

API 5L LINE PIPE

Standard: API SPEC 5L ISO 3183 GB/T 9711.1 GB/T 9711.2 GB/T 9711.3

Uses: For conveying gas, water and oil either in the oil or natural gas industries

Dimension:

SMLS: $\Phi 10.3 \sim 1016 \times 1.7 \sim 52 \text{mm}$

WELD: $\Phi 219 \sim 2134 \times 5 \sim 52 \text{mm}$

Chemical Analysis (%):

| Standard | Type of pipe | Class | Grade | C max | Si max | Mn max | P max | S max | V max | Nb max | Timax | |
|-------------|--------------|-------|--------|-------|--------|--------|-------|-------|-------|--------|-------|------|
| API SPEC 5L | SMLS | PLS 1 | L245 B | 0.28 | 0.4 | 1.20 | 0.030 | 0.030 | ----- | ----- | 0.04 | |
| | | | L290 | 0.28 | | 1.30 | 0.030 | 0.030 | -- | ----- | | |
| | | | X42 | 0.28 | | 1.40 | 0.030 | 0.030 | | | | |
| | | | L320 | 0.28 | | 1.40 | 0.030 | 0.030 | | | | |
| | | | X46 | 0.28 | | 1.40 | 0.030 | 0.030 | | | | |
| | | | L360 | 0.28 | | 1.40 | 0.030 | 0.030 | | | | |
| | | | X52 | 0.28 | | 1.40 | 0.030 | 0.030 | | | | |
| | | | L390 | 0.28 | | 1.40 | 0.030 | 0.030 | | | | |
| | | | X56 | 0.24 | | 1.20 | 0.025 | 0.015 | | | | |
| | | | L415 | | | | | | | | | |
| | | | X60 | | | | | | | | | |
| | | | L450 | | | | | | | | | |
| | | | X65 | | | | | | | | | |
| | | | L485 | | | | | | | | | |
| | X70 | | | | | | | | | | | |
| | L245N | | | | | | | | | | | |
| | BN | | | | | | | | | | | |
| | | PLS 2 | | L290N | 0.24 | 0.4 | 1.2 | 0.025 | 0.015 | 0.06 | 0.05 | 0.04 |
| | X42N | | | | | | | | | | | |
| | L320N | | | 0.24 | 0.4 | 1.4 | 0.025 | 0.015 | 0.07 | 0.05 | 0.04 | |
| | X46N | | | | | | | | | | | |
| L360N | 0.24 | | | 0.45 | 1.4 | 0.025 | 0.015 | 0.1 | 0.05 | 0.04 | | |
| X52N | | | | | | | | | | | | |
| L390N | 0.24 | 0.45 | 1.4 | 0.025 | 0.015 | 0.1 | 0.05 | 0.04 | | | | |
| X56N | | | | | | | | | | | | |
| L415N | 0.24 | 0.45 | 1.4 | 0.025 | 0.015 | 0.1 | 0.05 | 0.04 | | | | |
| X60N | | | | | | | | | | | | |
| | WELD | PLS 1 | L245 B | 0.26 | - | 1.2 | - | 0.03 | 0.03 | - | - | |
| L290 | | | 0.26 | - | 1.3 | - | 0.03 | 0.03 | - | - | | |
| X42 | | | | | | | | | | | | |
| L320 | | | 0.26 | - | 1.4 | - | 0.03 | 0.03 | - | - | | |
| X46 | | | | | | | | | | | | |
| L360 | | | 0.26 | - | 1.4 | - | 0.03 | 0.03 | - | - | | |
| X52 | | | | | | | | | | | | |
| L390 | 0.26 | - | 1.4 | - | 0.03 | 0.03 | - | - | | | | |
| X56 | | | | | | | | | | | | |
| L415 | 0.26 | - | 1.4 | - | 0.03 | 0.03 | - | - | | | | |
| X60 | | | | | | | | | | | | |

