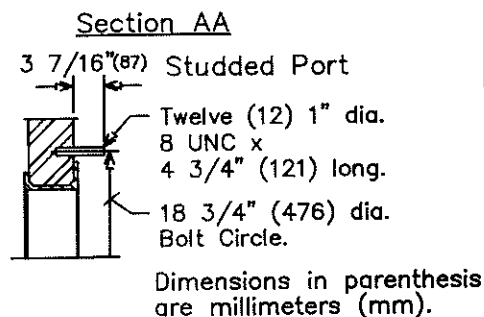
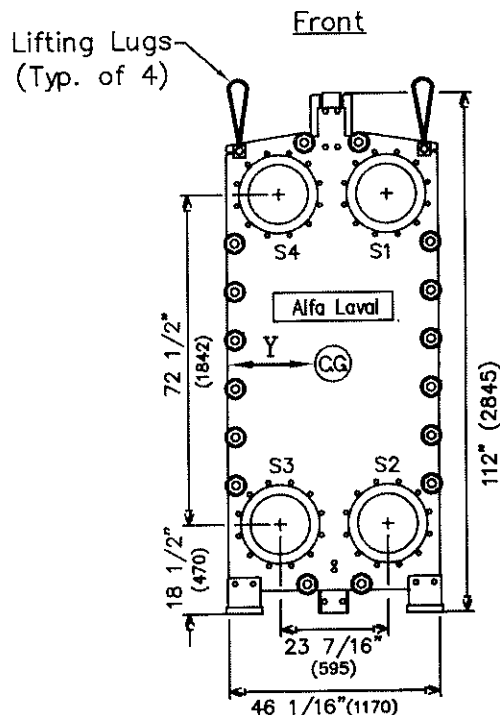
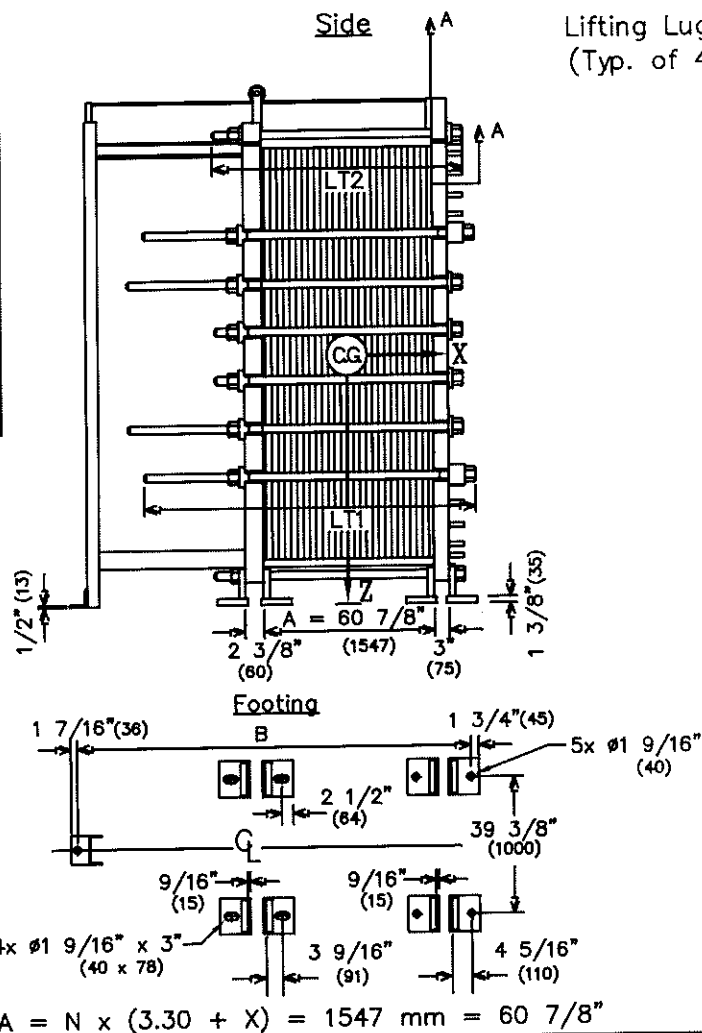


Designed, Constructed and National Board Stamped in Accordance with
2001 A.S.M.E. Code and latest Addendum.

