ASME BPV II Part B Specification Review Form

*** NOTE: This form is a coversheet that is for information only ***

<table>
<thead>
<tr>
<th>Action: 07-1377</th>
<th>Adoption of: ASTM B829-19</th>
<th>As: ASME SB-829</th>
</tr>
</thead>
</table>

**Recommended Subtitle for ASME Specification:**
Identical with ASTM Specification B829-19 except that certification and test reports have been made mandatory

<table>
<thead>
<tr>
<th>Previous ASTM Version adopted by ASME:</th>
<th>ASTM Revisions reviewed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>B829-99</td>
<td>B829-19</td>
</tr>
</tbody>
</table>

**Review Checklist**

### Part I – New Material Addition

Has a new grade, type, or class of material(s) been added to the specification since the last ASME adoption?

- [ ] YES
- [X] NO

If a new grade, type, or class of material(s) has been added, then will the specification adoption result in the need for a revision to either an ASME BPV Code Volume or an ASME Code Case?

- [ ] YES
- [ ] NO
- [X] NA

(If YES or NO is checked, reason for answer:

### Part II – A Change to an Existing Material

Have any of the following items changed for a material(s) that, as of the last ASME adoption, was already in the ASTM specification:

- [ ] A mechanical property?
- [X] A scope or thickness range?
- [X] Any chemical requirements or physical properties?
- [X] A heat treatment temperature or range?

If ANY of the above answers is YES, then does the material(s) with the changed property appear in either an ASME BPV Code Volume or an ASME Code Case?

- [ ] YES
- [X] NO
- [X] NA

If the material(s) with the changed property appears in an ASME BPV Code Volume(s)/Code Case(s), then will the adoption of this specification result in the need for the Volume/Code Case to be revised?

- [X] YES
- [ ] NO
- [X] NA

(If YES or NO is checked, state the reason for answer:

If the adoption of this ASTM specification will result in the need for an ASME BPV Code Volume/Code Case revision, then has the technical basis for the change been attached in the Record’s Background Material tab?

- [X] YES
- [ ] NO
- [X] NA

(If NO is checked, state why:

### Part III – Other Significant Changes / BPV II Table II-200

Did other change(s) occur in the ASTM specification of which ASME BPV II needs to be aware?

- Specification B445 has been removed from Section 1 (Scope) because the specification has been discontinued.
- Table 2 – Permissible variations for outside diameter and wall thickness of cold-worked pipe/tube that is 8(5/8) – 24 inches have been added.
- Table 4 – Permissible variations for outside diameter and wall thickness of hot-worked pipe that is less than 2(1/2) inches has been added.
- Annexes A1 and A2 - Requirements for new materials – has been added.

- [X] YES
- [ ] NO
 Were any changes in the ASTM specification made as a result of an ASME request? YES ☐ NO ☒

Has any change(s) been made to the ASTM specification that was not already identified in Parts I-II and which is objectionable to ASME? YES ☐ NO ☐

Will any of the proposed changes make any grade, type, or class of material(s) obsolete? YES ☐ NO ☒

With this adoption, does Mandatory Appendix II, Table II-200-1 need to restrict the usage of certain versions of this ASTM specification? Version B829-19 will be the only acceptable edition. YES ☐ NO ☒

Part IV – Other ASTM Changes & Recommended ASME Corrections

Other Changes to the ASTM Specification
(since the last ASME Spec Adoption)

Section 1.6 added (a paragraph describing how the standard was developed).

Recommended Corrections for Adoption into ASME BPV II

Section 13 is edited to make certification and tests reports mandatory.

NOTE: The intent is that the ASTM proprietary footnotes and notes be removed and not printed. The editors have historically deleted the "boilerplate" and, in addition, have taken care of additional details such as adding the ASME logo and adding the recommended subtitle shown above.

