GARG TUBE EXPORT LLP
ISO 9001, CE & UL CERTIFIED

Specification for Standard Sizes

AS/NZS 1163 : 2016 - Cold-Formed Structural Steel Hollow Section

A - Cold-Formed Circular Hollow Section Tubes (Round Tubes)

Designation	Outside Diameter (mm) - Range & Tolerance	Wall Thickness (mm) - Range & Tolerance
CF-CHS	13.50 (1/4")-To-323.90 (12") MM & 1 % of Size	1.80 -To-6.50 MM & ± 10 % of Wall Thickness

B - Cold Formed Square/Rectangular Hollow Section Tubes (Section Tubes)

Designation	Depth (MM)-Range & Tolerance	Width (MM)-Range & Tolerance	Wall Thickness (MM) - Range & Tolerance
CF-SHS	20x20-SHS & ±1% of Side	20x20-SHS & ±1% of Side	1.50 MM -To-8.00 MM & ±10 % of Wall Thickness
	200x200-SHS & ±1% of Side	200x200-SHS & ±1% of Side	1.50 MM -To-8.00 MM & ±10 % of Wall Thickness
CF-RHS	40x20-RHS & ±1% of Side	40x20-RHS & ±1% of Side	1.50 MM -To-8.00 MM & ±10 % of Wall Thickness
	200x100-RHS & ±1% of Side	200x100-RHS & ±1% of Side	1.50 MM -To-8.00 MM & ±10 % of Wall Thickness

Chemical and Mechnical Properties as per AS/NZS 1163 : 2016

Designation of Grade	Mechnical Properties						Chemical Composition %							
	Tensile Strength (Min) - MPA	Yield Strength (Min)-MPA	Elongation % (Min)		Impact Properties		C Max.	Si Max	Mn Max	P Max	S Max.	Mo Max	Al Max	Cev Max
			CHS	SHS or RHS	Test Temperature 0 degree	Min Average Absorved energy for standard test pieces								
C250	320	250	22	18	.....	.....	0.12	0.05	0.50	0.04	0.03	0.10	0.10	0.25
250 L0	320	250	22	18	0	27	0.12	0.05	0.50	0.04	0.03	0.10	0.10	0.25
C350	430	350	10	16	.....	.....	0.20	0.25	1.60	0.04	0.03	0.10	0.10	0.39
C350 L0	430	350	20	16	0	27	0.20	0.25	1.60	0.04	0.03	0.10	0.10	0.39
C450	500	450	16	14	.....	.....	0.20	0.45	1.60	0.04	0.03	0.35	0.10	0.39
C450 L0	500	450	16	14	0	27	0.20	0.45	1.60	0.04	0.03	0.35	0.10	0.39

1. Length	-0/+50 MM or Mutual Agreement between Manufacturer and Purchaser	
2. Out-of-Roundness CHS	± 2 % for hollow sections having diameter to thickness ratio not exceeding 100, otherwise shall be agree between APM and the purchaser	
3. Concavity/Convexity SHS & RHS	Maximum 0.8 % or 0.5 mm , whichever is greter	
4. Suareness of Sides SHS & RHS	90 degree ± 1 degree	
5.External Corner Profile SHS & RHS	Equivalent to 50x50 or less	1.5t to 3.0t
	Equivalent to greater than 50x50 or less	1.8t to 3.0t
6. Twist SHS & RHS	2 mm + 0.5 mm/M length	
7. Straightness	CHS	0.20 % of total length
	SHS & RHS	0.15 % of total length
8. Mass(m) per unit length (CHS,SHS,RHS)	Not Less than 0.96 times the specified mass on individual length	

9. Ends

	Plain end, Grooved end, Thread end, Bevel end.
	Grooved end - as per Victaulic Specification -25.01
	Thread end - as per BSP (British Standard Pipe)- Thread is 55 degree

10. Flattening Test

for above NPS 2" - Welded tubes shall be flattened with the weld placed alternately at 0 deg. or 90 deg.
to the direction of the the force .
for Weld Test- Flatten up to 75 % of original Dia of the tubes result no cracks apperance on weld Portion
For Material other than weld - Flatten up to 60 % of original tube OD result no cracks appearance in the
metal other than in the weld portion

11. Leack Tightness Test

a.- Online NDT (Eddy Current) or

b. - Hydro Testing at 50 bar Pressure and holding time Minimum 5 Second

12 . Bend Test

Bend Test is applicable for Specified Diameter (D) from 17.20 to 60.30 mm through corresponding radius

D	17.2	21.3	26.9	33.7	42.4	48.3	60.3							
Bending Radius	50	65	85	100	150	170	220							

13. Surface Protcetion

Bare Black Tube (Uncoated)

HDG - Galvanized As per AS 1650/4792/4680 (as per AS 4792- Minimum Zinc Coating-300 g/m2)

Oil-Based Painted Tubes (OBPT)

Water-Base Painted Tube - Acid Removal (WBPTAR)

Water-Base Painted Tube - Non Acid Removal (WBPTNR)

14.Packing

Hexagonal Type or Customer Requirments

15. Colour Coading

For Light - Yellow

For Medium - Blue

For Heavy - Red

16. Mill Test Certificate

We can issue a MTC, Certifying that the tubes supplied comply with this standard-AS/NZS 1163 : 2016 & Inspection

Documents as Per EN 10204 : 2004 ,Type 3.1