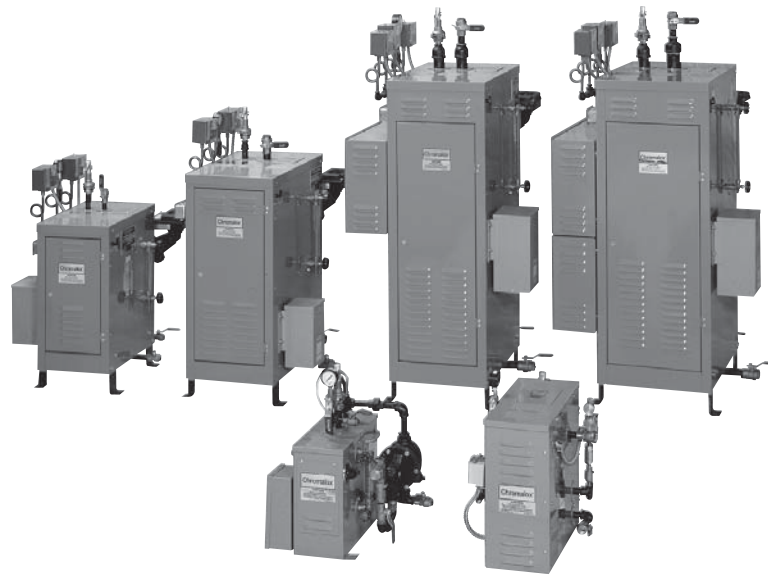


## Steam Boilers

### Overview

- Steam Pressures to 235 psig
- Hot Water Temp. to 240°F
- Steam Capacities to 4,890 Lbs/Hr and 235 psig
- 3 - 1,620 kW (10 - 5,527 Mbh)
- 120 - 600 Volt, 1 & 3 Phase



### Applications

Chromalox Packaged Electric Steam and Hot Water Boilers are safe and versatile heat sources that produce low or high pressure steam or hot water for commercial and industrial processes and for comfort heating applications. Chromalox electric boilers can be used anywhere steam is required and electric power is available. They are packaged units that operate from existing distribution voltages, making installation simple.

Electric boiler applications encompass all types of commercial and industrial enterprises such as hospitals, breweries, surgical centers, bakeries, utilities, etc. Chromalox electric boilers are used for food processing, humidification, sterilization, process drying and particularly in the manufacture of chemicals, paints, paper, textiles, petroleum products, pharmaceuticals and plastics. Some specific applications include:

- Supplying steam for storage tanks and jacketed vessels to process waxes, paraffin, glues, resins, varnishes, dyestuffs, molasses and vegetable oils.

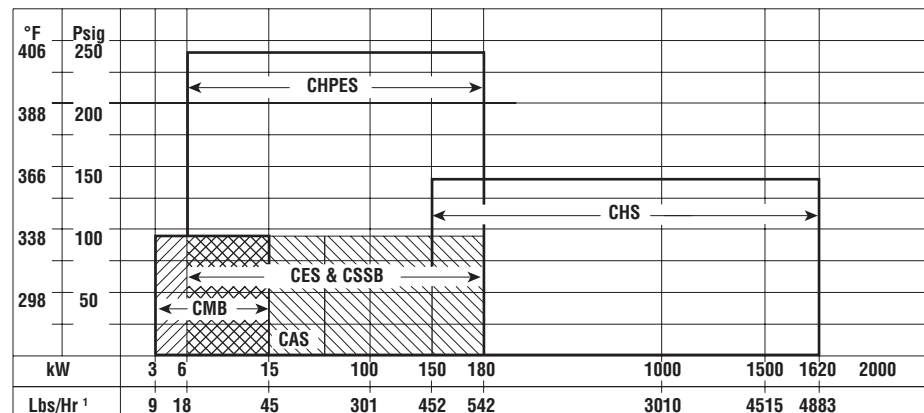
- Supplying steam for reaction and distillation vessels, retorts, autoclaves and sterilizers.
- Supplying steam for pipe tracing, to keep viscous materials flowing in asphalt plants, in fuel oil lines, jacketed pumps, strainers and valves and provide antifreeze protection.
- Supplying steam to heat rolls for paper coating, calendering, laminating, corrugating and embossing.
- Supplying steam heat for platens, dies and molds used for laminating wood and plastics, molding and forming of elastomers and plastic materials, plastic extrusions and curing of epoxies and Fibreglas® materials.
- Supplying steam for comfort heating and humidification.

