

Square Hollow Sections (Grade C350L0)

Dimensions and Properties

DIMENSIONS AND RATIOS										PROPERTIES						PROPERTIES FOR DESIGN TO AS 4100		Design Section Capacities (About x- and y-axes)						
Designation				Mass	External Surface Area		(b-2t)/t	Gross Section Area		About x- and y-axes					Torsion Constant	Torsion Modulus	Form Factor	About x- and y-axes		Axial Compression	Axial Tension	Moment	Shear	Torsion
d	b	t	Section		kg/m	m ² /m		A _g	I	Z	S	r	J	C	k _t	Compactness	Z _e	ØN _x	ØN _t	ØM _x	ØV _y	ØM _z		
mm	mm	mm						mm ²	10 ⁶ mm ⁴	10 ⁶ mm ³	10 ⁶ mm ³	mm	10 ⁶ mm ⁴	10 ⁶ mm ³				(C,N,S)	10 ³ mm ³	kN	kN	kNm	kN	kNm
400	400	16.0	SHS	186	1.53	8.23	23.0	23,697	571	2,854	3,367	155	930	4,349	1.00	C	3,367	7,465	7,465	1,061	2,198	822		
400	400	12.0	SHS	142	1.55	10.9	31.3	18,130	448	2,242	2,612	157	716	3,400	1.00	N	2,350	5,711	5,711	740	1,684	643		
400	400	9.0	SHS	108	1.56	14.4	42.4	13,798	348	1,739	2,009	159	547	2,630	0.797	S	1,519	3,465	4,346	479	1,284	497		
350	350	16.0	SHS	161	1.33	8.27	19.9	20,497	372	2,127	2,527	135	614	3,251	1.00	C	2,527	6,457	6,457	796	1,900	614		
350	350	12.0	SHS	123	1.35	10.9	27.2	15,730	294	1,683	1,971	137	475	2,558	1.00	N	1,910	4,955	4,955	602	1,460	483		
350	350	9.0	SHS	94.2	1.36	14.5	36.9	11,998	230	1,312	1,522	138	364	1,987	0.917	S	1,244	3,465	3,779	392	1,116	376		
300	300	16.0	SHS	136	1.13	8.33	16.8	17,297	226	1,507	1,808	114	378	2,312	1.00	C	1,808	5,449	5,449	569	1,601	437		
300	300	12.0	SHS	105	1.15	11.0	23.0	13,330	181	1,204	1,420	116	294	1,835	1.00	C	1,420	4,199	4,199	447	1,236	347		
300	300	9.0	SHS	80.1	1.16	14.5	31.3	10,198	142	946	1,102	118	227	1,434	1.00	N	991	3,212	3,212	312	948	271		
250	250	16.0	SHS	111	0.931	8.42	13.6	14,097	124	993	1,208	93.9	212	1,533	1.00	C	1,208	4,441	4,441	381	1,302	290		
250	250	12.0	SHS	85.8	0.948	11.1	18.8	10,930	101	805	959	96.0	167	1,232	1.00	C	959	3,443	3,443	302	1,012	233		
250	250	9.0	SHS	65.9	0.961	14.6	25.8	8,398	79.9	639	750	97.5	129	972	1.00	N	744	2,645	2,645	234	780	184		
250	250	6.0	SHS	45.0	0.974	21.7	39.7	5,732	58.2	450	521	99.1	88.7	681	0.853	S	409	1,540	1,806	129	533	129		
200	200	12.0	SHS	67.0	0.748	11.2	14.7	8,530	48.6	486	588	75.5	82.4	749	1.00	C	588	2,687	2,687	185	788	142		
200	200	9.0	SHS	51.8	0.761	14.7	20.2	6,598	39.2	392	465	77.1	64.5	599	1.00	C	465	2,078	2,078	147	612	113		
200	200	6.0	SHS	35.6	0.774	21.8	31.3	4,532	28.0	280	327	78.6	44.8	425	1.00	N	294	1,428	1,428	92.5	421	80.3		
200	200	5.0	SHS	29.9	0.779	26.0	38.0	3,814	23.9	239	277	79.1	37.8	362	0.890	S	222	1,069	1,201	70.1	355	68.3		
150	150	9.0	SHS	37.7	0.561	14.9	14.7	4,798	15.4	205	248	56.6	26.1	316	1.00	C	248	1,511	1,511	78.2	444	59.7		
150	150	6.0	SHS	26.2	0.574	22.0	23.0	3,332	11.3	150	178	58.2	18.4	229	1.00	C	178	1,050	1,050	55.9	309	43.3		
150	150	5.0	SHS	22.1	0.579	26.2	28.0	2,814	9.70	129	151	58.7	15.6	197	1.00	N	144	886	886	45.5	261	37.1		
150	150	4.0	SHS	17.9	0.583	32.5	35.5	2,281	8.00	107	124	59.2	12.7	162	0.952	S	104	684	719	32.6	212	30.5		
