the ASME STORY

BELL & GOSSETT ITT

THE ASME STORY

1. What is an ASME Code vessel?

   The letters ASME are an abbreviation of the words "American Society of Mechanical Engineers." This society establishes and maintains design, construction and inspection standards providing for maximum protection of life and property. Before an ASME vessel can be fabricated, a manufacturer must apply for and receive a Certificate of Authorization from the Boiler and Pressure Vessel Committee of the American Society of Mechanical Engineers. Thereafter, in conformance with this Certificate of Authorization, an ASME Code vessel must be designed, fabricated and inspected in accordance with the rules of the ASME Code.

2. How is an ASME Code vessel identified?

   Either of the symbols "U" or "UM" may be used to identify an ASME Code vessel. The symbol used must be either stamped on the vessel itself or on the manufacturer's data plate attached to the vessel. When the symbol "U" is used, a manufacturer's data report for pressure vessels (Form U-1, as required by the provisions of the ASME Code rules) must accompany each vessel. When the "UM" symbol is used, a certificate (Form U-3) is furnished only on request.

3. What is a "U" Symbol?

   When the "U" symbol is used it indicates that a manufacturer has complied with all the provisions of the ASME Code for pressure vessels. In addition, it means that the vessel has passed inspection by a commissioned inspector of the National Board of Boiler and Pressure Vessel Inspectors. The Form U-1 furnished with each vessel contains the signature of the inspector. This certifies that the vessel has met the requirements of the ASME Code. Two copies of Form U-1 are also sent to the National Board headquarters at Columbus, Ohio. The National Board in turn directs one copy of Form U-1 to the municipality having jurisdiction over the installation of the vessel for final approval by a qualified inspector.

4. What is a "UM" Symbol?

   The "UM" symbol limits construction of pressure vessels to 5 cubic feet volume (37.4 gal.) and 250 psi. design pressure or 1½ cubic feet volume (11 gal.) and no limit on pressure. Such vessels are not inspected by a qualified inspector of the National Board. Also, they may be exempt from inspection by local inspectors. Form U-3, furnished upon request, is only a manufacturer's certification that the vessel complies with the rules of ASME for "UM" symbol vessels. Because "UM" construction is limited, it is not accepted in some localities.

5. Why does B&G use the "U" symbol instead of the "UM"?

In order to avoid the complication and confusion that could be created with the restricted acceptance "UM" stamped vessels, all B&G pressure vessels are classed in the "U" category, which indicates that:

A. They are inspected by a qualified inspector, and registered with the National Board.

B. Manufacturers' Data Reports for Pressure Vessels (Form U-1) are issued with each vessel.

C. The vessels are accepted in all jurisdictions with no restrictions.

This means that all B&G vessels can be shipped from Morton Grove or from the stock of a distributor without any concern as to the ultimate location of installation.

6. Why is all this important to a user of an pressure vessel?

In approximately 31 states, 32 individual cities, and in all provinces of Canada, ASME Code "U" symbol is required of an pressure vessel when it is installed in a public building designed for human occupancy. Also, Code "U" symbol construction is required by most insurance companies before insurance will be issued to the owner of a public building designed for human occupancy. As the importance of code construction becomes recognized within a municipality, the rules are often changed in favor of code construction. Consequently, code requirements are becoming increasingly important to the user of pressure vessels for the following reasons:

a. If a non-code vessel is accepted and installed within a jurisdiction requiring code construction and is thereafter subject to inspection, the qualifying inspector will not accept the installation nor will insurance be allowed. A non-code vessel cannot be converted to code after it has been shipped from the manufacturer as non-code. Therefore, a new vessel would then have to be purchased under the code construction standards. This can be a very costly change.

b. If a non-code vessel is installed in an area which does not at first require code construction but later changes to this requirement, a new code unit may have to be purchased to satisfy local and insurance requirements—a very costly change.

c. If a vessel is accepted and installed with the symbol "UM" and the jurisdiction does not accept this symbol, the user may be caused to change the vessel to the proper "U" symbol—again, a very costly change.

d. Some uninformed manufacturers may apply the "UM" symbol on vessels over the 37.4 gallon volume limit as set forth by ASME. If such a vessel over the 37.4 gallon volume is accepted and installed with the "UM" symbol, it is a direct violation of the ASME code and such a vessel will not be accepted by a qualifying inspector.

e. To insure acceptance under any circumstance the user should specify and accept only unfired pressure vessels manufactured and stamped under the "U" symbol. Acceptance under all jurisdictions is then guaranteed.

7. How can a specification be written to include ASME construction?

The following wording written into any specification will provide for an ASME Code vessel.

"A manufacturer's data report for pressure vessels, Form U-1 as required for the ASME Code rules, is to be furnished to the owner. This form must be signed by a qualified inspector, holding a National Board Commission, certifying that construction conforms to the latest ASME Code for pressure vessels. The ASME symbol "U" should also be stamped on the Heat Exchanger."

