

1. Manufactured by Camden Alloy Fabricators Camden, N.J. E-4100-2B
(Name and address of Manufacturer)
2. Manufactured for Hercules Incorporated Hanover Plant Wilmington, N.C.
(Name and address of Purchaser)
3. Type Horiz Kind Heat Exch. Vessel No. 72-5417 8 (Wrs. Serial) (State & State No.) Natl. Bd. No. Yr. Built 1972
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.)
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 C/S SA515-70 T.S. 70000 Nominal 7/16 Corrosion 1/16 In. Allowance In. Diam. 2 7-7/8 In. Length 24 0-1/16
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.) Thickness In. Ft. In. Length Ft. In.
5. SEAMS: Long DBL. Butt H.T. NO R.T. Spot Sectioned NO Efficiency 85 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
** DBL. & Single Butt Girth UN 13.2 (6) H.T. NO R.T. Spot Sectioned NO No. of Courses 4
(If riveted describe seams fully on reverse side of form.)
6. HEADS (a) Material T.S. (b) Material T.S.
(Top, bottom, ends) Thickness 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 (Material, Spec. No., T.S., Size, Number) Other fastening (Describe or Attach Sketch)
7. STAYBOLTS: If hollow Attachment Pitch X Diam.
(Material) (Size of Hole) (Threaded, Welded) (Horiz.) (Vert.) (Nominal)
8. JACKET CLOSURE: (Describe as ogee & weld, bar, etc. If bar, give dimensions, if bolted, describe or sketch)
9. Constructed for max. allowable working press. 175 psi at max. temp. 375 °F. Min. temp. (when less than -20°) --- °F. Hydrostatic Test Press 203 psi.
(Pneumatic or Combination)
Items 10 and 11 to be completed for tube sections:
10. TUBE SHEETS: Stationary. Material 316S/S SA-240 Diam. 31-7/8 In. Thickness 1-5/8 In. Attachment welded
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)
Both Floating. Material 316S/S SA-240 Diam. 31-7/8 In. Thickness 1-3/4 In. Attachment Bolted
(Kind & Spec. No.)
11. TUBES: Material 316S/SSA249 O.D. 3/4" In. Thickness 16 Inches or Gage Number 790 Type Straight
(Kind & Spec. No.) (Straight or U)
12-15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.
12. SHELL Material T.S. 75000 Nominal 3/8 Corrosion 0 In. Allowance In. Diam. 2 7-7/8 In. Length 2 11-1/4
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.) Thickness In. Ft. In. Length Ft. In.
13. SEAMS: Long DBL. Butt H.T. NO R.T. Spot Sectioned NO Efficiency 85 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)
Girth UN 13.2 (6) H.T. NO R.T. Spot Sectioned NO No. of Courses 1 ea. end
(If riveted describe seams fully on reverse side of form.)
14. HEADS (a) Material T.S. 70000 (b) Material T.S. (c) Material T.S.
(a) Top, bottom, ends 316S/S SA240 Inner Crown Radius Knuckle Radius Elliptical Ratio Conical Apex Angle Hemispherical Radius Flat Diameter Side to Pressure (Convex or Concave)
(b) Channel
(c) Floating
If removable, bolts used (a) AL ST. SA193B7, 125000, 3/4, 04 (b)
(Material, Spec. No., T.S., Size, Number)
(c) Other fastening (Describe or Attach Sketch)
15. Constructed for max. allowable working press. 175 psi at max. temp. 375 °F. Min. temp. (when less than -20°) --- °F. Hydrostatic Test Press 203 psi.
(Pneumatic or Combination)
Items below to be completed for all vessels where applicable.
16. SAFETY VALVE OUTLETS: Number Size Location
17. NOZZLES
Purpose (Inlet, Outlet, Drain) Number Diam. or Size Type Material Thickness Reinforcement Material How Attached
Inlet & Outlet 2 20" L.J. 316S/SSA240 1/4" None Welded
Inlet & Outlet 2 12" S.O. C/S SA 1008 Sch. 40 None Welded
Vent & Drain 2 3/4" Coup. 316S/S 3000# None Welded
Vent & Drain 2 3/4" Coup. F.S.T. 2500# None Welded
1 5" L.J. 316S/SSA312 Sch. 40 None Welded

FORM U-1 (back)

INSPECTION Manholes, No. _____ Size _____ Location _____
 OPENINGS: Handholes, No. _____ Size _____ Location _____
 Threaded, No. _____ Size _____ Location _____
 SUPPORTS: Skirt NO Lugs NO Legs NO Other (2) Saddles Attached Shell, WE
 (Yes or No) (Number) (Number) (Describe) (Where & How)

REMARKS: This vessel is a (1) Pass Oxidizer Cooler 3720 sq.ft.

Vessel is not designed for Lethal Service

* Long Seam of shell sections fabricated at Phoenix Steel Corp. See Partial

Data Report # 6394, 6395

* Vessel has fabricated Expansion Joint consisting of (2) flanged & flued heads

Material is C/S SA-515-70 overall length 30' 2-3/4"

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)

Contents tube side Oxidizer off gas shell-side cooling water.

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 I.

