

114253

FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS
As Required by the Provisions of the ASME Code Rules Section VIII Division I.

1. Manufactured by THE PATTERSON-KELLEY CO., INC. — EAST STROUDSBURG, PENNA.
(Name and address of Manufacturer)

2. Manufactured for Lasix Facility Covertry, Rhode Island
(Name and address of Purchaser) PA. STD.

3. Type Horiz. Kind Exch. Vessel No. 210927 (Mfrs. Serial) 35139 (State & State No.) Nat'l Bd. No. 35139 Yr. Built 1970
(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 TP316 S. 75,000 Nominal Thickness 3/16" in. Allowance 3/16" in. Diam. 1 ft. 8 in. Length 9 ft. 3 in.
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)

5. SEAMS: Long Welded Dbl. H.T. No R.T. None Sectioned No Efficiency 70 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No)(1) (Spot or Complete) (Yes or No)

Girth Welded Dbl. H.T. No R.T. None Sectioned No No. of Courses 1

If riveted describe seams fully on reverse side of form.

6. HEADS: (a) Material T.S. (b) Material T.S.
Location Thickness Crown Radius Knuckle Radius Elliptical Ratio Conical Apex angle Hemispherical Radius Flat Diameter Side to Pressure (Convex or Concave)

(a) SEE TUBE SHEETS BELOW

(b) SEE TUBE SHEETS BELOW

If removable, bolts used SEE TUBE SHEETS BELOW Other fastening SEE TUBE SHEETS BELOW
(Material, Spec. No., T.S., Size, Number) (Describe or Attach Sketch)

7. STAYBOLTS: SEE TUBE SHEETS BELOW If hollow SEE TUBE SHEETS BELOW Attachments SEE TUBE SHEETS BELOW Pitch SEE TUBE SHEETS BELOW X (Horiz.) (Vert.) Diam. SEE TUBE SHEETS BELOW
(Material) (Size of Hole) (Threaded, Welded) (Nominal)

8. JACKET CLOSURE: SEE TUBE SHEETS BELOW
(Describe as ogee & weld, bar, etc. If bar give dimensions, if bolted, describe or sketch)

9. Constructed for max. Vac. & allowable working press. (2) 60 psi. at max. temp. 300 °F. Min. temp. (when less than -20°) 300 °F. Hydrostatic Test Press. 100 psi.
Hydrostatic Pneumatic Combustion

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material SA240 TP316 Diam. 19 9/16" in. Thickness 1 3/16" in. Attachment Welded
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)

Floating. Material SA 249 Diam. 19 9/16" in. Thickness 1 3/16" in. Attachment Welded
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)

11. TUBES: Material Stainless Stl. TP 316 O.D. 1" in. Thickness 18 BWG inches or gage. Number 164 Type Straight
(Kind & Spec. No.) (Straight or U)

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

12. SHELL: Material T.S. Nominal Thickness 3/16" in. Allowance 3/16" in. Diam. 1 ft. 8 in. Length 9 ft. 3 in.
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)

13. SEAMS: Long Welded Dbl. H.T. No R.T. None Sectioned No Efficiency 70 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No)(1) (Spot or Complete) (Yes or No)

Girth Welded Dbl. H.T. No R.T. None Sectioned No No. of Courses 1

14. HEADS: (a) Material SA285GrC T.S. 55,000 (b) Material T.S. (c) Material T.S.
Location Thickness Crown Radius Knuckle Radius Elliptical Ratio Conical Apex angle Hemispherical Radius Flat Diameter Side to Pressure (Convex or Concave)

(a) Top, Bottom, ends 3/8" 20" 1 1/4" Concave

(b) Channel

(c) Floating

If removable, bolts used (a) SA 193 B7 125,000 3/4" x 24 (b) SEE TUBE SHEETS BELOW
(Material Spec. No., T.S., Size, Number) (Describe or Attach Sketch)

(c) SEE TUBE SHEETS BELOW Other fastening SEE TUBE SHEETS BELOW

15. Constructed for max. 60 psi. at max. temp. 120 °F. Min. temp. (when less than -20°) 120 °F. Hydrostatic Test Press. 90 psi.
Hydrostatic Pneumatic Combustion

Items below to be completed for all Vessels where applicable.