Respectfully submitted: Jessica Robertson

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Email jrobertson@haynesintl.com

Monday, December 16, 2019, 5:00 PM
Designation: B829 – 19

Standard Specification for General Requirements for Nickel and Nickel Alloys Seamless Pipe and Tube

This standard is issued under the fixed designation B829; 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 (´) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification contains various requirements that, with the exception of Sections 5 and 10, are mandatory requirements to the following ASTM nickel and nickel alloy, seamless pipe and tube specifications:

<table>
<thead>
<tr>
<th>Title of Specification</th>
<th>ASTM Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel Seamless Pipe and Tube</td>
<td>B161</td>
</tr>
<tr>
<td>Seamless Nickel and Nickel Alloy, Condenser and Heat Exchanger Tubes</td>
<td>B163</td>
</tr>
<tr>
<td>Nickel-Copper Alloy (UNS N04400) Seamless Pipe and Tube</td>
<td>B165</td>
</tr>
<tr>
<td>Nickel-Iron-Chromium Alloy Seamless Pipe and Tube</td>
<td>B407</td>
</tr>
<tr>
<td>Nickel-Iron-Chromium-Molybdenum-Copper Alloy (UNS N08825, N08821, and N08845) Seamless Pipe and Tube</td>
<td>B423</td>
</tr>
<tr>
<td>Nickel-Chromium-Molybdenum-Columbium Alloys (UNS N06625 and N06852) and Nickel-Chromium-Molybdenum-Silicon Alloy (UNS N06219) Pipe and Tube</td>
<td>B444</td>
</tr>
<tr>
<td>Nickel-Iron-Chromium-Silicon Alloys (UNS N08330 and UNS N08332) Seamless Pipe</td>
<td>B535</td>
</tr>
<tr>
<td>Copper-Beryllium Alloy (UNS Nos. C17000 and C17200) Forgings and Extrusion</td>
<td>B570</td>
</tr>
<tr>
<td>Seamless Nickel and Nickel-Cobalt Alloy Pipe and Tube</td>
<td>B622</td>
</tr>
<tr>
<td>UNS N08028 and N08029 Seamless Pipe and Tube</td>
<td>B668</td>
</tr>
<tr>
<td>UNS N08925, UNS N08354, and UNS N08926 Seamless Pipe and Tube</td>
<td>B677</td>
</tr>
<tr>
<td>Iron-Nickel-Chromium-Molybdenum Alloys (UNS N08367) Seamless Pipe and Tube</td>
<td>B690</td>
</tr>
<tr>
<td>Nickel-Chromium-Molybdenum-Cobalt-Tungsten-Iron-Silicon Alloy (UNS N06333) Seamless Pipe and Tube</td>
<td>B722</td>
</tr>
<tr>
<td>Seamless UNS N08020, UNS N08026, and UNS N08024 Nickel-Alloy Pipe and Tube</td>
<td>B729</td>
</tr>
</tbody>
</table>

1.2 One or more of the test requirements of Section 5 apply only if specifically stated in the product specification or in the purchase order.

1.3 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.

1.4 The following safety hazards caveat pertains only to the test requirements portion, Section 5, 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 become familiar with all hazards including those identified in the appropriate Safety Data Sheet (SDS) for this product/material as provided by the manufacturer, 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.

2. Referenced Documents

2.1 ASTM Standards:

- B880 Specification for General Requirements for Chemical Check Analysis Limits for Nickel, Nickel Alloys and Cobalt Alloys
- E8/E8M Test Methods for Tension Testing of Metallic Materials
- E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

2.2 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.

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

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3. Terminology

3.1 Definitions:

3.1.1 average diameter, n—the average of the maximum and minimum outside diameters, as determined at any one cross section of the pipe or tube.

3.1.2 nominal wall, n—a specified wall thickness with a plus or minus tolerance from the specified thickness.

3.1.3 seamless pipe, n—a round hollow produced with a continuous periphery in all stages of manufacture, and produced to the particular dimensions commercially known as pipe sizes (NPS).

3.1.4 seamless tube, n—a tube produced with a continuous periphery in all stages of the operation.

3.1.5 thin wall tube, n—tube with specified wall thickness 3 \% or less of the specified outside diameter.

4. Chemical Composition

4.1 In case of disagreement, the chemical composition shall be determined in accordance with the following methods.

<table>
<thead>
<tr>
<th>UNS No. Prefixes</th>
<th>ASTM Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>N02</td>
<td>E39</td>
</tr>
<tr>
<td>N04</td>
<td>E76</td>
</tr>
<tr>
<td>N06, N08</td>
<td>E1473</td>
</tr>
</tbody>
</table>

4.2 The ladle analysis of the material shall conform to the chemical requirements prescribed by the individual product specification.

