



BUSINESS PROFILE



Products Supplied for Petronas Twin Towers Project



SQUARE HOLLOW SECTIONS



GALVANISED PIPES

MIG-MELEWAR



BLACK WELDED PIPES



**RECTANGULAR HOLLOW
SECTIONS**



Products Supplied for Kuala Lumpur International Airport Project



ROUND PIPES



ROUND PIPES



ROUND PIPES



**SQUARE HOLLOW
SECTIONS**



**SQUARE HOLLOW
SECTIONS**



**RECTANGULAR HOLLOW
SECTIONS**

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A Word About Steel Pipe

Pipes have played an important role in the advancement of civilization. It is recorded in history that clay pipes were first used in Babylon over 5,000 year ago. Copper tubes and lead pipes came after the clay pipes because these materials were comparatively easy to form into pipes. Following the invention of electrically welded steel pipes, thanks to modern science and technology, strong and durable welded steel pipes for a multitude of uses are available today. Besides its original function in the conveying of liquid and gas, pipes are also used as structural members in buildings, furniture, fence posts, lamp post, machinery and a host of other uses, all serving important phases of our daily lives.

Company Profile

The year 1969 heralded the establishment of a Malaysian-Japanese joint venture into the steel pipe manufacturing industry with the establishment of Aurora Steel Tube Manufacturing Sdn Bhd. The Company went into production with one production line in January 1970 at its factory in Jalan Gudang, Shah Alam.

To mark the participation of Maruichi Steel Tube Ltd, Osaka, Japan in 1972, a new was adopted for the company - Maruichi Malaysia Steel Tube Sdn Bhd.

Within a matter of 2 years the company expanded its operations; a second factory equipped with additional production lines and hot dip galvanizing facilities went into operation on a 7 acre site in Jalan Utas, Shah Alam in 1974.

In 1975 the company was converted into a public company.

The Year 1982 saw the opening of the company's No.3 factory at Persiaran Selangor, Shah Alam and the commencement of operation of the company's 100% owned subsidiary, Tokyo Steel Wire Sdn Bhd, also in Shah Alam.

Maruichi Malaysia Steel Tube Bhd was listed on the Kuala Lumpur Stock Exchange in 1986. Our Corporate headquarters and the latest No.5 factory was built at Persiaran Selangor in 1990. That same year also marked the commencement of operations of our wholly owned subsidiary, Cold Rolling Industry (Malaysia) Sdn Bhd, the first Cold Rolled Coil manufacturer in Malaysia.

Following a change in ownership, the company was renamed as Melewar Industrial Group Berhad (MIG) in November 2003. Product brand was also changed to MIG – MELEWAR.

Presently Melewar Steel Tube Sdn. Bhd. has an installed capacity of more than 22,000m/tonnes per month with the ability to manufacture pipes from 10mm to 400mm O.D. MIG's products are widely used in the construction, furniture, automotive, bicycle and engineering industries. Today, after more than three decades of experience in the steel pipe industry, the brand MIG-MELEWAR spells quality, having made its name in the steel industry where its products are highly acclaimed by both local as well as international users.

Factory 1



Factory 2



Factory 3



Factory 4



Main Products

CLASSIFICATION	SPECIFICATIONS	USES
Black and Carbon Steel Pipe, Square and Rectangular Hollow Section	BS EN 10255 / BS 1387 JIS G 3466 JIS G 3444 JIS G 3445 JIS G 3472 JIS G 3452 ASTM A 53 ASTM A 500 BS EN 10219 MANUFACTURER'S STANDARD	For bicycle, vehicles, agricultural implements, civil engineering, steel towers, furniture, mining industries, etc
Gas and Water Pipe	BS EN 10255 / BS 1387 MS 863 MS 1968 BS EN 10224 JIS G 3452 ASTM A 53 BS EN 10219 MANUFACTURER'S STANDARD	For carrying gas, water, steam, oil, air, etc
Galvanised Steel Conduit	BS 31 BS 4568 / MS 275 MANUFACTURER'S STANDARD	For electrical wiring
Light Gauge Steel Plain and Lipped Channel	JIS G 3350 MANUFACTURER'S STANDARD	For civil engineering, transportation & electrical communication equipment, machinery etc.
Hot Rolled Steel Plate and Sheet Cold Rolled Steel Sheet	JIS G 3141 SPCC JIS G 3101 SS400 JIS G 3131 JIS G 3132 SPHT BS EN 10025 S275 JR BS EN 10025 S355 JR MANUFACTURER'S STANDARD	For furniture constructions, engineering, electrical appliances, etc

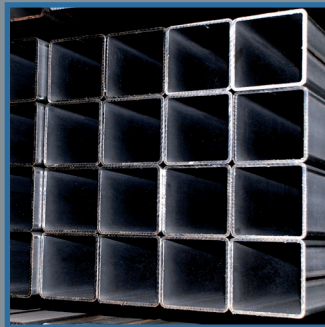
Quality Products



Black Welded Steel Pipes



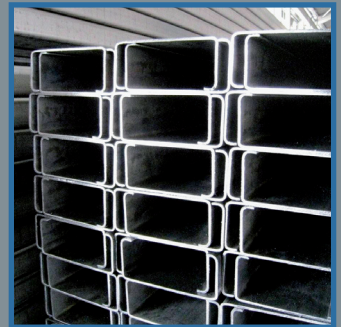
Electrical Steel Conduit



Square Pipes



Hot-Dipped Galv Pipes



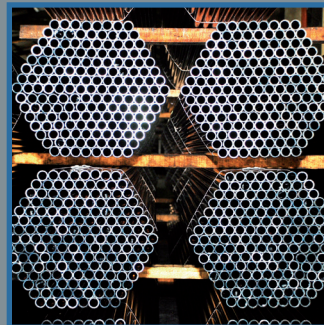
Lipped Channels



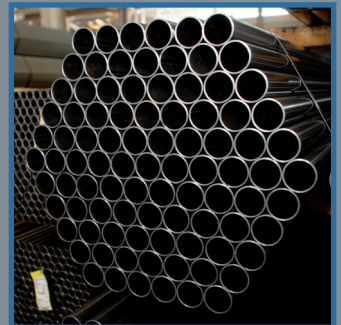
Slit Coils



Rectangular Pipes



Furniture Tubes



Mechanical Tubes

Quality Recognition

QUALITY MANAGEMENT SYSTEM (QMS)

Melewar Steel Tube Sdn.Bhd strives to improve its operations and has always endeavoured to meet its customer's expectation. In 1997 MST achieved its ISO 9001 certification. Over the years, the effectiveness of the quality management system itself has been improved in order to adapt to the latest global challengers. In 2010, MST upgraded its Quality Management System to ISO 9001:2008 and this was accredited by SIRIM with IQNet certification.



PRODUCT CERTIFICATION

Our quality products meet with the requirements of many international standards. Among them are as follows:



British Standard
 • BS 1387:1985 for Welded Steel Pipes (black & Galvanised)



British Standard
 • BS 31:1940 for Steel Conduits for Electrical Wiring



British Standard
 • BS 4568 Part 1: 1970 for Steel Conduits with Metric Threads of ISO Form for Electrical Installation



Japanese Standard
 • JIS G3350:1987 for Light Gauge Steel For General Structural Class SSC 400



Japanese Standard
 • JIS G3452:2010 for Carbon Steel Pipes for Ordinary Piping (Black & Galvanised)



Japanese Standard
 • JIS G3445:1988 for Carbon Steel Tube for Machine Structural Purposes Grade STKM 11A



American Standard
 • ASTM A500-01A for Cold Formed Welded Carbon Steel Structural Tubing



American Standard
 • ASTM A252-98:2007 for Welded Steel Pipe Piles

To meet local demands, many of our quality products are certified under Malaysian Standards as follows:



Malaysia Standard
 • MS 863: 1983 for Welded Steel Pipes (black & Galvanised)



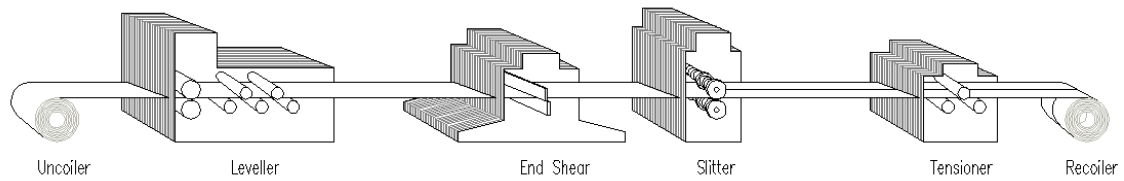
Malaysia Standard
 • MS 1968: 2007 for Non-Alloy Steel Tubes



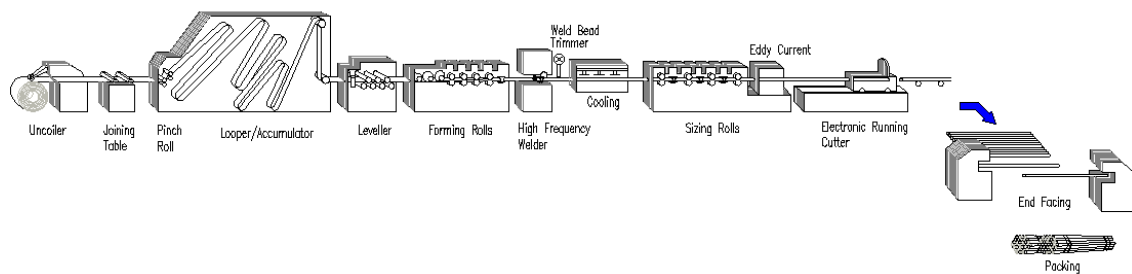
EC Factory Production Control Certificate
 • EN 10219-1:2006 for Cold Formed Welded Structural Hollow Section of Non-Alloy Steels.

Mill Processing Flow

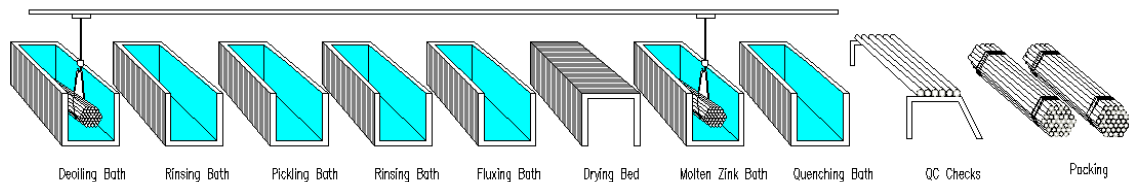
STAGE 1 : SLITTING LINE



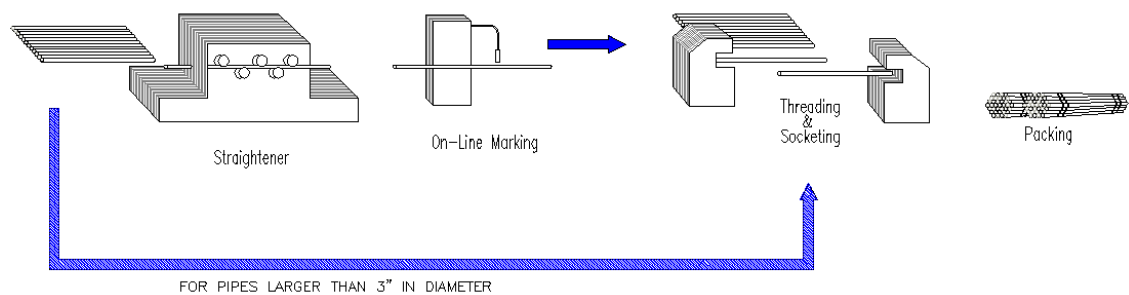
STAGE 2 : PIPE MILL



STAGE 3 : GALVANISING PLANT



STAGE 4 : STRAIGHTENING, THREADING & SOCKETING



Product Specification Table

Specifications	Shapes	Grades	Chemical Composition% (Max)					Mechanical Properties (Min)		
			C	Si	Mn	P	S	Yield (MPa)	Tensile (MPa)	Elongation %
BS EN 10255	Round	L1,L2,M,H	0.20	-	1.40	0.035	0.030	195	320 - 520	20
MS 863	Round	L1,L2,M,H	0.20	-	1.40	0.035	0.030	195	320 - 520	20
BS 1387	Round	L,M,H	0.20	-	1.20	0.045	0.045	195	320 - 460	20
JIS G 3452	Round	-	-	-	-	0.040	0.040	-	290	30
BS 1139	Round	-	0.20	0.30	-	0.050	0.050	235	340 - 480	24
BS 534	Round	430	0.21	0.35	0.40 - 1.20	0.040	0.040	275	430 - 570	22
BS EN 10224/ MS 1968	Round	L 235	0.16	0.35	1.20	0.030	0.025	235	360 - 500	25L , 23T
		L 275	0.20	0.40	1.40	0.030	0.025	275	430 - 570	21L , 19T
		L 355	0.22	0.55	1.60	0.030	0.025	355	500 - 650	21L , 19T
BS 31 (Conduit : Imperial)	Round	-	-	-	-	-	-	-	278 - 371	15
BS 4568 (Conduit : Metric)	Round	-	-	-	-	-	-	-	-	-
ASTM A - 500	Round	A	0.30	-	-	0.045	0.045	228	310	25
		B	0.30	-	-	0.045	0.045	290	400	23
		C	0.27	-	1.35	0.035	0.035	317	427	21
		D	0.30	-	-	0.045	0.045	250	400	23
	Square, Rectangular	A	0.30	-	-	0.045	0.045	269	310	25
		B	0.30	-	-	0.045	0.045	317	400	23
		C	0.27	-	1.35	0.035	0.035	345	427	21
		D	0.30	-	-	0.045	0.045	250	400	23
BS EN 10219	Round,	S235	0.17	-	1.40	0.045	0.045	235	360-510(-),340-470(+)	24
	Square,	S275	0.20	-	1.50	0.040	0.040	275	430-580(-),410-560(+)	20
	Rectangular	S355	0.22	0.55	1.62	0.040	0.040	355	430-580(-),410-560(+)	20
AS 1163	*Round,	250	0.12	0.05	0.50	0.040	0.030	250	320	*22 , 18
	Square,	350	0.20	0.25	1.60	0.040	0.300	350	430	*20 , 16
	Rectangular	450	0.20	0.45	1.60	0.040	0.300	450	500	*16 , 14
JIS G 3466	Square,	STKR 400	0.25	-	-	0.040	0.040	245	400	23
	Rectangular	STKR 490	0.18	0.55	1.50	0.040	0.040	325	490	23
JIS G 3444	Round	STK 290	-	-	-	0.050	0.050	-	290	30L , 25T
		STK 400	0.25	-	-	0.040	0.040	235	400	23L , 18T
		STK 490	0.18	0.55	1.50	0.040	0.040	315	490	23L , 18T
		STK 500	0.24	0.35	0.30 - 1.30	0.040	0.040	355	500	15L , 10T
JIS G 3445	Round	STKM 11A	0.12	0.35	0.60	0.040	0.040	-	290	30
JIS G 3472	Round	STAM290GA	0.12	0.35	0.60	0.035	0.035	175	290	40
		STAM290GB								35
JIS G 3350	Channel	SSC 400	0.25	-	-	0.050	0.050	245	400 - 540	21

Remarks: L = longitudinal direction, T = Transverse direction , (-) = $t < 3\text{mm}$, (+) = $3\text{mm} \leq t \leq 40\text{mm}$

Technical Details Of BS EN 10255 : 2004 (supersedes BS 1387 : 1985)

TYPE L2 (LIGHT SERIES), MEDIUM SERIES, HEAVY SERIES & TYPE L1

Our Black and Galvanised pipes are produced to MS 863 : 2010 / BS EN 10255 : 2004 / BS 1387 : 1985 / MANUFACTURER'S STANDARD on our precision electric-resistance-weld tube mills, by using prime quality steel.

GENERAL INFORMATION ON BS EN 10255 : 2004 [SUPERSEDES BS 1387 : 1985] WELDED STEEL TUBE

DESCRIPTIONS MIG - MELEWAR BS EN 10255 : 2004 (BS 1387 :1985) welded steel tube is produced in three series : Type L2 (Light Series), Medium, Heavy & Type L1. The tubes are available in black finished or hot-dipped galvanised finished in 6 meter or 6.4 meter uniform standard lengths.

APPLICATIONS For ordinary conveyance of steam, gas, air, water, etc.

END FINISH AND PROTECTION Plain-end square-cut (PE) or Threaded and socketed (T/C). PE tubes are chipped without any protection on both ends. T/C tubes are supplied screwed with taper threads to BS EN 10226 - 1 (BS 21) and fitted with one parallel-threaded malleable iron socket, as required under this specification.

IDENTIFICATION MARKING Tubes are marked by colour bands about 50mm wide, about 300mm from each end, as follow:
 TYPE L2 (LIGHT) - BROWN MEDIUM - BLUE
 HEAVY - RED TYPE L1 - WHITE

PERTINENT EXCERPTS FROM BS EN 10255 : 2004 (supersedes BS 1387 : 1985) SPECIFICATION

CHEMICAL COMPOSITION The chemical composition of the steel, by cast analysis, shall comply with the below:
 Carbon, C 0.20% max
 Manganese, Mn 1.40% max
 Phosphorus, P 0.035% max
 Sulphur, S 0.030% max

MECHANICAL PROPERTIES The mechanical properties at room temperature shall be as given below:
 Yield Strength (MPa) : 195 min
 Tensile Strength (MPa) : 320 to 520
 Elongation on gauge length $L_0 = 5.65 \sqrt{S_0}$ (%) : 20% min

TOLERANCES ON DIMENSION AND MASS
 Outside Diameter : As shown in Table on page
 Wall thickness : Type L2 (Light tubes) - 8%
 : Medium and Heavy tubes $\pm 10\%$
 : Type L1 - 8%
 Mass : + 10% or - 8% on individual tubes for Type L1 & L2
 : $\pm 7.5\%$ on bundles of 10 tons or more, for Medium and Heavy tubes

BEND TEST The bend test shall applied to bare tubes with specified outside diameter (D) of 17.2mm up to and including 60.3mm and shall be carried out in accordance with EN 10232 to an angle of 90 the groove in the forming tool shall have a width that fits the tube diameter accurately and a depth not less than 0.5 D. The radius at the bottom of the groove of the former shall be as given in Table below:

FLATTENING TEST The flattening test shall applied to bare tubes with specified outside diameter (D) greater than 60.3mm and shall be carried out in accordance with EN 10233. Welded tubes shall be flattened with the weld placed alternately at 0 or 90 (12 or 3 o'clock) to the direction of the flattening.

