

TRANTRER Plate & Frame Performance Specification

FOR

Customer: Lurgi PSI
 Address: Dennis Paganoni
 1790 Kirby Pkwy Suite 300
 MEMPHIS, TN 38138
 Cust. Reference: 5021-006 Central Illinois Energy
Model: GFP-187-M-8-HP-28

INFORMATION

Date: 08/16/2006
 Order No.: 115687
 Item No.: 5
 Technical: **RECEIVED**
 Run No.: - 248154
 Units Required: 1
 File: **EP 3101**

06018
ETHANOL
Canton, Illinois
OCT 03 2006
0180010006

Intended End Use: Heat exchanger to cool Ferm Mash 5.00°F using 83.00°F Water with pressure drop at or below 10.00 psi on hot side and at or below 20.00 psi on cold side.

FIELD FILE

PERFORMANCE

		Hot Side		Cold Side	
Flow Rate (Total)	lb/h	300060.00	258574.20	258574.20	lb/h
Flow Rate (Unit)	lb/h	300060.00	258574.20	258574.20	lb/h
Inlet Temperature	°F	93.00	83.00	83.00	°F
Outlet Temperature	°F	88.00	88.00	88.00	°F
Pressure Drop	psi	4.21	2.10	2.10	psi
Operating Pressure	psi·g	150.00	150.00	150.00	psi·g
Total Heat Exchanged	Btu/h		1290258	1290258	
U-Value	Btu/(h·ft ² ·°F)		591	591	
Total Heat Transfer Area (Per Unit)	ft ²		436.92	436.92	
LMTD	°F		5.00	5.00	

FLUID DATA

		Hot Side	Cold Side
Fluid Name		Ferm Mash	Water
Specific Gravity		1.07	1.00
Specific Heat	Btu/(lb·°F)	0.86	1.00
Thermal Conductivity	Btu/(h·ft·°F)	0.36	0.36
Viscosity (avg.)	cP	10.00	0.80

CONSTRUCTION

Plate Material/Thickness	SA-240 316 Stainless Steel	0.8 mm. Electropolished
Gasket Material (Hot/Cold)	EPDM	EPDM
Connection Material	SA-312TP 316LSS	SA-312TP 316LSS
Connection Size (Hot/Cold inlet)	8" 150# STUD	8" 150# STUD
Connection Size (Hot/Cold outlet)	8" 150# STUD	8" 150# STUD
Frame/Finish	SA-516-70 Carbon Steel	Painted, 1-3 mils DFT
Guide Bar (plate Guides)/Finish	SA-240 304 Stainless Steel	Mill Finish
Tightening Bolts/Finish	SA-193-B7 Carbon Steel	Zinc Plated
Tightening Nuts/Finish	SA-194-2H Carbon Steel	Zinc Plated

DESIGN

Design/Test Pressure	psi·g	150.00 / 195.00
Design Temperature	°F	300.00
ASME Stamp / CE Stamp		Yes
Total Weight Empty/Flooded (Per Unit)	lb	8236
No. Plates		28 (25% Additional Capacity)
Pass Arrangement (Hot/Cold)		1
Plate Mix (Hot/Cold)		13M+0M
Flow Direction		Countercurrent

REMARKS:

EP-3101 Yeast Cooler

Channel Velocities H/S 1.72 fps, C/S 1.47 fps

The performance guarantee is based on the accuracy of the data presented above, and the customers ability to supply product and operating conditions in conformance with the above.

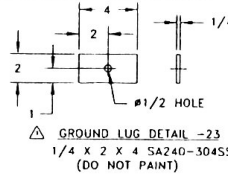
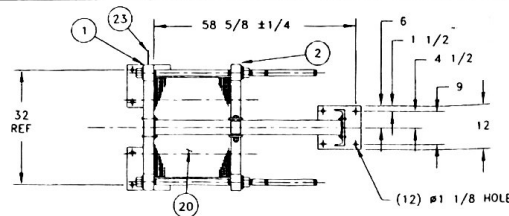
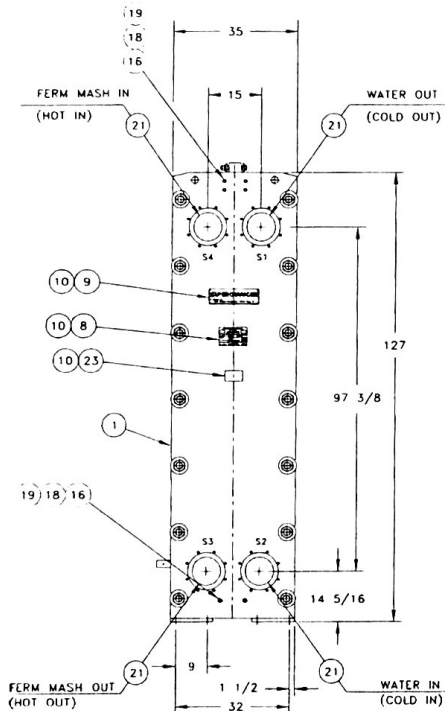
Tranter, Inc. ▲ P.O. Box 2289 ▲ Wichita Falls, TX 76307

