

INDEX	General Information	Page 1
	Installation	Page 2
	Start Up	Page 3
	Maintenance	Page 3
	Control	Page 4
	Service Instructions	Page 5
	Limited Warranty	Page 6



GENERAL INFORMATION

Application

UL Listed under File No. E30432 to 600 volts and 120 KW as primary heat source, secondary heat source, or as standby heat source for solar, hydronic, and water source heat pump systems.

Vessel

ASME Code, Section IV "H" stamped, National Board registered, rated to 160 psig and 250 degrees Fahrenheit.

Insulation

4" fiberglass blanket on vessel.

Elements

Incoloy sheathed, 75 watts per inch, mounted in 150 pound ASA steel flange, individually removable.

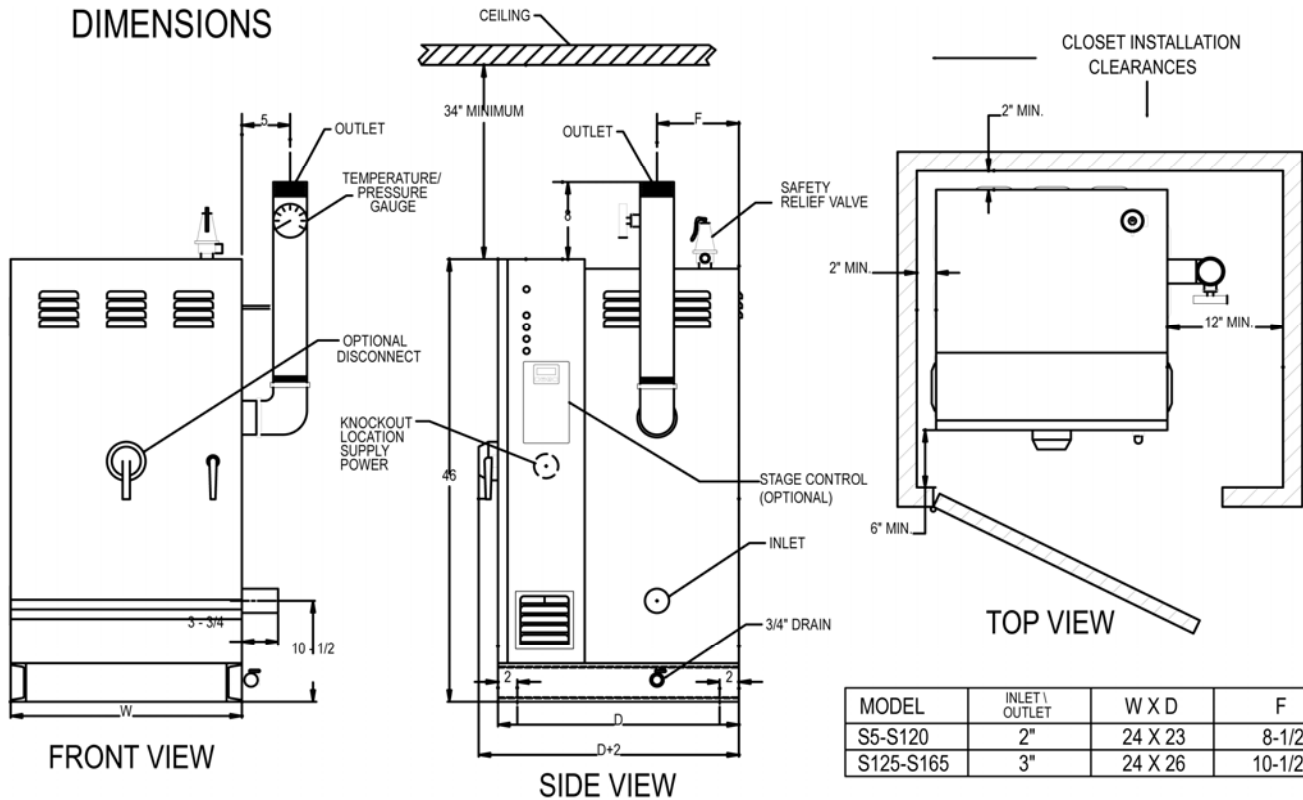
Enclosure

Ventilated integral control panel constructed of heavy gauge steel contains line terminals, fuses, contactor(s), temperature controller, and safety high limit devices. All surfaces are phosphatized and protected against corrosion with factory applied finish.

