

(-2) The minimum nominal plate thickness shall be 0.249 in. (6.30 mm), or the minimum nominal pipe thickness shall be 0.133 in. (3.38 mm).

(3) electrochemically etched, including the Certification Mark, directly on the vessel under the following conditions:

(-a) The electrochemically etched marking is acceptable to the user as indicated in the User’s Design Requirements per [Nonmandatory Appendix KK](#), or equivalent.

(-b) The material of construction shall be limited to high alloy steels and nonferrous materials.

(-c) The process controls for electrochemical 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 it can be demonstrated that the characters will be at least 0.004 in. (0.102 mm) deep.

(-d) The external vessel-surface condition where electrochemical etching is acceptable shall be clean, uncoated, and unpainted.

(-e) The electrochemical etching shall not result in any detrimental effect to the materials of the vessel.

(b) Stamped or electrochemically etched letters and figures shall be in characters not less than $\frac{5}{16}$ in. (8 mm) high. The character size may be reduced as shown in the following table for small diameter vessels with space limitations:

Nominal Outside Vessel Diameter		Character Size, Min., in. (mm)
Min., in. (mm)	Max., in. (mm)	
...	3½ (89)	⅛ (3)
>3½ (89)	4½ (114)	⅜ (16)
>4½ (114)	6⅝ (168)	¼ (6)

(c) Stamping or electrochemical etching shall be arranged substantially as shown in [Figure UG-118](#) when space permits and shall be located in a conspicuous place on the vessel [see [UG-116\(i\)](#)].

(19) UG-119 NAMEPLATES


(a) Nameplates shall be used on vessels except when markings are directly applied in accordance with [UG-118](#). Nameplates shall be metal suitable for the intended service and shall bear the markings called for in [UG-116](#). The marking arrangement shall be substantially as shown in [Figure UG-118](#). Required nameplates shall be located in a conspicuous place on the vessel.

(b) The nameplate thickness shall be sufficient to resist distortion due to the application of the marking and to be compatible with the method of attachment. The nameplate nominal thickness shall not be less than 0.020 in.

(c) Nameplates may have markings produced by either casting, etching, embossing, debossing, stamping, or engraving, except that the Certification Mark shall be stamped on the nameplate.

**Figure UG-118
Form of Stamping**

USER
[see Note (1)]



U, UM, or PRT
[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 ASME PTB-4 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\(a\)\(1\)\(-a\)](#), [UG-116\(a\)\(1\)\(-b\)](#), and [UG-116\(a\)\(1\)\(-c\)](#).
- (3) See [UG-116\(b\)\(1\)](#), [UG-116\(c\)](#), [UG-116\(e\)](#), [UG-116\(f\)](#), and [UG-116\(h\)\(1\)\(-a\)](#).
- (4) For cases where the MAWP (internal) and MAWP (external) values have the same designated coincident temperature, the values may be combined on a single line as follows:

$$P_{int}/FV \text{ (psi) at Temp (}^{\circ}\text{F)}$$

- (5) The maximum allowable working pressure (external) is required only when specified as a design condition.

(1) The required markings on a nameplate shall be in characters not less than $\frac{5}{32}$ in. (4 mm) high, except that characters for pressure relief device markings may be smaller.

(2) Characters shall be either indented or raised at least 0.004 in. (0.10 mm) and shall be legible and readable.

(d) The nameplate may be marked before it is affixed to the vessel, in which case the Manufacturer shall ensure that the nameplate with the correct marking has been applied to the proper vessel, and the Inspector shall satisfy himself that this has been done.

(e) The nameplate shall be attached to the vessel or to a pad, bracket, or structure that is welded, brazed, soldered, or attached with mechanical fasteners directly to the vessel. Mechanical fasteners shall be of a material and design that is compatible with the vessel, bracket materials, and the vessel service. After installation of the pad, bracket, or structure, the heads of the fasteners shall be welded,

brazed, or soldered to the pad, bracket, or structure that supports the nameplate. The nameplate shall be located within 30 in. (760 mm) of the vessel. Removal shall require the willful destruction of the nameplate, or its attachment system. (See M-3.)

(1) Nameplates may be attached either by welding, brazing, or soldering.

(2) Nameplates may be attached by tamper-resistant mechanical fasteners of suitable metal construction.

(3) Nameplates may be attached with pressure-sensitive acrylic adhesive systems provided that, in addition to the requirements of this paragraph, those of **Mandatory Appendix 18** are met.