16. SAFETY VALVE OUTLETS: Number 1 Size 1/2" Location Elsewhere In System

17. NOZZLES:

Purpose, (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
Inlet	1	8"	150#FLG.	SA312 TP316	.322		Welded
Outlet	1	3"	"	"	.216		"
Drain	1	2"	"	"	.154		"

18. INSPECTION Manholes, No. 0 Size 0 Location Not Practical
OPENINGS: Handholes, No. 0 Size 0 Location 0
Threaded, No. 0 Size 0 Location 0

19. SUPPORTS: Skirt 0 Lugs 0 Legs 0 Other Cradles Attached Weld to shell
(Yes or No) (Number) (Number) (Number) (Describe) (Where & How)

20. REMARKS: Patterson Type "O" Heat Exchanger built in according with the ASME UPV Code.
Contents: Shell-Product Tubes-Water

(Over)

Additional Openings:

1 3" 150#FLG. SA312 .216 Welded

Bonnet Openings:

2 4" 150#FLG. SA53GrB .237 Welded
1 3/4" FPT. Stl. "

We certify that the statements made in this report are correct and that all details of material, construction and workmanship of this unfired pressure vessel conform to the ASME Code for Unfired pressure Vessels. Section VIII Division 1.

Date 4/14/71 19 Signed THE PATTERSON-KELLEY CO., INC. By C. J. Seible
(Manufacturer)

Chief Inspector

Certificate of Authorization Expires 12-31 73

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY Patterson-Kelley Co., Inc. at East Stroudsburg, Pa.

I the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of PA. and employed by FM Group of Ins. Companies of Phila. Mfgers. Mutual Ins. Co. have inspected the pressure vessel described in this manufacturer's data report on 4/14/71 19, 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 4/14/71 19

Inspector's Signature

Commissions

PA. 1978

Nat'l Board or State and No.

CN 3602D New Head 114253

FORM U-2 MANUFACTURER'S PARTIAL DATA REPORT
A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by M&M Welding & Fabricating Co., Inc. Rt 117 Coventry, RI 02816
(Name and address of manufacturer)

2. Manufactured for Hoechst Celanese Corporation 500 Washington St. Coventry, RI 02816
(Name and address of purchaser)

3. Location of Installation SAME
(Name and address)

4. Type Hor 95-376 B 47222-1 1995
(Horiz. or vert. tank) (Mfg's serial No. of Part) (CRN) (Drawing No.) (Net T. 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 Rules, Section VIII, Division 1 1992 Year
A 94

Addenda (Date) Code Case No. Special service per UG-120(d)

6. (a) Drawing prepared by Patterson Kelly (b) Description of part inspected Heat Exchanger Head

7. Postweld heat treatment: Temp. °F Time

Items 8-13 incl. to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers

8. Shell:
Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft & in.) Length (overall) (ft & in.)

9. Seams:
Long. (Wld., Dbl., R.T. (Spot or Full) Eff. (%) H.T. Temp. (°F) Time Girth (Wld., Dbl., R.T. (Spot, Partial, No. of Courses
Sngl., Lap, Butt) Sngl., Lap, Butt) or Full)

10. Heads: (a) Matl. SA 234 WPB (b) Matl.
(Spec. No., Grade) (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)	End	.218"	.063"			2:1				Concave
(b)										

If removable, bolts used (describe other fastenings)
(Matl., Spec. No., Gr., Size, No.)

11. Type of Jacket Proof Test

12. Jacket Closure If bar, give dimensions
(Describe as edges & weld, bar, etc.)

If bolted, describe or sketch.

13. MAWP 60 psi at max. temp. 120 °F. Min. design metal temp. -20 °F at 60 psi.
Hydro., pneu., or comb. test press. 90 psi.

