



PRECISION
STAINLESS

TA-103

Sheet 1 of 4

January 15, 1998

Mr. G. Robert Coppins
Bovis Construction Corporation
Princeton Forrestal Village
100-200 Village Blvd.
Princeton, NJ 08540-5731

Customer Order Number: PW 153546 W
Equipment Item Number: TA-103
Precision Stainless Sales Order Number: H 5102 - 3

Enclosed are the following reports:

- ASME Manufacturer's Data Report
- Bill of Material
- Certified Copies Mill Test Report
- Passivation/Cleaning Certification
- Surface Finish Report
- Sprayball Test Report
- Name Plate Copy

Sincerely,

Doug Morgan
Quality Assurance Manager

3300 E. Pythian, P.O. Box 668
Springfield, Missouri 65801
Telephone: (417) 865-2990 • FAX: (417) 865-0906

Tanks • ASME Pressure Vessels • Tank Heads • Heat Transfer Surface • Hoppers • Electropolishing

1. Manufactured and certified by: Precision Stainless, Inc 3300 E. Pythian, Springfield, MO 65802
(Name and address of Manufacturer)

2. Manufactured for: Merck & Company Incorporated PO Box 3500 Rahway, New Jersey 07065-0903
(Name and address of Purchaser)

3. Location of installation: Merck & Company Incorporated West Point Pike West Point, PA 19486
(Name and address)

4. Type: Vertical Tank with heat exchanger 5102-3
(Head, vertical, or Spher.) (Tank, separator, fit vessel, heat exch., etc.) (Mfg's serial No.)

50856D Rev. D 7287 1997
(CRN) (Drawing No.) (Natl. Id. No.) (Year built)

5. ASME Code, Section VIII, Div 1 1995 A-95 Code Case No. Special Service per UG-120(d)
Edition and Addenda (date)

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): 1 (b) Overall length (ft & in): 2' 11"

No.	Course(s)		Material		Thickness		Long Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment			
	Diameter, in.	Length (ft & in)	Spec./Grade or Type	Nom.	Corr.	Type	Full	Spot	None	EBL	Type	Full	Spot	None	Temp.	Time
1	38"	2' 11"	SB168 600	.119"	0	1	None		70%	-	-	-	-	-	-	-

7. Heads: (a) SB168 Inconel 600 (b) 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	Knockjo					Convex	Concave	Type	Full	Spot	None	EBL	
(a) Bottom	.078"	0	34"	-	-	-	-	-	Concave	-	-	-	-	-	-	-
(b)																

If removable, bolts used (describe other fastening) None
(Mat'l Spec. No., Grade, size, No.)

8. Type of Jacket Half pipe and Dimpled Jacket closure Ogee & weld and Appendix EE
(Describe as ogee & weld, but, etc.)

If bar, give dimensions None If bolted, describe or sketch

9. MAWP 100 15 psi at max. temp. 338 338 °F Min. design metal temp. -20 °F at 100 psi
(normal) (normal) (internal) (external)

10. Impact test No

11. Hydro., press., or comb. Test press. 159 Proof test Displacement UG101(0) 600 PSI 4-6-90
(Indicate yes or no and the component(s) impact tested)

Items 12 and 13 to be completed for tube sections:

12. Tubesheet: Stationary (Mat'l Spec. No.) 38" Dia., in. (subject to press.) None Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

Floating (Mat'l Spec. No.) 38" Dia., in. None Nom. Thk., in. Corr. Allow., in. Attachment

13. Tubes: Mat'l Spec. No., Grade or Type 38" O.D., in. None Nom. Thk., in. or gauge Number Type (Straight or U)

Items 14-18 incl. To be complete 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"

No.	Course(s)		Material		Thickness		Long Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment			
	Diameter, in.	Length (ft & in)	Spec./Grade or Type	Nom.	Corr.	Type	Full	Spot	None	EBL	Type	Full	Spot	None	Temp.	Time
1	34"	3' 6"	SA240 316L	.157"	0	1	None		70%	1	None	70%	None	None	None	None

15. Heads: (a) SA240 316L (b) SA240 316L
(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	Knockjo					Convex	Concave	Type	Full	Spot	None	EBL
(a) Top	.218"	0	34"	3"	-	-	-	-	Concave	1	Full	85%			
(b) Bottom	.155"	0	34"	3"	-	-	-	-	Concave	1	None	70%			

If removable, bolts used (describe other fastening) -
(Mat'l Spec. No., Grade, size, No.)

