

# ASTM A53 ERW Black & GI Steel Pipes

Dimensional range & weight according to ASTM A53 / ASME B36.10

Size		Outside Diameter		Wall Thickness		Weight per Unit Length ( Plain End)		Weight Class	Schedule No.	Test Pressure (psi)		Pieces Per Bundle
NPS	DN	in	mm	in	mm	lb/ft	kg/m			Grade A	Grade B	
4	100	4.500	114.3	0.120	3.05	5.62	8.37	---	10	961	1121	19
				0.125	3.18	5.85	8.71	---	---	1000	1170	19
				0.156	3.96	7.24	10.78	---	---	1250	1460	19
				0.188	4.78	8.67	12.91	---	30	1500	1750	14
				0.219	5.56	10.02	14.91	---	---	1750	2040	14
				0.237	6.02	10.80	16.07	STD	40	1900	2210	10
				0.250	6.35	11.36	16.90	---	---	2000	2330	10
				0.281	7.14	12.67	18.87	---	---	2250	2620	10
				0.312	7.92	13.97	20.78	---	---	2500	2800	10
				0.337	8.56	15.00	22.32	XS	80	2700	2800	10
5	125	5.563	141.3	0.134	3.40	7.78	11.56	---	10	870	1014	14
				0.156	3.96	9.02	13.41	---	---	1010	1180	14
				0.188	4.78	10.80	16.09	---	---	1220	1420	10
				0.219	5.56	12.51	18.61	---	---	1420	1650	10
				0.258	6.55	14.63	21.77	STD	40	1670	1950	7
				0.281	7.14	15.87	23.62	---	---	1820	2120	7
				0.312	7.92	17.51	26.05	---	---	2020	2360	7
				0.344	8.74	19.19	28.57	---	---	2230	2600	7
				0.375	9.52	20.80	30.94	XS	80	2430	2800	7
				0.500	12.70	27.06	40.28	---	120	2800	2800	7

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NPS	DN	in	mm	in	mm	lb/ft	kg/m			Grade A	Grade B	
6	150	6.625	168.3	0.134	3.40	9.30	13.83	---	10	728	848	10
				0.188	4.78	12.94	19.27	---	---	1020	1190	10
				0.219	5.56	15.00	22.31	---	---	1190	1390	7
				0.250	6.35	17.04	25.36	---	---	1360	1580	7
				0.280	7.11	18.99	28.26	STD	40	1520	1780	7
				0.312	7.92	21.06	31.32	---	---	1700	1980	7
				0.344	8.74	23.10	34.39	---	---	1870	2180	7
				0.375	9.52	25.05	37.28	---	---	2040	2380	7
				0.432	10.97	28.60	42.56	XS	80	2350	2740	7
8	200	8.625	219.1	0.188	4.78	16.96	25.26	---	---	780	920	4
				0.203	5.16	18.28	27.22	---	---	850	1000	4
				0.219	5.56	19.68	29.28	---	---	910	1070	4
				0.250	6.35	22.38	33.31	---	20	1040	1220	4
				0.277	7.04	24.72	36.31	---	30	1160	1350	4
				0.312	7.92	27.73	41.24	---	---	1300	1520	4
				0.322	8.18	28.58	42.55	STD	40	1340	1570	4
				0.344	8.74	30.45	45.34	---	---	1440	1680	4
				0.375	9.52	33.07	49.20	---	---	1570	1830	4
				0.406	10.31	35.67	53.08	---	60	1700	2000	4
				0.438	11.13	28.33	57.08	---	---	1830	2130	4

