

# CLEAN STEAM GENERATOR STEAM-TO-STEAM

## STANDARD FEATURES AND EQUIPMENT

### **VESSEL and EXCHANGER (all 316L or 316 S.S on wetted components)**

- Constructed and stamped in accordance with ASME code, Section VIII, Division I for unfired steam boilers and National Board Registered
- 316L u-tube exchanger rated for 150 psi at 300°F
- Steam de-mister
- Inspection openings or manway in accordance with ASME requirements
- Lifting lugs
- Structural steel skid and tank saddles with industrial-grade finish
- Heavy-duty fiberglass insulation
- Segmented carbon steel jacket panels with industrial-grade finish

### **VALVES, CONTROLS, GAUGES (CLEAN SIDE) (all 316L or 316 S.S. on wetted components)**

- Manual-reset, high-limit pressure control
- Float-type water level control with feedwater activation switch
- Water column blowdown valve
- Water level sight glass with tri-cocks
- ASME-rated safety relief valve
- Liquid-filled dial pressure gauge, 3-inch
- Inspector's test cock for gauge (125 psi only)
- Bottom blowdown valve(s) and piping
  - one quick-opening @  $\leq 15$  psi operating pressure
  - two quick and one slow-opening @  $> 15$  psi operating pressure

### **OTHER**

- All electric components UL listed or recognized, and or CSA certified
- Main inlet steam valve and operating pressure control (pneumatic or pilot operated, select from options list)
- Carbon steel and copper piping on inlet steam side
- Source steam pressure gauge, 3-inch
- Float and thermostatic condensate trap on inlet steam piping
- Y-strainer on inlet steam piping
- Float and thermostatic condensate trap downstream of heat exchanger (main trap)

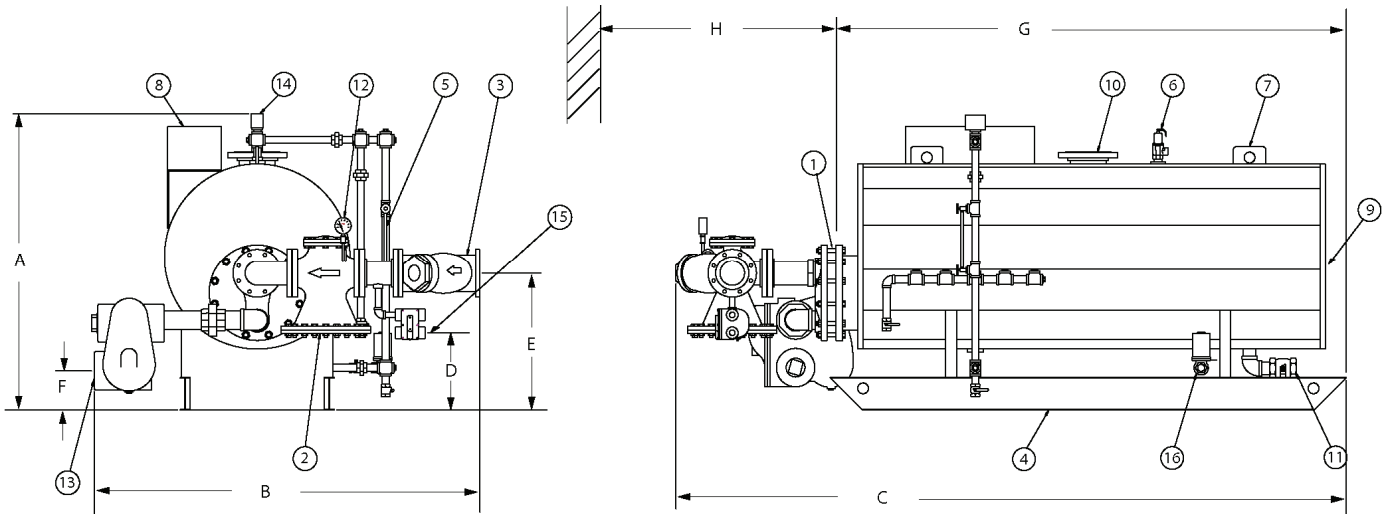
## OPTIONAL FEATURES AND EQUIPMENT

- 50 psi MAWP vessel construction
- 125 psi MAWP vessel construction
- Pilot operated inlet steam valve and operating pressure control
- Pneumatic inlet steam valve and operating pressure control
- Surface blowdown skimmer assembly with metering valves (all 316L)
- \_\_\_\_\_ psi safety valve setting
- Feedwater inlet plumbing including solenoid valve, stop valve and check valve (all 316L)
- Audible alarm for safeties with silencing switch
- Low-water alarm contacts
- Automated bottom blowdown with timer
- Automated bottom blowdown with total dissolved solids monitor
- Surface blowdown skimmer assembly with metering valves (all 316L)

