

BAFFLE CUT

SEALING STRIP 50.10

APPROVED

FOR CONSTRUCTION

FLUOR ENGINEERS and CONSTRUCTORS INC.

MAR 5 1974

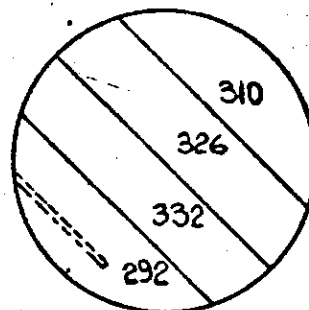
BAFFLE CUT

INTER DIA

OUTER TUBE LIMIT

SEALING STRIP 6 mm THK (TYP)

CUT OUT IN FL HEAD SUPPORT PLATE



INTER DIA 1168 mm (46")
 OUTER TUBE LIMIT 1121 mm
 TOTAL 1260 TUBES 3/4" OD.
 TUBE PITCH 1" \diamond
 PASSES 4 (FOUR)
 TIER RODS 1/2" (13 mm) DIA WITH
 SPACERS 1/2" PIPE SCHED 40

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NOV 5 1973

A		J. LOEF	COMPLETE REVISED
0		J. LOEF	PRELIMINARY ISSUE
ISSUE	DATE	BY	DESCRIPTION
WHEN REVISIONS HAVE BEEN MADE TO THIS DRAWING THE LETTERS OF ISSUE SHALL BE INDICATED BY A TRIANGLE NEAR THE PART(S) CONCERNED			
DRAWN BY		DATE	
J. LOEF			
CHECKED BY		SCALE	
L		1:50	
APPROVED BY			
TUBE LAYOUT E-2120			
LOCATION		PLANT	
CILACAP INDONESIA		HVI LUB OIL COMPLEX	
REGISTRATION			
T 1 238 058			

ORG No. 1

SH 5 CONT'D ON -

SPECIFICATION SHEET HEAT EXCHANGER

FLUOR CORPORATION

VENDOR MUST COMPLETE THIS SPECIFICATION SHEET BEFORE RETURNING.
ITEMS MARKED * MAY BE OMITTED UNTIL SELECTION OF VENDOR.

21-E-20-1
SHEET NO. DATE 12-13-73
REV. 1 DATE 2-26-74
BY JTHM/JCNCHK'D
JOB NO. 446904

(METRIC)

1. ITEM NO. 21-E-20 SERVICE 1st VAC. COLUMN OVERHEAD CONDENSER
2. DUTY 2,632,000 Kcal/HR EXCHANGER TYPE: HORIZ. AFS
3. VENDOR WIEGMANN & ROSE MFRS. IDENT. NO. _____

	SHELL SIDE		TUBE SIDE	
4. FLUID	STEAM + OIL + INERTS		SEAWATER	
5. TOTAL FLOW.....Kg/HR	6,111 @		310,000	
6.	INLET	OUTLET	INLET	OUTLET
7. LIQUID		5,564	310,000	310,000
8. SP. GR.	@ °C	OIL 0.8 H ₂ O 1.0	0.995 @ 32 °C	0.993 @ 40.5 °C
9. THERMAL COND.Kcal/HRxm ² x°C/m	@ °C	0.535 @ 0.535	0.53 @ 32 °C	0.54 @ 40.5 °C
10. SPECIFIC HEAT.....Kcal/Kg x °C	@ °C	0.6 @ 1.0	1.0 @ 32 °C	1.0 @ 40.5 °C
11. VISCOSITY.....CENTIPOISES	@ °C	0.64 @ 0.66	0.75 @ 32 °C	0.69 @ 40.5 °C
12. LATENT HEAT.KCAL/KG	OIL 68			
13. DEW POINT. °C	OIL 70 H ₂ O 48.3			
14. VAPOR.....Kg/HR	6,111	547		
15. MOLECULAR WEIGHT.....	22.93	24.80		
16. THERMAL COND... Kcal/HRxm ² x°C/m	0.020 @ 70 °C	0.0185 @ 42 °C	@ °C	@ °C
17. SPECIFIC HEAT.....Kcal/Kg x °C	0.47 @ 70 °C	0.46 @ 42 °C	@ °C	@ °C
18. VISCOSITY.....CENTIPOISES	0.012 @ 70 °C	0.011 @ 42 °C	@ °C	@ °C
19. DENSITY.....KG/M ³	0.098	0.111		
20. ADDITIONAL DATA ON SHEET NO'S....	21-E-20-2 THRU 5		21-E-20-2 THRU 5	
21. OPERATING TEMPERATURES..... °C	70	42	32	40.5
22. PRESSURES (ATMOS. Kg/cm ² a) Kg/cm ²	40 mm Hg 1.05		1.5	
23. VELOCITIES..... m/SEC				
24. PRESSURE DROP (NOTE A).....Kg/cm ²	ALLOW. 7mm Hg	CALC. 5mm Hg	ALLOW. 0.5	CALC. 0.6
25. DESIGN TEMPERATURE..... °C	80		52	
26. PRESSURE..... Kg/cm ² g	MIN. 3.5	TEST	MIN. 5.3	TEST
27. FOUL RESIST..... m ² xHRx°C/Kcal	MIN. 0.0004	CALC.	MIN. 0.0004	CALC.
28. MIN. CORROSION ALLOWANCE.....mm.	3MM ON C.S.			
29. NUMBER OF PASSES PER SHELL	CROSSFLOW		7	
30. FLOW ARRANGEMENT	1 PAR. BANKS OF	EXCH. IN SERIES	1 PAR. BANKS OF	EXCH. IN SERIES

