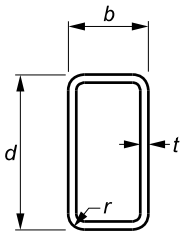
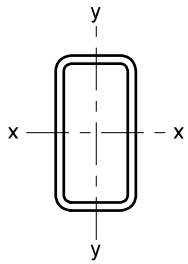
TABLE 2.1(a)



DIMENSIONS AND PROPERTIES

TUBELINE® RECTANGULAR HOLLOW SECTIONS

GRADE C350L0 (AS 1163)

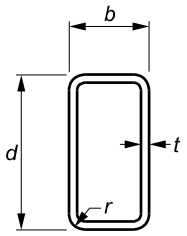


DIMENSION AND RATIOS						PROPERTIES											PROPERTIES FOR DESIGN TO AS 4100						
Designation	Mass per m	External Surface Area		$\frac{b-2t}{t}$	$\frac{d-2t}{t}$	Gross Section Area	About x-axis				About y-axis				Torsion Constant	Torsion Modulus	Form Factor	About x-axis			About y-axis		
																			Compact-			Compact-	
d b t		per m	per t			A_g	I_x	Z_x	S_x	r_x	I_y	Z_y	S_y	r_y	J	C	k_f	λ_{ex}	ness[3]	Z_{ex}	λ_{ey}	ness[3]	Z_{ey}
mm mm mm	kg/m	m^2/m	m^2/t			mm^2	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^6mm^4	10^3mm^3			(C,N,S)	10^3mm^3		(C,N,S)	10^3mm^3
250 x 150 x 9.0 RHS	51.8	0.761	14.7	14.7	25.8	6600	53.7	430	533	90.2	24.3	324	375	60.7	56.0	554	1.00	17.4	C	533	30.5	N	373
6.0 RHS	35.6	0.774	21.8	23.0	39.7	4530	38.4	307	374	92.0	17.5	233	264	62.2	39.0	395	0.907	27.2	C	374	46.9	S	208
5.0 RHS	29.9	0.779	26.0	28.0	48.0	3810	32.7	262	317	92.6	15.0	199	224	62.6	33.0	337	0.814	33.1	N	300	56.8	S	156
200 x 100 x 9.0 RHS	37.7	0.561	14.9	9.11	20.2	4800	22.8	228	293	68.9	7.64	153	180	39.9	19.9	272	1.00	10.8	C	293	23.9	C	180
6.0 RHS	26.2	0.574	22.0	14.7	31.3	3330	16.7	167	210	70.8	5.69	114	130	41.3	14.2	200	1.00	17.4	C	210	37.1	N	119
5.0 RHS	22.1	0.579	26.2	18.0	38.0	2810	14.4	144	179	71.5	4.92	98.3	111	41.8	12.1	172	0.925	21.3	C	179	45.0	S	90.1
4.0 RHS	17.9	0.583	32.5	23.0	48.0	2280	11.9	119	147	72.1	4.07	81.5	91.0	42.3	9.89	142	0.801	27.2	C	147	56.8	S	63.1
150 x 100 x 9.0 RHS	30.6	0.461	15.1	9.11	14.7	3900	10.9	145	185	52.9	5.77	115	140	38.5	13.2	197	1.00	10.8	C	185	17.4	C	140
6.0 RHS	21.4	0.474	22.1	14.7	23.0	2730	8.17	109	134	54.7	4.36	87.3	102	40.0	9.51	147	1.00	17.4	C	134	27.2	C	102
5.0 RHS	18.2	0.479	26.3	18.0	28.0	2310	7.07	94.3	115	55.3	3.79	75.7	87.3	40.4	8.12	127	1.00	21.3	C	115	33.1	N	83.6
4.0 RHS	14.8	0.483	32.7	23.0	35.5	1880	5.87	78.2	94.6	55.9	3.15	63.0	71.8	40.9	6.64	105	0.971	27.2	C	94.6	42.0	S	60.9
150 x 50 x 6.0 RHS	16.7	0.374	22.4	6.33	23.0	2130	5.06	67.5	91.2	48.7	0.860	34.4	40.9	20.1	2.63	64.3	1.00	7.49	C	91.2	27.2	C	40.9
5.0 RHS	14.2	0.379	26.6	8.00	28.0	1810	4.44	59.2	78.9	49.5	0.765	30.6	35.7	20.5	2.30	56.8	1.00	9.47	C	78.9	33.1	N	34.1
4.0 RHS	11.6	0.383	32.9	10.5	35.5	1480	3.74	49.8	65.4	50.2	0.653	26.1	29.8	21.0	1.93	48.2	0.963	12.4	C	65.4	42.0	S	25.1
3.0 RHS	8.96	0.390	43.5	14.7	48.0	1140	2.99	39.8	51.4	51.2	0.526	21.1	23.5	21.5	1.50	38.3	0.776	17.4	C	51.4	56.8	S	16.0
2.5 RHS	7.53	0.391	52.0	18.0	58.0	959	2.54	33.9	43.5	51.5	0.452	18.1	19.9	21.7	1.28	32.8	0.685	21.3	C	43.5	68.6	S	11.9
2.0 RHS	6.07	0.393	64.7	23.0	73.0	774	2.08	27.7	35.3	51.8	0.372	14.9	16.3	21.9	1.04	26.9	0.595	27.2	C	34.3	86.4	S	8.32

