

Circular Hollow Sections (CHS)

Pipes Conforming to ASTM A795/ASTM A135

This specification covers Black and Zinc-Coated (Hot-Dipped Galvanized) welded steel pipe in use for fire protection systems. Dimensions, Weights, and Test Pressure For Light-Weight Fire Protection Pipe-Schedule 10

NPS DESIGNATOR	OUTSIDE DIAMETER	DIAMETER TOLERANCE		STANDARD THICKNESS		SCHEDULE	WEIGHT		TEST PRESSURE	
		min	max	mm	inch		mm	kg/mtr	lb/ft	(psi)
¾	26.7	26.3	27.1	2.11	0.083	10	1.28	0.86	700	4800
1	33.4	33	33.8	2.77	0.109	10	2.09	1.41	700	4800
1¼	42.2	41.8	42.6	2.77	0.109	10	2.69	1.81	1000	6900
1½	48.3	47.9	48.7	2.77	0.109	10	3.11	2.09	1000	6900
2	60.3	59.7	60.9	2.77	0.109	10	3.93	2.64	1000	6900
2½	73	72.27	73.73	3.05	0.12	10	5.26	3.53	1000	6900
3	88.9	88.01	89.79	3.05	0.12	10	6.46	4.34	1000	6900
3½	101.6	100.58	102.62	3.05	0.12	10	7.41	4.98	1200	8300
4	114.3	113.16	115.44	3.05	0.12	10	8.37	5.62	1200	8300
5	141.3	139.89	142.71	3.4	0.134	10	11.58	7.78	1200	8300
6	168.3	166.62	169.98	3.4	0.134	10	13.85	9.3	1000	6900
8	219.1	216.91	221.29	4.78	0.188	10	25.26	16.96	800	5500
10	273	270.27	275.73	4.78	0.188	10	31.62	21.23	700	4800

Chemical Composition (Maximum)

Grade	C%	Manganese	Mn%	P%	S%
A	0.25	0.95	0.50	0.035	0.035
B	0.3	1.2	1.2	0.035	0.035

Mechanical Properties

	Grade A	Grade B
YieldStrength	205 Mpa (Min)	240 Mpa (Min)
TensileStrength	330 Mpa (Min)	415 Mpa (Min)

Technical Details

Characteristics	Tolerances & Technical details
Outside Diameter	NPS 1½ [DN 40] and under ± 0.016 inch [0.41 mm] & NPS 2 [DN 50] and over ± 1 % of OD
Thickness	-12.5% of specific wall thickness.
Weight	For each tube ± 5% of standard weight.
Heat Treatment	The weld seam of pipe in Grade B shall be heat treated after welding to a minimum of 1000°F [540°C] so that no untempered martensite remains.
Flattening Test	Keep the weld at 0° or 90° from the line of direction of force and flatten upto 66% of OD, No cracks or breaks are allowed on the weld. Further flatten upto 33% of OD, No cracks or breaks are allowed in the material and during third step, Evidence of laminated or unsound material or of incomplete weld that is revealed during the entire flattening test shall be cause for rejection. Each length of pipe shall be tested by hydrostatic test without leakage through the pipe wall.
Hydro Test	Each length of pipe size 2NPS (50DN) and larger shall be tested by Eddy-Current Test.
Nondestructive Test	Average of two specimens 460 gm/ mtr² & Individual specimen not less than 400 gm/ mtr².
Mass of Zinc Coating	Black & Galvanized coating as per Customer requirement.
Surface Protection End	Pipe shall be finished with Square cut (plain End), Beval End (30° -0/+5°), Roll Groove & Threading.
Threading	All threads shall be in accordance with the gaging practice and tolerances of ASME B1.20.1
Marking (Stencilling)	METPRO, Specification designation, Grade, Outside diameter, Thickness, Process of manufacturing & Heat No." on pipe and anything specific as per customer requirement.