4.3 The product (check) analysis of the material shall meet the requirements for the ladle analysis within the tolerance limits prescribed in Specification B880.

5. Test Requirements

5.1 Flare Test—The flare test shall consist of flaring a test specimen with an expanding tool having an included angle of 60° until the specified outside diameter has been increased by 30 \%. The flared specimen shall not exhibit cracking through the wall.

5.2 Hydrostatic Test—Each pipe or tube shall be tested by the manufacturer to an internal hydrostatic pressure of 1000 psi (6.9 MPa) provided that the fiber stress, calculated from the following equation, does not exceed the allowable fiber stress for the material:

\[ P = \frac{2St}{D} \]

where:

- \( P \) = hydrostatic test pressure, psi (MPa),
- \( S \) = allowable fiber stress, for material in the condition (temper) furnished as specified in the product specification (\( S \) is calculated as the lower of 2/3 of the specified minimum 0.2 \% offset yield strength or 4 \% of the specified minimum ultimate strength for the material),
- \( t \) = minimum wall thickness permitted, in. (mm), including minus tolerance, if any, and
- \( D \) = nominal outside diameter of the pipe or tube, in. (mm).

5.2.1 The test pressure must be held for a minimum of 5 s.

Note 1—Testing at a pressure greater than 1000 psi may be performed upon agreement between purchaser and manufacturer provided that the allowable fiber stress is not exceeded.

5.2.2 If any pipe or tube shows leaks during hydrostatic testing, it shall be rejected.

5.3 Nondestructive Electric Test:

5.3.1 Eddy Current Testing—Testing shall be conducted in accordance with Practices E426 or E571. The eddy current examination reference in this specification has the capability of detecting significant discontinuities, especially of the short, abrupt type.

5.3.1.1 Unless otherwise specified by the purchaser, the calibration standard shall contain, at the option of the manufacturer, any one of the following discontinuities to establish a minimum sensitivity level for rejection.

5.3.1.2 Drill Hole—A hole not larger than 0.031 in. (0.79 mm) diameter shall be drilled radially and completely through the wall, care being taken to avoid distortion of the material while drilling.

5.3.1.3 Transverse Tangential Notch—Using a round file or tool with a 1/4 in. (6 mm) diameter, a notch shall be filed or milled on the tube or pipe outside diameter tangential to the surface and transverse to the longitudinal axis of the material. Said notch shall have a depth not exceeding 12.5 \% of the specified wall thickness of the material, or 0.004 in. (0.10 mm), whichever is greater.

5.3.2 Ultrasonic Testing—Testing shall be conducted in accordance with Practice E213. The ultrasonic examination referred to in this specification is intended to detect longitudinal discontinuities having a reflective area similar to or larger than the calibration reference notches specified in 5.3.2.1. The examination may not detect circumferentially oriented imperfections or short, deep defects.

5.3.2.1 For ultrasonic testing, longitudinal calibration notches shall be machined on the outside and inside diameter surfaces. The depth of the notches shall not exceed 12.5 \% of the specified wall thickness or 0.004 in. (0.10 mm), whichever is greater.

5.3.3 Calibration Frequency—The frequency of calibration checks shall be as follows:

---

5.3.5 If, during any check, the equipment fails to detect the calibration defects, the instrument must be recalibrated and all material tested since the last satisfactory check shall be retested.

5.3.4 **Acceptance and Rejection**—Material producing a signal equal to or greater than the calibration defect shall be subject to rejection.

5.3.4.1 Test signals produced by imperfections that cannot be identified or produced by cracks or crack-like imperfections shall result in rejection of the pipe or tube, subject to rework and retest.

5.3.4.2 If the imperfection is judged as not fit for use, the tube shall be rejected, but may be reconditioned and retested providing the wall thickness requirements are met. To be accepted, retested material shall meet the original electric test requirements.

5.3.4.3 If the imperfection is explored to the extent that it cannot be identified, and the pipe or tube is determined to be fit for use, the material may be accepted without further testing, providing the imperfection does not encroach on minimum wall thickness requirements.

5.4 When specified by the purchaser, a nondestructive electric test, in accordance with Practices E213, E426, or E571, may be used for seamless pipe or tube, instead of the hydrostatic test.

5.5 **Tension Test**—Tension testing shall be conducted in accordance with Test Methods E8/E8M.

