# ASME 2015 Edition Code Changes

Some Highlights of Significant Revisions

To the 2015 Edition ASME Code

Chief Inspectors Technical Program

October 8, 2015

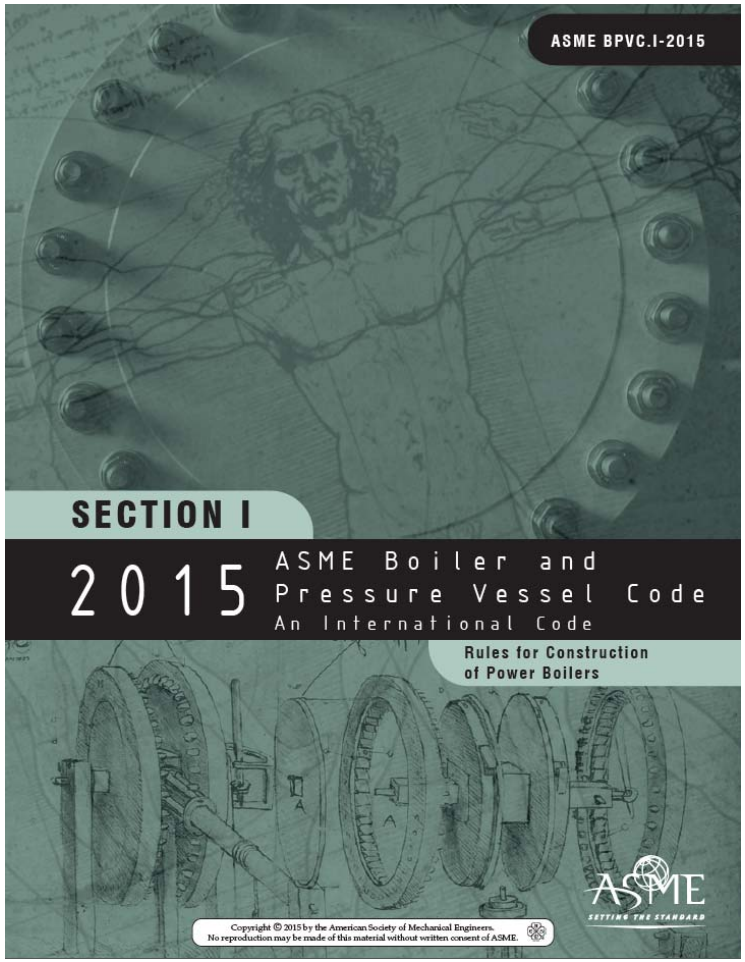
# Foreword

In the 2015 Edition, recognition of the Technical Oversight Management Committee (TOMC) has been added to the Forward.

TOMC has responsibility for technical consistency of the Sections of the Code and coordination of standards development activities.

BPV Main Committee was replaced by TOMC

# Section I


ASME BPVC.I-2015
SECTION I
2015
ASME Boiler and Pressure Vessel Code
An International Code
Rules for Construction of Power Boilers
ASME
SETTING THE STANDARD
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# Section I

## Interpretation: Section I, Preamble, Definition of Connection to Boiler

**Question:**

The fourth paragraph of the Preamble defines the point where boiler external piping begins in terms of where the boiler proper terminates at, as follows:

(a) the first circumferential joint for welding end connections; or

(b) the face of the first flange in bolted flanged connections; or

(c) the first threaded joint in that type of connection; and which extends up to and including the valve or valves required by this Code.

In the case of boilers where the connection contains one or more fittings between the boiler and final point of connection (e.g. welding neck, elbow or tee), must the Manufacturer list the first of any circumferential weld joint, flange face, or threaded joint as the connection on the Manufacturer's Data Report?

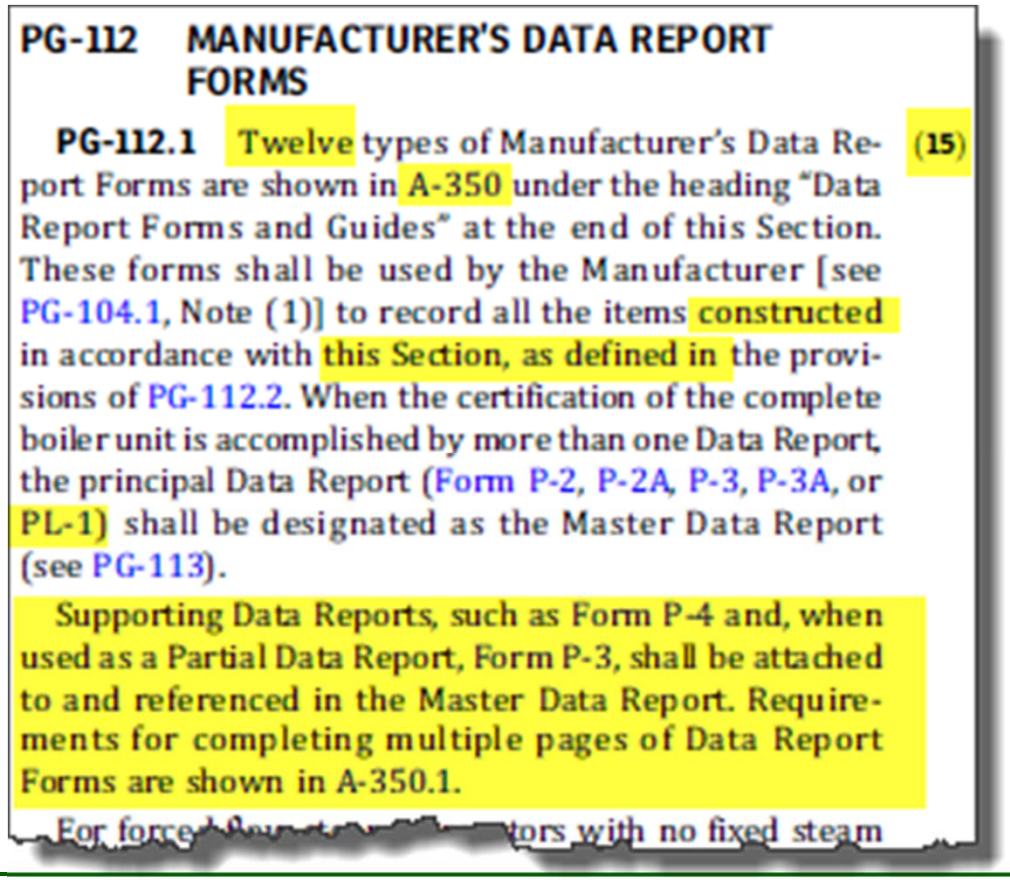
**Reply:**

No, one or more fittings may exist between the boiler and external piping provided the Manufacturer defines where the boiler proper terminates and BEP begins.

# Section I

## PG-112 – Guidance on use of data report forms

- New guidance provided for the use of Form P-3, Form P-4, and Form PL-1



**PG-112 MANUFACTURER'S DATA REPORT FORMS**

**PG-112.1** Twelve types of Manufacturer's Data Report Forms are shown in A-350 under the heading "Data Report Forms and Guides" at the end of this Section. These forms shall be used by the Manufacturer [see PG-104.1, Note (1)] to record all the items constructed in accordance with this Section, as defined in the provisions of PG-112.2. When the certification of the complete boiler unit is accomplished by more than one Data Report, the principal Data Report (Form P-2, P-2A, P-3, P-3A, or PL-1) shall be designated as the Master Data Report (see PG-113). (15)

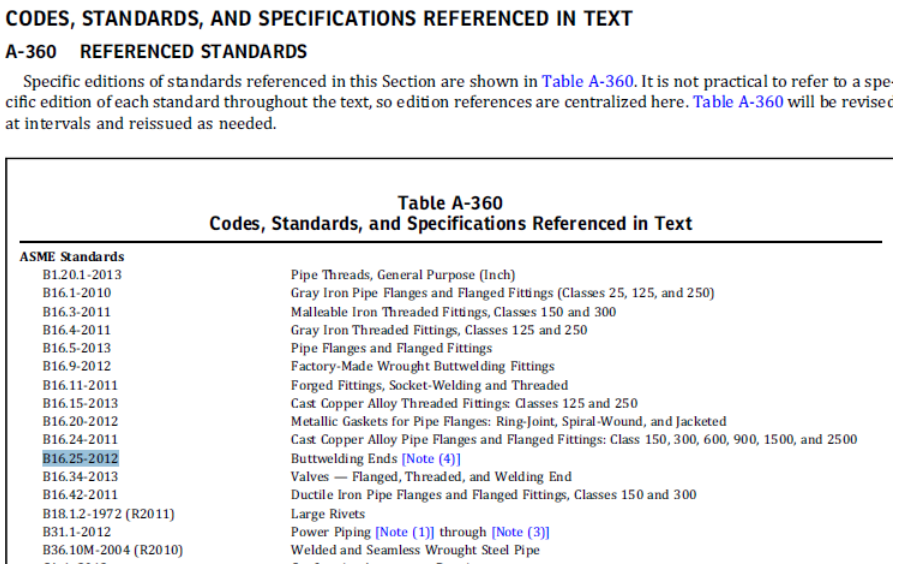
Supporting Data Reports, such as Form P-4 and, when used as a Partial Data Report, Form P-3, shall be attached to and referenced in the Master Data Report. Requirements for completing multiple pages of Data Report Forms are shown in A-350.1.