## AUXILLARY EQUIPMENT

- Feedwater tank including pumps and level controller
- Blowdown separator

## CLEAN STEAM GENERATORS - STEAM-TO-STEAM DIMENSIONS AND COMPONENT IDENTIFICATION



		250 * SERIES VESSEL	600 SERIES VESSEL
A	Overall Height	55	63
B	Overall Width	72	93
C	Overall Length	125	156
D	Height to Inlet Trap	15	18
E	Height to Steam Inlet	26	30
F	Height to Main Trap	8	6-1/2
G	Rear to Flange Length	91	119
H	Pull Space Required for U-tube	See form 34-706	
16	Make-up Water Inlet	1 NPT	1-1/2 NPT
	Tank Diameter Jacketed	35	46
	Weight	See form 34-714	

\* 250 series vessel is used for models that produce ≤ 2000 lbs per hour.

Dimensions are in inches unless otherwise noted.

For steam valve size, condensate trap size and clean steam outlet flange size, refer to performance tables (form 34-702 to 34-705)

Steam valves up to 2 inch are NPT.  
Steam valves larger than 2 inch are flanged.

RIVERSIDE HYDRONICS RESERVES THE RIGHT TO CHANGE THE DESIGN AND SPECIFICATION WITHOUT NOTICE.

**Electrical Requirement:**  
120V, 1Ø, 60 Hz.  
20 amps maximum  
Single point connection

### Component Identification

1	316 S.S. U-TUBE HEAT EXCHANGER	9	12" X 16" MANWAY
2	SOURCE STEAM CONTROL VALVE	10	CLEAN STEAM OUTLET
3	SOURCE STEAM Y-STRAINER	11	BLOWDOWN - 1" NPT
4	SUPPORT ASSY 6" CHANNEL	12	SOURCE STEAM PRESSURE GAUGE
5	WATER LEVEL GAUGE GLASS	13	CONDENSATE TRAP OUTLET
6	ASME PRESSURE RELIEF VALVE - 316 S.S.	14	ELECTRONIC WATER LEVEL & MAKEUP WATER CONTROL
7	LIFTING LUGS	15	AUXILLARY STEAM TRAP - 3/4" NPT
8	CONTROL ENCLOSURE	16	MAKEUP WATER SOLENOID VALVE



**CLEAN STEAM GENERATORS - STEAM-TO-STEAM**  
**POUNDS PER HOUR STEAM PRODUCED BY MODEL NUMBER**

<b>Steam Pressure to Control Valve (psi)</b>	<b>30</b>	<b>50</b>	<b>75</b>	<b>125</b>
<b>Steam Pressure in the Heat Exchanger (psi)</b>	<b>15</b>	<b>25</b>	<b>50</b>	<b>100</b>
<b>Steam Pressure Produced (psi)</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>50</b>



<b>LB PER HOUR OUTPUT</b>	<b>625</b>	<b>760</b>	<b>1300</b>	<b>1090</b>			
MODEL	71 SSHE 250A-CS	71 SSHE 250A-CS	71 SSHE 250A-CS	71 SSHE 250A-CS			
STEAM VALVE	TRAP	1-1/4	1-1/2	1-1/4	1-1/4	1	1-1/4
STEAM OUTLET FLANGE	4	4	4	4			
<b>LB PER HOUR INPUT</b>	772	939	1694	1446			

<b>LB PER HOUR OUTPUT</b>	<b>700</b>	<b>845</b>	<b>1455</b>	<b>1210</b>			
MODEL	78 SSHE 250A-CS	78 SSHE 250A-CS	78 SSHE 250A-CS	78 SSHE 250A-CS			
STEAM VALVE	TRAP	1-1/4	1-1/2	1-1/4	1-1/4	1	1-1/4
STEAM OUTLET FLANGE	4	4	4	4			
<b>LB PER HOUR INPUT</b>	861	1044	1895	1605			

