

## What do SMYS and SMTS establish?

API 5L line-pipe grades: A25 to X80

| USC grade | SI name | SMYS MPa (ksi) | SMTS MPa (ksi) | Engineering interpretation                                                                       |
|-----------|---------|----------------|----------------|--------------------------------------------------------------------------------------------------|
| A25       | L175    | 175 (25.4)     | 310 (45.0)     | Base low-strength grade for selected low-stress or legacy duties.                                |
| A         | L210    | 210 (30.5)     | 335 (48.6)     | Low-strength grade; market availability and project need should be checked.                      |
| B         | L245    | 245 (35.5)     | 415 (60.2)     | Widely used general grade and a common starting point.                                           |
| X42       | L290    | 290 (42.1)     | 415 (60.2)     | Higher yield than B at the same listed minimum tensile strength; Y/T becomes more visible.       |
| X46       | L320    | 320 (46.4)     | 435 (63.1)     | Intermediate grade balancing design thickness and manufacturing capability.                      |
| X52       | L360    | 360 (52.2)     | 460 (66.7)     | Common balance of strength, weldability, availability and cost.                                  |
| X56       | L390    | 390 (56.6)     | 490 (71.1)     | Transition grade often driven by design and supply-chain choices.                                |
| X60       | L415    | 415 (60.2)     | 520 (75.4)     | Used for higher pressure or weight optimization with tighter welding control.                    |
| X65       | L450    | 450 (65.3)     | 535 (77.6)     | Plate/coil, HAZ toughness and project testing must be aligned.                                   |
| X70       | L485    | 485 (70.3)     | 570 (82.7)     | Common in mainlines; steel saving must be balanced against toughness.                            |
| X80       | L555    | 555 (80.5)     | 625 (90.6)     | Specialized grade where strain, hardness, crack control and welding qualification are prominent. |

Source / basis: <https://niktrd.com/api-line-pipe-grades>