Specification for Line Pipe

API SPECIFICATION 5L
FORTY-THIRD EDITION, MARCH 2004
EFFECTIVE DATE: OCTOBER 2004
ERRATA DECEMBER 2004

American Petroleum Institute

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Upstream Segment

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Specification for Line Pipe

1 Scope

1.1 PURPOSE AND COVERAGE

The purpose of this specification is to provide standards for pipe suitable for use in conveying gas, water, and oil in both the oil and natural gas industries.

This specification covers seamless and welded steel line pipe. It includes plain-end, threaded-end, and belled-end pipe, as well as through-the-flowline (TFL) pipe and pipe with ends prepared for use with special couplings.

Although the plain-end line pipe meeting this specification is primarily intended for field makeup by circumferential welding, the manufacturer will not assume responsibility for field welding.

1.2 PRODUCT SPECIFICATION LEVEL (PSL)

This specification establishes requirements for two product specification levels (PSL 1 and PSL 2). These two PSL designations define different levels of standard technical requirements. PSL 2 has mandatory requirements for carbon equivalent, notch toughness, maximum yield strength, and maximum tensile strength. These and other differences are summarized in Appendix J.

Requirements that apply to only PSL 1 or only PSL 2 are so designated. Requirements that are not designated to a specific PSL apply to both PSL 1 and PSL 2.

The purchaser may add requirements to purchase orders for either PSL 1 or PSL 2, as provided by the supplementary requirements (Appendix F) and other options (4.2 and 4.3).

1.3 GRADES

The grades (see the note) covered by this specification are the standard Grades A25, A, B, X42, X46, X52, X56, X60, X65, X70 and X80; and any intermediate grades (grades that are higher than X42, intermediate to two sequential standard grades, and agreed upon by the purchaser and manufacturer).

PSL 1 pipe can be supplied in Grades A25 through X70.

PSL 2 pipe can be supplied in Grades B through X80.

Class II (Cl II) steel is rephosphorized and probably has better threading properties than Class I (Cl I). Because Class II (Cl II) has higher phosphorus content than Class I (Cl I), it may be somewhat more difficult to bend.

Pipe manufactured as Grade X60 or higher shall not be substituted for pipe ordered as Grade X52 or lower without purchaser approval.

Note: The grade designations are dimensionless. Grades A and B do not include reference to the specified minimum yield strength; however, other grade designations are composed of the letter A or X, followed by the first two digits of the specified minimum yield strength in U.S. Customary units.

1.4 DIMENSIONS

The sizes used herein are dimensionless designations, which are derived from the specified outside diameter as measured in U.S. Customary units, and provide a convenient method of referencing pipe size within the text and tables (but not for order descriptions). Pipe sizes 23/8 and larger are expressed as integers and fractions; pipe sizes smaller than 23/8 are expressed to three decimal places. These sizes replace the "size designation" and the "nominal size designation" used in the previous edition of this specification. Users of this specification who are accustomed to specifying nominal sizes rather than OD sizes are advised to familiarize themselves with these new size designations used in this specification, especially the usage in Tables 4, 5, and 6A.

PSL 1 pipe can be supplied in sizes ranging from 0.405 through 80.

PSL 2 pipe can be supplied in sizes ranging from $4^1/2$ through 80.

Dimensional requirements on threads and thread gages, stipulations on gaging practice, gage specifications and certification, as well as instruments and methods for inspection of threads are given in API Standard 5B and are applicable to threaded products covered by this specification.

1.5 UNITS

U.S. Customary units are used in this specification; SI (metric) units are shown in parentheses in the text and in many tables. The values stated in either U.S. Customary units or SI units are to be regarded separately as standard. The values stated are not necessarily exact equivalents; therefore, each system is to be used independently of the other, without combining values for any specific order item.

See Appendix M for specific information about rounding procedures and conversion factors.

2 References

2.1 This specification includes by reference, either in total or in part, the latest editions of the following API and industry standards:

API

RP 5A3	*Thread Compounds for Casing, Tubing, and Line Pipe*
Spec 5B	*Specification for Threading, Gauging, and Thread Inspection of Casing, Tubing, and Line Pipe Threads*
RP 5L1	*Recommended Practice for Railroad Transportation of Line Pipe*
RP 5L3	*Recommended Practice for Conducting Drop-Weight Tear Tests on Line Pipe*