

Steam Generator

Unfired Steam & Clean Steam Generators



a **nudyne** company

RECO Commercial Systems UNFIRED STEAM GENERATOR DESIGN

WORKING PRESSURE AND DESIGN

RECO Commercial Systems Unfired Steam Generators are constructed and stamped in accordance with the ASME Code, Section VIII, and bear the “U” stamp, All vessels are registered with the National Board, and ASME data papers are furnished. Unfired Steam Generators that generate over 50 psi steam will have full x-ray and stress relieving done in accordance with the ASME Code, except in the case of stainless steel which will only get full x-ray.

Shell Side Maximum Allowable Working Pressure:

(50 PSIG for generating steam up to 45 PSIG; 150 PSIG for generating steam up to 135 PSIG)

MATERIALS OF CONSTRUCTION

Shell: Carbon steel, 304 or 316 stainless steel are available. Other materials can be provided on request if allowed by ASME code. Stainless steel is used primarily with deionized water to produce clean steam for food processing, medical services and similar applications. If stainless steel is to be used for any other service, the feedwater should be carefully checked for compatibility, especially for the presence of chlorides.

Tubes: Copper, 90/10 Copper-Nickel, 304 or 316 stainless steel (for deionized water applications) are available. Other alloys may be used subject to ASME code compliance.

CLEAN STEAM APPLICATION

In the past, boiler steam was used for humidification purposes, but boiler steam contains chemicals and additives which may be injurious to health, so many jurisdictions now require a clean steam source for humidification.

Hospitals, medical centers, and laboratories require sterilization steam. A **RECO** clean steam Unfired Steam Generator is the choice for providing clean steam for sterilization.

Pharmaceutical applications require clean steam. Unfired Clean Steam Generators by **RECO** meet these requirements.

Cooking of food by steam requires a source of clean steam. **RECO** Unfired Clean Steam Generators meet this requirement.

RECO Unfired Steam Generators are completely packaged and ready for use. All components are mounted and piped prior to shipment requiring only connections to services.



UNFIRED STEAM GENERATOR RECOMMENDED SPECIFICATION

The Unfired steam generator shall be a complete factory assembled package.

CAPACITIES

STEAM-TO-STEAM

Output rating, lbs/hr: _____
Output steam pressure, psig: _____
Input steam pressure, psig: _____
Feedwater temperature, deg F: _____

WATER-TO-STEAM

Output rating, lbs/hr: _____
Output steam pressure, psig: _____
High temperature water entering temperature, deg F: _____
High temperature water leaving temperature, deg F: _____
Control valve configuration: (2-way or 3-way) _____
Close-off pressure drop, psi: (to size 2-way control valve) _____
Operating pressure drop, psi: (to size 3-way control valve) _____
Feedwater temperature, deg F: _____

Furnish and install as indicated on the plans, _____ RECO CS , unfired steam generator(s). ASME constructed for 150 PSIG and ASME stamped for a design pressure of _____ PSIG under Section VIII of the ASME code with manufacturers' data reports furnished.

Material of construction shall be (carbon steel) (304 S.S.) (316 S.S.) _____
Generator is horizontal _____ vertical _____ configuration. Generator shall be provided with steel skid supports and lift lugs.

The following components are furnished as part of a completely packaged unit:

Standard

- 1 - Steam separator
- 2 - 3" insulation with 22 ga steel jacket painted hammertone blue
- 3 - Shell side safety relief valve
- 4 - Gauge glass and tri-cocks
- 5 - Pressure gauges for steam to steam units
- 6 - Thermometers and pressure gauge for water to steam units
- 7 - Tandem blow-off valves
- 8 - Level control
- 9 - Hi-pressure limit control
- 10 - Pressure control with control valve
() Air () Pilot () Electric
- 11 - Main and auxiliary steam traps

