35		15.23		2.42	
		4.78	4.30	5.26	63.50	63.00	64.00	8.32	10.64	59.36		18.70		2.36	
		6.35	5.72	6.99	63.50	63.00	64.00	10.56	13.13	66.84		21.05		2.26	
3″x 3″	76.2 x 76.2	3.96	3.56	4.36	76.20	75.60	76.80	8.60	11.04	94.20		24.72		2.92	
		4.78	4.30	5.26	76.20	75.60	76.80	10.21	13.07	108.49		28.47		2.88	
		6.35	5.72	6.99	76.20	75.60	76.80	13.09	16.36	126.31		33.15		2.78	
3-1/2″x 3-1/2″	89.9 x 89.9	3.96	3.56	4.36	89.90	89.30	90.50	10.24	13.05	154.44		34.74		3.44	
		4.78	4.30	5.26	89.90	89.30	90.50	12.11	15.50	179.16		40.31		3.40	
		6.35	5.72	6.99	89.90	89.30	90.50	15.62	19.59	213.28		47.98		3.30	
4″x 4″	101.6 x 101.6	4.78	4.30	5.26	101.60	100.80	102.40	13.85	17.92	275.30		54.19		3.92	
		6.35	5.72	6.99	101.60	100.80	102.40	17.89	22.81	332.96		65.54		3.82	
5″x 5″	127.0 x 127.0	4.78	4.30	5.26	127.00	126.20	127.80	17.65	22.78	559.65		88.13		4.96	
		6.35	5.72	6.99	127.00	126.20	127.80	22.94	29.26	691.23		108.86		4.86	

Dimension Tolerances

Outside Diameter
65.0 mm. : ± 0.50 mm.
65.0-90.0 mm. : ± 0.60 mm.
90.0-140.0 mm. : ± 0.80 mm.
> 140.0 mm. : ± 1%

Thickness ± 10%

Weight N/A

AS/NZS 1163
Cold-formed Structural Steel Hollow Sections

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	mm^2	mm^4	mm^3	mm
3"	80	2.60	2.34	2.86	88.90	88.01	89.79	5.53	705	0.657	14.80	30.50
		3.20	2.88	3.52	88.90	88.01	89.79	6.76	862	0.792	17.80	30.30
		4.00	3.60	4.40	88.90	88.01	89.79	8.38	1070	0.963	21.70	30.00
		4.80	4.32	5.28	88.90	88.01	89.79	9.96	1270	1.120	25.30	29.80
		5.00	4.50	5.50	88.90	88.01	89.79	10.30	1320	1.160	26.20	29.70
		5.50	4.95	6.05	88.90	88.01	89.79	11.30	1440	1.260	28.30	29.60
		5.90	5.31	6.49	88.90	88.01	89.79	12.10	1540	1.330	30.00	29.40
3-1/2"	90	2.60	2.34	2.86	101.60	100.58	102.62	6.35	809	0.991	19.50	35.00
		3.20	2.88	3.52	101.60	100.58	102.62	7.77	989	1.200	23.60	34.80
		4.00	3.60	4.40	101.60	100.58	102.62	9.63	1230	1.460	28.80	34.50
		5.00	4.50	5.50	101.60	100.58	102.62	11.90	1520	1.770	34.90	34.20
4"	100	3.20	2.88	3.52	114.30	113.16	115.44	8.77	1120	1.720	30.20	39.30
		3.60	3.24	3.96	114.30	113.16	115.44	9.83	1250	1.920	33.60	39.20
		4.50	4.05	4.95	114.30	113.16	115.44	12.20	1550	2.340	41.00	38.90
		4.80	4.32	5.28	114.30	113.16	115.44	13.00	1650	2.480	43.40	38.80
		5.40	4.86	5.94	114.30	113.16	115.44	14.50	1850	2.750	48.00	38.50
		6.00	5.40	6.60	114.30	113.16	115.44	16.00	2040	3.000	52.50	38.30
5"	125	3.00	2.70	3.30	139.70	138.30	141.10	10.10	1290	3.010	43.10	48.30
		3.50	3.15	3.85	139.70	138.30	141.10	11.80	1500	3.470	49.70	48.20
		5.00	4.50	5.50	139.70	138.30	141.10	16.60	2120	4.810	68.80	47.70
		5.40	4.86	5.94	139.70	138.30	141.10	17.90	2280	5.410	73.70	47.50
6"	150	3.00	2.70	3.30	165.10	163.45	166.75	12.00	1530	5.020	60.80	57.30
		3.50	3.15	3.85	165.10	163.45	166.75	13.90	1780	5.800	70.30	57.10
		5.00	4.50	5.50	165.10	163.45	166.75	19.70	2510	8.070	97.70	56.60
		5.40	4.86	5.94	165.10	163.45	166.75	21.30	2710	8.650	105.00	56.50

Dimension Tolerances

Outside Diameter ≤ 50.00 mm. : ± 0.50 mm.
> 50.0 mm. : ± 1%

Thickness ± 10%

Weight - 4%

AS/NZS 1163
Cold-formed Structural Steel Hollow Sections

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength N/mm²(min)	Tensile Strength N/mm²(min)	Elongation %	Material of Grade
C250, C250LO	0.120	0.050	0.500	0.030	0.030	250	320	18	-
C350, C350LO	0.200	0.450	1.600	0.030	0.030	350	430	16	-
C450, C450LO	0.200	0.450	1.700	0.030	0.030	450	500	12	-

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	mm²	mm⁴	mm³	mm
1/2″	15	2.00	1.80	2.20	21.30	20.80	21.80	0.95	121	0.006	0.536	6.86
3/8″	17.2	2.30	2.07	2.53	17.20	16.70	17.70	0.845	108	0.0031	0.356	5.33
		2.90	2.61	3.19	17.20	16.70	17.70	1.02	130	0.0035	0.403	5.16
3/4″	20	2.00	1.80	2.20	26.90	26.40	27.40	1.23	156	0.012	0.907	8.83
		2.30	2.07	2.53	26.90	26.40	27.40	1.40	178	0.014	1.01	8.70
		2.60	2.34	2.86	26.90	26.40	27.40	1.56	198	0.015	1.10	8.64
1″	25	2.00	1.80	2.20	33.70	33.20	34.20	1.56	199	0.025	1.49	11.20
		2.60	2.34	2.86	33.70	33.20	34.20	1.99	254	0.031	1.84	11.00
		3.20	2.88	3.52	33.70	33.20	34.20	2.41	307	0.036	2.14	10.80
		4.00	3.60	4.40	33.70	33.20	34.20	2.93	373	0.041	2.49	10.60
1-1/4″	32	2.00	1.80	2.20	42.40	41.90	42.90	1.99	254	0.052	2.45	14.30
		2.60	2.34	2.86	42.40	41.90	42.90	2.55	325	0.065	3.05	14.10
		3.20	2.88	3.52	42.40	41.90	42.90	3.09	394	0.076	3.59	13.90
		4.00	3.60	4.40	42.40	41.90	42.90	3.79	483	0.089	4.24	13.60
		4.90	4.41	5.39	42.40	41.90	42.90	4.53	577	0.103	4.87	13.40
1-1/2″	40	2.30	2.07	2.53	48.30	47.80	48.80	2.61	332	0.088	3.65	16.30
		2.90	2.61	3.19	48.30	47.80	48.80	3.25	414	0.107	4.43	16.10
		3.20	2.88	3.52	48.30	47.80	48.80	3.56	453	0.116	4.80	16.00
		4.00	3.60	4.40	48.30	47.80	48.80	4.37	557	0.138	5.70	15.70
2″	50	2.30	2.07	2.53	60.30	59.80	60.80	3.29	419	0.177	5.85	20.50
		2.90	2.61	3.19	60.30	59.80	60.80	4.11	523	0.216	7.16	20.30
		3.60	3.24	3.96	60.30	59.80	60.80	5.03	641	0.259	8.58	20.10
		4.50	4.05	4.95	60.30	59.80	60.80	6.19	789	0.309	10.20	19.80
		5.40	4.86	5.94	60.30	59.80	60.80	7.31	931	0.354	11.80	19.50
2-1/2″	65	2.30	2.07	2.53	76.10	75.34	76.86	4.19	533	0.363	9.55	26.10
		3.20	2.88	3.52	76.10	75.34	76.86	5.75	733	0.488	12.80	25.80
		3.60	3.24	3.96	76.10	75.34	76.86	6.44	820	0.540	14.21	25.70
		4.50	4.05	4.95	76.10	75.34	76.86	7.95	1010	0.651	17.10	25.40
		5.90	5.31	6.49	76.10	75.34	76.86	10.20	1300	0.807	21.20	24.90