The tube shall be flattened in a press until the distance between platens, measured under load, reaches 75% of the original outside diameter of the tube. The tube shall show no cracks or flaws visible without magnifying aids. No cracks or flaws visible without magnifying aids shall occur in the metal other than in the weld until the distance between platens, measured under load, reaches 60% of the original outside diameter.

LEAK TIGHTNESS TEST At the discretion of the manufacturer, the test can be either a hydrostatic test at a minimum of 50 bar for at least 5 s, or an automatic electromagnetic testing.

(* Special tubes sizes not stipulated in the BS specification may be made available upon request. Please feel free to enquire)

Welded Steel Pipes : Type L2 (Light Series)

MS 863 : 2010 / BS EN 10255 : 2004 / BS 1387 : 1985 (A) / MANUFACTURER'S STANDARD

NOMINAL DIAMETER DN	SPECIFIED OUTSIDE DIAMETER D mm	THREAD SIZE R	OUTSIDE DIAMETER		WALL THICKNESS T mm	CALCULATED MASS		NUMBER OF THREADS PER INCH	SOCKET LENGTH	TEST PRESSURE
						PLAIN END	THREADED & SOCKETED			
			max mm	min mm		kg/m	kg/m		min mm	BAR
15	21.3	½	21.4	21.0	2.0	0.95	0.96	14	34.0	50
20	26.9	¾	26.9	26.4	2.3	1.38	1.39	14	37.0	50
25	33.7	1	33.8	33.2	2.6	1.98	2.00	11	43.0	50
32	42.4	1 ¼	42.5	41.9	2.6	2.54	2.57	11	48.0	50
40	48.3	1 ½	48.4	47.8	2.9	3.23	3.27	11	52.5	50
50	60.3	2	60.2	59.6	2.9	4.08	4.15	11	62.5	50
65	76.1	2 ½	76.0	75.2	3.2	5.71	5.83	11	71.5	50
80	88.9	3	88.7	87.9	3.2	6.72	6.89	11	77.0	50
100	114.3	4	113.9	113.0	3.6	9.75	10.00	11	91.0	50

Welded Steel Pipes : Medium Series (M)

MS 863 : 2010 / BS EN 10255 : 2004 / BS 1387 : 1985 (B) / MANUFACTURER'S STANDARD

NOMINAL DIAMETER DN	SPECIFIED OUTSIDE DIAMETER D mm	THREAD SIZE R	OUTSIDE DIAMETER		WALL THICKNESS T mm	CALCULATED MASS		NUMBER OF THREADS PER INCH	SOCKET LENGTH	TEST PRESSURE
						PLAIN END	THREADED & SOCKETED			
			max mm	min mm		kg/m	kg/m		min mm	BAR
15	21.3	½	21.8	21.0	2.6	1.21	1.22	14	34.0	50
20	26.9	¾	27.3	26.5	2.6	1.56	1.57	14	37.0	50
25	33.7	1	34.2	33.3	3.2	2.41	2.43	11	43.0	50
32	42.4	1 ¼	42.9	42.0	3.2	3.10	3.13	11	48.0	50
40	48.3	1 ½	48.8	47.9	3.2	3.56	3.60	11	52.5	50
50	60.3	2	60.8	59.7	3.6	5.03	5.10	11	62.5	50
65	76.1	2 ½	76.6	75.3	3.6	6.42	6.54	11	71.5	50
80	88.9	3	89.5	88.0	4.0	8.36	8.53	11	77.0	50
100	114.3	4	115.0	113.1	4.5	12.20	12.50	11	91.0	50
125	139.7	5	140.8	138.5	5.0	16.60	17.10	11	105.5	50
150	165.1	6	166.5	163.9	5.0	19.80	20.40	11	116.5	50

Welded Steel Pipes : Heavy Series (H)

MS 863 : 2010 / BS EN 10255 : 2004 / BS 1387 : 1985 (C) / MANUFACTURER'S STANDARD

NOMINAL DIAMETER DN	SPECIFIED OUTSIDE DIAMETER D mm	THREAD SIZE R	OUTSIDE DIAMETER		WALL THICKNESS T mm	CALCULATED MASS		NUMBER OF THREADS PER INCH	SOCKET LENGTH	TEST PRESSURE
						PLAIN END	THREADED & SOCKETED			
			max mm	min mm		kg/m	kg/m		min mm	BAR
15	21.3	½	21.8	21.0	3.2	1.44	1.45	14	34.0	50
20	26.9	¾	27.3	26.5	3.2	1.87	1.88	14	37.0	50
25	33.7	1	34.2	33.3	4.0	2.93	2.95	11	43.0	50
32	42.4	1 ¼	42.9	42.0	4.0	3.79	3.82	11	48.0	50
40	48.3	1 ½	48.8	47.9	4.0	4.37	4.41	11	52.5	50
50	60.3	2	60.8	59.7	4.5	6.19	6.26	11	62.5	50
65	76.1	2 ½	76.6	75.3	4.5	7.93	8.05	11	71.5	50
80	88.9	3	89.5	88.0	5.0	10.30	10.50	11	77.0	50
100	114.3	4	115.0	113.1	5.4	14.50	14.80	11	91.0	50
125	139.7	5	140.8	138.5	5.4	17.90	18.40	11	105.5	50
150	165.1	6	166.5	163.9	5.4	21.30	21.90	11	116.5	50

Welded Steel Pipes : Type L1

MS 863 : 2010 / BS EN 10255 : 2004 - Type of tubes with wall thickness different from Type L2, Medium and Heavy Series.

NOMINAL DIAMETER DN	SPECIFIED OUTSIDE DIAMETER D mm	THREAD SIZE R	OUTSIDE DIAMETER		WALL THICKNESS T mm	CALCULATED MASS		NUMBER OF THREADS PER INCH	SOCKET LENGTH	TEST PRESSURE
						PLAIN END	THREADED & SOCKETED			
			max mm	min mm		kg/m	kg/m		min mm	BAR
15	21.3	½	21.7	21.0	2.3	1.08	1.09	14	34.0	50
20	26.9	¾	27.1	26.4	2.3	1.39	1.40	14	37.0	50
25	33.7	1	34.0	33.2	2.9	2.20	2.22	11	43.0	50
32	42.4	1 ¼	42.7	41.9	2.9	2.82	2.85	11	48.0	50
40	48.3	1 ½	48.6	47.8	2.9	3.24	3.28	11	52.5	50
50	60.3	2	60.7	59.6	3.2	4.49	4.56	11	62.5	50
65	76.1	2 ½	76.3	75.2	3.2	5.73	5.85	11	71.5	50
80	88.9	3	89.4	87.9	3.6	7.55	7.72	11	77.0	50
100	114.3	4	114.9	113.0	4.0	10.80	11.10	11	91.0	50

Welded Steel Pipes For General Purposes

Class AA - Manufacturer's Standard

Nominal Size		Nominal Wall Thickness*	Outside Diameter		Calculated Weight Plain Ends
			max	min	
mm	in	mm	mm	mm	kg/m
15	½	1.5	21.4	21.0	0.74
20	¾	1.5	26.9	26.4	0.94
25	1	1.5	33.8	33.2	1.19
32	1 ¼	1.5	42.5	41.9	1.52
40	1 ½	1.5	48.4	47.8	1.73
50	2	1.5	60.2	59.6	2.17
65	2 ½	1.5	76.0	75.2	2.76
80	3	1.9	88.7	87.9	4.07
90	3 ½	1.9	102.0	101.1	4.69
100	4	1.9	113.9	113.0	5.25
125	5	4.0	140.6	138.7	13.47
150	6	4.0	166.1	164.1	15.99

Manufacturer's Standard

Nominal Size		Nominal Wall Thickness*	Outside Diameter		Calculate Weight Plain Ends
			max	min	
mm	in	mm	mm	mm	kg/m
125	5	3.0	140.6	138.7	10.18
150	6	3.0	166.1	164.1	12.07
175	7	4.5	192.3	189.1	20.84
200	8	4.5	218.0	214.6	23.50
250	10	4.5	269.5	265.3	29.17
		6.0	269.5	265.3	38.68

Note:

* Thickness tolerances: ± 12.5%

Carbon Steel Pipes For Ordinary Piping

JIS G 3452 /MANUFACTURER'S STANDARD

Nominal Size		Outside Diameter		Wall Thickness		Weight (Plain Ends)					Test Pressure	
mm	in	mm	in	mm	in	kg/m	kg/6m	kg/ft	lb/ft	lb/20ft	kg/cm²	psi
100	4	114.3	4.500	4.5	0.177	12.20	73.20	3.72	8.20	164	25	360
125	5	139.8	5.504	4.5	0.177	15.00	90.00	4.57	10.10	202	25	360
150	6	165.2	6.504	5.0	0.197	19.80	118.80	6.04	13.30	266	25	360
175	7	190.7	7.508	5.3	0.209	24.20	145.20	7.38	16.30	326	25	360
200	8	216.3	8.516	5.8	0.228	30.10	180.60	9.17	20.20	404	25	360
225	9	241.8	9.520	6.2	0.244	36.00	216.00	11.00	24.20	484	25	360
250	10	267.4	10.528	6.6	0.260	42.40	254.50	12.90	28.50	570	25	360
300	12	318.5	12.539	6.9	0.272	53.00	318.00	16.20	35.60	712	25	360
350	14	355.6	14.000	7.9	0.311	67.70	406.20	20.60	45.50	910	25	360
400	16	406.4	16.000	7.9	0.311	77.60	465.60	23.70	52.10	1042	25	360

Tolerance:

Wall Thickness + Not specified
-12.50%

Electric Welded Non-alloy Steel Tubes for Cement Lined Pipes

MS 1968 / BS EN 10224 / BS 534 / Manufacturer's Standard

Outside Diameter*	Minimum Wall Thickness*	Outside Diameter		Calculated Weight	Maximum Test Pressure
		max	min	Plain Ends	
mm	mm	mm	mm	kg/m	bar
114.3	3.6	115.4	113.2	9.83	70
139.7	3.6	141.1	138.3	12.08	70
168.3	3.6	170.0	166.6	14.62	70
193.7	4.0	195.2	192.2	18.71	70
219.1	4.0	221.3	216.9	21.22	70
244.5	4.0	246.3	242.7	23.72	70
273.0	4.0	275.0	271.0	26.53	64
323.9	4.0	326.3	321.5	31.55	54
355.6	4.5	358.3	352.9	38.96	56

Note:

* Other diameters and / or thicknesses may be available by agreement with the manufacturer.

The following sizes are also available upon request:

Outside Diameter*	Minimum Wall Thickness*	Outside Diameter		Calculated Weight
		max	min	Plain Ends
mm	mm	mm	mm	kg/m
121.9	4.1	123.1	120.7	11.91
152.4	4.0	153.9	150.9	14.64
177.3	4.1	178.6	176.0	17.51
232.2	4.1	233.9	230.5	23.06
286.0	4.1	288.2	283.9	28.50
345.4	5.8	348.0	342.8	48.57

British Standard Steel Tubes for Scaffolding

BS 1139 : SECTION 1.1 : 1990

NOMINAL SIZE	OUTSIDE DIAMETER		WALL THICKNESS*	CALCULATED WEIGHT	CROSS-SECTIONAL AREA	SECOND MOMENT OF INERTIA	SECTION OF MODULUS OF AREA	RADIUS OF GYRATION	PLASTIC MODULUS
	max	min							
mm	mm	mm	mm	kg/m	cm ²	cm ⁴	cm ³	cm	cm ³
48.3	48.8	47.8	4.0	4.37	5.57	13.80	5.70	1.57	7.87

Note:

*Thickness Tolerances:

±10%

Aurora Brand British Standard Galvanised Steel Conduit

BS 31 CLASS B (SCREWED)/MANUFACTURER'S STANDARD

NOMINAL SIZE	OUTSIDE DIAMETER				WALL THICKNESS				CALCULATED WEIGHT WITH COUPLER			NUMBERS OF THREADS	LENGTH OF THREADS			
	MAXIMUM		MINIMUM		NOMINAL		MINIMUM		mm	in	mm		MAXIMUM		MINIMUM	
in	mm	in	mm	in	mm	in	mm	in	kg/m	kg/ft	lb/ft	PER INCH	mm	in	mm	in
¾	19.05	0.750	18.76	0.7387	1.63	0.064	1.52	0.060	0.713	0.217	0.479	16	14.3	0.5626	12.7	0.5000
1	25.40	1.000	25.11	0.9887	1.63	0.064	1.52	0.060	0.972	0.296	0.653	16	17.5	0.6875	15.9	0.6250
1¼	31.75	1.250	31.46	1.2387	1.63	0.064	1.52	0.060	1.240	0.376	0.830	16	19.1	0.7500	17.5	0.6875
1½	38.10	1.500	37.80	1.488	1.83	0.072	1.73	0.068	1.680	0.511	1.130	14	20.6	0.8125	19.1	0.7500
2	50.80	2.000	50.50	1.988	2.03	0.080	1.93	0.076	2.510	0.765	1.690	14	23.8	0.9375	22.2	0.8750

Standard Length 3.810 m (12ft. 6 in) without couples

FEATURES :

- * Made of hot - dip galvanised steel strip with extra- smooth surface and highly - adherent zinc coating by the unique tube - making process. The weld zone coating restored in line.
- * Inside weld bead controlled to a minimum for easier wire pulling.
- * Screwed on both ends to BS31 and fitted with a zinc - coated coupler or one end.
- * Packed in bare bundles, but the unsocketed ends protected with plastic caps
- * Easier to cut, thread, bend and pull. Dimensionally accurate. Uniform quality in every respect.

MS 275 / BS 4568 CLASS 3 (SCREWED) / MANUFACTURER'S STANDARD

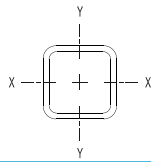
Certified by SIRIM.

NOMINAL SIZE	OUTER DIAMETER		WALL THICKNESS	CALCULATED WEIGHT WITH COUPLER		PITCH	LENGTH OF THREADS	
	MAXIMUM	MINIMUM		MAXIMUM	MINIMUM		MAXIMUM	MINIMUM
mm	mm	mm	mm	kg/m	kg/m	mm	mm	mm
20	20	19.7	1.6 ± 0.15	0.783	0.643	1.5	15	13
25	25	24.6	1.6 ± 0.15	0.995	0.811	1.5	18	16
32	32	31.6	1.6 ± 0.15	1.301	1.069	1.5	20	18

Preferred length of conduit 4.0 m. (Minimum 3.0 m, Maximum 4.0 m)

Square Hollow Sections

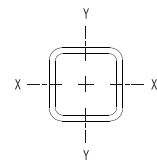
ASTM A-500 GRADES A & B / MANUFACTURER'S STANDARD



SIZE		WALL THICKNESS		CALCULATED WEIGHT		AREA	MOMENT OF INERTIA		SECTION MODULUS		RADIUS OF GYRATION		PLASTIC MODULUS	
NOMINAL	ACTUAL						I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
mm	in	mm	in	kg/m	kg/6m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
12 x 12	½ x ½	1.0	0.039	0.36	2.145	0.455	0.104	0.104	0.163	0.163	0.478	0.478	0.198	0.198
		1.2	0.047	0.42	2.531	0.537	0.118	0.118	0.185	0.185	0.470	0.470	0.231	0.231
		1.6	0.063	0.54	3.251	0.690	0.141	0.141	0.223	0.223	0.452	0.452	0.285	0.285
16 x 16	⅝ x ⅝	1.0	0.039	0.46	2.738	0.581	0.214	0.214	0.269	0.269	0.607	0.607	0.323	0.323
		1.2	0.047	0.54	3.251	0.690	0.246	0.246	0.310	0.310	0.597	0.597	0.377	0.377
		1.6	0.063	0.70	4.193	0.890	0.301	0.301	0.380	0.380	0.582	0.582	0.475	0.475
19 x 19	¾ x ¾	1.0	0.039	0.56	3.343	0.710	0.383	0.383	0.401	0.401	0.737	0.737	0.477	0.477
		1.2	0.047	0.66	3.950	0.839	0.445	0.445	0.467	0.467	0.726	0.726	0.560	0.560
		1.6	0.063	0.86	5.166	1.097	0.554	0.554	0.580	0.580	0.711	0.711	0.713	0.713
25 x 25	1 x 1	1.0	0.039	0.75	4.528	0.961	0.949	0.949	0.747	0.747	0.996	0.996	0.875	0.875
		1.2	0.047	0.90	5.379	1.142	1.111	1.111	0.877	0.877	0.986	0.986	1.036	1.036
		1.6	0.063	1.16	6.971	1.480	1.340	1.340	1.070	1.070	2.413	2.413	1.290	1.290
		2.3	0.091	1.60	9.608	2.040	1.750	1.750	1.400	1.400	2.362	2.362	1.730	1.730
		3.0	0.118	2.01	12.058	2.560	2.060	2.060	1.650	1.650	2.286	2.286	2.100	2.100
		3.2	0.126	2.15	12.884	2.735	2.248	2.248	1.770	1.770	0.907	0.907	2.261	2.261
32 x 32	1¼ x 1¼	1.2	0.047	1.13	6.807	1.445	2.243	2.243	1.414	1.414	1.245	1.245	1.655	1.655
		1.6	0.063	1.51	9.043	1.920	2.950	2.950	1.840	1.840	1.240	1.240	2.190	2.190
		2.3	0.091	2.11	12.670	2.690	3.930	3.930	2.460	2.460	1.210	1.210	2.980	2.980
		3.0	0.118	2.67	16.014	3.400	4.750	4.750	2.970	2.970	1.180	1.180	3.680	3.680
		3.2	0.126	2.83	16.956	3.600	4.950	4.950	3.100	3.100	1.170	1.170	3.860	3.860
38 x 38	1½ x 1½	1.2	0.047	1.37	8.235	1.748	3.963	3.963	2.081	2.081	1.504	1.504	2.409	2.409
		1.6	0.063	1.81	10.880	2.310	5.080	5.080	2.670	2.670	1.480	1.480	3.140	3.140
		2.3	0.091	2.54	15.260	3.240	6.850	6.850	3.610	3.610	1.450	1.450	4.320	4.320
		3.0	0.118	3.23	19.405	4.120	8.380	8.380	4.410	4.410	1.430	1.430	5.380	5.380
		3.2	0.126	3.41	20.481	4.348	8.782	8.782	4.621	4.621	1.422	1.422	5.670	5.670
50 x 50	2 x 2	1.6	0.063	2.42	14.507	3.080	12.000	12.000	4.790	4.790	1.970	1.970	5.570	5.570
		2.3	0.091	3.41	20.441	4.340	16.400	16.400	6.560	6.560	1.940	1.940	7.740	7.740
		3.0	0.118	4.25	25.481	5.410	19.500	19.500	7.790	7.790	1.900	1.900	9.390	9.390
		3.2	0.126	4.54	27.257	5.787	21.353	21.353	8.407	8.407	1.920	1.920	10.176	10.176
		4.0	0.157	5.46	32.735	6.950	23.700	23.700	9.490	9.490	1.850	1.850	11.700	11.700
		4.5	0.177	6.02	36.126	7.670	25.500	25.500	10.200	10.200	1.820	1.820	12.800	12.800
65 x 65	2½ x 2½	2.3	0.091	4.42	26.517	5.630	36.400	36.400	11.200	11.200	2.540	2.540	13.100	13.100
		3.0	0.118	5.66	33.959	7.210	45.400	45.400	14.000	14.000	2.510	2.510	16.600	16.600
		3.2	0.126	5.82	34.945	7.419	44.121	44.121	13.880	13.880	2.441	2.441	16.551	16.551
		4.0	0.157	7.34	44.039	9.350	56.600	56.600	17.400	17.400	2.460	2.460	21.000	21.000
		4.5	0.177	8.14	48.843	10.370	61.600	61.600	18.900	18.900	2.440	2.440	23.100	23.100
		6.0	0.236	10.39	62.313	13.230	73.900	73.900	22.700	22.700	2.360	2.360	28.500	28.500

