



Designation: A252/A252M – 26

Standard Specification for Welded and Seamless Steel Pipe Piles¹

This standard is issued under the fixed designation A252/A252M; 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 nominal (average) wall steel pipe piles of cylindrical shape and applies to pipe piles in which the steel cylinder acts as a permanent load-carrying member, or as a shell to form cast-in-place concrete piles. Pipe piles are produced as both welded and seamless products.

1.2 This specification is expressed in both inch-pound units and SI units; however, unless the purchase order or contract specifies the applicable *M* specification designation (SI units), the inch-pound units shall apply. The values stated in either inch-pound or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from two systems may result in nonconformance with the standard.

1.3 The text of this specification contains notes and footnotes that provide explanatory material. Such notes and footnotes, excluding those in tables and figures, do not contain any mandatory requirements.

1.4 The following precautionary caveat pertains only to the test method portion, Section 16 of this specification. *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee A01 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. Referenced Documents

2.1 ASTM Standards:²

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

A751 Test Methods and Practices for Chemical Analysis of Steel Products

A941 Terminology Relating to Steel, Stainless Steel, Related Alloys, and Ferroalloys

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

3. Terminology

3.1 Definitions:

3.1.1 Definitions of terms used in this specification shall be in accordance with Terminology A941.

3.1.2 *defect*—an imperfection of sufficient size or magnitude to be cause for rejection.

3.1.3 *heat lot*—a group of pipe piles of the same outside diameter, nominal wall thickness, and steel heat.

3.1.4 *imperfection*—any discontinuity or irregularity found in the pipe.

4. Ordering Information

4.1 Orders for material under this specification shall contain information concerning as many of the following items as are required to describe the desired material adequately:

4.1.1 Quantity (feet or number of lengths),

4.1.2 Name of material (steel pipe piles),

4.1.3 Method of manufacture (seamless or welded),

4.1.4 Grade (Tables 1 and 2),

4.1.5 Product analysis (specify if product analysis is required, if not ladle analysis will be used) (see Section 9),

4.1.6 Size (outside diameter and nominal wall thickness),

4.1.7 Weight (specify if each piece must be weighed) (see 12.1),

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard



TABLE 1 Tensile Requirements

NOTE 1—Where an ellipsis (...) appears in this table, there is no requirement.

	Grade 1	Grade 2	Grade 3
Tensile strength, min, psi [MPa]	50 000 [345]	60 000 [415]	66 000 [455]
Yield point or yield strength, min, psi [MPa]	30 000 [205]	35 000 [240]	45 000 [310]
Basic minimum elongation for nominal wall thicknesses $\frac{5}{16}$ in. [7.9 mm] or more:			
Elongation in 8 in. [203.2 mm], min, %	18	14	...
Elongation in 2 in. [50.8 mm], min, %	30	25	20
For nominal wall thicknesses less than $\frac{5}{16}$ in. [7.9 mm], the deduction from the basic minimum elongation in 2 in. [50.8 mm] for each $\frac{1}{32}$ - in. [0.8 mm] decrease in nominal wall thickness below $\frac{5}{16}$ in. [7.9 mm], in percentage points	1.50 ^A	1.25 ^A	1.0 ^A

^A Table 2 gives the computed minimum values:TABLE 2 Calculated Minimum Elongation Values^A

Nominal Wall Thickness		Elongation in 2 in. [50.8 mm], min, %		
in.	[mm]	Grade 1	Grade 2	Grade 3
$\frac{5}{16}$ or 0.312	[7.9]	30.00	25.00	20.00
$\frac{9}{32}$ or 0.281	[7.1]	28.50	23.75	19.00
$\frac{1}{4}$ or 0.250	[6.4]	27.00	22.50	18.00
$\frac{7}{32}$ or 0.219	[5.6]	25.50	21.25	17.00
$\frac{3}{16}$ or 0.188	[4.8]	24.00	20.00	16.00
$\frac{11}{64}$ or 0.172	[4.4]	23.25	19.50	15.50
$\frac{5}{32}$ or 0.156	[4.0]	22.50	18.75	15.00
$\frac{9}{64}$ or 0.141	[3.6]	21.75	18.25	14.50
$\frac{1}{8}$ or 0.125	[3.2]	21.00	17.50	14.00
$\frac{7}{64}$ or 0.109	[2.8]	20.25	16.75	13.50

^A The above table gives the calculated minimum elongation values for various nominal wall thicknesses. Where the specified nominal wall thickness is intermediate to those shown above, the minimum elongation value shall be determined as follows:

Grade	
1	$E = 48t + 15.00$ [$E = 1.90t + 15.00$]
2	$E = 40t + 12.50$ [$E = 1.56t + 12.50$]
3	$E = 32t + 10.00$ [$E = 1.25t + 10.00$]

where:

 E = elongation in 2 in., %, and t = specified nominal wall thickness, in. [mm].

4.1.8 Lengths (single random, double random, or uniform) (see Section 13),

4.1.9 End finish (Section 15), and

4.1.10 ASTM specification designation and year of issue,

4.1.11 Location of purchaser's inspection (see 19.1), and

4.1.12 Bar coding (see 22.2).

5. Materials and Manufacture

5.1 The piles shall be made by the seamless, electric resistance welded, flash welded, or fusion welded process. The seams of welded pipe piles shall be longitudinal, helical-butt, or helical-lap.

NOTE 1—For welded pipe piles, the weld should not fail when the product is properly fabricated and installed and subjected to its intended end use.

6. Process

6.1 The steel shall be made by one or more of the following processes: open-hearth, basic-oxygen, or electric-furnace.

7. Chemical Composition

7.1 The steel shall contain no more than 0.050 % phosphorous.

8. Heat Analysis

8.1 Each heat analysis shall conform to the requirement specified in 7.1. When requested by the purchaser, the applicable heat analyses shall be reported to the purchaser or the purchaser's representative.

9. Product Analysis

9.1 When specified in the purchase order, a chemical analysis shall be performed in accordance with Test Methods, Practices, and Terminology A751.

9.2 It shall be permissible for the purchaser to make product analyses using two samples from each heat lot of pipe piles. The product analyses shall conform to the requirement in 7.1.

9.3 If the chemical compositions of both of the samples representing a heat lot fail to conform to the specified requirement, the heat lot shall be rejected or analyses of four additional samples selected from the heat lot shall be made, and each shall conform to the specified requirement. If the chemical composition of only one of the samples representing a heat lot fails to conform to the specified requirement, the heat lot shall be rejected or analyses of two additional samples