Dimension Tolerances

Outside Diameter ≤ 50.00 mm. : ± 0.50 mm.
> 50.0 mm. : ± 1%

Thickness ± 10%

Weight - 4%

AS/NZS 1163
Cold-formed Structural Steel Hollow Sections

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
in	mm	Std.	Min	Max	Std.	Min	Max	Std.	Min	Max	STD	mm2	IX	Iy	ZX	Zy	rX	ry
													cm4		cm3		cm	
4"x2"	100x50	2.00	1.80	2.20	100	99.35	101.00	50	49.50	50.50	4.50	574	0.750	0.257	15.00	10.30	36.20	21.20
		2.30	2.07	2.53	100	99.35	101.00	50	49.50	50.50	5.14	655	0.848	0.290	17.00	11.60	36.00	21.00
		2.50	2.25	2.75	100	99.35	101.00	50	49.50	50.50	5.56	709	0.912	0.311	18.20	12.40	35.90	20.90
		2.80	2.52	3.08	100	99.35	101.00	50	49.50	50.50	6.19	788	1.000	0.341	20.10	13.60	35.70	20.60
		3.00	2.70	3.30	100	99.35	101.00	50	49.50	50.50	6.60	841	1.060	0.361	21.30	14.40	35.60	20.70
		3.30	2.97	3.63	100	99.35	101.00	50	49.50	50.50	7.14	909	1.130	0.383	22.60	15.30	35.20	20.50
		4.00	3.60	4.40	100	99.35	101.00	50	49.50	50.50	8.49	1080	1.310	0.441	26.10	17.60	34.80	20.20
		5.00	4.50	5.50	100	99.35	101.00	50	49.50	50.50	10.30	1310	1.530	0.511	30.60	20.40	34.10	19.70
		6.00	5.40	6.60	100	99.35	101.00	50	49.50	50.50	12.00	1530	1.710	0.567	34.20	22.70	33.40	19.20
5"x3"	125x75	2.80	2.52	3.08	125	124.35	126.25	75	74.35	75.65	8.39	1070	2.290	1.040	36.60	27.80	46.20	31.20
		3.00	2.70	3.30	125	124.35	126.25	75	74.35	75.65	8.96	1140	2.430	1.110	38.90	29.50	46.10	31.10
		3.30	2.97	3.63	125	124.35	126.25	75	74.35	75.65	9.73	1240	2.600	1.190	41.60	31.60	45.80	30.50
		3.80	3.42	4.18	125	124.35	126.25	75	74.35	75.65	11.10	1410	2.930	1.330	46.80	35.50	45.50	30.70
		4.00	3.60	4.40	125	124.35	126.25	75	74.35	75.65	11.60	1480	3.050	1.390	48.90	37.00	45.40	30.60
		5.00	4.50	5.50	125	124.35	126.25	75	74.35	75.65	14.20	1810	3.640	1.650	58.30	43.90	44.80	30.10
6"x2"	150x50	3.00	2.70	3.30	150	149.35	151.50	50	49.35	50.65	8.96	1140	2.990	0.526	39.80	21.10	51.20	21.50
		4.00	3.60	4.40	150	149.35	151.50	50	49.35	50.65	11.60	1480	3.710	0.653	49.80	26.10	50.20	21.00
		5.00	4.50	5.50	150	149.35	151.50	50	49.35	50.65	14.20	1140	4.440	0.765	59.20	30.60	49.50	20.50
6"x4"	150x100	4.00	3.60	4.40	150	149.35	151.50	100	99.35	100.65	14.80	1880	5.870	3.150	78.20	63.00	55.90	40.90
		5.00	4.50	5.50	150	149.35	151.50	100	99.35	100.65	18.20	2310	7.070	3.790	94.30	75.70	55.30	40.40
		6.00	5.40	6.60	150	149.35	151.50	100	99.35	100.65	21.40	2730	8.170	4.360	109.00	87.30	54.70	40.00

Dimension Tolerances

Outside Diameter ≤ 50.00 mm. : ± 0.50 mm.
> 50.0 mm. : ± 1%

Thickness ± 10%

Weight - 4%



AS/NZS 1163
Cold-formed Structural Steel Hollow Sections

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength N/mm2(min)	Tensile Strength N/mm2(min)	Elongation %	Material of Grade
C250, C250LO	0.120	0.050	0.500	0.030	0.030	250	320	14	-
C350, C350LO	0.200	0.450	1.600	0.030	0.030	350	430	12	-
C450, C450LO	0.200	0.450	1.700	0.030	0.030	450	500	10	-

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
in	mm	Std.	Min	Max	Std.	Min	Max	Std.	Min	Max	STD	mm2	IX	Iy	ZX	Zy	rX	ry
													cm4		cm3		cm	
2"x3/4"	50x20	1.60	1.44	1.76	50	49.50	50.50	20	19.50	20.50	1.63	207	0.061	0.014	2.43	1.42	17.10	8.29
		2.00	1.80	2.20	50	49.50	50.50	20	19.50	20.50	1.99	254	0.072	0.017	2.89	1.67	16.90	8.11
		2.30	2.07	2.53	50	49.50	50.50	20	19.50	20.50	2.25	287	0.080	0.018	3.20	1.83	16.70	7.98
		2.50	2.25	2.75	50	49.50	50.50	20	19.50	20.50	2.42	309	0.085	0.019	3.39	1.92	16.60	7.89
		2.80	2.52	3.08	50	49.50	50.50	20	19.50	20.50	2.67	340	0.091	0.021	3.65	2.05	16.40	7.76
		3.00	2.70	3.30	50	49.50	50.50	20	19.50	20.50	2.83	361	0.095	0.021	3.81	2.12	16.20	7.67
2"x1"	50x25	1.60	1.44	1.76	50	49.50	50.50	25	24.50	25.50	1.75	223	0.070	0.024	2.81	1.90	17.70	10.30
		2.00	1.80	2.20	50	49.50	50.50	25	24.50	25.50	2.15	274	0.084	0.028	3.35	2.25	17.50	10.10
		2.30	2.07	2.53	50	49.50	50.50	25	24.50	25.50	2.44	310	0.093	0.031	3.72	2.48	17.30	10.00
		2.50	2.25	2.75	50	49.50	50.50	25	24.50	25.50	2.62	334	0.099	0.033	3.95	2.62	17.20	9.91
		2.80	2.52	3.08	50	49.50	50.50	25	24.50	25.50	2.89	368	0.107	0.035	4.27	2.82	17.00	9.78
		3.00	2.70	3.30	50	49.50	50.50	25	24.50	25.50	3.07	391	0.112	0.037	4.47	2.93	16.90	9.69
2 1/2"x1 3/8"	65x35	2.00	1.80	2.20	65	64.35	65.65	35	34.50	35.50	2.93	374	0.204	0.078	6.28	4.44	23.40	14.40
		2.30	2.07	2.53	65	64.35	65.65	35	34.50	35.50	3.34	425	0.229	0.087	7.04	4.96	23.20	14.30
		2.50	2.25	2.75	65	64.35	65.65	35	34.50	35.50	3.60	459	0.244	0.093	7.52	5.29	23.10	14.20
		2.80	2.52	3.08	65	64.35	65.65	35	34.50	35.50	3.99	508	0.267	0.101	8.21	5.75	22.90	14.10
		3.00	2.70	3.30	65	64.35	65.65	35	34.50	35.50	4.25	541	0.281	0.106	8.65	6.04	22.80	14.00
3"x1"	75x25	1.60	1.44	1.76	75	74.35	75.75	25	24.50	25.50	2.38	303	0.197	0.035	5.26	2.78	25.50	10.70
		2.00	1.80	2.20	75	74.35	75.75	25	24.50	25.50	2.93	374	0.238	0.041	6.36	3.31	25.30	10.50
		2.50	2.25	2.75	75	74.35	75.75	25	24.50	25.50	3.60	459	0.285	0.049	7.60	3.89	24.90	10.30
3"x2"	75x50	2.00	1.80	2.20	75	74.35	75.75	50	49.50	50.50	3.72	474	0.372	0.199	9.91	7.96	28.00	20.50
		2.30	2.07	2.53	75	74.35	75.75	50	49.50	50.50	4.24	540	0.419	0.224	11.20	8.96	27.90	20.40
		2.50	2.25	2.75	75	74.35	75.75	50	49.50	50.50	4.58	584	0.450	0.240	12.00	9.60	27.70	20.30
		2.80	2.52	3.08	75	74.35	75.75	50	49.50	50.50	5.08	691	0.522	0.278	13.90	11.10	27.50	20.00
		3.00	2.70	3.30	75	74.35	75.75	50	49.50	50.50	5.42	691	0.522	0.278	13.90	11.10	27.50	20.00
		4.00	3.60	4.40	75	74.35	75.75	50	49.50	50.50	6.92	881	0.630	0.335	16.80	13.40	26.70	19.50

Dimension Tolerances

Outside Diameter ≤ 50.00 mm. : ± 0.50 mm.
> 50.0 mm. : ± 1%

Thickness ± 10%

Weight - 4%

AS/NZS 1163
Cold-formed Structural Steel Hollow Sections

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength N/mm2(min)	Tensile Strength N/mm2(min)	Elongation %	Material of Grade
C250, C250LO	0.120	0.050	0.500	0.030	0.030	250	320	14	-
C350, C350LO	0.200	0.450	1.600	0.030	0.030	350	430	12	-
C450, C450LO	0.200	0.450	1.700	0.030	0.030	450	500	10	-