INSTALLATION

1. Install drain valve furnished with boiler.
2. Set boiler in position to conform to local codes. Minimum clearances: Front – 6 inches to door or 3 feet to wall; back – 1 inch; left side – 1 inch; right side – 10 inches. A minimum distance of 34 inches must be maintained above the boiler for element removal.
3. Suitable for closet installation. Subject to minimum spacing requirements shown below. Closet door must be vented at the top and bottom of the door with 24 by 12 inch openings.
4. Be certain unit is installed on a level, non-combustible surface.
5. Connect the supply and return piping according to applicable codes. Pipe relief valve discharge to nearest floor drain or downward, away from any potential hazard to other equipment or personnel.
6. Boiler feed connection may be tee'd into return connection.
7. Electrical knockouts are provided for wiring access. All wiring must conform to applicable codes and conductors cannot be smaller than sixes listed on wiring diagrams located inside the control panel door.
8. Provide expansion tank and circulating pump for boiler piping system; install to conform to applicable codes. Installation of flow switch is recommended. Connect vent tube to (top of vessel) to expansion tank.

DIMENSIONS



MODEL	INLET \ OUTLET	W X D	F
S5-S120	2"	24 X 23	8-1/2
S125-S165	3"	24 X 26	10-1/2

START UP

1. Place disconnect switch and control circuit switch in the OFF position. Fill system with water to pre-determined cold fill pressure (one pound of pressure is required for every 2.31 feet of piping system height above the pressure gauge).
2. Purge all air at the highest point in the system and vent all points where air is likely to be trapped.
3. Energize circulator pump and verify direction of rotation on three phase units. DO NOT energize the boiler unless circulator pump is operating.
4. Close boiler control panel door and energize the main disconnect switch.
5. Check all piping connections and valves for leaks.
6. Turn boiler control circuit switch to the ON position. If contactor(s) do not close, see service section (page 4).

MAINTENANCE

A periodic check of all control components will ensure proper operation.

1. Check wiring and terminations for tightness.
2. Check all controls and safety devices for proper operation.
3. Check pressure relief valve to ensure that it is not leaking and that no corrosion exists.
4. Check circulator pump and lubricate according to manufacturer's instructions.

At least once a year, boiler elements should be checked.

1. Disconnect all power to boiler.
2. If a faulty open element is indicated, the element may be replaced in the following manner:
 - a. Isolate boiler from system by closing hand valves in supply and return piping.
 - b. Drain boiler completely of water.
 - c. Remove ALL wiring from the elements, tagging both the wires and element terminals.

- d. Mark element flange position with respect to the vessel flange for proper alignment upon reinstallation; remove flange bolts.
- e. Remove the element flange from the vessel.
- f. Remove element retaining nut using a 11/16 socket wrench.
- g. Remove ferrules (2 compressed rings) from the element ends and remove element from back side of flange.
- h. Insert new element and ferrules and tighten element retaining nuts into flange.
- i. Replace flange in boiler vessel using new gasket. Align previously made marks on flanges and install flange bolts, torquing each bolt to 70 foot pounds (minimum).
- j. Reconnect electrical wiring, making sure all wiring is connected to the proper element termination.
- k. Refill boiler following procedure listed in INSTALLATION section.
- l. Check elements and flanges for leaks.
- m. Replace vessel enclosure cover.
- n. Turn disconnect on.

CONTROLS

Controls – All basic controls and terminals are located in an integral ventilated control cabinet, factory wired and functionally tested. Controls include Class K fuses with 50,000 ampere interrupting capacity, magnetic contactors UL Listed for 100,000 cycles, 120V control transformer with primary fuses, low water cutoff, operating controller, automatic reset high temperature cutout, and control circuit lighted switch.

Low Water Cutoff – In the event of a low water condition, low water cutoff interrupts control circuit to protect elements from damage caused by overheating.

Automatic Reset High Temperature Cutout(s) – De-energizes control circuit in the event of a high temperature condition.

Control Circuit Lighted Switch – De-energizes control circuit (not main power).

Operating Controller – Maintains water temperature at predetermined setting.

Pressure Relief Valve – Vents pressure to atmosphere in the event of high pressure in excess of relief valve setting.

Pressure/Temperature Gauge – Combination gauge provides visual indication of water temperature and pressure. Mounted on outlet pipe.

Optional Accessories – Optional built-in or remote accessories may be included as called for in job specifications. Instructions covering adjustments and servicing of these accessories are supplied with the unit.

SERVICE INSTRUCTIONS

Disconnect all sources of power before servicing unit. If it is necessary to replace a factory installed part, be sure to use Lattner replacement part. Replacement parts are available through authorized Lattner representatives or directly from the factory. When ordering replacement parts, always include the model and serial numbers.

LOCATING TROUBLE

Problem	Possible Cause
1. Unit does not operate	Disconnect or control circuit switched off, low water condition, high temperature condition, improper setting of operating control.
2. Water temperature too low	Operating control set too low or not operating properly, oversized circulator pump, or faulty elements/fuses/contactors/wiring.
3. Water temperature is too high	Operating control is set too high or not operating properly, undersized circulator pump or not operating properly.
4. Water temperature correct but building is cold	Circulator pump not operating properly, air blocks in piping or radiation, control valve in supply or return piping not fully open.
5. Excess pressure causing relief valve to open	System head pressure exceeds relief valve setting or expansion tank water logged.



