



mini-star® Series

ELECTRIC BOILERS FOR HYDRONIC HEATING



Comfort • Safety • Dependability
with the New BC-1 Microcontroller,
100% Fuel Efficiency and Greenhouse
Gas (GHG) Emission-free Performance.

Hydronic Heating Applications
Residential to Commercial

6 to 54 kW

Single Phase: 208 or 240 Volts

Three Phase: 208, 240, 480 or 600 Volts

mini-star® Series

Since 1947, people have trusted Allied Engineering Company in providing industry leading technology and designing innovative, safe, and dependable hydronic heating products. By providing knowledgeable live technical support, hearing our customer's needs, and our extensive research and development program, we continue the tradition and help our customers realize the most quality and value for their investment.

The mini-star® Electric Boiler offers exceptional comfort and performance in a complete range of sizes to handle any of your hydronic heating needs. Using clean and convenient electric heat, the mini-star® achieves a fuel utilization efficiency even greater than that of a condensing boiler while at the same time saving the need to install gas supply piping and venting. It is the perfect solution to escalating gas prices.

Ideal for:

- Residential or Commercial Heating
- New installation or replacement
- Heat source for Radiant Floor, Baseboards, Radiators, Water Coils, etc.
- Supplemental heat for Geothermal or Solar heating systems.
- Back-up heat supply
- Domestic hot water (DHW) heating when used with an Indirect Water Heater

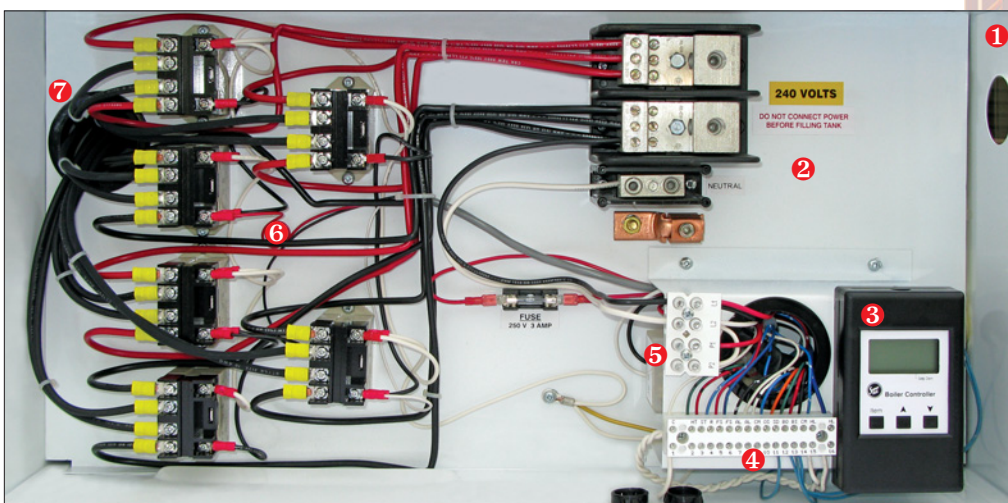
Features and Benefits:

- Advanced BC-1 Microcontroller with Outdoor Reset customizes to any application
- Pre-wired and clearly labeled Terminal Blocks for quick wiring setup
- Quiet and Reliable Contactors
- Wall hung
- Compact and Lightweight for an easy install
- Every boiler pressure tested for Quality Assurance
- Designed to ASME Code Section IV for a maximum pressure of 90 psi.
- 10 year limited warranty on tank, 1 year on component parts. See warranty for details.



BC-1 Microcontroller

- **3 stage** phased in power draw reduces surges and automatically adjusts heat output to match heating load
- **PID logic** (proportional, integral, derivative)
 - automatically determines optimum time delays and inter-stage differentials to eliminate temperature swings, optimize cycle time, and reduce component wear
- **Six Modes** of Operation, including Domestic Hot Water (DHW) Generation when used with an Indirect Hot Water Tank
- **Outdoor Reset** – user-programmable Reset Curve automatically adjusts for seasonal changes in Heat Load
- **Warm Weather Shut Down (WWSD)** for outdoor reset applications shuts off boiler during periods of warmer weather
- **LCD screen** displays:
 - Temperature of Boiler Outlet, Boiler Inlet, Outdoor and DHW/Secondary Loop
 - Call-for-heat, DHW Demand, Pump and Heating stages
 - Recorded Boiler running time
 - Sensor and Controller Error Messages for troubleshooting
- Exercising of Pump during periods of no operation
- Built-in test routine for checking controller outputs