FORM U-4 MANUFACTURER'S DATE REPORT SUPPLEMENTARY SHEET
As required by the provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Precision Stainless, Inc. 3300 E. Pythian Street Springfield, MO 65802

2. Manufactured for: Merck & Company Incorporated PO Box 3500 Rahway, New Jersey 07065-0903

3. Location of Installation Merck & Company West Point Pike West Point, PA 19486

4. Type: Vertical Tank with heat exchanger 5102-3
(Horiz., Vert., or sphere) (Tank separator, heat exh, etc.) (Mfg's serial no.)

50856D Rev. D 7287 1997
(Drawing No.) (Nat'l Bd No.) (Year built) (CRN)

Date Report
Item Number

Remarks

Purpose	No.	Dia.	Flange	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Inspection	1	16"	-	SA240 316L	-	.250"	0	SA240 316L	UW16.1 (O)	-	Top
Outlet	1	2"	CL150	-	SA479 316L	150#	0	-	-	UW16.1(C)	-
Inlet	4	3"	-	SA479 316L	-	.189"	0	-	UW16.1 (C)	-	-
Inlet	5	2"	-	SA479 316L	-	.162	0	-	UW16.1 (C)	-	-
Outlet	2	1.5"	-	SA479 316L	-	.160"	0	-	UW16.1 (C)	-	-
Inlet	1	6"	-	SA312 316L	-	.109"	0	-	UW16.1 (C)	-	-
Inlet	3	1.5"	-	SA479 316L	-	.160"	0	-	UW16.1 (C)	-	-
Inlet	1	6"	-	SA312 316L	-	Sch 40	0	-	UW16.1 (C)	-	-
Inlet	1	2"	-	SB167 600	-	Sch 40	0	-	UW16.1 (C)	-	-
Outlet	1	2"	-	SB167 600	-	Sch 40	0	-	UW16.1 (C)	-	-

Certificate of Authorization:

Type U No. 24003 Expires April 6, Year 1998

Date 12-23-97 Name Precision Stainless, Inc. Signed: Raymond W. Mayo
(Manufacturer) (Representative)

Date: 12/29/97 Name: E. J. [Signature] Commission NB 7376 "A"
(Authorized Inspector) (Nat'l Bd) (Includes endorsements, St. Province and No)

17. Impact Test None
(Indicate yes or no and the component(s) impact tested)
18. Hydro., press., or comb. test press. 110 Proof Test Displacement UG101(0) 350 PSI 3-29-95
19. Nozzles, inspection, and safety valve openings: See Attached U-4

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Ass. Open)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	

20. Supports: Skirt No Lugs: - Legs: 4 Others: - Attached: Bottom head & Shell weld
(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: 750 liter tank with heat transfer surface, designed for full vacuum, cooling medium-water. Customer to install suitable pressure and/or vacuum relief valves. Exempt from impact testing per UHA-51 d1a and e2a. Shell heat transfer is 10 turns of 2" half pipe.

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. 24003 Expires: April 6 1998
 Date: 12-23-97 Name: Precision Stainless, Inc. Signed: Douglas W. Morgan
(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 MO and employed by Commercial Union Insurance Company of Boston, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 11/18, 1997 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: 12/29/97 Signed: [Signature] Commissioner: NE 7976 'A'
(Authorized Inspector) (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: _____ 19 _____
 Date: _____ Name: _____ Signed: _____
(Assembler) (Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, 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: _____ Commissioner: _____
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)