125	125	9.0	SHS	30.6	0.461	15.1	11.9	3,898	8.39	134	165	46.4	14.5	208	1.00	C	165	1,228	1,228	52.0	360	39.3		
125	125	6.0	SHS	21.4	0.474	22.1	18.8	2,732	6.29	101	120	48.0	10.4	154	1.00	C	120	861	861	37.8	253	29.1		
125	125	5.0	SHS	18.2	0.479	26.3	23.0	2,314	5.44	87.1	103	48.5	8.87	133	1.00	C	103	729	729	32.4	215	25.1		
125	125	4.0	SHS	14.8	0.483	32.7	29.3	1,881	4.52	72.3	84.5	49.0	7.25	110	1.00	N	78.9	593	593	24.8	175	20.8		
100	100	9.0	SHS	23.5	0.361	15.4	9.11	2,998	3.92	78.4	98.6	36.2	7.00	123	1.00	C	98.6	944	944	31.0	276	23.2		
100	100	6.0	SHS	16.7	0.374	22.4	14.7	2,132	3.04	60.8	73.5	37.8	5.15	93.6	1.00	C	73.5	672	672	23.2	197	17.7		
100	100	5.0	SHS	14.2	0.379	26.6	18.0	1,814	2.66	53.2	63.5	38.3	4.42	81.4	1.00	C	63.5	571	571	20.0	168	15.4		
100	100	4.0	SHS	11.6	0.383	32.9	23.0	1,481	2.23	44.6	52.6	38.8	3.63	68.0	1.00	C	52.6	467	467	16.6	137	12.8		
100	100	3.0	SHS	8.96	0.390	43.5	31.3	1,141	1.77	35.4	41.2	39.4	2.79	53.2	1.00	N	37.1	359	359	11.7	105	10.1		
100	100	2.5	SHS	7.53	0.391	52.0	38.0	959	1.51	30.1	34.9	39.6	2.35	45.2	0.891	S	28.1	269	302	8.84	88.7	8.55		
100	100	2.0	SHS	6.07	0.393	64.7	48.0	774	1.23	24.6	28.3	39.9	1.91	36.9	0.706	S	20.1	172	244	6.33	71.7	6.98		
89	89	6.0	SHS	14.7	0.330	22.5	12.8	1,868	2.07	46.4	56.7	33.3	3.55	71.8	1.00	C	56.7	589	589	17.9	172	13.6		
89	89	5.0	SHS	12.5	0.335	26.7	15.8	1,594	1.82	40.9	49.2	33.8	3.06	62.8	1.00	C	49.2	502	502	15.5	147	11.9		
89	89	4.0	SHS	10.2	0.339	33.1	20.3	1,305	1.54	34.5	41.0	34.3	2.53	52.7	1.00	C	41.0	411	411	12.9	121	9.96		
89	89	3.5	SHS	9.07	0.341	37.6	23.4	1,155	1.38	31.0	36.5	34.6	2.25	47.2	1.00	C	36.5	364	364	11.5	107	8.93		
89	89	3.0	SHS	7.92	0.346	43.7	27.7	1,009	1.23	27.6	32.3	34.9	1.95	41.5	1.00	N	31.0	319	319	9.77	93.0	7.84		
89	89	2.5	SHS	6.66	0.347	52.1	33.6	849	1.05	23.6	27.4	35.1	1.65	35.4	1.00	N	23.7	267	267	7.45	78.4	6.89		
89	89	2.0	SHS	5.38	0.349	64.9	42.5	686	0.858	19.3	22.3	35.4	1.34	29.0	0.797	S	16.9	172	216	5.31	63.5	5.47		
75	75	6.0	SHS	12.0	0.274	22.8	10.5	1,532	1.16	30.9	38.4	27.5	2.04	48.2	1.00	C	38.4	483	483	12.1	141	9.11		
75	75	5.0	SHS	10.3	0.279	27.0	13.0	1,314	1.03	27.6	33.6	28.1	1.78	42.6	1.00	C	33.6	414	414	10.6	121	8.06		
75	75	4.0	SHS	8.49	0.283	33.3	16.8	1,081	0.883	23.5	28.2	28.6	1.48	36.1	1.00	C	28.2	341	341	8.90	100	6.83		
75	75	3.5	SHS	7.53	0.285	37.9	19.4	959	0.798	21.3	25.3	28.8	1.32	32.5	1.00	C	25.3	302	302	7.97	88.9	6.15		
75	75	3.0	SHS	6.60	0.290	43.9	23.0	841	0.716	19.1	22.5	29.2	1.15	28.2	1.00	C	22.5	265	265	7.08	77.3	5.43		
75	75	2.5	SHS	5.56	0.291	52.4	28.0	709	0.614	16.4	19.1	29.4	0.971	24.6	1.00	N	18.3	223	223	5.75	65.3	4.65		
75	75	2.0	SHS	4.50	0.293	65.1	35.5	574	0.505	13.5	15.6	29.7	0.791	20.2	0.953	S	13.1	172	181	4.12	53.0	3.82		
65	65	6.0	SHS	10.1	0.234	23.1	8.83	1,292	0.709	21.8	27.5	23.4	1.27	34.2	1.00	C	27.5	407	407	8.67	119	6.46		
65	65	5.0	SHS	8.75	0.239	27.3	11.0	1,114	0.639	19.7	24.3	24.0	1.12	30.6	1.00	C	24.3	351	351	7.66	103	5.78		