Square Hollow Sections

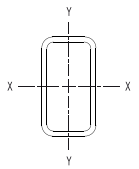
ASTM A-500 GRADES A & B / MANUFACTURER'S STANDARD



SIZE		WALL THICKNESS		CALCULATED WEIGHT		AREA	MOMENT OF INERTIA		SECTION MODULUS		RADIUS OF GYRATION		PLASTIC MODULUS	
NOMINAL	ACTUAL						I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
mm	in	mm	in	kg/m	kg/6m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
75 x 75	3 x 3	2.3	0.091	5.14	30.851	6.550	57.100	57.100	15.200	15.200	2.950	2.950	17.700	17.700
		3.0	0.118	6.60	39.611	8.410	71.600	71.600	19.100	19.100	2.920	2.920	22.500	22.500
		3.2	0.126	7.09	42.542	9.032	79.084	79.084	20.648	20.648	2.946	2.946	24.417	24.417
		4.0	0.157	8.60	51.575	10.950	90.200	90.200	24.000	24.000	2.870	2.870	28.800	28.800
		4.5	0.177	9.55	57.321	12.170	98.600	98.600	26.300	26.300	2.850	2.850	31.700	31.700
		5.0	0.197	10.49	62.926	13.360	106.000	106.000	28.400	28.400	2.820	2.820	34.500	34.500
		6.0	0.236	12.27	73.617	15.630	120.000	120.000	32.000	32.000	2.770	2.770	39.600	39.600
90 x 90	3½ x 3½	3.0	0.118	8.01	48.089	10.21	127.00	127.00	28.30	28.30	3.53	3.53	33.00	33.00
		3.2	0.126	8.36	50.139	10.65	128.62	128.62	28.84	28.84	3.48	3.48	33.92	33.92
		4.0	0.157	10.48	62.879	13.35	162.00	162.00	36.00	36.00	3.48	3.48	42.60	42.60
		4.5	0.177	11.67	70.038	14.87	178.00	178.00	39.50	39.50	3.46	3.46	47.10	47.10
		5.0	0.197	12.84	77.056	16.36	193.00	193.00	42.90	42.90	3.43	3.43	51.40	51.40
		6.0	0.236	15.10	90.573	19.23	220.00	220.00	49.00	49.00	3.39	3.39	59.50	59.50
100 x 100	4 x 4	3.0	0.118	8.96	53.741	11.41	177.00	177.00	35.40	35.40	3.94	3.94	41.20	41.20
		3.2	0.126	9.62	57.735	12.26	195.63	195.63	38.51	38.51	3.99	3.99	44.90	44.90
		4.0	0.157	11.74	70.415	14.95	226.00	226.00	45.30	45.30	3.89	3.89	53.30	53.30
		4.5	0.177	13.09	78.516	16.67	249.00	249.00	49.90	49.90	3.87	3.87	59.00	59.00
		5.0	0.197	14.41	86.476	18.36	271.00	271.00	54.20	54.20	3.84	3.84	64.60	64.60
		6.0	0.236	16.98	101.877	21.63	311.00	311.00	62.30	62.30	3.79	3.79	75.10	75.10
		9.0	0.354	23.55	141.300	30.00	391.0	391.0	78.10	78.10	3.61	3.61	98.6	98.6
125 x 125	5 x 5	4.5	0.177	16.62	99.711	21.17	506.00	506.00	80.90	80.90	4.89	4.89	94.80	94.80
		5.0	0.197	18.34	110.026	23.36	553.00	553.00	88.40	88.40	4.86	4.86	104.00	104.00
		6.0	0.236	21.69	130.137	27.63	641.00	641.00	103.00	103.00	4.82	4.82	122.00	122.00
		9.0	0.354	30.62	183.690	39.00	838.0	838.0	134.0	134.0	4.64	4.64	165.0	165.0
150 x 150	6 x 6	4.5	0.177	20.15	120.906	25.67	896.00	896.00	120.00	120.00	5.91	5.91	139.00	139.00
		5.0	0.197	22.26	133.576	28.36	982.00	982.00	131.00	131.00	5.89	5.89	153.00	153.00
		6.0	0.236	26.40	158.397	33.63	1146.00	1146.00	153.00	153.00	5.84	5.84	180.00	180.00
		9.0	0.354	37.68	226.080	48.00	1540	1540	205.0	205.0	5.66	5.66	248.0	248.0
175 x 175	7 x 7	4.5	0.177	23.70	142.211	30.19	1386	1386	158.3	158.3	6.78	6.78	191.7	191.7
		6.0	0.236	31.10	186.576	39.61	1798	1798	204.8	204.8	6.73	6.73	242.5	242.5
		9.0	0.354	45.28	271.660	57.68	2560	2560	293.3	293.3	6.65	6.65	350.7	350.7
200 x 200	8 x 8	4.5	0.177	27.22	163.296	34.67	2192	2192	219.2	219.2	7.95	7.95	252.9	252.9
		6.0	0.236	35.82	214.917	45.63	2833	2833	283.3	283.3	7.88	7.88	329.7	329.7
		9.0	0.354	52.34	314.063	66.68	3989	3989	398.9	398.9	7.73	7.73	472.4	472.4
250 x 250	10 x 10	6.0	0.236	45.24	271.437	57.63	5672	5672	453.8	453.8	9.92	9.92	524.5	524.5
		9.0	0.354	66.47	398.843	84.68	8094	8094	647.5	647.5	9.78	9.78	758.8	758.8

Rectangular Hollow Sections

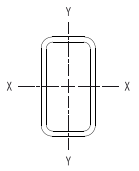
ASTM A-500 GRADES A & B / MANUFACTURER'S STANDARD



SIZE		WALL THICKNESS		CALCULATED WEIGHT		AREA	MOMENT OF INERTIA		SECTION MODULUS		RADIUS OF GYRATION		PLASTIC MODULUS	
NOMINAL	ACTUAL						I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
mm	in	mm	in	kg/m	kg/6m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
19 x 9	¾ x ⅞	1.0	0.039	0.394	2.364	0.502	0.220	0.071	0.231	0.149	0.662	0.376	0.297	0.179
		1.2	0.047	0.462	2.771	0.588	0.255	0.081	0.267	0.169	0.658	0.370	0.346	0.206
		1.6	0.063	0.585	3.513	0.746	0.316	0.097	0.331	0.203	0.650	0.361	0.439	0.257
25 x 12	1 x ½	1.0	0.039	0.557	3.343	0.710	0.574	0.190	0.452	0.300	0.902	0.518	0.569	0.346
		1.2	0.047	0.658	3.950	0.839	0.670	0.219	0.526	0.344	0.892	0.511	0.669	0.405
		1.6	0.063	0.861	5.166	1.097	0.837	0.267	0.657	0.421	0.874	0.493	0.850	0.510
32 x 16	1¼ x ⅝	1.0	0.039	0.709	4.254	0.903	1.178	0.391	0.742	0.493	1.142	0.658	0.657	0.462
		1.2	0.047	0.841	5.044	1.071	1.390	0.458	0.875	2.801	1.139	0.654	0.785	0.544
		1.6	0.063	1.099	6.594	1.400	1.781	0.574	1.123	3.592	1.128	0.641	1.013	0.698
38 x 19	1½ x ¾	1.0	0.039	0.861	5.166	1.097	2.077	0.699	1.090	0.734	1.376	0.798	0.760	0.577
		1.2	0.047	1.018	6.108	1.297	2.331	0.820	1.224	0.860	1.341	0.795	0.901	0.683
		1.6	0.063	1.335	8.007	1.700	3.060	1.010	1.610	1.060	1.340	0.771	2.080	1.260
38 x 25	1½ x 1	1.0	0.039	0.952	5.713	1.213	2.481	1.324	1.303	1.042	1.433	1.046	1.563	1.183
		1.2	0.047	1.13	6.807	1.445	2.930	1.557	1.537	1.226	1.422	1.036	1.852	1.401
		1.6	0.063	1.48	8.902	1.890	3.700	1.910	1.950	1.530	1.400	1.010	2.420	1.800
50 x 25	2 x 1	1.0	0.039	1.15	6.898	1.465	4.995	1.698	1.966	1.337	1.847	1.077	2.409	1.490
		1.2	0.047	1.37	8.235	1.748	5.910	2.002	2.327	1.576	1.839	1.069	2.868	1.770
		1.6	0.063	1.79	10.739	2.280	7.290	2.440	2.910	1.950	1.790	1.030	3.690	2.250
		2.3	0.091	2.50	15.025	3.190	9.860	3.230	3.940	2.590	1.760	1.010	5.110	3.090
		3.0	0.118	3.19	19.123	4.060	12.100	3.890	4.840	3.110	1.730	0.980	6.430	3.840
		3.2	0.126	3.41	20.481	4.348	13.278	4.246	5.227	3.343	1.748	0.988	6.768	4.064
65 x 38	2½ x 1½	1.6	0.063	2.49	14.931	3.170	18.30	7.940	5.630	4.180	2.40	1.58	6.910	4.750
		2.3	0.091	3.52	21.101	4.480	25.20	10.80	7.740	5.690	2.37	1.55	9.680	6.620
		3.0	0.118	4.15	24.916	5.290	29.80	12.80	9.180	6.750	2.31	1.51	12.30	8.360
		3.2	0.126	4.65	27.883	5.920	31.30	13.40	9.630	7.060	2.30	1.51	13.00	8.840
75 x 38	3 x 1½	1.6	0.063	2.71	16.250	3.450	25.30	8.850	6.760	4.660	2.71	1.60	8.59	5.340
		1.9	0.075	3.19	19.123	4.060	29.40	10.20	7.850	5.390	2.69	1.59	10.10	6.260
		2.3	0.091	3.81	22.844	4.850	34.60	12.00	9.230	6.300	2.67	1.57	12.10	7.440
		3.0	0.118	4.86	29.155	6.190	42.80	14.70	11.40	7.720	2.63	1.54	15.30	9.410
		3.2	0.126	5.15	30.898	6.560	45.00	15.40	12.00	8.090	2.62	1.53	16.30	9.950
75 x 50	3 x 2	1.9	0.075	3.54	21.242	4.510	35.50	19.10	9.480	7.620	2.81	2.05	11.80	8.88
		2.3	0.091	4.24	25.434	5.400	41.90	22.40	11.20	8.960	2.79	2.04	14.10	10.60
		3.0	0.118	5.42	32.546	6.910	52.20	27.80	13.90	11.10	2.75	2.00	17.90	13.50
		3.2	0.126	5.82	34.945	7.419	57.44	30.51	15.08	12.01	2.79	2.03	18.52	14.01
		4.0	0.157	7.03	42.155	8.950	65.00	34.30	17.30	13.70	2.69	1.96	23.20	17.30
		4.5	0.177	7.79	46.723	9.92	70.60	37.20	18.80	14.90	2.67	1.94	25.70	19.10
		6.0	0.236	9.91	59.487	12.63	84.40	44.10	22.50	17.60	2.58	1.87	32.60	24.10

Rectangular Hollow Sections

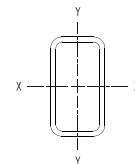
ASTM A-500 GRADES A & B / MANUFACTURER'S STANDARD



SIZE		WALL THICKNESS		CALCULATED WEIGHT		AREA	MOMENT OF INERTIA		SECTION MODULUS		RADIUS OF GYRATION		PLASTIC MODULUS	
NOMINAL	ACTUAL						I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
mm	in	mm	in	kg/m	kg/6m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
100 x 50	4 x 2	1.9	0.075	4.29	25.717	5.460	71.60	24.50	14.30	9.80	3.62	2.12	18.10	11.20
		2.3	0.091	5.14	30.851	6.550	84.80	29.00	17.00	11.60	3.60	2.10	21.70	13.30
		3.0	0.118	6.60	39.611	8.410	106.00	36.10	21.30	14.40	3.56	2.07	27.80	17.00
		3.2	0.126	7.09	42.542	9.032	117.38	39.71	23.11	15.63	3.61	2.10	29.01	17.86
		4.0	0.157	8.60	51.575	10.95	134.00	44.90	26.80	18.00	3.50	2.03	36.10	21.90
		4.5	0.177	9.55	57.321	12.17	147.00	48.90	29.30	19.50	3.47	2.00	40.10	24.30
		5.0	0.197	10.49	62.926	13.36	158.00	52.50	31.60	21.00	3.44	1.98	44.00	26.50
		6.0	0.236	12.27	73.617	15.63	179.00	58.70	35.70	23.50	3.38	1.94	51.40	30.70
100 x 75	4 x 3	3.0	0.118	7.78	46.676	9.91	142.00	91.100	28.400	24.300	3.78	3.03	35.10	28.70
		3.2	0.126	8.36	50.139	10.65	156.50	100.31	30.808	26.383	3.84	3.07	36.87	30.32
		4.0	0.157	10.17	60.995	12.95	180.00	115.00	36.000	30.800	3.73	2.99	45.70	37.40
		4.5	0.177	11.32	67.918	14.42	198.00	127.00	39.600	33.700	3.71	2.96	50.90	41.50
		5.0	0.197	12.45	74.701	15.86	215.00	137.00	42.900	36.500	3.68	2.94	55.90	45.60
		6.0	0.236	14.62	87.747	18.63	245.00	156.00	49.000	41.600	3.63	2.89	65.50	53.30
125 x 50	5 x 2	3.0	0.118	7.78	46.676	9.91	187.00	44.400	29.900	17.700	4.34	2.12	39.50	20.50
		3.2	0.126	8.36	50.139	10.65	206.45	48.699	32.446	19.173	4.39	2.14	41.46	21.63
		4.0	0.157	10.17	60.995	12.95	238.00	55.600	38.000	22.200	4.28	2.07	51.60	26.50
		4.5	0.177	11.32	67.918	14.42	261.00	60.600	41.700	24.200	4.25	2.05	57.40	29.40
		5.0	0.197	12.45	74.701	15.86	282.00	65.200	45.200	26.100	4.22	2.03	63.10	32.10
		6.0	0.236	14.62	87.747	18.63	322.00	73.300	51.500	29.300	4.16	1.98	74.00	37.30
125 x 75	5 x 3	3.0	0.118	8.96	53.741	11.41	243.00	111.00	38.900	29.500	4.61	3.12	48.70	34.10
		3.2	0.126	9.62	57.735	12.26	268.05	121.96	42.279	31.955	4.67	3.15	51.46	36.22
		4.0	0.157	11.74	70.415	14.95	311.00	141.00	49.700	37.500	4.56	3.07	63.70	44.50
		4.5	0.177	13.09	78.516	16.67	342.00	155.00	54.800	41.200	4.53	3.04	70.90	49.50
		5.0	0.197	14.41	86.476	18.36	373.00	168.00	59.600	44.700	4.50	3.02	78.10	54.30
		6.0	0.236	16.98	101.877	21.63	428.00	192.00	68.500	51.100	4.45	2.98	91.90	63.70
		9.0	0.354	24.52	147.093	31.23	626.00	269.00	98.500	70.600	4.47	2.94	126.30	86.50
150 x 50	6 x 2	3.0	0.118	8.96	53.741	11.41	299.00	52.600	39.800	21.100	5.12	2.15	53.20	24.10
		3.2	0.126	9.62	57.735	12.26	329.66	57.856	43.262	22.778	5.18	2.18	56.04	25.56
		4.0	0.157	11.74	70.415	14.95	381.00	66.200	50.900	26.500	5.05	2.10	69.50	31.10
		4.5	0.177	13.09	78.516	16.67	420.00	72.200	56.000	28.900	5.02	2.08	77.50	34.50
		5.0	0.197	14.41	86.476	18.36	456.00	77.900	60.800	31.100	4.99	2.06	85.30	37.80
		6.0	0.236	16.98	101.877	21.63	523.00	87.900	69.800	35.200	4.92	2.02	100.00	43.90