Phn: (940) 723-7125 ▲ Fax: (940) 723-5131

<http://www.tranter.com>

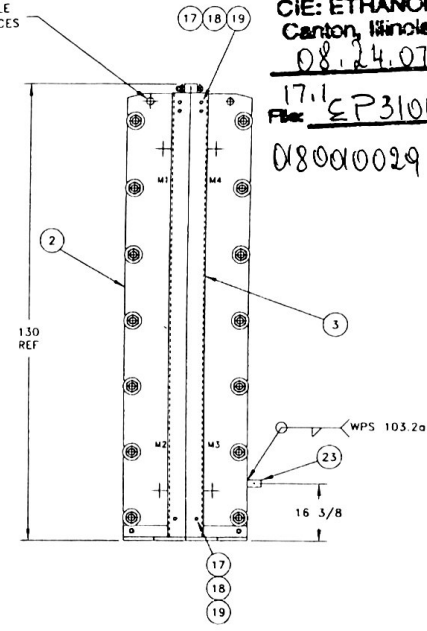
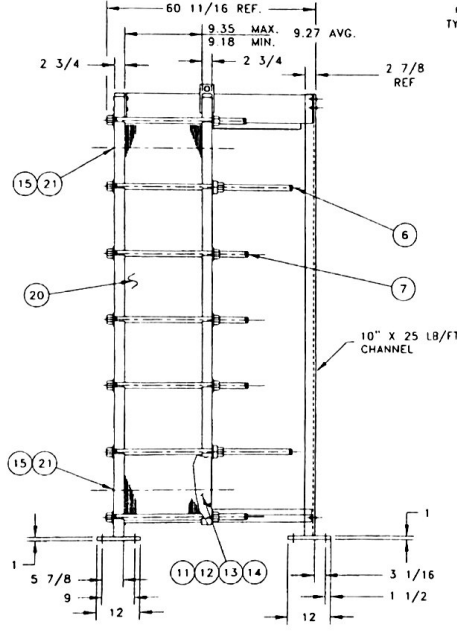
NOTES CONTINUED

8. PLATES ARE TO BE ELECTROPOLISHED
9. PERMANENTLY ATTACH TO FRAME METAL TAG SHOWING COLD IN, COLD OUT, HOT IN, HOT OUT
10. DOCUMENT CONTROL REQUIRED DOCUMENT PACKAGE TO SHIP SEPARATELY CONSISTING OF ASME PRESSURE CALCULATIONS, SEISMIC LOAD CALCULATIONS & CERTIFIED DRAWINGS.
11. UNIT DESIGNED FOR SEISMIC LOADING PER BOCA 96
 $A_v=0.05, A_g=0.05$ 80 MPH WIND LOADING.



Certified By
 Tranter, Inc
 Date: 04-04-2007
 By: *Chris Decker*

08018
 CIE: ETHANOL
 Canton, Illinois
 08.24.07
 17.1
 File: EP310L
 080010029

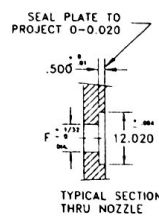


PARTS LIST				
ITEM NO.	DESCRIPTION	DRAWING NO.	NO. REQ'D.	
1	STATIONARY FRAME ASS'Y. SA-516-70N	D-206083	1	
2	MOVABLE FRAME ASS'Y. SA-516-70N	D-205861-1	1	
3	GUIDE BAR SUPPORT	D-206084	1	
4	UPPER GUIDE BAR (WORKING LGTH. 55)	D-203490-1	1	
5	LOWER GUIDE BAR (WORKING LGTH. 55)	D-204488-1	1	
6	BOLT ASS'Y. (WORKING LGTH. 36)			
7	2 DIA. CARBON STEEL SA-193-B7			
7	BOLT ASS'Y. (WORKING LGTH. 26)	D-202779-B	4	
8	2 DIA. CARBON STEEL SA-193-B7			
8	DATA NAMEPLATE	D-202779	10	
9	NAMEPLATE	B-202112	1	
9	NAMEPLATE	B-200734	1	
10	METAL TACK FASTENER	A-205187	12	
11	SHROUD SET ("L" DIM: 12 1/2)	D-205866	1	
12	SHROUD STUD	A-200830	32	
13	SHROUD NUT	A-200831	32	
14	SHROUD WASHER	A-200832	32	
15	NOZZLE PROTECTOR (NOT SHOWN)	D-204774-5	4	
16	GUIDE BAR BOLT	B-205480-8	6	
17	GUIDE BAR BOLT	B-205480-4	6	
18	GUIDE BAR NUT	B-205481	12	
19	GUIDE BAR WASHER	B-205482	12	
20	PLATE		28	
21	NOZZLE B" STR ("S" FRAME)	SA312-1P316L-WLD	4	
22	3 X 5 X 16 GA 304SS TAG	B-6-115687-10	4	
23	GROUNDING LUG		1	
		DETAIL	1	