(f) An additional nameplate in accordance with (a) through (d) may be installed on the skirt, supports, jacket, or other permanent attachment to a vessel. All data on the additional plate, including the Certification Mark with the Designator, shall be as required for the mandatory nameplate. The marking need not be witnessed by the Inspector. The additional nameplate shall be marked: "DUPLICATE."

(g) When a nameplate is employed, the Manufacturer's name or identifying trademark, and vessel serial number (or National Board Number, if applicable,) may also be marked directly on the vessel in close proximity to the nameplate attachment. The marking shall be of a visible permanent type that is not detrimental to the vessel, and its location shall be indicated on the Data Report.

(1) If the thickness limitations of UG-118 preclude marking directly on the vessel shell or heads, it may be applied to the skirt, supports, jacket, or other permanent attachment to the vessel.

(19) UG-120 DATA REPORTS

(a) A Data Report shall be filled out on Form U-1, U-1A, or U-1P by the Manufacturer and shall be signed by the Manufacturer and the Inspector for each pressure vessel marked with the Certification Mark with the U Designator.

(1) Same day production of vessels may be reported on a single Form, provided all of the following requirements are met:

- (-a) vessels must be identical;
- (-b) vessels must be manufactured for stock or for the same user or his designated agent;
- (-c) serial numbers must be in uninterrupted sequence; and
- (-d) the Manufacturer's written Quality Control System includes procedures to control the development, distribution, and retention of the Data Reports.

(2) For guidance in preparing the Manufacturer's Data Report Forms, see **Nonmandatory Appendix W**. Horizontal spacing for information on each line may be altered as necessary. All information must be addressed; however, footnotes described in the "Remarks" block are acceptable, e.g., for multiple cases of "none" or "not applicable."

(3) The Manufacturer shall

(-a) furnish a copy of the Manufacturer's Data Report to the user and, upon request, to the Inspector:

(-b) submit a copy of the Manufacturer's Data Report to the appropriate enforcement authority in the jurisdiction in which the vessel is to be installed, where required by law;

(-c) keep a copy of the Manufacturer's Data Report on file in a safe repository for at least 3 years.

In lieu of (-c) above, the vessel may be registered and the Data Report filed with the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, Ohio 43229. Where acceptable to the appropriate enforcement authority in the jurisdiction in which the vessel is to be installed, the vessel may be registered and the Data Report filed with the National Board of Boiler and Pressure Vessel Inspectors in lieu of (-b) above.

(4) A Manufacturer's Certificate of Compliance on Form U-3, U-3A, or U-3P shall be completed and signed by the Manufacturer for each pressure vessel marked with the Certification Mark with the UM Designator. This Certificate shall be maintained by the Manufacturer for 5 years and a copy made available upon request, or the vessel may be registered and the Data Report filed with the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229. Where acceptable to the appropriate enforcement authority in the jurisdiction in which the vessel is to be installed, the vessel may be registered and the Data Report filed with the National Board of Boiler and Pressure Vessel Inspectors. Identical vessels up to 1 day's production may be recorded on a single Certificate of Compliance.

(b) Combination Units

(1) Those chambers included within the scope of this Division shall be described on the same Data Report. This includes the following, as applicable:

(-a) for differential pressure design, the maximum differential design pressure for each common element and the name of the higher pressure chamber [see UG-19(a)(2)]

(-b) for mean metal temperature design, the maximum mean metal design temperature for each common element [see UG-19(a)(3)]

(-c) for a common element adjacent to a chamber not included within the scope of this Division, the common element design conditions from that chamber

(2) It is recommended that those chambers not included within the scope of this Division be described in the "Remarks" section of the Data Report.

(3) For a fixed tubesheet heat exchanger, as defined in UHX-3.2, Form U-5 shall be filled out with the information required by UHX-19.3.2, signed by the Manufacturer and Inspector, and included with the Manufacturer's Data Report.

