

# eUSG Series



## Electric Unfired Steam Generators

*Generate Clean Steam With Electricity as the Energy Source*



**CEMLINE CORPORATION**

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[www.cemline.com](http://www.cemline.com)

# Cemline Electric Unfired Steam Generators (eUSG) Basic Package and Options

*Cemline Electric Unfired Steam Generators (eUSG) are designed to produce clean steam. Cemline Electric Unfired Steam Generators (eUSG) are furnished as a complete factory package for one source responsibility. Installation requires only pipe lines and power leads. We offer many optional extras for applications where such features are desired.*



## Basic eUSG Package Includes:

- A.S.M.E. Code Constructed and National Board Registered Vessel
- 3" Fiberglass insulation
- 20 gauge steel jacket with hammertone enamel paint
- Structural I-Beam support skid base
- A.S.M.E. Pressure Relief Valve
- Clean Steam Pressure Readout
- Stainless Steel Sheathed Immersion Elements
- Stainless Steel Level Controller
- Solid State Step Controller
- U.L. Listing
- Blowdown Valve
- Gauge Glass
- Steam Separator
- High Pressure
  - Automatic
  - Manual
- Low Water cut off
- Feedwater Solenoid and Check Valve
- Warranty

## Optional Extras Available:

- Circuit Breaker with or without shunt trip
- Fused or non-fused disconnect
- Volt Meter
- Amp Meter
- BacNet
- Manual Reset low water cut-off
- Ground Fault Detection
- Centrifugal Boiler blow off
- Condensate Cooler
- High Water cut-off
- Feed Water Pump
- Automatic Blowdown
  - TDS

# Cemline® Electric Unfired Steam Generators (eUSG)

*Cemline Electric Unfired Steam Generators (eUSG) are designed to produce clean steam with electricity (480v, 240v, 208v) as an energy source for use where there is a need to produce clean steam.*

## Humidification:

Previously, Boiler House steam was used for humidification purposes. Boiler House steam contains chemicals and additives which are thought to be injurious to health and many jurisdictions now require a clean steam source for steam humidification.

## Sterilization:

Medical Sterilization and laboratories requires steam. A Cemline eUSG is the correct choice for providing clean steam for sterilization.

## Pharmaceutical:

Many Pharmaceutical applications require clean steam. Cemline eUSG's meet this need.

**Note:** This steam is not pure steam for WFI.

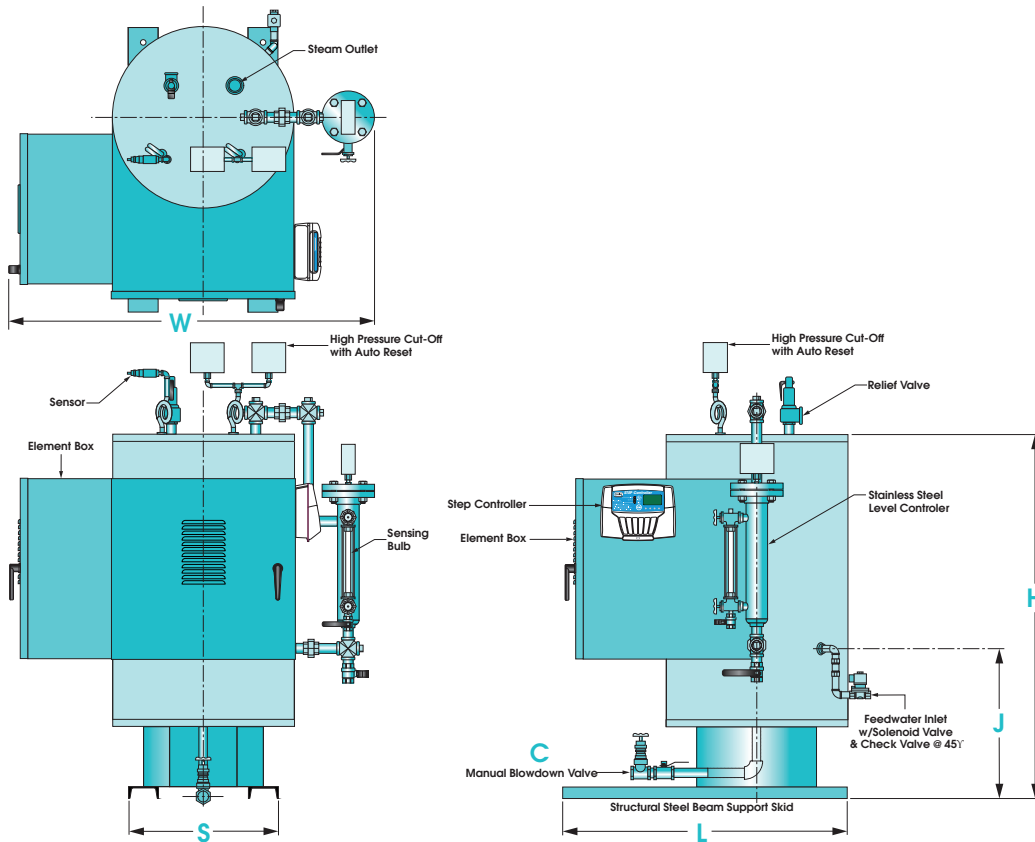
## Food Processing:

Cooking or blanching where steam comes in contact with food requires a source of clean steam. Cemline eUSG's meet this need.

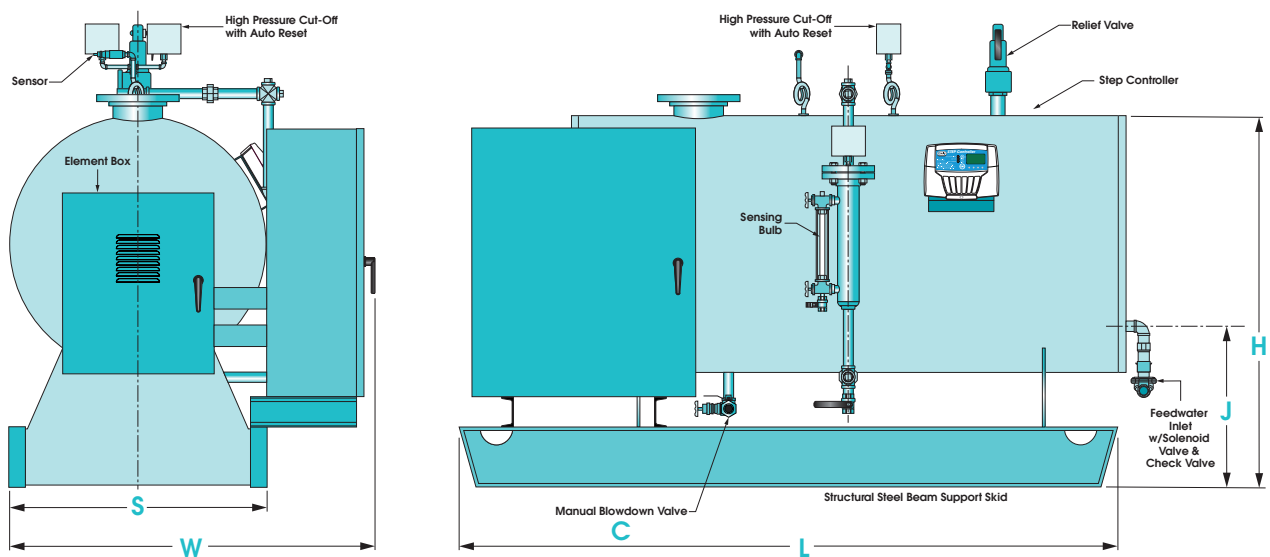


# Cemline Electric Unfired Steam Generators

## Dimensional Data-Horizontal and Vertical eUSG



MODEL NUMBER	W	H	S	J	L	C
V45EHB	34"	50"	20"	20"	36"	1"
V90EHB	38"	62"	20"	24"	42"	1"
V160EHB	44"	68"	24"	28"	48"	1"
V240EHB	50"	74"	30"	28"	54"	1 1/2"



MODEL NUMBER	Boiler Vessel Size	W	H	S	L	J	C
H205FTB	30" x 84"	50"	49"	34"	88"	21"	1"
H395FTB	36" x 96"	56"	52"	40"	100"	20"	1 1/2"