<b>LB PER HOUR OUTPUT</b>	<b>770</b>	<b>955</b>	<b>1600</b>	<b>1330</b>			
MODEL	86 SSHE 250A-CS	86 SSHE 250A-CS	86 SSHE 250A-CS	86 SSHE 250A-CS			
STEAM VALVE	TRAP	1-1/4	1-1/2	1-1/4	1-1/4	1-1/4	2
STEAM OUTLET FLANGE	4	4	4	4			
<b>LB PER HOUR INPUT</b>	947	1180	2084	1764			

<b>LB PER HOUR OUTPUT</b>	<b>900</b>	<b>1125</b>	<b>1875</b>	<b>1565</b>			
MODEL	101 SSHE 250A-CS	101 SSHE 250A-CS	101 SSHE 250A-CS	101 SSHE 250A-CS			
STEAM VALVE	TRAP	1-1/4	1-1/2	1-1/4	1-1/2	1-1/4	1-1/4
STEAM OUTLET FLANGE	4	4	4	4			
<b>LB PER HOUR INPUT</b>	1107	1390	2443	2076			

<b>LB PER HOUR OUTPUT</b>	<b>925</b>	<b>1165</b>	<b>1920</b>	<b>1695</b>			
MODEL	104 SSHE 250A-CS	104 SSHE 250A-CS	104 SSHE 250A-CS	104 SSHE 250A-CS			
STEAM VALVE	TRAP	1-1/4	1-1/2	1-1/4	1-1/2	1-1/4	2
STEAM OUTLET FLANGE	6	6	6	6			
<b>LB PER HOUR INPUT</b>	1138	1439	2501	2213			



**CLEAN STEAM GENERATORS - STEAM-TO-STEAM**  
**POUNDS PER HOUR STEAM PRODUCED BY MODEL NUMBER**

Steam Pressure to Control Valve (psi)	<b>30</b>	<b>50</b>	<b>75</b>	<b>125</b>
Steam Pressure in the Heat Exchanger (psi)	<b>15</b>	<b>25</b>	<b>50</b>	<b>100</b>
Steam Pressure Produced (psi)	<b>5</b>	<b>10</b>	<b>15</b>	<b>50</b>



<b>LB PER HOUR OUTPUT</b>	<b>1025</b>	<b>1290</b>	<b>2155</b>	<b>1875</b>				
MODEL	115 SSHE 250A-CS	115 SSHE 250A-CS	115 SSHE 600A-CS	115 SSHE 250A-CS				
STEAM VALVE	TRAP	1-1/4	1-1/2	1-1/4	2	2	1-1/4	2
STEAM OUTLET FLANGE	6	6	8	6				
<b>LB PER HOUR INPUT</b>	1269	1593	2807	2448				

<b>LB PER HOUR OUTPUT</b>	<b>1120</b>	<b>1410</b>	<b>2550</b>	<b>2045</b>					
MODEL	126 SSHE 250A-CS	126 SSHE 250A-CS	126 SSHE 600A-CS	126 SSHE 600A-CS					
STEAM VALVE	TRAP	1-1/2	1-1/2	1-1/2	1-1/4	2	2	1-1/4	2
STEAM OUTLET FLANGE	6	6	8	8					
<b>LB PER HOUR INPUT</b>	1377	1742	3236	2670					

<b>LB PER HOUR OUTPUT</b>	<b>1325</b>	<b>1655</b>	<b>2985</b>	<b>2390</b>					
MODEL	147 SSHE 250A-CS	147 SSHE 250A-CS	147 SSHE 600A-CS	147 SSHE 600A-CS					
STEAM VALVE	TRAP	1-1/2	1-1/2	1-1/2	1-1/4	2	2	1-1/4	2
STEAM OUTLET FLANGE	6	6	8	8					
<b>LB PER HOUR INPUT</b>	1629	2044	3788	3120					

<b>LB PER HOUR OUTPUT</b>	<b>1600</b>	<b>2050</b>	<b>3615</b>	<b>2875</b>					
MODEL	175 SSHE 250A-CS	175 SSHE 600A-CS	175 SSHE 600A-CS	175 SSHE 600A-CS					
STEAM VALVE	TRAP	1-1/4	1-1/2	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4
STEAM OUTLET FLANGE	6	10	10	10					
<b>LB PER HOUR INPUT</b>	1968	2533	4588	3753					