65	65	4.0	SHS	7.23	0.243	33.6	14.3	921	0.552	17.0	20.8	24.5	0.939	26.2	1.00	C	20.6	290	290	6.49	85.1	4.95		
65	65	3.0	SHS	5.66	0.250	44.1	19.7	721	0.454	14.0	16.6	25.1	0.734	21.1	1.00	C	16.6	227	227	5.22	66.1	3.98		
65	65	2.5	SHS	4.78	0.251	52.6	24.0	609	0.391	12.0	14.1	25.3	0.624	18.1	1.00	C	14.1	192	192	4.45	56.0	3.42		
65	65	2.0	SHS	3.88	0.253	65.3	30.5	494	0.323	9.94	11.6	25.6	0.509	14.9	1.00	N	10.6	156	156	3.33	45.5	2.82		
65	65	1.6	SHS	3.13	0.255	81.2	38.6	399	0.265	8.16	9.44	25.8	0.414	12.3	0.876	S	7.53	110	126	2.37	36.9	2.32		
50	50	6.0	SHS	7.32	0.174	23.8	6.33	932	0.278	11.1	14.5	17.3	0.519	17.7	1.00	C	14.5	294	294	4.58	85.1	3.34		
50	50	5.0	SHS	6.39																				

Square Hollow Sections (Grade C450L0)

Dimensions and Properties

DIMENSIONS AND RATIOS							PROPERTIES							PROPERTIES FOR DESIGN TO AS 4100		Design Section Capacities (About x- and y-axes)						
Designation				Mass	External Surface Area		Gross Section Area	About x- and y-axes					Torsion Constant	Torsion Modulus	Form Factor	About x- and y-axes		Axial Compression	Axial Tension	Moment	Shear	Torsion
<i>d</i>	<i>b</i>	<i>t</i>	Section			(<i>b-z</i>)/ <i>t</i>	<i>A_g</i>	<i>I_x</i>	<i>I_y</i>	<i>S_x</i>	<i>S_y</i>	<i>r_x</i>	<i>J</i>	<i>C</i>	<i>k_t</i>	Compactness	<i>Z_e</i>	Φ_{N_x}	Φ_{N_y}	Φ_{M_x}	Φ_{V_x}	Φ_{M_z}
mm	mm	mm		kg/m	m ² /m	m ² /t	mm ²	10 ⁶ mm ⁴	10 ⁶ mm ⁴	10 ³ mm ³	10 ³ mm ³	mm	10 ⁶ mm ⁴	10 ⁶ mm ³		(C,N,S)	10 ³ mm ³	kN	kN	kNm	kN	kNm
400	400	16.0	SHS	186	1.53	8.23	23.0	23.697	571	2.854	3.367	155	930	4.349	1.00	N	3.323	9.597	9.064	1.346	2.826	1.057
400	400	12.0	SHS	142	1.55	10.9	31.3	18.130	448	2.242	2.612	157	716	3.400	0.952	S	2.174	6.988	6.935	881	2.166	826
400	400	9.0	SHS	108	1.56	14.4	42.4	13.798	348	1.739	2.009	159	547	2.630	0.703	S	1.417	3.931	5.278	574	1.650	639
350	350	16.0	SHS	161	1.33	8.27	19.9	20.497	372	2.127	2.527	135	614	3.251	1.00	C	2.527	8.301	7.840	1.024	2.442	790
350	350	12.0	SHS	123	1.35	10.9	27.2	15.730	294	1.683	1.971	137	475	2.558	1.00	N	1.785	6.370	6.017	723	1.878	622
350	350	9.0	SHS	94.2	1.36	14.5	36.9	11.998	230	1.312	1.522	138	364	1.987	0.809	S	1.156	3.931	4.589	468	1.434	483
300	300	16.0	SHS	136	1.13	8.33	16.8	17.297	226	1.507	1.806	114	378	2.312	1.00	C	1.808	7.005	6.616	732	2.058	582
300	300	12.0	SHS	105	1.15	11.0	23.0	13.330	181	1.204	1.420	116	294	1.835	1.00	N	1.402	5.398	5.099	568	1.590	446
300	300	9.0	SHS	80.1	1.16	14.5	31.3	10.198	142	946	1.102	118	227	1.434	0.952	S	917	3.931	3.901	371	1.218	348
250	250	16.0	SHS	111	0.931	8.42	13.6	14.097	124	983	1.208	93.9	212	1.533	1.00	C	1.208	5.709	5.392	489	1.674	373
250	250	12.0	SHS	85.8	0.948	11.1	18.8	10.930	101	805	959	96.0	167	1.232	1.00	C	959	4.426	4.181	389	1.302	299
250	250	9.0	SHS	65.9	0.961	14.6	25.8	8.398	79.9	639	750	97.5	129	972	1.00	N	699	3.401	3.212	283	1.002	236
250	250	6.0	SHS	45.0	0.974	21.7	39.7	5.732	56.2	450	521	99.1	88.7	681	0.753	S	380	1.747	2.193	154	685	165
