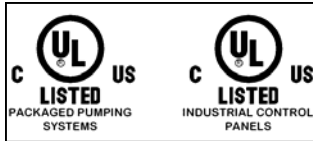


**Model #  
MSBP**

## Modular Steam Boiler Central Utility Plant



- Unfired Pressure Vessels
- Pressure Piping
- National Board
- Repairs and/or Alterations
- Process Piping & Power Piping

### *EnviroSep MSBP,*

Modular Steam Boiler Central Utility Plant, is a UL-Listed, factory engineered and manufactured Mechanical Room utilized in conventional building heating and process steam systems. The **Model MSBP** provides a cost-effective alternative to site-built Central Plants while avoiding costly project delays. All components required to integrate a stand-alone Steam Boiler Plant are included, eliminating site coordination, and negative start-up irregularities. Being pre-engineered by *EnviroSep*, enables the owner to specify key components from a range of manufacturers that meet performance needs. *EnviroSep* factory service personnel, who have followed the project from inception, perform Site Start-up eliminating errors from multiple hand-offs. The **Model MSBP** is controlled by a proprietary, Boiler Plant Optimization Controller, the best system operating efficiency. A User-Friendly Touch Screen Operator Interface is utilized during operation. Factory Engineering staff are available to facility owners or engineers in conceptual development.

### TYPICAL SPECIFICATIONS

System Steam Load	500 to 30,000 lb/hr
Steam System Pressure	LP, MP, or HP
Feedwater System	Constant or Variable Speed
Standard Power	460 V (Other Voltages Available)
Dimensions	Based Upon Customer Requirements
Working Pressure	15 to 300 psig (1.0 to 21 barg)
Working Temperature	< 550 deg F (< 290 deg C)

### Standard Features:

- Energy-Efficient Parker, Clayton, Bryan, or Fulton Steam Boilers
- Integrated Boiler Feedwater Pumping System
- Jet Spray Deaerator complete with Steam Pressure Reducing Valve, Make-up Water Assembly, and Controller
- Bottom and Surface Blowdown with Blowdown Separator and Aftercooler
- Boiler Plant Optimization Controller, with Touchscreen Interface
- Combustion Air Intake Louvers and Flue Gas Exhaust Stacks
- Communication Interface to Building Management System
- Environmentally-controlled Building Enclosure with Single-point Power Connection



"We are very pleased with the two EnviroSep packaged systems. These systems installed faster, required significantly less floor space, and started up easier than previous field assembled systems. I plan to use EnviroSep for our next project."  
BRUCE EAKIN  
MANUFACTURING ENGINEER, FACILITIES DESIGN  
NISSAN NORTH AMERICA

"We had a problem related to our steam system. EnviroSep provided an innovative system that solved the problem. They understood our complete system, not just their own equipment. I would highly recommend them."  
WILLIAM J. GRABOWSKI  
PRESIDENT AND CEO  
HEALTHSTAR, INC.

"On-time delivery and smooth job-site installations are critical in my business. EnviroSep's thorough engineering approach and timely delivery of quality equipment packages consistently save us time during field installation and give us a competitive advantage."  
TRACY COFFEY, P.E.  
VP PROJECT MANAGEMENT  
PIEDMONT MECHANICAL, INC.

### Options:

- Separate Condensate Return Surge Tank with Transfer Pumps
- Internet Connectivity for Remote System Monitoring
- Boiler Water Conductivity Controller
- Boiler Stack Economizer
- Chemical Treatment and Control System
- System without Building Enclosure
- Specific Performance Criteria (Upon Request)

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**Specify the following parameters:**

- I. System Steam Load = \_\_\_\_\_ lb/hr
- II. System Pressure Required = \_\_\_\_\_ psig
- III. Condensate Return = \_\_\_\_\_ %
- IV. Max. Dimensions = \_\_\_\_\_
- V. Boiler Size = \_\_\_\_\_ bHp
- VI. Boiler Quantity = \_\_\_\_\_
- VII. System Electrical = \_\_\_\_\_ V \_\_\_\_\_ Hz
- VIII. Feedwater Pump Qty = \_\_\_\_\_

Note: System medium assumed to be softened water, unless otherwise specified.