31. TOT. AREA (NOTE B) m ²	447.1	SHELL, NO. X I.D.	1 x 46"	CROSS BAFFLES, TYPE...	③
32. LMTD..... °C	10.6	TUBES, NO. PER SHELL...	1260	NUMBER X SPACING..	x 1160
33. CORRECTED MTD..... °C		O.D. X LENGTH.....	3/4" x 240"	SEGMENT CUT.....	
34. TRANSFER RATE, CLEAN		GAUGE, BWG.....	16 MIN. WALL	IMPINGEMENT BAFFLE..	(YES) []
35. Kc/M ² HR °C SERVICE	552	TUBE PITCH.....	1" []	WEIGHTS EACH BUNDLE.	Kg
36. CODE REQUIREMENTS.....	VIII ASME; TEMA R	REMOVABLE TUBE BUNDLE	(YES) []	BUNDLE & SHELL....	13,926 Kg
37. CODE STAMP.....	(YES) []	FLOATING HEAD.....	CLAMP TYPE: []	FULL OF WATER.....	Kg
38. MATERIALS (MARK STRESS RELIEVED-S.R., RADIOGRAPHED-X.R.)		NOZZLES (NOTE C)		SHELL SIDE	TUBE SIDE
39. TUBES.....	5	INLET.....	2 18" 150# RF	NO. SIZE RATING & FACING	NO. SIZE RATING & FACING
40. TUBE SHEETS.....	3	OUTLET.....	2 6" VAP 150# RF	1 10" 150# RF	1 10" 150# RF
41. BAFFLES.....	SEE	DRAIN.....	2 2" WQ 150# RF		
42. TUBE SUPPORTS.....		VENT.....			
43. TIE RODS & SPACERS..	LIST 10	PRESS. GAGE (EA. NOZZLE).			
44. LONG BAFFLE.....		THERMOWELL (EA. NOZZLE).			
45. SHELL.....	DEP 31.21.01.31				
46. SHELL COVER/FLANGE..					
47. CHANNEL.....	GEN				
48. CHANNEL COVER/FLANGE					
49. FLOATING HEAD COVER.					
50. CHANNEL FLANGES.....					
51. CHANNEL NOZ. FLANGES					
52. SHELL FLANGES.....					
53. SHELL NOZ. FLANGES..					

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REMARKS: ① SHELL INLET: 4604 KG/HR STEAM + 257 KG/HR INERTS + 1250 KG/HR OIL
SHELL OUTLET: 4314 KG/HR H₂O AND ALL THE OIL IS CONDENSED ② FULL
SUPPORTS + CROSS BAFFLE ③ SEALING STRIPS: 5 PAIR

NOTE A: FOR CONDENSERS AND THERMOSYPHON REBOILERS PRESSURE DROP STATED SHALL INCLUDE C) RATE PER ASME & LATEST SUPPLEMENT.
STATIC HEAD BETWEEN CENTERLINES OF INLET AND OUTLET FLANGES.

B) OUTSIDE TUBE AREA EXCLUDING AREA IN TUBE SHEETS.

D) UNITS EXEMPT FROM CODE STAMP SHALL HAVE LONGITUDINAL WELD
SEAMS AND EXAMINED PER PARA. 117.52 OF ASME CODE.