CENTER OF GRAVITY		
DIM'N	EMPTY	OPER
"X"	944 mm	914 mm
"Y"	585 mm	585 mm
"Z"	1391 mm	1391 mm

CERTIFIED
APPROVED FOR FABRICATION
BY DM DATE JULY-6-2004

B	#	
57 1/2"	(1459)	
81 1/16"	(2059)	
104 11/16"	(2659)	
128 5/16"	(3259)	
151 15/16"	(3859)	
175 9/16"	(4459)	



Connections

Location	Function	Material	Size	Class
S1	Hotside In(Water)	TITANIUM	14"	150
S2	Hotside Out(Water)	TITANIUM	14"	150
S3	Coldside In(Water)	TITANIUM	14"	150
S4	Coldside Out(Water)	TITANIUM	14"	150

Notes: BLAST: SSPC-SP10. PAINT: PRIME: CARBOLINE CARBOZINC 8701 ZINC RICH EPOXY, 2-3 MILS DFT. INTER: CARBOLINE CARBOGUARD 8922 HS EPOXY, 2-4 MILS DFT. FINISH: CARBOLINE CARBOTHANE 8832 ALIPHATIC POLYURETHANE, 3-5 MILS DFT, COLOR AL-BLUE. PAINT TRAVELER WITH DFT MEASUREMENTS. FOUR (4) SEISMIC FEET ON FRAME PLATE PER 32380740 AND FOUR (4) SEISMIC FEET ON PRESSURE PLATE PER 32380771. DATA BOOK. CUSTOMER INSPECTION. SOLID 304SS CARRYING BAR PER 32382428.

Customer: FLORIDA POWER & LIGHT
P.O. No.: 00058022 - REV.5
Plant: TURKEY POINT NUCLEAR PLANT
Item No.: 4E12A/4E12B/4E12C
A/L Ord. No.: 31807
A/L Ser. No.: 30108-52715 TO 52717

Design Press./Temp.: 150 PSIG / 150°F
Mat'l Plates/Gaskets: TITANIUM / NBRP GLUED
Plates Actual/Max.: 407 / 407 (0.5 mm)
Weight Dry/Flooded: 13020 LBS / 18647 LBS
For Mfg. Only, LC: 3000 mm
For Mfg. Only, LT1/LT2: 8x 2850, 8x 2250 mm

M30-FG
Plate Heat Exchanger

Alfa Laval
Manufactured in Richmond, Virginia

rev.	description	by	ck	date
0	Initial drawing	IL	MS	10/90
1.0	Adopted shortened tightening bolts	IL	PK	7/00
1.1	Item numbers revised. Dimensions added	IL	PK	7/00
1.2	Plate quantity increased to maximum of 407	IL	PK	10/00
by	date	check	date	approval
PN	8/91	MG	8/91	TC
Dwg. No.: 88130-131				Rev.: J.2

Subject: M30-FG

QA03171

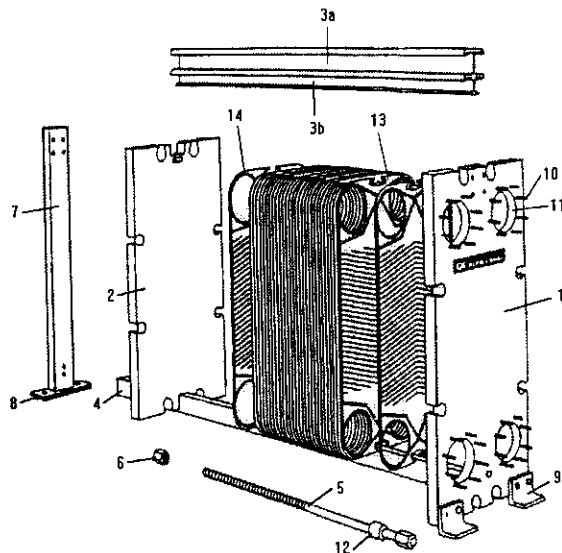
Given are standard ASME/ASTM materials of construction.