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| | | | | | | | | | | | |
|--|--|-------|------------|------|------|------|-------|-------|------|------|------|
| | | | L450 X65 | 0.26 | - | 1.45 | - | 0.03 | 0.03 | - | - |
| | | | L485 X70 | 0.26 | - | 1.65 | - | 0.03 | 0.03 | - | - |
| | | PLS 2 | L245M BM | 0.22 | 0.45 | 1.2 | 0.025 | 0.015 | 0.05 | 0.05 | 0.04 |
| | | | L290M X42M | 0.22 | 0.45 | 1.3 | 0.025 | 0.015 | 0.05 | 0.05 | 0.04 |
| | | | L320M X46M | 0.22 | 0.45 | 1.3 | 0.025 | 0.015 | 0.05 | 0.05 | 0.04 |
| | | | L360M X52M | 0.22 | 0.45 | 1.4 | 0.025 | 0.015 | - | - | - |
| | | | L390M X56M | 0.22 | 0.45 | 1.4 | 0.025 | 0.015 | - | - | - |
| | | | L415M X60M | 0.12 | 0.45 | 1.6 | 0.025 | 0.015 | - | - | - |
| | | | L450M X65M | 0.12 | 0.45 | 1.6 | 0.025 | 0.015 | - | - | - |
| | | | L485M X70M | 0.12 | 0.45 | 1.7 | 0.025 | 0.015 | - | - | - |
| | | | L555M X80M | 0.12 | 0.45 | 1.85 | 0.025 | 0.015 | - | - | - |

Mechanical Properties:

| Standard | Class | Grade | | Yield strength not less than (MPa) | Tensile strength (MPa) | Elongation (%) | Y.S/ T.S |
|----------------------|-------|------------|-----|------------------------------------|------------------------|----------------|----------|
| API SPEC 5L ISO 3183 | PLS1 | L245B | Min | 245 | 415 | b | - |
| | | L290X42 | Min | 290 | 415 | b | - |
| | | L320X46 | Min | 320 | 435 | b | - |
| | | L360X52 | Min | 360 | 460 | b | - |
| | | L390X56 | Min | 390 | 490 | b | - |
| | | L415X60 | Min | 415 | 520 | b | - |
| | | L450X60 | Min | 450 | 535 | b | - |
| | | L485X70 | Min | 485 | 570 | b | - |
| | PLS2 | L245N BN | Min | 245 | 415 | b | - |
| | | L245M BM | Max | 450 | 760 | b | 0.93 |
| | | L290NX42 N | Min | 290 | 415 | b | - |
| | | L290MX42 M | Max | 495 | 760 | b | 0.93 |
| | | L320NX46 N | Min | 320 | 435 | b | - |
| | | L320MX46 M | Max | 525 | 760 | b | 0.93 |
| | | L360NX52 N | Min | 360 | 460 | b | - |
| | | L360MX52 M | Max | 530 | 760 | b | 0.93 |
| | | L390NX56 N | Min | 390 | 490 | b | - |

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| | | | | | | |
|--|---------------|-----|-----|-----|---|------|
| | L390MX56 M | Max | 545 | 760 | b | 0.93 |
| | L415NX60 N | Min | 415 | 520 | b | - |
| | L415MX60 M | Max | 565 | 760 | b | 0.93 |
| | L450MX65 M | min | 450 | 535 | b | - |
| | | Max | 600 | 760 | b | 0.93 |
| | L485MX70 M | min | 485 | 570 | b | - |
| | | Max | 635 | 760 | b | 0.93 |
| | L555MX80 M | min | 555 | 625 | b | - |
| | | Max | 705 | 825 | b | 0.93 |

Toughness:

| Standard | Grade | Transverse minimum impact of Pipe body (J) | | | | | Transverse minimum impact of weld (J) | |
|--------------------|------------------------------|--|---------------|---------------|----------------|-----------------|---------------------------------------|----------|
| | | D≤508 | 508mm<D≤762mm | 762mm<D≤914mm | 914mm<D≤1219mm | 1219mm<D≤1422mm | D<1422mm | D=1422mm |
| API SPE C 5L | ≤L415 x60 | 27(20) | 27(20) | 40(30) | 40(30) | 40(30) | 27(20) | 40(30) |
| | >L415 x60 ≤L450 x65 | 27(20) | 27(20) | 40(30) | 40(30) | 54(40) | 27(20) | 40(30) |
| | >L450 x65 ≤L485 x70 | 27(20) | 27(20) | 40(30) | 40(30) | 54(40) | 27(20) | 40(30) |
| | >L485 x70 ≤L555 x80 | 40(30) | 40(30) | 40(30) | 40(30) | 54(40) | 27(20) | 40(30) |

Note:

- (1) The values in the table be suitable for the full size standard sample.
- (2) The values inside bracket is the minimum single value, outside bracket is the average value.
- (3) Test Temperature: 0°C.