For force[illegible]tors with no fixed steam

# Section I

**Item Number 14-418**: Section I, Table A-360 – Reference to B16.25

- Year of publication of all ASME standards listed in ANSI B16.25 Mandatory Appendix II removed so that the latest editions of ASME publications apply.



CODES, STANDARDS, AND SPECIFICATIONS REFERENCED IN TEXT

A-360 REFERENCED STANDARDS

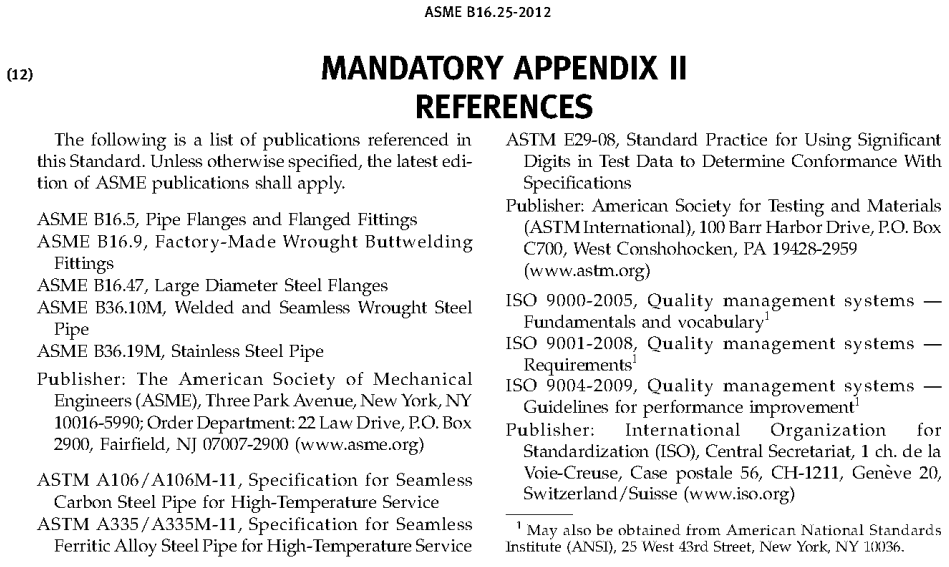
Specific editions of standards referenced in this Section are shown in Table A-360. It is not practical to refer to a specific edition of each standard throughout the text, so edition references are centralized here. Table A-360 will be revised at intervals and reissued as needed.

(15)

Table A-360
Codes, Standards, and Specifications Referenced in Text

| | |
|---|---|
| **ASME Standards** | |
| B1.20.1-2013 | Pipe Threads, General Purpose (Inch) |
| B16.1-2010 | Gray Iron Pipe Flanges and Flanged Fittings (Classes 25, 125, and 250) |
| B16.3-2011 | Malleable Iron Threaded Fittings, Classes 150 and 300 |
| B16.4-2011 | Gray Iron Threaded Fittings, Classes 125 and 250 |
| B16.5-2013 | Pipe Flanges and Flanged Fittings |
| B16.9-2012 | Factory-Made Wrought Buttwelding Fittings |
| B16.11-2011 | Forged Fittings, Socket-Welding and Threaded |
| B16.15-2013 | Cast Copper Alloy Threaded Fittings: Classes 125 and 250 |
| B16.20-2012 | Metallic Gaskets for Pipe Flanges: Ring-Joint, Spiral-Wound, and Jacketed |
| B16.24-2011 | Cast Copper Alloy Pipe Flanges and Flanged Fittings: Class 150, 300, 600, 900, 1500, and 2500 |
| B16.25-2012 | Buttwelding Ends [Note (4)] |
| B16.34-2013 | Valves — Flanged, Threaded, and Welding End |
| B16.42-2011 | Ductile Iron Pipe Flanges and Flanged Fittings, Classes 150 and 300 |
| B18.1.2-1972 (R2011) | Large Rivets |
| B31.1-2012 | Power Piping [Note (1)] through [Note (3)] |
| B36.10M-2004 (R2010) | Welded and Seamless Wrought Steel Pipe |

ASME Section I 2015 Ed.



ASME B16.25-2012

(12)

MANDATORY APPENDIX II
REFERENCES

The following is a list of publications referenced in this Standard. Unless otherwise specified, the latest edition of ASME publications shall apply.

ASME B16.5, Pipe Flanges and Flanged Fittings
ASME B16.9, Factory-Made Wrought Buttwelding Fittings
ASME B16.47, Large Diameter Steel Flanges
ASME B36.10M, Welded and Seamless Wrought Steel Pipe
ASME B36.19M, Stainless Steel Pipe

Publisher: The American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990; Order Department: 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007-2900 (www.asme.org)

ASTM A106/A106M-11, Specification for Seamless Carbon Steel Pipe for High-Temperature Service
ASTM A335/A335M-11, Specification for Seamless Ferritic Alloy Steel Pipe for High-Temperature Service
ASTM E29-08, Standard Practice for Using Significant Digits in Test Data to Determine Conformance With Specifications

Publisher: American Society for Testing and Materials (ASTM International), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 (www.astm.org)

ISO 9000-2005, Quality management systems — Fundamentals and vocabulary[1]
ISO 9001-2008, Quality management systems — Requirements[1]
ISO 9004-2009, Quality management systems — Guidelines for performance improvement[1]

Publisher: International Organization for Standardization (ISO), Central Secretariat, 1 ch. de la Voie-Creuse, Case postale 56, CH-1211, Genève 20, Switzerland/Suisse (www.iso.org)

[1] May also be obtained from American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036.

ASME B16.25 2012 Ed.

# Section I

## Preamble – Addition of solar heated steam generator

- Includes solar receiver steam generators in the scope of ASME Section I
- Preamble **Note 6 –** "Solar receiver steam generator **–** a boiler system in which water is converted to steam using solar energy as the principle source of thermal energy. The solar energy is typically concentrated onto the solar receiver through the use of an array of mirrors that focus solar radiation on the heat transfer surface."

# Section I

## PG-105.2 - Adoption of ASME CA-1 standard

- Includes ASME CA-1 standard in requirements for obtaining and maintaining a Certificate of Authorization
- **New paragraph PG-105.2 –** "Any organization desiring a Certificate of Authorization shall apply to ASME in accordance with the certification process of ASME CA-1. Authorization to use Certification Marks may be granted, renewed, suspended, or withdrawn as specified in ASME CA-1."

# Section I

## Adoption of the new ASME CA-1 Standard

(15)

**Table A-360**
**Codes, Standards, and Specifications Referenced in Text**

| | |
|---|---|
| **ASME Standards** | |
| B1.20.1-2013 | Pipe Threads, General Purpose (Inch) |
| B16.1-2010 | Gray Iron Pipe Flanges and Flanged Fittings (Classes 25, 125, and 250) |
| B16.3-2011 | Malleable Iron Threaded Fittings, Classes 150 and 300 |
| B16.4-2011 | Gray Iron Threaded Fittings, Classes 125 and 250 |
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| B16.9-2012 | Factory-Made Wrought Buttwelding Fittings |
| B16.11-2011 | Forged Fittings, Socket-Welding and Threaded |
| B16.15-2013 | Cast Copper Alloy Threaded Fittings: Classes 125 and 250 |
| B16.20-2012 | Metallic Gaskets for Pipe Flanges: Ring-Joint, Spiral-Wound, and Jacketed |
| B16.24-2011 | Cast Copper Alloy Pipe Flanges and Flanged Fittings: Class 150, 300, 600, 900, 1500, and 2500 |
| B16.25-2012 | Buttwelding Ends [Note (4)] |
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| B16.42-2011 | Ductile Iron Pipe Flanges and Flanged Fittings, Classes 150 and 300 |
| B18.1.2-1972 (R2011) | Large Rivets |
| B31.1-2012 | Power Piping [Note (1)] through [Note (3)] |
| B36.10M-2004 (R2010) | Welded and Seamless Wrought Steel Pipe |
| CA-1–2013 | Conformity Assessment Requirements |
| QAI-1 Latest edition | Qualifications for Authorized Inspection |
| **ASTM** | |

# Section I

**Parts fabrication certificate program**

- New "PRT" fabricated parts designator added for ASME Certification Mark
- New paragraph in **Table A-370**:
  - "Certification Mark with 'PRT' Designator"
    - Manufacture of parts without design responsibility for ASME Section I at the above location only.
    - Manufacture of parts without design responsibility for ASME Section I at the above location and field sites controlled by the above location."
  - The new program will allow organizations to fabricate parts for other Code Sections (other than Section VIII) based on demonstration capabilities without having to either perform and/or demonstrate design.