NOTES:
1. This table is calculated in accordance with AS 4100 using design yield stress f_y = 350 MPa and design tensile strength f_u = 430 MPa as per AS 4100 table 2.1 for AS 1163 grade C350L0.
2. Grade C350L0 is cold formed and therefore is allocated the CF residual stresses classification in AS 4100.
3. C = Compact Section; N = Non-compact Section; S = Slender Section; as defined in AS 4100.
4. For Square and Rectangular Hollow Sections the outside corner radius r used in calculating the section properties is equal to $2t$ for sections with thickness $t \leq 3.0$mm and $2.5t$ for sections with $t > 3.0$mm.

RHS

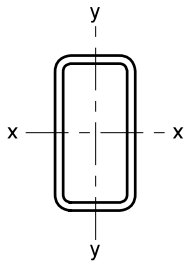
TABLE 2.1(b)



DIMENSIONS AND PROPERTIES

TUBELINE® RECTANGULAR HOLLOW SECTIONS

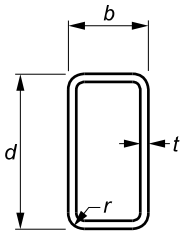
GRADE C350L0 (AS 1163)



DIMENSION AND RATIOS						PROPERTIES											PROPERTIES FOR DESIGN TO AS 4100						
Designation	Mass per m	External Surface Area		$\frac{b-2t}{t}$	$\frac{d-2t}{t}$	Gross Section Area	About x-axis				About y-axis				Torsion Constant	Torsion Modulus	Form Factor	About x-axis			About y-axis		
																			Compact-ness[3]			Compact-ness[3]	
d b t		per m	per t			A_g	I_x	Z_x	S_x	r_x	I_y	Z_y	S_y	r_y	J	C	k_f	λ_{ex}		Z_{ex}	λ_{ey}		Z_{ey}
mm mm mm	kg/m	m^2/m	m^2/t			mm^2	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^6mm^4	10^3mm^3			(C,N,S)	10^3mm^3		(C,N,S)	10^3mm^3
125 x 75 x6.0 RHS	16.7	0.374	22.4	10.5	18.8	2130	4.16	66.6	84.2	44.2	1.87	50.0	59.1	29.6	4.44	86.2	1.00	12.4	C	84.2	22.3	C	59.1
5.0 RHS	14.2	0.379	26.6	13.0	23.0	1810	3.64	58.3	72.7	44.8	1.65	43.9	51.1	30.1	3.83	75.3	1.00	15.4	C	72.7	27.2	C	51.1
4.0 RHS	11.6	0.383	32.9	16.8	29.3	1480	3.05	48.9	60.3	45.4	1.39	37.0	42.4	30.6	3.16	63.0	1.00	19.8	C	60.3	34.6	N	39.9
3.0 RHS	8.96	0.390	43.5	23.0	39.7	1140	2.43	38.9	47.3	46.1	1.11	29.5	33.3	31.1	2.43	49.5	0.908	27.2	C	47.3	46.9	S	26.3
2.5 RHS	7.53	0.391	52.0	28.0	48.0	959	2.07	33.0	40.0	46.4	0.942	25.1	28.2	31.4	2.05	42.1	0.815	33.1	N	37.8	56.8	S	19.8