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	mm2	cm4	cm3	cm
3/4" x 3/4"	20 x 20	1.60	1.44	1.76	20.00	19.50	20.50	0.873	111	0.0060	0.608	7.39
1" x 1"	25 x 25	1.60	1.44	1.76	25.00	24.50	25.50	1.120	143	0.0128	1.020	9.44
		2.00	1.80	2.20	25.00	24.50	25.50	1.360	174	0.0148	1.190	9.24
		2.30	2.07	2.53	25.00	24.50	25.50	1.530	195	0.0160	1.290	9.09
		2.50	2.25	2.75	25.00	24.50	25.50	1.640	209	0.0169	1.350	8.99
		3.00	2.70	3.30	25.00	24.50	25.50	1.890	241	0.0184	1.470	8.74
1-1/8" x 1-1/8"	30 x 30	1.60	1.44	1.76	30.00	29.50	30.50	1.380	175	0.0231	1.540	11.50
		2.00	1.80	2.20	30.00	29.50	30.50	1.680	214	0.0272	1.810	11.30
1-3/8" x 1-3/8"	35 x 35	1.60	1.44	1.76	35.00	34.50	35.50	1.630	207	0.0379	2.160	13.50
		2.00	1.80	2.20	35.00	34.50	35.50	1.990	254	0.0451	2.580	13.30
		2.30	2.07	2.53	35.00	34.50	35.50	2.250	287	0.0500	2.850	13.20
		2.50	2.25	2.75	35.00	34.50	35.50	2.420	309	0.0529	3.020	13.10
		2.80	2.52	3.08	35.00	34.50	35.50	2.670	340	0.0570	3.260	12.90
		3.00	2.70	3.30	35.00	34.50	35.50	2.830	361	0.0595	3.400	12.80
1-1/2" x 1-1/2"	40 x 40	1.60	1.44	1.76	40.00	39.50	40.50	1.880	239	0.0579	2.900	15.60
		2.00	1.80	2.20	40.00	39.50	40.50	2.310	294	0.0694	3.470	15.40
		2.50	2.25	2.75	40.00	39.50	40.50	2.820	359	0.0822	4.110	15.10
		4.00	3.60	4.40	40.00	39.50	40.50	4.090	521	0.1050	5.260	14.20
2" x 2"	50 x 50	1.60	1.44	1.76	50.00	49.50	50.50	2.380	303	0.1170	4.680	19.60
		2.00	1.80	2.20	50.00	49.50	50.50	2.930	374	0.1410	5.660	19.50
		2.30	2.07	2.53	50.00	49.50	50.50	3.340	425	0.1590	6.340	19.30
		2.50	2.25	2.75	50.00	49.50	50.50	3.600	459	0.1690	6.780	19.20
		2.80	2.52	3.08	50.00	49.50	50.50	3.990	508	0.1850	7.400	19.10
		3.00	2.70	3.30	50.00	49.50	50.50	4.250	541	0.1950	7.790	19.00
		4.00	3.60	4.40	50.00	49.50	50.50	5.350	681	0.2290	9.150	18.30
2-1/2" x 2-1/2"	65 x 65	2.00	1.80	2.20	65.00	64.35	65.65	3.880	494	0.3230	9.940	25.60
		2.30	2.07	2.53	65.00	64.35	65.65	4.420	563	0.3640	11.200	25.40
		2.50	2.25	2.75	65.00	64.35	65.65	4.780	609	0.3910	12.000	25.30
		3.00	2.70	3.30	65.00	64.35	65.65	5.660	721	0.4540	14.000	25.10

Dimension Tolerances

Outside Diameter ≤ 50.00 mm. : ± 0.50 mm.
> 50.0 mm. : ± 1%

Thickness ± 10%

Weight ± 4%

AS/NZS 1163
Cold-formed Structural Steel Hollow Sections

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	mm2	cm4	cm3	cm
3" x 3"	75 x 75	2.30	2.07	2.53	75.00	74.25	75.75	5.140	655	0.5710	15.200	29.50
		2.50	2.25	2.75	75.00	74.25	75.75	5.560	709	0.6140	16.400	29.40
		2.80	2.52	3.08	75.00	74.25	75.75	6.190	788	0.6760	18.000	29.30
		3.00	2.70	3.30	75.00	74.25	75.75	6.600	841	0.7160	19.100	29.20
		3.30	2.97	3.63	75.00	74.25	75.75	7.140	909	0.7610	20.300	28.90
		3.50	3.15	3.85	75.00	74.25	75.75	7.530	959	0.7970	21.300	28.80
		4.00	3.60	4.40	75.00	74.25	75.75	8.490	1080	0.8820	23.500	28.60
		5.00	4.50	5.50	75.00	74.25	75.75	10.300	1310	1.0300	27.500	28.00
		6.00	5.40	6.60	75.00	74.25	75.75	12.000	1530	1.1600	30.900	27.50
3-1/2" x 3-1/2"	89 x 89	3.50	3.15	3.85	89.00	88.11	89.89	9.060	1150	1.3700	30.900	34.50
		5.00	4.50	5.50	89.00	88.11	89.89	12.500	1590	1.8100	40.700	33.70
		6.00	5.40	6.60	89.00	88.11	89.89	14.600	1870	2.0600	46.200	33.20
4" x 4"	100 x 100	2.80	2.52	3.08	100.00	99.00	101.00	8.390	1070	1.6700	33.300	39.50
		3.00	2.70	3.30	100.00	99.00	101.00	8.960	1140	1.7700	35.400	39.40
		3.30	2.97	3.63	100.00	99.00	101.00	9.730	1240	1.9000	38.000	39.20
		3.80	3.42	4.18	100.00	99.00	101.00	11.100	1410	2.1400	42.700	38.90
		4.00	3.60	4.40	100.00	99.00	101.00	11.600	1480	2.2300	44.600	38.80
		5.00	4.50	5.50	100.00	99.00	101.00	14.200	1810	2.6600	53.100	38.30
		6.00	5.40	6.60	100.00	99.00	101.00	16.700	2130	3.0400	60.700	37.70
5" x 5"	125 x 125	4.00	3.60	4.40	125.00	123.75	126.25	14.800	1880	4.5200	72.300	49.00
		5.00	4.50	5.50	125.00	123.75	126.25	18.200	2310	5.4400	87.100	48.50
		6.00	5.40	6.60	125.00	123.75	126.25	21.400	2730	6.2900	101.000	48.00

Dimension Tolerances

Outside Diameter ≤ 50.00 mm. : ± 0.50 mm.
> 50.0 mm. : ± 1%

Thickness ± 10%

Weight - 4%

EN 10219-1

Cold Formed Welded Structural Hollow Sections of Non-alloy and Fine Grain Steels

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)				COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength		Elongation	Material of Grade
						N/mm²(min)	N/mm²(min)		%	
							t <3 mm.	t >3 mm.		
S235jRH	0.170	-	1.400	0.045	0.045	235	360-510	340-370	24	-
S275j0H	0.200	-	1.500	0.040	0.040	275	430-580	410-560	20	-
S275j2H	0.200	-	1.500	0.035	0.035	275	430-580	410-560	20	-
S355j0H	0.220	0.550	1.600	0.040	0.040	355	510-680	490-630	20	-
S355j2H	0.220	0.550	1.600	0.035	0.035	355	510-680	490-630	20	-

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	cm²	cm⁴	cm³	cm
1/2"	21.3	2.00	1.80	2.20	21.30	20.80	21.80	0.95	1.21	0.571	0.536	0.686
3/4"	26.9	2.00	1.80	2.20	26.90	26.40	27.40	1.23	1.56	1.22	0.907	0.883
		2.50	2.25	2.75	26.90	26.40	27.40	1.50	1.92	1.44	1.07	0.867
1"	33.7	2.00	1.80	2.20	33.70	33.20	34.20	1.56	1.99	2.51	1.49	1.12
		2.50	2.25	2.75	33.70	33.20	34.20	1.92	2.45	3.00	1.78	1.11
		3.00	2.70	3.30	33.70	33.20	34.20	2.27	2.89	3.44	2.04	1.09
1-1/4"	42.4	2.00	1.80	2.20	42.40	41.90	42.90	1.99	2.54	5.19	2.45	1.43
		2.50	2.25	2.75	42.40	41.90	42.90	2.46	3.13	6.26	2.95	1.41
		3.00	2.70	3.30	42.40	41.90	42.90	2.91	3.71	7.25	3.42	1.40
1-1/2"	48.3	2.00	1.80	2.20	48.30	47.80	48.80	2.28	2.91	7.81	3.23	1.64
		2.50	2.25	2.75	48.30	47.80	48.80	2.82	3.60	9.46	3.92	1.62
		3.00	2.70	3.30	48.30	47.80	48.80	3.35	4.27	11.00	4.55	1.61
2"	60.3	2.00	1.80	2.20	60.30	59.70	60.90	2.88	3.66	15.60	5.17	2.06
		2.50	2.25	2.75	60.30	59.70	60.90	3.56	4.54	19.00	6.30	2.05
		3.00	2.70	3.30	60.30	59.70	60.90	4.24	5.40	22.20	7.37	2.03
		4.00	3.60	4.40	60.30	59.70	60.90	5.55	7.07	28.20	9.34	2.00
		5.00	4.50	5.50	60.30	59.70	60.90	6.82	8.69	33.50	11.10	1.96
2-1/2"	76.1	2.00	1.80	2.20	76.10	75.34	76.86	3.65	4.66	32.00	8.40	2.62
		2.50	2.25	2.75	76.10	75.34	76.86	4.54	5.78	39.20	10.30	2.60
		3.00	2.70	3.30	76.10	75.34	76.86	5.41	6.89	46.10	12.10	2.59
		4.00	3.60	4.40	76.10	75.34	76.86	7.11	9.06	59.10	15.50	2.55
		5.00	4.50	5.50	76.10	75.34	76.86	8.77	11.20	70.90	18.60	2.52
		6.00	5.50	6.50	76.10	75.34	76.86	10.40	13.20	81.80	21.50	2.49

