

EN10217-2 ERW steel tube

ERW steel tube 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.

EN10217-2 is specification of non-alloy steel tube with specified elevated temperature properties for pressure purposes. The tube is suitable for water lines (Cold & Hot), firefighting pipeline, HVAC lines, etc.



- Certificate: ISO
- Standard: EN10217-2, electric welded, P195GH, P235GH, P265GH, 16Mo3
- Length: 6m / 5.8m / 11.8m / 12m / 20ft, etc.
- End: Plain (square cut) / beveled to 30° / roll groove as ISO 6182-12 / BSPT thread as ISO 7-1 / NPT thread as ANSI B1.20.1
- Surface: Fusion bonded epoxy (FBE) / polyester resin / hot dip galvanized / red paint / black paint, etc.

Available size

Size			Thickness							Test pressure	Ref. No.
Inch	DN	OD (mm)	T (mm)	T (mm)	T (mm)	T (mm)	T (mm)	T (mm)	T (mm)	MPa	
1/2"	15	21.3	2.6	2.9	3.2	3.6	4.0	4.5	/	7.0	P0801
3/4"	20	26.9	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0802
1"	25	33.7	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0803
1-1/4"	32	42.4	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0804
1-1/2"	40	48.3	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0805
2"	50	60.3	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0806
2-1/2"	65	76.1	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0807
3"	80	88.9	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0808
4"	100	114.3	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0809
5"	125	139.7	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0810
6"	150	168.3	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0811
8"	200	219.1	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0812
10"	250	273.0	2.6	2.9	3.2	3.6	4.0	4.5	5.0	7.0	P0813

Note:

1. The outside diameter and thickness follow preferred dimensions of Table 6 of EN 10217-2, mainly selected from EN 10220.
2. The hydrostatic test shall be carried out at a test pressure of 70 bar or at a value P calculated by the formula, whichever is lower.

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Available size

Size			Thickness							Test pressure	Ref. No.
Inch	DN	OD (mm)	T (mm)	T (mm)	T (mm)	T (mm)	T (mm)	T (mm)	T (mm)	MPa	
1/2"	15	21.3	/	/	/	/	/	/	/	7.0	P0814
3/4"	20	26.9	/	/	/	/	/	/	/	7.0	P0815
1"	25	33.7	5.6	6.3	7.1	8.0	/	/	/	7.0	P0816
1-1/4"	32	42.4	5.6	6.3	7.1	8.0	8.8	/	/	7.0	P0817
1-1/2"	40	48.3	5.6	6.3	7.1	8.0	8.8	/	/	7.0	P0818
2"	50	60.3	5.6	6.3	7.1	8.0	8.8	10.0	/	7.0	P0819
2-1/2"	65	76.1	5.6	6.3	7.1	8.0	8.8	10.0	/	7.0	P0820
3"	80	88.9	5.6	6.3	7.1	8.0	8.8	10.0	/	7.0	P0821
4"	100	114.3	5.6	6.3	7.1	8.0	8.8	10.0	11.0	7.0	P0822
5"	125	139.7	5.6	6.3	7.1	8.0	8.8	10.0	11.0	7.0	P0823
6"	150	168.3	5.6	6.3	7.1	8.0	8.8	10.0	11.0	7.0	P0824
8"	200	219.1	5.6	6.3	7.1	8.0	8.8	10.0	11.0	7.0	P0825
10"	250	273.0	5.6	6.3	7.1	8.0	8.8	10.0	11.0	7.0	P0826

Note:

- The outside diameter and thickness follow preferred dimensions of Table 6 of EN 10217-2, mainly selected from EN 10220.
- The hydrostatic test shall be carried out at a test pressure of 70 bar or at a value P calculated by the formula, whichever is lower.

Chemical compositions (%)

Grade	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Others
P195GH	≤ 0.13	≤ 0.35	≤ 0.70	≤ 0.025	≤ 0.020	≤ 0.30	≤ 0.08	≤ 0.30	≥ 0.02	...
P235GH	≤ 0.16	≤ 0.35	≤ 1.20	≤ 0.025	≤ 0.020	≤ 0.30	≤ 0.08	≤ 0.30	≥ 0.02	...
P265GH	≤ 0.20	≤ 0.40	≤ 1.40	≤ 0.025	≤ 0.020	≤ 0.30	≤ 0.08	≤ 0.30	≥ 0.02	...
16Mo3	0.12-0.20	≤ 0.35	0.40-0.90	≤ 0.025	≤ 0.020	≤ 0.30	0.25-0.35	≤ 0.30	≤ 0.04	...

* The chemical composition of other elements follows the table 2 of EN 10217-2, including Nb, Ti, V, and the combination of Cr+Cu+Mo+Ni.

* The content of these elements (Nb, Ti, V) need not be reported unless intentionally added to the cast.

Mechanical properties

Grade	Tensile strength (Mpa)	Upper yield strength, T ≤ 16mm (Mpa)	Longitudinal elongation (%)	Longitudinal Impact properties at 0°C (KV ₂ J)
P195GH	320-440	≥ 195	≥ 27	40
P235GH	360-500	≥ 235	≥ 25	40
P265GH	410-570	≥ 265	≥ 23	40
16Mo3	450-600	≥ 280	≥ 22	/

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Leak tightness test

- Each tube shall be assessed for leak tightness by either a hydrostatic test or an electromagnetic test.
- The hydrostatic test shall be carried out at a test pressure of 70 bar or at a test pressure P calculated using the following Formula, whichever is lower.
- The test pressure shall be held for not less than 5s for tubes with $OD \leq 457\text{mm}$, and for not less than 10 s for $OD > 457\text{mm}$.
- An electromagnetic test (Non-Destructive testing) is alternative in accordance with EN ISO 10893-1, including eddy current method, or flux leakage method.

Note:

The formula of hydrostatic test pressure: $P = 20ST/D$.
P = Hydrostatic test pressure in bar.
S = Tube wall stress in MPa, 70% of the minimum yield strength.
T = Tube wall thickness in mm.
D = Tube outside diameter in mm.



Other tests

- Tensile test, flattening test, and impact test. Material identification check for 16Mo3.
- Dimensional inspection: outer diameter, thickness, length.
- Straightness: The deviation from straightness, of any tube length L, shall not exceed 0,001 5 L. Deviations from straightness over any one metre length shall not exceed 3 mm.
- Ovality (out of roundness): For tubes of $D \leq 406,4$ mm, out-of-roundness shall be included in the limits of the diameter tolerances.
- Visual examination / coating test.
- Quantity and weight measurement.