

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by **Ohmstede Ltd., Corpus Christi Plant, 410 Flato Road, Corpus Christi, Texas, 78405**
(Name and address of Manufacturer)
2. Manufactured for **ExxonMobil Corporation, 1120 Fort Gibson Road, Catoosa, Oklahoma, 74015**
(Name and address of Purchaser)
3. Location of installation **ExxonMobil Corporation, 1120 Fort Gibson Road, Catoosa, Oklahoma, 74015**
(Name and address)

4. Type **Horiz.** **Heat Exchanger** **758932**
(Horizontal, vertical, or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Manufacturer's serial number)

- N/A** **758932R2** **3929** **2017**
(CRN) (Drawing number) (National Board number) (Year built)

5. ASME Code, Section VIII, Div. 1 **2015/ N/A** **N/A** **N/A**
[Edition and Addenda, if applicable (date)] (Code Case Number) [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 multichamber vessels.

6. Shell: (a) Number of course(s) **1** (b) Overall length **11' 3.5"**

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	15.250" ID	11' 3.500"	SA-333-6	.375"	.125"	S	None	1.0	7	None	1.0	N/A	N/A

Body Flanges on Shells												
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

7. Heads: (a) **N/A** (b) **N/A**
(Material spec. number, grade or type) (H.T. - time and temp.) (Material spec. number, grade or type) (H.T. - time and 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)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A

Body Flanges on Heads												
	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
(a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A

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

If bar, give dimensions; if bolted, describe or sketch **N/A**

9. MAWP **272 psi** **0.0 psi** at max. temp. **150 °F** **N/A** Min. design metal temp. **-20 °F** at **272 psi**
(Internal) (External) (Internal) (External)

10. Impact test **No. Exempt per UCS-66** at test temperature of **N/A**
[Indicate yes or no and the component(s) impact tested]

11. Hydro., pneu., or comb. test pressure **Hydro. at 371 psi** Proof test **N/A**

Items 12 and 13 to be completed for tube sections.

12. Tubesheet **(2) SA-516-70N** **20"** **4.5625"** **.250"** **Welded**
[Stationary (material spec. no.)] [Diameter (subject to press.)] (Nominal thickness) (Corr. allow.) Attachment (welded or bolted)

- N/A** **N/A** **N/A** **N/A** **N/A**
[Floating (material spec. no.)] (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)

13. Tubes **SA-179** **.750"** **0.083" M.W.** **184** **Straight**
(Material spec. no., grade or type) (O. D.) (Nominal thickness) (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) 2 (b) Overall length 2' 4.375"

Course(s)			Material	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	16.124" ID	1' 6.750"	SA-333-6	.9380"	.125"	S	None	1.0	1	Full	1.0	1150 Deg. F°	(1)-Hour
1	16.124" ID	0' 9.625"	SA-333-6	.9380"	.125"	S	None	1.0	1	Full	1.0	1150 Deg. F°	(1)-Hour

Body Flanges on Shells													
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting				Washer Material
									Num & Size	Bolting Material	Washer (OD, ID, thk)		
1	*	16.124"	29.250"	3.250"	.938"	SA-105N	UW12(1)	End	(20) - 1.625"	SA-193B7	3.10", 1.75" .18"		F436
1	*	16.124"	29.250"	3.250"	.938"	SA-105N	UW12(1)	End	(20) - 1.625"	SA-193B7	3.10", 1.75" .18"		F436
1	*	16.124"	29.250"	3.250"	.938"	SA-105N	UW12(1)	End	(20) - 1.625"	SA-193B7	3.10", 1.75" .18"		F436

15. Heads: (a) SA-516-70N (Material spec. number, grade or type) (H.T. - time and temp.) (b) SA-234-WPB PWHT (1)-Hr. @ 1150 Deg F (Material spec. number, grade or type) (H.T. - time and 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	4"	.125"	N/A	N/A	N/A	N/A	N/A	29.250"			S	None	1.0
(b)	END	.9380" Nom.	.125"	N/A	N/A	2:1	N/A	N/A	N/A		X	S	None	1.0

Body Flanges on Heads													
	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting				Washer Material
									Num & Size	Bolting Material	Washer (OD, ID, thk)		
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

16. MAWP 1155 psi (Internal) 0.0 psi (External) at max. temp. 150 °F (Internal) N/A (External) Min. design metal temp. -20 °F at 1155 psi.

