ASTM A135 ERW steel pipe

ERW steel pipe is formed by rolling strip and welding the seam, with tighter dimensional tolerances and less weight. The weld seam is heat treated after welding that no untempered martensite remains, and the weld flash can be removed from both inner and outer surfaces.

ASTM A135 ERW pipe is intended for conveying gas, vapor, water or other liquid. And it is also used in water based fire protection systems for water distribution or valve trim application, such as wet, dry, preaction, or deluge sprinkler systems.

FM APPROVED

- Certificate: FM Approved
- Standard: ASTM A135, Grade B / UL 852
- Length: 6m / 5.8m / 11.8m / 12m / 20ft, etc.
- End: Plain (square cut) / beveled to 30° / roll groove as AWWA C606 / NPT thread as ANSI B1.20.1 / BSPT as ISO 7-1
- Surface: Fusion bonded epoxy (FBE) / polyester resin / hot dip galvanized / red paint / black paint, etc.

Available size for Light wall steel pipe (Sch10 pipe)

Size			Thickness	Mass	Test pressure	Ref. No.
NPS	DN	OD (mm)	T (mm)	kg/m	MPa	
3/4"	20	26.7	2.11	1.28	17.2	P0302 (FM)
1"	25	33.4	2.77	2.09	17.2	P0303 (FM)
1-1/4"	32	42.2	2.77	2.69	17.2	P0304 (FM)
1-1/2"	40	48.3	2.77	3.11	16.5	P0305 (FM)
2"	50	60.3	2.77	3.93	13.1	P0306 (FM)
2-1/2"	65	73.0	3.05	5.26	11.7	P0307 (FM)
3"	80	88.9	3.05	6.46	9.6	P0308 (FM)
4"	100	114.3	3.05	8.37	7.6	P0309 (FM)
5"	125	141.3	3.40	11.56	6.9	P0310 (FM)
6"	150	168.3	3.40	13.83	5.8	P0311 (FM)

Note: 6" is not listed in ASTM A135, and TPMC refers to ASME B36.10M.

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Available size for Sch40 pipe

Size			Thickness	Mass	Test pressure	Ref. No.
NPS	DN	OD (mm)	T (mm)	kg/m	MPa	
1/2"	15	21.3	2.77	1.27	17.2	P0321 (ISO)
3/4"	20	26.7	2.87	1.69	17.2	P0322 (ISO)
1"	25	33.4	3.38	2.50	17.2	P0323 (ISO)
1-1/4"	32	42.2	3.56	3.39	17.2	P0324 (ISO)
1-1/2"	40	48.3	3.68	4.05	17.2	P0325 (ISO)
2"	50	60.3	3.91	5.44	17.2	P0326 (ISO)
2-1/2"	65	73.0	5.16	8.63	17.2	P0327 (ISO)
3"	80	88.9	5.49	11.29	17.2	P0328 (ISO)
4"	100	114.3	6.02	16.08	15.2	P0329 (ISO)
5"	125	141.3	6.55	21.77	13.4	P0330 (ISO)
6"	150	168.3	7.11	28.26	12.2	P0331 (ISO)
8"	200	219.1	8.18	42.55	10.8	P0332 (ISO)
10"	250	273.0	9.27	60.29	9.8	P0333 (ISO)
12"	300	323.8	10.31	79.71	9.2	P0334 (ISO)
14"	350	355.6	11.13	94.55	9.0	P0335 (ISO)
16"	400	406.4	12.70	123.31	9.0	P0336 (ISO)
18"	450	457.0	12.70	139.16	8.0	P0337 (ISO)
20"	500	508.0	12.70	155.13	7.2	P0338 (ISO)
24"	600	610.0	12.70	187.07	6.0	P0339 (ISO)

Note:
1. The form of Sch40 pipe is not listed in ASTM A135, and TPMC refers to ASME B36.10M.
2. The wall thickness is up to 0.5" (12.70 mm) as ASTM A135. For size 18", 20" and 24", the thickness follows XS, not Sch40.

Chemical compositions (%)

C	Mn	P	S	Si	Cu	Cr	Mo	V
≤ 0.30	≤ 1.20	≤ 0.035	≤ 0.035	-	-	-	-	-

Mechanical properties

Tensile strength / psi (MPa)	Yield strength / psi (MPa)	Longitudinal elongation (%)
≥ 60000 (415)	≥ 35000 (240)	≥ 18 / 19

* The elongation value conforms to TABLE 1 calculation of ASTM A135, and TPMC refers to min value of 18% for Sch10 pipe and 19% for Sch40 pipe.

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Hydrostatic test and NDE test

· It shall be applied to each pipe ≥ 5s, without leakage through the pipe.

· The min test pressure need not exceed 2500 psi (17.2 MPa).

· Nondestructive electric test (NDE) is alternative to hydrostatic test, including ASTM E213 Ultrasonic testing, ASTM E273 Ultrasonic examination of weld, ASTM E309 Eddy current examination, or ASTM E570 Flux leakage examination.

Note:
The equation of hydrostatic test pressure: P = 2St/D.
P = Min hydrostatic test pressure in psi or MPa.
S = Allowable fiber stress, 21000 psi or 144 MPa for Grade B.
t = Pipe wall thickness in inch or mm.
D = Pipe outside diameter in inch or mm.

Other tests

· Tensile test, bending test and flattening test.

· Permissible variations: tolerance on outer diameter, thickness, length.

· Straightness: The finished pipe shall be reasonably straight.

· Ovality (out of roundness): It is included in OD tolerance. For thin-wall pipe, any one cross-section shall not exceed 1.5% of OD (Refer to ASTM A530).

· Surface / coating test.

· Quantity and weight measurement.