

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

Owner equip#

641A.1-C1 / 19-X-763

1. Manufactured and certified by Alliance Fabricating Ltd., 763 Chester Street Sarnia, Ontario Canada N7S 5N2
(Name and address of Manufacturer)
2. Manufactured for Graham Corporation, 20 Florence Ave, Batavia, New York, USA, 14020 for Desmet Ballestra North America Inc.
(Name and address of Purchaser)
3. Location of Installation Desmet Ballestra North America Inc., Paramount, CA, USA
(Name and address)
4. Type Vertical Heat Exchanger 1342
(Horizontal, vertical, or sphere) (Tank, separator, jkt. vessel, heat exch. etc.) (Manufacturer's serial number)
- N/A 70945-0100 Rev.5 164 2022
(CRN) (Drawing number) (National Board number) (Year built)
5. ASME Code, Section VIII, Div. 1 2019 - -
(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) 2 (CRS 2,3) (b) Overall length 153-7/8"

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	33-1/4" ID	35-7/8"	SA-516,70		3/8"	1/16"	1	None	0.7	1	None	0.7	-	-
1	33-1/4" ID	118"	SA-516,70		3/8"	1/16"	1	None	0.7	1	None	0.7	-	-

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
-	-	-	-	-	-	-	-	-	-	-	-	-

7. Heads: (a) - (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		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)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Body Flange 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)	-	-	-	-	-	-	-	-	-	-	-	-
(b)												

8. Type of jacket - Jacket closure -
(describe as ogee and weld, bar, etc.)

If bar, give dimensions If bolted, describe or sketch -

9. MAWP 150 psig - at max temp. 212°F - Min. design metal temp. 0°F at 150 psig
(Internal) (External) (Internal) (External)

10. Impact Test See Remarks at test temperature of -
(Indicate yes of no and the component(s) impact tested)

11. Hydro., pneu., or comb. test pressure 195 psig (Hor - Shop) Proof test -

Items 12 and 13 to be completed for tube sections.

12. Tubesheet SA-204,304L 33-1/8" 1-1/8" 0" Welded
[Stationary (material spec.no.)] [Diameter (subject to press.)] (Nominal thickness) (Corr. allow.) [Attachment (welded or bolted)]
- SA-204,304L 33-1/8" 1-1/8" 0" Welded
[Floating (material spec.no.)] (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)
13. Tubes SA-249, TP304 (W) 3/4" 20 BWG A/W 1052 Straight
(Material spec. no., grade or type) (O.D.) (Nominal thickness) (Number) [Type (straight or U)]

Mfg. Representative [Signature]Date: 2022 AUG 10Authorized Inspector [Signature]Date: AUG 11 2022

FORM U-1

Manufactured by Alliance Fabricating Ltd., 763 Chester Street Sarnia, Ontario Canada N7S 5N2

Manufacturer's Serial No. 1342 CRN N/A National Board No. 164

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 (CRS 1 & 4) (b) Overall length Top Bonnet: 42-7/16" / Bottom Bonnet: 18-9/16"

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	33-1/2"	18-9/16"	SA-240,304L	1/4"	0"	1	None	0.7	1	None	0.7	-	-
1	33-1/2"	42-7/16"	SA-240,304L	1/4"	0"	1	None	0.7	1	None	0.7	-	-

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
CFA	Girth	34-1/8"	37-7/8"	1-5/8"	-	SA-182,F304L	Welded	Bottom Bonnet (CRS4)	(40) 3/4" - 10 UNC	SA-193,B7	-	-
CFB	Girth	34-1/8"	37-7/8"	1-5/8"	-	SA-182,F304L	Welded	Top Bonnet (CRS1)	(40) 3/4" - 10 UNC	SA-193,B7	-	-

15. Heads: (a) HD1: SA-240,304L, No PWHT (Material spec. number, grade or type) (H.T. - time and temp.) (b) HD2: SA-240,304L, No PWHT (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)	Bottom	3/16"	0"	33-1/2	2-1/4	-	-	-	-	-	X	-	-	-
(b)	Top	3/16"	0"	33-1/2	2-1/4	-	-	-	-	-	X	-	-	-

Body Flange 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)	-	-	-	-	-	-	-	-	-	-	-	-
(b)	-	-	-	-	-	-	-	-	-	-	-	-

16. MAWP 50.76 psig (Internal) FV (External) At max temp. 400 °F (Internal) - (External) Min. design metal temp. 0°F at 50.76 psig

17. Impact Test See Remarks at test temperature of - (Indicate yes of no and the component(s) impact tested)

18. Hydro., pneu., or comb. test pressure 70 psig (Hor - Shop) Proof test -

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	
Water Inlet	1S1	10" CL 150	RFSO	SA-106,B	SA-105N	0.365"	1/16"	-	UW-16.1(c)	UW-21(1)	Shell
Test	1S1.1	3/4" CL 3000	CPLG	SA-105	-	-	1/16"	-	UW-16.1(z-1)	-	Shell
Water Outlet	1S2	10" CL 150	RFSO	SA-106,B	SA-105N	0.365"	1/16"	-	UW-16.1(c)	UW-21(1)	Shell
Test	1S2.1	3/4" CL 3000	CPLG	SA-105	-	-	1/16"	-	UW-16.1(z-1)	-	Shell
Vent	1S3	3/4" CL 3000	CPLG	SA-105	-	-	1/16"	-	UW-16.1(z-1)	-	Shell

20. Supports Skirt: No (Yes or no) Lugs No (Number) Legs No (Number) Others (2) Vertical Supports (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 part, item number, Manufacturer's name, and Identifying number):