Rectangular Hollow Sections

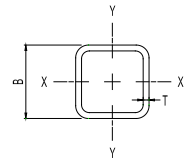
ASTM A-500 GRADES A & B / MANUFACTURER'S STANDARD



SIZE		WALL THICKNESS		CALCULATED WEIGHT		AREA	MOMENT OF INERTIA		SECTION MODULUS		RADIUS OF GYRATION		PLASTIC MODULUS	
NOMINAL	ACTUAL	mm	in	kg/m	kg/6m	cm ²	I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
mm	in						cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
150 x 75	6 x 3	3.2	0.126	10.79	64.724	13.74	420.39	143.18	54.897	37.690	5.51	3.23	65.38	40.48
		4.0	0.157	13.31	79.835	16.95	488.00	166.00	65.100	44.200	5.37	3.13	84.10	51.60
		4.5	0.177	14.85	89.113	18.92	539.00	183.00	71.900	48.700	5.34	3.11	93.80	57.40
		5.0	0.197	16.38	98.251	20.86	588.00	198.00	78.400	52.900	5.31	3.08	103.00	63.10
		6.0	0.236	19.33	116.007	24.63	679.00	228.00	90.500	60.700	5.25	3.04	122.00	74.00
		9.0	0.354	27.61	165.651	35.17	905.00	297.00	121.00	79.200	5.07	2.91	172.00	105.00
150 x 100	6 x 4	4.0	0.157	14.88	89.255	18.95	595.00	319.00	79.300	63.700	5.60	4.10	98.70	74.50
		4.5	0.177	16.62	99.711	21.17	658.00	352.00	87.700	70.400	5.58	4.08	110.00	83.10
		5.0	0.197	18.34	110.026	23.36	719.00	384.00	95.900	76.800	5.55	4.05	122.00	91.50
		6.0	0.236	21.69	130.137	27.63	835.00	444.00	111.10	88.800	5.50	4.01	144.00	108.00
		9.0	0.354	31.14	186.846	39.67	1129.0	595.00	150.50	119.00	5.33	3.87	190.00	143.00
175 x 100	7 x 4	4.5	0.177	18.43	110.609	23.48	1015.6	424.14	114.38	83.574	6.58	4.24	134.87	91.276
		6.0	0.236	24.26	145.554	30.90	1298.6	536.94	146.01	105.53	6.45	4.17	177.31	119.30
		9.0	0.354	34.69	208.151	44.19	1694.1	686.78	193.37	137.65	6.20	3.94	244.82	163.22
175 x 125	7 x 5	4.5	0.177	20.46	122.764	26.06	1194.6	707.59	134.37	111.76	6.73	5.21	159.94	126.84
		6.0	0.236	26.74	160.444	34.06	1502.6	899.06	170.43	141.26	6.68	5.13	196.64	155.51
		9.0	0.354	38.19	229.118	48.65	1985.4	1157.1	226.14	185.17	6.38	4.88	280.05	220.24
200 x 100	8 x 4	4.5	0.177	20.15	120.906	25.67	1331.0	455.00	133.00	90.900	7.20	4.21	170.00	105.00
		5.0	0.197	22.26	133.576	28.36	1459.0	497.00	146.00	99.40	7.17	4.19	188.00	115.00
		6.0	0.236	26.40	158.397	33.63	1703.0	577.00	170.00	115.00	7.12	4.14	222.00	136.00
		9.0	0.354	37.68	226.080	48.00	2280.0	764.00	228.00	153.00	6.89	3.99	293.00	180.00
200 x 150	8 x 6	4.5	0.177	23.68	142.101	30.17	1761.6	1134.6	176.20	151.30	7.64	6.13	208.90	171.80
		6.0	0.236	31.11	186.657	39.63	2268.1	1457.2	226.80	194.30	7.56	6.06	271.50	223.10
		9.0	0.354	45.28	271.660	57.68	3167.3	2024.9	316.70	270.00	7.41	5.93	386.40	316.90
200 x 150	8 x 6	4.5	0.177	23.68	142.101	30.17	1761.6	1134.6	176.20	151.30	7.64	6.13	208.90	171.80
		6.0	0.236	31.11	186.657	39.63	2268.1	1457.2	226.80	194.30	7.56	6.06	271.50	223.10
		9.0	0.354	45.28	271.660	57.68	3167.3	2024.9	316.70	270.00	7.41	5.93	386.40	316.90
250 x 150	10 x 6	6.0	0.236	35.82	214.917	45.63	1768.4	3885.7	310.90	235.80	9.23	6.23	378.10	266.30
		9.0	0.354	52.34	314.063	66.68	2472.8	5478.7	438.30	329.70	9.06	6.09	541.90	380.40
300 x 200	12 x 8	6.0	0.236	45.24	271.437	57.63	7370.5	3962.3	491.40	396.20	11.31	8.29	587.80	446.10
		9.0	0.354	66.47	398.843	84.68	10530	5631.6	702.00	563.20	11.15	8.16	850.80	644.30

Cold Formed Square Hollow Sections

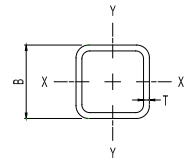
BS EN 10219 / MANUFACTURER'S STANDARD



Specified Dimension		Mass per unit length	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Section Modulus	Plastic Section Modulus	Torsional Inertia Constant	Torsional Modulus Constant	Superficial area per meter length	Nominal length per tonne	Ratio for Local Buckling
Size	Thickness											Flange
B X B	T	M	A	I	i	W _{el}	W _{pl}	I _t	C _t	A _s	m	B/T
mm	mm	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	
20 x 20	1.00	0.58	0.73	0.43	0.77	0.43	0.52	0.70	0.65	0.077	1735.0	15.0
	1.20	0.68	0.87	0.50	0.76	0.50	0.60	0.82	0.75	0.076	1472.2	11.7
	1.60	0.87	1.11	0.61	0.74	0.61	0.75	1.03	0.92	0.075	1145.9	7.5
25 x 25	1.00	0.73	0.93	0.88	0.97	0.71	0.83	1.41	1.06	0.097	1363.5	20.0
	1.20	0.87	1.11	1.03	0.96	0.82	0.97	1.66	1.24	0.096	1152.5	15.8
	1.60	1.12	1.43	1.28	0.94	1.02	1.24	2.12	1.54	0.095	889.8	10.6
	2.00	1.36	1.74	1.48	0.92	1.19	1.47	2.53	1.80	0.093	733.4	7.5
	2.30	1.53	1.95	1.61	0.91	1.29	1.62	2.80	1.97	0.092	652.5	5.9
	2.50	1.64	2.09	1.69	0.90	1.35	1.71	2.97	2.07	0.091	609.8	5.0
	3.00	1.89	2.41	1.84	0.87	1.47	1.91	3.33	2.27	0.090	529.0	3.3
	3.00	1.89	2.41	1.84	0.87	1.47	1.91	3.33	2.27	0.090	529.0	3.3
32 x 32	1.20	1.13	1.44	2.25	1.25	1.41	1.65	3.58	2.11	0.124	883.8	21.7
	1.60	1.48	1.88	2.84	1.23	1.78	2.12	4.62	2.68	0.123	677.7	15.0
	2.00	1.80	2.30	3.36	1.21	2.10	2.54	5.58	3.18	0.121	554.6	11.0
	2.30	2.04	2.60	3.71	1.20	2.32	2.84	6.24	3.52	0.120	490.7	8.9
	2.50	2.19	2.79	3.92	1.19	2.45	3.02	6.66	3.72	0.119	456.7	7.8
	3.00	2.55	3.25	4.38	1.16	2.74	3.44	7.62	4.18	0.118	392.2	5.7
38 x 38	1.20	1.36	1.73	3.86	1.49	2.03	2.37	6.09	3.05	0.148	736.6	26.7
	1.60	1.78	2.26	4.92	1.77	2.81	3.06	7.90	3.90	0.147	562.8	18.8
	2.00	2.18	2.78	5.88	1.75	3.35	3.70	9.60	4.67	0.145	458.7	14.0
	2.30	2.47	3.15	6.54	1.73	3.72	4.15	10.80	5.20	0.144	404.6	11.5
	2.50	2.66	3.39	6.94	1.72	3.95	4.44	11.56	5.53	0.143	375.9	10.2
	3.00	3.12	3.97	7.85	1.69	4.47	5.10	13.35	6.28	0.142	321.0	7.7
40 x 40	1.60	1.88	2.39	5.79	1.56	2.90	3.41	9.27	4.36	0.155	532.6	20.0
	2.00	2.31	2.94	6.94	1.54	3.47	4.13	11.28	5.23	0.153	432.9	15.0
	2.50	2.82	3.59	8.22	1.51	4.11	4.97	13.61	6.21	0.151	354.6	11.0
	3.00	3.30	4.21	9.32	1.49	4.66	5.72	15.75	7.07	0.150	303.0	8.3
50 x 50	1.60	2.38	3.03	11.71	1.96	4.68	5.46	18.48	7.03	0.195	420.2	26.3
	2.00	2.93	3.74	14.15	1.95	5.66	6.66	22.63	8.51	0.193	340.9	20.0
	2.30	3.34	4.25	15.86	1.93	6.34	7.52	25.61	9.55	0.192	299.6	16.7
	2.50	3.60	4.59	16.94	1.92	6.78	8.07	27.53	10.22	0.191	277.6	15.0
	3.00	4.25	5.41	19.47	1.90	7.79	9.39	32.13	11.76	0.190	235.5	11.7
	4.00	5.45	6.95	26.15	1.94	10.46	12.73	40.40	14.40	0.186	183.3	7.5
	4.50	6.02	7.67	25.50	1.82	10.20	12.76	44.09	15.56	0.185	166.1	6.1
60 x 60	1.60	2.88	3.67	20.68	2.37	6.89	7.99	32.38	10.35	0.235	346.9	32.5
	2.00	3.56	4.54	25.14	2.35	8.38	9.79	39.79	12.59	0.233	280.8	25.0
	2.30	4.06	5.17	28.31	2.34	9.44	11.09	45.16	14.19	0.232	246.3	21.1
	2.50	4.39	5.59	30.34	2.33	10.11	11.93	48.66	15.22	0.231	227.9	19.0
	3.00	5.19	6.61	35.13	2.31	11.71	13.95	57.09	17.65	0.230	192.8	15.0
	4.00	6.71	8.55	47.07	2.35	15.69	18.85	72.60	22.00	0.226	149.0	10.0
	4.50	7.43	9.47	47.20	2.23	15.73	19.32	79.76	23.87	0.225	134.5	8.3
	5.00	8.13	10.36	50.49	2.21	16.83	20.88	86.42	25.61	0.223	123.0	7.0
	6.00	9.45	12.03	56.07	2.16	18.69	23.68	98.41	28.62	0.219	105.9	5.0
65 x 65	2.00	3.88	4.94	32.31	2.56	9.94	11.58	50.92	14.93	0.253	258.0	27.5
	2.30	4.42	5.63	36.45	2.54	11.21	13.13	57.86	16.86	0.252	226.2	23.3
	2.50	4.78	6.09	39.10	2.53	12.03	14.14	62.39	18.10	0.251	209.2	21.0
	3.00	5.66	7.21	45.42	2.51	13.97	16.57	73.35	21.05	0.250	176.7	16.7
	4.00	7.34	9.35	56.64	2.46	17.43	21.05	93.72	26.34	0.246	136.3	11.3
	4.50	8.14	10.37	61.59	2.44	18.95	23.10	103.14	28.70	0.245	122.9	9.4
	5.00	8.91	11.36	66.10	2.41	20.34	25.03	112.03	30.88	0.243	112.2	8.0
	6.00	10.39	13.23	73.91	2.36	22.74	28.53	128.23	34.72	0.239	96.3	5.8
75 x 75	2.30	5.14	6.55	57.10	2.95	15.23	17.74	89.98	22.88	0.292	194.4	27.6
	2.50	5.56	7.09	61.38	2.94	16.37	19.12	97.13	24.60	0.291	179.7	25.0
	3.00	6.60	8.41	71.62	2.92	19.10	22.49	114.54	28.73	0.290	151.5	20.0
	4.00	8.59	10.95	90.19	2.87	24.05	28.76	147.32	36.28	0.286	116.4	13.8
	4.50	9.55	12.17	98.55	2.85	26.28	31.68	162.68	39.71	0.285	104.7	11.7
	5.00	10.48	13.36	106.33	2.82	28.35	34.46	177.35	42.92	0.283	95.4	10.0
	6.00	12.27	15.63	120.16	2.77	32.04	39.58	204.62	48.70	0.279	81.5	7.5

Cold Formed Square Hollow Sections

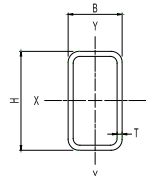
BS EN 10219 / MANUFACTURER'S STANDARD



Specified Dimension		Mass per unit length	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Section Modulus	Plastic Section Modulus	Torsional Inertia Constant	Torsional Modulus Constant	Superficial area per meter length	Nominal length per tonne	Ratio for Local Buckling
Size	Thickness											Flange
B X B	T	M	A	I	i	W _{el}	W _{pl}	I _t	C _t	A _s	m	B/T
mm	mm	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	
89 x 89	3.00	7.92	10.09	122.89	3.49	27.62	32.28	194.59	41.50	0.346	126.3	24.7
	4.00	10.35	13.19	156.25	3.44	35.11	41.58	251.87	52.87	0.342	96.6	17.3
	4.50	11.53	14.69	171.59	3.42	38.56	45.97	279.07	58.13	0.341	86.7	14.8
	5.00	12.68	16.16	186.07	3.39	41.81	50.18	305.30	63.11	0.339	78.8	12.8
	6.00	14.91	18.99	212.50	3.34	47.75	58.09	354.87	72.30	0.335	67.1	9.8
90 x 90	2.30	6.23	7.93	100.79	3.56	22.40	25.93	157.53	33.63	0.352	160.6	34.1
	2.50	6.74	8.59	108.55	3.56	24.12	28.00	170.26	36.23	0.351	148.3	31.0
	3.00	8.01	10.21	127.28	3.53	28.29	33.04	201.42	42.51	0.350	124.8	25.0
	4.00	10.48	13.35	161.92	3.48	35.98	42.58	260.80	54.17	0.346	95.4	17.5
	4.50	11.67	14.87	177.87	3.46	39.53	47.09	289.02	59.58	0.345	85.7	15.0
	5.00	12.84	16.36	192.93	3.43	42.87	51.41	316.26	64.70	0.343	77.9	13.0
100 x 100	6.00	15.10	19.23	220.48	3.39	48.99	59.54	367.76	74.16	0.339	66.2	10.0
	2.30	6.95	8.85	139.73	3.97	27.95	32.26	217.48	41.95	0.392	143.9	38.5
	3.00	8.96	11.41	177.05	3.94	35.41	41.21	278.68	53.19	0.390	111.7	28.3
	4.00	11.73	14.95	226.35	3.89	45.27	53.30	362.01	68.10	0.386	85.2	20.0
	4.50	13.08	16.67	249.29	3.87	49.86	59.04	401.87	75.07	0.385	76.4	17.2
	5.00	14.41	18.36	271.10	3.84	54.22	64.59	440.52	81.72	0.383	69.4	15.0
	6.00	16.98	21.63	311.47	3.79	62.29	75.10	514.16	94.12	0.379	58.9	11.7
	6.30	17.47	22.25	314.20	3.76	62.84	76.40	536.00	97.00	0.373	57.2	10.9
	8.00	21.39	27.24	365.90	3.67	73.18	91.10	644.60	114.20	0.366	46.8	7.5
125 x 125	9.00	23.53	29.98	390.60	3.61	78.12	98.60	700.40	122.80	0.361	42.5	6.1
	3.00	11.31	14.41	354.50	4.96	56.72	65.56	552.66	85.14	0.490	88.4	36.7
	4.00	14.87	18.95	457.23	4.91	73.16	85.33	721.99	109.92	0.486	67.2	26.3
	4.50	16.62	21.17	505.83	4.89	80.93	94.84	803.85	121.67	0.485	60.2	22.8
	5.00	18.33	23.36	552.62	4.86	88.42	104.10	883.82	133.01	0.483	54.5	20.0
	6.00	21.69	27.63	640.89	4.82	102.54	121.87	1038.10	154.49	0.479	46.1	15.8
	6.30	22.41	28.55	652.60	4.78	104.42	124.90	1086.50	160.10	0.473	44.6	14.8
	8.00	27.67	35.24	775.30	4.69	124.05	151.00	1325.40	191.70	0.466	36.1	10.6
150 x 150	9.00	30.60	38.98	837.80	4.64	134.05	164.90	1454.10	208.20	0.461	32.7	8.9
	4.00	18.01	22.95	807.82	5.93	107.71	124.87	1264.76	161.73	0.586	55.5	32.5
	4.50	20.15	25.67	896.30	5.91	119.51	139.08	1410.79	179.51	0.585	49.6	28.3
	5.00	22.26	28.36	982.12	5.89	130.95	152.98	1554.13	196.79	0.583	44.9	25.0
	6.00	26.40	33.63	1145.91	5.84	152.79	179.88	1832.69	229.84	0.579	37.9	20.0
	6.30	27.36	34.85	1173.70	5.80	156.49	185.10	1921.60	238.80	0.573	36.5	18.8
	8.00	33.95	43.24	1411.80	5.71	188.24	226.00	2364.20	289.00	0.566	29.5	13.8
175 x 175	9.00	37.66	47.98	1537.40	5.66	204.99	248.20	2608.10	316.00	0.561	26.6	11.7
	4.50	23.68	30.17	1448.83	6.93	165.58	191.75	2264.90	248.60	0.685	42.2	33.9
	5.00	26.18	33.36	1590.86	6.91	181.81	211.24	2498.33	273.05	0.683	38.2	30.0
	6.00	31.11	39.63	1864.03	6.86	213.03	249.15	2954.17	320.18	0.679	32.1	24.2
	6.30	32.57	41.49	1943.18	6.84	222.08	260.25	3088.05	333.86	0.678	30.7	22.8
	8.00	40.66	51.79	2367.89	6.76	270.62	320.75	3821.58	407.53	0.673	24.6	16.9
200 x 200	9.00	45.27	57.67	2599.21	6.71	297.05	354.47	4233.04	447.88	0.669	22.1	14.4
	4.50	27.21	34.67	2191.54	7.95	219.15	252.86	3408.36	328.93	0.785	36.7	39.4
	5.00	30.11	38.36	2410.09	7.93	241.01	278.87	3763.30	361.82	0.783	33.2	35.0
	6.00	35.82	45.63	2832.75	7.88	283.28	329.67	4458.81	425.51	0.779	27.9	28.3
	6.30	37.25	47.45	2921.50	7.85	292.15	341.20	4682.20	443.50	0.773	26.8	26.7
	8.00	46.51	59.24	3566.30	7.76	356.63	420.90	5815.30	543.60	0.766	21.5	20.0
	9.00	51.79	65.98	3918.50	7.71	391.85	465.30	6454.10	598.90	0.761	19.3	17.2
250 x 250	10.00	56.96	72.57	4251.10	7.65	425.11	508.10	7071.90	651.50	0.757	17.6	15.0
	5.00	37.96	48.36	4805.00	9.97	384.40	442.30	7443.00	576.80	0.983	26.3	45.0
	6.00	45.24	57.63	5672.00	9.92	453.76	524.40	8842.50	681.20	0.979	22.1	36.7
	6.30	47.41	60.39	5872.60	9.86	469.81	544.40	9290.40	711.20	0.978	21.1	34.7
	8.00	59.50	75.79	7229.20	9.77	578.34	675.80	11597.90	878.20	0.973	16.8	26.3
	9.00	66.47	84.67	7983.80	9.71	638.70	750.00	12913.50	971.70	0.969	15.0	22.8
	10.00	72.66	92.57	8706.70	9.70	696.54	822.00	14197.00	1061.80	0.957	13.8	20.0

