



Standard Specification for Flexible, Expansion-Type Ball Joints for Marine Applications¹

This standard is issued under the fixed designation F1298; 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 the design, manufacture, and testing of ball joints utilized for accommodating thermal expansion and contraction, or mechanical movement of a pipeline carrying fluid. The ball joints are intended for use in systems operating above 0°F (18°C).

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 The following precautionary caveat pertains only to the test methods portion, Section 7, of this specification: *This standard does not purport to address all of the safety concerns, 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.*

1.4 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

A395/A395M Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures

F722 Specification for Welded Joints for Shipboard Piping Systems

¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

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

2.2 ANSI Standard:³

B 31.1 Power Piping

2.3 American Society of Mechanical Engineers:⁴

ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 Pressure Vessels Section IX, Welding and Brazing Requirements

3. Ordering Information

3.1 Each purchase order or inquiry for ball joints to this specification shall include the following as applicable:

3.1.1 Title, number, and latest revision of this specification,

3.1.2 Manufacturer's part number or ball-joint type information,

3.1.3 Materials for ball joint and seals, if other than to this specification,

3.1.4 Service conditions,

3.1.4.1 Minimum and maximum operating temperature (°F),

3.1.4.2 Maximum operating pressure (psig),

3.1.5 Fluid media (internal),

3.1.6 Atmosphere or media (external),

3.1.7 ANSI pressure class, facing and drilling of flanged ends, and pipe schedule or wall thickness of ends for weld end joints,

3.1.8 Special end connections as defined by the purchaser,

3.1.9 Ball sphere or other special coatings, if required,

3.1.10 Qualification test report, if required,

3.1.11 Drawing requirements; for example, envelope drawing sufficiently detailed to describe the ball joint to be supplied, and

3.1.12 Other tests to satisfy customer requirements.

4. Materials and Manufacture

4.1 All pressure retaining components shall be fabricated from wrought or cast steel. Ductile iron complying with Specification **A395/A395M** may be used for the ball joint retaining ring in services not above 350 psig (2.41 N/mm²) or

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Two Park Ave., New York, NY 10016-5990, <http://www.asme.org>.