

Electric Steam Superheaters



B™ BRYAN STEAM



Bryan electric steam superheaters promote total energy efficiency

Fast, efficient and economical superheated steam for many commercial and industrial applications is now possible with Bryan electric steam superheaters. These high-performance models combine the advantages of modern electric operation with state-of-the-art design to create an entirely new concept in energy efficiency.

Numerous potential applications for Bryan superheaters exist, including superheated steam for milling equipment, cogeneration projection, refuse burning boilers, start-up on large boilers, or any process requiring additional temperature over saturation-temperature.

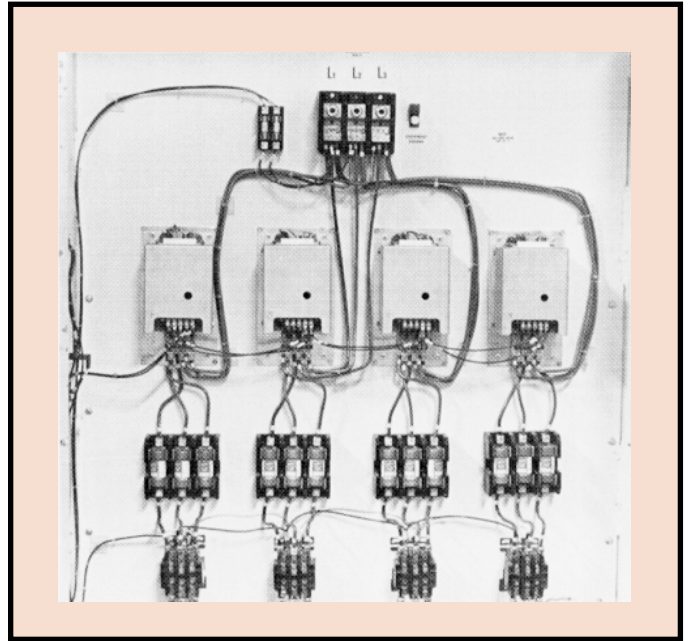
Bryan superheaters promote the most productive use of power in your application, since greater energy output is delivered per pound of vapor utilized. The clean, compact units save boiler room space, as well.

Engineered for exceptionally long service life, Bryan superheaters feature copper bus bar construction for protection of all current-carrying parts. Design features simplify routine maintenance procedures wherever possible. Completely factory wired and assembled, Bryan superheaters are delivered to your job site ready for easy installation and hook-up.

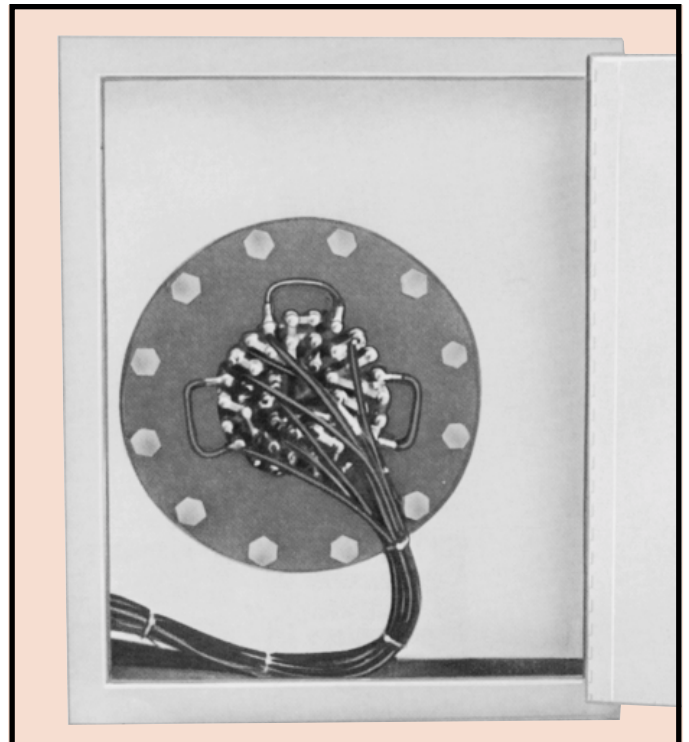
Construction features

- Heavy steel pressure vessel, built and stamped in accordance with ASME boiler code for either 150 or 250 psi. Higher pressures available upon request.
- Heating element bundles (immersion type) mounted on standard ANSI flanges. Individual elements replaceable with hand tools. Element watt density is 25 watts/sq. in. of surface area. Incoloy sheathed.
- Superheater jacket 16-gauge, zinc-coated, rust resistant primer and attractive enamel finish.
- Heavy boiler insulation 5" fiberglass plus 1" ceramic fiber.
- Power panel contains main busing, entrance lugs, Class "J" fuses and magnetic conductors, key-operated handle lock.
- Control panel contains modulating controller, control transformer, recycle relay, control circuit fuse and on-off control circuit switch.
- Pilot lights one per step.
- Flanged steam inlet and outlet.
- ASME safety relief valve.
- Temperature and pressure gauge.
- Structural steel base.
- Completely factory assembled and tested.