# Section I

**PG-105 CERTIFICATION MARKS** (15)

**PG-105.1 Authorization.** Except as permitted in PG-105.5, no organization may assume responsibility for Code construction without having first received from the ASME a Certificate of Authorization to use the Certification Mark (see Figure PG-105.1) and Designators. The Designators used with the Certification Mark are defined as follows:

(a) S — power boiler Designator
(b) M — miniature boiler Designator
(c) E — electric boiler Designator
(d) A — boiler assembly Designator
(e) PP — pressure piping Designator
(f) V — boiler pressure relief valve Designator
(g) PRT — fabricated parts Designator

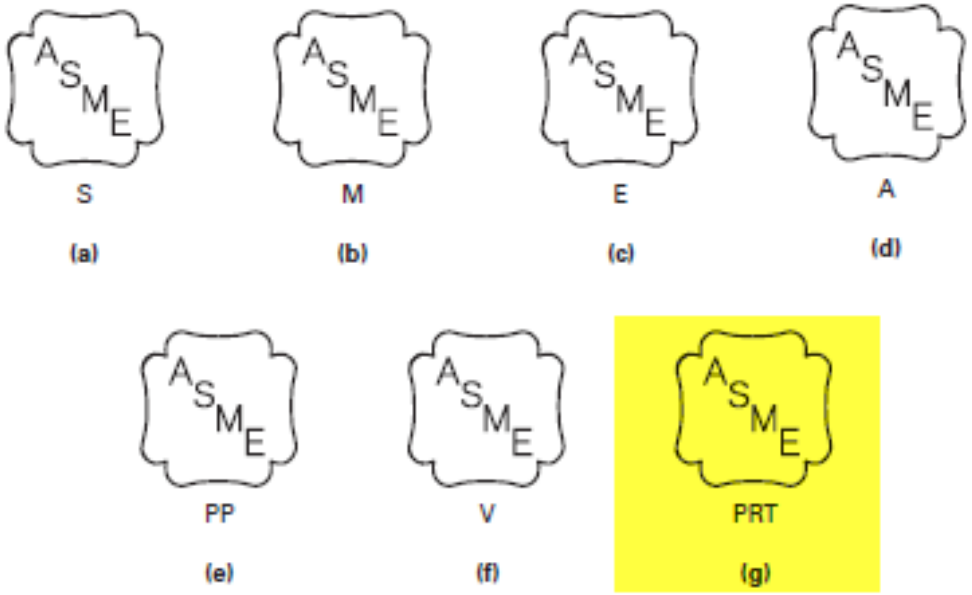
**PG-106.8.3** Manufacturers of parts who do not perform or assume any design responsibility for the parts they manufacture shall identify on Form P-4, Manufacturer's Partial Data Report (see PG-112.2.4), the Certificate Holder assuming responsibility for the design of the part. The Manufacturer shall document the Edition and Addenda used to manufacture the part in the "Remarks" section of Form P-4. (15)

# Section I



(15)

**Figure PG-105.1**
**Official Certification Mark to Denote the American Society of Mechanical Engineers' Standard for Boilers**

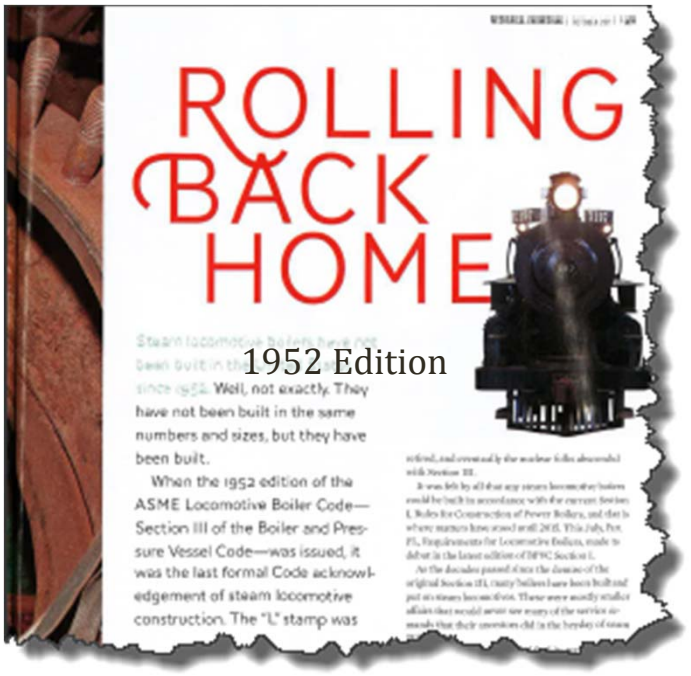


# Section I

## Part PL – Requirements for Locomotive Boilers

- New Part PL added on requirements for locomotive boilers
- PL-1 GENERAL

  "The rules in this Part are applicable to steam locomotive boilers and their parts and appurtenances. These rules shall be used in conjunction with the general requirements in Part PG, and the specific requirements in the applicable Parts of this Section that apply to the method of fabrication used."


ROLLING BACK HOME

1952 Edition

Well, not exactly. They have not been built in the same numbers and sizes, but they have been built.

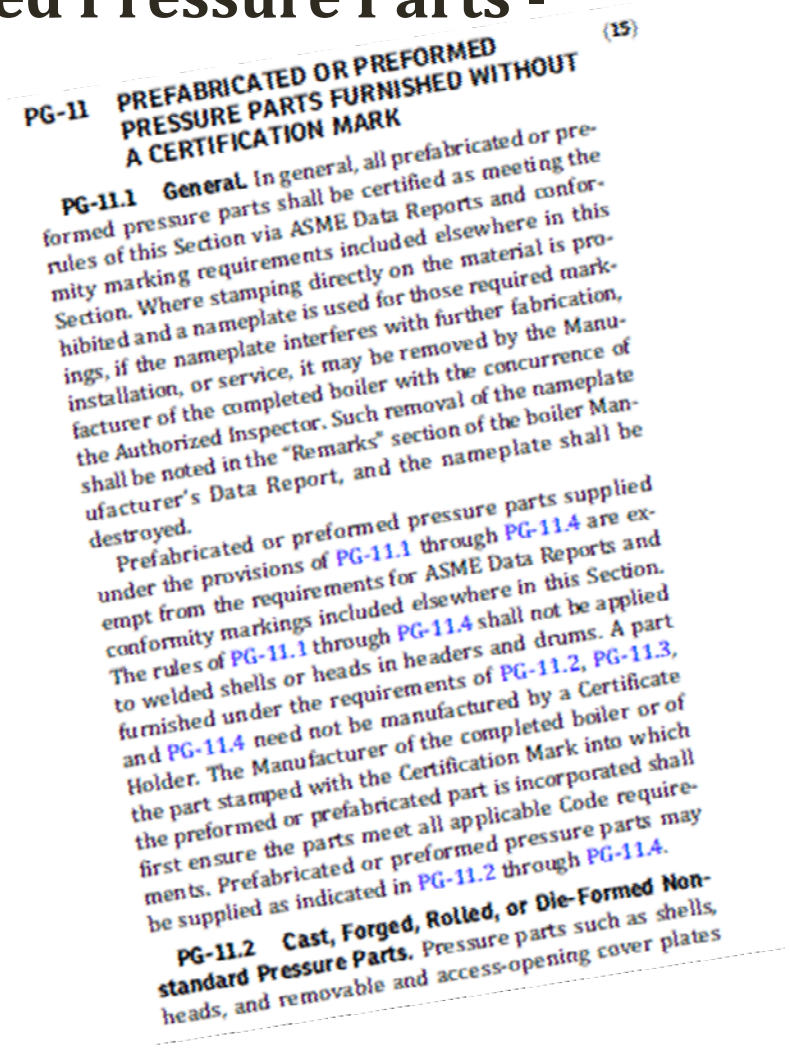
When the 1952 edition of the ASME Locomotive Boiler Code—Section III of the Boiler and Pressure Vessel Code—was issued, it was the last formal Code acknowledgement of steam locomotive construction. The "L" stamp was

Mechanical Engineering No. 10 Oct 2015

# Section I

## PG-11 Prefabricated or Preformed Pressure Parts - Rewrite

- Section I rules are now very similar to Section VIII Div. 1 UG-11 requirements.
  - Parts must comply with applicable rules, including design.
  - Parts must be supported by P/T rating documentation (when necessary) to demonstrate Code compliance.
  - Certificate Holders can subcontract welded part fabrication to non-certificate holder



PG-11 PREFABRICATED OR PREFORMED PRESSURE PARTS FURNISHED WITHOUT A CERTIFICATION MARK (15)

**PG-11.1 General.** In general, all prefabricated or preformed pressure parts shall be certified as meeting the rules of this Section via ASME Data Reports and conformity marking requirements included elsewhere in this Section. Where stamping directly on the material is prohibited and a nameplate is used for those required markings, if the nameplate interferes with further fabrication, installation, or service, it may be removed by the Manufacturer of the completed boiler with the concurrence of the Authorized Inspector. Such removal of the nameplate shall be noted in the "Remarks" section of the boiler Manufacturer's Data Report, and the nameplate shall be destroyed.