17. Impact test No. Exempt per UCS-66 at test temperature of N/A.
[Indicate yes or no and the component(s) impact tested]

18. Hydro., pneu., or comb. test pressure Hydro. at 1511 psi Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Inlet / Outlet	2	6"-600#	RFWN	SA-333-6	SA-105N	.4320"	.125"	SA-516-70N	UW16.1(e)	UW12(1)	Front Channel
Vent / Drain	2	3/4"	CPLG	SA-105N		6000#	.125"	Integral	UW16.1(e)		Rear Channel
Inlet / Outlet	2	4"-150#	RFWN	SA-333-6	SA-105N	.3370"	.125"	SA-516-70N	UW16.1(e)	UW12(1)	Shell

20. Supports: Skirt Lugs N/A (Yes or no) (Number) Legs N/A (Number) Others (2)-Saddles (Describe) Attached Welded to Shell. (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, Manufacturer's name, and identifying number):

N/A

22. Remarks

Length of tubes: 12' 0.0"

Item No. E-120 P.O. No. 512470

S/N 758932

* ANSI Welding Neck Flange 18"-600# RFWN w/ SCH 80 Bore SA-105N

Shell is equipped with (2) Unit lifting Lugs 6" X 3/4" THK. X 6" Lg. SA-516-70

Form U-5 Attached....

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number **20206** Expires **April 19, 2018**

Date 10/17/2017 Name Ohmstede Ltd., Corpus Christi Plant Signed *Charles Vannoy*
(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 employed by

OneCIS Insurance Company, of Lynn, MA

have inspected the pressure vessel described in this Manufacturer's Data Report on October 17, 2017, and state that,

to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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 10/17/2017 Signed *MC Dusold* Commissions: 13596, TX1912
(Authorized Inspector) [National Board (incl. endorsements)]

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number _____ 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 employed by _____,

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 the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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 _____ Commission _____
(Authorized Inspector) [National Board (incl. endorsements)]

FORM U-5 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET

SHELL-AND-TUBE HEAT EXCHANGERS

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Ohmstede Ltd., Corpus Christi Plant, 410 Flato Road, Corpus Christi, Texas, 78405
(Name and address of Manufacturer)

2. Manufactured for ExxonMobil Corporation, 1120 Fort Gibson Road, Catoosa, Oklahoma, 74015
(Name and address of Purchaser)

3. Location of Installation ExxonMobil Corporation, 1120 Fort Gibson Road, Catoosa, Oklahoma, 74015
(Name and address)

4. Type Horiz. 758932 N/A
(Horizontal, vertical, or sphere) (Manufacturer's serial number) (CRN)

758932R2 3929 2017
(drawing no.) (National Board number) (Year built)

FIXED TUBESHEET HEAT EXCHANGERS

Name of Condition	Design/Operating Pressure Ranges				Design/Operating Metal Temperature				Allowable Axial Differential Thermal Expansion Range	
	Shell Side		Tube Side		Shell	Channel	Tubes	Tubesheet		
	Min.	Max.	Min.	Max.					Min.	Max.
	(psi)	(psi)	(psi)	(psi)					(°F)	(°F)
Design	0	270	0	1155	150	150	150	150	0	0.0
Operating	0	270	0	1155	40.65	46.2	46.2	46.2	0	0.005
SS on / TS off	0	270	0	0	35	35	35	35	0	0
TS on / SS off	0	0	0	1155	70	76	76	76	0	0.005
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Data Report
Item Number

Remarks

N/A

Certificate of Authorization: Type "U" No. 20206 Expires April 19, 2018

Date 10/17/2017 Name Ohmstede Ltd., Corpus Christi Plant
(Manufacturer)

Signed Charles Vandy
(Representative)

Date 10/17/2017 Name MC D wold
(Authorized Inspector)

Commissions: 13596, TX1912
(National Board Authorized Inspector Commission number)