

Peotroleum and natureal gas industies - Steel pipe for pipeline transportation system – API 5L

Application: gas, water and oil transportation in both oil and natural gas

PSL1:

Mechanical Properties of Steel According to **PSL1**

Grade	Yield Strength (Mpa)	Tensile Strength (Mpa)
B	≥ 245	≥ 415
X42	≥ 290	≥ 415
X46	≥ 320	≥ 435
X52	≥ 360	≥ 460
X56	≥ 390	≥ 490
X60	≥ 415	≥ 520

Chemical Compositions(%) of Steel According to **PSL1**

Grade	C	Mn	P	S
B	≤ 0.28	≤ 1.20	≤ 0.030	≤ 0.030
X42	≤ 0.28	≤ 1.30	≤ 0.030	≤ 0.030
X46	≤ 0.28	≤ 1.40	≤ 0.030	≤ 0.030
X52	≤ 0.28	≤ 1.40	≤ 0.030	≤ 0.030
X56	≤ 0.28	≤ 1.40	≤ 0.030	≤ 0.030
X60	≤ 0.28	≤ 1.40	≤ 0.030	≤ 0.030

PSL2:

Mechanical Properties of Steel According to **PSL2**

Grade	Yield Strength (Mpa)	Tensile Strength (Mpa)
B	245 - 450	415 - 760
X42	290 - 495	415 - 760
X46	320 - 525	435 - 760
X52	360 - 530	460 - 760
X56	390 - 545	490 - 760

Chemical Compositions(%) of Steel According to **PSL2**

Grade	C	Mn	P	S	Si	V	Nb	Ti	CEpcm
B	≤ 0.24	≤ 1.20	≤ 0.025	≤ 0.015	≤ 0.40	c	c	≤ 0.04	≤ 0.25
X42	≤ 0.24	≤ 1.20	≤ 0.025	≤ 0.015	≤ 0.40	≤ 0.06	≤ 0.05	≤ 0.04	≤ 0.25
X46	≤ 0.24	≤ 1.40	≤ 0.025	≤ 0.015	≤ 0.40	≤ 0.07	≤ 0.05	≤ 0.04	≤ 0.25
X52	≤ 0.24	≤ 1.40	≤ 0.025	≤ 0.015	≤ 0.45	≤ 0.10	≤ 0.05	≤ 0.04	≤ 0.25
X56	≤ 0.24	≤ 1.40	≤ 0.025	≤ 0.015	≤ 0.45	≤ 0.10	≤ 0.05	≤ 0.04	≤ 0.25

Note: c: The sum of the columbium [niobium], and vanadium contents shall not exceed 0.06% except that, by agreement between the purchaser and the manufacturer, an alternative maximum may be established.

Tolerances:

Outside diameter permissible deviation		Wall thickness permissible deviation	Weight deviations
up to 60.3 mm	Pipe body + 0.41/- 0.79 mm Pipe ends: up to OD 273.1 +1.59/-0.40 mm	OD up to 73.0 mm GrB +20.0/-12.5 % grades X42 and higher +15.0/-12.5% OD above 73.0 mm +15.0/-12.5%	+ 10.0% - 3.5%
above 60.3 mm	Pipe body ± 0.75% Pipe ends: above OD 273.1 +2.38/-0.79 mm		

Size:

- Outer Dimensions.: 6 mm ~ 219 mm
- Wall Thickness: 1.0 mm ~ 30 mm
- Length: max 12 meters

Protection:

Pipes are supplied:

- Black and bear
- External varnished with black or clear lacquer

Marking:

Pipes are supplied with marking according to standard and customer request.

Marking is paint on the ends of pipes. The same data, as well as additional information per customer's request, is indicated on the bundle's tags.

Delivery:

Pipes are supplied in hexahedral bundles or round bundles tied with steel strip. Weight of bundle - up to 5000 kg upon request of customer. Each bundle is furnished with three tags.