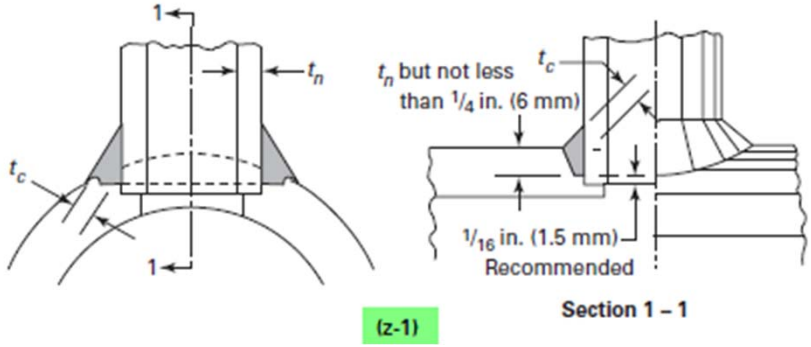
Prefabricated or preformed pressure parts supplied under the provisions of PG-11.1 through PG-11.4 are exempt from the requirements for ASME Data Reports and conformity markings included elsewhere in this Section. The rules of PG-11.1 through PG-11.4 shall not be applied to welded shells or heads in headers and drums. A part furnished under the requirements of PG-11.2, PG-11.3, and PG-11.4 need not be manufactured by a Certificate Holder. The Manufacturer of the completed boiler or of the part stamped with the Certification Mark into which the preformed or prefabricated part is incorporated shall first ensure the parts meet all applicable Code requirements. Prefabricated or preformed pressure parts may be supplied as indicated in PG-11.2 through PG-11.4.

**PG-11.2 Cast, Forged, Rolled, or Die-Formed Non-standard Pressure Parts.** Pressure parts such as shells, heads, and removable and access-opening cover plates

# Section I

## PW-16.8 - New Paragraph Oxide Growth

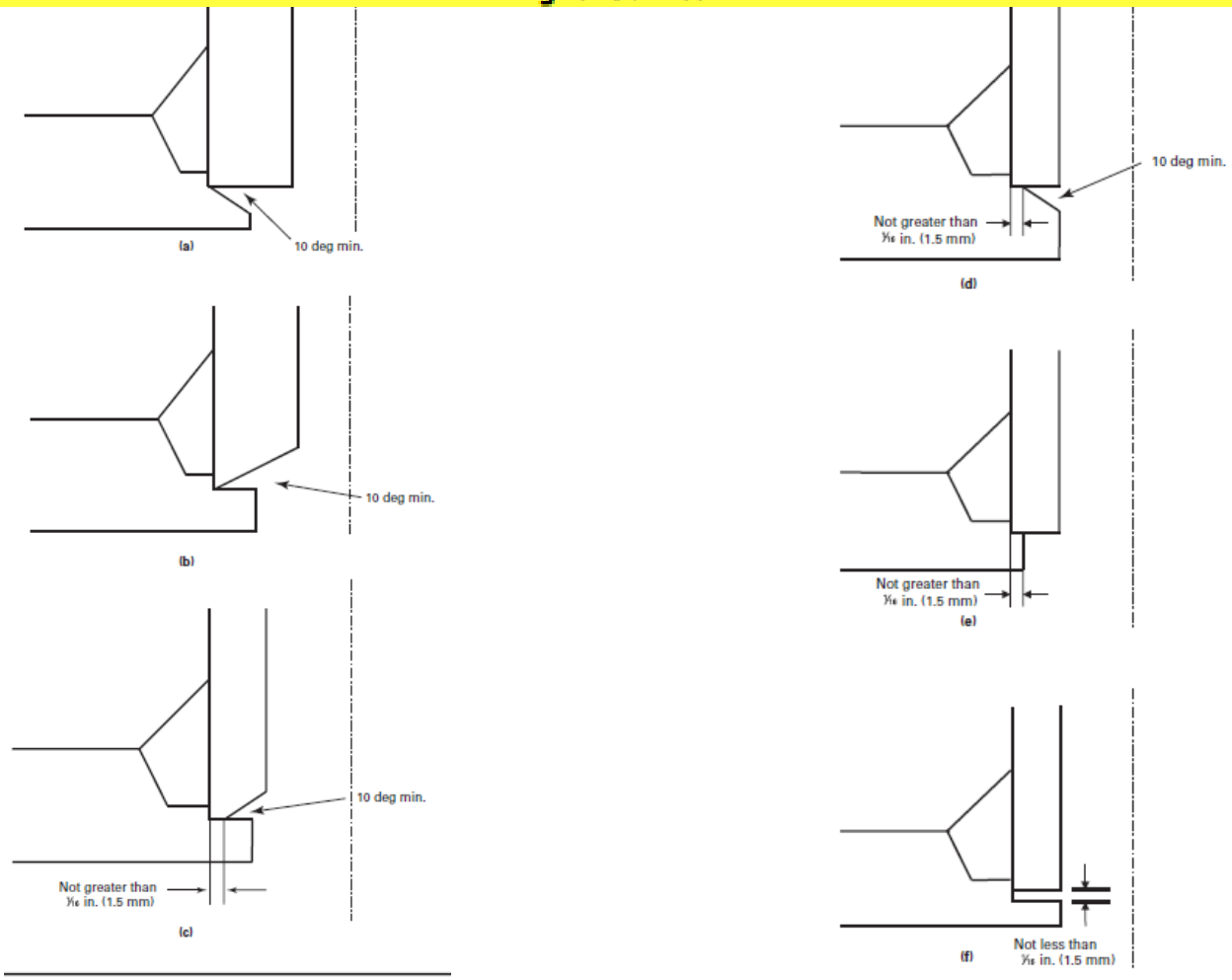
- Cracking between the stub tube weld and the header is a common problem occurring in high temperature boiler headers. One of the leading causes of this cracking is the stress caused by oxide growth between the tube stub and the header.
- PW-16.8 was added requiring high temperature socket type tube attachment to be designed to avoid the accumulation of oxide for ferritic materials designed for 900 F or higher



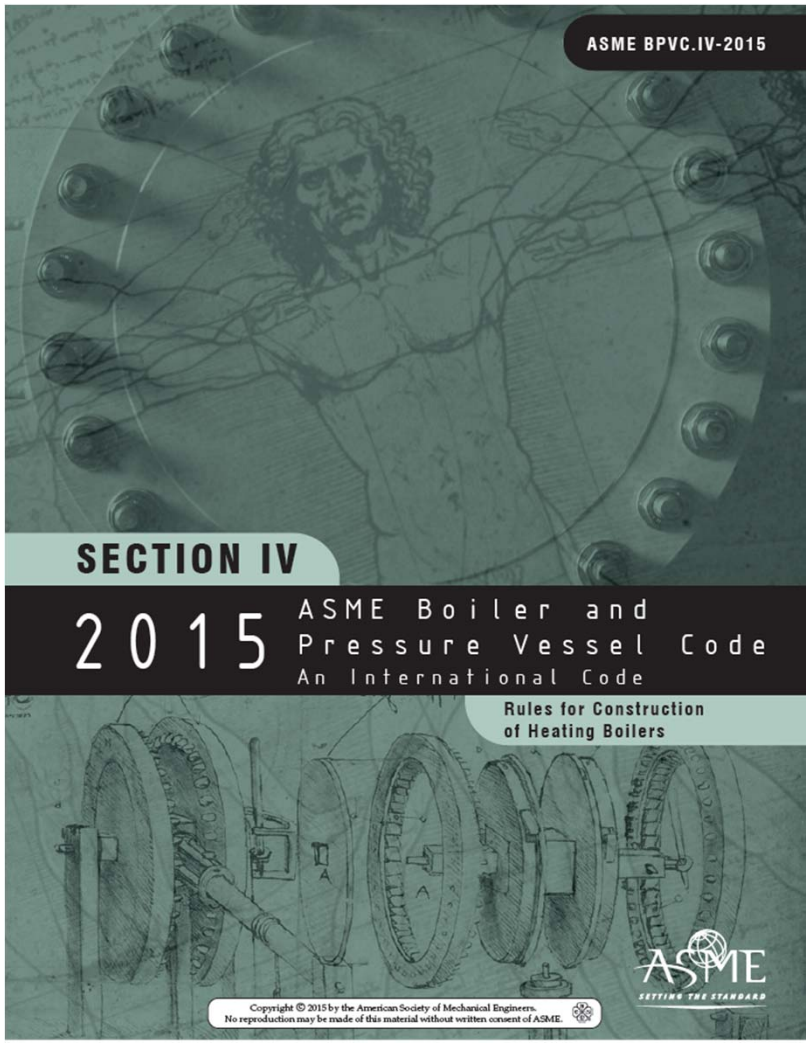

(15) **PW-16.8** Partial-penetration-weld-type tube-to-header attachments such as shown in Figure PW-16.1, illustrations (y-1) and (z-1), constructed with ferritic materials and designed for 900°F (480°C) or higher service, shall be designed to avoid an accumulation of oxide between the nozzle end and the seat. Designs that could satisfy this include, but are not limited to, a weld joint design establishing a 1/16 in. (1.5 mm) minimum gap between the nozzle end and the seat, or a design that tapers either the nozzle end or seat such that any oxide formed between the tube and shell, drum, or header can spall from the gap, as shown in Figure PW-16.8.

# Section I

**Figure PW-16.8**
**Some Acceptable Designs for Partial-Penetration-Weld-Type Attachments Designed for 900°F (480°C) or Higher Service**



# Section IV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SECTION IV
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Rules for Construction of Heating Boilers
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# Section IV

## HG-307.5 - Electric Immersion Heating Support Plates

- The 2015 change will now allow a Boiler Manufacture to supply these elements as miscellaneous pressure parts.
  1. Designed and fabricated as a flat head in accordance with HG-307 and HG-325.
  2. Designed and certified in accordance with Section VIII Div. 1 Appendix 41 or
  3. Supplied as a Manufacturer's standard pressure part in accordance with HF-203.