Since Bryan heating elements are designed for easy replacement with just hand tools, you don't need to stock a complete element bundle of spares. In addition, You won't have the expense and inconvenience Of having to return the element bundle to the manufacturer for repair.



All Bryan superheaters feature copper bus bar construction for protection of all current-carrying parts and prevention of damage to the superheater. The fuse clip for each branch circuit and the main power lugs are all bolted directly to a bus bar, which is capable of carrying the full load current of the boiler and withstanding the available fault current. But, as shown above, construction can be modified to satisfy customer requirements.



Sample specifications for electric steam superheaters

General

Furnish and install where shown on the plans (indicate quantity) package type electric steam superheater Model No. _____ as manufactured by the Bryan Steam Corporation. Unit shall be completely factory assembled, including accessories as described herein, prewired, and factory tested.

Each superheater shall have an input of _____ KW at _____ volts. The pressure vessel, insulation, jacket, electrical cabinet(s) and control cabinet shall be mounted on a unitary structural steel frame. Each superheater shall be equipped with a dial-type panel mounted inlet and outlet temperature gauge and pressure gauge.

Pressure vessel

The pressure vessel shall be of all-welded steel construction, designed for a pressure of _____ psig in accordance with the ASME boiler and pressure vessel code and stamped with the appropriate ASME symbol.

The vessel shall be provided with:

The necessary openings as required by the ASME code, openings for flanged elements and controls, 1" ceramic fiber insulation surrounded by 5" of fiberglass insulation, wire netting to hold insulation in place, drain line of a size required by the ASME code, flanged outlet _____ inch pipe size, flanged inlet _____ inch pipe size, ASME safety relief valve(s) with capacity and size required by the ASME code, set to relieve at _____ psig. A 16 ga. zinc coated metal jacket painted with two coats of enamel.

Electrical

Electrical power panel cabinet(s) shall be provided. There shall be no operating or limit controls mounted in this cabinet. It shall be equipped with fixed louvers which will facilitate natural air circulation to minimize temperature rise. The cabinet hinged doors shall be equipped with a key lock handle to prevent access by unauthorized personnel. The main power supply to the boiler shall be from _____ (1, 2, 3, etc.) sources and shall be (208, 240, 480 etc.) _____ volts, 3 phase, 60 Hz, rewire system supplied to the electrical cabinet(s) by (1, 2, 3, etc.) (250, 350, 500, etc.) MCM incoming conductors per phase and the copper bus bars located in the cabinet(s) shall be equipped with lugs to accommodate these incoming conductors.

The distribution of power within the unit shall be from the copper bus bar through class "J" fuses, through magnetic compactors to the elements. The class "J" fuses shall be installed in fuse clips having a reinforcing member. One of the fuse clips for each fuse shall be mounted directly on the copper bus bar and the other clip shall be mounted on a laminated insulating bar. All power wiring in the unit shall terminate in the box type connectors. Crimp connections in the power circuit will be not acceptable. The power wiring from the class "J" fuses to the magnetic contacted shall be of a size not less than #8 AWG with insulation of a rating not less than 750°C. The power wiring from the magnetic compactors to the elements shall have insulation of a rating not less than 125°C.

Elements

The boiler shall be equipped with immersion-type heating elements mounted in standard ANSI flanges. Each element shall be mechanically mounted and field replaceable without welding or brazing. Elements shall be incoloy sheathed and have maximum watt density of 25 watts per square inch. Elements shall be rated for voltage specified.