5.5.1 The material shall conform to the tensile properties prescribed in the individual product specification.

5.6 **Hardness Test**—Hardness testing shall be conducted in accordance with Test Methods E18.

5.7 **Grain Size**—The measurement of average grain size may be carried out by the planimetric method, the comparison method, or the intercept method described in Test Methods E112. In case of dispute, the “referee” method for determining average grain size shall be the intercept method.

5.8 For purposes of determining compliance with the specified limits for requirements of the properties listed in the following table, an observed value or a calculated value shall be rounded in accordance with the rounding method of Practice E29:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Rounded Unit for Observed or Calculated Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical composition and tolerances</td>
<td>nearest unit in the last right-hand place of figures of the specified limit</td>
</tr>
<tr>
<td>Tensile strength and yield strength</td>
<td>nearest 1000 psi (7 MPa)</td>
</tr>
<tr>
<td>Elongation</td>
<td>nearest 1%</td>
</tr>
<tr>
<td>Grain size</td>
<td></td>
</tr>
<tr>
<td>0.0024 in. (0.060 mm) or larger</td>
<td>nearest multiple of 0.0002 in. (0.005 mm)</td>
</tr>
<tr>
<td>Less than 0.0024 in. (0.060 mm)</td>
<td>nearest multiple of 0.0001 in. (0.002 mm)</td>
</tr>
</tbody>
</table>

6. **Dimensions and Permissible Variations**

6.1 Dimensions of pipe are shown in Table 1.

6.1.1 Permissible variations in outside diameter and wall thickness are shown in Table 2, Table 3, and Table 4.

6.2 **Length**—When material is ordered as cut-to-length, the length shall conform to the permissible variations prescribed in Table 5. When material is ordered to random lengths, the lengths and variations shall be agreed upon between the manufacturer and purchaser.

6.3 **Straightness**—Material shall be reasonably straight and free of bends and kinks.

6.4 **Ends**—Ends shall be plain cut and deburred.

7. **Workmanship, Finish, and Appearance**

7.1 The material shall be uniform in quality and temper, smooth, and free from imperfections that would render it unfit for use.

8. **Sampling**

8.1 **Lot Definition**:

8.1.1 A lot for chemical analysis shall consist of one heat.

8.1.2 A lot for all other testing shall consist of all material from the same heat, nominal size (excepting length), and condition (temper). When final heat treatment is in a batch-type furnace, a lot shall include only those pipes or tubes of the same size and the same heat that are heat-treated in the same furnace charge. When heat treatment is in a continuous furnace, a lot shall include all pipes or tubes of the same size and heat, heat-treated in the same furnace at the same temperature, time at temperature, and furnace speed during one production run. At no time shall a lot consist of more than 20,000 lb (9100 kg).

8.1.2.1 Where material cannot be identified by heat, a lot shall consist of not more than 500 lb (227 kg) of material of the same alloy in the same condition (temper) and nominal size (excepting length).

NOTE 2—For tension, hardness, grain size, and flare test requirements, the term lot applies to all lengths prior to cutting.

8.2 **Test Material Selection**:

8.2.1 **Chemical Analysis**—Representative samples from each lot shall be taken during pouring or subsequent processing.

8.2.2 **Mechanical and Other Properties**—Samples of the material to provide test specimens for mechanical and other properties shall be taken from such locations in each lot as to be representative of that lot. Test specimens shall be taken from material in the final condition (temper).

9. **Retests and Retreatment**

9.1 **Retests**—If the results of the mechanical tests of any group or lot do not conform to the requirements specified in the individual specification, retests may be made on additional tubes of double the original number from the same group or lot, each of which shall conform to the requirements specified.

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Downloaded/printed by Jessica Robertson (Jessica Robertson) pursuant to License Agreement. No further reproductions authorized.
TABLE 1 Dimensions of Pipe