Cold Formed Rectangular Hollow Sections

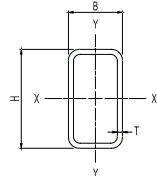
BS EN 10219 / MANUFACTURER'S STANDARD



Specified Dimension		Mass per unit length	Cross Sectional Area	Second Moment of Area		Radius of Gyration		Elastic Section Modulus		Plastic Section Modulus		Torsional Inertia Constant	Torsional Modulus Constant	Superficial area per meter length	Nominal length per tonne	Ratio for Local Buckling	
Size	Thickness															Flange	Web
H X B	T	M	A	L _{xx}	L _{yy}	i _{xx}	i _{yy}	W _{elxx}	W _{elyy}	W _{plxx}	W _{plyy}	I _t	C _t	A _s	m	B/T	H/T
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m			
38 x 19	1.00	0.84	1.07	1.99	0.68	1.36	0.79	1.05	0.71	1.30	0.80	1.65	1.23	0.111	1185.8	14.0	33.0
	1.20	1.00	1.27	2.32	0.78	1.35	0.78	1.22	0.82	1.53	0.94	1.93	1.43	0.110	1000.4	10.8	26.7
	1.60	1.30	1.66	2.91	0.97	1.33	0.77	1.53	1.02	1.95	1.20	2.46	1.79	0.109	769.4	6.9	18.8
38 x 25	1.00	0.94	1.19	2.40	1.26	1.42	1.03	1.26	1.01	1.52	1.14	2.63	1.66	0.123	1066.7	20.0	33.0
	1.20	1.11	1.42	2.80	1.47	1.41	1.02	1.48	1.17	1.79	1.35	3.10	1.94	0.122	898.8	15.8	26.7
	1.60	1.45	1.85	3.55	1.85	1.39	1.00	1.87	1.48	2.30	1.72	3.99	2.45	0.121	689.5	10.6	18.8
40 x 20	1.00	0.89	1.13	2.33	0.80	1.43	0.84	1.17	0.80	1.45	0.90	1.93	1.38	0.117	1123.1	15.0	35.0
	1.20	1.06	1.35	2.73	0.92	1.42	0.83	1.36	0.92	1.71	1.05	2.27	1.60	0.116	946.9	11.7	28.3
	1.60	1.38	1.75	3.43	1.15	1.40	0.81	1.72	1.15	2.18	1.34	2.89	2.01	0.115	727.2	7.5	20.0
	2.00	1.68	2.14	4.05	1.34	1.38	0.79	2.02	1.34	2.61	1.60	3.45	2.36	0.113	596.1	5.0	15.0
	2.30	1.89	2.41	4.45	1.47	1.36	0.78	2.23	1.47	2.91	1.77	3.83	2.58	0.112	528.1	3.7	12.4
	2.50	2.03	2.59	4.69	1.54	1.35	0.77	2.35	1.54	3.09	1.88	4.06	2.72	0.111	492.0	3.0	11.0
	3.00	2.36	3.01	5.21	1.68	1.32	0.75	2.60	1.68	3.50	2.12	4.57	3.00	0.110	423.5	1.7	8.3
50 x 25	1.00	1.13	1.43	4.69	1.60	1.81	1.06	1.87	1.28	2.31	1.43	3.85	2.22	0.147	888.2	20.0	45.0
	1.20	1.34	1.71	5.50	1.88	1.80	1.05	2.20	1.50	2.73	1.69	4.54	2.59	0.146	747.0	15.8	36.7
	1.60	1.75	2.23	7.02	2.37	1.77	1.03	2.81	1.9	3.53	2.17	5.85	3.29	0.145	570.8	10.6	26.3
	2.00	2.15	2.74	8.38	2.81	1.75	1.01	3.35	2.25	4.26	2.62	7.06	3.92	0.143	465.4	7.5	20.0
	2.30	2.44	3.10	9.31	3.10	1.73	1.00	3.72	2.48	4.78	2.92	7.90	4.34	0.142	410.6	5.9	16.7
	2.50	2.62	3.34	9.89	3.28	1.72	0.99	3.95	2.62	5.11	3.12	8.43	4.60	0.141	381.5	5.0	15.0
	3.00	3.07	3.91	11.17	3.67	1.69	0.97	4.47	2.93	5.86	3.56	9.64	5.18	0.140	325.9	3.3	11.7
50 x 30	1.00	1.20	1.53	5.29	2.41	1.86	1.25	2.11	1.61	2.56	1.80	5.26	2.70	0.157	830.3	25.0	45.0
	1.20	1.43	1.83	6.22	2.83	1.85	1.25	2.49	1.89	3.02	2.13	6.22	3.17	0.156	697.9	20.0	36.7
	2.00	2.31	2.94	9.54	4.29	1.80	1.21	3.81	2.86	4.74	3.33	9.77	4.84	0.153	433.7	10.0	20.0
	2.50	2.82	3.59	11.30	5.05	1.77	1.19	4.52	3.37	5.70	3.98	11.70	5.72	0.151	354.9	7.0	15.0
	3.00	3.30	4.21	12.83	5.70	1.75	1.16	5.13	3.80	6.57	4.58	13.50	6.49	0.150	302.7	5.0	11.7
	4.00	4.20	5.35	15.25	6.69	1.69	1.12	6.10	4.46	8.05	5.58	16.50	7.71	0.146	238.2	2.5	7.5
60 x 40	2.00	2.93	3.74	18.41	9.83	2.22	1.62	6.14	4.92	7.47	5.65	20.70	8.12	0.193	340.9	15.0	25.0
	2.50	3.60	4.59	22.07	11.74	2.19	1.60	7.36	5.87	9.06	6.84	25.10	9.72	0.191	277.6	11.0	19.0
	3.00	4.25	5.41	25.38	13.44	2.17	1.58	8.46	6.72	10.53	7.94	29.30	11.20	0.190	235.5	8.3	15.0
	4.00	5.45	6.95	30.99	16.28	2.11	1.53	10.33	8.14	13.16	9.89	36.70	13.70	0.186	183.3	5.0	10.0
	5.00	6.56	8.36	35.33	18.43	2.06	1.48	11.78	9.21	15.38	11.52	42.80	15.60	0.183	152.4	3.0	7.0
65 x 38	1.60	2.46	3.13	17.80	7.79	2.39	1.58	5.49	4.1	6.70	4.63	17.40	6.91	0.201	407.3	18.8	35.6
	1.90	2.89	3.68	20.70	9	2.37	1.56	6.36	4.74	7.82	5.4	20.30	8.00	0.199	346.5	15.0	29.2
	2.00	3.03	3.86	21.60	9.39	2.37	1.56	6.64	4.94	8.18	5.64	21.20	8.35	0.199	330.3	14.0	27.5
	2.30	3.45	4.39	24.20	10.5	2.35	1.55	7.46	5.53	9.24	6.37	24.00	9.36	0.198	290.2	11.5	23.3
	2.50	3.72	4.74	25.90	11.2	2.34	1.54	7.97	5.9	9.92	6.83	25.80	10.00	0.197	268.8	10.2	21.0
	3.00	4.39	5.59	29.80	12.8	2.31	1.51	9.18	6.75	11.50	7.93	30.00	11.50	0.196	228.0	7.7	16.7
	4.00	5.64	7.19	36.50	15.5	2.25	1.47	11.24	8.17	14.50	9.89	37.50	14.00	0.192	177.2	4.5	11.3
75 x 25	1.60	2.38	3.03	19.70	3.5	2.55	1.07	5.26	2.78	6.81	3.11	9.93	5.05	0.195	420.2	10.6	41.9
	1.90	2.80	3.56	22.80	4	2.53	1.06	6.09	3.18	7.94	3.61	11.50	5.80	0.193	357.6	8.2	34.5
	2.00	2.93	3.74	23.80	4.1	2.53	1.05	6.36	3.31	8.31	3.77	12.00	6.04	0.193	340.9	7.5	32.5
	2.30	3.34	4.25	26.70	4.6	2.51	1.04	7.12	3.67	9.37	4.23	13.50	6.72	0.192	299.6	5.9	27.6
	2.50	3.60	4.59	28.50	4.9	2.49	1.03	7.60	3.89	10.06	4.53	14.40	7.14	0.191	277.6	5.0	25.0
	3.00	4.25	5.41	32.70	5.5	2.46	1.01	8.72	4.39	11.70	5.21	16.50	8.10	0.190	235.5	3.3	20.0
75 x 38	1.60	2.71	3.45	25.30	8.8	2.71	1.60	6.76	4.66	8.34	5.21	21.20	8.03	0.221	369.5	18.8	41.9
	1.90	3.18	4.06	29.40	10.2	2.69	1.59	7.85	5.39	9.75	6.08	24.70	9.30	0.219	314.0	15.0	34.5
	2.00	3.34	4.26	30.80	10.7	2.69	1.58	8.20	5.62	10.21	6.36	25.90	9.71	0.219	299.2	14.0	32.5
	2.30	3.81	4.85	34.60	12	2.67	1.57	9.23	6.3	11.50	7.19	29.20	10.90	0.218	262.6	11.5	27.6
	2.50	4.11	5.24	37.10	12.8	2.66	1.56	9.88	6.73	12.40	7.72	31.40	11.70	0.217	243.2	10.2	25.0
	3.00	4.86	6.19	42.80	14.7	2.63	1.54	11.40	7.72	14.50	8.98	36.60	13.40	0.216	205.9	7.7	20.0
	4.00	6.27	7.99	52.80	17.9	2.57	1.50	14.10	9.4	18.30	11.20	45.90	16.50	0.212	159.5	4.5	13.8
	4.50	6.94	8.84	57.10	19.2	2.54	1.47	15.20	10.1	19.90	12.30	50.00	17.80	0.211	144.1	3.4	11.7

Cold Formed Rectangular Hollow Sections

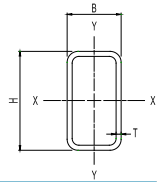
BS EN 10219 / MANUFACTURER'S STANDARD



Specified Dimension		Mass per unit length	Cross Sectional Area	Second Moment of Area		Radius of Gyration		Elastic Section Modulus		Plastic Section Modulus		Torsional Inertia Constant	Torsional Modulus Constant	Superficial area per meter length	Nominal length per tonne	Ratio for Local Buckling	
Size	Thickness															Flange	Web
H X B	T	M	A	L _{xx}	L _{yy}	i _{xx}	i _{yy}	W _{elxx}	W _{elyy}	W _{plxx}	W _{plyy}	I _t	C _t	A _s	m	B/T	H/T
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m			
75 x 50	1.90	3.54	4.51	35.50	19.1	2.81	2.05	9.48	7.62	11.40	8.7	39.50	12.50	0.243	282.3	21.3	34.5
	2.00	3.72	4.74	37.20	19.9	2.80	2.05	9.91	7.96	12.00	9.1	41.40	13.10	0.243	268.9	20.0	32.5
	2.30	4.24	5.40	41.90	22.4	2.79	2.04	11.17	8.96	13.60	10.3	46.90	14.80	0.242	235.8	16.7	27.6
	2.50	4.58	5.84	45.00	24	2.77	2.03	11.99	9.6	14.60	11	50.50	15.90	0.241	218.2	15.0	25.0
	3.00	5.42	6.91	52.20	27.8	2.75	2.00	13.91	11.1	17.10	12.9	59.30	18.40	0.240	184.4	11.7	20.0
	4.00	7.02	8.95	65.00	34.3	2.69	1.96	17.32	13.7	21.70	16.3	75.30	22.90	0.236	142.4	7.5	13.8
	4.50	7.79	9.92	70.60	37.2	2.67	1.94	18.82	14.9	23.80	17.9	82.70	24.90	0.235	128.4	6.1	11.7
	5.00	8.52	10.86	75.60	39.7	2.64	1.91	20.17	15.9	25.70	19.3	89.50	26.70	0.233	117.3	5.0	10.0
100 x 50	1.90	4.29	5.46	71.60	24.5	3.62	2.12	14.30	9.8	17.60	10.9	58.70	16.90	0.293	233.2	21.3	47.6
	2.00	4.50	5.74	75.00	25.7	3.62	2.12	15.00	10.3	18.50	11.5	61.60	17.70	0.293	222.0	20.0	45.0
	2.30	5.14	6.55	84.80	29	3.60	2.10	17.00	11.6	21.00	13	69.90	20.00	0.292	194.4	16.7	38.5
	2.50	5.56	7.09	91.20	31.1	3.59	2.09	18.20	12.4	22.70	14	75.40	21.50	0.291	179.7	15.0	35.0
	3.00	6.60	8.41	106.50	36.1	3.56	2.07	21.30	14.4	26.70	16.4	88.60	25.00	0.290	151.5	11.7	28.3
	4.00	8.59	10.95	134.10	44.9	3.50	2.03	26.80	18	34.10	20.9	113.00	31.30	0.286	116.4	7.5	20.0
	4.50	9.55	12.17	146.60	48.9	3.47	2.00	29.30	19.5	37.60	23	124.30	34.20	0.285	104.7	6.1	17.2
	5.00	10.48	13.36	158.20	52.5	3.44	1.98	31.60	21	40.80	25	134.90	36.80	0.283	95.4	5.0	15.0
100 x 75	1.90	4.29	5.46	71.60	24.5	3.62	2.12	14.30	9.8	17.60	10.9	58.70	16.90	0.293	233.2	21.3	47.6
	2.00	4.50	5.74	75.00	25.7	3.62	2.12	15.00	10.3	18.50	11.5	61.60	17.70	0.293	222.0	20.0	45.0
	2.30	5.14	6.55	84.80	29	3.60	2.10	17.00	11.6	21.00	13	69.90	20.00	0.292	194.4	16.7	38.5
	2.50	5.56	7.09	91.20	31.1	3.59	2.09	18.20	12.4	22.70	14	75.40	21.50	0.291	179.7	15.0	35.0
	3.00	6.60	8.41	106.50	36.1	3.56	2.07	21.30	14.4	26.70	16.4	88.60	25.00	0.290	151.5	11.7	28.3
	4.00	8.59	10.95	134.10	44.9	3.50	2.03	26.80	18	34.10	20.9	113.00	31.30	0.286	116.4	7.5	20.0
	4.50	9.55	12.17	146.60	48.9	3.47	2.00	29.30	19.5	37.60	23	124.30	34.20	0.285	104.7	6.1	17.2
	5.00	10.48	13.36	158.20	52.5	3.44	1.98	31.60	21	40.80	25	134.90	36.80	0.283	95.4	5.0	15.0
125 x 50	1.90	4.29	5.46	71.60	24.5	3.62	2.12	14.30	9.8	17.60	10.9	58.70	16.90	0.293	233.2	21.3	47.6
	2.00	4.50	5.74	75.00	25.7	3.62	2.12	15.00	10.3	18.50	11.5	61.60	17.70	0.293	222.0	20.0	45.0
	2.30	5.14	6.55	84.80	29	3.60	2.10	17.00	11.6	21.00	13	69.90	20.00	0.292	194.4	16.7	38.5
	2.50	5.56	7.09	91.20	31.1	3.59	2.09	18.20	12.4	22.70	14	75.40	21.50	0.291	179.7	15.0	35.0
	3.00	6.60	8.41	106.50	36.1	3.56	2.07	21.30	14.4	26.70	16.4	88.60	25.00	0.290	151.5	11.7	28.3
	4.00	8.59	10.95	134.10	44.9	3.50	2.03	26.80	18	34.10	20.9	113.00	31.30	0.286	116.4	7.5	20.0
	4.50	9.55	12.17	146.60	48.9	3.47	2.00	29.30	19.5	37.60	23	124.30	34.20	0.285	104.7	6.1	17.2
	5.00	10.48	13.36	158.20	52.5	3.44	1.98	31.60	21	40.80	25	134.90	36.80	0.283	95.4	5.0	15.0
125 x 75	1.90	4.29	5.46	71.60	24.5	3.62	2.12	14.30	9.8	17.60	10.9	58.70	16.90	0.293	233.2	21.3	47.6
	2.00	4.50	5.74	75.00	25.7	3.62	2.12	15.00	10.3	18.50	11.5	61.60	17.70	0.293	222.0	20.0	45.0
	2.30	5.14	6.55	84.80	29	3.60	2.10	17.00	11.6	21.00	13	69.90	20.00	0.292	194.4	16.7	38.5
	2.50	5.56	7.09	91.20	31.1	3.59	2.09	18.20	12.4	22.70	14	75.40	21.50	0.291	179.7	15.0	35.0
	3.00	6.60	8.41	106.50	36.1	3.56	2.07	21.30	14.4	26.70	16.4	88.60	25.00	0.290	151.5	11.7	28.3
	4.00	8.59	10.95	134.10	44.9	3.50	2.03	26.80	18	34.10	20.9	113.00	31.30	0.286	116.4	7.5	20.0
	4.50	9.55	12.17	146.60	48.9	3.47	2.00	29.30	19.5	37.60	23	124.30	34.20	0.285	104.7	6.1	17.2
	5.00	10.48	13.36	158.20	52.5	3.44	1.98	31.60	21	40.80	25	134.90	36.80	0.283	95.4	5.0	15.0
150 x 50	1.90	4.29	5.46	71.60	24.5	3.62	2.12	14.30	9.8	17.60	10.9	58.70	16.90	0.293	233.2	21.3	47.6
	2.00	4.50	5.74	75.00	25.7	3.62	2.12	15.00	10.3	18.50	11.5	61.60	17.70	0.293	222.0	20.0	45.0
	2.30	5.14	6.55	84.80	29	3.60	2.10	17.00	11.6	21.00	13	69.90	20.00	0.292	194.4	16.7	38.5
	2.50	5.56	7.09	91.20	31.1	3.59	2.09	18.20	12.4	22.70	14	75.40	21.50	0.291	179.7	15.0	35.0
	3.00	6.60	8.41	106.50	36.1	3.56	2.07	21.30	14.4	26.70	16.4	88.60	25.00	0.290	151.5	11.7	28.3
	4.00	8.59	10.95	134.10	44.9	3.50	2.03	26.80	18	34.10	20.9	113.00	31.30	0.286	116.4	7.5	20.0
	4.50	9.55	12.17	146.60	48.9	3.47	2.00	29.30	19.5	37.60	23	124.30	34.20	0.285	104.7	6.1	17.2
	5.00	10.48	13.36	158.20	52.5	3.44	1.98	31.60	21	40.80	25	134.90	36.80	0.283	95.4	5.0	15.0
150 x 75	1.90	4.29	5.46	71.60	24.5	3.62	2.12	14.30	9.8	17.60	10.9	58.70	16.90	0.293	233.2	21.3	47.6
	2.00	4.50	5.74	75.00	25.7	3.62	2.12	15.00	10.3	18.50	11.5	61.60	17.70	0.293	222.0	20.0	45.0
	2.30	5.14	6.55	84.80	29	3.60	2.10	17.00	11.6	21.00	13	69.90	20.00	0.292	194.4	16.7	38.5
	2.50	5.56	7.09	91.20	31.1	3.59	2.09	18.20	12.4	22.70	14	75.40	21.50	0.291	179.7	15.0	35.0
	3.00	6.60	8.41	106.50	36.1	3.56	2.07	21.30	14.4	26.70	16.4	88.60	25.00	0.290	151.5	11.7	28.3
	4.00	8.59	10.95	134.10	44.9	3.50	2.03	26.80	18	34.10	20.9	113.00	31.30	0.286	116.4	7.5	20.0
	4.50	9.55	12.17	146.60	48.9	3.47	2.00	29.30	19.5	37.60	23	124.30	34.20	0.285	104.7	6.1	17.2
	5.00	10.48	13.36	158.20	52.5	3.44	1.98	31.60	21	40.80	25	134.90	36.80	0.283	95.4	5.0	15.0