2.0 RHS	6.07	0.393	64.7	35.5	60.5	774	1.69	27.0	32.5	46.7	0.771	20.6	22.9	31.6	1.67	34.4	0.706	42.0	S	26.3	71.6	S	14.0
100 x 50 x6.0 RHS	12.0	0.274	22.8	6.33	14.7	1530	1.71	34.2	45.3	33.4	0.567	22.7	27.7	19.2	1.53	40.9	1.00	7.49	C	45.3	17.4	C	27.7
5.0 RHS	10.3	0.279	27.0	8.00	18.0	1310	1.53	30.6	39.8	34.1	0.511	20.4	24.4	19.7	1.35	36.5	1.00	9.47	C	39.8	21.3	C	24.4
4.0 RHS	8.49	0.283	33.3	10.5	23.0	1080	1.31	26.1	33.4	34.8	0.441	17.6	20.6	20.2	1.13	31.2	1.00	12.4	C	33.4	27.2	C	20.6
3.5 RHS	7.53	0.285	37.9	12.3	26.6	959	1.18	23.6	29.9	35.1	0.400	16.0	18.5	20.4	1.01	28.2	1.00	14.5	C	29.9	31.4	N	18.1
3.0 RHS	6.60	0.290	43.9	14.7	31.3	841	1.06	21.3	26.7	35.6	0.361	14.4	16.4	20.7	0.886	25.0	1.00	17.4	C	26.7	37.1	N	15.0
2.5 RHS	5.56	0.291	52.4	18.0	38.0	709	0.912	18.2	22.7	35.9	0.311	12.4	14.0	20.9	0.754	21.5	0.926	21.3	C	22.7	45.0	S	11.4
2.0 RHS	4.50	0.293	65.1	23.0	48.0	574	0.750	15.0	18.5	36.2	0.257	10.3	11.5	21.2	0.616	17.7	0.802	27.2	C	18.5	56.8	S	7.98
1.6 RHS	3.64	0.295	81.0	29.3	60.5	463	0.613	12.3	15.0	36.4	0.211	8.43	9.33	21.3	0.501	14.5	0.705	34.6	N	13.8	71.6	S	5.61
75 x 50 x 6.0 RHS	9.67	0.224	23.2	6.33	10.5	1230	0.800	21.3	28.1	25.5	0.421	16.9	21.1	18.5	1.01	29.3	1.00	7.49	C	28.1	12.4	C	21.1
5.0 RHS	8.35	0.229	27.4	8.00	13.0	1060	0.726	19.4	24.9	26.1	0.384	15.4	18.8	19.0	0.891	26.4	1.00	9.47	C	24.9	15.4	C	18.8
4.0 RHS	6.92	0.233	33.7	10.5	16.8	881	0.630	16.8	21.1	26.7	0.335	13.4	16.0	19.5	0.754	22.7	1.00	12.4	C	21.1	19.8	C	16.0
3.0 RHS	5.42	0.240	44.2	14.7	23.0	691	0.522	13.9	17.1	27.5	0.278	11.1	12.9	20.0	0.593	18.4	1.00	17.4	C	17.1	27.2	C	12.9
2.5 RHS	4.58	0.241	52.7	18.0	28.0	584	0.450	12.0	14.6	27.7	0.240	9.60	11.0	20.3	0.505	15.9	1.00	21.3	C	14.6	33.1	N	10.6
2.0 RHS	3.72	0.243	65.4	23.0	35.5	474	0.372	9.91	12.0	28.0	0.199	7.96	9.06	20.5	0.414	13.1	0.971	27.2	C	12.0	42.0	S	7.70
1.6 RHS	3.01	0.245	81.3	29.3	44.9	383	0.305	8.14	9.75	28.2	0.164	6.56	7.40	20.7	0.337	10.8	0.852	34.6	N	9.01	53.1	S	5.42

