

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS

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

#101088

1. Manufactured and certified by KRUEGER ENGINEERING & MFG. COMPANY, INC. 12001 HIRSCH ROAD Houston, Texas 77050
(name and address of manufacturer)
2. Manufactured for: REFRIGERATION ENGINEERING SAN ANTONIO, TEXAS
(name and address of purchaser)
3. Location of installation: REFRIGERATION ENGINEERING SAN ANTONIO, TEXAS
(name and address)
4. Type: HORIZ HT-EX 89-111 89-111 2017 1990
(short or full name) (ref's serial no.) (CRN) (drawing no.) (NAI 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 Code, Section VIII, Division 1: 1989
(year)
- (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: SA-516-70 .875" .125" 2'-8" 19'-6 1/2"
(mat'l spec. no., grade) (nom thickness (in.)) (corr allow (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))
7. Seams: DBL. SPOT 85 N/A - DBL. SPOT 3
(long (dbl., singl.)) (RT (spot or full)) (ell (%) (HT temp (°F)) (line) (girth (dbl., singl.)) (RT (spot, partial, or full)) (no. of courses)
8. Heads: (a) SEE LINE 12 (b) _____
(mat'l spec. no., grade) (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 | Sides 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: _____ If bar, give dimensions: _____ If bolted, describe or sketch.
(describe as open & weld, bar, etc.)
11. MAWP: 600 at max. temp. 300 Min design metal temp.: -6 at 600 Hydro. XXXXXXX test pressure 900
(psi) (°F) (°F) (psi) (psi)

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: SA-516-70 32.000" 3.625" .250" WELDED & BOLTED
(stationary mat'l spec. no., gr.) (dia. (in.) (subject to pressure)) (nom thickness (in.)) (corr. allow. (in.)) (attachment (welded, bolted))
- _____ (floating mat'l spec. no., gr.) (dia. (in.)) (nom thickness (in.)) (corr. allow. (in.)) (attachment)
13. Tubes: SA-214 .750" .065" 886 STRAIGHT
(mat'l spec. no., gr.) (OD (in.)) (nom thickness (n. or gauge)) (no.) (type (straight or U))

Items 14-17 inclusive to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell: SA-516-70 .750" .125" 2'-8" 1'-8 1/2"
(mat'l spec. no., gr.) (nom thickness (in.)) (corr allow (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))
15. Seams: DBL SPOT 85 N/A - DBL SPOT 1
(long (dbl., singl.)) (RT (spot or full)) (ell (%) (HT temp (°F)) (line) (girth (dbl., singl.)) (RT (spot, partial, or full)) (no. of courses)
16. Heads: (a) SA-516-70 (b) SA-516-70
(mat'l spec. no., grade) (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 | Sides to Pressure (convex or concave) |
|-----|------------------------------|-------------------|---------------------|--------------|----------------|------------------|--------------------|----------------------|---------------|---------------------------------------|
| (a) | END | .625" | .125" | - | - | 2:1 | - | - | - | CONCAVE |
| (b) | END | .625" | .125" | - | - | 2:1 | - | - | - | CONCAVE |

If removable, bolts used (describe other fastenings): _____

SA-193 B-7 1 1/8"-72

(mat'l, spec. no., gr., size, no.)

17. MAWP: 400 at max. temp. 300 Min design metal temp.: -6 at 400 Hydro. XXXXXXX test pressure 600
(psi) (°F) (°F) (psi) (psi)

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PARA: UG-125 NOTE 39

SERIAL NO. 89-111

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
TUBE IN	ONE	4"-300#	RF-WN	SA-106-B	.438"	SA-516-70	WELDED	TUBE
TUBE OUT	ONE	10"-300#	RF-WN	SA-106-B	.500"	SA-516-70	WELDED	TUBE
SHELL IN	ONE	6"-300#	RF-WN	SA-106-B	.432"	SA-516-70	WELDED	SHELL
SHELL OUT	ONE	6"-300#	RF-WN	SA-106-B	.432"	SA-516-70	WELDED	SHELL
	EIGHT	3/4"	CPLG.	SA-105	6000#	-	WELDED	OWN/SHELL
	TWO	3/4"	CPLG.	SA-105	6000#	-	WELDED	SHELL
	TWO	1"	CPLG.	SA-105	6000#	-	WELDED	SHELL

19. Supports: Skirt NO Lugs --- Legs --- Other SADDLES Attached WELD TO SHELL
(yes or no) (no) (no) (describe) (when 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)

VAPORIZER 32 X 240 BEH

MIN. TEMP. UG-20 (f)

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. 20962 expires JAN. 10, 19 92

Date 1-11-90 Name KRUEGER ENGINEERING & MFG. COMPANY, INC.
(manufacturer)

Signed J. John
(representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by KRUEGER ENGINEERING & MFG. COMPANY, INC. at HOUSTON, TEXAS

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the state or province of TEXAS and employed by H.S.B.I. & I. CO.

of CONN. have inspected the pressure vessel described in this Manufacturers' Data Report on 11 Jan, 19 90, 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 1-11-90 Signed Frank A. Powell Commissions NB-7599
(Authorized Inspector) (Mat'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 --- Signed ---
(assembler (that certified and constructed field assembly) (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 --- Commissions ---
(Authorized Inspector) (Mat'l. Bd. (incl. endorsements) state, prov. and no.)