Cold Formed Rectangular Hollow Sections

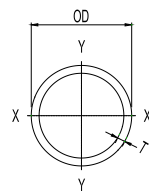
BS EN 10219 / MANUFACTURER'S STANDARD



Specified Dimension		Mass per unit length	Cross Sectional Area	Second Moment of Area		Radius of Gyration		Elastic Section Modulus		Plastic Section Modulus		Torsional Inertia Constant	Torsional Modulus Constant	Superficial area per meter length	Nominal length per tonne	Ratio for Local Buckling	
Size	Thickness															Flange	Web
H X B	T	M	A	L _{xx}	L _{yy}	i _{xx}	i _{yy}	W _{elxx}	W _{elyy}	W _{plxx}	W _{plyy}	I _t	C _t	A _s	m	B/T	H/T
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m			
150 x 100	3.00	11.31	14.41	460.64	247.64	5.65	4.15	61.42	49.53	73.48	55.76	507.20	81.40	0.490	88.4	28.3	45.0
	4.00	14.87	18.95	594.60	318.6	5.60	4.10	79.30	63.7	95.70	72.5	661.60	104.90	0.486	67.2	20.0	32.5
	4.50	16.62	21.17	658.10	352	5.58	4.08	87.70	70.4	106.30	80.5	736.10	116.10	0.485	60.2	17.2	28.3
	5.00	18.33	23.36	719.20	384	5.55	4.05	95.90	76.8	116.70	88.3	808.70	126.80	0.483	54.5	15.0	25.0
	6.00	21.69	27.63	834.70	444.2	5.50	4.01	111.30	88.8	136.70	103.3	948.30	147.10	0.479	46.1	11.7	20.0
	6.30	22.41	28.55	848.30	452.7	5.45	3.98	113.10	90.5	139.90	105.9	991.60	152.30	0.473	44.6	10.9	18.8
	8.00	27.67	35.24	1008.10	535.7	5.35	3.90	134.40	107.1	169.20	127.9	1205.90	181.80	0.466	36.1	7.5	13.8
	9.00	30.60	38.98	1089.50	577.5	5.29	3.85	145.30	115.5	184.80	139.5	1320.30	197.10	0.461	32.7	6.1	11.7
200 x 100	4.00	18.01	22.95	1199.70	410.8	7.23	4.23	120.00	82.2	148.00	91.7	985.40	141.80	0.586	55.5	20.0	45.0
	4.50	20.15	25.67	1331.40	454.6	7.20	4.21	133.10	90.9	164.90	102	1097.10	157.10	0.585	49.6	17.2	39.4
	5.00	22.26	28.36	1456.30	496.9	7.17	4.19	145.90	99.4	181.40	112.1	1206.30	171.90	0.583	44.9	15.0	35.0
	6.00	26.40	33.63	1703.30	576.9	7.12	4.14	170.30	115.4	213.30	131.5	1417.00	200.10	0.579	37.9	11.7	28.3
	6.30	27.36	34.85	1739.20	591.1	7.06	4.12	173.90	118.2	219.10	135.4	1482.80	207.60	0.573	36.6	10.9	26.7
	8.00	33.95	43.24	2090.80	705.4	6.95	4.04	209.10	141.1	267.30	164.7	1810.70	249.60	0.566	29.5	7.5	20.0
	9.00	37.66	47.98	2275.60	764.4	6.89	3.99	227.60	152.9	293.40	180.5	1988.30	271.80	0.561	26.6	6.1	17.2
	10.00	41.26	52.57	2444.40	817.7	6.82	3.94	244.40	163.5	318.10	195.2	2154.10	292.10	0.557	24.2	5.0	15.0
200 x 150	4.00	21.15	26.95	1583.90	1021	7.67	6.16	158.40	136.1	187.20	154.1	1942.00	218.50	0.686	47.3	32.5	45.0
	4.50	23.68	30.17	1761.50	1134.5	7.64	6.13	176.10	151.3	208.90	171.8	2168.50	243.00	0.685	42.2	28.3	39.4
	5.00	26.18	33.36	1934.70	1245	7.62	6.11	193.50	166	230.10	189.2	2391.40	266.80	0.683	38.2	25.0	35.0
	6.00	31.11	39.63	2268.00	1457.1	7.56	6.06	226.80	194.3	271.50	223.1	2826.20	312.70	0.679	32.1	20.0	28.3
	6.30	32.30	41.15	2330.40	1499.2	7.53	6.04	233.00	199.9	280.10	230.4	2965.40	325.50	0.673	31.0	18.8	26.7
	8.00	40.23	51.24	2828.50	1815.5	7.43	5.95	282.90	242.4	344.10	282.8	3664.90	396.40	0.666	24.9	13.8	20.0
	9.00	44.73	56.98	3097.00	1985.3	7.37	5.90	309.70	264.7	379.40	311.7	4054.80	435.10	0.661	22.4	11.7	17.2
	10.00	49.11	62.57	3347.70	2143.4	7.31	5.85	334.80	285.8	413.10	339.2	4428.40	471.40	0.657	20.4	10.0	15.0
225 x 75	4.50	20.15	25.67	1511.41	266.53	7.67	3.22	134.35	71.07	173.57	79.27	760.47	129.18	0.585	49.6	11.7	45.0
	5.00	22.26	28.36	1655.74	290.39	7.64	3.20	147.18	77.44	190.88	86.96	833.49	140.94	0.583	44.9	10.0	40.0
	6.00	26.40	33.63	1930.79	334.95	7.58	3.16	171.63	89.32	224.33	101.68	972.71	163.02	0.579	37.9	7.5	32.5
	6.30	27.62	35.19	2009.80	347.51	7.56	3.14	178.65	92.67	234.07	105.94	1012.72	169.29	0.578	36.2	6.9	30.7
	8.00	34.38	43.79	2427.59	412.05	7.45	3.07	215.79	109.88	286.63	128.59	1224.13	201.77	0.573	29.1	4.4	23.1
	9.00	38.21	48.67	2650.04	444.97	7.38	3.02	235.56	118.66	315.51	140.80	1336.44	218.58	0.569	26.2	3.3	20.0
	10.00	41.94	53.42	2855.65	474.35	7.31	2.98	253.84	126.49	342.89	152.20	1439.92	233.78	0.566	23.8	2.5	17.5
	10.00	41.94	53.42	2855.65	474.35	7.31	2.98	253.84	126.49	342.89	152.20	1439.92	233.78	0.566	23.8	2.5	17.5
250 x 150	4.50	27.21	34.67	3003.80	1372.8	9.31	6.29	240.30	183	289.90	204.6	2976.90	306.50	0.785	36.7	28.3	50.6
	5.00	30.11	38.67	3304.20	1508	9.28	6.27	264.30	201.1	319.80	225.5	3284.50	336.90	0.783	33.2	25.0	45.0
	6.00	35.71	45.63	3885.60	1768.3	9.23	6.23	310.80	235.8	378.00	266.3	3885.80	395.60	0.779	27.9	20.0	36.7
	6.30	37.25	47.45	4001.40	1824.6	9.18	6.20	320.10	243.3	390.90	275.7	4077.70	412.20	0.773	26.8	18.8	34.7
	8.00	46.51	59.24	4885.80	2219.2	9.08	6.12	390.90	295.9	482.20	339.6	5050.40	504.00	0.766	21.5	13.8	26.3
	9.00	51.79	65.98	5368.90	2433.3	9.02	6.07	429.50	324.4	533.10	375.1	5595.80	554.30	0.761	19.3	11.7	22.8
	10.00	56.96	72.57	5825.00	2634.2	8.96	6.02	466.00	351.2	582.00	409.2	6120.70	602.10	0.757	17.6	10.0	20.0
	10.00	56.96	72.57	5825.00	2634.2	8.96	6.02	466.00	351.2	582.00	409.2	6120.70	602.10	0.757	17.6	10.0	20.0
300 x 100	6.00	35.82	45.63	4776.80	842.4	10.23	4.30	318.50	168.5	411.40	187.9	2403.50	306.20	0.779	27.9	11.7	45.0
	6.30	37.25	47.45	4906.80	868.1	10.17	4.28	327.10	173.6	424.90	194.4	255.20	318.30	0.773	26.8	10.9	42.6
	8.00	46.51	59.24	5977.90	1044.8	10.05	4.20	398.50	209	523.50	238.3	3080.30	385.20	0.766	21.5	7.5	32.5
	10.00	56.96	72.57	7106.00	1224.4	9.90	4.11	473.70	244.9	630.90	285.2	3681.00	454.50	0.757	17.6	5.0	25.0
300 x 200	4.50	34.28	43.67	5661.90	3051.7	11.39	8.36	377.50	305.2	448.70	340.8	6185.10	500.90	0.985	29.2	39.4	61.7
	5.00	37.96	48.36	6241.10	3360.9	11.36	8.34	416.10	336.1	495.70	376.4	6835.80	551.90	0.983	26.3	35.0	55.0
	6.00	45.24	57.63	7370.20	3962.2	11.31	8.29	491.30	396.2	587.80	446.1	8115.20	651.20	0.979	22.1	28.3	45.0
	6.30	47.14	60.05	7624.40	4103.8	11.27	8.27	508.30	410.4	609.90	463.2	8523.50	679.80	0.973	21.2	26.7	42.6
	8.00	59.07	75.24	9389.30	5041.7	11.17	8.19	626.00	504.2	757.10	674.5	10626.50	838.40	0.966	16.9	20.0	32.5
	9.00	65.92	83.98	10371.40	5561.3	11.11	8.14	691.40	556.1	840.20	737.2	11822.40	927.00	0.961	15.2	17.2	28.3
	10.00	72.66	92.57	11312.70	6057.7	11.05	8.09	754.20	605.8	920.90	798.1	12987.10	1012.20	0.957	13.8	15.0	25.0
	10.00	72.66	92.57	11312.70	6057.7	11.05	8.09	754.20	605.8	920.90	798.1	12987.10	1012.20	0.957	13.8	15.0	25.0

Cold Formed Circular Hollow Sections

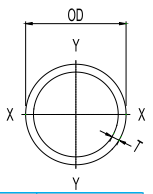
BS EN 10219 / MANUFACTURER'S STANDARD



Specified Dimension		Mass per unit length	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Section Modulus	Plastic Section Modulus	Torsional Inertia Constant	Torsional Modulus Constant	Superficial area per meter length	Nominal length per tonne	Ratio for Local Buckling
Outside Diameter	Thickness											
D	T	M	A	I	i	W _{el}	W _{pl}	I _t	C _t	A _s	m	D/T
mm	mm	kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	
21.3	2.0	0.95	1.21	0.571	0.686	0.54	0.75	1.14	1.07	0.0669	1050.5	10.65
	2.5	1.16	1.48	0.664	0.671	0.62	0.89	1.33	1.25	0.0669	862.7	8.52
	3.0	1.35	1.72	0.741	0.656	0.70	1.01	1.48	1.39	0.0669	738.6	7.10
26.9	2.0	1.23	1.56	1.22	0.883	0.91	1.24	2.44	1.81	0.0845	814.2	13.45
	2.5	1.50	1.92	1.44	0.867	1.07	1.49	2.88	2.14	0.0845	664.7	10.76
	3.0	1.77	2.25	1.63	0.852	1.21	1.72	3.27	2.43	0.0845	565.5	8.97
33.7	2.0	1.56	1.99	2.51	1.12	1.49	2.01	5.02	2.98	0.106	639.6	16.85
	2.5	1.92	2.45	3.00	1.11	1.78	2.44	6.00	3.56	0.106	519.9	13.48
	3.0	2.27	2.89	3.44	1.09	2.04	2.84	6.88	4.08	0.106	440.3	11.23
42.4	2.0	1.99	2.54	5.19	1.43	2.45	3.27	10.38	4.90	0.133	501.8	21.20
	2.5	2.46	3.13	6.26	1.41	2.95	3.99	12.52	5.91	0.133	406.5	16.96
	3.0	2.91	3.71	7.25	1.40	3.42	4.67	14.49	6.84	0.133	343.1	14.13
	4.0	3.79	4.83	8.99	1.36	4.24	5.92	17.98	8.48	0.133	264.0	10.60
48.3	2.0	2.28	2.91	7.81	1.64	3.23	4.29	15.62	6.47	0.152	437.9	24.15
	2.5	2.82	3.60	9.46	1.62	3.92	5.25	18.92	7.83	0.152	345.1	19.32
	3.0	3.35	4.27	11.0	1.61	4.55	6.17	22.00	9.11	0.152	298.4	16.10
	4.0	4.37	5.57	13.8	1.57	5.70	7.87	27.54	11.40	0.152	228.8	12.08
	5.0	5.34	6.80	16.2	1.54	6.69	9.42	32.31	13.38	0.152	187.3	9.66
60.3	2.0	2.88	3.66	15.6	2.06	5.17	6.80	31.16	10.34	0.189	347.8	30.15
	2.5	3.56	4.54	19.0	2.05	6.30	8.36	37.99	12.60	0.189	280.6	24.12
	3.0	4.24	5.40	22.2	2.03	7.37	9.86	44.45	14.74	0.189	235.9	20.10
	4.0	5.55	7.07	28.2	2.00	9.34	12.70	56.35	18.69	0.189	180.1	15.08
	5.0	6.82	8.69	33.5	1.96	11.10	15.33	66.95	22.21	0.189	146.7	12.06
76.1	2.0	3.65	4.66	32.0	2.62	8.40	10.98	63.96	16.81	0.239	273.6	38.05
	2.5	4.54	5.78	39.2	2.60	10.30	13.55	78.37	20.60	0.239	220.4	30.44
	3.0	5.41	6.89	46.1	2.59	12.11	16.04	92.19	24.23	0.239	184.9	25.37
	4.0	7.11	9.06	59.1	2.55	15.52	20.81	118.11	31.04	0.239	140.6	19.03
	5.0	8.77	11.17	70.9	2.52	18.64	25.32	141.84	37.28	0.239	114.1	15.22
	6.0	10.37	13.21	81.8	2.49	21.49	29.56	163.52	42.97	0.239	96.4	12.68
	6.3	10.84	13.81	84.8	2.48	22.29	30.78	169.64	44.58	0.239	92.2	12.08
88.9	2.0	4.29	5.46	51.6	3.07	11.60	15.11	103.14	23.20	0.279	233.3	44.45
	2.5	5.33	6.79	63.4	3.06	14.26	18.67	126.75	28.51	0.279	187.7	35.56
	3.0	6.36	8.10	74.8	3.04	16.82	22.15	149.53	33.64	0.279	157.3	29.63
	4.0	8.38	10.67	96.3	3.00	21.67	28.85	192.68	43.35	0.279	119.4	22.23
	5.0	10.35	13.18	116.4	2.97	26.18	35.24	232.75	52.36	0.279	96.7	17.78
	6.0	12.27	15.63	134.9	2.94	30.36	41.31	269.88	60.72	0.279	81.5	14.82
	6.3	12.83	16.35	140.2	2.93	31.55	43.07	280.47	63.10	0.279	77.9	14.11
114.3	2.5	6.89	8.78	137.3	3.95	24.02	31.25	274.52	48.03	0.359	145.1	45.72
	3.0	8.23	10.49	162.5	3.94	28.44	37.17	325.10	56.88	0.359	121.4	38.10
	4.0	10.88	13.86	211.1	3.90	36.93	48.69	422.13	73.86	0.359	91.9	28.58
	5.0	13.48	17.17	256.9	3.87	44.96	59.77	513.84	89.91	0.359	74.2	22.86
	6.0	16.03	20.41	300.2	3.83	52.53	70.45	600.42	105.06	0.359	62.4	19.05
	6.3	16.78	21.38	312.7	3.82	54.72	73.57	625.43	109.44	0.359	59.6	18.14
	8.0	20.97	26.72	379.5	3.77	66.40	90.57	758.98	132.81	0.359	47.7	14.29

