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Definition and Applications

API 5L X42

- 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 X42 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

In energy transport systems, it facilitates oil and gas transportation from wellheads to refineries. Offshore operations rely on it to transport oil and gas from platforms to onshore terminals. In the district heating sector, API 5L X42 PIPE is used in the primary heating network to transport hot water from the heat source plant to various heat exchange stations.

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

1. Chemical Composition (wt%, max)

Element	C	Mn	P	S	Si	V	Nb	Ti	CE
Content (%)	≤ 0.26	≤ 1.30	≤ 0.030	≤ 0.030	≤ 0.45	≤ 0.05	≤ 0.05	≤ 0.04	≤ 0.40

2. Mechanical Properties

Item	Required Value
Yield Strength	≥ 290 MPa (42,000 psi)
Tensile Strength	415 – 655 MPa (60,000 – 95,000 psi)
Elongation	≥ 21%
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

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奥蓝德钢管
ALLLAND STEEL PIPE