ALLIANCE TUBES & GALVANIZERS

SPECIFICIATION FOR STANDARD SIZES
AS1163:2009 SQUARE HOLLOW SECTIONS

SQUARE HOLLOW SECTIONS												
Nominal Sizes		Wall Thickness		Weight		Pieces/bdls	Nominal Sizes		Wall Thickness		Weight		Pieces/ bdls
Inch	NB(MM)	Inch	MM	Kg/ Mtr	lb/Ft		Inch	NB(MM)	Inch	MM	Kg/Mtr	lb/Ft	
3/4X 3/4	20 X 20	0.063	1.6	0.873	0.587	150	4 x 4	100 x100	0.118	3.0	8.96	6.022	20
1 x 1	25 x 25	0.063	1.6	1.12	0.753	150			0.157	4.0	11.60	7.796	20
		0.079	2.0	1.36	0.914	100			0.197	5.0	14.2	9.543	16
		0.098	2.5	1.64	1.102	80			0.236	6.0	16.7	11.223	12
		0.118	3.0	1.89	1.270	64			0.354	9.0	23.5	15.793	9
11/5 x 11/5	30 x 30	0.063	1.6	1.38	0.927	100	5 x 5	125 x125	0.157	4.0	14.8	9.95	16
		0.079	2.0	1.68	1.129	100			0.197	5.0	18.2	12.23	12
13/8 x 13/8	35 x 35	0.063	1.6	1.63	1.095	100			0.236	6.0	21.4	14.38	12
		0.079	2.0	1.99	1.337	80			0.354	9.0	30.6	20.56	9
		0.098	2.5	2.42	1.626	64	6 X 6	150 x 150	0.197	5.0	22.1	14.85	9
		0.118	3.0	2.83	1.902	49			0.236	6.0	26.2	17.61	9
13/5 x 13/5	40 x 40	0.063	1.60	1.88	1.263	100			0.354	9.0	37.70	25.34	6
		0.079	2.0	2.31	1.552	80	8 X 8	200 X 200	0.197	5.0	29.90	20.09	6
		0.098	2.5	2.82	1.895	64			0.236	6.0	35.60	23.92	4
		0.157	4.0	4.09	2.749	49			0.354	9.0	51.80	34.81	4
2 x 2	50 x 50	0.063	1.6	2.38	1.599	64	10 X 10	250 X 250	0.236	6.0	45.0	30.24	4
		0.079	2.0	2.93	1.969	49			0.354	9.0	65.9	44.29	4
		0.098	2.5	3.60	2.419	49							
		0.118	3.0	4.25	2.856	36							
		0.157	4.0	5.35	3.595	36							
29/16 x29/16	65 X 65	0.079	2.0	3.88	2.608	49							
		0.098	2.5	4.78	3.212	36							
		0.118	3.0	5.66	3.804	36							
3 x 3	75 X 75	0.098	2.5	5.56	3.737	36							
		0.118	3.0	6.60	4.435	36							

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0.138	3.5	7.53	5.060	36							
0.157	4.0	8.49	5.706	25							
0.197	5.0	10.30	6.922	20							
0.236	6.0	12.00	8.065	20							
0.14	3.5	9.06	6.089	25							
0.20	5.0	12.50	8.401	20							
0.24	6.0	14.60	9.812	16							

TOLERANCES :-

CHARACTERISTIC	SQUARE HOLLOW SECTIONS
EXTERNAL DIMENSIONS (b)	Tolerance
	± 1%, with a min. +/-0.5mm
THICKNESS	`± 10%
CONCAVITY/CANVEXITY	Max. 0.8% with a min. of 0.5mm ,Whichever is greater.
SQUARENESS OF SIDES	$90^0 \pm 1^0$
EXTERNAL CORNER PROFILE	Perimeter (mm) Equivalent to 50X50 or less : 1.6T to 3.0T Equivalent to greater than 50X50 : 1.8 T to 3.0T
TWIST	2.0+ 0.5mm/m length
STRAIGHTNESS	0.15% of total length.
MASS PER UNIT LENGTH	Not less than 0.96 times the specified mass on individual Length

CHEMICAL COMPOSITION

Chemical composition % max.

Si	Mn	P	S	Cr	Mo	Al	Ni	Cu	Ti	Microalloying Elements	CE

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C 250, C250Lo	0.12	0.05	0.50	0.03	0.03	0.15	0.10	0.10	0.25	0.25	0.04	0.03(Note-1)	0.25
C 350, C350Lo	0.20	0.45	1.60	0.03	0.03	0.30	0.10	0.10	0.25	0.25	0.04	0.15(Note-2)	0.43
C 450, C450Lo	0.20	0.45	1.70	0.03	0.03	0.50	0.35	0.10	0.25	0.25	0.04	0.15(Note-2)	0.43
Note-1) Nb-0.010 Max						Note-2)- V-0.10 Max.							

Carbon Equivalent : Carbon equivalent shall be calculated from the following formula.CEV =

C + (Mn / 6) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15

MECHANICAL PROPERTIES

GRADE	Min. Yield Strength R_{eh}(Mpa)	Tensile Strength Rm(Mpa)	Elongation	Test Temp.	Min. Impact Energy(J)					
					Size of Test piece					
					10 X 10 mm		10 X 7.5 mm		10 X 5.0 mm	
					Average of 3 tests	Individual Test	Average of 3 tests	Individual Test	Average of 3 tests	Individual Test
C 250/C250Lo	250	320	18	0^0C	27	20	22	16	18	13
C 350/C350Lo	350	430	16							
C 350/C350Lo	450	500	14							

WORKMANSHIP-Free from overlap, Lamination,tool/roll marks,pin holes,open seam & other harmful defect.
MARKING
. : We can do on line stenciling as per this stanadrd & as per customer needs at one meter interval
.
PACKING-Box Type
MILL TEST CERTIFICATE-We can issue a MTC, Certifying that the tubes supplied comply with this standard.