# Cemline Electric Unfired Steam Generators

## 3 Phase

480V, 415V,  
380V

Model No.	KW	Btu/Hr	0 psi #/Hr	15 psi #/Hr	60 psi* #/Hr	Circuits	KW Per Circuit	Steps	KW Per Step	KW Per Element	Total # Elements	480V 3 Phase Amps	415V 3 Phase Amps	380V 3 Phase Amps
VB45EHB15	15	51,225	53	45	44	1	15	1	15	5	3	18	21	23
VB45EHB30	30	102,450	106	89	88	2	15	2	15	5	6	36	42	46
VB45EHB45	45	153,675	158	134	132	3	15	3	15	5	9	54	63	68
VB90EHB60	60	204,900	211	179	176	4	15	4	15	5	12	72	84	91
VB90EHB75	75	256,125	264	223	220	5	15	5	15	5	15	90	104	114
VB90EHB90	90	307,350	317	268	264	6	15	6	15	6	15	108	125	137
VB160EHB120	120	409,800	422	357	352	4	30	4	30	10	12	145	167	183
VB160EHB150	150	512,250	528	447	440	5	30	5	30	10	15	181	209	228
VB160EHB180	180	614,700	634	536	528	6	30	6	30	10	18	217	251	274
VB160EHB210	210	717,150	739	625	616	7	30	7	30	10	21	253	292	319
VB160EHB240	240	819,600	845	714	704	8	30	8	30	10	24	289	334	365
VB240EHB270	270	922,050	951	804	792	9	30	9	30	10	27	325	376	411
VB240EHB300	300	1,024,500	1,056	893	880	10	30	10	30	10	16	361	418	456
HB205FTB330	330	1,126,950	1,162	982	968	11	30	11	30	10	33	397	460	502
HB205FTB360	360	1,229,400	1,267	1,072	1,056	12	30	12	30	10	36	434	501	548
HB205FTB390	390	1,331,850	1,373	1,161	1,144	13	30	13	30	10	39	470	543	593
HB205FTB420	420	1,434,300	1,479	1,250	1,232	14	30	14	30	10	42	506	585	639
HB205FTB450	450	1,536,750	1,584	1,340	1,320	15	30	15	30	10	45	542	627	685
HB205FTB480	480	1,639,200	1,690	1,429	1,408	16	30	16	30	10	48	578	669	730
HB395FTB540	540	1,844,100	1,901	1,608	1,584	18	30	9	60	10	54	650	752	821
HB395FTB600	600	2,049,000	2,112	1,786	1,760	20	30	10	60	10	60	723	836	913
HB395FTB660	660	2,253,900	2,324	1,965	1,936	22	30	11	60	10	66	795	919	1,004
HB395FTB720	720	2,458,800	2,535	2,143	2,112	24	30	12	60	10	72	867	1,003	1,095

240V, 208V

Model No.	KW	Btu/Hr	0 psi #/Hr	15 psi #/Hr	60 psi* #/Hr	Circuits	KW Per Circuit	Steps	KW Per Step	KW Per Element	Total # Elements	240V 3 Phase Amps	208V 3 Phase Amps
VB45EHB15	15	51,225	53	45	44	1	15	1	15	5	3	36	42
VB45EHB30	30	102,450	106	89	88	2	15	2	15	5	6	72	83
VB45EHB45	45	153,675	158	134	132	3	15	3	15	5	9	108	125
VB90EHB60	60	204,900	211	179	176	4	15	4	15	5	12	145	167
VB90EHB75	75	256,125	264	223	220	5	15	5	15	5	15	181	208
VB90EHB90	90	307,350	317	268	264	6	15	6	15	5	18	217	250
VB160EHB120	120	409,800	422	357	352	8	15	8	15	5	24	289	333
VB160EHB150	150	512,250	528	447	440	10	15	5	30	5	30	361	417
VB160EHB180	180	614,700	634	536	528	12	15	6	30	5	36	434	500
VB160EHB210	210	717,150	739	625	616	14	15	7	30	5	42	506	584
VB160EHB240	240	819,600	845	714	704	16	15	8	30	5	48	578	667
VB240EHB270	270	922,050	951	804	792	18	15	9	30	5	54	650	750
VB240EHB300	300	1,024,500	1,056	893	880	20	15	10	30	5	60	723	834

\*Boiler generating greater than 15 psi are not UL listed.

# Specifications-*Steam as Energy Source*

## Specifying Electric Steam Generator (eUSG) Model Number

1. Select desired voltage.
  - 208, 240, 380, 415, 480 volt
2. Select KW, BTU/hour, or lbs. steam/hour.
3. Select horizontal or vertical configuration.
4. Select any optional extras as listed on page 2.

3. Symbol designating voltage — select from code below:

Voltage	Phase	Code
208	1	BY1
208	3	BY3
240	1	B1
240	3	B3
480	3	C3
415	3	CY3
380	3	BZ3
400	3	BX3
600	3	D3

### Specifying a Cemline Boiler Model Number:

\*Example:

Interpretation:

1. "V" for vertical configuration.  
"H" for horizontal configuration.
2. Cemline Boiler Number.
4. Symbol for U.L. listing.  
RL = U.L. Listed (15 p.s.i.g. or less steam pressure)  
NL = Not Listed (above 15 p.s.i.g. steam pressure)

\*Example shown above is for a vertical eUSG, 75 KW, 480 volt, 3 phase.

