

96-3697  
g #E-0543

**FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by ALTEX HEAT EXCHANGER LTD 6831-42 St. Edmonton, AB T6B 2X1  
(Name and address of Manufacturer)

Manufactured for Modular Process Systems, 45 Eisenhower Dr., Paramus, N.J. 07652  
(Name and address of Purchaser)

3. Location of installation Hoffman-La Roche, Belvidere, N.J.  
(Name and address)

4. Type: Vert (BEM) Heat Exchanger 96-3697  
(Horiz., vert., or sphere) (Tank, separator, etc. vessel, heat exch., etc.) (Mfg's serial No.)  
N-5244.2 96-3697-01 Rev. 2 N/A 1997  
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 95 Ed. 95 Add. N/A N/A  
(Edition and Addenda (date)) (Code Case No.) (Special Service per UG-120(d))

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell (a) No. of course(s): 2 (b) Overall length (ft & in.): (1) 120" (2) 115 7/8"

| Course(s) |               |                   | Material            |  | Thickness |       | Long. Joint (Cat. A) |                  |      | Circum. Joint (Cat. A, B, & C) |                  |      | Heat Treatment |      |
|-----------|---------------|-------------------|---------------------|--|-----------|-------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| No.       | Diameter, in. | Length (ft & in.) | Spec./Grade or Type |  | Nom.      | Corr. | Type                 | Full, Spot, None | Eff. | Type                           | Full, Spot, None | Eff. | Temp.          | Time |
| 1         | 26"OD         | 120" Lg           | SA240-304L          |  | 1/4"      | 0.0"  | 1                    | SPOT             | 85%  | 1                              | SPOT             | 85%  | N/A            | N/A  |
| 2         | "             | 115 7/8" Lg       | "                   |  | "         | "     | "                    | "                | "    | "                              | "                | "    | "              | "    |

7. Heads: (a) N/A (b) N/A  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp. (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

|     | Location (Top, Bottom, Ends) | Thickness |       | Radius |         | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure |         | Category A |                  |      |
|-----|------------------------------|-----------|-------|--------|---------|------------------|--------------------|----------------------|---------------|------------------|---------|------------|------------------|------|
|     |                              | Min.      | Corr. | Crown  | Knuckle |                  |                    |                      |               | Convex           | Concave | Type       | Full, Spot, None | Eff. |
| (a) |                              |           |       |        |         |                  |                    |                      |               |                  |         |            |                  |      |
| (b) |                              |           |       |        |         |                  |                    |                      |               |                  |         |            |                  |      |

If removable, bolts used (describe other fastening)

(Mat'l Spec. No., Grade, size, No.)

Type of jacket N/A Jacket closure N/A  
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions N/A If bolted, describe or sketch.  
9. MAWP 75/FV 300 psi at max. temp. 300 °F Min. design metal temp. -20 °F at 75 psi.  
(Internal) (external) (Internal) (external)

10. Impact test No  
(Indicate yes or no and the component(s) impact tested)

11. Hydro pneu., or comb. test press. 113 P.S.I. Proof test -

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA240-304L 25 3/8" 2.0" S/S 0.0" Welded  
(Stationary (Mat'l Spec. No.)) (Dia., in. (subject to press.)) (Nom. thk., in.) (Corr. Allow., in.) (Attachment (welded or bolted))

SA240-304L 25 3/8" 2.0" S/S 0.0" Welded  
(Floating (Mat'l Spec. No.)) (Dia., in.) (Nom. thk., in.) (Corr. Allow., in.) (Attachment)

Stationary  
13. Tubes: SA249-TP304L 3/4" 16 BWG 510 Straight  
(Mat'l Spec. No., Grade or Type) (O.D., in.) (Nom. thk., in. or gauge) (Number) (Type (Straight or U))