# Section IV

## Pneumatic Testing

- Code Cases (2604 for cast aluminum sections and 2469-1 for heating boilers) and their limitations have now been incorporated into Section IV
- A New paragraph HG-511 was added to permit the pneumatic testing of boilers in lieu of a hydrostatic test.

The Code Cases will be annulled in 6 months

**HG-511 PNEUMATIC TESTS** (15)

Pneumatic testing may be substituted for the hydrostatic test required in HG-510 provided the following requirements are met:

*(a)* The substitution of pneumatic testing shall be by agreement between the manufacturer and Authorized Inspector.

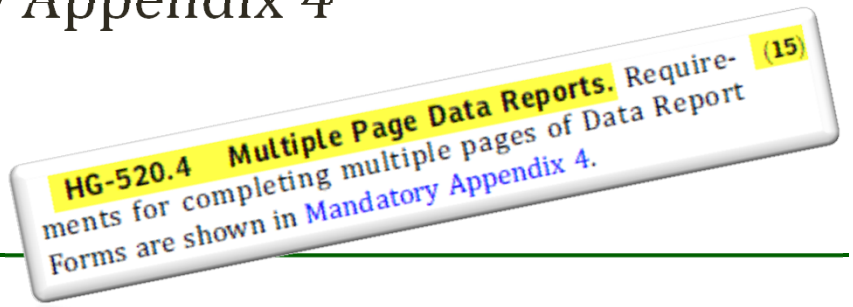
*(b)* Maximum material thickness of any component part shall not exceed ½ in. (12.7 mm). No components of the [illegible] boiler that will be subject to pneumatic testing

# Section IV

## HG-520.4 – Multiple Page Data Reports

**"Requirements for completing multiple pages of Data Report Forms are shown in Appendix 4."**

- Nonmandatory Appendix L was changed to Mandatory Appendix 4
  - Mandatory Appendix 4-100 (a) – "The following pages are a guide for completing the Manufacturer's Data Report Forms."
  - Additional requirements for multiple page data reports were added to Mandatory Appendix 4



# Section IV

New



## 4-200 DATA REPORT FORMS

*(a)* Data Report Forms may be preprinted or computer-generated. Forms shall be identical in size, arrangement, and content as purchased forms or to those shown in this Appendix, except that additional lines may be added as necessary.

*(b)* When using forms that result in multiple pages, each page shall be marked to be traceable to the first page of the form as follows:

*(1)* For H-2, H-3, and HLW-6, each page shall show, at the top of the page, as a minimum, the Manufacturer's name and serial number and National Board number as shown on the first page.

*(2)* For H-4 and HLW-7, each page shall show, at the top of the page, as a minimum, the Manufacturer's name and Form ID number as shown on the first page.

*(3)* For H-5 and H-5A, each page shall show, at the top of the page, as a minimum, the Manufacturer's name and Boiler type or model number as shown on the first page.

*(c)* Additionally on all forms, each sheet shall contain the page number of that page and the total number of pages that comprise the complete form.

*(d)* These requirements do not apply to the Manufacturer's Data Report Supplementary sheet (Form H-6) since that form is intended to be a single-page form attached to another form (see HG-520.3 or HLW-601.3).

*(e)* These requirements do not apply to Form HLW-8 since that form is intended to be a single-page form.

## 4-300 CERTIFICATES OF CONFORMANCE

*(a)* These forms are intended to be single-page forms. This includes HC-1, HC-2, HA-1, and HA-2.

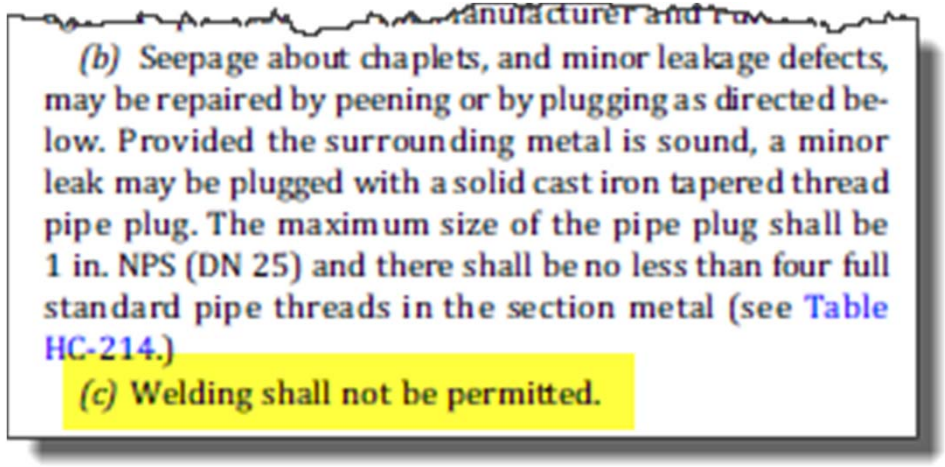
*(b)* These forms may be preprinted or computer-generated. Forms shall be identical in size, arrangement, and content as purchased forms or to those shown in this Appendix.

# Section IV

## HC-214

## Welding on cast section requirements

**HC-214 Workmanship, Finish, And Repair**



(b) Seepage about chaplets, and minor leakage defects, may be repaired by peening or by plugging as directed below. Provided the surrounding metal is sound, a minor leak may be plugged with a solid cast iron tapered thread pipe plug. The maximum size of the pipe plug shall be 1 in. NPS (DN 25) and there shall be no less than four full standard pipe threads in the section metal (see Table HC-214.)

(c) Welding shall not be permitted.

# Section IV

## Manufacturers with multiple locations

New

- HG-520.2 (c) – "Manufacturers with multiple locations, each with its own Certificate of Authorization, may transfer parts from one its locations to another without Partial Data Reports, provided the Quality Control System describes the method of **identification**, **transfer**, and **receipt** of the parts."
- Identical new paragraph also added to HLW-601.2 (c)

# Section IV

- **HLW-601.2 added (c) for Multiple Locations**
- **HLW-601.4 added for Multiple Page Data Reports**

(15) **HLW-601.2 Partial Data Reports.**

*(a)* Manufacturer's Partial Data Reports for those parts of a vessel requiring inspection under this Code, which are furnished by other than the shop of the manufacturer responsible for the completed heater, shall be executed by the parts manufacturer and shall be forwarded in duplicate, to the manufacturer of the finished vessel.

*(b)* Partial Data Reports (Form HLW-7) shall be completed for all parts that require inspection under this Code that are fabricated by a manufacturer other than the manufacturer of the completed vessel, regardless of whether individual Manufacturer's Data Reports are compiled for the completed units. These Partial Data Reports, together with his own inspection, shall be the final Inspector's authority to witness the application of a Certification Mark to the completed vessel.

*(c)* Manufacturers with multiple locations, each with its own Certificate of Authorization, may transfer parts from one of their locations to another without Partial Data Reports, provided the Quality Control System describes the method of identification, transfer, and receipt of the parts.

**HLW-601.3 Supplementary Sheet.** Form H-6, Manufacturer's Data Report Supplementary Sheet, shall be used to record additional data where space was insufficient on a Data Report Form. This Manufacturer's Data Report Supplementary Sheet will be attached to the Manufacturer's Data Report Form where used.

(15) **HLW-601.4 Multiple Page Data Reports.** Requirements for completing multiple pages of Data Report Forms are shown in Mandatory Appendix 4.

# Section IV

## HG-530 – Marking of boilers

- HG-530.1 (b) – "the information listed in (a) above, including the Certification Mark, shall be applied by stamping or etching that leaves a permanent, legible mark."
  - "The process controls for etching shall be described in the Quality Control System and shall be acceptable to the Authorized Inspector."
  - "The process controls shall be established so that the etched characters shall be at least 0.004 in (0.10 mm) deep."
- HG-530.2 (g)(4) – "marking the required data on a nonmetallic nameplate at least 3 in. x 4 in. (75mm x 100 mm) in size using letters and numerals at least 1/8 in. (3 mm) high and permanently attaching the nameplate to the casing in some conspicuous place by an adhesive system."
- HG-530.2 (g)(5) – "the nameplate and the adhesive system shall meet the requirements of Appendix 3…"

# Section IV

## Section IV, Mandatory Appendix 2

- Latest edition of QAI-1 referenced in Mandatory Appendix 2
- HG-402.2, HG-515.2 (n) – Certified Individuals certifying Manufacturer's Data Reports must meet the requirements of the current edition of ASME QAI-1

(15) **HG-402.2 Authorization to Use ASME Certification Mark.** Each safety valve to which the Certification Mark (Figure HG-402) is to be applied shall be produced by a Manufacturer and/or Assembler who is in possession of a valid Certificate of Authorization. (see HG-540.)