Dimension Tolerances

Outside Diameter ≤ 50 mm. : ± 0.5 mm.
> 50 mm. : ± 1%

Thickness ≤ 5.0 mm. : ± 10%
> 5.0 mm. : ± 0.5 mm.

Weight ± 6

EN 10219-1

Cold Formed Welded Structural Hollow Sections of Non-alloy and Fine Grain Steels

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	
in	mm	Std.	Min	Max	Std.	Min	Max	STD	cm^2	cm^4	cm^3	
3"	88.9	2.00	1.80	2.20	88.90	88.01	89.79	4.29	5.46	51.60	11.60	
		2.50	2.25	2.75	88.90	88.01	89.79	5.33	6.79	63.40	14.30	
		3.00	2.70	3.30	88.90	88.01	89.79	6.36	8.10	74.80	16.80	
		4.00	3.60	4.40	88.90	88.01	89.79	8.38	10.70	96.30	21.70	
		5.00	4.50	5.50	88.90	88.01	89.79	10.30	13.20	116.00	26.20	
		6.00	5.50	6.50	88.90	88.01	89.79	12.30	15.60	135.00	30.40	
3 1/2"	101.6	2.00	1.80	2.20	101.60	100.58	102.62	4.91	6.26	77.60	15.30	
		2.50	2.25	2.75	101.60	100.58	102.62	6.11	7.78	95.60	18.80	
		3.00	2.70	3.30	101.60	100.58	102.62	7.29	9.29	113.00	22.30	
		4.00	3.60	4.40	101.60	100.58	102.62	9.63	12.30	146.00	28.80	
		5.00	4.50	5.50	101.60	100.58	102.62	11.90	15.20	177.00	34.90	
		6.00	5.50	6.50	101.60	100.58	102.62	14.10	18.00	207.00	40.70	
4"	114.3	2.50	2.25	2.75	114.30	113.16	115.44	6.89	8.78	137.00	24.00	
		3.00	2.70	3.30	114.30	113.16	115.44	8.23	10.50	163.00	28.40	
		4.00	3.60	4.40	114.30	113.16	115.44	10.90	13.90	211.00	36.90	
		5.00	4.50	5.50	114.30	113.16	115.44	13.50	17.20	257.00	45.00	
		6.00	5.50	6.50	114.30	113.16	115.44	16.00	20.40	300.00	52.50	
5"	139.7	3.00	2.70	3.30	139.70	138.30	141.10	10.10	12.90	301.00	43.10	
		4.00	3.60	4.40	139.70	138.30	141.10	13.40	17.10	393.00	56.20	
		5.00	4.50	5.50	139.70	138.30	141.10	16.60	21.20	481.00	68.80	
		6.00	5.50	6.50	139.70	138.30	141.10	19.80	25.20	564.00	80.80	
6"	168.3	3.00	2.70	3.30	168.30	166.62	169.98	12.20	15.60	532.00	63.30	
		4.00	3.60	4.40	168.30	166.62	169.98	16.20	20.60	697.00	82.80	
		5.00	4.50	5.50	168.30	166.62	169.98	20.10	25.70	856.00	102.00	
		6.00	5.50	6.50	168.30	166.62	169.98	24.00	30.60	1009.00	120.00	

Dimension Tolerances

Outside Diameter	≤ 50 mm. : ± 0.5 mm. > 50 mm. : ± 1%
Thickness	≤ 5.0 mm. : ± 10% > 5.0 mm. : ± 0.5 mm.
Weight	± 6





EN 10219-1

Cold Formed Welded Structural Hollow Sections of Non-alloy and Fine Grain Steels

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)				COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength		Elongation	Material of Grade
						N/mm²(min)	N/mm²(min)		%	
							t <3 mm.	t >3 mm.		
S235jRH	0.170	-	1.400	0.045	0.045	235	360-510	340-370	24	-
S275j0H	0.200	-	1.500	0.040	0.040	275	430-580	410-560	20	-
S275j2H	0.200	-	1.500	0.035	0.035	275	430-580	410-560	20	-
S355j0H	0.220	0.550	1.600	0.040	0.040	355	510-680	490-630	20	-
S355j2H	0.220	0.550	1.600	0.035	0.035	355	510-680	490-630	20	-

NORMAL SIZE	THICKNESS MM			OUTSIDE DIAMETER MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
mm	Std.	Min	Max	Std.	Min	Max	Std.	Min	Max	-	cm²	I_x	I_y	Z_x	Z_y	r_x	r_y
												cm⁴		cm³		cm	
40 x 20	2.00	1.80	2.20	40.0	39.50	40.50	20.0	19.50	20.50	1.68	2.140	4.05	1.34	2.02	1.34	1.38	0.793
	2.50	2.25	2.75	40.0	39.50	40.50	20.0	19.50	20.50	2.03	2.590	4.69	1.54	2.35	1.54	1.35	0.770
	3.00	2.70	3.30	40.0	39.50	40.50	20.0	19.50	20.50	2.36	3.010	5.21	1.68	2.60	1.68	1.32	0.748
50 x 30	2.00	1.80	2.20	50.0	49.50	50.50	30.0	29.50	30.50	2.31	2.940	9.54	4.29	3.81	2.86	1.80	1.21
	2.50	2.25	2.75	50.0	49.50	50.50	30.0	29.50	30.50	2.82	3.590	11.30	5.05	4.52	3.37	1.77	1.19
	3.00	2.70	3.30	50.0	49.50	50.50	30.0	29.50	30.50	3.30	4.210	12.80	5.70	5.13	3.80	1.75	1.16
60 x 40	2.00	1.80	2.20	60.0	59.40	60.60	40.0	39.50	40.50	2.93	3.740	18.40	9.83	6.14	4.92	2.22	1.62
	2.50	2.25	2.75	60.0	59.40	60.60	40.0	39.50	40.50	3.60	4.590	22.10	11.70	7.36	5.87	2.19	1.60
	3.00	2.70	3.30	60.0	59.40	60.60	40.0	39.50	40.50	4.25	5.410	25.40	13.40	8.46	6.72	2.17	1.58
70 x 50	2.00	1.80	2.20	70.0	69.30	70.70	50.0	49.50	50.50	3.56	4.540	31.50	18.80	8.99	7.50	2.63	2.03
	2.50	2.25	2.75	70.0	69.30	70.70	50.0	49.50	50.50	4.39	5.590	38.00	22.60	10.90	9.04	2.61	2.01
	3.00	2.70	3.30	70.0	69.30	70.70	50.0	49.50	50.50	5.19	6.610	44.10	26.10	12.60	10.40	2.58	1.99
	4.00	3.60	4.40	70.0	69.30	70.70	50.0	49.50	50.50	6.71	8.550	54.70	32.20	15.60	12.90	2.53	1.94
80 x 40	2.00	1.80	2.20	80.0	79.20	80.80	40.0	39.50	40.50	3.56	4.540	37.40	12.70	9.34	6.36	2.87	1.67
	2.50	2.25	2.75	80.0	79.20	80.80	40.0	39.50	40.50	4.39	5.590	45.10	15.30	11.30	7.63	2.84	1.65
	3.00	2.70	3.30	80.0	79.20	80.80	40.0	39.50	40.50	5.19	6.610	52.30	17.60	13.10	8.78	2.81	1.63
	4.00	3.60	4.40	80.0	79.20	80.80	40.0	39.50	40.50	6.71	8.550	64.80	21.50	16.20	10.70	2.75	1.59
80 x 60	2.00	1.80	2.20	80.0	79.20	80.80	60.0	59.40	60.60	4.19	5.340	49.50	31.90	12.40	10.60	3.05	2.44
	2.50	2.25	2.75	80.0	79.20	80.80	60.0	59.40	60.60	5.17	6.590	60.10	38.60	15.00	12.90	3.02	2.42
	3.00	2.70	3.30	80.0	79.20	80.80	60.0	59.40	60.60	6.13	7.810	70.00	44.90	17.50	15.00	3.00	2.40
	4.00	3.60	4.40	80.0	79.20	80.80	60.0	59.40	60.60	7.97	10.100	87.90	56.10	22.00	18.70	2.94	2.35

Dimension Tolerances

Outside Diameter
≤ 50 mm. : ± 0.5 mm.
> 50 mm. : ± 1%
≥ 100 mm. : ± 0.8%

Thickness
≤ 5.0 mm. : ± 10%
> 5.0 mm. : ± 0.5 mm.