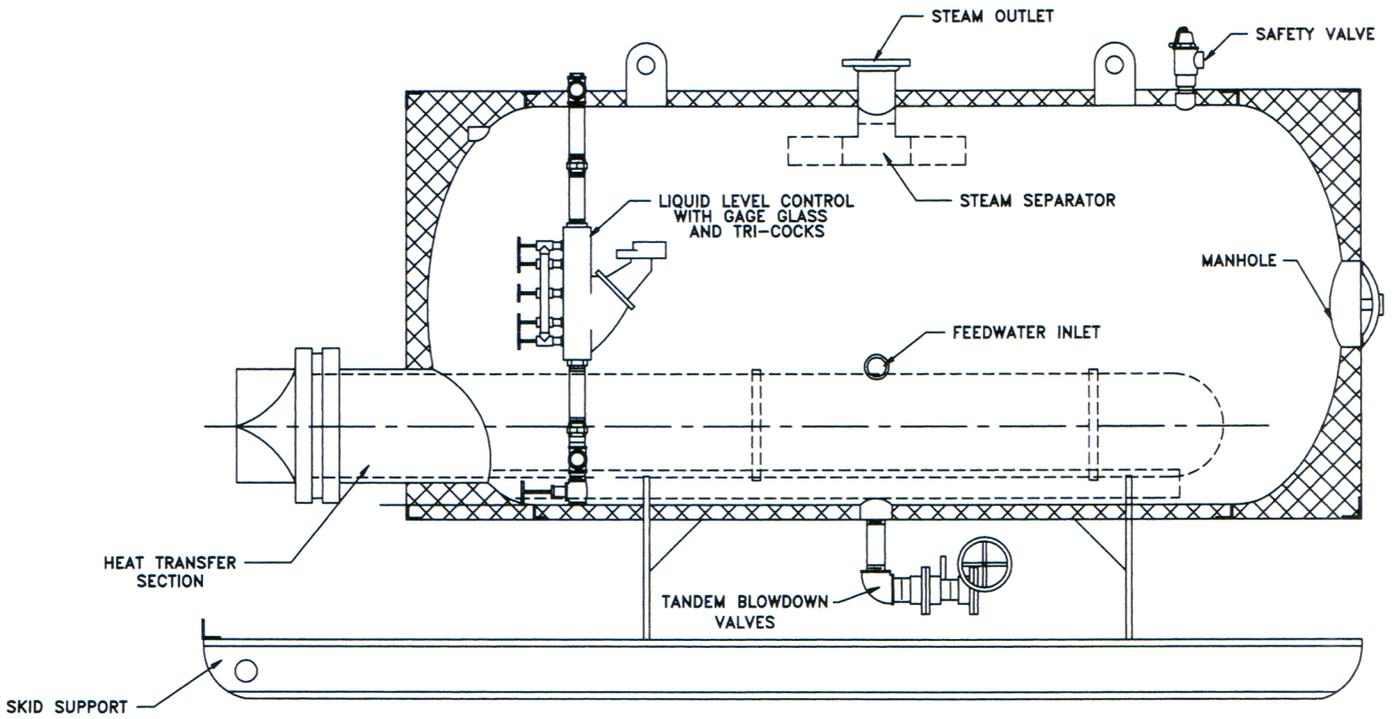
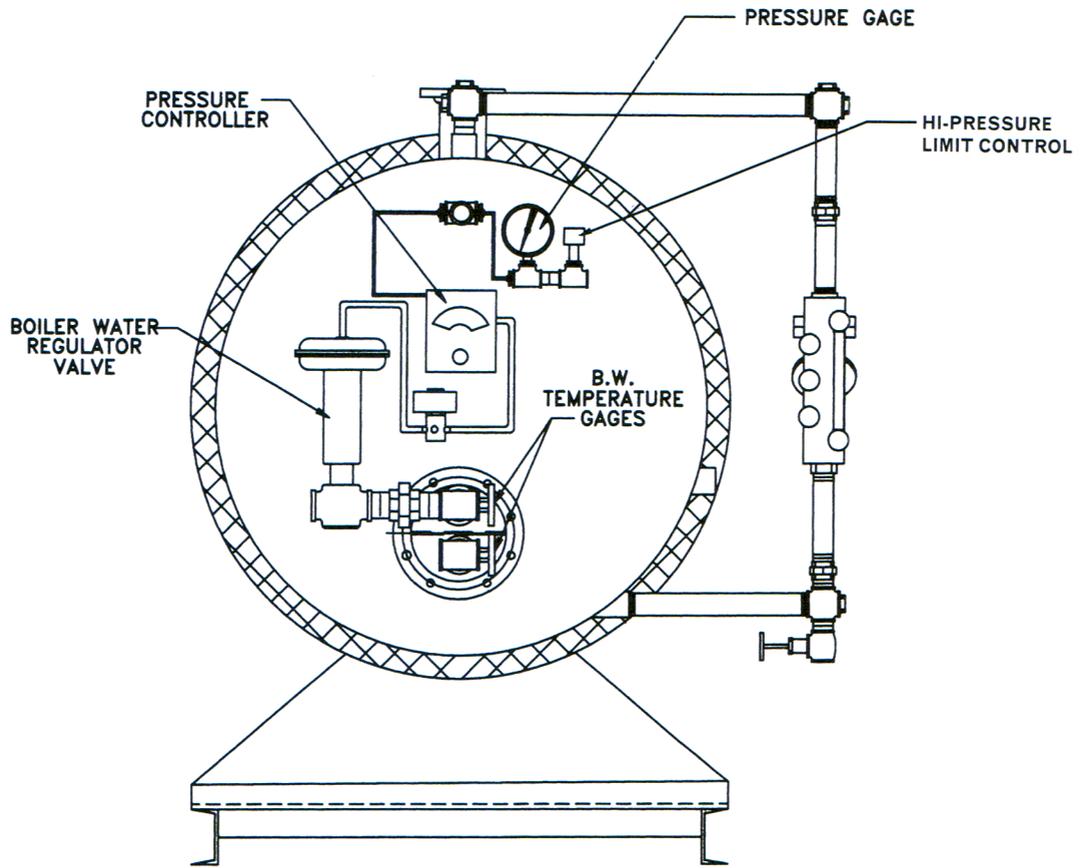
Optional

