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PRODUCT DATA SHEET

Structural Tubes (CHS, SHS, RHS)

Stainless Steel

Circular, square and rectangular hollow section tubes in stainless steel are available for use in structural applications. The sections are available, on enquiry, in a range of grades.

The steel grades are specified to the European standard for stainless steel, EN 10088. The chemical compositions of these grades are very similar to their more familiar equivalents in AS1449, ASTM A240 or JIS G4305, the equivalent Australian, USA and Japanese standards:

Chemical Composition, weight % (EN10088)

Grade	Equivalent	Carbon	Nitrogen	Chromium	Nickel	Molybdenum	Copper
1.4306	304L	<=0.030	<=0.11	18.00 - 20.00	10.0 - 12.00	-	
1.4311	304LN	<=0.030	0.12 - 0.22	17.00 - 19.50	8.50 - 11.50	-	
1.4301	304	<=0.070	<=0.11	17.00 - 19.50	8.50 - 10.50	-	
1.4404	316L	<=0.030	<=0.11	16.50 - 18.50	10.00 - 13.00	2.00 - 2.50	
1.4406	316LN	<=0.030	0.12 - 0.22	16.50 - 18.50	10.00 - 12.00	2.00 - 2.50	
1.4401	316	<=0.070	<=0.11	16.50 - 18.50	10.00 - 13.00	2.00 - 2.50	
1.4439	~S31725	<=0.030	0.12 - 0.22	16.50 - 18.50	12.50 - 14.50	4.00 - 5.00	-
1.4539	904L	<=0.020	<=0.15	19.00 - 21.00	24.00 - 26.00	4.00 - 5.00	1.20 - 2.00
1.4529	~S31254	<=0.020	0.15 - 0.25	19.00 - 21.00	24.00 - 26.00	6.00 - 7.00	0.50 - 1.50

Mechanical Properties (EN10088)

Grade	Equivalent	0.2% Proof Stress	Tensile Strength		Elongation
		MPa	MPa	MPa	%
		minimum	minimum	maximum	minimum
1.4306	304L	220	520	670	45
1.4311	304LN	290	550	750	40
1.4301	304	230	540	750	45
1.4404	316L	240	530	680	40
1.4406	316LN	300	580	780	40
1.4401	316	240	530	680	40
1.4439	~S31725	290	580	780	35
1.4539	904L	240	530	730	35
1.4529	~S31254	300	650	850	40

These mechanical properties are guaranteed for a uniaxial tensile test of the parent strip at room temperature. The cold work used to form the tube raises the 0.2% proof stress significantly, giving higher usable properties in the tube. Mechanical tests of the formed tube may be used to quantify the allowable load capacity for various loading states.

Tables 1, 2 & 3 present the sizes of circular hollow section (CHS), square hollow section (SHS) and rectangular hollow section (RHS) available from Austral Wright Metals.

Other sizes and grades may be available on enquiry, but there are likely to be considerable tooling costs for sizes outside this range.

Tubes are also obtainable in grade 301 in cold rolled tempers, up to 1000 MPa Proof Stress, for sufficient quantity to allow a mill run. Please enquire.

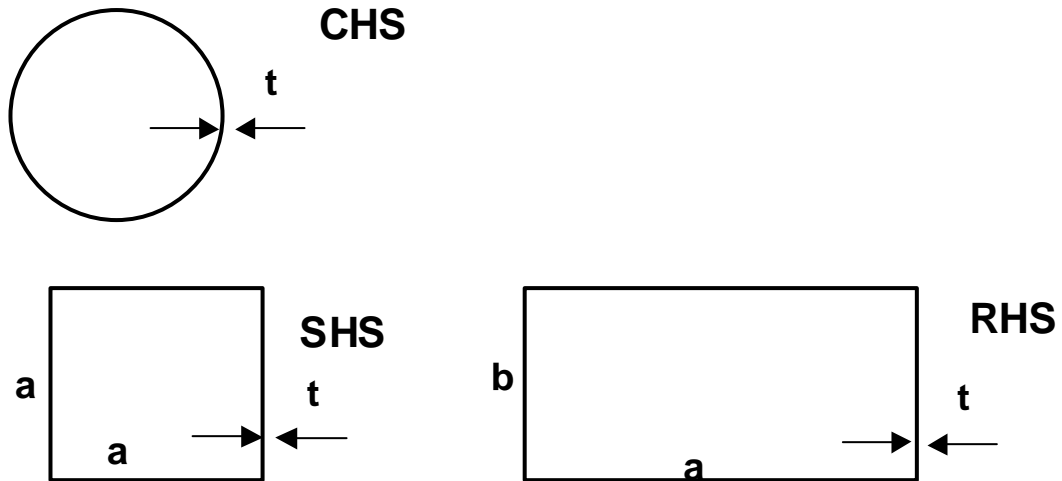


Table 1: Circular Hollow Sections (CHS)