Weight
± 6%

EN 10219-1

Cold Formed Welded Structural Hollow Sections of Non-alloy and Fine Grain Steels

NORMAL SIZE	THICKNESS MM			OUTSIDE DIAMETER MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA		MODULUS OF SECTION		RADIUS OF GYRATION	
mm	Std.	Min	Max	Std.	Min	Max	Std.	Min	Max	-	cm^2	I_x	I_y	Z_x	Z_y	r_x	r_y
												cm^4		cm^3		cm	
90 x 50	2.00	1.80	2.20	90.0	89.10	90.90	50.0	49.50	50.50	4.19	5.340	57.90	23.40	12.90	9.35	3.29	2.09
	2.50	2.25	2.75	90.0	89.10	90.90	50.0	49.50	50.50	5.17	6.590	70.30	28.20	15.60	11.30	3.27	2.07
	3.00	2.70	3.30	90.0	89.10	90.90	50.0	49.50	50.50	6.13	7.810	81.90	32.70	18.20	13.10	3.24	2.05
	4.00	3.60	4.40	90.0	89.10	90.90	50.0	49.50	50.50	7.97	10.100	103.00	40.70	22.80	16.30	3.18	2.00
100 x 40	2.50	2.25	2.75	100.0	99.20	100.80	40.0	39.50	40.50	5.17	6.590	79.30	18.80	15.90	9.39	3.47	1.69
	3.00	2.70	3.30	100.0	99.20	100.80	40.0	39.50	40.50	6.13	7.810	92.30	21.70	18.50	10.80	3.44	1.67
	4.00	3.60	4.40	100.0	99.20	100.80	40.0	39.50	40.50	7.97	10.100	116.00	26.70	23.10	13.30	3.38	1.62
100 x 50	2.50	2.25	2.75	100.0	99.20	100.80	50.0	49.50	50.50	5.56	7.090	91.20	31.10	18.20	12.40	3.59	2.09
	3.00	2.70	3.30	100.0	99.20	100.80	50.0	49.50	50.50	6.60	8.410	106.00	36.10	21.30	14.40	3.56	2.07
	4.00	3.60	4.40	100.0	99.20	100.80	50.0	49.50	50.50	8.59	10.900	134.00	44.90	26.80	18.00	3.50	2.03
100 x 60	2.50	2.25	2.75	100.0	99.20	100.80	60.0	59.40	60.60	5.96	7.590	103.00	46.90	20.60	15.60	3.69	2.49
	3.00	2.70	3.30	100.0	99.20	100.80	60.0	59.40	60.60	7.07	9.010	121.00	54.60	24.10	18.20	3.66	2.46
	4.00	3.60	4.40	100.0	99.20	100.80	60.0	59.40	60.60	9.22	11.700	153.00	68.70	30.50	22.90	3.60	2.42
	5.00	4.50	5.50	100.0	99.20	100.80	60.0	59.40	60.60	11.30	14.400	181.00	80.80	36.20	26.90	3.55	2.37
	6.00	5.50	6.50	100.0	99.20	100.80	60.0	59.40	60.60	13.20	16.800	205.00	91.20	41.10	30.40	3.49	2.33
100 x 80	2.50	2.25	2.75	100.0	99.20	100.80	80.0	79.20	80.80	6.74	8.590	127.00	90.20	25.40	22.50	3.84	3.24
	3.00	2.70	3.30	100.0	99.20	100.80	80.0	79.20	80.80	8.01	10.200	149.00	106.00	29.80	26.40	3.82	3.22
	4.00	3.60	4.40	100.0	99.20	100.80	80.0	79.20	80.80	10.50	13.300	189.00	134.00	37.90	33.50	3.77	3.17
	5.00	4.50	5.50	100.0	99.20	100.80	80.0	79.20	80.80	12.80	16.400	226.00	160.00	45.20	39.90	3.72	3.12
	6.00	5.50	6.50	100.0	99.20	100.80	80.0	79.20	80.80	15.10	19.200	258.00	182.00	51.70	45.50	3.67	3.08
120 x 60	2.50	2.25	2.75	120.0	119.04	120.96	60.0	59.40	60.60	6.74	8.590	161.00	55.20	26.90	18.40	4.33	2.53
	3.00	2.70	3.30	120.0	119.04	120.96	60.0	59.40	60.60	8.01	10.200	189.00	64.40	31.50	21.50	4.30	2.51
	4.00	3.60	4.40	120.0	119.04	120.96	60.0	59.40	60.60	10.50	13.300	241.00	81.20	40.10	27.10	4.25	2.47
	5.00	4.50	5.50	120.0	119.04	120.96	60.0	59.40	60.60	12.80	16.400	287.00	96.00	47.80	32.00	4.19	2.42
	6.00	5.50	6.50	120.0	119.04	120.96	60.0	59.40	60.60	15.10	19.200	328.00	109.00	54.70	36.30	4.13	2.38
120 x 80	3.00	2.70	3.30	120.0	119.04	120.96	80.0	79.20	80.80	8.96	11.400	230.00	123.00	38.40	30.90	4.49	3.29
	4.00	3.60	4.40	120.0	119.04	120.96	80.0	79.20	80.80	11.70	14.900	295.00	157.00	49.10	39.30	4.44	3.24
	5.00	4.50	5.50	120.0	119.04	120.96	80.0	79.20	80.80	14.40	18.400	353.00	188.00	58.90	46.90	4.39	3.20
	6.00	5.50	6.50	120.0	119.04	120.96	80.0	79.20	80.80	17.00	21.600	406.00	215.00	67.70	53.80	4.33	3.15
140 x 80	4.00	3.60	4.40	140.0	138.88	141.12	80.0	79.20	80.80	13.00	16.500	430.00	180.00	61.40	45.10	5.10	3.30
	5.00	4.50	5.50	140.0	138.88	141.12	80.0	79.20	80.80	16.00	20.400	517.00	216.00	73.90	54.00	5.04	3.26
	6.00	5.50	6.50	140.0	138.88	141.12	80.0	79.20	80.80	18.90	24.000	597.00	248.00	85.30	62.00	4.98	3.21
150 x 100	4.00	3.60	4.40	150.0	148.80	151.20	100.0	99.20	100.80	14.90	18.900	595.00	319.00	79.30	63.70	5.60	4.10
	5.00	4.50	5.50	150.0	148.80	151.20	100.0	99.20	100.80	18.30	23.400	719.00	384.00	95.90	76.80	5.55	4.05
	6.00	5.50	6.50	150.0	148.80	151.20	100.0	99.20	100.80	21.70	27.600	835.00	444.00	111.00	88.00	5.50	4.01

Dimension Tolerances

Outside Diameter	≤ 50 mm. : ± 0.5 mm. > 50 mm. : ± 1% ≥ 100 mm. : ± 0.8%
Thickness	≤ 5.0 mm. : ± 10% > 5.0 mm. : ± 0.5 mm.
Weight	± 6%

EN 10219-1

Cold Formed Welded Structural Hollow Sections of Non-alloy and Fine Grain Steels

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)				COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength		Elongation	Material of Grade
						N/mm²(min)	N/mm²(min)		%	
							t <3 mm.	t >3 mm.		
S235jRH	0.170	-	1.400	0.045	0.045	235	360-510	340-370	24	-
S275j0H	0.200	-	1.500	0.040	0.040	275	430-580	410-560	20	-
S275j2H	0.200	-	1.500	0.035	0.035	275	430-580	410-560	20	-
S355j0H	0.220	0.550	1.600	0.040	0.040	355	510-680	490-630	20	-
S355j2H	0.220	0.550	1.600	0.035	0.035	355	510-680	490-630	20	-