Cold Formed Circular Hollow Sections

BS EN 10219 / MANUFACTURER'S STANDARD



Specified Dimension		Mass per unit length	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Section Modulus	Plastic Section Modulus	Torsional Inertia Constant	Torsional Modulus Constant	Superficial area per meter length	Nominal length per tonne	Ratio for Local Buckling
Outside Diameter	Thickness											
D	T	M	A	I	i	W _{el}	W _{pl}	I _t	C _t	A _s		D/T
mm	mm	kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	
139.7	3.0	10.11	12.88	301.1	4.83	43.11	56.07	602.18	86.21	0.439	98.9	46.57
	4.0	13.39	17.05	392.9	4.80	56.24	73.68	785.72	112.49	0.439	74.7	34.93
	5.0	16.61	21.16	480.5	4.77	68.80	90.76	961.08	137.59	0.439	60.2	27.94
	6.0	19.78	25.20	564.3	4.73	80.78	107.33	1128.52	161.56	0.439	50.5	23.28
	6.3	20.73	26.40	588.6	4.72	84.27	112.20	1177.24	168.54	0.439	48.2	22.17
	8.0	25.98	33.10	720.3	4.66	103.12	138.93	1440.58	206.24	0.439	38.5	17.46
168.3	4.0	16.21	20.65	697.1	5.81	82.84	108.00	1394.18	165.68	0.529	61.7	42.08
	5.0	20.14	25.65	855.8	5.78	101.70	133.38	1711.69	203.41	0.529	49.7	33.66
	6.0	24.02	30.59	1008.7	5.74	119.87	158.12	2017.39	239.74	0.529	41.6	28.05
	6.3	25.17	32.06	1053.4	5.73	125.18	165.42	2106.84	250.37	0.529	39.7	26.71
	8.0	31.63	40.29	1297.3	5.67	154.16	205.74	2594.54	308.32	0.529	31.6	21.04
	10.0	39.04	49.73	1564.0	5.61	185.86	250.92	3127.97	371.71	0.529	25.6	16.83
177.8	4.0	17.14	21.84	825.1	6.15	92.81	120.85	1650.17	185.62	0.559	58.3	44.45
	5.0	21.31	27.14	1014.0	6.11	114.06	149.34	2027.94	228.11	0.559	46.9	35.56
	6.0	25.42	32.38	1196.2	6.08	134.56	177.16	2392.43	269.12	0.559	39.3	29.63
	6.3	26.65	33.94	1249.6	6.07	140.56	185.38	2499.24	281.13	0.559	37.5	28.22
	8.0	33.50	42.68	1541.4	6.01	173.39	230.83	3082.87	346.78	0.559	29.9	22.23
	10.0	41.38	52.72	1862.0	5.94	209.45	281.90	3723.96	418.89	0.559	24.2	17.78
193.7	4.0	18.71	23.84	1072.8	6.71	110.77	143.97	2145.58	221.54	0.609	53.4	48.43
	5.0	23.27	29.64	1320.2	6.67	136.32	178.08	2640.46	272.63	0.609	43.0	38.74
	6.0	27.77	35.38	1559.7	6.64	161.05	211.46	3119.45	322.09	0.609	36.0	32.28
	6.3	29.12	37.09	1630.0	6.63	168.31	221.33	3260.09	336.61	0.609	34.3	30.75
	8.0	36.64	46.67	2015.5	6.57	208.11	276.05	4031.07	416.22	0.609	27.3	24.21
219.1	4.0	21.22	27.03	1563.8	7.61	142.75	185.09	3127.67	285.50	0.688	47.1	54.78
	5.0	26.40	33.63	1928.0	7.57	176.00	229.24	3856.09	351.99	0.688	37.9	43.82
	6.0	31.53	40.17	2281.9	7.54	208.30	272.54	4563.89	416.60	0.688	31.7	36.52
	6.3	33.06	42.12	2386.1	7.53	217.81	285.37	4772.28	435.63	0.688	30.2	34.78
244.5	5.0	29.53	37.62	2698.6	8.47	220.74	286.84	5397.16	441.49	0.768	33.9	48.90
	6.0	35.29	44.96	3198.5	8.43	261.64	341.37	6397.07	523.28	0.768	28.3	40.75
	6.3	37.01	47.14	3346.0	8.42	273.70	357.54	6692.05	547.41	0.768	27.0	38.81
	8.0	46.66	59.44	4160.4	8.37	340.32	447.63	8320.89	680.65	0.768	21.4	30.56
	10.0	57.83	73.67	5073.1	8.30	414.98	550.24	10146.29	829.96	0.768	17.3	24.45
273	6.0	39.51	50.33	4487.1	9.44	328.72	427.81	8974.17	657.45	0.858	25.3	45.50
	6.3	41.44	52.79	4695.8	9.43	344.02	448.20	9391.65	688.03	0.858	24.1	43.33
	8.0	52.28	66.60	5851.7	9.37	428.70	561.97	11703.43	857.39	0.858	19.1	34.13
	10.0	64.86	82.62	7154.1	9.31	524.11	692.02	14308.19	1048.22	0.858	15.4	27.30
323.9	6.0	47.04	59.92	7572.5	11.24	467.58	606.43	15144.93	935.16	1.018	21.3	53.98
	6.3	49.34	62.86	7928.9	11.23	489.59	635.56	15857.79	979.18	1.018	20.3	51.41
	8.0	62.32	79.39	9910.1	11.17	611.92	798.51	19820.16	1223.84	1.018	16.0	40.49
355.6	6.0	51.73	65.90	10070.6	12.36	566.40	733.39	20141.11	1132.80	1.117	19.3	59.27
	6.3	54.27	69.13	10547.2	12.35	593.21	768.75	21094.41	1186.41	1.117	18.4	56.44
	8.0	68.58	87.36	13201.4	12.29	742.48	966.78	26402.75	1484.97	1.117	14.6	44.45
	10.0	85.23	108.57	16223.5	12.22	912.46	1194.73	32447.00	1824.92	1.117	11.7	35.56

Carbon Steel Tube For Machine Structural Purposes

AVAILABLE IN COLD ROLLED, HOT ROLLED AND ALUMINISED STEEL MATERIALS

JIS G 3445 STKM 11 A/MANUFACTURER'S STANDARD

NOMINAL SIZE	OUTER DIAMETER		THICKNESS												
			SWG	19				18				17			
			mm	1.0				1.2				1.4			
			in	0.039				0.047				0.065			
mm	in	mm		kg/m	kg/6m	kg/ft	lb/ft	kg/m	kg/6m	kg/ft	lb/ft	kg/m	kg/6m	kg/ft	lb/ft
10	3/8	9.5		0.210	1.260	0.0639	0.141								
12	½	12.7		0.289	1.734	0.088	0.194	0.340	2.040	0.104	0.229	0.390	2.340	0.119	0.262
16	5/8	15.9		0.368	2.208	0.112	0.247	0.435	2.610	0.133	0.293	0.501	3.006	0.153	0.337
19	¾	19.1		0.447	2.682	0.136	0.300	0.530	3.180	0.162	0.357	0.611	3.666	0.186	0.410
22	7/8	22.2		0.523	3.138	0.159	0.351	0.622	3.732	0.189	0.417	0.718	4.308	0.219	0.483
25	1	25.4		0.602	3.612	0.183	0.404	0.716	4.296	0.218	0.481	0.829	4.974	0.253	0.588
28	1 1/8	28.6		0.681	4.086	0.208	0.459	0.811	4.886	0.247	0.545	0.939	5.634	0.286	0.631
32	1 ¼	31.8		0.760	4.560	0.232	0.512	0.906	5.436	0.276	0.609	1.050	6.300	0.320	0.706
35	1 3/8	34.9						1.000	6.000	0.304	0.670	1.160	6.960	0.354	0.781
38	1 ½	38.1						1.092	6.552	0.333	0.734	1.267	7.602	0.386	0.851
41	1 5/8	41.3						1.187	7.122	0.362	0.798	1.378	8.268	0.420	0.926
44	1 ¾	44.5						1.281	7.686	0.391	0.862	1.488	8.928	0.454	1.001
47	1 7/8	47.6						1.373	8.238	0.419	0.924	1.595	9.570	0.486	1.072
50	2	50.8						1.468	8.808	0.447	0.986	1.705	10.230	0.520	1.146
54	2 1/8	54						1.563	9.378	0.476	1.049	1.816	10.896	0.554	1.221
57	2 ¼	57.2										1.926	11.556	0.587	1.294
60	2 3/8	60.3										2.033	12.198	0.620	1.367
65	2 ½	63.5										2.144	12.864	0.653	1.440

Carbon Steel Tube For Machine Structural Purposes

AVAILABLE IN COLD ROLLED, HOT ROLLED AND ALUMINISED STEEL MATERIALS

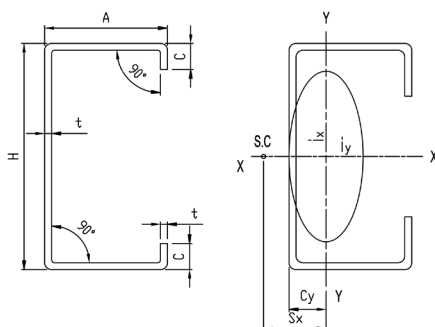
JIS G 3445 STKM 11 A/MANUFACTURER'S STANDARD

NOMINAL SIZE	OUTER DIAMETER		THICKNESS												
			SWG	16				15				14			
			mm	1.6				1.8				2.0			
			in	0.063				0.071				0.079			
mm	in	mm		kg/m	kg/6m	kg/ft	lb/ft	kg/m	kg/6m	kg/ft	lb/ft	kg/m	kg/6m	kg/ft	lb/ft
12	½	12.7		0.438	2.628	0.134	0.296	0.484	2.904	0.148	0.326	0.528	3.168	0.161	0.355
16	⅝	15.9		0.564	3.384	0.172	0.379	0.626	3.756	0.191	0.421	0.686	4.116	0.209	0.461
19	¾	19.1		0.691	4.146	0.211	0.465	0.768	4.608	0.234	0.516	0.844	5.064	0.257	0.567
22	7/8	22.2		0.813	4.878	0.248	0.547	0.906	5.436	0.276	0.609	0.996	5.976	0.304	0.670
25	1	25.4		0.939	5.634	0.286	0.631	1.048	6.288	0.319	0.703	1.154	6.924	0.352	0.776
28	1⅛	28.6		1.066	6.396	0.325	0.717	1.190	7.140	0.363	0.800	1.312	7.872	0.400	0.882
32	1¼	31.8		1.192	7.152	0.363	0.800	1.332	7.992	0.406	0.895	1.470	8.820	0.448	0.988
35	1⅜	34.9		1.318	7.908	0.402	0.886	1.469	8.814	0.448	0.988	1.623	9.738	0.495	1.091
38	1½	38.1		1.440	8.640	0.439	0.968	1.612	9.672	0.491	1.083	1.781	10.686	0.543	1.197
41	1⅝	41.3		1.567	9.402	0.478	1.054	1.754	10.524	0.534	1.177	1.938	11.628	0.591	1.303
44	1¾	44.5		1.693	10.158	0.516	1.138	1.896	11.376	0.578	1.274	2.096	12.576	0.639	1.409
47	1⅞	47.6		1.815	10.890	0.553	1.219	2.033	12.198	0.620	1.367	2.249	13.494	0.686	1.512
50	2	50.8		1.942	11.652	0.592	1.305	2.175	13.050	0.663	1.462	2.407	14.442	0.734	1.618
54	2⅛	54.0		2.068	12.408	0.630	1.389	2.317	13.902	0.706	1.557	2.565	15.390	0.782	1.724
57	2¼	57.2		2.194	13.164	0.669	1.475	2.459	14.754	0.750	1.654	2.723	16.338	0.830	1.830
60	2⅜	60.3		2.316	13.896	0.706	1.557	2.597	15.582	0.792	1.746	2.876	17.256	0.877	1.934
65	2½	63.5		2.443	14.658	0.745	1.642	2.739	16.434	0.835	1.841	3.033	18.198	0.925	2.039

Lipped Channel

JIS G 3350 /MANUFACTURER'S STANDARD

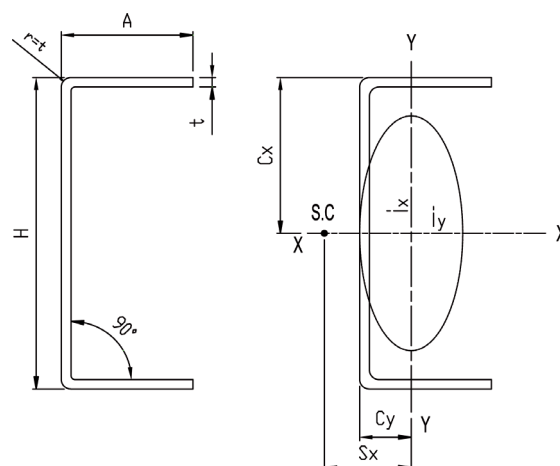
Dimension mm (in)		Sectional Area	Calculated Weight	Centre of Gravity		Secondary Moment of Area		Radius of Gyration of Area		Modulus Section		Centre of Shear	
				C _x	C _y	I _x	I _y	i _x	i _y	Z _x	Z _y	S _x	S _y
H x A x C	t	cm ²	kg/m	cm	cm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm	cm
250 x 75 x 25 (10 x 3 x 1)	4.5	18.92	14.90	0	2.07	1690.0	129.0	9.44	2.62	135.0	23.80	5.10	0
	4.0	16.90	13.00	0	2.07	1518.0	120.0	9.48	2.66	121.4	22.00	5.20	0
	3.2	13.96	10.96	0	2.07	1265.0	100.0	9.52	2.68	101.2	18.40	5.20	0
	3.0	12.90	10.10	0	2.07	1177.0	94.0	9.54	2.69	94.1	17.30	5.20	0
250 x 75 x 20 (10 x 3 x ¾)	4.5	18.46	14.50	0	1.94	1638.0	116.0	9.41	2.51	131.0	21.00	4.94	0
	4.0	16.51	12.96	0	1.95	1477.0	109.1	9.46	2.57	118.2	19.70	4.97	0
	3.2	13.41	10.52	0	1.95	1210.0	89.2	9.5	2.58	96.8	16.10	4.99	0
	3.0	12.60	9.89	0	1.95	1145.0	85.1	9.51	2.59	91.6	15.30	5.00	0
225 x 75 x 25 (9 x 3 x 1)	4.5	17.79	14.00	0	2.18	1310.0	125.0	8.57	2.64	116.0	23.50	5.33	0
	4.0	15.92	12.50	0	2.19	1182.0	115.9	8.62	2.70	105.9	21.80	5.40	0
	3.2	12.93	10.15	0	2.19	969.5	95.6	8.66	2.72	86.2	18.00	5.42	0
	3.0	12.15	9.54	0	2.19	916.3	90.7	8.68	2.73	81.5	17.10	5.43	0
	2.3	9.43	7.40	0	2.19	718.2	72.3	8.72	2.77	63.8	13.60	5.44	0
225 x 75 x 20 (9 x 3 x ¾)	4.5	17.34	13.60	0	2.05	1273.0	113.0	8.56	2.55	113.0	20.70	5.10	0
	4.0	15.53	12.19	0	2.06	1151.0	105.8	8.61	2.61	102.3	19.50	5.12	0
	3.2	12.61	9.90	0	2.06	943.3	86.5	8.65	2.62	84.4	15.90	5.13	0
	3.0	11.85	9.30	0	2.06	892.0	82.6	8.67	2.63	79.3	15.20	5.13	0
	2.3	9.20	7.21	0	2.06	699.6	66.0	8.72	2.67	62.2	12.10	5.14	0
200 x 75 x 25 (8 x 3 x 1)	4.5	16.67	13.10	0	2.32	990.0	121.0	7.71	2.69	99.0	23.30	5.60	0
	4.0	14.95	11.70	0	2.32	895.0	110.0	7.74	2.72	89.5	21.30	5.70	0
	3.2	12.10	9.52	0	2.33	736.0	92.3	7.79	2.76	73.6	17.80	5.70	0
	3.0	11.41	8.96	0	2.33	694.0	88.2	7.8	2.78	69.4	17.10	5.80	0
200 x 75 x 20 (8 x 3 x ¾)	4.5	16.22	12.70	0	2.19	963.0	109.0	7.71	2.60	96.3	20.60	5.30	0
	4.0	14.55	11.40	0	2.19	871.0	100.0	7.74	2.62	87.1	18.90	5.30	0
	3.2	11.81	9.27	0	2.19	716.0	84.1	7.79	2.67	71.6	15.80	5.40	0
	3.0	11.10	8.72	0	2.20	676.0	80.4	7.8	2.69	67.6	15.20	5.40	0
175 x 75 x 20 (7 x 3 x ¾)	4.5	15.09	11.80	0	2.33	702.0	104.0	6.81	2.62	80.2	20.10	5.63	0
	3.2	11.00	8.64	0	2.34	521.0	79.4	6.88	2.69	59.5	15.40	5.66	0
	3.0	10.35	8.13	0	2.34	495.0	76.3	6.91	2.71	56.6	14.80	5.67	0
	2.3	8.05	6.31	0	2.34	389.0	61.0	6.95	2.75	44.5	11.80	5.68	0
150 x 65 x 20 (6 x 2½ x ¾)	4.5	13.06	10.25	0	2.10	441.0	68.8	5.8	2.29	58.8	15.60	5.00	0
	4.0	11.75	9.22	0	2.11	401.0	63.7	5.84	2.33	53.5	14.50	5.00	0
	3.2	9.57	7.51	0	2.11	332.0	53.8	5.89	2.37	44.3	12.20	5.10	0
	3.0	9.01	7.07	0	2.11	342.0	51.5	5.91	2.39	42.0	11.70	5.10	0
	2.3	7.01	5.50	0	2.12	248.0	41.1	5.94	2.42	33.0	9.37	5.20	0
125 x 50 x 20 (5 x 2 x ¾)	4.5	10.59	8.32	0	1.68	238.0	33.5	4.74	1.78	38.0	10.00	4.00	0
	4.0	9.55	7.50	0	1.68	217.0	33.1	4.77	1.81	34.7	9.38	4.00	0
	3.2	7.81	6.13	0	1.68	181.0	26.6	4.82	1.85	29.0	8.02	4.00	0
	3.0	7.36	5.78	0	1.68	170.0	25.5	4.8	1.86	27.1	7.68	4.00	0
	2.3	5.75	4.51	0	1.69	137.0	20.6	4.88	1.89	21.9	6.22	4.10	0
100 x 50 x 20 (4 x 2 x ¾)	4.5	9.47	7.43	0	1.86	139.0	30.9	3.82	1.81	27.7	9.82	4.30	0
	4.0	8.55	6.71	0	1.86	127.0	28.7	3.85	1.83	25.4	9.13	4.30	0
	3.2	7.01	5.50	0	1.86	107.0	24.5	3.9	1.87	21.3	7.81	4.40	0
	3.0	6.61	5.19	0	1.86	101.5	23.6	3.92	1.89	20.3	7.52	4.40	0
	2.3	5.17	4.06	0	1.86	80.7	19.0	3.95	1.92	16.1	6.06	4.40	0



