

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 GEA CANZLER GMBH; KÖLNER LANDSTRASSE 332, D-52351 DÜREN, GERMANY
(Name and address of Manufacturer)

2. Manufactured for GOOCH THERMAL SYSTEMS, INC.; USA-CLINTON; NEW JERSEY 08809
(Name and address of Purchaser)

3. Location of installation UNKNOWN
(Name and address)

4. Type HORIZONTAL SPIRAL HEAT EXCHANGER 7147
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's. serial No.)
---- C18.1146 - 1 Rev. 1 320 2001
(CRN) (Drawing No.) (Mat'l Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 EDITION 98 ADD 2000 N.A. N.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): outer channel: 1 (b) Overall length (ft & in.): 1ft 11,62"

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	55,12"OD	1ft 11,62"	SA240/S31803		,315	N.A.	1	N.A.	70%	N.A.	N.A.	N.A.	N.A.	N.A.
			core tube		,393	N.A.	1	Full	100%					

7. Heads: (a) SA 516 Grade 70 - No H.T. (b) N.A.
(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)	TOP	1,57"	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	56,70"	N.A.	N.A.	N.A.	N.A.	N.A.
(b)														

If removable, bolts used (describe other fastening) HOOK BOLTS: SA 193 GRADE B7; 1 1/8" x 8,27; 32 pcs
(Mat'l Spec. No., Grade, size, No.)

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

If bar, give dimensions N.A. If bolted, describe or sketch.
9. MAWP 150 N.A. psi at max. temp. 392 N.A. °F Min. design metal temp. 68 °F at 150 psi.
(internal) (external) (internal) (external)

10. Impact test none
(Indicate yes or no and the component(s) impact tested)

11. Hydro., ~~proof~~, or comb. test press. 196 psi Proof test N.A.

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: N.A. N.A. N.A. N.A. N.A.
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

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

13. Tubes: N.A. N.A. N.A. N.A. N.A.
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): inner channel: 1 (b) Overall length (ft & in.): 1ft 11,62"

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	55,12"OD	1ft 11,62"	SA240/S31803		,315	N.A.	1	N.A.	70%	N.A.	N.A.	N.A.	N.A.	N.A.
			core tube		,393	N.A.	1	Full	100%					

15. Heads: (a) SA 516 Grade 70 - No H.T. (b) N.A.
(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)	BOTTOM.	1,57"	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	56,70"	N.A.	N.A.	N.A.	N.A.	N.A.
(b)														

If removable, bolts used (describe other fastening) HOOK BOLTS: SA 193 GRADE B7; 1 1/8" x 8,27; 32 pcs
(Mat'l Spec. No., Grade, size, No.)

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16. MAWP 150 N.A. psi at max. temp. 392 N.A. °F Min. design metal temp. 68 °F at 150 psi.
 (Internal) (external) (Internal) (external)

17. Impact test none

18. Hydro., ~~pneum.~~ or ~~comb.~~ test press. 196 psi (Indicate yes or no and the component(s) Impact tested)
 Proof test N.A.

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	
I.C. INLET N1	1	2"	150 LJ	SA240**	SA 105	0.157"	N.A.	N.A.	UW16.1 c	N.A.	N.A.
I.C. OUTLET N2	1	2"	150 LJ	SA240**	SA 105	0.157"	N.A.	N.A.	UW16.1 c	N.A.	N.A.
O.C. INLET N3	1	2"	150 LJ	SA240**	SA 105	0.157"	N.A.	N.A.	UW16.1 c	N.A.	N.A.
O.C. OUTLET N4	1	2"	150 LJ	SA240**	SA 105	0.157"	N.A.	N.A.	UW16.1 c	N.A.	N.A.
I.C. DRAIN N5	1	1"	150 LJ	SA240**	SA 105	0.157"	N.A.	N.A.	UW16.1 k	N.A.	N.A.

20. Supports: Skirt NO Lugs N.A. Legs N.A. Others Pivots Attached WELDED TO SHELL
 (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)

N.A.

22. Remarks: **S31803 ;
Paragraph UHA-51(d) exempts the vessel from impact testing.
Paragraph UCS-66(a) exempts the vessel from impact testing.
Safety valve is other part of system.

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. 20.684 Expires NOVEMBER 22, 20 03

Date 06.12.2001 Name GEA CANZLER GMBH; 52351 DÜREN
 (Manufacturer)

Signed

G. Schmitt
 (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 MD and employed by FMIC of JOHNSTON, R.I. have inspected the pressure vessel described in this Manufacturer's Data Report on 06.12., 20 01, 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 06.12.2001 Signed

L. L. L.
 (Authorized Inspector)

Commissions

NB-11785 BSNA MD-538
 (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 _____, 20 _____

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/or the State or Province of _____ and employed by _____ of _____ 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

(Authorized Inspector)

Commissions

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