ASME B16.49-2012

(Revision of ASME B16.49-2007)

Factory-Made, Wrought Steel, Buttwelding Induction Bends for Transportation and Distribution Systems

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Three Park Avenue • New York, NY • 10016 USA

Date of Issuance: February 11, 2013

The next edition of this Standard is scheduled for publication in 2017.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Periodically certain actions of the ASME B16 Committee may be published as Cases. Cases and interpretations are published on the ASME Web site under the Committee Pages at http://cstools.asme.org/ as they are issued, and will be published within the next edition of the standard.

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The American Society of Mechanical Engineers
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CONTENTS

FOREWORD

In 1993, members of the ASME B31.8 Code for Pressure Piping, Gas Transmission and Distribution Piping Systems committee approached the B16 committee to develop a standard that covers pipeline bends produced by the induction bending process.

Subcommittee F reviewed the request and identified that no current specification covered this product to the satisfaction of the users. It was also determined that this Standard would need to be more performance-based than most other B16 standards, which are normally product standards with set dimensional requirements.

At the 1994 meeting of Subcommittee F, the project to develop a standard was accepted. Through the cooperation of producers and users familiar with the process, and with approval by the Standards Committee and ASME, ASME B16.49-2000 received approval as an American National Standard on April 25, 2000.

In 2005, the committee undertook a general review of this document. Based on the usage of this Standard over the last 5 years, a number of revisions, clarifications, and additions were determined to be needed to make the document more user friendly. Some requirements were dropped, revised, and clarified to reflect the desires of the users and manufacturers. The reference data were updated and the interpretation section was removed from the Standard. These revisions were incorporated into the B16.49-2007 edition.

In 2012, the committee reviewed this document and made revisions to requirements in hardness testing and updated the references found in Mandatory Appendix I.

This revision was approved by the American National Standards Institute on October 22, 2012.

ASME B16 COMMITTEE
Standardization of Valves, Flanges, Fittings, and Gaskets

(The following is the roster of the Committee at the time of approval of this Standard.)

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CORRESPONDENCE WITH THE B16 COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B16 Standards Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

As an alternative, inquiries may be submitted via e-mail to: SecretaryB16@asme.org.

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued for the purpose of providing alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee Web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard, the paragraph, figure or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Interpretations. Upon request, the B16 Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B16 Standards Committee.

The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format will be rewritten in this format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B16 Standards Committee regularly holds meetings, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B16 Standards Committee.

ASME B16.49-2012
SUMMARY OF CHANGES

Following approval by the ASME B16 Committee and ASME, and after public review, ASME B16.49-2012 was approved by the American National Standards Institute on October 22, 2012.

ASME B16.49-2012 includes the following changes identified by a margin note, **(12)**.

Page	*Location*	*Change*
4	Table 1	(1) Under Maximum Hardness, "HB" revised to "HBW" (2) Note (1) revised
5	8.3	Revised
8	Table 3	Entry for "Induction heating power" deleted
13	Mandatory Appendix I	Updated

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FACTORY-MADE, WROUGHT STEEL, BUTTWELDING INDUCTION BENDS FOR TRANSPORTATION AND DISTRIBUTION SYSTEMS

1 SCOPE AND DEFINITIONS

1.1 General

This Standard covers design, material, manufacturing, testing, marking, and inspection requirements for factory-made pipeline bends of carbon steel materials having controlled chemistry and mechanical properties, produced by the induction bending process, with or without tangents. This Standard covers induction bends for transportation and distribution piping applications (e.g., ASME B31.4 and B31.8). Process and power piping have differing requirements and materials that may not be appropriate for the restrictions and examinations described herein and, therefore, are not included in this Standard.

1.2 Manufacturing Process

This process utilizes induction heating to heat a narrow band 360 deg around a pipe or cylinder at the point of bending as the pipe or cylinder is being pushed through the inductor coil at a constant velocity. After the material passes through the coil, it may be cooled by forced air or water spray, or it may be allowed to cool in still air. Bends in any producible wall thickness and diameter are covered. Induction bends covered by this Standard may be produced from seamless pipe, welded pipe, or cylinders.

1.3 Fabricated Bends

Larger angle bends obtained by girth welding two or more smaller angle bends together are considered pipe fabrications and as such, are not within the scope of this Standard.

1.4 Standard Units

The values stated in either metric units or U.S. Customary units are to be regarded separately as standard. Within the text, Customary values are shown in parentheses. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from two systems may result in nonconformance with the Standard.

1.5 References

Standards and specifications adopted by reference in this Standard are shown in Mandatory Appendix I. It is not practical to identify the specific edition of each standard and specification in the individual references. Instead, the specific edition reference is identified in Mandatory Appendix I. A product made in conformance with a prior edition of reference standards and in all other respects conforming to this Standard will be considered to be in compliance.

1.6 Codes and Regulations

A bend used under the jurisdiction of a referencing code or governmental regulation is subject to any limitation of that code or regulation. This includes any maximum temperature limitation or rule governing the use of a material at low temperature.

1.7 Service Conditions

Criteria for selection of bend material for a particular fluid service are not within the scope of this Standard.

1.8 Convention

For determining conformance with this Standard, the convention for fixing significant digits where limits, maximum and minimum values, are specified shall be as defined in ASTM Practice E29. This requires that an observed or calculated value be rounded off to the nearest unit in the last right-hand digit used for expressing the limit. Decimal values and tolerance do not imply a particular method of measurement.

1.9 Quality Systems

Requirements relating to the manufacturers' quality system programs are described in Nonmandatory Appendix A.

1.10 Glossary

bend qualification procedure: a document that specifies the properties of the starting pipe; the equipment to be used; the bending parameters; the qualification bend test results; and the postbend, heat-treat equipment and cycle used for the manufacture of the bends. If nondestructive testing of the bend is required, procedures that have not been approved previously shall be submitted.

cylinder: a joint of pipe produced by a rolling and welding plate, as opposed to a joint of pipe produced in accordance with a recognized specification.