



Standard Specification for Metal-Arc-Welded Steel Pipe for Use With High-Pressure Transmission Systems¹

This standard is issued under the fixed designation A 381; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers straight seam, double-submerged-arc-welded steel pipe (Note 1) suitable for high-pressure service, 16 in. (406 mm) and larger in outside diameter, with wall thicknesses from $\frac{5}{16}$ to $1\frac{1}{2}$ in. (7.9 to 38 mm). The pipe is intended for fabrication of fittings and accessories for compressor or pump-station piping. Pipe ordered to this specification shall be suitable for bending, flanging (vastoning), corrugating, and similar operations.

NOTE 1—A comprehensive listing of standardized pipe dimensions is contained in ANSI B36.10.

NOTE 2—The term “double welded” is commonly used in the gas and oil transmission industry, for which this pipe is primarily intended, to indicate welding with at least two weld passes, of which one is on the outside of the pipe and one on the inside.

For some sizes of the pipe covered by this specification, it becomes expedient to use manual welding, in which case the provisions of Note 3 shall be followed.

1.2 Nine classes of pipe, based on minimum yield point requirements, are covered as indicated in Table 1.

1.3 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents of inch-pound units may be approximate.

1.4 The following hazard caveat applies to the test methods portion, Sections 9 and 10, only. *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products²

A 530/A 530M Specification for General Requirements for Specialized Carbon and Alloy Steel Pipe³

¹ This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys, and is the direct responsibility of Subcommittee A01.09 on Carbon Steel Tubular Products.

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² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 01.01.

TABLE 1 Tensile Requirements

Class	Yield Strength, min, psi (MPa)	Tensile Strength, min, psi (MPa)	Elongation in 2 in. (50.8 mm), min, %
Y 35	35 000 (240)	60 000 (415)	26
Y 42	42 000 (290)	60 000 (415)	25
Y 46	46 000 (316)	63 000 (435)	23
Y 48	48 000 (330)	62 000 (430)	21
Y 50	50 000 (345)	64 000 (440)	21
Y 52	52 000 (360)	66 000 (455)	20
Y 56	56 000 (385)	71 000 (490)	20
Y 60	60 000 (415)	75 000 (515)	20
Y 65	65 000 (450)	77 000 (535)	20

E 30 Test Methods for Chemical Analysis of Steel, Cast Iron, Open-Hearth Iron, and Wrought Iron⁴

2.2 ASME Boiler and Pressure Vessel Code:

Section VIII Pressure Vessels⁵

Section IX Welding Qualifications⁵

2.3 ANSI Standard:²

ANSI B36.10 Welded and Seamless Wrought Steel Pipe

3. Ordering Information

3.1 Orders for material to this specification should include the following, as required, to describe the desired material adequately:

3.1.1 Quantity (feet, centimetres, or number of lengths),

3.1.2 Name of material (metal-arc welded pipe),

3.1.3 Class (Table 1),

3.1.4 Material (carbon or alloy steel, Section 5),

3.1.5 Size (outside diameter and wall thickness),

3.1.6 Length (specific or random) (Section 13),

3.1.7 Ends (Section 14),

3.1.8 Heat treatment (stress-relieved or normalized) (see 5.6),

3.1.9 Optional requirements (see 5.2 (Note 3), Sections 11 and 15),

3.1.10 Specification number, and

3.1.11 Special requirements or exceptions to this specification.

4. General Requirements

4.1 Material furnished to this specification shall conform to

⁴ Annual Book of ASTM Standards, Vol 03.05.

⁵ Available from American Society of Mechanical Engineers, 345 E. 47th St., New York, NY 10017.