**SYSTEM OPTIONS**

Boiler Type  
Parker Atmospheric  
Parker LowNox  
Clayton Helical Coil  
Fulton Vertical  
Bryan Bent Tube

Stand-by Pump

Vertical Multistaged Pump

Split-coupled Vertical Multistaged Pump

Closed-coupled end-suction Centrifugal Pump

Auto standby pump start on lead pump failure

Auto Pump Alternation

Remote start connection

Variable Frequency Drives

Manual Bypass  
Automatic Bypass

Remote System Monitoring

Ethernet  
Dial-up Modem

Communication Protocol

Ethernet I/P  
Modbus RTU  
Siemens FLN  
Johnson Controls N2  
BACnet (MS/TP)  
Lon Works  
Profibus  
DeviceNet

Deaerator System

ASME Pressurized Jet Spray  
Atmospheric Sparge  
100% Process Make-up

Blowdown Separator System

Flash Steam Separator with Aftercooler  
Blow-off Tank with Aftercooler

Conductivity Control System

Thornton Processor  
Myron-L Controller  
Auto Surface Blowdown

Flexible Connectors

Steam Pressure Reducing Valve Station

System Controller

Hand-Off-Auto Operation  
Auto Boiler Sequencing  
Optimized Controller

Chemical Treatment System w/ Blowdown Control

Non-chemical Treatment System

System Flow Meter

Differential Pressure Transmitter across Pump suction/  
discharge

Regardless of system size, temperature, pressure, fluid medium, or space requirements, *EnviroSep* can provide solutions to all specialized needs.

## Typical Specifications for MSBP

Furnish and install one *EnviroSep* Model MSBP- [A] - [B] - [C] - [D] Modular Steam Boiler Central Utility Plant with the system capacity to produce \_\_\_\_\_ lb/hr of \_\_\_\_\_ psig Saturated Steam.

**KEY:**

[A] = Model # (lb/hr)

[B] = # of Boilers (1,2,3,12,etc.)

[C] = Parallel (P) or Stand-by (S) N+1 designation

[D] = Manual (M) or Automatic (A) sequencing for multiple boilers

**GENERAL** - This Modular Steam Boiler Central Utility Plant package shall be factory assembled with Boiler(s), Deaerator, Feedwater Pump(s), Blowdown Separator, PRV Station, instrumentation, valves, piping accessories, fabricated steel frame, interconnection piping (welded per ASME Section IX certified welders), UL-listed Central System Industrial Control Panel factory wired for single-point field connection per NEC, (and including Variable Speed Pump Controller).

**FEEDWATER PUMPS**-Pump size shall be based on pump schedule and be able to pump into the boiler. The pump shall be a vertical multistage pump with Stainless Steel impellers and a minimum of 250 deg F seals. The pump motors shall be 3-phase, TEFC motors. Impeller shaft to be 416SS fitted with a SS shaft sleeve and be supported by two heavy duty ball bearings. The design shall allow servicing, enabling the complete rotating assembly to be removed without disturbing casing piping connections. The pump shall be mounted on a rigid, single base plate and by flexible or rigid coupling with guard to the motor. Seal shall be rated for continuous duty at 270°F, motor shall be NEMA MG-1 with 1.15 service factor

**DEAERATOR** – The Deaerator capacity rating shall exceed the capacity of the steam system it is servicing and have a minimum of 10 minutes storage capacity to the overflow. The Deaerator shall be designed for oxygen removal to 0.005 cc/l or less and carbon dioxide removal to a zero measurable level in the effluent throughout all load conditions between 0% and 100% of rated capacity. The deaeration process will take place in a 5-7 psig steam environment that will heat the water to 227-229F requiring a pressurized vessel. The Deaerator shall be manufactured in strict accordance with the ASME Section VIII, Div. 1 code and bare the ASME stamp for a maximum working pressure of 50 psig at 450 deg F. A minimum of 1/16" corrosion allowance shall be added to the ASME calculated material thickness for heads and shell and will be noted on the ASME data report (form U-1).