NOTES:
1. This table is calculated in accordance with AS 4100 using design yield stress f_y = 350 MPa and design tensile strength f_u = 430 MPa as per AS 4100 table 2.1 for AS 1163 grade C350L0.
2. Grade C350L0 is cold formed and therefore is allocated the CF residual stresses classification in AS 4100.
3. C = Compact Section; N = Non-compact Section; S = Slender Section; as defined in AS 4100.
4. For Square and Rectangular Hollow Sections the outside corner radius r used in calculating the section properties is equal to $2t$ for sections with thickness $t \leq 3.0$mm and $2.5t$ for sections with $t > 3.0$mm.

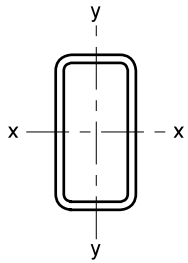
TABLE 2.1(c)



DIMENSIONS AND PROPERTIES

TUBELINE® RECTANGULAR HOLLOW SECTIONS

GRADE C350L0 (AS 1163)



DIMENSION AND RATIOS						PROPERTIES											PROPERTIES FOR DESIGN TO AS 4100						
Designation			Mass per m	External Surface Area		$\frac{b-2t}{t}$	$\frac{d-2t}{t}$	Gross Section Area	About x-axis				About y-axis				Torsion Constant	Torsion Modulus	Form Factor	About x-axis			About y-axis		
																				Compact-			Compact-		
d	b	t		per m	per t			A_g	I_x	Z_x	S_x	r_x	I_y	Z_y	S_y	r_y	J	C	k_f	λ_{ex}	ness[3]	Z_{ex}	λ_{ey}	ness[3]	Z_{ey}
mm	mm	mm	kg/m	m^2/m	m^2/t			mm^2	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^6mm^4	10^3mm^3			(C,N,S)	10^3mm^3		(C,N,S)	10^3mm^3
75 x 25 x		**2.5 RHS**	**3.60**	**0.191**	**53.1**	**8.00**	**28.0**	**459**	**0.285**	**7.60**	**10.1**	**24.9**	**0.0487**	**3.89**	**4.53**	**10.3**	**0.144**	**7.14**	**1.00**	**9.47**	**C**	**10.1**	**33.1**	**N**	**4.33**
		2.0 RHS	*2.93*	*0.193*	*65.8*	*10.5*	*35.5*	*374*	*0.238*	*6.36*	*8.31*	*25.3*	*0.0414*	*3.31*	*3.77*	*10.5*	*0.120*	*6.04*	*0.964*	*12.4*	*C*	*8.31*	*42.0*	*S*	*3.18*
		1.6 RHS	*2.38*	*0.195*	*81.7*	*13.6*	*44.9*	*303*	*0.197*	*5.26*	*6.81*	*25.5*	*0.0347*	*2.78*	*3.11*	*10.7*	*0.0993*	*5.05*	*0.813*	*16.1*	*C*	*6.81*	*53.1*	*S*	*2.22*
65 x 35x		*4.0 RHS*	*5.35*	*0.183*	*34.2*	*6.75*	*14.3*	*681*	*0.328*	*10.1*	*13.3*	*22.0*	*0.123*	*7.03*	*8.58*	*13.4*	*0.320*	*12.5*	*1.00*	*7.99*	*C*	*13.3*	*16.9*	*C*	*8.58*
		3.0 RHS	**4.25**	**0.190**	**44.7**	**9.67**	**19.7**	**541**	**0.281**	**8.65**	**11.0**	**22.8**	**0.106**	**6.04**	**7.11**	**14.0**	**0.259**	**10.4**	**1.00**	**11.4**	**C**	**11.0**	**23.3**	**C**	**7.11**
		2.5 RHS	**3.60**	**0.191**	**53.1**	**12.0**	**24.0**	**459**	**0.244**	**7.52**	**9.45**	**23.1**	**0.0926**	**5.29**	**6.13**	**14.2**	**0.223**	**9.10**	**1.00**	**14.2**	**C**	**9.45**	**28.4**	**C**	**6.13**
