

# Circular Hollow Sections (CHS)

## PIPES CONFORMING TO ASTM A - 53 GR A & B

NPS DESIGNATOR	DN DESIGNATOR	OUTSIDE DIAMETER		SCHEDULE NO.	THICKNESS		MASS OF PLAIN END PIPE		HYDROSTATIC TEST PRESSURE		PIECES/BUNDLE
		inch	mm		mm	inch	mm	lb/ft.	Kg/mtr.	Grade A-Mpa	
½	15	0.840	21.3	40	0.109	2.77	0.850	1.27	4.8	4.8	120
¾	20	1.050	26.7	40	0.113	2.87	1.130	1.69	4.8	4.8	84
1	25	1.315	33.4	40	0.133	3.38	1.680	2.50	4.8	4.8	60
1¼	32	1.660	42.2	40	0.140	3.56	2.270	3.39	8.3	9.0	42
1½	40	1.900	48.3	40	0.145	3.68	2.720	4.05	8.3	9.0	36
2	50	2.375	60.3	40	0.154	3.91	3.660	5.44	15.9	17.2	26
2½	65	2.874	73.0	40	0.203	5.16	5.800	8.63	17.2	17.2	18
3	80	3.500	88.9	40	0.216	5.49	7.580	11.29	15.3	17.2	14
4	100	4.500	114.3	40	0.237	6.02	10.800	16.07	13.1	15.2	10
5	125	5.563	141.3	40	0.258	6.55	14.630	21.77	11.5	13.4	7
6	150	6.625	168.3	40	0.280	7.11	18.990	28.26	10.5	12.3	7
8	200	8.625	219.1	20	0.250	6.35	22.380	33.31	7.2	8.4	-
8	200	8.625	219.1	40	0.322	8.18	28.580	42.55	9.2	10.8	-
10	250	10.750	273.1	20	0.250	6.35	28.060	41.75	5.8	6.8	-
10	250	10.750	273.1	40	0.365	9.27	40.520	60.29	8.4	9.9	-
12	300	12.750	323.9	20	0.250	6.35	33.410	49.71	4.9	5.7	-
12	300	12.750	323.9	30	0.330	8.38	43.810	65.18	6.4	7.5	-
12	300	12.750	323.9	STD	0.375	9.52	49.610	73.78	7.3	8.5	-
12	300	12.750	323.9	40	0.406	10.31	53.570	79.70	7.9	9.2	-
14	350	14.000	355.6	10	0.250	6.35	36.750	54.69	4.4	5.2	-
14	350	14.000	355.6	30	0.375	9.52	54.620	81.25	6.6	7.7	-
14	350	14.000	355.6	40	0.438	11.13	63.500	94.55	7.8	9.0	-
16	400	16.000	406.4	10	0.250	6.35	42.090	62.64	3.9	4.5	-
16	400	16.000	406.4	30	0.375	9.52	62.640	93.17	5.8	6.8	-
16	400	16.000	406.4	40	0.500	12.70	82.850	123.30	7.7	9.0	-

### Tolerance

Outside Diameter	Pipe size upto & including DN 40 : ± 04 mm of OD Pipe size DN 50 or larger : ± 1% of OD
Thickness	-12.5% (max) / + not specified
Weight	+ / - 10%

### Mechanical Properties

	Grade A	Grade B
YieldStrength	205 Mpa (Min)	240 Mpa (Min)
TensileStrength	330 Mpa (Min)	415 Mpa (Min)
Elongation	As per ASTM A-53	AsperASTMA-53

### Testing

Online NDT	For pipes NPS 2 (DN 50) or larger Weld seam of each pipe shall be tested by eddy current
Bend Test	For pipe upto & including DN 50 Bending Angle 90° Bending Radius 12 times to the OD of tube (no cracks in the body & weld)
Flattening (0° & 90°)	For pipes over DN 50 1. Flatten upto 2/3 of OD for ductility of weld 2. Flatten upto 1/3 of OD for ductility of weld 3. Full flattening for testing of lamination or unsound material

### Chemical Composition (Maximum%)

Grade	Carbon	Manganese	Phosphorus	Sulphur	Copper	Nickel	Chromium	Molybdenum	Vanadium
GradeA	0.25	0.95	0.05	0.045	0.4	0.4	0.4	0.15	0.08
GradeB	0.3	1.2	0.05	0.045	0.4	0.4	0.4	0.15	0.08

### Galvanizing

As per ASTM A-53 with test method ASTM A90 / A90M

Min. of any surface of specimen	0.400 Kg/Mtr <sup>2</sup> (55 microns approx)
Average of one specimens	0.490 Kg/Mtr <sup>2</sup> (70 microns approx)
Average of two specimens	0.550 Kg/Mtr <sup>2</sup> (79 microns approx)

### Marking/Stenciling

Online stenciling as per the standard & client requirements.