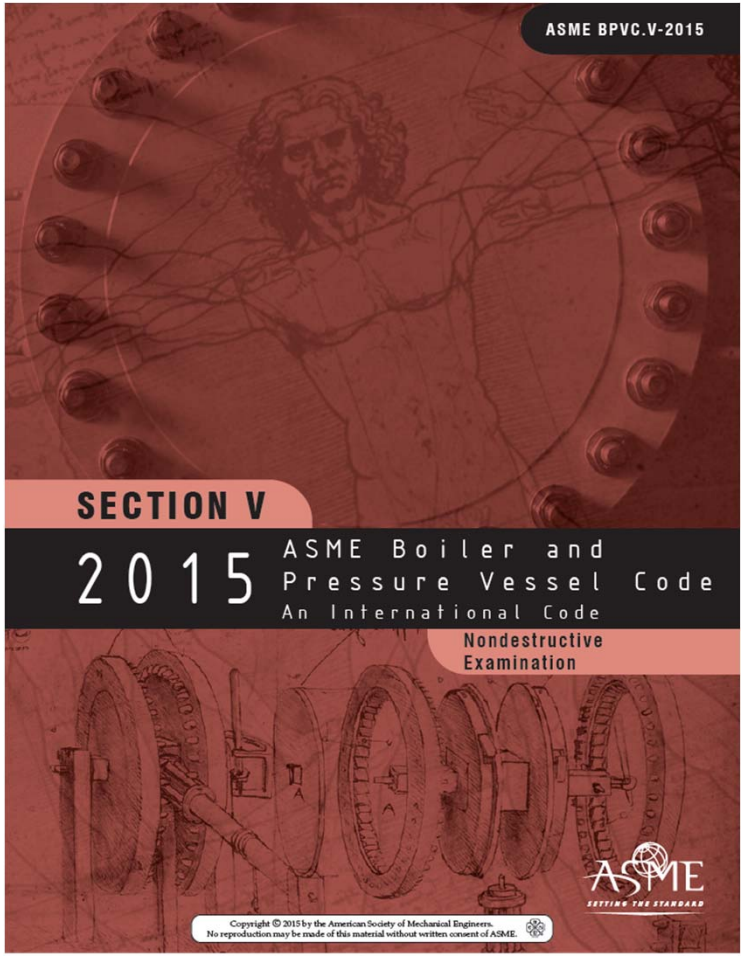
For all valves to be stamped with the Certification Mark with HV designator, a Certified Individual (CI) meeting the current requirements of ASME QAI-1 shall provide oversight to ensure that the use of the Certification Mark with HV designator on a safety valve or safety relief valve is in accordance with this Section and that the use of the Certification Mark with HV designator is documented on a

"H" Designator

**HG-512.2 Manufacturer's Responsibilities**

*(n)* preparing the required Manufacturer's Data Report and having it certified by the Inspector (see HG-520) for boilers and boiler parts constructed of wrought materials, and having it certified by a Certified Individual meeting the current requirements of ASME QAI-1 (see HC-502.12); if constructed of cast material (see HC-403)

# Section V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# Section V

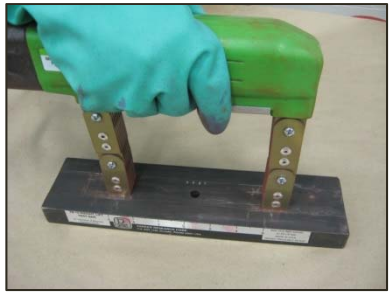
## T-120(g) – added Reference to New Article 1, Mandatory Appendix II.

- It was decided to maintain the references to the 2006 Edition of SNT-TC-1A and add the requirements for the new techniques in radiography and ultrasonic methods to the new Article 1, Mandatory Appendix II.


T-150(d) reaffirms that it is the prerogative of the Construction Code whether or not to implement these additional qualification requirements.


The 2015 Edition Construction Code Sections have not implemented Mandatory Appendix II as a requirement, but some are activity considering it.

# Section V



## Article 7, T-762 – Lifting Power of Yokes

- T-762 now states that the “magnetizing power of yokes shall be verified prior to use each day the yoke is used,” and goes on to state “The magnetizing power of yokes shall be verified whenever the yoke has been damaged or repaired.”


Revisions to MT procedures may be required due to this substantial change.

# Section V

**Article 1 Mandatory Appendix 1 – Revised and consolidated Glossary of Terms.**

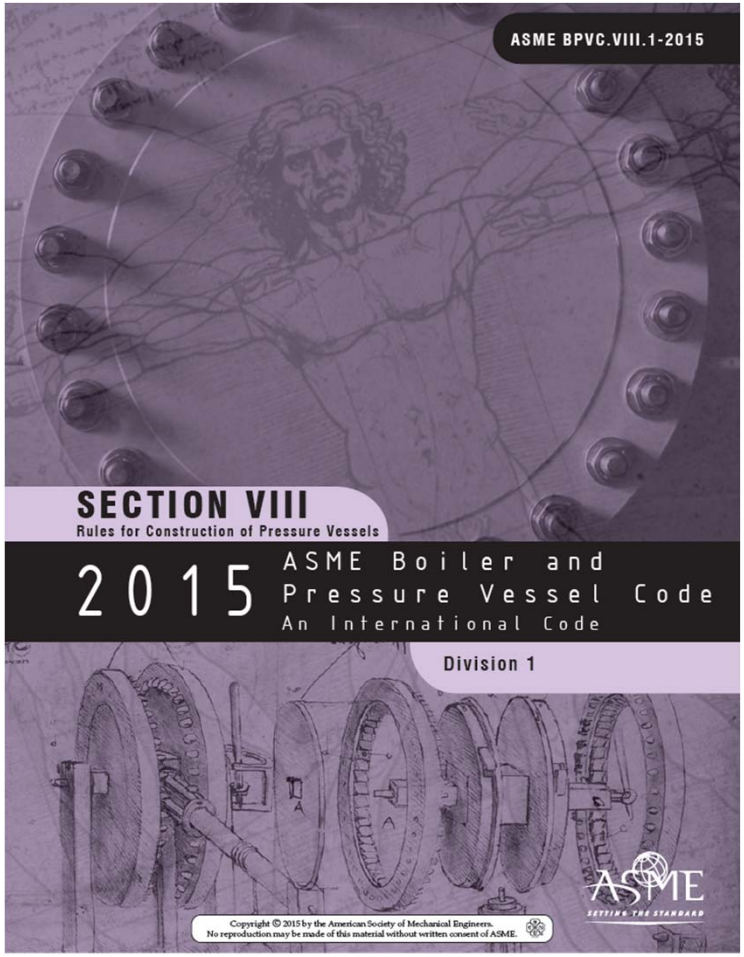
Terms and definitions were consolidated and incorporated alphabetically by method.

The Term “Examination” was added to differentiate from “Inspection.”

*examination*: the process of determining the condition of an area of interest by nondestructive means against established acceptance or rejection criteria.

*inspection*: the observation of any operation performed on materials and/or components to determine its acceptability in accordance with given criteria.

# Section VIII Div. 1



# Section VIII Div. 1

## Revisions to U-2(b) & U-2(e) make clarification of the manufactures and AI duties as it relates to design calculations:

*(b) Responsibilities*[4]

*(1)* The Manufacturer of any vessel or part to be marked with the Certification Mark has the responsibility of complying with all of the applicable requirements of this Division and, through proper certification, of assuring that all work done by others also complies. The vessel Manufacturer or, when applicable, the part Manufacturer is responsible for the preparation and accuracy of design calculations to show compliance with the rules of this Division, and his signature on the Manufacturer's Data Report Form shall be considered as certification that this has been done. The vessel or part Manufacturer shall have available for the Inspector's review the applicable design calculations. See 10-5 and 10-15(d).

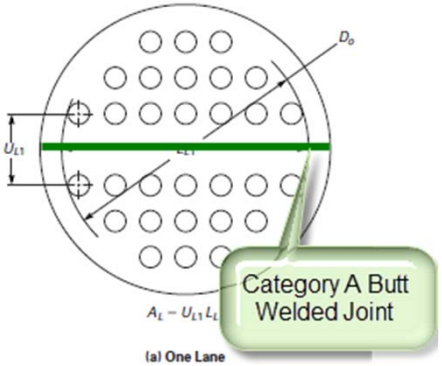
*(e)* It is the duty of the Inspector to make all of the inspections specified by the rules of this Division, and to monitor the quality control and the examinations made by the Manufacturer. The Inspector shall make such other inspections as in his judgment are necessary to permit certification that the vessel has been designed and constructed in accordance with the minimum requirements of this Division. The Inspector has the duty of verifying that the applicable design calculations have been made and are on file at Manufacturer's plant at the time the Data Report is signed. Any questions concerning the calculations raised by the Inspector must be resolved. See UG-90(c)(1).

NOTE: The term "applicable design calculations" means that all pressure-retaining components covered by the Certification Mark stamping are supported by calculations and/or proof tests that comply with the requirements of this Division. The method of verifying that applicable design calculations have been made will vary with the individual Inspector and depend largely on the Manufacturer's procedures for producing the design calculations and any subsequent quality checks performed by the Manufacturer.

# Section VIII Div. 1

- U-2(e) - This implies that as a minimum, the design calculations will be checked relative to the
  - loadings identified
  - correct equation and the
  - correct values such as allowable stress, joint efficiency and dimensions.

# Section VIII Div. 1




## UW-3(a) & UW-11(a)(7) - Weld seam in Tubesheet

- Due to the complexity and multiple steps associated with Part UHX tubesheet design, the committee elected to mandate full radiography for any butt weld seam within a tube sheet regardless of thickness or service condition.

