

THCSV CLEAN STEAM GENERATOR DATA

DESIGN STANDARDS

1. SHELL TO BE ASME CODE SECTION VIII, DIV 1 STAMPED "UB"
2. SHELL SIDE MAX WORKING PRESSURE: 50 PSIG
3. TUBE SIDE MAX WORKING PRESSURE: 150 PSIG
4. SHELL SIDE MAX WORKING TEMPERATURE: 400°F
5. TUBE SIDE MAX WORKING TEMPERATURE: 325°F
6. SHELL SIDE TEST PRESSURE: 300 PSIG
7. TUBE SIDE TEST PRESSURE: 300 PSIG
8. RELIEF VALVE SETTING: TBD PSIG

STANDARD MATERIALS OF CONSTRUCTION

1. SHELL: 316L STAINLESS STEEL
2. TUBESHEET: 316L STAINLESS STEEL
3. TUBES: 316L STAINLESS STEEL SINGLE WALL
4. STEAM HEAD: CLOSE GRAIN CAST IRON
5. INSULATION JACKET: ALUMINUM

OPTIONAL MATERIALS OF CONSTRUCTION

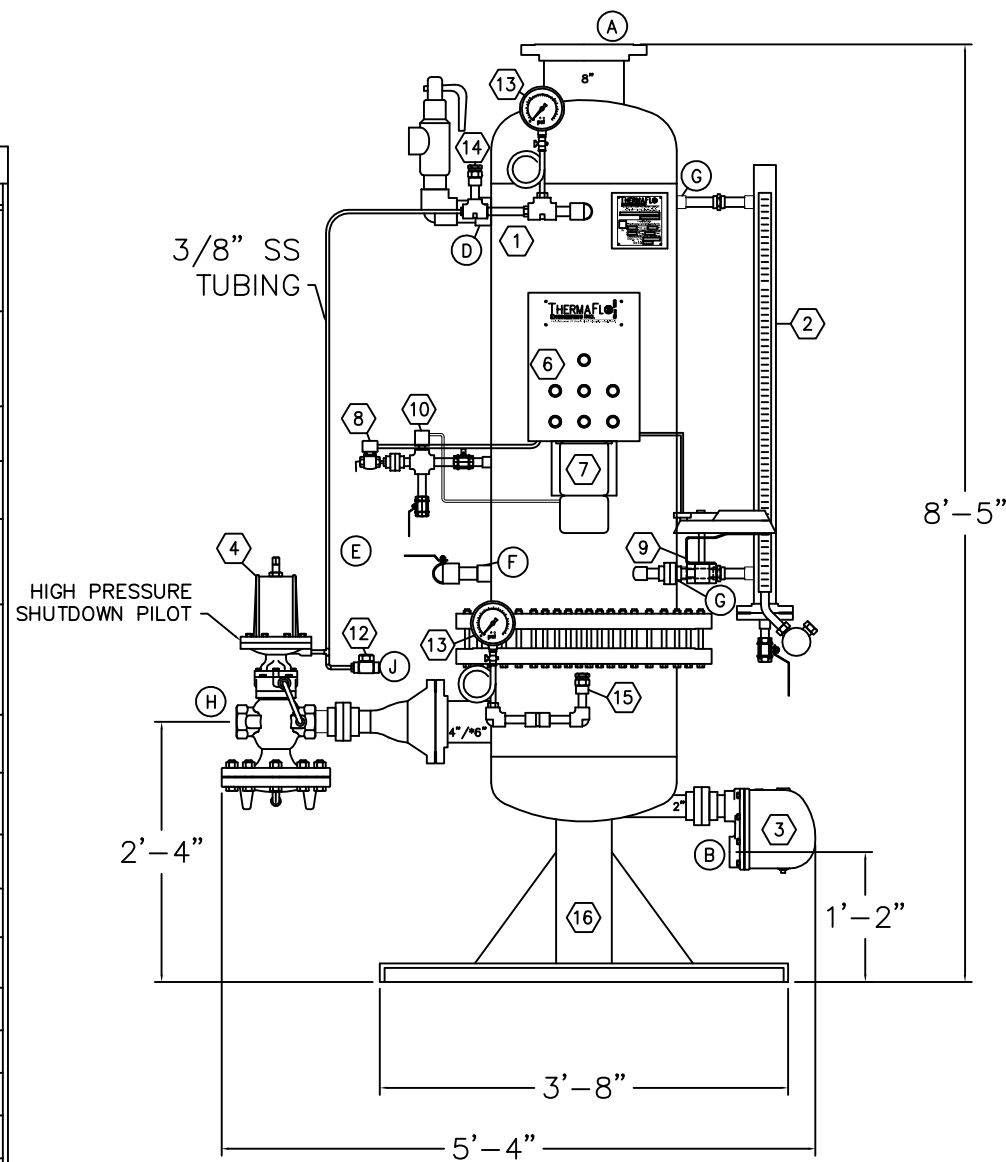
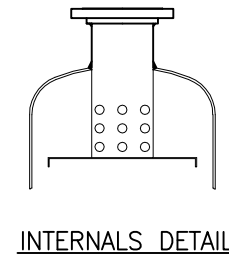
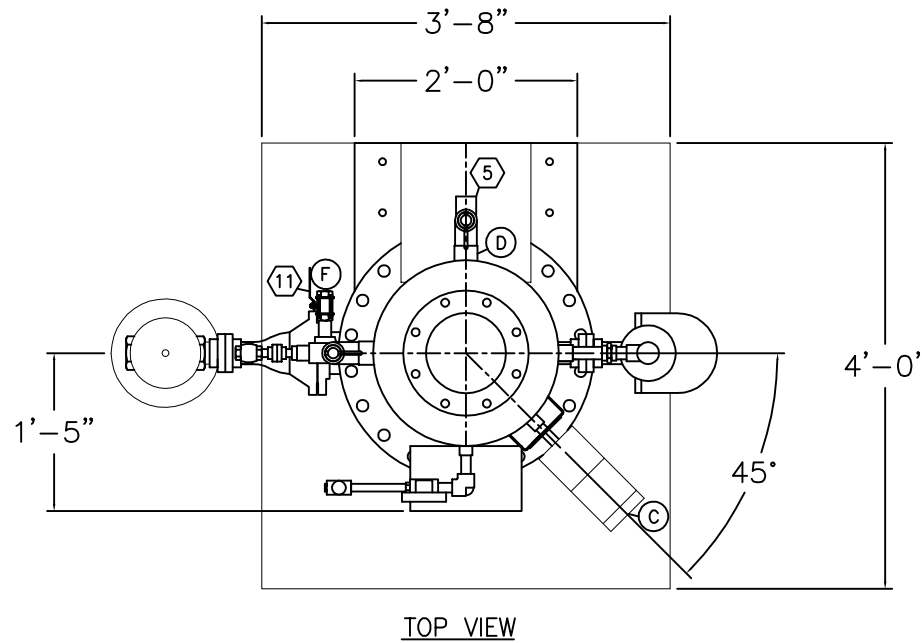
1. DOUBLE WALL TUBE CONSTRUCTION AVAILABLE
2. SHELL: CARBON STEEL
3. TUBESHEET: 304 STAINLESS STEEL, BRASS
4. TUBES: 304 STAINLESS STEEL, 90/10 CUPRO NICKEL, COPPER
5. STEAM HEAD: 316 STAINLESS STEEL OR CARBON STEEL
6. INSULATION JACKET: 316L STAINLESS STEEL

