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Definition and Applications

API 5L X60

- ALLLAND Production Standards Overview

1. Definition

The API 5L pipeline standard offers different grades of pipes, and users commonly choose API 5L X42 PIPE as a cost-effective option, especially under conventional pressure conditions (0.4-1.6 MPa). It delivers excellent performance and reliability.”5L”: API pipeline standard number, “X”: Represents line pipe steel, “42”: Indicates a minimum yield strength of 42,000 psi (≈290 MPa).

2. ALLLAND API 5L X60 Steel Pipe Dimensions

Parameters	Dimensions
O.D.	21.3 mm – 1420 mm（0.5" – 56"）
WT	2.0 mm – 50 mm（0.08" – 2.0"）
Length	4 m – 12 m（19' – 40'）
Material	Carbon steel / Low-alloy high-strength steel
Process	Seamless/ ERW/ SSAW/ LSAW
Connection	Butt-weld/ Socket-weld/ Threaded

3. Application

API 5L X60 steel pipes are widely used in high-pressure oil and gas transmission trunk lines, offshore oil and gas platform projects, and long-distance natural gas and crude oil transport systems; they are also utilized in demanding water conservancy projects and energy infrastructure construction, offering excellent safety and reliability in high-strength, high-pressure environments.

Critical Tolerances

Item	Size Range	Tolerance
OD	≤ 60.3 mm	±0.5 mm
	>60.3 mm ~ ≤168.3 mm	±0.75%
	>168.3 mm ~ ≤610 mm	±0.75%
	>610 mm	±0.75%
WT	≤ 15.0 mm	-12.5% / +Unspecified
	>15.0 mm	-10% / +Unspecified
LENGTH	Random length	4.88 m – 12.2 m
	Exact length	±500 mm
	Double random length	10.7 m – 12.2 m

Chemical and Mechanical Properties of API 5L X60

1. Chemical Composition (wt%, max)

Element	C	Mn	P	S	Si	V	Nb	Ti	CE
Content (%)	≤ 0.26	≤ 1.60	≤ 0.030	≤ 0.030	≤ 0.45	≤ 0.06	≤ 0.06	≤ 0.04	≤ 0.40

2. Mechanical Properties

Item	Required Value
Yield Strength	≥ 415 MPa (60,200 psi)
Tensile Strength	520 – 760 MPa (75,000 – 110,000 psi)
Elongation	≥ 18%
Impact Toughness	PSL2 Mandatory (CVN test)
Hardness	≤ 22 HRC（Control is recommended.）
Service Temperature	-20°C ～ 350°C

Testing Requirements

Regarding mechanical properties, every batch of steel pipes must undergo tensile testing, covering yield strength, tensile strength, and elongation.

Non-destructive testing (NDT) is a crucial part of quality control. Depending on the specific production process, the pipes undergo ultrasonic testing (UT), radiographic testing (RT), or eddy current testing (ECT).

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奥蓝德钢管
ALLLAND STEEL PIPE