PO 91-000-24 C 6131 11444/ Job No: 13968

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS (1) 10"-118 Sq. F

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

1. Manufactured and certified by Perry Products Corporation, 25 Mt. Laurel Road, Hainesport, NJ 0803[illegible]
(name and address of manufacturer)

2. Manufactured for Sofix Corporation, 101 Northgate Commercial Center, Chattanooga, TN 37415
(name and address of purchaser)

3. Location of installation Sofix Corporation, 2800 Rivernort Road, Chattanooga, TN 37406
(name and address)

4. Type: Horizontal (horiz. or vert., tank) | B-4622 (mfr's. serial no.) | -- (CRN) | D-91127 (drawing no.) | 4242 (Nat'l. Bd. no.) | 1991 (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: 1989 (year)

1989 (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: SA312-T304 S/S (mat'l. (spec. no., grade)) | .134" (nom. thickness (in.)) | "0" (corr. allow. (in.)) | 0'-10-3/4" O.D. (dia. ID (ft. & in.)) | 2'-11-7/8" Lg. (length (overall) (ft. & in.))

7. Seams: Welded (long. (dbl., sngl.)) | -- (RT (spot or full)) | 85 (eff. (%)) | -- (HT temp. (°F)) | -- (time) | -- (girth (dbl., sngl.)) | -- (RT(spot, partial, or full)) | 1 (no. of courses)

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

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: 85 (psi) at max. temp. 300 (°F). Min design metal temp.: 20 (°F) at 85 (psi). Hydro., ~~pneu. or comb.~~ test pressure 145 (psi).

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: SA240-T304 (stationary mat'l. (spec. no., gr.)) | 10-3/4" O.D. (dia. (in.) (subject to pressure)) | 3/4" Thk. (nom. thickness (in.)) | "0" (corr. allow. (in.)) | Welded (attachment (welded, bolted))

Body Flanges: SA105 (floating mat'l. (spec. no., gr.)) | 10-3/4" I.D. (dia. (in.)) | 150# Std. (nom. thickness (in.)) | "0" (corr. allow. (in.)) | Retained by Liner (attachment)

13. Tubes: SA249-T304 (mat'l. (spec. no., gr.)) | 5/8" (OD (in.)) | 18 Ga. (nom. thickness (in. or gauge)) | 96 (no.) | straight (type (straight or U))

Items 14-17 inclusive to be completed for ~~jacket 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., sngl.)) | -- (RT (spot or full)) | -- (eff. (%)) | -- (HT temp. (°F)) | -- (time) | -- (girth (dbl., sngl.)) | -- (RT (spot, partial, or full)) | -- (no. of courses)

16. Heads: (a) SA240-T304L (mat'l. (spec. no., grade)) (b) SA240-T304L (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)	R. End	.015	"0"	--	--	2:1	--	--	--	Concave
(b)	L. End	.015	"0"	--	--	2:1	--	--	--	Concave

If removable, bolts used (describe other fastenings): (12) 7/8" Dia. x 5-1/2" Lg. C/S studs SA193 B7 (mat'l., spec. no., gr., size, no.)

17. MAWP: 35/FV (psi) at max. temp. 300 (°F). Min design metal temp.: 20 (°F) at 35/FV (psi). Hydro., ~~pneu. or comb.~~ test pressure 60 (psi).

FORM U-1 (back)

18. Nozzles, inspection and safety valve openings:

Purpose (inlet, outlet, drain, etc.)	Number	Dia. or Size	Type	Mat'l	Nom. Thickness	Reinforcement Material	How Attached	Location
Inlet	1	4"	CL-150	SA312 T304L	Sch #10	Inherent	Welded	Bonnet
Outlet	1	3"	CL-150	SA312 T304	Sch #10	Inherent	Welded	Bonnet
Inlet and Outlet	2	1"	CL-150	SA312 T304	Sch #10	Inherent	Welded	Shell

19. Supports: Skirt -- (yes or no) Lugs 2 (no.) Legs -- (no.) Other -- (describe) Attached Welded to main shell (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)

Unit not designed for lethal service. Unit designed for non-corrosive service. Unit hydro-tested in horizontal position. Exempt from impact testing per Code paragraphs UG-20 (b), UCS-66 and UHA-51. Safety valve connection located elsewhere in system. One bonnet consisting of 10"x4" Sch #10 concentric reducer T-304, SA403.

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. 4328 expires Dec. 31, 19 91.

Date 8-28-91 Name Perry Products Corporation (manufacturer) Signed J. M. Hoh (representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by Perry Products Corporation at Hainesport, NJ

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the state or province of New Jersey and employed by Lumbermens Mutual Casualty Co of Long Grove, IL of _____ have inspected the pressure vessel described in this Manufacturers' Data Report on 8-28-, 19 91, 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 8/28/91 Signed _____ (Authorized Inspector) Commissions NB 7050, NJ 476 (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 _____ (Authorized Inspector) Commissions _____ (Nat'l. Bd. (incl. endorsements) state, prov. and no.)