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): (1) (b) Overall length (ft & in.): (1) 22 13/16"

| Course(s) |               |                   | Material            |  | Thickness |       | Long. Joint (Cat. A) |                  |      | Circum. Joint (Cat. A, B, & C) |                  |      | Heat Treatment |      |
|-----------|---------------|-------------------|---------------------|--|-----------|-------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| No.       | Diameter, in. | Length (ft & in.) | Spec./Grade or Type |  | Nom.      | Corr. | Type                 | Full, Spot, None | Eff. | Type                           | Full, Spot, None | Eff. | Temp.          | Time |
| 1         | 26 1/4"OD     | 22 13/16" Lg      | SA516-70N           |  | 3/8"      | 1/16" | 1                    | SPOT             | 85%  | 1                              | SPOT             | 85%  | N/A            | N/A  |

15. Heads: (a) SA516-70N N/A N/A (b) SA516-70N N/A N/A  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp. (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

|     | Location (Top, Bottom, Ends) | Thickness |       | Radius |         | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure |         | Category A |                  |      |
|-----|------------------------------|-----------|-------|--------|---------|------------------|--------------------|----------------------|---------------|------------------|---------|------------|------------------|------|
|     |                              | Min.      | Corr. | Crown  | Knuckle |                  |                    |                      |               | Convex           | Concave | Type       | Full, Spot, None | Eff. |
|     | End                          | 3/4"      | 1/16  | N/A    | N/A     | 2:1              | N/A                | N/A                  | N/A           | N/A              | ✓       | N/A        | N/A              | N/A  |
| (b) | "                            | "         | "     | "      | "       | "                | "                  | "                    | "             | "                | "       | "          | "                | "    |

If removable, bolts used (describe other fastening) SA193-B7 5 13/16" x 3/4" 64 C/W Nuts  
(Mat'l Spec. No., Grade, size, No.)

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

Manufactured and certified by Altex Heat Exchanger Ltd., 6831 - 42 Street, Edmonton, AB T6B 2X1  
(Name and address of manufacturer)

Manufactured for Modular Process Systems, 45 Eisenhower Dr., Paramus, NJ 07652

Location of installation Hoffman-La Roche, Belvidere, NJ

|      |                           |                        |          |            |                 |
|------|---------------------------|------------------------|----------|------------|-----------------|
| Type | Vert                      | 96-3697                | N-5244.2 | 96-3697-01 | 1997            |
|      | (Name, cont., book, etc.) | (Officer's serial No.) | (CRN)    | (ID#)      | (Mort. Bd. No.) |

## Data Report

**Item Number**

**Remarks:**[illegible]

\*Note: Item 19 carried over from "U1" form

| Purpose / Inlet,<br>Outlet, Drain, etc.1 | No | Diameter<br>or Size | Flange<br>Type | Material      |        | Nozzle Thickness |       | Reinforcement<br>Material | How Attached |        | Location<br>(Drain, Open,?) |
|------------------------------------------|----|---------------------|----------------|---------------|--------|------------------|-------|---------------------------|--------------|--------|-----------------------------|
|                                          |    |                     |                | Nozzle        | Flange | Norm.            | Corr. |                           | Nozzle       | Flange |                             |
| VENT                                     | 1  | 1" CPLG             | N/A            | SA182<br>304L | N/A    | 6000#            | 0.0"  |                           | DW16.1A      | N/A    |                             |
| INSTR. CONN                              | 2  | 3/4" CPLG           | "              | "             | "      | "                | "     |                           | "            | "      |                             |
| INSTR. CONN                              | 2  | 1" CPLG             | "              | SA350<br>LF2  | "      | "                | 1/16" |                           | "            | "      |                             |
| INSTR. CONN                              | 2  | 3/4" CPLG           | "              | "             | "      | "                | "     |                           | "            | "      |                             |

Co. name Altex Heat Exchanger Ltd.

Signed L. H. Jones SAVING AND INVESTMENT

td. Signed Robert Shaw  
(Agent name)  
Commissions alberta 39R  
(Post-Board (incl. endorsement) State Print)