

CLIENT APPROVAL DATA SHEET *DATA SHEET* ~~FOR~~ ~~UNIT~~ ~~STATUS~~ ~~FROM~~ ~~FLOWERS~~

VESSEL SERVICE FALLING FILM EVAPORATOR - VULCAN MFG. CO.

NO. REQUIRED / PROJECT NO. 33300 REPORT NO. ITEM NO. E-06A-11 SKETCH NO.

AREA ~~OR~~ *06* VESSEL SPECIFICATION PAGE SHEET

DESIGNED BY *PNR/WSD* DATE REVISION 1 2 3 4

APPROVED BY DATE 4/14/70 DATE 5/2/70 7/24/70 1/21/71 2/17/71

PROCESS CONDITIONS

VESSEL FLUID *METHANOL, WATER, DREXANIC*

SPECIFIC GRAVITY G_T 60

NORMAL PRESS. ~~PSIG~~ 40 mm Hg ABS.

NORMAL TEMP. °F 298-310

CONSTRUCTION DETAILS

MIN. DESIGN PRESS. PSIG *3000 120 EV*
750 254 EV

MIN. DESIGN TEMP. °F *300 650*
750 350

MATERIAL *SAE 304 STAINLESS STEEL*
304 SS

VOLUME - USG *ASME CODE*
TEMA-B

INSULATION *HEAT CONSERVATION*

VERTICAL OR HORIZONTAL

ELEVATION ABOVE GRADE FT. *-10"*

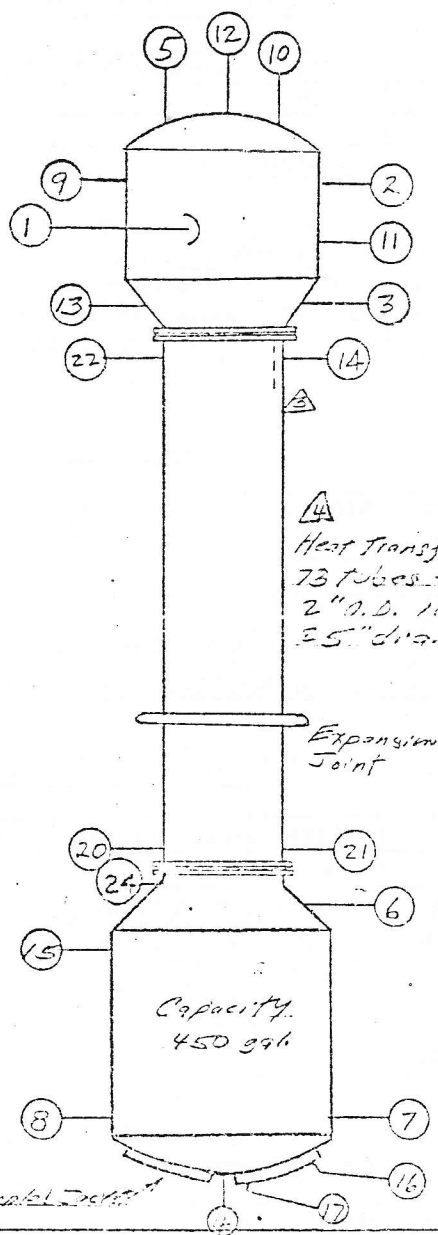
CONNECTIONS

SYMBOL	SIZE, IN.	SERVICE
1	6"	VAPOR-LIQUID INLET
2	2"	VAPOR OUTLET
3	1 1/2"	LIQUID IN
4	3"	LIQUID OUT
5	1 1/2"	RELIEF CONN.
6	2"	LEVEL CONN.
7	2"	LEVEL CONN.
8	1 1/2"	TEMP. CONN.
9	18"	MANWAY
10	1"	PRESSURE CONN.
11	1 1/2"	TEMP. CONN.
12	2"	VENT
13	1"	PRESS. CONN.
14	2"	STEAM IN

REMARKS

(1) *MANHOLES / HAND HOLES IN*
TO BE MADE WITH APPROVED
OR VENDORS RECOMMENDATION

(2) DUTY OF EXCHANGER = 430000 *BTU*
HR



Heat Transfer 610 sq. ft.
73 Tubes - 16 ft. long
2" O.D. 16 ga. 2 1/2" A
25" dia. shell

Expansion Joint

Capacity
450 gph

(2) DESIGN DUTY OF EXCHANGER = (1.20) (NORMAL DUTY)
CONN. (14) STEAM IN

STEAM IN	685/HR	436
STEAM CONDENSED		436
LIQUID IN		927
LIQUID OUT		544
OPERATING PRESS. PSIG		170
TOTAL TEMP. °F		550

SKETCH NO.