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NPS	DN	in	mm	in	mm	lb/ft	kg/m			Grade A	Grade B	
8	200	8.625	219.1	0.500	12.70	43.43	64.64	XS	80	2090	2430	4
10	250	10.750	273.0	0.188	4.78	21.23	31.62	---	---	630	730	4
				0.203	5.16	22.89	34.08	---	---	680	800	4
				0.219	5.56	24.65	36.67	---	---	730	860	4
				0.250	6.35	28.06	41.75	---	20	840	980	4
				0.279	7.09	21.23	46.49	---	---	930	1090	4
				0.307	7.80	34.27	51.01	---	30	1030	1200	4
				0.344	8.74	38.27	56.96	---	---	1150	1340	4
				0.365	9.27	40.52	60.29	STD	40	1220	1430	4
				0.438	11.13	48.28	71.87	---	---	1470	1710	4
				0.500	12.70	54.79	81.52	XS	60	1670	1950	4
12	300	12.750	323.8	0.219	5.56	29.34	43.63	---	---	620	720	2
				0.250	6.35	33.41	49.71	---	20	710	820	2
				0.281	7.14	37.46	55.75	---	---	790	930	2
				0.312	7.92	41.48	61.69	---	---	880	1030	2
				0.330	8.38	43.81	65.18	---	30	930	1090	2
				0.344	8.74	45.62	67.90	---	---	970	1130	2
				0.375	9.52	49.61	73.78	STD	---	1060	1240	2
				0.406	10.31	53.57	79.70	---	40	1150	1340	2
				0.438	11.13	57.65	85.82	---	---	1240	1440	2

# ASTM A53, ERW Black & GI Steel Pipes

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Size		Outside Diameter		Wall Thickness		Weight per Unit Length ( Plain End)		Weight Class	Schedule No.	Test Pressure (psi)		Pieces Per Bundle
NPS	DN	in	mm	in	mm	lb/ft	kg/m			Grade A	Grade B	
12	300	12.750	323.80	0.500	12.70	65.48	97.43	XS	—	1410	1650	2

## 1. Tolerances:

Outside Diameter : Pipe size NPS 2 or larger , the outside diameter shall not vary more than +/-1% from the specified outside diameter.

Thickness : The minimum wall thickness at any point shall be not more than 12.5% under the specified wall thickness.

Weight : The weight of the pipe shall not more than +/-10% of the specified weight.

## 2. Ends Finish

: Plain-end beveled with ends beveled to an angle of 30°, +5°, -0°, measured from a line drawn perpendicular to the axis of the pipe, and with a root face of 1/16in. ± 1/32 in. [1.6mm ± 0.8mm].

## 3. Testing:

### Chemical Composition ( max %)

Grade	C%	Mn%	P%	S%	Cu%	Ni%	Cr%	Mo%	V%	Cu+Ni+Cr+Mo+V
A	0.25	0.95	0.05	0.045	0.40	0.40	0.40	0.15	0.08	1.00
B	0.30	1.20	0.05	0.045	0.40	0.40	0.40	0.15	0.08	1.00

### Mechanical Properties

	Grade A	Grade B
Yield Strength	205 MPa (min)	240 MPa (min)
Tensile Strength	330 MPa (min)	415 MPa (min)
Elongation%	19 - 36% or as per ASTM A53	

# ASTM A53 ERW Black & GI Steel Pipes

- Flattening Test ( 0 & 90 deg)** : For pipes over NPS 2
- Stage - 1 : For ductility of weld, no cracks or breaks on the inside or outside surface at the weld, flatten up to 2/3 of outside dia of pipe.
- Stage - 2 : For ductility of steel, no cracks or breaks on the inside or outside surface away from the weld, flatten upto 1/3 of outside dia of pipe.
- Stage - 3 : For soundness, full flattening for testing of laminated and unsound material.

## Leak Tightness test

- i) Online NDT(Eddy Current) : Weld seam of each pipe shall be tested by Eddy current test
- ii) Hydro test : Each pipe shall be tested by hydro test, test pressure as per above table and holding time min. 5 second.

## Heat Treatment

- : The weld seam of the ERW Pipe in Grade B shall be heat treated after welding to a minimum temperature of 540° C , so that no untempered martensite remains.

## 4. Surface Protection

- i) Black Coating : Pipes are uniformly varnished externally over their full length.
- ii) Galvanizing : Average 550 G m/mm<sup>2</sup> but one side should not be less than 490 G m/mm<sup>2</sup>.  
Free from bare spot, black spot, rough, over coating, peel off or any other surface defect

## 5. Marking

- : Online stenciling as per the standard & customer requirement

## 6. Packing

- : Hexagonal Type