ITT BELL and GOSSETT
MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS
Form U-1 As Required by the Provisions of the A.S.M.E. Code Rules, Section VIII, Division I

1. Manufactured by ITT Fluid Handling Division, Morton Grove, Ill. (International Telephone and Telegraph Corporation) ITT Shipping No. .....
2. Manufactured for ..... Customer Order No. .....
3. Type ..... Kind ..... Vessel No. * ..... Nat'l. Bd. No. ..... Yr. Built .....
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.) (Mfr. Ser. No.) (Factory No.)

Items 4-9 incl. to be completed for single wall vessels (such as air tanks), jackets of jacketed vessels, or shells of Heat Exchangers

4. SHELL: Material ..... T.S. ..... Nominal Thickness ..... in. Corrosion Allowance ..... in. Diam. ..... ft. ..... in. Length ..... ft. ..... in.
(Kind and Spec. No.) (Fig. or F.B. & lowest T.S.)

5. SEAMS: Long ..... H.T. ..... R.T. ..... Sectioned ..... Efficiency ..... %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
Girth ..... H.T. ..... R.T. ..... Sectioned ..... No. of Courses .....
If riveted describe seams fully on reverse side of form

6. HEADS: (a) Material ..... T.S. ..... (b) Material ..... T.S. .....

Location (Top, bottom, ends)	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)								
(b)								

If removable, bolts used ..... Other fastening .....
(Material, Spec. No., T.S., Size, Number) (Describe or Attach Sketch)

7. STAYBOLTS: ..... If hollow, Attachment ..... Pitch ..... X ..... Diam. .....
(Material) (Size of Hole) (Threaded, Welded) (Horiz.) (Vert.) (Nominal)

8. JACKET CLOSURE: .....
(Describe as agrs & weld, bar, etc. If bar give dimensions, if bolted, describe or sketch)

9. Constructed for max. allowable working press ² ..... psi at max. temp. ..... °F Min. Temp. (when less than -20°) ..... °F Hydrostatic Test Press ..... psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material ..... Diam. ..... in. Thickness ..... in. Attachment .....
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)
Floating. Material ..... Diam. ..... in. Thickness ..... in. Attachment .....

11. TUBES: Material ..... O.D. ..... Inches in. Thickness ..... or gage. Number ..... Type .....
(Kind & Spec. No.) (Straight or U)

Items 12-15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

12. SHELL: Material ..... T.S. ..... Nominal Thickness ..... in. Corrosion Allowance ..... in. Diam. ..... ft. ..... in. Length ..... ft. ..... in.
(Kind and Spec. No.) (Fig. or F.B. & lowest T.S.)

13. SEAMS: Long ..... H.T. ..... R.T. ..... Sectioned ..... Efficiency ..... %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
Girth ..... H.T. ..... R.T. ..... Sectioned ..... No. of Courses .....
If riveted describe seams fully on reverse side of form

14. HEADS: (a) Material ..... T.S. ..... (b) Material ..... T.S. ..... (c) Material ..... T.S. .....

Location	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) Top, bottom, ends								
(b) Channel								
(c) Floating								

If removable, bolts used (a) ..... (b) .....
(Material, Spec. No., T.S., Size, Number)
(c) ..... Other fastening .....
(Describe or Attach Sketch)

15. Constructed for max. allowable working press ² ..... psi at max. temp. ..... °F Min. Temp. (when less than -20°) ..... °F Hydrostatic Test Press ..... psi.

Items below to be completed for all Vessels where applicable.

16. SAFETY VALVE OUTLETS: Number ..... Size ..... Location .....

17. NOZZLES

Number *	Dia. & Size	Type	Material	Thickness	Reinforcement Material	How Attached

18. INSPECTION OPENINGS:

No. & Type	Size	Location

19. SUPPORTS: Skirt ..... Lugs ..... Legs ..... Other ..... Attached .....
(Yes or No) (Number) (Number) (Describe) (Where & How)

20. REMARKS: * Same as Nat'l. Bd. Number. .....
(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooler, etc. State contents of each part.) Constructed under the provisions of UG-99 (C) (3)

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(over)

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this pressure vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

Date ..... 19 ..... Signed ITT Fluid Handling Division By .....

Certificate of Authorization Expires .

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY ITT Fluid Handling Division at Morton Grove, Illinois

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of ..... and employed by LUMBERMENS MUTUAL CASUALTY COMPANY of CHICAGO, ILLINOIS have inspected the pressure vessel described in this manufacturer's data report on ..... 19 ..... and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date ..... 19 .....

Inspectors Signature Commissions Nat'l Board or State and No.

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province ..... and employed by ..... of ..... have compared the statements in this manufacturer's data report with the described pressure vessel and state that parts referred to as data items ..... not included in the certificate of shop inspection have been inspected by me and that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code. The described vessel was inspected and subjected to a hydrostatic test of ..... psi.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date ..... 19 .....

Inspector's Signature Commissions Nat'l Board or State and No.

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