27-516

CUSTOMER NAME & DATE

DATA, SHEET FOR TANKS, DRUMS AND TOWERS

VESSEL SERVICE FALLING FILM EVAPORATOR - VULCAN MFG CO.

NO. REQUIRED PROJECT NO. 33500 REPORT NO. ITEM NO. E-66A-11 SKETCH NO.

AREA CHARGES 05 VESSEL SPECIFICATION PAGE SHEET

DESIGNED BY PNR/WSD DATE REVISION 1 3 4 5

APPROVED BY 4/14/70 DATE 5/8/70 11/21/71 7/26/71 1/24/72

PROCESS CONDITIONS

VESSEL FLUID

SPECIFIC GRAVITY G_{60}^T

NORMAL PRESS. PSIG

NORMAL TEMP. °F

CONSTRUCTION DETAILS

MIN. DESIGN PRESS. PSIG

MIN. DESIGN TEMP. °F

MATERIAL

VOLUME USG

INSULATION

VERTICAL OR HORIZONTAL

ELEVATION ABOVE GRADE FT.

CONNECTIONS

SYMBOL	SIZE, IN.	SERVICE
△ 15	1"	STEAM OUT
△ 16	2"	STEAM TO JACKET
△ 17	2"	CONDENSATE FROM JKT.
△ 18		
△ 19		
20	1"	CONDENSATE
21	1"	DRAIN
22	1"	VENT
△ 23		
△ 24	1"	PI COUPL.

REMARKS

All flanges to be 150# A.P.P.
AS PER CODE STANDARD

CONN. ① VAPOR-LIQUID FEED

TOTAL FLUID ENTERING LBS/HR	9878.1
VAPOR "	443.7
LIQUID "	9434.4
SPECIFIC GRAVITY OF LIQUID	1.046 @ 228°F
MOL. WEIGHT OF VAPORS	24.58 IN
VISCOSITY OF LIQUID CPS	2.5 @ 228°F
THERMAL CONDUCTIVITY BTU/(HR.FT.) (1/2")	0.231 @ 228°F
SPECIFIC HEAT LIQUID BTU/LB.F	0.638 @ 228°F
LATENT HEAT OF VAPORS BTU/LB	669.1 @ 228°F
TEMPERATURE IN	228°F

CONN. ② VAPOR OUT

TOTAL FLUID LEAVING LBS/HR	552.4
VAPOR "	552.4
MOL. WEIGHT	25.84
LATENT HEAT OF VAPORS BTU/LB	235.7
TEMPERATURE OUT	231.5
SPECIFIC HEAT OF VAPOR	0.274 @ 228°F

CONN. ③ LIQUID INLET

TOTAL FLUID ENTERING LBS/HR	41
LIQUID "	41
SPECIFIC GRAVITY OF LIQUID	1.052
VISCOSITY OF LIQUID CPS	4.2 @ 205°F
THERMAL CONDUCTIVITY BTU/(HR.FT.) (1/2")	0.236 @ 205°F
SPECIFIC HEAT OF LIQUID BTU/LB.F	0.615 @ 205°F
TEMPERATURE IN	205°F

CONN. ④ LIQUID OUTLET

TOTAL FLUID LEAVING LBS/HR	9366.7
LIQUID "	9366.7
SPECIFIC GRAVITY OF LIQUID	1.032
VISCOSITY OF LIQUID CPS	0.9 @ 280°F
THERMAL CONDUCTIVITY BTU/(HR.FT.) (1/2")	0.223 @ 280°F
SPECIFIC HEAT OF LIQUID BTU/LB.F	0.675 @ 280°F
TEMPERATURE OUT	298°F

SKETCH NO.