

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

as required by the provisions of the ASME Code rules, Section VIII, Division 1

Alfa-Laval Thermal Co., American Heat  
Hanna St., Lykens, PA 17048  
(name and address of manufacturer)

2. Manufactured for Ciba-Geigy Corporation  
(name and address of purchaser) Mc Intosh, Alabama

3. Location of installation Ciba-Geigy Corporation  
(name and address) Mc Intosh, Alabama

4. Type: Horiz. 18547 --- 18547, Rev.1 14043 1987  
(horiz. or vert., tank) (mfr's. serial no.) (CRN) (drawing no.) (Nat'l. Bd. no.) (year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction and workmanship conform to ASME Code, Section VIII, Division 1: 1986  
(year)

A86 ---  
(addenda (Date)) (Code Case no.) (special service per UG-120(d))

Items 6-11 inclusive to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers.

6. Shell: SA-240,316 .3125" NA 4' 10-1/2" O.D. 7' 4"  
(mat'l. (spec. no., grade)) (nom. thickness (in.)) (corr. allow. (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))

7. Seams: \* NA 55  
(long. (dbl., angl.)) (RT (spot or full)) (eff. (%)) (HT temp. (°F)) (time) (girth (dbl., angl.)) (RT (spot, partial, or full)) (no. of courses)

8. Heads: (a) SA-516,70/Faced with SA-240,316 (b) SA-516,70/Faced with SA-240,316  
(mat'l. (spec. no., grade)) (mat'l. (spec. no., grade))

	Location (top, bottom, ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (convex or concave)
(a)	C-End	2.78"	NA						60"	Flat
(b)	H-End	2.78"	NA						60"	Flat

If removable, bolts used (describe other fastenings): SA-193,B7 (48) 1"D.ea.hd.  
(mat'l. spec. no., gr., size, no.)

9. Type of jacket: Proof test:

10. Jacket closure: (describe as ogee & weld, bar, etc.) If bar, give dimensions: If bolted, describe or sketch.

11. MAWP 150 at max. temp. 100° Min. temp.: Hydro., phed. or cond. test press.: 225  
(psi) (°F) (°F (when less than -20°F)) (psi)

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: (stationary mat'l. (spec. no., gr.)) (dia. (in.) (subject to pressure)) (nom. thickness (in.)) (corr. allow. (in.)) (attachment (welded, bolted))  
(floating mat'l. (spec. no., gr.)) (dia. (in.)) (nom. thickness (in.)) (corr. allow. (in.)) (attachment)

13. Tubes: (mat'l. (spec. no., gr.)) (OD (in.)) (nom. thickness (in. or gage)) (no.) (type (straight or U))

Items 14-17 inclusive to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell: (mat'l. (spec. no., gr.)) (nom. thickness (in.)) (corr. allow. (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))

15. Seams: (long. (dbl., angl.)) (RT (spot or full)) (eff. (%)) (HT temp. (°F)) (time) (girth (dbl., angl.)) (RT (spot, partial, or full)) (no. of courses)

16. Heads: (a) (b)  
(mat'l. (spec. no., grade)) (mat'l. (spec. no., grade))

	Location (top, bottom, ends)	Minimum Thickness	Corrosion Allowance	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 (describe other fastenings):  
(mat'l. spec. no., gr., size, no.)

17. MAWP 150 at max. temp. 100° Min. temp.: Hydro. test press.: 225  
(psi) (°F) (°F (when less than -20°F)) (psi)

Items on reverse side to be completed for all vessels where applicable.

Note: Each additional sheet shall be signed and dated by the certificate holder and the AI.

This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43228. NS-35 Rev. 7

**FORM U-1 (back)**

**18. Nozzles, inspection and safety valve openings:**

Purpose (inlet, outlet, drain, etc.)	Number	Dis. or Size	Type	Mat'l.	Nom. Thickness	Reinforcement Material	How Attached	Location
Inlet	1	6"	Flg. SA-403, 316L	Sch. 40	SA-516, 70	Welded		
Outlet	1	6"	"	"	"	"	"	
Inlet	1	6"	"	"	"	"	"	
Outlet	1	6"	"	"	"	SA-516, 70	"	
Drains	2	1"	Thrd. SA-312, 316L	"	"	"	"	

19. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Other \_\_\_\_\_ Brackets \_\_\_\_\_ Attached \_\_\_\_\_ Welded to Shell \_\_\_\_\_  
(yes or no) (no.) (no.) (describe) (where and how)

20. Remarks: Manufacturers' Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: \_\_\_\_\_  
(name of part, item number, mfr's. name and identifying stamp)

Hydro-tested per UG 99(b). Vessel is a Spiral Heat Exchanger.

\*No seams in outer shell. Hoop load transferred by braces.

Both covers P.W.H.T. per Table UCS-56.

**CERTIFICATE OF SHOP COMPLIANCE**

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 Pressure Vessels, Section VIII, Division 1.

"U" Certificate of Authorization no. 1793 expires March 30, 19 90  
 Date 12-15-87 Name Alfa-Laval Thermal Co., American Heat  
(manufacturer)

Signed John Gittings  
JOHN GITTINGS

**CERTIFICATE OF SHOP INSPECTION**

Vessel constructed by Alfa-Laval Thermal Co., American Heat at Hanna St., Lykens, PA

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the state or province of Penna. and employed by Commercial Union Insurance Company

of Boston, Mass. have inspected the pressure vessel described in this Manufacturers' Data Report on 12-7, 12-11, 19 87, and state that, to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1.

By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in the Manufacturers' 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 12-15-87 Signed James W. Weber Commissions NB-9463 & PA.WC-3184  
(Nat'l. Bd. (incl. endorsements) state, prov. and no.)

**CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE**

We certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 1 of the ASME BOILER AND PRESSURE VESSEL CODE.

"U" Certificate of Authorization no. \_\_\_\_\_ expires \_\_\_\_\_, 19 \_\_\_\_\_  
 Date \_\_\_\_\_ Name \_\_\_\_\_  
(assembler that certified and constructed field assembly)

Signed \_\_\_\_\_  
(representative)

**CERTIFICATE OF FIELD ASSEMBLY INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the state or province of \_\_\_\_\_ and employed by \_\_\_\_\_

of \_\_\_\_\_ have compared the statements in this Manufacturers' 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 ASME Code, Section VIII, Division 1. 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 the Manufacturers' 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 \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_  
(Authorized Inspector) (Nat'l. Bd. (incl. endorsements) state, prov. and no.)