Designed constructed and stamped in accordance with 2007 ASME Code and Addendum 2009.

This is a general drawing. Additional parts. if required. like protection sheets. inspection covers. etc. are not displayed.

SUPPLIER	REF. 25670-70	ITEM NO. E4000	
AGENT / REF. / 737371			
CUSTOMER NAME / REF. NO. Dupont Danisco Cellulosic Ethanol / DDCE11-0068			
SIGN. CFN		RISKCATEGORY N/A	

PLATE HEAT EXCHANGER

TS6-MFG

ASME

REMARKS:	SIDE1	SIDE2
DESIGN PRESSURE	145 psi	145 psi
TEST PRESSURE	188.5 psi	188.5 psi
MAX TEMPERATURE	356 °F	356 °F
MIN TEMPERATURE	32 °F	32 °F
MAWP	145 psi	145 psi
MDMT	-20 °F	

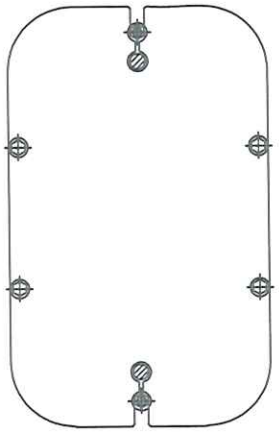
GASKET	EPDMP CLIP-ON
PLATE MATERIAL	ALLOY 316
PLATE THICKNESS	0.60 mm
HEATING SURFACE	7.4 ft²
PLATE GROUPING	1*4H/1*5H
WEIGHT WITH WATER	280 lb
NETWEIGHT	275 lb

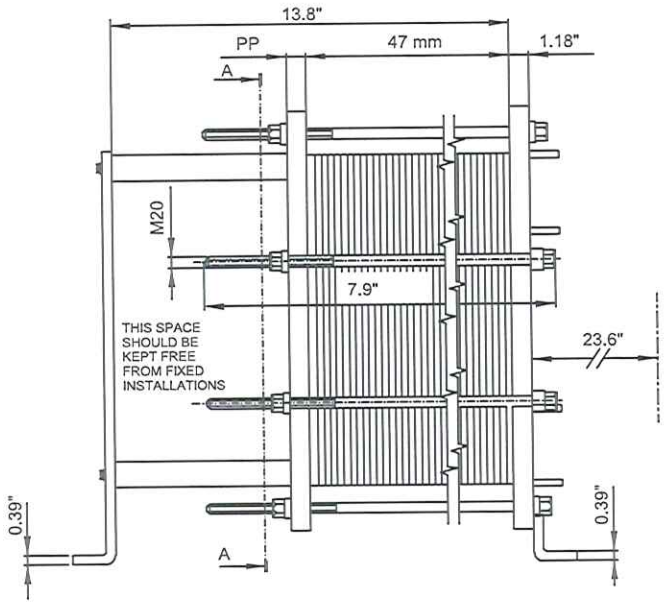
PRESSURE PLATE

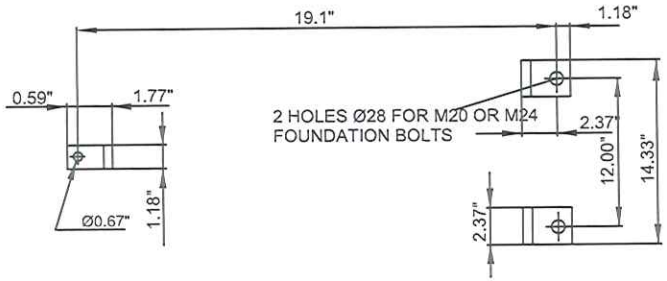
(MOVABLE)

SECTION A-A

PP=25

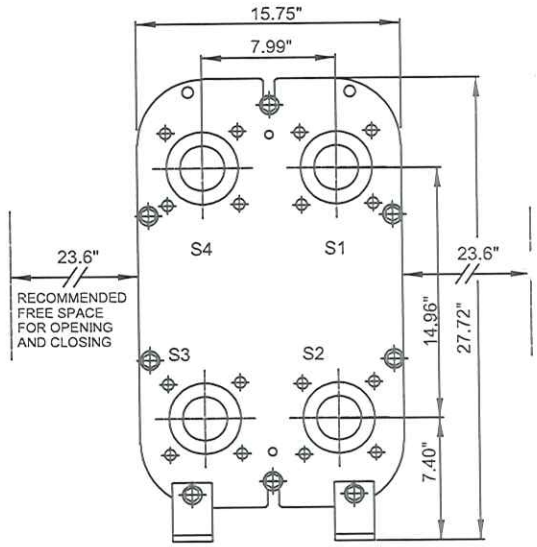




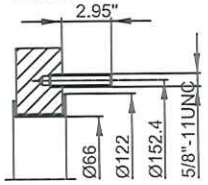


FRAME PLATE

(FIXED)



ASME 150
SHEET LINING
SS
S1,S2,S3,S4



TOTAL LENGTH	20.9"
TOTAL WIDTH	15.8"
TOTAL HEIGHT	27.7"