(c) Partial Data Reports

(1) Data Reports to document the construction activities of pressure vessel parts requiring inspection under this Division that are furnished by a parts Manufacturer other than the Manufacturer responsible for the completed vessel shall be executed on the applicable Partial Data Report, [Form U-2](#) or [Form U-2A](#), by the parts Manufacturer and his Inspector in accordance with the requirements of this Division. The Manufacturer's Partial Data Report shall be forwarded, in duplicate, to the Manufacturer of the completed vessel [see [U-2\(b\)](#)]. [Form U-2A](#) may be used for this purpose, provided all the applicable information is recorded on this Form; otherwise [Form U-2](#) shall be used. 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 vessel [see [UG-90\(c\)](#)]. When [Form U-2](#) or [Form U-2A](#) is used, it shall be attached to the associated [Form U-1](#), [U-1A](#), or [U-1P](#) by the Manufacturer of the vessel to be marked with the Certification Mark. Manufacturers and Assemblers of parts who do not perform or assume any design responsibility for the parts they manufacture shall identify on the Partial Data Report the organization responsible for the design of the part.

(-a) Data Reports for those parts of a pressure vessel which are furnished by a parts Manufacturer to the user of an existing Code vessel as replacement or repair parts shall be executed on [Form U-2](#) or [Form U-2A](#) by the parts Manufacturer and his Inspector in accordance with the requirements of this Division. A copy of the parts Manufacturer's Partial Data Report shall be furnished to the user or his designated agent and maintained in accordance with (a) above.

(-b) The parts Manufacturer shall indicate under "Remarks" the extent he has performed any or all of the design functions. When the parts Manufacturer performs only a portion of the design, he shall state which portions of the design he performed.

(-c) Same day production of vessel parts may be reported on a single [Form U-2](#) or [Form U-2A](#), provided all of the following are met:

(-1) vessel parts shall be identical;

(-2) Manufacturer's serial numbers must be in uninterrupted sequence; and

(-3) The Manufacturer's written Quality Control System includes procedures to control the development, distribution, and retention of the Partial Data Reports.

(-d) For guidance in preparing Partial Data Reports, see [Nonmandatory Appendix W](#).

(-e) Manufacturers with multiple locations under the operational control of a single organization⁴⁰, each location with its own Certificate of Authorization, may transfer welded or brazed pressure vessel parts, or completely welded pressure vessels that have not been pressure tested or received final inspection, from one location to another without Partial Data Reports, provided the

Quality Control System describes the method of identification, transfer, and receipt of the parts. These methods shall include the following requirements:

(-1) Identification requirements shall include details of the specific marking to be applied. Identification shall be on each part and shall be legible, permanent, and not detrimental to the part.

(-2) The Certificate Holder shall have a transmittal form that is included with each transfer. It shall list all items with corresponding identification number, with indication that the items do not contain the Certification Mark. This form shall be signed by the Certificate Holder.

(-3) The receiving location shall inspect each item upon receipt.

(-4) The Manufacturer of the completed vessel shall retain all transfer forms as part of the vessel records; see [Mandatory Appendix 10, 10-13](#).

(-f) For cases in which a Manufacturer has multiple locations that include both shop and field locations, and the field assembly of a vessel is completed by one Manufacturer's location that is different from the part Manufacturer's location(s), the name of the Manufacturer responsible for field assembly shall be shown on Line 1 of the Manufacturer's Data Report. The Manufacturer responsible for field assembly shall complete and sign both the Shop and Field portions of the Manufacturer's Data Report.

(2) A Manufacturer with multiple locations, each holding its own Certificate of Authorization, may transfer pressure vessel parts from one of its locations to another without Partial Data Reports, provided the Quality Control System describes the method of identification, transfer, and receipt of the parts. For cases in which a Manufacturer has multiple locations that include both shop and field locations, and the field assembly of the vessel is completed by one Manufacturer's location that is different from the part Manufacturer's location(s), the name of the Manufacturer responsible for field assembly shall be shown on Line 1 of the Manufacturer's Data Report. The Manufacturer responsible for field assembly shall complete and sign both the Shop and Field portions of the Manufacturer's Data Report.

(d) This Division, in paragraphs such as [UW-2](#), [UF-1](#), [UF-32\(b\)](#), [UB-1](#), [UB-22](#), [UCS-66](#), [UNF-56](#), [UHA-51](#), [UCL-27](#), and [UHT-6](#), establishes special requirements to qualify a vessel for certain "special services." (Paragraphs, such as [UW-2](#), prohibit certain types of construction or materials in some special services.) The special services to which special requirements are applicable are classified as follows:

(1) lethal service [for example, see [UW-2\(a\)](#)];

(2) services below certain temperatures (for example, see [UW-2\(b\)](#), [UCS-65](#), [UHA-51](#), and [UHT-6](#));

(3) unfired steam boiler [for example, see [UW-2\(c\)](#)];

(4) direct firing [for example, see [UW-2\(d\)](#)].