Mild Steel Plain Channels

JIS G 3350 /MANUFACTURER'S STANDARD

Dimension mm		Sectional Area	Calculated Weight	Centre of Gravity	Secondary Moment of Area		Radius of Gyration of Area		Modulus of Section		Centre of Shear
H x A x B	t	cm ²	kg/m	C _y cm	I _x cm ⁴	I _y cm ⁴	i _x cm	i _y cm	Z _x cm ³	Z _y cm ³	S _x cm
60 x 30	1.6	1.83	1.44	0.82	10.30	1.64	2.37	0.95	3.45	0.75	1.12
	2.3	2.58	2.03	0.86	14.20	2.27	2.34	0.94	4.72	1.06	1.12
75 x 45	1.6	2.55	2.00	1.30	23.86	5.38	3.05	1.45	6.36	1.68	1.76
	2.3	3.62	2.84	1.33	33.08	7.51	3.02	1.44	8.82	2.37	1.76
	3.0	4.75	3.65	1.37	41.58	9.51	2.98	1.42	11.08	3.04	1.76
100 x 50	1.6	3.11	2.44	1.32	50.00	7.88	4.00	1.59	10.00	2.14	3.10
	2.3	4.42	3.47	1.36	69.60	11.10	3.97	1.58	14.00	3.04	3.10
	3.0	5.70	4.47	1.39	88.50	14.10	3.94	1.57	17.70	3.90	3.10
125 x 50	2.3	5.00	3.92	1.21	117.00	11.90	4.85	1.54	18.80	3.13	2.80
	3.0	6.45	5.06	1.24	149.00	15.10	4.81	1.53	23.90	4.03	2.80
	4.5	9.45	7.42	1.31	212.00	21.60	4.73	1.51	33.90	5.85	2.80
150 x 65	2.3	6.26	4.91	1.61	218.00	25.90	5.90	2.03	29.10	5.30	3.80
	3.0	8.10	6.36	1.64	276.00	33.20	5.87	2.02	37.20	6.83	3.80
	4.0	10.67	8.38	1.69	361.00	43.10	5.82	2.01	48.20	8.96	3.80
	4.5	11.93	9.36	1.71	400.00	47.90	5.79	2.00	53.40	10.00	3.70
175 x 75	2.3	7.30	5.73	1.83	347.00	40.20	6.89	2.35	39.60	7.10	4.40
	3.0	9.45	7.42	1.86	445.00	51.70	6.86	2.34	50.80	9.17	4.40
	4.0	12.47	9.79	1.91	578.00	67.40	6.81	2.32	66.10	12.10	4.30
	4.5	13.95	10.95	1.93	643.00	75.00	6.78	2.32	73.40	13.50	4.30
200 x 75	2.3	7.87	6.18	1.71	473.00	41.80	7.75	2.30	47.30	7.22	4.10
	3.0	10.20	8.01	1.74	608.00	53.70	7.72	2.29	60.80	9.32	4.10
	4.0	13.47	10.58	1.78	792.00	70.10	7.67	2.28	79.20	12.30	4.10
	4.5	15.08	11.80	1.80	881.00	78.00	7.64	2.27	88.10	13.70	4.10
225 x 75	2.3	8.45	6.63	1.60	624.00	43.20	8.60	2.26	55.50	7.31	3.90
	3.0	10.95	8.59	1.63	803.00	55.50	8.56	2.25	71.30	9.45	3.90
	4.0	14.47	11.36	1.67	1048.00	72.40	8.51	2.24	93.00	12.40	3.90
	4.5	16.20	12.72	1.70	1166.00	80.60	8.48	2.23	104.00	13.90	3.90
250 x 75	2.3	9.02	7.09	1.50	802.00	44.30	9.43	2.22	64.20	7.40	3.80
	3.0	11.70	9.19	1.53	1032.00	57.00	9.39	2.21	82.50	9.56	3.70
	4.0	15.47	12.10	1.56	1348.00	74.50	9.33	2.19	108.00	12.60	3.70
	4.5	17.33	13.60	1.60	1502.00	82.90	9.31	2.19	120.00	14.10	3.70

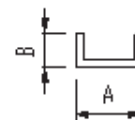


Special Sizes

GATE CHANNEL

MANUFACTURER'S STANDARD

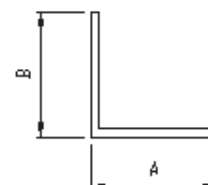
Dimension (B x A x B)	Thickness	Calculated weight	
mm	mm	kg/m	kg/6m
10 x 19 x 10	2.3	0.58	3.48



U-CHANNEL

MANUFACTURER'S STANDARD

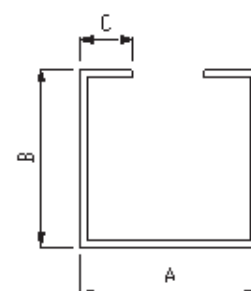
Dimension (A x B)	Thickness	Calculated weight	
mm	mm	kg/m	kg/6m
25 x 25	1.6	0.88	5.28
30 x 30	1.6	1.00	6.00



TROLLEY TRACK

MANUFACTURER'S STANDARD

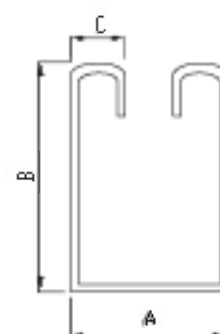
Dimension (A x B x C)	Thickness	Calculated weight	
mm	mm	kg/m	kg/6m
50 x 50 x 15	1.6	2.13	12.78
	2.3	2.98	17.88
	3.0	3.77	22.62



DOOR RAIL TRACK

MANUFACTURER'S STANDARD

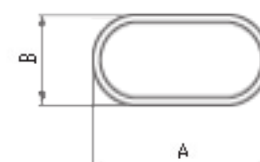
Dimension (A x B x C)	Thickness	Calculated weight	
mm	mm	kg/m	kg/6m
44 x 65 x 15	1.6	2.17	13.02
	2.3	3.21	19.26



OBLONG TUBES

MANUFACTURER'S STANDARD

Dimension (A x B)	Thickness	Calculated weight	
mm	mm	kg/m	kg/6m
19 x 10	1.10	0.40	2.40
19 x 11	0.70	0.28	1.68
24 x 12	1.10	0.48	2.88
32 x 16	2.00	1.13	6.78
46 x 20	2.30	1.89	11.34
50 x 25	2.00	1.86	11.16
	2.30	2.15	12.90
59 x 30	1.60	1.80	10.80



D - TUBE

MANUFACTURER'S STANDARD

Dimension (A x B)	Thickness	Calculated weight	
mm	mm	kg/m	kg/6m
50 x 25	1.20	1.20	7.20



Hot Dip Galvanising Services

BS EN ISO 1461 : 2009 Hot dip galvanized coating on fabricated iron and steel articles

Table 1 – Coating minimum masses (related to thicknesses) on samples that are not centrifuged

Article and its thickness	Local coating (minimum) ^b	Local coating (minimum) ^a	Mean coating (minimum) ^b	Mean coating (minimum)
	mass, g/m ²	thickness, µm	mass, g/m ²	thickness, µm
Steel > 6 mm	505	70	610	85
Steel > 3 mm to ≤ 6 mm	395	55	505	70
Steel ≥ 1.5 mm to ≤ 3 mm	325	45	395	55
Steel < 1.5 mm	250	35	325	45
Castings ≥ 6 mm	505	70	575	80
Castings < 6 mm	430	60	505	70

NOTE: This table is for general use: individual product standards may include different requirements including different categories of thickness. Local coating mass and mean coating mass requirements are set out in this table for reference in such cases of dispute.

- a Mean value of coating thickness obtained from the specific number of measurement within a reference area for a magnetic test or the single value from a gravimetric test.
- b Equivalent coating mass using a nominal coating density of 7,2 g/cm³.
- c Average value of the local thickness.

Table 2 – Coating minimum masses (related to thicknesses) on samples that are centrifuged

Article and its thickness	Local coating (minimum) ^b	Local coating (minimum) ^a	Mean coating (minimum) ^b	Mean coating (minimum)
	mass, g/m ²	thickness, µm	mass, g/m ²	thickness, µm
Articles with threads:				
> 6 mm diameter	285	40	360	50
≤ 6 mm diameter	145	20	180	25
Other articles (including castings) :				
≥ 3 mm	325	45	395	55
< 3mm	250	35	325	45

NOTE This table is for general use: fastener coating standards and individual product standards may have different requirements. Local coating mass and mean coating mass requirements are set out in this table for reference in such cases of dispute.

- a Mean value of coating thickness obtained from the specific number of measurement within a reference area for a magnetic test or the single value from a gravimetric test.
- b Equivalent coating mass using a nominal coating density of 7,2 g/cm³.
- c Average value of the local thickness.

Conversion Table Of Zinc Coating

Coating weight		Thickness	
oz/ft ²	g/m ²	mil 1/1000 (in)	μ 1/1000 (mm)
0.40	122.0	0.67	17.0
0.42	128.1	0.70	17.9
0.44	134.2	0.74	18.7
0.46	140.3	0.77	19.6
0.48	146.3	0.81	20.4
0.50	152.5	0.84	21.3
0.52	158.6	0.87	22.2
0.54	164.7	0.91	23.0
0.56	170.8	0.94	23.9
0.58	176.9	0.97	24.7
0.60	183.0	1.01	25.6
0.62	189.1	1.04	26.4
0.64	195.2	1.07	27.3
0.66	201.3	1.11	28.1
0.68	207.4	1.14	29.0
0.70	213.5	1.17	29.8
0.72	219.6	1.21	30.7
0.74	225.7	1.24	31.5
0.76	231.8	1.27	32.4
0.78	237.9	1.31	33.2
0.80	244.0	1.34	34.1
0.82	250.1	1.38	34.9
0.84	256.2	1.41	35.8
0.86	262.3	1.44	36.6
0.88	268.4	1.48	37.5
0.90	274.5	1.51	38.3
0.92	280.6	1.54	39.2
0.94	286.7	1.58	40.0
0.96	292.8	1.61	40.9
0.98	298.9	1.64	41.7
1.00	305.0	1.68	42.6
1.02	311.1	1.71	43.4
1.04	317.2	1.74	44.3
1.06	323.3	1.78	45.2
1.08	329.4	1.81	46.0
1.10	335.5	1.84	46.9
1.12	341.6	1.88	47.7
1.14	347.7	1.91	48.6
1.16	353.8	1.95	49.4
1.18	359.9	1.98	50.3
1.20	366.0	2.01	51.1
1.22	372.1	2.05	52.0
1.24	378.2	2.08	52.8
1.26	384.3	2.11	53.7
1.28	390.4	2.15	54.5
1.30	396.5	2.18	55.4
1.32	402.6	2.21	56.2
1.34	408.7	2.25	57.1
1.36	414.8	2.28	57.9
1.38	420.9	2.31	58.8
1.40	427.0	2.35	59.6
1.42	433.1	2.38	60.5
1.44	439.2	2.41	61.3
1.46	445.3	2.45	62.2

Coating weight		Thickness	
oz/ft ²	g/m ²	mil 1/1000 (in)	μ 1/1000 (mm)
1.48	451.4	2.48	63.0
1.50	457.5	2.52	63.9
1.52	463.6	2.55	64.7
1.54	469.7	2.58	65.6
1.56	475.8	2.62	66.4
1.58	481.9	2.65	67.3
1.60	488.0	2.68	68.2
1.62	494.1	2.72	69.0
1.64	500.2	2.75	69.9
1.66	506.3	2.78	70.7
1.68	512.4	2.82	71.6
1.70	518.5	2.85	72.4
1.72	524.6	2.88	73.3
1.74	530.7	2.92	74.1
1.76	536.8	2.95	75.0
1.78	542.9	2.99	75.8
1.80	549.0	3.02	76.7
1.82	555.1	3.05	77.5
1.84	561.2	3.09	78.4
1.86	567.3	3.12	79.2
1.88	573.4	3.15	80.1
1.90	579.5	3.19	80.9
1.92	585.6	3.22	81.8
1.94	591.7	3.25	82.6
1.96	597.8	3.29	83.5
1.98	603.9	3.32	84.3
2.00	610.0	3.35	85.2
2.02	616.1	3.39	86.0
2.04	622.2	3.42	86.9
2.06	628.3	3.45	87.7
2.08	634.4	3.49	88.6
2.10	640.5	3.52	89.4
2.12	646.6	3.55	90.3
2.14	652.7	3.59	91.1
2.16	658.8	3.62	92.0
2.18	664.9	3.66	92.9
2.20	671.0	3.69	93.7
2.22	677.1	3.72	94.6
2.24	683.2	3.76	95.4
2.26	689.3	3.79	96.3
2.28	695.4	3.82	97.1
2.30	701.5	3.86	98.0
2.32	707.6	3.89	98.8
2.34	713.7	3.92	99.7
2.36	719.8	3.96	100.5
2.38	725.9	3.99	101.4
2.40	732.0	4.02	102.2
2.42	738.1	4.06	103.1
2.44	744.2	4.09	103.9
2.46	750.3	4.12	104.8
2.48	756.4	4.16	105.6
2.50	762.5	4.19	106.5
2.52	768.6	4.23	107.3
2.54	774.7	4.26	108.2

Coating weight		Thickness	
oz/ft ²	g/m ²	mil 1/1000 (in)	μ 1/1000 (mm)
2.56	780.8	4.29	109.0
2.58	786.9	4.33	109.9
2.60	793.0	4.36	110.7
2.62	799.1	4.39	111.6
2.64	805.2	4.43	112.3
2.66	811.3	4.46	113.4
2.68	817.4	4.49	114.1
2.70	823.5	4.53	115.0
2.72	829.6	4.56	115.8
2.74	835.7	4.59	116.7
2.76	841.8	4.63	117.5
2.78	847.9	4.66	118.4
2.80	854.0	4.69	119.2
2.82	860.1	4.73	120.1
2.84	866.2	4.76	120.9
2.86	872.3	4.79	121.8
2.88	878.4	4.83	122.6
2.90	884.5	4.86	123.5
2.92	890.6	4.89	124.3
2.94	896.7	4.93	125.2
2.96	902.8	4.96	126.0
2.98	908.9	4.99	126.9
3.00	915.0	5.03	127.7
3.02	921.1	5.06	128.6
3.04	927.2	5.09	129.4
3.06	933.3	5.13	130.3
3.08	939.4	5.16	131.1
3.10	945.5	5.20	132.0
3.12	951.6	5.23	132.8
3.14	957.7	5.26	133.7
3.16	963.8	5.30	134.5
3.18	969.9	5.33	135.4
3.20	976.0	5.36	136.2
3.22	982.1	5.40	137.1
3.24	988.2	5.43	137.9
3.26	994.3	5.46	138.8
3.28	1000.4	5.50	139.6
3.30	1006.5	5.53	140.5
3.32	1012.6	5.56	141.3
3.34	1018.7	5.60	142.2
3.36	1024.8	5.63	143.0
3.38	1030.9	5.66	143.9
3.40	1037.0	5.70	144.7
3.42	1043.1	5.73	145.6
3.44	1049.2	5.76	146.4
3.46	1055.3	5.80	147.3
3.48	1061.4	5.83	148.1
3.50	1067.5	5.86	149.0
3.52	1073.6	5.90	149.8
3.54	1079.7	5.93	150.7
3.56	1085.8	5.97	151.5
3.58	1091.9	6.00	152.4
3.60	1098.0	6.03	153.2

MELEWAR STEEL TUBE SDN. BHD.
(111059-D)

Lot 53 Persiaran Selangor, 40200 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel : 603-5519 2455 (12 lines) Fax : 603-5519 2033 (Administration) / 603-55106410 / 603-55194017 (Sales Dept)
Email (Admin) : enquiry@melewar-mig.com (Sales) : sales@melewar-mig.com