STANDARD CAPACITIES (BASED ON DRY SATURATED SOURCE STEAM Q=0.95 & 50°F FEEDWATER)

SOURCE STEAM PRESSURE	CLEAN STEAM PRESSURE	CLEAN STEAM CAPACITY
15 PSIG	5 PSIG	2475 LBS/HR
25 PSIG	10-15 PSIG	2200 LBS/HR
50 PSIG	10-15 PSIG	3400 LBS/HR
75 PSIG	15-30 PSIG	4200 LBS/HR
100 PSIG	15-30 PSIG	6200 LBS/HR
125 PSIG	15-30 PSIG	8000 LBS/HR

BILL OF MATERIALS

TAG	QTY.	DESCRIPTION	SIZE/MODEL
1	1	THERMAFLO ENGINEERING CLEAN STEAM GENERATOR, 316L SS ASME CODE 50 PSIG @ 400°F "UB" UNFIRED STEAM GENERATOR STAMPED & CONSTRUCTED, 20" INTERNAL 316L SS HEATING BUNDLE, 316L SS TUBE SHEET COMPLETE W/ 20" FABRICATED HEAD	20"Øx48" SHELL/THCSV-8000-SA 20"Øx36" BUNDLE
2	1	LEVEL GAUGE/TRANSMITTER, MAGNETIC WAFER FULL TANK VIEW LEVEL SIGHT GLASS, 316 SS CONSTRUCTION W/ CONT. 4-20 MA OUTPUT TRANSMITTER FOR HIGH LEVEL, LOW LEVEL, MAKEUP LEVEL CONTROL TO CONTROL PANEL	GEMS MODEL BM
3	1	CAST IRON FLOAT AND THERMOSTATIC STEAM TRAP	TBD/
4	1	SPIRAX SARCO PILOT OPERATED CLEAN STEAM SIDE CARBON STEEL PRESSURE CONTROL VALVE	TBD/ 25PE
5	2	KUNKLE STEAM SAFETY RELIEF VALVE, 316 STAINLESS STEEL NOZZLE AND DISC, BRONZE BODY, W/ LIFTING TEST LEVER SET @ TBD PSIG, CAPACITY 4105 LBS/HR	2"x2 1/2" 6030JH
6	1	CLEAN STEAM GENERATOR CONTROL PANEL TO INCLUDE; HIGH LEVEL ALARM, LOW LEVEL ALARM, HIGH PRESSURE ALARM W/ SHUTDOWN & DRY CONTACT OUTPUT, AND ALARM HORN W/ SILENCE, PID CLEAN STEAM PRESSURE CONTROL	NEMA 4
7	1	LMI CONDUCTIVITY BLOWDOWN CONTROLLER NEMA 4 HARDWIRED, OPERATES TIMED BLOWDOWN & CONDUCTIVITY CONTROL	DC4000
8	1	GRANZOW SURFACE BLOWDOWN VALVE, 316SS CONSTRUCTION, 120V OPERATION NORMALLY CLOSED, NEMA4 RATED 360°F@85PSIG	1/4" / 21L2K1T55
9	1	316 SS MODULATING BV ELECTRONIC MAKEUP FEEDWATER CONTROL VALVE	3/4" / BV
10	1	LMI CONDUCTIVITY SENSOR PROBE MOUNTED IN TEE CONFIGURATION OUTPUT TO ITEM 7	P/N 34761
11	1	BALL VALVE, 316SS CONSTRUCTION	1" / -
12	1	STAINLESS STEEL DRIP TRAP	1/2" / -
13	1	0-160 PRESSURE GAUGE, 316SS BOURDON TUBE & SOCKET W/ STEAM SYPHON & ISO VALVE	4" DIAL RANGE 4
14	1	VACUUM BREAKER SS CONSTRUCTION	1/2" / -
15	1	VACUUM BREAKER	1/2" / -
16	1	BASE & STAND	24"x24" BASE / 4" STAND
17	1	DWYER DIGITAL PRESSURE GAUGE	DPG 205



