

API 5CT P110

- ALLLAND Production Standards Overview



Definition and Applications

1. Definition

API 5CT P110 is a high-grade casing and tubing material specified in the API Spec 5CT standard, featuring high yield strength, high collapse resistance, and high burst resistance. It is one of the typical high-strength OCTG (Oil Country Tubular Goods) grades used in the oil and gas industry.

It is widely used in deep wells, ultra-deep wells, high-pressure wells, and HPHT (High Pressure High Temperature) conditions.

2. ALLLAND API 5CT P110 Steel Pipe Dimensions

Parameters	Dimensions
O.D.	Casing Pipe 4.5 " $\leq$ OD $\leq$ 20" (114.30-508.00 mm)
	Tubing Pipe 1.05 " $\leq$ OD $\leq$ 4.5 " (26.7 - 114.3 mm)
WT	Casing Pipe 5.21 - 16.13 mm
	Tubing Pipe 2.77-13.84 mm
Length	R1 / R2 / R3
Product Specification Level	API 5L PSL1 / PSL2
Process	Seamless (SMLS)
Ends	BTC, LTC, STC, Premium Connection

3. API 5CT P110 Standard Length

Length Range	Length
R1	6.10–7.32 m (20–24 ft)
R2	8.56–10.36 m (28–34 ft)
R3	11.58–13.72 m (38–45 ft)

4. Application

API 5CT P110 is a high-strength OCTG (Oil Country Tubular Goods) grade mainly used for casing and tubing in deep oil and gas wells. With a minimum yield strength of 110 ksi (758 MPa), P110 provides excellent resistance to high tensile loads, collapse pressure, and burst pressure, making it suitable for demanding drilling environments.

Critical Tolerances

Our API 5CT P110 standard steel pipes are manufactured in strict compliance with the specification requirements.

Item	Tolerance	Description
O.D.	± 0.79 mm	OD < 114.30 mm (4 1/2")
	+1.00% / -0.50%	OD $\geq$ 114.30 mm (4 1/2")
WT	-12.5%	WT < 20mm, O.D. $\leq$ 73.0mm
	Generally controlled by weight requirements	Positive WT deviation
Weight	-3.5% / +6.5%	Single pipe length
	$\pm 1.75\%$	Shipment $\geq$ 18,144 kg
	$\pm 3.50\%$	Shipment < 18,144 kg

Chemical and Mechanical Properties

1. API 5CT P110 Chemical Composition

Element	Typical Content (%)
Carbon (C)	≤ 0.26
Silicon (Si)	≤ 0.45
Manganese (Mn)	≤ 1.70
Phosphorus (P)	≤ 0.030
Sulfur (S)	≤ 0.030
Chromium (Cr)	≤ 1.50
Nickel (Ni)	≤ 1.00
Molybdenum (Mo)	≤ 1.00
Copper (Cu)	≤ 0.50

2. API 5CT P110 Mechanical Properties

Property	Requirement
Minimum Yield Strength	758 MPa (110 ksi)
Maximum Yield Strength	965 MPa (140 ksi)
Minimum Tensile Strength	862 MPa (125 ksi)
Minimum Elongation	API 5CT specified calculation based on pipe size
Hardness Requirement	According to API 5CT requirements

Dimension Specifications Table

1. API 5CT P110 Casing Pipe Dimension Table (Common Sizes)

Casing Size	OD (mm)	OD (inch)	WT Range (mm)	Typical Weight Range (lb/ft)
4 1/2"	114.30	4 1/2	5.21 – 8.56	9.50 – 15.10
5"	127.00	5	6.43 – 9.19	11.50 – 18.00
5 1/2"	139.70	5 1/2	6.98 – 10.54	14.00 – 23.00
7"	177.80	7	6.91 – 14.27	17.00 – 38.00
7 5/8"	193.68	7 5/8	8.33 – 15.11	24.00 – 45.30
8 5/8"	219.08	8 5/8	7.72 – 15.63	24.00 – 49.50
9 5/8"	244.48	9 5/8	8.94 – 15.11	32.30 – 58.40
10 3/4"	273.05	10 3/4	8.89 – 16.13	40.50 – 65.70
13 3/8"	339.72	13 3/8	9.65 – 20.24	48.00 – 72.00
16"	406.40	16	9.53 – 15.88	65.00 – 109.00
20"	508.00	20	11.13 – 15.88	94.00 – 133.00

2. API 5CT P110 Tubing Pipe Dimension Table (Common Sizes)

Tubing Size	OD (mm)	OD (inch)	WT (mm)	Common Weight (lb/ft)
1.050"	26.70	1.050	2.87 – 5.59	1.70 – 3.65
1 1/4"	33.40	1.315	3.38 – 6.35	2.70 – 4.80
1 1/2"	42.16	1.660	3.56 – 6.35	3.10 – 5.70
2 3/8"	60.32	2 3/8	4.24 – 7.49	4.70 – 10.40
2 7/8"	73.02	2 7/8	5.16 – 9.19	6.50 – 13.00
3 1/2"	88.90	3 1/2	5.49 – 10.13	9.20 – 15.80
4"	101.60	4	6.65 – 8.38	12.60 – 16.60
4 1/2"	114.30	4 1/2	6.88 – 10.54	14.90 – 23.00

Testing Requirements

1. Chemical Analysis (Heat Analysis & Product Analysis)

Test Item	Requirement
Heat Analysis	Required for each heat of steel
Product Analysis	Performed when specified by API 5CT requirements
Elements Tested	C, Mn, Si, P, S, Cr, Mo, Ni, Cu, etc.

2. Tensile Test

- Verify pipe strength under axial loads during drilling and production operations.

3. Hardness Test

- Control material consistency and heat treatment quality.

4. Hydrostatic Pressure Test

Test	Requirement
Hydrostatic Test	Required
Test Purpose	Verify pressure integrity and detect leakage
Test Pressure	Calculated according to pipe OD, WT, and grade
Maximum Standard Pressure	Generally limited to 69 MPa (10,000 psi) for P110 when applicable

5. Non-destructive Test

All welded steel pipes shall undergo 100% non-destructive testing (such as ultrasonic testing, radiographic testing) on their welds to ensure weld quality.

6. Appearance And Dimensions Test

- Inspect whether the outer diameter, wall thickness, length, straightness, bevel, and other dimensions of the steel pipe meet tolerance requirements, and whether the surface has defects that affect usage.

7. Thread Inspection

API 5CT P110 casing and tubing commonly use:

- STC (Short Thread and Coupling)
- LTC (Long Thread and Coupling)
- BTC (Buttress Thread and Coupling)
- Premium Connections

Thread inspection includes:

Item	Inspection
Thread Profile	Gauge inspection
Thread Diameter	Dimensional check
Coupling Inspection	Visual & dimensional inspection
Thread Protection	Verify protectors

ALLLAND API 5CT P110 Product Images



The image shows steel pipes actually produced by our company