NOMINAL SIZE	THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
mm	Std.	Min	Max	Std.	Min	Max	STD	cm^2	cm^4	cm^3	cm
20 x 20	2.00	1.80	2.20	20.00	19.50	20.50	1.05	1.34	0.692	0.692	0.720
25 x 25	2.00	1.80	2.20	25.00	24.50	25.50	1.36	1.74	1.48	1.190	0.924
30 x 30	2.00	1.80	2.20	30.00	29.50	30.50	1.68	2.14	2.72	1.81	1.13
40 x 40	2.00	1.80	2.20	40.00	39.50	40.50	2.31	2.94	6.94	3.47	1.54
	2.50	2.25	2.75	40.00	39.50	40.50	2.82	3.59	8.22	4.11	1.51
	3.00	2.70	3.30	40.00	39.50	40.50	3.30	4.21	9.32	4.66	1.49
50 x 50	2.00	1.80	2.20	50.00	49.50	50.50	2.93	3.74	14.10	5.66	1.95
	2.50	2.25	2.75	50.00	49.50	50.50	3.60	4.59	16.90	6.78	1.92
	3.00	2.70	3.30	50.00	49.50	50.50	4.25	5.14	19.50	7.79	1.90
	4.00	3.60	4.40	50.00	49.50	50.50	5.45	6.95	23.70	9.49	1.85
60 x 60	2.00	1.80	2.20	60.00	59.40	60.60	3.56	4.54	25.10	8.38	2.35
	2.50	2.25	2.75	60.00	59.40	60.60	4.39	5.59	30.30	10.10	2.33
	3.00	2.70	3.30	60.00	59.40	60.60	5.19	6.61	35.10	11.70	2.31
	4.00	3.60	4.40	60.00	59.40	60.60	6.71	8.55	43.60	14.50	2.26
	5.00	4.50	5.50	60.00	59.40	60.60	8.13	10.40	50.50	16.80	2.21
	6.00	5.50	6.50	60.00	59.40	60.60	9.45	12.00	56.10	18.70	2.16
70 x 70	2.50	2.25	2.75	70.00	69.30	70.70	5.17	6.59	49.40	14.10	2.74
	3.00	2.70	3.30	70.00	69.30	70.70	6.13	7.81	57.50	16.40	2.71
	4.00	3.60	4.40	70.00	69.30	70.70	7.97	10.10	72.10	20.60	2.67
	5.00	4.50	5.50	70.00	69.30	70.70	9.70	12.40	84.60	24.20	2.62
	6.00	5.50	6.50	70.00	69.30	70.70	11.30	14.40	95.20	27.20	2.57

Dimension Tolerances

Outside Diameter
≤ 50 mm. : ± 0.5 mm.
> 50 mm. : ± 1%
≥ 100 mm. : ± 0.8%

Thickness
≤ 5.0 mm. : ± 10%
> 5.0 mm. : ± 0.5 mm.

Weight
± 6%

EN 10219-1

Cold Formed Welded Structural Hollow Sections of Non-alloy and Fine Grain Steels

NOMINAL SIZE	THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
mm	Std.	Min	Max	Std.	Min	Max	STD	cm^2	cm^4	cm^3	cm
80 x 80	3.00	2.70	3.30	80.00	79.20	80.80	7.07	9.01	87.80	22.00	3.12
	4.00	3.60	4.40	80.00	79.20	80.80	9.22	11.70	111.00	27.80	3.07
	5.00	4.50	5.50	80.00	79.20	80.80	11.30	14.40	131.00	32.90	3.03
	6.00	5.50	6.50	80.00	79.20	80.80	13.20	16.80	149.00	37.30	2.98
90 x 90	3.00	2.70	3.30	90.00	89.10	90.90	8.01	10.20	127.00	28.30	3.53
	4.00	3.60	4.40	90.00	89.10	90.90	10.50	13.30	162.00	36.00	3.48
	5.00	4.50	5.50	90.00	89.10	90.90	12.80	16.40	193.00	42.90	3.43
	6.00	5.50	6.50	90.00	89.10	90.90	15.10	19.20	220.00	49.00	3.39
100 x 100	3.00	2.70	3.30	100.00	99.20	100.80	8.96	11.40	177.00	35.40	3.94
	4.00	3.60	4.40	100.00	99.20	100.80	11.70	14.90	226.00	45.30	3.89
	5.00	4.50	5.50	100.00	99.20	100.80	14.40	18.40	271.00	54.20	3.84
	6.00	5.50	6.50	100.00	99.20	100.80	17.00	21.60	311.00	62.30	3.79
120 x 120	3.00	2.70	3.30	120.00	119.04	120.96	10.80	13.80	312.00	52.10	4.76
	4.00	3.60	4.40	120.00	119.04	120.96	14.20	18.10	402.00	67.00	4.71
	5.00	4.50	5.50	120.00	119.04	120.96	17.50	22.40	485.00	80.90	4.66
	6.00	5.50	6.50	120.00	119.04	120.96	20.70	26.40	562.00	93.70	4.61

Dimension Tolerances

Outside Diameter	≤ 50 mm. : ± 0.5 mm. > 50 mm. : ± 1% ≥ 100 mm. : ± 0.8%
Thickness	≤ 5.0 mm. : ± 10% > 5.0 mm. : ± 0.5 mm.
Weight	± 6%

TIS 107
Chemical Composition / Mechanical Properties

TIS 107 CABON STEEL TUBES							
GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)	
TIS 107	C	Si	Mn	P	S	Yield Strength MPa	Tensile Strength MPa
STK290	---			0.050*	0.050*	-	290
STK400	0.25*	--		0.040*	0.040*	235	400
STK490	0.18*	0.55*	1.65*	0.035*	0.035*	315	490
STK500	0.24*	0.35*	0.30 ถึง 1.30	0.040*	0.040*	355	500
STK540	0.23*	0.55*	1.50*	0.040*	0.040*	390	540

* สูงสุด

หมายเหตุ 1. ชิ้นทดสอบหมายเลข 5 ใช้กับท่อเหล็กแบบกลมเส้นผ่านศูนย์กลางภายนอกมากกว่า 350 mm
2. ชิ้นทดสอบหมายเลข 12 ใช้กับท่อเหล็กแบบกลมเส้นผ่านศูนย์กลางภายนอกมากกว่า 40 mm ถึง 350 mm

Elongation %												
Grade	Thickness > 8 mm			Thickness < 8 mm								
	SL	W										
	OD											
	All	≤350	>350	Test (piece)	< 1	>1 - 2	>2 - 3	>3 - 4	>4 - 5	>5 - 6	>6 - 7	>7 - <8
	หมายเลขทดสอบ และทิศทาง											
	12	12	5									
	ตามแนวยาวท่อ	ตามแนวยาวท่อ	ตามแนวตั้งฉาก									
STK290	30	30	25	No.12	20	21	22	24	26	27	28	30
				No.5	14	16	18	19	20	22	24	25
STK400	23	23	18	No.12	12	14	16	17	18	20	22	23
				No.5	8	9	10	12	14	15	16	18
STK490	23	23	18	No.12	12	14	16	17	18	20	22	23
				No.5	8	9	10	12	14	15	16	18
STK500	15	15	10	No.12	4	6	8	9	10	12	14	15
				No.5	-	1	2	4	6	7	8	10
STK540	20	20	16	No.12	10	11	12	14	16	17	18	20
				No.5	6	7	8	10	12	13	14	16

TIS 107 Carbon Steel Square and Rectangle							
Grade	% Chemical Composition (Min)					Mechanical Properties (Min)	
TIS 107	C	Si	Mn	P	S	Yield Strength MPa	Tensile Strength MPa
STKR290	---			0.050*	0.050*	-	290
STKR400	0.25*	--		0.040*	0.040*	245	400
STKR490	0.18*	0.55*	1.50*	0.040*	0.040*	325	490

* สูงสุด

Elongation (%)								
Grade	Thickness > 8 mm	Thickness < 8 mm						
		< 1	>1 - 2	>2 - 3	>3 - 4	>4 - 5	>5 - 6	>6 - 7	>7 - <8
STK290	30	20	21	22	24	26	27	28	30
STK400	23	12	14	16	17	18	20	22	23
STK490	23	12	14	16	17	18	20	22	23

TIS 107 (JIS G3444)

Carbon Steel Rectangular for General Structure Properties

JIS

TIS.107-2561

Norminal Size		OD	Thickness	Weight	Cross Sectional Area	Geometrical Moment of Inertia	Modulus of Section	Radius of Gyration
inch	mm.	mm.	mm.	kg/m	cm^2	cm^4	cm^3	cm
1/2"	15	21.7	2.00	0.972	1.238	0.607	0.56	0.700
3/4"	20	27.2	2.00	1.24	1.583	1.26	0.93	0.890
			2.30*	1.41	1.799	1.41	1.03	0.880
1"	25	34.0	2.30	1.80	2.291	2.89	1.70	1.12
1 1/4"	32	42.7	2.30	2.29	2.919	5.97	2.80	1.43
			2.50*	2.48	3.157	6.40	3.00	1.42
1 1/2"	40	48.6	2.30	2.63	3.345	8.99	3.70	1.64
			2.50*	2.84	3.621	9.65	3.97	1.63
			2.80	3.16	4.029	10.6	4.36	1.62
			3.20	3.58	4.564	11.8	4.86	1.61
2"	50	60.5	2.30	3.30	4.205	17.8	5.90	2.06
			3.20	4.52	5.760	23.7	7.84	2.03
			4.00	5.57	7.100	28.5	9.41	2.00
2 1/2"	65	76.3	2.80	5.08	6.465	43.7	11.5	2.60
			3.20	5.77	7.349	49.2	12.9	2.59
			4.00	7.13	9.085	59.5	15.6	2.58
3"	80	89.1	2.80*	5.96	7.591	70.7	15.9	3.05
			3.20	6.78	8.636	79.8	17.9	3.04
			4.00	8.39	10.690	97.0	21.8	3.01
3 1/2"	90	101.6	3.20	7.76	9.892	120	23.6	3.48
			4.00	9.63	12.260	146	28.8	3.45
			5.00	11.90	15.170	177	34.9	3.42
4"	100	114.3	3.20	8.77	11.170	172	30.2	3.93
			3.50*	9.56	12.180	187	32.7	3.92
			4.00	10.90	13.860	211	36.9	3.90
			4.50	12.20	15.520	234	41.0	3.89
			5.60	15.00	19.120	283	49.6	3.85
5"	125	139.8	3.60	12.10	15.400	357	51.1	4.82
			4.00	13.40	17.070	394	56.3	4.80
			4.50	15.00	19.130	438	62.7	4.79
			6.00	19.80	25.220	566	80.9	4.74
6"	150	165.2	4.50	17.80	22.720	734	88.9	5.68
			5.00*	19.80	25.160	808	97.8	5.67
			6.00	23.60	30.010	952	115	5.63
			7.00	27.30	34.790	1090	132	5.60
			7.10*	27.70	35.260	1100	134	5.60

