

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 ENERGY EXCHANGER COMPANY, 1844 NORTH GARNETT ROAD, TULSA, OK 74116
(Name and address of Manufacturer)

Manufactured for D-COK LLC, 3657 BRIAR PARK DRIVE, HOUSTON, TEXAS 77042-5205
(Name and address of Purchaser)

3. Location of installation GIANT INDUSTRIES, GRAFTON, VIRGINIA
(Name and address)

4. Type: HORIZONTAL HEAT EXCHANGER X-7262-B X-7262-A2 REV. 2 5264 2007
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 2004 EDITION, 2005 ADDENDA 2519
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): 3 (b) Overall length (ft & in.): 22'-7 1/2"

| 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 |
| 2 | 59" I.D. | 8'-0" | SA-516-70 | 1" | 1/8" | 1 | FULL | 1.0 | 1 | FULL | 1.0 | --- | --- |
| 1 | 59" I.D. | 6'-7 1/2" | SA-516-70 | 1" | 1/8" | 1 | FULL | 1.0 | 1 | FULL | 1.0 | --- | --- |

7. Heads: (a) SA-516-70 (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 |
| (a) | END | 15/16" | 1/8" | | | 2:1 | | | | | X | S | | NONE | 1.0 |
| (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 If bolted, describe or sketch.
MAWP 497 15 psi at max. temp. 500 366 °F Min. design metal temp. 0 °F at 497 psi.
(internal) (external) (internal) (external)

10. Impact test NO; SHELL SIDE DESIGNED PER UCS-66(a)(c)(g) & UG-20(f) at test temperature of ... °F
(Indicate yes or no and the component(s) impact tested)

11. Hydro., ~~proof~~, ~~burst~~ test press. 729 PSIG Proof test ...

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-350-LF2,CL1 60 9/16 6 3/4" 3/8 BOLTED
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: SA-179 3/4 0.083 MIN 785 U
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.): 3'-6 7/16"

| 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 | 59" I.D. | 3'-6 7/16" | SA-516-70N | 1 1/4" | 1/8" | 1 | FULL | | 1.0 | 1 | FULL | | 1.0 | ... | ... |
| | | | | | | | | | | | | | | | |

15. Heads: (a) SA-350-LF2,CL1 (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) | END | 7" | 3/16" | | | | | | 60 9/16" | | | | | |
| (b) | | | | | | | | | | | | | | |

If removable, bolts used (describe other fastening) (a) SA-193-B7, 1 1/2", 60;; CHAN-TO-SHELL: SA-193-B7, 1 1/2", 60
(Mat'l Spec. No., Grade, Size, No.)

16. MAWP 625 15 psi at max. temp. 500 366 °F Min. design metal temp. 0 °F at 625 psi.
(internal) (external) (internal) (external)

17. Impact test NO; CHANNEL SIDE DESIGNED PER UCS-66(a)(c)(g) & UG-20(f) at test temperature of --- °F
(Indicate yes or no and the component(s) impact tested)

18. Hydro., ~~PSI~~, ~~PSI~~ test press. 813 PSIG 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/OUTLET | 1/1 | 12"-600# | RFWN | SA-106-B | SA-105-N | .688" | 1/8" | SA-516-70N | WELDED | WELDED | CHANNEL |
| PG/TW | 2/2 | 1 1/2"-600# | RFLWN | SA-105-N | --- | .630" | 1/8" | WELD | WELDED | --- | CH. NOZS. |
| OUTLET | 1 | 14"-600# | RFWN | SA-106-B | SA-105-N | .750" | 1/8" | SA-516-70 | WELDED | WELDED | SHELL |
| INLET | 1 | 16"-600# | RFWN | SA-106-B | SA-105-N | .844" | 1/8" | SA-516-70 | WELDED | WELDED | SHELL |
| PG/TW | 2/2 | 1 1/2"-600# | RFLWN | SA-105-N | --- | .630" | 1/8" | WELD | WELDED | --- | SH. NOZS. |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

20. Supports: Skirt NO Lugs --- Legs --- Others (2) BELLY BANDS Attached SHELL; WELDED
(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: SERVICE: REACTOR FEED/EFFLUENT EXCHANGER, P.O. NO: 56603-P-12-04, ITEM NO: E-641 B, SIZE: 59-264, TYPE: AFU

TUBES DESIGNED W/ 0" C.A. PRESSURE RELIEF DEVICES PROVIDED BY OTHERS.

LINES 6-11 INCLUDE (1) 69 5/8 O.D. x 59 I.D. x 9 5/8" THK., SA-350-LF2, CL1, RING

LINES 14-18 INCLUDE (2) 69 5/8" O.D. x 59" I.D. x 8 15/16" THK., SA-350-LF2, CL1, RING

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. 12370 Expires 9/27/2007

Date 4-11-07

Name ENERGY EXCHANGER COMPANY

(Manufacturer)

Signed

Edgar O. Over

(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 OKLAHOMA and employed by OneBeacon America Insurance Company of BOSTON, MASS. have inspected the pressure vessel described in this Manufacturer's Data Report on 4-11-07, 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 4-11-07

Signed

[Signature]

(Authorized Inspector)

Commissions N.B.# 11921 BA OKLA.# 823

(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 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

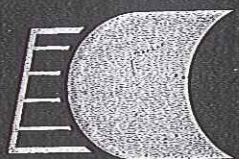
[Signature]

(Authorized Inspector)

Commissions

(Nat'l Board incl. endorsement, State, Province and No.)

1B 5264



CERTIFIED BY
Energy Exchanger Company
TULSA, OKLAHOMA

W
RT-1

| | | | | | | | |
|-------------------------|---------------------------------|----------|---|------|------------|-------|---------------|
| MAWP SHELL | 49.71* | P.S.I.G. | @ | 500* | OF | 729 | TEST P.S.I.G. |
| MAWP TUBE | 62.5* | P.S.I.G. | @ | 500* | OF | 813 | TEST P.S.I.G. |
| MIN. DESIGN METAL TEMP. | | SHELL | | 0 | OF @ | 49.7* | P.S.I.G. |
| | | TUBE | | 0 | OF @ | 62.5* | P.S.I.G. |
| SERIAL NO. | X-7232 P | | | | YEAR BUILT | 2007 | |
| P.O. NO. | 56603-P-12-04 | | | | | | |
| SERVICE | REACTOR FEED/EFFLUENT EXCHANGER | | | | | | |

ITEM **E-641B** SIZE **59-264** TYPE **AFU**

*MAX ALLOW EXT. PRESS. = 15 PSIG @ 366°F.

FIELD TEST PRESS.: SHELL = 64.7 PSIG; TUBE = 81.3 PSIG

SSO
OK