<b>LB PER HOUR OUTPUT</b>	<b>1875</b>	<b>2380</b>	<b>4205</b>	<b>3335</b>					
MODEL	204 SSHE 250A-CS	204 SSHE 600A-CS	204 SSHE 600A-CS	204 SSHE 600A-CS					
STEAM VALVE	TRAP	2	2	2	2	2-1/2	2	2	2
STEAM OUTLET FLANGE	6	10	10	10					
<b>LB PER HOUR INPUT</b>	2306	2941	5336	4354					



**CLEAN STEAM GENERATORS - STEAM-TO-STEAM**  
**POUNDS PER HOUR STEAM PRODUCED BY MODEL NUMBER**

Steam Pressure to Control Valve (psi)	<b>30</b>	<b>50</b>	<b>75</b>	<b>125</b>
Steam Pressure in the Heat Exchanger (psi)	<b>15</b>	<b>25</b>	<b>50</b>	<b>100</b>
Steam Pressure Produced (psi)	<b>5</b>	<b>10</b>	<b>15</b>	<b>50</b>



<b>LB PER HOUR OUTPUT</b>	<b>2165</b>	<b>2725</b>	<b>4820</b>	<b>3825</b>
MODEL	234 SSHE 600A-CS	234 SSHE 600A-CS	234 SSHE 600A-CS	234 SSHE 600A-CS
STEAM VALVE	2	2-1/2	3	2
TRAP	2	2	2	2
STEAM OUTLET FLANGE	10	10	10	10
<b>LB PER HOUR INPUT</b>	2662	3367	6117	4993

<b>LB PER HOUR OUTPUT</b>	<b>2300</b>	<b>2875</b>	<b>4820</b>	<b>3825</b>
MODEL	249 SSHE 600A-CS	249 SSHE 600A-CS	249 SSHE 600A-CS	249 SSHE 600A-CS
STEAM VALVE	2	2-1/2	3	2
TRAP	2	2	2	2
STEAM OUTLET FLANGE	10	10	10	10
<b>LB PER HOUR INPUT</b>	2828	3552	6504	5320

<b>LB PER HOUR OUTPUT</b>	<b>2450</b>	<b>3110</b>	<b>5475</b>	<b>4355</b>
MODEL	265 SSHE 600A-CS	265 SSHE 600A-CS	265 SSHE 600A-CS	265 SSHE 600A-CS
STEAM VALVE	2-1/2	2-1/2	3	2-1/2
TRAP	2	2	2-1/2	2-1/2
STEAM OUTLET FLANGE	10	10	10	10
<b>LB PER HOUR INPUT</b>	3013	3845	6948	5685

<b>LB PER HOUR OUTPUT</b>	<b>2840</b>	<b>3550</b>	<b>6300</b>	<b>5025</b>
MODEL	304 SSHE 600A-CS	304 SSHE 600A-CS	304 SSHE 600A-CS	304 SSHE 600A-CS
STEAM VALVE	3	2-1/2	3	2-1/2
TRAP	2	2	2-1/2	2-1/2
STEAM OUTLET FLANGE	10	10	10	10
<b>LB PER HOUR INPUT</b>	3493	4386	7995	6560

<b>LB PER HOUR OUTPUT</b>	<b>3015</b>	<b>3765</b>	<b>6690</b>	<b>5335</b>
MODEL	323 SSHE 600A-CS	323 SSHE 600A-CS	323 SSHE 600A-CS	323 SSHE 600A-CS
STEAM VALVE	3	2-1/2	3	2-1/2
TRAP	2	2	2-1/2	2-1/2
STEAM OUTLET FLANGE	10	10	10	10
<b>LB PER HOUR INPUT</b>	3708	4652	8490	6965



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**POUNDS PER HOUR STEAM PRODUCED BY MODEL NUMBER**

<b>Steam Pressure to Control Valve (psi)</b>	<b>30</b>	<b>50</b>	<b>75</b>	<b>125</b>
<b>Steam Pressure in the Heat Exchanger (psi)</b>	<b>15</b>	<b>25</b>	<b>50</b>	<b>100</b>
<b>Steam Pressure Produced (psi)</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>50</b>