Note : * Check availability of products

Dimension Tolerances

Outside Diameter	DN < 50 mm : +0.5 mm DN ≥ 50 mm : +1%
Thickness	< 4 mm : + 0.6 mm - 0.5 mm 4 mm ≤ t ≤ 12 mm : +15% -12.5% ≥ 12 mm :+15% -1.5 mm
Weight	TIS ± 10% , JIS N/A

TIS 107 (JIS G3466)

Carbon Steel Rectangular Tubes for General Structure

JIS

TIS.107-2561

Nominal Size	Thickness	Weight	Cross Sectional Area	Geometrical Moment of Inertia		Modulus of Section		Radius of Gyration	
A x B	(t)		A	Ix	Iy	Zx	Zy	ix	iy
mm	mm	kg/m	cm^2	cm^4	cm^4	cm^3	cm^3	cm	cm
50 x 20	1.60*	1.63	2.072	6.08	1.42	2.43	1.42	1.17	0.829
	2.30*	2.25	2.872	8.00	1.83	3.20	1.83	1.67	0.798
50 x 25	2.00*	2.15	2.737	8.38	2.81	3.35	2.25	1.75	1.01
	2.30	2.44	3.102	9.31	3.10	3.72	2.48	1.73	1.00
	3.20	3.24	4.127	11.6	3.80	4.65	3.04	1.68	0.96
50 x 30	1.60*	1.88	2.392	7.96	3.60	3.18	2.40	1.82	1.23
	2.30*	2.62	3.332	10.6	4.76	4.25	3.17	1.79	1.20
60 x 30	1.60*	2.13	2.712	12.5	4.25	4.16	2.83	2.15	1.25
	2.30	2.98	3.792	16.8	5.65	5.61	3.76	2.11	1.22
	3.20	3.99	5.087	21.4	7.08	7.15	4.72	2.05	1.18
75 x 20	1.60*	2.25	2.872	17.6	2.10	4.69	2.10	2.47	0.855
	2.30*	3.16	4.022	23.7	2.73	6.31	2.73	2.43	0.824
75 x 38	2.30	3.81	4.850	34.6	12.0	9.23	6.30	2.67	1.57
	3.20	5.15	6.559	45.0	15.4	12.0	8.09	2.62	1.53
75 x 45	1.60*	2.88	3.672	28.4	12.9	7.56	5.75	2.78	1.88
	2.30	4.06	5.172	38.9	17.6	10.4	7.82	2.74	1.84
	3.20	5.50	7.007	50.8	22.8	13.5	10.1	2.69	1.80
80 x 40	1.60*	2.88	3.672	30.7	10.5	7.68	5.26	2.89	1.69
	2.30*	4.06	5.172	42.1	14.3	10.5	7.14	2.85	1.66
	3.20*	5.50	7.007	54.9	18.4	13.7	9.21	2.80	1.62
90 x 45	2.30*	4.60	5.862	61.0	20.8	13.6	9.22	3.23	1.88
	3.20*	6.25	7.967	80.2	27.0	17.8	12.00	3.17	1.84
100 x 20	1.60*	2.88	3.672	38.1	2.78	7.61	2.78	3.22	0.870
	2.30*	4.06	5.172	51.9	3.6	10.4	3.64	3.17	0.839
100 x 40	1.60*	3.38	4.312	53.5	12.9	10.7	6.44	3.52	1.73
	2.30*	4.78	6.092	73.9	17.5	14.8	8.77	3.48	1.70
	4.20*	8.32	10.6	120.0	27.6	24.0	13.8	3.36	1.61
100 x 50	1.60*	3.64	4.632	61.3	21.1	12.3	8.43	3.64	2.13
	2.30	5.14	6.552	84.8	29.0	17.0	11.6	3.6	2.1
	3.20	7.01	8.927	112	38.0	22.5	15.2	3.55	2.06
	4.50	9.55	12.17	147	48.9	29.3	19.5	3.47	2.00
125 x 40	1.60*	4.01	5.112	94.4	15.8	15.1	7.91	4.30	1.76
	2.30*	5.69	7.242	131	21.6	20.9	10.8	4.25	1.73
125 x 50	2.30*	6.05	7.702	148	35.5	23.7	14.2	4.39	2.15
	2.50*	6.55	8.339	160	38.1	25.5	15.2	4.37	2.14
	2.80*	7.29	9.285	176	41.9	28.2	16.8	4.36	2.12
125 x 75	2.30	6.95	8.852	192	87.5	30.6	23.3	4.65	3.14
	3.20	9.52	12.13	257	117.0	41.1	31.1	4.60	3.10
	4.00	11.70	14.95	311	141.0	49.7	37.5	4.56	3.07
	4.50	13.10	16.67	342	155.0	54.8	41.2	4.53	3.04
	6.00	17.00	21.63	428	192.0	68.5	51.1	4.45	2.98
150 x 50	2.30	6.95	8.85	236	42.0	31.4	16.8	5.16	2.18
	3.20	9.52	12.10	316	55.5	42.1	22.2	5.10	2.14
	4.50	13.10	16.70	420	72.2	56.0	28.9	5.02	2.08

Note : * Check availability of products

Dimension Tolerances

Length of Side	A,B ≤ 100 mm : ± 1.5 mm A,B > 100 mm ± 1.5%
Thickness	< 3mm : ± 0.3 mm ≥ 3 mm : ± 10%
Weight	TIS ± 10% , JIS N/A

TIS 107 (JIS G3466)

Carbon Steel Rectangular Tubes for General Structure

JIS

TIS.107-2561

Nominal Size	Thickness	Weight	Cross Sectional Area	Geometrical Moment of Inertia		Modulus of Section		Radius of Gyration	
A x B	(t)		A	Ix	Iy	Zx	Zy	ix	iy
mm	mm	kg/m	cm^2	cm^4	cm^4	cm^3	cm^3	cm	cm
150 x 75	3.20	10.80	13.73	402	137	53.6	36.6	5.41	3.16
	4.50	14.90	18.92	539	183	71.9	48.7	5.34	3.11
150 x 80	4.50*	15.20	19.37	563	211	75.0	52.9	5.39	3.30
	5.00*	16.80	21.36	614	230	81.9	57.5	5.36	3.28
	6.00*	19.80	25.23	710	264	94.7	66.1	5.31	3.24
150 x 100	3.20	12.00	15.33	488	262	65.1	52.5	5.64	4.14
	4.50	16.60	21.17	658	352	87.7	70.4	5.58	4.08
	6.00	21.70	27.63	835	444	111	88.8	5.50	4.01
	9.00*	31.10	39.67	1,130	595	151	119	5.33	3.87
200 x 50	2.80	10.60	13.48	595	65	59.5	26.1	6.64	2.20
	3.20	12.00	15.33	671	73	67.1	29.2	6.62	2.18
200 x 100	3.20	14.50	18.53	981	337	98.1	67.5	7.28	4.27
	4.50	20.10	25.67	1,330	455	133	90.9	7.20	4.21
	6.00	26.40	33.63	1,700	577	170	115	7.12	4.14
	9.00*	38.20	48.67	2,350	782	235	156	6.94	4.01

Note : * Check availability of products

Dimension Tolerances

Length of Side	A,B ≤ 100 mm : ± 1.5 mm A,B > 100 mm ± 1.5%
Thickness	< 3mm : ± 0.3 mm ≥ 3 mm : ± 10%
Weight	TIS ± 10% , JIS N/A



TIS 107 (JIS G3466)