<u>No.</u>	<u>Item</u>	<u>Quantity</u>	<u>Material</u>	<u>Notes</u>	<u>Dimensions</u>
1.	Frame Plate	1	SA516-70	1	104 13/16" x 46 1/16"
2.	Pressure Plate	1	SA516-70	1	99 5/16" x 46 1/16"
3a.	Carrying Bar	1	SA479,304SS		3000 mm
3b.	T-Profile	1	SA479,304SS		
4.	Guide Bar	1	SA479,304SS		3000 mm
5.	Tightening Bolt	8	SA193,B7		1 1/2" - 6 UNC, 2250 mm
	Tightening Bolt	4	SA193,B7		1 1/2" - 6 UNC, 2850 mm
	Tightening Bolt	4	SA193,B7		2" - 4 1/2 UNC, 2850 mm
6.	Tightening Nut	12	SA194,2H	2	1 1/2" - 6 UNC
	Tightening Nut	4	SA194,2H	2	2" - 4 1/2 UNC
7.	Support Column	1	Carbon Steel	1	
8.	Support Foot	1	SA36	1	
9.	Frame Plate Foot	4	SA36	1	
	Pressure Plate Foot	4	SA36	1	
10.	Stud Bolt	48	SA193,B7	2	1" - 8 UNC, 4 3/4"
11.	Connection Liner	4	SB265,Gr.1		
12.	Bearing Box	4	1017CS	2	
13.	Channel Plate Gasket	408	NBRP Glued		
14.	Channel Plate	407	SB265,Gr.1		88 1/4" x 39 1/8"

Not Shown

OSHA Shroud	1	Aluminum
Tightening Bolt Cover	32	Polyethylene
Lifting Rope	4	Wire Rope

Notes: (1) Painted. (2) Zinc Plated.



Customer: Florida Power & Light
P.O. No.: 00058022 - Rev.5
Plant: Turkey Point Nuclear Plant
Item No.: 4E12A, 4E12B, 4E12C
A/L Order No.: 31807
A/L Serial No.: 30108-52715 to 52717

Plate Heat Exchanger Specification

30108-52715 to 30108-52717
Ed. 3

Page No. 1
Document: SPEC-52715

Serial No. 30108-52715 Date: July-6-2003
to 30108-52717 DM

Plate Heat Exchanger type M30-FG Quantity 3

Customer: Florida Power & Light
P.O. No.: 00058022
Plant: Turkey Point Nuclear Plant
Item No.: 4E12A, 4E12B, 4E12C

Agent:
Florida Heat Transfer
Tom Kota

Supplier: Order No.
Alfa Laval Inc. 31807
Richmond, Va.

Plates with parallel flow.

The plate pack is tightened to 1547 mm

Always observe plate from its gasket side.

The plates are assembled, counting from the frame plate to the pressure plate, in sequence stated below with the gasket side facing the frame plate.

For information about installation, running, cleaning etc. see the Operational & Maintenance Manual.

Measurements (see drawing) mm : Dry Weight
: 13020 Lbs.
A = N x (3.30 + X) :
A = 407 x (3.30 + 0.5) : Liquid Volume
A = 1547 mm : 675.26 US Gal
: :
: Design/Test Pressure
: 150 PSIG / 195 PSIG
: :
Connection Standard : Design Temperature / MDMT
14" ANSI 150# Studded Port 150 F / -20 F

Remarks

	---Hot Side---	---Cold Side---
Media	Water	Water
Flow rate	5700 GPM	5500 GPM
Temp. program	111 → 99.9	95 → 106.5
Pressure drop	6.48 PSI	6.10 PSI
Liquid Volume	337.63 US gal	337.63 US gal
Location of Connections		
Inlet	S1	S3
Outlet	S2	S4
Material in connections	Titanium	Titanium
Plates Material	Titanium	
Thickness	0.50 mm	
Gasket material	NBRP Glued	
Heat Transfer Surface Area	8021.3 Sq.Ft.	
Total Surface Area	8060.9 Sq.Ft.	
Plate Grouping	1*(161MH+42L) /	1*(161ML+42L)

Plate no.	Plate code no.	Punched corner of the plate				Flow direction on the gasket side of the plate
		upper right	lower right	lower left	upper left	
		1	2	3	4	
		->-	<--	=<=	==>	
1	End Plt2 83A H	0	0	0	0	
2	Chan Plt 03B MH	U--->--U		0	0	Down
3	Chan Plt 03A ML	0	0	U===>==U		Up
4	Chan Plt 03B MH	U	U	0	0	Down
5	Chan Plt 03A ML	0	0	U	U	Up
))))	
		((((
322	Chan Plt 03B MH	U	U	0	0	Down
323	Chan Plt 03A ML	0	0	U	U	Up
324	Chan Plt 03B L	U	U	0	0	Down
325	Chan Plt 03A L	0	0	U	U	Up
326	Chan Plt 03B L	U	U	0	0	Down
327	Chan Plt 03A L	0	0	U	U	Up
))))	
		((((
404	Chan Plt 03B L	U	U	0	0	Down
405	Chan Plt 03A L	0	0	U	U	Up
406	Chan Plt 03B L	U--->--U		0	0	Down
407	End Plt1 16A H			====>==		Up
		T	1	2	3	4