Table of Weights, kg/m

Internal diameter	Thickness, t, mm									
	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0
125	*4.75	*6.36	7.98	9.62	12.90	16.30				
150	*5.69	*7.61	9.55	*11.50	15.40	19.40				
200		*10.1	*12.7	*15.3	20.4	25.7	30.9			
250		*12.6	*15.8	*19.0	25.4	31.9	38.4	51.6		
300		*15.1	*18.9	*22.8	30.5	38.2	46.0	61.7		
350			*22.1	*26.5	35.5	44.5	53.5	71.7		
400			25.2	*30.3	40.5	50.7	61.0	81.7		
450				34.0	45.5	57.0	68.5	91.7		
500				*37.8	50.5	63.2	76.0	102.0	128.0	
600				*45.3	60.5	75.7	91.0	122.0	153.0	
700					70.5	88.3	106	142	178	
800					80.5	101	121	162	202	
900					90.5	113	136	182	228	274
1000					101.0	126	151	202	253	304
1100						138	166	222	278	334
1200						150	181	242	303	364

* - Normal stock sizes, available in small quantities on short lead times

Table 2: Square Hollow Sections (SHS)

Table of Approximate Weights, kg/m

a mm	Thickness, t, mm								
	1	1.2	1.5	2	2.5	3	4	5	6
10	0.300								
15	0.450	0.535	0.660						
16	0.480	0.565	0.695						
19.05		0.715	0.883						
20	0.601	0.715	0.883	1.152					
22	0.675	0.805							
25	0.776	0.925	1.146	1.495	1.847				
25.4		0.977	1.209						
30	0.950	1.106	1.371	1.840	2.347	2.720			
31.8		1.200	1.450						
34		1.290	1.600						
35	1.100	1.310	1.620	2.150	2.650				
38.1		1.460	1.750						
40	1.300	1.496	1.859	2.454	3.161	3.756	4.808		
45		1.707	2.122	2.804		4.131			
50		1.860	2.329	3.080	3.819	4.650	5.960		
50.8			2.468	3.266					
60			2.802	3.711	4.607	5.491	7.222	8.902	
70				4.380	5.460	6.530		10.629	
80				4.988	6.240	7.530	9.816	12.395	14.600
90				5.640		8.390	11.080	13.730	
100				6.400	8.000	9.530	12.400	15.380	17.500
120				7.910	9.860	11.800	15.030	18.660	21.200
150						13.820	18.170	22.400	26.490
200						18.620	24.570	30.400	36.090
250								38.400	

Table 3: Rectangular Hollow Section (RHS)

Table of Approximate Weights, kg/m

a mm	b mm	Thickness, t, mm									
		1	1.2	1.5	2	2.5	3	4	5	6	8
20	10	0.450	0.535	0.660							
20	15	0.551		0.807							
25	10			0.807							
25	15			0.883							
25	20			0.995							
30	10			0.883							
30	15		0.805	0.995							
30	20	0.776	0.925	1.146	1.495						
30	25			1.258							
35	20			1.258	1.653						
40	15			1.258							
40	20	0.950	1.106	1.371	1.840						
40	30	1.330		1.620	2.150						
50	15			1.536							
50	20		1.310	1.620	2.130						
50	25		1.415	1.758	2.319						
50	30		1.496	1.958	2.454	3.756					
50	40			2.122	2.804						
60	20			1.859	2.454						
60	30		1.707	2.122	2.804	4.131					
60	40		1.860	2.329	3.080	3.819	4.650	5.960			
80	40			2.802	3.711	4.607	5.491	7.222	8.902		
80	60				4.380		6.530	8.530			
100	40				4.380	5.460	6.530	8.530			
100	50				4.680		6.950	9.090	11.240	12.500	
100	60				4.988	6.240	7.530	9.816	12.395	14.600	
100	80						8.388	11.048	13.730		
120	40				4.988		7.530		12.395		
120	60				5.624		8.388	11.060	13.750	15.400	
120	80				6.400		9.530	12.400	15.380	17.500	
140	80						9.980		16.000		
150	50				6.400		9.530	12.400	15.380		
150	80						10.650				
150	100						11.240	14.970	18.400	21.690	27.900
160	80						10.944		17.600		
200	100						13.820	18.170	22.400	26.490	
250	100							21.400			
250	150								30.040		