### Boiler Selection

Chromalox steam boilers are available in the following ranges to accommodate any process or application: 3 to 1620 kW, 9 to 4883 pounds of dry saturated steam per hour, 0 to 235 psig.

Boiler selection is usually based on the operating pressure (psig) and steaming capacity (Lbs/Hr). When the pressure or temperature and kilowatt rating or Lbs./Hr. of steam requirements are known, the recommended boiler can be determined from the following Boiler Selection Chart. If these operating parameters are not known, contact your Local Chromalox Sales office for assistance in calculating the steam requirements and for recommendations on the proper size steam boiler.

### Steam Boiler — Selection Guidelines



### Notes —

1. Mbh is ASME & ANSI standard for thousand British thermal units per hour.

## Steam Boilers Selection Guidelines

With the pressure and capacity known, continue the selection process by consulting the detailed product pages for the models listed in the accompanying table.

### Steam Boilers — Selection Guidelines

Maximum Pressure (psig)	Maximum Temp. (°F)	kW	Description	Model	Page
90	331	3 - 15	Compact	CMB	D-29
90	331	16 - 20	Special	CAS	D-32
90	331	6 - 180	Vertical	CES-B	D-30
90	331	6 - 180	Stainless Steel	CSSB-A	D-33
135	358	150 - 1,620	High Capacity	CHS	D-35
235	401	6 - 180	Medium Pressure	CHPES-A	D-37
Optional Equipment					D-39
Custom Engineering & Manufacturing					D-42

### Advantages

Chromalox Packaged Electric Boilers offer the advantage of electricity as the heat source to provide low or high pressure steam or hot water. Building and installation costs are reduced substantially over fuel fired boilers since fuel tanks, chimneys, flues, vents and complex piping required for fossil fuel fired boilers are eliminated.

Packaged boilers comply with all the requirements of relevant UL and CSA Standards and the ASME Boiler and Pressure Vessel Code. Boilers are completely assembled and tested under operating conditions to rigid quality standards prior to release for shipment. Chromalox electric boilers are ready to install and need only a water feed source and an electric power hook-up to produce fast, economical high-quality steam. Energy conversion efficiencies approaching 100% are possible.

**Cleanliness** — No fumes or products of combustion. Boilers may be installed in alcoves, under counters or in other restricted spaces.

**Simple, Safe Operation** — Most electric boilers can be operated by custodial personnel with a minimum of training.

**Fast Start Up and Recovery** — Boilers can be turned on and be up to pressure within minutes. Long warm up times or complicated start up procedures are unnecessary.

**Minimal Maintenance** — Electric boilers only require a periodic or daily “blow down” to maintain their efficiency. (An optional automatic blow down system can be purchased to ensure continuous reliability of planned maintenance.)

**Reduced Operating Costs** — Electric boilers can provide steam “on demand” using automatically controlled electric power. Operating costs can be controlled by reducing or eliminating “idling” or “standby” operation when the boiler is not needed.

### Electric Hot Water & Steam Boilers — General Specifications

Model	Description	Operating Pressure (psig)	Temp. (°F)	kW	Mbh <sup>2</sup>	Vessel Pressure Rating (psig)	Connection Type
CMB	Compact Steam Boiler	0 - 90	212 - 331	3 - 15	10 - 51	100	NPT
CES-B	Vertical Steam Boiler	0 - 90	212 - 331	6 - 180	21 - 614	100	NPT
CAS	Special Steam Boiler	0 - 90	212 - 331	16 - 20	55 - 68	100	NPT
CSSB-A	Stainless Steel Steam Boiler	0 - 90	212 - 331	6 - 180	21 - 614	100	NPT
CHPES-A	Medium Pressure Vertical Steam Boiler	0 - 235	212 - 401	6 - 180	21 - 614	250	NPT
CHS	High Capacity Horizontal Steam Boiler	0 - 135	212 - 358	150 - 1,620	512 - 5,527	150	NPT and Flanged
GCH <sup>1</sup>	Steam Superheater	0 - 150	212 - 800	1 - 350	3 - 1,194	150	NPT or Flanged