		2.0 RHS	**2.93**	**0.193**	**65.8**	**15.5**	**30.5**	**374**	**0.204**	**6.28**	**7.80**	**23.4**	**0.0778**	**4.44**	**5.07**	**14.4**	**0.184**	**7.62**	**1.00**	**18.3**	**C**	**7.80**	**36.1**	**N**	**4.69**
50 x 25 x		**3.0 RHS**	**3.07**	**0.140**	**45.5**	**6.33**	**14.7**	**391**	**0.112**	**4.47**	**5.86**	**16.9**	**0.0367**	**2.93**	**3.56**	**9.69**	**0.0964**	**5.18**	**1.00**	**7.49**	**C**	**5.86**	**17.4**	**C**	**3.56**
		2.5 RHS	**2.62**	**0.141**	**54.0**	**8.00**	**18.0**	**334**	**0.0989**	**3.95**	**5.11**	**17.2**	**0.0328**	**2.62**	**3.12**	**9.91**	**0.0843**	**4.60**	**1.00**	**9.47**	**C**	**5.11**	**21.3**	**C**	**3.12**
		2.0 RHS	**2.15**	**0.143**	**66.6**	**10.5**	**23.0**	**274**	**0.0838**	**3.35**	**4.26**	**17.5**	**0.0281**	**2.25**	**2.62**	**10.1**	**0.0706**	**3.92**	**1.00**	**12.4**	**C**	**4.26**	**27.2**	**C**	**2.62**
		1.6 RHS	**1.75**	**0.145**	**82.5**	**13.6**	**29.3**	**223**	**0.0702**	**2.81**	**3.53**	**17.7**	**0.0237**	**1.90**	**2.17**	**10.3**	**0.0585**	**3.29**	**1.00**	**16.1**	**C**	**3.53**	**34.6**	**N**	**2.05**
50 x 20 x		**3.0 RHS**	**2.83**	**0.130**	**45.8**	**4.67**	**14.7**	**361**	**0.0951**	**3.81**	**5.16**	**16.2**	**0.0212**	**2.12**	**2.63**	**7.67**	**0.0620**	**3.88**	**1.00**	**5.52**	**C**	**5.16**	**17.4**	**C**	**2.63**
		2.5 RHS	**2.42**	**0.131**	**54.2**	**6.00**	**18.0**	**309**	**0.0848**	**3.39**	**4.51**	**16.6**	**0.0192**	**1.92**	**2.32**	**7.89**	**0.0550**	**3.49**	**1.00**	**7.10**	**C**	**4.51**	**21.3**	**C**	**2.32**
		2.0 RHS	**1.99**	**0.133**	**66.8**	**8.00**	**23.0**	**254**	**0.0723**	**2.89**	**3.78**	**16.9**	**0.0167**	**1.67**	**1.96**	**8.11**	**0.0466**	**3.00**	**1.00**	**9.47**	**C**	**3.78**	**27.2**	**C**	**1.96**
		1.6 RHS	**1.63**	**0.135**	**82.7**	**10.5**	**29.3**	**207**	**0.0608**	**2.43**	**3.14**	**17.1**	**0.0142**	**1.42**	**1.63**	**8.29**	**0.0389**	**2.55**	**1.00**	**12.4**	**C**	**3.14**	**34.6**	**N**	**1.54**

NOTES:
1. This table is calculated in accordance with AS 4100 using design yield stress f_y = 350 MPa and design tensile strength f_u = 430 MPa as per AS 4100 table 2.1 for AS 1163 grade C350L0.
2. Grade C350L0 is cold formed and therefore is allocated the CF residual stresses classification in AS 4100.
3. C = Compact Section; N = Non-compact Section; S = Slender Section; as defined in AS 4100.
4. For Square and Rectangular Hollow Sections the outside corner radius r used in calculating the section properties is equal to $2t$ for sections with thickness $t \leq 3.0$mm and $2.5t$ for sections with $t > 3.0$mm.
5. Sizes shown in *Italics:* These sizes may not be stocked in all states or minimum order quanitites may apply

RHS