Date Aug 10 1972 Signed Camden Alloy Fabricators By Frank E. Hoffman
 (Manufacturer)

Certificate of Authorization Expires 12-31-78

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY Camden Alloy Fabricators at Camden, New Jersey

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 MASSACHUSETTS and employed by FACTORY MUTUAL GRP. OF INS. CO. 7431 CO. have inspected the pressure vessel described in this manufacturer's data report on AUG 10 1972 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 AUG 10 1972

Inspector's Signature
 Inspector's Signature

Commissions NB3954 PA1515
 Nat'l Board, State, or Province and No.

CERTIFICATE OF FIELD ASSEMBLY 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 _____ and employed by _____ 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 that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code. 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 _____ 19 _____

Inspector's Signature _____ Commissions _____
 Nat'l Board, State, or Province and No.

E-6100-2BR

FORM U-2 MANUFACTURER'S PARTIAL DATA REPORT

JOB NO.: 22262

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 Manning & Lewis Engineering Company 675 Rahway Ave. Union, NJ 07083
(Name and address of Manufacturer)
2. Manufactured for KOSA - WILMINGTON PLANT PO BOX 327, WILMINGTON NC 28402-0327
(Name and address of Purchaser)
3. Location of installation KOSA - WILMINGTON PLANT 4600 HWY 421 NORTH WILMINGTON NC 28401
(Name and address)
4. Type: Shell 17638
(Description of vessel part (shell, two-piece head, tube bundle)) (Mfg's serial No.) (CRN)
- 9146 C-24267-1 2002
(Nat'l. Bd. No.) (Drawing No.) (Drawing prepared by) (Year built)
5. ASME Code, Section VIII, Div. 1 2001, 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): 6 SEE ITEM No. 21 (b) Overall length, (ft & h.): 23 FT - 9 1/4 IN.

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length, (ft. & h.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
2	32"	12' - 0"	SA-516Gr.70		1/2"	1/16"	1	Spot	85%	1	Spot	70%		
1	32"	4' - 1/8"	SA-516Gr.70		1/2"	1/16"	1	Spot	85%	1	Spot	70%		
1	32"	2' - 10 1/8"	SA-516Gr.70		1/2"	1/16"	1	Spot	85%	1	Spot	70%		

7. Heads: (a) _____ (b) _____
(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.)

8. Type of jacket _____ Jacket closure _____
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions _____

9. MAWP 175 _____ psi at max. temp. 375 _____ °F Min. design metal temp. 50 _____ °F at 375 _____ psi.
(internal) (external) (internal) (external)

10. Impact test NO, CHARPY IMPACT TEST EXEMPT PER UCS-66(a), UHA-51 at test temperature of _____ °F.
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. Hydro - 228 Proof test _____
Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-240-2205 31" 1 5/8" 0 Welded
(Stationary (Mat'l. Spec. No.)) (Dia., in. (subject to press.)) (Nom. thk., in.) (Corr. Allow., in.) (Attachment (welded or bolted))

Floating (Mat'l Spec. No.) _____ (Dia., in.) _____ (Nom. thk., in.) _____ (Corr. Allow., in.) _____ (Attachment)

13. Tubes: SA789-2205 3/4" 16 GA. 790 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): _____ (b) Overall length, (ft & h.): _____

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length, (ft. & h.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time

Platcom 01-02E01

104284

If removable, bolts used (describe other fastening)

16. МАУП

(internal)

(external)

psi at max. temp.

(internal)

(external)

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

°F. Min. design metal temp.

of at

psf.

18. Hydro., pneu., or comb. test press.
19. Nozzles, inspection

Purpose (Inlet.			

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

Proof test

at test temperature of _____ °F

20. Supports: Skirt

No

(Yes or No)

Lugs

(No.)

Legs

2

Others

(Describe)

Attached

Welded to Shell
(Where and how)

21. Remarks:	Lugs		Legs	Others	(Describe)	Attached	Welded to Shell (Where and how)
	(Yes or No)	(No.)					
32-288 OXIDATION EXCHANGER SHELL SECTION. SHELL SIDE HAS (2) 47"OD x 1/2 TK x 5 1/2 OA FLANGED AND			2				
FLUED EXPANSION JOINT. MAT'L SA516-70.							
ATTACHED CHANNELS FROM UNIT BUILT BY CAMDEN ALLOY FABRICATORS. SN: 72-5417B, NAT. BD.: 917. SEE R-1 FORM							
SAFETY DEVICE PROVIDED BY OTHERS. UG-46a							

SAFETY DEVICE PROVIDED BY OTHERS. UG-46a

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

CERTIFICATE OF SHOP/FIELD COMPLIANCE

Certificate of Authorization No. 1574

Date OCT 07 2002 Expires 03/31

By Manning & Jones

Date **OCT 07 2002** Time 1574 Division 1.
Manning & Lewis Engineering Company
 (Manufactured)

Expires 03/31

the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of NI
and employed by HSB CT, and state that, to the best of my knowledge and belief, the
pressure vessel part described in this Manufacturer's Data Report on SEP 11 2002 of Hartford, CT
Manufacturer has constructed this pressure vessel part in accordance with ASME Code Section VIII, Division 1. By signing this certificate neither the Inspector nor
employer makes any warranty, expressed or implied, concerning the pressure vessel part described in this Manufacturer's Data Report. Furthermore, neither
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
action.
Signed [Signature] on OCT 07 2002
(Authorized Inspector) NB 7050AB

Signed

(Representative

OCT 07 2002

Commissions

NB 7050AB, NJ 476
(Nat'l Board Incl. endorsement, State, Province and No.)

