

ASTM A135

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Production Standard of ASTM A135

● ASTM A135

ASTM A135 is an American Society for Testing and Materials (ASTM) standard of ERW steel pipe. The standard covers two grades of pipe (Grade A & Grade B) that are intended for conveying gas, vapor, water, or other liquid.

ASTM A135 steel pipe is a common type of pipe material that is used in a variety of applications. The weld seam of ERW pipe to Grade B pipe shall be heat treated after welding or processed in such a manner that no untempered martensite remains. Tensile and chemical requirements of the steel are provided.

● Dimensions and Sizes of ASTM A135

N.D.		O.D.		SCH 10				SCH 30/40			
				WALL THICKNESS		NOMINAL WEIGHT		WALL THICKNESS		NOMINAL WEIGHT	
(mm)	(Inch)	(mm)	(Inch)	(mm)	(Inch)	(kg/mtrs)	(lbs/ft)	(mm)	(Inch)	(kg/mtrs)	(lbs/ft)
15	1/2	21.3	0.84	—	—	—	—	2.77	0.109	1.27	0.85
20	3/4	26.7	1.05	2.11	0.083	1.28	0.96	2.87	0.113	1.69	1.13
25	1	33.4	1.32	2.77	0.109	2.09	1.41	3.38	0.133	2.5	1.68
32	1-1/4	42.2	1.66	2.77	0.109	2.69	1.81	3.56	0.14	3.39	2.27

40	1-1/2	48.3	1.9	2.77	0.109	3.11	2.09	3.68	0.145	4.05	2.72
50	2	60.3	2.38	2.77	0.109	3.93	2.64	3.91	0.154	5.45	3.66
65	2-1/2	73	2.88	3.05	0.12	5.26	3.53	5.16	0.203	8.64	5.8
80	3	88.9	3.5	3.05	0.12	6.46	4.34	5.49	0.216	11.29	7.58
90	3-1/2	101.6	4	3.05	0.12	7.41	4.98	5.74	0.226	13.58	9.12
100	4	114.3	4.5	3.05	0.12	8.37	5.62	6.02	0.237	16.09	10.8
125	5	141.3	5.56	3.4	0.134	11.58	7.78	6.55	0.258	21.79	14.63
150	6	168.3	6.63	3.4	0.134	13.85	9.3	7.11	0.28	28.29	18.99
200	8	219.1	8.63	4.78	0.188	25.26	16.96	7.04	0.277	36.82	24.72
250	10	273.1	10.75	4.78	0.188	31.62	21.23	7.08	0.307	51.05	34.27

●Chemical Composition of ASTM A135

Steel Grades	Carbon max	Manganese	Phosphorous	Sulfur
ASTM A135 Gr.A	0.25	0.95	0.035	0.035
ASTM A135 Gr.B	0.3	1.2	0.035	0.035

●Mechanical Properties Tensile Strength and Yield Strength of ASTM A135

ASTM A135	ASTM A135 Grade A	ASTM A135 Grade B
Tensile Strength,	48	60
min, ksi [MPa]	[330]	[415]
Yield Strength,	30	35
min, ksi [MPa]	[205]	[240]
Elongation,	35	30
Min, %		

Sample longitudinal bar experiment: For pipe having a specified wall thickness of less than 5/16 in. (7.9 mm), if tested using a longitudinal strip test specimen

ASTM A135 gr a :The minimum elongation shall be determined by the following equation, with the calculated value rounded to the nearest percent:

$$E = 56t + 16.5$$

$$[E = 2.2t + 16.5]$$

where:

E = elongation in 2 in. or [50 mm], minimum, %, and
t = specified wall thickness, in. [mm].

ASTM A135 gr b: The minimum elongation shall be determined by the following equation, with the calculated value rounded to the nearest percent:

$$E = 48t + 14$$

$$[E = 1.9t + 14]$$

where:

E = elongation in 2 in. or [50 mm], minimum, %, and
t = specified wall thickness, in. [mm].