<b>LB PER HOUR OUTPUT</b>	<b>3175</b>	<b>4000</b>	<b>7025</b>	<b>5605</b>
MODEL	339 SSHE 600A-CS	339 SSHE 600A-CS	339 SSHE 600A-CS	339 SSHE 600A-CS
STEAM VALVE	3	3	4	2-1/2
TRAP	2	2	2-1/2	2-1/2
STEAM OUTLET FLANGE	12	12	12	12
<b>LB PER HOUR INPUT</b>	<b>3905</b>	<b>4942</b>	<b>8915</b>	<b>7317</b>

<b>LB PER HOUR OUTPUT</b>	<b>3650</b>	<b>4525</b>	<b>8000</b>	<b>6390</b>
MODEL	387 SSHE 600A-CS	387 SSHE 600A-CS	387 SSHE 600A-CS	387 SSHE 600A-CS
STEAM VALVE	3	3	4	2-1/2
TRAP	2	2	2-1/2	2-1/2
STEAM OUTLET FLANGE	12	12	12	12
<b>LB PER HOUR INPUT</b>	<b>4489</b>	<b>5591</b>	<b>10153</b>	<b>8342</b>

<b>LB PER HOUR OUTPUT</b>	<b>3865</b>	<b>4825</b>
MODEL	411 SSHE 600A-CS	411 SSHE 600A-CS
STEAM VALVE	4	3
TRAP	2	2
STEAM OUTLET FLANGE	12	12
<b>LB PER HOUR INPUT</b>	<b>4753</b>	<b>4962</b>

<b>6830</b>
411 SSHE 600A-CS
3
2-1/2
12
8916

<b>LB PER HOUR OUTPUT</b>	<b>4100</b>	<b>5075</b>
MODEL	435 SSHE 600A-CS	435 SSHE 600A-CS
STEAM VALVE	4	3
TRAP	2	2
STEAM OUTLET FLANGE	12	12
<b>LB PER HOUR INPUT</b>	<b>5042</b>	<b>6271</b>

<b>7225</b>
435 SSHE 600A-CS
3
2-1/2
12
9432

**CLEAN STEAM GENERATORS - STEAM-TO-STEAM  
WEIGHT BY MODEL NUMBER**

MODEL	SHIPPING WEIGHT LBS	OPERATING WEIGHT LBS	FLOODED WEIGHT LBS
71 SSHE 250A-CS	2230	4930	6230
78 SSHE 250A-CS	2240	4940	6240
86 SSHE 250A-CS	2250	4950	6250
101 SSHE 250A-CS	2275	4975	6275
104 SSHE 250A-CS	2290	4990	6290
115 SSHE 250A-CS	2310	5010	6310
115 SSHE 600A-CS	2910	6210	6910
126 SSHE 250A-CS	2325	5025	6325
126 SSHE 600A-CS	2925	6225	6925
147 SSHE 250A-CS	2360	5060	6360
147 SSHE 600A-CS	2960	6260	6960
175 SSHE 250A-CS	2425	5125	6425
175 SSHE 600A-CS	3025	6325	7025
204 SSHE 250A-CS	2470	5170	6470
204 SSHE 600A-CS	3070	6370	7070
234 SSHE 600A-CS	3110	6410	7110
249 SSHE 600A-CS	3155	6455	7155
265 SSHE 600A-CS	3215	6515	7215
304 SSHE 600A-CS	3270	6570	7270
323 SSHE 600A-CS	3300	6600	7300
339 SSHE 600A-CS	3350	6650	7350
387 SSHE 600A-CS	3415	6715	7415
411 SSHE 600A-CS	3485	6785	7485
435 SSHE 600A-CS	3550	6850	7550

**CLEAN STEAM GENERATORS  
STEAM-TO-STEAM or HTHW-TO-STEAM**

**PULL SPACE REQUIRED FOR HEAT EXCHANGER  
DIMENSION "H" ON FORM 34-701 or 34-712**

Model Number Prefix	Pull Space Required for U-tube Exchanger
71	60
78	66
86	72
101	84
104	60
115	66
126	72
147	84
175	72
204	84
234	96
249	102
265	84
304	96
323	102
339	84
387	96
411	102
435	108

