

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS

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

#101089

1. Manufactured and certified by KRUEGER ENGINEERING & MFG. COMPANY 12001 HIRSCH HOUSTON, TEXAS
(name and address of manufacturer)

2. Manufactured for REFRIGERATION ENGINEERING HOUSTON, TEXAS
(name and address of purchaser)

3. Location of installation REFRIGERATION ENGINEERING HOUSTON, TEXAS
(name and address)

4. Type: HORIZ HT-EX 89-79-B - 89-79 1996 1989
(body or vert. tank) (mfr's serial no.) (CRN) (drawing no.) (Nat'l. 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: 1986
(year)

A87 - -
(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'-4 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)) (eff. (%)) (HT temp. (°F)) (time) (girth (dbl., singl.)) (RT (spot, partial, or full)) (no. of courses)

8. Heads: (a) - (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	Side 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 edge & 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)

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: TWO 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 (in. 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)) (eff. (%)) (HT temp. (°F)) (time) (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	Side 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-193-87 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)

FORM U-1 (back)

18. Nozzles, inspection and safety valve openings:

PARA: UC-125 NOTE 37

SERIAL NO. 89-79 B

Purpose (Inlet, outlet, drain, etc.)	Number	Dis. or Size	Type	Mat'l.	Mon. Thickness	Reinforcement Material	How Attached	Location
TUBE IN	ONE	4"-300#	RF-WN	SA-106-B	.438	SA-516-70	WELDED	CHAN
TUBE OUT	ONE	10"-300#	RF-WN	SA-106-B	.500	SA-516-70	WELDED	CHAN
SHELL OUT	ONE	6"-300#	RF-WN	SA-106-B	.432	SA-516-70	WELDED	SHELL
SHELL IN	ONE	6"-300#	RF-WN	SA-106-B	.432	SA-516-70	WELDED	SHELL
	EIGHT	3/4"	CPLG	SA-105	6000#	-	WELDED	CHAN/SHELL
	TWO	3/4"	CPLG	SA-105	6000#	-	WELDED	SHELL
	ONE	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) (where 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)

LUBE OIL COOLER 32 X 240 BEM

ITEM NO. G8-321-2

MIN. TEMP. UC-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 10-25-89 Name KRUEGER ENGINEERING & MFG. COMPANY
 (manufacturer)

Signed [Signature]
 (representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by KRUEGER ENGINEERING & MFG. COMPANY 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 10-31, 19 89, 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 10-31-89 Signed [Signature]
 (Authorized Inspector)

Commission NA7721
 (Not Ed. Incl. endorsement: 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. 20962 expires 19

Date 10-31-89 Name [Signature]
 (assembler that certified and constructed field assembly)

Signed [Signature]
 (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 TEXAS and employed by H.S.B.I. & I. CO.

of CONN. 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 10-31-89 Signed [Signature]
 (Authorized Inspector)

Commission NA7721
 (Not Ed. Incl. endorsement: state, prov. and no.)