### Use this specification for an Electric Steam Generator (eUSG) using steam as primary energy source.

- Electric Steam Generator (eUSG) shall be as manufactured by Cemline Corporation, Cheswick, PA 15024.
- Electric Steam Generator shall be furnished as a complete package ready for installation.
- Electric Steam Generator shall be A.S.M.E. Code constructed and stamped in accordance with the appropriate section. Electric Steam Generators shall be registered with the National Board of Boiler and Pressure Vessel Inspectors, and signed copy of shop inspection report shall be furnished.
- Electric Steam Generator vessel shall be pressure vessel quality carbon steel (or 316 grade stainless steel).
- Electric Steam Generator shall be insulated with not less than 3" of Fiberglass insulation, protected by not less than 20 ga. thick enameled steel jacket.
- Electric Steam Generator shall be mounted on a suitable I-Beam support skid which shall be permanently welded to the shell.
- Electric Steam Generator shall have stainless steel sheathed resistance type elements.
- Electric Steam Generators shall include a Solid State Electronic Sequencing Step Controller. The modulating sequencing step control with proper number of steps shall control the contactors with rotation options including first-on/first/off, time based-rotating stages based upon time from 1 to 40 hours, manual rotation. Step Controller shall have a digital display. LED stage indicators, outdoor reset, remote enable/disable, night setback. The digital display shall include boiler pressure, set-point pressure and other setting information.
- Magnetic contactors shall be factory installed, and shall disconnect all ungrounded conductors to each heater circuit. Control circuit voltage shall be 120 volts. Factory furnished built-in class "J" fuses shall be provided in each ungrounded conductor of each contactor circuit.
- A manual reset high limit pressure switch with steam shall be furnished to de-energize all contactors upon actuation. Boiler shall be factory prewired to terminal strip ready for connection to external power supply wiring. All contactors and controls (except those required to be mounted on the vessel) shall be housed in a NEMA I Enclosure with key lock door.

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## Specifications-*Steam* (continued)

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- Electric Steam Generator shall be furnished with a stainless steel A.S.M.E. 08/06/19 pressure relief valve or valves with a capacity to relieve the total BTU of output of the generator.
- Electric Steam Generator shall be furnished with a vessel steam gauge. Electric Steam Generator shall be furnished with stainless steel electronic level controller. Water column shall also be furnished with gauge glass. Electric Steam Generator shall be furnished with tandem blow off.
- All components for the Electric Steam Generator shall be factory mounted, piped, and tested and the unit shall be shipped from the factory as a complete unit ready for installation. Electric Steam Generator shall be furnished with a steam separator.
- Furnish a factory installed or stainless steel feed water solenoid valve sized to feed the capacity of the boiler with a maximum pressure drop of 10 psi. Solenoid valve shall be factory wired to the level controller. Furnish a factory installed check valve between the solenoid valve and Electric Steam Generator.
- Electric Steam Generator shall be Cemline Model \_\_\_\_\_, designed with an output of \_\_\_\_\_ KW generating \_\_\_\_\_ pounds per hour at \_\_\_\_\_ psi pressure and feed water of \_\_\_\_\_ °F when supplied \_\_\_\_\_ volt with \_\_\_\_\_ phase \_\_\_\_\_ cycle current.

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### Options

- **Centrifugal Boiler Blow Off Condensate Cooler**

Package shall include a centrifugal boiler blow off condensate cooler.

- **High Water Cut-Off (Choose Between Air/Electric)**

High water cut-off shall be factory furnished. High water cut-off shall include an electronic probe (or stainless steel float) mounted in the top of the unit connected to an (air) (electric) operated power to open spring to close ball valve. In the event of high water, ball valve will close.

- **Feed Water Condensate Pump With Receiver (Choose one, if Required)**

Furnish a factory installed feed water condensate system consisting of a receiver, inlet strainer, pump, water make-up assembly, NEMA 1 panel with fused starter. Furnish factory installed check valve between the feed water condensate system and the Electric Steam Generator. Pump shall be factory wired to level controller.