<table>
<thead>
<tr>
<th>NPS Designator</th>
<th>Outside Diameter, in. (mm)</th>
<th>Nominal Wall Thickness, in. mm</th>
<th>Schedule SS$^a$</th>
<th>Schedule 10S$^a$</th>
<th>Schedule 40S</th>
<th>Schedule 80S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>0.405 (10.29)</td>
<td></td>
<td>0.005 (0.13)</td>
<td>0.005 (0.13)</td>
<td>0.049 (1.24)</td>
<td>1.40 (36.1)</td>
</tr>
<tr>
<td>1/4</td>
<td>0.540 (13.72)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.24 (31.4)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>3/8</td>
<td>0.675 (17.15)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>1/2</td>
<td>0.840 (21.34)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>5/8</td>
<td>1.050 (26.67)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>3/4</td>
<td>1.315 (33.40)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>1.0</td>
<td>1.660 (42.16)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>1 1/4</td>
<td>2.000 (50.80)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>1 1/2</td>
<td>2.500 (63.50)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>2</td>
<td>3.250 (82.50)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>2 1/2</td>
<td>4.000 (101.6)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>3</td>
<td>5.000 (127.0)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
<tr>
<td>3 1/2</td>
<td>6.250 (160)</td>
<td></td>
<td>0.065 (1.65)</td>
<td>0.065 (1.65)</td>
<td>1.40 (36.1)</td>
<td>0.88 (22.3)</td>
</tr>
</tbody>
</table>

NOTE 1—The following table is a reprint of Table 1 of ANSI B36.19.

NOTE 2—The decimal thicknesses listed for the respective pipe sizes represent their nominal wall dimensions.

9.2 Retreatment—If the individual pipes/tubes or the material selected to represent any lot fail to conform to the test requirements, the individual pipes/tubes or the lot represented may be reheat treated and resubmitted for test. Not more than two reheat treatments shall be permitted.

10. Specimen Preparation

10.1 Room Temperature Tensile Specimen:

10.1.1 Material shall be tested in the direction of fabrication. Whenever possible, the pipe or tube shall be tested in full cross section. When testing in full section is not possible, longitudinal strip specimens or the largest possible round section shall be used. In the event of disagreement when full section testing is not possible, a longitudinal strip specimen with reduced gage length as contained in Test Methods E8/E8M shall be used.
TABLE 3 Permissible Variations for Outside Diameter and Wall Thickness of Hot-Finished Tube

<table>
<thead>
<tr>
<th>Nominal Outside Diameter, in. (mm)</th>
<th>Permissible Variations</th>
<th>Outside Diameter or Inside Diameter, in. (mm)</th>
<th>% of Thickness of Specified Nominal Wall</th>
<th>% of Thickness of Specific Minimum Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.015 (0.4)</td>
<td>+</td>
<td>0.031 (0.8)</td>
<td>12.5</td>
<td>28.5</td>
</tr>
<tr>
<td>0.031 (0.8)</td>
<td>+</td>
<td>0.031 (0.8)</td>
<td>12.5</td>
<td>28.5</td>
</tr>
<tr>
<td>0.062 (1.6)</td>
<td>+</td>
<td>0.031 (0.8)</td>
<td>12.5</td>
<td>28.5</td>
</tr>
</tbody>
</table>

A Ovality—Tube 5 in. (127 mm) and under in outside diameter the tolerance on the outside diameter applies for individual measurements and includes ovality. Tube over 5 in. (127 mm) in outside diameter shall conform to the permissible variations of this table and individual measurements shall not exceed twice the permissible variations of this table.

TABLE 4 Permissible Variations for Outside Diameter and Wall Thickness of Seamless Hot-Worked Pipe

<table>
<thead>
<tr>
<th>Nominal Outside Diameter, in. (mm)</th>
<th>Permissible Variations</th>
<th>Outside Diameter, in. (mm)</th>
<th>Thickness of Specified Nominal Wall, %</th>
<th>Thickness of Specified Minimum Wall, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.015 (0.4)</td>
<td>+</td>
<td>0.031 (0.8)</td>
<td>16.0</td>
<td>28.5</td>
</tr>
<tr>
<td>0.031 (0.8)</td>
<td>+</td>
<td>0.031 (0.8)</td>
<td>16.0</td>
<td>28.5</td>
</tr>
<tr>
<td>0.062 (1.6)</td>
<td>+</td>
<td>0.062 (1.6)</td>
<td>16.0</td>
<td>28.5</td>
</tr>
</tbody>
</table>

A Ovality—For pipe 5 in. (127 mm) and under in outside diameter, the tolerance on the outside diameter applies for individual measurements and includes ovality. For pipe over 5 in. (125 mm) in outside diameter, the mean outside diameter shall conform to the permissible variations of this table and individual measurements shall not exceed twice the permissible variations of this table.

