

FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS

E-100-A2

required by the Provisions of the ASME Code Rules

E-100-A2

1. Manufactured by Camden Copper Works, Camden, New Jersey
(Name and address of Manufacturer)
2. Manufactured for Hercules, Inc., Wilmington, Delaware
(Name and address of Purchaser) # 104006
3. Type Horiz. Kind Heat Exch. Vessel No. (67-3734-9) Natl. Bd. No. 601 Yr. Built 1967
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.) (Mfrs. Serial) (State & State 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 SA240 316 T.S. 75,000 Nominal Thickness 1 1/4 Corrosion Allowance 0 In. Diam. 2 Ft. 7 1/2 In. Length 20 Ft. 1 1/8"
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)
5. SEAMS: Long Butt H.T. no X.R. spot Sectioned no Efficiency 35 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
- Girth Butt H.T. no X.R. none Sectioned no No. of Courses 2
6. HEADS (a) Material SA240 316 T.S. 75,000 (b) Material SA240 316 T.S. 75,000
(Location) (Top, bottom, ends) Thickness 1 1/4 Crown Radius 0 Knuckle Radius 0 Elliptical Ratio 0 Conical Apex Angle 0 Hemispherical Radius 0 Flat Diameter 0 Side to Pressure (Convex or Concave)
- (a) See tube sheets
- (b) See tube sheets

If riveted describe seams fully on reverse side of form.

If removable, bolts used SA240 316 (Material, Spec. No., T.S., Size, Number) Other fastening SA240 316 (Describe or Attach Sketch)

7. STAYBOLTS: SA240 316 (Material) If hollow SA240 316 (Size of Hole) Attachment SA240 316 (Threaded, Welded) Pitch SA240 316 (Horiz.) X (Vert.) Diam. SA240 316 (Nominal)

8. JACKET CLOSURE: SA240 316 (Describe as ogee & weld, bar, etc. If bar, give dimensions, if bolted, describe or sketch)

9. Constructed for max. allowable working press 100 psi at max. temp. 300° F. Min. temp. (when less than -20°) SA240 316° F. Hydrostatic Test 150 psi. Pneumatic Test SA240 316 psi. Combination Test SA240 316 psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material SA240 316 (Kind & Spec. No.) Diam. 31 In. Thickness 1-1/8 Attachment welded (Welded, Bolted)
- Floating. Material SA240 316 (Kind & Spec. No.) Diam. SA240 316 In. Thickness SA240 316 In. Attachment SA240 316

11. TUBES: Material SA249 304 D. 3/4 In. Thickness 16 Inches or Gage Number 840 Type straight (Straight or U)

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

12. SHELL Material SA285C ST1 T.S. 55,000 Nominal Thickness 3/8 Corrosion Allowance 1/16 In. Diam. 2 Ft. 7 1/2 In. Length 1 Ft. 2 In.
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)
13. SEAMS: Long Butt H.T. no X.R. spot Sectioned no Efficiency 85 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
- Girth Butt H.T. no X.R. none Sectioned no No. of courses 2
14. HEADS (a) Material SA285C ST1 T.S. 55,000 (b) Material SA285C ST1 T.S. 55,000 (c) Material SA285C ST1 T.S. 55,000
(Location) (Top, bottom, ends) Thickness 3/8 Crown Radius 0 Knuckle Radius 0 Elliptical Ratio 0 Conical Apex Angle 0 Hemispherical Radius 0 Flat Diameter 0 Side to Pressure (Convex or Concave)
- (a) Top, bottom, ends 2 with 3/4 x 6" ribs @ 90° welded 30-3/4 flat
- (b) Channel 2 30-3/4
- (c) Return End 2 30-3/4

If riveted describe seams fully on reverse side of form.

If removable, bolts used (a) SA285C ST1 (Material, Spec. No., T.S., Size, Number) (b) SA193B7, 125,000, 5/8, 32(c) same as (b) Other fastening SA285C ST1 (Describe or Attach Sketch)

15. Constructed for max. allowable working press 75 psi at max. temp. 300° F. Min. temp. (when less than -20°) SA285C ST1° F. Hydrostatic Test 113 psi. Pneumatic Test SA285C ST1 psi. Combination Test SA285C ST1 psi.

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number elsewhere in system Location SA285C ST1

17. NOZZLES
- | Purpose (Inlet, Outlet, Drain) | Number | Diam. or Size | Type | Material | Thickness | Reinforcement Material | How Attached |
|--------------------------------|--------|---------------|------|------------|-----------|------------------------|--------------|
| A, B | 2 | 6" | S.O. | SA530, St1 | Std. Wt. | none | welded |
| C | 1 | 10x6" | L.J. | SA312, 316 | " | " | " |
| D | 1 | 6" | " | " | " | " | " |
| E | 1 | 3" | " | " | " | " | " |

¹ If postweld heat-treated.² List under remarks other internal or external pressures with coincident temperature when applicable.

FORM U-1 (back)

18. INSPECTION Manholes, No. none Size _____ Location _____
 OPENINGS: Handholes, No. none Size _____ Location _____
 Threaded, No. none Size _____ Location _____
 19. SUPPORTS: Skirt no Lugs none Legs none Other saddles Attached welded
 (Yes or No) (Number) (Number) (Describe) (Where & How)

20. REMARKS: This vessel is an oxidizer condenser for non-lethal service.
The shell of this vessel is equipped with an expansion joint of flanged
and flued heads designed and fabricated per code case 1177-5.
The underside of the vessel shell is equipped with a longitudinal
heating jacket fabricated from 12" 20.7% A-36 carbon steel channel.

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)

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

Date April 17 19 67 Signed Camden Copper Works By Philip P. Dunne
 (Manufacturer)

Certificate of Authorization Expires 12/31/67

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY Camden Copper Works at Camden, New Jersey
 I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of New Jersey and employed by Hartford Steam Boiler Ins. & Insp. of Hartford, Conn. have inspected the pressure vessel described in this manufacturer's data report on 19 67, 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 4/17 19 67

Philip P. Dunne
 Inspector's Signature

Commissions NB-2907

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 of _____ 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.