Items 14 and 15 to be completed for tube sections

14. Tubesheets:
Stationary Matl. (Spec. No., Gr.) Diam. (in.) (Subject to pressure) Nom. Thk. (in.) Corr. Allow. (in.) Attach. (Wld., Bolted)

Floating Matl. (Spec. No., Gr.) Diam. (in.) Nom. Thk. (in.) Corr. Allow. (in.) Attach.

15. Tubes:
Matl. (Spec. No., Grade) O.D. (in.) Nom. Thk. (in. or gauge) No. Type (straight or "U")

Items 16-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers

16. Shell:
Matl. (Spec. No., Gr.) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft & in.) Length (overall) (ft & in.)

17. Seams:
Long. (Wld., Dbl., R.T. (Spot or Full) Eff. (%) H.T. Temp. (°F) Time Girth (Wld., Dbl., R.T. (Spot, Partial, No. of Courses
Sngl., Lap, Butt) Sngl., Lap, Butt) or Full)

18. Heads: (a) Matl. (b) Matl.
(Spec. No., Grade) (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)
(Matl., Spec. No., Grade, Size, No.)

Form U-2 (Back)

19. MAWP _____ psi at max. temp. _____ °F. Min. design metal temp. _____ °F at _____ psi.
Hydro, pneu., or comb. test press. _____ psi.

Items below to be completed for all vessels where applicable

20. Nozzles, Inspection and Safety Valve Openings:

[illegible]

21. Supports: Skirt NO Lugs Legs Other Attached
(Yes or no) (No.) (No.) (Describe) (Where and how)

22. Remarks: Impact Exempt per UG 20 (f)
Channel Divided Heat Exchanger Head (Replacement Part)

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

"U" Certificate of Authorization No. 11,879 expires 4/30 19 97
 Date 9-6-95 Co. name M&M Welding & Fabricating Co., Inc. Signed William J. Smith
 (Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

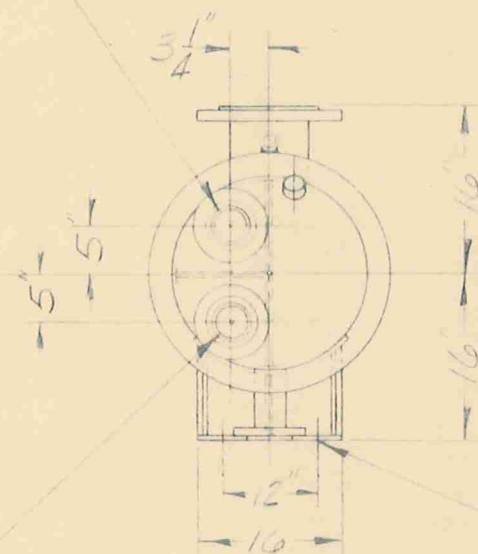
I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Rhode Island and employed by Commercial Union Insurance Co., Inc.
of Boston, MA have inspected the pressure vessel described in this Manufacturer's Partial Data Report on _____ ✓

19 _____, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this part in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the part described in this Manufacturers' Part 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 9-6-95 Signed [Signature] Commissions NB 7169, B, R1734
(Net'l Board (incl. endorsements), State, Prov. and No.)

WORKING DRAWING
C-39173

4"-150# A.S.A.-R.F.-S.O.
WATER OUTLET



4"-150# A.S.A.-R.F.-S.O.
WATER INLET

A.S.M.E. A03 CODE (SEC. VIII)
CONSTRUCTION WITH INS. CO.
CERTIFICATE.

3/4"-F.P.T.
VENT
PLUG, C.I.

2-1 1/16" φ HOLES
EA. CRADLE

8"-150# A.S.A.-R.F.-S.O.
PRODUCT INLET

3"-150# A.S.A.-R.F.-S.O.
VACUUM CONN.



2"-150# A.S.A.-R.F.-S.O.
SPARE CONN.