200	200	12.0	SHS	67.0	0.748	11.2	14.7	8.530	48.6	486	588	75.5	82.4	749	1.00	C	588	3.454	3.263	238	1.014	182
200	200	9.0	SHS	51.8	0.761	14.7	20.2	6.598	39.2	392	465	77.1	64.5	599	1.00	C	465	2.672	2.524	188	796	146
200	200	6.0	SHS	35.6	0.774	21.8	31.3	4.532	28.0	280	327	78.6	44.8	425	0.952	S	272	1.747	1.734	110	541	103
200	200	5.0	SHS	29.9	0.779	26.0	38.0	3.814	23.9	239	277	79.1	37.8	362	0.785	S	207	1.213	1.459	83.8	456	87.8
150	150	9.0	SHS	37.7	0.561	14.9	14.7	4.798	15.4	205	248	56.6	26.1	316	1.00	C	248	1.943	1.835	101	570	76.8
150	150	6.0	SHS	26.2	0.574	22.0	23.0	3.332	11.3	150	178	58.2	18.4	229	1.00	N	175	1.350	1.275	71.0	397	55.7
150	150	5.0	SHS	22.1	0.579	26.2	28.0	2.814	9.70	129	151	58.7	15.6	197	1.00	N	135	1.140	1.076	54.6	336	47.7
150	150	4.0	SHS	17.9	0.583	32.5	35.5	2.281	8.00	107	124	59.2	12.7	162	0.840	S	96.1	776	873	38.9	273	39.3
125	125	9.0	SHS	30.6	0.461	15.1	11.9	3.898	8.39	134	165	46.4	14.5	208	1.00	C	165	1.579	1.491	66.8	462	50.6
125	125	6.0	SHS	21.4	0.474	22.1	18.8	2.732	6.29	101	120	48.0	10.4	154	1.00	C	120	1.107	1.045	48.6	325	37.4
125	125	5.0	SHS	18.2	0.479	26.3	23.0	2.314	5.44	87.1	103	48.5	8.87	133	1.00	N	101	937	885	41.1	276	32.2
125	125	4.0	SHS	14.8	0.483	32.7	29.3	1.881	4.52	72.3	84.5	49.0	7.25	110	1.00	N	73.2	762	720	29.7	225	26.7
100	100	9.0	SHS	23.5	0.361	15.4	9.11	2.998	3.92	78.4	98.6	36.2	7.00	123	1.00	C	98.6	1.214	1.147	39.9	354	29.8
100	100	6.0	SHS	16.7	0.374	22.4	14.7	2.132	3.04	60.8	73.5	37.8	5.15	93.6	1.00	C	73.5	864	816	29.8	253	22.7
100	100	5.0	SHS	14.2	0.379	26.6	18.0	1.814	2.66	53.2	63.5	38.3	4.42	81.4	1.00	C	63.5	735	694	25.7	216	19.8
100	100	4.0	SHS	11.6	0.383	32.9	23.0	1.481	2.23	44.6	60.6	38.8	3.63	68.0	1.00	N	51.9	600	567	21.0	177	16.5
100	100	3.0	SHS	8.96	0.390	43.5	31.3	1.141	1.77	35.4	41.2	39.4	2.79	53.2	0.952	S	34.4	440	436	13.9	135	12.9
100	100	2.5	SHS	7.53	0.391	52.0	38.0	959	1.51	30.1	34.9	39.6	2.35	45.2	0.787	S	26.1	305	367	10.6	114	11.0
100	100	2.0	SHS	6.07	0.393	64.7	48.0	774	1.23	24.8	28.3	39.9	1.81	36.9	0.624	S	18.8	196	296	7.63	92.2	8.97
89	89	6.0	SHS	14.7	0.330	22.5	12.8	1.868	2.07	46.4	56.7	33.3	3.55	71.8	1.00	C	56.7	757	715	23.0	222	17.4
89	89	5.0	SHS	12.5	0.335	26.7	15.8	1.594	1.82	40.9	49.2	33.8	3.06	62.8	1.00	C	49.2	646	610	19.9	190	15.3
89	89	4.0	SHS	10.2	0.339	33.1	20.3	1.305	1.54	34.5	41.0	34.3	2.53	52.7	1.00	C	41.0	529	499	16.6	156	12.8
89	89	3.5	SHS	9.07	0.341	37.6	23.4	1.155	1.38	31.0	36.5	34.6	2.25	47.2	1.00	N	35.8	468	442	14.5	138	11.5
89	89	3.0	SHS	7.92	0.346	43.7	27.7	1.009	1.23	27.6	32.3	34.9	1.95	41.5	1.00	N	29.0	409	386	11.7	120	10.1
89	89	2.5	SHS	6.66	0.347	52.1	33.6	849	1.05	23.6	27.4	35.1	1.65	35.4	0.889	S	21.9	305	325	8.88	101	8.60
89	89	2.0	SHS	5.38	0.349	64.9	42.5	686	0.858	19.3	22.3	35.4	1.34	29.0	0.704	S	15.7	196	262	6.37	81.6	7.03
75	75	6.0	SHS	12.0	0.274	22.8	10.5	1.532	1.16	30.9	38.4	27.5	2.04	48.2	1.00	C	38.4	621	586	15.6	181	11.7
