

## ASTM A53

SCHEDULE 40 GRADE B												
		Outside Dia. of Black / Galvanized Tube						Weight of Black / Galvanized Tube				
SIZE		Minimum		Maximum		Wall thickness		Plain Ends		Screwed & Socketed		Pieces
INCH	NB (mm)	Inches	mm	Inches	mm	Inches	mm	lb./Ft.	Kg./Mtr.	lb./Ft.	Kg./Mtr.	per bundle
1/2"	15	0.809	20.90	0.856	21.70	0.109	2.77	0.850	1.27	0.85	1.27	120
3/4"	20	1.020	26.30	1.070	27.10	0.113	2.87	1.130	1.69	1.13	1.69	84
1"	25	1.280	33.00	1.330	33.80	0.133	3.38	1.680	2.50	1.68	2.50	60
1 1/4"	32	1.630	41.80	1.680	42.60	0.140	3.56	2.270	3.39	2.28	3.4	42
1 1/2"	40	1.870	47.90	1.920	48.70	0.145	3.68	2.720	4.05	2.73	4.06	36
2"	50	2.350	59.70	2.400	60.90	0.154	3.91	3.650	5.44	3.68	5.46	26
2 1/2"	65	2.850	72.30	2.900	73.70	0.203	5.16	5.790	8.63	5.82	8.67	18
3"	80	3.460	88.00	3.530	89.80	0.216	5.49	7.580	11.29	7.62	11.35	14
3 1/2"	90	3.960	100.60	4.040	102.60	0.226	5.74	9.110	13.57	9.2	13.71	12
4"	100	4.450	113.20	4.540	115.40	0.237	6.02	10.790	16.07	10.89	16.2	10
5"	125	5.510	139.90	5.620	142.70	0.258	6.55	14.620	21.77	14.81	22.1	7
6"	150	6.560	166.60	6.690	169.98	0.280	7.11	18.970	28.26	19.18	28.6	7

### 1. TOLERANCE

- : a) On Thickness : The minimum wall thickness at any point shall be not more than 12.5% under the nominal wall thickness specified.
- : b) On Diameter :For NPS 1 1/2" & under at any point shall not vary more than +/- 0.4mm. For NPS 2" & above shall not vary more than +/-1% from the standard specified.
- : c) On Weight: The weight of the pipe shall not vary by more than +/- 10% of the specified value.

### 2. ENDS

- : a) 1 1/2" and below size - End finish shall be at the option of manufacturer. Nominally square cut with the axis of tube and free from excessive burrs.
- : b) 2" and above size - Bevelled with ends bevelled to an angle of 30 degrees +5/-0 measured from a line perpendicular to the axis of the pipe with a root face of 1.6mm +/-0.8mm.

### 3. INTERNAL DEBEADING

- : From size 2" & above internal beads can be completely removed.

### 4. PROPERTIES

- :a) Chemical = (Maximum) C - 0.30%, Mn - 1.20%, S - 0.045% & P - 0.050%, Cu-0.40%, Ni-0.40%, Cr-0.40%, Mo-0.15%, V-0.08%, (Cu+Ni+Cr+Mo+V = 1.0% max)
- :b) Mechanical (Minimum) = UTS - 415 N/mm<sup>2</sup>, YS - 240 N/mm<sup>2</sup> & %Elongation 19 to 25% .

- 5. BEND TEST (COLD)** : Applicable to tubes upto and including nominal size of 50mm.  
a) When ordered for close coiling bend upto 180 degrees around a cylindrical mandrel, the Dia of which is 8 times the OD of pipe.  
b) Bend upto 90 degree around a cylindrical mandrel, the dia of which is 12 times the OD of pipe .  
No cracks at any portion and no open in the weld.
- 6. FLATTENING TEST (COLD)** : Applicable to tubes greater than nominal size of 50mm weld located 0 / 90 degrees from the line of direction of force  
a) During the 1st step, which is a test for ductility of the weld, no cracks or breaks in the inside or outside surfaces at the weld shall occur until the distance between the plates is less than two thirds of the specified diameter of the pipe.  
b) During the 2nd step, no cracks or breaks on the inside or outside surfaces away from the weld, shall occur until the distance between the plates is less than one third of the specified outside diameter of the pipe but is less than five times the wall thickness of the pipe.  
c) During the 3rd step, which is a test for soundness, flattening shall be continued until the test specimen breaks or the opposite walls of the pipe meet. Evidence of laminated or unsound material or of incomplete weld that is revealed by the flattening test shall be cause for rejection.
- 7. LEAK TIGHTNESS TEST** : a) Online NDT (Eddy current )  
b) Hydro test at a pressure of 700 PSI to 2500 PSI
- 8. BLACK VARNISH** : Tubes are uniformly varnished externally over their full lengths.
- 9. ZINC COATING (GALVANIZING)** : Average 550 Gm/M<sup>2</sup>, but one side should not be less than 490 Gm/M<sup>2</sup>. Free from bare spots, black spots, rough, overcoating, peel off or any other surface defects.
- 10. THREADING** : For 1/2" to 3/4" - 14 TPI, 1" to 2" - 11.5 TPI and 2 1/2" to 6" = 8 TPI.  
Check with standard ASTM ring and plug gauges.
- 11. MARKING** : We can do online by stencilling as per this standard & as per customer needs at one meter interval.
- 12. PACKING** : Hexagonal type.
- 13. MILL TEST CERTIFICATE** : We can issue a MTC, certifying that the tubes supplied comply with this ASTM A 53 Standard.