B Eccentricity—The permissible variations in this table apply to individual measurements including eccentricity.

TABLE 5 Permissible Variations in Length

<table>
<thead>
<tr>
<th>Outside Diameter, in. (mm)</th>
<th>Cut Length, in. (mm)</th>
<th>Over</th>
<th>Under</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 2 (50.8)</td>
<td>% ½ (3.2)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2 (50.8) and over</td>
<td>% ⅜ (8.9)</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

A These permissible variations in length apply to pipe or tube in straight lengths. They apply to cut lengths up to and including 24 ft (7.3 m). For lengths over 24 ft, an additional over-tolerance of ⅛ in. (3.2 mm) for each 10 ft (3 m) or fraction thereof shall be permissible up to a maximum additional over-tolerance of ⅛ in. (12.7 mm).

10.2 Hardness Specimen:

10.2.1 The hardness specimen shall be prepared in accordance with Test Methods E18. The test shall be made on the inside diameter surface of a specimen cut from the end, or on the inside of the pipe near the end, at the option of the manufacturer.

10.3 Grain Size:

10.3.1 If required, the grain size specimen shall be a transverse sample representing full wall thickness.

11. Inspection

11.1 Witnessing of testing or inspection by the purchaser’s representative shall be agreed upon by the purchaser and the manufacturer as part of the purchase contract.

12. Rejection and Rehearing

12.1 Material tested by the purchaser that fails to conform to the requirements of this specification may be rejected. Rejection should be reported to the supplier promptly and in writing. In case of dissatisfaction with the results of the test, the producer or supplier may make claim for a rehearing.

13. Certification

13.1 When specified in the purchase contract, a manufacturer’s certification shall be furnished to the purchaser stating that the material has been manufactured, tested and inspected in accordance with this specification, and that the test results on representative samples meet specification requirements. When specified in the purchase contract, a report of the test results shall be furnished.

14. Product Marking

14.1 Material Marking:

14.1.1 The name or brand of the manufacturer, the name of the material or UNS number, the letters ASTM, the product specification number, heat number, class (if applicable) and nominal size shall be legibly marked on each piece ⅛ in. (19.0 mm) outside diameter and larger and lengths greater than 3 ft (914 mm). The material marking shall be by any method that will not result in harmful contamination.

14.1.2 For material smaller than ⅛ in. (19.0 mm) outside diameter, or lengths under 3 ft (914 mm), the information specified in 14.1.1 shall be legibly marked on each piece or marked, at the option of the manufacturer, on a tag securely attached to the bundle or box in which the material is shipped.

15. Packaging and Package Marking

15.1 The following information shall be marked on the material or included on the package, or on a label or tag attached thereto: name of the material or UNS number, heat number, condition (temper), the letters ASTM, the product specification number, the nominal pipe size, gross, tare, and net weight, consignor and consignee addresses, contract or order number, and such other information as may be defined by the purchase contract.

16. Keywords

16.1 cold worked; hot finished; nickel; nickel alloys; seamless pipe; seamless tube
ANNEXES

(Mandatory Information)

A1. REQUIREMENTS FOR THE INTRODUCTION OF NEW MATERIALS

A1.1 New materials may be proposed for inclusion in specifications referencing this specification of general requirements subject to the following conditions:

A1.1.1 Application for the addition of a new grade to a specification shall be made to the chair of B02.07.

A1.1.2 The application shall be accompanied by a statement from at least one user indicating that there is a need for the new grade to be included in the applicable specification.

A1.1.3 The application shall be accompanied by test data as required by the applicable specification. Test data from a minimum of three test lots, as defined by the specification, each from a different heat, shall be furnished.

A1.1.4 The application shall provide recommendations for all requirements appearing in the applicable specification.

A1.1.5 The application shall state whether the new grade is covered by patent.

A2. REQUIREMENTS FOR THE INTRODUCTION OF MATERIALS FROM OTHER B02.07 SPECIFICATIONS

A2.1 Wrought materials that are already covered by another B02.07 specification may be proposed for inclusion in specifications referencing this specification of general requirements subject to the following conditions:

A2.1.1 Application for the addition of a grade that is already covered in another B02.07 specification shall be made to the chair of B02.07.

