

PO# PH982804F
Job No 15412

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

22" - 984 Sq.Ft.
FTSMX

- 1 Manufactured and certified by Perry Products Corporation 25 Mt. Laurel Road, Hainesport, NJ 08036
(Name and address of Manufacturer)
- 2 Manufactured for Calgon Corporation, PO Box 1346, Pittsburgh, PA 15230
(Name and address of Purchaser)
- 3 Location of installation Calgon Corporation, 9640 Bayport Blvd., Pasadena, TX 77507
(Name and address)
- 4 Type: Horizontal Heat Exchanger B-5789 --- D-98424 Rev. 1 5690 1999
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)
- 5 ASME Code, Section VIII, Div. 1 1995-97A --- ---
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): 1 (b) Overall length (ft & in.): 15' - 11 3/4"

| 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 | 22" | 15' - 11 3/4" | SA-53 GrB | | .375" | 0 | E | None | 85% | --- | --- | --- | --- | --- |

| 7 Heads: (a) <u>---</u> (b) <u>---</u> | | | | | | | | | | | | (Mat'l Spec. No., Grade or Type) H.T.-Time & Temp | | |
|--|--|-----------|-------|--------|---------|------------|------------|---------------|----------|------------------|---------|---|------------------|------|
| | | | | | | | | | | | | | | |
| Location (Top, Bottom, Ends) | | Thickness | | Radius | | Elliptical | Conical | Hemispherical | Flat | Side to Pressure | | Category A | | |
| | | Min. | Corr. | Crown | Knuckle | Ratio | Apex Angle | Radius | Diameter | Convex | Concave | Type | Full, Spot, None | Eff. |
| (a) | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (b) | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

If removable, bolts used (describe other fastening) ---

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

- 8 Type of jacket --- Jacket closure --- (Describe as ogee & weld, bar, etc.)
- If bar, give dimensions ---
- 9 MAWP 90 --- psi at max. temp. 300 --- °F. Min. design metal temp. 20 °F at 90 psi.
(internal) (external) (internal) (external)

- 10 Impact test No per Code paragraphs UG-20 (f), UCS-66(a) and UHA-51(d)(e).
(Indicate yes or no and the component(s) impact tested)

- 11 Hydro., pneu., or comb. test press. 135 Proof test ---
Items 12 and 13 to be completed for tube sections.

- 12 Tubesheet: SA-240 Tp316L 22" 1-1/2" 0 Welded
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)
- Body Flg. SA-516 Gr70 22-1/8" ID x 26-1/8" OD 1-3/4" 0 Retained by tubesheet
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

- 13 Tubes SA-249 TP316L 1" 18 GA. 235 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): 1/1 (b) Overall length (ft & in.): 1 @ 9" & 1 @ 12"

| 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 | 22" | 9" | SA-240 Tp316L | | 3/16" | 0 | 1 | None | 70% | 1 | None | 70% | --- | --- |
| 1 | 22" | 12" | SA-240 Tp316L | | 3/16" | 0 | 1 | None | 70% | 1 | None | 70% | --- | --- |

| 15 Heads (a) <u>SA-240 Tp316L</u> (b) <u>SA-240 Tp316L</u> | | | | | | | | | | | | (Mat'l Spec. No., Grade or Type) H.T.-Time & Temp | | |
|--|--|-----------|-------|--------|---------|------------|------------|---------------|----------|------------------|---------|---|------------------|------|
| | | | | | | | | | | | | | | |
| Location (Top, Bottom, Ends) | | Thickness | | Radius | | Elliptical | Conical | Hemispherical | Flat | Side to Pressure | | Category A | | |
| | | Min. | Corr. | Crown | Knuckle | Ratio | Apex Angle | Radius | Diameter | Convex | Concave | Type | Full, Spot, None | Eff. |
| (a) I. End | | 0724" | --- | --- | --- | 2:1 | --- | --- | --- | --- | Yes | S | None | 85% |
| (b) R. End | | 0724" | --- | --- | --- | 2:1 | --- | --- | --- | --- | Yes | S | None | 85% |

If removable, bolts used (describe other fastening) ---

SA-193 GrB7, 5/8" Dia. x 7" Lg., (40)
(Mat'l Spec. No., Grade, Size, No.)

RR 1026.10

16. MAWP 90 (internal) (external) psi at max. temp. 300 (internal) (external) °F Min. design metal temp. 20 °F at 90 psi.

17. Impact test No per Code paragraphs UG-20 (f), UCS-66(a) and UHA-51(d)(e).

(Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. 141

Proof test ---

19. Nozzles, inspection, and safety valve openings:

| Purpose (inlet, Outlet, Drain, etc.) | No. | Diameter or Size | Flange Type | Material | | Nozzle Thickness | | Reinforcement Material | How Attached | | Location (Insp. Open) |
|--------------------------------------|-----|------------------|---------------|---------------|--------|------------------|-------|------------------------|--------------|--------|-----------------------|
| | | | | Nozzle | Flange | Nom. | Corr. | | Nozzle | Flange | |
| Inlet | 1 | 6" | CL150 LJ | SA-312 TP316L | SA-105 | .134" | 0 | --- | d | 1a | --- |
| Inlet/Outlet | 2 | 3" | CL150 SO | SA-106 GrB | SA-105 | .216" | 0 | --- | d | 3 | --- |
| Outlet | 1 | 3" | CL150 LJ | SA-312 TP316L | SA-105 | .216" | 0 | --- | d | 1a | --- |
| Vent | 1 | 3/4" | Half Coupling | SA-182 F316L | --- | 3000# | 0 | --- | d | --- | --- |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

20. Supports: Skirt --- Lugs --- Legs --- Others (2) Saddles Attached Welded to main shell.
(Yes or No) (No.) (No.) (Describe) (Where and How)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:

(List the name of part, item number, mfg's. name and identifying number)

22. Remarks: Unit not designed for lethal service. UG-46(a). For noncorrosive service.

Unit hydro-tested in horizontal position. Safety valve installed elsewhere in system.

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 12/31 2000

Date 1/19/99 Name Perry Products Corporation Signed B. March
(Manufacturer) (Representative)

CERTIFICATE OF SHOP 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 NJ and employed by HSB I&I Co. of Hartford, CT have inspected

the pressure vessel described in this Manufacturer's Data Report on JAN 19, 1999, 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 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 JAN 19 1999 Signed [Signature] Commissions NB 7050AB, NJ 476
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1.

U Certificate of Authorization No. --- Expires ---

Date --- Name --- Signed ---
(Assembler) (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 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 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 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 --- Signed --- Commissions ---
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)