OPERATING REQUIREMENTS	
1.	115 VOLT/SINGLE PHASE/60 HZ POWER SUPPLY
2.	40-80 PSIG DRY COMPRESSED AIR (FOR PNEUMATIC CONTROLLED MODEL)
3.	SOFT TREATED WATER (<1.0 GRAINS/GALLON)
4.	DRY SATURATED SOURCE STEAM (Q=0.95)

WEIGHTS & DIMENSIONS	
1.	NET WEIGHT: 1900 LBS
2.	SHIPPING WEIGHT: 2100 LBS
3.	SHIPPING DIMENSIONS: APPROX. 44"x48"x98"

SUBMITTAL	
	TOLERANCE: ±1/4"
	ALL DIMENSIONS ARE SHOWN IN INCHES
	SIGNATURES
	DATE
	DESIGN NAL 6/7/10
CHK	
APP	
X	X

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STANDARD FEATURES	
1.	SAFETY HIGH LIMIT AND SHUTDOWN SYSTEM
2.	FAIL SAFE CLEAN STEAM OUTLET CONTROLLER
3.	SURFACE BLOWDOWN CONTROL SYSTEM
4.	SHELL BLOWDOWN VALVE
5.	EXPANDABLE TUBE DESIGN TO REMOVE INTERNAL SCALE BUILDUP
6.	INTERNAL CARRYOVER SEPARATOR PLATE ASSEMBLY
7.	316 MAGNETIC SITE LEVEL GAUGE AND LEVEL CONTROLLER
8.	NEMA 4, UL LISTED CONTROL PANEL
9.	MODBUS & BACNET COMMUNICATIONS
10.	FACTORY HYDRO AND LIVE STEAM TESTED BEFORE SHIPMENT
11.	THERMOLUX PAINTED SHELL WITH 2" HIGH DENSITY FIBERGLASS INSULATION AND ALUMINUM JACKET
12.	PRIMED AND POWDER COATED FRAME AND BASE

OPTIONAL FEATURES	
1.	6" COLOR TOUCH SCREEN HMI
2.	ETHERNET CONNECTIVITY
3.	AUTOMATIC PUMP TRAP FOR CONDENSATE LIFT
4.	CONTINUOUS BLOWDOWN COOLING SYSTEM
5.	CONTINUOUS BLOWDOWN FLASH TANK
6.	3" HIGH DENSITY FIBERGLASS INSULATION

NOTE:
CAPACITY OVER 4000 LBS/HR REQUIRES BIGGER CONNECTION SIZES ON A & HEAD INLET

CONNECTION SCHEDULE			
No.	SIZE	FUNCTION	DESCRIPTION
A	6"/*8"	CLEAN STEAM OUTLET	150# FLANGE
B	2"	CONDENSATE OUTLET	NPT
C	3/4"	FEEDWATER INLET	NPT
D	2"	PRESSURE RELIEF	NPT
E	1/4"	SURFACE BLOWDOWN	NPT
F	1"	SHELLSIDE BLOWDOWN	NPT
G	3/4"	LEVEL/SIGHT PORT	NPT
H	TBD	CONTROL VALVE INLET	NPT
J	1/2"	CONDENSATE PILOT DRIP OUTLET	NPT

REV	DATE	DESCRIPTION	DES	CHK	APP	APP
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THERMAFLO ENGINEERING INC. Since 1986
Manufacturers Of Steam Fired Specialty Equipment
12249 Nations Ford Road, Pineville NC 28134
(704) 940-1228 www.thermafloengineering.com

TITLE		GENERAL ARRANGEMENT: CLEAN STEAM GENERATOR MODEL THCSV-8000-SA	
CUST.		-	
P.O. NO.	-	SCALE	NTS
DWG. NO.	THCSV-8000-SA	REV	0