**MP and HP STEAM BOILER**- Steam Generating Boiler for High Pressure (80 psig) shall be Horizontal Drum, Serpentine Sectional Water Tube, with Low NOx, Natural Gas burner; 9.5 Boiler Hp CA Special; rated for 328 lb/hr; equal to EnviroSep ED103-9.5L; furnished with 20 year warranty against thermal shock; double-welded, 0.133" boiler tubing. Enclosed Boiler Control Panel, compliance to ASME and local jurisdictional codes and regulations.

**BUTTERFLY VALVES** - System Butterfly Isolation Valves shall be Lug-mounted, Cast Iron with 10-position Lever Operator for 6" and below; and Gear Operated above 6" in size. Disc shall be AI-Br or Stainless Steel. Seat material shall be Buna-N or EPDM.

**BALL VALVE** - Isolation Ball Valves shall be Bronze 2-pc with 316L Stainless Steel Ball and RTFE seats. All Valves shall have Latch-lock lever for Lock-Out procedures.

**STEAM CONTROL VALVE**- The control valve shall be pilot-actuated, diaphragm-operated, and shall be single-seated, with hardened stainless steel trim and cast steel or cast iron body. The pilot shall be bolted directly to the valve body and shall be removable without disturbing control connections. The setting shall be field adjustable and valve shall be capable of being electrically disabled from operation.

**STEAM SEPARATION** - Steam separation stations shall be employed on Inlet/Outlet of Steam Control Valve to ensure complete removal of condensed liquid from steam supply to deaerator. Stations shall utilize steam trap of the mechanical ball float type with cast iron body, with all stainless steel internals. A stainless steel balanced pressure thermostatic air vent shall be incorporated into the trap body withstanding 45°F of superheat. Inlet/Outlet isolation valves, cast Y-strainer with 100 mesh, and check valves shall be incorporated. .

**CONTROL PANEL** - System shall include one (1) UL - Listed, NEMA 12, Industrial Control Panel with single-point power connection, pre-wired to all electrical components. Panel shall have thru-the-door fused disconnect; magnetic circuit breaker supplementary motor protector with fast-closing contacts, non-reversing 3-pole contactor, and variable setting, bi-metallic overload relay for each motor; control transformer; Automatic Alternator (if required). System Controller shall be Programmable Controller with 14" Color Touch Screen Operator Interface. Controller have capability of Remote network communication interface for remote system monitoring and logic maintenance/troubleshooting by factory personnel with Managed Ethernet Switch. Acceptance of up to 16 remote 4-20 ma signals shall be provided for modulation of pump speed, and other optional control functions. Operation of each boiler/pump shall be Hand-Off-Auto with external connection to terminal blocks. When standby boiler/pump(s) are used, the standby boiler/pump(s) shall manually/automatically (customer specified) start on primary failure. All internal wiring shall be placed in conduit.

**BOILER** - Steam Generating Boiler for Low Pressure (15 psig) shall be Horizontal Drum, Serpentine Sectional Water Tube, with Low NOx, Natural Gas burner; rated for xxxx lb/hr; equal to EnviroSep ED105-xxxL; furnished with 20 year warranty against thermal shock; double-welded, 0.133" boiler tubing. Enclosed Boiler Control Panel, compliance to ASME and local jurisdictional codes and regulations.

**MAKE-UP WATER ASSEMBLY** - Make-up Water Assembly shall be pre-piped and installed into system suction header; including, Self-contained, Cast Iron Pressure Reducing Valve, set @ 12 psig; Bronze isolation and bypass valves; Cast Iron Y-strainer; Bronze Backflow Preventer; System Pressure Relief Valve, set @ 75 psig; and Liquid Filled Pressure Gauge with Bronze Isolation Valve.

**INDUSTRIAL GRADE ENCLOSURE**—The mechanical and electrical equipment, without compromising reasonable maintenance access, shall be housed inside a factory fabricated industrial grade enclosure. The enclosure shall be assembled from pre-fabricated panels on a fabricated support structure by the same manufacturer as the steel base, pipe work, and pipe supports to ensure structural integrity of the entire Central Plant. Future removal of any panel shall not affect the structural integrity of the enclosure and shall not require flame and/or saw cutting. The enclosure systems shall also provide all utilities required to support the various functions and services of the plant

**MANUFACTURER** - Shall assume system liability, and performance guarantee and warranty all equipment on system for 12 months after initial start-up.