- 1 - Blow down tank with after cooler
- 2 - Automatic surface blowdown
- 3 - Feed water make up solenoid valve
- 4 - Alarm bell
- 5 - Hi-water cut-off

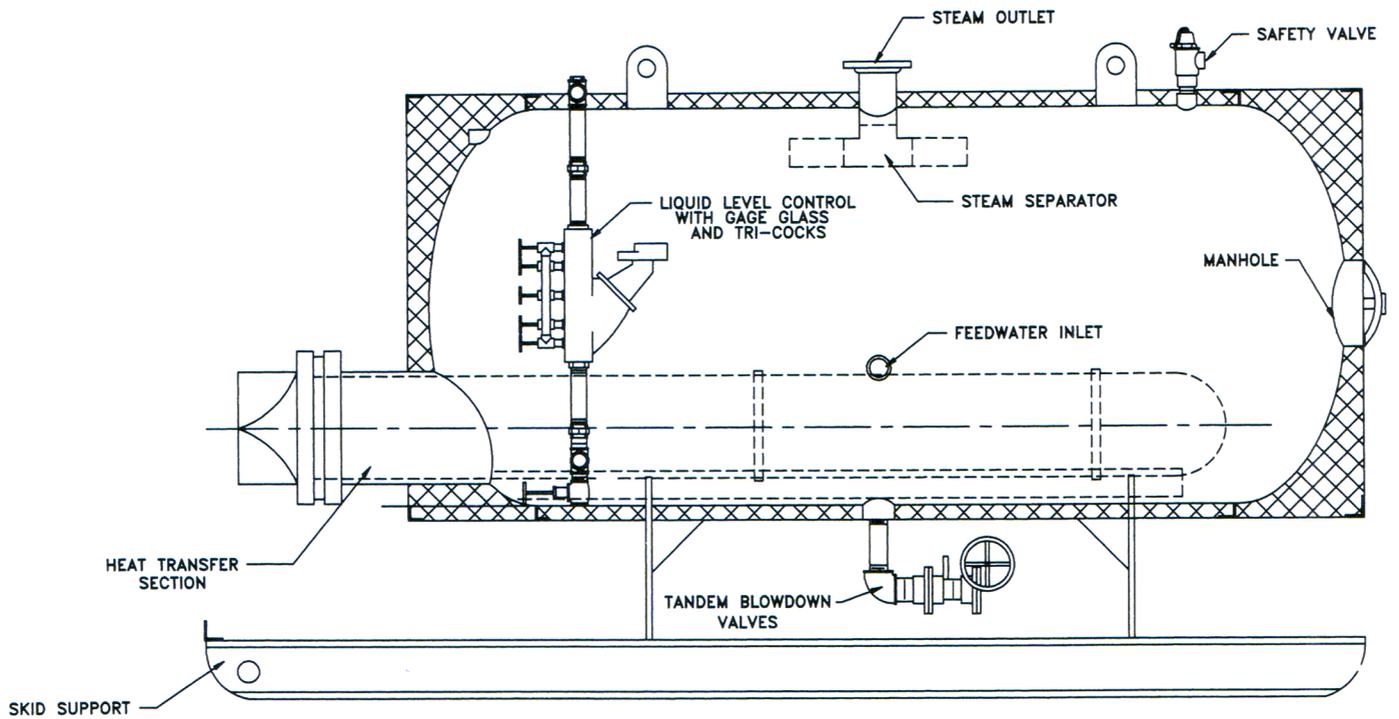
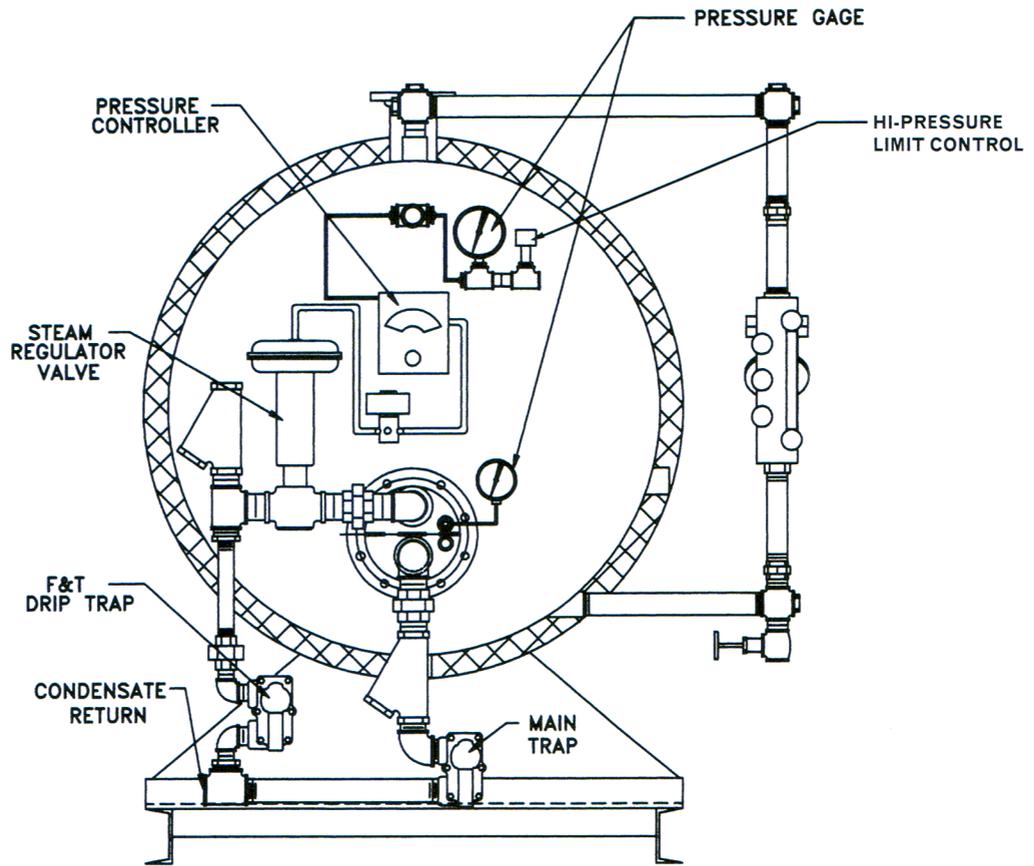
Heating element - The heating element shall be "U" tube design with a steel fabricated head. Full length tracks shall be provided for support inside the vessel. Tube material is () copper () 90/10 cu-ni () 304SS () 316SS.