2-CRADLES, STL.
WELD TO SHELL

3"-150# A.S.A.-R.F.-S.O.
PRODUCT OUTLET

316 S.S. TUBING & SHELLSIDE
WETTED SURFACES, BALANCE
CARB. STEEL.

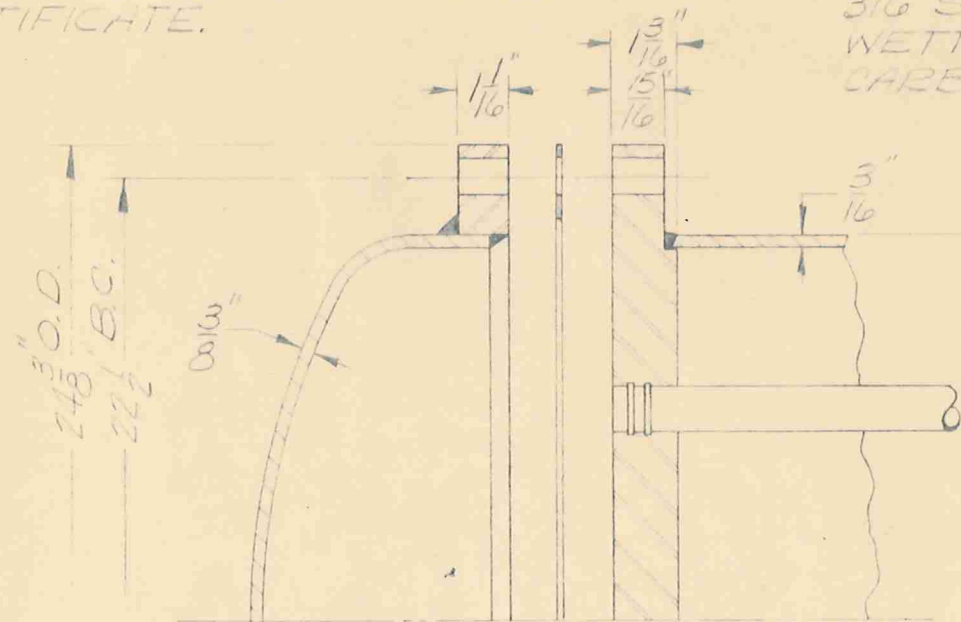
APPROVED ONLY FOR
EXTERNAL DIMENSIONS.
FOR BILL OF MAT'L'S,
BAFFLES AND OTHER
DETAILS REFER TO
DRAWING # C-39173

AUG 31 1970

Hen

OVERHEAD CONDENSER
DANIEL CONSTRUCTION CO. OF VIRGINIA
LASIX FACILITY, AMERICAN HOECHST CORP.
COVENTRY, RHODE ISLAND
P.O. NO 7048-11002-1
ITEM NO 254
UNIT TO CONTAIN 164-1" O.D. X #18 BWG #316 S.S.
WELDED AVG. WALL TUBES ON 1 1/4" TRI. PITCH.

CERTIFIED CORRECT H.W. Shields
CHIEF DRAFTSMAN



TYPICAL FLANGE DETAIL

WEIGHT:
EMPTY 2,100 LBS.

- (1) TUBE ENDS TO BE SEAL
WELDED BY KYNEX.
- (2) SAND BLAST & PAINT EXTERIOR
CARB. STL. PARTS WITH MOBIL
PRIMER 13650.

P-K TYPE "O". MODEL 20-8 1/3 4-PASS TUBESIDE 1-REQ'D.	
THE PATTERSON-KELLEY CO., INC. EAST STROUDSBURG, PA.	
DRAWN BY—JOHN	REFERENCE No. 210927
CHECKED BY—GEO.	
APPROVED—	
DATE—6-8-70	FILE-B DWG. No. B-47222-1

REVISION RECORD						DESIGN TEMP.	PRESSURE DATA	
NO.	REVISION	DATE	BY	CK. BY	NO. PRINTS		D.P.	T.P.
-1	REVISE PER CUST.	3-21-70	J.H.G			TUBES	60 P.S.I.G.	90 P.S.I.G.
MK						SHELL	FULL VAC & 60 P.S.I.G.	100 P.S.I.G.

114253