

# ASTM A135 ERW Black & G I Steel Pipes

Dimensional range, Weight & Test Pressure according to ASTM A135 Grade - A & B , Schedule - 10

Size		Outside Diameter		Wall Thickness		Weight per Unit Length ( Plain End)		Test Pressure (psi)		Pieces Per Bundle
NPS	DN	in	mm	in	mm	lb/ft	kg/m	Grade A	Grade B	
4	100	4.500	114.30	0.120	3.05	5.62	8.37	900	1100	19
5	125	5.563	141.30	0.134	3.40	7.78	11.58	850	1000	10
6	150	6.625	168.30	0.134	3.40	9.30	13.83	728	848	10

## 1. Tolerances:

- a) Thickness : The minimum wall thickness at any point shall be not more than 12.5% under the specified wall thickness.
- b) Diameter : The outside diameter shall not vary more than  $\pm 1\%$  from the nominal size specified.
- c) Weight : The weight of the pipe shall not more than  $\pm 10\%$  of the specified weight.

## 2. Ends:

- a) : End finish shall be at the option of manufacturer which is nominally square cut with the axis of tube and free from excessive burrs.
- b) If specified : Bevelled with ends beveled to an angle of 30,  $+5/-0$  degree measured from a line perpendicular to the axis of the pipe with a root face of 1.6 mm  $\pm 0.8$  mm.

## 3. Testing:

**Chemical Composition (max%)** : GR.A : C -0.25%, Mn -0.95%, S -0.035%, P -0.035%  
 GR.B : C -0.30%, Mn -1.20%, S 0.035%, P -0.035%

**Mechanical Testing (min)** : GR.A : Yield Strength-205 N/mm<sup>2</sup>, Tensile Strength-330 N/mm<sup>2</sup>, Elongation-35% Min.  
 GR.B : Yield Strength-240 N/mm<sup>2</sup>, Tensile Strength-415 N/mm<sup>2</sup>, Elongation-30% Min.

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- Flattening Test** : Weld located 0 & 90 degree from line of direction of force.
- 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)
- ii) : Hydro testing at pressure as per above Table and holding time  
Min. 5 Second.

## 4. 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.

## 5. Surface Protection:

- i) Black Coating : Pipes are uniformly varnished externally over their full length.
- ii) Galvanizing : The average 460 Gm/mm<sup>2</sup> but one side should not be less than 400Gm/mm<sup>2</sup> or specified by customer.
- Free from bare spot, black spot, rough, over coating, peel off or any other surface defect.

## 6. Marking

- : Online stenciling as per the standard & customer requirement.

## 7. Packing

- : Hexagonal Type