22. Remarks 1) Impact test exempt per UG-20(f) & UHA-51(d) & UCS-66(a) & Fig UCS-66 NOTE (c) & UG-84(c)(3)
2) See Form U-4, U-5

Mfg. Representative

Date: 2022 AUG 10

Authorized Inspector

Date: AUG 11 2022

FORM U-1

Manufactured by Alliance Fabricating Ltd., 763 Chester Street Sarnia, Ontario Canada N7S 5N2

Manufacturer's Serial No. 1342 CRN N/A National Board No. 164

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 33851 Expires Mar. 28, 2024
 Date 2022 Aug, 10 Name Alliance Fabricating Ltd. Signed (Manufacturer)
 (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessels Inspectors and employed by TSSA of Ontario

have inspected the pressure vessel described in this Manufacturer's Data Report on AUG 11 2022, 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 loss of any kind arising from or connected with this inspection.

Date AUG 11 2022 Signed (Authorized Inspector) Commissions NB # 14585-A (National Board Authorized Inspector Commission number)

CERTIFICATE OF FIELD ASSEMBLY

We certify that the statements 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 (Assembler) Signed (Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National board of Boiler and Pressure Vessels Inspectors 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 the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a pressure test of . By signing this certificate neither the inspector nor his/her employer makes and 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 (Authorized Inspector) Commissions (National Board Authorized Inspector Commission number)

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Alliance Fabricating Ltd., 763 Chester Street Sarnia, Ontario, Canada N7S 5N2
(Name and address of Manufacturer)

2. Manufactured for Graham Corporation, 20 Florence Ave, Batavia, New York, USA, 14020 for Desmet Ballestra North America Inc.
(Name and address of Purchaser)

3. Location of Installation Desmet Ballestra North America Inc., Paramount, CA, USA
(Name and address)

4. Type Vertical Heat Exchanger 1342
(Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)

N/A 70945-0100 Rev.4 164 2022
(CRN) (Drawing number) (National Board number) (Year built)

Data Report Item Number	Remarks
19)	

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	
Drain	1S4	3/4" CL 3000	CPLG	SA-105	-	-	1/16"	-	UW-16.1(z-1)	-	Shell
Vapour Inlet	1T1	18" CL 150	RFSO	SA-312, TP304L	SA-182,F304L	1/4"	0"	-	UW-16.1(c)	UW-21(1)	Channel
Test	1T1.1	3/4" CL 3000	CPLG	SA-182,F304L	-	-	0"	-	UW-16.1(z-1)	-	Channel
Vapor Outlet	1T2	4" CL 150	RFSO	SA-312, TP304L	SA-182,F304L	0.337"	0"	-	UW-16.1(z-1)	UW-21(1)	Channel
Test	1T2.1	3/4" CL 3000	CPLG	SA-182,F304L	-	-	0"	-	UW-16.1(z-1)	-	Channel
Condensate Outlet	1T3	4" CL 150	RFSO	SA-312, TP304L	SA-182,F304L	0.337"	0"	-	UW-16.1(c)	UW-21(1)	Channel
Seal Purge	1T4	6"	STUDDER	SA-240,304L	-	-	0"	-	UW-16.1(z-1)	-	Channel
Vent	1T5	1/2" CL 3000	CPLG	SA-182,F304L	-	-	0"	-	UW-16.1(z-1)	-	Channel
Spray Nozzle	TP1	1-1/2" CL 150	RFSO	SA-312, TP304L	SA-182,F304L	1/4"	0"	-	UW-16.1(c)	UW-21(1)	Channel

Certificate of Authorization: Type U No. 33851 Expires Mar. 28, 2024

Date 2022, Aug. 10 Name Alliance Fabricating Ltd. Signed [Signature]
(Manufacturer) (Representative)

Date AUG 11 2022 Name [Signature] Commissions NB # 14585 A
(Authorized Inspector) (National Board Authorized Inspector Commission number)

**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

Equip No.: 641A.1-C1 / 19-X-763

1. Manufactured and certified by Alliance Fabricating Ltd., 763 Chester Street Sarnia, Ontario, Canada N7S 5N2
(Name and address of Manufacturer)
2. Manufactured for Graham Corporation, 20 Florence Ave, Batavia, New York, USA, 14020 for Desmet Ballestra North America Inc.
(Name and address of Purchaser)
3. Location of Installation Desmet Ballestra North America Inc., Paramount, CA, USA
(Name and address)
4. Type Vertical 1342 N/A
(Horizontal, vertical, or sphere) (Manufacturer's serial number) (CRN)
70945-0100 Rev.4 164 2022
(Drawing number) (National Board number) (Year built)

FIXED SHELL-AND-TUBE HEAT EXCHANGER DATA

FIXED SHELL-AND-TUBE HEAT EXCHANGER DATA										
Name of Condition	Design/Operating Pressure Ranges				Maximum Design/Operating Metal Temperature				Allowable Axial Differential Thermal Expansion Range	
	Shell Side		Tube Side		Shell	Channel	Tubes	Tubesheet		
	Min.	Max.	Min.	Max.						
	units: PSI	units: PSI	Units: PSI	units: PSI					units: °F	units: °F
Design	-	150	-	50.76	212	400	400	400	-0.03	0

Data Report
Item Number

Remarks

Certificate of Authorization: Type U No. 33851 Expires Mar. 28, 2024

Date 2022 Aug. 10 Name Alliance Fabricating Ltd. Signed [Signature]
(Manufacturer) (Representative)

Date AUG 11 2022 Name [Signature] Commissions NB 14505 A
(Authorized Inspector) (National Board Authorized Inspector Commission number)