75	75	5.0	SHS	10.3	0.279	27.0	13.0	1.314	1.03	27.6	33.6	28.1	1.78	42.6	1.00	C	33.6	532	503	13.6	156	10.4
75	75	4.0	SHS	8.49	0.283	33.3	16.8	1.081	0.883	23.5	28.2	28.6	1.48	36.1	1.00	C	28.2	438	414	11.4	129	8.78
75	75	3.5	SHS	7.53	0.285	37.9	19.4	959	0.798	21.3	25.3	28.8	1.32	32.5	1.00	C	25.3	388	367	10.2	114	7.90
75	75	3.0	SHS	6.60	0.290	43.9	23.0	841	0.716	19.1	22.5	29.2	1.15	28.7	1.00	N	22.2	341	322	8.99	99.4	6.98
75	75	2.5	SHS	5.56	0.291	52.4	28.0	709	0.614	16.4	19.1	29.4	0.971	24.6	1.00	N	17.0	287	271	6.90	84.0	5.98
75	75	2.0	SHS	4.50	0.293	65.1	35.5	574	0.505	13.5	15.6	29.7	0.791	20.2	0.841	S	12.1	196	219	4.91	68.2	4.91
65	65	6.0	SHS	10.1	0.234	23.1	8.83	1.292	0.709	21.8	27.5	23.4	1.27	34.2	1.00	C	27.5	523	494	11.1	153	8.31
65	65	5.0	SHS	8.75	0.239	27.3	11.0	1.114	0.639	19.7	24.3	24.0	1.12	30.6	1.00	C	24.3	451	426	9.85	132	7.43
65	65	4.0	SHS	7.23	0.243	33.6	14.3	921	0.552	17.0	20.6	24.5	0.939	26.2	1.00	C	20.6	373	352	8.34	109	6.36
65	65	3.0	SHS	5.66	0.250	44.1	19.7	721	0.454	14.0	16.6	25.1	0.734	21.1	1.00	C	16.6	292	276	6.71	85.0	5.12
65	65	2.5	SHS	4.78	0.251	52.6	24.0	609	0.391	12.0	14.1	25.3	0.624	18.1	1.00	N	13.7	247	233	5.54	72.0	4.40
65	65	2.0	SHS	3.88	0.253	65.3	30.5	494	0.323	9.94	11.6	25.6	0.509	14.9	0.978	S	9.80	196	189	3.97	58.6	3.63
65	65	1.6	SHS	3.13	0.255	81.2	38.6	399	0.265	8.16	9.44	25.8	0.414	12.3	0.774	S	7.01	125	153	2.84	47.5	2.98
50	50	6.0	SHS	7.32	0.174	23.8	6.33	932	0.278	11.1	14.5	17.3	0.519	17.7	1.00	C	14.5	378	357	5.89	109	4.30
50	50	5.0	SHS	6.39	0.179	27.9	8.00	814	0.258	10.3	13.2	17.8	0.469	16.3	1.00	C	13.2	330	311	5.33	96.0	3.95
50	50	4.0	SHS	5.35	0.183	34.2	10.5	681	0.229	9.17	11.4	18.4	0.403	14.3	1.00							

Circular Hollow Sections (Grade C250L0)

Dimensions and Properties

Dimensions and Ratios						Properties							Properties for Design to AS 4100			Design Section Capacities (About any axes)					
Designation			Mass	External Surface Area	d_o/t	Gross Section Area	About any axes					Torsion Constant	Torsion Modulus	Form Factor	About any axes		Axial Compression	Axial Tension	Moment	Shear	Torsion
						A_g	I	Z	S	r	J	C	k_f	Compactness	Z_x	ϕN_s	ϕN_t	ϕM_s	ϕV_s	ϕM_x	
d_o	t	Section	kg/m	m ² /m	m ² /t	mm ²	10 ⁶ mm ⁴	10 ³ mm ³	10 ³ mm ³	mm	10 ⁶ mm ⁴	10 ³ mm ³		(C,N,S)	10 ³ mm ³	kN	kN	kNm	kN	kNm	
165.1	5.4	CHS	21.3	0.519	24.4	30.6	2,709	8.65	105	138	56.5	17.3	209	1.00	C	138	610	610	31.0	219	28.3
165.1	5.0	CHS	19.7	0.519	26.3	33.0	2,515	8.07	97.7	128	56.6	16.1	195	1.00	C	128	566	566	28.8	204	26.4
139.7	5.4	CHS	17.9	0.439	24.5	25.9	2,278	5.14	73.7	97.4	47.5	10.3	147	1.00	C	97.4	513	513	21.9	185	19.9
139.7	5.0	CHS	16.6	0.439	26.4	27.9	2,116	4.81	68.8	90.8	47.7	9.61	138	1.00	C	90.8	476	476	20.4	171	18.6
114.3	5.4	CHS	14.5	0.359	24.8	21.2	1,847	2.75	48.0	64.1	38.6	5.49	96.1	1.00	C	64.1	416	416	14.4	150	13.0
114.3	4.5	CHS	12.2	0.359	29.5	25.4	1,552	2.34	41.0	54.3	38.9	4.69	82.0	1.00	C	54.3	349	349	12.2	126	11.1
101.6	5.0	CHS	11.9	0.319	26.8	20.3	1,517	1.77	34.9	46.7	34.2	3.55	69.9	1.00	C	46.7	341	341	10.5	123	9.43