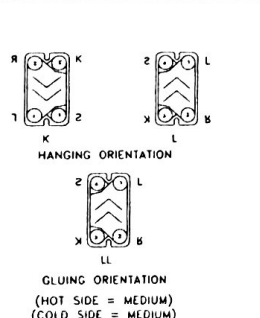
STUDDED PORT ANSI B16.5 BOLT HOLE DIMENSIONS	
SIZE	8"
DIM.	150 LB
A	3/4-10 UNC 2B
B	8
C	13/16

SPECIFICATIONS		"U" CODE STAMP DATA	
DESIGN PRESSURE:	150 PSI	M.A.W.P.	150 PSI AT 300 °F
TEST PRESSURE:	195 PSI	M.D.M.T.	-20 °F. AT 150 PSI
DESIGN TEMP.:	300 °F	MEDIUM:	FERM MASH/WATER
NO. OF PLATES:	28	FORM:	U-1 NO. REQ'D. 1
SURFACE AREA:	436.92 SQ.FT.	LOCATION OF INSTALLATION	CENTRAL ILLINOIS ETHANOL
WEIGHT:	8361 LBS		CANTON, IL
PAINT: ROYAL BLUE			

- NOTES
1. FLEXIBILITY IN PIPING IS NECESSARY TO PROVIDE FOR THERMAL EXPANSION. WHERE APPLICABLE, PIPE VIBRATIONS AND FLUID PULSATIONS SHOULD BE ELIMINATED FOR FATIGUE AND CYCLIC TYPE OF APPLICATIONS.
 2. FABRICATE PER ASME CODE SECTION VIII, DIV. 1 SPECS. LATEST EDITION AND ADDENDA. "U" STAMP YES NAT'L BD. YES
 3. METAL STAMP ON ITEM #24: P.O. NO: 601870722 PROJECT NO: 08018 CENTRAL ILLINOIS ETHANOL CANTON, IL EP-3101 YEAST COOLER
 4. CHANNEL VELOCITIES: H/S 1.72 fps C/S 1.47 fps
 5. MAPICS PART NO.: GF-187-115687-5
 6. MAXIMUM FRAME CAPACITY = 36 PLATES (25% EXPANSION).
 7. PLATE GAP: H/S 8.0mm CS 8.0mm



CERTIFIED PRINT CHECK
 CHK. BY: *W. Schumaker*
 DATE: 8-27-07
 LURGI INC.



ELEMENT COMPOSITION DIAGRAM NOTES: GASKETS FACE "S" FRAME

PLATE HANGING ASSEMBLY			
Plate Sequence	Gasket Material	Piercing	Gluing Hanging
1	EPDM	1234	LL Start K
2, 4 ... 24, 26	EPDM	1234	LL L
3, 5 ... 25, 27	EPDM	1234	LL K
28	EPDM	0000	LL End L

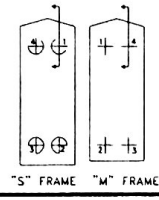
PLATE ASSEMBLY SPECIFICATIONS

Qty	Gasket Material	Theta/Piercing	Gluing LL Start
1	EPDM	1234	LL
26	EPDM	1234	LL
1	EPDM	0000	LL End

*CERT: SA240-316

SECTION	FLUID NAME	FLOW RATE (LB/HR)	INLET TEMP. °F	OUTLET TEMP. °F	PRESSURE DROP (PSI)	PLATE ARRANGEMENT	PLATE* GASKET MATERIAL	NOZZLE	"F" DIA. HOLE
1	FERM MASH	300060	93	88	4.21	13M X 1	316 EPDM	316L	S1 8 11/16
	WATER	258574.20	83	88	2.10	14M X 1	316 EPDM	316L	S2 8 11/16
									S3 8 11/16
									S4 8 11/16
									M1
									M2
									M3
									M4

NOZZLE LOCATION	"F" DIA. HOLE
S1	8 11/16
S2	8 11/16
S3	8 11/16
S4	8 11/16
M1	
M2	
M3	
M4	



THE TRANTER PEOPLE

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 TRANTER, Inc., Wichita Falls, Texas

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CUSTOMER: LURGI PSI

SN301

THIRD ANGLE PROJECTION

MODEL: SUPERCHANGER
 MODEL GFP-187-M-B-HP-28
 EP-3101 YEAST COOLER

SCALE: ---

DATE: 9-18-06

DATE: 9-21-06

DATE: 0-6-115687-5