Lattner Boiler Company

Lattner Boiler Company
1411 9th St. SW
Cedar Rapids, IA 52404
Telephone: (800) 345-1527
Fax: (319) 366-0770
Web: www.lattnerboiler.com

LATTNER BOILER LIMITED WARRANTY

A Lattner boiler shell is guaranteed to be constructed in accordance with the ASME Code. An independent ASME boiler inspector inspects the construction of each boiler and: (1) checks mill test reports on all materials used to ensure that the chemical and physical analysis of such materials complies with the ASME Code; (2) inspects each boiler shell during construction to see that workmanship complies with the Code; and (3) witnesses the final hydrostatic test and then places the ASME stamp on the boiler shell and signs an ASME data report certifying the boiler is ASME approved.

Lattner warrants the boiler and any other equipment of its manufacture to be free from defects in material and workmanship for one (1) year from the date of shipment from the factory, provided the boiler is operated under the normal use and service for which it was intended, and only if the boiler has been properly installed by a qualified technician in accordance with but not limited to ASME, ANSI, and NFPA Codes and applicable local, state, and national codes.

Lattner's obligation under this Warranty is limited, at Lattner's option, to replacing or repairing any defective part of the boiler or other equipment it manufactures. No allowance will be made for labor, transportation, or other charges incurred in the replacement or repair of defective parts. Merchandise not manufactured by the Company, supplied in one piece or in component assemblies, is not covered by the above warranty, but the Company will give the Purchaser the benefit of such adjustment as it can make with the manufacturer of such items.

Lattner shall not be liable for special, indirect, or consequential damages. Lattner shall not be liable for any loss or damage resulting, directly or indirectly, from the use or loss of use of the boiler. This exclusion from liability includes the Purchaser's expenses for downtime or for making up downtime, damages for which the Purchaser may be liable to other persons, or damages to property.

The remedies set forth in this Warranty are exclusive, and the liability of Lattner with respect to any contract or sale shall not exceed the cost of repair or replacement of the boiler or other equipment manufactured by Lattner.

The above Warranty shall not apply to any boiler or other equipment manufactured by Lattner which:

- 1) has been repaired or altered without Lattner's written consent;
- 2) has been altered in any way so as, in the judgment of Lattner, to adversely affect the stability or reliability of the boiler;
- 3) has been subject to improper water treatment, scale, corrosion, misuse, negligence, or accident;
- 4) has not been operated in accordance with Lattner's printed instructions or specifications;
- 5) has been operated under conditions more severe than or otherwise exceeding those set forth in the specifications for such boiler; or
- 6) has not been properly installed by a qualified technical in accordance with but not limited to ASME, ANSI and NFPA Codes and all applicable local, state and national codes.

THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. LATTNER MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE.

Purchaser must notify Lattner of a breach of Warranty within thirty (30) days after discovery thereof, but not later than the one-year guarantee period; otherwise, such claims shall be deemed waived. No allowance will be granted for any repairs or alterations made by Purchaser without Lattner's prior verbal or written consent. Items returned to Lattner must be accompanied by a factory-supplied return goods authorization (RGA). **Such authorization may be obtained by calling the factory at 319/366-0778 or by writing to P.O. Box 1527, Cedar Rapids, IA 52406.**

Lattner neither assumes nor authorizes any person to assume for it any other liability in connection with the sale or use of the boiler or other equipment manufactured by Lattner, and there are no oral agreements or warranties collateral to or affecting this Agreement.

LATTNER BOILER COMPANY
Cedar Rapids, IA USA

STANDARD TERMS & CONDITIONS

LIMITATION ON QUOTATION

Unless otherwise stated in the quotation, the quotation will remain valid for a period of thirty (30) days from the date hereof, at which time it will automatically expire unless extended by a signed document issued by the Company, from its headquarters in Cedar Rapids, IA.

EQUIPMENT SELECTION

The Purchaser's selection of sizes, types, capacities, and specifications and suitability thereof for the specific application shall be the unshared responsibility of the Purchaser or Purchaser's representative or consultant.

PERMISSIBLE VARIATIONS, STANDARDS, AND TOLERANCES

Except in the particulars specified by the Purchaser and expressly agreed to in writing by the Company, all materials shall be produced in accordance with the Company's standard practices. The Company reserves the right to deviate from tolerances and variations in the equipment without notice, provided that the substitute part(s) or deviation(s) are consistent with the usage and performance of the product.

PRICES

Unless defined otherwise in the quotation, prices are F.O.B. Cedar Rapids, IA USA, exclusive of freight, storage, off-loading, installation, service, start-up, extended warranty or local delivery charges, if any.