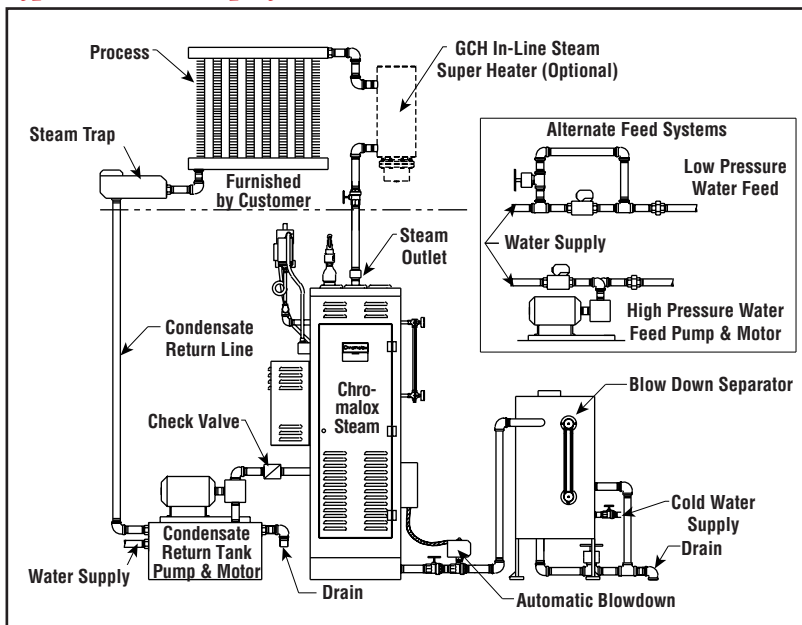
#### Notes —

- See Circulation Heater section.
- Mbh is ASME & ANSI standard for thousand British thermal units per hour.

## Steam Boilers Features

- Steam Pressures to 235 psig
- Hot Water Temp. to 240°F
- Steam Capacities to 4,890 Lbs/Hr @ 235 psig
- 3 - 1,620 kW (10 - 5,527 Mbh)
- 120 - 600 Volt, 1 & 3 Phase
- Pressure Vessels Carbon or Stainless Steel ASME Section I  
Carbon Steel ASME Section IV
- Copper or INCOLOY® Sheath Heating Elements
- Mechanical (Float) and/or Electronic (Probe) Water Level and Limit Controls
- Optional Control Transformers, Water Feed Systems and Blow Down Equipment
- Third Party (UL, CSA) Listing, Recognition or Certification

*Typical Closed-Loop System*



**Note** — Blow down separators and/or condensate return systems (optional equipment) may be necessary in some installations. Check local and state codes.

### Features

Chromalox Electric Steam and Hot Water Boilers are efficient energy management systems with specially designed heater bundles which provide maximum element to water contact and uniform circulation. Low or high pressure steam is generated in pressure vessels designed to minimize “carry over” of moisture and impurities into the steam distribution system. Chromalox packaged boilers are compact in size with a small foot print and are ideal for “point of use” applications in areas with limited space. They are available in many sizes from stock.

### Heating Methods

Most steam heating applications can be grouped into two categories, **open loop** and **closed loop**. In an **open-loop system**, the waste steam and condensate are not recovered and are exhausted to the drain. These are called “pass through” systems and are frequently used for sterilizers. In a **closed-loop system**, the waste steam and condensate are recovered and recycled through the boiler. Closed loop systems are the most efficient and cost effective and are recommended for most applications. (See above illustration.)

**Reliability** — A rigid Quality Control Program is maintained to assure compliance with the ASME Code, Underwriters Laboratories, Inc. requirements and engineering design specifications. Each boiler is tested under power for functional conformance, is subject to a high potential dielectric test, hydrostatic pressure test and must pass a Quality Control inspection before being released for shipment.

### Optional Equipment

- Condensate Returns
- Blow Down Separators
- Vacuum Breakers
- Cold Water Feeds
- Sequencers
- Control Transformers

### Custom Engineering

Chromalox can design and manufacture your Packaged Electric Steam and Hot Water Boilers. Contact your Local Chromalox Sales office.

**Note** — Refer to Optional Equipment in this section.