101.6	4.0	CHS	9.63	0.319	33.2	25.4	1,226	1.46	28.8	38.1	34.5	2.93	57.6	1.00	C	38.1	276	276	8.58	99.3	7.77
88.9	5.9	CHS	12.1	0.279	23.1	15.1	1,538	1.33	30.0	40.7	29.4	2.66	59.9	1.00	C	40.7	346	346	9.16	125	8.09
88.9	5.0	CHS	10.3	0.279	27.0	17.8	1,318	1.16	26.2	35.2	29.7	2.33	52.4	1.00	C	35.2	297	297	7.93	107	7.07
88.9	4.0	CHS	8.38	0.279	33.3	22.2	1,067	0.963	21.7	28.9	30.1	1.93	43.3	1.00	C	28.9	240	240	6.49	86.4	5.85
76.1	5.9	CHS	10.2	0.239	23.4	12.9	1,301	0.807	21.2	29.1	24.9	1.61	42.4	1.00	C	29.1	293	293	6.56	105	5.73
76.1	4.5	CHS	7.95	0.239	30.1	16.9	1,012	0.651	17.1	23.1	25.4	1.30	34.2	1.00	C	23.1	228	228	5.20	82.0	4.62
76.1	3.6	CHS	6.44	0.239	37.1	21.1	820	0.540	14.2	18.9	25.7	1.08	28.4	1.00	C	18.9	184	184	4.26	66.4	3.83
60.3	5.4	CHS	7.31	0.189	25.9	11.2	931	0.354	11.8	16.3	19.5	0.709	23.5	1.00	C	16.3	210	210	3.67	75.4	3.17
60.3	4.5	CHS	6.19	0.189	30.6	13.4	789	0.309	10.2	14.0	19.8	0.618	20.5	1.00	C	14.0	177	177	3.16	63.9	2.77
60.3	3.6	CHS	5.03	0.189	37.6	16.8	641	0.259	8.58	11.6	20.1	0.517	17.2	1.00	C	11.6	144	144	2.61	51.9	2.32
48.3	4.0	CHS	4.37	0.152	34.7	12.1	557	0.138	5.70	7.87	15.7	0.275	11.4	1.00	C	7.87	125	125	1.77	45.1	1.54
48.3	3.2	CHS	3.56	0.152	42.6	15.1	453	0.116	4.80	6.52	16.0	0.232	9.59	1.00	C	6.52	102	102	1.47	36.7	1.30
42.4	4.0	CHS	3.79	0.133	35.2	10.6	483	0.0899	4.24	5.92	13.7	0.180	8.48	1.00	C	5.92	109	109	1.33	39.1	1.15
42.4	3.2	CHS	3.09	0.133	43.1	13.3	394	0.0762	3.59	4.93	13.9	0.152	7.19	1.00	C	4.93	88.7	88.7	1.11	31.9	0.970
33.7	4.0	CHS	2.93	0.106	36.1	8.43	373	0.0419	2.49	3.55	10.6	0.0838	4.97	1.00	C	3.55	84.0	84.0	0.799	30.2	0.671
33.7	3.2	CHS	2.41	0.106	44.0	10.5	307	0.0360	2.14	2.99	10.8	0.0721	4.28	1.00	C	2.99	69.0	69.0	0.672	24.8	0.578
26.9	3.2	CHS	1.87	0.0845	45.2	8.41	238	0.0170	1.27	1.81	8.46	0.0341	2.53	1.00	C	1.81	53.6	53.6	0.407	19.3	0.342
26.9	2.6	CHS	1.56	0.0845	54.2	10.3	198	0.0148	1.10	1.54	8.64	0.0296	2.20	1.00	C	1.54	44.7	44.7	0.347	16.1	0.297

Circular Hollow Sections (Grade C350L0)

Dimensions and Properties

DIMENSIONS AND RATIOS							PROPERTIES							PROPERTIES FOR DESIGN TO AS 4100			Design Section Capacities (About any axes)					
Designation			Mass	External Surface Area		d_o/t	Gross Section Area	About any axes					Torsion Constant	Torsion Modulus	Form Factor	About any axes		Axial Compression	Axial Tension	Moment	Shear	Torsion
d_o	t	Section		mm ² /m	m ² /t		A_g	I	Z	S	r	J	C	k_f	Compactness	Z_e	ϕN_s	ϕN_t	ϕM_s	ϕV_v	ϕM_z	
mm	mm		kg/m				mm ²	10 ⁶ mm ⁴	10 ³ mm ³	10 ³ mm ³	mm	10 ⁶ mm ⁴	10 ⁶ mm ³		(C,N,S)	10 ⁶ mm ³	kN	kN	kNm	kN	kNm	
610.0	16.0	CHS	234	1.92	8.18	38.1	29,858	1,318	4,321	5,647	210	2,636	8,641	1.00	N	5,583	9,405	9,405	1,759	3,386	1,633	
610.0	12.7	CHS	187	1.92	10.2	48.0	23,831	1,063	3,486	4,532	211	2,127	6,972	1.00	N	4,274	7,507	7,507	1,346	2,702	1,318	
610.0	9.5	CHS	141	1.92	13.6	64.2	17,922	808	2,649	3,426	212	1,616	5,299	0.954	N	2,983	5,388	5,645	940	2,032	1,001	