Controls

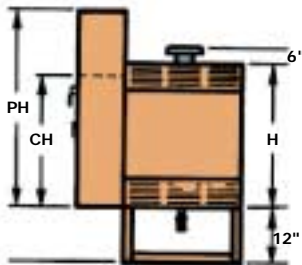
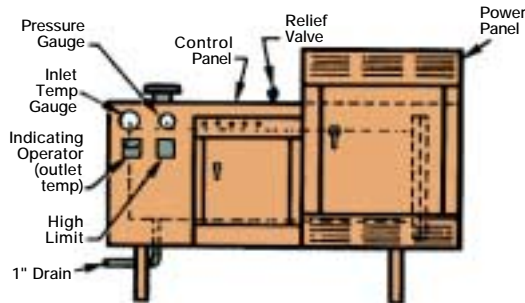
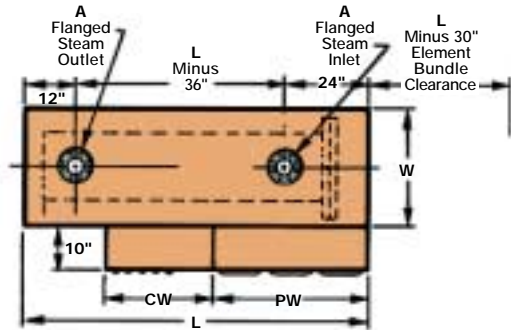
A control cabinet shall be provided with a 120 volt, single phase 60 Hz control circuit supplied by a stepdown transformer of the proper size. Both sides of the control transformer primary shall be protected by class "J" fuses located in the electrical cabinet. One side of the control transformer secondary shall be grounded and the other side fused.

The control circuit shall also include:

An on-off switch to shut Off current to controls, high limit control which will interrupt control circuit if operating conditions are exceeded, recycle relay which will cause the modulating controller to return to start position before re-energizing the circuit in the event of circuit interruption, operating control, modulating controller which will proportion the input power to the system demand, and one indicating light for power to control circuit ON.

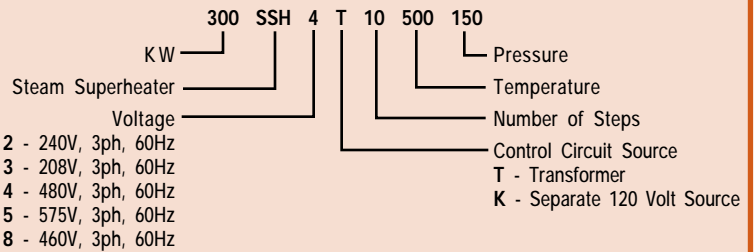
The operating control shall be set to maintain an outlet temperature of _____ °F with a steam flow rate of _____ pounds per hour.

Bryan Electric Steam Superheater



Dimensions and specifications are subject to change without notice.
Consult factory for certified dimensions.

Superheater Model Designation



240 / 3 / 60 Dimensions in Inches

KW*	MBH Output	Max. Design Pressure	Max. Superheat Temp.	L	W	H	PW	PH	CW	CH	A**
15	49	150	600	60	19	19	20	30	20	24	3
15	49	250	600	60	21	21	20	30	20	24	3
30	98	150	600	60	22	22	30	36	20	24	3
30	98	250	600	60	23	23	30	36	20	24	3
45	147	150	600	60	24	24	30	36	20	24	3
45	147	250	600	60	26	26	30	36	20	24	3
120	393	150	600	60	32	32	30	48	20	30	3
120	393	250	600	60	34	34	30	48	20	30	3
195	639	150	600	60	36	36	30	66	20	30	4
195	639	250	600	60	39	39	30	66	20	30	4
240	786	150	600	60	40	40	30	66	20	30	4
240	786	250	600	60	44	44	30	66	20	30	4

480 / 3 / 60 Dimensions in Inches

KW*	MBH Output	Max. Design Pressure	Max. Superheat Temp.	L	W	H	PW	PH	CW	CH	A**
30	98	150	600	86	19	19	20	30	20	24	3
30	98	250	600	86	21	21	20	30	20	24	3
60	196	150	600	86	22	22	30	36	20	24	3
60	196	250	600	86	23	23	30	36	20	24	3
90	294	150	600	86	24	24	30	36	20	24	3
90	294	250	600	86	26	26	30	36	20	24	3
240	786	150	600	86	32	32	30	48	20	30	4
240	786	250	600	86	34	34	30	48	20	30	4
390	1277	150	600	86	36	36	30	66	20	30	4
390	1277	250	600	86	39	39	30	66	20	30	4
480	1572	150	600	86	40	40	30	66	20	30	6
480	1572	250	600	86	44	44	30	66	20	30	6

* Intermediate KW are available. ** Size will vary with pressure and temperature



Bryan Steam LLC — Leaders Since 1916

783 N. Chili Ave., Peru, Indiana 46970 U.S.A.

Phone: 765-473-6651 • Internet: www.bryanboilers.com

Fax: 765-473-3074 • E-mail: bryanboilers@iquest.net