A2.1.2 The chemical requirements, the specified mechanical properties, and the heat treatment requirements of the grade being added shall be the same as those for the grade in the B02.07 specification in which the grade is presently covered.

A2.1.3 The application shall provide recommendations for all requirements appearing in the applicable specification.

A2.1.4 The application shall state whether the grade is covered by patent.

SUMMARY OF CHANGES

Committee B02 has identified the location of selected changes to this standard since the last issue (B829 – 18) that may impact the use of this standard. (Approved April 1, 2019.)

(1) The update of certain specification titles listed in subsection 1.1.

(2) The deletion of discontinued Specification B445 from subsection 1.1.

Committee B02 has identified the location of selected changes to this standard since the last issue (B829 – 04a(2017)) that may impact the use of this standard. (Approved November 1, 2018.)

(1) Added Annex to clarify the requirements to add new material to a specification.
### Table II-200-1
Other Acceptable ASTM Editions (Cont’d)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Latest Adopted ASTM</th>
<th>Description</th>
<th>Other Acceptable ASTM Editions</th>
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<tr>
<td>SB-775</td>
<td>08</td>
<td>Identical except that certification and test reports have been made mandatory.</td>
<td>90 through 08</td>
</tr>
<tr>
<td>SB-804</td>
<td>02(R13)</td>
<td>Identical except that the following additional requirements apply, and certification is mandatory.</td>
<td>…</td>
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<tr>
<td>SB-815</td>
<td>02(R11)</td>
<td>Identical except that certification has been made mandatory.</td>
<td>97 through 02(R11)</td>
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<tr>
<td>SB-818</td>
<td>03(R13)</td>
<td>Identical except for requiring a report to have been made mandatory.</td>
<td>97 through 03(R13)</td>
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<td>SB-824</td>
<td>11</td>
<td>Identical except that tensile testing, certification, and reporting have been made mandatory.</td>
<td>93 through 11</td>
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<tr>
<td>SB-829</td>
<td>02(R12)</td>
<td>Identical except that certification has been made mandatory.</td>
<td>92 through 09</td>
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<tr>
<td>SB-858</td>
<td>06(R12)</td>
<td>Identical.</td>
<td>95 through 06(R12)</td>
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<tr>
<td>SB-861</td>
<td>10</td>
<td>Identical for all grades, except for a revision to 22.1.2. For all prior editions, certification and reporting are mandatory.</td>
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<tr>
<td>SB-862</td>
<td>13a</td>
<td>Identical except that Supplementary Requirement S2 shall be mandatory. For editions prior to 08a, certification and reporting are mandatory.</td>
<td>95 through 13a</td>
</tr>
<tr>
<td>SB-906</td>
<td>02(R12)</td>
<td>Identical except that certification has been made mandatory.</td>
<td>00 through 02(R12)</td>
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<tr>
<td>SB-928/SB-928M</td>
<td>13</td>
<td>Identical except for deletion of note H from Table 1 and that certification and test reports have been made mandatory.</td>
<td>04a through 13</td>
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<td>SB-956/SB-956M</td>
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<td>Identical except that certification and test report have been made mandatory.</td>
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<td>SF-467</td>
<td>03a</td>
<td>Identical except that certification has been made mandatory.</td>
<td>…</td>
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<tr>
<td>SF-467M</td>
<td>03a</td>
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<td>…</td>
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<tr>
<td>SF-468</td>
<td>06</td>
<td>Identical except that certification has been made mandatory.</td>
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<td>SF-468M</td>
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<td>Identical except that certification has been made mandatory.</td>
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</tbody>
</table>

**GENERAL NOTE:** The date of publication of the European Standards considered in this Guideline is the year of approval of the standard by CEN. This date appears in the body of the standard on the page starting with EN; dates appearing on the front page of an XX EN standard (e.g. XX = BS or NF or DIN or…) correspond only to the date of adoption by each member country.

**NOTE:**
(1) "Other Acceptable Editions" refers exclusively to non-ASTM and non-ASME specifications listed.

### Table II-200-2
Other Acceptable Non-ASTM Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Latest Adopted</th>
<th>Description</th>
<th>Other Acceptable Editions</th>
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<td>SB/EN 1706</td>
<td>2010</td>
<td>Identical except for scope, marking, impregnation, welding, heat treatment, mechanical properties, and test reports as shown in the specification</td>
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