30108-52715 to 30108-52717
Ed. 3

Plate Requirements for Manufacturing Order No.: 31807 -01

M30 Titanium 0.50 NBRP Glued

PLATE NUMBER	QUANTITY/PHE	TOTAL QUANTITY
363141 4103	244	732
363241 0116	1	3
363241 0183	1	3
363241 4103	161	483
	-----	-----
TOTAL (CHANNELPL.+ENDPL.)	407	1221

30108-52715 to 30108-52717
Ed. 3

CENTRE OF GRAVITY	EMPTY	FILLED (mm)	
HORIZONTAL	944	914	(from the outside of the frame plate)
VERTICAL	1391	1391	(from the underside foot or frame)

FOUNDATION LOAD	OPENED	OPERATING (LBS)
SUPP. COLUMN SIDE	6750	5550
FRAME SIDE	8924	13097

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
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 FLORIDA POWER & LIGHT COMPANY, TURKEY POINT NUCLEAR PLANT, 9760 SW 344TH STREET, HOMESTEAD, FL, 33035
(Name and address of Purchaser)

3. Location of Installation FPL TURKEY POINT NUCLEAR 3&4, ON PALM DRIVE, FLORIDA CITY, FL, 33034
(Name and address)

4. Type Vertical Plate Heat Exchanger 30108-52715 88130-131 J.2 22445 2004
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial no.) (CRN) (Drawing No.) Nat'l. Bd. No. (Year Built)

5. ASME Code, Section VIII, Div. 1 2001 A03
Edition Addenda (date) Code Case No. 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 multi-chamber vessels.

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 (b) SA-516-70
(Mat'l Spec. No. Grade or Type) H.T. - Time + Temp (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	3"	0"						46 X 107"					
(b)	Movable	2 3/8"	0"						46 X 101"					

If removable, bolts used (describe other fastening) SA193-B7 (16) 1 1/2" DIA. 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 150 psi at max. temp. 150 ° F Min. design metal temp. -20 ° F at 150 psi
(internal) (external) (internal) (external)

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. 195 Hydro Proof test _____

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: _____
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

13. Tubes: _____
Mat'l Spec. No., Grade or Type O.D., in. Nom. thk., in. or gauge Number Type (Straight or U)

Items 14 - 18 incl. to be completed for inner chambers jacketed vessels or channels of heat exchangers

14. 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

15. Heads: (a) _____ (b) _____
(Mat'l Spec. No. Grade or Type) H.T. - Time + Temp (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)														
(b)														

If removable, bolts used (describe other fastening) _____
(Mat'l Spec. No., Grade, Size, No.)

FORM U-1 (Back)

30108-52715

(Mfg's serial no.)

16. MAWP _____ psi at max. temp. _____ ° F Min. design metal temp. _____ ° F at _____ ps
(internal) (external) (internal) (external)

17. Impact Test _____
(Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. _____ Hydro _____ Proof test _____

19. 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	14"	STUDS	SA193-B7		1"					
Outlet	2	14"	STUDS	SA193-B7		1"					

20. Supports: Skirt _____ Lugs _____ Legs _____ Others _____ FEET _____ Attached _____ BOLTED _____
(Yes or no) (No.) (No.) (Describe) (Where and now)

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)

22. Remarks (407) SB-265 Gr. 1 .02 " Plates Maximum Distance between Heads = 60.91 "
Customer PO#: 00058022-REV.5
Tag #: 4E12A
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.

U Certificate of Authorization No. 25,017 Expires July 5, 2007
Date 11/5/05 Name Alfa Laval, Inc. Signed Lewis J. Rodz
(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 the State or Province of VA and employed by OneBeacon America Insurance of Boston MA have inspected the pressure vessel described in this Manufacturer's Data Report on 12-27-2004, and state that to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the inspector nor his 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 1-5-05 Signed Robert Mathan Commissions NB 10803A VA951R
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)

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 Code, Section VIII, Division 1.

U Certificate of Authorization No. 25,017 Expires July 5, 2007
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 the State or Province of _____ 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 ASME 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 employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the inspector nor his 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 _____ Commissions _____
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)