

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 **APV Products Heat Transfer - Goldsboro, 1200 W. Ash Street, Goldsboro, NC 27533**
(Name and address of Manufacturer)
2. Manufactured for **Evonik Degussa Corporation, P.O. Box 868, Theodore, Al. 36590**
(Name and address of Purchaser)
3. Location of Installation **Evonik Degussa Corporation, 4201 Degussa Rd., Theodore, Al. 36582**
(Name and Address)

4. Type: **Vert.** **Heat Exchanger** **G2009000008**
(Horiz. or vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg.'s serial No.)
- NA** **0900008 REV0** **10573** **2009**
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)
5. ASME Code, Section VIII, Div. 1 **2007/2008** **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 for heat exchangers, or chamber of multi-chamber vessels.

6. Shell (a) No. of course(s): **no shell** (b) Overall length (ft & in.):

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

7. Heads: (a) **SA516-70 Head, Fixed** (b) **SA516-70 Head, Moveable**
(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	30MM	0MM						457MMX 1346MM					
(b)	END	30MM	0MM						457MMX 1321MM					

If removable, bolts used (describe other fastenings) **Bolts 10 SA193 - B7 M24, Nuts 20 SA194-2H M24**
(Mat'l., Spec. No., Grade., size, No.)

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

- If bar, give dimensions If bolted, describe or sketch.
9. MAWP **10.3/** Bar at max. **88** °C Min. design metal temp. **-29** °C at **10.3/** Bar
10.3 (internal) (external) (internal) (external) **10.3**

10. Impact test **Bolting, Impact exempt per fig. UCS-66(e)** at test temperature of °F
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. **13.4 Bar** Proof test

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: 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: 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 & in.):

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

15. 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 fastenings) (Mat'l Spec. No., Grade, size, No.)

FORM U-1 (Back)

16. MAWP _____ psi at max. temp. _____ °F Min. design metal temp. _____ °F at _____ psi.
 (internal) (external) (internal) (external)
17. Impact test _____ at test temperature of _____ °F
 (Indicate yes or no and the component(s) impact tested)
18. Hydro., pneu., or comb. test press. _____ 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	2	76MM	MACH'D					NONE			HEAD
OUTLET	2	76MM	MACH'D					NONE			HEAD

20. Supports: Skirt no Lugs 0 Legs 0 Others _____ Feet _____ Attached _____ Head, Bolted _____
 (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: **Heads, Impact exempt per UCS 66 (a)(3), Fixed Head to Movable head distance 195mm**
Heat transfer plates, Mat'l SA240-316, .5mm thick, qty 60, Impact exempt per UHA 51(d)(1)

PRESSURE RELIEF DEVICES SUPPLIED BY OTHERS PER UG-125 (A)

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 Authorization No. 27,869 Expires July 15, 2009.

Date 2/10/09 Name APV Products Heat Transfer - Goldsboro Signed [Signature]
 (Manufacturer) (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 North Carolina and employed by HSB CT. of Hartford Connecticut have inspected the pressure vessel described in this Manufacturer's Data Report on 02/10/09, 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 02/10/09 Signed [Signature] Commissions NC12602A NC1503
 (Authorized Inspector) (Natl 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 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/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 _____ Commissions _____
 (Authorized Inspector) (Natl Board, incl. endorsements) State, Prov. and No.