ALL DIMENSIONS IN INCHES

SIDE	MEDIA	INLET	TEMP.	OUTLET	TEMP.	FLOW RATE	PRESSURE DROP	LIQUID VOL.
1	Steam	S4	290.8 °F	S3	290.8 °F	658.6 lb/h	0.1845 psi	0.07 ft³
2	Water	S2	117.0 °F	S1	136.8 °F	30530 lb/h	3.613 psi	0.09 ft³

SERIAL NO.	30111-98815
DATE	2009-07-06
REV NO.	0

10901

FORM U-C MANUFACTURER'S CERTIFICATE OF COMPLIANCE
COVERING PRESSURE VESSELS TO BE STAMPED WITH THE UM SYMBOL. SEE U-1(i)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Alfa Laval Inc., 5400 International Trade Dr., Richmond VA 23231
(Name and address of Manufacturer)

2. Manufactured for DDCE, 500 Park Blvd Ste 545, , Itasca, , IL, 601431267 USA
(Name and address of Purchaser)

3. Location of Installation DDCE, 200 Industrial Drive, Vonore, TN, 37885, USA
(Name and address)

4. Type Vertical (Horiz., vert., or sphere) | Plate Heat Exchanger (Tank, separator, etc.) | 0.15 Cu. ft (Capacity, all chambers) | 30111-98815 (Mfg's serial No.)

(CRN) | 30111-98815.0 (Drawing No.) | 2009 (Year Built)

5. ASME Code, Section VIII, Div. 1 2007 A08 (Edition Addenda (date)) | (Code Case No.)

6. 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

7. Heads: (a) SA-516-70 (Mat'l Spec. No. Grade or Type) H.T. - Time + Temp | (b) SA-516-70 (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	Radius Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	Fixed	1 3/16"	0"						26" X 16"					
(b)	Movable	1"	0"						26" X 16"					

If removable, bolts used (describe other fastening) SA193-B7 (6) 0.787" (M20 actual) BOLTS
(Mat'l Spec. No., Grade, Size, No.)

8. Type of Jacket | Jacket Closure
(Describe as ogee + weld, bar, etc.)

If bar, give dimensions, If bolted describe or sketch

9. MAWP 145 (internal) (external) psi at max. temp. 356 (internal) (external) °F Min. design metal temp. -20 °F at 145 psi

10. Impact Test NO (Impact Exemption UCS-66(a), (b), UHA-51, UNF-65, as applicable)
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. 189 Hydro Proof test

12. 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	3"	STUDS	SA193-B7		5/8"					
Outlet	2	3"	STUDS	SA193-B7		5/8"					

13. Supports: Skirt (Yes or no) Lugs (No.) Legs (No.) Others FEET (Describe) Attached BOLTED (Where and how)

14. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items: (part name, part no., mfg's. name and id no.)

15. Remarks (13) SA-240-316 .024 " Plates Maximum Distance between Heads = 1.85 "

Customer PO #: DDCE11-0068

Tag #: E4000 Owner to supply Safety Valve/Noncorrosive Service Only

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.

UM Certificate of Authorization No. 25,018 Expires July 5 , 2010

Date 9/1/09 Name Alfa Laval, Inc. (Manufacturer)

Signed Floyd Melvin (Representative)

Signed Floyd Melvin (Certified Individual)

30111-98815

Alfa Laval, Plate Heat Exchanger 2009-07-06
Channel Plate Installation Description

Customer:	Dupont Danisco Cellulosic Eth	SU Order No:	25670-70
Model :	TS6-MFG	Serial No:	30111-98815
Customer PO:	DDCE11-0068	Tag:	E4000

	Hot side	Cold side
Plate material and Thickness:	ALLOY 316 0.60 mm	
A Dimension:	47 mm	
Grouping:	1*4H	1*5H
Sealing material:	EPDMP CLIP-ON	EPDMP CLIP-ON
Port Locations:	S4 -> S3	S2 -> S1
Connection material:	Stainless steel	Stainless steel

Port hole with flow on the gasketed side: U
Port hole sealed with O-ring: O
Plates are assembled with the gasket side facing the frame plate.

Plate no.	Plate code no.	Plate Pattern		Punched corner of the plate upper left	lower left	lower right	upper right	Flow direction on the gasket side of the plate
				S1	S2	S3	S4	
	FRAME PLATE			=<=	=>=	=>=	=<=	
	1640917 01			O	O	O	O	
1	39505285 83	TS6 M2	A	O	O	O	O	
2	39505285 03	TS6 M2	B	U	--<--- U	O	O	Up
3	39505285 03	TS6 M2	A	O	O	U	--<--- U	Down
4	39505285 03	TS6 M2	B	U	--<--- U	O	O	Up
5	39505285 03	TS6 M2	A	O	O	U	--<--- U	Down
6	39505285 03	TS6 M2	B	U	--<--- U	O	O	Up
7	39505285 03	TS6 M2	A	O	O	U	--<--- U	Down
8	39505285 03	TS6 M2	B	U	--<--- U	O	O	Up
9	39505285 03	TS6 M2	A	O	O	U	--<--- U	Down
10	39505285 76	TS6 M2	B		--<---			Up
	PRESSURE PLATE							
				T1	T2	T3	T4	

Article No:	Quantity:
1640917 01	1
39505285 83	1
39505285 03	8
39505285 76	1
	11