

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Selection VIII, Division 1

1. Manufactured and certified by Tranter GmbH, Hohe Flum Str. 31, 79650 Schopfheim, Germany
(Name and address of Manufacturer)
2. Manufactured for Shell Canada Energy; 400 4 Ave. S.W., BOX 100, Station M, Calgary; Alberta T2P 0J4
(Name and address of Purchaser)
3. Location of installation unknown
(Name and address)
4. Type: Horizontal Spiral Heat Exchanger S-2858/1.3
(Horizontal, vertical or sphere) (Tank, separator, jkt. vessel heat exh.etc.) (Manufacturer's serial number)
W5665.2 S-2858/1 Rev. 02 page 1/6 185 2014
(CRN) (Drawing number) (National Board number) (Year built)
5. ASME Code, Section VIII, Div. 1 Ed.2010 Addenda 2011a NA None
(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) No. of course (s): 1 (b) Overall length : (mm.) chamber I 2003

Course (s)			Material		Thickness (mm)		Long Joint (Cat. A)			Circum. Joint (Cat. A,B & C)			Heat Treatment	
No.	Diameter, mm	Length mm	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	OD 1920	2003	SA-516 Grade 70N		30	1,5	1	None	0,7	-	-	-	-	-

7. Heads: (a) SA-516 Gr.70 N (b)
(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 (mm)		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter (mm)	Side to Pressure		Category A	
		Min.	Corr.	Crown	Knuckle					Convex	Conc ave	Type	Full, Spot, None Eff.
(a)	Right Bottom	120	1,5	-	-	-	-	-	2200	-	-	-	-
(b)													

If removable, bolts used (describe other fastening) 72 Stud Bolts 1 1/2 "8UN x 16 " SA-320 L7M / SA194 7M
(Material spec. number, grade, size, number)

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.

9. MAWP 24,5 barg FV at max. temp. 200 °C 200 °C Min. design metal temp. -45 °C at 24,5 barg.
(internal) (external) (internal) (external)

10. Impact test Yes see Remarks at test temperature of - 45 °C
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. Test press. 34,02 barg Proof test -

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: N/A N/A N/A N/A N/A
[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: N/A N/A N/A N/A N/A
(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): 1 (b) Overall length (mm.): chamber II 2003

Course (s)			Material		Thickness (mm)		Long Joint (Cat. A)			Circum. Joint (Cat. A,B & C)			Heat Treatment	
No.	Diameter, mm.	Length (mm)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	OD 1920	2003	SA-516 Grade 70 N		30	1,5	1	None	0,7	-	-	-	-	-

15. Heads: (a) SA-516 Gr. 70 N (b)
(Material spec. no, grade or type) (H.T. – time and temp) (Material spec. no, grade or type) (H.T. – time and temp)

	Location (Top, Bottom, Ends)	Thickness (mm)		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter (mm)	Side to Pressure		Category A	
		Min.	Corr.	Crown	Knuckle					Conv ex	Concave	Type	Full, Spot, None Eff.
(a)	Left TOP	120	1,5	-	-	-	-	-	2200	-	-	-	-
(b)													

If removable, bolts used (describe other fastening) 72 Stud Bolts 1 1/2 "8UN x 16 " SA-320 L7M / SA194 7M
(Material spec. number, grade, size number)

16. MAWP 24,5 barg FV at max. temp. 200 °C 200 °C Min. design metal temp. -45 °C at 24,5 barg.
(internal) (external) (internal) (external)

17. Impact test Yes see Remarks at test temperature of - 45 °C
(Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. Test press. 34,02 barg Proof test -

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No	Diameter or Size	Type	Material		Nozzle Thickness (mm)		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
N1	1	6"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	10,97	3	none	UW16.1 a	welded	N/A
N2	1	6"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	10,97	3	none	UW16.1 c	welded	N/A
N3	1	6"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	10,97	3	none	UW16.1 c	welded	N/A
N4	1	6"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	10,97	3	none	UW16.1 a	welded	N/A
N5	1	2"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	8,74	3	none	UW16.1 a	welded	N/A
N6	1	2"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	8,74	3	none	UW16.1 a	welded	N/A
N7	1	2"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	8,74	3	none	UW16.1 a	welded	N/A
N8	1	2"	WN/RF 300#	SA-333 Grade 6	SA-350 LF2 - Cl.1	8,74	3	none	UW16.1 a	welded	N/A

20. Supports: Skirt No Lugs 2 Legs - Others saddle Attached welded to shell
(Yes or no) (Number) (Number) (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)
None

22. Remarks: Part of Design per U-2 (g); Safety Valves not in scope of Tranter supply. Impact Test following items: Pos. 5; 5a Shell Plate 30 mm SA-516 Grade 70 N; Pos. 6 div. Sheet 30 mm SA-516 Grade 70N; Pos. 8 Plate 15 mm SA-516 Grade 70N; Pos. 26 Cover 120 SA-516 Grade 70N; Pos. 28 lifting Lug 30 mm Sa-516 Grade 60N; 28a, 28 b lifting lug 20 mm SA-516 Grade 60N; Pos. 29 Shim 30 mm Grade 60N; Pos. 30 web plate 20 mm SA-516 Grade 60N; Pos. 31, 31a base plate 20mm SA-516 Grade 60N; 47 Ring 30 mm SA-516 Grade 70; 47a, 47b 20 mm SA-516 Grade 70N; Pos. 51, 52 rib 20 mm Sa-516 Grade 60N; Pos. 56, 57 20 mm SA-516 Grade 70N; Pos. 59, 59a hinge 100 mm SA-516 Grade 70N; Pos. 60, 60a loop 100 mm SA-516 Grade 70N. Halfpipe (N2 and N3) attached to Shell(Pos. 5;5a). Manufacturer confirms sour gas service according to NACE MR0175 / ISO 15156 (Second ed. 2009-10-15).

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1, U Certificate of Authorization No. 33,586 Expires October 10, 2017

Date November, 13, 2014 Name Tranter GmbH, 79650 Schopfheim, Germany Signed i. A. D. B.
(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 NA and employed by TÜV Thüringen e.V of Essen, Germany have inspected the pressure vessel described in this Manufacturer's Data Report on November, 13, 2014 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 November, 13, 2014 Signed [Signature] Commissions N.B 14863 A
(Authorized Inspector) (National Board (incl. endorsements), State, Province and number)

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1, U Certificate of Authorization Number 33,586 Expires October 10, 2017

Date November, 13, 2014 Name [Signature] Signed [Signature]
(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 the State or Province of NA and employed by TÜV Thüringen e.V of Essen, Germany 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 BOILER AND PRESSURE VESSEL 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/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 November, 13, 2014 Signed [Signature] Commissions N.B 14863 A
(Authorized Inspector) (National Board (incl. endorsements), State, Province and number)