



## Definition and Applications

# API 5L PSL 2

## - ALLLAND Production Standards Overview

### 1. Definition

API 5L PSL 2 is a high-grade pipeline steel standard for oil, natural gas, and water transmission systems, widely used in high-pressure, long-distance, and critical energy projects.

### 2. ALLLAND API 5L PSL2 Steel Pipe Dimensions

Parameters	Dimensions
<b>O.D.</b>	6 mm – 1200 mm (0.5" – 48")
<b>WT</b>	1.5 mm – 50 mm (Sch 10 – Sch 80)
<b>Length</b>	6 m – 12 m (19' – 40')
<b>Material</b>	Carbon steel / Low-alloy high-strength steel
<b>Process</b>	Seamless/ ERW/ SSAW/ LSAW
<b>Connection</b>	Butt-weld/ Socket-weld/ Threaded

### 3. Application

Compared to PSL 1, PSL 2 imposes stricter requirements in terms of chemical composition control, mechanical properties, impact toughness, and non-destructive testing, thereby ensuring the safety and long-term stability of pipelines under complex operating conditions.

## 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	Typical Control Requirement	Function
C (Carbon)	≤ 0.24% (lower for high-strength grades)	Balances strength and weldability
Mn (Manganese)	0.60–1.60%	Improves strength
P (Phosphorus)	≤ 0.025%	Prevents brittle fracture
S (Sulfur)	≤ 0.015–0.020%	Reduces inclusions and cracking risk

### 2. Mechanical Properties

Grade	Minimum Yield Strength	Typical Tensile Strength Range	Minimum Elongation
X42	290 MPa	415 – 565 MPa	≥ 22%
X52	360 MPa	455 – 760 MPa	≥ 20–22%
X60	414 MPa	517 – 760 MPa	≥ 18–20%
X65	448 MPa	531 – 760 MPa	≥ 16–18%
X70	483 MPa	565 – 760 MPa	≥ 15–17%

## Testing Requirements

100% hydrostatic test

Ultrasonic testing (UT)

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