Carbon Steel Rectangular Tubes for General Structure

JIS

TIS.107-2561

Norminal Size	Thickness (t)	Weight	Cross Sectional Area A	Geometrical Moment of Inertia Ix , Iy	Modulus of Section Zx , Zy	Radius of Gyration Ix , Iy
mm	mm	kg/m	cm^2	cm^4	cm^3	cm
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	2.0*	2.04	2.896	3.71	2.32	1.20
	2.3*	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
40 x 40	1.6*	1.88	2.392	5.79	2.90	1.56
	2.3*	2.62	3.332	7.73	3.86	1.52
50 x 50	1.6*	2.38	3.032	11.7	4.68	1.96
	2.3	3.34	4.252	15.9	6.34	1.93
	3.2	4.50	5.727	20.4	8.16	1.89
	4.5	6.02	7.669	25.5	10.20	1.82
	6.0	7.56	9.633	29.5	11.78	1.75
60 x 60	1.6*	2.88	3.672	20.7	6.89	2.37
	2.3	4.06	5.172	28.3	9.44	2.34
	3.2	5.50	7.007	36.9	12.30	2.30
75 x 75	1.6*	3.64	4.632	41.3	11.00	2.99
	2.3*	5.14	6.552	57.1	15.20	2.95
	3.2	7.01	8.927	75.5	20.10	2.91
	4.5	9.55	12.17	98.6	26.30	2.85
80 x 80	2.3*	5.50	7.012	69.9	17.50	3.16
	3.2*	7.51	9.567	92.7	23.20	3.11
	4.5*	10.3	13.07	122	30.40	3.05
90 x 90	2.3*	6.23	7.932	101	22.40	3.56
	3.2*	8.51	10.85	135	29.90	3.52
100 x 100	2.3	6.95	8.852	140	27.90	3.97
	3.2	9.52	12.13	187	37.50	3.93
	4.0	11.70	14.95	226	45.30	3.89
	4.5	13.10	16.67	249	49.90	3.87
	6.0	17.00	21.63	311	62.30	3.79
	9.0	24.10	30.67	408	81.60	3.65
	12.0*	30.20	38.53	471	94.30	3.50
125 x 125	2.3	8.75	11.15	278	44.50	4.99
	3.2	12.00	15.33	376	60.10	4.95
	4.5	16.60	21.17	506	80.90	4.89
	5.0*	18.30	23.36	553	88.40	4.86
	6.0	21.70	27.63	641	103.00	4.82
	9.0*	31.10	39.67	865	138.00	4.67
	12.0*	39.70	50.53	1,030	165.00	4.52
150 x 150	3.2	14.54	18.53	661	88.10	5.97
	4.5	20.10	25.67	896	120.00	5.91
	5.0*	22.30	28.36	982	131.00	5.89
	6.0	26.40	33.63	1,150	153.00	5.84
	9.0*	38.20	48.67	1,580	210.00	5.69

Note : * Check availability of products

Dimension Tolerances

Length of Side	A,B ≤ 100 mm : ± 1.5 mm A,B > 100 mm ± 1.5%
Thickness	< 3mm : ± 0.3 mm ≥ 3 mm : ± 10%
Weight	TIS ± 10% , JIS N/A

Tubes for Scaffolds

BS EN 39 : 2001

Loose steel tubes for scaffolds

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)			COLOR CODE
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength MPa (min)	Tensile Strength MPa (min)	Elongation %	Material of Grade
S235GT	0.200	0.050	1.400	0.040	0.045	235	340-520	24	1.0106

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	cm^2	cm^4	cm^3	cm
1-1/2"	48.3	3.20	2.88	3.52	48.30	47.80	48.80	3.560	4.640	11.590	4.80	1.580
		4.00	3.60	4.40	48.30	47.80	48.80	4.370	5.680	13.773	5.70	1.557

Dimension Tolerances

Outside Diameter	± 0.5 mm.
Thickness	± 10%
Weight	-7.5%



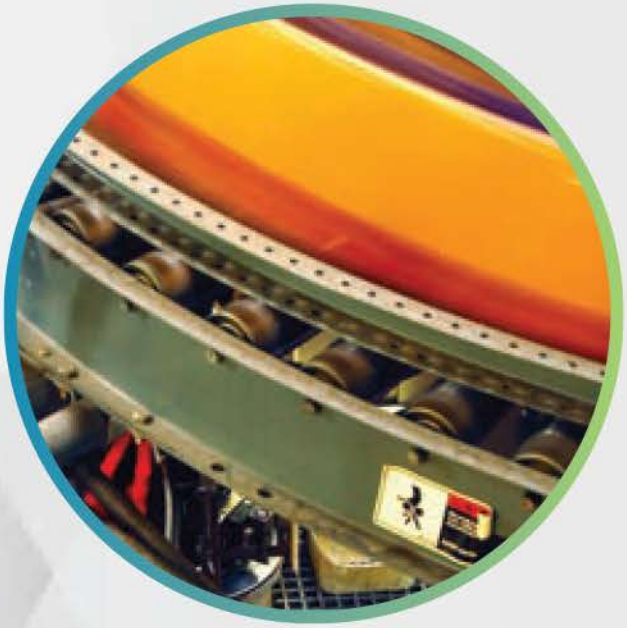
Steel Tube for Conveyor Roller

MATERIAL OF GRADE	(%) CHEMICAL COMPOSITION (Max)					MECHANICAL PROPERTIES (Min)		
	C Max	Si Max	Mn Max	P Max	S Max	Yield Strength	Tensile Strength	Elongation
						N/mm²(min)	N/mm²(min)	% (min)
SS400	0.250	-	-	0.040	0.040	245	400	23
C250, C250L0	0.120	0.050	0.500	0.030	0.030	250	320	18

NOMINAL SIZE		THICKNESS MM			OUTSIDE DIAMETER MM			WEIGHT (PLAIN END) KG/M	CROSS SECTIONAL AREA	GEOMETRICAL MOMENT OF INERTIA	MODULUS OF SECTION	RADIUS OF GYRATION
in	mm	Std.	Min	Max	Std.	Min	Max	STD	cm^2	cm^4	cm^3	cm
2"	60	3.00	2.90	3.10	60	59.70	60.30	4.36	5.55	43.73	7.29	2.03
	60	3.50	3.40	3.60	60	59.70	60.30	5.01	6.38	49.74	8.29	2.00
2-1/2"	76	3.00	2.90	3.10	76	75.70	76.30	5.56	7.08	91.77	12.07	2.54
3"	89	3.00	2.90	3.10	89	88.70	89.30	6.48	8.25	149.97	16.85	3.04
	89	3.50	3.40	3.60	89	88.70	89.30	7.49	9.54	172.01	19.33	3.03
	89	4.50	4.30	4.70	89	88.70	89.30	9.57	12.20	213.74	24.02	2.99
3-1/2"	102	3.00	2.90	3.10	102	101.70	102.30	7.42	9.45	228.72	22.42	3.47
3-3/4"	108	3.50	3.40	3.60	108	107.70	108.30	9.20	11.72	313.89	29.06	3.65
4"	114	3.50	3.40	3.60	114	113.70	114.30	9.73	12.39	371.07	32.55	3.86
	114	4.50	4.30	4.70	114	113.70	114.30	12.40	15.80	464.58	40.75	3.83
4-1/2"	127	3.50	3.40	3.60	127	126.70	127.30	11.11	14.15	517.95	40.78	4.37
	127	4.00	3.80	4.20	127	126.70	127.30	12.29	15.65	584.93	46.06	4.35
4-3/4"	133	4.00	3.80	4.20	133	132.70	133.30	13.20	16.48	674.71	50.73	4.52
5"	140	4.00	3.80	4.20	140	139.40	140.60	13.63	17.36	790.54	56.47	4.77
	140	5.10	4.90	5.30	140	139.40	140.60	17.34	22.08	984.23	70.30	4.72
5-1/2"	152	4.00	3.80	4.20	152	151.40	152.60	14.75	18.78	1018.67	67.02	5.23
	152	4.50	4.30	4.70	152	151.40	152.60	17.34	22.09	1134.65	74.65	5.22
	152	6.00	5.80	6.20	152	151.40	152.60	22.68	28.89	1468.29	96.60	5.17
5-7/8"	159	4.50	4.30	4.70	159	158.40	159.60	17.45	22.23	1303.87	82.00	5.41
	159	4.90	4.70	5.10	159	158.40	159.60	19.00	24.21	1409.01	88.62	5.39
	159	6.00	5.80	6.20	159	158.40	159.60	23.17	29.52	1689.52	106.26	5.34
6"	165	4.60	4.40	4.80	165	164.40	165.60	18.38	23.41	1491.41	90.39	5.64
	165	4.70	4.50	4.90	165	164.40	165.60	18.78	23.92	1521.04	92.18	5.63

Dimension Tolerances

Outside Diameter	< 140 mm. : ± 0.3 mm. ≥ 140 mm. : ± 0.6 mm.
Thickness	< 4.0 mm. : ± 0.1 mm. ≥ 4.0 mm. : ± 0.2 mm.
Straightness	0.66 / 1000 mm Max.
Internal Weld Bead	Removed, tolerance: + 0.1 / -0.2 m





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