Warranty – See Manufacturer's limited warranty.

Dimensions and Specifications subject to change without notice.




RECO
 Commercial Systems



**STEAM TO STEAM UNFIRED STEAM GENERATOR
 VERTICAL UNITS ARE AVAILABLE**



Facilities

Assembly Bays & Cranes

105,000 sq. ft. under roof on a 15-acre tract. All overhead electric cranes.

Main Bays

Dimensions	Lift Capacity	Under Hook
78' x 500'	60 tons	22'
60' x 500'	20 tons	22'
45' x 500'	20 tons	16'
50' x 120'	10 tons	16'
Largest door size – 72' x 18'		

Shop Capacities

	Maximum	Minimum
Plate Thickness	2-1/2"	3/16"
Diameter	16 ft.	
Length	200 ft.	
Weight	120 tons	

Qualified Welders

Carbon Steel, Stainless Steel, Copper, Hastelloy, Inconel and other alloys

Engineering

Prepare in-house design and working drawings from specifications and performance data
Ability to communicate electronically using PC based Auto CAD.

Custom Fabrication

Pressure Vessels, Towers, Tanks, Commercial Water Heaters

Fabrication to Codes

ASME Section IV, ASME Section VIII, Div. 1, Underwriters' Laboratories, API, AWWA

Cutting, Forming, and Machining

Using modern NC and CAM equipment

Welding Processes

From basic manual processes to most modern automated wire-fed equipment.

Non-Destructive Testing

Gamma Radiography using Iridium 192 Isotope to 100 Curies
Magnetic Particle
Liquid Penetrant
Ultrasonic
Hydrostatic 2000 PSIG Max.
Brinell Hardness Testing

Quality Control Programs

ASME Section VIII
10 CFR 50/71
API