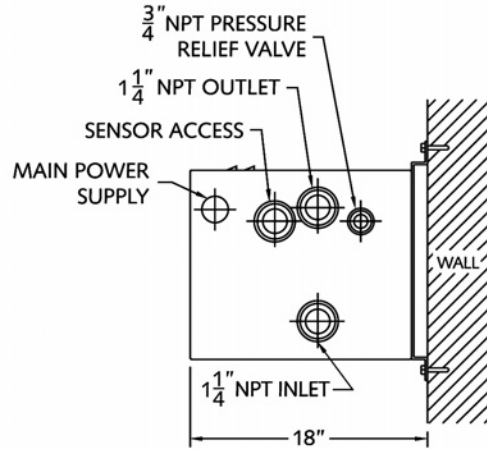
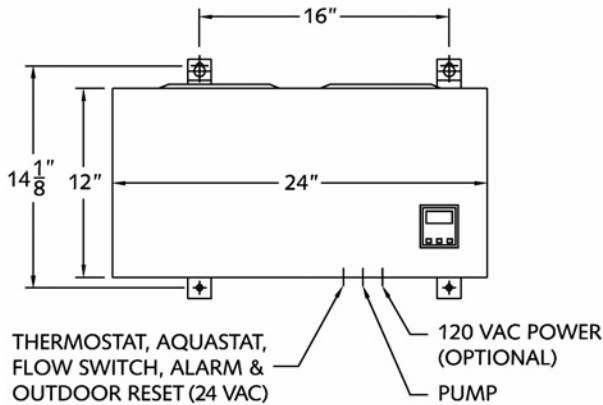


1. Easy access to control panel for service
2. High Voltage Terminal Blocks
3. Programmable BC-1 Microcontroller
4. Powered Contacts for Alarm, Flow Switch, Thermostat, DHW Aquastat, and all Sensors
5. Powered Contacts for 120 Volt Pump
6. Quiet and Reliable Contactors
7. Wiring to Flange Elements

MINI-STAR® SERIES ELECTRIC BOILERS

D I M E N S I O N S A N D S P E C I F I C A T I O N S

HYDRONIC HEATING at its best



Mini-Star Electric Boilers			Single Phase		Three Phase			
			208 Vac	240 Vac	208 Vac	240 Vac	480 Vac	600 Vac
Model	kW	Btu/Hr	Amp	Amp	Amp	Amp	Amp	Amp
6MSE	6	20,474	28.9	25.0	16.7	14.4	7.2	5.8
9MSE	9	30,708	43.3	37.5	25.0	21.6	10.8	8.7
12MSE	12	40,848	57.7	50.0	33.3	28.8	14.4	11.5
15MSE	15	51,185	72.1	62.5	41.6	36.0	18.0	14.4
18MSE	18	61,422	86.5	75.0	54.6*	47.3*	23.7*	18.9*
20MSE	20	68,240	96.2	84.3	63.6*	55.1*	27.6*	22.0*
24MSE	24	81,895	115	100	66.5	57.7	28.8	23.1
27MSE	27	92,124	130	113	74.9	64.9	32.4	26.0
30MSE	30	102,369	144	125	83.2	72.1	36.0	28.8
34MSE	34	116,008	164	142	100*	87.0*	43.5*	34.8*
38MSE	38	129,656	183	158	118*	102*	50.5*	40.4*
42MSE	42	143,304	202	175	116	101	50.5	40.4
45MSE	45	153,540	216	188	125	108	57.7*	46.2*
48MSE	48	163,776	231	200	138*	119*	59.6*	47.7*
54MSE	54	184,248	260	225	150	130	64.9	52.0

*Delta connection (unbalanced load) amperage of high leg indicated.



DESIGN FEATURES

Every **Mini-Star®** Electric Boiler comes complete with:

- BC-1 Microcontroller
- Boiler Inlet and Outlet Sensors
- Outdoor Reset Sensor
- Temperature / Pressure Gauge
- Pressure Relief Valve 30 PSI
- Wall Mount Brackets (16" Centers)
- Drain Valve

Packaged "PS" Option Available:

- Automatic Air Vent
- Expansion Tank
- 1 1/4" Circulator
- Air Purger
- Fill Valve

Special Features:

- Powered Contacts for 24 Volt Alarm and 120 Volt Pump
- Flow Switch Terminals
- Flange Elements
- Dual High Limit Shut Down
- 50 VA Transformer
- Failed Contactor Safety Circuit offers back up protection to shut down a "runaway" boiler
- Factory Wired for Quick Install and Easy Access to the control panel for service



ALLIED ENGINEERING COMPANY

DIVISION OF E-Z-RECT MANUFACTURING LTD.

Manufacturers of Gas and Electric Boilers. Tankless Coils. Electric Boosters
 94 Riverside Drive, North Vancouver, B.C. V7H 2M6 • TEL: 604.929.1214 • FAX: 604.929.5184
www.alliedboilers.com