610.0	6.4	CHS	95.3	1.92	20.1	95.3	12,136	553	1,812	2,332	213	1,106	3,625	0.782	S	1,719	2,988	3,823	541	1,376	685	
508.0	16.0	CHS	194	1.60	8.22	31.8	24,731	749	2,949	3,874	174	1,498	5,898	1.00	C	3,874	7,790	7,790	1,220	2,804	1,115	
508.0	12.7	CHS	155	1.60	10.3	40.0	19,762	606	2,387	3,116	175	1,213	4,775	1.00	N	3,054	6,225	6,225	962	2,241	902	
508.0	9.5	CHS	117	1.60	13.7	53.5	14,878	462	1,820	2,361	176	925	3,640	1.00	N	2,169	4,687	4,687	683	1,687	688	
508.0	6.4	CHS	79.2	1.60	20.2	79.4	10,085	317	1,249	1,610	177	634	2,498	0.857	N	1,295	2,723	3,177	408	1,144	472	
457.0	16.0	CHS	174	1.44	8.25	28.6	22,167	540	2,361	3,113	156	1,079	4,723	1.00	C	3,113	6,983	6,983	981	2,514	893	
457.0	12.7	CHS	139	1.44	10.3	36.0	17,727	438	1,916	2,508	157	876	3,932	1.00	N	2,504	5,584	5,584	789	2,010	724	
457.0	9.5	CHS	105	1.44	13.7	48.1	13,356	334	1,464	1,903	158	669	2,928	1.00	N	1,794	4,207	4,207	565	1,515	553	
457.0	6.4	CHS	71.1	1.44	20.2	71.4	9,060	230	1,007	1,300	159	460	2,013	0.904	N	1,090	2,581	2,854	343	1,027	380	
406.4	16.0	CHS	154	1.28	8.29	25.4	19,624	374	1,843	2,440	138	749	3,866	1.00	C	2,440	6,181	6,181	769	2,225	697	
406.4	12.7	CHS	123	1.28	10.4	32.0	15,708	305	1,499	1,969	139	609	2,999	1.00	C	1,969	4,948	4,948	620	1,781	567	
406.4	9.5	CHS	93.0	1.28	13.7	42.8	11,846	233	1,149	1,497	140	467	2,297	1.00	N	1,448	3,731	3,731	456	1,343	434	
406.4	6.4	CHS	63.1	1.28	20.2	63.5	8,042	161	792	1,024	141	322	1,584	0.960	N	895	2,431	2,533	282	912	299	
355.6	16.0	CHS	134	1.12	8.34	22.2	17,070	247	1,387	1,847	120	493	2,774	1.00	C	1,847	5,377	5,377	582	1,936	524	
355.6	12.7	CHS	107	1.12	10.4	28.0	13,681	201	1,132	1,494	121	403	2,265	1.00	C	1,494	4,310	4,310	471	1,551	428	
355.6	9.5	CHS	81.1	1.12	13.8	37.4	10,329	155	871	1,138	122	310	1,741	1.00	N	1,129	3,254	3,254	356	1,171	329	
355.6	6.4	CHS	55.1	1.12	20.3	55.6	7,021	107	602	781	124	214	1,204	1.00	N	710	2,212	2,212	224	796	228	
323.9	12.7	CHS	97.5	1.02	10.4	25.5	12,416	151	930	1,231	110	301	1,859	1.00	C	1,231	3,911	3,911	388	1,408	351	
323.9	9.5	CHS	73.7	1.02	13.8	34.1	9,383	118	717	939	111	232	1,433	1.00	C	939	2,956	2,956	296	1,064	271	
323.9	6.4	CHS	50.1	1.02	20.3	50.6	6,384	80.5	497	645	112	161	994	1.00	N	601	2,011	2,011	189	724	188	
323.9	4.8	CHS	37.8	1.02	26.9	67.5	4,812	61.3	378	489	113	123	757	0.931	N	419	1,411	1,516	132	546	143	
273.1	12.7	CHS	81.6	0.858	10.5	21.5	10,389	88.3	646	862	92.2	177	1,293	1.00	C	862	3,273	3,273	271	1,178	244	
273.1	9.3	CHS	60.5	0.858	14.2	29.4	7,707	67.1	492	647	93.3	134	983	1.00	C	647	2,428	2,428	204	874	186	
273.1	6.4	CHS	42.1	0.858	20.4	42.7	5,362	47.7	349	455	94.3	95.4	699	1.00	N	441	1,689	1,689	139	608	132	
273.1	4.8	CHS	31.8	0.858	27.0	56.9	4,046	36.4	267	346	94.9	72.8	533	1.00	N	312	1,274	1,274	98.3	459	101	
219.1	12.7	CHS	64.6	0.688	10.6	17.3	8,235	44.0	402	542	73.1	88.0	804	1.00	C	542	2,594	2,594	171	934	152	
219.1	8.2	CHS	42.6	0.688	16.1	26.7	5,433	30.3	276	365	74.6	60.5	552	1.00	C	365	1,711	1,711	115	616	104	
