

## API 5L PSL 1 pipe Mechanical properties

### Tensile strength, Yield strength, Elongation

Pipe grade	Pipe body of seamless and welded pipe			Weld seam of EW, LSAW, SSAW and COW pipes
	Yield strength	Tensile strength	Elongation (on 50mm or 2 in)	Tensile strength
	Rt0.5	Rm	Af	Rm
	MPa (psi), min	MPa (psi), min	% minimum	MPa (psi), min
L175 or A25	175 (25 400)	310 (45 000)	c	310 (45 000)
L175P or A25P	175 (25 400)	310 (45 000)	c	310 (45 000)
L210 or A	210 (30 500)	335 (48 600)	c	335 (48 600)
L245 or B	245 (35 500)	415 (60 200)	c	415 (60 200)
L290 or X42	290 (42 100)	415 (60 200)	c	415 (60 200)
L320 or X46	320 (46 400)	435 (63 100)	c	435 (63 100)
L360 or X52	360 (52 200)	460 (66 700)	c	460 (66 700)
L390 or X56	390(56 600)	490 (71 100)	c	490 (71 100)
L415 or X60	415 (60 200)	520 (75 400)	c	520 (75 400)
L450 or X65	450 (65 300)	535 (77 600)	c	535 (77 600)
L485 or X70	485 (70 300)	570 (82 700)	c	570 (82 700)

c. For the specified minimum elongation, Af shall be using below equation:

$$A_f = C \frac{A_{xc}^{0,2}}{U^{0,9}}$$

Where

C is 1940 for calculations using IS units and 625000 for calculations using USC units;

Axc is the applicable tensile test piece cross-section area, expressed in square mm or square inch, as follows:

- for circular cross-section test pieces, 130mm<sup>2</sup> for 12.7 mm and 8.9 mm diameter test pieces; and 65 mm<sup>2</sup> (0.10 in<sup>2</sup>) for 6,4 mm (0.250 in) diameter test pieces;
- for full-section test pieces, the lesser of a) 485 mm<sup>2</sup> (0.75 in<sup>2</sup>) and b) the cross-sectional area of the test piece, derived using the specified outside diameter and the specified wall thickness of the pipe, rounded to the nearest 10 mm<sup>2</sup> (0.01 in<sup>2</sup>);
- for strip test pieces, the lesser of a) 485 mm<sup>2</sup> (0.75 in<sup>2</sup>) and b) the cross-sectional area of the test piece, derived using the specified width of the test piece and the specified wall thickness of the pipe, rounded to the nearest 10 mm<sup>2</sup> (0.01 in<sup>2</sup>);

U is the specified minimum tensile strength, expressed in megapascals (pounds per square inch).