UW-3(a) now defines any butt-welded joint within a flat tubesheet as a Category A

(15) **UW-11 RADIOGRAPHIC AND ULTRASONIC EXAMINATION**

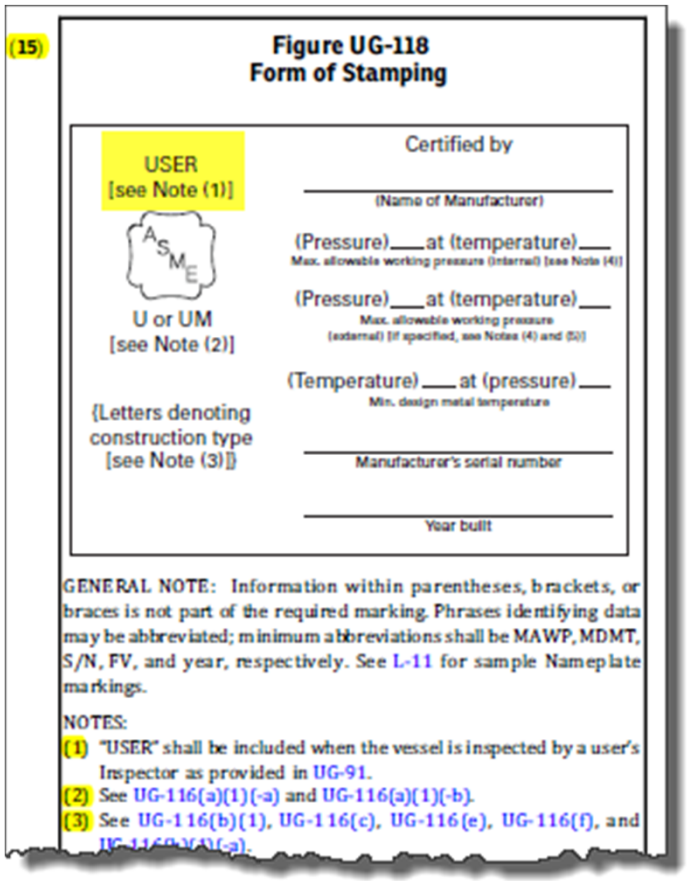
*(a) Full Radiography.* The following welded joints shall be examined radiographically for their full length in the manner prescribed in UW-51:

*(7)* all Category A welds in a tubesheet shall be of Type (1) of Table UW-12;

# Section VIII Div. 1

## Figure UG-118; Division 2, Figure 2.F.1; Division 3, Figure KS-132

"USER" shall be stamped above the certification mark on the nameplate if inspected by a user's inspector (UG-91)



(15)

**Figure UG-118**
**Form of Stamping**

USER
[see Note (1)]

U or UM
[see Note (2)]

{Letters denoting construction type [see Note (3)]}

Certified by

(Name of Manufacturer)

(Pressure)___at (temperature)___
Max. allowable working pressure (internal) [see Note (4)]

(Pressure)___at (temperature)___
Max. allowable working pressure (external) [if specified, see Notes (4) and (5)]

(Temperature)___at (pressure)___
Min. design metal temperature

Manufacturer's serial number

Year built

GENERAL NOTE: Information within parentheses, brackets, or braces is not part of the required marking. Phrases identifying data may be abbreviated; minimum abbreviations shall be MAWP, MDMT, S/N, FV, and year, respectively. See L-11 for sample Nameplate markings.

NOTES:
(1) "USER" shall be included when the vessel is inspected by a user's Inspector as provided in UG-91.
(2) See UG-116(a)(1)(-a) and UG-116(a)(1)(-b).
(3) See UG-116(b)(1), UG-116(c), UG-116(e), UG-116(f), and UG-116(y)(4)(-a).

# Section VIII Div. 1

## U-1(g)(1), UG-116, UG-120

- New paragraph UG-116 (f) – "An unfired steam boiler, referenced in U-1 (g)(1), shall have its maximum designed steaming capacity recorded in the 'Remarks' section of the data report."

(15) *(f)* An unfired steam boiler, referenced in U-1(g)(1), shall have its maximum designed steaming capacity recorded in the "Remarks" section of the Data Report.

Required Markings



through UG-97 (when inspected by a user's Inspector as provided in UG-91, the word USER shall be marked above the Certification Mark); or

*(-b)* the official Certification Mark with the UM Designator shown in Figure UG-116 sketch (b) on vessels constructed in accordance with the provisions in U-1(j)

*(2)* name of the Manufacturer of the pressure vessel preceded by the words "certified by"

*(3)* maximum allowable working pressure[10,36] (internal or external[39]) _____ at temperature _____

*(4)* minimum design metal temperature _____ at maximum allowable working pressure[10] _____

*(5)* Manufacturer's serial number

*(6)* year built

*(7)* the maximum designed steaming capacity for vessels in accordance with U-1(g)(1)

*(b)* See below:

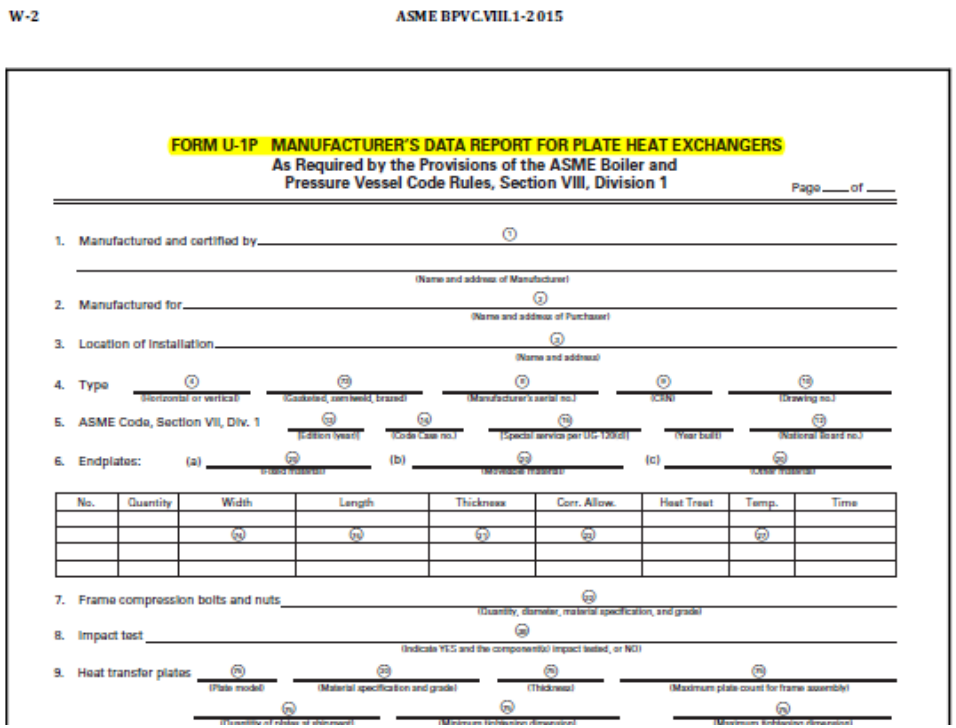
*(1)* The type of construction used for the vessel shall be indicated directly under the Certification Mark by applying the appropriate designators and letter(s) as follows: vessels having Category A, B, or C joints (except nozzles or other openings and their attachment) in or joining parts of the vessels:

| Type of Construction | Letter(s) |
|---|---|
| Arc or gas welded | W |
| Pressure welded (except resistance) | P |
| Brazed | B |
| Resistance welded | RES |
| Graphite | G |

# Section VIII Div. 1

## New Data Report Form for Plate Heat Exchanges

- Form U-1P requires specific information regarding the end plates, and the heat transfer plates, including the maximum plate count for the frame and the assembly, quantity of plates in the PHE as tested and shipped.