219.1	6.4	CHS	33.6	0.688	20.5	34.2	4,277	24.2	221	290	75.2	48.4	442	1.00	C	290	1,347	1,347	91.2	485	83.5	
219.1	4.8	CHS	25.4	0.688	27.1	45.6	3,232	18.6	169	220	75.8	37.1	339	1.00	N	210	1,018	1,018	66.3	366	64.0	
177.8	11.0	CHS	45.2	0.559	12.3	16.2	5,764	20.1	226	306	59.1	40.3	453	1.00	C	306	1,816	1,816	96.5	654	85.6	
177.8	8.2	CHS	34.3	0.559	16.3	21.7	4,369	15.7	177	236	60.0	31.5	354	1.00	C	236	1,376	1,376	74.4	495	67.0	
177.8	7.1	CHS	29.9	0.559	18.7	25.0	3,808	13.9	156	207	60.4	27.8	313	1.00	C	1,199	1,199	65.2	432	59.1		
177.8	6.4	CHS	27.1	0.559	20.6	27.8	3,446	12.7	143	188	60.6	25.3	285	1.00	C	1,086	1,086	59.3	391	53.9		
177.8	4.8	CHS	20.5	0.559	27.3	37.0	2,609	9.77	110	144	61.2	19.5	220	1.00	N	143	822	822	45.0	296	41.5	
168.3	11.0	CHS	42.7	0.529	12.4	15.3	5,436	16.9	201	273	55.8	33.8	402	1.00	C	273	1,712	1,712	85.9	616	75.9	
168.3	8.2	CHS	32.4	0.529	16.3	20.5	4,124	13.2	157	210	56.7	26.5	315	1.00	C	210	1,299	1,299	66.3	468	59.5	
168.3	7.1	CHS	28.2	0.529	18.7	23.7	3,596	11.7	139	185	57.1	23.4	278	1.00	C	185	1,133	1,133	58.2	408	52.6	
168.3	6.4	CHS	25.6	0.529	20.7	26.3	3,255	10.7	127	168	57.3	21.4	254	1.00	C	168	1,025	1,025	52.9	369	48.0	
168.3	4.8	CHS	19.4	0.529	27.3	35.1	2,466	8.25	98.0	128	57.8	16.5	196	1.00	C	128	777	777	40.4	280	37.0	
168.3	3.2	CHS	13.0	0.529	40.6	52.6	1,660	5.66	67.2	87.2	58.4	11.3	134	1.00	N	80.5	523	523	25.4	188	25.4	
165.1	6.0	CHS	23.5	0.519	22.0	27.5	2,999	9.50	115	152	56.3	19.0	230	1.00	C	152	945	945	47.9	340	43.5	
165.1	5.4	CHS	21.3	0.519	24.4	30.6	2,709	8.65	105	138	56.5	17.3	209	1.00	C	138	853	853	43.4	307	39.6	
165.1	5.0	CHS	19.7	0.519	26.3	33.0	2,515	8.07	97.7	128	56.6	16.1	195	1.00	C	128	792	792	40.4	285	36.9	
165.1	3.5	CHS	13.9	0.519	37.2	47.2	1,777	5.80	70.3	91.4	57.2	11.8	141	1.00	N	560	560	27.3	201	26.6		
165.1	3.0	CHS	12.0	0.519	43.2	55.0	1,528	5.02	60.8	78.8	57.3	10.0	122	1.00	N	481	481	22.6	173	23.0		
139.7	6.0	CHS	19.8	0.439	22.2	23.3	2,520	5.64	80.8	107	47.3	11.3	162	1.00	C	107	794	794	33.8	286	30.5	
139.7	5.4	CHS	17.9	0.439	24.5	25.9	2,278	5.14	73.7	97.4	47.5	10.3	147	1.00	C	97.4	718	718	30.7	258	27.8	
139.7	5.0	CHS	16.6	0.439	26.4	27.9	2,116	4.81	68.8	90.8	47.7	9.61	138	1.00	C	90.8	666	666	28.6	240	26.0	
139.7	3.5	CHS	11.8	0.439	37.3	39.9	1,498	3.47	49.7	64.9	48.2	6.95	99.5	1.00	N	63.7	472	472	20.1	170	18.8	
139.7	3.0	CHS	10.1	0.439	43.4	46.6	1,288	3.01	43.1	56.1	48.3	6.02	86.2	1.00	N	53.3	406	406	16.8	146	16.3	
114.3	6.0	CHS	16.0	0.359	22.4	19.1	2,041	3.00	52.5	70.4	38.4	6.00	105	1.00	C	70.4	643	643	22.2	231	19.9	
114.3	5.4	CHS	14.5	0.359	24.8	21.2	1,847	2.75	48.0	64.1	38.6	5.49	96.1	1.00	C	64.1	582	582	20.2	210	18.2	
114.3	4.8	CHS	13.0	0.359	27.7	23.8	1,651	2.48	43.4	57.6	38.8	4.96	86.8	1.00	C	57.6	520	520	18.1	187	16.4	
114.3	4.5	CHS	12.2	0.359	29.5	25.4	1,552	2.34	41.0	54.3	38.9	4.69	82.0	1.00	C	54.3	489	489	17.1	176	15.5	
114.3	3.6	CHS	9.83	0.359	36.5	31.8	1,252	1.92	33.6	44.1	39.2											