- **Feed Water Pump:**

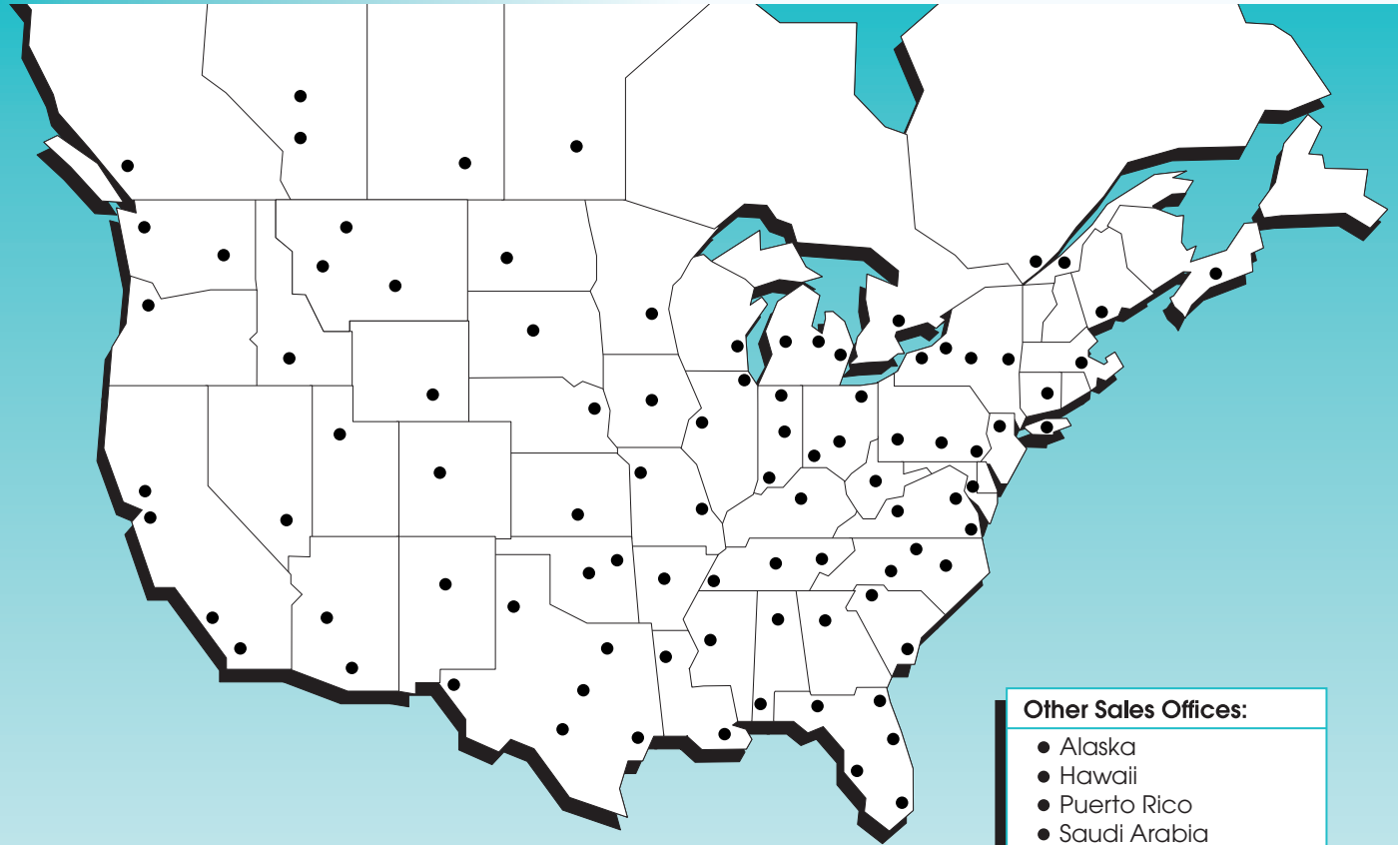
Furnish and install a feed water pump with flexible connector, shut off valve, and check valve. Feed water pump shall be factory wired to level controller and furnished with fused starter in a NEMA 1 enclosure.

- **Automatic Blowdown TDS Sampling Method**

Time sample feed water system. Furnish a factory installed time sample feed water system consisting of a control which measures the total dissolved solids of the Electric Steam Generator on a timed basis. If the total dissolved solids exceed the set point shall blow the boiler off until fresh water brings the total dissolved solids level to the desired setting.



## Sales Offices



### Other Sales Offices:

- Alaska
- Hawaii
- Puerto Rico
- Saudi Arabia
- Taiwan
- U.A.E.

## Available Cemline Brochures



- [www.cemline.com](http://www.cemline.com)
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- Electric Boilers
- Stainless Compact Packaged Copper Coil Water Heaters - Semi-instantaneous, Instantaneous
- Unfired Steam Generators
- Condensed Catalog

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Please contact your local representative or call Cemline Corporation.*