TAXES

Purchaser shall be liable for all Federal, State, and local taxes with respect to the purchase of the equipment proposed, unless exclusively exempted from any taxes and proof thereof is on file with the Company.

PAYMENT

Purchaser shall pay with US funds, the full amount of the invoiced purchase price within thirty (30) days of the Company's invoice, whether the equipment has shipped or has been delayed through no fault of the Company and subject to approved credit. Beginning thirty (30) days after the invoice date, Purchaser shall pay a late payment charge of two percent (2%) per month, which is an annual rate of 24%, on any unpaid portion of the purchase price. The Company reserves the right to revoke or modify these credit terms.

SHIPMENT

Any shipping date shown in the body of the quotation or order acknowledgement, represents the Company's approximated schedule as of the date of the quotation, and is subject to change as determined by shop loading if and when this quotation should be realized as an actual sale. The Company shall not incur any liability of any kind for failure to ship on any particular date unless a firm shipping date has been expressly agreed to by an officer of the Company, in a separate written document.

CANCELLATION AND DELAYS

Subsequent to the receipt of Purchaser's Purchase Order and the Company's issued order acknowledgement, the Purchaser may not change or cancel the order in whole or in part without the written approval and acceptance by the Company of such cancellation or change. The Company may condition its approval of a change or cancellation upon a price change to reflect the Company's cost to implement the change, or to offset costs incurred by the Company in order preparation, engineering, purchasing, or in actual production of the order. In the event that the Purchaser delays shipment of the equipment upon the Company's notice to ship, the equipment shall be placed in storage at the Purchaser's risk and expense, and shall be invoiced as if shipped.

RETURNS AND RESTOCKING

Equipment may be returned to Lattner at 1411 9th Street SW, Cedar Rapids, IA 52404, only upon prior written authorization of the Company. Consent, if given, will be upon the condition the Purchaser assumes all carrier charges, responsibility for damages in transit, and a minimum

15% restocking charge, and only if the authorized material is in new and unused condition and returned within one year from original date of shipment. The credit will be based on the original invoice price or the current price; whichever is lower, less the applicable restocking charge.

SECURITY INTEREST

For the purposes of securing payment, the Company may issue a lien on the equipment, for past due accounts, until such time that payment has been received in full. Upon receipt of payment in full, the Company will rescind the lien.

FORCE MAJEURE

In no event shall the Company be liable for loss or damage resulting from any delay or failure to ship or other failure, loss, or damage that is the proximate result of any act of government authority, revolution, riot, civil disorder, act of war, delay or default in transportation, inability to obtain materials or facilities from normal sources, fire, flood, act of God, or any cause not within the reasonable control of the Company. The Company may, without causing a breach or incurring liability, allocate goods which are in short supply irrespective of the reasons therefore among customers in any manner which the Company in its sole discretion deems advisable. If an event occurs that is beyond the control of the Company, and that event delays the Company's performance and causes its cost of production to increase because of the delay, the Company may pass such increased cost(s) on to the Purchaser.

DAMAGE LIMITATION

Under no circumstance shall the Company be held liable for any loss of profits, down time, or any incidental or consequential damages of any kind with respect to its products or the transaction by which its products are sold.

WARRANTY AND PERFORMANCE

Products shall be warranted in accordance with the Company's standard warranty statement, form No. 2-98-R06. The Company's warranty shall be voided by any abuse, misuse, neglect, unauthorized modification or service, lack of maintenance and service, or use not in accordance with the Company's instructions. Warranty shall also be voided if water treatment has not been provided or by improper start-up of the equipment. The Company's warranty statement and this paragraph contain the Company's sole warranty and the Company makes no implied warranty, and there is no implied warranty of merchantability or fitness for any particular purpose.

SERVICE

Unless otherwise noted herein, the cost of the equipment does not include service or installation. All services performed by the Company are subject to the Purchaser's payment of the Company's prevailing charges plus necessary travel and living expenses. Whenever service is quoted, please refer to Lattner's Service Policy for specific details.

EXCLUSION OF OTHER TERMS

This constitutes an offer on behalf of Lattner Boiler Manufacturing (the Company); to sell the goods described in the quotation, exclusively on the terms and conditions stated. Acceptance of this by the Purchaser is hereby expressly limited to these Terms and Conditions and shall be applicable to any order issued by the Purchaser unless other terms have been agreed to in a written document issued by the Company.

GOVERNING LAW

The transaction with respect to the goods, which are subject hereof, shall be governed by, interpreted, and construed in accordance with the laws of the State of Iowa. The Courts in the State of Iowa will have the sole jurisdiction over any claim arising under this contract of sale.

ASSIGNMENT

All sales as evidenced by the Company's acknowledgement shall be binding upon and insure to the benefit of the Purchaser and the Company and their respective heirs, successors, or assigns.

LATTNER BOILER COMPANY
Cedar Rapids, IA USA

TC06