W-2 ASME BPVC.VIII.1-2015

**FORM U-1P MANUFACTURER'S DATA REPORT FOR PLATE HEAT EXCHANGERS**
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

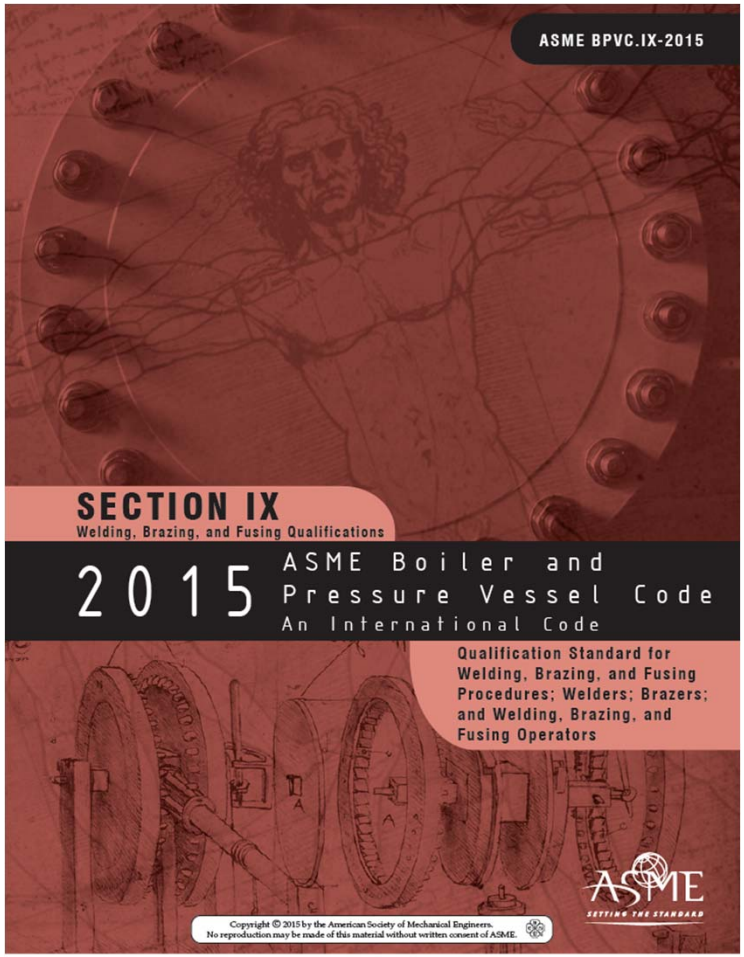
Page ___ of ___

1. Manufactured and certified by ① (Name and address of Manufacturer)
2. Manufactured for ② (Name and address of Purchaser)
3. Location of Installation ③ (Name and address)
4. Type ④ (Horizontal or vertical) ⑦ (Gasketed, semiwelded, brazed) ⑧ (Manufacturer's serial no.) ⑨ (CRN) ⑩ (Drawing no.)
5. ASME Code, Section VII, Div. 1 ⑪ (Edition (year)) ⑭ (Code Case no.) ⑮ (Special service per UG-120(d)) (Year built) ⑬ (National Board no.)
6. Endplates: (a) ㉙ (Plate material) (b) ㉚ (Nonplate material) (c) ㉛ (Clad material)

| No. | Quantity | Width | Length | Thickness | Corr. Allow. | Heat Treat | Temp. | Time |
|---|---|---|---|---|---|---|---|---|
| | | ㉔ | ㉕ | ㉖ | ㉗ | | ㉘ | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

7. Frame compression bolts and nuts ㉜ (Quantity, diameter, material specification, and grade)
8. Impact test ㉝ (Indicate YES and the component(s) impact tested, or NO)
9. Heat transfer plates ㉞ (Plate model) ㉟ (Material specification and grade) ㊱ (Thickness) ㊲ (Maximum plate count for frame assembly)
㊳ ㊴ ㊵

# Section IX


ASME BPVC.IX-2015
SECTION IX
Welding, Brazing, and Fusing Qualifications
2015
ASME Boiler and Pressure Vessel Code
An International Code
Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators
ASME
SETTING THE STANDARD
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# Section IX

## Effective date of Section IX

When the forward was previously revised, some of the rules were removed. Therefore QG-100 (d) & QG-100(e) was added

- **New paragraph QG-100(d) –** "New editions to Section IX may be used beginning with the date of issuance and become mandatory six months after the date of issuance."
- **New paragraph QG-100(e)** – was added to establish the effective date of Section IX Code Cases

*(e)* Code Cases are permissible and may be used, beginning with the date of approval by ASME. Only Code Cases that are specifically identified as being applicable to this Section may be used. At the time a Code Case is applied, only the latest revision may be used. Code Cases that have been incorporated into this Section or have been annulled shall not be used for new qualifications, unless permitted by the referencing Code. Qualifications using the provisions of a Code Case remain valid after the Code Case is annulled. The Code Case number shall be listed on the qualification record(s).

# Section IX

## QG-106 – Procedure and Performance Qualifications

- **Modified paragraph QG-106.1 (a)** - "The personnel who produce test joints for procedure qualification shall be under the full supervision and control of the qualifying organization during the production of these test joints."

- **Modified paragraph QG-106.2 (a) –** "The personnel who produce test joints for performance qualification shall be tested under the full supervision and control of the qualifying organization."

# Section IX

## QW-220 – Hybrid Welding Procedures

- due to the requests to include other hybrid processes, (other than Hybrid Laser-GMAW and Hybrid Plasma-GMAW).
  - Paragraphs QW-220 and QW-221 were rewritten
  - New paragraphs QW-222 and QW-223 were added

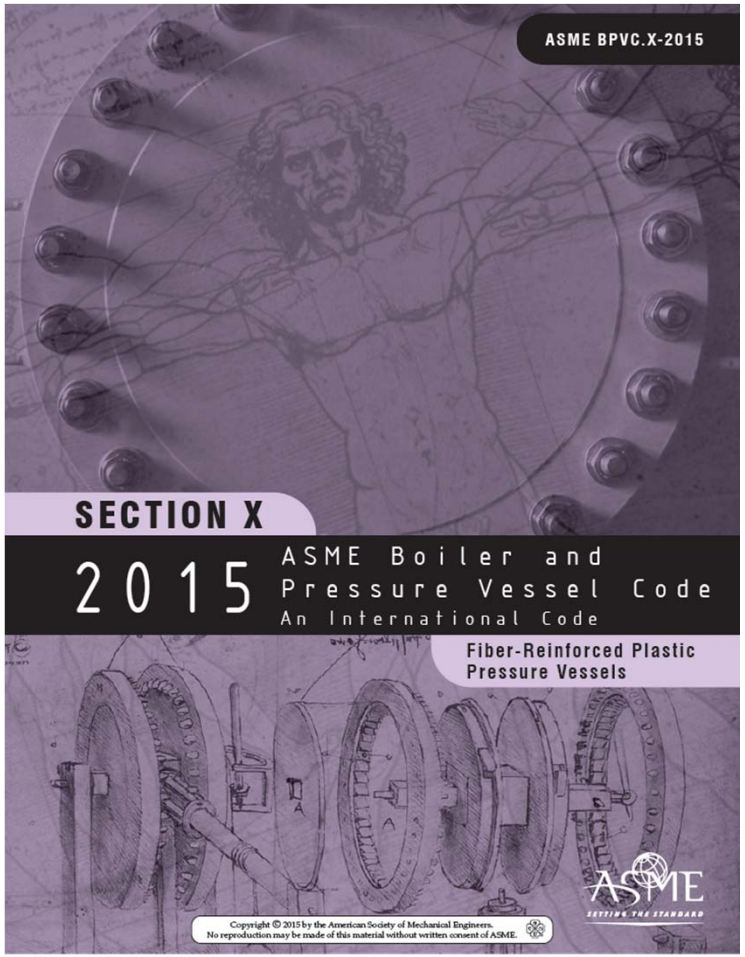
# Section IX

## QW-423.1– Unassigned base metals used in welder qualifications

Expanded table to include the same guidance as listed in QW-424.1 for welding unassigned base metals:

| Base Metals for Welder Qualification | Qualified Production Base Metals |
|---|---|
| Any unassigned metal to the same unassigned metal | The unassigned metal to itself |
| Any unassigned metal to any P-Number metal | The unassigned metal to any metal assigned to the same P-Number as the qualified metal |
| Any unassigned metal to any other unassigned metal | The first unassigned metal to the second unassigned metal |

# Section X


ASME BPVC.X-2015
SECTION X
2015
ASME Boiler and Pressure Vessel Code
An International Code
Fiber-Reinforced Plastic Pressure Vessels
ASME
SETTING THE STANDARD
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# Section X

## Adopted CA-1 Standard – Latest Edition

(15)

### ARTICLE RS-2
### USE OF CERTIFICATION MARK STAMP

**RS-200 CERTIFICATION MARK STAMP BEARING OFFICIAL MARK**

Authorization to use the stamp bearing the official Certification Mark shown in Figure RS-100.1 will be granted by the Society pursuant to the provisions of ASME CA-1, Conformity Assessment Requirements.

**RS-201 APPLICATION FOR CERTIFICATION MARK STAMP**

Application for the Certification Mark stamp shall be in accordance with ASME CA-1, Conformity Assessment Requirements.

**RS-202 AUTHORIZATION TO USE CERTIFICATION MARK STAMP**

Authorization to use the Certification Mark stamp may be granted, renewed, suspended, or withheld by the Society in accordance with ASME CA-1, Conformity Assessment Requirements.

**RS-203 REGULATIONS CONCERNING ISSUANCE AND USE OF STAMPS**

ASME may at any time make regulations concerning the issuance and use of Certification Marks as it deems appropriate, and all such regulations become binding upon the holders of any valid Certificates of Authorization. The regulation and use of stamps shall be in accordance with ASME CA-1, Conformity Assessment Requirements.

**RS-204 OBTAINING STAMPS**

All stamps for applying the Certification Mark shall be obtained from the Society.

**Table 1.1**
**Referenced Standards in This Section**

| Title | Number | Year |
|---|---|---|
| Cast Iron Pipe Flanges and Flanged Fittings | ASME B16.1 | 1998 |
| Pipe Flanges and Flanged Fittings | ASME B16.5 | 1996 |
| Plain Washers | ASME B18.22.1 | 1965 (1998) |
| Conformity Assessment Requirements | ASME CA-1 | Latest edition |
| Standard Test Method for Kinematic Viscosity and [illegible] Liquids (the | ASTM D445 | 2001 |

# QUESTIONS